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Agent 001 shops for gaming peripherals

Wii Max vs. 3G: which one is better?



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February 2009

# BEAT THE RECESSION



-HOW SOHO'S CAN SAVE MONEY  
-BUYING SECOND HAND PC'S FOR SOHO'S

# digit

YOUR TECHNOLOGY NAVIGATOR

HANDS-ON

INSIDE



Microsoft  
**Windows 7**

Intel's iCORE  
Architecture

REVIEWED

## STREET FIGHTER 4

+ MK vs DC

TESTED  
NETBOOKS

Entry-level +  
CELLPHONES

# THE GAMING ISSUE

## WHAT'S HOT IN 2009

STATE OF THE  
**INDIAN GAMING**  
INDUSTRY

READERSURVEY

TELL US  
WHAT YOU  
**THINK!**



TO WIN FANTASTIC PRIZES TURN TO PAGE 78



# Editorial

## Shame on you

FOR OUR SECURITY special last month, we decided to conduct a little social experiment. We added in a little box on page 45 called “A forward you should ignore”, which basically told you that there was a way that you could get Gmail passwords of other people.

There are several reasons why this experiment should have failed:

1. The title of the box seemed descriptive enough.
2. The article it appeared in was about “social engineering”.
3. The entire magazine was centered around “Security”.
4. It was in *Digit*, and our readers are supposed to be “tech gurus”.

As of last count, over 1,100 people had happily parted with their own password, to try and get into someone else’s account — with the number increasing on a daily basis, this is hardly a failed experiment.

So here I am, sitting with over 1000 passwords, and potential access to a lot of your personal information. Although I’m not voyeuristic (and am not going to access your mail), all those of you who have sent me your passwords, are certainly quite the opposite.

Since I had to put your passwords to some good use, I decided to do a little data mining...

The very first trend that emerged, was that most of the respondents were male, and looking for passwords of females — so basically, a bunch of voyeurs, or stalkers. We even got a few dozen women looking for passwords of male friends, so apparently stalking isn’t gender-specific. It’s also quite apparent that no one really cares that hacking someone else’s email account is illegal — fines, jail terms, that kind of illegal.

It’s not just about snooping either; I found that most of you use really poor passwords. Simple keyboard combinations like “qwerty”, “123456” and “abcdefghijklmnopqrstuvwxyz” were common enough to upset me. What’s worse, a few people

were actually silly enough to put “password” as their password!

Almost all of the passwords used were under 8 characters long. Though it was quite interesting to note that a few of you were smart enough to use strong passwords — over 8 characters, with upper and lowercase letters, numbers and even punctuations — but dumb enough to fall for our little prank.

The most ridiculous trend was that between 10 and 15 per cent of you were using your mobile numbers as your passwords — so anyone who has ever called you could potentially hack into your account. Also, some people used their own names, or their postal codes.

A lot of guys out there seem to use girls’ names as their passwords, and of those, surprisingly, only about 10 per cent were looking for passwords for that same girl’s account. Interestingly, an equal amount were looking for the password to a different girl’s account — you two-timers, you know who you are.

Although fewer in number, the girls were more faithful, with most of the girls who had a boy’s name as their password, looking for that same boy’s login details — perhaps suspicious of the two-timing guys mentioned above?

Celebrity names were quite commonly used as passwords, with Aamir Khan and John Abraham being the most popular. Religious terms were also popular passwords, though being caught trying to hack another’s account is hardly ethical, let alone religious.

“Syncmaster” seems to be a popular monitor model, with enough of you using it as a password to get noticed. A few of you had “thinkdigit” as your password, and we’re flattered. One password actually read “iamaloser”.

Quite a few of you got conned by our little ruse, and tried to regain access to accounts that you had forgotten the passwords to, so we’ll be a



Robert Sovereign-Smith, Editor

“...no one really cares that hacking someone else’s email account is illegal — fines, jail terms, that kind of illegal.”

little less harsh on you, but you should realise that what you did could have lost you another account.

So what does all this tell me?

From where I sit, a lot of us Indians seem to be inquisitive — bordering on voyeuristic. Perhaps that’s why I know of women on our Thinkdigit forum who prefer to pose as men, just so they won’t get harassed. In this particular case, it doesn’t seem like the women are any less voyeuristic though.

I suppose I should be thankful that less than 1 per cent of our readership has fallen prey to this so far, but with millions of hoax mails reaching that same number on a regular basis, even a few thousand victims is cause for concern. Get your act together people — re-read our last month’s issue if necessary, but secure yourself from your own gullibility.

A handwritten signature in black ink, appearing to read 'Robert Sovereign-Smith'.

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MSI PR201		Samsung SCH F309
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## Netbook Comparison Test . 46



### Tell us what you feel about Digit

Each month, *Digit* walks through the technology maze to bring you the most relevant, and the most researched stories. If you have an opinion about anything published in *Digit*, or about technology in general, please write to [editor@thinkdigit.com](mailto:editor@thinkdigit.com)



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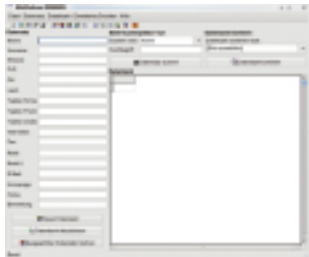
February 2009



## Linux

### OFFICE

**MolliAddress**



MolliAddress ist a professional database program, to work with addresses. The adressprogram is written in Delphi, lazarus for linux.

- Bank Tao bank statement management tool 1.1
- Bean Sheet 1.0.5

- CleanSheets
- eOfficeWare
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- DISTROS**
- Open Suse 11.1
  - Linux Mint 6

## Gaming

### GAMES

**BMW M3 Challenge**



Start the ignition to see just what the V8 high-rev engine is capable of. Shift up through the gears to propel the BMW M3 Coupé forwards as it constantly pushes the boundaries of driving pleasure even further. Brake

as you approach the first bend but keep your steering tight, you don't want to lose your advantage.

- Frets on Fire
- Gunbound
- HURRICAN

**TRAILERS**  
**Killzone 2**  
They said the morale of the Helghast was at an all-time low, they were dead wrong.

- Scorched 3D
- The Babylon Project 3.4b (Final)
- Tyrian 2000
- Ur-Quan Masters

## Tools

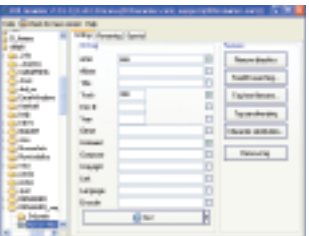
### MULTIMEDIA

**CamStudio 2.5**



This software is able to record all screen and audio activity and create industry-standard AVI video files and SWF files

### ID3 Renamer 3.0



Do you have loads of MP3 files in a directory and need to write a single common piece of information into them ? Do you need to clean some portion of the ID3 tag? Do you need to remove the diacritics? ID3 Renamer can help.

- AfreecodecVT 2.0.88
- AIMP Classic 2.50 Build 320
- Any Video Converter 2.6.7
- Audiblast
- ATI Multimedia Center 9.16
- AviDemux 2.4.3 r4532 Beta
- Camtasia Studio 6.0.1 Build 782
- DarkWave Studio 2.4
- Dizzler Beta
- DownUtube
- DVD Flick 1.3.0.4
- Evan's AVI Screen Capture 0.2.0.0
- FAVC 1.07
- GB-PVR 1.3.7
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- iTunes 8.0.2.20
- KMPlayer 2.9.4.1434 Beta
- Media Graveyard 11.0
- MediaPortal 1.0
- MP3 Repair Tool 1.5
- MPEG Streamclip 1.2 Beta 2
- MPlayer for Windows (Full Package) 2008-12-11 Build 44
- Picasa for Windows
- QuickCam 1.0
- Real Alternative 1.9.0
- Soundbase 2008.12.18
- Stoik Video Converter taks1 0.75.7 beta
- TVersion Media Server
- Virtual VCR 2.6.9
- VirtualDub
- YamiPod 1.7

### INTERNET

**Poderosa 4.1.0**

Poderosa is a tabbed terminal emulator for Windows.

- SeaMonkey 1.1.14
- 2hotspot 1.4.0.7 Beta 4
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- AllegroSurf 8.1.0.6
- BVRP Connection Manager Lite 1.0
- Dial-Up Optimiser 1.0
- FastNet99 4.3
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- Hitware Popup Killer Lite
- Hotspot Shield 1.06
- JDVoiceMail
- KidRocket
- LockJar
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- WebRipper
- WiFi SiStr 1.0.2678.17860
- WinHTTrack

- SYSTEM**
- Access Manager 2.1.58
  - Cobian Backup 9.5.0.201
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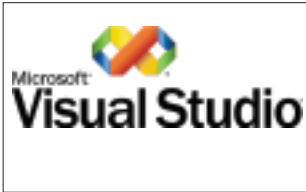
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  - .net Framework 3.5
  - µTorrent 1.8.1
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  - Comodo Internet Security Pro 3.5.55810.432
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  - K-Lite Mega Codec Pack FULL 4.2.5
  - Opera 9.6
  - Silverlight
  - Spybot Search and Destroy 1.6.0
  - VLC Player 0.9.4
  - WinRAR 3.80

- UPDATES AND ADD-ONS**
- Adobe Shockwave
  - Avast Update
  - AVG Update
  - Java runtime update
  - Kaspersky definition Update
  - Norton Internet security update
  - Spybot updates

## Productivity By Demand

### PROGRAMMING

**Visual Studio Express Edition with SP1**



The Visual Studio 2008 Express Editions DVD will let you install the following products: Visual Basic 2008 Express Edition, Visual Web Developer 2008 Express Edition, Visual C# 2008 Express Edition, Visual C++ 2008 Express Edition, Popfly, SQL Server 2005 Express Edition, SQL Server Express, SQL Server Compact Edition.

- DEV-C++ 4.9.9.2
- MPSKWIN(IQ) 1.2
- Plotter 2.5.1
- Snippet Compiler 3.0.2

### OFFICE

**Dooble**



Dooble is a Secure and Open Source Web Browser that provides solid performance, stability, and cross-platform functionality

- BillQuick Lite 2008
- Jarte 3.3
- Microsoft Office Word Viewer 2003
- SmartDraw 2009
- Static Thunderbird Backup Free 2.8d
- EScan 10

### CELLPHONE

**Nokia PC Suite 7.1.18.0 Final**



Free applications for Nokia phones that lets you edit, synchronize and back up many of your phone's files

- Nokia Synchronization 1.0.29
- Samsung PC Studio 3.2.1 GL6
- Sony Ericsson PC Suite 4.006

### MULTIMEDIA

**DAEMON Tools 4.12.4**



DAEMON Tools is an advanced application for Microsoft Windows which provides THE best optical media emulation in the industry.

- Catalencoder 1.1 (French Only) / 0.7.9
- Floola for Windows 3.2
- Foxit PDF Reader 3.0 Build 1301
- Gizmo Project for Windows 4.0.3.383
- JetPhoto Studio 4.1.0
- K-MeleonCCF ME 0.09 Final

### MAME 0.126



MAME stands for Multiple Arcade Machine Emulator. When used in conjunction with images of the original arcade game's ROM and disk data, MAME attempts to reproduce that game as faithfully as possible on a more modern general-purpose computer. MAME can currently emulate several thousand different classic arcade video games from the late 1970s through the modern era.

- Visions 1.0.1.1613
- Windows Live Photo Gallery 2009 Build 14.0.8051.1204
- XNView
- Zune Software
- Beauty Pilot 1.10
- Maya
- Xilisoft Video Cutter 1.0.27.0307

- DRIVERS**
- Ati Graphics Card Drivers
  - Creative Sound Card Drivers
  - Nvidia Graphics Card Drivers
  - Realtek Sound Card Drivers
  - Driver Detective

- DISTROS**
- Fedora 10
  - Vector Linux 6.0



## Entertainment

### HD TRAILERS

**Che**



November 26, 1956; led by Fidel Castro (Demian Bichir), a band of 80 rebels sails to Cuba. Among these young rebels is Argentine physician, Marxist, soldier, Ernesto "Che" Guevara (Benicio Del Toro).

- Coraline

### Fighting



A small-town boy with a natural talent for street fighting becomes a star brawler on the bare-knuckle circuit, but soon realizes the dark world he's entered may be impossible to escape.

- Friday the 13th
- Night at the Museum: Battle of the Smithsonian
- The Curious Case of Benjamin Button
- The Last House On the Left
- Valkyrie
- X-Men Origins: Wolverine

### MOVIES

**Death Rides a Horse**



As a child, Bill witnesses the murder of his family by four robbers. Fifteen years later, he embarks on his revenge...

- Jack and the Beanstalk
- Zeitgeist: Addendum

### MUSIC

**Galdson - Roots**



Classical piano instrumental free Music Album from Jamendo

### NIN - The Slip

Nin Inch Nail's latest DRM free album, the Slip.

- Do-Up - Acoustic Lounge
- Equals Conquest - Manifest Destiny
- Esgi - Echoes in Time
- JT Bruce - The Dreamer's Paradox
- Lull - Duo Acoustique



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### Re: which distro is well suited for study purpose? I mean for learning a Linux system.

**MetalheadGutham**  
 Genuine Linux User  
 [apple.jpg]  
 Join Date: Sep 2007  
 Location: Gotham City  
 Posts: 5,371

Learn one at a time. As for software, ALL distros have same set of software available. I suggest keeping ubuntu for some time longer and then getting fedora next year after a few months.

Keeping two distros on same PC at a time would also kill your internet connection. Lots to download if you want to keep both updated.

Linux Mint is best said as Ubuntu for the casual user. Don't consider it now that you installed Ubuntu. Its pointless now to install it. You would learn much faster with

ubuntu.

And OpenBSD is not linux. Its a BSD. Definitely not recommended at this stage. You have a long way to go before you can find OpenBSD comfortable to use. First learn Linux.

Most collages are now teaching Linux instead of Unix and most Unix commands work on Linux. However, if you are one of the unlucky few who need to learn using Unix, the only 100% Unix compatible OS which is free to use is Sun Microsystems' Solaris OS. Its not too hard to use BTW.

One of the basic things everyone needs to learn is how to compile your own kernel. Its actually much much easier than it sounds. You basically need to scroll between hundreds of options and choose add, discard or modularize. I recommend modularizing whenever possible and if some feature is SERIOUSLY USELESS then discard it. You get to optimise the kernel for several things, like support for upto 16GB RAM on 32bit OS, no. of cores, etc. Then compile using a ready-made script.

Quite a simple job, but irritates the hell out of you and needs HUGE amount of PATIENCE to read all those descriptions.

Luckily, you get to do the configuring in parts, and for a guy who lacks patience, it may take a whole week of 1 hour long sittings. But if you are a real gandhi, you can do it in a single sitting. Experts don't need to READ the descriptions so it takes them only a few minutes.

Before that, you need to set your cflags right.



Like always, the Consumer Electronics Show this year had a whole plethora of products; some were impressive and some were absolutely jaw-dropping. Well some were weird but we'll get to them later. The two noticeable trends were 'small is beautiful' and 'low-cost'; the latter being quite in line with the general economic climate. The flashy larger-than-life stuff was

there but a fair bit of emphasis was on consumer models than prototypes. We saw the lines between Netbook, Notebook and Ultra-portable blurring and hi-end camera's becoming unimaginably small. Now that the dust has settled its time for us to sieve through the chaff and give you a round up of things that caught out attention.



# Enter

## ULTRA PORTABLE NETBOOK Sony Vaio P

It's not a Netbook — and don't you forget it. Sony calls their nifty little device a Pocket Style PC. It's an ultra thin, 594 grams fully functional PC. It was one of the hottest item numbers in Vegas and we got our hand on one when we were invited for its India



Launch. The India product head for Vaio pulled a familiar stunt by pulling out the device from his jacket pocket. But believe us this is no stunt — it can comfortably slip into a coat pocket. The device is as small as a PC can get without compromising on usability. Its got a 8-inch ultra wide screen with a stunning 1600 x 768 display, and 2 gigs RAM which is more than enough to allow the preinstalled Vista OS to not choke. Initially because of its small size we were sceptical about whether one

can really use the keyboard comfortably. But Sony has engaged in some good re-engineering there; they've got rid of the touch pad and put in a ThinkPad style 'dot' to operate the cursor. The additional space created is engulfed by the keyboard, making it 92 per cent of a full size notebook keyboard. Numbers aside, it's very easy to use with both hands (unless of course you've got

sumo fingers) and the tactile feedback is good.

Why is the Netbook tag blasphemy? Sony says this is because theirs is a fully functional PC with no compromises like other Netbooks. We say it's because of the price. The two variants to be available in India will be priced around Rs. 49,990 and Rs. 64,990. The difference in both models is in the processor and the Version of Vista. The higher variant (P15) is based on the Atom Z530 1.6 GHz processor, while the lower P13 has a

Z520 1.33 GHz processor.

The P has a lot of little features added to make it even more easy to use than it already is. If boot time is a concern it launched into a Linux based Cross Media Bar within 20 seconds, which lets you access mostly everything you want including internet access, email, music, and photos. Then there is the Window arrangement utility button which quickly arranges all open windows side by side. Plus the wide screen actually lets you comfortably work on both windows. So no more alt-tabbing. Sony has also thrown in noise cancelling in-earphones and apparently the noise cancelling circuitry is in the Netbook... err... notebook itself. With a supposed battery life of 3 hours it's something that a lot of people ought to be looking forward to in 2009.

### IPHONE KILLER?

## Palm Pre

Perhaps the first real iPhone killer, the Palm Pre is being talked about as the hottest product of CES 2009. Its small, light, has an intuitive touch screen, but best of all its got a neatly tucked in sliding full qwerty keyboard! The lack of a keyboard is the most common complaint of

iPhone critics. The phone comes with a 3.1 inch multitouch display with a resolution of 320 x 480. It runs on Palm's new webOS, which from a usability standpoint appears to be top-notch. Its not at all sluggish and seamlessly floats from one ap (or 'card' as they call it) to another. Still it remains somewhat of a mystery as reportedly the palm representatives were quite cagey about handing over the phone to people for too long. Understandable, since the phone is Palm's ticket for a big comeback, after their sales plummeted drastically over the years. Overall the phone looks pretty good and the slight bend the keyboard offers will definitely help in its basic function — talking. Another area where it scores over the iPhone is the camera. Its got a 3 megapixel camera with LED flash. The touch screen has its own motion-specific commands. For instance to close an application just flick it upwards. What about independent aps? As of now there aren't any but the webOS allows development in Javascript, HTML and CSS. Other tid-bits include incredible web integration with services such as Facebook and Microsoft exchange. It follows a unique form of collecting info like mail, messages, chats, around a

## Security Watch

### Downadup worm wrecking havoc

A worm by the name of Win32.Worm.Downadup.B. is fast spreading across the net. Within four days, it infected four times the numbers of computers it was on. The rapid spread is because the worm skirts around AV software by using rarely-used APIs in the system. The worm hides in a folder in the recycle bin, and updates itself by checking upto 250 randomly generated domain names, which have components.

The safest way to prevent the spread of this particular worm is to not switch USB drives between computers. If your USB drive has a mysterious recycle bin folder, there is a good chance that you have this worm. Keep your work USB drives separate from the ones for personal use to prevent either your workplace or your home computer from being infected.

Microsoft has released a patch, but the fix itself was faulty.

The worm affects XP, Windows 2000 and Windows Server 2003. There are no workarounds as yet. The worm is spreading by exploiting multiple systemic weaknesses, including weak passwords. The worm restricts some traffic (like system updates), but is otherwise not involved in any malicious activity. The main threat at this point of time is the worm allowing computers to be used by a botnet. These can be used to send spam for example. Downadup is also known as Conficker and Kido.



'person' than a service. Currently the Pre is not available in GSM version but Palm is expected to announce a GSM/UMTS model for Europe and Asia in mid-February. We're certainly eagerly awaiting it.

### THE CLONE

## MSI X320

Why this particular notebook? Because it's the MacBook Air's twin. And a not so pricey twin at that. While the Macbook air will set you back by \$1600 this ultra thin notebook's price range is from \$800-\$1,000. Still, there is more to this ultra-thin notebook than just the price. It's not a cheap knockoff. The X320, like the Air, has an all-aluminium body. It weighs, in-fact, a little less than the Air; its LED screen is not different from the Mac Air, with a screen resolution of 1,366x768 and a 16:9 form factor. Where it differs is in the keyboard and touch pad. The keyboard does not follow the isolated style of the Air and of course there are no gesture capabilities on the touch-pad such as pinching and three finger swiping etc. Yet, some of the X320's features can actually make the Air squirm. For instance a total of three USB ports. VGA and

Ethernet ports are built in, and so are the SD slot and webcam. The hard drive is 160 GB but expandable to 250 GB. There's no internal 3G wireless, but Bluetooth and Wi-Fi are present. MSI claims the four cell battery will give you 10 hours of battery life, which will have to be put to test. But fact remains this is the closest thing to a Mac without it really being a Mac.

### THE STUDIO NOTEBOOK

## DELL XPS 16

Dell has positioned this notebook as a very high end lifestyle product, for the discerning consumer who wants style, power and a little bit of prestige that comes along with owning a pc like this. Many manufacturers are currently offering near desktop configs in portable laptops, be it 4gigs of RAM, home-theater features, and big screens. But dell has upped the ante with its stunning design and inbuilt technology, while of course keeping up with all other specs. Take the screen for instance; a 16 inch RGB LED widescreen with a 1080p resolution — perhaps a graphics professionals dream. Its bundled with a blue ray reader and an HDMI port. The XPS 16 doesn't

come cheap; you'll have to shell out Rs. 90k to own this bad boy. Good bang for the buck.

### THERE WERE OTHER PHONES TOO YOU KNOW

## Mobinnova Ice Phone

Though most of the action was going on at the Palm Pre booth, another interesting handset found on the show floor was the Mobinnova Ice. It looks quite funky with a complete black body with no visible buttons when it's off. So in effect it looks like a big black shiny box until you start operating it. Everything on the front is touch-sensitive and only lights up as needed. Its got a 3 inch 240x400 touch screen, and the control buttons next to the main screen. The phone gives a vibration feedback when you touch buttons, so you know what you've touched. It runs Windows Mobile 6.1 Professional on a 528 MHz Qualcomm 7201A processor and has your standard 3G, GPS, Wi-Fi, Bluetooth, a 3-megapixel camera, TV out, an FM radio and an accelerometer.

### THE TABLET NETBOOK

## ASUS EEE T101H and EEE T91

ASUS, who probably started the whole Netbook craze with its EEE PC, is nowhere close to being overrun by competitors in the fray. To prove this point it introduced its newest



convertible tablet PCs, the ASUS EEE T91 and the EEE T101H. Both essentially just versions of each other, one comes with 8.9-inch and while the other with a 10-inch screen respectively. Both have a hinge swivel to turn the display around and lay it back on top of the keyboard. They run a Linux-based OS, but will probably have enough juice to handle XP. Not much about the device is known but it is speculated that specifications will be somewhere close to being in the Netbook range.

#### TINY CAMERA

### Casio Exilim EX-FS10

A pint sized but powerful 9 megapixel camera with the ability to shoot up to 30fps in burst mode, a speed faster than a typical SLR. The camera is even capable of high speed video



recording with the ability to shoot up to 1,000fps slow motion video. A perfect example of gadgets going smaller without compromising on anything. The Exilim is equipped with 21 Best Shot (BS) modes, including Multi-Motion Image and High-Speed Best Selection. There's also a Pre-Record function, YouTube Capture mode and Lag Correction, which comes to the aid of those who are slow to hit the shutter button. Speaking of the shutter, the camera is extremely silent. Its got a slow motion viewing mode so you can capture the screen shot of exactly the

fame you want while viewing it on its 2.5 inch LCD. Its got additional features like 3x optical zoom, 720P HD video recording, Face Detection and High-Speed Night Scene mode but strangely lacks image stabilisation.

#### EASY TO USE

### Asus Eee Top

Its Asus again and their EEE line up seems to be getting increasingly meatier and not to mention more interesting. This latest device is a 15 inch touchscreen desktop pc. It has a special

Windows simplified interface that allows for easy touch operation and big icons for the err simple user. It also has Express Gate, which is an instant boot utility. It allows the 1.6GHz, 1GB RAM, 160GB hard drive machine to instantly boot up showing only Firefox, Adobe Flash, Skype, and a photo viewer so the user has instant access to almost all basic functions. The best part is — its slated to retail at only \$400. Good to have around the house don't u think?

#### FOR USE IN BED

### The Choix Ucool notebook pad

There's no place for a laptop in between the sheets right? But people use their notebooks just about everywhere,



including the bedroom. So often you'd be sitting in bed with your laptop on a pillow or precariously balancing it on you lap in weird kamasutra-like poses, wondering there must be a better way. Well there is. The Choiix Ucool notebook pad is designed specifically for this purpose. Available in your choice of blue, black, or green, it is an ergonomically designed pad for when you want to use your laptop in bed or on the couch. The curvy design allows for adequate airflow beneath your notebook and, at the same time, the Ucool is stiff enough to provide sufficient support.

#### THE WEIRD STUFF

## Neutrano's Wrist phone

Every tech show apparently must have a wristwatch phone. Like some sort of a James Bond fantasy that must be fulfilled. This is the kind of gadget we were referring to when we said you will find products at CES that'll make you wonder if they really are useful. Nevertheless they are hi-tech. This piece of spy inspired equipment looks like a standard chunky black watch but has a 1.4-inch, 160x128 TFT LCD touchscreen. A standard phone keypad curves halfway over the wrist band while there is a speaker over the screen. It has a media player, 4 GB of space and fm and all that kind of guy stuff but at a price tag of \$250-300, we seriously wonder if anyone will willingly pick it up. Another notable mention in this category is the LG GD910 Watch Phone.



#### A PHONE?

## A Projector?

Everything seems to be fusing with phones at CES 2009. The latest to follow the trend is the Logic Bolt. Logic Wireless the company behind the phone claims it can project a two-hour movie on a 36-64 inch screen! And from almost any source, including an Xbox or Nintendo Wii. The phone uses an LCoS (liquid crystal on silicon) projector with an LED backlight. The phone also has a 320x240 touch screen and a 3 megapixel camera. The most interesting part, apart from the projection capabilities, is the fact that it will be sold subsidized by T-Mobile for \$100. Lets make a note about this one and keep an eye on its development.



#### LETS ROCK

## Guitar Hero Platform

At the Bayou showcased a specialized wireless Guitar Hero platform that vibrates and

surrounds you with some rocking tunes out of its built-in speakers. The vibration will surely rock your world. But the only trouble is that it's a 2 square feet platform, so you can't go Ac/Dc on it — meaning if your style is to jump around all over the stage- you can't. Other than that it should be a fun device for all the wannabe guitar heroes out there.

#### BLU-RAY NOW WITHIN REACH

## VBR100

It's a Blu-ray player. So why is it being featured here? For its affordable under \$150 price tag. The player is being launched as a part of Vizio's effort to bring Blu-ray to a wider audience.

This is certainly good news, because it looks like the gap between DVD's and Blu-ray is narrowing. A lower price will even benefit Blu-ray disk sales. But coming back to the VBR 100 its low price doesn't appear to sacrifice much in the way of features.

The player provides 7.1-channel analogue output (using a 108MHz/11-bit Digital to analogue converter) and full decoding support for Dolby TrueHD, DTS-HD Master Audio, and PCM lossless audio formats as well as common audio formats including Dolby Digital, Dolby Digital Plus, and DTS. It will also function as DVD player capable of providing up to 1080p video output via its HDMI port. It doesn't look too bad either with its illuminated touch-sensitive front panel controls.

#### FROM LCD TO LED

## Samsung 8000 Series 240-Hz LED HDTV

Samsung wants to focus on LED TV as its new growth engine in 2009. So although it showcased a whole lot of home theater products at CES 09, it has put a lot of emphasis on its 8000 Series of energy-efficient, megafast-motion-capable 240Hz LED-based 1080p HDTVs. LEDs offer higher contrast ratios, slimmer designs, and lower power consumption as compared to the regular LCDs. The most interesting aspect of the 8000 series is its 240Hz technology.

The cutting-edge "Auto Motion Plus" technology promises enhanced picture quality even with lightning-fast action scenes. It will be available in 46 and 55 inch variants. Its other features include "Ultra Clear Panel" for reduced reflection and increased perceived contrast which should give u great contrast even in bright light. The screens are to include built-in Ethernet along with Wi-Fi capability so that it displays widget-based content from Yahoo, Flickr, and other Web sites can be displayed through its propriety "internet@tv" service.

#### COMPETITION FOR THE I-POD

## Samsung P3

The Samsung p3 player tries to give you something that most touch based devices



## STAT ATTACK

It's all in the numbers

AMD announces  
**\$1.4 Billion**  
losses

**3%** Global IT  
business  
predicted to fall  
by in 2009

Venture capital  
goes down to  
**\$3.4 billion**  
in 2008 from  
**11.7 billion**  
in 2007

Despite recession,  
tech-related salaries  
increased by **4.6%**  
in 2008

Job Cut counts:  
Logitech – **600**  
Autodesk – **750**  
AMD – **1100**  
Sony – **2000**  
Motorola – **4000**  
Microsoft – **5000**  
Ericsson – **5000**  
Intel – **6000**

lack. A tactile response or feedback like on a keyboard. The P3, available in 8, 16, and 32GB, features “haptic feedback” which means when you press its 3-inch TFT LCD you get a vibration response.

It's a direct competitor to iPod touch which has no such feature. The screen has a true 16:9 aspect ratio, which serves up video at 30 frames per second.

It plays and reads almost everything including MPEG4, WMV, WMA and MP3 for audio, as well as JPEG and TXT files.

It has fm and voice recording but no internet capabilities.

### NOT FOR FUN

## 3D TV

Well 3d TVs have been around for quite some time but the biggest complaint is that they require those annoying glasses. They're irritating and they make



### THE BROWSER CAM

## Sony Cyber-Shot

you look like a dork. But finally there is a 3d screen that doesn't require them. Lets define first what 3d means. It doesn't mean effects that just create only an illusion of depth like your 3d wallpapers; it means that things occasionally do jump out of the screen. But strangely Alioscopy does not plan to put the TV into the obvious entertainment application (for now). They are looking into using the technology in medical applications because you would be able to view body systems in 3 dimensions.

Currently there are very few Wi-fi enabled camera's out there and none that come with a built in browser. The G3 then is the first Wi-Fi camera with a built in web browser. Now you can access networks on the fly and start uploading pictures and video to popular sharing sites as soon as you click em. Sony's got its own “easy upload home page” set up to make the process simpler and has partnered with YouTube, Dailymotion, Picasa, and Shutterfly. Features include a slim build, a high-resolution, 3.5-inch 16:9 touchscreen (with 921,000 pixels), 4 gigabytes of built-in storage, a 4X optical zoom and 10.1 megapixel captures. Its Wi-Fi radio will be compatible with 802.11b/g networks.

## Buzzword of the MONTH

### VoFi

VoFi: VoFi stands for Voice over IP over Wi-Fi.

This means using the Wi-Fi hotspots found around major cities for making voice calls. While existing software make this easily possible, VoFi technology hopes to exploit the better sound

quality of Wi-Fi networks as compared to traditional cell phone networks. What this means for the user is a lot more of VoFi capable mobile handsets coming into the market, which can interface with both networks. Some phones, like the G1 already have this capability.





### Web 3.0

#### What is Web 3.0

The semantic web that has been talked about for so long is one of the central themes – basically the machines understand human needs better. The best way to explain this is the music portal Last.fm which throws up music artists and bands similar to the artists and bands you like.

#### Why do we need Web 3.0?

Web 1.0 was about information, where users could go online and access and download data. Web 2.0 was about production, users would create and post content. YouTube, blogging, Flickr were all web 2.0 revolutions. Web 3.0 will go a step further, where the internet can execute processes and have practical applications.

#### When will it hit us?

Not soon. Web 3.0 will be dependant on a lot of technologies reaching their maturity, which will not happen for at least another two years. The time period for Web 3.0 is expected to be 2010 to 2020.

#### Where will its weight be felt?

The biggest change in Web 3.0 content will be the audiovisual aspect. Text based web pages will give way to high definition audio and visual content. Some experts are even talking about a totally 3D web experience, a la second life. Expect a much more fluid interface to the web.

#### Which technologies are likely to be used?

Dramatic improvements will be seen in data interpretation, that is how a website is parsed or processed before being thrown up to the user.

#### How will it benefit users?

Open standards, and APIs that everyone can access are two things people are talking about. Online collaboration on projects will become a mainstay. Distribution of software and games will become easier, and cheaper. Multimedia sales may shift completely to online markets.

### NOKIA

## Bringing developers together

I believe that in two years time, many of you would be sitting on multi-million dollar fortunes earned by your ideas and innovations”, said Kenny Mathers, Head, Developer Relations, Forum Nokia addressing a packed audience at the Nokia Developers Conference 09, held at Taj Residency in Bangalore on the 20th January. The one day event was attended by over 550 people, including developers, mobile operators, industry watchers, vendors, to share their experiences and explore the future of possibilities and challenges in the world mobile market.

“Indian developers are the most valued people in the world. Their quality, output and levels of interest are amazing. They are our partners as they

add value to Nokia’s service and software experience”, says Srikanth Raju, Director and Head of Product Marketing, Forum Nokia. “The best way to predict the future is to invent it,” said Mahmood Kalantar, inviting the developers to take a Customer Oriented Approach to developing mobile applications. According to Kalantar, the future of mobile operating system is Symbian OS which is Open Source and developed not for profit by an independent foundation and its source code is available from day one. Annirudh Mathuria, Vice President, Symbian India, identified Massive Data Holding, Graphic experience, Power Management and High Speed Networking as the major challenges for technology developers today. “As the bandwidth increases, experience changes. When people start using more and more data, operators can earn greater revenue,” said Annirudh while talking about Symbian to the

audience. Titled Infinite Possibilities, the event partners NAVTEQ unveiled the LBS Challenge for developers, an online competition with over US\$5.25 million prize money, in cash and data licenses. “We have seen the evolution of mobile devices from Navigation to User Generated Content in the past 15 years. Consumers are now mature and demand more personal security and eco (-friendly) Applications,” said Tom Tierney, Head of Partner Alliances, NAVTEQ. Digit Magazine was the media partner at the event also showcased innovations by Nokia’s partner developers. These included Quillpad-a language tool, Nano Hanuman- an application for remote controlling of water pump sets, and Maverick Secure Mobile – a security application that helps protect data, track stolen devices, retrieve phonebook and disable stolen devices remotely by working in a hidden mode. ■

**ForumNOKIA DEVELOPER CONFERENCE 09, INDIA**

**INFINITE POSSIBILITIES**  
January 20th, 2009  
Trinity, Taj Residency, Bangalore

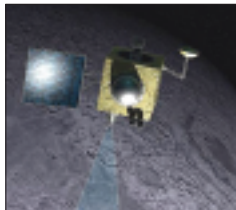
**WHAT'S IN? WHO SHOULD PARTICIPATE? AGENDA REGISTER VENUE WHY RESCHEDULED?**

**DREAM. CREATE. BENEFIT.**  
It's time to dream big. It's time to create infinite possibilities. And it is time to benefit from these possibilities – at Forum Nokia Developer Conference '09. It's a media space where real stories and original thinking are shared; where collaborations lead to innovation; where you can bond with like-minded peers and friends; create partnerships and make it big.

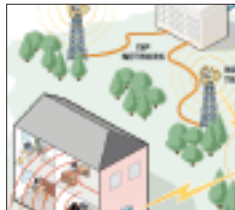
Home Fee Structure Contact Us Login Discussion Forum



**27** The Return of the King



**34** Chandrayaan



**36** 3G and WiMax

# Digital Passion

Fuelling The Pursuit Of Technology Knowledge

## Main Story

# Cleaning up the Vista

Ahmed Shaikh

**W**e hate Microsoft for Windows Vista. Here was an OS we were truly excited for — DirectX 10 accelerated, vector graphics, an all-new communications layer, tweaks and rewrites at the kernel level, a new interface — it promised all the right things. And delivered little more than a badly-implemented security feature (UAC), an Orb where the Start button used to be, a ridiculous enhancement to [Alt] + [Tab] (seriously, who uses the Flip 3D?), and a Sidebar / Gadgets feature copied from sundry, and free, programs.

If you think we're being a little too hard on Microsoft, then right you are. After all, we need to spend almost an entire month's pay to purchase Windows Vista Ultimate Edition, and all we got for it was a half-decent game (*Tinker*), a crash-happy feature (DreamScene, a desktop background utility that was promptly ripped and released for Windows XP), and a bunch of stuff we don't care about (BitLocker, language packs, sound schemes, poker)... So yeah, it's personal.

Apparently, we're not the only ones with either disdain or apathy for Windows Vista — market surveys by various organisations show that Vista's OS market share hovers around 20 per cent, as of December 2008... It's a broken OS.

## Fixing Vista

So Vista's a wash. The consumers know it, and Microsoft knows it (hence the Mojave experi-

## A first-hand experience with Windows 7 Beta

ment and the "I am a PC" advertisements). And so we have Windows 7. Microsoft's approach to this 'new' OS is clearly communicated through the Windows 7 web site — "Over the past few years, you've asked us to make some changes to Windows...", it says, "We listened closely." Windows 7, is thus, all about fixing Vista.

What are these fixes? Most of the changes can be summed up in one word — *streamlined*. Windows 7 Beta is a more refined and streamlined version of Vista. The annoying UAC is significantly less irritating now, to the point of actually being useful and not constant mothering by an overbearing OS. Windows itself makes better use of some of the structural changes introduced in Vista — Aero is much more than a shiny coat, Search is much improved, network management is a lot simpler, bootup is faster, Windows itself feels a lot more snappier, copying of data across media is no longer a chore, and moreover Windows 7 Beta introduces some welcome, and dare we say, great changes to the Windows way of getting things done.

While adding features, Windows 7 also throws away some applications otherwise bundled. Whether this is a fallout of their legal escapades, we don't know, but Messenger, Mail, and Gallery are now moved out of the Windows installation and packaged separated under the Windows Live banner. Hopefully, this will allow for greater innovation from the Live team.





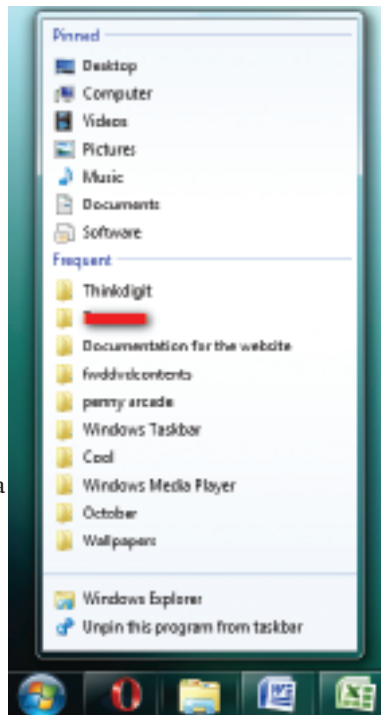
## The Taskbar

Ever since Windows 95 introduced the taskbar and the Start button, this central aspect to the Windows interface hasn't seen any substantial changes. Windows Vista, of course, replaced the rectangular "Start" area with just a spherical logo, and did little else. Windows 7 Beta takes the taskbar to an all-new level, and it does so by intelligently extending the current functionality, not by introducing drastic changes. The taskbar is now thicker, almost twice the height of the older one. It also does away with the labels for programs launched (although this behavior can be changed). Finally, it introduces several key changes to how programs on the taskbar now work:

Managing open Windows using the taskbar



1. When a program is launched, its icon appears on the taskbar. The default behavior is without labels. When you hover over an icon, Windows 7 pops-up a small snapshot of the app (called a *preview*), moving the mouse over this snapshot will show a preview of that application Window. Move the mouse away, and the OS brings you back to your currently active application. This is a great way to quickly *peek* into other windows, without leaving the current application.
2. Multiple windows of a launched program (even tabs for some supported apps) are now grouped together under the same icon in (1) above. This is similar to the grouping done by XP and Vista, but is a much more elegant solution based on how the group's elements are exposed on mouse-hover over a launched program's icon. It shows a row



Windows Explorer recent items and libraries

of translucent windows, each representing either a new document or a new tab. So let's say you have four Word files open — this feature will show you a preview of the four and let you navigate to each tab or window using the mouse. You can also minimise, maximise and close a window using just this preview, removing the need to [Alt]+[Tab] to it.

3. Any program can be pinned to the taskbar. This is similar to the Quick Launch feature of past versions — but much more useful since a pinned program can not only launch a program, but also manage windows inside that launched program. Think of pinning as evolving the taskbar to a more dock-like behaviour of OS X (or the sundry-free dock applications available for Windows).
4. The pinning behaviour, when applied to Windows Explorer, exposes another cool feature — it lists your libraries. Why this is welcome will become apparent when we talk about libraries later.
5. Right-clicking on a pinned program pops up a list of recently open / created documents under that program — called a Jump List. This is a truly great feature as you can now open frequently used documents right from the taskbar, instead of hunting for them under Explorer or looking for them under a program's menu bar. Furthermore, each recent item in Jump List can be pinned, so you can quickly access important files by pinning them down, even if it's been a while since you have opened them.
6. In some programs such as Windows Media Player, you also see control overlays. You can thus play / pause, rewind / forward music without leaving your current application.
7. Other small changes include a thin vertical bar on the extreme right of the task bar. When you hover over this bar, Windows lets you peek at your Desktop. Moving away from the bar brings you back to your current application. This is a quick method of looking at gadgets that are now shown on the desktop. The thicker taskbar also allows for both date and time to be shown, about time too...

Personally, the ability to pin a program along with the History pop-up has completely changed the way we use the Start Menu — in as much as we rarely hit the Start button anymore.

## Windows management

Some minor, but welcome changes to working with open programs: (1) You can drag open windows to the upper screen edge to maximise it. Dragging it back to the centre of the screen will restore the window (2) You can also drag a window to the left of your screen to make it fill the left half of your desktop. Ditto for the right



Maximised Window

edge. This can be used to compare and copy data across different locations by dragging them to opposite sides of your screen.

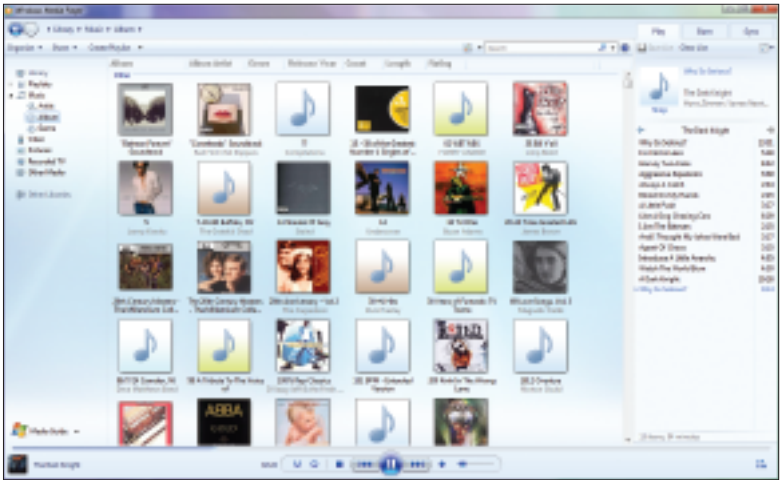
Libraries

The promise of WinFS to bring intelligence, relevance, and relation to your data was so badly needed that we were extremely disappointed when the feature was unceremoniously dropped from Vista — likely to be never heard from again. Libraries, while nowhere near a relational database, somewhat takes the sting away from losing WinFS. The concept is simple — you have similar data spread across drives, folders, partitions, etc. — so why not logically store them under a single virtual folder? Windows 7 Beta does just that and we're thankful for it. You can thus have libraries collating pictures, videos, music, documents, and create and define your own libraries to boot. It's a great way to store and access information.

When you pin Windows Explorer to the taskbar, a right-click on its icon shows you your current libraries. These can be permanently pinned as well. Thus giving you access to your entire content straight from the taskbar itself.

Another welcome addition is that the library is automatically shared across supported appli-

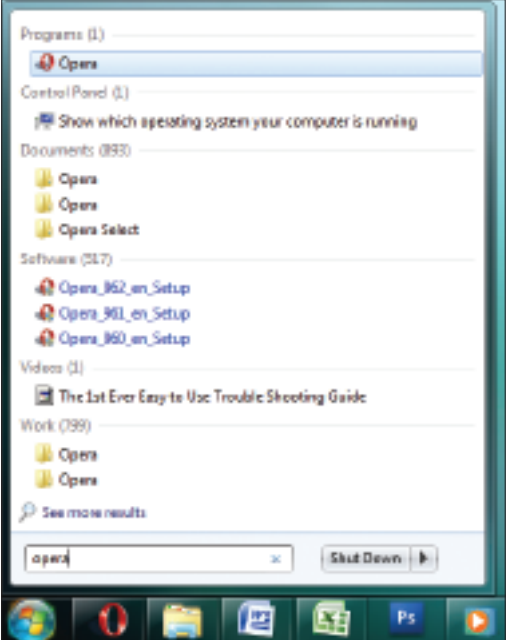
Libraries are shared across applications



cations. No longer will you need to create independent libraries of your music / videos / photographs under different programs — Winamp, Picasa, Media Player, Media Jukebox, and so on. If a program supports Libraries, it will immediately and automatically gain access to all your content. A drawback here is that there is currently no apparent way to exclude content from being listed in a library, so sensitive data also shows up with everything else.

