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May 2008

# digit

**YOUR TECHNOLOGY NAVIGATOR**

Tested: Hard Drives

The Best Indie Games Ever

Security Solutions For SoHos

Inside Intel's Larrabee

30 Days With: Macbook Air

# CRYSTAL CLEAR
## 33 LCD Monitors Tested

# "Desktop Linux Is An Oxymoron"

I'M GETTING SICK and tired of certain people complaining about Linux distros, and the difficulties they face when using them. Just to clarify, I'm not talking about the majority, because I usually sympathise with complaints about technology, but when an IT implementer or a "tech freak" says something like "Linux is not ready for the desktop", it's the last straw. At a recent conference, a very senior security analyst told me that there is no such thing as an "easy-to-use-Linux distro".

In order to get users to switch an operating system, you have to follow logic. If it's not broken, don't fix it, but if it is, do whatever it takes to fix it. All of us know the advantages of switching to Linux, no viruses, spyware and the resulting crashes. In a professional environment, this leads to a loss of man hours, and worse, a lot of data loss.

So now, in a work environment, Linux begins to sound like OS utopia. This is especially true when you think of the average corporate environment, where a lot of people on PCs need nothing more than a browser, an office suite and a mail client. With software usage restrictions in place, employees are generally not allowed to use much else. Now Linux can do all of this and more, and to be honest, if you never get into the administrative functioning of Windows-lookalike Linux distros, you'd never notice the difference.

Now I'm not stupid enough to suggest that all companies switch *all* employees to Linux. To begin with, you'd have huge problems trying to pry graphics professionals away from their Photoshop machines, and suggesting alternate software to them is likely to earn you a black eye. However, those who don't use Windows-only software for their job roles can easily be ported to Linux. Even if you factor the cost and time of the basic training that's required to get people used to Linux, you'd still end up saving a fortune in OS costs, anti-virus costs, and probably even IT staff costs.

Maybe it's just me, but I don't see any sense in statements like "I've seen, implemented and used Windows for so long, that I know what to expect from it..." To me, this basically translates to, people saying, "I'm so used to anti-virus and anti-spyware software, that I can't imagine life without it."
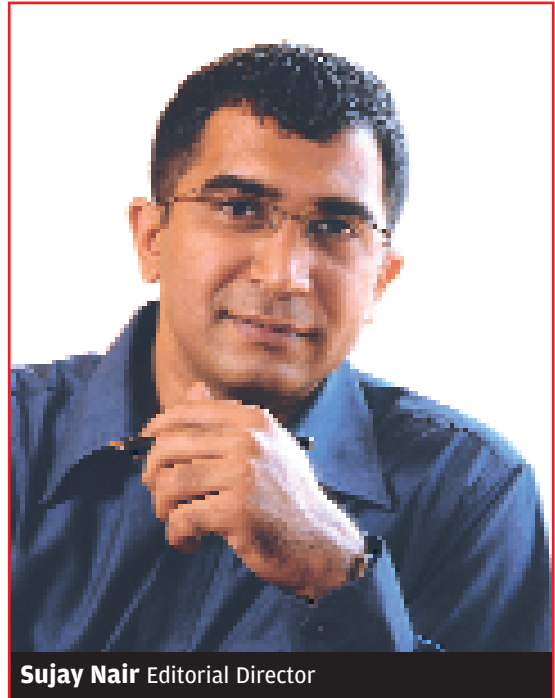
**Sujay Nair** Editorial Director

## "...what's really wrong with operating systems is PEBKAC"

Another thing I want to clarify is that this is not one of those popular "Windows-bashing" articles that you will find thousands of. I run Windows XP myself, and it's never crashed on me in 3 years. However, what's really wrong with operating systems is PEBKAC (Problem Exists Between Keyboard And Chair). With millions of malware, sitting on the Net waiting for a gullible user to make just one wrong-click, employees who don't know better are the real problem for IT heads. It takes just one virus to bring down a network, and cause losses in the millions.

The tools to prevent such disasters exist, they're readily available, free, secure, easy-to-use and filled to the brim with features, and yet some of the people whose job it is to find these very solutions spout idiotic tripe like "Desktop Linux is an oxymoron". Well, you got the "moron" part right sir, but sadly, nothing else.

*editor@thinkdigit.com*

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## Products Reviewed This Month

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Seagate 7200.10 ST3750640AS
Seagate 7200.11 ST3500320AS
Seagate 7200.11 ST3750330AS
Seagate 7200.11 ST31000340AS
Western Digital AV WD5000AVJS
Western Digital AV WD10EVCS
Western Digital Caviar SE16 WD3200AAKS
Western Digital Caviar SE16 WD5000AAKS
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BenQ T201W
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Dell SP 2008 WFP
Dell SP 2208 WFP
HP L 1710
HP L 1950
HP  L2208w
Intex 1707 WBLK
Intex IT 1904 W
LG L 177 WSB-PF
LG W 1952 TQ-PF
LG W 1942 T
LG L246 Wp
NEC 1770 NX-BK
NEC MultiSync 1990 SX
NEC MultiSync 1970 NXP
Samsung 732 Nw
Samsung 943 NXW
Samsung 953 BW
Samsung 2053 BW
Samsung 2043 NWX
Samsung SyncMaster 2253LW

ViewSonic VA 1716W
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ASUS Formula Rampage
Audioengine A2
Belkin N1 Vision
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Cooler Master NotePal W2
Epson Stylus C110
Gigabyte 9800GX2 GV-NX98X1GHI-B
Gigabyte GeForce 9800 GTX - GV-NX98X512H-B
MSI GeForce 9800GTX - N9800GTX-T2D512-OC
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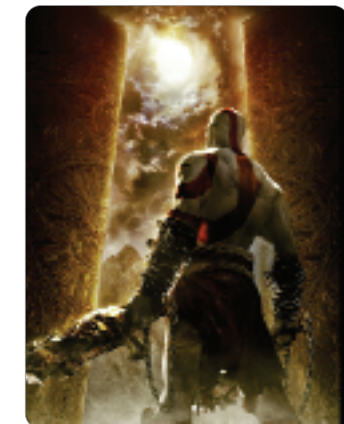
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## Gaming

**FREE**
### Sam & Max: Abe Lincoln Must Die!

The president's lost it. Federally mandated group hugs, a pudding embargo... what's next, gun control? Sam & Max are off to Washington to take care of this bozo, but the political climate will only get stormier... and a new power will rise...

### Energetic 1.0

It is a stealth education platform game using state of the art 3D technologies to display 2D graphics. Easy, fun, and with a classic game play this game makes an attempt at providing the player with an entertaining experience while also learning about energy and the environment.
- Bontag
- I Wanna Be The Guy

**DEMOS**
### Sins of a Solar Empire

In the future, the survival of humanity stands on the edge of utter ruin as three powerful factions vie for control of the galaxy. Take command of one of three space-faring races as you work to establish your domination of the galaxy in Sins of a Solar Empire. Through a combination of diplomacy, economic skill, cultural influence, and sheer military might you will establish order over your corner of the galaxy.

## Productivity

**PERSONAL**
### OpenOffice.org 3.0.0 Beta 1

OpenOffice.org is a free, Open Source alternative to MS Office with a Word compatible word processor, an Excel compatible spread sheet program and a PowerPoint like presentation software. It also allows to save to PDF.

### Spicebird Beta 0.4

The Spicebird application was designed to be a

complete comunication platform for many

collaboration needs. It provides e-mail, calendaring and instant messaging with intuitive integration and unlimited extensibility.
- Compiere Community Edition 3.0
- Digsby
- My xPad 2.1.3
- raProject 0.2
- SSuite Galaxy Class
- ABIX 6.55.02
- BC Excel Server 2007 Enterprise Edition 7.1.7
- Desktop Dozen 5.00
- Directory Checker 3.30
- Directory Opus 9.1.0.3
- Memeo AutoSync 2.5
- Metamation 1.0
- Movie Magic Screenwriter 6 (Mac)
- Pagico 3.1.0.51 (Mac)

**DEVELOPERS**
### MSDN Express Library for Visual Studio 2008 Express Editions

The Microsoft MSDN Express Library is an abridged version of the full Microsoft MSDN Library. It contains the most important content for new users of Visual Studio 2008 Express Editions and Visual Studio 2008 Standard Edition to get familiar with both the Visual Studio Integrated Development Environment (IDE), Microsoft's Development Languages (VB, C#, C++), and most of the core .NET Framework classes.

## Entertainment

**MOVIES**
### The Shadow Strikes (1937)

Lamont Cranston assumes his secret identity as "The Shadow", to break up an attempted robbery at an attorney's office. When the police search the scene, Cranston must assume the identity of the attorney. Before he can leave, a phone call summons the attorney to the home of Delthern, a wealthy client, who wants a new will drawn up. As Cranston meets with him, Delthern is suddenly shot, and Cranston is quickly caught up in a new mystery.

**CHANNEL 9**
### Nick Baker: Xbox 360 Architecture

What is the XBox 360, exactly? How do you go about designing and building a game console that meets the high standards of today's gamers and handles the computational pressures of today's highly realistic games (think real time physics computation, incredibly rich graphics, etc)? Did you know the XBox 360 team saw into the multi-core future before most anybody else?

### PhotoSynth: What. How. Why

Blaise Aguera y Arcas is an Architect of PhotoSynth, which is a super cool 3-D image "tourism" application that enables a new methodology for exploring related groups of images using a complex imaging algorithm developed in part by Microsoft Research. Here, Charles sits down with Blaise to learn the details of the What How and Why of this highly innovative distributed 3-D image processing application. PhotoSynth enables a whole new way of exlporing images.

## Tools

**MULTIMEDIA**
### Vue 6 Personal Learning Edition

Designed for vfx studios, animators, architects and matte painters, e-on software's professional solutions offer the most advanced tools for creating, animating and rendering natural 3D environments, and integrating them into any production pipeline. The Vue 6 PLE is a fully functional version of Vue 6 that lets you save your work, export and render without size limit. But best of all, it never expires, so you can learn Vue 6 at your own pace.

### Adobe Audition 3

Recording, mixing, editing, and mastering – Adobe Audition 3 software

is the all-in-one toolset for professional audio production.
- Ayam
- BRL-CAD
- CinePaint (Mac)
- Frinika
- Google Earth
- Google SketchUp
- Microsoft Photosynth Tech Preview
- form.Z
- LoopWorx Hip Hop Edition 1.0

**SYSTEM**
### Windows Vista Service Pack 1

Windows Vista Service Pack 1 is an update to Windows Vista that addresses key feedback from our customers. SP1 addresses specific

reliability and performance issues, supports new types of hardware, and adds support for several emerging standards.

### Mandriva Linux One 2008.1 (KDE)

Mandriva Linux One 2008 is the best way to start using Linux. A full Linux operating system on a single CD for both new and experienced Linux users, it is fast to download and install, and also safe to try with a live mode. One is really the one CD you need!
- AVG Anti-Virus Free Edition Update
- Comodo Memory Firewall 2.0.4.20
- Inguma

- Kaspersky Anti-Virus 7.0 Update
- Norton AntiVirus Update for Windows 2000/XP/Vista
- Remote Queue Manager Personal 4.2.162
- RemoveIT Pro 4 SE 9.4.2008
- Simple Machine Protect
- Windows Vista Service Pack 1 (x64)
- ZoneAlarm Free 7.1
- Agnitum Outpost Antivirus Pro
- Dr.Web 4.44.2
- ESET Smart Security 3.0.650
- Kerio WinRoute Firewall 6.4.2
- MOBILedit! Unlimited Edition 2.8.2.9
- NTI Ninja 2.0.5.19R2
- Security Desktop Tool 5.5.2.5
- ServiceKeeper 4.8.43

**DRIVERS**
- ATI Catalyst Software Suite Vista32 8.2
- ATI Catalyst Software Suite Vista64 8.2
- ATI Catalyst Software Suite xp32 8.2
- ATI Catalyst Software Suite xp64 8.2
- NVIDIA Forceware Vista32 174.16
- NVIDIA Forceware Vista64 174.16
- NVIDIA Forceware XP32 174.16
- NVIDIA Forceware XP64 174.16

For any queries regarding the CD or DVD, e-mail **help@thinkdigit.com** with "CD/DVD" as the subject.
If the subject is not mentioned, your mail might not reach the right person.

## Productivity

**PERSONAL**
### Google Email Uploader

The Google Email Uploader is a open source desktop utility for Microsoft Windows. It uploads email and contacts from desktop email programs (like Microsoft Outlook) into your Google Apps mailbox. It preserves information such as sent dates and sender/recipient data, as well as the folder structure used by email programs.

### QuiiQ MOVIES 1.1

QuiiQ MOVIES is a brand new way to archive, manage and watch your entire movies collection. Just use your remote control to transform your TV box into a glamorous cinema projector with direct links to your favorite titles, actors, directors and digital copies of your movies.
- Free PDF to Word Doc Converter
- Lingoes
- MP3 EZlib Music Library and Playlist Manager 2.4
- ProgramLaunch
- TTMS 1.5
- Vista User Time Manager

## Gaming

**FREE**
### And Yet It Moves

And Yet It Moves is basically a mixture between a jump and run and a puzzle game, with the extra ability to rotate the world. The player can run left, right and jump, but can also turn the world clockwise and counterclockwise by 90 degrees. When this happens physics works the following way: as soon as rotation starts all objects get frozen and after rotation objects continue to move with their velocities (direction and speed) they had before.
- Blood Car! 2000! Deluxe!
- Every Extend
- flOw
- Infinite Underwear Attack
- Pogo Sticker
- Racing Pitch
- Rainpaper
- Super Mario– Realm Of The 1000th Twilight
- Toribash
- Twin Tower
- Vegetable Soup Tactics

**DEMOS**
### New Star Soccer

New Star Soccer 3 is the award winning football game that lets YOU be the star player. Take full control of your career and work your way to the top. Defender, midfielder or attacker, the choice is yours, just make sure you keep the boss, fans and everyone else happy on your rise to football stardom!

### Featured

**FREE GAME**
### Ocular Ink

In a strange and twisted land where evil, dismembered body parts roam the countryside, you play the role of a young paintbrush-wielding eyeball that is determined to free his home town from the fearsome clutches of the evil eye-pirate known far and wide as Patches Deadlights. Travel through bizarre environments, learning new and powerful attacks with your paintbrush.

## Tools

**ESSENTIALS**
- .net Framework 2.0
- µTorrent 1.7.7
- Avast Home Edition 4.8
- Avast Update
- Comodo Firewall Pro 3
- Digit Software Archive 2006 Beta
- DirectX Redistributable 9.0c March 2008
- Foxit Reader
- Free Download Manager 2.5
- Irfan View 4.10
- Irfan View 4.10 Plugins
- Java(TM) 2 Runtime
- K-Lite Mega Codec Pack 3.8.5
- Microsoft XNA Framework ■ Redistributable 1.0 Refresh
- Opera 9.27
- Silverlight
- Spybot Search and Destroy 1.52
- Spybot Search and Detection updates
- VLC Player 0.8.6f
- Winamp
- WinRAR 3.71

**MULTIMEDIA**
### GIMPShop 2.2.11 (Ubuntu deb)

GIMPshop is a modification of the free/open source GNU Image Manipulation Program (GIMP), intended to replicate the feel of Adobe

Photoshop. Its primary purpose is to make users of Photoshop feel comfortable using GIMP.
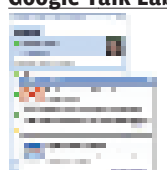
### Kerkythea 2008 Echo

Kerkythea is a free multi-platform standalone rendering software that can be used to create photorealistic image renderings using physically accurate materials and lighting when integrated with Blender, SketchUp, Wings3D, 3ds Max, Silo and any program that exports files in OBJ and 3DS formats.
- Alien 303 1.2
- AuthorPOINT Lite
- Flash this
- i.Mage
- MandelFilm 1.00
- PhotoMesa
- Photoscape
- SUPER Free video converter
- WaveGenix FX Pack 1.0
- Digital Music Record Convert Burn Station 7.4.1.10
- e-Radio Mixer 2.17
- Fake Voice 1.45
- inTone | Guitar Pro 1.0.9
- Soundmasker 6.00.32
- SuperMp3Normalizer 1.04
- YoGen Vocoder 1.1.0

**SYSTEM**
### Ashampoo Antivirus 1.61

Free for Digit readers! Ashampoo AntiVirus gives you comprehensive protection against viruses, worms, Trojans and dialers, but it's so efficient you won't even notice it's there. And it's so easy to use that it won't waste any of your valuable time. Just set it and forget it and get on with more important things.

### TuneUp Utilities 2008

Improve your system's performance, thoroughly clean up your hard drives, solve your PC problems with a few clicks, and customize windows to your personal requirements.
- DocShield
- Fisehippo Update Checker v1.021
- JkDefrag GUI
- Link Shell Extension
- O&O Defrag 2000
- PC Inspector File Recovery 4.0
- RecentFilesView
- Shell Tools

**INTERNET**
### Google Talk Labs Edition

Google Talk, plus alerts from Gmail, Calendar and Orkut! You need to be connected to the Internet for this installer to work

### Safari 3.1

Experience the web, Apple style, with Safari: the fastest, easiest-to-use web browser in the world. With its simple, elegant interface, Safari gets out of your way and lets you enjoy the web, up to 2 times faster than Internet Explorer.
- Avant Browser 11.6
- F-ab
- Mikogo
- TightVNC 1.3.9
- Toggle Flash
- Tor
- XeroBank Browser
- LanFlow Net Diagrammer 6.01.2011
- Magnesium: RSS 2.0 Ticker
- ZipInstaller
- The Mop 4.44.20

# Get A Taste Of The All New ThinkDigit

## FEATURED TUTORIAL FROM THE DIGIT FORUM (www.thinkdigit.com/forum)

This month we feature a member tutorial from the forum.

**thinkdigit.com**

### Using Windows Vista: The MVP Way

14-01-2008, 09:28 PM

**gx_saurav**
The G-Axe Effect

Join Date: Jan 2007
Location: Lucknow
Posts: 4,584

That's it, I can't see the slogan "Intel Inside, Idiot outside" coming true & then users blaming Windows just because they don't know how to work on Windows. No operating system in this world is good enough out of the box, you always need to make it good by installing or removing things you need & don't need. This is a process which will sure take some time but the process is easy & you can save the files & settings so that you don't need to do it again & simply use the old settings.

There is a way I use my computer due to which I don't need to install Windows again & again, like many people do. In my case, it works when I want it to, the way I want it to. I decided to share my deployment expertise here which might help other Windows Vista user. I don't use many paid apps now, & also use some OSS apps where applicable, so I am making this tutorial in a step by step way.

1) Install Windows Vista, then go to Windows Update & install every update available.

2) If you have a Bluetooth adapter, then don't forget to install BlueSoleil 5. It is a must have application for all your Bluetooth needs in Windows Vista. Although you can transfer & receive files without BlueSoleil in Vista too, but since it is an OEM bundle, chances are you already have it bundled with your Bluetooth adapter.

3) Make sure you use Ad Muncher, it is a must have application for Windows Vista. Just install it, then run it & forget it, it won't bug you & do its work automatically. Vista comes with Windows Defender which is good enough for removing Adware & Spyware. If you want something else, there are many free tools to choose from but once u start using Ad Muncher, you won't need an adware cleaner & you can very well disable Windows Defender.

**For more visit:**
**http://www.thinkdigit.com/forum/showthread.php?t=78233**

# Enter

## TECH TALK

**Zeno Colaço**
Vice-President, Publisher & Developer Relations, Sony Computer Entertainment Europe

*SCEE's Zeno Colaço was in Mumbai for DevStation 2008 this April—Sony's first in India*

**What do you expect to get out of DevStation Mumbai 08?**
Firstly, we're really excited about our first technical conference for Indian game developers. We intend to give them assistance in developing games for our platforms, and reduce the barriers to their entry in the market. We're also looking to provide commercial assistance—kit loans, consultancy, and perhaps even publishing.

**What's the Indian game development scene for your platform been like thus far?**
We've not had games come out of India yet, but we know that the technical knowhow is here. We're funding a project based on Hanuman right now, and we're looking for more such projects—properties that will appeal to the Indian market. What we're definitely *not* doing is telling developers what to develop.

**What platform are you focusing your efforts on, and why?**
For DevStation 08, the main focus is the PS2—we have a huge install base in the Indian market waiting to be tapped into, with specific games developed for Indians. We also have about 120 million PS2s worldwide, so exporting these games will be a lot easier. We're not ignoring the PS3, but it will still take some time for it to grow into a larger market.

**How much life do you think the PS2 has left?**
In the next next 12-18 months, we should hit 50 million units in the Asia-Pacific market—a 20-25 per cent growth. The PS2 will continue to be a viable platform for the next 3-4 years at least, and key developers and publishers realise that too. It's priced right, and will coexist happily with the PS3, just like the original PlayStation did with the PS2.

**MORALS BEFORE MONEY**

## Hope For Kids

Child porn is one of the toughest evils our society faces today. Paedophilia and other sickening crimes against sweet and joy-filled kids only depict the levels to which mankind can stoop. However strongly we may try to deny it, reality bites! Even though it's been around for long, it was the Internet which unfortunately led to it becoming a mass phenomenon. The Internet simplified distribution of media of all kinds, which was traditionally the most difficult to do. As  Web sites proliferated, money flowed in and the exploitation and child abuse increased. Taking advantage of poor economic conditions, criminals have managed to lure children, many of them less than ten years of age, with some as young as two. The results are a schocking tale—disturbing pictures of them being sexually abused to a worldwide audience.

Fortunately, many organisations have now started dedicated efforts to curb the spread of child porn. A few years ago, Microsoft donated $1 million for fighting under age porn. Google, on its part has vowed to block child porn related advertisements. Recently, cell phone operators across Europe and Africa got together to found the Mobile Alliance Against Child Sexual Abuse to ban these images from cellular networks. With all the efforts commonly targetting this social evil, governments and law enforcement agencies have started a worldwide crack down. However, as a result of the online patronage, one Website would replace another that was blocked.

After sustained efforts, there is finally some good news for organisations and activists working for the welfare of children—the number of Web sites peddling child porn has actually decreased. From a peak of 3,052 such sites in 2006, the number has fallen to 2,752 last year. All these Web sites are in English, and most of them are based in Russia and the US. According to the Internet Watch Foundation (IWF), an NGO that monitors these efforts, it is possible to put an end to this crime with more manageable number of sites and an agreement in place with hosting companies that stipulate the taking down of child porn Web sites.

If everything goes according to plan, the Net will be a lot safer for the next generation.

**BIG BLUE'S TWISTER**

## Spinning Electrons To Store Data

Hard drives and Flash drives, two most commonly used memory devices have their own pros and cons. While hard drives are cheap, easy to fabricate and can provide terabytes of storage, they are not very reliable and also very fragile. Flash memory, on the other hand, is quite rugged, yet wear out after repeated use and are relatively expensive. Another option is combining hard drives and flash memories—a data storage medium that is cheap and easy to make and maintain with almost unlimited storage! Manufacturers have for long been researching this area. Now IBM claims to have hit the jackpot by inventing such a medium and plans to introduce it to the market after four years.

Referred to as "racetrack" by scientists, this data storage medium is based on spintronics—a physical phenomenon that uses the charge and spin properties of electrons to store data. When there is a need to read or write data, an electric charge is passed through the nano wire, causing magnetic domains to move and data to be transferred.

IBM has been working on this project using the spin properties of atoms for four years. In the latest prototypes, current pulses were used with a frequency the same as the resonant frequency of the nano wire. As a result, the current requirement has been reduced by five-folds, making this new technology more practical. The fabrication of the nanowires, as well as the ability to move the domains linearly are the main challenges.

Thousands of nanowires can be accommodated by fabrication on a silicon chip, thereby making further miniaturisation of memory a reality. Once the fabrication process is perfected, the memory chips will be virtually indestructible, consume very low power and reliably store huge amounts of data.

**LEAVE SILICON ALONE**

## Pushing Boundaries

Conventional silicon chips are fast approaching the boundaries imposed by physical laws, at least in terms of the number of transistors that can be squeezed in a given surface area. For quite a while now, chipmakers have been looking at alternate materials that can overcome these limitations of silicon and stay in line with the popular Moore's law without unpleasant consequences—like overheating and data corruption.

IBM and a host of partners from the semiconductor industry have recently announced the discovery of one such material. Referred to as

**HOT**
**Windows 7**
Touch-based inputs, and MinWin that basically is the new kernel that uses almost negligible amounts of memory. Windows 7 will be much zippier than Vista, or so we hear... let's wait and watch

**So Soon?** **HOT**
"But you just made me pay for Vista?" is the standard user response to the announcement of Windos 7.
It's only fairtoo... since XP did last many years, and already many feel that Vista wasn't needed. Again, wait and watch.

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### How green are your computing habits?

**Opinion Poll**

**A** I print only what's essential
**B** I unplug all appliances when not in use
**C** I donate/recycle old computer parts
**D** I'm not very green, but I can improve

I work with frequently changing scripts, so if I keep taking print outs, then there would be a lot wastage. Hence, I wait for the final draft, until then I continue with my work with a pencil or pen. This way I save at least a tree or two.
**Jaladhi Chhaya**
Baroda

I guess by unplugging your appliances first and foremost cut downs your elecrticity bills  to large extent and saves money. Also when not required, the system should be shutdown and unplugged to save them from damage.
**Netra Parikh**
Mumbai
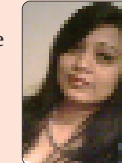
Since they are becoming scarce, energy generated from renewable and non-renewable sources of energy needs to be saved. If a single man saves energy, imagine how much energy could be saved when the whole world starts acting wisely.
**Ashish Tiwari**
Delhi

"I choose 4. I am a designer by profession and it is very important for me to check how the final design looks like on paper. Unless some way is invented, there no way in which I see myself going 'green' "
**Yashwant Miranda**
Delhi.

"I choose option 2. I'm normally the one who leaves office last, ensuring that all the computers on my way out are switched off. It's just my small way of giving back to the planet."
**Akhil Singh**
Delhi

My choice is option 2. When you're not going to be using it for a long time, turn it off. The same can be said for peripherals, too. It all adds up. Not only will you save energy and money, you'll also protect your computer from unnecessary wear and tear.
**Jeet Patel**
Pune

(You, too, can participate in this poll—at **www.thinkdigit.com**)

**IRAQ**
The first generation of "war bots" deployed were recalled after they "refused to obey" their human operators and started firing when they were not supposed to. Few weeks ago a debate was sparked on ethics of deploying war bots.

**JAPAN**
As per the Machine Industry Memorial Foundation, robots would be capable of filling the jobs of 3.5 million people by 2025

**ISRAEL**
As per a new list of rules announced, the soldiers and Defence Ministry employees would be prevented from revealing classified details on social networking sites. These were called for since some soldiers had uploaded their photos with classified equipment

**BRAZIL**
Judge Flavio Rabello passed a judgement to ban the controversial game "Bully", since it was too violent for young kids and teenagers

**MALAYSIA**
Abdul Rahman Dahlan, secretary general of the United Malays National Party's Youth wing, announced that all the leaders of the ruling party will need to set up blogs for self introduction

**INDONESIA**
YouTube was blocked after the site carried a Dutch lawmaker's film accusing the Koran of sparking violence. The Web site was blocked for two days, but officials believe it's going to be a long chase since the film would keep moving from one site to another.

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high-k or metal gate, this new material will not replace silicon in the entire transistor, but will be grafted in parts of the transistor that control power and switching, quite similar to an FET (Field Effect Transistor). With this newly developed material, chips can be further miniaturised, made more power efficient and also faster. High-k is a term for materials with a high dielectric constant, which, in layman's terms, are materials that can hold plenty of electric charge. High-k materials are also very efficient, as they can switch between on and off states even when the current is either very low or very high. Some materials with a dielectric c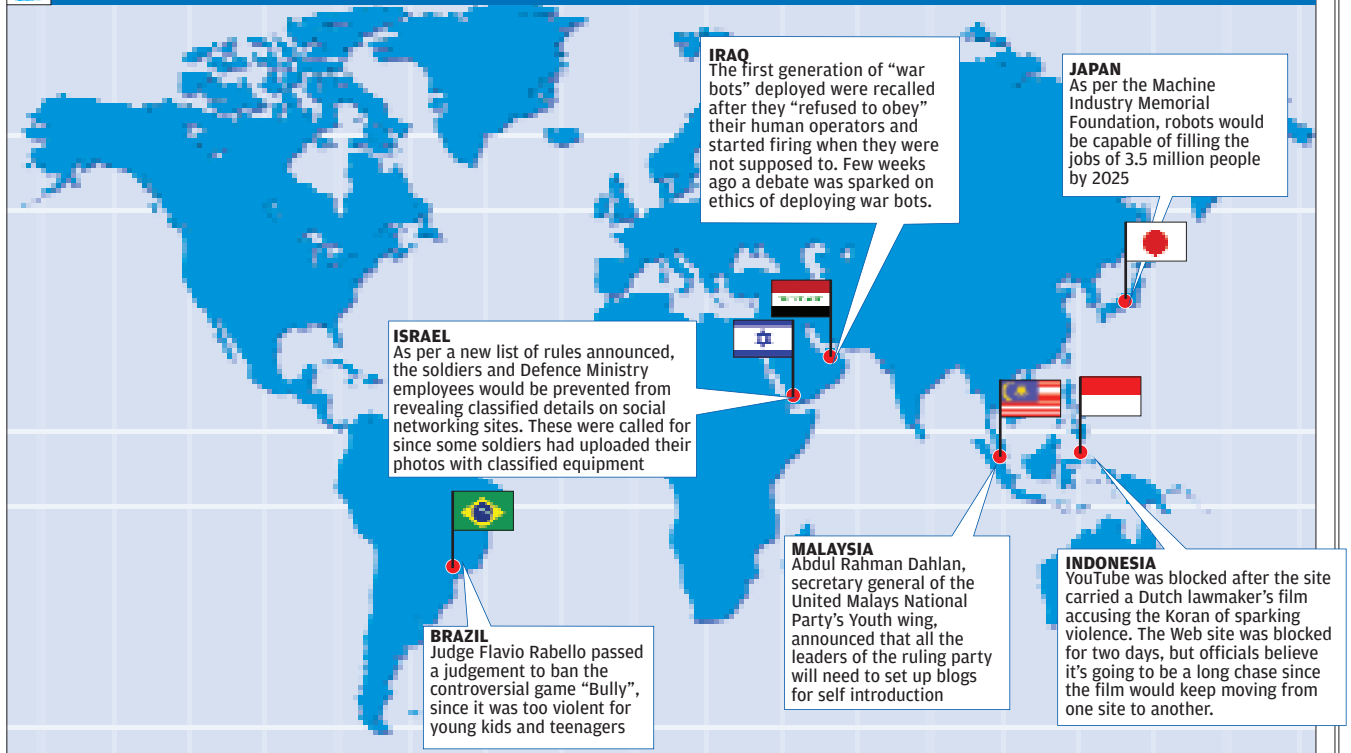onstant higher than silicon dioxide used in conventional chips, are zirconium dioxide and titanium dioxide. The name of the new material that IBM is using in the chips is a closely guarded secret.

These new hybrid chips are likely to be used in the new 32-nm chip fabrication process. IBM and its partners have announced that foundries for customers fabricating low cost 32-nm chips would be available by the end of this year. Hopefully, by 2009, chips with high-k materials would be available to consumers.

**MOBILE 2.0**

# Handheld Blogging

Terms such as "twittering" and "funwalls" are popular on the Web these days. It's the fun way of sharing the latest happenings in your life with your near and dear ones. Now consider doing all this from your handheld or mobile phone! With a range of Web 2.0 ideas like blogging, video sharing, image sharing or audio sharing online, this is a reality. Taking the time constraint into consideration, a new Web 2.0 is born—"micro-blogging" has evolved. But

we knew that already.

Micro-blogs are posted on-the-move using mobile phones or other mobile Internet devices. Twitter, Utterz, JuiceCaster, Haiku, and several other sites have been around for a couple of years, and are now extending their services to the mobile arena.

According to Randy Corke, President—Utterz, "What are the four things you can do with a mobile phone? You can talk, you can send text, you can take pictures and send video. We want to use the technology that you have in your pocket."

In fact, it's surprising that several sites, applications and services based on sites like Twitter are cropping up to add a tinge of flavour to the micro-blogging recipe.

Micro-blogging is meant to be friendly, but can also turn out to be a killer. Head to **http://lin.cr/e5** to read the stream of tweets lashing at BusinessWeek reporter Sarah Lacy's interview of Mark Zuckerberg, CEO—

Facebook, and you'll know what we mean.

Messaging through mobile phones can also turn out to be a cause for concern for users in terms of cost per message and also to the service providers, who after all, have to manage tonnes of messages rushing to their switches. However, on a positive note, this gives rise to new technologies in both hardware and software, what with most hackers turning their attention to mobiles and mobile Internet devices.

**WHAT'S COOKING?**

# EU Panel Pulls On Search Engines

Recetly, Internet search engines Google, Yahoo and MSN were questioned over users' privacy by an EU panel. These search engines monitor user

Photograph **Vinod Chandak**

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

behaviour (search query history) for statistical analysis and further utilisation in improving their algorithms.

The report from Article 29 of the Data Protection Working Party says that "search engine providers must delete or irreversibly anonymise personal data once they no longer serve the specified and legitimate purpose they were collected for". Hence, even if the data is collected through cookies, their lifetime shouldn't be significant. Also, the data should be used for personalised adverts, only if the user has consented for the same.

These data fields are anonymised by Yahoo after 13 months, while Google and MSN anonymise user data after 18 months. However, do these search engines safely anonymise your personal data when it can reveal critical information such as your location or service provider? The possibility of this data of yours being misused does not go in your favour! Can you really be certain that the inferences of your search behaviour and pattern are not sold off to any advertising major?

Popularly referred to as stalking, search engines normally track user's search history by collecting their unique IP addresses an including a unique ID in cookies. Search engines collect information reagarding search query patterns and results for billing the advertisers, through these very same cookies. Such comprehensive data with regard to different search patterns, queries, choice of results and user profile, which includes demogrpahics is like a haven for advertising firms to bombard users with their ads.

The data could possibly be compromised or exploited. Also, the main issue is user's privacy, which must not be compromised under any cost, as per the EU panel.

No matter who you are or where you are from, no one should be allowed to fiddle around with user's privacy.

## THE CHINESE CONNECTION
# Becoming The Largest Online Population

According to latest news reports, China now not only boasts of the largest population, but also the highest number of Internet users. The China Network Information Centre has revealed that the number of Internet users in China is around 221 million. However, although this figure is now greater than the number of Internet users in US, the ratio of Internet users to the total population is still lower than the global average.

While the global average was 19.1 per cent, the Chinese stood at 16 per cent. In the wake of online censorship and several other restrictions, these figures are more of an indication of the magnamous Chinese population, rather than the IT development. Although, this might be a moment of pride, especially from an Asian point of view, India definitely is in a much better state, considering the online freedom and liberty that we enjoy as surfers, despite the lower Internet penetration in rural areas.
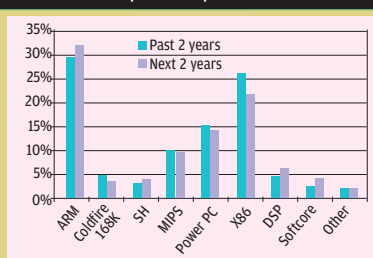
## DIRECTING DISH
# News Corp Alleged To Have Hired Hacker

A computer hacker has reportedly testified that he was hired by a News Corp unit to develop pirated software. The NDS Group, in which News Corp is the largest

■ **Technology that measures smiles released in Japan for use in cameras, robots and medicine** ■ **Cartoon Network's MMOG *FusionFall* delayed**

**18** | **DIGIT** MAY 2008

## STAT ATTACK

**Embedded processor preference trends**



Legend: Past 2 years, Next 2 years

Categories: ARM, Coldfire 168K, SH, MIPS, Power PC, X86, DSP, Softcore, Other

According to a University of Hertfordshire survey of **1,158** kids aged 18-24 in the UK, **95** per cent of them have **"pirated"** music before.

Data from Sophos indicates that **23,300** new spam-related Web pages were created every day during the first three months of **2008,** which means one spam site about every three seconds.

Big Champagne, PC Pitstop and Digital Music News joined forces to analyse **1,661,688** PCs to track 152 unique P2P clients quarterly from September '06 to September '07.

Ofcom's survey of **5,000** adults and **3,000** children found **49** per cent of those aged between eight and 17 have a social networking profile.

shareholder, provides security technology to a global network that also includes DirecTV, the popular satellite TV services provider.

However, the controversy erupted with rival DISH Network filing a corporate spying lawsuit against News Corp's NDS Group If proven guilty, NDS could end up paying hundreds of millions of dollars in compensation. In response, NDS has stated that it was only engaged in reverse engineering. The hacker, Christopher Tarnovsky, has been referred to as being among the top two hackers in the world in the lawsuit. Tarnovsky said that he received his first payment of $20,000 in cash, hidden in electronic devices from Canada. He also said that he has been receiving payments from Harper Collins, the publishing arm of News Corp, for the past ten years.

While Tarnovsky claims all he was doing was making DirecTV more secure, DISH claims that this whole incident is a major conspiracy and was in fact intended at hacking into its network, modifying its security code and causing around $900 million in losses.

### MORE NETWORKING
# MyIndia!

MySpace, the social networking site that was hounded by controversies and hiccups last year, still remains one of the favourites after Orkut, Hi5 and Facebook among social networking enthusiasts. To add to this offering, there are Indian players like Fropper, Big Adda, Minglebox, Yaari and others vying for a piece of the social networking pie.

Launched with much fanfare, News Corp's announced a series of plans for the expansion for MySpace India. Channel V is already running a campus talent hunt show "Campus Star" that is being judged by celebrities and members of MySpace. Also, MySpace will partner with the music label SaReGaMa for an initiative that promotes over 30 bands across the country. This will be followed by MySpace Live concerts that would be aired on TV. A variety of content would be delivered through a range of industry partnerships and innovative products according to Travis Katz, Managing Director (International) MySpace.

An event for software developers (similar to devJAM) held in other countries, will be organised at Bangalore, to help developers create applications for MySpace users. Recently, Orkut announced applications for its users, while Facebook has been providing such services for quite a while now. The application development event at Bangalore will most likely increase competition among the social networking brands currently active in India.

MySpace India's COO, Amit Kapur said, "We give unique tools to the users to create a colourful environment on the site". Despite the setbacks and initial hiccups that MySpace had suffered with malware and ads, it has a vast market and growth potential in a market like India, which has a sizeable number of users on Orkut and Hi5, followed by Facebook. MySpace, currently has round 5 lakh Indian users.

These days, with the average browser getting increasingly aware of bots

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## Buzzword of the MONTH

### ATOM

It's all about the mobile these days, and when you want to develop a processor for gadgets that fit in your pocket, you've got to think smart.

So far, ARM-based processors have been the powerhouse of choice for smartphones and PDAs, but if Intel has its way, the universal language of x86 is set to be spoken in your pocket, too. Intel's new Atom processor is built with the world's smallest transistors, sports a shiny new design, and has been built specifically to consume very little power. This, of course, means that it can power mobile phones, PDAs, and other "Mobile Internet Devices" (MIDs).