Search

Search under this Beta is fixed in three ways: (1) it's fast, so we actually use it; (2) it takes up the

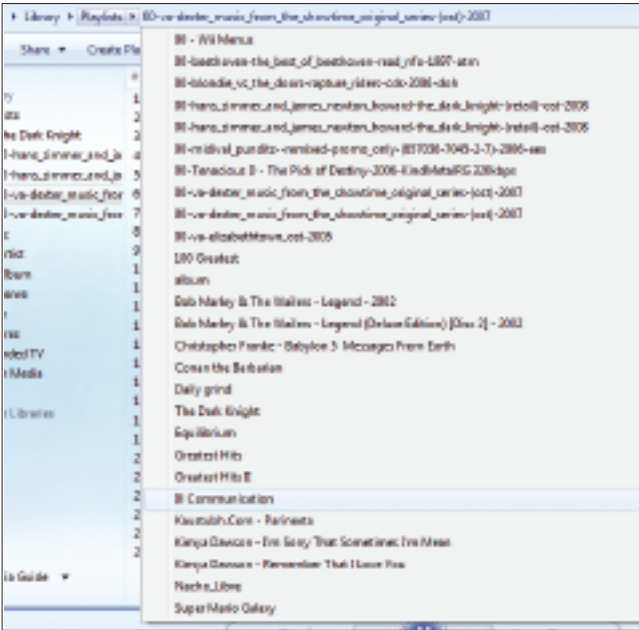


Faster search relevant results

entire Start menu width, so it doesn't look messy; (3) search results now expose pre-set filters that go a long way to refining a search query. Search in general is now much more usable.

Windows Media Player

This is a much snappier avatar of WMP. It also supports a wider range of codecs right off the bat, although not enough to throw away your favourite codec pack. While playing music or video files, WMP starts a minimal interface showing just the media and playback controls — a no-nonsense approach that is appreciated. From the 'Now Playing' view you can switch to the more traditional Library view which breaks down WMP into three panes. Left is where you navigate through your libraries. Centre is where you find a library's content, and on the right you have a task pane. The right pane offers frequent tasks — Play, Burn and Sync. It's a much cleaner interface that takes a while to get used to because old habits die hard... Notably, you can hover over a track's name in the middle



Playlists are auto populated by WMP



WMP taskbar preview

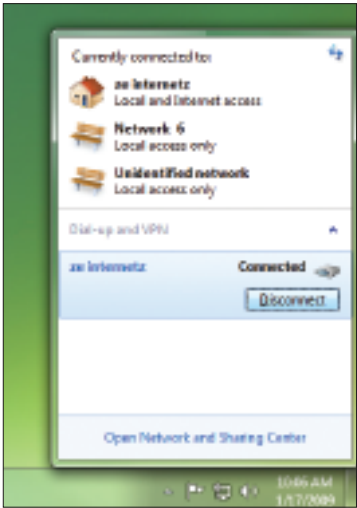
pane and WMP will play a preview of that file — only for music tracks.

Faster

Windows 7 Beta starts up faster — it also shuts down and restarts faster than our Vista Ultimate copy. Putting the Beta to sleep and waking it up is also a much faster and stable experience. This mantra of faster, extends to the entire OS as well. Aero no longer feels sluggish to use. We've had mixed results copying files across media — another common complaint with Vista. At times, this is much faster (took us an entire 120 seconds less to copy 8GB of files under Windows 7, as compared to Vista). Similarly, it feels just as slow (note that the latter is not a scientific conclusion, just a feeling). On the whole, if you were keeping away from Vista because of its speed, Windows 7 Beta promises to fix that issue.

Networking

Right off the taskbar you can manage your network connections. One click on a "network"



Above: Network and Sharing Center  
Left: Managing network connections

icon next to the volume control icon opens a pop-up. From here you can open the Network and Sharing Center, get an overview of the networks you are connected to, and connect and disconnect yourself over dial-up, VPN, or Wi-Fi. The Network and Sharing Center is also stream-

lined — letting you manage, setup, troubleshoot your networks.

New to Windows 7 Beta is the HomeGroup, which is exactly what it sounds like — you can use it to connect your home PCs together, letting you share photos, music, videos and so on. When you setup a HomeGroup, you can select the libraries and devices that you want to share. This group can be password-protected, and you can set access permissions as well. Computers must be running Windows 7 to participate in a HomeGroup.

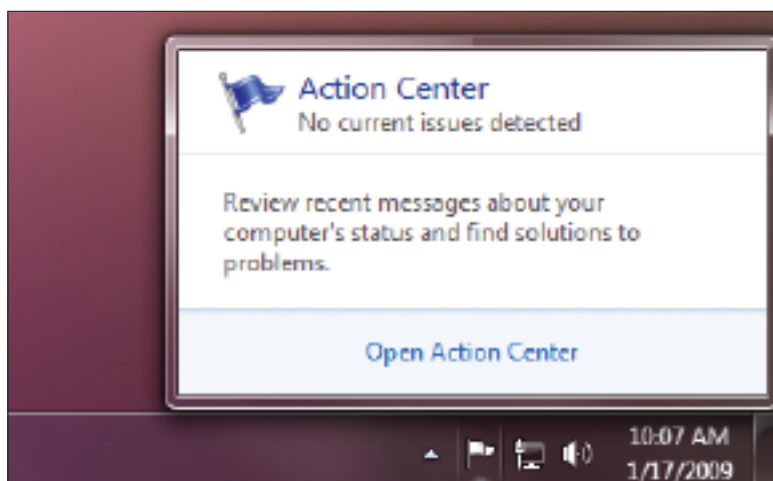
Action Center

This is where all those irritating pop-up balloons have gone to die. Good riddance too. Notifications are much more subdued under this Beta. No longer does it feel like the OS is screaming for attention every time a file stubs its toe. The Action Center is a tiny flag icon sitting next to the volume and network icons on the taskbar. From here, you can review system messages and take steps to resolve pending issues. The Center breaks info down into two categories: Security, wherein falls Firewall, Update, virus, spyware and similar settings; and Maintenance, where you can backup and restore data, and check for

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Action Center

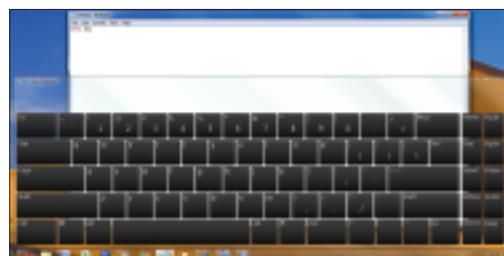
solutions to system and/or program crashes. The Action Center is also where the System Restore feature resides. Finally, we have the Troubleshooting option, which is a surprisingly useful (in that it actually solves issues, no really, it does!) list of tasks and wizards to handle everything from running a program made for previous versions of Windows to power management. It helped us run quite a few irate programs...

## Miscellany

1. Themes: Right-click on your desktop, select Personalize and you will be able to change sundry items that give your setup its identity — colour, sounds, and the screensaver. Moreover, you can select multiple images to be used as your desktop wallpaper and tell Windows to cycle through them after a specific interval. Watching your desktop change wallpapers (especially if they are cool abstracts) every 30 seconds is very cool indeed. You can also save your settings as a theme. Very nice.
2. Gadgets: We would love to tell you more about these, but no matter how hard we tried, we could not get them to work. The change in this Beta is that you now drop



Create and save a theme



On Screen Keyboard

## Get yer shortcut keys here

### New shortcuts to navigating Windows 7

Win+Home	Minimize all but the active window
Win+Space	See through to the desktop
Win+Up arrow	Maximize the active window
Win+Down arrow	Minimize/restore the active window
Win+Left/Right arrows	Dock the window to each side of the monitor
Win+Shift+Left+Right arrow	Move the window to the adjacent monitor (for dual-monitor setups).
Win+T	Focus and scroll through items on the taskbar
Win+P	Adjust presentation settings for your display
Win+(+/-)	Zoom in/out
Shift+Click a taskbar item	Open a new instance of that application

gadgets to your desktop. The irritating sidebar is gone. But every time we dropped one, it would simply disappear.

3. On-Screen keyboard. This is finally using vector images and is thus scalable. Moreover, it now offers text prediction and text completion — making it a great feature for those with weak eyes or for those too lazy to walk to their physical keyboard.

## Closing thoughts

Windows 7 Beta does all the right things. It fixes what was broken, introduces some great and useful features, runs faster, feels snappier, and is reportedly less demanding on hardware. It's everything that Windows Vista should have been. We would go as far as saying that this Beta should have been a service pack to Windows Vista (and maybe some features will indeed make it to SP2). While

this Beta generally cleans up after Vista, we would personally like to see more innovations as we head towards the retail release.

Through Windows 7, Microsoft has thought it wiser to clean the slate and release anew, rather than try and salvage Vista's tarnished reputation. That doesn't change the fact that Windows Vista users might feel cheated. But isn't that the nature of technology? Early adopters beware. If nothing else, Windows 7 seems on track to fulfilling promises made during the Longhorn era.

For that alone, we are excited to see more of Windows 7. What can we say? Some people never learn... ■

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# The Return of the King

Michael Browne

Ever since its Conroe architecture took the world by storm, Intel, the largest CPU manufacturer in the world has been on an undeniable roll. AMD has been unable to hit back with anything concrete and competition has been lean. Intel has even gone as far as promising us something new in terms of processor architecture every two years or so. In fact, many people have made much of Intel's "tick-tock" development model: each tick represents a die-shrink and each tock denotes a major architectural change. Late last year, Intel delivered the latest tock in the form of the processor code-named Nehalem; finally given the marketable moniker of Core i7, with its processor family dubbed "Bloomfield".

**Intel's i7 is the new kid in town. Sure it's fast; but it has its roots in the past. We tell you how and why...**

We tested a Nehalem processor, the i7 965 Extreme, a few months back and compared it to the (then) fastest desktop processor in the world — the Intel Core 2 Extreme QX 9770 (3.2 GHz). Needless to say, the Core i7's performance was at least 15 per cent faster, 90 per cent of the time, in both real-world tests and synthetic benchmarks. Not only was the i7 significantly faster than any AMD Phenom processor, it was also noticeably faster than the fastest quad-core Intel Yorkfield processor around. When you consider that the Core 2 architecture isn't very old and Intel has been continuously churning faster Core 2 processors, Nehalem becomes something rather special.

One of the firsts for Intel in the desktop space is that Nehalem is a *native* quad-core. Earlier, only AMD offered native quad-cores with its Phenom X4 range. Intel's quad-core processors before the i7 were basically two dual-core CPUs slapped together on a single die; a fact that has been of great interest to AMD, as it has thumbed its nose rather regularly at what it has called a Jurassic design. The market is, however, more concerned with real-world performance rather than on-paper specifications and the Core architecture is much faster than anything AMD has been able to conjure up. And now the newcomer is out with promises of even more processing grunt. Of course, AMD isn't whittling sticks either — its Phenom 2 processors have just made an entry — but they have a very tough opponent to beat.

## Scalability

Intel claims to have designed the Core i7 with scalability in mind and looking at its released block diagrams we have to agree with them. In fact everything about the i7 design is modular, and while the current Nehalem CPUs are native quad-cores we could just as easily see eight-core CPUs or even dual-cores with integrated graphics, in the future. The fact is that Nehalem is designed from the ground up to be flexible and Intel can easily add or remove cores and other components as per market needs and demands. Nehalem also resurrects an old trick — hyperthreading (HT) — which was dropped since the Pentium 4. Hyperthreading is Intel's name for simultaneous multi-threading (SMT), a process in which operations from more than one instruction thread can be processed by a single processor core.

A quad-core Nehalem CPU can, therefore, process eight threads, while an eight core Nehalem will actually process a previously unheard of 16 threads. This gives the i7 much better multi-threaded performance while keeping thermal envelopes and silicon requirements much lower than they would be, if additional cores were added instead.

Doing more with less, seems to be Intel's design motto for the i7. HT also means fewer



wasted clock cycles as each core has a much better chance of being kept busy due to the fact that each core can be fed with two threads at a time, instead of a single thread. Nehalem's cores are much faster than those in a Pentium 4, partly due to their being derived from the much faster Core architecture and also due to the much shorter execution pipeline; this means that HT on an i7 should be much more efficient than HT was on the Pentium 4 CPUs.

Intel's Penryn CPUs added support for SSE 4 and Nehalem brings with it support for SSE 4.2. The main additions with the new SSE instructions are improved XML processing support, voice-recognition, error-detection code calculation, and DNA sequencing. What we're seeing here is greater emphasis on achieving more performance per watt. While Nehalem CPUs have a higher TDP (Thermal Dissipation Point) than Penryn at 130 watts versus 95 watts, Intel claims that the performance hike is more than proportionate to the increased power requirement, or at worst, equal to it. In fact the Nehalem is designed on the Atom processor ethos: that is to maintain a 2:1 ratio for increments in performance and power consumption figures at all times.

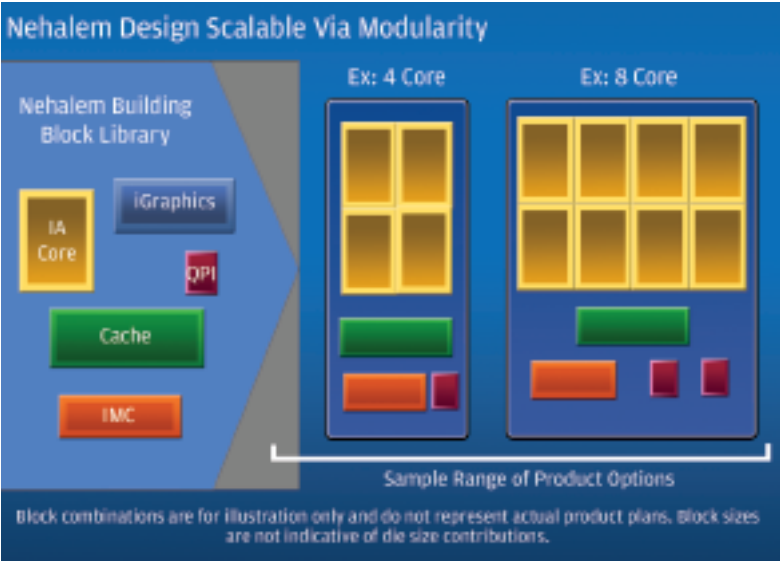
Nehalem is a native quad-core with four cores sitting on a single die. Unlike previous quad-cores, wherein two cores shared an L2 cache, i7 offers each core discrete L1 and L2 caches, with an L3 cache in common. The Core i7 is made from a budget of 731 million transistors. In comparison, Yorkfield needed 820 million transistors. The die size of Nehalem is larger though; increasing from 214 mm<sup>2</sup> to 263 mm<sup>2</sup>. That's fewer transistors and reduced density, which should bring thermal benefits. Nehalem has the same L1 cache as previous Yorkfield CPUs: a 32 KB instruction cache and 32 KB data cache per core, but the L2 cache is significantly smaller. Each core in a quad-core Nehalem CPU gets only 256 KB (1 MB in total), while Yorkfield CPUs had as much as 3 MB of L2 cache per core. There is a single 8 MB of L3 cache to which all cores have access.

Copycat?

Now why did Intel make a high-end CPU with a fraction of the L2 cache? And why introduce an L3 cache which we know is slower than any L2 cache? The answer is one of the most radical architectural differences between Core i7 and Core 2—the inclusion of an on-die memory controller or integrated memory controller (IMC). Gone is the

Nehalem vs. Penryn: cache and memory		
	Nehalem	Penryn (Yorkfield)
L1 Size / L1 Latency	64 KB / 4 cycles	64 KB / 3 cycles
L2 Size / L2 Latency	256 KB / 11 cycles	12 MB / 15 cycles
L3 Size / L3 Latency	8 MB / 39 cycles	NA
Main Memory Latency *	107 cycles (33.4 nano sec)	160 cycles / 50.3 nano sec

\* Using DDR3 1600 MHz (CAS Latency 7)



memory controller on the Northbridge. This is where AMD fans will scream “copycat”. That’s not all. Gone is the ancient, bi-directional Front-Side Bus (FSB) in favour of what Intel calls “QuickPath Interconnect”, which is equivalent to AMDs Hyper Transport with a few differences. Intel had pretty much reached the upper limits of what it could do with its FSB and with FSB frequencies approaching 1,600 MHz, even faster memory could not alleviate the problem of keeping the CPU fed with data from memory. In fact, it is the IMC that resulted in the changed cache sizes on Nehalem, and not the other way around. Industry experts have rightly criticised Intel for hiding the huge memory latencies associated with having an FSB-based interconnect between CPU and RAM by adopting the brute force approach — increasing the processor cache to sometimes crazy levels. Obviously this is an inefficient, not to mention costly approach. Now, thanks to the IMC, Intel can make Nehalem shine with a relatively small L2 cache. Another trick is the inclusion of a new secondary Translation Look-Aside Buffer (TLB); earlier CPUs made do with a single TLB. The TLB is a CPU cache that is used by memory management hardware (like the IMC) to improve the speed of virtual address translation. Intel also copies AMD’s way of designating the specific processor regions and the Nehalem is divided into two parts termed as “core” and the rather awkward “un-core”. The core includes the physical CPU cores and L1 and L2 caches while the un-core consists of everything else on the chip, including the L3 cache and IMC.

The branch prediction mechanism of the Core i7 has also seen a significant change. A second-level branch predictor with a much larger data set and a deeper history has been added to the prediction unit in all Core 2 processor cores. The deeper history in conjunction with the larger data set allows for broader

searching. Although this secondary predictor unit is slower than the primary unit, its ability to correct incorrect predictions made at the first-level and thus prevent any core overtime should more than compensate for its reduced speed of operation. Then there is a buffer called the “Renamed Returned Stack Buffer” which ensures that correct data is pulled from the processor’s stack, even in the event of an incorrect prediction. Therefore Nehalem beefs up the chances of a hit, and minimises overhead and latency in case of a miss — a huge plus, to be sure. HT together with this two-stage branch prediction should bring immense benefits when working with multiple threads. The branch prediction could also do wonders for single-threaded applications: Since each core’s resources are shared according to the workload, if two threads are pushed at a core then each of them gets one-half of the resources. If a single thread is to be executed, it gets the full attention on the core it is pushed to, giving it greater performance. While on the topic of parallelism, Nehalem can execute more in-flight micro-ops than Penryn — the count is up from 96 to 128. Micro-ops, short for micro operations, are detailed low-level instructions issued to implement complex machine instructions. So the i7 has an increase in parallelism at the instruction level as well; a serious benefit when you consider each core supports HT.

The IMC

Now a little bit on that shiny new IMC. Intel’s IMC supports three channels instead of two. So be prepared to see i7 based motherboards with six memory slots. This IMC supports only DDR3 and up to 24 GB of RAM. This is good for server configurations or workstations needing more than 8 GB of RAM. Although the IMC doesn’t support the fastest DDR3 memory, it doesn’t need to. Firstly, the theoretical bandwidth that tri-channel memory configurations offer, even at memory speeds of 1,333 MHz, is higher than a dual-channel configuration running memory clocked at 1,800 MHz. Besides greater bandwidth than all previous Intel systems, the IMC on each i7 CPU ensures that latencies will be minimal. In fact, slower memory also means tighter timings — which we’ve seen as more conducive to performance than higher memory clock speeds. All this will sound very familiar to most people following processor technology over the past five years — this is exactly what AMD told us about its memory controller — theoretical bandwidth doesn’t matter as much when using an IMC because most of the increased bandwidth gets wasted with FSB latencies. It seems Intel was listening to AMD as well. Thanks to the IMC, multi-CPU systems based on Nehalem processors will consist of a dedicated RAM pool per CPU. If

one CPU needs access to some data which is in another’s data pool the QPI link between both the CPUs will come into play. This may result in some latency, but it should not be a lot. Obviously this won’t affect desktop users with a single CPU.

One of the main talking points of the Nehalem architecture is the QPI link itself. The QPI is a point-to-point interface, so there’s no conflict of interests for bandwidth. The QPI is the means for cores to talk to each other. It also connects the CPU to the motherboard chipset and allows the CPU to talk with PCI Express, USB, and SATA components. So far all the Nehalem desktop CPUs that Intel has released have a single QPI link. Server CPUs will have two links, with the second link allowing crosstalk between CPUs in multi-socket systems. The high-end Nehalem, the i965 Extreme Edition, has a link that allows 6.4 GT per second, (GT is an acronym for giga-transfer, yet another new term!). The lower Nehalems have a QPI link that allows 4.8 GT per second. The total bandwidth offered by each QPI is 25.6 gigabits per second and each consists of two 20-bit, bi-directional links. Note that the total bandwidth of 25.6 gigabits per second is double the bandwidth avail-

Nehalem CPUs			
Model Numbers ->	i965 Extreme Edition	i940	i920
Fabrication Process	45 nm	45 nm	45 nm
Core Speed	3.2 GHz	2.93 GHz	2.66 GHz
Socket	LGA 1366	LGA 1366	LGA 1366
L2 Cache Size	256 KB x 4	256 KB x 4	256 KB x 4
L3 Cache Size	8 MB	8 MB	8 MB
QPI Speed (giga-transfers per sec)	6.4	4.8	4.8
Effective Multiplier	24	22	20
TDP	130 watts	130 watts	130 watts

able on the 1,600 MHz FSB of Intel’s X48 chipset. In a truly modular fashion, Intel can add more QPI’s to a Nehalem CPU if the need arises.

The clock speed of all Nehalem CPUs is a derivative of the base QPI clock which is 133 MHz. This is much lower than the FSB speeds of previous CPUs from Intel; where the base FSB clock was 333 MHz, or even 400 MHz. Therefore all Nehalem CPUs have much higher multipliers. The L3 cache and the IMC operate on a difference clock called the un-core clock. This figure is 20X the base QPI clock i.e. 2.66 GHz. This is similar to AMD’s Phenom design where multiple clocks are used for different parts. In terms of power-management Nehalem differs as well: While Phenom allows each core to request different clock speeds, incidentally the reason why one needs to install the AMD Cool’n’Quiet driver; the Nehalem attempts to run all cores at the same clock speed at all times. The only exception being when Turbo Mode (see below) is enabled. In other words, if a particular core

isn't being used it's simply power gated and effectively turned off.

### Turbo mode

Talking about multipliers brings around the inevitable topic of overclocking. A decade back, just the mention of overclocking was enough to get people at Intel all riled up. But with Nehalem, Intel is in one sense, encouraging it. The i7 supports a feature called "Turbo Mode" (TM). A processor will be rated to operate within certain constraints — a maximum temperature, current and power consumption. If Turbo Boost is enabled, and if the processor's on-die Power Control Unit, which monitors the thermal condition and power usage of the cores, indicates that it is running within these constraints, one or more cores will start to operate at higher clock speeds, enabling higher performance for the threads they are executing.

When cores are clocked-up in this way, steps of 133.33 MHz are used — the base frequency mentioned earlier. When this increase in clock speed occurs will depend on the conditions inside the machine, most particularly the cooling system. The more efficient the cooling, the more likely that clock speeds will increase. The most likely situation for Turbo Boost to be effective will be when a single- or dual-threaded compute intensive application is running, with little demand on the other cores. In that case, the core running the main thread is very likely to be clocked up, with the other cores not running, thereby reducing power consumption and heat dissipation.

This feature addresses the one criticism of multi-core processors: that not all compute intensive applications have the inherent parallelism that can benefit from multiple cores, and that such processors give no performance improvement for single-threaded applications. With Turbo Boost enabled, such an application can gain extra performance through the increased clock speed of the core on which it is running. This is perhaps the most important feature expressing the scalability that Intel claims to have built into this new architecture.

### Cheap thrills

At the outset, it's evident that Intel adopted a very cost-centric approach to designing the i7. It clearly draws on the best points of their previous architectures and with a borrowed trick or two, manages to raise the performance bar considerably. Partly inspired by the Atom design, the i7 has a very low die-area cost. We found Nehalem to be around 20 per cent faster than its predecessor and all this on a new platform that is bound to see optimisations and further performance increments. The LGA 1366 should be a good system to invest in for those looking at a powerful desktop processor; yet the costs related to purchasing a



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day at Digit?

Turn to  
**Page 78**  
and plan your  
all expense  
paid trip!

new motherboard coupled with the high prices of DDR3 means Nehalem may find few takers in price sensitive markets (such as India). As of now, the X58 platform is the only one available, although NVIDIA has obtained the necessary license from Intel and we could see NVIDIA boards supporting i7 soon. Intel also claims that future eight-core Nehalems will also be designed for socket 1366; this is serious longevity for the platform although whether it keep its promise remains to be seen. The mess of platforms for different processors in the Pentium 4 / Pentium D era is all too fresh in our minds — we hope the 1366-pin socket stays awhile; else early adopters will surely have sufficient grounds for complain.

### Parallelism

It seems Intel deliberately chose features that would ensure it excels in the server domain — which has, by far, been its Achilles' Heel over the past two years. In fact, a number of tricks under Nehalem's 45nm hood won't even be noticed unless the i7 is used in multi-socket servers. Most of these tricks involve parallelism and of course more effective caches and prediction systems. Developers for desktops need to get cracking on getting their applications more and more multi-threaded because this is where the i7 will shine and future processors will follow suit. Regardless of intent, the i7 offers a nice performance boost across applications in the desktop space as well. Gaming, 3D rendering, and video encoding are the three biggest beneficiaries. In fact it even delivers improved performance on a core-to-core basis — so Intel has another architectural winner.

Just when we thought it couldn't get much better Intel throws us a few more delightful surprises. Eight-core Nehalems could reach markets by the end of 2009. We've also heard that Intel plans to introduce a new Bloomfield-derivative family named "Lynnfield". Identical to i7; these CPUs sacrifice the QPI for a more traditional DMI and also forego tri-channel DDR3 for a dual-channel setup. These CPUs will utilise a 1156-pin socket and here's the killer — there's an on-package PCI Express controller that supports 16 PCI Express lanes. Yes, the PCIe lanes are on the CPU itself! These 16 lanes can be used as a single x16 connect or two x8 connects. Intel has also discussed "Havendale" which is a dual-core variant with 4 MB of L3 cache. These CPUs will be the first Intel CPUs to have a graphics core integrated as part of the CPU package. It also has the 16 lane PCI Express controller from Lynnfield, but it cannot be run as two X8 connects. Of course, Lynnfield is still a good four months or so from market; while Havendale won't debut till 2010. The only thing better than living in interesting times is the knowledge that the best is yet to come! ■

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## Polaroid PoGo

The Polaroid is back, with a whole new digital avatar of its famous instant-print cameras. The Polaroid PoGo churns out borderless 2x3 inch 300 dpi photos in under a minute. There is something mysterious about this little gadget, as it claims to print these photos without ink, using some zero-ink technology called zink. Anyone would have been happy to call this a done deal at \$100 (Rs. 4,916), but wait, there is more magic in this little thing. It can also interface to your digital cameras through a USB 2.0 interface AND print from your phone as long as your phone has good Bluetooth.



## PS3 WarBeast

So you really like games like Guitar Hero or Frets on Fire. You also don't want to be seen dead with those lame plastic excuses for guitars that PS3 and PS2 players normally use. What you need is the big mean real size WarBeast Guitar by DreamGear. You might get a good deal on Amazon.com where we saw a couple of used WarBeasts disappear before our eyes. If you don't get your hands on one of those, a brand new one will set you back by a mere US \$100 (Rs. 4,916).

## TokyoFlash Tenmetsu

The innovative people at TokyoFlash never seem to stop in their ruthless campaign to design outrageous watches. We are not complaining. The Kisai Tenmetsu tells you both the time and the date, by showing LED lights in three different colours on a 2x4 array. How it manages to do this is anybody's guess, but if you really want your watch to ooze of individuality, this is something just for you. The Tenmetsu costs \$ 255 (Rs. 12,469).



## Cloud Black

Square-Enix is going to release a numbered, limited edition version of the Sony PS3. The Final Fantasy VII themed PS3 is called the "Cloud Black" by the makers and will be accompanied with the Final Fantasy VII: Advent Children Blu-ray disc. The set is so exclusive that you will have to figure out a way to get it from Japan, the only place where it is releasing (considering the horde of religious Final Fantasy fans there). The set will retail for US \$550 (Rs. 27,042).

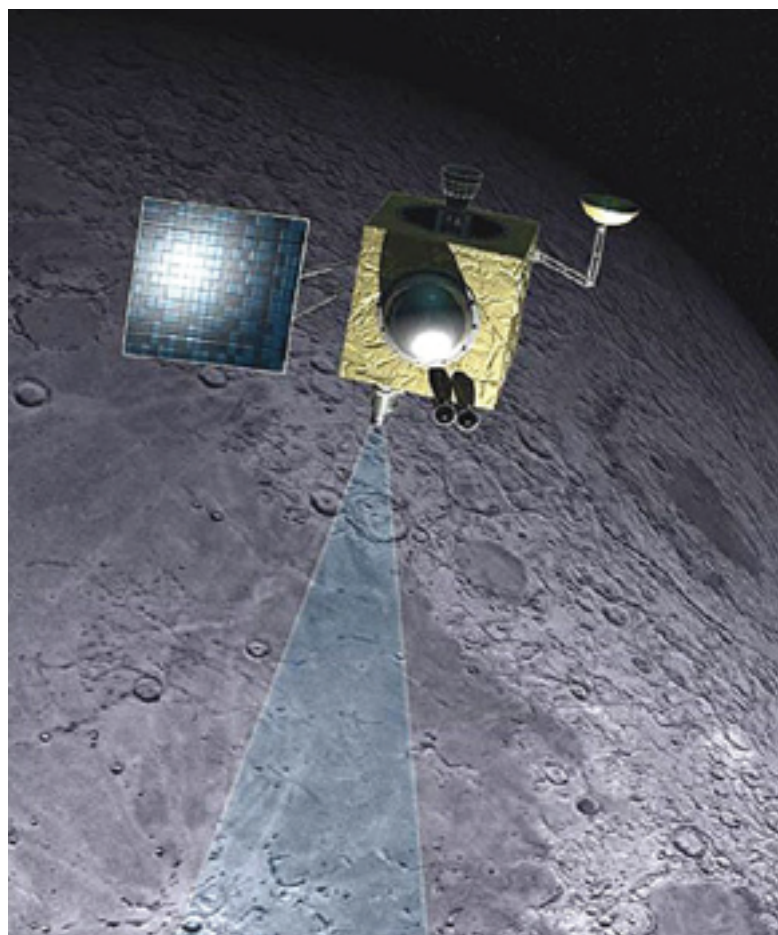


## Sennheiser HD 800

The German company has introduced a new set of headphones that is fast becoming the new reference standard. With a frequency range of 6 to 51,000 Hz, and oxygen free cabling, the headphones are made to please you with outstanding acoustic sensations. The materials used are exquisite, like Japanese Alcantara for the ear pads. The headphones sport some innovative new patented engineering, including a new type of transducer and a ring shape to eliminate unwanted vibrations. The headphones cost \$1400 (Rs. 68,668).



# Chandrayaan



Siddharth Parwatay

**C**handrayaan-I, India's first mission to the moon was launched on October 22nd, 2008. At the time of going to press, the mission has seen no major glitches and has been near flawless, and we hope it stays that way. It has already beamed back to earth around 40,000 postcard-size high-definition images of the moon. Soon, some 70 scientists from across the globe are expected to pour over these images to unravel the mysteries of the moon.

Overall, the mission had three objectives. The primary objectives of the mission are to expand the scientific knowledge about the origin and evolution of moon, upgrade India's technological capabilities, and provide challenging opportunities to young scientists working in the planetary sciences. These objectives are to be achieved through high resolution remote sensing of the moon

in the visible, near-infrared, microwave and X-ray regions of the electromagnetic spectrum. With this, preparation of a 3D atlas and chemical mapping of entire lunar surface is being carried out. Some really fancy equipment like the Terrain Mapping Camera (TMC), Lunar Laser Ranging Instrument (LLRI), and some other spectral and X-ray imaging instruments were loaded on to the Chandrayaan.

The mission has certainly achieved some remarkable feats. The first one that comes to mind is more economic than scientific. The entire mission was pulled off in a comparatively humble budget of Rs 386 crores. Great! But some questions remain unanswered — why would you want to go to the moon in the first place? Didn't the space race die out with the Cold War? Agreed, the innate human desire for exploration is undeniable, but there have to be some real tangible benefits. Well we decided to find out through a one-on-one round with the scientists at ISRO. And while we were at it, we bombarded them with a host of other questions regarding the technology used, breakthroughs achieved, and future plans.

*Digit: What were the motives behind the mission? Why would we need a detailed topographic mapping of the moon, and why analyse the lunar surface for mineral deposits?*

ISRO: The primary objectives of Chandrayaan-I are: i) upgrade India's technological capabilities, ii) expand scientific knowledge about the moon, iii) provide challenging opportunities for planetary research to the younger generation of Indian scientists. Outer space will be the next frontier of exploration for mankind. The Moon will form an intermediate base for undertaking exploration of outer space. There is a need to identify the presence of water to support astronauts undertaking deep space flights, and for using water by breaking up into hydrogen and oxygen as a possible source of propellant for future missions. There is also a need to exploit minerals and chemicals available on the lunar surface. Preparation of a detailed topographic map is essential to understand different terrains of the Moon. Chandrayaan-I also aims to look at the presence of Helium 3 on the lunar surface, which can be used as a fuel in nuclear reactors that can be useful in solving the power requirements on Earth.

**India is only the fourth country to have its flag on the lunar surface!**

*Digit: What were the kind of mission-specific requirements that were factored in designing the Terrain Mapping Camera? What is the image resolution of on-board cameras like the TMC?*

ISRO: The aim of the Terrain Mapping Camera is to completely map the topography of the moon. The camera works in the visible region of the electromagnetic spectrum and captures black-and-white stereo images. It scans a strip of lunar surface which is 20 km wide with a resolution of 5 m. Such high-resolution imaging helps in better understanding of the lunar evolution process, as well as in the detailed study of the regions of scientific interest. When used in conjunction with data from Lunar Laser Ranging Instruments (LLRI), it can help in better understanding of the lunar gravitational fields as well.

*Digit: How was the mission accomplished on such a low budget?*

ISRO: The total budget for Chandrayaan-1 project was Rs 386 crores, out of which about Rs 100 crores was spent on the Deep Space Network, which has 32-m and 18-m antennas which can be used for Chandrayaan-I as well as future missions. The Chandrayaan-I mission was accomplished within the budget by optimal utilisation of human resources, infrastructure and good planning.

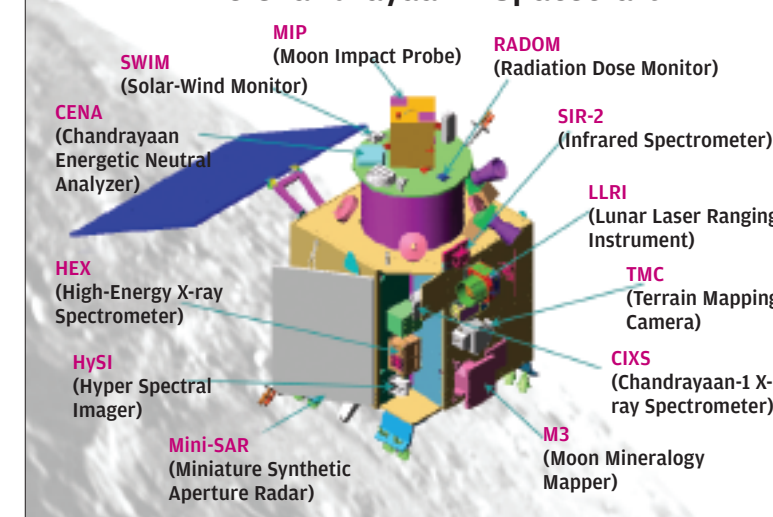
*Digit: What exactly is the Indian Deep Space Network (IDSN)? How does it counter any time delays?*

ISRO: The Indian Deep Space Network performs the important task of receiving radio signals transmitted by Chandrayaan-I spacecraft that become incredibly feeble by the time they reach the Earth. Besides, it can send commands to the spacecraft at a power level of up to 20 KW. The IDSN consists of two large parabolic antennas, one with an 18-m, and the other 32-m diameter at Byalalu, situated about 35 km from Bangalore. Of these, the 32-m antenna with its 'seven mirror beam waveguide system' was indigenously designed, developed, built, installed, tested and qualified. The 18-m antenna can support the Chandrayaan-I lunar mission, while the 32-m antenna can support any spacecraft mission deeper into space.

*Digit: How would the Indian space programme compare to NASA in terms of technology?*

ISRO: India is on par with the best in the world in the area of satellite technology. India has the largest constellation of remote sensing and communication satellites in the Asia-Pacific region in civilian sector. ISRO is considered a leader in the application of space technology for the benefit of mankind and national development. The social applications such as tele-medicine and tele-education conceived by ISRO and the setting up of village resource centres,

## The Chandrayaan-1 Spacecraft



remote sensing services and communication satellites has drawn the attention the world.

*Digit: What kind of future surface missions can we expect post Chandrayaan-I? Is Chandrayaan the first step in setting up a future moon base? Is a mission to Mars on the cards?*

ISRO: Following Chandrayaan-I, ISRO has plans to launch Chandrayaan-II around 2011-12, carrying a lander and rover to collect samples on the lunar surface and analyse the chemical composition of the lunar soil. Studies have been initiated for undertaking an unmanned mission to Mars.

*Digit: What is the significance of India being one of four countries to have its flag on the moon?*

ISRO: When the Moon Impact Probe (MIP) with Indian tricolor painted on its surface impacted the lunar soil, India became the fourth country to land a man-made object on the lunar surface. This is a significant achievement as the mission involved travelling a distance of 400,000 kilometres performing crucial manoeuvres to place the satellite in lunar orbit and impacting lunar soil at predetermined place with great accuracy.

## Concluding thoughts

Although we were quite eager to know some details regarding the computer technology used in the mission, such as processor, computing power, AI (if any), unfortunately, ISRO was pretty tight-lipped.

We're assuming that this may be sensitive information, or just national trade secrets, which we obviously do not want to share with the world. Stay tuned to this space, and we will try and get continued updates about Chandrayaan, and future missions, as our nations flag is carried proudly into outer space. ■

siddharth.parwatay@thinkdigit.com



You can't take a trip to the moon just yet, but you can see a few stars on your way to our Mumbai office. Details on Page 78



# 3G and WiMAX

Nishant Raman

India has seen rapid technological growth in recent times, especially in the areas of information technology and communication. Telecommunication has led the charge in the area of consumer technology with rapid penetration of mobile telephony amongst the masses. India is already one of the largest consumers of mobile phones, with an average nine million users being added every month. The telecom tariff rates offered in India are among the lowest in the world.

3G and WiMAX are the latest inclusions to the mobile and internet communication fold, promising to take user-experience to a higher level through interactivity, greater convenience, improved access, and quality of services offered. This article aims to capture the essence of these two technologies, analyze their impact on communication, and to conduct a comparative assessment of relevance, and hence acceptability, of the two to the masses.

## 3G

### Launch of 3G in India

Doors are opening for the launch of the much awaited 3G service in India. The introduction

Table 1				
Frequency band	Availability	Freq block size	Uplink frequency	Downlink frequency
2.1 GHz 3	Available	2 x 5 MHz	1920-1980 MHz	2110-2170 MHz
450 MHz 4	Proposed	2 x 1.25 MHz	Undecided	Undecided
800 MHz	Proposed	2 x 1.25 MHz	Undecided	Undecided
1900 MHz	Proposed	2 x 1.25 MHz	1900-1910 MHz	1980-1990 MHz

High speed mobile connectivity is coming to India

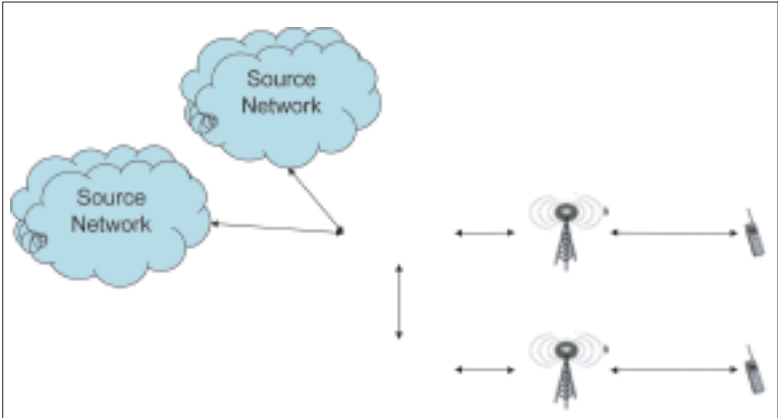
of advanced telecommunication services was proposed in the tenth five year plan, paving the way for funding and resource allocation for 3G services in the annual budget of the Department of Telecommunication (DoT). The electronic auctioning of the 3G spectrum is planned to take place in two phases on 16th January and 19th February, according to a DoT directive. This fresh initiative should pave the way for a wide range of products and mobile services being made available to the Indian consumer. 3G will facilitate high-speed internet access through mobile phones and provide mobility to a large number of services such as video conferencing, gaming, and large downloads.

Currently, the 2.1 GHz band is to be auctioned for launching 3G services in India. License winners are expected to roll out 3G services in 90 per cent of metro areas and 50 per cent in other areas given to them (with a minimum 15 per cent rural coverage). This coverage is expected by the end of the fifth year, after spectrum allocation.

The 450 MHz band is currently being utilized for radio communication, while the 800 and 1,900 MHz bands are used for military communication purposes. They will be auctioned when they become free.

### What is 3G?

“Third Generation wireless telecommunication technology”, or 3G, is an advanced radio communication technology which provides a marriage of high-speed internet access and high-quality mobile telephony. The technology enables simultaneous voice and non-voice data transfer.



The Generation Gap: 3G versus its siblings				
Generation	Switching technology	Data type	Period of launch	Standards
1G	Circuit switching	Analog	1980	AMPS
2G	Circuit switching	Digital	Early 90s	"TDMA, CDMA, GSM"
2.5G	Circuit switched for access network & packet switched for core network	High speed digital	Early 21st century	"GPRS, EDGE, 1xRTT"
3G	Packet switched	Digital broadband	2003	"WCDMA, CDMA-2000"

1-G technology involves the use of analogue radio signals for communication. Voice data is modulated to a high frequency (usually beyond 150 MHz) for transmission. Information transfer between telephone towers takes place in the form of digital signals.

2-G differs from 1-G in the use of digital voice signals for communication. The analogue voice data is encoded into digital signals for transmission.

Differences between the three technologies		
<b>1G</b> 1G technology was the starting block in mobile telephony offering quality voice service	<b>2G</b> 2G technology brought in energy efficient digital communication systems facilitating smaller handsets and price reduction	<b>3G</b> "Launched in 2001, the 3G services have brought in high quality service and substantial user convenience, but involve considerable investment in technology for service providers"
Analogue voice service	Digital encryption of conversation	High speed internet on phones
Better sound quality than 2G over long distance calls	Better data security	Video communication
No data service	Optimal spectrum utilization	Heavy data transfer services
	Start of data services like SMS	Quality and interactivity of services
	Limited e-mail access	Enhanced roaming
	Slow speed internet access	Strong network security
	14.4-43.2 kilobits/sec data transfer	144 Kbits/sec (high speed mobile) & 2 Mbits/sec (stationary mobile) 7

### How does 3G compare with the available technology?

3G is a substantial enhancement over the current 2G technology, and is capable of facilitating high-speed internet access and data transfer. Adoption of 3G in India would involve substantial improvement in the existing cell phones to be able to support 3G services. The idea of launching 2.5G services was also considered due to the difficulty of moving over from 2G to 3G. But the delay in launching advanced telecom services and launch of phones with 3G capabilities made the choice easier.

High speed digital packet switching networks are the source of the high speed offered by 3G. Compared to the traditional circuit switching technology, packet switching offers better transmission bandwidth utilisation, and hence higher data transfer rates. Additionally, advance multiplexing techniques add to network speed.

### Packet switching vs. circuit switching

**Circuit switching** involves dedicated link creation between two phones during a call leading to redundancies & high waiting time

In **packet switching** data is transmitted in the form of encrypted digital data packets through the least congested route / nodes reducing redundancy in the process

### What changes can be expected due to 3G?

The emergence of 3G is likely to act as catalyst for enhanced product and services. Creative solutions evolving around user benefits are expected to emerge.

- Quality of text, audio and video communication would improve through:
  - Technology supporting more real-time, and next to real quality communication
  - Enhanced mobility and roaming
  - High quality e-mail and internet access
- 3G would enable heavy video broadcast (video conferencing, video lectures, etc.) and virtual classrooms, video sharing, etc.) and data-intensive services (such as online monitoring/surveillance, e-commerce, online education, telemedicine, music/software/data download, online gaming, etc.)
- High-end, light, feature intensive, and easy-to-use terminals would come into the market with creative interfaces designed to suit customer preferences.

Additionally, the strong business opportunities around 3G are expected to attract a large number of players offering choice, affordability and quality to the consumer.

How has been the acceptability in other countries?

Japan was the first country to test and implement 3G. The acceptability has been good for 3G there, with internet access, gaming and music download being some of the prominent applications. The objective of launching 3G in Japan and Korea was to develop an internal communication network and hence the access charges for service providers were kept low, resulting in low 3G charges on consumers, and hence greater popularity and acceptance. 3G has done well in most countries due to its good features. It has been successfully launched and is being operated in more than 50 countries currently.

On the other hand, the financial performance of 3G operators has been poor in some regions due to high debts on service providers or high-access charges; especially in Europe. The actual performance of 3G in most places has been lower than the specified speed standards and has caused dissatisfaction among consumers, leading to lower acceptance rates for the service.

What are the major concerns involving 3G?

3G rollout in many countries has resulted in factors hindering acceptance of service among consumers and profitability of service providers; India would do well to learn from them. Additionally, we foresee certain issues the operators are likely to face in India:

- High revenue expectations from 3G services resulted in high input fee/access charges levied on service providers for 3G service licenses.
- The price of 3G mobile services (including internet access) was kept excessively high in some countries, especially Europe, reducing the attractiveness of the 3G offering.
- Heavy upfront capital investment is required for developing local infrastructure capable of supporting 3G services in any country.
- 3G phones are more expensive compared to 2G and other lower-end phones, making the switch to 3G financially unfavourable for common consumers, especially in India.
- In India a substantial proportion of the population does not require 3G voice and data services in hand-held devices; this would limit the spread of 3G in the short term.
- Health impact of electromagnetic waves would always remain a cause for concern.
- There is a general lack of awareness about 3G services even among the educated population in India. It would take time for 3G services to pick up, as has been the case globally.

What's ahead for 3G?

Organizations worldwide are involved in a race to develop the next level of wireless communi-

digit

Speaking of next generation technology, why read about it, when you can experience it when you visit our Test Center. Flip to Page 78 and find out how.

cation, and hence to grab and maintain a substantial market share. Some of the possible new areas of communication standard evolution can be:

- **Universal networking:** development of architectures and middleware that support universal networking between all communication devices leading to smooth communication and data/application transfer from one device to another.
- **Customized services:** the user would have the power over which function can be served by which device (one device acting as the central controller for all other devices the user owns, music being played on one device while video on another, etc.)
- **Higher network speeds:** with better bandwidth utilization and multiplexing technologies, network speeds are expected to go up, enabling on-the-fly data transfer from one device to another.
- **Other auxiliary services:** other features and services, such as heightened network security through Bluetooth device-based protection, identification services, information services customized to user preferences, centralized billing, etc would come up with the evolution of communication technology.
- **4G:** An upgrade over the current 3G system involving some advanced features, such as better spectrum utilization, greater network speed, more simultaneous users per cell phone, better inter-operability across heterogeneous networks, etc.

WiMAX

Launch of WiMAX in India

The stage is set for the launch of WiMAX in India with the finalisation of dates for the auction of the 2.5 / 3 GHz spectrum by the Department of Telecommunication (DoT). The 3G and WiMAX spectrums are scheduled to be auctioned during January and February 2009.

The timetable	
Date	Action
Dec 11 & 13 2008	Bidders meet
Dec 19 2008	Pre-bid conference
Dec 31 2008	Last date of submitting applications
Jan 05 2009	Pre-qualification of bidders
Jan 16 2009	First phase of auctioning
Feb 09 2009	Second phase of auctioning

In a recent announcement, the India chapter of the WiMAX Forum has made public its plans to set up an applications lab at the Indian Institute of Technology (IIT), Delhi. In view of the high business potential of the Indian market, the WiMAX community places high importance on India; this is evident from the plan to set up this lab, only

the third of its kind across the globe after USA and Taiwan.

According to the WiMAX forum, the market for WiMAX in India, which includes device and service sales, will reach \$13 billion by the year 2012. The forum pegs the number of WiMAX users by 2012 at 27.5 million, an approximate 20 per cent share of the world's total WiMAX user base at that time. According to independent research by Maravedis, a market research firm, the subscriber base for WiMAX in India is expected to reach 21 million by the year 2014.

Leading global WiMAX companies, such as Alcatel-Lucent, Motorola and Samsung, are starting their operations in India. Nokia has announced the launch of its first ever WiMAX-enabled phone which is scheduled to be launched in India.

What is WiMAX?

WiMAX, or "Worldwide Interoperability for Microwave Access", is a broadband wireless point-to-multipoint specification from the IEEE 802.16 working group, enabling wireless broadband networks with high speed. Leaps and bounds ahead of WiFi, WiMAX is designed to operate as a wireless metropolitan-area network.

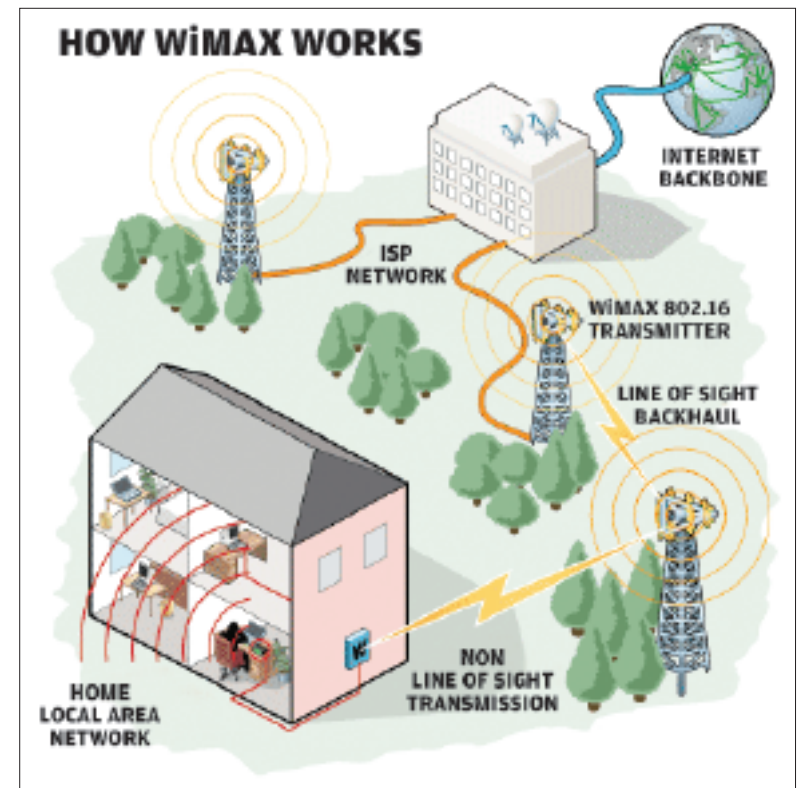
WiMAX promises faster and superior performance, adaptability to various applications, advanced IP-based architecture (enabling integration of various applications with the internet) and reduced rates to consumers.

WiMAX specifications	
Parameter	Value
Range: Line-of-sight (LOS)	~50 Km
Range: Non-line-of-sight (NLOS)	~10 Km
Maximum data speed	~70 Mbps
Licensed frequency band	2-11 GHz
Un-licensed frequency band	10-66 GHz
Switching	Packet
Multiplexing	SOFDMA
Modulation	"BPSK, QPSK, 16QAM, 64QAM"

Source: <http://grouper.ieee.org/groups/802/16/>

WiMAX supports a range of modulation algorithms to facilitate the realization of optimal bandwidth in all conditions. The theoretical maximum data bandwidth of 75Mbps can be achieved with WiMAX using 64QAM 3/4 modulation (only under optimal transmission conditions).

Fixed WiMAX is limited to providing wireless network access to fixed devices, a limitation eradicated by mobile WiMAX. WiMAX does not have the need for a direct line of sight between the source and endpoint of communication/data transfer, unlike most other wireless technologies. Mobile WiMAX supports SOFDMA



Evolution of WiMAX	
Specification	Description
802.16-2001	LOS access in 10-66 GHz spectrum
802.16c-2002	Improved QoS; support for HIPERMAN
802.16a-2003	Added 2-10 GHz to existing standards
802.16d-2004	Fixed WiMAX; supported OFDMA 256
802.16e-2005	Mobile WiMAX; enhanced OFCDMA multiplexing
802.16f-2006	Information base management
802.16g-2007	Mobility management
HIPERMAN	Equivalent of 802.16 in Europe
WiBro	Equivalent of 802.16 in Korea

(Scalable Orthogonal Frequency Division Multiple Access), an enhancement over OFDMA256 which facilitates non-line-of-sight communication. SOFDMA also brings in better throughput and minimized sound fading in multiple path scenarios.

What are the key highlights of WiMAX?

WiMAX has some important features that have attracted the attention of the whole information and communication community ranging from internet operators and mobile telecom operators to fixed line telecom service providers, and so on. The attraction of possible gains in the future has brought many technology firms into the WiMAX fold:

- **IP-based network:** WiMAX specifications are developed over IP and support IP-based applications. The need to unify various communication networks and to cut costs has inspired





Competing wireless communications technologies				
Standard	Family	Application	Multiplexing	Notes
802.16e	WiMAX	MobileInternet	SOFDMA	Quoted speeds achievable at short range; practically 10Mbps at 10Km
HIPERMAN	HIPERMAN	MobileInternet	OFDM	
WiBro	WiBro	MobileInternet	OFDM	Short range (<5km)
UMTS W-CDMA	UMTS/3GSM	Mobile phone	CDMA/FDD	Roadmap shows HSDPA up to 28.8Mbps from the base station. Users can get D/L of 400-600 Kbps and ~100Kbps uplink
HSDPA+HSUPA				
UMTS-TDD	UMTS/3GSM	Mobile Internet	CDMA/TDD	Reported speeds according to IPWireless

exit barriers for themselves. These players would find it economically unviable to shift to another technology such as WiMAX without having first gathered the fruits of their investments. But in India, with the delay in implementation of 3G, both WiMAX and 3G could start the race for market penetration on equal footing.

■ **Need:** in a country like India where the penetration of broadband and dial-up has been limited due to the weak physical infrastructure, the need for newer technologies that could reduce costs and dependence on physical infrastructure, is even greater. While 3G is a strong technology, improving mobile communication standards substantially, it still trails behind advantages such as lower cost of last mile connectivity, limited dependence on physical infrastructure, faster networks, higher data hauling capabilities, limited data fade, and enhanced mobility, offered by WiMAX.

■ **Availability of supporting applications:** In India most consumers still use phones, computers, laptops and other devices which do not support 3G or WiMAX. Due to talk of 3G being launched in India having been going on for some years, there are a number of 3G supporting phones now available in here, while the devices supporting WiMAX are yet to be launched in India. With big players such as Nokia and IMB, supporting WiMAX in a big way and their plans for launching chips and gadgets supporting WiMAX in the near future, this issue will surely be taken care of.

■ **Cost of migration for consumers:** As discussed, WiMAX is a relatively inexpensive technology being targeted for the masses by the big players. In the case of WiMAX, interfacing equipment is available helping old consumers shift to the new technology with their old hardware, and the cost for the tran-

sition is expected to be very low due to the low cost of related technology. Also, the cost of new hardware supporting WiMAX would be similar to that of their non-WiMAX versions. The same does not apply to 3G where most mobile phones supporting it are substantially expensive and require complete discard of old handsets.

#### ■ Telecom player's perspective:

● **Fixed line:** 3G is a threat for fixed line operators as it provides enhanced capabilities to the mobile operators, providing an opportunity for them to attract more consumers and take more market share away from fixed line. WiMAX provides an opportunity for fixed line players to improve their competitiveness through reduction of costs around the physical infrastructure, and improved performance capabilities by shifting to VoIP.

● **Mobile:** Mobile operators worldwide have recognized the importance of 3G, yet WiMAX would remain attractive, owing to its enhanced data transmission capabilities, providing an opportunity to offer enhanced data and communication services.

■ **Applications:** as discussed earlier, both 3G and WiMAX would support the evolution of enhanced communication products and services, but the impact of WiMAX is expected to be bigger and goes beyond cellular communication — affecting a wide range of services including cable TV, fixed line telecommunication, network data backhaul, etc.

Close scrutiny suggests that both 3G and

#### Specifications for 3G and WiMAX

Parameter	3G	WiMAX
Communication for stationary devices	Download 2 Mbps; Upload 0.15 Mbps	Download 10 Mbps; Upload 2-3 Mbps
Communication for mobile devices	Low speed 0.14 Mbps High latency (>100 ms)	High speed 2 Mbps Low latency (<100 ms)
Bandwidth	Theoretical maximum 2.4 Mbps	Theoretical maximum 70 Mbps
Security	High	High
QoS	High	High; latency as low as <10ms

WiMAX have a lot to offer to the Indian market, with WiMAX being a bit more suited to the India condition especially with the delayed deployment of 3G and weak fixed wire & broadband infrastructure. Opportunities are vast for 3G and WiMAX in India with the possibility of them co-existing as complementary technologies in the wake of strong communication and coverage needs here. It is likely that both technologies would continue to operate in India with the market being fragmented between these two new technologies and other legacy systems. ■

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**51** Cell Phone Test



**73** Bazaar



**83** Agent 001

# Digital Tools

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Feature

## Customer satisfaction



In his column in the January issue of *Digit*, Edward Henning promised that we would start covering the issue of customer service, and invited readers to write in to us at [servicewatch@thinkdigit.com](mailto:servicewatch@thinkdigit.com), with any serious and properly documented examples of bad service they had received. We have received some examples from readers, although at the time of writing most of these are still under investigation. Of course, consumer rights are protected by law, and therefore, in this article, we start by looking at the relevant legislation as well as an example problem from one of our readers.

If you have a genuine problem with a vendor, often, one of the quickest ways of getting them to take action is to make it clear that you understand the law that protects you, and you are fully prepared to make use of it.

Several years ago in the UK, I learnt that when confronted by a shop or other vendor that refused to, say, exchange a printer that didn't work properly, to say something like this: "Are you not familiar with the law, under the Sale of Goods (Implied Terms) Act, 1972?"

"I am, and so is my lawyer. Your refusal to exchange my printer contravenes that law. Are we going to do this the expensive way?" That usually does the trick nicely. So, what is the equivalent here in India? In order to find out, I went along to the Department of Consumer Affairs, and met its Director, Mr. G. N. Sreekumaran. He told me that the state of customer care in India is not up to the standards that I might have seen back in the UK, and that many companies either do not give prompt and proper response, or they do not even have customer care departments. Of course he is referring to the whole range of compa-

nies and goods and service.

The relevant legislation is the Consumer Protection Act, 1986, together with several amendments (see: [http://ncdrc.nic.in/1\\_1.html](http://ncdrc.nic.in/1_1.html)). The language used in a legislation like this makes for pretty heavy reading, and so I shall not quote from it extensively. However, one of the key points is that the consumer is protected from goods having any “fault, imperfection or shortcoming in the quality, quantity, potency, purity or standard which is required to be maintained by or under any law for the time being in force under any contract, express or implied or as is claimed by the trader in any manner whatsoever in relation to any goods”. Services are also covered.

There is also mention in the Act of protection regarding unfair trade practices, pricing and other issues, but the key point is that you are guaranteed redress, if something you purchase doesn’t meet proper expectations – even if there is no warranty or the warranty has expired. For example, in an extreme case, if

### The case of a faulty monitor

One reader contacted us after her business monitor from ViewSonic failed while still under warranty. She told us that the company took six days to visit, but were unable to fix the monitor immediately. No replacement was offered, and time dragged on. After three weeks without a working monitor, and several calls to ViewSonic, she wrote to *Digit*. We, in turn, contacted ViewSonic. The company acted very quickly, and within a couple of days our reader had a new monitor.

So, what had gone wrong, if anything? We spoke to Mr. Neeraj Verma, Customer Service Manager for ViewSonic India. He told us that one problem with this case had been the fact that the particular model of monitor concerned was “End-of-Life.” This means that the company no longer sells it, or are just selling off the last ones, and so they are running down the stock of spare parts, etc., making it difficult to repair. This is clearly true, as the replacement monitor that has been delivered to our reader is a more recent model.

The other main problem was that two components were faulty in this particular device, and this was not realised when the monitor was first inspected.

Mr. Verma told us that the company usually manages to fix customer problems within five days, sometimes in just one or two days. So, judging by ViewSonic’s own standards, this particular reader was not treated well, having been without a working monitor for over three weeks.

One point Mr. Verma made that echoed comments from the Department of Consumer Affairs was to ask that customers check their facts fully before making a complaint. Check your warranty and terms and conditions – the ViewSonic web site has some information on this – and make sure you have a valid complaint first. He said that there are a significant number of false complaints that are made, and that these slow down the process of fixing genuine ones.

In summary, this was perhaps a more difficult case than normal for ViewSonic, and the company did act quickly after we contacted them, but it seems wrong to leave a customer without a working system for so long.

you purchase a printer, and only try to use one particular function that is described in the documentation a few days after the warranty expires, and find that it fails, you have a very good case for replacement if it can be shown that this has not come about by normal wear and tear. This function may not have been mentioned when you purchased the printer, but it is common in printers and is clearly documented – it is therefore a quality which was implied when you made the purchase, to use the language as given in the quote above.

If you are faced with a situation like this, and the vendor refuses promptly either to repair or replace the goods, or give you your money back, the first thing to do is to make it clear that you are fully aware of your rights under the law, and you are quite willing to use the law to seek redress. You should, of course, make sure in the first place that you have a genuine case, by reading carefully the warranty and any terms and conditions that might apply.

If this does not work, and the vendor is not addressing your complaint properly, what should you do next? I put this question to the Department of Consumer Affairs’ Mr. Sreekumaran. He suggested that the first step should be to call the National Consumer Helpline, on 1800-11-4000.

There are basically two levels of help that you might receive. The first one concerns companies that have joined the curiously named Convergence Process with the Helpline. Currently there are about 150 such companies, and they include some names that will be familiar to *Digit* readers, such as Airtel, Reliance, Acer, BPL Sanyo, Hitachi, Lenovo, LG, Motorola, Nokia, Philips, Samsung, Sansui, Sharp, Sony and Sony Ericsson. The list from which these names have been taken is at least two months old and more have recently joined.

If a complaint comes in to the Helpline regarding one of these companies, the details are immediately sent electronically to the concerned department in the respective company. These companies have all stated that they will act promptly on the complaints they receive, and give feedback to both the aggrieved consumer and to the Helpline. If this scheme works as described, then the more companies sign up, the better. If any of you do happen to use the Helpline, do let us know results you obtain, either to the email address given above, or through the forums on [thinkdigit.com](http://thinkdigit.com).

If the company with which you have a complaint has not joined the Convergence Process, the level of help you get will vary. The helpline will do its best to help, advising you who to contact in the company and how to approach the problem.

According to Mr. Sreekumaran, with these

cases, the resolution of complaints runs at about 14 per cent, but with those companies in the Convergence Process, it is around 50 per cent. The main reason for the 50 per cent figure is that many complaints turn out not to be valid. With the 14 per cent figure, however, there are also many companies that simply do not comply. It is then that a consumer will need to turn to the courts.

The court structure that has been set up under the provisions of the Consumer Protection Act is a three-tier system, with District Forums at a local level, State Commissions at the state level, and the National Commission for the country as a whole (with the exception of Jammu and Kashmir). These courts attempt to resolve all disputes within a 90-day period. However, in practice, this usually does not work out. The company against which the complaint is made has to be given time to investigate the complaint and arrange any defence – this usually takes the process over the 90-day period.

These courts are under the umbrella of the National Consumer Disputes Redressal Commission (see: [ncdrc.nic.in](http://ncdrc.nic.in)). Action through these courts is clearly a last resort, and the government intends to set up a system of conciliation and mediation that consumers could use instead of going to the courts. This will be along the lines of the UK’s Consumer Direct Service, a government funded service for information and advice on consumer issues. That organisation’s web site states that it “will recommend a clear course of action to follow”, but, “cannot intervene directly in consumer matters, such as taking action against a trader.” I get the sense that the Indian equivalent will perhaps have a few more teeth than the UK original. Let’s hope so.

A free market is supposed to work by the law of supply and demand – notice that second word. The market can only supply what consumers demand, and if we are undemanding – not just of the products we need, but also of the quality that we expect and the service that we deserve – then we should not be surprised to receive poor treatment. So, if you are treated badly by a company, make sure your complaint is genuine, acquaint yourself properly with the law and your rights, and press your complaint vigorously; if necessary, with the help of the National Consumer Helpline.

Everybody benefits. Not just you if you end up getting your printer or ‘phone fixed, but the industry as a whole, because complaints tend to push companies to providing better products and services which in turn means that their customers are more likely to return to them and purchase more. And the offer still stands to let *Digit* know of serious problems and we will contact the company concerned on your behalf: [servicewatch@thinkdigit.com](mailto:servicewatch@thinkdigit.com). ☐

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# Prêt-à-Portable

Rossi Fernandes &  
Kumar Jhuremalani

Many would agree that notebooks or laptops were considered tools for the elite businessmen under a decade ago. That is no longer the case. Today, students carry them to school and colleges. Some even use it as their only computer because they make for a simpler purchase than a desktop PC, and a convenient one.

Price played a part in this shift of perception. Notebooks were expensive once, well beyond the reach of all but the elite businessmen that carried them; they have dropped in prices over the years. Today, you can easily purchase an entry-level laptop for less than Rs. 25,000. Still, there are a few problems with notebooks even though they are this cheap. Although they have become smaller and more powerful, power consumption also has gone up and down went their battery life. Thus most laptops that you can buy for around

Rs. 25,000 will have a battery life of about two hours. The other problem with laptops this cheap is they are heavy and painful to lug around; not exactly portable at that. While there is a solution — to opt for ultra-portable notebooks, these typically start at around Rs. 75,000 and they are often out of the reach of most of us looking for portability.

The year 2008 changed the status quo though. It saw a wave of notebooks hit our shores with the launch of the highly anticipated, low-power processors from Intel called the Atom. The Atom processor was (relatively) cheap, small and power efficient. With the first Atom processors sprouted brands that used these in their low-power notebooks. These were quickly called netbooks and they were targeted at users who wanted affordable laptops. Netbooks are so-called as they happen to be best suited for tasks of surfing the internet, along with mild office usage.

**Looking for a light notebook that won't break the bank? Then a netbook is what you need**

The first question to ask here is why anyone would want to buy a netbook. To start with, it's probably not the best thing to own as your primary computer: if you have no other PC or laptop, a netbook won't serve you best. At least not today, who knows what future processors bring to this segment... With that caveat, there are many scenarios that fit netbooks perfectly. They have long battery lives so you can get the same battery performance you would get on an expensive, power-efficient laptop. Netbooks make great second computers to own. You can carry them wherever you want. You can use them to browse the internet while sitting in the living room on the couch, watching a game of cricket on TV. Unlike most "laptops" these will actually fit in your laps and not run as hot as to burn you. For those who would like to buy a cheap PC, a netbook could be an option to consider — just remember that you will have to do without an optical drive, as well as with a very cramped keyboard.

Photo: Jiten Gandhi  
Imaging: Shrikrishna Patkar



Today, almost every brand has a netbook to offer. This is then the right time for us to do a small comparison of the netbooks available in the market. We received seven netbooks from six brands. One of the newest netbooks to come to India was the BenQ Joybook Lite U101. We weren't given a price for this yet.

## Acer Aspire One

The Acer Aspire One was one of the first netbooks to arrive in India, along with the ASUS Eee PC and the MSI Wind. This is a smaller laptop in comparison to the others. The Aspire One comes with a 9-inch screen much like the ASUS 904HA. The big difference is that the size of the Aspire is a lot smaller than the ASUS Eee PC 904HA.

When it was released, many considered the Aspire One to be the best looking netbooks and its blue-coloured avatar was proudly

Acer Aspire One



## How We Tested

Netbooks aren't meant for high-end gaming or even for power-users. Having read up and followed developments on netbooks for a while, it was expected that almost all the brands would be very close in performance, ruling out performance as the deciding factor while purchasing one. We modified our laptop comparison test sheets to better suit the netbooks. PCMark 2005 was used as the primary test for desktop application performance. We even ran an older 3DMark - 2005 on the netbooks to measure graphic subsystem performance. We also used SiSoft Sandra as a synthetic benchmark to gauge other subsystems including the memory subsystem and the hard drive.

One of the most important points we focused on was the battery life test. A video was run with the brightness of the screen and volume turned up. Some of the netbooks had built-in overclocking and battery saving features, which were all turned off for the test.

We decided to run Far Cry just to see what kind of gaming performance we could get from the netbooks. We also did a DivX video compression test and a WinRAR benchmark to measure processing power.

Scores and ratings were also given to the other features of the netbooks. We looked at screen quality, audio quality, build quality, touchpad and many other aspects of the netbooks.

exhibited in almost every mall across the country. It was this netbook that we received. This One has a glossy finish on the top and on the insides surrounding the screen. The hinge of the Aspire One houses its status LEDs and the ends of the hinge have an orange tip compliments the look and finish of the netbook.

Build quality of the Acer One is average; the outer shell feels right but the keyboards have a light feel. Pressing them doesn't require a lot of effort and the keys feel slightly wobbly.

Speaking of the keyboard, we come to perhaps the biggest negative of netbooks — being such small laptops, their keyboards accordingly shrink in size. For the Aspire One, the keys are smaller all

throughout the keyboard. The touchpad too is small with the mouse buttons positioned vertically instead of horizontally. Although getting used to the limited surface area of the touchpad is a problem for everyone, the buttons were easier to get used to over time. The touchpad is so small that you have to swipe your finger many times vertically to move the pointer from the top to the bottom of the screen. Even changing the mouse sensitivity didn't help a lot.

The audio quality is fine and fairly detailed; just not loud enough. If you think you might watch movies or TV shows on this netbook, you might need either laptop speakers or a good set of headphones. The screen isn't so great for movie watching either: viewing angles aren't forgiving and the backlight bleeding is clearly visible.

If anyone gets the impression that this isn't a good netbook, then they are mistaken. Netbooks were expected to be under Rs 20,000 before they were to be released. Manufacturing costs drove the prices over that mark

but today, Acer has informed us that the price for the Aspire One is Rs 20,000 and it differs from model to model. The pricing for it on online shopping sites when we last checked for the Aspire One with Linux was around some Rs. 14,500 and the one with Windows XP is Rs. 17,500. The Acer Aspire One in that case is good value for money.

## ASUS Eee PC 904HA and 1000H

The ASUS EeePC 1000H and the 904HA are almost identical to each other in shape and design. With their lids shut, the only real way to tell them apart is to look for the 1000H's protruding battery. The 904HA we received came with a 6600mAh battery.

The 904HA, as its name suggests, has a 9-inch screen and the 1000H, a 10-inch one. The 904HA has two thick panels on the either side of its screen which look like speakers at first but the speakers are in fact at the bottom, for both these netbooks.

ASUS Eee PC 904HA



One of the complaints laid out at the Eee PC's feet has to be about its small and narrow vents that run down the side of the netbook. This makes the Eee PC heat up a little more than the others as there isn't a lot of air ventilation within the chassis. The Eee PC netbooks also look plain and don't stand out much. The keys feel a little flimsy and the mouse buttons for the touchpad are a bit tacky as well. One of the unique features of the Eee





ASUS Eee PC 1000H

PC is its multi-touch track pad which allows you to use gestures by sliding multiple fingers simultaneously, like you would do on the new Apple devices.

The keypad is one of the most usable, of all the netbooks we tested. There are dedicated buttons for changing screen resolution, Skype, performance modes and also to turn off the screen. There is no button or shortcut to disable the touchpad though. There are some small differences between these siblings though – the webcam is a 1.3-MP on the 1000H and a 0.3-MP on the 904HA, the latter also misses out on Bluetooth.

The biggest differences between the two are their screen size and battery. We recommend the Rs. 23,990 1000H as are you aren't saving any baggage space by picking the 9-inch 904HA. On the other hand, if you value battery life above all, then the 904HA is the one to buy. That's available for Rs. 20,490.

### BenQ Joybook Lite U101

BenQ is best known for the LCD screens and optical drives but not so much for laptops in India. At first glimpse, things look very good for their new netbook. The first thing you notice about the BenQ Joybook U101 is its beautiful surface; complete with accented patterns under its blue glossy finish. It gives the netbook a unique look and makes it feel more personal.

With the lid opened, the inside of the laptop resembles the LG XNote and the Lenovo IdeaPad S10. It doesn't look a lot different from the LG and the Lenovo here. A metallic power button, two sets of LEDs, rounded edges and a rounded combined mouse button are some of things that stand out when you look at it.

The screen of the Joybook is 16:9 and runs at a resolution of 1024 x 576. This is a little less vertical workspace than the other 1024 x 600 displays.

This might be great for movie buffs but not so great when you need the most workspace available for other applications. While rest of the hardware remains the same as the other netbooks, the Joybook Lite U101 is one of the



BenQ Joybook Lite U101

only ones to give you more than a gigabyte of memory to start with. The U101 comes with 1.5 GB of RAM which can be upgraded to 2 GB. This doesn't show any drastic improvements over other netbooks in performance.

Although the performance in all tests match the other netbooks, the battery life test shows that the 3-cell Joybook Lite lasts for just over two hours. That's a bit better than 10-inch Lenovo S10 and a lot more than the LG X110.

The BenQ has nothing more to offer in terms of performance or features. A set of necessary feature and looks is what it has going for it mostly. Being a very new product, BenQ hasn't provided us a price for the Joybook Lite

U101. Still, the BenQ Joybook Lite in our opinion is a good option should the price be around the Rs. 20,000 mark.

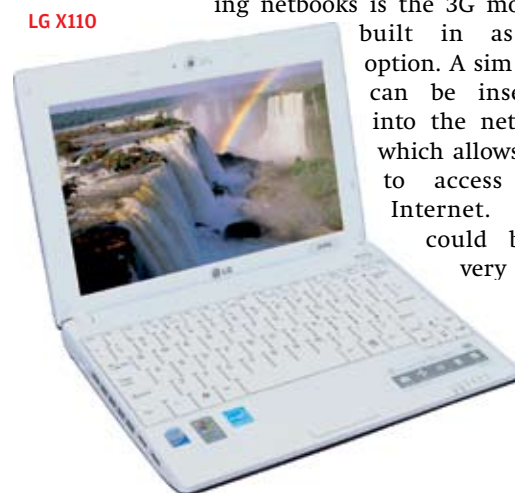
### LG X110

LG isn't very aggressive in the laptop market but their new netbook is an interesting one. The LG X110 is one of the best looking netbooks around and one which is very comparable to the Lenovo IdeaPad and the BenQ Joybook. One notable aspect of this netbook is a neat array of LEDs lining its bottom, and a glowing blue power button.

The entire look of the LG X110 makes it almost a Mac-like laptop when opened. The white is bound to get dirty over time, though. The touchpad is good and has a single piece button with two mouse buttons. The design and feel of the touchpad is great and is effortless to use. A hotkey can be used to disable the touchpad if you choose to use an external mouse instead; a welcome touch.

Its speakers are one of the weaker points of the LG X110. They are very loud but they have a very shrill treble output and don't make for good music listening. Another kink in the LG is that the netbook has a front end where you normally rest your palm that sticks up from the surface you place it on. Typing becomes a little uncomfortable this way. Some other manufacturers have chosen to bevel that edge so you can rest your palm.

A feature not seen on competing netbooks is the 3G modem built in as an option. A sim card can be inserted into the netbook which allows you to access the Internet. This could be a very useful feature



LG X110

when 3G services finally arrive in India.

The keyboard feels well built with nice, firm keys. The netbook has plenty of wide open vents at its bottom such that there is almost no heat given out off the top of the netbook. Having said that, the area underneath does get a little hot. All in all, excluding the audio quality and low battery life, the X110 is a pretty decent netbook that rivals the BenQ Joybook for looks.

### Lenovo IdeaPad S10

The Lenovo IdeaPad S10 grabs your attention with its deep-blue top and chrome-finished Lenovo badge. The beauty runs to the inside as well though, with good attention to detail in places such as the camera, for example, which has a nice chrome ring around it.

Looks aren't everything and it doesn't take too long to notice a few functionality issues with the S10. The buttons on the touchpad are hard and the Function key is placed on the extreme left of the keyboard instead of the Control key—if you are used to desktop keyboards, your hand will invariably hit Function when you wanted to reach for the Control button. This is a problem also seen on the MSI Wind.

The F12 key, although not used often, is missing from the keyboard. It is only available as a hotkey. The Tab key is also much smaller. All these reductions seem to have benefited the rest of the keyboard layout – it's spacious. The keyboard also feels sturdy with little travel to the keys.

Performance figures for this netbook were also identical to most of its competitors. A detail to note here: 3D Mark 2005 refused to run due to the as the netbook lacked the minimum of 128 MB video memory required for the benchmark. We couldn't set the video memory beyond 64 MB.

There aren't any hotspots around the notebook. The only bit of heat can be felt on the sides



Lenovo IdeaPad S10

of the unit; nothing around the touchpad, which is a good thing. There is a compact and lightweight battery on the Lenovo S10 which kept the S10 running for 1 hr 48 minutes in our tests; which is a decent time.

There are many netbooks with better battery life and these are available for a lot less than the S10. At Rs. 26,000, it's definitely expensive and is worth only looks matter the most to you.

### MSI Wind U100

The MSI Wind is a 10-inch netbook and was one of the first netbooks available in India. Back when it launched, it was one of the favourites for its design. The Wind has a rounded and bevelled motif which many users seem to prefer to the more compact and bright glossy finishes found in competing netbooks.

The build quality of the Wind is average. One of the problems is that the hinge for the LCD screen is pretty weak and wobbles at the slightest opportunity. The keyboard isn't so good either. Still, the keyboard feels a little better than the ASUS Eee PC. Much like the Lenovo S10, this netbook has the Function on the left as well, which takes getting used to. The directional keys are smaller and narrower and might not be so good for any simple games

that you might want to play on.

The screen is decent but can be a little too bright, to be of comfort. There are LEDs for almost every kind of indication that you may need to see. The audio too doesn't sound great and it tends to emphasise the highs a bit.

In terms of performance, the only place where the MSI Wind lacked power was in the drive related tests. For example, SiSoft Sandra showed a 39 MB/s drive index score whereas the others were around 50 MB/s.



MSI Wind U100

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## Netbooks

Brand Model	Acer Aspire One	ASUS Eee PC 904HA	ASUS Eee PC 1000H	BenQ Joybook Lite U101	Lenovo IdeaPad S10	LG X110	MSI Wind U100
Price (Rupees)	20,000	20,490	23,990	NA	24,490	26,000	25,000
Grand Total (Out of 100)	69.00	76.12	77.01	78.93	74.85	75.14	70.16
Features (Out of 70)	45.98	49.70	51.81	54.60	52.24	51.76	44.85
Performance (Out of 30)	23.02	26.42	25.20	24.33	22.61	23.38	25.31
<b>Features and Specifications</b>							
Processor Model No	Intel Atom N270	Intel Atom N270	Intel Atom N270	Intel Atom N270	Intel Atom N270	Intel Atom N270	Intel Atom N270
Processor Speed (MHz)	1600	1600	1600	1600	1600	1600	1600
Memory (MB) / RAM Type / Memory Speed	1 GB / DDR2 / 667	1 GB / DDR2 / 667	1 GB / DDR2 / 667	1.5 GB / DDR2 / 667	1 GB / DDR2 / 667	1 GB / DDR2 / 667	1 GB / DDR2 / 667
Chipset	Intel i945 GSE	Intel i945 GSE	Intel i945 GSE	Intel i945 GSE	Intel i945 GSE	Intel i945 GSE	Intel i945 GSE
Graphics Solution	Intel GMA 950	Intel GMA 950	Intel GMA 950	Intel GMA 950	Intel GMA 950	Intel GMA 950	Intel GMA 950
Audio Solution	Realtek ALC268	Realtek ALC662	Realtek ALC662	Realtek ALC	Realtek ALC	Realtek ALC888	Realtek ALC888
HDD Size (GB)	120	160	160	160	160	160	80
Bundled OS	XP Home	XP Home	XP Home	XP Home	XP Home	XP Home	XP Home
<b>Characteristics</b>							
Screen Size (Inches)	8.9	8.9	10.2	10.1	10.2	10	10
Weight (kg)	1.23	1.4	1.45	1.05	1.2	1.19	1.17
No of Ports (USB)	3	3	3	3	2	3	3
Connectivity (LAN/Bluetooth/WiFi)	✓ / ✗ / ✓	✓ / ✗ / ✓	✓ / ✓ / ✓	✓ / ✓ / ✓	✓ / ✓ / ✓	✓ / ✓ / ✓	✓ / ✓ / ✓
Type of Memory Cards Supported	SD / MMC / MS / MSPro	SD / MMC	SD / MMC	SD / MMC / MS / MSPro	SD / MMC	SD / MMC	SD / MMC / MS / MSPro
Build Quality (Out of 10)	6.5	7	7	8	7	7	6
Ergonomics (Out of 10)	5	8	8	7	8	7	7
<b>Performance</b>							
<b>Synthetic Scores</b>							
<b>PC Mark 2005</b>							
CPU Score	1466	1500	1497	1497	1480	1499	1501
Memory Score	2329	2442	2430	2369	2379	2402	2397
Graphics Score	NA	NA	NA	NA	524	525	NA
HDD	4271	4360	4382	4415	4425	4772	3953
Overall	NA	NA	NA	NA	1540	1535	NA
<b>SiSoft Sandra 2008 Lite</b>							
CPU Arithmetic (Dhrystone / Whetstone)	4029 / 3347	4027 / 3351	4032 / 3343	4039 / 3340	4048 / 3338	4048 / 3352	4043 / 3314
CPU Multi-Media (Integer / Floating)	29469 / 19932	29437 / 19939	29342 / 19876	29449 / 19931	29503 / 19928	29562 / 20025	29277 / 20007
HDD Index / Random Access Time	51 / 9	51 / 9	54 / 9	50 / 11	53 / 9	53 / 9	39 / 14
Memory bandwidth (Integer / Floating)	2734 / 2404	3005 / 2603	2874 / 2506	2894 / 2522	2941 / 2550	2987 / 2587	2878 / 2484
<b>3D Mark 2005</b>							
CPU Score	252	247	241	241	NA	242	244
Overall Score	1632	1622	1589	1571	NA	1632	1635
<b>Real World Tests</b>							
Audio Test Speakers (Out of 10)	5	6.5	6.5	7	6.5	5	6
WinRAR 3.8 Benchmark (kB/s)	348	356	369	353	370	366	368
FarCry (fps) (640x480, low detail)	6.71	6.68	6.49	6.98	6.92	7.03	6.78
100 MB File Conversion (min:sec)	4:27	4:09	4:25	4:27	4:23	4:23	4:22
Battery Life (hrs:mins)	1:54	4:29	3:19	2:01	1:48	1:28	3:32

The MSI Wind although a decent netbook, was expensive and difficult to get in 2008. The price is still a bit on the higher side, for what it offers.

### What should you get?

There was no clear winner, no netbook that stood out. All the netbooks had minor differences in the components used which reflected in the synthetic and real world benchmarks that we ran; but these performance differences were not big enough to come to notice.

Battery life was the only important performance figure that emerged from this shootout. Battery life takes on more importance, since one would typically use a netbook away from a power socket; more often than not.

As far as battery performance goes, there is nothing to beat the ASUS Eee PC 904HA. It is undoubtedly the best of the lot. Four and a half hours is a really long time for a notebook to be running on batteries. It also is good value for money and wins the Best Buy Award. The

MSI Wind U100 with its 6-cell battery is also worth considering if you want a 10-inch laptop. The ASUS Eee PC 1000H should be the next on the list.

If you just want a usable netbook at the cheapest price, then the Acer Aspire One is the king. We have learnt from the that you can buy the Windows XP version for around Rs. 17,500.

Of all the netbooks, the BenQ Joybook Lite U101 looked the best. So if you want something attention-grabbing, then this BenQ should be it. Its colourful back with its highlighted patterns will serve you nicely. It is also our Best Overall Performer with its great feature set, great speakers and build quality. ■

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## Contact Sheet

## Netbooks

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BenQ	BenQ India	0124-4501400	varun.singh@benq.com	www.benq.co.in
Lenovo	Lenovo India	080-22108490 / 18004252666	buy@in.lenovo.com	www.lenovo.com/in
LG	LG Electronics India	0120-2560900	salvi@lgindia.com	www.lgindia.com
MSI	MSI	18002000004	marketing@msi-in.com	www.msi-in.com

# THINKING SMALL

Cellphones aren't all about touch screens, five megapixel cameras, and a burning hole in your pocket. We showcase 16 affordable marvels

**Michael Browne**

When we think of cellphones we usually visualise a good camera, WLAN connectivity for web browsing and a touch screen for fun interfacing. The average metropolitan has seen so many high-end cellphones that some of us forget that there is a whole new world that exists apart from PDAs and smartphones – a world for those of us that need just a phone. This may seem contrary to the aspirations of a college student or even those of a rickshaw driver who might yearn to own a Nokia N96 or an Apple iPhone. But the fact remains that while these phones are indeed worthy of pursuit, not every-

body can afford to purchase one. Moreover, not everyone may even want to purchase one. There are even those people who already have a high-end uber cellphone and they need another cheaper, no-frills device mainly for making calls.

Through the following pages we address the bottom rung of the handset market. This market is dominated by CDMA (Code Division Multiple Access) handsets and a few cheaper GSM (General Subscriber Module) handsets. There are many people

Shrikishna Patkar





who just need something basic yet functional. For such people i.e. those who cannot/will not spend more than Rs 8,000 on a cellphone, we present this test.

## Cellphones up to Rs 4,000

*The minnows in a sea of sharks*

Basic cell phones may be far from flagships but they rule the volumes game. So while budget cellphones will not have features like WLAN, integrated GPS and a great camera, for every person who finds a high-end phone at least 20 more people buy an entry level handset. In fact, this segment is ultra competitive as peoples tastes change very fast. Phones like the iPhone are sought for the immeasurable sex appeal associated with the device; and a thousand reviews of the same bloom online. Demand for it remains more or less stable — people who want an iPhone



LG's RD 3600

will remain fans. But what about a Rs 3,000 device which is only solid in India and that too only with a Reliance CDMA connection? Details are sure to be scarce and reliable views and opinions about as rare as rain in a desert.

We tested a total of seven phones priced below the Rs 4,000 mark. Obviously most of these phones are CDMA handsets. CDMA is very prevalent with the lower-

end of the handset market. This is because most people go for a CDMA phone simply because Reliance and Tata (the two main CDMA service providers) provide very cheap call rates. Another factor is that the calls made within the same service providers' circle are usually free. Many people who already have a smartphone with a GSM SIM card therefore opt for a cheap CDMA handset just to make local calls, or send bulk SMSes or any similar usage scenario.

Five of the seven handsets were LG ones while Nokia and Samsung have a model each in this category.

### Features

LG provided us with four models that obviously form a stepladder in terms of their placement in their product range. The RD 3500, RD 3510, RD 3600 and RD 3610 are all in a row of ascending features, ditto pricing. The RD 3610 is the highest and the priciest model amongst the quartet. Both the RD 3500 and RD 3510 are SIM-based phones and both of these have rather plain colours and finishes. The RD 3510, especially, has a very light-grey rear —

we feel this looks plain ugly. That being said both these phones are very compact and feel rather sturdy. The RD 3510 has a diaphragm type keypad instead of the button type keypads we're used to, and quite frankly this keypad is a let down in terms of key feedback; usability suffers as a result of this. Even the menu buttons are hard and feedback is not ideal. We also feel that this keypad will not last long, as our experience with diaphragm-based keypads over the years has taught us. Another ergonomic nightmare is the fact that neither of these phones — the RD 3510 and the RD 3500 — have a middle button on the joypad. Pressing the left menu button to select an option every time you wish to activate something within the menu is just a royal pain.

Despite the fact that the RD 3610 is the costliest of the quartet above, it's also got the cheapest build quality of all the phones and we didn't like its rough-finished rear. LG's RD 6100 is the fifth LG phone in this category. It's compact and well-built, with a choice of materials that is much better than the other LG phones. Once again it's a CDMA handset. The phone has a very solid in-hand feel. Although the joypad looks like it would be awkward to use at first glance, it surprisingly works beautifully. Once again this handset is SIM-based. A camera has also been provided; something the other LG handsets missed, complete with a mirror for vanity shots. Samsung's E1410 is the next phone in this category. It's a basic looking phone that has a solid build and feels very dense in-hand. No camera and no video playback support means that this is pretty Spartan for those looking for multimedia. That being said, the phone supports memory expansion via microSD. Samsung probably provided this feature for those wanting to store and listen to music. This was also the only phone in this category that featured Bluetooth, and is also the costliest phone in this category.

Nokia's 2626 was the only Nokia phone in this entire test. Nokia did send us a couple of other phones but these were priced well above our cut off point of Rs 8,000. The Nokia 2626 is a solid little phone that feels extremely well built owing to its compact dimensions and the choice of materials used on its outer body. There's no camera and no memory expansion, and with an internal memory of 2 MB it's clear that the 2626 isn't much more than a basic phone. At its price point we'd be surprised really, if it were to be anything more. You can get it in a plethora of colours though; the one we got was a bright postman red (eek!) that very few of us liked.

### Performance

Amongst the GSM phones, Samsung's E1410 had the overall best performance. In fact we were impressed by the signal quality of this cellphone, as it has been our experience that ultra-affordable phones typically use ultra-cheap antennas. This wasn't the case here. We were disappointed with the Nokia 2626 in terms of in-call quality. The CDMA phones perform more or less similarly during the call and signal quality tests; the LG RD 3600 did have a very good quality headset provided and call quality with the hands-free plugged in was quite commendable. Only the LG RD 6100 had a camera but it wasn't too good; needless the inclusion of one is a feature that deserves mention in this particular price category.

### And The Winner Is

LG's RD 3600 has the best value for money for amongst all the sub-Rs 4,000 cellphones and is our Digit Best Buy Winner in this category. It's suitable for someone looking at a CDMA phone that has terrific value for money — it's cheaper than its sibling the RD 3610 but manages to outdo it on both feature and performance tests — it's got a better keypad too. The best non-CDMA handset would be the Nokia 2626 — a little

brick that will last a long time and is quite a good phone in the bargain. If you absolutely must have a camera, you have only one option in this category, LG's RD 6100.