The numbers, if they are to be believed, are astounding: a Thermal Design Power (TDP) that ranges from less than a Watt to a maximum of 2.5 Watts and an idle power consumption of 30 milliwatts. And it'll be really cheap, too. What's not to love?
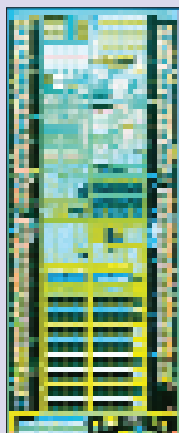
Support for the Atom has come in abundance— Acer is expected to show off an Atom-based, ultra-low-cost laptop (though this might be a relative term) some time in June this year. Around the same time, it's expected that ASUS will release an updated Eee PC, also based on the Atom.

Japanese handset firm Willcom Inc has already released the world's first Atom-based mobile phone— the D4. What really puts a feather in Intel's cap is that this little phone runs—wait for it—Vista!

Start saving up—it won't be long before you'll lay your eyes on the next generation of smartphones!

## CinemaDNG

**What is CinemaDNG?**
Adobe Systems announced an initiative for defining an open-file format for digital cinema files and called it CinemaDNG. DNG (Digital Negative) is aimed at delivering to the video arena what RAW did for still imagery.

**Who would be working on it?**
The coalition of industry entities like cinema camera manufacturers (Panavision, Silicon Imaging, Dalsa, Weisscam and ARRI), software vendors (Iridas and The Foundry) and codec provider CineFORM would be working together for defining and publicly documenting the open-file format—CinemaDNG.

**Why is it necessary?**
Digital cinema requires dealing with a variety of file formats, which needs to be handled by different hardware and applications. With CinemaDNG, a common platform is possible, thereby easing most hassles such as compatibility and archiving.

**When will it be finalised?**
No specific time frame has been announced, since the initiative is being carried in coalition with camera manufacturers and other industry players.

**How will it be beneficial?**
Film makers can have a robust format for archiving with the highest quality source in open standards file formats. Manufacturers on the other hand, will enjoy the elimination of developmental costs for proprietary formats and conversion tools.

**Which segment will it directly affect?**
As a whole, the major beneficiaries of this open format will be the film-making fraternity. The open file format will directly affect prominent film-makers, since the hardware supporting CinemaDNG would yield significantly superior video quality.

and automated mail, the presence of well-known and starry profiles no longer appeal to users.

**YOU PROMISED ME A LAPTOP!**

# OLPC Leadership Parts Ways

The much hyped One Laptop Per Child project, which was aimed at producing a laptop around the psychological $100 figure, is in peril, again. Two of its key promoters—Nicholas Negroponte and Walter Bender—seem to have had their little battles with each other, which seems to be resulting in bigger battles. Although the project is the brainchild of Negroponte, his longtime MIT colleague Bender took care of the software deployment and content for the XO laptop which was meant to be an educational tool.

Bender wants to continue efforts to develop its dedicated Sugar software, and get it to work in a Linux environment, while on the other hand, Negroponte seems to be anticipating growth for his project. He is eager to have a dual boot option in the XO to accommodate a scaled down version of Windows, which Microsoft has been targeting for a very long time.

Sugar uses icons and other graphical features as an interface. However, it avoids Window's formats and is not compatible with its files. The latest news is that Bender has quit the OLPC project. This comes as disappointment to the open source proponents who supported the OLPC movement in its initial days. In an official statement, OLPC

spokesman George Snell said "Bender will not be replaced". He also added that the position of President of software and content has been eliminated.

**XPENSIVE BUY**

# Ballmer Says XP Could Stay

Microsoft, when they launched their latest OS—Vista, had planned to shelf the earlier XP from sales on June 30, 2008. However, Steve Ballmer, CEO—Microsoft clarified, that XP sales could continue, if customers intended at using them. He went on to add that as of now, there was no such indication from customers.

Earlier, Microsoft had set a deadline to remove Windows XP from its umbrella of products from retail sales around June 30. This was in the wake of high Vista sales figures.

It is definitely a subject of interest why customers have not hinted at a demand for XP over Vista, despite the comparisons, reviews and reports of XP and Vista. "XP will hit an end-of-life. We have announced one. If customer feedback varies

we can always wake up smarter but right now we have a plan for end-of-life for new XP shipments," Ballmer said in a news conference.

**APPLE ALSO WANTS TO BUY**

# Objection To Apple's Acquisition

Steve Jobs led Apple Inc., recently acquired chipmaker PA Semi. However, there is now growing concern over this move, with a probable objection from the US Department of Defense. The reason—a high performance, low cost and power efficient CPU designed by PA Semi is used in around 10 defence systems, with around 70,000 chips to be used across systems over the next 10 years.

As Jobs says, Apple acquired the company for the talent rather than the products. Further to the deal, Jobs also reiterated that Apple had close relations with Intel and that they looked forward to taking this relationship further. Nevertheless, in an industry such as defence, it is companies like Lockheed Martin and Raytheon that would decide the course of any merger or acquisition that could probably take place, because as a direct consequence of such deals, procurement of spare parts and other materials are affected, which could hamper multi-million dollar deals!

This deal would surely be under the scanner of many defence companies, at least the ones that used to source their chips from PA Semi. It all depends on how Apple handles the industry concerns - this time the department of defence and not consumers! ■

# Microsoft's Imagine Cup
## The Finalists

The Indian leg of *The Imagine Cup*, Microsoft's annual world-wide, student technology competition is nearing its climax. The competition, which spans multiple categories, featured a local competition for the software design invitational (SDI) category, for which scores of student teams from across the country worked on designing solutions in line with the contest's theme for the year—"*Imagine a world where technology enables a sustainable environment*".

In India, the SDI category started off with teams submitting a synopsis of their solution, with all submitted synopses being evaluated to select the ones with most potential. This led to a pool of around 30 short-listed teams who had to submit detailed presentations and documents (including code-snippets), explaining the core elements of their proposed solutions. This was then followed by a gruelling round of telephonic interviews in late March, with judges from reputed companies in the industry—the focus being not just on evaluating the technical merit, but also on gauging the business-case merits of the solutions.

The teams and solutions that have come out of this searching examination, ready to do battle in the *Imagine Cup National Final in Bangalore on May 9th, 2008*, are as follows. The winning team will represent India in the Imagine Cup World Finals in Paris, in early July.

## Team blAnkSpace
**Dhirubhai Ambani Institute of Information and Communication Technology, Gandhi Nagar.**
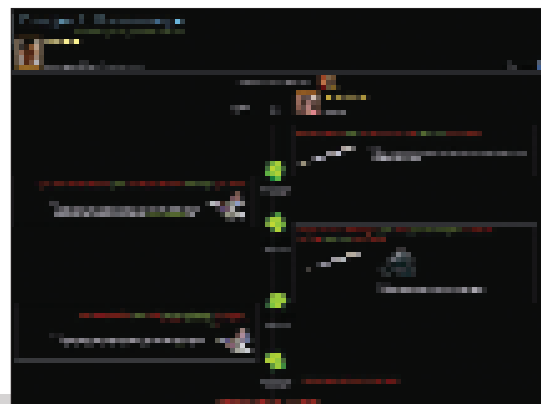
▲ Anuj Kumar ▲ Ishan Bishnoi
▲ Prateek Khurana ▲ Ravi Atluri

A system to connect those who want to dispose of "garbage / junk" with those who might have innovative uses for the same. The system also gives potential users of such items optimal collection-paths to collect all the items in a locality.

## Team Eco Warriors
**Vivekananda Educational Society's Institute of Technology, Mumbai**
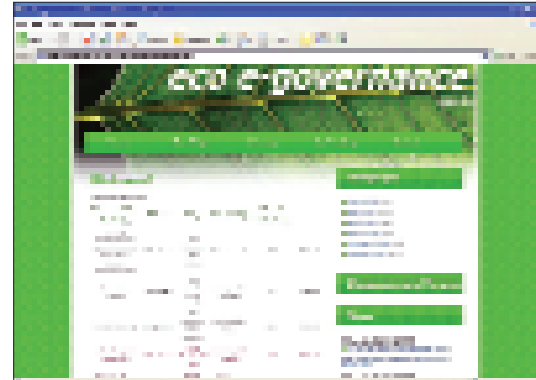
▲ Apurva Arvindakshan Nair ▲ Charu Rajkumar Jain
▲ Ishita Sunity Chakraborty ▲ Mamal Jayendra Karani

An ecological e-Governance mechanism that gathers information from different service-providers about usage by citizens, and then calculates corresponding carbon-emission-levels. Ecological-performance reports are also generated for individuals, based on which they can be taxed.

## Team EcoPals
**National Institute of Technology, Kurukshetra**
▼ Arpita Shrivastava ▼ Kshitij Shukla
▼ Rohit Bhat ▼ U. Karthik

An interactive application to dynamically guide farmers as to which crops are best suited to their soil, water and weather conditions, which fertilizers, irrigation schemes, and other agricultural methods to use. The application also assesses the effect of the current crop on the soil condition and suggests the crop that should be sown next, which it then iteratively uses to suggest a series of crops to grow one after the other.

## Team GRAS
**BITS Pilani, Goa Campus**
▼ Abhishek Kumar
▼ Gaurav Paruthi
▼ Shubham Malhotra

A mobile-phone-based application that uses Web services to share real-time data with potential buyers of products at the point-of-purchase. The data contains information on the carbon-footprint of each product and aims to educate potential buyers into making smart and ecologically empathetic choices.

## Team Green Waves
**Delhi University**
▼ Aadhar Mittal ▼ Gagandeep Singh
▼ Sandeep Bansal ▼ Shobhit Sinha

A citizen-activism-based solution that exhorts the public to take photographs of environmental issues in their daily life, and to send the same via mobile phone to a centralised agency, which can then disseminate the information to appropriate NGOs.

## Team Gurus
**Chennai Mathematical Institute**
**Dhirubhai Ambani Institute of Information and Communication Technology, Gandhi Nagar**

▲ Abhishek Chhajer ▲ Archit Jain
▲ Sasank Tatineni ▲ Amit Prakash Ambastha

A system that accepts inputs from the public on the preferred locations for civic utilities and resources such as sewers and dust-bins. The system then uses Vertex Cover algorithms and K-Means algorithms to determine the most suitable location for the same, thereby offering an ideal blend of democratic participation and scientific rationale in town-planning.

## Team Novices@Work
**Vivekananda Educational Society's Institute of Technology, Mumbai**
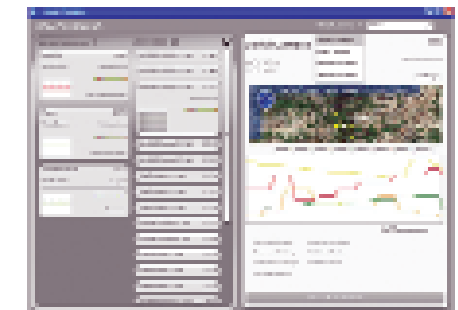
▲ Krunal Dedhia ▲ Paras Doshi ▲ Saili Dharia ▲ Veenit Mavani

A self-configurable wireless-sensor mesh-network system that monitors and analyses agricultural-soil parameters such as moisture-content, nutrient composition, temperature, pressure and light. This system can be used by the government or NGOs at a large scale in order to provide recommendations to farmers on crop-related decisions.

## Team SKAN
**Bharti Vidyapeeth College of Engineering, Mumbai**
**Fr. Conceicao Rodrigues Institute of Technology, Mumbai**
**Vivekananda Educational Society's Institute of Technology, Mumbai**
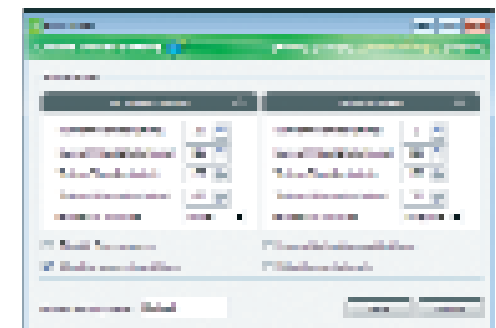
▲ Amith P George ▲ Karun A. B. ▲ Noel Sequeira
▲ Sameet Singh Khajuria

A centralised power-management system to monitor an organisation's entire computer network and to switch idle computers into the power-save mode.

*For more details about The Imagine Cup, as well as to participate in the Digital Photography category, please see the official Imagine Cup Web site at* **www.imaginecup.com**.

# This Means War

**Ahmed Shaikh**

*"We're going to open a can of whoop ass."* Not a line you would expect from the CEO of a multi-million dollar company, but NVIDIA's Chief Executive Officer Jen-Hsun Huang had those fighting words for its now-rival, and processor King—Intel.

Intel and NVIDIA have been exchanging words lately. Intel has the graphics card industry set in sight with its future processor plans. NVIDIA, now the only independent graphic house post the AMD-ATI merger, is not willing to take the threat lying down.

The stakes are high, battle lines have been drawn; information warfare through presentation slides is being fought on an almost daily basis. But what is the battle all about? What brought these seemingly disparate entities—a CPU maker and a GPU maker—to head?

To understand why, we must take a step back in time to 1965, when Intel's Gordon E. Moore put down an observation with far-reaching consequences.

## Double The Fun

In the April edition of Electronics Magazine, 1965, Gordon Moore put forth the germ of what would eventually form the Moore's Law. Moore's original statement read that "The complexity for minimum component costs has increased at a rate of roughly a factor of two per year...", this kernel of an observation was then elaborated by Moore into the statement that is the Law, that *the number of transistors on a chip will double about every two years.*

Moore's Law can be exploited in two ways, both of which stem from a common root that transistor costs will fall with time. The implications are (1) increase the clock speed of a processor, (2) cram more components onto the surface of a chip.

Until the Pentium 4 processor, increasing the processor speeds was the option to pick. Moore's Law turned into something of a self-fulfilling prophecy for the semiconductor industry. The Law formed the basis for future roadmaps for major silicon companies and thus lent further credence to the law—an electronic ouroboros, eating its own tail. Faster and faster the processors ran, right up to the point where they hit the thermal wall and brought the entire race to a standstill. With the Pentium 4, it was pretty clear that the thermal output of a fast processor took away any positives that a fast chip might bring to board.

It was time for a rethink.

**A look at Intel's upcoming GPU rival—the Larrabee processor—we reveal the why, the what, and the so-what?**

## Picking up the Red Pill

Option number two is where things are currently headed. Today, since processor speeds have reached something of a plateau, progress must be made via component integration. Sometimes a processor becomes so fast that a component that lies outside the processor becomes a hindrance, a bottleneck. Integration in this case, has a basis in solving a problem: access to memory too slow? Bring the pathways inside the processor. This was why AMD chose to integrate its processor's memory controller within the processor itself.

Integration can also be an option when there is no other path to take. As things stand, the processors have hit the thermal wall, the clockspeed party is bust and the industry is staring at a very fuzzy road ahead.

The fuzziness is reduced a bit when one follows the money.

In 2007 a powerpoint presentation made the Internet-rounds. It was shared with university students by Intel's Douglas Carmean — Chief Architect of their Visual Computing Group (VCG), in charge of GPU development at Intel. One of the slides in the presentation clearly read:

☐ CPU profit margins are decreasing
☐ GPU profit margins are increasing

And this heralded "another significant transformation."

## The Road Ahead

The "significant transformation" was already in the making. It began with the introduction of the GPU. More exactly with the introduction of the NV20 chip by NVIDIA in 2001 which introduced the concept of GPU programmability. Today the floating point power of a consumer GPU card is such that it has tremendous potential to do much more than just churn out pixels.

This thinking was the basis for the so-called GPGPU, or the General Purpose GPU. NVIDIA further underlined the GP part by introducing the ability to program their graphic cards with the help of C programming language—via the CUDA (Compute Unified Device Architecture) architecture and programming model.

CUDA provides developers access to low-level GPU hardware, allowing them to use the floating-point might of the GPU to solve complex calculations to simulate smoke, fluids, and also to accelerate applications in computational biology.

Essentially, what CUDA did was bring the GPU a bit closer to the CPU. And Intel noticed this breach of territory.

If the GPU could become more CPU, then what stops the CPU to take on a GPU workload? This is Intel's point of thrust into the lucrative GPU market. By creating a processor that can handle both floating-point and scalar tasks, Intel hopes to capture the entirety of the processor market—from low-end processors used in cellphones, to high-end supercomputers churning through high-end physics simulations.

Intel is thus looking at a brave new world run on Intel platforms, or more exactly, run on Intel's "systems-on-a-chip".

A while back news broke of an initiative inside the Intel labs called the Tera-scale project. The goal of the project is to explore the possibilities of creating 'many-core' processors using current technologies as system interconnects to render future ideas such as a database-server on a chip. One possibility, for example, is that of a datacenter that is located entirely on a single microprocessor chip consisting of 80-cores—each core connected via optical fiber links and talking with each other using TCP/IP protocols.

This is an extreme example, more practical implementations though are already on the roadmap, and one such implementation is the root cause of the GPU versus CPU battle.

## The Larrabee Solution

Larrabee is the code-name for a many-core architecture which is due out as engineering samples sometime by the end of 2008, and as a consumer product by 2009. A many-core processor is one that has more than eight cores, multi-core being processors with 2-8 cores. Little in the form of concrete information is known about the Larrabee, and what little was revealed by Intel, through a presentation, was later retracted when the information went public. The details are already out there, however,

The Larrabee architecture
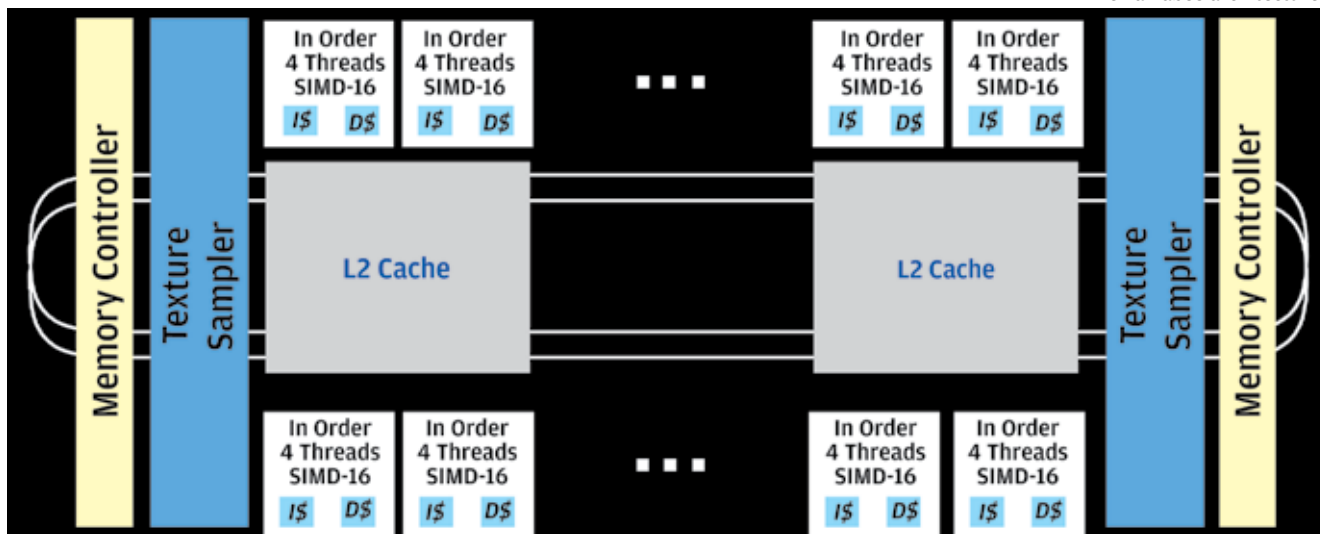
and even if subject to change, they reveal quite an interesting picture of what forms the face of the Larrabee architecture.

The first thing to understand is that 'Larrabee' is codename for an umbrella of products. Much like Core 2 Duo and Core 2 Extreme fall under the same multi-core banner of Intel marketing; Larrabee will consist of a series of implementations, sharing a common architecture. Differences in the detail will make one Larrabee product suitable for notebooks, another for a desktop graphic card, and yet another suitable for use in a transaction server.

The 'many-core' detail of this new architecture will be realized by 16-24 cores. Each core will run between 1.7 and 2.5 GHz depending upon the product that the processor will form. The minimum heat signature of the implementation will run at least 150W. The number of cores on each chip, as well as the clock speed, will depend on which product the architecture will form the basis of: integrated into the motherboard, high-end GPU, transactions co-processor, and so on.

Each of the cores will be capable of processing four simultaneous threads of execution. Each core will also come with an L1 cache as well as a floating point unit (FPU) which will implement a subset of the x86 instruction set. The x86 set is an important point of differentiation between the Larrabee implementation and current GPU implementations—a graphics programmer uses special instruction code to do what needs to be done via a GPU. This instruction set is hidden behind the more user-friendly API of either OpenGL or DirectX layers. While Larrabee will retain OGL and DX compatibility, it will also introduce a specific instruction set called the Advance Vector Extension (AVX) which will help leverage the FPU potential of the architecture.

The AVX set is to be seen in a similar light to SSE in current x86 processors—a "256-bit vector extension to SSE, for floating-point intensive applications".

This software soup of x86 instructions and extensions is what Intel is betting on.

They hope that a more familiar set of code will encourage programmers to make better use of the floating point capabilities of the Larrabee architecture. This line of thinking could be construed as a bit naïve, considering the fact that very few games have made use of the HyperThreading capabilities of Intel processors; and that too, only recently.

Back to the Larrabee architecture—the many-core processor will consist of a large L2 cache. This pool of L2 will be shared by each core of the processor. Furthermore, each core will also be able to lock a part of the L2 cache for its own use. Larrabee will also see an on-die memory controller (the memory controller is moving on-die for a variety of Intel offerings, similar to what AMD already has). The final piece of the Larrabee die will determine the nature of the final product. This final piece is a fixed-function unit, dedicated to a single task. A Larabee GPU will have a texture sampler for this fixed-function unit (a texture sample is essentially one-stage of the DX / OGL pipeline), a Larabee server coprocessor will have a hardware encryption unit there, and so on.

All these components will be connected together via a ring bus, similar to what is used by IBM's Cell.

## The End Of An Era?

"Graphics that we have all come to know and love today...It's coming to an end"

Intel's senior vice president Pat Gelsinger would like to herald a new era: "Our multi-decade old 3D graphics rendering architecture that's based on a rasterization approach is no longer scalable and suitable for the demands of the future".

That 'fixed-function unit', nestled within a Larrabee processor will eventually take the form of an execution unit dedicated to the task of raytracing. This small detail is the source of the brewing war between Intel and graphic vendors; as well as a point of disbelief within the game developer community.

Raytracing is not just another way to do things. It is a completely different way to do things. It is a 180-degree turn to an industry that has long accepted rasterisation as the approach that makes the most sense.

### So What Is Raytracing?

Imagine this scene before you: you are holding and reading this magazine. Now imagine your eye as the "camera" in a 3D game—the camera is the object that is doing the viewing, while the magazine is the scene being viewed. In raytracing an "eye ray" or a "primary ray" is projected from the viewpoint of the camera. Ray tracing uses physics simulations of propagation of rays to render an object. The algorithm first shoots the primary ray from the perspective of the eye. It then determines which object is hit first on the path of the ray. In this example, that object would be the magazine. At this point the magazine's material will determine the behaviour of the primary ray. If the material is transparent, the ray will pass through. If it is a mirrored surface, the ray will be reflected (angle of reflection, etc. calculated by the raytracing algorithm). If the material is a slightly glossy magazine paper—it will reflect some and absorb some, and so on. The raytracing algorithm also determines if the object it hits is in shadow. To do this, it shoots off a ray from the magazine towards the source of light—if this ray hits the source, then the magazine can "view" the light source and is therefore lit. If the ray is obstructed, the magazine is under a shadow.

This is of course, an oversimplification of the process. The take-away information is that raytracing takes a holistic look at the entire scene that is to be rendered, whereas a "rasterization" approach basically breaks down the entire scene into billions of component triangles. Due to the means used, the cost of raster graphics processing is linear with the number of pixels to be processed. On the raytracing side: the cost of raytracing increases linearly with the number of rays shot.

Intel's research into raytracing showed an interesting behaviour. If the scene being rendered is kept static, then there is a point at which software-assisted raytracing technique is almost as fast as a hardware accelerated raster technique. Software assisted implies CPU driven. Furthermore, the research found that if multiple processors are thrown at raytracing, the performance scales exponentially. Multiple processors became multi-core processors and will eventually become many-core processors.



Pat Gelsinger: "Graphics that we have all come to know and love today...It's coming to an end"



John Carmack : "...while everybody thinks [raytracing] is going to be great, I have to reiterate that nobody has actually shown exactly how it's going to be great"

Intel thus envisions a raytracing technique to render graphics, instead of a raster approach. If you consider the architecture of the Larrabee processor—16 to 24 cores, each running at 1.7GHz at least, along with a dedicated unit to accelerate some raytracing calculations and helped by an extended vector instruction set—you can see why raytracing is the future for Intel.

### A Muddy Path

While Intel would like the entire industry to embrace raytracing as the future, ground-realities are different. The largest hurdle is that game developers do not see anything wrong with the contemporary rasterization approach to graphics. Neither do the GPU vendors of today. The current ecosystem has embraced raster graphics and has evolved to accommodate its idiosyncrasies. The ray-trace only path proposed by Intel has few backers outside of the company.

Cevat Yerli the CEO of Crytek (*FarCry* and *Crysis*), doesn't think that there is a "compelling example for using pure classical ray tracing". He opines that "...there are a variety of graphics problems which would suit a hybrid solution of rasterization and raytracing, and [that] most likely is the way to go." His view is reflected by Intel itself—the initial builds of Larrabee will be derived from Intel's G45 integrated graphics. This indicates that the early Larrabee variants will not be for high-end graphics processing, but will be more of an integrated graphics replacement—perhaps a notebook part.

The next step would then be a slight raytracing nudge to produce eye-candy either not possible or prohibitively costly, using traditional rasterization methods: effects such as detailed reflections, refractions, and shadows, perhaps. Intel's goal could then be to slowly wean the industry on its diet of raytracing extensions, to eventually replace raster hardware accelerators by its own breed of processors.

John Carmack of id Software echoes this sentiment—"No matter who does what, the next generation is going to be really good at rasterization—that is a foregone conclusion. Intel is spending lots of effort to make sure Larrabee is a competitive rasterizer."

Carmack also brings up an interesting point of 'show, not tell', when he says that "while everybody thinks [raytracing] is going to be great, I have to reiterate that nobody has actually shown exactly how it's going to be great. The best way to evangelize your technology is to show somebody something... to kind of eat your own dog food, in terms of working with everything." Intel recently made two important purchases—the Havok physics engine, and Project Offset game engine. Perhaps these purchases are meant to do exactly what John Carmack proposes—to show the development community exactly why raytracing is the way ahead.

Meanwhile, Intel faces off against an entire industry. Who will do the actual ass-whooping; remains to be seen ∎

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# Drool Maal

## Nokia N810 WiMax

It's time to wish WiFi goodbye—that's the point Nokia is trying to prove and they do that by releasing an Internet tablet that earlier supported WiFi, but will soon support WiMax as well. It's called the N810 and is not your regular mobile phone with MP3 playback and a multi-MP camera! The device has a 4.1-inch screen with a resolution of 800x480 and doubles as a touch screen. There's an inbuilt keyboard as well, and the whole thing weighs around 226 gms. It has a 640x480 VGA camera, so you can post images on your blog! Internet connectivity through Wimax can be yours for close to $500 (Rs 20,000)—just be prepared to receive a slightly bulkier device, courtesy WiMax hardware.

## Fat-Man iTube 452

Fat Man's iTube is an audio amplifier meant for iPods. As the name suggests, the iTube uses vacuum tubes. It utilises valves that drive out 40 W of power per channel. The ValveDock allows you to have rich quality audio from your favourite media player—the iPod. The amplifier looks absolutely astonishing with its large vacuum tubes. Come to think of it, the iTube 452 could sell itself by looks alone. As a dock for your iPod, you would assume it's a featherweight, but at 23 Kg it's anything but light.

## Klipsch Palladium P-39F

The all new Klipsch Palladium P-39F floorstanders are made by DesignworksUSA—a studio that has worked alongside BMW and Rolls Royce. For $15,000 (Rs 6 lakh), you get a pair of speakers that have been made using everything they could lay their hands on. There's the usual aluminium and then the not-so-usual kevlar and gold. For those who are wondering if all these exotic metals mean anything and whether it all translates to what matters the most—it's the bass! There's loads of it from the three 9-inch woofers in each speaker. They weigh 74.9 kg and they stand close to a metre and a half in height and the power output is 400 W with a peak rating of 1000 W.

## Integra DTR 5.8

No, the Integra DTR 5.8 isn't a launch control panel for sending manned crafts into space. People with a thing for home theatre systems, recognise this is an A/V receiver. The Integra DTR 5.8 delivers 7.1 sound at around 100 W per channel. It can drive frequencies from as low as 5 Hz to as high as 100 kHz! The key words here are High Definition—it supports HD 1080p streams and a whole variety of standards like DTS-HD, TrueHD and Dolby. There are connectors of all shapes and sizes—from HDMIs to optical, to even proprietary satellite radio connections.

## Pioneer AVC-F500BT

The Pioneer AVC-F500BT's 5.8-inch screen is one of the largest you can come across on a device in its class. It's much more useful than a GPS device. For example, you can put up a camera on your car and use it to help you park in tight situations. Also there're features for Bluetooth hands-free calling as well as controlling your iPod. You can expand its memory by adding SD cards. There is no clear indication of price yet, but similar competitive devices are priced at over $1,000 (Rs 40,000). For that kind of money, if only it could park your car for you!
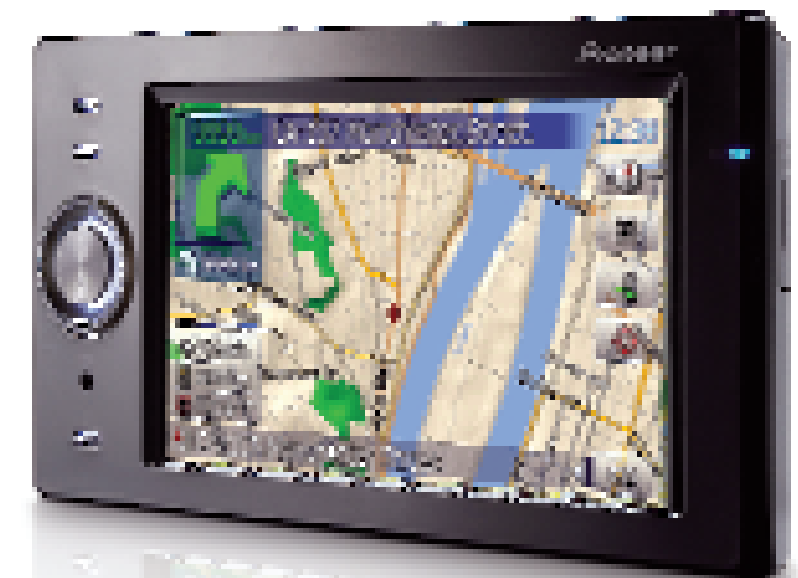
# Science Fact-ion

## From the geek's wildest dream to reality—our fantasy gadgets are almost here!

**Ahmed Shaikh**

They say the truth is stranger than fiction. If that were so, we would already have our flying cars and servile fembots (without the machine-gun implants, please). But there are a few things that have stumbled from the world of make-believe and into our mundane lives. In the following pages we explore research work and prototype devices that have taken the first small step to bringing science fiction to fact.

### Invisibility

The human dream to turn invisible is timeless. There hasn't been a medium untouched that hasn't explored this fantasy to the fascination of humans everywhere. TV shows, movies, books, videogames, radio shows, comic books— the wish to turn invisible resonates deep within each of us—be it for mischief, or otherwise.

There are several paths to invisibility—some more practical than others. In 2006, physicists in the United Kingdom suggested a mathematical model of turning object invisible. The theory was based on the principle of resonance, more specifically, resonance of light frequencies. The mathematical model suggested a cloaking material. When this material is placed next to a speck of dust that reflects light, it would resonate at the same light frequency and would in effect cancel out the ray emanating from the dust speck. This cancellation would cause the material itself to become invisible.

But light not reflecting off of an object is only half-way to true invisibility—not only should the object itself not reflect light but everything surrounding the invisible object, especially its background should be visible.

Based on that paper, Purdue researchers created a prototype device. The device consisted of an array of needles that radiated outwards from a central spoke. Based on the mathematical model of the UK researchers, this spoke would then bend light around the object that was to be cloaked. Background objects would be visible but not the object surrounded by the cylindrical array of nano-needles.

The design's limitation is that it can only cancel out a single light frequency, as it stands today. The entire gamut of visible light frequencies would need to be cancelled if this method is to be a true invisibility potion. Of course, to truly be invisible, it would also need to be not visible in the ultraviolet and the infrared frequencies... But we can all agree that even a partially invisible object is a solid step forward to fulfilling this age-old dream.

### Cloaking Shield

A more mechanical form of invisibility is cloaking technology: A staple diet of aliens everywhere. In 2007, the UK army claimed to have cloaked a tank using cameras and projectors to beam images of surrounding countryside on to the surface of the tank. One can imagine this method gain traction as nanotechnology shrinks mirrors and cameras to microscopic dimensions.

Chaitanya Surpur

## Beam Weapons

While the tractor beam is generally associated with *Star Trek*, beam weapons are a common feature of almost all sci-fi movies and shows. From hand-held phaser weapons to giant planet destroying death stars, a beam weapon has boldly ventured into everyone's imagination. In



1890, Nikola Tesla showcased a machine that was pretty much a man-made lightning creator; transmitting energy without wires, as a high-voltage discharge. This kind of a discharge is chaotic though, since it can travel to pretty much any surface that has a lower voltage charge. In 2007 though, a US company called Ionatron announced that it had won an almost $10 million contract from the United States Army to create a modern version of that Tesla concept. According to Ionatron, its machine is a far more effective weapon that can disable both people and vehicles—available in both lethal and non-lethal versions, much like setting a phaser to stun or kill. Ionatron's improvement on the Tesla concept was centered on the addition of a special laser. This laser acts as a guide to the electrical discharge—serving to both speed up the discharge and to precisely control where the man-made lighting goes.

In some ways, the design echoes a similar creation by the US Air Force. The Air Force gun however, uses a laser to temporarily blind the enemy. The gun, developed by the force's Research Laboratory's Directed Energy Directorate and about the size and weight of an M60 machine gun, is called the Personnel Halting and Stimulation Response, (PHaSR). The PHaSR shoots a low-power beam of laser light to temporarily blind an individual.

## Tractor Beam

Made famous by Star Trek—tractor beams are electromagnetic rays that hold an object in space and can also be used to pull objects towards the source of the beam. Such technology is already in use but at a microscopic scale. In 2007, MIT researchers demonstrated such a beam to pickup, hold, and move around individual cells and objects on the surface of a microchip. The beam itself consisted was a laser ray which could be used to push and pull, in a manner similar to how one might use a pair of tweezers.

## Tricorder

Here's a common childhood indulgence, influenced by the seminal *Star Trek*. While we spent afternoons communicating with our 'away team' firing make-believe lasers, another

device, perhaps a little less popular than the communicator or the phaser gun, was the tricorder. Dr. McCoy or science office Spock would frequently use this strange black box to perform tasks ranging from health diagnosis to analysis of alien soil and air.

While the tricorder as it was presented in *Star Trek* is still largely fiction, research towards that has already produced a device that looks like an early prototype to the tricorder. Researchers of Purdue University have created a portable system that can be used to analyze chemical components. Called the Mini 10, this prototype is essentially a portable mass spectrometer, roughly the size of a shoebox; weighing in at 10 kilograms. Running on battery power, the unit weighs 30 times less than a conventional mass spectrometer has applications in everything from airport security to medical diagnostics.

The instrument was developed by a team of researchers led by R. Graham Cooks, the Professor of Analytical Chemistry in Purdue's College of Science. The Mini 10 sniffs for compounds that serve as signatures to the presence of substances such as explosives or cocaine. If these residue indicators are found, the Mini 10 performs a more in-depth analysis to verify the presence of the substance being scanned for.



Another construct from the medical labs of sci-fi shows is the wand that seals wounds and heals without touching the surface of the body. Something similar is tested by the engineers at the University of Washington, employing ultrasound. This technique uses several lenses to focus ultrasound rays to a particular spot—similar to focusing sun rays using a magnifying glass. Such a focused beam of sound can create an extremely hot surface area which would heat up the cells forming the surface of a wound, causing them to seal and cauterise.

## Railgun

Made famous by the id Software classic *Quake*, the US Navy has revealed that it's working on a similar device. An 8-megajoule railgun was both created and fired by the Navy in 2007. The gun was also showcased at the Naval Surface Warfare Center, Virginia. The 8-megajoule, electricity guzzling monster-gun can propel non-explosive projectiles at incredible speeds. The weapon is

powerful enough to equal the damage inflicted by a Tomahawk cruise missile, and a range between 200 and 250 nautical-miles. The US Navy plans to deploy a 64-megajoule version by 2020.

## Body Armour

From the comic book's *Iron Man* to the protagonist of the video-game *Crysis*—wearing space-age armour that looks cool, deflects bullets, and augments strength and speed has been a staple of science fiction diet. Today, research into nanometer manufacturing and fabrication has made some progress in turning that fiction into fact. Today, materials made up of carbon nanotubes are considerably stronger than steel, while yet good conductors of electricity. Such materials, while in the research stage now, could eventually lead to lighter bulletproof clothing and personal armour. In May of 2007, a start-up called Nanocomp, based in New Hampshire, US, developed nanotubes of length greater than usual. Such longer "fibers" allow the carbon tubes to bind together more effectively resulting in a form of unwoven matting. This matting is then treated chemically to cause the tubes to align, imparting the material with further strength in the direction of alignment. The tubes are made through chemical vapour deposition which involves condensing carbon out of a gas and into the matting. Sheets roughly one metre by three were created using this method. The resulting textile is claimed to be seven times stronger than steel of the same weight.

While armour is used for defense what about a body suit to augment strength? The HAL-5 Exoskeleton (HAL for hybrid assistive limb) is being developed by Professor Yoshiyuki Sankai at Tsukuba University and will likely go into commercial production in this year itself! The suit is essentially a motor-driven metal exoskeleton that you strap onto your body to assist and augment the wearer's motions. So, what's so great about the HAL-5 suit? It augments the wearer's strength, allowing the user to double his lifting abilities. The HAL-5 operates by sensing weak electrical impulses from the user's muscles via electrodes on operator's skin. These impulses are then routed to an onboard computer which analyses the signals for muscle of origin and activates corresponding servos in the HAL-5 suit. It thus mimics and magnifies the wearer's motions.