## Cellphones above Rs 4000

*The bridge between affordable and pricey*

For those looking for a phone with a few more features than the shoestring options listed below we have these — the phones priced between Rs 4,000 and Rs 8,000. We feel this is perhaps the most interesting category of them all. The phones in this category may not have the appeal of costlier devices, nor do they move in the volumes that the sub-4000 rupee models do. But they do represent a good compromise between price and features. Chances are that anyone looking for a basic cellphone would at least demand some rudimentary features: a decent music player, the ability to take photos and videos, and of course an expandable memory capacity. It is also likely that such a user would also want a slightly better screen, with a greater viewable area and richer colours. Such phones will also be better built, offer (in general) better ergonomics and keypads. In short this category hits the sweet spot between functional and convergence. LG had four phones in this category; Samsung had three, while Sony Ericsson had two handsets.

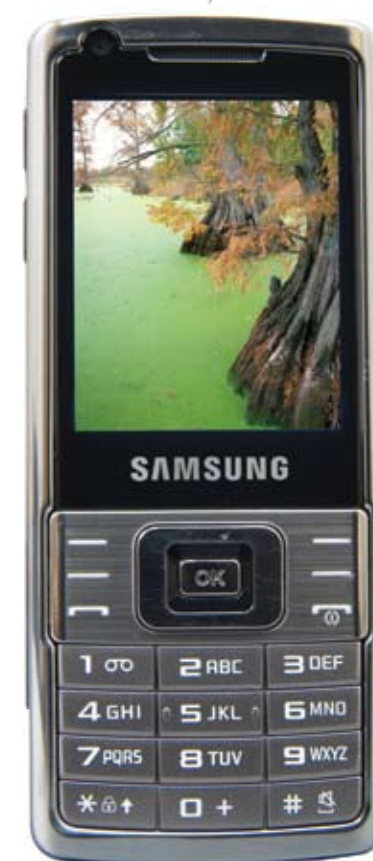
### Features

When it comes to looks its hard to ignore LG's KM380T — it has a very neat

looking flap that covers the keypad and opens downwards. In fact this reminds of us of some of the older Siemens and Motorola handsets and there's something about the whole flap setup that looks very classy. The sides of the phone are chrome and the back is finished in dark grey matte plastic. Overall it's quite a compact phone and is lightweight; this imparts a solid in-hand feel. The flap itself however isn't as well built as the rest of the phone and a little rough usage may get it damaged. The flap has a few buttons on its surface that coincide with the buttons that make up the joypad, and while the joypad works normally when the cover is open, close the cover and the same buttons work as multimedia controls. This phone has a 3.5-mm jack; you can plug in your headphones directly. While the joypad and menu buttons are quite usable and ergonomic, offering decent feedback, the number keypad is just too clicky and basically horribles. In fact

SMS junkies will rue the day they purchased this phone. Maybe people with extremely small fingers may find it decent; we certainly didn't. The keypad's lighting is very bright and visible, although it's not even. Samsung's L700 is a very simple looking phone but it's built like a brick. If there were ever a phone that could be used as a weapon this would be it — a solid, thick steel rear-battery cover and a front bezel also of solid steel. This makes the phone heavier and it's also quite a long device. This phone doesn't work without a SIM i.e. offline mode which is a shocking omission since the cheaper Samsung phones work fine.

Sony Ericsson's



Samsung L700



Cell Phones								
Brand Model	LG RD 3500	LG RD 3510	LG RD 3600	LG RD 3610	Nokia 2626	LG RD 6100	Samsung E1410	LG KP199
Price	1099	1099	1450	1749	2229	2699	3200	4399
Plus	Compact, Solid build	Compact, Solid Build	Solidly built, good keypad	Decent colour combo	Well Built solid feel	Well built, great keypad	Neat looks	Compact, well priced
Minus	No middle joypad button	Diaphragm-type keypad	Menu button slightly tacky	Build quality	No camera	Weak camera	No camera	Small, mediocre sceen
Grand Totals (Out of 100)	24.99	24.44	34.16	32.88	35.05	36.13	44.81	50.33
Features (Out of 75)	17.76	17.10	25.76	24.81	27.04	27.60	35.89	40.44
Performance (Out of 25)	7.23	7.34	8.40	8.08	8.01	8.53	8.92	9.89
Features								
Physical Specs								
Form Factor	Bar	Bar	Bar	Bar	Bar	Bar	Bar	Candybar
Network Bands	CDMA (Reliance)	CDMA (Reliance)	CDMA (Reliance)	CDMA (Reliance)	GSM 900 / 1800	CDMA (Reliance)	GSM 900 / 1800	GSM 900 / 1800 / 1900
Screen Resolution (Pixels) / Size (inches)	128 x 128 pixels / 1.5 inches	128 x 128 pixels / 1.5 inches	128 x 128 pixels / 1.5 inches	128 x 128 pixels / 1.5 inches	128 x 128 pixels / 1.5 inches	128 x 128 pixels / 1.5 inches	128 x 128 pixels / 1.63 inches	128 x 160 pixels / 1.77 inches
Maximum Number of Colours displayed onscreen	65K	65K	65K	65K	65K	65K	65K	256K
Touchscreen / Dual Screen (Y/N)	✗ / ✗	✗ / ✗	✗ / ✗	✗ / ✗	✗ / ✗	✗ / ✗	✗ / ✗	✗ / ✗
Dimensions (LxWxH)	101 x 46 x 13.9 mm	101 x 46 x 13.9 mm	101 x 46 x 14.3 mm	101 x 46 x 14.3 mm	104 x 43 x 18 mm	104 x 46 x 13.9 mm	108 x 46 x 15.3 mm	105.5 x 47.5 x 16.5 mm
Weight	80 grams	80 grams	80 grams	80 grams	91 grams	80 grams	79 grams	95 grams
Internal Memory	32 MB	32 MB	32 MB	32 MB	2 MB	64 MB	4 MB	60 MB
Expandable Memory Type / Hot Swappable (Y/N)	NA	NA	NA	NA	NA	NA	microSD	microSD
Available Colours (If options)	✗	✗	✗	✗	Fiery Red, Spatial Blue, Energetic Copper, WhiteNavy	✗	✗	✗
Other Features								
Charging via USB (Y/N)	✓	✓	✓	✓	✗	✓	✗	✓
Address Book Capacity / No of calls in Register	500 / (60 calls total)	500 / (60 calls total)	500 / (60 calls total)	500 / (60 calls total)	300 / 20 dialled, missed, received	500 / (60 calls total)	1000 / (30 dialled, missed, received)	1000 / 10 (dialled, received, missed)
Talk Time / Standby Time *	3 hrs 20 min / 200 hrs	3 hrs 20 min / 200 hrs	3 hrs 30 min / 200 hrs	3.3 hrs / 200 hrs	3 hrs / 300 hrs	3 hrs 30 min / 200 hrs	11.5 hrs / 546 hrs	10 hrs / 880 hrs
No of Profiles # /Customisable	4 / ✓	4 / ✓	4 / ✓	4 / ✓	7 / ✓	4 / ✓	4 / ✓	4 / ✓
Offline Opearability (Y/N)	✓	✓	✓	✓	✓	✓	✓	✓
Connectivity								
Browsing (GPRS/HSCSD/EDGE/3G)	✗ / ✗ / ✗ / ✗	✗ / ✗ / ✗ / ✗	✗ / ✗ / ✗ / ✗	✗ / ✗ / ✗ / ✗	✓ / ✗ / ✗ / ✗	✗ / ✗ / ✗ / ✗	Y / ✗ / ✗ / ✗	✓ / ✗ / ✗ / ✗
Connectivity (WiFi/Bluetooth/IR/USB)	✗ / ✗ / ✗ / ✓	✗ / ✗ / ✗ / ✓	✗ / ✗ / ✗ / ✓	✗ / ✗ / ✗ / ✓	✗ / ✗ / ✗ / ✓	✗ / ✗ / ✗ / ✓	✗ / ✓ / ✗ / ✓	✗ / ✓ / ✗ / ✓
Bluetooth Version/A2DP support	✗ / NA	✗ / NA	✗ / NA	✗ / NA	✗ / NA	NA	2.0 / ✗	1.2 / ✓
Accessories								
Bundled Accessories	Charger (data cable and headset optional)	Charger (data cable & headset optional)	Charger, headset	Charger, headset	Headset, charger	Charger	Charger, data cable, headset	Charger, data cable, headset
Size of memory card provided	NA	NA	NA	NA	NA	NA	NA	NA
Overall Build Quality (So 10)	6	6	6.25	5	6.75	6.25	6	6.5
Overall Ergonomics (So 10)	5.25	4	6	5.25	4	6.5	4.5	5.75
Camera Specs								
Camera Resolution (Megapixels)	NA	NA	NA	NA	NA	.3	NA	0.3
Video Capture Resolution	NA	NA	NA	NA	NA	NA	NA	NA
Dual Cameras / Auto Focus / Flash (Y/N)	NA	NA	NA	NA	NA	✗ / ✗ / ✗	NA	✗ / ✗ / ✗
Camera Settings (So 10)	NA	NA	NA	NA	NA	2.5	NA	2.5
Multimedia								
Music Formats supported	NA	NA	NA	NA	NA	NA	MP3, WMA	.MP3, eAAC+, WMA, WAV
Video formats supported	NA	NA	NA	NA	NA	NA	NA	.MPEG4, 3gp
FM Radio (Y/N)	✗	✗	✓	✓	✓	✓	✓	✓
Performance								
Signal Reception and Voice Clarity (So 10)								
Zone 1 / Zone 2	5.25 / 4.25	5.25 / 4.5	5.5 / 4.75	5.5 / 4.5	6 / 4.75	5.5 / 5	6.25 / 5.75	6.5 / 5
Handsfree Clarity	4	4	6	5.5	5	5.5	5.5	5
Captured Photo Quality (So 10)								
Captured Photo Colour / Crispness	NA	NA	NA	NA	NA	1.5	0	1.5
Captured Video Quality	NA	NA	NA	NA	NA	NA	0	0
Audio Quality / Bundled Earphones Quality (So 10)	NA	NA	NA	NA	NA	NA	0	3
Video Playback Quality (So 10)	NA	NA	NA	NA	NA	NA	0	0
Processing Speed (So 10)	5.5	5.5	5.5	5.5	5	5.5	5.5	5.5

W350 is a nice looking phone with a black/orange colour tone like so many of the other SE walkman phones. It has a well spaced keypad and has the same chic keypad flap as on the LG. The outer flap also has the multimedia buttons integrated. Once again, like the KM380T, these buttons coincide with the joypad, which we find quite innovative. The phone itself is built quite well and is reasonably slim; it also has a solid in-hand feel. The volume and multimedia buttons that characterise Sony Walkman series are well done and very usable. The keypad on the W380 is quite good – the keys are well spaced out, reasonably bevelled and impart decent feedback. SMS junkies will like this keypad. Even the backlighting, although dim, is very functional. Sony Ericsson’s Z555 was the sole clamshell phone amongst the candy-bar form factor. This phone is built very well and feels solid but doesn’t have the same style that the Sony Ericsson W380, which we tested back in August last year. The screen is also smaller than the W380, and not as crisp as we’d like for a phone in this price category. It has a decent keypad but the W350’s keypad is much better and has better backlighting.

LGs KP 199 and KP 220 are the cheapest phones in this category and despite the fact that the KP 199 is cheaper; we liked its fit and finish more than the KP 220. It’s cute looking with a nice rounded front bezel that is done with chrome rims which go well with the black colour of the phone. The back of the phone is finished rather cheaply and is the only facet that betrays its lower price. LG really scores with the KP 199’s keypad – it’s very well spaced and feedback is really good. This phone seems to have been built with the SMS junkie in mind, and even the menu buttons and joypad are well laid out. The KP 220 itself is quite a bit larger and for such a big phone we found the screen to be disproportionately small. The keypad





Cell Phones								
Brand Model	LG KP220	Samsung M200	LG RD 6600	Samsung SCH F309	Sony Ericsson Z555	Sony Ericsson W350	LG KM380T	Samsung L700
Price	4550	4900	4990	6300	6395	7495	7499	7800
Plus	Solidly built	Large keys, well built	Attractive chrome look	Decent build quality	Good finish, looks neat	Looks funky, nice keypad	Funky looks, lightweight	Supremely built, spaced keys
Minus	Small screen	Slightly long	Keypad not very good	Mediocre screen	Small screen	None in particular	Flap build quality iffy	Quite large, heavy
Grand Totals (Out of 100)	52.52	54.64	50.09	44.26	51.83	54.36	55.51	58.17
Features (Out of 75)	40.73	42.17	38.76	32.33	38.93	40.28	43.43	43.31
Performance (Out of 25)	11.79	12.47	11.33	11.94	12.90	14.09	12.09	14.86
Features								
Physical Specs								
Form Factor	Candybar	Bar	Bar	Bar	Clamshell	Flap	Flap	Bar
Network Bands	GSM 900 / 1800 / 1900	GSM 850 / 900 / 1800 / 1900	CDMA (Reliance)	CDMA	GSM 900 / 1800 / 1900	GSM 900 / 1800 / 1900	GSM 900 / 1800 / 1900	GSM 850 / 900 / 1800 / 1900 / UMTS 2100
Screen Resolution (Pixels) / Size (inches)	120 x 160 pixels / 1.77 inches	128 x 160 pixels / 1.9 inches	176 x 220 / 2.0 inches	176 x 220 pixels / 1.9 inches	176 x 220 pixels / 1.9 inches	176 x 220 pixels / 1.9 inches	240 x 320 pixels / 2.0 inches	176 x 220 pixels / 2.1 inches
Maximum Number of Colours displayed onscreen	256K	65K	256K	65K	256K	256K	256K	256K
Touchscreen / Dual Screen (Y/N)	✗ / ✗	✗ / ✗	✗ / ✗	✗ / ✗	✗ / ✗	✗ / ✗	✗ / ✗	✗ / ✗
Dimensions (LxWxH)	103 x 46 x 12 mm	107.6 x 45.6 x 12.9 mm	103 x 45 x 13 mm	113 x 46 x 10.9 mm	95 x 49 x 16.5 mm	104 x 43 x 10.5 mm	108 x 48 x 13 mm	109 x 46 x 12.8 mm
Weight	72 grams	85 grams	76 grams	80 grams	95 grams	80 grams	79 grams	107 grams
Internal Memory	60 MB	20 MB	32 MB	20 MB	12 MB	14 MB	40 MB	40 MB
Expandable Memory Type / Hot Swappable (Y/N)	microSD	microSD	microSD	microSD	M2	M2	microSD	microSD
Available Colours (If options)	✗	✗	✗	✗	✗	Electric black, Ice blue, Hypnotic black, Graphic white, Wisteria Purple, Turbo Red	✗	Titan Silver, Grayish Brown, Chargoal Gray, Noir Black, Rose Pink, Lilac Violet
Other Features								
Charging via USB (Y/N)	✓	✗	✓	✗	✓	✓	✓	✗
Address Book Capacity / No of calls in Register	1000 / 10 (dialled, received, missed)	1000 / (30 dialled, missed, received)	1000 / (120 calls total)	1000 / 50 (missed, dialled, received)	1000 / 20 (dialled, received, missed)	1000 / 20 (dialled, received, missed)	1000 / 40 (dialled, received, missed)	1000 / (30 dialled, missed, received)
Talk Time / Standby Time *	3 hrs / 300 hrs	3 hrs / 300 hrs	3 hrs / 150 hrs	2.3 hrs / 200 hrs	8 hrs 20 min / 360 hrs	7 hrs / 300 hrs	3 hrs / 250 hrs	3 hrs 30 min / 280 hrs
No of Profiles # /Customisable	4 / ✓	4 / ✓	4 / ✓	4 / ✓	7 / ✓	7 / ✓	4 / ✓	4 / ✓
Offline Opearability (Y/N)	✓	✓	✓	✓	N	N	Y	✗
Connectivity								
Browsing (GPRS/HSCSD/EDGE/3G)	✓ / ✗ / ✗ / ✗	✓ / ✓ / ✗ / ✗	✗ / ✗ / ✗ / ✗	✗ / ✗ / ✗ / ✗	✓ / ✗ / ✓ / ✗	✓ / ✓ / ✓ / ✗	Y / N / N / ✗	✓ / ✗ / ✓ / ✓
Connectivity (WiFi/Bluetooth/IR/USB)	✗ / ✓ / ✗ / ✓	✗ / ✓ / ✗ / ✓	✗ / ✓ / ✗ / ✓	✗ / ✗ / ✗ / ✓	✗ / ✓ / ✗ / ✓	✗ / ✓ / ✗ / ✓	✗ / ✓ / ✗ / ✓	✗ / ✓ / ✗ / ✓
Bluetooth Version/A2DP support	1.2 / ✗	2.0 / ✓	2.0 / ✗	2.0 / ✓	2.0 / ✓	2.0 / ✓	2.0 / ✓	2.0 / ✓
Accessories								
Bundled Accessories	Charger, data cable, headset	Charger, data cable, headset	Charger, Headset	Charger, data cable, headset	Charger, data cable, headset	Charger, data cable, headset	Charger, data cable, headset	Charger, data cable, headset
Size of memory card provided	NA	✗	512 MB		512 MB	512 MB	1 GB	512 MB
Overall Build Quality (So 10)	6.5	7	6		7	6	6.5	7.5
Overall Ergonomics (So 10)	6	5.75	5.75	4	6	6.5	5	7
Camera Specs								
Camera Resolution (Megapixels)	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2
Video Capture Resolution	176 x 144	176 x 144	176 x 144	176 x 144	176 x 144	176 x 144	176 x 144	176 x 144
Dual Cameras / Auto Focus / Flash (Y/N)	✗ / ✗ / ✗	✗ / ✗ / ✗	✗ / ✗ / ✗	✗ / ✗ / ✗	✗ / ✗ / ✗	✗ / ✗ / ✗	✗ / ✗ / ✓	✗ / ✗ / ✓
Camera Settings (So 10)	3.5	3	3.25	3.25	5	5.25	6.5	5.25
Multimedia								
Music Formats supported	.MP3, eAAC+, WMA, WAV	MP3, AAC, eACC+, WMA	.MP3, eAAC+, WMA, WAV	MP3, AAC, eACC+, WMA	.MP3, eAAC+, WMA, WAV	MP3, AAC, eACC+, WMA	.MP3, eAAC+, WMA, WAV	MP3, AAC, eACC+, WMA
Video formats supported	.MPEG4	MPEG4, 3gp	MPEG4, 3gp	MPEG4, 3gp	.MPEG4, 3gp	MPEG4, 3gp	.MPEG4, 3gp	MPEG4, 3gp
FM Radio (Y/N)	✓	✓	✓	✓	✓	✓	✓	✓
Performance								
Signal Reception and Voice Clarity (So 10)								
Zone 1 / Zone 2	6.25 / 5	6.25 / 6	5.75 / 5	5.75 / 4.75	6 / 5	6.5 / 5	6.75 / 5.5	6.75 / 5.75
Handsfree Clarity	5	6	6	5	5	6	5.25	6.5
Captured Photo Quality (So 10)								
Captured Photo Colour / Crispness	3	4	2	4.5	4.5	4.5	2.5	5.5
Captured Video Quality	2.5	3	2.5	3	5	5	2.75	4
Audio Quality / Bundled Earphones Quality (So 10)	4	4	3.5	5	5	5.5	4	5.5
Video Playback Quality (So 10)	4	3.5	2	4.25	3	4.5	3.25	5
Processing Speed (So 10)	5.5	4.5	6	5.5	7	7	5.5	7

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isn't half bad though, ditto the menu buttons. It also feels very solid in-hand.

Samsung's SCH F309 is a CDMA phone and a decently built one at that. The body feels solid but the keypad isn't the best we've seen and for its price, we did expect more. LG's RD 6600 sports a metallic mirror finish, and is the costliest of the CDMA phones in this comparison. It's a nice looking phone and has a very decent screen. We also liked the number keypad which although a little cramped, works fine. The menu buttons are good, although we feel Sony Ericsson designed their menu buttons on the W350 better.

Samsung's M200 is a large, bulky looking phone and its inferior build quality aside could be mistaken for the L700. But that's not meant in a derogatory sense at all, as the L700 is unusually well built. The keypad on the M200 is nearly the same in terms of layout as compared to the L700 but its feedback is not as good.

### Performance

In the signal quality tests we had a bit of a mixed bag. Firstly, the LG KM380T and Samsung L700 were the clearest phones in Zone 1. In Zone 2, which is a more difficult zone to perform well in — being deep inside our building and in an area that kills most service provider signals — the Samsung M200 did better than its costlier sibling by a small margin. Hands-free quality on the L700 was still the best though; with the KM380T losing to a few other phones as well. The Sony Ericsson also has a good hands-free unit, but then Walkman phones are known for their good headsets. Samsung also has the most prolific camera amongst



**Joint Winners:**  
**LG KP220 and**  
**Samsung M200**



the lot; it's got a better specification (2 megapixels) and also performs the best. It's surprising then that this phone doesn't have the best video quality — the cheaper Sony Ericsson Z555 gets that distinction. Both the Sony Ericsson W350 and the Samsung L700 have the best music quality and these are the phones to look at if you want something that doubles as a decent MP3 player. The same two phones also give the best video playback performance and it's safe to call them the best overall multimedia phones of the bunch. Samsung's L700 is the costliest phone of this bunch at Rs. 7,800 and is also the best performing phone overall, proving that money and performance do, indeed have a directly proportionate relationship.

### And The Winner Is

For our Digit Best Buy we have a tie in this category. The joint winners are the LG KP220 and the Samsung M200. The M200 is a bit better than the KP 220 in terms of overall features, comfort and performance but this margin is small. Moreover

the M200 is also a little costlier. Both these phones will do very nicely for someone looking at a phone that has a camera and memory expansion, and for audio and video playback. If you want something a little more upmarket then look at either of the Samsung L700, LG KM380T and the Sony Ericsson W350. We prefer the latter two because they are more attractive and have a fancy flap design; although the L700 is the better built phone. Amongst the CDMA phones, LG's RD 6600 is the best option and it's much cheaper than the Samsung SCH F309. LG's KP220 is also a good option for someone looking for a reasonably feature rich phone that

is also superb value for money.

### To sum it up

We did something a little different this time, and also took a look at CDMA handsets. Unlike GSM handsets, which one purchases for the device alone, CDMA handsets are typically part of a service provider's package. Therefore, the actual quality of service offered also plays a large part while picking up a CDMA device. For example, Reliance could offer a particular handset with only a select bunch of service plans thereby giving consumers the binary options of taking it, or leaving it. That being said it's good to see some decent GSM handsets also available at shoestring budgets, although GSM handsets are still costlier than their CDMA counterparts, and will probably always be so. It was also refreshing to find some true jewels in the rough, as the phrase goes. We will be taking a more comprehensive look at the more drool-worthy handsets of 2009. But that's another story, for another month. ■

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**Page 78**  
 for details...





Your Questions, Our Answers

All your computing niggles and nags are dealt with here!

### An overheating power supply

**Q** Hi, this is Dhruv and I am a regular reader of your magazine. My configuration is an Intel Pentium 4 HT (3 GHz), a ASUS P5VDC MX, a Samsung 80 GB HDD, a Sony DVD writer, an ATX cabinet and a gigabyte of memory. My problem is that whenever I play GTA : San Andreas, my SMPS heats up and the game stops working. Please suggest a solution. Is this system configuration enough to run this game? Please help.

**Dhruv Karnick**

**A** If the game runs and you can play reasonably well on it without any major slow-downs, then the system should be good enough to run GTA: San Andreas but we highly recommend that you upgrade your system. An overhaul that includes putting an Intel or AMD dual core processor and a graphics card will do wonders for you. If you are a major gamer, then you would enjoy a system like that. If GTA : San Andreas is the only game that you want to play, then a graphic card upgrade will be just fine.

The problem of your power supply heating up is likely to be a spoilt fan at the back of the power supply. Check to see if its still running or is clogged with dirt. Do not open the power supply but get it fixed or replaced if it's under warranty.

### Laptop shuts down randomly

**Q** I have an Acer laptop that's around six years old now. It keeps repeatedly shutting down when I use it. There is always a fan noise when an application starts some other times; it just shuts down on its own. What could be the reason? Please help me.

My laptop configuration is: Acer Travelmate 2501LC which uses an Intel Pentium 4 2.8 GHz, an ATI Mobility Radeon 9000 IGP, 256 MB DDR333 SDRAM, 40 GB Ultra ATA/100 HDD and a DVD/CD-RW Combo drive.

**Vishwas Kamath**

**A** Your laptop is really old and it's a good idea to get it serviced sometime. The fan you are talking about might be failing or it might be clogged with dust. It needs to be opened up and cleaned up. Also, get it looked at by your laptop manufacturer if possible.

### Conflicting information BIOS and system monitoring software

I recently assembled a desktop PC with following configuration.

Processor : Intel Core 2 Duo E8400 (3.00 GHz)

Mother board : DG33TL

HDD : 250 GB

RAM : 2 GB DDR2 800 MHz

I want your opinion. The BIOS of the system say that system bus speed is 1333 MHz. The L2 cache is 6144 KB there is no mention of the L1 cache. The system monitoring software (Desktop utility version 3.0) supplied with the motherboard shows some other details.

System bus speed : 333 MHz

L1 cache : Data cache 32 KB, Code cache 32 KB per processor core

L2 cache : Not Supported

Why is the system monitoring software displaying wrong information about the system and how can I solve it? After two to three seconds of starting up the computer, the system switches on momentarily then goes off again. After that, it switches back on normally. Is this normal?

**Sanjay Sinha**

The delay in startup of the computer is normal on some motherboards. Try installing a different software such as CPU-Z to identify details about your processor. CPU-Z is free for download from [www.cpubid.com](http://www.cpubid.com). Look for any updates for the system monitoring utility that came with your motherboard.



CPU-Z is an easy way to verify processor information

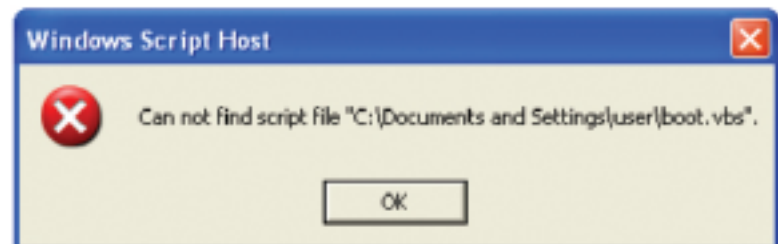
ware such as CPU-Z to identify details about your processor. CPU-Z is free for download from [www.cpubid.com](http://www.cpubid.com). Look for any updates for the system monitoring utility that came with your motherboard.

### Two odd problems

**Q** Hi, I have two queries . Every time I start my computer I get these errors.

1. Cannot find script file "C:\WINDOWS\system32\boot.vbs".
2. Windows cannot find 'wproxp.exe'. Make sure you typed the name correctly, and then try

VBS errors on startup are a common sign of a worm

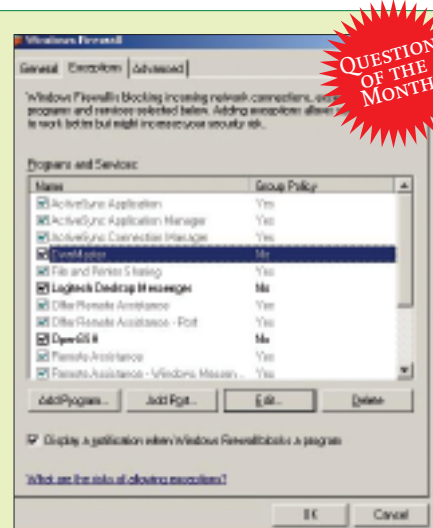


## Torrents aren't working on the laptop

**Q** Hi, I have this laptop in which torrent downloads have been blocked. Please guide me through the procedures to unblock it. Thanks!

**A** Check your system firewall by clicking on Start > Settings > Control Panel > Windows Firewall. Go to Exceptions and check your torrent download client. If you have any other firewall program, then allow access through that software in the same manner.

**Jagdeep Viridi**  
(TECH QNA Expert)



Exceptions for uTorrent maybe required to ensure open access for it



Does this configuration lead to CPU bottlenecks and can be improved by expanding the RAM size? Please suggest me a way to get rid of these problems.

**Chayan**

**A** The problem with DVDs not reading could be due to the drive detecting that make of media. The fix for that could be flashing the firmware. Go to the manufacturer's site and download the latest BIOS for the exact same model of DVD drive you own.

The problem of not being able to install software is bizarre. Make sure your Windows account is not set up as a limited user. Try creating a new user. If the installer for the software is corrupted somehow, then that could also be causing the problems.

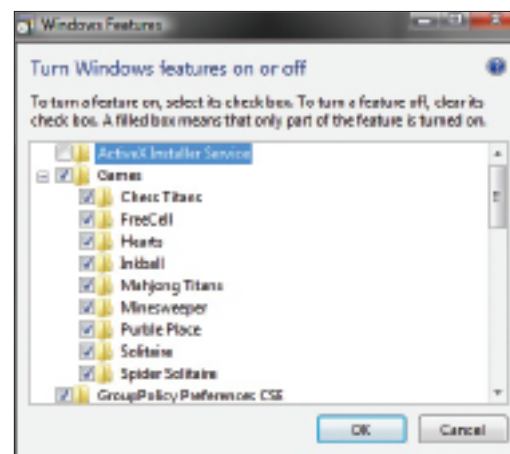
Try updating drivers for your graphics solution on the motherboard to fix the problem of games blanking out the screen when run. 1 GB of memory is sufficient for Windows XP to run but upgrading to a minimum of 2 GB is recommended anyway. You will find improvement in performance. A dedicated graphics card for games is also recommended.

## Using other programs instead of default programs

**Q** I use Windows Vista as my operating system. I use other programs instead of some of the default programs that come with it like Notepad, Paint, Internet Explorer, Calculator, Windows Explorer, etc. I use Textpad, Paint.net, Firefox, DreamCalc 3 Pro and Total Commander respectively; I want to get rid of these default programs.

Is there a way?

**Vikas Mahindra**



Turning on and off of some of Windows Vista's components is possible

**A** You cannot uninstall all of the mentioned software from your Windows Vista installation but you can remove a few of them. Software like Windows Explorer and Internet Explorer are vital to the operating system in some ways or for software that you might install in the future.

To uninstall the few selected software, click on Start > Control Panel > Programs and Features. In the left panel, click on Turn Windows features On or Off. Here you can remove some of the software that come with Vista.

## I want to dual boot XP and Vista

**Q** I want to install Windows Vista over my existing installation of XP. Can I just install Vista in another drive? Will it work properly? I have read many books on it but I didn't understand properly. Please help.

This is my system configuration  
Processor: Intel Pentium 2.66GHz  
512 MB of RAM  
Intel 82865G integrated graphics card  
80 GB SATA hard drive  
I am currently running Windows XP SP3

**Rajshekhar Sirimala**

**A** Installing Vista over XP will not be a problem at all. Simply insert the Vista DVD on system startup after you have set your DVD drive as the bootable device. All you need is a different partition. Just be sure to choose which one carefully and do not format it if you have any data on it. Once that's done, Vista will install and changes will be made to the boot record so you can choose between the two operating systems every time you boot.

## System has slowed down

**Q** I am a regular reader of Digit. It is the one and only one tech magazine which always keeps me up to date. I have a problem with my desktop computer. My PC Configuration is:

Intel P4 processor 2.4 GHz, Gigabyte 845 Motherboard, 256 MB DDR1 RAM and 1 GB DDR1 RAM. I also have a 40GB HDD and a 160GB (IDE) OS Windows XP SP2

The problem is very critical. I was running my PC very well with 256 MB RAM and 40 GB and 160 GB HDD. Last week, my system performance dropped by a lot. Even a simple application takes a lot of time to load.

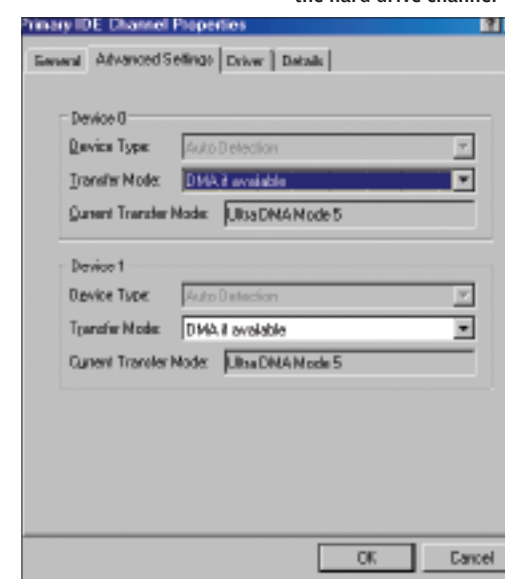
1. I tried installing a new OS with different different CDs - no results.
2. I upgraded my memory with 1 GB DDR1 with some good results, but my CPU usage reaches 100% even with small applications, or while installing some software. Even if I open a folder, the CPU utilization reaches to 90% for six to seven seconds.
3. I tried changing power supply - no results
4. I tried installing OS in another HDD - no results
5. Both fans are working well, CPU as well as the power supply.
6. The CPU temperature is 44C

No vendor of my city could solve the problem. What do you suggest?

**Sandeep Goyal**

**A** One of the first things to do is to update the drivers for your motherboard. If you've just added the 1 GB of RAM, plug out the older 256 MB and look for any improvement. The CPU temperature is perfectly fine. If you have two drives connected, try discon-

Enabling DMA mode for the hard drive channel



necting the one without the operating system to look for any improvements. If that works, then you know one of the drives might be faulty. Also, enable DMA for the hard drives from the Windows Device Manager.

## Digit! Please help! Booting issue!

**Q** Hello Digit, I bought a new rig after a week of detailed research on the Internet and your magazine. Here is the config I got.

Intel Core 2 Duo E7300 2.66 GHz  
MSI P7NGM DIGITAL Motherboard  
Palit Radeon HD 4870 SONIC 1GB Dual Edition (with Dual BIOS)  
Seagate Barracuda 7200.11 HDD 320 GB  
Corsair 2 x 2 GB 800MHz RAM  
Cooler Master extreme Power 600W PSU  
Cooler Master CM 690 Cabinet  
Dell E1909W 19-inch LCD  
Liebert Emerson 600VA UPS

I installed Windows XP SP2 and Vista with SP1. From the very first day, whenever I switch on my PC, the motherboard logo flashes on screen and then a strange three second beep can be heard from the cabinet. Immediately after that, the system hangs completely. I reinserted the RAM but the problem persists. The strange thing is when I restart my PC, it still gives me that strange sound but it boots properly and I can login into both XP and Vista and even can play Crysis at very high resolution for 10 hours at a stretch without any problems.

I would like to mention here that my huge graphics card has physically covered almost all the six SATA ports on my motherboard and the HDD SATA port was connected with very much difficulty. I even had to keep the entire cabinet in a lying down position as in the upright position my graphics card was literally throwing its whole weight on the HDD SATA port below and giving me display-related problems.

Is my graphics card clashing with my motherboard somehow? Or otherwise, is my SMPS not powerful enough? The box for the Graphics card says it alone needs 500 W Power Supply.

Please help me as I'm going nearly crazy and lost all my sleep and peace of mind.

**Amitava Das**

**A** If the graphics card manufacturer states that 500W is required for just the graphics card alone, then the power supply is most likely the problem. Make sure that you have all the necessary power cables plugged in. If possible, borrow a powerful PSU from one of your friends and try starting up your PC. If your graphics card isn't properly fitting into the PCI-E slot, then unplug the SATA cables and see if you have any beeps or errors during startup.

## Buzzing sound

**Q** Hello, I get a buzzing noise when I move my mouse pointer on the screen. The sound is an odd static which comes from the speakers. I have an Enter optical mouse. Please tell me what to do to fix this problem. My rig configuration is an



ASUS A8V-VM Motherboard, an NVIDIA GeForce 7300GT 512 MB dedicated VGA Card, an AMD 3500+ (Socket 939) CPU, Frontech Super TV internal tuner card, a LG- GH22N 22X DVD Writer and Transcend 1 GB x 2 RAM (400 MHz) DDR1. I also have a 250 GB Hitachi SATA HDD.

Regards,Zubin

The sound you are getting is most likely being channeled through your sound card to your speakers. Double-click on the Windows Volume Control. Access the volume controls for both the the line-in and microphone in the playback and recording panels. Mute all instances of them.

### Orkut login on Windows

Hi! This is Bhupesh. Whenever I login to Orkut, the username and password appears automatically. I don't want this to happen as my computer is on a network. Please help me.

Bhupesh Rawat

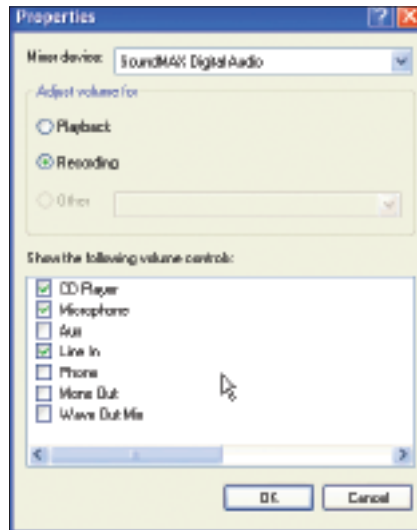
If your computer is on a network and only you have access to your account on Windows, then there is nothing to be worried about. If there are many other users using your computer, then you can clear out your existing passwords and usernames by clearing out private information in the browser. If you use Internet Explorer, click on Tools > Options. Click on the Content tab and then on Autocomplete. Click on the Clear Passwords and Clear Forms buttons. Similar features can be found in Opera and Firefox as well.

### System booting problems

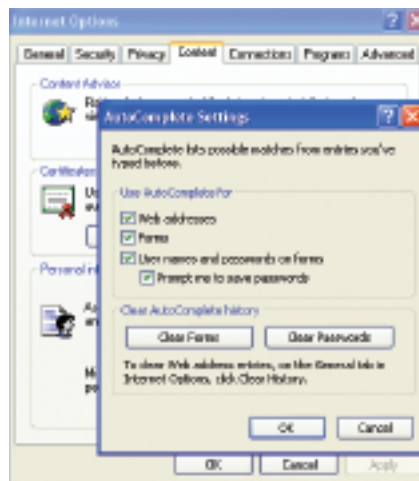
I have a SG 1138IL Compaq Presario desktop with 256 MB of RAM and a 80 GB SATA hard disk. While formatting, I saved all the Program Files to drive D by mistake, though it was to be saved in C Drive. After formatting, when I started my system, it asked me to select Microsoft Windows XP to boot up further as there were two instances of Microsoft Windows XP. On selecting any one of them, my system worked perfectly.

But after some days my system starts asking for password though I hadn't set any password to my system. I tried the password for Administrator but it didn't accept it.

To fix this problem, I formatted my system completely. After this, my system has now been working fine but it still asks to select Microsoft Windows XP during bootstrap.



Recording volume controls for line-in might have to be enabled

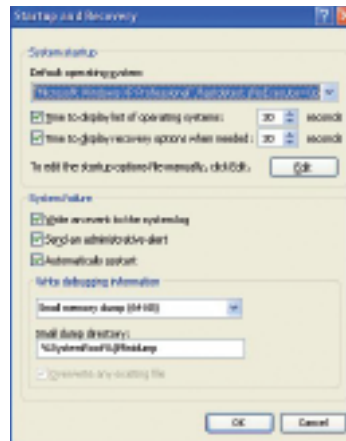


Clearing of passwords and form entries is possible on almost all browsers today

Can you help me in fixing this problem.

Thanks & regards  
Arun Kumar

Now assuming that you have only one instance of Windows installed and just two boot entries on startup, removing the additional entries is simple. In Windows, click on



The timeout for choosing operating systems can be reduced to a small amount

Start > Control Panel > System. Click on the Advanced tab and click on the Settings for Startup and Recovery. There is a timeout displayed which can be changed so that Windows continues to load within a second of the prompt being displayed.

### How to upgrade

Hi, I'm Devesh. By the end of your collectors edition, I have become the biggest fan of DIGIT. I need to know few things.

My current PC configuration is  
Intel Core 2 Duo E4600 2.4 GHz  
Intel DG33 motherboard  
2 GB DDR2 RAM  
NVIDIA GeForce 8600GT 512 MB  
320 GB HDD

I want to upgrade my PC to an Intel Core 2 Quad Q6600 and increase my memory to 4 GB and hard drive space by 250 GB. The question is, since the DG33 motherboard supports the quad-core processor, can I simply just take out Core 2 Duo and replace it by Quad Core Processor without making any changes in the BIOS settings or any other settings for that matter? And secondly, would it be wise to use two different internal hard disks at the same time (older 320GB and the new 250GB).

Will any such changes effect my current programs installed in the PC? I have Vista Ultimate and Windows XP Professional v2002 SP3.

Devesh

Installing the new Core 2 Quad Q6600 processor will not be a problem. You won't have to make any changes in the BIOS. If you have any problems, reset the settings to default and save the BIOS settings. Two drives or even more are not a problem. Upgrading to just an additional 250 GB of disk space might not be the best way to go. Look for something around 500 GB and above as prices are them are at an all time low.

# TIPS & TRICKS

SECRETS THAT KEEP YOU AHEAD IN THE RACE

## TIPS

Adobe Photoshop CS4 ..... 9  
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## Adobe Photoshop CS4

Adobe Photoshop CS4 presents a spanking new interface with a bunch of small, thoughtful touches. For example, the titlebar has been removed entirely, allowing more space for the images to display. The cursor now changes from black to white depending on the background, which ensures that it is visible at all times. The usually empty space after the menu bar is filled with tools. Essentially, not a single inch of screen space has been put to waste. The immediate effect is that you have a much larger work area at your disposal. There are also new features for the power user, most noticeably, a panel view for working with multiple documents at once. Another welcome addition is that of a tabbed arrangement when multiple files are open; where you can undock single images.

### Working with layers

Every time you wish to make a change to an image, it makes sense to make those changes in a new layer. This measure preserves the original image, despite any adjustments you make. Go to Layer > Duplicate Layer to duplicate the image in a new layer. To make image adjustments, use the Layer > New Adjustment

Layer option. The submenu in this option is the same as the submenu in Image > Adjustments. Every time you select an adjustment layer, you will see the options available for image adjustments. This means that you can repeatedly tweak image adjustments in multiple adjustment layers without having to go back and forth between image adjustments on a single layer. Every image adjustment layer is essentially a mask added to the image.

### Using the Vibrancy adjustment filter

The Image adjustments tools are the backbone of photo-editing on Photoshop. A new feature in CS4 is the vibrancy control. By default, the middle left pane now has image adjustment tools shown for easy access. Go to Image > Adjustments > Vibrance. Vibrance

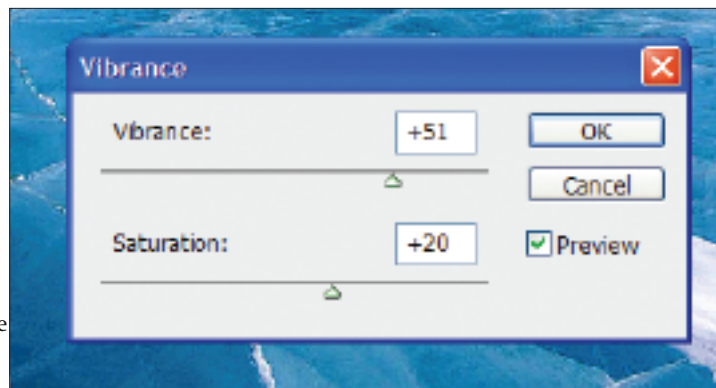
is noticeably different from saturation control, but it's a filter that works with the saturation of the colours in the image. What vibrance does is increase the saturation of all the colours in the photo, while cutting off the magnitude of this increase for the colours that are already saturated. This means that the areas in the image with a lower saturation get a bigger boost in saturation than the areas in the image with a higher saturation.

### Using the Photo Filter

CS4 also has a new image adjustment feature known as the Photo Filter. Many features in Photoshop are named after similar techniques and equipment used by Photographers before the onset of digital photography. Photo Filters is a long overdue feature. Filters were additions to lenses that enhanced a particular colour (like green) or suppressed a particular part of the electromagnetic spectrum (like UV light). The Photo Filter option in CS4 has a bunch of presets which represent real-world filters available in the market for photographers. The logic of using a filter is thus: imagine a landscape with a lot of trees, you can then use a green filter to better reproduce the foliage, by enhancing the green in the image. The Photo Filter option in Photoshop lets you choose your own colour. You can use the colour picker to pick a colour from the image and apply the filter. Go to Image > Adjustments > Photo Filter.

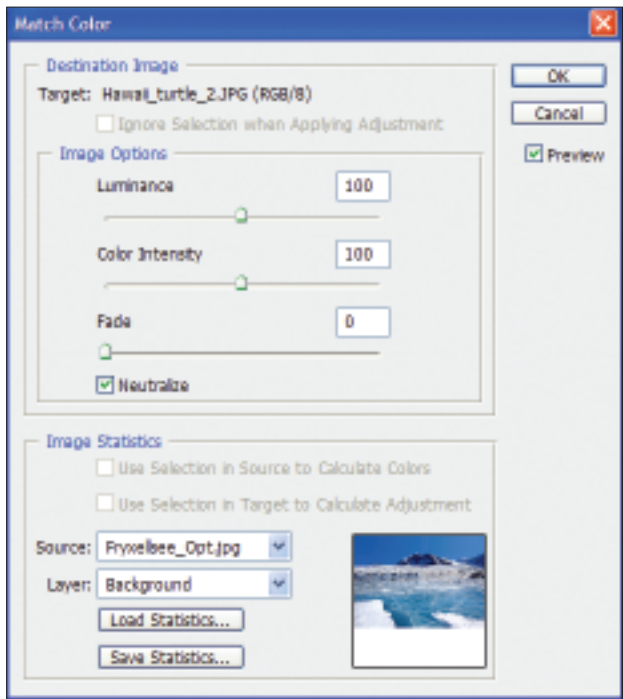
### Matching colours across different images

Often, a set of images taken at a particular location or an event, look like they have been taken at different times, as they look different. This can occur due to many reasons, like a large span of time between pictures or using multiple cameras at a time. To make the colours constant across images, CS4 has a match colour option. First, open up all the images you want to match the colour in, you will need a minimum of two images. Next, select a reference image, which will be the image you will use to source the colours from. Every time you match a colour in a particular picture, you will use the colours in your ref-



The new vibrance adjustment feature



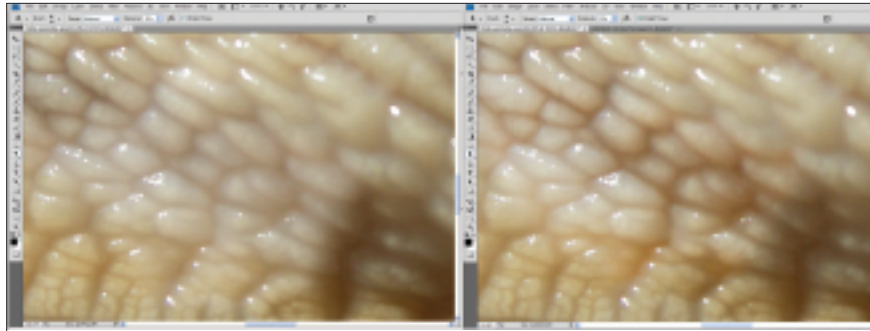


Matching colours to another image

reference picture. Remember the file name. Go to Image > Adjustments > Match Color. Under Image Statistics, under “source” select the file name of your reference image. Your image should immediately change the colour set. The image options that you see at this point of time, are absolutes and have nothing to do with the reference image. Before you do this make sure that the files you are working on are set to the same colour space. This means that the checkmarks in Image > Mode should be consistent (this is also shown next to the filename in the tab for the file).

### Protecting the tone of the image while dodging and burning.

Until the release of CS3, dodging and burning an image always looked unnatural because of the way the image grayed or darkened upon application.



The old dodge tool (left) and the new dodge tool (right), that preserves tones

The new burning and dodging tools have an option known as “Protect Tones” which better preserve the colour information of the image. The picture on the left shows dodging without the Protect Tones feature, while the one on the right shows dodging with the Protect Tones feature turned on. The difference is noticeable, but there is no standard approach for using this feature as the usage is dependent on the kind of image and the desired output.

### Increase or re-allocate the

#### scratch-disk space

Photoshop uses its own virtual memory when it runs short of the system’s virtual memory and the RAM. Usually, the scratch-disk space is used from the same drive that Photoshop is installed on. As this is usually the C: drive, where the Windows virtual memory is also housed, this location is not ideal. Go to Edit > Preferences > Scratch Disks to change this location. The window just lists the drives available, and the amount of free space on each. Just make sure you check the drives that have a lot of free space on them.

### Enable Open GL

Photoshop CS4 can now use Open GL for smoother operations and some file effects. This has been included specifically for their support for 3D files, but it also helps in the overall user interface experience. To enable Open GL, go

to Edit > Preferences > Performance and check Enable Open GL.

### Further tweaks to optimise the memory usage

The undo history of CS4 takes up a lot of space. Go to Edit > Preferences > Performance, and reduce the steps of undo operations to keep in memory. The cache levels can be increased upto 8, or decreased as per individual preferences. After a series of complicated operations are finished, you can clear the memory used by Photoshop by going to Edit > Purge and selecting an option. The options available are Undo, Clipboard, Histories and All.

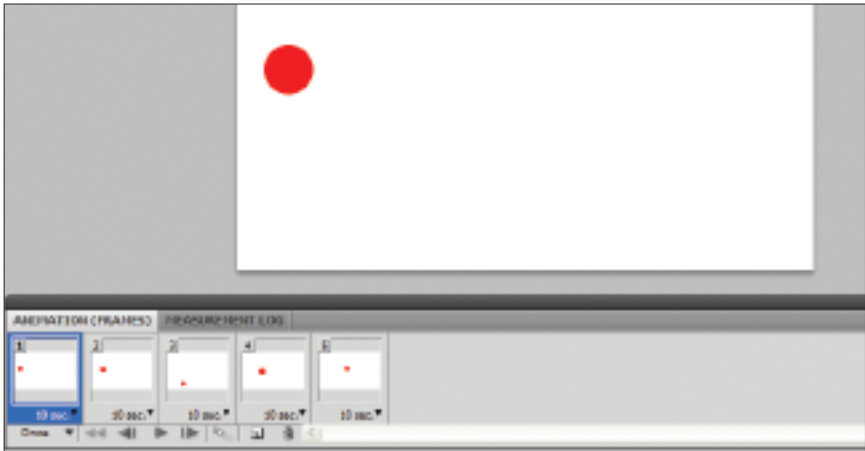
### Create a Panorama

If you have a set of pictures you would like to be merged into a Panorama, doing so is an easy process on CS4. The merging is visibly better than CS3. Wires, foliage and seascapes are handled better. Go to File > Automate > Photomerge, choose the auto perspective, add the images from your system in order. To do this, click on the Browse button, and select the files that you want to be merged into a panorama. If you have already opened the files in photoshop (for editing), then simply click on Add Open Files. Click on OK and sit back and watch Photoshop do its magic. This will take some time, and you will see windows open and close repeatedly, but do not worry.

### Simple animation using Photoshop

You can use Photoshop to animate objects and layers in a picture, and then export it as a GIF. This was possible in previous versions of Photoshop as well, but CS4 provides users with tweening options and further controls. To create a simple animation, of say, a ball bouncing, create a white background with a circle shape to represent a ball. Then, go to Window > Animation > Frame View. Select the first frame, and click on the Duplicate Frame button (right before the trash can). Duplicate the frame five times, for different key positions of the ball. Select individual frames, and drag the shape to the relevant position to do this.

Now select two consecutive frames, go to the animation window and select tween. You will see a window with



Animation using Photoshop

options to change parameters. The available options are Position, Opacity and Effects. Position is the only parameter that used in this particular animation, although you can use others. For example, you can change the opacity, so that the ball becomes invisible when it bounces, and so on. For now, input the number of frames to add as five. Now repeat the procedure for the consecutive original frames. Select all the frames, and click on Play to preview the animation.

### Export individual layers as files

Photoshop lets you export individual layers of the file you are currently working on, into separate files. The files generated are saved in the same folder, and automatically named. You can choose naming, compression and file type options. File > Scripts > Export Layers to Files. Tweak the options here as per your preference. Check Visible layers if you want to export just the visible layers. Then click on Run.

### Working with snapshots

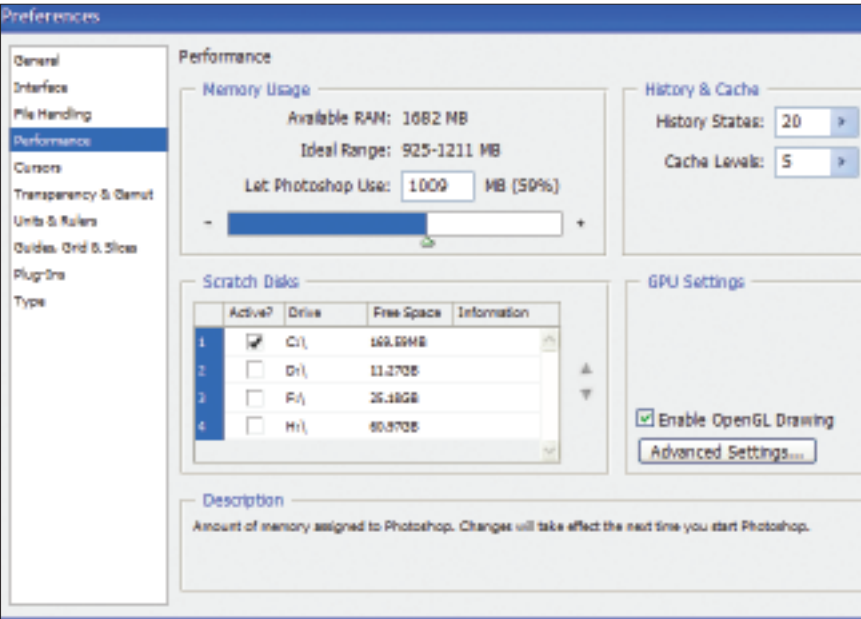
Snapshots save the current state of your image. They are very useful for reverting to a previous state, and are more reliable than the undo tool. You can save multiple snapshots for comparing two different approaches to a photo-editing problem. To create a snapshot, first display the History panel. Go to Window > History. In the History panel menu, select New Snapshot. Enter a name for the snapshot. You can now choose to store the entire image (which is the norm), a version of the image with all the layers flattened, or just the layer

### Using Layer Comps

Layer Comps, or layer compositions can be used to show different permutations and combinations from a single PSD file. This can be useful when you have to show a someone a different version of what is essentially the same project. Elements such as logos, names and a few layers may be the same, whereas others like the background or text effects may be different. A layer comp is a configuration of visible layers that can be saved with the file itself. Go to Window > Layer Comp. First select the layers you want to display by clicking on the visibility icon next to the layer. Once a number of layers are selected, go to the Layer Comp panel menu, and select New Layer Comp. To make another Layer Comp, select a different set of visible layers, and select New Layer Comp. You can select and edit a Layer Comp. Layer Comps are stored with the file and can be mailed to clients.

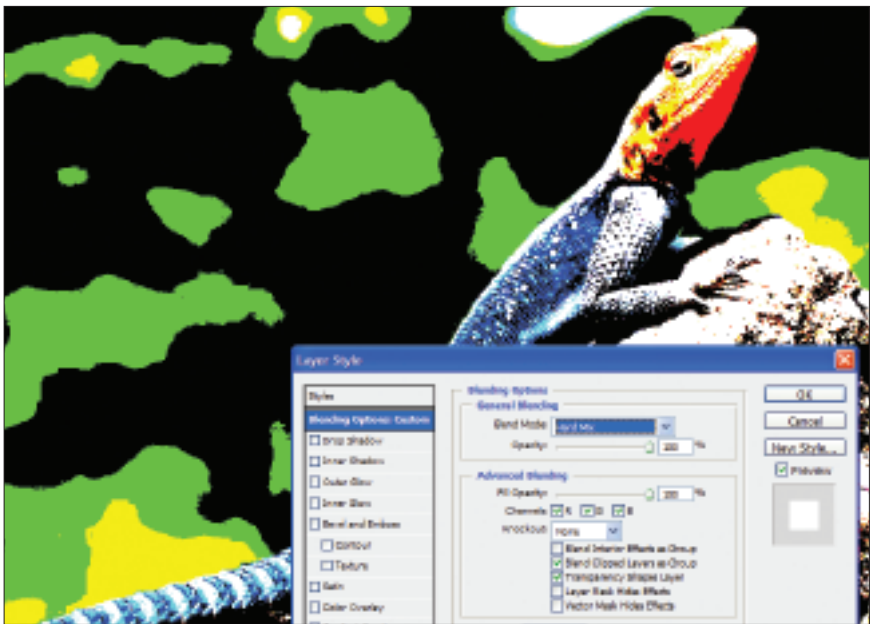
### The new blend modes in CS4

CS4 introduces some new blend modes. You need at least two layers in an image to use the blend modes. Go to Layer > Duplicate Layer to create a new layer, or use another image to create a layer. Then go to Layer > Layer Style > Blending Options > Blend Mode and select an option from the drop down menu. The Darker Color mode blends the two layers by displaying the darker of two possible colours. This layer will make no differ-



Performance options in Photoshop





The new Hard Mix blending option

ence to the image if both the layers are the same unaltered image. The Lighter Color blending mode does the exact opposite, by displaying the lighter of two possible colours. This mode will show no difference if both the layers are the same. The Hard Mix option is an interesting new feature. The blending adds the color components on the channels, giving a display colour of 255 if the colours add up to more than 255, and 0 if they don't.

**Content Aware Scaling**

One of the best features of CS4 is content aware scaling. This is great for converting regular wallpapers to widescreen wallpapers. This feature preserves the important aspects of images while resizing them. This means that while stretching images, important elements like buildings or people don't get distorted. In this example, a picture with a width of 1850 pixels was stretched to a 3000 pixel width. The picture on the left was scaled in CS3, whereas the picture on the right was scaled in CS4 using con-



Stretching without content-aware scaling (left) and with content-aware scaling (right)

tent aware scaling. Go to Edit > Content Aware Scaling to choose this option. Normally, Photoshop does a good job of preserving the content when you rescale an image. First, select the area of the image you want preserved using the select tool. Then go to Channels (the tab next to layers) and click on save Selection as channel (the white circle in the grey square). Now go to Edit > Content Aware Scaling, and use the Protect drop down box to select the channel you just created. This is usually Alpha 1, but if you created more channels, these will be named Alpha 2, Alpha 3...

**Export all Layer Comps to files**

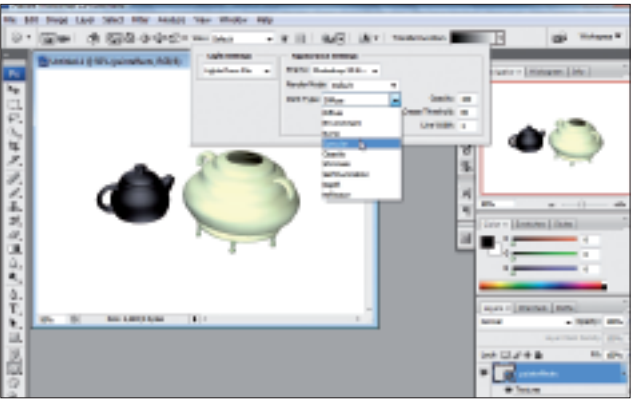
Instead of manually saving layer compositions to files, you can use a



preset script to export all existing layer compositions to files. For this procedure to work, you need to have at least one Layer Comp saved in the file. Go to File > Scripts > Layer Comp to Files. Select the output and compression settings. Then click Run. While you cannot work on more than one Layer Comp at once, you can select multiple Layer Comps to be exported. This can be done by selecting the Layer Comps instead of displaying them. When exporting, check the "selected Layer Comps Only" option.

**Working with 3D Objects**

Photoshop can now work with 3D objects, but just make sure that you have plenty of RAM and plenty of Scratch Disk space before attempting to do so. To open a file, simply go to File > Open and choose a 3D object. You can rotate and resize such objects using the buttons just below the traditional toolbox. You can paint directly on the 3D objects, and the filters you apply will be applied to the surface or "texture" of the 3D objects.



Working with 3d objects on Photoshop

**Install missing features in CS4**

Veteran users will come across a few effects and plugins that are missing in Photoshop CS4. These are extras that were included in the goodies folder of previous versions, but no included in the latest version. The missing features include commonly used features like web photo gallery maker, the texture fill and the PDF presentation maker. To fix these missing features (and more), go to <http://tinyurl.com/cs4missing> and select the platform. You will need a fairly powerful internet connection though, as this is a 40 MB download. The files have to be placed in the plugins folder.

**Amarok MP3 Player**

Amarok is the MP3 player of choice for most Linux users. It is simple to install and to configure, and is packed with features. Amarok is available for download from <http://amarok.kde.org>. The MP3 player will work on GNOME or any other desktop environment as long as the relevant libraries are installed. Just use the package manager to install Amarok, and you should be good to go. Note that some of the features of Amarok are particularly buggy on a few distributions such as Linux Mint and Ubuntu.

**Getting started with Amarok**

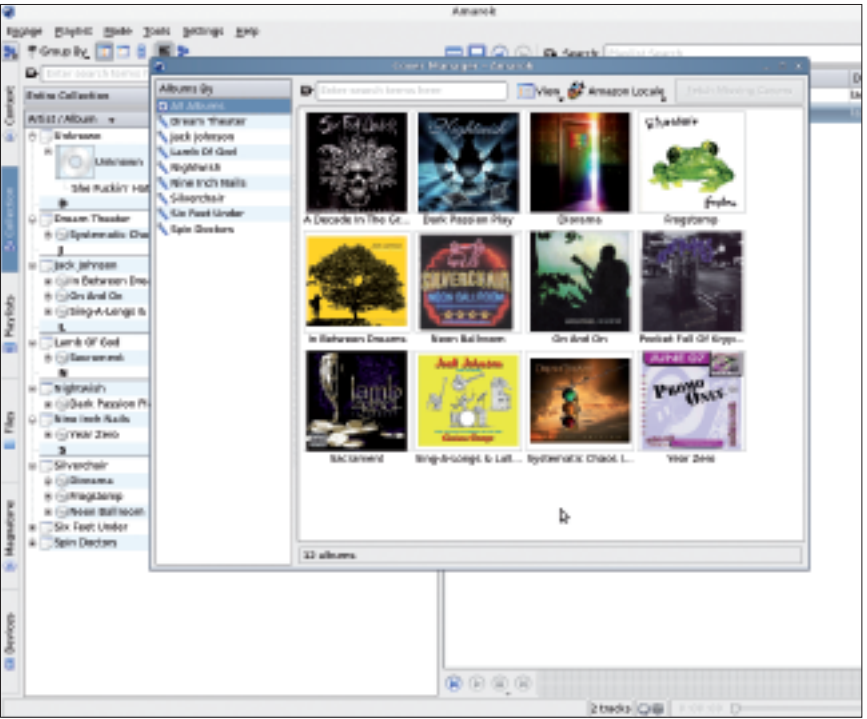
Amarok cannot start playing MP3 files the moment it is installed. The main reason for this is that the codec is propriety, and cannot be distributed for free. Before installing the codec, you will have to install an engine. Go to the package manager, and choose both the yauap and the xine engines for Amarok. Once these are installed, install the mp3 codec from [www.fluendo.com](http://www.fluendo.com). This is an online shop that "sells" MP3 codecs for no money. Finally, build your MP3 collection by pressing the Build button that appears when you start up Amarok. Choose the folder with your MP3 files, or choose multiple folders and click OK. Your music has now been imported into Amarok, and you are good to go.

**Play music from last.fm**

For this procedure to work, you will need an account with last.fm, so make sure you have one. To play music from last.fm, go to Engage > Play last.fm Stream > Custom station. Here, you will have to enter the name of the artist, a genre of music or a particular band of your preference. Last.fm will choose similar songs based on what you input in this box. You will then be prompted for your username and password. Next, you will be prompted to accept cookies. This is just the way last.fm works, and the songs you listen to will be metered and counted by last.fm. This keeps tracks of your statistics, as well as improves recommendations that last.fm throws your way. Right click on the track you are streaming from last.fm to love or ban the track, directly on the server.

**Turn on crossfading**

To turn on crossfading, go to Settings > Configure Amarok >



Looking for album art

Playback > Transition and select crossfading. Set a crossfade duration as per your preference. You can also choose to implement the crossfade on only automatic track changes or on only manual track changes.

**Add album art to collection**

You can automatically add album art to your entire collection. If your folders have an album art, they will be detected and shown. If there are missing album covers, Amarok can retrieve them from the Internet. This step requires a working Internet connection. Go to Tools > Cover Manager. This should show you all the artists in your collection with the relevant covers. Blank cases are shown for artists without covers. Click on Fetch missing covers to update the covers for these artists and albums. This will take a long time depending on how many covers need to be updated and the speed of your connection.

**Find out the name of your song**

If you have an album full of songs without IDv3 information, or just a few odd songs that have neither tagged information nor file name, you can still find out what the song is in Amarok. Right-click on one such track, and select Edit Track Information. Under the

Tags tab, select Fill-In Tags Using MusicBrainz. The program automatically searches for similar songs, and generates the content for the tags. Note that this is not hundred per cent foolproof.

**Look up the lyrics and artist information**

While playing a song, look to the context menu, and then go to the Lyrics tab. This should throw up a choice of two scripts for getting lyrics: Astraweb and Lyr. Choose one of the two scripts which should fetch you the lyrics of the song you are listening. This will be displayed in the window. The Artist tab in the context menu brings up artist information from Wikipedia.

**Play Shoutcast radio on Amarok**

Go to Playlist > Radio Streams > Shoutcast streams, to find a long list of Internet radio stations. Choose a genre, then select a particular station, after which you can choose a sub-station. Double-click, and the music should start streaming.

**Work with playlist**

To load an artist or an album as a playlist, right-click on the name of the album/artist and click on Load. You can also select a few songs and click on Load.



To further add artists/albums to an existing playlist, right-click on the album/artist and click on **Append to Playlist**. Go to **Playlist > Playlist**. Right-click on **Playlist**, and click on **Create new Playlist** to create a new playlist. The next time you right-click on artists/albums or songs, you should get an option to add those tracks to this playlist, or subsequent ones you might want to create.



### Searching in a large database

If you have a large collection of music, it can become daunting to search through it for a particular song. For this reason, the search bar in Amarok works with smart tags. Searching for **title: summer** will show any songs from artists or albums with **summer** in the title. Searching for **"Summer Wine"** will work as a phrase search. You can search by any field in the standard IDv3 format.



### Use the tray icon to its fullest capability

The tray icon for Amarok can be very useful. You can do a number of things with it. The icon itself indicates the progress of track that's playing. Hover over the icon to get the song's album art, title, artist, location and length. Hovering over the tray icon and using the mouse scroll changes the volume. Scroll up to increase volume, scroll down to decrease volume. Holding [ Shift ] and hovering over the tray icon and using the scroll wheel goes back and forth through the track; doing this with [ Ctrl ], goes back and forth through a playlist. You can drag and drop files into the tray icon to play or to queue them.



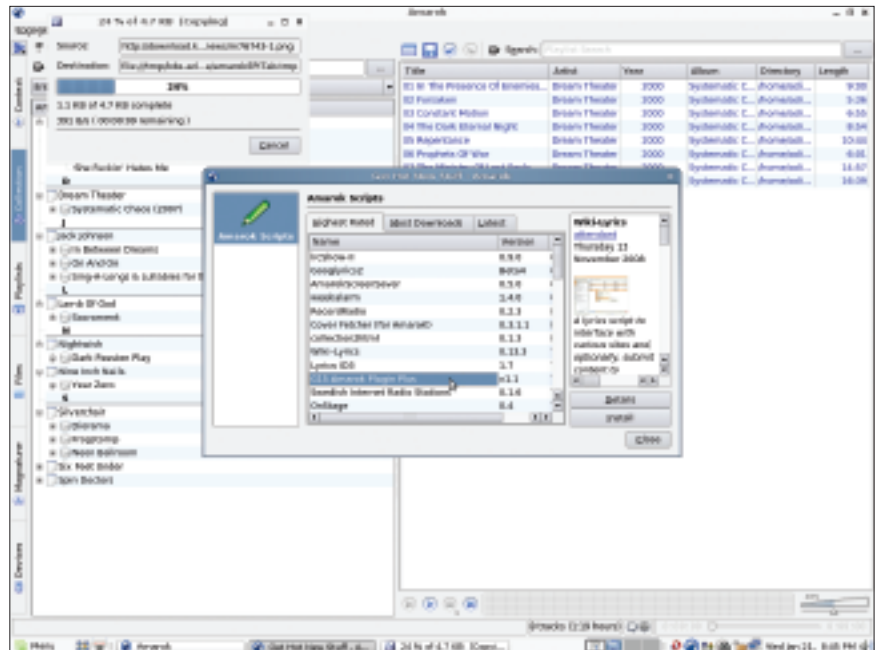
### Burn CDs with Amarok

Once a playlist is loaded, all you have to do is go to **Playlist > Burn CD**. For this feature to work, you will need **k3b** installed, which comes by default if you are using KDE. If not, use the package manager to install **k3b**. The window that pops up allows you to re-order songs, as well as add and remove tracks.



### Install additional scripts

Since Amarok is open-source, there are a lot of independent developers out there who have written small plugins for it. These are called scripts, and can be installed from the Script Manager. Go to **Tools > Script Manager** and click



stalling scripts

on **Get More Scripts**. Note that you need an Internet connection for this feature to work. Wait for a few seconds as Amarok updates its script database. Now every time you select a script, a small description appears alongside. Read carefully and pick and choose scripts to your liking; beware as some might be buggy, or not work properly on all distros. Also check the versions of the scripts: installing a stable version is better than installing an alpha release.



### For the keyboard warrior

Use [ Windows ] + [ X ] to play, [ Windows ] + [ C ] to Play/Pause, [ Windows ] + [ V ] to stop. [ Windows ] + [ - ] reduces the volume, while [ Windows ] + [ = ] increases the volume. [ Windows ] + [ Z ] plays the previous track, and [ Windows ] + [ B ] plays the next track. [ Windows ] + [ Shift ] + [ = ] seeks forward into a track and [ Windows ] + [ Shift ] + [ - ] seeks backwards. Use [ Windows ] + [ M ] to mute, and [ Windows ] + [ A ] to add tracks to the player. You can go to **Settings > Configure Shortcuts** to customise these shortcuts and more.



### Personalise the interface

You can make Amarok look the way you want to, by removing tabs and features you don't use, or by adding those not available by default. Go to **Settings > Configure Toolbars**. By default only the Play, Pause, Forward,

Backward and Stop commands are activated. Use a separator to organise the toolbar. You can, for example, remove the Forward and Backward icons, and add the **last.fm** icon. At any point of time, click on **Restore Default** to return Amarok to its original state.



### Change how Amarok looks

Go to **Settings > Configure Amarok > Appearance**. Then change the fonts that Amarok uses, change the foreground and background colours, and the colour for a new playlist item. There are two browser styles available by default. Click on **Download Styles**, select one of the highest rated or hottest styles, and save them to your system folder. Then click on **install style** to add the style. The style will now show up in the **Select a style** drop down menu. Pick it, and if you don't like it, repeat the process until you find something that suits your taste.



### Transfer files to your PMP

Go to **Settings > Configure Amarok > Media Devices**. Click on **Autodetect Devices**. Now plug in your PMP, and Amarok should normally detect it. You can transfer songs back and forth. If Amarok does not detect your device, click on **Add Device** and manually add the device. This procedure will not work for the iPod, but there are slightly more complicated workarounds for this player as well.



## Zotac GeForce GTX285 AMP! edition The mammoth has arrived

NVIDIA has just stepped up its game by releasing the GTX285. This is the pumped up version to the great GTX280 that was released last year. Zotac now brings to us an even more pumped up GTX285 AMP! edition. The card looks the same as the GTX280 one of the differences we noticed is the power connectors. This one

requires only two 6-pin PCIe connectors as compared to its predecessor (one 8 pin and one 6 pin). The cover on the back was also removed. The AMP! edition comes with clocks of 702 / 1512 / 2592 MHz (core / shader / memory) as compared to the standard edition of 648 / 1476 / 2484 MHz. The GTX280 in comparison comes at clocks of 602 / 1296 / 2214 MHz (core / shader / memory). The GTX285 still comes with 240 stream processors, but the major difference is the move from 65nm to 55nm.

We benchmarked this card in DX10 using a QX9650 with 4 GB DDR3 RAM. 3D Mark Vantage gave a score of 15,206 with a GPU score of 12,533. At a resolution of 1920x1200 in *Company of Heroes* with AA enabled, we got 202.9 fps. With *Doom 3* we got 246.9 fps with 4x AA at 1600x1200. *Crysis* gave us interesting scores — in DX9, the result we got were 46 at 1600x1200 and 40 at 1920x1200 while in DX10 we got fps of 25 and 22 respectively. *Unreal Tournament 3* at 4x AA and 4x AF gave us a score of 141 fps at 1920x1200. The last benchmark we ran was the slightly older *F.E.A.R.* with 4x AA and 4x AF. The card averaged 167 fps at 1600x1200 and 127 fps at 1920x1200.

The GTX285 has definitely some good results with benchmarks, but it's not all that far from the GTX280.

This is a high-end card and definitely is one of the world's fastest single GPU cards so the price is also quite exorbitant, but at the same time knowing its capabilities you can't say it's unaffordable either.

### Specifications:

NVIDIA GeForce GTX 285 @ 702 MHz engine clock, 240 Processor Cores @ 1512 MHz, 1 GBB GDDR3, 2592 MHz memory clock

Contact: ZOTAC International (MCO) Ltd.  
Phone: 011-46665666  
Email: sales@zotac.com  
Web site: www.zotac.com  
Price: Rs. 28,999

RATINGS	
Features	★★★★☆
Performance	★★★★☆
Build quality	★★★★☆
Value for Money	★★★★☆
Overall	★★★★☆

## BenQ E900HD Best suited for movie buffs

BenQ's E900HD is an all new ultrawide LCD screen that sports a 16:9 aspect ratio and operates at a resolution of 1366x768. This kind of resolution is perfect for watching movies

and that's what most LCD and Plasma TVs use.

This BenQ product definitely grabs everyone's attention. It has a mix of a glossy black and grey finish to it. It's got the right design for an everyday-use desktop PC screen. All the buttons have the right feel to them. The stand also shares the same glossy finish as the bezel, and keeps the screen leveled and stable.

Like some other brands, the controls are moved to the side, and using the interface is extremely simple — you can

get used to the interface in minutes.

Setting up the screen is simple, and the screen does well to display details. The only big difference while using the screen for desktop applications is the reduced workspace in terms of height. Other than that, the screen does well — the colours are good, but the presets supplied with the screen are too gaudy and over-emphasised.

The screen also features inbuilt speakers, but they are pretty weak — even after concessions for being inbuilt. The speakers are clear, but just not powerful enough for everyday use, and definitely not so for movies or games.

Although 22-inch and above screens would be considered by many as ideal for

movie watching on the desktop, this 19-inch still does a fair job at it. At Rs 7,900, it's a pretty good deal, especially for its sleek design — which you'd expect to pay more for.

### Specifications

19-inch screen, Resolution: 1366x768 pixels, Response time: 5ms, Dimensions: 18.03x14.17x7.03 inches

Contact: Benq India  
Phone: 0124-4501400  
E-mail: sales.enquiryin@benq.com  
Web site: www.benq.co.in  
Price: Rs. 7,900

RATINGS	
Features	★★★★☆
Performance	★★★★☆
Build quality	★★★★☆
Value for Money	★★★★☆
Overall	★★★★☆







## Palit HD 4870 Sonic 1GB

### From 512 MB to 1 GB

The HD 4870 initially launched with only a 512MB GDDR5 version, which was just odd, because such a high-power card deserved to have more memory. Months after the first 4870s came, we see companies coming out with 1-GB versions, one of them being the Palit with its Sonic edition 4870 1 GB card.

Palit has not stuck with the standard cooling edition, but has gone in for the same dual-fan cooling like some of the other Sonic series cards. The card has two 6-pin PCIe power connectors towards the back. Now, when you look at the I/O side of this card, it gets a bit more interesting. Palit has moved on from that boring Dual Link DVI setup seen on most graphic cards these days.

Instead, we see four different ports – DVI, VGA, HDMI and a new standard display port. There is a small overclocking switch to go from Normal to Turbo mode. Under Normal, the core clocks at 750MHz and memory at 3800MHz QDR. When you hit the Turbo switch, the card automatically adjusts its core to 775 MHz and Memory to 4000 MHz QDR. It's not a very large overclock, but it's good to have.

The card gave us a 3D Mark 06 score of 15087. We benchmarked Crysis in DX9 at 1280x1024 and 1920x1200 both at 4x AA and 4x AF and got fps ratings of 46 and 30, respectively. Unreal Tournament 3 gave us an fps of 115 at 1280x1024 and 69 at 1920x1200 both at 4x AA and 4x AF. With Doom 3 (4x AA) at 1600x 1200, we got 200.5 fps. In Prey, we got 125.5 fps at 1920x1200 and 4x AA, 4x AF. We tested in turbo mode and it did not give us great gains.

The only drawback we noticed with this card is

that the it's slightly louder than most cards, especially louder in turbo mode where the fans throttle up to the overclock. At Rs 18,500, the card is great buy for a high-end card.

#### Specifications

Memory Support: 1024 MB  
DDR5, Memory Interface: 256 bit, Sonic Memory / Core Clock: 3800 MHz (950 x 4) / 750 MHz, Turbo Memory / Core Clock: 3800MHz (950 x 4) / 775 MHz

Contact: Tirupati Enterprises  
Phone: 09339207519  
E-mail: mail@tirupati.net  
Web site: www.tirupati.net  
Price: Rs. 18,500



RATINGS	
Features	★★★★
Performance	★★★★
Build quality	★★★★
Value for Money	★★★★
Overall	★★★★

## WD My Passport Elite 500GB

### Slim, portable and spacious

Portable hard drives are getting smaller and smaller and everybody wants storage. Western Digital has added a 500 GB drive to the My Passport Elite series. This drive design is great as always and has a soft finish to it.

The WD My Passport Elite is a 2.5-inch drive with a nice metallic finish to it with the edge in a black gloss finish. On one side, you find the USB 2.0 connector with four white LEDs next to it. We noticed a flaw here, the lights are on the connecting side of the drive, that means the user can't really see the lights. The lights should have been on the other side so that users can actually see them. There is also a sliding cover over the USB port which is quite innovative and keeps the port safe and clean.

The My Passport Elite was quiet, and in HDTach, it scored an average read speed

of 34.9 MBps, and an average write speed of 29.1 MBps. In SiSoft Sandra, the drive Index score was 31 MBps. We ran the drive through some file transfer test where we did a 1 GB sequential as well as a 1 GB assorted file transfer test and got the following times – 1 GB sequential write time: 36.5 sec, 1 GB sequential read time: 16.4 sec, 1 GB sequential internal copy: 44.7 sec. For the 1 GB assorted files we got a write time of 42.7 sec, a read time of 16.1 sec, and 1 GB assorted internal copy: 38.1 sec.

This portable drive also comes with software that includes Google Desktop, Picasa, Adobe Reader 8.1, WD Diagnostics Setup, Backup Utility, Drive Manager, MioNet and a Sync Tool. With

466 GB of actual storage space, this drive is great for its design and build quality. It has a 5-year warranty, but unfortunately, the price tag of Rs. 12,150, it's certainly not good value for money.

#### Specifications

Dimensions: 15 x 126.15 x 79.5 mm, 2.5 inch SATA 5400 RPM

Contact: Western Digital  
Phone: 09321029204  
Email: amarjeet.singh@wdc.com  
Web site: www.wdc.com  
Price: Rs. 12,150

RATINGS	
Features	★★★★
Performance	★★★★
Build quality	★★★★
Value for Money	★★★★
Overall	★★★★



## MSI PR201

### The Plain Jane laptop

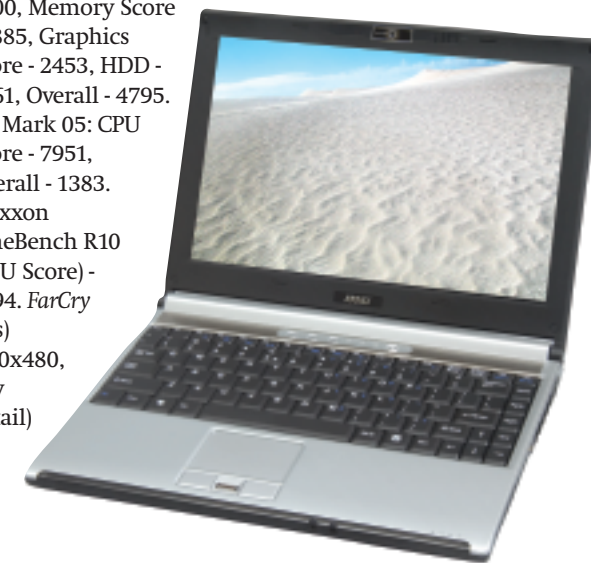
The MSI PR201 notebook falls in the Professional series of the MSI group. The PR201 is black, like other business notebooks, but has nice silver insides. This gives a really neat and simplistic feel to it, and you won't even find stickers of any kind on it.

There is a Kensington security slot, VGA port, USB, LAN port, and an optical drive on the left side. The right side of the laptop has two USB ports, a modem port, an HDMI port, a PC card slot and a flash card reader.

A few problems we had with this laptop was that firstly the touchpad has no side scrolls or multi-touch functions. Even though this laptop may be going for a plain and neat look, things like that may be

beneficial at times. This MSI also lacks a FireWire port. We ran a series of benchmarks to see the performance of this laptop.

PC Mark 05: CPU Score - 5800, Memory Score - 4885, Graphics Score - 2453, HDD - 4461, Overall - 4795. 3D Mark 05: CPU Score - 7951, Overall - 1383. Maxxon CineBench R10 (CPU Score) - 4694. FarCry (fps) (640x480, low detail)



- 51.41. The screen quality is just about decent and if it were a rating on 10 we would give it a 6.5, whereas the audio would score a 7.

There are two things that stand out in this laptop. One is the battery life: It lasted a whole 3 hours 27

mins on high performance with full brightness. The second being it's weight: 1.8 kg. The laptop is definitely business oriented and has great processing power. But then it also lacks some features like a better touchpad and a better optical drive also.

#### Specifications

Intel Core 2 Duo P8400 @ 2.26 GHz, Display: 12-inch WXGA (1280x800), SD, MMC, MS, MS PRO Card reader

Contact: MSI  
Phone: 011-41758808  
E-mail: marketing@msi-in.com  
Web site: www.msi-in.com  
Price: Rs. 62,000

RATINGS	
Features	★★★★
Performance	★★★★
Build quality	★★★★
Value for Money	★★★★
Overall	★★★★

## Samsung T220

### Different, but at a cost

With brands lowering prices and a lot of choice available, Samsung's T220 moves away from the norm of plain thin bezel screens.

The T220 is identical to its 19-inch sibling – the

T190 which came to us a few months back. In terms of design, things aren't any different. The Bordeaux treatment is still there. There bezel around the screen is semi-transparent with a hint of color thrown

in. The power button is using a touch-sensitive button. The menu controls are on the side.

The build quality of the screen itself is great but the stand isn't so. The stand only allows you to move the screen back and forth quite a bit.

The display quality is somewhat similar to what the T190 has. Calibrating the screen using Displaymate was a little tricky with the brightness and contrast settings not playing along well. The blacks aren't very deep and the colors are pretty decent overall. Being a TN panel, banding is present, but not visible as much in all colours. Movies and games look fine but there is nothing extraordinary.

The T220 is destined for users who want their desktop setups to look good. The T220 is on target in that aspect, but the performance of the

screen is not as good as we'd like it to be. It's still an above average performer. The price is clearly more than most 22-inch screens. This is something that you should only spend on if you really want design and elegance.

#### Specifications

22-inch screen, Resolution: 1680x1050, Response time: 2ms, Dimensions: 20.47 x 17.4 x 8.46 inches

Contact: Samsung India Electronics Pvt. Ltd.  
Phone: 011-41511234  
E-mail: rengith.nair@samsung.com  
Web site: www.samsung.com  
Price: Rs 15,000

RATINGS	
Features	★★★★
Performance	★★★★
Build quality	★★★★
Value for Money	★★★★
Overall	★★★★





## Canon Selphy CP 760

### 4x6 affordable prints now available at home

Have you ever found yourself in the situation that you really needed a photo print at that very second in time and that there was no way but to go to a photo studio. Well that problem will now be solved thanks to Canon's Selphy CP 760 compact photoprinter.

It's a simple design, white in colour with rounded edges. There is a 2.5-inch

colour LCD display under which are present the control buttons. The screen is slightly angled so as to make viewing as comfortable as possible. The front side of this printer has three memory card slots, which takes SD, MMC, MS, MS Duo. On the left side, the PC connection port and a USB port for PictBridge connection from digital cameras are present.

The Selphy has its own features like basic colour corrections and even red eye reduction which can be configured on the printer before printing. This can be done even when a digital camera is plugged in and doesn't necessarily

have to be done with the PC.

The time taken to print a single 4x6 postcard image took us 78 sec. This was quite amazing considering the image accuracy. We double checked this by printing another image and this time it took us 74 sec with the same colour accuracy. There are no modes like colour saving and economy that are present, but since this printer is meant only for photo printing, it's just great. Also it is great fun to watch the process of printing as it prints in layers, first a layer of yellow, then red, then blue and finally white with an instant drying feature. So for each colour layer the paper gets sucked back in and out.

This printer is light, compact, easy to use, many ways

for many devices to print, great quality outcome. Only question here is why is it only a 4 x 6 photo printer. Considering the price of only Rs. 5,495, it is a really great buy and we definitely recommend this to you all.

#### Specifications

Max Resolution: 300x300 dpi, 2.5-inch colour LCD display, Dimensions (inches): 7.09 (W) x 4.99 (D) x 2.88 (H),

Contact: Canon India Private Limited  
Phone: 1800-180-33-66  
E-mail: info@canon.co.in  
Web site: www.canon.co.in  
Price: Rs. 5,495

RATINGS	
Features	★★★★
Performance	★★★★
Build quality	★★★★
Value for Money	★★★★
Overall	★★★★



## Divoom XFORCE-1

### No Kaboom!

Divoom is one of the newest brands to hit the Indian market. We have with us a speaker set called the Xforce 1. It's a catchy name for sure but we have to see if they really are any good in performance.

The speakers are a 2.1 format speakers that connect using RCA cables. The woofer looks really attractive but the satellites with the dust filter covers on

aren't as attractive. With them removed however, they are a lot better and sound a tiny bit better too. A wired remote with a mic and auxiliary input accompanies the speakers. The bass and treble controls are on the woofer itself.

The woofer is sturdy and the satellites by themselves are built pretty well. The woofer has a very attractive front with a fine mesh on it

which gives it a very good look. The stand rotates so they automatically become wall mounts. This is something you don't see everyday. Because of this, the stands feel a little loose.

Once you tweak the treble and bass a bit, the speakers sound pretty good. The bass is almost excessive but it's not really powerful just loose and flabby. The satellites are much better. They are clear and bright in nature but lack high detail. They are pretty loud but they don't really have a punchy sound to it. The speakers work great for music and are still pretty average for movies and games. People who like crisp highs in their music will love these. The bass also is pretty but good but the mids are lacking.

The XFORCE-1 is priced at Rs 1,900 which is cheap

for a set that sound pretty decent. This makes it good value for money. Anyone who wants a decent 2.1 speaker set for the desktop and can't spend more than Rs 2,000 shouldn't look any further.

#### Specifications

Power 40 W, Frequency Range: 20Hz to 20kHz, Dimensions: Satellites 100 x 105 x 180 mm, Subwoofer: 230 x 255 x 210 mm

Contact: H T Impex  
Phone: 022-66102080  
E-mail: sales@zenthemaster.com  
Web site: www.divoom.com  
Price: Rs 1,900

RATINGS	
Features	★★★★
Performance	★★★★
Build quality	★★★★
Value for Money	★★★★
Overall	★★★★

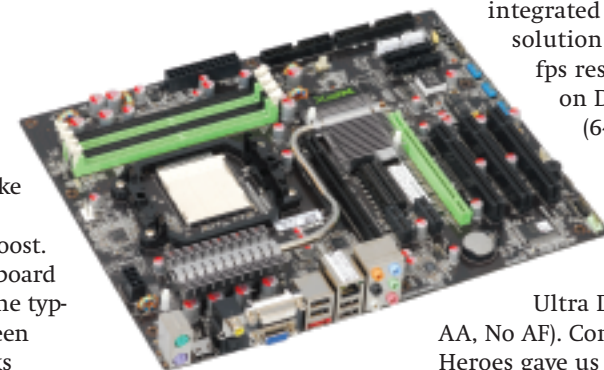


## XFX 750a SLi

### SLI: Check, Onboard Graphics: Check, Great Buy: Check

The XFX 750a SLi motherboard is a fairly new chipset with integrated graphics for the AMD lover. The board is fully loaded with all the NVIDIA goodies like 2 way SLI support, Hybrid SLI, GeForce Boost.

The design of the board is well laid out with the typical XFX black and green colour scheme. It looks good, don't get us wrong, especially with the steel heat pipes XFX has used. There are two PCI X1 slots below the first PCIe slot. The board also comes with three PCI slots. There is also a nice big PCI jumper between the two PCIe slots. An interesting button along with the Power switch and Restart button is a Bios Button which can be flashed by the



works as a really good integrated graphics solution and gave us fps results of 57.5 on Doom 3 (640x480 Ultra Details, No AA, No AF) and also 32.2 fps (1024x768 Ultra Details, No AA, No AF). Company of Heroes gave us fps results of 20.5 and 12 from the settings of 800x600 and 1280x1024 respectively. 3D Mark 05 gave a score of 2433/8129 (3D Marks/CPU score). The scores for PC Mark 05 are as follows: CPU - 7635, Memory - 4544, Graphics - 2208, HDD - 7042, Overall - 5762. The Chipset on this board is the 750a MCP, but in performance it matches up to even

push of it.

Some other features we found is Justw00t, the over-clocking features in the XFX bios. You can also reset all your overclocking settings by flashing the settings on the motherboard itself.

We tested the performance of this motherboard and got some really good results. The GeForce 8200

## Mr Site Takeaway Website

### An easy way to create a website

The Internet abounds with web sites and knowledge about almost anything and everything. But what if you want to cast your voice and opinions on the Net too but don't know web designing or programming to do so. Well that's where Online Web site Builders come into the picture. One such web site builder is Mr Site which claims to be easier than easy when it comes to creating a web site.