## Wireless Electricity

Researches at Massachusetts Institute of Technology recently demonstrated a technology that can wirelessly transfer electricity across a room. The team at MIT showcased the technology which they call WiTricity to power a 60 Watt light bulb from a power source two meters away. The science behind the magic is based on the fact that two objects at the same resonant frequency can effectively exchange energy. The WiTricicy setup consisted of two copper coils, oscillating at the same frequency and trading energy across the two meter divide via their electromagnetic field. While one of the coils was attached to a power supply, acting as the transmitter, the other one was connected to the bulb and acted as the receiver. The range for the
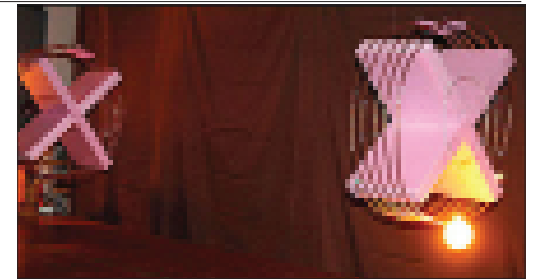
WiTricity, however, would probably not extend much beyond a room, a claim we hope the researchers are mistaken in making.

## Immortality

The ultimate human dream—to live forever. Immortality could, in theory, be achieved if the cells that comprise our body do not age or destroy themselves. One possible step to this brave new world would be to create a nano-machine which would constantly monitor and regulate cellular behaviour—a guard-dog for each of our cells.

Researchers at Harvard and Princeton University took the first small step towards this goal. They have created implantable devices that can monitor the activities and characteristics of human cells. These machines are constructed of the same material our cells are made up of: DNA, RNA, and proteins. The machines could eventually revolutionise our way of living by directly treating only diseased cells or tissues.

The coolest aspect of this technology is that our body itself can be the producer of these guardians. Harvard's Yaakov Benenson, a Bauer Fellow in the Faculty of Arts and Sciences' Center for Systems Biology says of the research that, "[all that needs to be] provided is a genetic blueprint of the machine and our own biology will do the rest. Your cells will literally build these biocomputers for you."

These nanocomputers will use programmed logarithms to detect anything from the presence of a mutated gene to the activity of genes within the cell. Such machines could, in time, allow doctors to target only cancerous cells, leaving healthy cells completely unaffected.

## The Orgasmatron

In Philip K. Dick's highly-influential *Do Androids Dream of Electric Sheep*—the author introduces a device that allows people to literally "dial-in" a mood to change the way they feel. While such a switch would be an extremely welcome addition next to the ceiling fan's knob—the best we have come to achieve is an accident that mimics the Orgasmatron from Woody Allen's movie *Sleeper*.

When anesthesiologist Dr. Stuart Meloy was working on a device for treating chronic pain, he discovered a technique that successfully produced orgasms in women instead. The accidental discovery was made as the doctor powered up an electrode that had been placed into the spine of a woman with chronic back pain.

Based on this discovery, Dr. Meloy hopes to create a device which would allow women to dial-an-orgasm at the touch of a button. The device will have to be surgically implanted at the base of the spine, however. ▣

# The MacBook Air

*April 2008*

**Nimish Chandiramani**

*"Yes, it's a MacBook Air," I explain to people who've heard of it, and "No, it's a notebook computer, not a paper notebook," I am forced to tell the Ageing Parent. I could sit and stare at this thing for hours, so I don't have any objections to spending the month with it...*

### Day 2:

I can't get over how thin and light the Air is—in my hand, it feels as thick as one of our anniversary issues, and just a tad heavier. I can carry it around with me for hours and not feel the weight! The brushed aluminium is beautiful, the glossy screen is beautiful, the touchpad is the size of a football field and the MacBook-like keyboard is a dream to type on. I'm just gushing all over.

### Day 7:

I've spent all this time playing with the multi-touch trackpad, which, incidentally, is the largest I've seen on any laptop. Ever. With older MacBooks and MacBook Pros, using two fingers to scroll was a dream—on the Air, I can now use two fingers to zoom and rotate as well! Swiping the touchpad with three fingers lets me go to the next or previous item—be it a photo or document. This isn't, however, as snappy as the iPhone or the iPod touch.

The mono speaker under the keyboard is tinny, soft, and, well, mono—but at least it's clear.

### Day 14:

After playing with OS X Leopard for so long, I've finally started to get some bits of work done. The 1.8-inch 80 GB, 4200 rpm PATA hard disk that our model came with is plain awful. You can actually tell the difference between it and other laptop drives even for the smallest amount of data. I wanted to hook up my external hard disk to it, but that meant I had to disconnect my USB mouse—the single USB port begets multiple profanities. My normal-sized headphone jack fits into the recessed connector rather uncomfortably too.

### Day 20:

The model I'm holding has clearly been used before—there was a host of software installed when we got it, and I've installed more—I suspect that this is contributing to its recent unnatural slowness. Perhaps if I were to format the disk and re-install the OS... Cue in the painful realisation that this blasted device has no DVD drive.

So I install the DVD drive sharing software (no, just sharing the drive using Windows doesn't work) from Apple's installation disks on to my Windows PC, turn on DHCP on my wireless router (I hate doing that) and start the over-the-air installation procedure. Not much clicking required, but this I didn't take too kindly to—"Estimated time: about 4 hours". Good heavens.

Thankfully, after an hour, the estimated time falls to an hour and a half. Or so I thought. The installation freezes midway, and I have to start it all over again! Finally, it's 3 a.m., and I'm working on a clean install of Leopard—definitely more responsive than before, but there's really no escaping that slow hard disk.

### Day 30:

It all boils down to one question—if I had the money, would I spend it on the Air? Of course not. It's wonderfully slim and light, but that's only because it's wonderfully empty—no wired Ethernet, only one USB port, that pathetic hard drive—where do I begin? Even if I had a lakh to throw away, I'd probably throw it at the MacBook (and have some left over, too)—it'll give me all the OS X goodness I desire, and qualifies as a real computer as well.

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# From A
# Hacker's
## Diary

**Aasis Vinayak**

For us hackers, there is only one word that we mention in every alternate sentence—Freedom. Our Linux distro preferences may speak volumes about our inner selves—some may go all the way with Gnewsense, Ututo or Blag, and some others like me may go for popular distros like Debian with vrms (virtual rms) installed. But the bottom line is the same—we stand for freedom!

For this reason, many of my friends were unhappy at not being able to play their favourite videos on YouTube. Our ideology never allowed us to play files using proprietary software (of course there were free Flash players, but none support anything beyond SWF v4). We had similar problems while accessing the video content of other sites like Google Video, Lulu.tv, AOL video and CNN video. Thus, a large segment of information remained inaccessible. But today, we don't face such problems. Swfdec (compatible with Linux and FreeBSD and chosen as the Flash player for Fedora and been ported to DirectFB for embedded applications alongside its X11 and GTK+ bindings) and GameSWF have helped us solve the issues to a considerable extent. However, Swfdec did not have ActionScript support. Now we have Gnash more or less in our hands. Yes, Gnash is *our own* GNU Flash movie player. Moreover, we have swfmill, a free software command line tool, to generate SWF files.

But one may ask, when Flash is available at no cost through a Software Development Kit (SDK) why should we need to go for a change? It is incorrect to describe Flash as "open" or "free", as the SDK is made available under a license that unambiguously prohibits the development of an alternative Flash player. This curbs Freedom!

Gnash (along with free BIOS, drivers for ATI video cards, and the GCJ Java compiler) is one of the FSF's high-priority projects. Gnash has many unique features. It can run standalone, has browser plugin, is SWF v7+ compliant, supports streaming video content and XML Message server, gives high quality output, offers better security, is extensible (you can extend ActionScript by creating your own) and most importantly, it's free! It is based on GameSWF, and as mentioned above, it supports many SWF v7 features.

If you are a novice in programming, here is a tool for you—**http://getgnash.org**, offers packages that will allow people to try out Gnash without the need to compile the source code. Currently they support Fedora, Red Hat Enterprise Linux, and Ubuntu 7. You can get more information from the official group **http://savannah.gnu.org/cvs/?group=gnash** and keep yourself updated by subscribing to their mailing list at **http://lists.gnu.org/archive/html/gnash/**.

We faced similar problems while building alternatives for programs that run on the .NET platform. Then we launched DotGNU. Free Software Foundation makes it clear that "the DotGNU project was started in reaction to Microsoft's .NET strategy".

DotGNU will be a total replacement for .NET (and not just a Free Software implementation). The Portable .NET class library is set to endow with facilities for application development. These are primarily written in C#. But because of the Common Language Specification (CLS) they can be used by any .NET language. And similar to .NET, the class library is structured into *Namespaces* and *Assemblies*.

The three main development projects under DotGNU are—DotGNU Portable.NET (an implementation of the Common Language Infrastructure to run C# and C applications), phpGroupWare (a multi-user Web-based GroupWare suite intending to provide an excellent collection of Web service components that can be accessed through XML-RPC) and DotGNU Execution Environment (Web service server). You can give it a try too! Just point your browser to **http://download.savannah.gnu.org/releases/dotgnu-pnet/** and get the source tarballs (Portable .NET x86 JIT).

It's not just the programming world that GNU is helping—it's universal. One of our latest projects—FreeLectureNotes.org—falls under this regime. Being the founder and maintainer of this project, it's my pleasure to introduce this project in this space. "Creating the beginning of a world of free educational materials" is what Prof. Richard Stallman, Founder GNU / LINUX, commented about the venture. You may read more about the venture from the welcome note by Prof. Stallman at **http://freelecturenotes.org/welcome.htm**. Further, you may find one thing in common—even in this. All the ventures are guided by the same spirit—The spirit of Freedom! ∎

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> **It is incorrect to describe Flash as "open" or "free", as the SDK is made available under a license that unambiguously prohibits the development of an alternative Flash player. This curbs Freedom!**

**About the Writer**

The writer is the developer of Mozhi (www.mozhi.org)—an Indian Language search engine, and the CEO of The Analyst Magazine (www.the analystmagazine.com) and Free Lecture Notes (www.freelecture notes.org). His research work / publications in Computer Science and Physics are available at www.aasisvinayak.com.

*The views expressed in this article are those of the author, and are not intended to represent the views of Digit.*

## Enhance

**Bhaskar Sarma**

*"One can do anything, anything at all...if provided with a passionate and gifted teacher"—Pat Conroy*

The Internet is chock-full of learning resources, but all of it is disorganised, and not something you will find easily—yes, even with the power of Google at your fingertips. The problem is that there are thousands of guides, tutorials, wikis and blogs online, but can you really tell casual information or personal thoughts from educational information? If you want to learn something more formally, with paced lessons and grades, you could sign up for an online course offered by various universities.

These online courses, which have seen a big boom in recent years, are taught by professors who are often legendary in their respective fields, and you get access to lectures that are usually delivered to packed auditoriums. Anything from Engineering, Liberal Arts, Science, Management and Health is available, and at various levels—from a certificate grade to Masters. Obviously, these are paid services.

However, recently we've seen big names in education offering their course material for free online. This means that *anyone*—students, educators, housewives or grandfathers—can sign-up for them. There is no educational requirement and no schedule—you can learn at your own pace and at your convenience. The only pre-requisites are the willingness to learn and access to the Internet. In this article, we will look at a few top-notch universities and institutions that are offering such courses.

### MIT OpenCourseWare
### (http://ocw.mit.edu)

Do we really need to introduce Massachusetts Institute of Technology? For quite a while now, MIT has put up select courses online. All of them are actual courses that were taught in classrooms in MIT, and you can effectively get the same high quality education that students pay premium for.

**Want a college education, but don't care about grades or have no cash to spare? Get online and get educated**



Ashwini Baviskar

# Educ@tion

This site has a total of 1,800 courses on offer from a diverse range of disciplines. Are you a student of Aeronautical Engineering who missed the lecture on Gusts and Winds? Were you too bored to attend that talk on Modal Metaphysics but need an idea of what on earth that meant? Just head over to the MIT Web site and do a search on the topic. All the courses are categorised into several broad areas like science, engineering, management.

Once you have got the course you were looking for, you can download the course materials as a zipped file. In most cases, the downloadable package will consist of text files. There are lecture notes, assignments, quizzes (along with answers), tutorials and details about reference books. The material is arranged in the form of a calendar, which gives you an idea of how the topics are arranged. Some modules also offer video or audio lectures to supplement the text. In fact, there are complete courses delivered in audio or video format. Such courses need software like QuickTime player for streaming video or Real Player for the downloadable files.

Apart from the classroom courses, the OCW Web site has other resources for maximising the impact of the material. These include training videos, instructors' manuals, textbooks and online publications. For administrators and syllabus drafters, the MIT Curriculum Guide provides a glimpse of how MIT structures its courses, what are its requirements and what reference books are usually prescribed.

To ensure that the supply of quality students do not dry up, MIT has a section called "Highlights for High School" where students and teachers from the school level can find study material suitable for their level. There are videos of lab experiments, science projects, demonstrations and even courses on how to write better. The material is taken from MIT's introductory courses and feature 11 subjects—from Computers and Electronics to Physical Education. High school courses developed by Educational Studies Program, a MIT student group established 50 years ago, are also listed on the site.

OCW has a forum as well, where users gather to discuss course materials. Since the Web site is updated regularly, users can subscribe to the sectional RSS feeds and also join the mailing list for accessing a regular newsletter. Links to archived courses, no longer available on the OCW site are also provided. All these courses are covered under a Creative Commons license, and hence can be used for free.

### CMU's Open Learning Initiative
(http://www.cmu.edu/oli/)
Carnegie Mellon University is another heavyweight, which has an extensive and free e-learning program. You don't even have to register to access the courses. However, these courses are used by some institutes to award credits and grades to their institutes. This means that the student will have to register for that particular course, and their performance statistics will be logged for supervision and oversight by their instructors. OLI courses are also used by students of CMU as part of their coursework.


An example of how MIT OpenCourseWare organises its courses

Similar to OCW, the courses as part of OLI also cover a wide range of subjects, though the selection is not as comprehensive. Currently, the site has courses in subjects like Engineering, Statistics, Chemistry, Logic and Proofs and Physics. Each course is divided into different modules, which usually comprise detailed lessons and courseware arranged topic-wise.

While a student can take courses without registration, he or she, can create a tracker, which will keep track of the course progress. Instructors who want to teach the OLI course have to register for an instructor account. After CMU completes a verification process, the instructor will receive additional privileges like access to student performance monitoring tools, expository text, case studies, simulations and other instructor support material.

CMU also conducts periodic evaluation studies to gauge the effectiveness of courses and keeps tweaking them. At the time of writing, the Web site was undergoing a major redesign after which the number of courses offered would increase and also become more extensive. It also conducts regular workshops and conferences for course development and evaluation in the university premises, which are open to all and can be joined for free. You would have to, however, pay for your own travel and stay.

### OER Commons
(http://www.oercommons.org/)
This site is not affiliated to any university like the two above, but it features courses from various universities, colleges and training institutes. These courses are in different subjects and are available in different levels, from primary to post secondary. The broad areas covered are arts, humanities, business, mathematics and statistics, science and technology and social sciences. By its sheer volume, this Web site may be one of the largest of its kind on the Internet.

OER is different from the other e-learning resources in that users can share their own courses on the network, and also access courses that are already present. Submitted material has to go through a complex process of vetting and review before they are featured. So you could, in theory, find the physics lessons of your grade ten teacher who taught you that science was much more than mugging up formulae and boring facts. The resources on this site include lectures, demonstrations, full courses, modules, case studies, simulations, etc., in different media like video, podcasts, Flash movies and plain text files.

Despite the varied sources and diverse types of media on this site there is one commonality—everything is free and licensed under Creative Commons. That means users can download, use and modify any of these resources without the fear of getting sued for copyright infringement.

Users who want to contribute content to the community can create an account and log in to their portfolio. The community consists of a forum, blogs and wikis where people from different professions and different places write, discuss and contribute to eclectic topics

that range from archaeology to the Internet. It also features news about conferences and workshops on different facets of education and technology.

### iTunesU
(http://www.apple.com/education/itunesu_mobile-learning/itunesu.html)
All you iPod owners out there who happen to be college students, there is something good coming up. In fact, anyone with an Apple product and with a love for learning would find Apple's iTunesU initiative combining the best of both worlds—personal technology with education.

iTunesU uses Apple's iTunes music store to distribute free content any time of the day, any time of the year. This service is used by hundreds of universities and schools in North America to distribute their educational content which can be then viewed over iPods, iPhones, iPod Touches and computers. In total, there are more than 30,000 audio and video files from different topics to choose from. You can even burn optical media and listen to it later at your convenience. However, you need the freely downloadable iTunes to access media from iTunesU.


One of the many courses available on iTunesU

The educational institutions that are featured on the iTunesU include Stanford, MIT, Duke, Carnegie Mellon, Lehigh, UC Berkeley and Yale, among others. It also has educational contents from other non-educational institutions like the Smithsonian Institute, The Museum of Modern Art and The New York Public Library. The content offered by these institutions vary widely in scope and depth: from a UC Berkeley philosophy course "Existentialism in Literature and Film" to "Electricity and Magnetism" by rock star Professor Walter Lewin from MIT, iTunesU has them all. They even have a series of videos on dental anatomy from University of Michigan which were recorded back in the 70s and 80s.

The USP of iTunesU is undoubtedly the ease of delivery. You can download the desired audio or video on your iPod, and listen to it whenever you want to, thus getting educated the cool way. Besides, there are no cost restrictions and you can play the media on multiple devices. In case you don't want to keep looking at iTunes every time you look for a good pod cast, you can always go to sites like Openculture (**www.oculture.com/2007/07/freeon-**

linecourses.html), where a list of such resources are regularly maintained.

### NPTEL
(http://www.nptel.iitm.ac.in/)
National Programme on Technology Enhanced Learning (NPTEL) is a Government of India funded programme aimed at improving the quality of engineering college education in India. Six IITs and IISc have contributed the core material for these courses, which currently cover Civil, Computer, Electrical, Electronics and Communication and Mechanical Engineering disciplines. Information Technology and Computer Applications students and teachers would also find useful material in these video lectures. This is only the first phase of the project, with later phases aiming at including more institutes in content creation. There is content common to engineering courses like physics, chemistry, maths, management and languages.

The value of such courses is immediately apparent, when we consider the thousands of private engineering colleges that dot the length and breadth of India. Quality curriculum content development does not proceed on shoestring budgets and needs qualified personnel, time and money. Most of these colleges can't afford these luxuries, and hence end up with prescribing books that are suggested as part of the course by the AICTE. Students mug stuff up, pass out of the college and join the army of unemployable engineers. However, using these courses the teaching experience at IITs can be replicated to a large extent. Since these are all video courses, both students and professors can benefit from them. And they are freely available, which means no funds outlay for getting such high quality content.

Currently, the content is available in video form, with each course divided into 40 video lectures of one-hour duration each. There are a total of 129 courses with more courses being added regularly. While the inspiration behind these series of lectures is MIT's OCW, the goals of this programme is curriculum development with focus on specific courses, unlike MIT's primary goal of sharing content. All the lectures are put up on YouTube from where they can be downloaded and viewed later offline.

### Summing Up
These are only a few of the many similar resources available on the World Wide Web. For instance, other universities have their own OCW sites which are similar to the MIT's site mentioned here. Then again, critics point out that most of these courses are not credit earning, as you can't get a degree after passing the tests after each course. So theoretically, you could be wasting money on Internet bills and plenty of time if you studied these courses instead of mugging up for your semester exams. On the other hand, you will probably do worse if you were to spend that time and money hanging in game parlours or restaurants, so why not give these sites a shot? You can learn plenty. ▉

*bhaskar.sarma@thinkdigit.com*

# ?!
## Q&A

### Your Questions, Our Answers

**All your computing niggles and nags are dealt with here!**

## What Is A 1394 Adapter?

I have been using a Compaq Presario V6211 AU laptop for almost a year, and I had no problems with Vista running on it except it was painfully slow. The machine is running on a 1.6-GHz AMD Turion 64 x 2 processor with 1.5 GB of RAM. Recently, I decided to downgrade it to Windows XP SP2. Everything runs fine now but there is a problem that still persists. There is no driver for the network adapter (1394 Net Adapter) which doesn't allow me to connect to my broadband connection. I tried looking online but I could find nothing. I have attached a screenshot as well. Can u help me please?
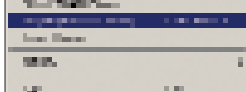
**Uzair**

Uzair, the 1394 adaptor is in fact Firewire, which is used to connect devices like handycams and mass storage devices like hard drives. It can also be used to connect another machine using Firewire, but that seems highly unlikely in your case. Disable the 1394 network adapter by right clicking on it in the Device Manager Window and clicking Disable. If at all you want the adapter to work, you can try uninstalling it by right clicking on it and clicking Uninstall. Reboot and Windows XP should try and redetect the device and hopefully find the driver for it.

If it doesn't, look for the driver on Compaq's site or the disc provided with the laptop. Right click on the device, click Update Driver. Choose to install from a specific location, and point out to the folder or file where the drivers exist. Looking at the screen you've sent, your primary network adapter is the nForce onboard network adapter and that seems to be installed perfectly fine. Check the network settings for it. This could be the reason your connection isn't working.

## Multiple Scanning Error Message

My name is Sreeraj and I use an HP Scanjet 2400 scanner. When I press scanning button, an error message is shown – "The application is


Msconfig can be used to shut down unnecessary startup applications and services

currently in use or unavailable. Close any open programs and try again", even though the scanning done properly. What does this error mean? Sometimes, this error appears once and ten times at some other times.
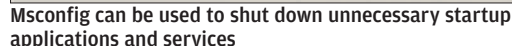
**KK Sreeraj**
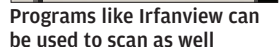
The error should occur only in case you give multiple scan orders when one is currently running.


Programs like Irfanview can be used to scan as well

If you are using the scan button on the printer to scan, then you should try using the software interface. If that still doesn't work, try installing a third-party application such as IrfanView and try importing images from there. Also, make sure there are no other applications that maybe accessing the scanner at the same time. If there are, turn them off or stop them from running by removing them from msconfig. Click on Start > Run and type "msconfig". Click on Startup and uncheck the programs there.

## How Do I Add More Memory To My Onboard Graphics Solution?

My computer has an Intel Celeron processor, 256 MB of RAM, a 40 GB HDD. How can I increase my video graphics memory for my onboard graphics memory? It is currently set to 64 MB. Is there any software to do this?

**Abilash Rajendran**

You won't experience real performance advantage by simply increasing the memory. 64 MB is still a lot for your system configuration. If you want to increase it anyway, enter your BIOS by pressing the [Delete] key when the computer boots. Try entering Advanced Chipset settings and look for an entry for the onboard graphics frame buffer size. Increase the amount of memory, save the settings and reboot.

## How Do I Overclock?

My desktop configuration is given below
Intel Core 2 Quad Q6600 2.4 GHz
ASUS P5N-E SLi
2 x 2 GB Zion RAM

## Stability While Gaming And Free Disk Space Issues

I have a Dell Inspiron 1520 laptop with a Core 2 Duo 1.66 GHz, 2 GB of RAM, and Windows
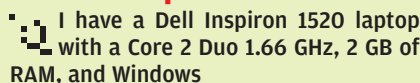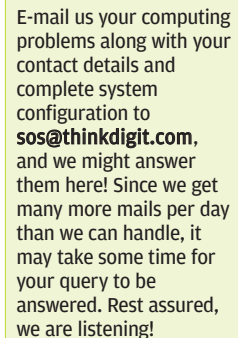
Vista running on it. My problem is that even after installing NVIDIA 8600M GT, Need For Speed: Most Wanted and Counter-Strike:Condition Zero crash after some time (any time) when I run it on full details saying that a specific driver file has stopped working.

Another problem I've been facing is that my C drive has about 10 GB free. Ever since I cancelled the installation of Visual express after installing .Net framework, the drive shows fluctuating free space indications ranging from 8 GB to 13 GB. Help me!

**Udit Roy**


Virtual Memory can also consume large amounts of space on the hard drive

The crashes are to do with NVIDIA drivers for Vista. For the instability issue, try uninstalling and updating to the latest drivers for your graphics card from NVIDIA's site. If you have an installation of XP running side by side, you might want to try installing NFS and Condition Zero there to look for the same errors.

For the problem with the free disk space indication, you could try clearing out your Windows Temp folder. Click on Start and enter "%TEMP%" in the run text bar. Press [Enter]. Make sure you have all the programs shut. Delete all the files in this folder. If that still doesn't fix the free space problem, you might want to try installing the Visual Express application and uninstalling it. It could also be to do with the Windows Page file. Open the Advanced System Properties by pressing [Windows] + [Pause/Break] and then clicking on the Advanced tab. Click on Settings for Performance and then on the Advanced tab. Here you can try and set the page file to 0, reboot and then set it back to the initial value. That way the pagefile should be emptied or deleted and recreated. You might want to see if the space problem can be fixed by turning off SuperFetch by shutting the service. Start Administrative Tools from the Control Panel and then go to Services. Double-click on Superfetch to open the window to disable and stop the service.

XFX GeForce 8600GT
250 GB Western Digital hard drive
Windows XP SP2

I believe almost all the components are over-clockable. However, I am a complete newbie to overclocking, and have heard that improper overclocking can damage one's system. I would like to overclock my CPU, Graphics Card, RAM as well as the motherboard to the highest safe values. How do I go about it? I would greatly appreciate it if u could guide me towards any information regarding this.

I am a regular reader of your magazine and I owe it to you guys at *Digit* for helping me get to know my computer better. Congratulations on a job well done! Hoping to get a reply from you.

**Shiraz Hansen**

You are right, pretty much every component can be overclocked and you are also right about components getting damaged. Some components are relatively easier to over-


Changes to the FSB and multiplier are required to overclock a processor

clock than the others. Overclocking requires patience and care or you can seriously damage some of the components. **Do it at your own risk!** Adding tiny increments to your FSB from the BIOS is the simplest way to overclock the processor. The processor's multiplier can also be increased from there. Constant reboots are required to check for stability. Keep a close watch on the temperatures as well. The processor you are using—the Intel Core 2 Quad Q6600 is known to touch 3 GHz. If you are using value RAM, then that could hamper your progress as well. Your thread on the Think Digit forums (http://www.thinkdigit.com/forum/showthread.php?p=807118) should get you help from fellow overclockers there.

## Graphic Card Overheating Issues

I recently bought an AGP GeForce 6200 card and a 450 W PSU. Since then, my PC has started overheating. My processor temperature is 60 degrees, motherboard 57 degrees and the graphics card well over 75 degrees. These are the temperatures while the PC is idle and running standard desktop applications. Things get even worse when I start playing games.

Is there any problem with my power supply and should I change it? My PC was running well on my old Intex 300 W PSU and it wasn't overheating at all. Should I use that power supply with my graphics card? Will there be any problem with the GPU if I use a lower rated power supply? Please help!
My system configuration is
AMD Athlon 64 3000+
MSI K8M800 (VIA chipset)
768 MB RAM
DVD-Writer
256 MB nVidia GeForce 6200 AGP card

450 W Power Supply
Operating system - Windows XP SP2

**Prashant More**

The problem could lie anywhere and a power supply change shouldn't normally cause your hardware to heat up. There's a chance that the new power supply is radiating a lot of heat and that hot air trapped in the cabinet could be increasing the temperatures for all the components. Try running the PC with the side panels removed and look for any drastic temperature drop. Shut down the PC and clean up the heatsinks and fans on the processor and check again. The temperature for the processor and the motherboard chipset is a little higher than most cases but nothing seriously alarming. The 75 degrees for the GeForce 6200TC is pretty high though. Your card most likely doesn't have a fan in which case you can try attaching one which will bring the temperatures down a fair bit. If you want, you might want to ask for a replacement.

## Motorola W230 And Windows Vista Ultimate Issues

I will be buying a Motorola W230 mobile phone. I have no GPRS connection so how do I install Java games on it from my computer.

My other problem is that I run Windows Vista Ultimate Edition. My system configuration is Intel Pentium 4, Intel D101GGC motherboard, ATI Radeon Xpress 200 series, 768 MB of RAM. When I run the game *Chess Titans*, it displays some error messages -
"Could not find texture [Media\BoardWoods.dds]"
"The D3D device has a non-zero reference count, meaning some objects were not released."
"Failed to creating Direct3D device objects."

**Jibon Jyoti Changmai**

Your phone might come with a data cable that will allow you to connect the phone to the computer. The software and drivers might be supplied with the phone itself or can be downloaded from Motorola's site under the Support section.

Start Windows Explorer and enable showing of hidden files and folders by clicking under Folder Options. Then browse to `C:\Users\<Your_Username>\AppData\Local\Microsoft Games\Chess Titans`. Open a text editor such as Wordpad and open the file ChessTitans.xml and change the number between the tags—`<Rendering>__</Rendering>` to "0". Restart Chess Titans. Also, it's worth trying to rename or moving the file to some other location so that a new file is generated.

## Irritating Check Disk!

I have a PC with Windows XP SP2 installed on it. One day, I scheduled a disk check for my C partition and completed disk checking after the next reboot. The problem is that since then, whenever I switch on my PC the scheduled disk check starts checking the disk. This is getting very irritating. Can you please suggest a way to stop it?
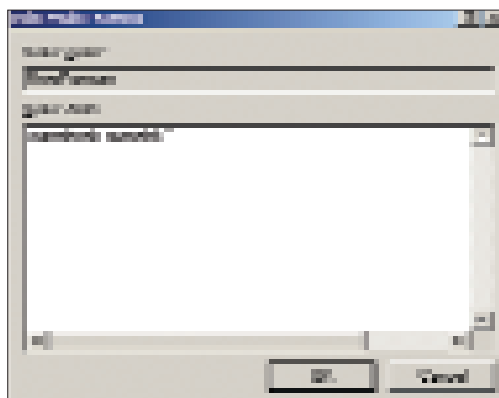

Auto checking of disks can be disabled through the registry

**Chikku George Thomas**

If Windows detects that a partition has errors that need to be checked, it tags that drive. This is what makes Windows check your disk. This can be disabled using a simple command typed in a command prompt window: "`chkdsk /x c:`" to exclude the C: partition. The same command can be used for any other partition.

Another way to fix it is to start the Registry Editor by clicking on `Start > Run` and entering `regedit`. Browse to `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session Manager`. Double click on the BootExecute key and change the value to autocheck autochk *

## Question Regarding SLI

My question is that can an XFX GeForce 8500 GT and XFX GeForce 8600 GT or 2 XFX Geforce 8500 GT's be connected together in SLI mode?

**Anish Gaur**

SLI works by usually putting two identical cards together. Two GeForce 8500GT's can be connected together in SLi but the performance from them might not be all that impressive. If it's a buying decision, it would be preferable to buy a single 9600GT card.

## Which Point And Shoot Camera?

Please suggest which camera of the three should I buy—Canon A590 IS, Canon A720 IS or the Canon SX 100 IS?

**rak007 on Digit Forum**

The Digit Test Centre tested the Canon SX100 IS and we highly recommend it. It comes with a 10x optical zoom as compared to a 4x on the A590 IS and 6x on the A720 IS. The SX100 IS makes it easy to macro shoot as well. All the three are 8 Mega Pixel cameras and are similarly priced.

Canon PowerShot SX100 is a very good 8MP camera with a large 10X optical zoom

# Connect To The Internet Using Your Broadband Connection On A Linux System

## Linux installed? Now let's go online...

**Rossi Fernandes**

Several readers have made the jump to Linux, but they haven't got their Internet connections running. In our country, broadband is accessed in many different ways—ADSL, wired networks, WiMAX, etc. We connect using different diallers and authentication techniques, so unfortunately, we can't depend on one single universal dialler when running Linux. In this short How To, we'll try and explain the most common type of connections.

### Connecting Using A USB Data Card

One of the easiest ways to get online these days is to use a data card. They're not fast but they're flexible and you can connect within minutes by plugging in the USB dongle. While on Windows, it's simple. While on Linux, there are formalities, so to speak, that need to be completed before you can start dialling.

First we need to make sure that the USB data card has been detected by your distribution. Connect your USB data card first. Then, we need to first login into root, then type the following.

`cat/proc/bus/usb/devices`

A list of connected devices will be displayed, and you should find your data card from the list. Look for a line with the vendor mentioned as `Vendor=_____`, and a Product ID as `ProdID=_____`.

Next, we need to run modprobe. Type `modprobe usbserial vendor=_____ product=_____` using the same information that we got from the device list. Once that's done, type `dmesg`.

Edit the `/etc/wvdial.conf` using a text editor such as vi. You will find a

new connection called `[Dialer cdma]`. Enter the necessary information there, and save the file. Finally, type in the command `wvdial cdma` to dial the connection. You can also use try using `sudo wvdialconf` to configure your connection. Once the connection has been setup, you might want to go check whether the newly created connection is being used in Ubuntu under `Administration > Network`.

### Connecting Using PPPoE (PPP Over Ethernet)

These days, PPPoE is one of the most popular ways of connecting to the Internet. It's used a lot on ISPs that use wired networks and cable modem connections. On Windows, a PPPoE dialling connection can be setup using a Network connection wizard, but on Linux, we need to use a program called pppoeconf. Run this program as a root from a console.



The final step dials the connection itself



All network cards are first scanned

The first thing that happens is that the device will look for all network cards installed on your machine. Make sure your LAN cable is plugged in and then proceed. The application will then scan for a PPPoE server on your ISP end. When it does, you will be asked to use the connection as your Internet connection. Proceed and you will be asked to enter the username and password for the connection. You can leave the rest of the settings as they are. Usually, the ISP provides you with the DNS server information automatically when you dial, so you

need not enter any name servers either. At the end, you can choose to have the connection dialled. You can also dial the connection using the command `pon` to turn on the connection, and `poff` to turn off the connection.

### Connecting With cURL To A Web-based Login

Although PPPoE is the simplest and the most flexible way anyone can connect to an ISP, there are many ISPs that require users to login using their Web interface. For that, there's hardly any automation that can be done except using a little known program called cURL. cURL is available for Linux, Windows and a whole lot of other OSes. You can download it from **http://curl.haxx.se**. It is used to access sites using username and passwords, so it can be used to enter a user and password on your ISP's login page.

Unzip cURL in a suitable folder, and then open a command prompt window and browse to that location. You can use enter a command in a text file in Notepad and save it as a BAT file. All you need to know is the URL for your ISPs login page and obviously your username and password.

Create an entry – `curl -d "username=_____&password=_____" http://<url_for_login>`. Save the file and exit. The same entry can be entered in the command prompt. The BAT file can be run to login, or a batch file can be scheduled to start on startup, so you can have your connection turned on when the computer boots. ▮

*rossi.fernandes@thinkdigit.com*



Check for network

# Shopping For More Action!

**Agent goes on some serious graphic card shopping…**

For me, an avid gamer, one of the biggest hoaxes has been the supposed deliverance that the DX10 was to bring about. For the first time, the industry saw hardware that was ahead of its time with a badly lagging software component. With rumours of DX10.1 and even DX11, it's hard to sort out what's fact and what's fiction. With gaming hardware, it's a lot easier—both NVIDIA and ATI have behaved themselves and wooed us consumers with some very good offerings. As always, the horizon looks greener still, with the likes of NVIDIA's unborn G100 and GT200 GPUs and ATIs RV770, which will sport next generation architectures. NVIDIA has two new launches that aren't available in the market at the time of writing this—the GeForce 9800GTX and the 9800GX2 the latter being a dual-PCB solution similar to the 7900GX2. From reports on the Web, the 9800GTX isn't the new high-end king by much, and its 256-bit memory interface seems a detraction from the 384-bit interface on the 8800GTX / Ultra. The only saving grace seems to be the 65 nm core running at 675 MHz; an overclocked 8800GT comes close to shaming it.

I was looking for three very different graphics card solutions—a budget solution, a good gaming solution and a dual GPU (SLI / Crossfire) solution. The dual-GPU solution was for our office—we needed something fast for benchmarking. With no new releases expected from either vendor (NVIDIA and ATI) over the next few months and newer architectures expected after another six months, this is prime time for anyone looking for a good graphics solution. Waiting for newer stuff may seem sensible, but there's always going to be better hardware available in the future, so it's futile, really.

I needed a decent card for an HTPC. My budget for this card was Rs 4,000. My options were very limited—ATI's HD2400 Pro and NVIDIA's 8400GS seemed like the only two options for the price, both cards are available from a variety of brands. The prices are similar and range from Rs 2,700 to Rs 4,500. Also on offer was the GeForce 8500GT chipset based cards. ATI doesn't have any competing offering as its HD2600 Pro / XT is costlier, and competes with the GeForce 8600GT, both of these options exceed my budget. I decided on the 8400GS chipset, and the brand options were XFX, ASUS, MSI, Gigabyte, Sparkle, Leadtek, Galaxy and Palit. I ended up with a 256-MB version of Sparkle's 8400GS for just Rs 2,950 after haggling over the dealer-quoted price of Rs 3,050. Such a card takes a huge load off your CPU and system RAM while tackling video and HD video playback, and is worth the money considering that onboard solutions hog system memory.

For a single-card gaming solution, everyone seems to point towards the GeForce 8800GT or 9600GT. ATI's equivalent Radeon HD3870 is a little costly (Rs 12,000 at least) for the performance it gives, and the 8800GT is priced better and outperforms it. NVIDIA's 9600GT seems a real winner—it's twice as fast as the 8600GT with 64 shader units, and is priced in the range of Rs 9,000 to 10,000. It even outperforms the 8800GT (112 shader units) in some games at lower resolutions. The older 8800GTX / Ultra and HD2900XT aren't good buys, especially since the 8800GT comes within 15 per cent of their performance (at worst) at

less than half the price. ATI's HD 3850-based offerings are all priced around the Rs 10,000 mark, making the 8800GT seem even better since it's priced at only Rs 3,000 to 5,000 more. From amongst the other brands Gigabyte's 8800GT OC Edition caught my attention from amongst the crowd. This card features a copper heatpipe Zalman cooler that cools the core by an incredible 12 to 15 degrees Celsius below the stock cooler. With a core factory overclocked to 700 MHz (default being 600 MHz) and a price tag of Rs 12,000 only (my haggling skills failed miserably here), I'd have been a fool to look elsewhere.

For my dual-GPU solution, I was confused. SLI and CrossFire are restricting in the choice of motherboard. SLI seems better with a great core like an 8800GT to build on, but CrossFire has the advantage of greater efficiency for the second card, and two Radeon HD3870 cards in CF offer nearly 100 per cent more performance than a single card. But I didn't want to restrict myself to using only an SLI or CF board. Then I came across the 3870 X2 card (basically two HD3870 GPUs on a single PCB) and my wish was answered. A basic check showed this card to be faster than a GeForce 8800 Ultra by some 20 to 30 per cent. It's a power hungry monster too, and consumes nearly 240 watts on load. It's the most hassle free dual-GPU solution you'll find out there. There were only three brands available—ASUS, Sapphire and GeCube, and although MSI, Gigabyte and Powercolor also do ATI based cards they didn't have any of these mighty solutions. I picked up the Sapphire HD3870 X2 for 28,000 bucks and had the distinct pleasure of watching everyone staring agape at the big spender…office money, but then that's our secret… ▣

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## U3, Me One

I want to buy a pendrive based on the U3 platform. Which size and model should I look at?
**Anant Khilnani**

Kingston and SanDisk are two very reliable brands that have U3-based products—I'd say look for a 4 GB drive. It should cost around 850 bucks. I'd give SanDisk preference over Kingston. A 2 GB drive will cost around 500 bucks, but 4 GB offers the best value for money right now.