The Mr Site Website Kit is a box which contains a Manual, a CD and an activation code. The activation process is straight forward and once you decide a domain name you're one step closer to creating your web site. On logging in you see six options in front of you: Choose a Design, How

many Pages?, Change Content, Publish your Site, Extras and Log Off. On the upper right side you also see a Quick Jump Menu which gives you quick and easy access to all the options and their respective sub-menus. Above that are the options: Buy, Stats, Help and Email. Next to these options there is a storage meter which shows you the space you have already utilized and will



keep you aware of when your web site will get filled up.

There is a wide variety of designs you can choose from and entering your text into them is not hard. You can also select Creative Mode which gives you more options to add YouTube videos and even Flash animations. One thing we did not like is that the text of the title that you select for the page, which is displayed on the header, will be the same as the text on the button for that page. Extras include options like Widgets, Personalising, and Admin options. You can personalise quite a bit with Mr Site like uploading custom headers, logos and even buttons. A nice feature that comes with this is a website image editor which is very easy to use and has an equally simplistic interface. Webmail and FTP support is also provided.

the NVIDIA 8300 chipset.

This motherboard is a great motherboard for AMD enthusiasts especially with power saving due to Hybrid SLI. This is really a great buy for a motherboard with integrated graphics.

#### Specifications

Socket: AM2+/AM2, Chipset: 750a SLI MCP, Memory Type: DDR2, Max Supported Memory: 8GB, USB Ports: 4, Onboard Graphics: GeForce 8200, VGA Port, DVI Port, 2 Way SLI Bridge.

Contact: Rashi Peripherals  
Phone: 022-67090909  
E-mail: response@rptechindia.com  
Web site: www.rptechindia.com  
Price: Rs. 8,750

RATINGS	
Features	★★★★
Performance	★★★★
Build quality	★★★★
Value for Money	★★★★
Overall	★★★★

This website builder is very user friendly with an easy interface, but it is still just at a basic level. Even though this kit costs Rs. 2,999, which is costly, the annual renewal is a mere £2.99 (approx. Rs. 225).

#### Specifications

150 MB Website Storage space, valid for 1 year, Anytime Webmail Access, User guide included.

Contact: Mr Site Takeaway Website Pvt. Ltd.  
Phone: 09780531682  
Email: sales@mrsite.co.in  
Web site: www.mrsite.co.in  
Price: Rs. 2,999

RATINGS	
Features	★★★★
Performance	★★★★
Build quality	★★★★
Value for Money	★★★★
Overall	★★★★



## Epson Stylus TX101

### Where it's all about being affordable

Epson has been one of the world's leading manufacturers of inkjet printers, scanners, laser printers and even dot matrix printers. The Epson Stylus TX101 is an all-in-one Printer-Scanner-Copier inkjet and is aimed for home users.

The TX101 is a two flap printer, which means, the paper has to be loaded from the top and comes out from the front. The back flap is almost at a 90° angle which is fine when you are loading a whole lot of paper but is not very useful for loading single sheets.

The buttons are located on the left of this printer with buttons for On/Off, Stop and Copy functionality. Sadly, even though this all-in-one also comes with

a scanner, there is no button for Scan. You need to scan through the PC using the Epson Scan software which comes with the installation CD.

We tested the print quality by printing three test documents. We saw that in economy mode it takes about 10secs to print a document which is light gray in colour and of a bad quality with lines between each word. The same was seen while printing the image & text file which took 40.7secs even in economy mode with the colours not even being clearly visible. In the standard mode, which is normal, the print quality did improve, but the edges were still rough and the time taken for the text documents was at an average of about 27secs.



This Epson is a basic all-in-one printer that does not have anything out of the ordinary going for it. Even though it is priced at only Rs. 3,699, we would not recommend you to buy this as quality wise it is not ideal.

#### Specifications

Maximum resolution: 5760x1440 dpi , Optical resolution: 600 X 1200 DPI, 48 bits input, 24 bits output

Contact: Epson India  
Phone: 080 30515000  
E-mail: think@eid.epson.co.in  
Web site: www.epson.co.in  
Price: Rs. 3,699

RATINGS	
Features	★★★★
Performance	★★★★
Build quality	★★★★
Value for Money	★★★★
Overall	★★★★

The image quality was an improvement, but that page took 127.1secs with the same jagged edges around text.

We also tested photo printing by printing a full page colour test document on some photo paper. The quality was slightly dull with some pixilation in comparison to the actual image. The time taken to print this at the best quality was 9 mins and 28 secs which is just too long for one print.

## LG KP500 Cookie

### No cookie for me

The Cookie is a clean looking phone at first glance. Its got a really uncluttered front facia with just three, small and well beveled buttons. The phone itself is finished in matte black and has a steel-grey ring running right around the sides that adds a classy look. The camera and phone screen lock buttons are on one side and very easy to use despite their small size owing to great feedback, the volume up/down buttons aren't as good. LG has added the ability to finger swipe through albums and this is called "Free Touch", an obvious rip-off from Apple's Multi Touch; but it doesn't work anywhere at all as well which is why there's a stylus provided. Its light years away from the

flawless fluidity of Apple's touch interface. Add to that a very slow processor which becomes amply evident as you use the touch feature when browsing albums and such. We were a bit disappointed with the touch sensitivity. On a more positive note touch accuracy is a bit better and acceptable for a phone in this bracket.

The screen itself is quite large and clear although we've seen better screens in

the Xperia and the iPhone. The Cookie does make a strong point for itself by having a well laid out menu system with pretty good icons – not like some of the cartoonish icons we've seen from LG in the past. LG provides a neat bunch of games and quite frankly we had a bit of fun playing these.

This is no camera phone and we've seen much better and there's no flash. MP3 playback quality is strictly so-so and another pain is LGs continued use of a proprietary connect for the same rather than a 3.5mm jack. Call quality and signal reception strength on the Cookie isn't all that great and nowhere close to Nokia phones.

Priced at Rs 13,500 its a mixed bundle. Although not many phones can offer such a large touchscreen for the price there are other prob-

lems that prevent us from recommending you swallow this Cookie (pardon the pun!). For one, it's a mediocre phone, MP3 playback quality and the camer could be better. There are other alternatives for this price range that do far more as a phone and as multimedia devices.

#### Specifications

Specifications: Screen – 3.0", 240 x 400 pixels, 3 MP camera, microSD expansion, 89 grams

Contact: LG Electronics India Pvt. Ltd  
Phone: 91-120-2560900  
E-mail: VivekSingh@lgindia.com  
Web site: www.lgindia.com  
Price: Rs. 13,500

RATINGS	
Features	★★★★
Performance	★★★★
Ease of Use	★★★★
Value for Money	★★★★
Overall	★★★★



## XFX 9800GT

### The affordable performer

NVIDIA's 9 series graphic cards are nothing more than a refurbished GeForce 8 series card. The main difference is that the 9800GT uses 65nm GPU unlike its 8800GT counterpart. The XFX version of this card looks really great. Firstly it does not take up two PCI slots as the others that share the same numerical part of the name; 9800GTX, 9800GX2, 9800GTX+. XFX has used its own cooling solution which is a plus point. Other than looks, this card has 112 SPs and comes at stock clocks of 600 MHz for the core and 512 MB of GDDR3 memory clocked at 1800 MHz.

There is no game bundled with this card, nor is there any overclocking software. But XFX never provides overclocking software anyways. When it comes to per-



formance you cannot expect this to be as good as a GTX 280, but it did very well for a mid-range card. We ran it through a series of benchmarks at different settings for various games are the results are as such. In Crysis at 1280x1024 with 4xAA and 4xAF we got 33 fps and at 1920x1200 with 4xAA and 4xAF we got 16 fps. In Stalker: Shadow of Chernobyl, 125.53 fps was seen at 1280x1024 with 4x AA and 4x AF whereas, 78 fps was seen at 1920x1200 with 4x AA and 4x AF. With settings of 1280x1024 and 1920x1200 with 4x AA and 8x AF for Unreal Tournament

3, we got the results of 146 fps and 77 fps respectively.

On the other side, we also tested games that were not as demanding (graphic wise) but are all time favourites too like Doom 3, Prey and Far Cry. In Doom 3 with the settings of 4x AA at 1600x1200 we got 93.5 fps. With prey at 1280x1024 (4x AA, 4x AF) we got 112.2 fps and at 1920x1200 (4x AA, 4x AF) it was 70.6 fps. FarCry results were also very good, 1280x1024 (4x AA, 8x AF) - 147.15 fps and at 1920x1200 (4x AA, 8x AF) - 102.33 fps.

The XFX 9800GT gave a 3D Mark 06 score of 13351,

## Intex IT-5400FM

### Average performer at a cheap price

Intex's IT-5400 FM are a 5.1 speaker set that can be used with both the PC and also in your living room with your TV. The satellites of this set are of the same large size. Build quality of the woofer is good but the satellites have a thin mesh behind a cloth which isn't very strong. The design of the speakers themselves lack style and seem kind-of boring. The design of the remote also looks outdated. Batteries don't fit well into the remote.

The speakers come with a FM tuner which works fairly alright and picked up reception instantaneously when we first put it on without connecting it to our PC. The woofer has a

small display on it that displays information of the volume. Performing tasks like changing volume requires you to keep pressing the volume up and down buttons constantly. The buttons on the woofer are also of poor quality.

The quality of the speakers is average. One of the major complaints like with most of the other Intex speakers we've received is the colouring of the sound. The sound is more emphasised towards

the higher mids. The sound is pretty warm but it lacks detail. There is crystal clear crisp highs that come out from the speakers. The flappy smooth harmonic bass isn't present either but the beats are pretty distinct.

If there's one strong point, it's that the 5400FM's do not distort at high volumes in music and movies. The frequency sweep test did cause a tiny bit of distortion. In general, listening to these speakers isn't so much fun. Watching movies is fine but music isn't as much fun with these speakers.

Connections to the speaker are made through



which is good for this card. The XFX 9800GT is good card to use for games at a low resolution. It will give you good results up to a resolution of 1280x1024 with high detail. If you are planning to go above that with a shiny 22-inch LCD or something then expect the performance to fall.

#### Specifications

Core Clock - 600 MHz, Memory Clock - 1800 MHz, Memory - 512MB GDDR3 Stream Processors - 112, 512 MB GDDR3, Memory Interface - 256 bit

Contact: Hewlett Packard  
Phone: 124 - 2566 111  
Email: seema.dawar@hp.com  
Web site: www.hp.com/in  
Price: Rs. 8,800

RATINGS	
Features	★★★★
Performance	★★★★
Build quality	★★★★
Value for Money	★★★★
Overall	★★★★

RCA connectors so you need 3.5mm jack to RCA connectors to connect to these speakers.

These speakers are clearly best used with a DVD player or an HTPC and connected to a TV. At Rs 3,950, they are a decent pair of speakers and one of the cheapest 5.1 speakers you'll come across.

Contact: Intex Technologies  
Phone: 09811037376  
E-mail: info@intextechnologies.com  
Web site: www.intextechnologies.com  
Price: Rs 3,950

RATINGS	
Features	★★★★
Performance	★★★★
Build quality	★★★★
Value for Money	★★★★
Overall	★★★★

## Mitashi TFD-7608

### DVDs on the go...

There have been many mobile phones and PMPs that allow users to watch videos and movies on them. But seriously, watching the videos on that small a screen is really painful. So here is a solution for those commuters who like to catch up on their video and movie watching needs with a bigger screen. The Mitashi TFD-7608 is portable DVD player with a load of features to offer, it's silver on the outside and has a black finish on the inside.

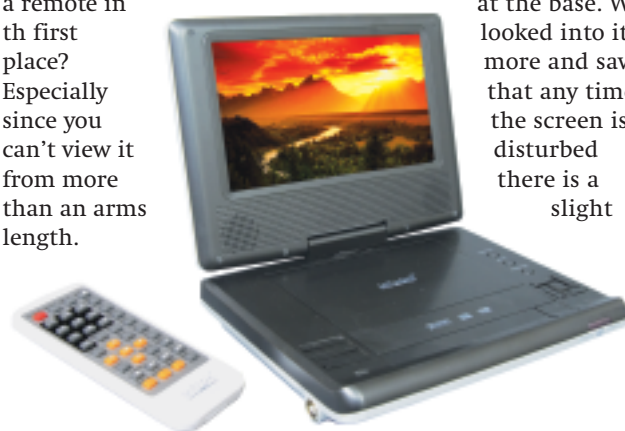
This portable device has a 3.5mm headphone jack, AV-in, AV-out, and the volume control on the right. On the left you can plug your TV wire into. When you open the player, the first thing you notice is that the screen can be rotated and turned all the way around and made to rest

like a tablet PC. The buttons on the device were not very good and felt toyish.

The remote provided is also not that great in quality, but has additional options like zoom, and at least the buttons here have a better feel to them than those on the player.

Although one must wonder why a portable player needs a remote in the first place?

Especially since you can't view it from more than an arm's length.



The player also has MMC, SD and MS card input support from the back as well as a USB port so that you can plug in a flash drive. When we tried to play something from a flash drive, however, we found that it takes 5 clicks to start a movie. This player supports a wide range of formats including DIVX.

Another problem we spotted was while turning the screen the TFT flickers at the base. We looked into it more and saw that any time the screen is disturbed there is a slight

interference. Even so, this player is great company on long journeys and will provide on-the-go entertainment whenever and wherever you are. Also you can use this as a DVD player in your car.

#### Specifications

7-inch widescreen TFT Color Display with In-built TV Tuner, DVD/CD/MP3/DIVX/JPEG, built-in SD/MMC/MS Card Reader & DivX function

**Contact:** Mitashi Edutainment Pvt. Ltd.

**Phone:** 022-25006661

**E-mail:** sujay@mitashi.com, archie@mitashi.com

**Web site:** www.mitashi.com

**Price:** Rs. 7,490

#### RATINGS

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

## McAfee Internet Security 2009

### As good as the many others

With security being such a big concern these days, there have been many new developers coming up with antivirus software and then evolving into complete security suites. Some of the older well-known security suites have been overshadowed by them.

The installation is simple and you are first prompted to uninstall and disable any previous security suites or components that you have installed. The interface is traditional as compared to Norton's recent security suites. To keep the abundant features from confusing users, the suite lets you toggle between a Basic and Advanced menu. Each of the features in the suite have

very detailed customisation windows that allow you to tweak each component.

McAfee's Internet Security 2009 comes with pretty much everything required to safeguard your system from everything from virus and worms to hacker attacks. Parental control is also part of the suite.

Keywords and wildcards can be used to block sites. The McAfee Data Backup feature is one that lets you

archive data from your drive to either a optical disc, a different location on your drive, or one on the network.

Spams in mails are also taken care of, as well as files sent through instant messengers. There are additional features like the Password vault, which allows you to securely store your passwords.

There are other interesting bits like the Shredder feature that permanently deletes files or even an entire partition or drive. The system cleanup feature allows you to delete all unnecessary items such as temporary files from installers, cache from browsers, undeleted registry keys and so on. With all its features, it is a little bloated and slow at times.

McAfee's Internet Security 2009 is at par with the security software we've

seen, though not as polished or as simplistic.

The price of Rs. 2,699 is fine as you can use this to protect upto three PCs. As a security solution, it's not miles ahead of other suites.

#### Requirements:

Windows 2000 (SP4 and higher), Windows XP, Windows Vista, 256 MB of RAM, 150 MB of free disk space.

**Contact:** McAfee

**Phone:** 022-40291300

**Email:** hemant\_baghel

@mcafee.com

**Web site:** www.mcafee.com

**Price:** Rs. 2,699 (Upto 3 PCs)

#### RATINGS

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





# Peripheral Vision

## Agent 001 goes shopping for gaming peripherals

Over the years games have become more demanding on our hardware as they offer greater immersion. One aspect of gaming remains unchanged — your interaction with the game. Most of us use a cheap keyboard and mouse while gaming. While this may do for playing the odd game, if you care to call yourself a gamer, you will definitely feel the inadequacy of a common keyboard and mouse. Customisable buttons, macro keys, high-sensitivity mice and joysticks — are what you should look to as tools of the gaming trade.

My hunt for new gaming gear began with the demise of my two-year old Logitech MX518. It had served me through countless hours of *Quake 3: Arena*, *Warcraft III* and *Battlefield 2142*; not to mention a host of single-player titles, including *Crysis*. The impending release of *Prince Of Persia* also had me seriously thinking about biting the bullet and buying a game controller. So I needed a new mouse and a game controller.

I already have a superb keyboard — the Logitech G15 — which has beautifully backlit keys; a must for after-dark fraggers. The key spacing is a little more than what most keyboards offer, which is great for gaming. There are also 12 macro keys; superb for hack-n-slash and RTS games. The G15 is priced at Rs. 4,400 and while that may seem a lot, it's a beautiful keyboard for hardcore gamers. Razer's Tarantula is another good offering, although it has less macro keys than the G15 and not all its keys are backlit. The Tarantula retails for Rs. 6,200 in India which is way too much for what it offers. There are a couple of options from the likes of iBall and Zebronics but these are half-hearted attempts at gaming keyboards and not worth the premium.

When it comes to gaming mice there are four major players — Logitech, Microsoft, Razer, and Steel Series. When looking at gaming mice, remember that there are two types of sensors — infrared and laser. Laser sensors have higher resolutions and offer greater scrolling speed (not to be mistaken for accuracy) than infrared mice. Logitech's MX518, an infrared mouse, costs Rs.

1,400 — and is a real steal for its price. The Logitech G5 is a laser mouse with a 2,000 dpi sensor and is priced at Rs. 2,500. You can even configure the weight distribution of the mouse using provided weights. Logitech's latest offering; the G9 sports a 3200 dpi sensor and has a customisable grip that can be adjusted for width depending on the size of your hand. It's priced at Rs. 4,400. Razer's Lachesis is a competitor to the G9 and sports an identical sensor; it's a fair bit costlier at Rs. 5,400. It's the same size as their Copperhead, and both are aimed gamers with slightly smaller hands, in my opinion. The



Copperhead is priced at Rs. 4,000. Personally I find both of these mice to be very small for my hand and therefore uncomfortable, although their lower profiles (compared to Logitech mice) do help to alleviate stress on the wrist. The Razer Diamondback is the same size and shape as the Copperhead, but sports a slightly lower resolution (1600 dpi) infrared sensor; it's priced at Rs. 3,000. Razer's Deathadder is my favourite mouse from the Razer series. It sports a 1600 dpi infrared sensor and feels very close to the MX518 in hand; but it's slightly lower, and its more rounded profile fits my hand perfectly. Steel Series' Ikari, a 1600 dpi mouse, is priced at Rs. 2,000 and exudes a great feel. The only drawback is that its clicks are a little too soft for my taste.

Do not be fooled by resolutions — all these mice track really well and a 3,200 dpi sensor might not always be better than a 2,000 dpi sensor since the extra precision means the mouse gets ultra-sensitive to even minute movements — not something most gamers are comfort-

able with. Microsoft's Sidewinder and Sidewinder X5 are other gaming options: the former is costlier at Rs. 5,100, and the latter sells for Rs. 2,500. In comparison to Logitech and Razer, these feel a little tacky, particularly the X5. The Habu is an older option from Microsoft with a slightly improved MX518 sensor under its hood. It's priced at Rs. 2,500. For me, a mouse can't get better than the MX518 — superbly priced now, I bought mine for Rs. 2,600 a couple of years back and thought it decent value; at its current price, well, it's a steal.

I was also looking for a controller for hack-n-slash games to use with my PC. Microsoft's Xbox 360 wired controller is available for as little Rs. 1,650 these days. At this price, it's a steal as it comes with force feedback. The wireless version of the controller costs Rs. 2,700 but you also need a wireless receiver unit if you're going to use it with your PC. Sony's PS3 controller (called DualShock 3) is also available; the wired version of the same costs Rs. 2,900 while the wireless version is priced at Rs. 4,500. I did see a Saitek wired controller priced at Rs. 2,500; availability of this brand will be an issue in most places although the higher end Saitek products are very good. I highly recommend the wired Xbox 360 controller — it's cheap, it's widespread and works well.


For racing games, Logitech's G25 and Momo are available. The Momo is excellent value at Rs. 4500. It has two pedals, a 240-degree steering wheel turn and force feedback. The G25 is a premium offering and I must say it looks lovely with a leather wrapped wheel and its F1-style paddles. The steering is ultra realistic with 2.5 turns from end to end and the dual-motor feedback ensures that you feel not only bumps but also curves in the road and embankments — this is the real deal for racing fans. The only downside is the price — Rs. 17,750 — although it's fairly priced in my opinion; for the experience it offers.

I ended up picking the Xbox 360 controller and the Logitech MX518. Now fraggers will once again quake; while I get down and dirty with the prince. ■

agent001@thinkdigit.com


**Q** I wish to upgrade my PC. My PC configuration is 1.5 GB of DDR2 667 MHz memory, ATI Radeon X1550 Series graphics card, Intel E4600 CPU, Asus P5KC Motherboard and 400 watt SMPS. I want to upgrade my memory and GPU first. I will also upgrade my processor but a few months down the line. My budget for the graphics card is Rs. 5,000 and for the memory is Rs. 3,500. Which brand is good and what sort of a performance increase can I expect with a memory upgrade? Should I change my PSU for my configuration? My budget for the processor is Rs. 8,000.

**Ihsan Ibrahim**


 The weakest points in your configuration is your CPU and GPU. You haven't mentioned what your usage pattern is, but I would recommend DDR2 800 MHz memory in a dual channel configuration if you're on a really tight budget or 1066 MHz memory if you can spend a thousand bucks more. Opt for two sticks of 2 GB each for a total of 4 GB. For the graphics card I suggest you invest in an NVIDIA GeForce 9600 GT-based graphics card. EVGA's 9600 GT is a good option. Expect to pay Rs. 6,000 for this – which is a steal in my opinion. Intel's E8400 (3.0 GHz), is a good processor for a powerful, multipurpose PC. It's a Wolfdale based dual-core processor with 6 MB of L2 cache and is priced at around the Rs. 8,000 mark. Expect a 10 percent increase in performance with your memory upgrade and a much higher increase in performance with the recommended CPU and GPU. Change your PSU; Corsair's VX 450 is a good buy at Rs. 3,500 and will power your PC.

**Q** I am planning to buy a new machine with an AMD Phenom X4 9550, JetWay HA-06, Seagate 1 Terabyte (32 MB Buffer) HDD, Sony 20 X SATA DVD writer and a 17-inch LCD monitor. I am a general home user although I play the odd game. Please suggest a suitable power supply and cabinet and also a good DVD writer apart from Sony.

**Cyrus Chowbey**


 Why don't you go with a Core 2 Duo E8400 instead? It is faster than the X4 9550 in all the tasks you've mentioned. If you want a quad core, Intel's own Q6600 will also be a better option. Both of these cost the same as the X4 9550. For a power supply I recommend a VIP 500 watt PSU which will cost you around Rs. 3,000. Look at the CoolerMaster 690 for a cabinet; it's a great looker and cools excellently. If you want a decent gaming experience with older games look at a graphics card – the GeForce 8600 GT is a good entry level chipset; it should be priced at the Rs. 3,500 mark. LG DVD writers are good alternatives to Sony and I personally feel they're more reliable.

**Q** I have decided to buy a camcorder that fits in a budget of 20k. Please let me know about the 3 models: Samsung's VP\_DX103i, Sony's DCR-DVD610 and

 **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.


Canon's DC310, their IS and recording medium. Would a 35x optical zoom be sufficient for shooting in the hill stations? Which of the above models fits the best for my purpose?

**Chayan**

 First of all let me say that I find HDD-based camcorders much better than disc- or tape-based ones. They are also compact in comparison. A 35x optical zoom is enough for most situations; and in any case camcorders with a higher zoom are rare and suitably price i.e. beyond your budget. Please use the camcorder you intend to buy to ascertain the effectiveness of its optical zoom; which for me is the most important factor when buying a camcorder for outdoor purposes.


**Q** I have planned to purchase Sony Ericsson's W595 cellphone. It's priced at Rs. 14,000. I want a mobile with good music solution. Can you suggest any other worthy mobiles around Rs. 14k to 15k?

**Merbin Shyju**

 It depends on what exactly you're looking for. If you want a feature-rich Symbian based cellphone then I would point you towards the Nokia N73 Music Edition. Else if you wanted an SE phone I'd suggest the K850i – which has a good camera and also great music quality. This should be priced at around the Rs. 15,500 mark and is superb for the price. The SE K800i/K810i phones are also good for you – they offer excellent music quality and a very good camera. These phones are cheaper and the K810i is actually priced around the Rs. 9,000 mark; meaning you can pick up an iPod Nano 4 GB with the remaining cash and get yourself a good PMP as well.

**Q** I am planning to buy a PC. It will be used for lots of business stuff, including the stock market monitoring etc. You see I am very fond of gaming also. I would like a gaming rig combined with a business power machine. Could you suggest a good configuration within a budget of around Rs 70,000?

**Rohan Kumar**

 Here's my recommendation:  
Going for a quad core doesn't make sense unless you are willing to sacrifice on some other component and get an Intel Q9550 (2.83 GHz) processor which will cost Rs. 17,500. ■

#### PC Configuration

Components	My Suggestion	Price
Processor	C2D E8500 (3.16 GHz)	9,500
Motherboard	MSI P 45 Platinum	10,000
RAM	2 x 2 GB DDR2 1066 MHz (Kingston, Corsair)	5,000
Graphics Card	ZOTAC GeForce 9800GTX+ AMP!	12,000
Hard Drive	Seagate 1 TB 7200.11	6,800
Monitor	Dell SP 2208 WFP	15,000
Cabinet	CM 690	4,000
Power Supply	Corsair HX 520	6,000
		<b>68,300</b>





**88** Second-hand PCs: A first-hand report

## Digital Business

How Technology Can Help Your Organisation

# High in the meltdown

**Siddharth Parwatay**

**I**n today's economic turmoil, everyone's looking at ways to cut down on costs — small businesses are no exception. In fact, small businesses are probably hit the hardest as most of them operate on limited rolling capital and don't have deep pockets to sustain themselves in these times. And they say, *desperate times call for desperate measures*. What can your business do to save costs? Here, we look at some cost-cutting measures that you can deploy.

### Cut your electricity bills

Utility costs can be a killer. For example, setting the air conditioner to 26 degrees will help a long way — the temperature remains pleasant enough to work while drastically reducing your electricity bill. During summers, reduce air-conditioning costs by scheduling your work around the hottest hours of the day, if you work from a home-office. Use fans and ventilators

**There's a lot you can do to reduce your operating costs in these days of economic turmoil — from optimally using your air conditioners to using your printers efficiently**

that open to let out the heat. Have your meter checked if you're getting outlandish bills. It's a matter of filling out and submitting a simple form at your electricity company's office.

Here are things you can do on the IT front:

1. Switching to LCD monitors is a good idea. Some quick back-of-the-envelope calculations show that on an average you should recover the additional investment of LCD over CRT in just three years by way of accrued savings on electricity. Not to mention the space saving, and hey — they look better. Incidentally, LCDs produce less heat, so a marginal decrease in air conditioning costs cannot be ruled out.

2. Switch off the mains to your PCs before leaving. Know that your equipment draws power even when they're off. So when you see the small green light on any device, it's drawing at least a few watts. A recent UN-sponsored study found that up to 10 per cent of your electricity



Ashwini Baviskar

## Digital Business | Feature

bills can be reduced simply by switching off the power to computers and other electronics such as cellphone chargers.

3. Tweak the computer's power management for optimum savings. We're often away from our screens — coffee breaks, telephone calls, and numerous other distractions always keep popping up to pull you away from your desk. Screen savers that usually kick in at such times won't save your screens and won't do much for your power bills either. Keep the settings such that your monitor switches off after five minutes, or less, of being idle.

### Cut your phone bills

Cutting down on phone costs can be a tricky business considering the multitude of offers and plans out there. The key is to analyse your usage pattern.

1. Find out what type of calls your business is required make — whether more calls will go out to cell phones or to land lines — whether STD or local?

2. Find out from where most of the calling happens — whether land lines or mobiles? Once you know, choose a plan and service provider to meet your requirements.

3. An increasing number of people are saving money by using Voice over Internet Protocol (VoIP) clients, such as Skype. While the quality of service varies, it can be more cost-effective than landlines. Skype can be used to make international as well as domestic internet calls. While international calls are charged a nominal amount, the domestic calls are free (Check the box 'Setting up Skype' for details on how to install and use Skype). There are software such as TeamSpeak which will allow you to host a voice-chat server for multiple users to log into. So conference calls within the same building or even branch offices can be achieved.

4. If you have a number of employees working and you're not constantly around to supervise, it's probably a good idea to keep STD active on only some lines. Phone lock codes are also a good idea.

5. Use free SMS services such as [www.way2sms.com](http://www.way2sms.com). After all, a penny saved is a penny earned.

### Cut your internet costs

Internet costs for your office can be brought down through some tweaking.

1. Analyse your usage pattern. Is it more of just email and light browsing, or is a fair bit of downloading required? If it is the former, we'd recommend going in for speed and bandwidth as against high-data limits. Any 256kbps connection these days offers 500MB of data transfer. This is more than sufficient for browsing and email. The bandwidth,

too, is good enough to give you decent browsing speeds when split into say three PCs over a network. Firewalls and filters are a must unless you want your employees to be loitering around on Orkut and using up precious bandwidth and data limits. If you're on a limited data line, you need to have a caching server / proxy, so that frequently visited web pages are stored on local drives for quick retrieval. This means that these web pages are not downloaded each and every time you visit them (Check the box 'Cutting internet costs' to learn how).

2. If your usage is more download-intensive, opt for the unlimited plans. Any good unlimited plan these days should be not be more than Rs. 1,500 for a 256kbps line.

3. These days, for most businesses, however small, having a web site is a must. Accordingly, many small businesses do host simple web sites, for which they end up paying a lot of money as domain registration charges and web space. While in fact web space is available for cheap

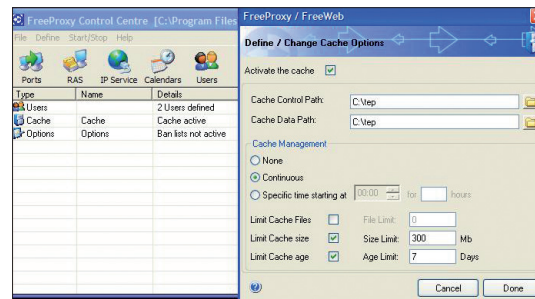
and at times, at zero cost. You should not pay more than Rs. 450 for domain registration. If your web site is hosted by one of those web space resellers that sprouted at every corner during the dot-com boom, then please look elsewhere. Host your website on, [freewebspace.com](http://freewebspace.com) or at least paid,

but cheaper Indian servers. Once your domain is registered, all you need to do is redirect it to where your web site is hosted. For example, buy the domain [www.yourbusiness.com](http://www.yourbusiness.com) but host it at <http://yourbusiness.freewebspace.com>.

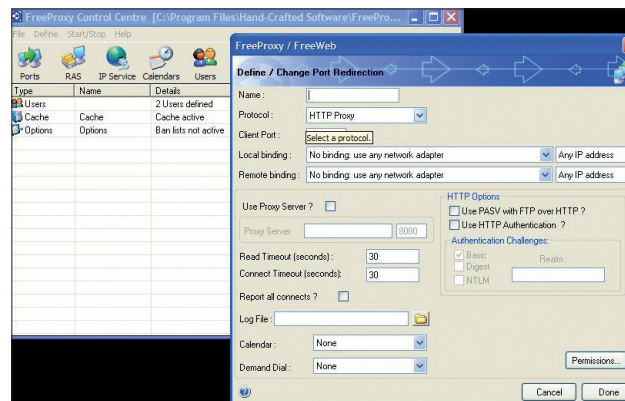
4. The same goes for email. If your friendly neighbourhood web space reseller is charging you for an email interface, you need to stop right away. [Zoho.com](http://Zoho.com) has solutions for small office users, whereby your emails are pulled to Zoho's servers. You get the Zoho interface that is quite similar to Gmail and migration is also pretty straight forward. The best part — it's free for up to ten users! All you need to do is configure your domain and

e-mail information with Zoho. Your email will remain [you@yourbusiness.com](mailto:you@yourbusiness.com), but you'll now be checking mails at something like <http://business.mail.zoho.com/a/your-business.com/#inbox>.

Google also offers a similar service, and they're trying to hide it. Go to [www.google.com/a/](http://www.google.com/a/), click the big blue "See details and sign up" button. Although it looks



Free Proxy: Setting up caching



FreeProxy: Setting up the proxy server



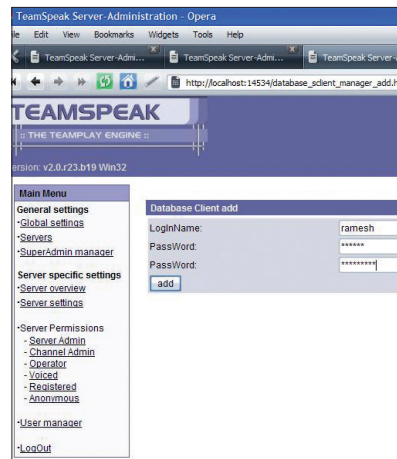
like you have to pay for this service, look for a link that says “Compare to Standard Edition”. when you click this, you will see a “Get Started” button under “Standard Edition”. From here on you can just follow instructions, and get over 7 GB email space for up to 50 users.

### Other tips

There are other things you can try, like printing on both sides of the paper. You save money and the environment! Some printers automatically print on both sides of the paper. If your printer does not, use the “print on both sides” mode, where you only have to manually reverse the stack after one side is printed. Also, avoid printing unless absolutely required. If you must print, then print in draft / economy mode by default.

So far we have told you what you can, and should do, to cut corners. But while running leaner is a must, not every penny-pinching measure is a good one — so here are some strict No-Nos. Certain things are really based on common sense. For example, if your business relies on a web face then don't compromise on that front. Follow these set of instructions and you should be well on your way to frugality in these trying times. ☑

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Teamspeak setup

### Using Power Management

To change the power management settings for your PC, go to Start > Control Panel > Click Power Options. Set the Turn off monitor to After 5 minutes, and turn off hard disks to After 10 minutes, and standby to 15 minutes. This will significantly save electricity.

### Skype Setup

To communicate between branches of your office, make sure you have Skype downloaded and installed on the PCs in your office. You can also have conference calls between offices using Skype. Upto 24 employees can join these conference calls. Click on Call > Start Conference Call. Add users from your contacts and click on start.

### TeamSpeak

TeamSpeak is an application that allows you to host a voice server on your PC. You can connect to this server and have a voice chat / conference. The application is actually meant for gaming purposes, but can be put to commercial use. It's free and works effectively on LAN. So in case you have an office, which is on different levels or floors this could be a useful utility. It's like having a conference call on, all the time which is something not even possible on a telephone-based intercom. To setup, download TeamSpeak client as well as TeamSpeak server from [www.teamSpeak.com](http://www.teamSpeak.com). While installing the server, you will get a temporary username and password. Make a note of both admin and superadmin passwords. These passwords can be changed to your preference later. Once installed, the TeamSpeak server will minimise to the system tray. Right-click on it and click on Administration. The server is managed through a web interface, so a browser page will open where you need to put in your username as superadmin and password. Once within the interface, click on SuperAdmin manager in the left pane. Click on add client to create user accounts for all your employees. Assign user name and password for each employee. Once this is done install the TeamSpeak client on all your PCs. To connect to the server from another PC click on Connection > Connect in the TeamSpeak Client application. Add details of the server such as server IP address and nickname. Enter user name and password and click connect. The server's IP can be found out by right-clicking on the server icon in the system tray and moving the cursor over “Your IPs”.

### Sharing the internet

To share an internet connection between multiple computers, a proxy software is required. Several solutions such as FreeProxy and AnalogX are available online. Download and install FreeProxy from [www.handcraftedsoftware.org](http://www.handcraftedsoftware.org). It is simple, easy to use and also functions as a caching server and web site filter / blocker.

To Share a Connection using FreeProxy follow these steps:

Click on Define > Define Ports. Here you can define ports for Http, socks, etc. (Usually 8080, 1080 etc). Click on Done.

Now enter this in the browser's settings on the PCs connected to the network. Click on Start/Stop to activate proxy server. All PCs will now access the internet through this proxy server.

**To Activate Caching:**

Click on Define > Define Cache. Tick the Activate the cache check box. Select the control and data path. Enter the size limit of cache depending on usage. 300MB should be fine. Set the expiry to around 7 days. Click on Done.

**To ban certain web sites:**

Click on the Ban List button in the top bar. Click on New and create a category, say Bad. Click on Manage Category Details and add the URLs that you wish to block. Click Save, and then Activate > Done. Double-click on Ports and then on Permissions > Add Resource. In Resource type, select Ban-List URL or IP Address. Under Permission, select Forbidden for all users. Click Done. You can also add filters. To do this in resource type, select Full URL or Path Filter. Under path, you can type \*download\* to block all URLs containing the word download.

# Second-hand PCs

## A First-hand Report

Siddharth Parwatay

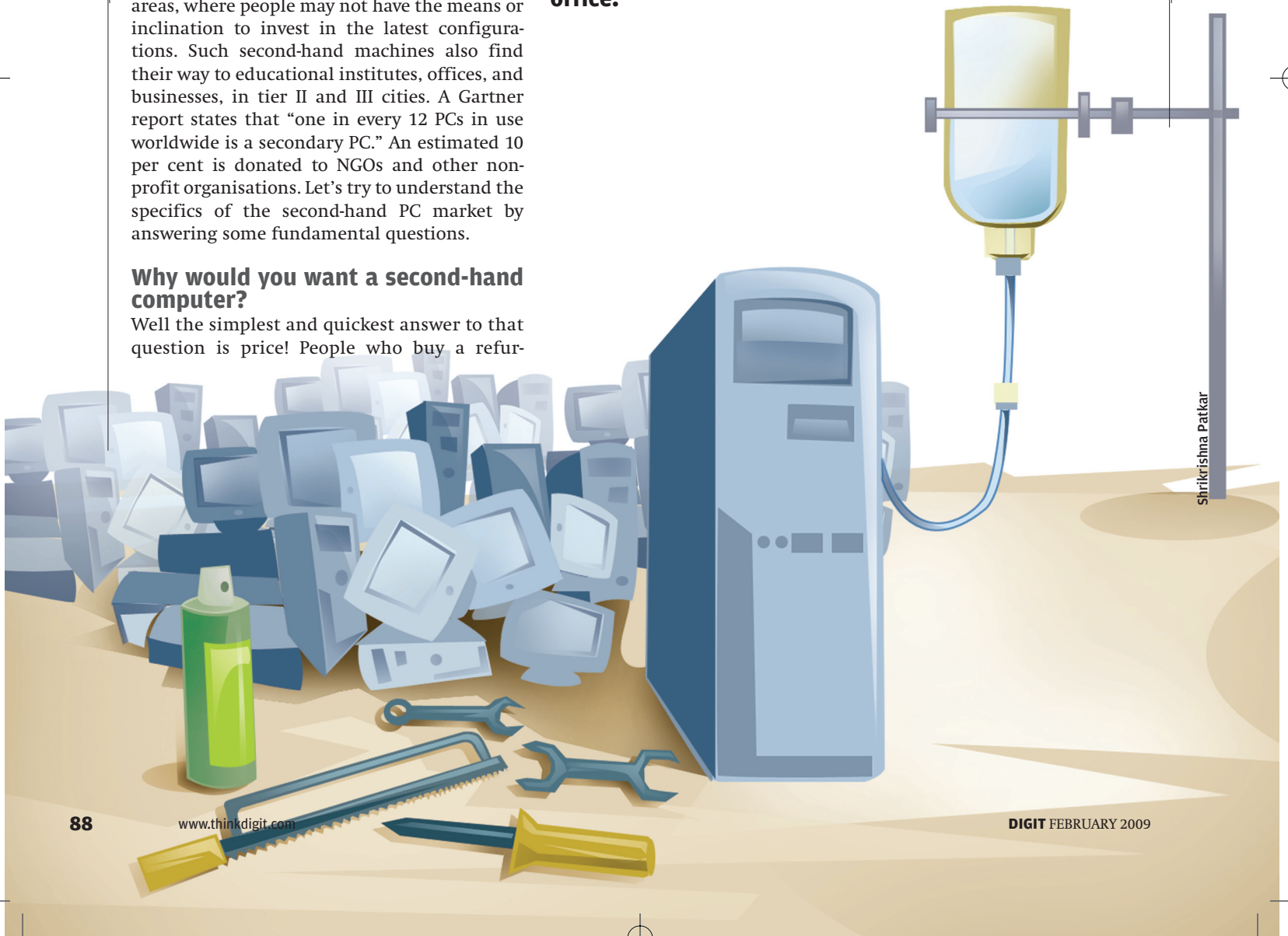
Can anyone's scrapped system, be someone else's dream machine? Well, this certainly holds true in the second-hand PC market. Just because your PC can't run the latest game doesn't mean it's trash. It can possibly perform mundane office tasks. Many don't know this, but there exists a large secondary PC market out there — with its own set of rules of participation and provision. A stream of such so-called obsolete PCs form the foundation of this market. Some consumers frequently upgrade their PCs and sell their old ones in the second-hand market — largely in the metros. A significant portion of these proliferate to rural areas, where people may not have the means or inclination to invest in the latest configurations. Such second-hand machines also find their way to educational institutes, offices, and businesses, in tier II and III cities. A Gartner report states that "one in every 12 PCs in use worldwide is a secondary PC." An estimated 10 per cent is donated to NGOs and other non-profit organisations. Let's try to understand the specifics of the second-hand PC market by answering some fundamental questions.

### Why would you want a second-hand computer?

Well the simplest and quickest answer to that question is price! People who buy a refurb-

**Today's PCs may be more powerful than ever before, but what about affordability? Second-hand PCs offer the perfect budget solution for your small office.**

bished or a second-hand computer generally fall into one of two categories. The first category of people need a computer for fairly standard tasks such as internet browsing, word processing, spreadsheet work, etc. Applications of this nature have not changed much over the years in terms of the demands that they make on a computer's resources. Therefore, a second-hand computer which may be a few years old, would be quite capable of running even modern versions of these programs and at a fraction of the price of a brand-new machine. Besides, when you're running such mundane tasks, a brand new machine can be an expensive overkill. The second category of users might require a





machine to do some specific task — as part of an office or a home network — for example an email, a database, or a web server. Again, tasks which an older computer is quite capable of handling.

Gordon Moore, the former CEO of Intel once observed that “the power of semiconductor technology doubles every 18 months”, and so the average computer manufactured today has specifications which dwarf those available just a few years ago. But the resource requirement of day-to-day software has not evolved at the same pace. A computer made three years ago will run office, database, accounting and other mainstream applications, and browse the net, as effectively as the latest PC. This is quite a blessing for small businesses looking to purchase a few additional computers, especially in these dire economic times.

“Well what about durability?” you may ask. Jitu Bhai who is the proprietor of Jitu Bhai Joone Computer has some reassuring things to say. As his company’s name suggests, he deals exclusively in second-hand

computers and has been in the business for over ten years. “Computers, although not built to last forever, are certainly built to last. Especially the older ones which had better build quality”, Jitu opines. “[They] almost never break down... if one does fail, chances are that your new PC can also do just that”, says Jitu Bhai. He also points out that it’s a good step you can take to do your bit for the environment. Remember that with very little measure taken for proper disposal of e-waste, most of the redundant PCs in India will be dumped in non-environment-friendly ways. Reuse and reduce is the formula.

### Where do these PCs come from?

As we pointed out earlier, one source is the home user, probably indulging in a two-year upgrade cycle. But another important source of these PCs are large companies that have regular update cycles. Companies operating in verticals such as IT, telecom, banking and



### Things to keep in mind while buying second-hand PCs

- 1. Avoid Branded PCs. Opt for assembled -** Branded PCs have customised motherboards which are hard to come by. Their slots can't accommodate generic components, the SMPS can't be sourced and numerous other problems. An assembled PC, on the other hand, is easily upgradeable.
- 2. Avoid RD and SD RAM -** Again, these components are very difficult to source. Even if you can source the RAM, it'll be expensive due to non availability.
- 3. Opt for Samsung and LG screens -** These, according to dealers, are the most reliable and they have a wide service network. Like most things Chinese, avoid Chinese monitors.
- 4. Operate the PC to check if its in working order -** Look under the hood for components that are within warranty. For example most hard disk drives come with a 3 year warranty. Also check for bad sectors in the harddisk.
- 5. Check to see if the cooling fan is working properly -** Any abnormal whirring noises could mean it has gathered dust and needs cleaning.
- 6. Give the specs a thorough look to make sure they match with the ones advertised -** Go to Settings > Control Panel > System > Device Manager to check the listed features.
- 7. Try to get original documentation -** Receipts always come in handy.
- 8. Avoid Celerons -** No explanation required!