## More Power!

I want to know whether my newly assembled PC requires a new power supply My configuration is:
Intel Core 2 Quad Q6600 Processor
WD Caviar SE16 SATA 250 GB HDD
XFX GeForce 8800GT 512 MB Graphic Card
ASUS P5K Premium WiFi AP Motherboard
2 GB DDR2 RAM Transcend Jet RAM
I have two small 5 cm fans which came with the motherboard. I use USB very frequently to connect phones, iPod and PSP. I use Windows Vista Ultimate SP1. My present PSU is a 400-W.
**Saraansh Tandon**

For this configuration, I doubt if even a regular 500 watt power supply would handle the job. You need something beefy that actually delivers its rated wattage. I recommend Corsair HX 520 Watts, which will cost around Rs 5,800. Or you could go for a CoolerMaster Extreme Power 650 Watts, which will cost Rs 3,800. Out of the two the Corsair will be overkill for your PC, but I feel it's better to have power in reserve than to have less power.

## Amnesia

I bought an HP Pavilion tx1000 series notebook PC (TX 1301AU to be precise), with AMD Turion 64 x2 Mobile Technology TL-58 1.90 GHz, with 958 MB Memory(RAM), and 32-bit OS (Vista Home Premium) with Tablet PC functionality, on being reviewed in July edition of *Digit*. Now my problem with it is that its RAM is very low—the NVIDIA Graphics card is also sharing onboard memory and thus Vista hangs now and then. I need to buy at least 1 GB more memory. Which brands you suggest and recommend? My budget is up to Rs 2,000
**Navrooz**

Regardless of 1 GB of RAM, Vista shouldn't hang, could an outdated graphics card driver be the culprit? I suggest you update your drivers to the latest version and then check. Call HP's customer support and tell them the exact nature of the problem. You could also have an issue with a loose heatsink, but this is speculation unless we see the laptop for ourselves. That aside for upgrading your memory, I suggest you contact HP's customer support, as any kind of third party tampering will void any warranties. 1 GB of memory should cost you exactly Rs 2,000. An upgrade will bring about a moderate performance hike, but get those drivers updated pronto.

## Visual Appeal

I want to buy a motherboard with inbuilt graphics processor. I have budget of Rs 7,500. Can these motherboards perform at par with the mid-range graphics card when playing games at medium resolutions? Also, I would like to know at what price Intel E6600 is retailing for now and I want to buy a 19-inch LCD monitor for my PC. Which one?
**Aditya Narayan Ray**

No onboard graphics solution will ever compete with even a low end graphics card of the same generation. I suggest a motherboard with no graphics solution and a cheap graphics card, preferably based on an entry level chipset like NVIDIA's GeForce 8400GS. Look at motherboards based on Intel's G35 graphics solution for around Rs 5000. Look at an Abit IP35 E for Rs 5,500 and a GeForce 8400GS for Rs 3,000, just overshooting your budget by a thousand—you'll get very good performance for even viewing HD movies, not to mention other multimedia options. The E6600 is phased out. The closest you can get to that is the new Penryn E8400 (3.0 GHz), which costs around Rs 10,000, or you could look at the cheaper and older E6750 (2.66 GHz) which should cost around Rs 8,000 bucks. As for your LCD monitor, flip over to our test.

## Heading

I have a 3 GHz (HT) Pentium 4 on an ASUS Intel 865G chipset motherboard with 256 MB (2 x 128) PC3200 DDR RAM, a combo drive and 40 GB IDE HDD. I have decided to upgrade to 250 GB HDD, 1 GB DDR RAM and a DVD writer. My motherboard has no SATA ports. I've a budget of Rs 5,000. Please suggest the brands and their prices to look for. Also, tell me how to find out a hardware brand is genuine like a guarantee card. My vendor gives me a written bill with the guarantee period written by hand. Is he selling me original hardware or serviced stuff?
**Manicka Raj**

Let's take the last question first please—your vendor is giving you original stuff. In fact, most vendors like to mention the warranty period as stuff like hard drives come with varying warranties i.e. 3 years, 5 years and so on. It's very rare to find an 865G board with no SATA ports (if memory serves they used to have two slots), you must have been unlucky to get one of the rare models that didn't have a SATA port. However, if you meant Rs 5,000 for all the components including motherboard then you're out of luck. Your best bet would be to sell off your existing system, thereby getting a slightly larger budget to work with an investing in an LGA 775 based motherboard—an Intel G31 chipset-based board would be fine. For a processor, I recommend an E2160, a very cool processor that will cost you around 3,000 bucks. 1 GB of DDR2 667 MHz memory will cost around Rs 1,000. A blazing fast Seagate 7200.10 series single platter 250-GB SATA hard drive will cost you around 2,800 bucks. If you must stick with your existing socket 478 setup then look for another 865G based board with two SATA ports. 1 GB of DDR RAM will cost you around Rs 3,000.

**SECRETS THAT KEEP YOU AHEAD IN THE RACE**

# WINDOWS COMMAND PROMPT

With Windows 2000 and then Windows XP, the use of the Windows Command prompt has been on the decline. Almost everything today is dependent on the user interface of Windows. There are still many tasks that can be done just from a Windows Command prompt and it can be handy for things like removing viruses or stubborn files that Windows Explorer can't do anything about. The command prompt can be started by going to `Start > Run`, entering `cmd` and hitting `[Enter]`.

### Command Prompt History
In the DOS days when everything ran on command prompt, there was something called Doskey, which would keep a history of all the commands entered, which could be recalled as and when required. Windows has a better and easier way to display previously entered commands. Simply press `[F7]` and use the up and down arrow keys to select the command from the list you want to run again. You can also use the up and down arrows without the list, to
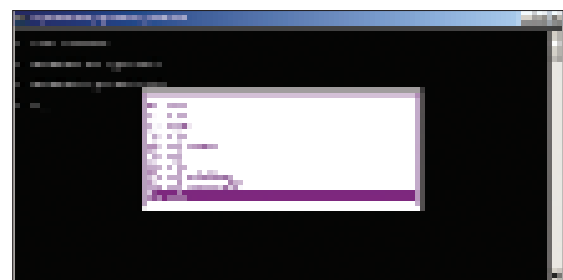
cycle through the commands. To enter the previous command, type `[F3]`. If you want to enter a command line number from the list, press `[F9]` and enter it.

### Command Prompt After Running Application
Many a times, a DOS or command line based program is run through the usual `Start > Run` method—say something like `chkdsk` or a network `tracert` command. The program executes and then shuts the command line window with it. Ideally, we want to see what happens during the execution of an application. To do this, type the name of the application or the command after `cmd /k`. For example, `cmd /k chkdsk d:` will scan the disk, display the results and leave the command prompt window open.

### Copy And Paste
Most of us have, at some point or the other, tried to copy something from and into the command prompt window but the shortcuts `[Ctrl] + [C]` and `[Ctrl] + [V]` just wouldn't work. To copy text from the command prompt, you need to first right-click on the title bar of the window and click on `Mark`. Now drag a box around the text you want to copy. Right-click again and the text will be copied into the

clipboard. To paste any text into the command prompt window, right click in the window itself and click `Paste`.

If you want to copy and paste stuff quickly, you can enable it by right clicking on the title bar for the window and then on Properties. Check the box for `QuickEdit Mode`. Click `OK`. You can choose to enable this for a single window or for all command prompt windows. Now simply drag and select the text to be copied. A single right-click will paste the contents of the clipboard to the window.

### Using AutoComplete
Like the Linux console, Windows's command prompt too has an auto complete feature, which allows you to complete file names without typing the entire name. Type the first few characters of the filename or folder and press `[Tab]`. If there is more than one result, you can use `[Tab]` to cycle through all the possibilities.

### Full Screen Mode
If you try and run a console or DOS application that looks right when run on full screen, you can do it by pressing `[Alt] + [Enter]`. Use the same shortcut again to get back to the window mode.

### Customising The Command Prompt
The typical grey-on-black theme can get boring. There are a few changes that can be made to the command prompt to look a little friendlier. The prompt itself can be customised, which by default displays C:\ or the path you're currently on.
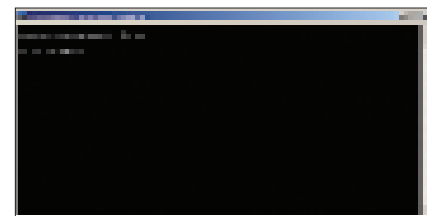
the PROMPT command allows changes to be made to the command prompt

The prompt can be changed by typing PROMPT followed by the parameters. `PROMPT $P$G` will restore the prompt to the default one. Some of the parameters that can be used are as follows—
`$D`—Current date
`$T`—Current time
`$P`—Path
`$G`—>
`$V`—Windows Version
`$M`—Network path for mapped drives

All previous commands can be access by a simple shortcut

Basic changes can also be done through the Properties window

You can also have the text on the title bar changed. Enter the command `TITLE` in the command prompt, followed by the text you want to display on the title bar. For example, `title %username% %date% %time%` will display the currently logged in user name followed by the current date and time.

If all this seems unnecessary, and you want a change of colour, the simplest way out is to right-click on the command prompt title bar and click on `Properties`. The fonts, colours and layout can be changed from here.

### Open Command Prompt In A Specified Directory
The command prompt, when initialised, starts in the logged in users default directory—
`C:\Documents and Settings\Username`.
From there, you have to navigate using DOS commands to the respective directory, if you have to run an application or work on some files. If you want to launch the command line at a different location, first create a shortcut on your Desktop or your Quicklaunch folder by right clicking on it and clicking `New > Shortcut`. Enter the location of the item as `C:\windows\system32\cmd.exe`. Give a name to the shortcut and click `Finish` create it. Right-click on the created shortcut and choose `Properties`. Click the `Shortcut` tab and enter the path where you want the command prompt to start. For example, `C:\`. Click `OK`. Double click the shortcut to run it.
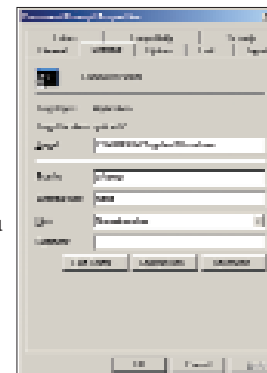
By specifying a startup location, the command prompt can start at that location

# EASTER EGGS

Easter eggs are there to lighten up the mood and they do so by shocking us or making us laugh. Here are a selecte few Easter eggs from some of the most popular software.

### Adobe Photoshop CS3
Photoshop has quite a few Easter eggs, but one of the coolest ones is the red pill. Hold down `[Ctrl]` and `[Alt]` and go to `Help > About Photoshop`. Instead of the default About information screen, you will now see one with a red pill on the left and text on the right saying Adobe Red Pill.

Merlin the wizard is one known character on many Photoshop releases, and in CS3, you can find him by first enabling the `Layers` window. Hold
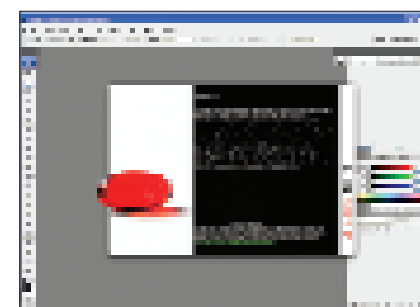
Do you take the blue pill or the red?

down the `[Alt]` key and click on the down arrow for that window, choose Palette Options and a small window pops up, with a picture of the wizard and "Merlin Lives!".

### Windows XP
A typical Windows XP installation contains a music theme that's hidden away in a folder
`C:\WINDOWS\system32\oobe\images`. Enter this location in the address bar on Windows Explorer as it's a hidden folder. The track is called `title.wma`. Double click on it to run it and enjoy the Windows Welcome music.

### Create Files With No Name
If you have ever tried to create a file or folder with just a space on it, Windows will show an alert and it not allow you to create it just like with the name CON. If you try holding down the `[Alt]` key and enter 255, an empty space will be created. Press `[Enter]` and the file or folder will be created with no name.

### uTorrent
uTorrent has an interesting little Easter egg in it. Start uTorrent and click on `Help > About uTorrent`. Click on the logo on the left top, and a sound will
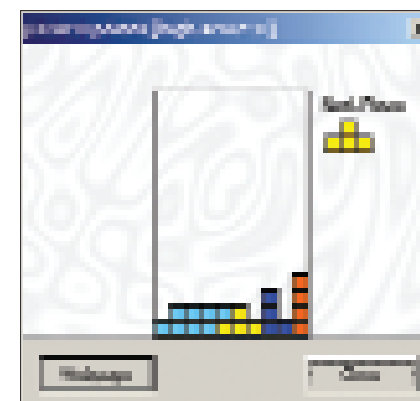
Pass your time playing Tetris while your torrents download

be played—something like the one used in THX trailers. An even more surprising Easter egg can be found in the same window. Press `[Ctrl] + [T]` and you will find a small tetris game running. Use the arrow keys to rotate and to move the blocks into place.

### Notepad
Notepad is a text editor and not many believe there is an Easter egg in it. Create a new Notepad text file and type in `bush hid the facts`. Save the file and close it. Re-open the file to see what you find. Even if you type `this app can break`, you will get the same results—garbled text. This is not technically an Easter egg, but an issue.

### WinRAR
Although WinRAR's just another compression utility, it also has a few hidden eggs. These can be found in the About window. First, make sure you are using the default WinRAR theme. Click on `Help > About WinRAR`. Click on the pile of books on the left, and you'll see them slide down. Instead, if you hold down `[Ctrl] + [Shift]` and click on the WinRAR logo with the background of the seashore, you'll see the waves beginning to pour in and out.
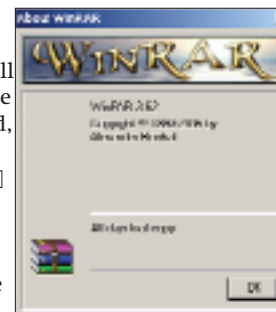
WinRAR easter egg has a pile of books sliding about

### Firefox
Firefox has a silly Easter egg, which can be viewed by entering `about kitchensink` in the location bar (note that there's no colon). A kitchen sink made up of ASCII characters will open up with water flowing down it. You need to be connected to the Internet for this. You can also get the same result in other browsers by entering the keywords about kitchensink in Google and selecting `I'm Feeling Lucky`.

### Counter-Strike CT-Spawn
It's not just software that come with Easter eggs, there are games as well. One of the most widely played games—*Counter-Strike*—has many Easter eggs built into it. One of them is in the map de_dust2. First, join the Counter-Terrorist team and type `kill` in the console. When you join into free fly mode, move into the walls facing the terrorist team and you will the see the credits for the map. You might have to host your own server for this with free fly enabled for the map.

### 3DRealms Error 404 page

3DRealms is now best known for delaying *Duke Nukem Forever*...forever. Even they have a little Easter egg of their own. Enter a wrong URL to their site, say **www.3drealms.com/blahblahblah**. You will find a page with altered pic-
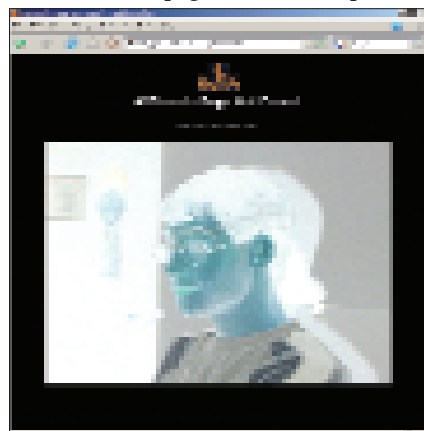
The people at 3drealms greet you when you type a wrong URL

tures of the people at 3drealms with random comments.

### Winamp

Winamp has a challenging Easter egg in older versions of Winamp, which can make you lose your mouse click if you try hard. Get to Winamp's Preferences window by right clicking on Winamp, then on `Options > Preferences`. Go to `Plug-ins > Input`. Click on the `Nullsoft Vorbis Decoder` plugin, and click on the `About` button. A fish logo will appear on the left with the credits. Click on the fish and you will see it spin. Click a number of times, and a small meter measuring the rotations per minute will appear. Left-clicking on it rotates the fish to the left, and a right-click rotates it to the right. *Digit* is not

Head banging with the llamas

responsible for the loss or damage done to any mouse buttons!

Winamp has another trick that works with Winamp 5.0 and higher. First make sure you have the Modern skin selected and stretch the main window to the right using the right bottom edge till you find a Beat analyser at the centre. Hold down the `[Ctrl] + [Alt] + [Shift]` and click the centre till you get two llamas

on either side. Now load up a song and play and watch the llamas' head bob in rhythm with the music.

## FRINIKA

Professional audio sequencing software is costly, but they are also in plenty. For casual users, there are alternatives such as Frinika, an open source audio sequencer that runs on Java. Frinika (**http://frinika.sourceforge.net**) is available for Linux and Mac OS. The Windows version is on this month's DVD.

### The Basics

Frinika will undoubtedly be a confusing experience to anyone who hasn't used a music sequencer before. When it starts the first thing to do, is select the output and input device. Choose to
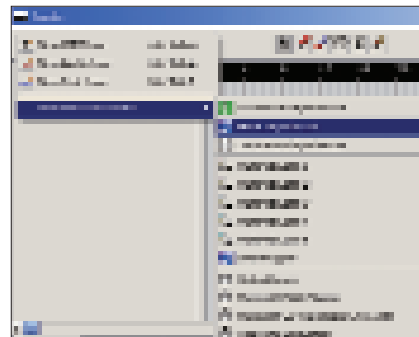
Adding a synthesizer is the first step towards making a complete track

create a new project.

First, click on `New > MIDI Out Device` and select one of the synthesisers used to generate the sound. Next, select the instruments you want to use, by clicking on the MIDI Mixer tab. Set the volume for each instrument. Click on `Null` on the `Lane Properties` and choose the synthesiser that you created earlier. Now that the instruments are in place, you can use the Piano roll to draw bars on the chart. Click on the `Write` tool to add bars and right-click on the existing bars to delete them. To preview the tracks, click the Play button on the top of the window. Additional effects can be added using the down arrow icon on the left bottom of the `Piano Roll` pane. Again, use the Write tool to drag and draw the pattern.

### Changing The Type Of View

Frinika has a rather cluttered interface, with features and tool put into every empty crevice! To makes things a little simpler, there are three different
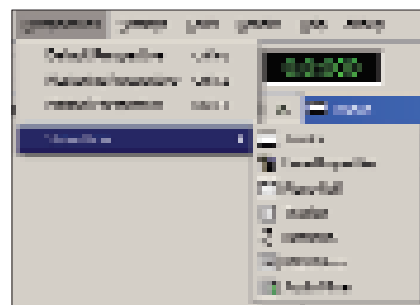
A choice of customized views are available for every task

presets of customised views present—`Default`, `Master` and `Minimal`. The master has all the features required, whereas the minimal perspective is to have ample working space while working on one feature of the program. These views can be accessed by clicking on the perspective menus or by the shortcuts `[Ctrl] + [F1] / [F2] / [F3]`.

### Performance Tweaks

Frinika runs on the Java environment, and along with other applications consume large amounts of memory. On Windows, Frinika runs as an executable,
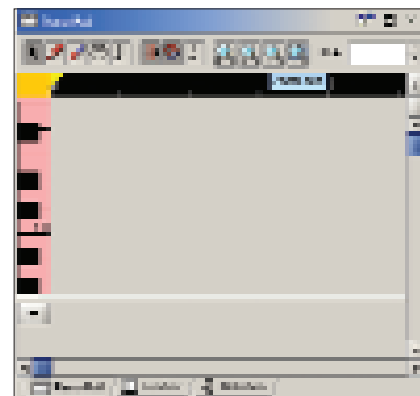
By default, the Piano roll pane has very little empty workspace

but it can also be launched through command line, a batch file or a shortcut. We can then use parameters to increase or decrease the amount of memory consumed by Frinika. First, open Notepad and enter the following:

```
java -XX:ThreadPriority
Policy=1 -jar "c:\Program
Files\Frinika\frinika.jar".
```

Replace the `c:\Program Files\Frinika\frinika.jar` with the location of your Frinika installation. Go to `File > Save` and save the file as "Frinika.bat" (use the quotes in the save dialog). Double-click this batch file to run Frinika with those parameters. The additional parameters makes Windows run the application in real-time as much as possible.

## Phun
### Phunny Physics

Rossi Fernandes

Phun! If you think we are not in our senses and that it's a weird way to say fun, then here goes—it's a free 2D physics simulation we gave out on the April '08 DVD. In short, you draw objects like you would on paper and all the drawings react with each other as though they are real. There's a lot to play around with, but where do you begin?

### Understanding The Phundamental Operations

Before we start, here's a very basic introduction on how you handle objects and the workspace in Phun. You can create objects by clicking on the shapes in the toolbar on the left, and then clicking and dragging the scene. To draw your own custom shapes, choose the Brush tool and draw a shape but make sure you complete the loop. To rotate an object, right-click on the object and move it.

In typical empty scenes, there is no ground. Use the plane tool to draw a plane or all your objects will fall through empty space. If you want objects to be attached in the space, then click on the `Fixate` tool and click on the object created. When you have all the objects in place, you can press the `Play` button under `Control`. Everything now in the scene will react in real-time. To move objects around, you need to click the Drag tool. To navigate around the workspace, right-click and drag the scene. The mouse scroll can be used to zoom in and out.
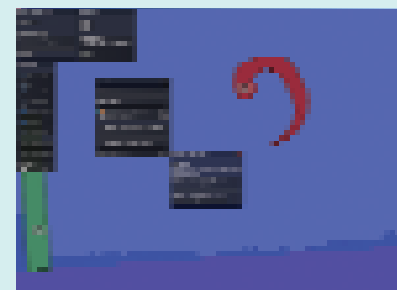
Hinges can be set up to act as motors

### Adding Hinge

Hinges allow you to fix objects and allow other objects to latch on to them and at the same time be

allowed some movement. Adding hinges in Phun can be done by simply creating the object that you want to fixate. Use the Hinge tool, and then click on a suitable location such as one end of the extremities of the object to allow a free movement. Click the Play button to have the object start rotating by gravity. The same hinge can also be converted to a motor. Right-click on the hinge and click on `Hinges > Motor`. Click the `Motor` checkbox to enable it. You can also choose the speed and power of the motor. To be able to manually control the motor, click on `Control` with arrow keys. Use the left and right arrow keys to control the speed of the motor.

### Adding Springs And Chains

Springs are yet another component in Phun which allow two objects to interact. In springs, you can add tension between two objects just like any other spring. Similar to hinges, first create the object you to attach the strings to. Click the `Spring` tool and drag a spring from the blank space or one object to another. Spring properties such as strength and dampening can be changed by right-clicking on the spring and then choose Spring in the menu that pops up.

Chains are also attached in the same manner as springs by dragging lines between two points after selecting the Chain tool. Unlike springs, chains can be created without being attached to other objects. Chains can also be set up as motors like hinges by right-clicking on it and clicking on Chain again.

### Creating And Grouping Objects

Keeping track of little objects can be a headache. If you're someone who is used to playing RTS games such as *Warcraft III*, then the same technique is used to create groups here. First, select the objects you want in your groups by drawing an enclosure using the brush tool. Press `[Ctrl] + [number]` to add all the selected objects to that group. To select the group, press that number again.

### Liquid Simulation

Phun can do liquid simulations too. Liquids can't be created directly so you need to create shapes and then
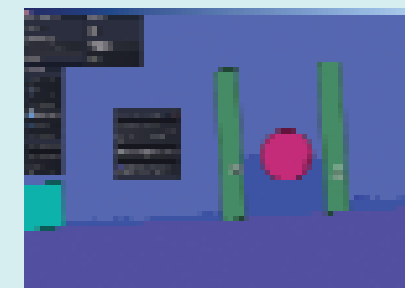
Solid objects need to be converted to create liquids

convert them to liquids. So first draw the shapes like you normally would, then right click on the object and then click on `Geometry settings > Liquify selected`.
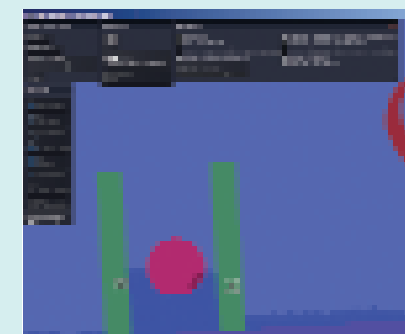
Some performance tweaks are necessary in CPU intensive simulations such as fluids

### Tweaking Phun for Quality or Performance

Phun simulates everything in real-time so all the physics processing needs to be done in real-time by your processor. It's a heavy and strenuous task for the machine so a few settings can be altered when your scene becomes too complex to render smoothly. Click on `Options` under `File` and uncheck the box for `Enable shaders and Draw clouds` and check the one for `Simple water rendering`. If your machine handles Phun perfectly fine, then by all means leave shaders and clouds on and turn off simple water rendering.

If you're still left baffled by the things you can do with Phun, just load some ready made scenarios by clicking on `File > Load Scene`. You can then modify them or learn some new tricks from them. ■
*rossi.fernandes@thinkdigit.com*

### Practice Scripting In Frinika

With scripting support in Frinika, you can just about script anything with Java on it. It's like having your very own little IDE for Java scripting with multiple windows within one parent
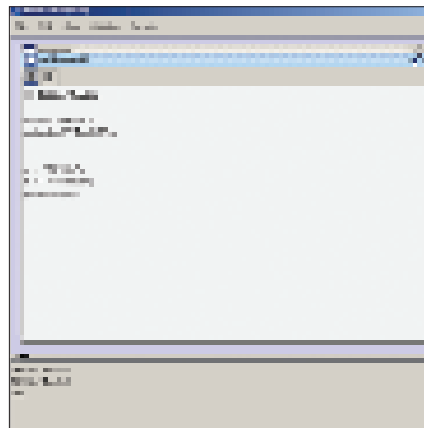


You can practice scripting in Frinika's inbuilt scripting feature

window. There are samples you can try too, by clicking on the Presets menu. Run the Play button or click on `Run > Execute` to run the code.

### Increasing Piano Roll View Area

The Piano roll feature is located at the bottom of the screen and has a very small working area. There are a few ways to get more work space into it. One of them is to click and drag the upper extremity of the pane, till you get sufficient space. By default, the view is zoomed into a small section of the timeline. Click the `[-]` button, right next to the scrollbar to zoom out and the `[+]` to zoom in. There is a zoom button on the top section of the Piano roll pane. Ultimately, you can also make the Piano pane much larger, by pressing the maximise button—the same button will do the trick for all other panes.

### Importing And Exporting

When all the work is done, it is time to export the tracks to your favourite format. If click on `File > Export Audio`, you'll notice that there is no MP3 format in the drop-down menu for formats. You can choose to save as WAV but that could be space consuming, so it's a better option to save the file in the OGG format.

When it comes to importing formats, Frinika can import all kinds of sequenced modules such as MOD, S3M, XM, STM and IT. You can do it by going to `File > Import Module`. You can also import MIDI files by clicking `Import MIDIs`.

## GIMPSHOP

Although GIMP has been popularly known as a free, open source replacement for Photoshop meant for Linux, its workflow has never exactly resembled Photoshop. GIMP has been ported to Windows and so has GIMPshop—its software that developers got to finally work under one big window and make it a lot like Photoshop. The features of GIMP are all still there, they are just a little easier to access for people who've been using Photoshop so far.



Photoshop plugins can be used under GIMP using the 3rd party plugin—PSPI

holds all the GIMP tools together. The background colour for this window can be to be a little pleasing on the eyes. Click on `Edit > Background Color`. Choose a colour and click `OK`. You can also have all the toolbars and windows snap to the edges if you click on `Edit > Snap GIMP Windows`.

### Keyboard Shortcuts

One of the biggest differences with Photoshop and any other image editing software for that matter is the use of keyboard shortcuts. Most advanced users will not run around searching for features in menus, they remember them by shortcuts. You can have Photoshop shortcuts set for GIMPshop by clicking on `Start > All Programs > GIMPshop > Enable Photoshop Shortcuts`. Restart GIMPshop. If that doesn't work for you, you can still go to `File > Preferences`. Click on `Interface` on the left, and then `Configure Keyboard Shortcuts`. Here, all the shortcuts can be customised as per your choice. Some other configuration changes to the behaviour of the mouse and keyboard can also be done by clicking on `File > Preferences > Input Devices > Input Controllers`.

### Making Docks

GIMPshop allows the menus on the interface to be undocked, which allows quick access to the tools within them. Say you want to use the Xtns menu and some of the scripts in it. Click the Xtns menu and click the dotted line on top of the menu. The menu will then undock from the menu. You can move it to the side and access all the features directly from there. If you right click on the image you're working on, a separate menu with all the items in the standard menu on top will be displayed, which can also be undocked.

### Customising GIMPshop

One of the significant changes with GIMPShop is the big window, which



Photoshop shortcuts can be enabled by running a shortcut in the Windows Start menu

### Using Photoshop Plugins

Even though GIMP can do a lot of what Photoshop can do, there are some plugins that add additional features to Photoshop. Photoshop plugins can be used in GIMP as well but for that an additional plugin for GIMP or GIMPshop needs to be downloaded. It's called PSPI and is available for download for different operating systems at **http://www.gimp.org/~tml/gimp/win32/pspi.html**. Unzip the file into the GIMPshop folder. Now start GIMPshop, and click on `Xtns` and then on `Photoshop Plug-in Settings`. Click the `New` button and then the ... button to browse for the plugins. Click `OK` when done.

### Use Script-Fu To Generate Designs And Patterns



Performance tweaks can be necessary if large images are opened in GIMP

Scripting is a way to have complex designs and patterns made by GIMPshop. Scripting support is something that is standard in most of today's well-known image editing and 3D-modelling software. Readymade Script-Fu scripts are available in GIMPshop, under the `Xtns` menu or by

# Adobe Photoshop Express

### Photoshop, now in a browser

**Rossi Fernandes**

Adobe's domination over computer graphics just went online. Adobe Photoshop Express (**https://www.photoshop.com/express/**) is a free online image editing service that allows you to use some of Photoshop's noteworthy features. Not only that, you can also get 2 GB of free online space and an easy to remember **http://<your-choice>.photoshop.com** domain to go with it!

### Uploading And Importing Photos

Being an online service, all the photos that you want to edit need to be uploaded to the service. Photoshop Express has a nice way of doing this. Click on the `Upload Photos` link, and then browse to the folder where you have stored the photos. Hold down `[Ctrl]` and select the multiple images that you want to upload, then click `Open`. In the new window, choose whether you want to upload the photos into a new album or an existing one. If it's an existing one, use the dropdown menu and select it. Click `Upload`. The uploading process will take place, and a status display will be shown as well.

Photos can also be imported from other photo hosting sites such as Photobucket, Picasa and the popular social networking site—Facebook. Click on Login for the corresponding external service and login to your account. To see all the photos, click on `Library > All Photos` link.
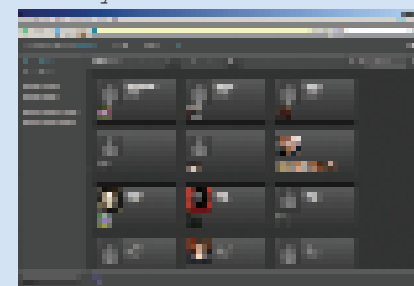


Clicking on an album starts a slideshow of that album

### Browsing Galleries

The other notable feature of Photoshop Express is its community. All albums that are shared can be viewed by other users of Photoshop Express. Slideshows are a small part

of the features offered by Adobe. Click on `Browse` to browse through the list of users and galleries. Click on the smaller thumbnails under each user to visit that particular gallery. To set the duration for each slide in the gallery, use the bar on the right top. Enabling captions can be done by clicking the checkbox. If you click the `Settings` button on the right bottom of the screen, you can set the type of transition effect for the slideshow. Galleries can be linked as well and set as favourite using the links below each album.

### Creating Albums

Albums are an easy way to categorise images as well as share them with other users. Creating albums can be done by clicking on the + icon next to Albums under `My Photos` and enter a name for the album. To delete an album at anytime, click on `Albums`. Then, click on the album and press the Del key or click on `Remove Album`.

### Adding Ratings And Captions

Photos in your albums can be rated, and you can give them captions too. The captions are also displayed when other users browse through your albums. Click on `My Photos` to access your photos. Click on the image you want to rate and add captions to. Enter a caption in the text field under each image. Click on the dulled out stars to set a rating for that photo.
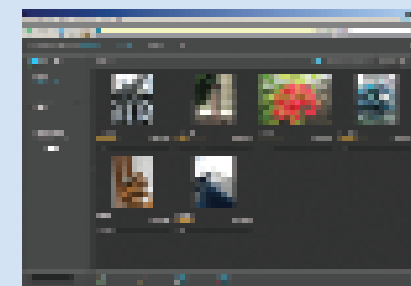


Users can rate their photographs and set captions for them

### Full Screen

Photoshop Express runs in a browser, and so one of the most obvious drawbacks is the workspace wasted by the browser's menus and toolbars. Fortunately, Photoshop Express can run in a full screen mode without

any obstructions. The small icon on the right top of the screen can be clicked to go into full screen mode. Press that icon again to return to window mode.

### The Tools And Effects Of Photoshop Express

Photoshop Express's features don't come close to matching the number of features on the desktop version, but there are still some impressive ones. Double-click on any of your photos to
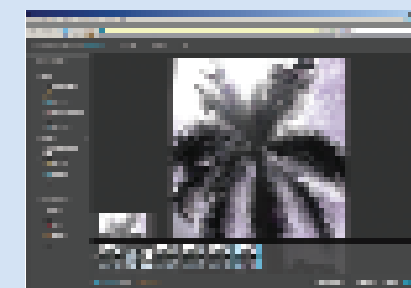


Photoshop Express stores an interactive history of steps

go into the editing mode. All the tools are visible on the left side of the photo. Presets for each of the features are available on the top pane. The up arrow icon at the bottom of the screen shows a preview of all the changes made from the original photo. One of the interesting features of Photoshop Express is Pop Color. This tool can replace a particular colour with another. In photos where most of the area is of a particular colour, it works very effectively.

### Exporting Photos

When all the editing and colour corrections to the photos are done, you might want to get the images back on your local machine. Click on `My Photos` to access all your photos. Move the mouse pointer to the bottom of the photo and click on the drop-down for Photo Options and click `Download`. Select a resolution and click `Download`. Select a location, enter a name for the file and click `Save`.

You can use the free Photoshop Express space to host images as well. Click on the same dropdown and click on `Link`. The link can be used on your personal blog, forums or even Web sites! ∎

*rossi.fernandes@thinkdigit.com*

right-clicking on the workspace. You can also create your new Script-Fu to create your scripts by clicking on the `Xtns > Script-Fu > Script-Fu Console`. You can search commands and keywords that can be referred to, by pressing the `Browse` button.

### GIMP Optimisations
Image editing software need to handle large images and they can get really heavy. With many steps involved, the history can really over-utilise system resources. Some amount of tweaking is possible from `Preferences` in the `File` menu. Click on the `Environment` item on the left. You can set memory limits on the history and thumbnails generated.

### Adding Custom Tabs To The Toolbar
The toolbars of GIMPshop are modular, which means you can add or detach features from it. Tabs can be added to the toolbar by clicking on the arrow pointing to the left, then click on `Add Tab`. Choose from the tabs you want to add. Similarly, Tabs can be detached into separate toolbars by clicking on `Detach`.

### Panning The Image
Panning of the image is required when you zoom into one or you're working with an image of really high resolutions. Using the space bar will move the image around itself. An easy way to keep track of the image while moving through it is to use the move icon on the right button of the window. Hold the left mouse click down and move the mouse arrow to pan through the image.

### Toys!
This is no Easter bug, but GIMPshop has a few little fun features called Toys. First, create a new image or open an existing one with decent amount of detail. Now click on `Filter > Toys`. There is one called GEE-Slime, which uses a water-like effect rendered
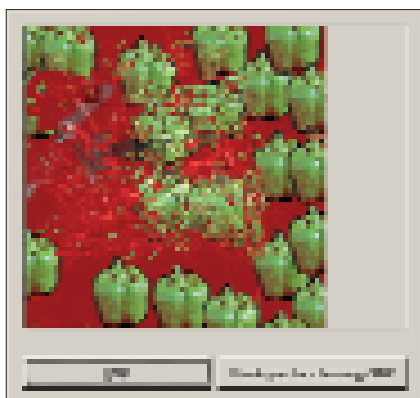
**Play around with GIMP's toys**

in real-time on the image you have open. The other toy—GEE-Zoom gives a 3D illusion. Use the mouse to move in and out of the image.

# PRODUCTIVITY

We all want to work smart, right? Here are a bunch of things we've learnt from our own experiences, and some that have only just occurred to us.

### Control The Future
If you want to remind yourself of an event in the future, send yourself an e-mail! Time Machiner (**www.timemachiner.com**) is an online service that lets you send yourself an e-mail at a future date. Just visit the site, choose a date,

**Break the time barrier with TimeMachiner**

and type the e-mail. The shock of receiving an e-mail from your past self will likely be enough to make the event or task register in your mind.

### SMS Reminders
If you're a Google Calendar user, you can get it to send you event reminders by SMS—just go to `Settings > Mobile setup` to set up your phone number. Nearly all Indian mobile providers are supported, and it's free!

### Nota Bene
The first step to increasing your productivity is to take notes whenever a noteworthy idea strikes you. You could turn to good old Notepad (we've been there), or install one of the billion "sticky notes" applications available on the Web. The drawback with these approaches, however, is the fact that notes you take at home won't come to the office with you, and vice versa. The most hassle-free solution, we've found, is Yahoo! Notepad. Install Yahoo! Widgets and activate only the Yahoo! Notepad Widget (not that there's anything wrong with activating others) on
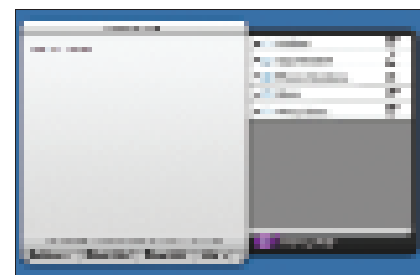
**The most hassle-free way to take notes**

all the PCs you'll be using. When an idea strikes you, jot it down in the widget, and forget about it. The widget uploads this note to your online Yahoo! Notepad, and you can now access it from anywhere! We assume, of course, that you have Internet access at the aforementioned locations, otherwise this is admittedly pointless.

### Nota Bene, Part 2
You can create e-mail templates in Outlook, but what if you don't want to lose that functionality if you're using Web-based e-mail? What if you had a standard reply for all e-mails on a particular subject ("I did *not* have relations with that woman!") but didn't want to type it out all the time? For Opera users, there's a way out—Copy to Note. Just type the e-mail once, select all the text, right-click and choose `Copy to Note`. You can access these notes in the
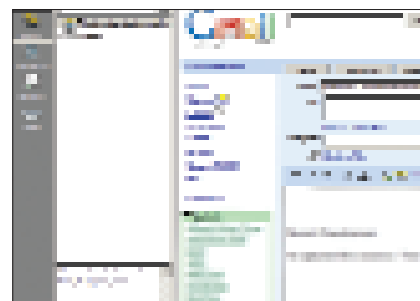
**If you have standard text you use often, store it as a note**

sidebar (take your mouse cursor to the left of the screen and click). Unfortunately, you can't click and drag the text into Gmail's Compose Mail text area, but it's handy to have this text for ready copy-pasting nonetheless.

### Organising Your Inbox Right
Whether it's Web mail or Outlook, it pays to be able to look at your inbox and immediately know what tasks you must prioritise. Here, we must follow the teachings of GTD (Getting Things Done), though you can add your own twist to it. Most importantly, you should be checking your e-mail at designated times of the day, or when someone specifically tells you it's urgent that you do so.

Mentally divide your e-mail into five categories—mail that can be addressed in the next five minutes, mail that needs to be addressed soon and is high-priority, mail that needs to be addressed soon but is secondary priority, mail that needs to be eventually addressed, but can wait a few days, and finally, mail that you don't really need to do anything about. If you receive an e-mail that can be addressed in the next five minutes, address it—get it off your back as soon as you can. For the rest, create folders—Priority 1, Priority 2, If I get time, Information, Done, and so on. Sort your mail every time you check it, and you'll find yourself looking at a clean, un-cluttered inbox.

Folders in your inbox appear in alphabetical order, but you should really sort them in order of importance. To do this, precede the folder's name with a number—"0Priority 1", for example, will ensure that this folder's always on top, ready for your attention.

Just don't forget to actually do the work, though.

### Word? Notepad?
Office 2007's Ribbon offers you a more uncluttered interface as it is, but if you're running at low resolutions or if the Ribbon still bothers you, you can minimise it—just double-click on one of the tabs. This gives Word a Notepad-like look, where you can concentrate all your energies on typing and not be distracted by any graphical elements.

Another handy tip, as you'll witness in the screenshot: if you're working for extended periods on a CRT monitor,
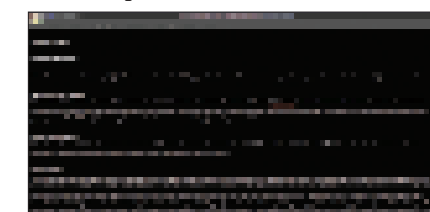
**Minimise the ribbon for a clutter-free Word**

change the page colour to black (`Page Layout Tab > Page Colour`) to ease the strain on your eyes.

### Archive, Archive, Archive
Gmail has spoiled us all, really—thanks to the "never delete" philosophy, we're left with inboxes that often say "1—50 of 1687" (or some such ridiculous figure) at the bottom. Most of us don't register that the "never delete" is really "never delete, archive!". Use labels liberally (preferably organised the way we've mentioned above), and once you've applied a label to an e-mail, archive it. It'll still be visible when you click on the label, so it's really like moving e-mail to a folder in Outlook.

## Windows Run Commands

| Command | Description |
| --- | --- |
| **Applications** | |
| calc | Starts Calculator |
| excel | Starts Microsoft Excel |
| explorer | Starts Windows Explorer |
| firefox | Starts Firefox if installed |
| iexplore | Internet Explorer |
| mobsync | Starts Microsoft Sychronization Tool |
| msimn | Outlook Express |
| mspaint | Starts Microsoft Paint |
| notepad | Starts Notepad |
| outlook | Starts Microsoft Outlook |
| powerpnt | Starts Microsoft PowerPoint |
| wab | Starts Windows Address Book |
| winchat | Starts Microsoft Chat |
| winword | Starts Microsoft Word |
| wordpad | Starts Wordpad |
| | |
| **Control Panel** | |
| appwiz.cpl | Starts Add or Remove Programs |
| control | Starts the Control Panel |
| control desktop | Opens Display Properties |
| control folders | Opens Folder Options |
| control fonts | Opens Fonts |
| control mouse | Opens Mouse settings |
| control netconnections | Opens Network Connections |
| control schedtasks | Opens Scheduled Tasks |
| control userpasswords | Opens USers Accounts |
| firewall.cpl | Starts Windows Firewall |
| mmsys.cpl | Starts Sound and Audio Device Properties |
| netsetup.cpl | Starts Network Setup Wizard |
| powercfg.cpl | Starts Power Options Properties |
| sysdm.cpl | Opens System Properties |
| wuaucpl.cpl | Starts Windows Updates |
| | |
| **Administration** | |
| ciadv.msc | Opens Indexing Service |
| compmgmt.msc | Opens Computer Management |
| devmgmt.msc | Opens Device Manager |
| diskmgmt.msc | Opens Disk Management |
| eventvwr.msc | Opens Event Viewer |
| fsmgmt.msc | Opens Shared Folders Management |
| gpedit.msc | Starts Group Policy Editor |
| ntmsmgr.msc | Opens Removable Storage Management |
| perfmon.msc | Opens Performance Monitor |
| secpol.msc | Opens Security Policies |
| services.msc | Opens Services Management |
| | |
| **Utilities** | |
| chkdsk | Runs Check Disk (eg. chkdsk c:) |
| clipbrd | Opens Clipboard Viewer |
| cmd | Starts a Command Prompt window |
| diskpart | Runs Microsoft Disk Partioning tool |
| drwtsn32 | Runs Dr. Watson Debugger |
| dxdiag | Runs DirectX Diagnostic Tool |
| eudcedit | Starts Private Character Editor |
| fsquirt | Runs Bluetooth Transfer Wizard |
| logoff | Logs off user from Windows |
| msconfig | Starts System Configuration Utility |
| mstsc | Starts Remote Desktop Connection |
| osk | Starts On Screen Keyboard |
| packager | Opens packager |
| regedit | Starts Registry Editor |
| shutdown | Runs Windows shutdown command |
| taskmgr | Runs Task Manager |
| tourstart | Starts Windows Tour |

# Geforce 9 Series GTX Unleashed!

## 8800GTXes In Trimmed Sheep Clothing

NVIDIA continues to blast away its competition with the 9 series. The first wave of attack was done by the latest excellent value for money cards—the 9600GT which we tested last month. They were almost as good at performance as the 8800GT for around an 85 per cent of the price, but they ran cooler and consumed a little less power. The 8 series of cards were led by the 8800GTX, but the 9800GTXs are finally here. We have here three GeForce 9800GTX's from three different companies—Gigabyte, MSI and ZOTAC.

While three share the same design and cooler, the ZOTAC's Amp! Edition and MSI are overclocked. The MSI runs at a core speed of 700 MHz and the ZOTAC at 750 MHz! All the cards came with 512 MB of GDDR3 RAM.

NVIDIA doesn't seem to be in any hurry to jump onto the DirectX 10.1 bandwagon—the 9800GTX, like the 9600GT, is also a DirectX 10 card. It is turning out to be a good decision, with most current games still continuing to release with DirectX 9 support.
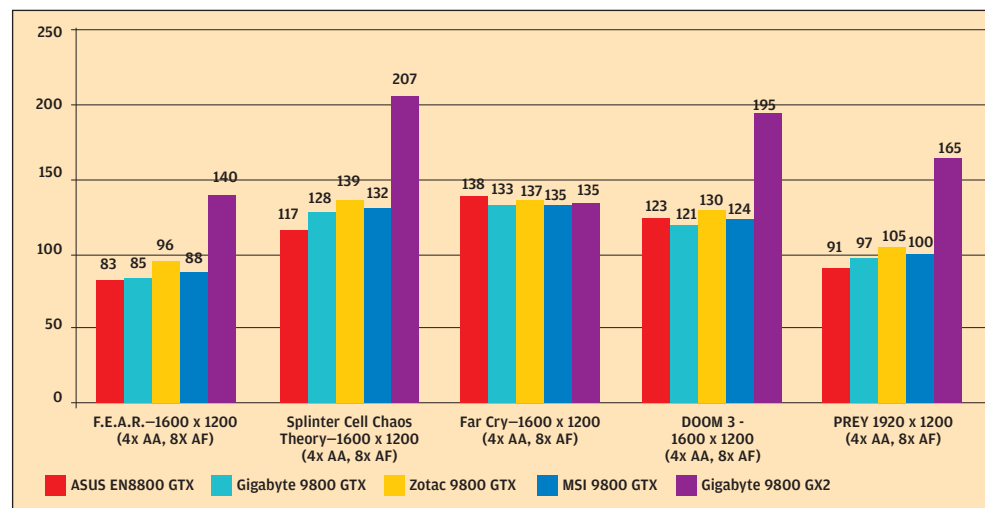
The coolers on the 9800GTXs look a lot like the stock 8800GTS 512 coolers. The cards need two 6-pin connectors to power them and the cards occupy two slots.

Throughout all the tests, the Gigabyte 9800GTX was lagging a little behind the MSI, while slightly ahead of the Zotac. The Zotac's 9800GTX's extra power is most visible in the Splinter Cell Chaos Theory benchmark. Games perform equally well, even after pushing the resolution up to 1600 x 1200 at maximum quality with anti-aliasing and anti-stropic filtering turned up to the maximum.

The 9800GTX isn't the new benchmark for high-end cards. It then appears that the 9800GTX is nothing more than a refined and matured 8800GTX, just like the 9600GT was, as compared to the 8800GT. All the cards we received performed the same way as some of the better 8800GTXs we've seen. They are only a bit cooler and more power efficient

**MSI N9800 GTX**

| Ratings and Contacts | Gigabyte | MSI | Zotac |
|---|---|---|---|
| | GeForce 9800 GTX–GV-NX98X512H-B | GeForce 9800GTX–N9800GTX-T2D512-OC | GeForce 9800GTX Amp! Edition |
| Features | ★★★★☆ | ★★★★☆ | ★★★★☆ |
| Performance | ★★★★☆ | ★★★★☆ | ★★★★☆ |
| Build Quality | ★★★★○ | ★★★★○ | ★★★★☆ |
| Value For Money | ★★★★☆ | ★★★★○ | ★★★★○ |
| Overall | ★★★★☆ | ★★★★☆ | ★★★★☆ |
| Price | Rs 20,500 | Rs 21,500 | Rs 24,999 |
| Phone | +91-22-40914613 | +91-22-23823331 / 2 | +91-11-41758808 / 09 |
| E-mail | vikas@technologyandgadgets.com | sanyam@msi-in.com | sales@zotac.com |
| Web site | www.giga-byte.com | www.msi-india.com | www.zotac.com |

**Gigabyte GeForce 9800 GTX**

**Zotac GeForce 9800 GTX**

mainly because of the move to 65-nm fabrication process. The 9800GTX also supports HybridPower, which allows the card to be completely shut down if run on NVIDIA's HybridPower-supported motherboards. The most significant difference is that the 9800GTX is a lot cheaper than the 8800GTXs were when they were launched. So, there is no reason whatsoever for an 8800GTX user to upgrade to the 9800GTX. If at all an upgrade is needed, a 9800GX2 could be thought of. We have tested a Gigabyte 9800GX2 this month too. The 8800GTX's were Rs 6000 to Rs 8000 costlier when they arrived.

Of the three cards we tested, the Gigabyte was the slowest, but it still makes great value for money. The overclocked MSI and Zotac 9800GTX's result in only a mere 5 to 10 fps improvement over the Gigabyte. For such boost, ZOTAC sets you back by Rs 4,500 and the MSI, which was the next best, costs Rs 1,000 more.

# Cooler Master NotePal W2
## Try Something, Accomplish Something Else!

The Notepal W2 from CoolerMaster is a notebook cooler designed to tackle heating issues associated with laptops. We put it through punishment for a month and it comes off with flying colours on many fronts.

The cooler is made out of aluminium, with three holes in the centre, which are covered with a steel mesh. Behind the steel mesh are three 1500 RPM sleeve-bearing fans for ventilation. The laptop sits on the top surface. The surface is concave, thus leaving room for the fans to circulate air between the hot laptop and the aluminium surface.

The aluminium surface is at an angle, which dramatically improves ergonomics when using the notebook on a desk. The relative angle between the laptop keyboard, eyes and the screen becomes more comfortable and reduces strain on the wrists and neck. Our reviewer, who uses his laptop on a daily basis, noted this after using the NotePal W2 for a little over a month.

On the cooling front, we didn't see any perceptible difference. However, in notebooks with venting on the back, the fans do help in lowering the temperature, but slightly! The fans draw power from the laptop's USB port. However, the USB hub on the NotePal ensures you don't lose any ports. The fans can be switched off via the power button—pretty useful it you are sitting in an air-conditioned room.

The NotePal W2 is sturdy, well finished and comes in three colour options—Silver, Black and Titanium. Priced sensibly at Rs 1,400, we recommend it more for its ergonomic advantages than cooling.

**Specifications:**
Two USB Ports, Dimensions: 40 x 30.8 x 5.1 cm, Fan speed: 1500 RPM +/- 20%, Noise: 21 dBA, Current: 0.1 A, Supports 17-inch laptops including widescreen

**Contact: Cooler Master**
Phone: 9833870302
E-mail:
Tanmay_L@Coolermaster.com
Web site: www.coolermaster.com
Price: Rs 1,400

| RATINGS | |
|---|---|
| Features | ★★★○○ |
| Performance | ★★★★☆ |
| Build Quality | ★★★★○ |
| Value for Money | ★★★○○ |
| Overall | ★★★○○ |

# Altec Lansing inMotion iM600
## iPods On The Move

Altec Lansing's inMotion iM600 is an iPod dock that doubles as a radio and speaker for your PC or any other MP3 player.

The dock itself is stylish and compact, and is a small rectangular block but can be unfolded on a table. All the iPod models can be docked, including the latest iPod Touch. You can charge your iPod or synchronise your music as well.

There are controls for volume adjustment at the base of the dock and the track switching buttons on the top. The volume control buttons are hard and tacky, whereas the smaller track controlling buttons are very soft and tiny. There does not seem to be any button for pausing or stopping tracks. Other than that, the dock is simple to use and comes with an inbuilt display on the front, which shows the source of the track and volume control. There's also a compact little remote con-trol, like those found on many of their desktop speakers sets.

The iM600 has good music quality, but it lacks bass in the tracks due to its flat design. It is loud though, and there is little or no distortion with the volume set to maximum. The SFX button doesn't really do a whole lot other than making the sound slightly better.

The dock comes with an auxiliary connector, which means you can connect any other iPod MP3 player to it, or even your computer for that matter. You also can use it as an FM radio, and the antenna comes well tucked into the back of the dock. One of the biggest plus points of this product is the inbuilt chargeable Li-ion battery that charges itself when powered on. This dock is then mobile but docking an iPod in a moving vehicle might not be a good idea—the base plug could damage itself or the iPod connector from the vibrations.

The Altec Lansing iM600 is priced at Rs 7,500. It's a tad costlier than we'd like it to be, but the functionality, flexibility and performance that it offers is hard to come by in such a product, especially in the Indian market.

**Specifications:**
Dimensions: 28.3 x 4.3 x 15.2 cm (Folded), Weight: 0.9 kgs, Battery capacity: 2150 mAh

| RATINGS | |
|---|---|
| Performance | ★★★★ |
| Features | ★★★★ |
| Build quality | ★★★★ |
| Value for Money | ★★★½ |
| Overall | ★★★½ |

**Contact: Rashi Peripherals Pvt. Ltd.**
Phone: 022-67090909
E-mail: altec@rptechindia.com
Web site: www.alteclansing.com
**Price: Rs 7,500**

# Belkin N1 Vision
## Bringing Style To Routers

Belkin has entered the Indian market with one of their first products—the N1 Vision router. It might be a utility, but Belkin has man-aged to make it look like a lifestyle product.

The design is very good and stands out amongst all the routers you might come across today. Unlike most routers, the N1 stands vertically, but the stand is stable and has rubber padding at the base to stop it from sliding around. There is a small screen on the front , which shows data speeds of all the users connected to the router, both wired and wirelessly. There are buttons that can be used to navigate through the interface and the display can also be used as a clock as well.

When it comes to per-formance, it works pretty well on the wired ports. We recorded speeds of 7.36 Mbps for a single large file. For random files, the speeds were around 6.92 Mbps. The wireless tests revealed the weakness of the N1 Vision. The wireless performance was pretty appalling—2Mbps is the best it could do over a distance of some 10 feet.

The software interface has all the features that a router firmware should have—Internet connectivity configuration, VPN, secu-rity, etc. The interface is more user-friendly than those on most well known routers. One thing you notice is the long waiting period for the router to restart every time you change a setting.

The price for the Belkin N1 Vision—Rs 11,699—is much higher than main-stream home routers. Although this router will look nice in your living room, it's definitely not something you can rely on for performance.

pass-through, One WAN port, 4 gigabit ports.

**Contact: Belkin**
Phone: 000-800-440-1406
E-mail: madhuj@belkin.com
Web site: www.belkin.com
**Price: Rs 11,699**

| RATINGS | |
|---|---|
| Performance | ★★½ |
| Features | ★★★★ |
| Build quality | ★★★★ |
| Value for Money | ★★ |
| Overall | ★★★ |

**Specifications:**
IEEE 802.11g / b / n compatible, Security: WPA / WPA2, 64 / 128-bit WEP encryption, multiple SSID, VPN Support: PPTP, IPSec

# Canon PowerShot A720 IS
## Incremental Update

The Canon PowerShot A720 IS is an upgrade to the A710 IS, which was a very good point-and-shoot camera—one of the best that we saw during our compar-ison test last year. The most prominent change in the A720 IS, is its resolution. It is now an 8 Megapixel camera as opposed to the 7.1 MP A710.

The picture quality has stayed pretty much the same too. The ISO level on this camera goes up to 1600. The A710 IS had a maximum of 800. The amount of grain beyond 800 is pretty bad and should be avoided as far as possible. The zoom lens is decent and there's no serious degradation of quality at maximum zoom.

The colours—as with all other Canons—are very neu-tral and not exaggerated. The images aren't too high on contrast so there's a smooth balance between the dark and the bright areas. This makes for some good por-trait photography. The flash is pretty powerful too and the slow sync mode works rather well in illuminating the background in shots with the flash on. Macro shots are fairly easy to shoot and it's possible to get extremely close to the object. The A720 IS now has a face detection feature, which works well and tracks people through darker areas as well.

The movie quality is decent and actually usable in low light situations. There're no sudden jumps in expo-sure while moving from bright areas to dark ones. Image stabilization evens out the bumps and the zoom works well, although a little aggressively, in the movie shooting mode.

The A720 IS, is incremen-tally superior to the A710 IS. The problem with the A720 IS, is not so much to do with the camera itself, but with the other cameras even from Canon itself in the same price bracket. The SX100 is more or less available for the same price in the market and comes with a 10X optical zoom. If any, the A720 IS's only advantage is that of being a little more compact than the SX100 IS.

**Specifications:**
8.0 MP, 4x optical zoom, ISO

Sensitivity: 80–1600, Shutter speed 1/2000th–15 seconds, Aperture range–f2.8–f4.8, Movie recording: 640x480 at 30 fps, 2.5-inch screen.

**Contact: Canon India Private Limited**
Phone: 1800-345-33-66
E-mail: info@canon.co.in
Web site: www.canon.co.in
**Price: Rs 14,995**

| RATINGS | |
|---|---|
| Performance | ★★★½ |
| Features | ★★★★ |
| Build quality | ★★★★ |
| Value for Money | ★★★½ |
| Overall | ★★★½ |

# Audioengine A2
## Affordable Audiophilia Inducer

Audioengine is a compara-tively new brand and is fairly unheard of to many. The Audioengine A2s are the less powerful versions of the larger A5s.

They are small when compared with computer speakers available these days but the build quality is just unmatched. They are made of wood cabinets with a smooth glossy finish. They have heavy and gold-plated connectors. Quality is maintained everywhere—even the well shielded cables are some of the best we've seen. The only problem with the design is the volume knob which is situated at the back of the speakers which means you need to move to the back of the speakers.

When it comes to per-formance, these small speakers go ballistic—espe-cially for their size. They're not as powerful as Altec Lansing's MX5021, but for their size, they are highly impressive and can get really loud without losing any clarity. There are vents at the bottom of the speaker, which breathe out loads of air when played at decent volumes. The power isn't even its forte. It delivers great detail and very neutral tone, without any exaggerated highs or lows.

At first, they sound a little muddy without any sparkling highs. Speakers like this require some burn-in period and some improve-ment in the quality and vibrancy could be noticed after a few days time.

The solidly built A2s come in two colours—black and white and in a neat package with soft cloth pouches for each speaker. At a price of Rs 10,400, although excellent, it's a little difficult to recom-mend these speakers to everyone. These speakers are great for music, but not so much for movies mainly because of the lacking bass-woofer. For people who are used to listening to music with loads of bass, this defi-nitely will be an unfulfilling experience. However, if it's detail, clarity and good tone you appreciate, the Audioengine A2 is undoubt-edly among the best desktop speaker sets you can find in this price range.

**Specifications:**
30W RMS (each speaker 15 W), Inputs: 2 RCA inputs and 3.5-mm mini-jack, built-in power amp, Dimensions: 6 x 4 x 5.25 inches

**Contact: Audio Products India**
Phone: +91 9324233508
E-mail: audioenginesales@gmail.com
Web site: www.audioengine-usa.com
**Price: Rs 10,400**

| RATINGS | |
|---|---|
| Performance | ★★★★ |
| Features | ★★★★ |
| Build quality | ★★★★½ |
| Value for Money | ★★★ |
| Overall | ★★★★ |

## Palm Centro
### Palm OS Comes To The Masses

The Palm Centro is the latest Palm with their Palm OS, unlike the other models that we've tested in the recent past that were based on Microsoft's Windows Mobile.

The initial reaction to the phone is that it seems like a very casual hip-looking phone. It's not the most compact of phones we've seen but its pretty decent for a phone that comes with a fully usable keypad.

The build quality is a little shabby. While holding it one hand, you can feel the back cover squeeze from the pressure. The stylus supplied with the phone is very light. It won't break, but it bends while using and it doesn't have a great feel. The keys on the keypad are really small, but are reasonable for typing. There is no virtual keyboard, should you want to use it to type.

The interface is a little confusing if you're used to Windows Mobile and Symbian phones. Closing programs and switching to other programs is hectic as well. The SMS and messaging interface looks great—so does the phone dialler itself. The software itself is fast and reacts well. The design—colours and fonts used in the interface doesn't match up to fancy Symbian and Windows Mobile applications and it looks pretty outdated.

Reception is good and so is the voice quality, but the sound is really flat and a fair bit different from other phones. The 1.3-MP camera is nothing extraordinary, but is decent for occasional urgent photos.

Finally, it comes down to the price of the phone and that's where the Palm Centro has a chance. The phone has an MRP of Rs 13,990. For a similar price, you can easily get Windows Mobile phones with larger screens. In the Centro, you get a proper phone with a proper keypad, a compact but great screen and for a bit of the geek factor—Palm OS, which is still uncommon in India.

**Specifications:**
320 x 320 65k colour touch screen, MicroSD slot, 1.3 MP camera, Bluetooth, IR, Supports GPRS, GSM, EDGE and CSD. Dimensions: 10.72 x 5.36 x 1.86cm, Weight: 116gms

**Contact: Palm Inc.**
**Phone:** 011-41725228/9
**E-mail:** myil.nathar@palm.com
**Web site:** www.palm.com
**Price: Rs 13,990**

| RATINGS | |
|---|---|
| Performance | ★★★★ |
| Features | ★★★⯪ |
| Build Quality | ★★★ |
| Value for Money | ★★★⯪ |
| Overall | ★★★⯪ |

## Gigabyte 9800GX2 GV-NX98X1GHI-B
### The GX2 Returns After An Absence In The 8 Series

Two PCBs in one—now that's something that the GeForce 8 series was missing out on. We never got to see an 8800GX2 in action. The Gigabyte's 9800GX2 is the first such card we look at. It's been a while since we've seen something this huge and heavy. Like all 9 series of GeForce cards, it's a 65-nm card, but this comes with 1 GB of RAM.

In dimensions, it's as long as the 8800GTX or 9800GTX, the 9800GX2 is thick, but flat with the fan concealed within the unit. Fortunately, the card takes two slots just like the GTX cards. In terms of power, an 8-pin and 6-pin power connectors are required, unlike two 6-pin power connector configuration for the 8800GTX.

It performs faster than any 8800Ultra out there, and it annihilates them even more once you go higher resolutions. The card scores 18517 points in 3DMark 2006 and 13398 in 3DMark 2005. For example, on our test rig, in games such as Splinter Cell, the GX2 is a considerable 27 per cent faster than the 8800Ultra. At resolutions of 1600 x 1200, this lead increases to close to 44 per cent. The trend is the same through most of the games. It's not just the 8800Ultra that are beaten. Even the latest 9800GTX's we've tested stand no chance.

The 9800GX2 does get very hot, and that can be easily made out by the blast of hot air coming from the rear of the card. Should you buy this card, you must also invest in a decent cabinet with decent cooling. A power supply of at least 600 W is also recommended for this card.
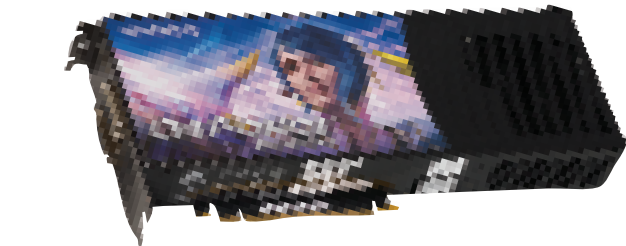
The price for the Gigabyte 9800GX2 is Rs 34,000, which makes it a very expensive investment. The Gigabyte 9800GX2 is a fast card. We've seen it bypassing the 8800Ultras in all our tests. For users using 24-inch screens and running games at resolutions of 1920 x 1200 or higher, the advantage of a card like this is clearly noticeable and these are the users for whom it makes good sense to buy this card. However, if you already have an SLI board, it would be a much cheaper and most probably a better option to pair two 8800GTs or 8800GTSes together.

**Specifications:**
nVidia GeForce 9800 GX2, 1 GB GDDR3 memory, PCI-E 2.0x16

**Contact: Technology and Gadgets**
**Phone:** 22-2382331/2
**E-mail:**
vikas@technologyandgadgets.com
**Web site:**
www.technologyandgadgets.com
**Price: Rs 34,000**

| RATINGS | |
|---|---|
| Features | ★★★★⯪ |
| Performance | ★★★★⯪ |
| Build Quality | ★★★★ |
| Value for Money | ★★★ |
| Overall | ★★★★ |

## Epson Stylus C110
### Slightly Overpriced, Average Printer For The Home User

The Stylus C110 is a piezo-electric inkjet printer from Epson. Its price point and design is aimed for the home user.

It's a decent looking printer, which will definitely fit in well with the rest of the computer setup, but it isn't the most compact of printers. There are five cartridges in all, out of which two are black. The entire printer installation and setup is simple and straightforward.

In terms of quality, there are a few issues. There's fine banding throughout all the print qualities selected—more prominent in the lower quality prints. At low quality, the print speed is pretty good. Colour accuracy wasn't too good either. As compared to some other printers, the colours were a little washed out. The yellows, especially had a very different tone—they appeared much lighter than yellow. On the other hand, dark browns and purples appear black. Our photo quality test print took a little over three and a half minutes to complete.

The prints come out pretty detailed, but the text has jagged edges all around them no matter what quality you print at. The paper intake mechanism can be unforgiving with few sheets of paper in the tray. We had a few misaligned prints.

The Epson Stylus C110 isn't a bad printer, but it isn't a brilliant one either. For its price, it's a tiny bit costlier than it should have been. Its speed and detailed prints are pretty good. As an everyday printer for text printouts and occasional photo prints, it's a decent buy.

**Specifications:**
Dimensions: 43.5 x 24 x 16 cm, Noise levels: 39 dB, Weight: 3.9 kg, Ink cartridges: Black (2), Cyan, Magenta, Yellow.

**Contact:** Epson India
**Phone:** 30515000
**E-mail:** sales@eid.epson.co.in
**Web site:** www.epson.co.in
**Price: Rs 5,299**

| RATINGS | |
|---|---|
| Performance | ★★★⯪ |
| Features | ★★★⯪ |
| Build quality | ★★★★ |
| Value for Money | ★★★⯪ |
| Overall | ★★★⯪ |

## ASUS Formula Rampage
### X48 Makes A Late Entry

ASUS's Formula Rampage is an X48-based motherboard that supports Crossfire and sticks to DDR2 memory. The launch is timed at around the same time as nVidia's 790i-based motherboards, which use DDR3. With DDR3 still not very affordable for the masses and not quite showing any major performance improvements, the X48 might stand a good chance to take the place of the X38.

The motherboard has been stacked with heat sinks with copper pipes forming a long continuous chain evenly distributing heat. It does a great job at that and there are no noticeable hotspots anywhere. Solid state capacitors are used all over the board. At the rear of the board, an LED display shows information and errors while posting. The BIOS has a section called the AI Tweaker, which has plenty to keep the overclocker busy with reasonably minute increments for speeds and voltages.

In terms of performance, it's general. There are no real benefits that one can find on the X48 chipset. Most processors today still use the 1333 MHz FSB. The motherboard performs as well as the high-end P35 boards. In 3DMark 2005, it scores 27927, which matches the high-end P35 boards of last year, but shows a very miniature improvement in games like Splinter Cell and Doom 3 at high resolutions.

The board comes with SupremeFX II's riser card for audio. Software bundled with the board is 3DMark 2006 and a DirectX 10 version of *Stalker*.
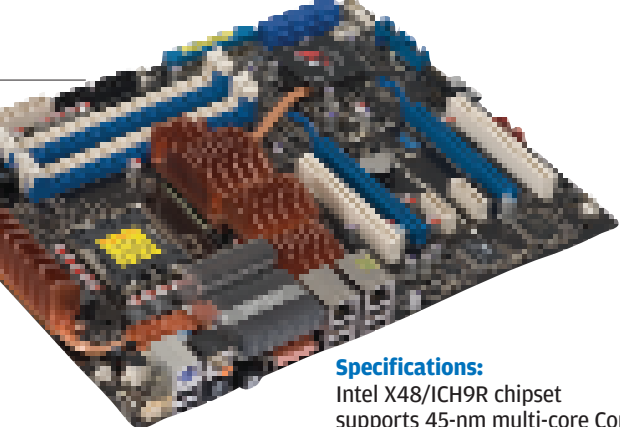
In the end, the X48 stands out as nothing but just a minor update for the X38. The performance gain is minimal, but the board is a little more future-ready, which should interest anyone who initially planned to get an X38. This is an enthusiast-level board that matches some of the best P35 and X38 boards so the price of Rs 17,400 is overpriced as compared to the best performing boards from a few months back.

**Specifications:**
Intel X48/ICH9R chipset supports 45-nm multi-core Core 2 Quad/Duo/Extreme CPUs, Dual Channel DDR2 1066MHz support.

**Contact: ASUS Technology Pvt. Ltd**
**Phone:** 18002090365
**E-mail:** media_india@asus.com
**Web site:** http://in.asus.com
**Price: Rs 17,400**

| RATINGS | |
|---|---|
| Features | ★★★★⯪ |
| Performance | ★★★★⯪ |
| Build quality | ★★★★⯪ |
| Value for Money | ★★⯪ |
| Overall | ★★★★ |

# BenQ MP612c
## LCD TVs Need Not Sweat

Projectors can go where no LCD or Plasma screen can—they can give large screen areas for a comparatively cheap price. BenQ's MP612c is one such projector that was sent to us for testing.

The design of the BenQ is very stylish and it's also very rigid at the same time. The top of the projector has a glossy finish and the quality of buttons is very good too. The quality of the zoom and focus rings, feels cheap and is not as great as the external design though. There is a fan at the front of the project, which blows loads of hot air out of the unit.

Although there is no DVI port, connections can be made through VGA, S-video and composite connectors. The remote control gives you all the controls you get on the projector itself. The interface is excellent and only takes a few minutes to get used to.

Installing the projector and then setting it up is also simple. The BenQ 612c can easily handle resolutions up to 1280 x 1024. It's also very easy to display on a large area. The default brightness is high to begin with, and the settings let you increase it further. Colours aren't very saturated, but they are still pretty good. There is no flickering of any kind, but increasing the brightness can be a little strenuous on the eyes. There are modes for different types of media as well as custom profiles that can be customised by the user. There's also a digital zoom to zoom and pan into a scene, which is really useful in places when you're trying to explain details in an image, for example.

The price of the BenQ MP612c is around Rs 39,990, which makes it one of the more affordable projectors of the lot. For this price, it actually makes good sense to buy one. The crippling problem with projectors is the reliability, because of the heat generated. The same can be found in the BenQ MP612c. It gets very hot and running it for long hours doesn't seem to be a good idea. It might be alright if you want to use it for watching movies every once in a while and of course perfect for official presentations and slideshows.

Lamp life: 4000 hours (Economy mode), Dimensions: 23.9 x 10.6 x 25.1 cm, Weight: 2.5 kgs.

**Contact:** BenQ India Pvt. Ltd.
**Phone:** 1800-22-0808
**E-mail:** sales.enquiryin@benq.com
**Web site:** www.benq.co.in
**Price:** Rs 39,990

**Specifications:**
Native resolution: 800 x 600,

| RATINGS | |
|---|---|
| Performance | ★★★★ |
| Features | ★★★★ |
| Build Quality | ★★★★ |
| Value for Money | ★★★★ |
| Overall | ★★★★ |

# Antec NSK4400
## Antec's Attempt At Bringing Quality To Entry Level Cabinets

Antec is well known mostly for the P180, P182 and the Antec 900 cases, which are high-end enthusiast level cases that compete with the best from Coolermaster and the likes. The NSK4400 is an entry level mini-tower case for desktop PCs, which target cases from the lesser-known brands.

The quality of the cabinet is pretty good. The metal work is thin, but is sturdy and doesn't flex a lot under pressure or weight. The biggest dilemma is when you don't read the manual that comes with the cabinet! This is a cabinet opens from the top first. Once that's done, the side panels can be removed. Two thumbscrews are to be removed before opening the cabinet.

There's enough space for three optical drives, three hard drives and two floppy drives or other panels of the same size. The hard drive bays have bits of padding to reduce vibrations. For cooling, there is a 120-mm fan attached to the back, with a speed switch that acts as a good exhaust. There is an air guide attached to the side cover of the cabinet that directs air to the processor. The guide can be removed and an 80-mm fan can be fixed. There is provision for a fan in the front under the drives. The rear expansion panels pop out easily and can be snapped back into place if you choose to remove any cards or change positions. That way you have no open slots in your cabinet letting dust in.

The cabinet doesn't look stylish, but it's elegant and straightforward. Even though it's small, it has a very clean flat look to it. The front face of the cabinet is sturdy without any loose bits from the removable panels. There are two USB ports with an extended cable that can be connected to your motherboard.

The price for the Antec NSK4400 is Rs 2,285. It's definitely one of the cheapest Antec cabinets we've seen, but the lack of a power supply makes it not-so-cheap. If you are building an entry level system, and you want a sturdy cabinet with decent cooling, then the slightly overpriced NSK4400 is worth it.

**Specifications:**
Supports Mini-ATX and Standard ATX form factor, Dimensions: 42 x 20 x 42 cm

**Contact:** Cyber Space Abacus Pvt Ltd
**Phone:** 9884021688
**E-mail:** vinod@antecindia.com
**Web site:** www.antecindia.com
**Price:** Rs 2,285

| RATINGS | |
|---|---|
| Performance | ★★★ |
| Features | ★★★ |
| Build Quality | ★★★⯪ |
| Value for Money | ★★★★ |
| Overall | ★★★⯪ |

# Trend Micro Internet Security Pro
## Slightly Overloaded System Security Guardian

Trend Micro Internet Security Pro is an all-in-one security solution that has been developed to keep your PC trouble free by taking care of all possible threats of all kinds.

If the suite finds that your system does not have enough memory to run it, it warns you. If there are other anti-spyware programs such as Spybot for example, it will uninstall it if you allow it to.

Once installed, it's a good idea to register the program as a few additional features are given access to. Trend Micro Internet Security also scans Windows for any vulnerability fixed that you may have not updated to.

There are a few features like Data Theft Protection, which stops any credit card number or personal information from being sent out through instant messengers for example. You can also add information to be protected. There are some other features for stopping any unwanted access to your PC. Any new computers that appear on your LAN can be scanned after every few minutes and you can choose to stop them from accessing your PC—this is useful if you're on a public LAN or WAN. The Parental Controls are also pretty advanced in the sense that you can simply check the boxes of the types of content you want to block. You can also manually make changes to add or remove sites from the block list.

The memory consumption of the antivirus is pretty high and we recorded around 55—60 MB on idle state. Even after you stop the suite, there are still a few running services consuming some memory like most other suites of its kind. A screenshot-filled manual with an explanation of features is provided with the software, but the software itself is fairly easy to use after a few minutes.

Trend Micro Internet Security Pro is just another security suite, which doesn't really stand out among the rest. It does the job of handling viruses and security threats well but is a little heavy on the system. The price tag of Rs. 2,760 is asking a lot, especially when there are free alternatives available online.

**Specifications:**
Windows XP / Vista supported. Requires 350 MB to 1 GB of free disk space with 1 GB of memory recommended

**Web site:** www.trendmicro.com
**Price:** Rs. 2,760

| RATINGS | |
|---|---|
| Performance | ★★★ |
| Features | ★★★★ |
| Ease of use | ★★★⯪ |
| Value for Money | ★★★⯪ |
| Overall | ★★★⯪ |

# Steelseries Siberia Neckband
## Pain In The Neck

The Siberia Neckband is a product from Steelseries for the professional gamer, or so it seems. Steelseries has played an active role in the professional gaming arena and tied up with clans and communities.

If you think wearing a headphone with a stretchable strap that attaches to the back of your head is comfortable, you're wrong. Sure, for people with smaller heads, it should work fine, but anyone with a larger head will find it too tight or hanging from the top of your ears. You'll also notice that they start slipping back from the back of your head and adjusting it from time to time can be irritating.

The sound quality of the Siberia isn't too shabby. It lacks the extreme low bass, so isn't ideal for music or movies. For gaming, it should do fine. These phones do not distort or lose quality at high volumes, and the volume can get pretty high. These are open headphones and as they don't hug the side of your face properly, a lot of the sound leaks out.

There's a flexible microphone that retracts into the headphone too. It performs pretty good quality audio recording. There's an adapter for the Xbox360 supplied with it and a volume control too. The headphones are built well and the look is appealing.

Good audio recording quality and an easily adjustable microphone are the good points of the Siberia Neckband but even then, a price of Rs 5,999 is a lot to ask for. There are much cheaper solutions without the Steelseries tag and slightly inferior, which do a better job without any of the discomfort.