### When you are the seller

When most people sell off their computers, they do a simple formatting of their hard drive. This is certainly not enough. They put themselves at risk of being defrauded or of having their identities stolen because many disks are not properly wiped of data. Second-hand computers are a potential treasure-trove of personal information, and can be exploited to devastating effect. Professor Martin Gill of the University of Leicester and his team, in a study purchased six second-hand computers from various sources and conducted a forensic data-analysis on each one using off the shelf computer software. They discovered half had not been securely wiped. In one case, there had been no attempt to wipe the contents! Make sure you use a data-shredding software on your most personal files before selling your PC. A good data wiping software is Erase v 5.3 which can be downloaded from <http://www.tolvonen.com/eraser/download.shtml>

## Digital Business | Smart SoHo

finance, where the criticality of IT infrastructure is very high, experience a high churn for PCs that are phased out more rapidly. It is here that the technology obsolescence factor essentially acts as a driver for the second-hand PC market. Until recently, banking and finance companies could easily afford to be slightly frivolous. Faisal of Star Infotech, which operates out of Lamington Road and deals in second-hand PCs puts it well — “large companies will routinely go in for a yearly revamp in hardware and sell the old computers to dealers for near scrap value.” However, he is quick to add that “most of my stock comes from home users”. Faisal is now looking forward to expanding his sales reach by targeting SMEs that require 15 to 20 computers for routine work. Jitu Bhai also offers some interesting insights. “A lot of pieces come from customs where auctions are regularly held to get rid of unclaimed or seized goods. Big businesses are a good source but we get their used computers indirectly, through large PC suppliers who are required to buy back hundreds of PCs from their clients as part of exchange schemes”, says Jitu Bhai. Another source is imports. Some may frown and call it e-waste dumping, but large quantities of high-end used computers find their way to Nehru Place in Delhi and secondary markets in Kolkata. These PCs are usually leased by rental companies abroad, and after a pre-defined deadline are considered redundant. Of course, they are far from redundant. Many of Jitu Bhai’s components come from PC manufactures who keep stand-by pieces of components to cover replacement guarantees. The buffers are quite high and many pieces remain unused, and find themselves in the secondary market.

### A standard configuration

A standard configuration:

Intel Pentium 4, 2GHz , 256MB RAM, 40GB Hard drive  
CD-Writer, keyboard, and mouse  
15-inch CRT monitor  
Rs. 6,000

Web Resources: Classified web sites will help you find individual products as well as second-hand dealers in your city or town. Here are some examples.

<http://www.adpost.com/in/computers/>

<http://www.trademart.in/>

<http://dir.indiamart.com/cgi/compsearch.mp?ss=second%20hand%20computer>

<http://www.sscmptech.com/used-computer.htm>

<http://www.secondhandmall.com/>

<http://www.jitubhai.com/>

### Why does it make sense for SoHo’s?

According to Jitu Bhai, the propensity to buy second-hand PCs for offices is less in the Metros. This is because the gap between new and second-hand has narrowed over the years. Yet the thumb rule remains that a second-hand machine can be bought at half the price of a new one. As per current prices, a decent second-hand PC can be bought for Rs. 6,000 to 8,000 as opposed to a new entry-level model for around Rs. 13,000. This translates to Rs. 5,000 saving on just a single PC — if your business requires more than five PCs, you are looking at a substantial saving.

People in the metros also have several hang-ups regarding after-sales service. Anyone trying to rubbish the entire second-hand business PCs should know that most of the players offer some form of warranty. The warranty period may range from a week to a month and most secondary sellers offer maintenance contracts through partner firms. Most don’t offer on-site warranty, but are happy to service the faulty components if you’re willing to bring the equipment to their office. Many others go by the axiom, “Walk out of the door and it’s your responsibility...” Avoid these guys.

Tier II and tier III cities are more open to the concept of used PCs. Mr. Goyal, a cyber-cafe owner in Jaipur had started off with three PCs that he bought from Jitu Bhai. He has now expanded to fifteen and is perfectly satisfied. A woman in Mira Road, who does not wish to be named, has several second-hand computers that form the back-bone of her small medical transcription business.

### Where do you start from?

Your friendly neighbourhood assembler should be able to get you a good deal or at least get you in touch with a second-hand seller. You will also find players like Jitu Bhai who have their own web site ([www.jitubhai.com](http://www.jitubhai.com)) that offer components, as well as fully set-up PCs. If you pick up in bulk, most suppliers will offer some form of discount and either a preferential or an enhanced after-sales service. A simple Google search will net you results on web sites like Indiamart. Remember, some people will have no qualms about calling a spade a spade — in this case, a second-hand PC. But the euphemisms are aplenty — pre-owned, used, refurbished are some examples. All these terms can be quite confusing and certainly interchangeable. Although refurbished ideally implies that the computers have been thoroughly serviced and faulty parts have been replaced by the dealer. Most dealers do this anyway, so even if the computer has been lying in a dusty office basement, it’ll look like it’s in a fairly decent condition. ■

*siddharth.parwatay@thinkdigit.com*





**94** Games coming in 2009



**100** Developing in India



**104** Mirror's Edge

# Digital Leisure

Technology Beyond Work

Lead Feature

## Alternate Reality Gaming

Ever wonder what it would be like to be a part of an adventure like Indiana Jones or a story right out of a Ludlum thriller? We all have, right? And so we play hundreds of RPGs and MMOs to experience a little bit of that thrill. But what if you could really be a part of something like that – *really* a part of it?

Siddharth Parwatay

Welcome to the immersive world of Alternate Reality Games (ARG) – a form of gaming that uses the real world as a platform, while involving multiple media and game elements, a powerful storyline that may be affected by participants' ideas or actions, all the while relying on the internet as the central binding medium. ARG is where the line between games and reality starts to blur, mainly as a result of its primary mantra – TINAG (this is not a game). Reminds you of an obscure Michael Douglas movie called *The Game*? Precisely!



MV Sajeev

While being part of an ARG, say you encounter a bomb which is steadily counting down in the back seat of a car you’ve gone to investigate. As it nears zero you begin to wonder, if only for a brief second, whether it’ll actually blow up or a flag will pop up saying “boom” – that’s how real an ARG can feel to its participants. Some of the nascent ARGs had participants just stumbling upon a web site, claiming certain anomalous events have taken place or are going to take place, and from then on, clues would send them on an online adventure trail. But instead of presenting a chronologically unified coherent narrative, the story would be discovered in scattered pieces across the Internet and other media, allowing players to reassemble it, supply connective tissue, and determine what it meant. In effect, the players would themselves not know whether they’re part of a game, a hoax, a prank or just some wild goose chase.

The one thing that ties all ARGs together is that you interact with the fictional world using things that you interact with on a daily basis in the real world. Also, you aren’t interacting as a character, as you would in most computer and video games. You also don’t need any special equipment, as you would with most console games. Most ARGs take advantage of computers and the internet (web sites and emails) as well as phones and even the occasional live event - finding something hidden in your city, gathering around payphones, or even live parties with character interaction!

The bulk of the game-play happens online in the form of solving puzzles, conducting research, and interacting with in-game characters and community members. But since it’s often a collaborative effort, there is no need for all players to do all tasks, which is good since some of the puzzles and clues are insanely difficult, making even seasoned players pull out their hair.

How did all of this begin?

Well, if you really want to trace it back it prob-

Jargon

**Puppet-master** - A Puppet-master is an individual involved in designing and/or running an ARG. Puppet-masters are simultaneously allies and adversaries to the player base, creating obstacles and providing resources for overcoming them in the course of telling the game’s story.

**The Curtain** - The curtain is generally a metaphor for the separation between the Puppet-masters and the players. Puppet-masters generally remain behind the curtain while a game is running. The real identity of Puppet-masters may or may not be known ahead of time.

**Rabbithole** - Also known as a Trailhead. A Rabbithole marks the first web site, contact, or puzzle that starts off the ARG.

**Trailhead** - A deliberate clue which enables a player to discover a way into the game.

ably has its roots in the early television show promotion campaigns which sent viewers on so called “Treasure Hunts”. Then there was the whole Beatles “Paul is dead” controversy where thousands of people believed that Paul McCartney died in 1966 and was replaced by a look-alike and sound-alike. People went about trying to prove this by uncovering hints among the Beatles’ many recordings that alluded to this fact, such as statements heard when a song is played backwards, symbolic interpretations of obscure lyrics, and ambiguous imagery on album covers.

But the true seminal work in ARG was *The Beast*, so called because an early asset list for the project contained 666 files.

*The Beast* was set in the year 2142, fifty years after the events chronicled in *AI*. There were a few overlapping entry points to the game, or “rabbit holes”. First, some trailers and posters for *AI* had a credit for Jeanine Salla as Sentient Machine Therapist hidden among the credits for Spielberg and the actors. Second, one of the trailers had a telephone number concealed in the markings on the promotional text; if a player called this number and followed the given instructions he or she eventually received an email stating in part that “Jeanine is the key” and that “you’ve seen her name before.”

Each rabbit hole led to questions about Jeanine Salla, especially since one would not expect a film made in 2001 to require the services of a robo-therapist! Googling Jeanine brought up several web pages set in the fictional world of the game such as the homepage of Salla’s employer, Bangalore World University. Reading Salla’s bio page, the player encountered a link to the personal page of Salla’s granddaughter, Laia Salla, as well as Jeanine’s phone number. Following these clues leads the player to the homepage of Evan and Nancy Chan, family friends of the Sallas. Jeanine’s phone message revealed that Evan recently died in an alleged boating accident on his A.I.-enhanced boat, the Cloudmaker. But it is learned from several sources that Evan was a superb swimmer.

At this point the player joins the investigation into Evan’s death. Over the course of the three months that *The Beast* went on, it incorporated thirty diverse in-game web sites, from the Anti-Robot Militia to the Coalition for Robot Freedom; from an architectural magazine to a sleep clinic, and from the coroner’s office to a hat store. As the game progressed, the players came across additional mysteries, such as who is killing AI-enhanced houses, the location of the sexbot with whom Evan had an affair, and malfunctions in the weather-control system. By the end of the twelve weeks, players had completely immersed themselves in the in-game action.

Why should I care?

Unlike other games, this type of game reacts to the players moves. The Puppet-masters (creators) often are forced to change the story line mid-game and

also come up with newer puzzles and sub-plots to keep the players engaged. They have to continually keep up with the combined intellect of the player community and in fact, be one step ahead — so no more linear game play. Still, if all this doesn’t excite you and you ask “hey so what, why should I play?” well then maybe you shouldn’t. Or maybe you’ll try to give it a shot if we tell you that ARGs are popular amongst female gamers. Sound interesting now?

In any case, if you’re not the puzzle solving type, there is a way out for you too. Thousands of enthusiasts lurk around on the periphery to just follow the plot, and put in an occasional forum post. The great deal of community interaction might just facilitate meeting some interesting people.

ARG as a marketing and promotion tool

Unlikely beneficiaries of ARGs are filmmakers, who find that promoting movies through this form of interactive entertainment really gets the buzz going. Steven Spielberg’s *AI* did it with *The Beast*, one of the first mass AIGs attracting over 2 million active users.

And it’s not just film and TV; even the music industry is taking to ARGs. *Year Zero* was an alternate reality game based on the Nine Inch Nails concept album of the same name. The game was launched just before the album was scheduled to release. In response to criticism regarding this form of promotion for the album, Trent Reznor, frontman of the band, stated “The term “marketing” sure is a frustrating one for me at the moment. What you are now starting to experience is “year zero”. It’s not some kind of gimmick to get you to buy a record — it is the art form... and we’re just getting started. Hope you enjoy the ride.”

So are these ads and gimmicks intrusive? Not really. Most usually don’t even mention the product that they’re promoting. It’s actually a brilliant form of viral marketing as it gets a bunch of people to spend a lot of time exploring a world related to the product. Take the case of ‘I Love Bees’, a huge promotion for *Halo 2*. Those that did play it knew that it was a promotion, but not once did it scream, “Please buy *Halo 2*!”. Instead of flooding the users with *Halo 2* banner ads, they were immersed in the back-story of the *Halo 2* universe. Players spent months before the game was released interacting with some really cool fictional characters. For example, the game presented players with 210 pairs of global positioning system coordinates and time codes, with no indications to what the locations referred to. Players eventually figured out the coordinates referred to pay phones and the times to when the phones would ring; one player in Florida stayed by a phone while Hurricane Frances was minutes away in order to recite answers to prerecorded questions. Other phone calls were made by live persons known as “operators”; these calls allowed players to interact with the characters

of the games in spontaneous and occasionally humorous ways.

And all the interaction between players made finding friends to team up with on Xbox Live really very easy. So sure, there is marketing, but it was really cool marketing that gave players something to talk about, something to enjoy.

ARG in India

Is there really a scope for ARGs in India? Does the average Indian gamer want *thinking* games, or is he more into the shoot-em-up, high definition type of entertainment?

Not really. IIM Indore’s online puzzle game *Klules* got 12 Million hits a month. It was a series of levels, which required the player not only to think but be resourceful by googling stuff and thinking laterally. Although a precursor, it wasn’t an ARG in the true sense of the genre.

Perhaps India’s first real ARG was hosted as a part of Malhar, the all India college fest of St. Xavier’s college, Mumbai. Dubbed the “Richard Burns Project”, participants had just as much fun as the Puppet-masters who were pulling their strings! Players were immersed in a plot involving disappearance, espionage and semi-paranormal elements, thinly connected to actual events in Mumbai’s history like the 26/7 floods and the World War II era dockyard blast. All the while players were actively solving web-based, audio and visual puzzles to progress to the next stage. The final leg had them running all over south Mumbai in the wee hours of the morning in search of cryptic clues. But since it was part of the fest, it was not open to the general public. ■

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Where do I start?

[www.argn.com](http://www.argn.com)  
You can find the currently running ARGs by visiting ARG Network, the best basic resource for ARG news and events. You’ll see a list of the most popular (and confirmed!) games at the top of the page with links to the forums where it’s being discussed as well as any other important resources (such as the game chat room).

[www.unfiction.com](http://www.unfiction.com)  
The forums at unfiction (uf) will update you on the latest independent games.

[www.cloudmakers.org](http://www.cloudmakers.org)  
Cloudmakers now serves as a clearinghouse for online gaming. Members can find out about new games, find fellow players, and reminisce about and discuss *The Beast*.

Besides, we suggest you keep your eyes open; you might just chance upon something somewhere, you never know



# Most Anticipated Games of 2009

Kumar Jhuremalani

2008 saw some great titles being released, but that's old news now. It's the New Year — let's move on. Games give us something to look forward to, when you get home from school, college, or even work. Enough talk. Let's jump into a list of the games that we are looking forward to this year. These games are in no particular order, because we definitely want to play them all!

## Lord of the Rings Conquest (PC, PS3, Xbox 260, Nintendo DS)

The *Lord of the Rings: Conquest* is an upcoming video game developed by Pandemic Studios and published by Electronic Arts. It is based on *The Lord of the Rings* trilogy, and borrows many gameplay mechanics from Pandemic's *Star Wars: Battlefront* games. This game allows you to play both the forces of good and evil, but unlike *The Lord of the Rings: The Battle for Middle-earth*, the latter option is based around Sauron stopping the One Ring from being destroyed and fighting back. All sounds good on



paper, especially as it offers a choice of a side to pick in the epic war for the Rings, so let's wait and hope for the best. Go to [www.pandemicstudios.com/conquest/](http://www.pandemicstudios.com/conquest/) to find out more about this game.

## Halo Wars (Xbox 360)

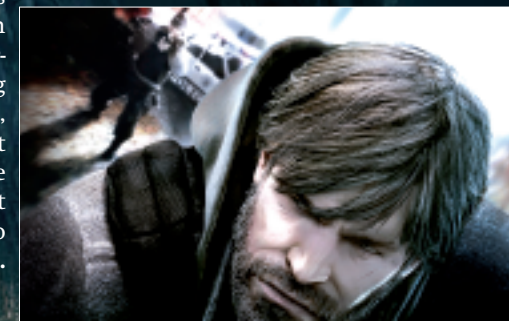
*Halo* is an all time favourite FPS game that has you playing as the spartan warrior Master Chief, of the UNSC. You have to battle the Covenant forces and achieve victory. *Halo Wars* has not been created by Bungie, but is instead more of an off-shoot of the *Halo* franchise, and is created by Ensemble Studios. The game offers a different perspective to the world and wars of *Halo*. As an RTS game, you get to control large armies and shrewdly direct them in realistic warfare. *Halo Wars* is set during the UNSC's first deadly encounters with the Covenant, allowing players to lead the crew of the UNSC's "Spirit of Fire" — from initial skirmishes to an all



out war against the Covenant. So all you RTS lovers who really didn't understand the hype behind *Halo*, should now set yourselves up to get hooked. *Halo Wars*' web site is [www.halowars.com](http://www.halowars.com).

## Tom Clancy's Splinter Cell: Conviction (Xbox 360, PC)

*Conviction*, is the fifth among the popular *Splinter Cell* series. This game is being developed by Ubisoft Montreal. The story takes place two years after the events of *Tom Clancy's Splinter Cell: Double Agent*. Sam Fisher is forced out of hiding because of an unspecified danger to his friend and co-worker, Anna Grimsdóttir. Upon his return to Third Echelon, he discovers that the organisation has fallen into disarray due to overbearing bureaucracy and internal power struggles. Incensed by the inability of Third Echelon to do what's right, Sam strikes out on his own. In *Conviction*, Sam's involvement with the terrorists in *Double Agent* has made him a wanted man, forcing him to go incognito. For those of you who haven't played any of the previous *Splinter Cell* games, Sam is a part of a special black ops team under the NSA, code named Third Echelon and Anna Grimsdóttir is the technical operations manager in the same department. The game offers a good mix of stealth gameplay (think *Metal Gear Solid* series, and action). This particular outing of Sam promises to be as exciting as the previous installments with its interesting information gathering gameplay, stealth, and covert missions. For more information about this game go to <http://splintercell.us.ubi.com/conviction/>.



## Street Fighter IV (Xbox 360, PS3, PC)

*Street Fighter* lovers rejoice! The game is back with added features, characters and game styles. Gear up for new moves and combos including four new characters — Abel, Crimson Viper, Rufus and El Fuerte. Of course there are boss and hidden characters that these arcade games always hold — Gouken, Seth and Akuma. Even though the characters are being rendered in 3D, the gameplay is not going to change. *Street Fighter IV* is retaining the arcade style of six button combat. There are



two more attacks that have been added to this game — Focus Attack and Ultra Combo. The game is already released on arcades, but will have more to offer for the home version, which will be releasing shortly. *Street Fighter*'s web site is [www.streetfighter.com](http://www.streetfighter.com)

## BioShock 2: Sea of Dreams (Xbox 360, PS3, PC)

What can we say about *BioShock*? Those of you who have played the game, absolutely love it. If you haven't played it, well, you are missing out on an award-winning title. Now it's time to play the sequel of the game coming out in 2009 titled, *BioShock 2: Sea of Dreams*. Here's the problem though — not much has been revealed about the sequel. So much so, that there is speculation that the game may be a prequel instead of a sequel. A teaser for the *Sea of Dreams* is available on popular video sites





such as YouTube and Gametrailers. Well, whatever the nature of the game, it is definitely another gem to look out for.

### F.E.A.R. 2: Project Origin (Xbox 360, PS3, PC)

The nightmare has returned, Alma Wade is back. The sequel to *F.E.A.R.* continues the supernatural suspense story of Alma, a powerful psychic who rages against those who wronged her. This triggers an escalating paranormal crisis in her person, that threatens to devour and replace the reality as we know it, with her own. Her story is told in *F.E.A.R.* through various means such as sequenced flashbacks, snip-pets of CCTV footage, and other evidence found playing the game. In *Project Origin*, you will encounter Alma, we assume, in a similar way they did in the first game — through exploration of a city that was annihilated by the cataclysmic explosion of the previous game. This time you will not be playing as the Point Man, but will instead play a special forces operator called Michael Becket, whose squad is sent in to arrest Genevieve Aristide, based on the evidence gathered against her by the Point Man in *F.E.A.R.* All of this will be occurring 30 minutes prior to the ending of *F.E.A.R.* The game's teaser throws some great fight sequences and some chilling moments. We can't wait. Visit <http://projectorigin.warnerbros.com> to learn more about this game. *This just in: at the time of writing this, Project Origin's demo has been released on the PC and console platforms. So what are you waiting for, go grab it!*



### Diablo III (PC, Mac OS X)

*Diablo III* is another sequel to a very popular RPG series from Blizzard. The game offers a new story-line and of course, awesome graphics. *Diablo III* takes place in Sanctuary, the dark fantasy world of the *Diablo* series. For those of you who played *Diablo II*, the world was saved by a handful of unnamed heroes. The story goes like this: the warriors that survived the onslaught of the armies of the Burning Hells have gone mad from their ordeals, and it is up to a new generation of heroes to face the forces of evil threatening the world of Sanctuary. Players will also have the opportunity to explore familiar settings such as Tristram. The three classes which have been revealed so far are the Barbarian, the Wizard and the Witch Doctor. The Barbarian is the one class that has been preserved from *Diablo II*. A scary fact about the Wizard has been mentioned as on the *Diablo III* website: "Imagine, a



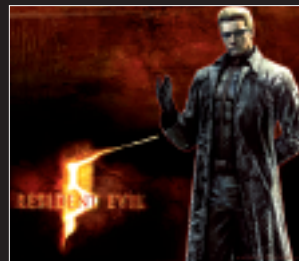
headstrong nineteen-year-old youth, able to warp time itself to her will!" Yeah, haven't heard that one before... Jokes apart, this sequel will give you the chance to customize your character as per gender, something that was previously not possible. Looking at the game trailers, this game looks to be another great hit from the Blizzard stables, and we are eagerly awaiting its release. You can learn more about the game at [www.diablo3.com](http://www.diablo3.com).

### God Of War 3 (PS3)

Not much is known about the third and the final part of the *God of War* trilogy, but it will definitely be as exciting and as much fun as the previous two. The speculations we have for this game include new and more awesome weapons that kill and rend in even cooler ways. Can there ever be enough blood splatter? Surely not. The previous titles did a great job as action games, but we want more. We would especially like to see more of the Kratos character buildup — here's a person who can stand up to the very Gods, someone without fear... we love that aspect of his character and can't wait to see how the developers improve upon him. The story arc of the game so far is brilliant and going strong, we would definitely want to know more. There has also been speculation that *God of War III* will offer online gameplay, definitely something to look forward to... The *God of War III* website is [http://www.us.playstation.com/PS3/Games/God\\_of\\_War\\_III/](http://www.us.playstation.com/PS3/Games/God_of_War_III/)



### Resident Evil 5 (PS3, Xbox 360)



Another sequel to another great franchise; but this game is also a movie series. *Resident Evil 5* continues in the same vein as its immediate successor. The game is similar to *Resident Evil 4* with the same 'over the shoulder' camera view. Instead of controlling the character of Leon, as done in the fourth game, you get to control Chris Redfield. While *RE:5* adds new weapons, it still retains the classic handguns and shotguns. Lighting plays an important part in this outing, with dark and bright environments offering drastically different styles of gameplay. For example: as Chris moves from a dark area to a brightly-lit area, the dilation of his pupils will cause you to see extended black instead of a direct readjustment of the environment around you. More human like behaviour has also been given to the enemies with

increased AI. And of course, this game introduces an element of co-operative multiplayer—you can either play locally over a split-screen, or remotely with your friends. Head to [www.residentevil.com](http://www.residentevil.com) where you can find out more about this game.

### Prototype (Xbox 360, PS3, PC)

Here's a rather challenging game for everybody. *Prototype* is a sandbox-style action game, which basically means you don't have to follow a single patch to reach your objective. You have the freedom to choose the way you want to play the game. Of course this freedom isn't without limit; you will have to follow the basic story outline which goes like this: You play Alex, a mutant shape-shifted with superhuman abilities of strength, speed, agility, durability and healing. You are also empowered with the abilities to consuming fallen enemies... a bit creepy, that. As we mentioned earlier, Alex can shape-shift and take on the guise of those he has consumed... getting creepier... Alex, of course, has lost his memory and is set out to regain it. He would also need to find his sister to get the answers he is looking for. The game throws two types of enemies at you: one is a set of humans that have been infected with a virus causing them to mutate, and the other are the special squad of soldiers sent out to kill the aforementioned mutants. The most interesting aspect is the shape-shifting ability, a new concept as a mean of destruction. We do hope that the gameplay is not overly complicated due to this mechanic. Radical (the developers behind this titles) claim that there are 750 different combinations that can be used through this power, so we hope they don't disappoint us. Head to [www.prototypegame.com](http://www.prototypegame.com) to learn more about the game.



### inFAMOUS (PS3)

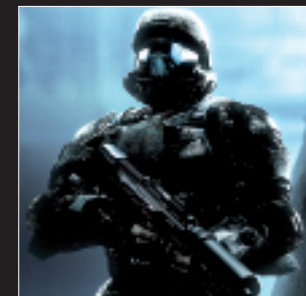
You play a college dropout named Cole, who is a bicycle messenger. One day Cole delivers a package which for some strange reason, causes a massive electromagnetic explosion that kills everybody in a six-block radius, except Cole. Cole is not the same after the explosion and now has super powers (he can control electricity) and is out for revenge, or more likely, an answer. While the setup sounds a bit overdone (remember the big green guy), the core gameplay seems interesting. Oh and did we mention that prior to the life-changing explosion Cole was athletic and knew parkour? Parkour, or free-running is getting quite common in the gaming world, with more and more games being created with parkour as the core concept. Another thing to watch out for is the sandbox style of gameplay offered by *inFAMOUS*



where you can choose to be either friendly by helping out people in distress, or just ignore them and do your own thing. Through its great graphic and cool powers, we hope that this new-age super hero game will be a win. Visit <http://www.suckerpunch.com/detail.php/games/infamous> for more about this game.

### Halo 3: ODST (Xbox 360)

Formerly known as *Halo 3: Recon*, *ODST* is an expansion of *Halo 3*, created by Bungie. The gameplay is similar to the *Halo* trilogy but in this expansion you do not play as Master Chief, but rather a lone UNSC soldier in the city of New Mombasa, Kenya. You play a soldier of the Orbital Drop Shock Troopers (ODST) whose main objective is to find out what happened to his missing squad members.



Since an ODST does not possess Master Chief's superhuman abilities and armor, he is more vulnerable to weapons fire, making for a more cautious and tactical gameplay. But don't get the wrong idea—ODST is not focused on stealth gameplay, however, some elements of stealth will be incorporated. To learn more about *Halo 3: ODST* head over to this web site [www.bungie.net](http://www.bungie.net).

### StarCraft II (PC, Mac OS X)

*StarCraft II* continues its epic saga where *StarCraft: Brood War* left off. *StarCraft II* will present a cast of new heroes and familiar faces in an edgy sci-fi story filled with adventure and intrigue. Protoss, Terran and Zerg, the three races in the game will be battling it out once again, only this time there will be new units, new abilities and new maps. *StarCraft* has always been one of the fastest RTS games around and be



assured that this sequel will continue that aspect. This game caters to the veterans who love *StarCraft* and also to those who are new to the RTS genre. Blizzard will once again offer online play through Battle.net their online service, which is expected to offer new features to accommodate *StarCraft II*. Learn more about *Starcraft II* by visiting this web site: [www.starcraft2.com](http://www.starcraft2.com).

### Star Wars: The Old Republic (PC)

This game is likely to attract a varied bunch of people: from gamers, to geeks, to Star Wars freaks. Firstly, the MMORPG world will want to get their hands on this massively multiplayer title. Then there will be those who have played and enjoyed either of the two *Knights of the Old Republic* games,



and finally anybody and everybody who ever liked *Star Wars* would, and must, definitely try this game. Of course this game has also recieved a lot of criticism—there are those who do not want their single-player-only favourite to be converted into an MMO, others say that this game will not do well with the prevailing market condition as the MMO market is currently dominated by *World of Warcraft*. Warranted, or unwarranted criticisms aside, this game will definitely be a delight as it can be considered a step up from the traditional setup of Mages, Wizards, Nights, Elves and Orcs, which is so common that it has begun to get boring to some extent. [www.swtor.com](http://www.swtor.com) is where you need to head if you're interested to learn more about this game.



### BattleForge (PC)

Okay, this game is just amazing. It's so good it actually can't be classified, but let's try to do it anyway. This game can only be played online, so let's start off by saying that it's an online game. But since many people can play it simultaneously, it's an MMO. It has PvP and PvE elements to it which would then make it somewhat of an MMORPG. Here's the catch though: you don't sit and control a single character, but an army—which makes it an RTS, so it's an online RTS, or an MMORTS, if you have been keeping tabs. You build and control your own army and complete missions in co-op, or fight against one another to improve your own skills. Another innovation presented through the game is that the way you build your army is through a card-based system. You can choose to build your army based on multiple elemental types. Building units and killing creeps and enemies will definitely need co-operation with your fellow players and also macro-management of your own army making this a very interesting game to play. Keep up with the news about this game at [www.battleforge.com](http://www.battleforge.com).



### Fallen Earth (PC)

The bar for MMORPGs have been raised in 2008 with the release of games like *Age of Conan*, which takes gameplay and graphics to a new level, and through the release of expansions for games such as *Eve Online*



and *World of Warcraft*. MMORPGs are a unique genre of games and call for dedicated gamers (some might say obsessive to a fault) to play them. Hence, the new games that are coming out need to avoid the treaded path and break out with something new. Well, we have found a really great game that promises to offer just that. The game is called *Fallen Earth* and the storyline actually seems half-plausible: There is a virus that has spread and destroyed most of the Earth's population and has mutated through different stages. The virus was created somewhere in South Asia and when it came in touch with Pakistan, they immediately thought the virus had origins in India; Pakistan then attacks and through the attack starts the virus to spread further. The virus, called the Shiva virus, then mutates to different stages. Players can choose one of many professions offered in this game, with classes such as engineers, enforcers, travellers, and so on, each of which with their respective factions. This game offers a completely new story, a fresh setting, new professions, and hopefully, new game play. It is definitely one the MMORPG enthusiasts should wait for. Learn more about *Fallen Earth* on its official web site: [www.fallenearth.com](http://www.fallenearth.com).

### Killzone 2 (PS3)

*Killzone* is a sci-fi FPS game which follows the storyline of *Killzone: Liberation* (for the PlayStation Portable) and is the third game in this franchise following the original's release on the PlayStation 2 console. The story of *Killzone 2* is quite straight forward: two years after the Vekta attack by the Helghast, the Interplanetary Strategic Alliance (ISA) is taking the fight back to the enemy's home world of Helghan. You play as Sev, a hardcore battle-monger who is sent to capture the Helghast Leader, Emperor Visari, and bring their war machine to a halt. *Killzone 2* aims to provide players with a realistic gameplay, dubbed "Hollywood Realism" by the developers. There is also a new cover system called "lean and peek" which will be a great addition to this game. Visit [www.killzone.com](http://www.killzone.com) for more information about the game.



### Warhammer 40,000: Dawn of War II (PC)

The *Dawn of War II* sequel in the Warhammer 40,000 universe is also an RTS which differs from its predecessors. The campaign mode allows for a pick-up and play experience by allowing you to select your army, the mission and diving straight into the action. It does away with the 'distraction' of base-building and

the boredom of micro-managing resources. This game will thus offer a new style of RTS by moving away from the traditional building aspect as it focuses more on the front-line combat. The campaign can be accomplished in single player as well as in co-op mode. Head over to [www.dawnofwar2.com](http://www.dawnofwar2.com) for more details about the game.



### Tekken 6 (Xbox360, PS3)

*Tekken 6* will be the first game based on the System 257 arcade board to be launched on the PlayStation 3. It is the latest in the *Tekken* series and will retain all the elements from *Tekken 5* and *Tekken 5: The Dark Ressurrection*. This installment will also have an online mode which will be great fun. You can now challenge your arch-nemesis to a game without him actually being in your house using your console. New 'item' moves have also been implemented where characters use special items to attack the opponent. Also Namco has added a new 'Rage' system where on using Rage, your attack increases by huge amounts to the cost of your health reducing. There are a total of 42 characters which essentially means all the characters from *Tekken 5: The Dark Ressurrection* are present with an addition of new characters. Out of the new characters, six have been confirmed: Zafina, Leo, Miguel Caballero Rojo, Bob, Azazel (the final Boss of the game) and NANCY-MI847J. For more information check out <http://tekken.namco.com>.



### Ghostbusters (PS3, PS2, Xbox360, Nintendo Wii & DS, PC)

When there's something strange in the neighbourhood, who ya gonna call....Ghostbusters! You heard the call right, *Ghostbusters* the game is going to be released sometime in 2009, and will be a continuation of the movie franchise. The game picks up two years after the events in *Ghostbusters II*. You play a new recruit who has been hired to test some equipment created by Egon Spengler and Ray Stantz because the paranormal activity has increased in the city. This activity is actually being caused due to the release of a Gozer exhibit. The storyline doesn't seem as interesting as it is very similar to that of the actual movie, but the fun part will definitely be in playing through the story. Also look forward



to is how the gameplay will actually work in this game. Gameplay involves a third-person perspective on the HD consoles, similar to *Gears of War*. The Nintendo Wii version will offer a cell-shaded graphical appeal and will be played in the third-person with the Wii Remote acting as the Ghostbusters' gun.

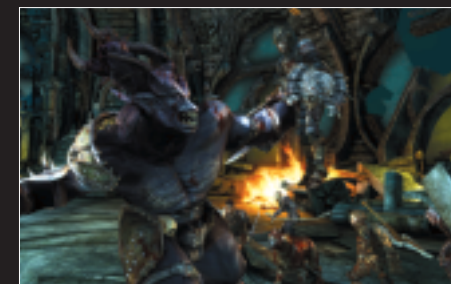
### The Chronicles of Riddick: Assault on Dark Athena (Xbox360, PS3, PC)

This science fiction FPS was originally anticipated to be a remake of *The Chronicles of Riddick: Escape from Butcher Bay*, but it has grown to such an extent that it now being considered a sequel. There isn't much information on this game, but from what we have seen it looks spectacular. Vin Diesel did an amazing job in the movie franchise and he has been portrayed brilliantly in the game as well, even his voice has been used. This game is expected to have great graphics and an advanced AI and also a multi-player mode. We hope that this sequel does deliver all that it has promised. More can be found out at [www.riddickgame.com](http://www.riddickgame.com).



### Dragon Age: Origins (PC, PS3, Xbox360)

*Dragon Age* is an RPG being developed by BioWare; forged using a new game engine called Eclipse. The reason why this game is sub-titled 'Origins' is because the game incorporates an origins story for each race and some classes. An origin story will determine the background of the main character prior to the main storyline. Which means, a Dwarf



Noble will begin the game as part of the royal family in one of the Dwarven cities, and a Dwarf Commoner will begin on the streets of the city. This will give you many hours of gameplay and these characters will reappear throughout the game. The game is described as being a 'dark heroic fantasy' story which will be portrayed on an epic scale with mature themes. Players start the game through one of the six Origin stories and will be playing that character's point of view. On choosing the Origin, the game determines the appropriate behaviour of the NPCs and their consequent reactions with the player. With BioWare at helm, this game ought to have an interesting story. More information can be found at <http://dragonage.bioware.com>. ■

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# Game developers in India

Kumar Jhuremalani

Gaming is a great form of recreation and is now even becoming a profession for some. But has anybody wondered what makes these games great and who is responsible for that? The credit goes to the game developers. A game developer is basically a software developer who develops video games. There are many platforms for games — these days, you have PC games and console games. These are further sub-categorised. PC games include single-player games and online games, while console games have a wider range from Sony's Playstation series including the PSP, Microsoft's gaming console Xbox and Xbox 360 and even Nintendo's Wii and DS. First thing a developer needs is to narrow down on what he / she needs to specialise in.

A game cannot be made over night — it needs great thought, planning and execution before it can be made available to others. With this comes the need for an efficient workforce to back it all up. Typically, a game development team consists of programmers, game designers, artists and the management. India has an abundance when it comes to programmers in the IT sector. Designers, artists, sound engineers, producers and testers are the ones that are mostly outsourced by companies when needed. But before you even think about getting into this field, you need to have the passion and creativity for games and what really goes on behind the scene. When it comes to programming, you need to be proficient with C/C++, have knowledge in 2D vector math, 3D math, knowledge of Direct X and Open GL. And yes, before all this, you need to have a BE / BTech degree. You can't expect to approach a game developer by saying you have an idea for a game. If you want to be a game designer who works on levels and artwork, you need to know Adobe Photoshop, CorelDraw, 3ds Max, Maya and other such 3D animation software. Again remember, creativity must come from within. If you do not want to join the corporate world and want to stay independent, you really need to prove yourself and must have extensive knowledge in the above mentioned. In fact, to even approach a game

**When it comes to India, there is definitely a shortage, as most opt for an MBA or are not even aware of game developments as a career option**

developer, you need to have the proper paper work including a game design document (GDD) which could be anywhere between 2 to 200 pages a level. Just imagine the sizes of GDDs for MMORPGs, the amount of work going into each dungeon and level.

The game development industry is estimated to reach \$65 billion by 2011 in the US. In India itself, NASSCOM says, it's expected to value at \$212 million. But the question here is, when will India reach that level and are the companies here moving at the same pace as those in the US? Companies need to provide, not only to the Indian market, but possibly even a much wider user base, when it comes to game development. There are several companies in India that have begun to tap this Gold Mine. Outsourcing or off shoring has become an integral aspect in the production of most international game titles. Game development studios across the world are looking to out-source visual art elements such as game characters, vehicles, racing tracks, sports arenas and various game environments for games that are being developed. Many Game companies in India cater to this need and are contributing to some amazing upcoming games. All of this may sound great though it doesn't come easy. Aspiring Game studios need to match high quality expectations to be able to deliver on such international projects. Did you



know that Indian game companies have contributed to games like Microsoft's *Forza motor-sport*, EA's *Battlefield Modern Combat*, Atari's *Asterix and Obelix XXL2*, *Project Gotham Racing 4*, *Colin McRae Dirt*, *Guitar Hero* and many more. So where does India stand with all of this?

Some companies prefer to stick to a more traditional approach of gaming, where in people play games for leisure. Such games are called casual games and one such company present in India is Zapak. If you visit their website ([www.zapak.com](http://www.zapak.com)) you will find a huge list of games to choose from and these are mostly all browser-based games with a multiplayer aspect to them. Zapak has also won awards for their games including the UN Award for Excellence in Creativity for their game *Laadli* and when asked about how long it took to create the game, they claim, "It took more than 45 days to create *Laadli* and it cost us about Rs. 1.5 Lakhs." Talking about creating their games, "We have in-house developers and we also outsource our projects." Zapak has games which is meant for the Indian audience but Mr Saagar says that they have recently even started Zapak World which is meant for the world audience also. That's a really good step in India to create such a base. The platforms Zapak uses to create their games are Flash, Macromedia and Unity.

Recently FX Labs released the game *Ghajini*, which is based on the movie with the same title, with elements of the movie present in the game itself. We spoke with Mr. Sashi Reddi, Founder & CEO — FXLabs Studios, and asked him about the status of Game Development in India and he said, "We, at FXLabs, believe that the gaming market in India while still in its infancy is ripe for growth. As a company, we are betting that the market for top notch games based on recognizable Bollywood properties is the clear path to success. We are confident that consumers will perceive a high level of value in the products that we make, and it should serve to cement FXLabs in their minds as the premiere developer of games for the Indian market. FXLabs is making a significant investment in this particular market opportunity." Talking about *Ghajini*, we asked him how long it took them to make the game and also about the workforce that was used, he replied, "We take about 9-12 months to produce a game like *Ghajini* from Concept, Design to Implementation. The *Ghajini* game was completely built out of our own studios in Hyderabad. The main production team for *Ghajini* game consisted of about 30 people which included programmers, artists and testers." On asking him about the game *Ghajini* and the technology involved he said,

**Upcoming titles from the Indian Developers: Dhruva Interactive: Conga Bugs, a casual PC game. FXLabs Studios: Inferno - A game based on Dante's Inferno. RZ2 Games: A secret MMOFPS is in development.**

"We have adopted the latest DirectX technologies for Graphics in our games. For *Ghajini* we wrote a lot of good Shaders, but we had to pull them out of the game to maintain compliance with lower configuration graphics cards that are prevalent in India. Our survey of Indian hardware market made us aware that the masses don't have advanced 3D graphics cards and if we were to reach the mass audience we had to lower our specification for Graphics card requirement to most widely available Intel Integrated Graphics Chipset (G965). We had to optimize our Engine to run on low end graphics cards, while not compromising on game play. DirectX 10 and advanced graphics is available to the Indian audience today with the current generation AAA games, but the masses who don't have a 3D accelerated graphics card would have to wait for about a year to be able to play the current generation games."

We also spoke with Mr. Anthony Whitaker, the Technical Director of RZ2 Games, and asked him how long and also about the costs involved in creating a big budget game and he said, "It takes anywhere between two to five years to create a big budget title and can cost anything upto even \$13 million." When asked about what games have been created specifically for the Indian audience, he said, "We have mobile games like *Jalsa* and *Ashta Chamma* which are games based on the movies with the same name." We also asked if RZ2 Games was doing anything in relation to DX10 and Anthony replied, "We are not looking at DX10 games for India as that requires Windows Vista and a more powerful machine. Also, it does not have a large enough spread or even market share. We use technologies upto DX 9 and also create flash games. We create games for PC, PS2, Nintendo DS and even the iPhone." We also asked about other Indian companies approaching them for projects to which he replied, "Other companies like Zapak and FX Labs has approached us. Most of our development is in-house only though." He also spoke about RZ2 Games creating an MMOFPS, but couldn't reveal any information on that topic.

Dhruva Interactive is one of India's oldest Game Developers. When we Mr. K Rakesh Rao, CEO, about how long and how much the Game Development industry has improved, he replied, "Yes 12 years is a long time indeed! While the it was really slow for the first 5 to 6 years, things started picking up around 2003, with the emerging mobile games market, and the developer community has grown at a fast clip in the last couple of years. The consumer market is finally growing, thanks to the high decibel marketing and promotion by portals, console owners such as Microsoft and Sony,



and mobile companies for whom gaming is now an important revenue stream. The developer community is evolving and gaining maturity, many companies are still young, they have much to learn and it will take time to hit international quality benchmarks. Dhruva was lucky to have international exposure right from the beginning. We are working with six of the top ten publishers and have contributed to the development of over 30 AAA blockbuster console & PC games.” About the technology that Dhruva uses in games, he said, “We usually use a DX version between DX7 and DX9 for our target spec, because the mass market consumer in India is primarily using fairly low-end systems and a version of Windows between 98 and XP.” We also asked about the games they create, whether it is for the Indian audience or the Global audience and he said, “We keep both markets in mind when developing games, but our primary source of revenue has come from the international markets.”

When it comes to education, there is definitely a limitation in India with most students looking for an MBA or not even knowing that the option for Game Programming or Game Designing exist after their degrees in engineering. We got in touch with Divij Durvey from Mumbai, who is now studying a Game Programming and Designing related course at Pace University in New York and had this to say, “I have always been a gamer and since I was studying engineering I wanted to pursue it further. When I spoke about my plans to my professors at college, they really didn’t have any advice for me, which lead me to look for a course abroad.” SAGE, the School of Advanced Graphics and Engineering, is an

**Students who are interested in designing a game should play a lot of games, understand the different genres of games, possess good analytical skills and be very creative at coming up with ideas for games that would keep people engaged.**

institute where they teach you games programming. SAGE is run by Mr. Priyadarshi Chowdhary, who is the Founder and CEO. We asked him about the courses offered at SAGE and he replied, “We teach only Games Programming and we also have an advanced course where we teach students how to create their own Game Engines. We normally teach students on the OGRE engine.” On their web site, [www.sageinfoabs.com](http://www.sageinfoabs.com), it is mentioned that SAGE has also started a course that teaches console game programming for the Xbox 360. Mr. Priyadarshi says, “We have started the course for console game programming, but people prefer to enroll for PC game programming.” About getting a job in this line he said, “There is a lot of scope and we also have a placement program.” Mr. Anthony Withaker of RZ2 Games said, “We hold many workshops, sponsorship programs and events for colleges like IIT. We have an internship program going on where we currently have three students with us also.” Mr. Sashi Reddi of FXLabs Studios said, “One of our main aim is to nurture budding talent around this industry. We have been running FX – Learning Academy, where in we get freshers on board and give them immense training around game programming and Art side before starting their actual work with us.”

Here is some advice Mr. Sashi Reddi has given to young adults who wish to pursue a career in this field, “For students who want to get into gaming it is important to understand what is it that they aspire to do in this field. If they are interested in programming games, they should learn programming languages like C, C++ and be strong at Maths and Physics. For people who would like to animate characters or make assets for games like vehicles, buildings, etc they should learn 3D editing software like 3Dmax and Maya. Students who are interested in designing a game should play a lot of games, understand the different genres of games, possess good analytical skills and be very creative at coming up with ideas for games that would keep people engaged. Best way to start a career in game design is to start writing reviews and walkthroughs for the games you are currently playing.”

We definitely know that this industry is going to grow stronger but currently it is moving at a slow pace as in comparison to other countries and from the looks of it India’s Game Developers are catering more towards the casuals games meant for the Indian audience. We still have hope that the day will come when India will be the hub for all Game Development with host to all types of gamers.■

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The SAGE studios, where young minds of the country learn Game Programming.





# Parkour on a Mission

Aditya Madanapalle

We have been tracking this game for a while now. From the trailers and game play videos we looked at before the game was released, it promised to be a different and innovative idea for a first person adventure game. The game released on consoles before it did for Windows, and we could not wait to get our hands on it. Those of us who did try out the game on consoles were enthralled.

When you start the game, the first level is a tutorial that outlines the gamut of moves that your player can perform. Look down, and you see the torso and limbs of your player, something unique for the first person point-of-view games, which usually contain phantom bodies and legs. Unlike other games, the tutorial is a very necessary step in playing the game. The first level takes your breath away. You are made to jump over fences, slide beneath pipes, jump across large gaps, roll when you fall

and learn to take away weapons from enemies you might encounter. A whole range of acrobatic actions can be performed through minimal keys.