**Specifications:**
Headphone: Frequency response: 18—28,000 Hz, Impedance: 40 Hz, Microphone: Frequency response: 80—15,000 Hz

**Contact:** Vstreet Netserve Pvt. Ltd.
**Phone:** 079-40020127
**E-mail:** sales@v-street.net
**Web site:** www.steelseries.com
**Price:** Rs 5,999

| RATINGS | |
|---|---|
| Performance | ★★★★ |
| Features | ★★★★ |
| Build quality | ★★★★ |
| Value for Money | ★★⯪ |
| Overall | ★★★⯪ |

## External Portable Hard Drives
**WD Passport Portable (Black)**
- Excellent performance, good value
- None in particular

Contact  Champion Computers Pvt Ltd
Phone  +91-11-26214751
Web site  www.championindia.com
Price  Rs 6,500

## Internal Hard Drives
**Seagate 7200.11 500GB ST3500320AS**
- Value for money, performance
- None in particular

Contact  Fortune Marketing
Phone  +91-11-2641 4468
E-mail  sales@fortune-it.com
Price  Rs 4,900

## Internal DVD-Writers
**Samsung SH-S203**
- Performance, inexpensive
- None in particular

Contact  Samsung India Electronics Pvt Ltd
Phone  +91-11-41511234
E-mail  c.serrao@samsung.com
Price  Rs 1,200

## Internal Hard Drives
**Seagate 7200.11 750GB ST3750330AS**
- Class leading performance
- None as such

Contact  Fortune Marketing
Phone  +91-11-2641 4468
E-mail  sales@fortune-it.com
Price  Rs 8,900
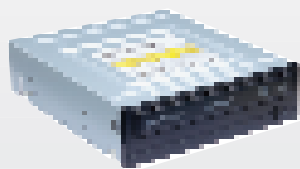
## MP3 Player above Rs 10,000
**Cowon D2**
- Very good performance
- Slightly bulky

Contact  Lipap Systems P. Ltd
Phone  +91-9819917440
E-mail  iaudio@lipap.com
Price  Rs 11,000

## Digital Cameras (High-End)
**Canon PowerShot A570 IS**
- Good overall performance
- Lacking in macro performance

Contact  Canon India Pvt Ltd
Phone  1800-345-3366
E-mail  info@canon.co.in
Price  Rs 13,995

## Graphics Cards (High-End)
**Galaxy GF8800Ultra**
- Sheer performance
- Heats up

Contact  Technology and Gadgets
Phone  +91-22-23823331
Web site  technologyandgadgets.com
Price  Rs 35,000

## Graphics Cards (Mid-range)
**ASUS EN8600GT**
- Well priced, fast
- None in particular

Contact  Asus Technology Pvt Ltd
Phone  +91-22-67668800
Web site  http://in.asus.com
Price  Rs 8,800

## Desktop PCs
**Sahara 20CK16**
- Great performer
- Slightly bulky

Contact  Sahara Computers & Electronics Ltd
Phone  +91-120-4397777
E-mail  info@saharacomputers.co.in
Price  Rs 40,000

## AMD AM2 Motherboards
**Gigabyte GA-MA69G-S3H**
- Well built, feature rich
- None in particular

Contact  Gigabyte Tech India Ltd
Phone  +91-22-30616666
E-mail  sales@gigabyte.in
Price  Rs 6,900

## Intel P35-based Motherboards
**ASUS P5K Premium**
- Excellent enthusiast solution
- Expensive

Contact  ASUS Technology Pvt Ltd
Phone  +91-22-67668800
E-mail  media_india@asus.com
Price  Rs 15,870

## Intel Integrated Graphics Motherboards
**Gigabyte GA-G33-DS3R**
- Very good layout
- Expensive

Contact  Gigabyte Tech India Ltd
Phone  +91-22-30616666
E-mail  sales@gigabyte.in
Price  Rs 9,500

## Home Inkjet MFDs
**Canon PIXMA MP160**
- Good performance
- No memory card reader

Contact  Canon India Pvt Ltd
Phone  1800-345-3366
E-mail  info@canon.co.in
Price  Rs 5,995

## Mono Laser MFDs
**Brother MFC-7420**
- Great cost per page, fax
- No Ethernet Port

Contact  Brother International India Pvt Ltd
Phone  1800-222-422
E-mail  customercare@brother.in
Price  Rs 18,000

## PCI TV-Tuners
**Leadtek Winfast PVR2000**
- Excellent video quality and software
- Expensive

Contact  Topnotch Infotronix (India) Pvt Ltd
Phone  +91-44-42042565
E-mail  naqui@zebronics.net
Price  Rs 5,500

## Mono Laser Printers
**HP LaserJet 1020**
- Good combination of speed, print quality, and warranty
- A bit slow in comparison to others

Contact  Hewlett-Packard India Sales Pvt Ltd
Phone  +91-124-2566111
E-mail  kakuni.mahto@hp.com
Price  Rs 6,999

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# The A-List

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

BEST BUY digit  BEST BUY digit

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## 2.1 Speaker Sets
**Altec Lansing MX5021**
- Excellent performance
- Some minor vibrations in woofer

Contact  Rashi Peripherals Pvt.Ltd
Phone  +91-22-67090909
E-mail  altec@rptechindia.com
Price  Rs 7,600

## 5.1 Speaker Sets
**Logitech Z-5500 Digital**
- Explosive power
- Too expensive

Contact  Logitech
Phone  +91-22-26571160
E-mail  kavita_nath@logitech.com
Price  Rs 27,995

## MP3 Players up to Rs 5,000
**Apacer Steno A4351**
- Good performence
- Tacky build, Screen quality

Contact  Apacer Technology
Phone  +91-80-25702208
E-mail  suraj_raina@apacer.com
Price  Rs 1,720

## MP3 Players up to Rs 10,000
**Samsung T10**
- Good music quality, nice screen
- Tacky exterior

Contact  Samsung India Ltd
Phone  +91-11-41511234
E-mail  jitendra.c@samsung.com
Price  Rs 6,600

## Projectors
**Acer PD726W**
- Great overall performance
- Lacks remote sensor at rear

Contact  Acer India Pvt Ltd
Phone  +91-9880544226
E-mail  alankar_s@acer.co.in
Price  Rs 1,35,000
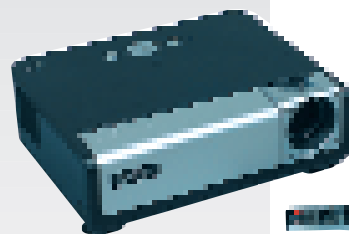
## LCD Monitor
**LG 246Wp**
- Great performance and Build
- Bulky, Slightly expensive

Contact  LG Electronics India Pvt. Ltd.
Phone  91 - 120 - 2560900 / 940
E-mail  sanjoyb@lgindia.com
Price  Rs 28,000

## Processors
**Intel QX6850 Core 2 Extreme**
- Extreme performance
- Expensive

Contact  Intel Tech India Pvt Ltd
Phone  +91-9833823474
E-mail  saranya.rustagi@intel.com
Price  Rs 52,000

## Multimedia Cell Phone above 20,000
**Nokia N95 8 GB**
- Great all round performance
- Slightly bulky

Contact  Nokia India
Web site  www.nokia.com
Price  Rs 28,000

## Below Rs 20,000
**Sony-Ericsson W910i**
- Great sound
- Flat and clumsy keypad

Contact  Sony Ericsson Mobile Comm. India Pvt Ltd
Web site  www.sonyericsson.com
Price  Rs 19,000

## Business Device
**Nokia Communicator E90**
- Extremely powerful
- Heavy, bulky

Contact  Nokia India
Web site:  www.nokia.com
Price  Rs 40,499

## Value Executive Phone
**Nokia E51**
- Loads of features
- None

Contact  Nokia India
Web site  www.nokia.com
Price  Rs 13,000

## Office Inkjet MFDs
**HP Photosmart C4188 All-in-One**
- Good print quality
- No fax

Contact  HP India Sales Pvt. Ltd.
Phone  +91-124-2566111
E-mail  kakuni.mahto@hp.com
Price  Rs 7,999

## DVD/DivX Players
**Samsung DVD-1080P7**
- Great looks and performance
- No 5.1 channel RCA

Contact  Samsung India Electronics Pvt. Ltd.
Phone  +91-11-41511234
E-mail  shailja.m@ samsung.com
Price  Rs 2,990

## Mice
**Logitech MX Revolution**
- Has a flywheel
- Expensive

Contact  Logitech Electronic India Pvt Ltd
Phone  +91-22-26571160
E-mail  response@logitech.com
Price  Rs 8,000

## Performance Laptops
**HP DV6226tx**
- Funky Looker, features
- Needs better graphics

Contact  Hewlett-Packard India
Phone  +91-124-2838700
E-mail  tapoti-t.tipnis@hp.com
Price  Rs 56,990

# Widen
## Your View

**After last year, the onslaught of cheaper and (sometimes) better LCDs continues.
We've tested 33 of them, ranging from 17 to 24 inches of prime real estate.
Take your pick...**

**Michael Browne**

After last year's flat panel fiasco and the fact that nobody was willing to send us CRTs to test, we'd thought things couldn't get any better and the time of the LCD was *now...* err... then! If you're wondering what all the hullabaloo is about, imagine a 19 inch widescreen LCD monitor that costs a mere Rs 14,000. Wouldn't that be enough to get everybody waiting in turn for LCDs to become more affordable salivating in anticipation? Now flash forward to this year—we've got 22-inch widescreen LCDs available for well below 14,000, with 19-inch LCDs now sitting pretty at below the 10,000 rupee mark. That's what we call *depreciation.*

If anything, the focus has shifted to the bigger panels. Previously, any LCD larger than 19 inches were rarely in stock, and orders had to be placed. As per your beloved Agent 001's last report 22-inch panels were well and truly in stock. This focus shift is seen from manufacturers as well. You can always tell when there's a slight emphasis towards a particular product or category. This year we saw a lot of mediocre build quality in the 19-inch category. Designs were simple, nothing inspiring, ditto with the quality of materials. The 22-inch panels were another matter entirely—and this difference is not just a function of a costlier product.

Just like last year, we could only get a single 24 inch monitor for this test—it seems their time hasn't come yet.

Another very noticeable change is the rise in popularity of widescreens—especially when one crosses the 19-inch mark. Going widescreen today makes even more sense than it did last year, with most multimedia content including games supporting widescreen resolutions natively.

Sadly, the scene for *good* panels hasn't changed much. The bulk of the LCDs out there are still based on colour and contrast deficient TN (Twisted Nematic) panels. Although there were a couple of MVA (Multi-domain Vertical Alignment) panels, and a single S-IPS (Super In-Plane Switching) panel, the prices of these are significantly higher than the regular TN panels. There also exists a large difference between the prices of 24- and 22-inch monitors, making the 22-inch a superb value for money buy. Similarly, buying a 17-inch minnow makes very little sense, unless you absolutely cannot afford to spend more.

In case you're feeling a little stingy just watch a 17- and 19-inch screen in action side by side—or better still, a 17- and 22-inch. We guarantee that your wallet will open just a little bit more to gobble up one size larger than what you originally intended to splurge on.

Jiten Gandhi, Shri Krishna Patkar

## 22-inch LCDs
### The New Entry Level?

### Dell SP 2208 WFP
*Add a little gloss to your life*



The worst thing about Dell's new 22-inch Ultrasharp is the fact that it's based around a TN LCD panel. We have just one last grouse and then we're done, and then some of us are going out to see if we can buy one. The silver bezel that some love, and others hate, and the entire fit and finish, exudes quality. The stand is finished in piano black, and adds a striking contrast to all the silver. A 2 megapixel Web camera has been cleverly integrated into what has to be one of the slimmest bezels ever to grace an LCD to date. No ugly bulges, no protrusions, and the SP 2208 WFP looks like it's seen the inside of a wind tunnel during its design. We do feel Dell goofed up with a glossy LCD panel rather than the matte ones we're used to seeing for one huge reason—reflection. It's like looking into a mirror, especially with any sort of light source in the background, and we found this quite annoying during our tests.

Other than this one niggle and fact that a silver bezel isn't the best idea for any LCD (read glare), the SP 2208 WFP boasted of an intuitive menu system and good, easy to use buttons—very ergonomic. The integrated camera has excellent quality. This one features an HDMI port as well—superb connectivity options.

Considering the fact that a similar discrete webcam could cost as much as Rs 2,500, this monitor is a superb deal at Rs 15,386, and the price alone makes a very strong point to purchase it. And that's before you even consider that it's a good performer. We had issues with the Intensity Range Check in DisplayMate where we missed out on a lot of the darker grey squares which were indistinguishable from the black background. In the reverse text tests we had issues with bright green text on a black and grey background—the text just wasn't visible. Colour intensity was very good for a TN panel, especially the colour green, which is very easy to discern. This monitor also did well in the 256-shade ramp test, where even slight gradations were noticeable—of course it cannot produce the entire intensity gamut like an S-IPS panel, but then we didn't expect it to.

It does well at games, and the very contrast-sensitive *F.E.A.R.*

### How We Tested

We divided our test candidates into five categories on the basis of screen size.
**Features:** Besides the theoretical parameters which we mention we awarded points for presence of add-ons like Web cameras, speakers, USB ports, and memory card readers. We awarded points according to the connectivity options available. Aside from this we also looked at certain features like the ability to pivot and swivel, or the presence of portrait mode and height adjustment. We graded the looks of the LCD and the intuitiveness of the menu system and the button layout. We rated the quality of moving parts as well.

| | |
|---|---|
| Operating System | Windows XP Professional |
| CPU | Core 2 Duo E6700 (2.66 GHz) |
| Motherboard | Gigabyte DQ6 (P965) |
| RAM | Kingston HyperX 512x2 DDR2 800 MHz |
| Graphics Card | NVIDIA GeForce 8800GTX |
| Hard Drive | Seagate 7200.9 250GB SATA |

| Benchmark | Tests | What we looked for |
|---|---|---|
| DisplayMate Video Edition | Geometry Tests | Point Shape and visibility, Pixel sharpness, Line resolution, shape integrity. This basically tests the ability of a monitor to work with shapes like cones, spheres, cubes, and even 2D shapes. Useful for professional users. Professionals will want to look here. |
| | Contrast and greyscale Tests | Checks the ability to produce subtle variations in intensity of a single shade, and the ability to display purest blacks, and whitest whites. |
| | Colour Tests | Tests the colour rendition ability of an LCD. Uses a number of tests like colour purity tests, reverse text tests, shade intensity and colour ramp tests for the same. Animation, image editing and rendering professionals look at these values. |
| Movie Tests | Pixel persistence, colour and contrast | A mean value is taken for all these parameters, pixel persistence is a measure of response time, while colour and contrast are necessary parameters for a proper movie experience |
| | Overall experience | Here we look at the type of panel, whether it reflects a lot of light, the bezel colour and its interference with the image onscreen, and the aspect ratio—which also affects the overall experience. |
| Game Tests | F.E.A.R | Very dark and atmospheric game, with a lot of weapon, environment and special effects including bullet time and particle effects that are still the best in the business, very good to test contrast ratios of monitors as it trips most of them up with its ability to produce lifelike shadows, and their interaction with light sources which is very realistic. A good benchmark for gamers to base decisions on. |
| | Oblivion | Unbelievably detailed environments, with some great foilage and overall texturing. Also showcases transparency effects very well, and has some of the best colours seen in any game. Usually trips up monitors with texture detailing on floors, sand and other environment shaders, and even bloom and transparency effects. Gamers look here and decide. |
| Viewable Angle | Text and Movie | Here we look at the ability to view the monitor from angles other than straight on, this reveals how much distortion of the image and and its colours will occur if you happen to be sitting at an angle. Important for those people looking at an HTPC monitor, simply because with a number of people watching, say, a movie, it becomes impossible for each person to be directly in front of the monitor. |

looked quite good—deep shadows with good variations in relative lightness and darkness of a screen. In HD movies you will notice its slightly deficient contrast, but it's nothing out of the ordinary for a TN panel—and we've seen much worse.

Aside from a couple of design flaws and the mirror-like panel, there's nothing wrong with this monitor, and you'll hardly find a better conglomerate of features and performance at the price. If you're looking for a monitor within the range of Rs 16,000, you'd have to be daft not to consider the SP2208 WFP as a serious option.

### HP L2208w
*When matte met flat*



If you're not one for loud statements then you'll appreciate the laid back, even bland design on this one. A matte finished body extends to the bezel—black is the best colour for an LCD bezel, and if it's dull enough to refrain from reflecting ambient light so much the better. The stand looks cool with a silver and black colour tone. However the swivel action on the stand is quite hard, and a couple of days of, err, swivelling didn't loosen things much. The control buttons aren't backlit or colour indicated, and fiddling with them in dim lighting is a hit and miss affair. The slight indentation in the centre of the stand is quite useful for keeping a few utilitarian knickknacks like pencils, erasers or screwdrivers.

DisplayMate's Intensity Range Check showed a lot of indiscernible grey squares—this bespeaks a poor contrast ratio. We faced no issues with the 16-shade ramp test, but in the 256-colour ramp test we had issues with the variation in intensity of colours green and grey. The movie tests revealed slightly less colour rendition and contrast in most HD clips (compared to the Dell and Samsung monitors of the same size). In *F.E.A.R* we had issues with contrast where the enemies in dark khaki uniforms were virtually invisible when in shadowy areas. This is a serious put off for any gamer especially when playing dark, atmospheric games.

All in all at Rs 18,500 the L2208w is a costly proposition, both on your wallet and your visual senses. It's a great looking monitor that corrects some of the flaws of Dell's SP 2208 WFP design, but also detracts a lot on the performance front. With the exception of the extreme rarity of you being a diehard HP fan, give this one a miss.

### AOC 2217 Pwc
*Strictly mediocre stuff, this...*

It's a good looking monitor but the fact that it integrates speakers doesn't excuse the rather broad bezel. The piano finish is quality. The stand is very big for a monitor that doesn't have any kind of height adjust, and it managed to fool us that it did have this feature till we used it. Three USB ports add some connectivity options. The contrast ratio isn't too good as a couple of quick DisplayMate tests revealed. This dismal performance continued



in the 16 shade intensity test where we couldn't discern any difference between two or three of the most intense shades for each colour. Due to its lack of a proper colour rendition, contrast calibrating was a chore. While it performed decently at games like *F.E.A.R* (no worse than the HP L2208w) it didn't do as well at movies and we recommend you avoid this panel for any kind of serious multimedia PC.

At Rs 16,000 the AOC 2217Pwc is slightly costly, but it does have a serious competitor in Dell, who manages to outdo it on all fronts, including price. One position is its decent performance in the geometry tests along with its competitive price (compared to the HP) which make it a decent buy for an office monitor.

### ViewSonic VX2255WM
*White n Bright...*

A piano white finish is somewhat a rarity in this colour prejudiced LCD world where black



is a defacto standard. The three little birds (ViewSonic's trademark) stand out in visible relief and detail from all the white, another perk for deviating from black. Speaking about the bezel, it isn't as narrow as we'd have liked—especially considering the space hogging buttons have been moved to the side. The trim on the lower bezel looks a little out of place and flimsy.

In DisplayMate the contrast was immediately better than the HP and AOC 22-inch offerings, although not as good as the Samsung and the Dell monitors. No serious issues in the colour tests but the rendition of green isn't good enough. In *F.E.A.R* we noticed a decent contrast ratio and good particle effects but both Dell and Samsung are better. *Oblivion* is much more forgiving and the VX2255WM makes a very good showing in games with dimly lit scenes, something where its TN panel bearing compatriots also performed reasonably well on. Movies show good colour but mediocre contrast, especially noticeable in darker scenes and with dim indoor lighting. At Rs 15,500, the VX2255WM is a decent offering—good enough for multimedia, games, and office use. However it doesn't really excel at any of these applications, and there are better options available.

### ViewSonic Va2216W
*Decent for movies*

The cheaper brother of the VX2255WM, the Va2216W is simple looking and a bit lighter.



The stand is simple as well, and although small does a good job keeping this rather large beast well and truly grounded. With a rated contrast ratio that is less than is costlier sibling we figure ViewSonic ought to have dropped in a cheaper panel into this one. As expected whatever the VX2255WM does, this one does with a little less aplomb. Its contrast ratio isn't too bad, but will be a little deficient in games like *F.E.A.R*, and our DisplayMate tests showed a slight issue with colour rendition of the green in the 256 intensity ramp test. The blues and reds were good enough though. One nicety is the very decent performance in movies, and it's very close to its costlier sibling here, and makes a good choice for multimedia aficionados—unless you're really discerning. At Rs 13,500 the Va2216W makes a strong case for itself in the value market, except that the SP 2208 WFP is a lot more monitor for a slightly higher price.

### Samsung SyncMaster 2253LW
*Pricey performer*

A very narrow bezel, great build quality, a sleek stand, and a Bordeaux-like slick piano black finish mean this monitor looks timelessly hot. The transparent fibre bezel on the bottom catches the power on/off buttons blue LED light and it looks as if the bezel itself is illuminated—neat! Don't go by the Dynamic Contrast Ratio of 8000:1 mentioned on the top bezel. We figure the actual static ratio is more like 800:1 which is very good by the way. The menu system is uncluttered and very intuitive; the controlling buttons are easy to use. This moni-

tor features a matte panel (thank you God!), a blessing after the SP 2208 WFP. In DisplayMate it outshone the Dell in the Intensity Range Check where it displayed even more grey cards. The performance in all other DisplayMate tests was very good, although the Dell seemed to be as good in the 256 shade ramp test. Colour rendition is good if not as vivid as the Dell's colours, but this is a great panel for movie watching and our HD clips looked amazing, with ample contrast. In *Oblivion*, the outdoors look resplendently alive with detailing and textur-



ing, great HDR and contrast once again. Even the gloomy interiors of *F.E.A.R* were no issue for this monitor, except for a couple of dark spots where the contrast seems to be a touch deficient.

With good performance across the board, and a great matte panel accompanied by some fine build quality and designer looks, the 2253LW is a great LCD all round. A price of Rs 17,500 is lower than the inferior HP monitor, but more expensive than any other monitor in this size category. It is the best monitor of the 22-inch lot, albeit by a small margin. You decide if the premium is worth the performance.

### AOC 917VW
*Plain Jane*

The 917VW is one of those fairly inconspicuous looking products that is never going to get a lot of attention. It features a well laid out menu and good build quality with great finish of materials. In our DisplayMate tests we found performance to lag behind its identically-priced sibling the 913FW, a weird showing, especially since we figured both LCDs used the same panels. We missed out on quite a few grey cards in our Intensity Check test, and the contrast ratio generally felt a little deficient. What was a noticeable problem was the reverse text tests, especially with the colours yellow and green. Performance in the colour inten-

sity tests was acceptable, but not commendable. *F.E.A.R* showed a noticeable lack of contrast, as did the darkest dungeons of *Oblivion*. Our movie tests fared a little better with decent colour, although the contrast issue still rears its head. At the same price (Rs 9,600) as its sibling, we suggest you go for the better-looking and performing 913FW, unless it's too loud for your office environment, in which case the 917VW will fit the bill.

### ASUS PG191
*Bassy stand...eh?*

We reviewed the same monitor last year. It features a stand heavy enough to knock Godzilla silly, which cunningly incorporates a 10 watt RMS speaker unit with a subwoofer that delivers good sound, the best we've heard from inbuilt LCD speakers. To say this panel is



well built is an understatement, although it's not a widescreen. The soft touch buttons are as annoying as they are nifty—the problem is that they don't work as they should. We missed a lot of touches—irritating!

The dated TN panel in this monitor shows up a few issues with contrast in DisplayMate. After that we had a few more issues with geometry which were

rectified with judicious use of the calibration tool. In terms of colour performance it's a mixed bag with accurate rendition of primary colours at the expense of some issues in the 16 shade intensity test. *F.E.A.R* and *Oblivion* sport great detail and the effects and colour look really good on this monitor, and unless you're in one of those shadowy areas the lack of contrast won't be very noticeable. The lack of widescreen will annoy you when watching HD content, but the quality itself was satisfactory. With a good webcamera adding value to an already good offering the only possible goof up could be the price. Rs 26,990 is too much to pay for a 19 inch, monitor. Heck...its too much to pay for a 22-inch monitor. Enough said...

### Dell 1908FP
*Great stand meets mediocre screen*

Its great build, combination of colours, excellent stand and height adjust, and the fact that it has a portrait mode are all facts that simply grab you by the throat and force you to accept this as a serious contender for your cash, if you happen to be shopping for a non-widescreen 19-inch LCD. DisplayMate showcases



some issues with contrast first and colours later. This monitor has issues with the shade intensity tests, a testament to a mediocre TN panel behind the scenes. *F.E.A.R* had a good time thrashing this panel, although we must say the colours were rather good in the game, but the contrast (or lack of it!) will annoy you throughout. As with the PG191 movie watching isn't recommended on a non-widescreen. There was also a slight issue with pixel response time as our movie tests revealed. At a price of Rs 14,000, the 1908FP offers a great number of features not seen on monitors this cheap.

If only its performance was really great we'd have recommended it with our eyes closed. For now, it makes sense as a solution for an office or Internet PC.

### HP L1950
*More of the flexible stand*

The L1950 is a hunk of a monitor with a colossal stand that allows you to pivot and swivel and even orient it flat, face up. It's got supreme build quality and a matte finish looks elegant, but to many the stand looks like a foldable plastic Eiffel Tower. Once calibrated on DisplayMate we noticed some good performance in the



geometry and contrast tests. With a good showing of the primary and secondary colours the L1950 even did reasonably well in the shade ramp tests making it suitable for professional users (image editing, rendering etc). The flexibility of the stand means it can even be used by office goers for presentations of all sorts—decent viewing angles also help here. *F.E.A.R* was close to its atmospheric best with baddies visible even in the depth of shadow, and the exteriors of *Oblivion* spring to vivid life. A good panel, suitable for all possible uses, the only bitter pill will be the price—Rs 17,500 which we feel is a couple of thousand more than an ideal price.

### Intex IT1904W
*Well built!*

This one is making a second round over to our labs after last year. With an excellent stand, good build quality and a nice finish the aesthetics are well cov-

### 19-inch Monitors
**One size too small?**

### AOC 913FW
*Standing tall...*

With the most unique stand of all, the 913FW looks lore like an LCD TV than a monitor. We were surprised to see how firm this sits on a desk with just a little nub like protrusion for a stand—great design by AOC. Even the front bezel looks slick, with a contoured facia. The menu system is good, although the navigating buttons are a little confusing. Our DisplayMate tests showed

very good performance in the geometry tests and decent performance in the contrast and brightness tests. The colour tests were rather uneventful other than a slight discrepancy in the rendition of green and red in the 16 shade ramp test. Overall a satisfactory performance for a TN panel based LCD. We were surprised to see the contrast ratio being the main deterrent in our movie tests, especially noticeable with darker screens and areas where light and dark areas interact, like a scene with leaves dappled in sunlight moving in and out of bright spots of sunlight due to the breeze. It performed decently in our gaming tests, although as usual *F.E.A.R* was a little too much for a TN panel, and we felt the contrast deficient by a decent margin. The colour and effects looked good.

For a price of Rs 9,600 the 913FW is a great looking monitor that will fetch more than a single glance. A great price, a decent performer with a look that demands a desk upgrade. What's not to like?—nothing unless you're a discerning gamer or a serious movie junkie.

ered. The menu system is strictly so-so, as are the buttons which feel tacky. We first saw issues with contrast under DisplayMate, where this monitor missed out on



a lot of grey cards in the Intensity Range Check. Some issues with line and point shape tests in the geometry gamut of tests mean that professional users steer clear of this one. In games there's a noticeable lack in contrast, particularly in F.E.A.R which is merciless with most mediocre LCDs. With mediocre performance in the movie tests the IT1904W certainly isn't a bad performer, its just that there are too many individual little flaws to really recommend it, even at a sterling price of Rs 9,500.

### LG W1952 TQ-PF
*Fancy, but performance-free*

A good looking monitor with a very slim bezel and compact stand the W1952 TQ stands out because of its simplicity of design. It performs below par in the contrast ratio tests, and does a little better at the colour tests in DisplayMate. With barely acceptable performance in F.E.A.R and in the movie tests particularly in the



contrast and colour department, this monitor isn't the best choice for multimedia aficionados. At Rs 12,000 it's a little too costly for the performance it offers…look

elsewhere

### LG W1942 T
*Simply functional*

The second monitor from LG in this category, and definitely as good looking. It's built well too, and the menu system and buttons are very easy to work with. In DisplayMate we noticed some issues with contrast but it wasn't as bad as its sibling. In the colour tests we noticed some issues with



rendition of red, but this isn't very noticeable in everyday use. It performed decidedly better in our gaming and movie tests—although we did notice some issues with contrast, especially in F.E.A.R and its shadowy environs. Priced at Rs 9,400 it's cheaper than its sibling, and better performing. Its one of those inexpensive purchases that you can't go wrong with, especially if you're building any sort of home PC.

### NEC MultiSync 1990 SX
*A pricey welcome to S-IPS land*

This LCD sports the only S-IPS panel we received and the industry grade build quality makes no bones about its focus audience. The matte black finish looks very boring on this monitor and the humongous stand doesn't help. The stand is adjustable for height and pivots to portrait mode as well. The ultra slim bezel looks great. Calibrating this monitor proved easy, and aside from a couple of missing grey cards we could see them all. Colour rendition was excellent as is to be expected, and this monitor performed flawlessly in the reverse text tests as well. When it comes to games like F.E.A.R this monitor excels at reproducing colour and contrast, no issues, except for a little pixel response lag courtesy the slower response time specification. It's pretty decent for watching movies, but at Rs 42,000 you could buy



a 32-inch TV for the same. It really shines for discerning professionals, but despite the astronomical performance we still feel it's overpriced by a good bit.

### NEC MultiSync 1970NXP
*Bulky Beast*

Based around an MVA panel the 1970NXP is another bulky looking monitor like its costlier sibling. In DisplayMate whatever its sibling did it did with a little less performance. There was very little discernable performance gap in the contrast and geometry tests where both monitors excel, but in the colour tests we could make out a difference between



the two which is where its costlier brother really earns its stripes. In games like F.E.A.R you'll be able to play with all the detail available even in the darkest areas of the screen, and it outshines its excellent sibling. It also sports excellent viewing angles, the types TN panel based monitors can only dream about. At Rs 28,900 the 1970NXP is excellent but sadly grossly overpriced. We reckon NEC needs to seriously look at its pricing of these brilliant monitors in India—and as a result we cannot recommend the 1970NXP

for anyone, including professionals for whom there are better choices as you will see.

### Samsung 943NXW
*Touch me!*

Touch controls look so ooh!– a pity they don't work the same way, and we found a brilliant design, menu layout and fit and finish let down by quirky touch controls. In DisplayMate this panel proved to be a letdown of sorts after their excellent 2253LW—it misses out on a lot of the contrast, particularly



with dark shades and intensely bright shades i.e. both opposite ends of the intensity spectrum. In movies we liked the fact that it's widescreen, but the issue with contrast once again rears its ugly head. While gaming, we noticed shadows appearing as blotches at times—another contrast ratio issue. Priced at Rs 12,500, we feel it's a bit too expensive for the performance. The only real thing this monitor has going for it is aesthetics.

### Samsung 953BW
*Simple goodness*

It's not unusual to find a cheaper priced product that proves to be a better performer overall, so do perk up at this point. The 953BW shares the same tasteful design of the 2253LW. Running DisplayMate first we noticed better performance than its costlier sibling, and a contrast ratio that seemed anywhere between five and ten per cent better. DisplayMate decrees that this panel has issues with green on a grey and black background in the reverse text tests. Movie watching is fun on this monitor as was gaming, with a decent contrast ratio the overall experience while playing F.E.A.R was acceptable if not exemplary. At Rs 10,000 this



953BW is cheaper than most of its 19-inch brethren and makes a good choice for anyone building a multimedia PC. Its looks will ensure it's at home on a corporate desktop as well.

### ViewSonic VA1912W
*Old and going strong*

This is another monitor from last years' lot, and its age shows. Its very simple looking, archaic even, and hardly anything about the build quality will inspire or appeal. A few minutes into DisplayMate's tests revealed some geometry issues in the line and point shape and visibility



tests. Next up, the contrast ratio was something that we felt could improve a good bit. It ran through the colour gamut tests without serious incident, but not without a couple of incidents in the 16 shade ramp test and the colour purity tests. For gaming this monitor is a mixed bag—it has decent colours, although not as good as the Samsung 953 BW, and while the contrast ratio is also inferior to the 953BW it's not totally unacceptable. This scenario is identical for movies. At Rs 9,650, it is cheap, but not as cheap as the identical performing LG W1942T, though you could pay four hundred rupees more for something much better (the Samsung 953BW).

### ViewSonic VX1940W
*When new isn't good*

This is a newer monitor, but doesn't feel as solid in build as its older sibling. It has that built-to-a-budget feel and look to it. Neck deep in DisplayMate's geometry tests we had some issues with the point and line tests, and later with the contrast tests where, try as we might, we couldn't spot



much of the grey cards in a black background in the Intensity Range Check tests. In the colour tests, we ran into some problems with the 16 and 64 shade tests, where the monitor kept missing out on certain intensities especially at the brighter-end of things. Gaming isn't the experience we wanted it to be, not that this was unexpected, considering the performance in DisplayMate. Movies also show a contrast issue, although the colours aren't too bad. At Rs 10,650 the VX1940W isn't the cheapest monitor around, nor is it the best performing. The fact that the cheaper Samsung 953BW outshines it in nearly every test is reason enough to stay away from it.

## 20 inch LCD monitors
**Middlemen**

### BenQ T201WA
*Plain Jane, but a good pane*

The T201WA has a nicely curved front bezel that immediately looks Jurassic because of its width. Finished in silver, the largish buttons in a neat row work well, but look and feel tacky. The large stand with curved sides is square and appears squat, whether its okay looking or downright ugly is up to you to decide. First up DisplayMate ran into issues during calibration, where the Intensity Range Check lost a lot of grey cards. While adjusting

brightness helped reveal more, the background was no longer black. Next up, the colour tests revealed slight tonal imbalance, which we must say plagued nearly all the TN panel-based LCDs, regardless of whether we've individually mentioned this or not. *F.E.A.R* saw some contrast issues, and a couple of issues of discolouration with certain darker hues like purple shadows, but overall nothing out of the ordinary. Both the games were sufficiently detailed and showed good overall effects. Our movie tests fared slightly better, and aside from a slight issue with insufficient contrast there were no other complaints. For Rs 10,500 the T201WA is cheap enough for a good home PC, or a multimedia and gaming PC, as long as you're not too discerning about quality. Its good build and typically industrial bulky looks will stand tall in the corporate environment as well.

### Dell SP 2008 WFP
*Features, looks and value—a rare combination*

Looking exactly like its 'larger by two inches' brother, the SP 2008 WFP is a handsome monitor, and aside from the lack of an HDMI port has the same connectivity, build, and features. Sadly it's once again a glossy TN panel, albeit an excellent one. DisplayMate had minor issues with contrast on this panel. In fact we missed on a number of darker cards in the Intensity Check. Geometry tests were completed without any compliant, and even the reverse text tests went well. There were some issues with colour, but they weren't major, and mostly centred around its ability to produce certain intensities of green. The reds and blues were spot on. It did well in the gaming and movie tests proving its mettle as a serious multimedia option. The price of Rs 12,700 makes the SP 2008 WFP excellent value for



money and a terrific deal for any kind of audience. We'd just like a couple of quirks worked out—something both 20- and 22-inch siblings share.

### Samsung 2053BW
*Bordeaux's baby boy*

A matte panel, a monitor with a body that can only be described as hot—the kind of hot that brings cold shivers of anticipation. Add to this exemplary build quality and you've got the 2053BW. DisplayMate was rather kind to this monitor and aside from the usual contrast issues (although not severe) the



geometry tests were a breeze. The 2053BW handles colours well, it's just not able to produce many more than its 6-bit TN panel's theoretical limit. Gaming is good on this monitor, and aside from the lack of contrast in some of the darkest areas of *F.E.A.R* it did well accurately reproducing all special effects, particle effects and explosions. The world of Tamriel comes to vivid life in *Oblivion*. With a good showing in the movie test as well, this monitor makes a good buy, except that its priced a little stiffly—Rs 14,500 is a little too much with the SP 2008 WFP breathing down its neck with identical performance at a lower price. The 22-inch panels are also

similarly priced, and two inches of real estate more for the same amount is a steal as well.

### Samsung 2043 NXW
*A touchy case*

This is 2053BW's smaller brother in terms of price, but retaining the build quality and looks, and adding a touch control system that is quirky at times. A quick initial run of DisplayMate revealed issues beyond what its sibling had. We didn't get the full colour gamut, with noticeable flaws, and the contrast test was



just above what we'd consider acceptable. It has the same quality at geometry though. In gaming, the issue of contrast will be noticeable, although not quite so in movies, where for some reason we couldn't find much to gripe about. At Rs 12,500, it's cheaper than its sibling, but a let down in most other ways. We'd recommend shelling out Rs 2,000 more and crying once, instead of pinching your pockets and crying later.

## 17-inch LCD Monitors
**Minnows**

### Acer X173W
*Featherweight pushover*

Its light, with mediocre yet acceptable build quality. The lack of DVI is an annoyance as are the eyesore buttons—large and ugly, the lower bezel pouts at you like a puffy lip. DisplayMate was its unkind self, and the little Acer huffs to keep up with the contrast and colour tests. It does manage to pass, though by a hairsbreadth. In games, the lack of an adequate contrast is noticeable. At Rs 8,500 the X173W is a good entry level monitor, suitable for a home PC and Internet use. Don't expect too much from this 17-inch, though.

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### 20, 22 and 24 inch Monitors



### Dell 1708FP
*A better stand we never did see*

As the title says for a 17-inch monitor this one has a superlative stand that allows swivel, pivot and height adjustment, as well as portrait mode. Build quality is excellent too. It does have its fair share of problems, courtesy yet another TN panel, where a poor contrast ratio was seen in DisplayMate first, and *F.E.A.R* later. The fact that it's not a widescreen doesn't make it any better, and the contrast ratio doesn't help either. We were somewhat mollified by the price (Rs 11,500) which makes it a slightly better option than the Acer X173W, since it outperforms it by 10 per cent.

### HP L1710
*A tad too expensive*



The L1710 looks identical to the L2208W except it's not a widescreen monitor. It has decent performance in DisplayMate, although the colour and contrast issues still remain. We did notice some serious discrepancies in the colour tests—particularly the 16-shade ramp test. In games and movies it per-

formed sub-par—a pity, because we expected more, especially for Rs 9,593.

### Intex 1707 WBLK
*Dances with wind*



The L1707 is a good looking monitor featuring a glossy panel. Unfortunately, it took three minutes under our ceiling fan for us to realise this monitor actually shakes with a little breeze—courtesy a flimsy plastic stand, unlike its 19-inch sibling, which had a full metal stand. Performance was nothing worth writing home about, but we noticed no real issues

### 17 and 19 inch Monitors
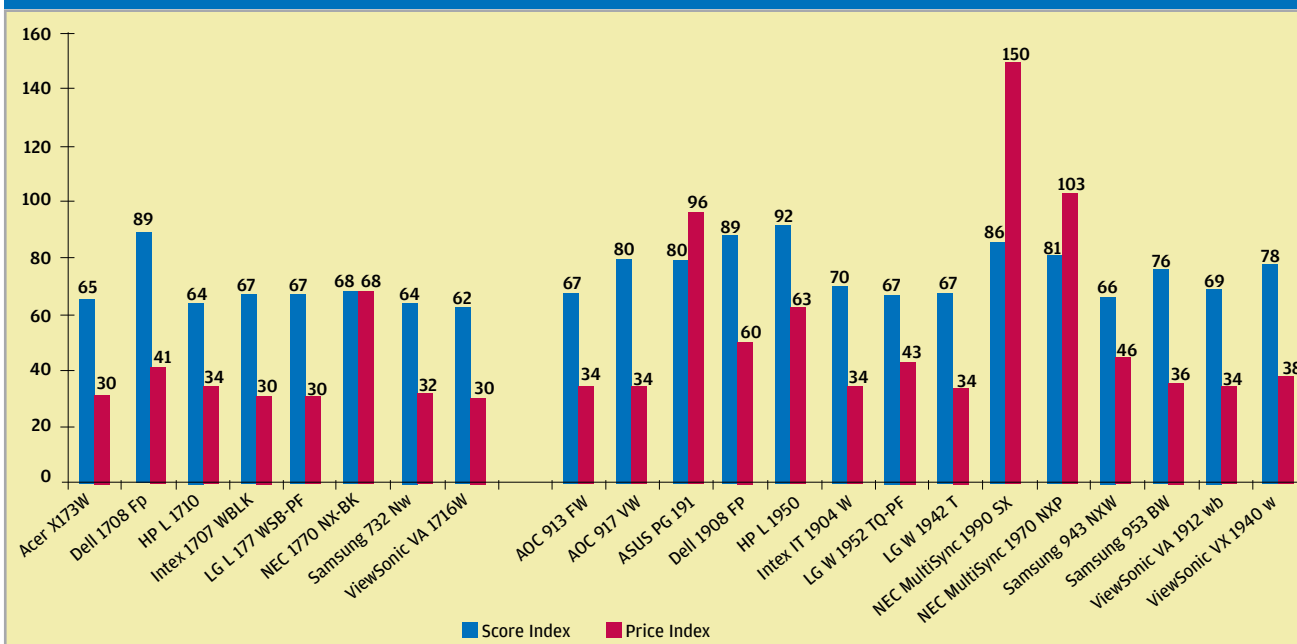
except the usual niggles with contrast and colour which plagued us throughout DisplayMate and occasionally during our game and movie tests. At Rs 8,500 it's similarly priced to the X173W from Acer, so we recommend you give this one a wide berth.

### LG L177 WSB-PF
*Value-oriented all-rounder*

A neat-looking LCD with solid build quality. This was one



of the only monitors to who DisplayMate was really kind throughout the tests, although we did notice issues with contrast and some minor issues with point shape and visibility in the geometry tests. While gaming, this monitor performs decently, except when a good contrast ratio is called for. This was one of the only 17-inch monitors on which *Oblivion* looked glorious. If you're looking for an all rounder in this size category you've just found it—at just Rs 8,500.

### NEC 1770NX-BK
*The weakest link*

Sporting the same kind of build quality that we saw on the larger 19-inch NEC monitors, the 1770NX immediately ran into issues with contrast in DisplayMate—nearly half of our grey cards were indistinguishable from black. In the colour tests, for some weird reason, the 16-shade intensity ramp had serious issues with the four brightest intensities in the colour green, and with the three brightest intensities in the colours red and blue where the shades looked the same—a shame for this monitor. In games the contrast ratio was noticeable although the colour issue was only apparent with games. At



Rs 18,900 nobody is going to lose any sleep over whether to purchase this monitor or not, so we'll leave it at that.

### Samsung 732NW
*We'd like to imagine a lot more*

A compact and cute monitor, the 732NW is built well. It's a mediocre performer as DisplayMate revealed in the colour and contrast tests,

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## Buying Guide

| Needs | Suggestions | We Say | Price Range |
|---|---|---|---|
| A basic LCD monitor for an Internet/home PC | LG L177 WSB-PF | Decent colours and contrast, a good entry level monitor | Rs 8,500 |
| A high-end LCD for gaming and full 1080p HD content | LG L246Wp | Based on an 8-bit P-MVA panel, this 1920x1200 pixel resolution sporting panel is just what the doctor ordered. With connects galore and a sterling build quality, a stand that lets you swivel in and out of portrait mode, and even adjust the height, this is a steal | Rs 28,000 |
| High-end multimedia and gaming on the cheap | Dell SP 2208 WFP | With an integrated 2.0 megapixel webcamera, HDMI port and a great panel with stunning contrast and colours this monitor is a steal at the price it commands | Rs 15,386 |
| A non glossy panel, something that offers a good dose of performance and is well priced | Samsung 2253LW | This monitor even outperforms the Dell, and is better for a matte panel that cuts down on reflection. Very good for gaming and movies, the price is a on the high side | Rs 17,500 |
| A professional grade monitor with spot on colour and geometry rendition | NEC MultiSync 1990 SX | An 8 bit S-IPS panel doing duty inside just says it all, excellent colour rendition, perfect for image editing professionals. Very costly, keep fingers crossed for a price drop | Rs 42,000 |
| A decent 19-inch monitor for home usage, with some multimedia performance | Samsung 953 BW / Dell 1908 FP | Both these monitors are different beasts. The Dell is a regular panel while the Samsung is a widescreen. They're both excellent for the price though. | Rs 9,899–10,000 |

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although to its credence the geometry tests were cleared without incident or hiccup. In *F.E.A.R*, it got the usual criticism we've levelled against most panels—a poor contrast ratio, and lower brightness. At Rs 8,850 it's a little expensive to recommend.

### ViewSonic VA1716W
*For crying out loud!*

ViewSonic's 17-inch offering has a plasticy body, devoid of any of the fancy glossy materials we're used to seeing. We ran into problems at every step of our test—the first stop being



DisplayMate, where the poor contrast became apparent. Also the geometry tests, normally a breeze for most LCDs were a pain here, we had issues with line and point resolution.

Then came the colour tests and (sigh) by this time we nearly gave up—the performance in the shade ramp tests was terrible particualrly with the 256 shade ramp, where this monitor is not capable of many variations in intensity of the same colour.

Needless to say it's not very suitable at gaming and movies too. Neither is the text rendition as clear as other

monitors. Performance doesn't come cheap, a known analogy, but its corollary is also true—what you don't pay for, you don't get.

## 24-inch LCD Monitor
**Coming soon...to an affordable price near you**

### LG 246Wp
*A colossus of expletives*

When we saw this giant screen we knew we had something special. It's heavy, has a huge stand and allows the screen to swivel for a portrait mode. Portrait mode is never more apparent than on a huge widescreen—where the screen size is larger than an A3 sheet of paper.

The thickness of the outer casing and the amount of heat dissipated by the panel told us that this was either an MVA or a PVA panel.

In fact, this is a P-MVA panel. Calibrating it wasn't easy, since keeping yourself at eye-level with such a large screen is nearly impossible.

In DisplayMate, we saw



strong contrast, and a lot of grey cards were visible with a really black background—a good showing for contrast for this panel. In the colour tests we saw an accurate rendition of red and blue with only a slight issue in the 256 shade ramp test for the colour green.

In our movies test we got to experience the full glory of 1080p, and this monitor handled colour and contrast very well. Only in *F.E.A.R* did we see a little issue with contrast, but this was only in one or two areas. *Oblivion* looks gorgeous at 1920 x 1200 pixels, and you'll be as mesmerised as we were. With a price tag of Rs 28,000 this monitor may seem expensive, but that's before you consider the quality of the panel inside, and the extra functionality that the stand gives you. It makes for a terrific gaming or multimedia monitor—just make sure your graphics card can handle the large resolutions you want.

### Closing Thoughts
Though newer models are being introduced around twice a year, there's hardly any difference in terms of quality—larger screens are getting cheaper, but they're hardly getting better.

Sure, features like HDMI and other connectivity and orientation options have become cheaper, but the biggest factor—quality—essentially remains the sole dominion of costlier panels. So while the common user has a plethora of ever-changing options the discerning buyer is stuck at a crossroad—does he go cheap or does he pay significantly more for something that is noticeably better?

This is a question which manufacturers should be made to answer. ■

*michael.browne@thinkdigit.com*

## Contact Sheet     LCD Monitors

| Brand | Company Name | Phone Numbers | Email | Website |
|---|---|---|---|---|
| Acer | Acer India Pvt. Ltd. | 080 25219520 | Balaji_A@acer.co.in | www.acer.co.in |
| AOC | Top Victory Technology Group. | +91-124-280 6116/17 & +91-80 41122 335 | info@in.aocmonitor.com | www.aoc.com |
| Asus | ASUS Technology Pvt. Ltd | 022-67668800 | Media_india@asus.com | http://in.asus.com |
| BenQ | Neoteric,esys | 1-800-22-0808 | sales.enquiry@BenQ.com | www.benq.co.in |
| Dell | Dell India Pvt. Ltd | 1800-425-4026 | dell_enquiries@dell.co.in | www.dell.co.in |
| HP | HP India | 0124-2566111 | rakesh.balachandran@hp.com | www.hp.com /in |
| Intex | Intex Technologies (India) Ltd. | 1800116789 | info@intextechnologies.com | www.intextechnologies.com |
| LG | LG Electronics India Pvt. Ltd. | 91-120-2560900/940 | sanjoyb@lgindia.com | www.lgindia.com |
| NEC | NEC India Pvt Ltd | 011-46570000 | enquiries@necindia.in | www.nec-pj.com |
| Samsung | Samsung India Electronics Pvt. Ltd. | 011-41511234 | rengith.nair@samsung.com | www.samsung.com/in |
| ViewSonic | Roop Technology Pvt. Ltd. | 022- 26681921 | sales@rooponline.com | in.viewsonic.com |

## 17-inch LCDs      19-inch LCDs

| Brand / Model | Acer X173W | Dell 1708 Fp | HP L 1710 | Intex 1707 WBLK | LG L 177 WSB-PF | NEC 1770 NX-BK | Samsung 732 Nw | | ViewSonic VA 1716W | AOC 913 FW | AOC 917 VW | ASUS PG 191 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Price | Rs 8,500 | Rs 11,500 | Rs 9,593 | Rs 8,500 | Rs 8,500 | Rs 18,900 | Rs 8,850 | | Rs 8,400 | Rs 9,600 | Rs 9,600 | Rs 26,990 |
| Plus (+) | Compact, lightweight | Great Features | Well Built | Looks neat | Decent Performer | Build Quality | Neat Looks | | Lightweight | Unique Stand | Built well | Great Build Quality |
| Minus (-) | Lacks DVI | Contrast | Colour performance | Light, Flimsy Stand | None in particular | Lower Performance | Quirky touch buttons | | Poor colour rendition | Lacks performance | Lacks performance | Quirky touch buttons |
| Grand Totals (Out of 100) | 45.14 | 61.36 | 44.07 | 46.35 | 46.16 | 46.89 | 44.06 | | 42.96 | 46.55 | 55.03 | 55.35 |
| Features (Out of 45) | 10.82 | 25.65 | 10.62 | 12.96 | 11.03 | 14.11 | 10.80 | | 10.64 | 11.07 | 19.94 | 19.67 |
| Performance (Out of 55) | 34.32 | 35.71 | 33.45 | 33.39 | 35.13 | 32.78 | 33.26 | | 32.31 | 35.48 | 35.09 | 35.68 |
| **Features** | | | | | | | | | | | | |
| Pixel Pitch (mm) | 0.264 mm | 0.264 mm | 0.264 mm | 0.290 mm | 0.250 mm | 0.264 mm | 0.255 mm | | 0.255 mm | 0.285 mm | 0.284 mm | 0.294 mm |
| Luminance (Cd/m²) | 250 Cd / m2 | 300 Cd / m2 | 300 Cd / m2 | 300 Cd / m2 | 250 Cd / m2 | 250 Cd / m2 | 250 Cd / m2 | | 250 Cd / m2 | 300 Cd / m2 | 300 Cd / m2 | 300 Cd / m2 |
| Contrast Ratio | 1000:1 | 800:1 | 800:1 | 500:1 | 700:1 | 500:1 | 600:1 | | 500:1 | 800:1 | 800:1 | 800:1 |
| Type of Panel (TN/S-IPS/MVA/PVA etc) | TN | TN | TN | TN | TN | MVA | TN | | TN | TN | TN | TN |
| Native Resolution / Aspect Ratio | 1440 x 900 pixels / Wide | 1280 x 1024 pixels / Normal | 1280 x 1024 pixels / Normal | 1440 x 900 pixels / Wide | 1440 x 900 pixels / Wide | 1280 x 1024 pixels / Normal | 1440 x 900 pixels / Wide | | 1440 x 900 pixels / Wide | 1440 x 900 pixels / Wide | 1440 x 900 pixels / Wide | 1280 x 1024 pixels / Normal |
| Number of Colours (Millions) | 16.2 Million | 16.7 Million | 16.7 Million | 16.2 Million | 16.2 Million | 16.2 Million | 16.2 Million | | 16.7 Million | 16.2 Million | 16.7 Million | 16.2 million |
| Response Time in milliseconds | 8 ms (GTG) | 5 ms (R+F) | 5 ms (R+F) | 16 ms | 8 ms (R+F) | 12 ms (R+F) | 8 ms (R+F) | | 8 ms (R+F) | 5 ms (R+F) | 5 ms (R+F) | 8 ms (R+F) / 2 ms (GTG) |
| USB Hub / No of Ports | N/NA | Y/4 | N/NA | N/NA | N/NA | Y/4 | N/NA | | N/NA | N/NA | N/NA | Y/3 |
| Card Reader / Cards Supported | N/NA | N/NA | N/NA | N/NA | N/NA | N/NA | N/NA | | N/NA | N/NA | N/NA | N/NA |
| Built-in Speakers / Output (RMS) / Quality (Scale of 10) | N/NA/NA | N/NA/NA | N/NA/NA | Y/4 watts/3.5 | N/NA/NA | N/NA/NA | N/NA/NA | | N/NA/NA | N/NA/NA | N/NA/NA | Y/10/7.75 |
| VESA Wall Mount | Y | Y | Y | Y | N | Y | Y | | Y | Y | Y | Y |
| Swivel Base (Vertical/Horizontal Axis) | Vertical | Vertical/Horizontal | Vertical | Vertical | Vertical | Vertical/Horizontal | Vertical | | Vertical | Vertical | Vertical | Vertical |
| Height Adjustment / Portrait Mode (Y/N) | N/N | Y/Y | N/N | N/N | N/N | Y/Y | N/N | | N/N | N/N | N/N | N/N |
| HDCP Support (Y/N) | N | Y | N | N | N | N | N | | N | N | Y | N |
| Input Interfaces | D-Sub | D-Sub, DVI | D-Sub | D-Sub | D-Sub | D-Sub | D-Sub | | D-Sub | D-Sub | D-Sub, DVI | D-Sub, DVI |
| Extra Features | NA | NA | N | N | N | N | N | | N | N | N | Webcam |
| **Miscellaneous (Scale of 10)** | | | | | | | | | | | | |
| Bezel Thickness | 6.25 | 6.5 | 6 | 6 | 6.75 | 6.75 | 6.25 | | 7.5 | 7.5 | 7.5 | 6.75 |
| Quality Of Moving Parts | 7 | 7 | 6.5 | 6.5 | 7 | 7.5 | 6.75 | | 6.25 | 7.25 | 7.25 | 8 |
| OSD Usability | 7.25 | 7.5 | 7.5 | 6.5 | 7.5 | 7.75 | 7.5 | | 7.25 | 7 | 7 | 6 |
| **Performance (All Scale of 10)** | | | | | | | | | | | | |
| **Displaymate** | | | | | | | | | | | | |
| **Sharpness And Resolution** | | | | | | | | | | | | |
| Image, Line Resolution and Point Shape Tests | 6.42 | 6.50 | 6.17 | 6.00 | 6.33 | 6.42 | 6.00 | | 5.75 | 6.50 | 6.33 | 6.58 |
| Moiré Tests | 6 | 6.5 | 6 | 6.5 | 6.5 | 6.25 | 6 | | 6.5 | 6.5 | 6.5 | 6.5 |
| **Colour And Grayscale** | | | | | | | | | | | | |
| Streaking And Ghosting | 6.25 | 6.5 | 6.0625 | 6.125 | 6.25 | 6.125 | 6.0625 | | 6.25 | 6.625 | 6.4375 | 6.5 |
| White Level / Black Level Shift | 6.25 / 6 | 6.5 / 6.5 | 6.5 / 6.25 | 6.25 / 6.25 | 7 / 7 | 6 / 6.5 | 6.5 / 6.5 | | 6.25 / 6 | 6.5 / 6.25 | 6.5 / 6.25 | 6.75 / 6.75 |
| RGB Colour Purity Tests | 6.5 | 6.75 | 6.5 | 6 | 6.5 | 6.25 | 6.25 | | 6 | 6.75 | 6.75 | 6.5 |
| Colour Text Tests | 6.25 | 6.5 | 6.25 | 6 | 6.25 | 5.75 | 6.25 | | 6.25 | 6.5 | 6.5 | 6.5 |
| 16 Intensities Levels | 6 | 6.5 | 5.75 | 6 | 6 | 4 | 5.75 | | 5 | 6.5 | 6.25 | 6.25 |
| 64 Intensity For Primary / Secondary Colours | 6 / 6 | 6.5 / 6.5 | 6 / 6 | 5.75 / 6 | 6 / 6.25 | 5.25 / 5 | 6 / 5.75 | | 5.25 / 5.25 | 6.25 / 6.25 | 6.25 / 6.5 | 6.5 / 6.25 |
| 256 Colour Ramp Test | 5.75 | 6.5 | 6 | 5.5 | 6.25 | 5.75 | 6 | | 4.75 | 6 | 5.75 | 6 |
| **Multimedia / Games** | | | | | | | | | | | | |
| HD Video Clip Pixel Persistence / Colour / Contrast | 6.42 | 6.42 | 6.33 | 6.25 | 6.67 | 6.00 | 6.17 | | 5.75 | 6.42 | 6.42 | 6.67 |
| HD Video Clip Overall | 6 | 6.25 | 6 | 6 | 6.5 | 5.75 | 6 | | 5.75 | 6.25 | 6.25 | 6.5 |
| F.E.A.R | 6.6 | 6.55 | 6.2 | 6.25 | 6.4 | 6.3 | 6.2 | | 6.3 | 6.6 | 6.45 | 6.55 |
| Oblivion | 6.42 | 6.58 | 6.08 | 6.33 | 6.67 | 6.42 | 6.00 | | 6.33 | 6.58 | 6.50 | 6.67 |
| Viewable Angle (Text / Movie) | 6 / 6 | 6.5 / 6.25 | 6 / 5.5 | 6 / 6 | 6.25 / 6.25 | 6.25 / 6 | 6 / 5.75 | | 6 / 6 | 6.5 / 6.25 | 6.5 / 6.25 | 6.25 / 6.25 |

**BEST PERFORMER**
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MAY 2008

## 19-inch LCDs

| Brand Model | Dell 1908 FP | HP L 1950 | Intex IT 1904 W | LG W 1952 TQ-PF | LG W 1942 T | NEC MultiSync 1990 SX | | NEC MultiSync 1970 NXP | Samsung 943 NXW | Samsung 953 BW | ViewSonic VA 1912 wb | ViewSonic VX 1940 w |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Price | Rs 14,000 | Rs 17,500 | Rs 9,500 | Rs 12,000 | Rs 9,400 | Rs 42,000 | | Rs 28,900 | Rs 12,500 | Rs 10,000 | Rs 9,650 | Rs 10,650 |
| Plus (+) | Great Stand and Build | Good build quality | Great Stand, looks | Sleek, Compact | Sleek, compact | Great performance | | Good performance | Neat Looks | Decent performer | Compact | Built Well |
| Minus (-) | Mediocre Contrast | Pricey | Mediocre performer | Slightly expensive | None in particular | Very Costly | | Very Costly | Quirky touch buttons | None in particular | Build Quality | Poor colour performance |
| **Grand Totals (Out of 100)** | 61.27 | 63.73 | 48.41 | 46.23 | 46.59 | 59.29 | | 56.06 | 45.87 | 52.44 | 47.97 | 53.73 |
| **Features (Out of 45)** | 25.74 | 26.33 | 13.59 | 11.61 | 11.79 | 18.52 | | 16.22 | 10.67 | 16.65 | 13.10 | 19.13 |
| **Performance (Out of 55)** | 35.53 | 37.40 | 34.82 | 34.62 | 34.80 | 40.77 | | 39.83 | 35.20 | 35.79 | 34.87 | 34.61 |
| **Features** | | | | | | | | | | | | |
| Pixel Pitch (mm) | 0.294 mm | 0.294 mm | 0.283 mm | 0.283 mm | 0.283 mm | 0.294 mm | | 0.294 mm | 0.258 mm | 0.284 mm | 0.285 mm | 0.248 mm |
| Luminance (Cd/m2) | 300 Cd / m2 | 300 Cd / m2 | 300 Cd / m2 | 300 Cd / m2 | 300 Cd / m2 | 250 Cd / m2 | | 250 Cd / m2 | 300 Cd / m2 | 300 Cd / m2 | 280 Cd / m2 | 300 Cd / m2 |
| Contrast Ratio | 800:1 | 800:1 | 700:1 | 800:1 | 800:1 | 800:1 | | 800:1 | 800:1 | 800:1 | 700:1 | 1000:1 |
| Type of Panel (TN/S-IPS/MVA/PVA etc) | TN | TN | TN | TN | TN | S-IPS | | MVA | TN | TN | TN | TN |
| Native Resolution / Aspect Ratio | 1280 x 1024 pixels / Normal | 1280 x 1024 pixels / Normal | 1440 x 900 pixels / Wide | 1440 x 900 pixels / Wide | 1440 x 900 pixels / Wide | 1280 x 1024 pixels / Normal | | 1280 x 1024 pixels / Normal | 1440 x 900 pixels / Wide | 1440 x 900 pixels / Wide | 1440 x 900 pixels / Wide | 1440 x 900 pixels / Wide |
| Number of Colours (Millions) | 16.7 Million | 16.7 Million | 16.7 Million | 16.7 Million | 16.2 Million | 16.77 Million | | 16.77 Million | 16.2 Million | 16.2 Million | 16.2 Million | 16.7 Million |
| Response Time in milliseconds | 5 ms (R+F) | 5 ms (R+F) | 8 ms (R+F) | 2 ms (GTG) | 5 ms (R+F) | 8 ms (GTG) | | 20 (R+F) | 2 ms (GTG) | 2 ms (GTG) | 5 ms (R+F) | 5 ms (R+F) / 2 ms (GTG) |
| USB Hub / No of Ports | Y/4 | N/NA | N/NA | N/NA | N/NA | N/NA | | N/NA | N/NA | N/NA | N/NA | N/NA |
| Card Reader / Cards Supported | N/NA | N/NA | N/NA | N/NA | N/NA | N/NA | | N/NA | N/NA | N/NA | N/NA | N/NA |
| Built-in Speakers / Output (RMS) / Quality (Scale of 10) | N/NA/NA | N/NA/NA | Y/4 watts/2.5 | N/NA/NA | N/NA/NA | N/NA/NA | | N/NA/NA | N/NA/NA | N/NA/NA | Y/2 watts/2.5 | N/NA/NA |
| VESA Wall Mount | Y | Y | Y | Y | Y | N | | Y | Y | Y | Y | Y |
| Swivel Base (Vertical / Horizontal Axis) | Vertical/Horizontal | Vertical/Horizontal | Vertical | Vertical | Vertical | Vertical | | Vertical/Horizontal | Vertical | Vertical | Vertical | Vertical |
| Height Adjustment / Portrait Mode (Y/N) | Y/Y | Y/Y | N/N | N/N | N/N | Y/Y | | Y/N | N/N | N/N | N/N | N/N |
| HDCP Support (Y/N) | Y | Y | N | N | N | N | | N | N | Y | N | Y |
| Input Interfaces | D-Sub, DVI | D-Sub, DVI | D-Sub | D-Sub, DVI | D-Sub, DVI | D-Sub, 2 x DVI, S-Video | | D-Sub, DVI | D-Sub | D-Sub, DVI | D-Sub | D-Sub, DVI |
| Extra Features | N | Flat orientation | N | N | N | N | | N | N | N | N | N |
| **Miscellaneous (Scale of 10)** | | | | | | | | | | | | |
| Bezel Thickness | 7 | 6.25 | 6.75 | 6.5 | 7.5 | 8 | | 8 | 7 | 6.75 | 6 | 6 |
| Quality Of Moving Parts | 7 | 7.5 | 7 | 7 | 7 | 7.75 | | 7.75 | 6.25 | 6.25 | 6.5 | 6.5 |
| OSD Usability | 7.5 | 7 | 6.5 | 7.5 | 7.5 | 7.75 | | 7.75 | 7.5 | 7.5 | 7 | 7 |
| **Performance (All Scale of 10)** | | | | | | | | | | | | |
| **Displaymate Video Edition** | | | | | | | | | | | | |
| **Sharpness And Resolution** | | | | | | | | | | | | |
| Image, Line Resolution And Point Shape | 6.50 | 6.67 | 6.42 | 6.58 | 6.42 | 7.08 | | 6.83 | 6.42 | 6.42 | 6.25 | 6.25 |
| Moiré Tests | 6.5 | 7.25 | 6.5 | 6.25 | 6.25 | 7.25 | | 7 | 6.5 | 6.75 | 6.25 | 6 |
| **Colour And Grayscale** | | | | | | | | | | | | |
| Streaking And Ghosting | 6.375 | 6.6875 | 6.375 | 6.1875 | 6.4375 | 6.875 | | 6.6875 | 6.5 | 6.1875 | 6 | 6 |
| White Level / Black Level Shift | 6.5 / 6.5 | 7.25 / 7.25 | 6.25 / 6.25 | 6.5 / 6.5 | 6 / 6 | 7.5 / 7.5 | | 7.25 / 7.25 | 5.75 / 5.75 | 6.25 / 6 | 5.75 / 6.25 | 5.75 / 6 |
| RGB Colour Purity | 6.75 | 7 | 6.5 | 6.25 | 6 | 8 | | 7.25 | 6 | 6.5 | 6.5 | 6.75 |
| Colour Text | 6.5 | 7 | 6.5 | 6.5 | 6.25 | 7.5 | | 7.25 | 6.25 | 6.5 | 6.75 | 6.5 |
| 16 Intensities Levels | 6.5 | 6.75 | 6.25 | 6 | 6.25 | 7.75 | | 7.5 | 6.25 | 6.5 | 6.5 | 6.5 |
| 64 Intensity For Primary / Secondary Colours | 6.5 / 6.5 | 6.75 / 6.75 | 6 / 6 | 6.25 / 6.25 | 6.25 / 6 | 7.75 / 7.75 | | 7.25 / 7.25 | 6.5 / 6.5 | 6.5 / 6.5 | 6.25 / 6.25 | 6.25 / 6 |
| 256 Colour Ramp Test | 6 | 7 | 6 | 6 | 6.25 | 8 | | 7.5 | 6.25 | 6.5 | 6 | 6 |
| **Multimedia and Game Tests (So 10)** | | | | | | | | | | | | |
| HD Video Clip Pixel Persistence / Colour / Contrast | 6.42 | 6.67 | 6.58 | 6.33 | 6.25 | 7.00 | | 6.83 | 6.58 | 6.58 | 6.42 | 6.33 |
| HD Video Clip Overall | 6.25 | 7 | 6.5 | 6.5 | 6.5 | 7 | | 7 | 6.5 | 6.75 | 6.5 | 6.5 |
| F.E.A.R | 6.55 | 6.9 | 6.3 | 6.4 | 6.25 | 7 | | 7.2 | 6.45 | 6.6 | 6.4 | 6.4 |
| Oblivion | 6.58 | 6.67 | 6.50 | 6.58 | 6.58 | 7.58 | | 7.58 | 6.58 | 6.75 | 6.58 | 6.58 |
| Viewable Angle (Text / Movie) | 6.5 / 6.25 | 6.75 / 6.5 | 6.25 / 6 | 6 / 6 | 6.5 / 6.5 | 8.25 / 7.75 | | 8 / 7.75 | 6.5 / 6.25 | 6.5 / 6.5 | 6.5 / 6.25 | 6.25 / 6.25 |

| | 20-inch LCDs | | | | 22-inch LCDs | | | | | | 24-inch LCD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Brand** | BenQ | Dell | Samsung | Samsung | Dell | Samsung | HP | AOC | ViewSonic | ViewSonic | LG |
| **Model** | T201W | SP 2008 WFP | 2053 BW | 2043 NWX | SP 2208 WFP | SyncMaster 2253LW | L2208w | 2217 Pwc | Va 2216W | VX 2255WM H2 | L246 Wp |
| **Price** | Rs 10,500 | Rs 12,700 | Rs 14,500 | Rs 12,500 | Rs 15,386 | Rs 17,500 | Rs 18,500 | Rs 16,000 | Rs 13,500 | Rs 15,500 | Rs 28,000 |
| **Plus (+)** | Built Well | Great looks and Build | Well Built, Neat looks | Decent performer | Excellent Value, Great performance | Good performance | Attractive looks | Decent Looks | Decent Performance | Neat Looks, good performance | Great performance and Build |
| **Minus (-)** | Dated Looks | Glossy panel | Slightly costly | Quirky touch panels | Glossy panel | Slightly Expensive | Mediocre Performance | Bulky Stand | Build Quality | Mediocre Build quality | Bulky, Slightly expensive |
| **Grand Totals (Out of 100)** | 45.21 | 61.64 | 55.40 | 48.00 | 64.30 | 58.99 | 47.07 | 60.44 | 54.10 | 57.90 | 69.21 |
| **Features (Out of 45)** | 9.95 | 23.27 | 17.28 | 11.21 | 25.83 | 20.48 | 11.43 | 25.47 | 18.61 | 21.35 | 29.86 |
| **Performance (Out of 55)** | 35.27 | 38.38 | 38.12 | 36.80 | 38.47 | 38.51 | 35.64 | 34.97 | 35.49 | 36.55 | 39.35 |
| **Features** | | | | | | | | | | | |
| Pixel Pitch (mm) | 0.258 mm | 0.258 mm | 0.258 mm | 0.258 mm | 0.282 mm | 0.276 mm | 0.282 mm | 0.277 mm | 0.282 mm | 0.270 mm | 0.270 mm |
| Luminance (Cd/m2) | 250 Cd / m2 | 300 Cd / m2 | 300 Cd / m2 | 300 Cd / m2 | 300 Cd / m2 | 300 Cd / m2 | 300 Cd / m2 | Cd / m2 | 280 Cd / m2 | 500 Cd / m2 | 500 Cd / m2 |
| Contrast Ratio | 1000:1 | 1000:1 | 1000:1 | 1000:1 | 1000:1 | 1000:1 | 1000:1 | 1000:1 | 700:1 | 1000:1 | 1000:1 |
| Type of Panel (TN/S-IPS/MVA/PVA etc) | TN | TN | TN | TN | TN | TN | TN | TN | TN | TN | P-MVA |
| Native Resolution (H. Pixels x V. Pixels) / Aspect Ratio | 1680 x 1050 pixels / Wide | 1680 x 1050 pixels / Wide | 1680 x 1050 pixels / Wide | 1680 x 1050 pixels / Wide | 1680 x 1050 pixels / Wide | 1680 x 1050 pixels / Wide | 1680 x 1050 pixels / Wide | 1680 x 1050 pixels / Wide | 1680 x 1050 pixels / Wide | 1680 x 1050 pixels / Wide | 1920 x 1200 pixels / Wide |
| Number of Colours (Millions) | 16.2 Million | 16.7 Million | 16.7 Million | 16.7 Million | 16.7 Million | 16.7 Million | 16.2 Million | 16.7 Million | 16.7 Million | 16.7 Million | 16.7 million |
| Response Time in milliseconds (Gray To Gray) | 5 ms (R+F) | 2 ms (GTG) | 2 ms (GTG) | 5 ms (R+F) / 2 ms (GTG) | 2 ms (GTG) | 5 ms (R+F) / 2 ms (GTG) | 5 ms (R+F) | 5 ms (R+F) | 5 ms (R+F) | 5 ms (R+F) / 8 ms (GTG) | 8 ms |
| USB Hub (Y/N) / No of USB Ports | N/NA | Y/4 | N/NA | N/NA | Y/4 | N/NA | N/NA | Y/3 | N/NA | N/NA | Y/2 |
| Card Reader (Y/N) / Types of Memory Cards Supported | N/NA | N/NA | N/NA | N/NA | N/NA | N/NA | N/NA | N/NA | N/NA | N/NA | N/NA |
| Built-in Speakers (Y/N) Output (RMS) / Quality (So 10) | Y/2 watts/3.75 | N/NA/NA | N/NA/NA | N/NA/NA | N/NA/NA | N/NA/NA | N/NA/NA | Y/4 watts/3 | Y/4 watts/3 | Y/4 watts/3 | Y/6 watts/3.5 |
| VESA Wall Mount | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Swivel Base (Vertical/Horizontal Axis) | Vertical | Vertical | Vertical | Vertical | Vertical | Vertical | Vertical | Vertical | Vertical | Vertical | Vertical |
| Height Adjustment / Portrait Mode (Y/N) | N/N | N/N | N/N | N/N | N/N | N/N | N/N | N/N | N/N | N/N | Y/Y |
| HDCP Support (Y/N) | N | Y | Y | N | Y | Y | N | Y | Y | Y | Y |
| Input Interfaces (D-Sub/DVI/Component/S-Video/ HDMI) | D-Sub | D-Sub, DVI | D-Sub, DVI | D-Sub | D-Sub, DVI, HDMI | D-Sub, DVI | D-Sub | D-Sub, DVI | D-Sub, DVI | D-Sub, DVI | D-Sub, Component, HDMI |
| Extra Features If Any (WebCam, Ipod dock etc) | N | Integrated Webcam | N | N | Integrated Webcam | NA | NA | Integrated Webcam | NA | Integrated Webcam | NA |
| **Miscellaneous (So 10)** | | | | | | | | | | | |
| Bezel Thickness | 6.25 | 7.75 | 7.25 | 7 | 8 | 7.75 | 7.5 | 7.5 | 7 | 7 | 7.75 |
| Quality Of Moving Parts | 6 | 8 | 7.25 | 7.25 | 8 | 7.75 | 7.5 | 7.5 | 7 | 7.25 | 7.75 |
| OSD Usability | 6.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.25 | 7.25 | 7.25 |
| **Performance** | | | | | | | | | | | |
| **Displaymate Video Edition (So 10)** | | | | | | | | | | | |
| **Sharpness And Resolution** | | | | | | | | | | | |
| Image, Line Resolution and Point Shape Tests (Avg Score) | 6.33 | 6.42 | 6.67 | 6.33 | 6.50 | 6.50 | 6.42 | 6.42 | 6.25 | 6.42 | 6.67 |
| Moiré Tests | 6.25 | 6.75 | 6.75 | 6.25 | 6.75 | 6.5 | 6.5 | 6.5 | 6 | 6.5 | 6.75 |
| **Colour And Gray-Scale** | | | | | | | | | | | |
| Streaking And Ghosting Tests (Avg Score) | 6.25 | 6.625 | 6.5625 | 6.4375 | 6.6875 | 6.625 | 6.25 | 6.4375 | 6.375 | 6.4375 | 6.6875 |
| White-Level/Black Level Shift | 6.5 / 6.25 | 6.75 / 7.25 | 7.5 / 7.25 | 6.75 / 6.25 | 7 / 7 | 7 / 7 | 7 / 7 | 6.5 / 6.5 | 6.25 / 6.25 | 6.5 / 6.5 | 6.75 / 6.75 |
| RGB Colour Purity Tests | 6.5 | 7.25 | 6.75 | 6.25 | 7.25 | 7.25 | 6.75 | 6.5 | 6.5 | 7 | 7 |
| Colour Text Tests | 6 | 7 | 7 | 7 | 7 | 7.25 | 7.25 | 6.75 | 6.25 | 7 | 7.25 |
| 16 Intensities Levels | 6.25 | 6.25 | 6.5 | 6.5 | 6.25 | 6.75 | 6.5 | 3.25 | 6.5 | 6.5 | 7 |
| 64 Intensity For Primary Colours / Secondary Colours | 6.75 / 6.25 | 6.5 / 6.5 | 6.25 / 6.5 | 6.25 / 6.25 | 6.5 / 6.5 | 6.5 / 6.5 | 6.25 / 6 | 5.75 / 5.75 | 6 / 6 | 6.25 / 6.25 | 7.25 / 7 |
| 256 Colour Ramp Test | 6.25 | 6.5 | 6.5 | 6.25 | 6.25 | 6 | 5.75 | 5 | 6.25 | 6.25 | 7.25 |
| **Multimedia and Game Tests (So 10)** | | | | | | | | | | | |
| HD Video Clip Pixel Persistence/ Colour / Contrast | 6.42 | 7.00 | 7.00 | 6.50 | 7.08 | 7.00 | 6.33 | 6.42 | 6.25 | 6.42 | 6.83 |
| HD Video Clip Overall Viewing Experience | 6.5 | 7.25 | 7.25 | 7 | 7.25 | 7.25 | 6.5 | 6.5 | 6.25 | 6.5 | 7.25 |
| F.E.A.R (Pixel Response, Effects, HDR, Contrast) | 6.4 | 7.3 | 7.1 | 6.95 | 7.2 | 7.25 | 6.8 | 6.8 | 6.7 | 6.85 | 7.25 |
| Oblivion (Texture Quality, HDR, Transparency) | 6.50 | 7.42 | 7.33 | 7.17 | 7.67 | 7.58 | 6.92 | 7.17 | 6.83 | 6.83 | 7.42 |
| Viewable Angle Test (Text / Movie) | 7 / 6.5 | 7.5 / 7.5 | 7.25 / 7.25 | 7.25 / 7.25 | 7.5 / 7.5 | 7.5 / 7.5 | 6.25 / 6 | 7 / 7 | 7 / 6.75 | 7.25 / 7 | 8.25 / 8 |

# Platter Matters!

**Here's all you need to enter the world of the Terabyte!**

Sanket Naik

You've just upgraded your ancient PC—got the fastest processor, truckloads of memory and the best graphics card on the market.

But before you can really enjoy the power and speed of your new PC, you will wake up to the realisation that there is hardly any space left on your modest hard drive! Games, music, movies, HD clips, e-books—all this eats into that precious real estate. Most people buy hard drives as an afterthought ("Hmm... I have so much money left over, so I'll buy the biggest drive that fits")—we don't give them as much love as we do processors or RAM. Fortunately, higher capacity drives are now getting much more affordable.

A couple of years ago, 40 GB was the standard across most PCs, but today we see the momentum shifting towards 160 and even 250 GB. Rightly so—for nearly the same price, these drives offer better features and significantly higher performance. Last year a 750 GB hard disk retailed for Rs 14,000; today you can get a better-performing 750 GB drive for just half the price!

Recent developments such as Perpendicular Recording have vastly improved storage density. Hence, fewer components (platters and heads) are required to manufacture drives. Seagate has introduced single platter drives with capacities ranging from 80 GB to 250 GB. Fewer moving parts mean better speed, lower heat generation and hence longer life. Western Digital has introduced energy-efficient drives labelled "Green Power" or GP. These drives intelligently manage power consumption through smart control of rotation speed (RPM) and head actuator movement. They claim to shave off 4 to 5 watts of power, without any significant performance hits.