To even begin talking about the very impressive gameplay, you have to talk about the not-so-interesting story. You are what the game calls a "runner". A runner is a messenger that takes dangerous paths across the city to deliver messages. This is because the world (or at least this city) is under a totalitarian regime, where the government has put all forms of communication under strict surveillance. This serves to neutralise crime and rebels. This is where the runners come in, with their alternate medium of communication. The second introductory level fleshes out the story for the player and you see your character's (Faith) sister (some police officer) getting framed for murder. She barely has time to talk to you, when the police burst in with guns a-blazing. Fight is not a choice here, you are a runner, and you can only run. So run you do, through a complicated office floor, into the vents, onto a terrace, sliding down a ramp, and so on — escaping bullets, instead of killing the attackers with your own. It's a refresh-

ing take on the platforming genre. Your path forward is made known through what is called "runner vision", which turns objects of interest in the environment red, indicating that you need to make your way towards them. At the end of the first level, you find yourself on a terrace. Just as a helicopter comes into view, its landing skids blazing red with runner vision. The police are firing at you, and you hardly have time to think. And like some cornered animal, you instinctly jump to hold on to the skids of the helicopter. Impressive stuff, this.

There are spectacular props in almost every level of the game. Over the next few levels, you will dodge bullets in sewers, jump between pipes, climb on crates and cranes, learn that some fences are electrified, navigate through vents, spend some time in elevators, and even take on a few enemies by neutralising them with your movements. The gamers have taken the pains to make the experience very immersive. Not only is your entire body visible, there are a lot of small touches. Your heartbeat increases when the game picks up speed. The movement of the camera is tracked to the movement of your head. You can fail spectacularly, or slip and fall. You can feel your weight, and the momentum, just by looking at the way the camera moves on screen. When

you see men with guns, you run. Some of them are marked in red, so you can knock them out and use their weapons. More often than not, you will not carry the weapons as they slow you down. When you slip, fall and die, the screen shakes, goes black and white for just a second, and then blanks out. Some primal trigger in your brain makes you anticipate your death, seconds before it happens, and we wonder what kind of research the developers did to come up with this stuff. When you have to roll after a long jump, you can see your body rolling, and for a second you are actually disoriented and confused. When you fall and get hurt, you actually freeze for a second — just enough to recover, and just enough to make you



...steal some guns...

appreciate how real the game feels.

The story makes you follow a trail of contacts, betrayers, and bodies inching onwards to answer questions you didn't know you had. So when someone on screen starts running away from you, using the same techniques you do, follow them with all your heart. But when animated cut-scenes reveals scene-after-scene of needless complications and conditions, you don't have the heart to take it all in, and find it a serious distraction from the game itself. Despite the very pretty vector animation, we could not resist the urge to skip the cut-scenes and return to the meat of the game.

There are moments of very intense action in the game. Snipers, for example, have these shafts of red light directed towards you, and you have to neutralise them before they find you. You are looking through the scope at two snipers, who in turn are looking through their scope, at you. You have to take them out before their laser sights seek you out. Another aspect are the spatial puzzles in the game. You will be forced to think out of the box, look around and really think before

you can progress through a level. This aspect of the game reminds us of Portal.

Successive levels of the game make you move in increasingly complicated and innovative ways. The levels also become tougher, with the jumps getting wider, or higher. Timing, and precision are required here. You have



You get to dangle from a helicopter...



...slide down ramps...



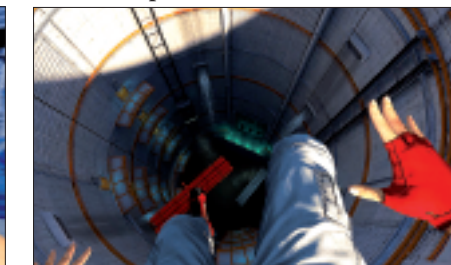
... and "neutralise" some enemies

to be very careful about when and how you use your moves. Sometimes it is preferable to fall and get hurt, because rolling might make you fall to death. It makes you feel as if the skills of your character are developing as you play the game.

However, one disappointing aspect is that you never really find out all the ways to neutralise the enemy. The demos shown during game load depict

Score : 6.5/10  
Developer: DICE  
Publisher: EA  
Platforms supported: X-box 360, Microsoft Windows, Sony Play Station 3  
Web site: [www.mirrorsedge.com](http://www.mirrorsedge.com)  
Price : Rs. 2,750

complicated maneuvers, all of which you don't end up trying out because there is just not enough opportunity for it — or so you think. During the later levels, however, the game gets boring. The focus shifts to neutralising enemies, and an unrealistic number of them, at that. Repeated restarts to get the jump, roll and wall run right will keep you focused, but repeated restarts just to get away from a gunman you are not allowed to neutralise makes for an irritating experience. At the rare instance that you need to use the gun, you have to be dead accurate because the guns usually have very little ammo. But since gun-combat is rare, you find that you don't have enough practice to get it right and you'll often need to repeat such sections. At this



...fall and die sometimes...

point, the bugs also get to you — jump onto a ledge with your hands on either side of piping, and you cannot move left or right. You cannot even jump off, or climb up. You get stuck for no fault of your own. Sometimes, your feet get stuck inside the floor, disabling any kind of movement.

The graphics are great. The environment has a cyberpunk feel, with bright, vibrant and effervescent colours used. The entire city feels like it's bathed in light, even the sewers have a halo. This is a very good looking game. The soundtrack is mostly ambient loops, with the tone changing with the mood and pace of a level. It lends a sense of urgency when you have to move fast, and encourages logic when you need to solve a spatial puzzle.

This is a great game, and something that will go down in gaming history as something truly special — as Portal did before. However, the game play is far from mature, and we just hope to see more such titles around. At least, a lot of first person games can take cues from the creativity that flows through this game. ■

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Sameer Desai

Many of the classic video game franchises that have kept gamers entertained over the years make their next-generation console debuts in 2009, and the first of these is Capcom's stylish reincarnation of beat 'em up favourite *Street Fighter*. *Street Fighter IV* features a refreshing art style, a few new characters, and brings back the gameplay mechanics that made *Street Fighter II* the pinnacle of this genre.

The most striking feature of *Street Fighter IV* is its stylised 3D art direction. Environments and characters are created in a uniquely arty, comic book style, which somehow comes across as both simplistic and intricately detailed. Coupled with a resplendent colour palate and presented in high definition, *Street Fighter IV* is a visual treat that almost justifies the price of admission all by itself.

But the game has a lot more going for it than simply its eye-candy graphics. Most importantly, *Street Fighter IV* is a thoroughly absorbing fighting game, particularly when played against a human offline opponent. The classic characters — Ryu, Ken and co — return and the game also adds four new fighters to the roster — Crimson Viper, Abel, El Fuerte, and Rufus.

The classic characters bring with them their old arsenal of moves and combos and all the characters possess their individual strengths and weakness. Learning them, mastering them and overcoming them in your opponents is indeed a thrill and this is the high point of the game. There are no two characters in *Street Fighter IV* that can be considered a mismatch; every fighter has within his/her arsenal the moves and combos required to beat every other fighter and the key again lies in learning the strengths and weakness, and of course, in memorising the various combos. Unfortunately, blind button mashing is also quite effective in this game, but like every other fighting game, will only work against an AI opponents, while a skilled human opponent will break you down effortlessly.

One interesting aspect of *Street Fighter IV* is that it still employs the traditional 2D camera, while other recent beat 'em ups such as *Soulcalibur IV* and *Virtua Fighter 5* allow side-stepping whereby the player can switch the camera to a different angle. This is absent in *Street Fighter IV*. Whether that's a good or bad thing is subjective, but you will never miss being able to side-step in this game, and that is a testament to Capcom's ability to deliver an immersive fighting experience even in a 2D arena. If nothing else, it will certainly please the old school purists.



Is that the Incredible Hulk? No.



Is that an oriental fellow having a cup of tea? Maybe.

In terms of game modes, you have an Arcade Mode, a flimsy story mode that essentially entails you running through the entire roster one after another. This mode can be played against the CPU and a second human player can jump in at any time. You can also invite friends over Xbox LIVE and PSN and compete with them. You also have two one-on-one modes; one for offline, and one for online. Unfortunately, we were unable to test out the game's online capabilities so early before the game's release. If you're new to the series or feeling a little rusty, the Training Mode will let you hone your skills and practice your combos against either a dummy or a skilled AI opponent.

There's not that much to be done in *Street Fighter IV*, but then again, beat 'em ups are all about one-on-one battles with your friends and button mashing duels till your fingers bleed, and there is plenty of potential for all of that here. As you play along, you will also unlock artwork and videos which can be viewed via the Gallery in the main menu. Then of course, you have the cheesy one-liners, over-the-top voice acting, and music that will make you look forward to an NSync reunion; but that's the fun of it.

Bringing an old classic to a next-generation format is a tricky situation for developers. They're expected to stay true to the series' roots, and yet push the boundaries and make use of the powerful hardware at their disposal. Capcom have managed to tread this fine line tremendously well. The new arty visual style is breathtakingly realised in vivid high definition, while the tight gameplay mechanics, the classic characters, and traditional 2D camera perspective will surely satisfy fans of the older games. While there's nothing truly revolu-



Is Vega throwing fire at Gouken Pyro style? Yes.

tionary here, *Street Fighter IV* is a fitting debut for this much loved franchise on the PS3 and Xbox 360, and is sure to give the competition a run for their money. ■

Score : 4/5

Developer: Dimps/Capcom

Publisher: Capcom

Platforms supported: Arcade, Playstation 3, X-Box 360

Web site: [www.streetfighter.com](http://www.streetfighter.com)



# MORTAL KOMBAT VS DC UNIVERSE

Sameer Desai

Unlike most other fighting games, *Mortal Kombat* (MK) has not shied away from re-inventing itself significantly, every few years or so. They did this with *Mortal Kombat 3* and the introduction of combo system and later moved the game to a 3-D arena with *Mortal Kombat 4*. They introduced fighting styles with *Mortal Kombat: Deadly Alliance* and also released a couple of adventure titles based on the MK characters and universe. Now, although the latest iteration in the series is technically not a pure *Mortal Kombat* title,

Ed Boon and company have once again changed the fighting system of the franchise and this time they seem to have nailed it better than their last few attempts.

The single-player 'Story Mode' mode kicks off with a somewhat plausible explanation of the merger of the two universes.

Here the player has a choice to fight on the side of either the *Mortal Kombat* or the DC universe. As you play

through the story mode, the game will pit you against characters from both worlds and your playing characters changes as the story progresses through various levels (fighting arenas) set in both worlds. This predictably continues till your battle against the final boss of the game and true to MK style, he deals out more damage and takes less of it, compared to other characters in the game roster. For beating the game, player is rewarded with two unlocked character—one each for beating the game on the MK and DC side.

In all, the game features a roster of 20 fighters (ten on each side) and the two un-lockable characters. Apart from the story mode, the game has the customary single player arcade mode where you fight your way up the ladder to encounter the final boss. The game also supports head-to-head two player fights, both online and offline. If you have played MK games before, you'd expect plenty of extra, un-lockable 'kontent'; however, this title has very little of that.

Coming back to the changes to the fighting style, the developers claim to have completely reworked the fighting engine. The fighting styles

(or stances) from the last couple of releases has been completely eliminated from the game as the game seems to be moving closer to the original system of kick and punches (high and low) combined with special powers. The players in the game are controlled using a combination of the digital pad and the analog stick for 2D and 3D movement respectively. Overall, the game plays a lot faster and the controls are well optimized to work with game pads on both platforms. The most significant additions to the combat system however, are two new combat modes—namely, 'Klose Kombat' and 'Aerial Kombat'. Grabbing the opponent will zoom the camera close into the action and triggers a mini-game where one player has to anticipate the other player's next move. Similarly, certain attacks on your opponent will cause him to free fall to the lower level of the arena and you jump along to dish it out in mid-air. Additionally, pushing the characters to the edge of certain arenas will trigger the classic 'test your might' mini-game, as you push your opponent (breaking through walls) from one end of the combat area to the other side.

One of the most enduring and iconic feature of the *Mortal Kombat* games are the finishing moves. These are however watered down mainly due to the involvement of the DC characters (read Warner Bros.) and their technique of bloodless fighting. Each MK character (and the 'bad guys' of DC universe) has two fatalities each, while the 'good guys' of the DC world have something similar called 'Heroic Brutalities'. This is where the game will make most MK fans feel wanting, considering the fact that at one point, the developers were thinking of eliminating finishing moves all

together to main a 'Teen' age rating for the game.

The guys at Midway have always maintained that this release is not truly a MK release and this fact becomes quite evident as you play the game. The absence of other finishing moves (apart from fatalities) and holding back on the blood and gore, does make this game feel detached. Having said that, the studio has done a reasonably good job of blending the DC world into the MK universe— as you can imagine it could have been a lot worse. The new fighting engine is not perfect, but seems to be heading in the right direction. One can hope that they take the learning from this title and use it effectively in the next *true* MK release. ■

#### Pros:

Improved and promising fighting system  
Good blend of two worlds  
Decent collection of characters in the fighter roster

#### Cons:

Lack of extra content and limited single player replay value  
Watered down finishing moves

Score : 6.5/10

Developer: Midway

Publisher: Midway

Distributor: Milestone Interactive

Platforms supported: PS3, Xbox 360

Price : INR 2499/- (X360), INR 2799/- (PS3)



NINJAS.... MMMUSST.... DIE



I'd hit it... wait, I just did... pity its not a Ninja



Ninjas make me really angry



**Thieves in Japan, beware of the T-34**  
If the world is ever taken over by machines, it is sure to start in Japan. Behold the latest little toy that has rolled out from Japanese factories - a robot patroller that throws a net on any burglar that comes in its path. The bot is controlled by a phone.



**Clean your teeth with photons**  
Throw out those tubes of toothpaste. That is what Smart Miracle's laser toothbrush suggests anyway. Fry the germs and clean your teeth with a laser beam - its just what all the cool people are doing these days. And no, it won't burn out your eyes in case you cannot aim the beam properly.



# Escape

WHAT'S THAT SMELL?

## Smellists rejoice

Those innovative guys at Japan got together and decided that the internet did not give enough of an olfactory sensation to surfers. They decided to take Google maps, and add places to it tagged with unique smells. They are the Nio-Bu, the connoisseurs of smell, and they hang out at [www.nioibu.com](http://www.nioibu.com).

The entire web site is in Japanese, so you will have to use Google's translation tool to make any sense of it. Even in English though, sense will be a difficult thing to find. What you will find though, is where in the world you can smell filthy roadside garbage, cats with bad breath, spilt wine on carpet, roasted cow-dung or dry spit and

chai. For some reason, the site assumes that all grandmother's houses smell the same, but no one has really taken the trouble to refute their claims. Not all the smells are bad though, you can check out a freshly unboxed Mac, and strangely enough, even what our sun smells like, right here on Earth.

You can add your own odours to the list, and if that does not occupy your time, you can look at a list of photos of people "smelling the smell". As of now, there is no mechanism by which the website can actually let surfers get a whiff of their long list of strange odours, but the Japanese act fast when an idea strikes them.



ANONYMOUS COLLECTIVE GETS REASON TO FLAME

## Scientologists against HIV+ protesters

Something of an in-joke in the global Internet community. Open discussion across image boards, forums and blogs about the dubious activities of the scientologists, saw the Church of Scientology targeting individuals in a number of cases. The internet community organised themselves into the Anonymous Collective (so that the Church of Scientology could not play hardball) and continued circulating jokes online. Also, real world protestors (with hidden identities) started displaying their complete lack of sympathy for the Scientologists.

The Church of Scientology is notorious for having a many-tiered hierarchy, where you learn and evolve towards your inner immortal soul. The Aliens have something to do with it too, but no one really knows exactly what. By the end of it, you get to be Superman, or Tom Cruise, or something like that. On the way there though, you get a few evolution points for banning protesters against their activities and beliefs.

## Whatever Happened To... Google Lively

Most of us have now come to accept that not everything Google touches turns to gold. Yes, there are definitely some things Google tried doing and well, didn't quite work out. One such ambitious project was Lively a web-based virtual environment launched by Google sometime in July last year. The idea was to create a "chat experience" using avatars in which one can communicate, move around and interact in a virtual world. Its almost as if Google said "hey if Second Life is doing it why cant we? Of course there were differences - unlike Second Life, the Lively users could not buy and sell products. Since there was no user-generated content on Lively, items such as hairstyles, clothing and furniture were limited to a catalog of pre-designed selections. In Google Lively up to 20 people could occupy a room and chat with one another. Text appeared as cartoon-style bubbles atop the avatars. Users could design their own virtual environments by hanging YouTube videos and pics from Picasa on the walls like pieces of art. The rooms could be embedded into blogs and Facebook pages.

But in November Google announced on its blog that it plans to shut down Lively by the end of December. Calling it an "experiment", the blog goes on to say "It has been a tough decision, but we want to ensure that we prioritise our resources and focus more on our core search, ads and apps business. We'd encourage all Lively users to capture your hard work by taking videos and screenshots of your rooms."

These protesters are people who picket outside the premises of any building owned by the Church of Scientology, over issues like their underhanded techniques for curtailing protesters, their belief of homosexuality as a disease, and providing financial aids to anti-gay legislations.

The Church of Scientology is by no means harmless, and they have powerful ways of stopping protesters, both legal and illegal. The Church of Scientology has gone ahead and enforce legal restrictions on two homosexual HIV+ protesters, one of whom is himself an ex-Scientologist. These protesters are not anonymous and anonymous, but Angry Gay Pope and Happy Smurf. And

no, the aliens were not able to cure Happy Smurf of his "disease".

GET PAID TO VACATION

## Remember to feed the fish

In what is dubbed the best job in the world, Australian Tourism authorities will pay one lucky person US \$100,000 (Rs. 6,354,954) for blogging about a fully paid six month hiatus in Australia. You can look up the details and apply through [www.islandreefjob.com](http://www.islandreefjob.com). What are you expected to do? Hang out at the beach, get a massage or go snorkeling in the great barrier reef. Understandably, the web site received something like



two hundred thousand hits within a day of going up. The job itself has generated a lot of publicity for the employers. Your official post will read out as "The Caretaker of the Islands of the Great Barrier Reef", if you get selected. Not only will you be accommodated on one of the important islands, you will be given permission to include family or a friend. You can apply for the job by sending in a video presentation of yourself. They have received a bunch of submissions. The deadline for entries is the twenty second of February. What are you waiting for? We gave out the URL two paragraphs ago. There is one small catch though, you have to have at least one year prior experience, but we are unsure how they can expect that for a job like this.

CENSORSHIP SO BIG, IT CAN BE SEEN FROM SPACE

## China almost bans the web

China has a history of a love-hate relationship with technology. What is normal computer usage around the world is invariably some kind of a crime in China, so every month has its share of odd and outrageous happenings. This month's China related roundup includes a massive crackdown on porn, a crackdown on

## People Who Changed Computing

The ubiquitous touch screen is seen in almost everything from ATM machines, PCs to mobile devices to perhaps even vacuum cleaners! Well refrigerators at least. Not only did it make life easy, it made everything fun. Think of the i-phone.



Would it be the same without its touchscreen? Who doesn't like a bit of touchy-feely action right? And we owe it all to Dr Sam Hurst. He developed the first "touch sensor" in 1971 while he was an instructor at University of Kentucky. This was not the transparent touch screen that we know of today. This sensor called the "Elograph" was patented by The University of Kentucky Research Foundation. Dr. Sam Hurst founded his company 'Elographics' (now Elo TouchSystems) and developed a transparent touch screen in 1974 and five wire resistive technology in 1977, which is the most popular touch screen technology. In 1977 Elographics paired with Siemens Corporation to develop a transparent version of the tablet on curved glass so that it could fit over a CRT (cathode ray tube) screen.

## Bluff

YOUR WAY THROUGH

### Overclocking

Overclocking is the process of running a computer component at a higher clock rate than it was designed for or was specified by the manufacturer.

**Clock Rate** - Is the fundamental rate in cycles per second - measured in hertz - at which a computer performs its most basic operations.

**FSB/HTT** - FSB stands for Front Side Bus, and refers to the speed at which your processor can talk to your memory.

In the AMD world, this is also referred to as HTT, which stands for Hyper-Transport Technology.

**Multiplier** - It denotes the speed with which the processor does its internal calculations. The multiplier is a way of describing the internal speed in relation to the FSB. So if the FSB is 200 and the multiplier is 10x, then the processor runs at  $200 \times 10 = 2000\text{MHz}$  or 2ghz.

**vCore** - Is the voltage of the processor itself. As overlocks become unstable, you can use this setting to increase the processor voltage and make the chip more stable.

**vDimm** - Is the voltage of the memory. The memory can and often will be overclocked as well, and vDimm can be used to increase stability in ram.

**Monitoring / Stability Testing** - Tools such as RivaTuner, CPU-Z, SpeedFan etc. allow you to monitor things like temperatures, voltages, fan speeds, clock speeds, memory settings, etc. Other software like Prime95 and SuperPi, stress-test the processor. These software give you the necessary feedback.

**Cooling** - Overclocking leads to high temperatures which must be managed. Extreme Overclockers rely on cooling systems to bring down the core temps. These systems include include Liquid Nitrogen(LN2) and Water Cooling etc..

## Wild Wild Web

### Dirty Sounding

Relax its only dirty sounding. Dirty sounding names that is; and a whole bunch load of them! Visit

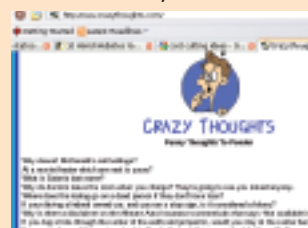
[www.dirtysounding.com](http://www.dirtysounding.com) to find a list of hilarious and ahem dirty sounding names arranged alphabetically; plus militarily and foreign names categories thrown in for added enjoyment. Now the website isn't flashy at all, in fact its nothing more than a gigantic list. There's "Dougie Style", "Harry S. Houle" "Harry Ballsack" just to name a few. We have a sneaking suspicion

that most of them are just made up. But just imagine the possibilities - prank phone calls, radio phone ins, and loads of other stuff, full Bart Simpson ishtyle. Plus it can keep you entertained for hours. Well maybe not hours, still an important resource to bookmark.

### Potty thoughts

Yeah we've all had them. They're ridiculous, of no real use but yet surprisingly worth thinking about. "Why do they call him Donkey Kong if he is not a donkey?" or "How come

all of the planets are spherical?" Sometime's they're downright twisted. Take for instance - Do you loose all of your hair in chemotherapy? There are of course no answers but head over to [www.crazythoughts.com](http://www.crazythoughts.com) for these and many more.



cybersex, and the Chinese government recognising web surfing as a "clinical illness". Read on.

China has some of the toughest internet laws in the world. However, despite all the fine print, they manage to leave out one activity from the rulebooks. A housewife by the name of Li, decided to have a little fun and teased people online by showing them video streams of herself in the nude. She was dragged into court because of her activities, but was let free when the judge discovered that there was nothing in the law they could actually prosecute her with. Baidu and Google, the two biggest search engines in China (surprisingly, in that order) had to apologise to the government for showing too many links to porn sites on their online portals. The government had specifically asked them to remove all porn related content from their web sites, but the search engines failed to remove them. The government retaliated aggressively, threatening to punish and

shut down these web sites. What followed was a string of public apologies. The Chinese government is going right ahead with plans to purify not just the internet, but the mobile networks as well.

While sending explicit images and text over mobile networks is already an offence, what the Chinese government is looking to do now is to implement a mechanism by which they can actually catch the offenders. How exactly they will achieve this is not clear.

A hospital in Beijing probed 1,300 cases of people too addicted to the Internet (those who need medication if they do not go online), and decided to define too much web surfing as a clinical psychological disease.

What is really scary however, are the kind of treatments those with this disease can expect to undergo. The Internet addicted can expect treatments like military style discipline, counseling, hypnosis and electric shocks.

### INSECURE MEN REJOICE

## 21 Century Chastity Belts

One are the days when women's underwear had to be secured with lock and key to ensure their chastity. Lucia Lorio, a Brazillian lingerie maker has rolled out a line of lingerie with inbuilt devices so that insecure men can have their peace of mind.

It looks as ugly as you think it does (no, we are not showing you pictures), but is very functional on multiple levels. First of all, a man can program it and keep track of the movements of anyone who wears the chastity belt.

Secondly (angry feminists listen in), the woman can turn the GPS device off whenever she wants. Thirdly, there is a lot of demand for the device... by women... because they feel more secure with it.



## KILLER I-PHONE APP

## Runaway snipers

Here is a little puzzle. You get your hands on a sniper rifle, with the required ammunition. You are also given an iPhone, and a target to eradicate. Unfortunately, you have no training in ballistics, and you don't know how the ammo will behave over a long range. How will you eradicate the target?

You are right, it has something to do with the iPhone.

Runaway technologies, has released an iPhone app that gives you all the experience you missed out in sniper training camps you never went to. The app is called BulletFlight, and this is how it works. You

### He-waste?

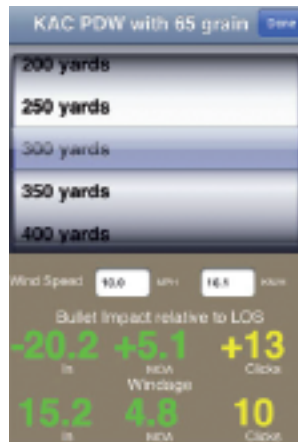
It was a pretty usual work day. Michael and Siddharth (the new recruit) were on one of their usual coffee breaks, when Aditya walked very purposefully to a large trash can. To the utter amusement of the spectators, he started rummaging through it furiously! It seems he was looking for a DVD! Michael, never one to pass up such an opportunity, told Aditya that there were certainly a few DVDs in the trash can, causing Aditya to dig even deeper, and giving Michael a

chance to shoot a picture of the whole thing. We're not showing you the picture here, but you can probably imagine it.

Issue closing was definitely not the same this time, owing to the absence of Vijay Padaya. He has emigrated to USA after eight long years with *Digit*. Vijay is best remembered for keeping things on track — usually by not letting us play *Quake 3* when there was work to be done. He will be sorely missed when we work, and more so when we play.

#### DIGIT DIARY

feed in the distance to your target, atmospheric factors like wind speed, air pressure and altitude. The application calculates the trajectory of the bullet and gives you the results. The app comes with three common presets for Sniper rifles, which are just letters and numbers you have to be crazy to recognise. OK, we will throw them out here, the M110, the SR16 and the KAC PDW. If, however you



weapon of choice is a different rifle, you can manually configure the application.

Increase the cool factor of your iPhone by purchasing the app from the Apple iTunes app store — for \$11 (Rs. 540). The app store is notorious for removing and re-allowing applications at random, so if you want this one, get your hands on it before something develops. ■

### thinkdigit Blog WATCH

Featured here are snippets from some of the best bloggers who have registered at the Blog Watch section on thinkdigit.com.

If you wish to be featured too, head to [www.thinkdigit.com/blogger.php](http://www.thinkdigit.com/blogger.php) and sign-up.

#### AMD Phenom II X4

After being thrashed by Intel ever since the introduction of their Core 2 Duo lineup in 2006, AMD was never able to get back on its feet. The infamous TLB bug gave the Phenom nightmares. Things started to improve with the B3 revision of Phenom. But the top end AMD processors still competed with Intel's mid range processors. Now, finally, AMD has released the Phenom II 45nm based processors. Along with Phenom II, AMD has launched its codename "Dragon" platform, the successor to the Spider platform, which basically is a combination of an AMD chipset and processor and a ATI graphics card. Compatibility. Phenom II takes on Core i7 valiantly and does well too. It is a great product and has plenty of headroom for overclocking. Dhruv Rajvanshi <http://think-tech.blogspot.com>

#### Feature: 5 reasons to play Dead Space

##### 1. The Plot

The very story of Dead space is wonderful. It is set in the future where you battle re-animated corpses while trying to repair a space mining ship!

##### 2. Graphics

The graphics of Dead Space make use of the next generation consoles and costly graphic cards.

Each and every detail looks good. The monsters look awesome (in a gory and scary sense) but it's the shadows which make them really scary.

##### 3. Limb Dismembering Action!

The gameplay involves lot of cutting which really is fun once you start getting used to pouncing necromorphs. You get to use your mining tools against these monsters. Cutting limbs is the fastest way to immobilize them. There are also some sequences when you get to do

the same in Zero Gravity! So what's the arm count?

##### 4. Chill through your spine

This one of the games that actually scared me. Necromorphs are really terrifying in the starting levels but it goes to a whole new level near the end. The sound effects of the game are top notch and play an integral role in frightening you.

##### 5. A true to life experience

There is no HUD in the game at all which gives it a more authentic feel. The health, ammo, objective indicators are integrated well into the game. The camera is also very good and you will hardly come across problems with it. The physics of the game also adds to the experience. So you're still reading this? Go get your copy of Dead Space.

Vaishak V.K.

<http://www.theregalgamer.com>

## When in doubt, go with option c.

**1** What is the name of the Penguin mascot for Linux?

- a) Chuck
- b) Tux
- c) Pingü
- d) Linus



**2** Which of these early machines were programmable?

- a) A printing press
- b) A Chinese incense clock
- c) A textile loom
- d) A mill

**3** Software crackers packaging audio-visual intros along with cracked software gave rise to which tech sub-culture?

- a) Modscene
- b) Artscene
- c) Demoscene
- d) Cargo Cult programming

**4** In which work of fiction does the word "nerd" originate from?

- a) Shakespeare's *Comedy of Errors*
- b) Lewis Carroll's *Alice in*

*Wonderland*

- c) Jean Cocteau's *The White Paper*
- d) Dr. Seuss's *If I ran the Zoo*

**5** What is the idea behind pancomputationalism?

- a) The universe is a computer
- b) Open source, open standards, and freedom based computing
- c) All applications, games and user data will one day be hosted remotely
- d) The eco-system on the earth is a supercomputer

**6** What are privacy-minded individuals use cryptography on a day to day basis for their on-line activities known as?

- a) Cyberpunks
- b) Cypherpunks
- c) Cyberphunks
- d) Cypherphunks

**7** Which of these operating systems is based on Unix code?

- a) Minix
- b) Linux
- c) FreeBSD
- d) Mac OS

**8** Which of these represents the highest quality tag in a

pirated movie?

- a) TELESYNC
- b) R5
- c) CAM
- d) TVRip

**9** Students and artists in Denmark offer Vores Øl to the internet community, what is it?

- a) Free Hardware
- b) An open source car
- c) Free Beer
- d) Open source space satellites

**10** What is the sci-fi title Anima, released in 2007 based on?

- a) World of Warcraft
- b) Second Life
- c) SIMS online
- d) Naruto

Did You Know?

That Intel was short for Intelligent Electronics?

### Answers

1. a	10. b
2. c	9. c
3. c	8. d
4. b	7. d
5. a	6. b

Got an interesting question? Send it in with the answer to [TQ@thinkdigit.com](mailto:TQ@thinkdigit.com) Mark "TQ" in the subject area

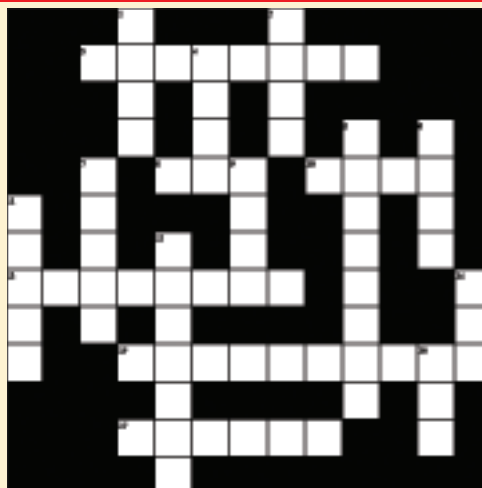
## Crossword

### DOWN

1. Killing a player or a bot with a gun in a combat FPS(4)
2. A beam of light that kills instantly (4)
4. A line of text in chat to indicate the game is imbalanced(4)
5. Killing people with a single bullet in the head in an FPS(8)
6. Very skilled player in a multiplayer simulation game(4)
7. A sudden drop in gaming performance(5)
9. Delay between a client computer and a server (4)
11. A bunch of preset commands that perform a particular or set of actions(5)
12. Strategy of staying in one place/hiding and shooting(7)
14. An artificial opponent in a first person combat shooter (3)
16. Ninjas in Pyjamas(3)

### ACROSS

3. A bug or undesirable graphic error in a game(8)
8. A contiguous environment for gameplay (3)
10. Intros put in by crackers before a cracked

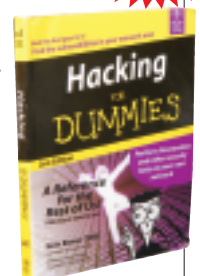


- version of a game(4)
13. A set of scenarios in a simulation or strategy game(8)
15. The point on a map where a bot or player appears when the game starts or during gameplay(10)
17. A software that allows you to run a gaming environment(6)

Last month's Winner  
**Kayomars Batliwalla**

Send in your entries to [TQ@thinkdigit.com](mailto:TQ@thinkdigit.com) on or by the 20th of this month. One lucky participant will win  
**Hacking for Dummies**  
By Kevin Beaver  
Published by

WILEY-INDIA



### January's Solution



Crossword by Nitaa Jaggi





Write to the Editor

E-mail: editor@thinkdigit.com  
Snail Mail: The Editor, *Digit*, KPT House, Plot 41/13, Sector 30, Vashi, Navi Mumbai 400 703

*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 send an e-mail to help@thinkdigit.com

# Inbox



January 2009 Issue

I am a regular reader of *Digit* and it is the first time I am writing to you. First of all I congratulate you for being the best tech magazine in India. You people are really doing a great job. Your Tips & Tricks, Q&A and Tech Talk are just superb. I think the movies which you give on your DVDs are too outdated and are not worth watching, at least not for me. You should provide some new and popular ones if possible. Frankly I buy your magazine only for the DVDs and don't much care about the magazine except for a few sections. I appreciate your packing which is better than before. I have read many other tech magazines but let me tell you, you are far ahead of them.

Keep up the good work guys!!!

**Varun Singh**

We try to keep our content as fresh as possible. If there is a new movie from the open source or copyleft community, you are sure to get it from us first. However, most of the films that are released into the public domain, are old. That does not necessarily mean that they are boring our outdated. *The Great Dictator* we gave last time is an all time classic, and *Death Rides a Horse* (this month's DVD) is a great western that can give contemporary cinema a run for its money. However, your point is well taken.

Team Digit

I am an avid reader of *Digit*, and have been reading it for the past few years.

The best part of the magazine is the "Your Questions, Our Answers" section, which provides solutions to the basic problems that most of us face in our day to day life, while handling our system.

Also, I liked the various articles on preventing ourselves from getting hacked, specially, the one named *Social Engineering Techniques*.

Apart from that, This year, you added a lot more stuff on your DVD also, and that was quite impressive!

The softwares were fresh, and I like trying new softwares. Being a fresh Mechanical Engineer, I was thrilled to find Auto CAD 2009 among other CAD tools.

I would appreciate if you could also arrange other reputed, basic yet essential CAD tools for trial, such as Pro/Engineer Wildfire, CATIA in your forthcoming editions, and publishing Fast Tracks on such tools, which could help Mechanical Design Enthusiasts like me, as well.

Another thing I noticed, some tools marked as freeware turn up to be shareware or trial versions, and have to be uninstalled later.

Please take a note of that.

**Shivanjan Choudhury**

Thank you for the leg up. We will look into including more specialist and enterprise software in future releases of our DVD.

Team Digit

A belated happy new year to you! Your January issue was, as usual, awesome. I am really terrified by growing use of hi-tech gadgets like mobile phones, GPS devices as reflected by your cover story. The growing technology, which makes me happy at times also terrifies me at others.

You have also covered a similar article in your December 2006 issue named '*You're being watched*'.

Please try to understand that your mag is already expensive, and you people are increasing the price even more! But what to do? I'll have to buy it, even if you increase it to Rs 200, as I love it so much!

**Kshitij Rawat**

Thanks for the vote of confidence, and believe us, we really do not want to increase prices unless absolutely necessary. We did make sure to increase the number of content pages, and also the extra DVD to ensure that you still get complete value for money.

Team Digit

I want you to please do me favour. I have been a reader of *Digit* for 3 months, and now my father and sisters have started reading it too.

But ours is a family of beginners in the world of computers. I am the only one who knows a little more than the rest, and am often told that the many computer related terms used in *Digit* are Greek to them. Similarly, there are many people who do not even know the ABCs of computers.

I would like to see a new column in *Digit* meant for beginners. If you do this, it will be a boon to beginners everywhere.

**'Ravi Ranjan'**

You have raised a very important point here, and we can see why such a step is necessary. All of us are aware about how confusing tech terms can be to the non-initiated. You have a great suggestion, and we will keep that in mind for future issues.

Team Digit

I am reading *Digit* since 2005, and know firsthand how *Digit* achieved its top position. Every change you have done in the *Digit* is superb, but I still want to suggest a few more. Your procedure for taking feedback, by using the feedback form was great, but make it online as you all might know, no one really posts anything anymore. Secondly, please create a separate section for mobile phones in your magazine, just 2 or 3 pages every month. In this way, *Digit* will also cover the needs of a mobile magazine, since there are more mobile users than PC users in India.

I also must add that *Digit* is very addictive magazine.

**Shishir Priyadarshi**

You started the year on an excellent note. It was one of the best issues of *Digit*.

The main story covering the evil face of technology was good. 'Bomb alert' included in Digital Business was mind blowing. I really liked this issue and will preserve it for a long time.

GPS devices tested are really awesome. The 'Agent 001' is my special favorite.

I am a regular surfer, so I have used all the browsers, and I think it's about time you did a Fast Track to browsers.

Also, in the DVD, please try to provide videos of the latest gadgets you test. The games tested in this issue are really good. Please don't provide demo games, as it drives me crazy and makes me buy them.

**Mayur Gaikwad**

Those are some very valid suggestions, and we promise to look into it. You might be surprised with a few of your requests from the next issue itself. As for your gaming enthusiasm, your letter is sure to make some of our advertisers very happy.

Team Digit

I am a Doctor in Anaesthesiology working in the UK for last 5 years.

I came to India to visit my family and had a long-ish stay this time. Hence I found a bit of time to catch up with my old favourites.

My brother introduced me to *Digit* back when it was called Chip. Every good thing seems to loose its quality and looses its charm with time, but I am quite pleased to see that *Digit* has escaped this phenomenon. It is still as good as ever! January issue was absolutely fantastic and full of information to keep us safe.

I was trying to buy the December edition, but it was sold out. I am aware that it can be ordered online, but it will take about 5 to 7 days to reach me, and I am leaving tomorrow, so I can't buy it. I do miss this magazine in the UK. Although there are more such magazines there, I love *Digit* for its simplicity, easy language and its Indian origins.

It will be very very useful for readers like me to have an online subscription, as then I could access the content from anywhere in the world; plus I could save some paper. The DVD content could be

downloaded from a member's area as well. Although some hardware reviews might not be relevant for overseas readers, all the rest of the articles and information in the magazine are absolutely priceless for me as I am always short on time due to my busy work schedule.

Do you have any such plans in pipeline? Please let me know.

Anyway, I must congratulate you for your good work. Hope you manage to keep it as good as ever.

**Anurag Vats**

We're glad to hear from old readers, and even happier when you still find us relevant, after all these years.

We do have plans for online content subscriptions, as well as international magazine subscriptions, in the pipeline. You will be the first to know when we do launch such services.

Team Digit

I have been a regular *Digit* reader for quite a long time... and I must say that you are the best in the business.

What i really like are the product reviews especially the graphics card reviews, but there is something more that you can cover: you should also state the minimum and maximum power consumption of each graphics card, so that we can choose the ones that suit our needs best.

**Apar Bhatnagar**

That's a very valid suggestion. Although we do mention low-power consumption on hardware (like motherboards), especially where it is substantial, and also mention when a card uses way too much power, we will take your idea and start doing this on a more regular basis.

Team Digit

CORRIGENDUM

Due to a clerical error, the contact details for the XFX 9800GT on page 81, in this month's issue, are wrong. However, the ratings for the product are correct. The contact details were supposed to read:

Contact: Rashi Peripherals  
Phone: 022-67090828  
E-mail: response@rptechindia.com  
Web site: www.rptech.com  
Price: Rs. 10,000  
We apologise for the error.

Digit – A Vector Quantity!

My first encounter with *Digit* takes me three years back. Then I was only interested in the games hidden inside the CD. As I grew, it was the freeware that amused me. But now I have realised that the greatest knowledge lies in the precious articles of the magazine. What marvellous stuff you people provide us with! The contents have always been improving, and to a large extent, after Mr. Henning joined as the Editor-in-Chief. I personally appreciate his contribution. The web site content together with the DVDs – all are on the path of improvement.

Last month's Fast Track on C++ immensely enhanced my programming skills. The technical help desk works perfectly in accordance with its name, and has given me full support whenever needed. They too deserve a big applause.

But the greatest for me was the January 2009 edition. Comparison of the password strength with entropy in "Pass the word..." was excellent. I have always aspired to become a System Security Analyst in the future. I am already a hot favorite among my classmates for the security aspects of their PCs. And now, at the crucial stage, when I am in Class XII, the cover story provided me with the right direction.

Thus *Digit* has given me magnitude and momentum to my aspirations, as well as direction. That's why I called it a vector quantity. I really thank you in advance for shaping my career and assure my best services to the cyber community towards security. Three cheers to *Digit*!

**Manas Thakur,**  
Balaghat  
M.P.

This is a fresh analysis of our content. We always love to read e-mails from our young readers, and are always glad to help. We wish you all the very best in your chosen profession.

Team Digit

LETTER  
OF THE  
MONTH

# The Last Word

## Bloatware Blues

WITH ITS MOUNTAINS of petty and idiotic regulations, the European Union (EU) is hardly my favourite organisation. However, it sometimes gets things right, and recently started new legal action against Microsoft for anti-competitive practices. The focus of attention, as before, is with Internet Explorer being tied into the operating system.

This approach is the exact opposite of the original vision described by Bill Gates. Back in the days (18/19 years ago) when a few journalists like myself used to get to meet him and discuss these things properly, Gates described his view of the desktop of the future as being component-oriented.

With this approach, instead of buying one or more large applications, you buy much smaller ones, and then add other “component” programs that provide the extra features that you need.

You might have a word processor as a basic program that only formats text and prints it out — very robust, with excellent ease of use, good font-handling, etc. If you should also want a spell-checker, thesaurus, or some other add-on, you can buy this separately, and it will integrate fully with your basic word-processor. These extra add-ons need not come from the same software vendor.

You might well have a word processor from Microsoft, a presentation application from Corel, and a spell checker from Adobe, that would work with the other two and any other programs that needed spell checks, such as your free-standing (not OS integrated) web browser. The operating system would provide the object-oriented basis for this structure, itself consisting of components.

There would be many benefits — you would no longer clutter your hard disk with functionality you don’t need, generally making much more efficient use of system — i.e. your — resources; you could tailor your system to precisely your own needs, with large organisations creating their own modules for specialist requirements. It would be highly scalable from small portable systems to power-packed

workstations; this would stimulate healthy competition and the smaller programs could be expected to be relatively free of errors. We have instead been sold inefficient bloatware.

Personally, I blame the hardware vendors. They kowtow to the Microsoft line far more than seems rational. Why? Because hardware keeps growing in size, far more quickly than genuine software needs. By providing excessively bloated software, Microsoft helps drive hardware sales, and other application developers have to follow suit because of the checkbox approach to functionality (feature tables in magazines don’t exactly help in this).

One trick that Microsoft and others have used to force us to keep upgrading has been constant changes in file format. So, you are using last year’s version of Word and you receive an email attachment from somebody using this year’s version. You can’t open it, and the pressure is therefore on to upgrade, even though the new version offers no new functionality that you need. I am only a very infrequent user of Word, and I can honestly say that only two features useful to me have been added to the software since Word for Windows v.1.0a. We have all fallen for this hook, line and sinker.

I used the word force in the last paragraph because Microsoft has often been accused of bullying tactics, and both the news item about the EU and our current review of netbooks highlighted this.

Scared of Linux — a much more flexible and scalable operating system — taking over the netbook market, a few months ago Microsoft made Windows XP Home available together with Windows CE for low-end devices. So why only low-end? I once annoyed a Microsoft person when I was testing Windows CE a few years ago by saying that this was the lean operating system I wanted on my desktop. But that could not be allowed, could it? It is not that Windows CE could not easily be made to run on more powerful machines than a netbook, or that Windows XP could not run on the more



Edward Henning, Editor-in-Chief

**“I am only a very infrequent user of Word, and I can honestly say that only two features useful to me have been added to the software since Word for Windows v.1.0a.”**

powerful PCs currently shipping with Vista. Microsoft insists through its licence agreements with hardware vendors on strict limits to memory size, hard disk size, and so forth. Have more than a certain amount of memory, and you can’t ship, for example, Windows XP, but have to force your customers to take Vista. To hell with customer choice. But the effect is not always in Microsoft’s favour.

As Linux improves and remains flexible and scalable, increasing numbers of vendors are considering moving to it. Give an average customer a Linux machine with a Windows look-and-feel, and most would hardly be able to tell the difference. Microsoft’s bullying is beginning to look like the best marketing tool Linux could have. And Microsoft’s response? Instead of more bullying, why not go back to Gates’ original component-oriented vision? Dream on...

A handwritten signature of E. Henning.

[edward.henning@9dot9.in](mailto:edward.henning@9dot9.in)