In this test, we see the industry also aligning itself toward higher capacity drives. For instance, out of the 17 drives we've tested, the bulk comprises of 500 GB, 750 GB and 1 TB drives. In contrast, last year we had just one each of 750 GB and 1 TB, with 500 GB drives making the bulk. Back then, 320 GB drives were the newest thing in the market, and 500 GB were for the "elite". Higher capacity drives now offer better value to the customer—at an asking price of Rs 7,500, a single 750 GB drive makes more sense than three 250 GB or two 500 GB drives.

We put these drives through their paces to see which of them fulfil their promises.

## Features
### Interface
Barring the WD Raptor 150 GB, all other drives are SATA II compliant—that is, their interface speed can go up to 3 Gbps. However, note that the SATA II specification also lists down other features, and it does not exclusively refer to 3 Gbps. Around the completion of our test, WD launched a newer version of their Raptor drive—called the VelociRaptor (300 GB) that supports SATA II. We will review it shortly.

All drives have improved SATA connectors with additional latches, ensuring that the cables don't come out like it used to with the older connectors. Also, all drives offer the option of going back to 1.5 Gbps, if there are compatibility issues with your motherboard's SATA controller. Seagate and Western Digital have jumpers for this purpose. In the case of Hitachi, you need to download the Feature tool to downgrade the interface speed.

### Buffers And RPMs
Till last year, most drives would come with 8 MB buffer and a select few would boast of 16 MB.

Seagate's newer drives—7200.11 (7200.9 and 7200.10 are older generation), have an integrated 32 MB buffer, and it seems to benefit on the performance front—even if slightly. Hitachi's 1 TB also has 32 MB, but a 16 MB version is also available. Most Western Digital drives have 16 MB, except for the AV drive, which comes with 8 MB—still reasonable for the daily grind. Seagate's 80 and 160 GB drives were the only drives with 2 MB buffers, and we also see it affecting their performance, especially, when you compare the single-platter drives with their 250 GB counterparts. 7200 RPM is still the speed of choice for most hard drive manufacturers—the Raptor was the only drive whirling at crazy 10,000 RPM. The Green Power drives from Western Digital, dynamically adjust the rotational speed, but we understand the speed varies between 5400 to 7200 RPM.

## Performance
### HD Tach RW
HD Tach RW is the first low-level test, where the hard drives are tested without creating any file system—making the results quite accurate. Although burst speeds are not of practical significance, they give us a glimpse of the drive functioning as a whole. We found that Seagate's 7200.10 750 GB achieves the maximum throughput, followed by its newer counterpart—the Barracuda 7200.11 1 TB. Both these drives reach an astonishing 260 Mbps—quite close to the theoretical limit.

| ▼ Decision Maker | | | |
|---|---|---|---|
| Usage | You need | Go For | Recommendation |
| Entry Level PC | A reliable, reasonably fast, decent capacity hard drive | Any 80 GB SATA drive. Also consider extending your budget by a few hundreds. | Seagate Barracuda 7200.10 250 GB or Western Digital Caviar SE 16 250 GB |
| Mid-Range PC | A high-capacity, better performing hard drive | A 500 GB SATA drive. If your wallet permits, we recommend a 750 GB drive instead | Seagate Barracuda 7200.11 500 GB or Seagate 7200.11 750 GB or Western Digital RE2 750 GB |
| Gaming PC | A high-throughput hard drive that can handle continuous and rigourous usage | A high capacity drive with low access time and fast I/O | Seagate Barracuda 7200.11 500 GB or Seagate 7200.11 750 GB or Hitachi Deskstar 1TB |
| Media centre PC | A quiet but high performing drive | An AV-rated drive that has low acoustics with reasonable performance | Western Digital AV 1TB |
| Backup Drive | A reliable, high capacity drive | A drive with high interface transfer speeds and proven track record | Hitachi Deskstar 1 TB or Western Digital RE2 750 GB |

The WD Raptor has a random access time of 6 ms, matched only by the Hitachi 1 TB drive. Other drives fall far behind here, with double-digit random access times. We also see this performance in the file copy tests. The Green Power drives from WD posted the worst access time, thanks mostly to the slower rotation speed.

The WD Caviar SE16 320 GB, Seagate 7200.11 drives and the single platter Seagate 250 GB sported the best Average Read /

Write speeds. The large 16 and 32 MB caches are doing their bit to speed up the read and write operations of these drives. Other drives were not far behind, but a difference of 10 Mbps between hard drives translates to a lot more in practical usage. Seagate's Barracuda 7200.10 250 GB marches ahead of other drives in this test, thanks to a perfect balance of cache, interface speed and single platter configuration.

### H2Bench

Another low-level benchmark which reproduces precise results and requires raw hard drives—that is, drives without any file system or partitions. Seagate's Barracuda 7200.11 posted the best sequential transfer speeds—we attribute this to better drive electronics and higher cache. The WD 320 GB AAKS (last year's winner), still holds its ground and delivers a performance as

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## How We Tested

The performance test for hard drives consists of synthetic tests, benchmarking software and real-world tests—where application performance and file transfer speeds are tested. The synthetic tests were conducted using two types of benchmarks—low-level benchmarks—namely, HD Tach RW 3.0.1.0 and H2Bench, and standard benchmarks PCMark 05 and SiSoft Sandra XI SP1.

### Features
In the features, we noted and rated various features of the hard drive such as capacity, dimension, weight, bundled software, interface type, cables and accessories and ruggedness.

### Performance
HD Tach RW 3.0.1.0 was used for noting down the following parameters in the test hard drive.

### CPU Utilisation
Lower CPU utilisation is better, and is measured as a percentage of the maximum.

### Random Access Time Benchmark
Random access is the time required to retrieve data from random locations on the drive. It is represented as time—the lower the value, the better the drive.

### Average Read And Write Speed
It is the speed with which data can be accessed from the drive. The speed is represented as throughput and generally specified as Mbps—the higher the score, the better the drive.

### Burst Speed
The maximum interface speed that can be achieved by the drive is known as the burst speed. This is identical to PMPO in speakers. Burst speeds are indicated in terms of Mbps—the higher the score, the better the drive.

### H2Bench
With H2bench, we measure the interface speed at 50 per cent of the drive's capacity. The "Core Test" or Repetitive Sequential Read Test was then performed and through repeated sequential reads, revealed the maximum transfer rate of the drive. The read and write seek times were also noted.

### PCMark 05
FutureMark's PCMark 05, is a very popular tool to benchmark the entire system. We noted the scores of the following components from the hard drive benchmark module.
**XP Startup:** This simulates a typical Windows XP startup, and tests the performance of the hard drive at initiation.
**Application Loading:** This simulates the opening and closing

| Test Rig Configuration | |
|---|---|
| Processor | Intel Core 2 Extreme X6800 |
| Motherboard | Intel D975XBX2 |
| Chipset | Intel 975 |
| Memory | 1 GB Corsair at 800 MHz |
| Host Hard Drive | Hitachi 500 GB |
| OS | Windows XP SP2 (updated) |

of several applications such as Adobe Reader and Windows Media Player.
**Virus Scan:** This tests the drive performance during a simulated virus scan of approximately 600 MB of files with different file types.

### SiSoft Sandra XI SP1
The scores of Sequential Read, Random Read, Sequential Write, Random Write and Access Time were reported at the end of this benchmark, which we duly noted. This is one benchmark that reproduces constant results, which is why we still use it.

### Real World Tests—File Copy
The Real World tests consisted of copying a 4 GB (1 GB for external drives) file (for sequential data transfer speed) and 4 GB of assorted files (for random data transfer speed). The time taken for this data transfer was noted down. The assorted files consisted of multiple file types that included applications, Word documents, Excel files, MP3s and small video clips, thus simulating the real world situation where such files will be copied.

Three tests were carried out—first Read/Write Assorted files, followed by Read / Write sequential file and lastly, both file types were copied from one partition of the test hard drive to the other. The last test puts the hard drive to the highest stress levels and gives a clear verdict of how good the drive performs in a real world scenario, where we end up moving data between partitions.

### Real World Test—Photoshop CS3
We installed Adobe Photoshop CS3, and configured the scratch disk to occupy the first partition of the test drive. We then started the application and noted the time taken for it to open completely. We then copied two PSD files, a 550 MB and a 1 GB, to the first partition of the test drive and clocked the times taken to open each of these.

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good as Seagate's new generation drives. Seagate's Barracuda 7200.11 500 GB trumps in this test. Hitachi drives, especially the 1 TB does come really close to the winner, but looses out by a tiny margin. Though one would expect the WD Raptor to deliver a knockout performance, its 1.5 Gbps interface limits it. We expect the new VelociRaptor to put up a better show.

### PCMark 05
The well known system-wide test suite, PCMark 05, has a special test aimed at gauging hard drive performance. In the XP start up sub-test, WD's Raptor scored the highest. This is largely due to its low access time (seek time). Similar results are seen with the Hitachi 1 TB drive that has a low access time of 6 ms. Seagate's 7200.11 and the WD Caviar SE16 750GB followed closely. In the Virus scan test—important because it involves lot of IO—the Seagate Barracuda 7200.11 500 GB, delivered an astonishing 142 Mbps. Seagate's 750 GB and 1 TB were trailing, but still ahead of the WD and Hitachi drives. Seagate's 80 and 160 GB Barracuda are at the bottom of the heap and it's partly the 2-MB cache that's to blame! Please stay away from these drives—the 250 GB is a much better bet.

### SiSoft Sandra XI SP1
Seagate's Barracuda 7200.11 500 GB posted the highest Drive Index score, followed very closely by Western Digital's Caviar 320 GB and Seagate's 7200.11 750 GB. These three drives have significantly better sequential read and write speeds, and they overshadow other drives. Despite lower interface speeds, the WD Raptor does deliver when it comes to random read / write operation—better access times make up for the lower interface speeds. WD's RE2 750 GB posted better scores



**Barracuda 7200.11 500 GB**

across the various sub-tests and is one of the better drives other



**Seagate's Barracuda 7200.11 750 GB**

than the Seagate 7200.11 drives. Overall, the Seagate Barracuda 7200.11 500 GB came out as the winner.

### Real World Copy Tests
In the assorted write test, the Western Digital Raptor completed the test in the least possible time. The 10K spindle speed coupled with low access times helps it achieve this feat. Western Digital Caviar 320 GB and Seagate's 7200.11 500 GB were next set of drives to complete the file transfer. All other drives took 4 to 5 seconds more than these two drives to complete the test. The 80 GB and 160

GB from Seagate took 43 seconds more, and were way behind all drives. These two drives are seriously handicapped and should be avoided.

Almost all drives did well on the Assorted Read test, and delivered consistent results, taking approximately 83 seconds to read 4 GB of data. In the partition-to-partition file copy test, WD's caviar 320GB completed the feat in the least time. In this test, the buffer memory makes all the difference. However, apart from buffer size, buffer speed also dictates the final outcome. For example, the Seagate's 7200.11 has a 32-MB buffer. However, these are outdone by the 7200.10 Seagate drives and we presume it is due to the buffer speed.

The sequential read / write test results are similar to the assorted read / write test results. However, in sequential partition-to-partition file transfer, the Western Digital Caviar 320 GB takes the pole position dethroning Raptor. The other drives put up reasonably good performance, barring the two Seagate's namely 80 and 160 GB.

### Winners
Seagate's Barracuda 7200.11 500 GB delivered consistent performance throughout, and we adjudge it as the Best Performer. Western Digital's Caviar 320 GB (our last year's winner), still has enough steam to stay ahead of the competitors. However, given the price difference, we recommend Seagate's 500 GB. You get 160 GB of more space at a paltry difference of just 400 bucks. For its superb value for money, we also award the Seagate Barracuda 7200.11 500 GB our *Best Buy* award.

The Editor's choice goes to Seagate's Barracuda 7200.11 750 GB drives. To put it in simple words, the 750 GB makes more sense, given the quantity of data that resides on our hard drives—especially, HD movies and games. For us—1 TB drives are still expensive, but the 750 GB are sweetly priced! ∎

*sanket.naik@thinkdigit.com*

| Contact Sheet | | Speakers | | |
|---|---|---|---|---|
| **Brand** | **Company** | **Phone No** | **E-mail** | **Web site** |
| Western Digital | Western Digital India | 9321029204 | amarjeet.singh@wdc.com | www.wdc.com |
| Hitachi | Cyberstar Infocom Limited | 080-34035467 | sales@cyberstarindia.com | www.hitachigst.com |
| Seagate | Fortune Marketing | 011- 26414468 | sales@fortune-it.com | www.seagate.com |

## Hard Disk Drives

| Brand<br>Model | Seagate 7200.10<br>ST3802154S | WD Raptor<br>WD1500ADFD | Seagate 7200.10<br>ST3160215AS | Seagate 7200.10<br>ST3250310AS | WD Caviar SE16<br>WD3200AAKS | Seagate 7200.11<br>ST3500320AS | Hitachi T7K500<br>HDT25050 VLA360 | WD Caviar SE16<br>WD5000AAKS | WD AV<br>WD5000AVJS | Seagate 7200.10<br>ST3750640AS | Seagate 7200.11<br>ST3750330AS | WD Caviar SE16<br>WD7500AAKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Formatted Capacity (GB) | 80 GB | 150 GB | 160 GB | 250 GB | 320 GB | 500 GB | 500 GB | 500 GB | 500 GB | 750 GB | 750 GB | 750 GB |
| Performance (Out of 100) | 44.88 | 51.15 | 44.12 | 51.78 | 56.53 | 56.77 | 49.34 | 45.52 | 46.67 | 50.57 | 56.36 | 53.76 |
| Price | Rs 1,895 | Rs 9,000 | Rs 2,325 | Rs 2,900 | Rs 4,500 | Rs 4,900 | Rs 5880 | Rs 5,000 | Rs 8,400 | Rs 7,500 | Rs 8,900 | Rs 7,500 |
| **Features** | | | | | | | | | | | | |
| Interface Type | SATA II | SATA I | SATA II | SATA II | SATA II | SATA II | SATA II | SATA II | SATA II | SATA II | SATA II | SATA II |
| Number of Platters | 1 | NA | 1 | 1 | NA | 2 | 3 | NA | 3 | 4 | 3 | NA |
| Rotational Speed (RPM) | 7,200 | 10,000 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 |
| Buffer Memory (MB) | 2 | 16 | 2 | 8 | 16 | 32 | 16 | 16 | 8 | 16 | 32 | 16 |
| **Performance** | | | | | | | | | | | | |
| HD Tach 3.0.1.0 | | | | | | | | | | | | |
| CPU Utilisation (%) | 2 | 4 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 2 | 3 | 2 |
| Average Read (MB/s) | 73.3 | 75.3 | 63.4 | 89.9 | 92.7 | 92.2 | 64.2 | 62.2 | 69.4 | 66.9 | 91.4 | 80.2 |
| Average Write (MB/s) | 70.3 | 66.2 | 61.2 | 86.9 | 84.1 | 83.5 | 60.5 | 59.5 | 66.8 | 62.4 | 82.2 | 73.9 |
| Random Access Time (ms) | 12.4 | 8 | 15.4 | 15.2 | 16.4 | 12.2 | 13.2 | 13.4 | 20.2 | 13.7 | 12.8 | 13.8 |
| Read Burst Speed (MB/s) | 231.7 | 135.2 | 231.8 | 245.7 | 237.9 | 255.3 | 221.2 | 192.2 | 205.8 | 260.9 | 254.7 | 222.4 |
| H2Bench | | | | | | | | | | | | |
| Random Access Write (ms) | 6.51 | 5.93 | 7.64 | 8.2 | 8.19 | 7.22 | 7.35 | 7.69 | 8.24 | 10.6 | 7.62 | 7.38 |
| Random Access Read (ms) | 12.41 | 8.12 | 15.21 | 15.29 | 16.34 | 12.26 | 13.59 | 13.31 | 20.41 | 13.61 | 12.4 | 13.31 |
| Interface Speed (50%): Sequential Transfer (MB/s) | 133.05 | 118.07 | 137.38 | 141.9 | 202.8 | 207.83 | 162.4 | 120.6 | 143.95 | 191.58 | 211.34 | 152.73 |
| Repetitive Sequential Read "Core Test"(MB/s) | 177.44 | 127.13 | 175.22 | 205.1 | 191.8 | 221.89 | 201.3 | 150.89 | 161.68 | 225.71 | 221.88 | 171.78 |
| PCMark 05 | | | | | | | | | | | | |
| HDD XP Startup (MB/s) | 7.9 | 11.25 | 8.47 | 9.4 | 9.8 | 9.31 | 9.71 | 8.97 | 8.88 | 8.88 | 9.21 | 10.05 |
| HDD Application Loading (MB/s) | 5.3 | 9.2 | 5.7 | 6.8 | 7.21 | 7.45 | 7.48 | 7.49 | 7.08 | 6.95 | 7.37 | 7.9 |
| HDD General (MB/s) | 4.2 | 8.08 | 4.28 | 5.5 | 6.18 | 6.7 | 6.43 | 6.64 | 5.81 | 5.4 | 6.78 | 6.7 |
| HDD File Write (MB/s) | 64.95 | 83.97 | 74.32 | 94.9 | 105.71 | 99.15 | 68.352 | 65.59 | 74.27 | 72.87 | 99.07 | 90.98 |
| HDD Virus Scan (MB/s) | 50.58 | 96.88 | 61.19 | 117.68 | 122.66 | 141.98 | 129.25 | 80.09 | 94.97 | 138.07 | 137.05 | 109.62 |
| SiSoft Sandra XI SP1 | | | | | | | | | | | | |
| Drive Index (MB/s) | 65 | 70 | 65 | 77 | 89 | 90 | 64 | 61 | 68 | 65 | 88 | 80 |
| Sequential Read (MB/s) | 76 | 83 | 76 | 97 | 109 | 109 | 74 | 71 | 79 | 77 | 106 | 93 |
| Random Read (MB/s) | 51 | 54 | 51 | 45 | 58 | 59 | 50 | 47 | 51 | 49 | 59 | 58 |
| Sequential Write (MB/s) | 74 | 76 | 76 | 98 | 107 | 104 | 68 | 70 | 79 | 76 | 104 | 92 |
| Random Write (MB/s) | 42 | 55 | 43 | 50 | 70 | 77 | 51 | 49 | 51 | 48 | 76 | 67 |
| Access Time (ms) | 7 | 6 | 7 | 12 | 8 | 8 | 6 | 7 | 7 | 7 | 8 | 7 |
| Real World Tests (lower is better) | | | | | | | | | | | | |
| Assorted 4 GB File Write (sec) | 113 | 70 | 114 | 79 | 73 | 73 | 79 | 77 | 77 | 76 | 75 | 72 |
| Assorted 4 GB File Read (sec) | 83 | 82 | 86 | 85 | 83 | 88 | 84 | 83 | 83 | 87 | 86 | 85 |
| Assorted 4 GB Internal File Copy (sec) | 351 | 138 | 362 | 187 | 126 | 168 | 160 | 174 | 194 | 152 | 167 | 139 |
| Sequential 4 GB File Write (sec) | 60 | 97 | 59 | 58 | 58 | 59 | 60 | 60 | 59 | 58 | 59 | 58 |
| Sequential 4 GB File Read (sec) | 65 | 65 | 67 | 65 | 67 | 65 | 64 | 65 | 61 | 63 | 62 | 65 |
| Sequential 4 GB Internal File Copy (sec) | 308 | 127 | 377 | 142 | 109 | 170 | 135 | 167 | 180 | 124 | 170 | 123 |
| Photoshop CS2 Image Load (1 GB file) (sec) | 82 | 85 | 85 | 80 | 85 | 85 | 86 | 84 | 85 | 84 | 84 | 84 |

## HDD

| Brand<br>Model | WD RE2<br>WD7500AYYS | Seagate 7200.11<br>ST31000340AS | Hitachi 7K1000<br>HDS721010KLA330 | WD AV<br>WD10EVCS | W D RE2 GP<br>WD1000FYPS |
|---|---|---|---|---|---|
| Formatted Capacity (GB) | 750 GB | 1 TB | 1 TB | 1 TB | 1 TB |
| Performance (Out of 100) | 52.42 | 54.16 | 53.69 | 49.10 | 47.80 |
| Price | Rs 8,400 | Rs 11,250 | Rs 16,100 | Rs 14,000 | Rs 17,000 |
| **Features** | | | | | |
| Interface Type | SATA II | SATA II | SATA II | SATA II | SATA II |
| Number of Platters | NA | 4 | 5 | 4 | 4 |
| Rotational Speed (RPM) | 7200 | 7,200 | 7,200 | 5400-7200 | 5400-7200 |
| Buffer Memory (MB) | 16 | 32 | 32 | 16 | 16 |
| **Performance** | | | | | |
| HD Tach 3.0.1.0 | | | | | |
| CPU Utilisation (%) | 3 | 3 | 3 | 1 | 2 |
| Average Read (MB/s) | 79.2 | 85.9 | 72.7 | 64 | 64.3 |
| Average Write (MB/s) | 72.9 | 77.7 | 70.1 | 58.8 | 59.1 |
| Random Access Time (ms) | 13.9 | 12.7 | 12.5 | 21.8 | 15 |
| Read Burst Speed (MB/s) | 222.1 | 259.7 | 219.7 | 224.2 | 233.8 |
| H2Bench | | | | | |
| Random Access Write (ms) | 7.9 | 12.33 | 6.36 | 8.39 | 7.67 |
| Random Access Read (ms) | 13.47 | 12.79 | 12.83 | 21.99 | 15.52 |
| Interface Speed (50%): Sequential Transfer (MB/s) | 150.5 | 216.5 | 162.5 | 163.19 | 162.9 |
| Repetitive Sequential Read "Core Test"(MB/s) | 166.9 | 221.8 | 200.8 | 174.7 | 173.11 |
| PCMark 05 | | | | | |
| HDD XP Startup (MB/s) | 9.73 | 8.87 | 10.1 | 8.22 | 8.15 |
| HDD Application Loading (MB/s) | 7.7 | 7.2 | 9.1 | 6.8 | 6.7 |
| HDD General (MB/s) | 6.63 | 6.8 | 8.08 | 6.7 | 5.77 |
| HDD File Write (MB/s) | 91.33 | 92.6 | 79.15 | 74.96 | 74.76 |
| HDD Virus Scan (MB/s) | 109.6 | 137.8 | 132.98 | 105.23 | 105.71 |
| SiSoft Sandra XI SP1 | | | | | |
| Drive Index (MB/s) | 79 | 82 | 72 | 64 | 65 |
| Sequential Read (MB/s) | 93 | 98 | 83 | 75 | 75 |
| Random Read (MB/s) | 56 | 56 | 55 | 48 | 47 |
| Sequential Write (MB/s) | 92 | 94 | 83 | 73 | 75 |
| Random Write (MB/s) | 65 | 73 | 62 | 50 | 56 |
| Access Time (ms) | 7 | 8 | 6 | 8 | 8 |
| Real World Tests (lower is better) | | | | | |
| Assorted 4 GB File Write (sec) | 76 | 75 | 76 | 77 | 76 |
| Assorted 4 GB File Read (sec) | 84 | 88 | 83 | 86 | 83 |
| Assorted 4 GB Internal File Copy (sec) | 139 | 172 | 137 | 159 | 155 |
| Sequential 4 GB File Write (sec) | 59 | 60 | 59 | 59 | 59 |
| Sequential 4 GB File Read (sec) | 63 | 70 | 66 | 63 | 68 |
| Sequential 4 GB Internal File Copy (sec) | 124 | 178 | 122 | 139 | 136 |
| Photoshop CS2 Image Load (1 GB file) (sec) | 84 | 84 | 86 | 85 | 85 |

**Lead Feature**

# Little Guy, Big Worry

**Nimish Chandiramani**

At the end of 2007, a Websense State of Security survey stated that small business and SoHo owners are rather confident of the state of their security. The survey also stated that they had no reason to be. Despite more than 95 per cent claiming that they have installed antivirus and antispyware programs, more than 70 per cent of the businesses surveyed didn't use measures to block peer-to-peer (P2P) software, instant messaging (IM) or USB Flash drives—the new wave in security breaches. And the bad news doesn't end there, either.

"[SoHos and small businesses] are prime targets for attackers, as enterprises are hard to break thanks to mature security implementations. With growing penetration of broadband and the introduction of WiMAX and 3G services—especially for SMBs—it is a matter of concern that awareness of security is very still limited," Mahendra Lalwani, Country

**If you're a small business in the big, bad world, you should be more worried about your security than anyone else**

Kiran Bhosle

Manager, ZyXEL, tells us. It doesn't end at just installing security software.

## What You're Up Against

These are new times, and if you're setting up a new business, you don't even need a physical office! With online office suites and collaboration tools in this new broad(ish)band-enabled country, there's nothing stopping you building a team that's spread across the country. But we digress.

One side effect of the distributed office is that laptops and smartphones are a common sight, and the amount of work-related data you could find on them is shocking. What's worse, this (potentially sensitive) information is easily accessible once you get your hands on them. The loss or theft of your device can lead to a lot of trouble for your company—according to a McClatchy-Tribune study, around 57 per cent of corporate crime starts at a stolen laptop. You may not necessarily have to deal with a crime in such a case, but there will be the palpable embarrassment to come to terms with, at least.

And then, there's the common oversight that Sunil Chandna, CEO, Stellar Information Systems points out: "Small businesses have data distributed across desktops, laptops and servers—this increases their risk. Usually, data created by server applications is backed up, but the desktop / laptop data is left unattended."

Then, of course, there's the threat to your network. The Internet and e-mail continue to be the biggest threats—more importantly, it's the way employees use them that matters. In Websense's 2007 State of Security India survey, 35 per cent of the IT managers surveyed believed that employees were a great threat to security—sending work-related documents to personal accounts, clicking links that come from unknown sources and so on. Thirty per cent of the professionals surveyed admitted that they surfed aimlessly—no wonder IT managers worry so much. Not very encouraging, is it?

## What You Need

To address the threat to your networks, Lalwani recommends a "multi-layer" defence—at your

> "Solution vendors are moving from product sales to annual subscriptions to reduce the total cost of ownership of their solution"
>
> **Sunil Chandna**
> CEO, Stellar
> Information Systems

### TLAs

In your quest for a security solution, you're bound to encounter and obscene number of three-letter acronyms (TLAs)—we know we did. To ease the pain, here are some:

**VAR:** Value-added Reseller. These are software resellers who will also offer you support and added services for the products you buy.

**SOC:** Security Operations Centre. If you've opted for managed security, where your network will be monitored from. SOCs may operate during regular office hours, but you can pay extra for 24-hour service as well.

**CPE:** Customer Premises Equipment. This is the opposite of the SOC. Instead of a third party providing you with a security solution, you do it yourself with your own equipment, in your own premises.

**UTM:** Unified Threat Management. This is the term given to firewalls (usually hardware) that have a bunch of features built into them—spam filters, intrusion detection and so on.

**NSA:** Network Storage Appliance. A fancy term for a Network Attached Storage (NAS) box. These are locations on your network meant specifically for backing up important data.

Internet gateway, on your servers and on every client. "Spam can be addressed with a good server-level filtering mechanism which should be supplemented by gateway-level filtering," he says, "and the defence you design should address all applications used in the organisation, including IM, P2P, VoIP and other wireless systems."

To protect your data from untoward incidents like hard disk crashes, accidental deletion and the like, you need an automated backup solution installed on all your clients and servers. The data on your laptops and smartphones should be backed up to a secure location on your network both before they're taken out of the office and after they're returned.

If these are company-owned laptops, you should also be able to manage them remotely—disable their USB ports and / or DVD writers and so on. To secure laptops from theft, you first need to raise a physical barrier—laptop locks can prevent access to your laptop without a key or combination. You also need a way to track the laptop on the Web, and in the event of a theft, even help recover it.

## What Everyone's Doing

Lalwani tells us what one of his sales executives encountered once—"He had approached the R & D unit of a large business group. It was a small network of around sixty users. A scientist is in charge of the IT setup, and the Accounts Manager acts as the System Administrator."

Few (if any) small businesses have a dedicated IT staff, so this is usually the case—people adding IT administration to their regular jobs. To get this load off their employees, small businesses all over the country are moving towards managed security solutions—in other words, outsourcing. Security software will be deployed on your network, and administered from a Security Operations Centre (SOC), from where your network is monitored for any suspicious activity.

Security software vendors themselves are waking up to the needs of the small business and have begun to offer solutions that specifically target your needs, and more importantly, aren't dauntingly expensive. You can purchase software licenses for groups as small as three people—a welcome change from the times when business licenses were for a minimum of 25 people and cost a bomb. Their approach has changed, too—instead of selling you the product once and forgetting about it, they now offer you yearly maintenance contracts—in the long run, this can save you a lot of money.

A lot of software vendors have a well-established presence in India, and Indian software developers have started to build their own solutions too. For the international vendors that don't have Indian offices, there are several franchisees that provide sales and support.

## Securing The Network

Let's consider the multi-layer defence we spoke of earlier—the first layer is the Internet gateway. Your gateway stands between your network and the Internet, so securing this level makes secur-

ing the rest much easier. Instead of just a router, you could invest in an Internet Security Appliance (ISA)—which is, simply put, a router with security measures like a firewall, access rights and an anti-virus built in. Prices start at Rs 10,000, and depending on how much you're willing to shell out, you can even get access control to IM and P2P applications. You can get one of these from ZyXEL, Trend Micro and Cyberoam, among others.

To secure your servers and clients, you're better off with a managed security solution. You could either approach larger vendors like Sify, or strike up a deal with your local software reseller—some will install and maintain security software for you. The latter will likely come cheaper, and more importantly, will work better for you if you're in a small town. As for the software itself, take your pick—Norton, McAfee, Trend Micro, BitDefender, QuickHeal—anyone you want. Of late, both Trend Micro and BitDefender (through Unistal, an Indian security software vendor) have taken an active interest in the Indian small business, so you might find the features and prices more to your liking.

## Securing Your Data

This one's really a no-brainer, but is unfortunately easily ignored. Backing up data can be as simple as setting up an automatic backup with Windows' own backup tool. While this is easy for one or two PCs, for many clients, you'd want to ensure that data being backed up regularly, and that you can trigger a backup whenever you wish. These solutions have something of a management console that runs on a server and keeps track of the clients on your network and the files and folders on them that need to be backed up regularly, and a client service that runs on each desktop or laptop that's on your network. Bacula is an open source backup solution that runs on a Linux- or Unix-based server and Windows- or BSD-based clients—perfect for businesses on a tight budget. To make sure that your backup is safe, you can use software like Stellar Smart, which monitors your hard disk's performance and warns you if a crash is imminent—you can then take your backed-up data to a new location before the crash occurs.

Many backup software vendors also offer software that'll recover your data in the event of a crash or corruption—both Stellar and Unistal have impressive tools to recover data from corrupt hard disks, damaged Outlook PST files, Word files and many more.

If you have the bandwidth, you could consider using an online backup service like JungleDisk (**www.jungledisk.com**) or BingoDisk (**www.bingodisk.com**). Both offer high levels of security and redundancy—something that would cost you an exorbitant amount to implement in your own office—and are priced rather reasonably too. One thing we like about JungleDisk is that you only pay for what you store—$0.15 (Rs 6) per GB—but for larger amounts of data, BingoDisk might work out cheaper. You can visit JungleDisk to calculate your expenses based on how much storage

you require and how much data you'll be uploading every month.

Finally, secure your laptops. Unistal offers a tool called Locate Laptop, which runs stealthily on your laptop and reports its IP address to a personal tracking page only you have access to. If your laptop is stolen, law enforcement officers can use this IP address to track it every time the thief uses it to connect to the Internet. At Rs 3,000, it's a welcome addition to any laptop.

## The Real Secret

While installing a lot of security software can give you peace of mind, there is one flaw in our reasoning—your team. Even though IT managers believe that employees are a huge threat to your data, they also admit that it's the employees, and not the software, that are the key to keeping your data safe. No software can compete against educating your employees about your security policies and brainwas...er...inculcating the habit of following them. If employees are aware of the damage that your company's reputation could take in the event of a security breach, they'd probably pay more attention to what they're doing online.

It's a tall order, but in the long run, it'll save you money, and more importantly, will give you the time to catch up on your FreeCell skills. ▣

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**Nash David**

In recent times, we have all heard of the significance of ERP solutions in streamlining businesses. Heavyweights such as SAP, Oracle and Microsoft are all trying to woo global businesses to implement their tools, which no doubt, costs money—in fact, the word fortune is apt!

It is, apparently, a costly affair to implement ERP solutions in a business. However, in today's world of "free and open source", you should have no excuse for being left behind in the race to maximise productivity and profitability. Keeping in mind, the numerous tiny businesses and small and medium-sized entities in the industry today, we decided to find the most effective solution for this one need—Enterprise Resource Planning. Considering the shoestring budgets of SMEs, tools such as R/3 by SAP, PeopleSoft by Oracle, Microsoft Dynamics by Microsoft Corporation and SYSPRO, all seem to be out of the picture.

**All the benefits of an ERP package at your fingertips—with none of the costs!**

# Track And Streamline

As a matter of fact, this industry is so large, that by itself, other outsourcing companies such as TCS, Infosys, Wipro and others are generally roped in to carry out the implementation part! Not to forget the time lag and other overhead costs that are associated with these projects. Which is why we present this article on ERP, to equip you to stabilise, control, track and streamline your venture for higher productivity. From a host of free, open source solutions, and analysing a range of considerations, we rounded up with Tiny ERP—an open source solution, which is as expected, free, small in size, and most of all—if done meticulously, is the easiest to install.

**Basic Installation**
The pre-requisites of most ERP software are higher RAM and larger memory for the database. Nevertheless, for an SME, around 5 GB free space on your hard disk with anything around or more than 1 GB of RAM will be sufficient for smooth and glitch-free operation. Another important point to make note of is that, Tiny ERP will work only if your disk partitioning format is NTFS—it should not be FAT or FAT32. Start off by downloading the installer from the Tiny ERP Web site, at `http://tinyerp.com/download/stable/win32/`. Alternatively, click on the home page, click on the products tab, and then on download. From this page, navigate to the appropriate file. Download the all-in-one file, named tinyerp-allinone-setup-4.2.2.exe, which is a 70 MB file. This includes the database (postgresgl), as well as the server and the client, all bundled into one single setup file. This was a decisive factor

in selecting our ERP application, as other solutions required separate installations of heavier databases, Java Environments and a client in addition, and expectedly, being really heavy on system resources. One such example is that of Compiere (**www.compiere.com**).

After you download the setup for Tiny ERP, ensure that you do not have PostgreSQL installed on your system, because this can really be an issue, thereby causing error messages to pop up. Now, run the application, and just follow the instructions as they proceed. Leave the default values, especially be sure not to change any port values—assuredly, this can be the biggest pain factor during installation. The error messages as a result of port conflicts can really dampen your ERP plans. With Tiny ERP, however, you should not face such issues.

After the setup is run, it will prompt you to "Launch the Tiny ERP client". Check this box and click Finish. After launching the service, do not be alarmed to see error messages that say "cannot connect to the server." Click Cancel, and in the client, go to `File > Databases > New Database`. Enter details of the new database. By default the super admin password is "admin". Type in a new database name and click OK. After entering all these details, Tiny ERP will setup a database for your company. This will take about a minute. By default, two users are created—each with a username and password as "admin / admin" and "demo / demo", respectively.
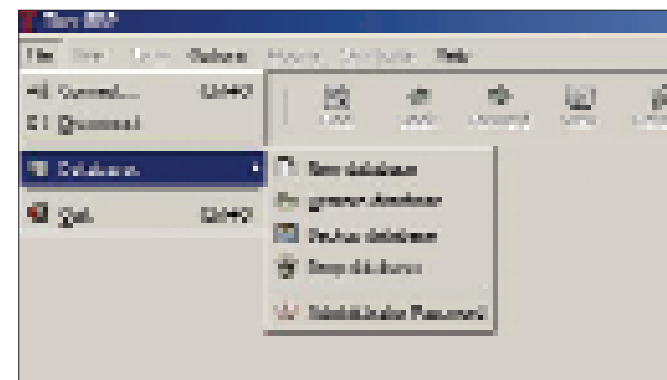

Initiate the creation of a new database

Login as an administrator, as you are the first user. Select the minimal configuration, and select your language as English. Proceed with the details of your address, which is non-essential information as far as testing this software goes. Click Install at the end of it. Tiny ERP will install all the required modules, depending on the selections that you make initially.

**Sample Application**
Once the database is installed, you are all set to use Tiny ERP! The server application is installed on the main server, while user terminals are selected as clients. Effectively, they will login as demo-user. After login, you will see a default dashboard.
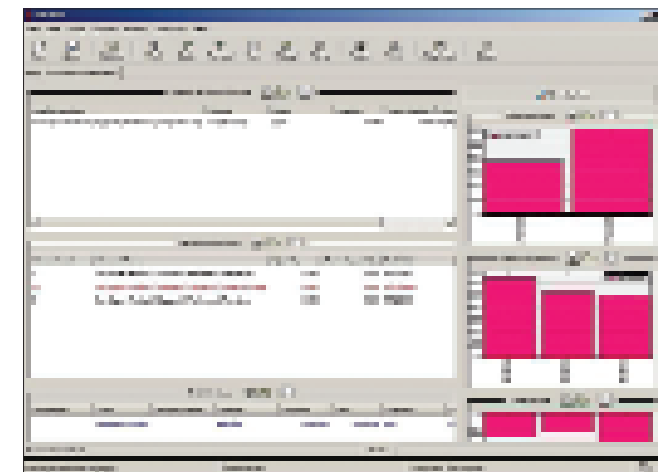

The default dashboard for an accounting profile

Close this dashboard by clicking on the close button on the toolbar on the top of the window. On the menu screen, as an example we will take a closer look at the Human Resources application. As we all know, Human Resources requires a considerable amount of data, such as payroll, leave applications, project details, and even attendance. All these involve logging into a database.

Once you click on Human Resources from the main menu, you will see a host of options. Depending on your application, you can click on any of them, and Tiny ERP will take care of entering it appropriately into the database. Being the Human Resource module, the obvious first step will be entering details of the employee names. Click on New Employee to enter all the relevant details. Typical fields such as the name of the reporting manager are also provided, so that the database is organised for queries such as leave and proj-
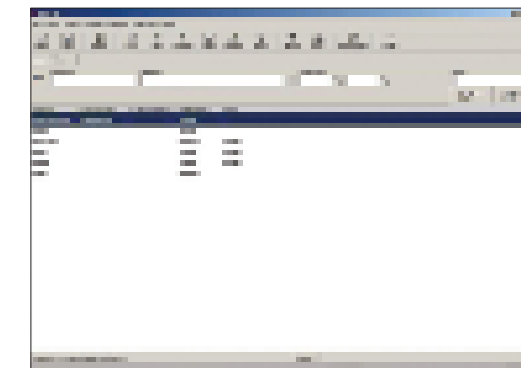

Add details of employees to streamline your HR needs

ect details.

**Easy To Use**
Similar to the application of Human Resources, Tiny ERP also provides CRM, Projects, Sales, Procurement, e-commerce and accounting modules, which you can greatly benefit from. The best part of it all is that it is really friendly to use. So feel free to experiment with the different modules that best suit your needs. ◼
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Ashwini Baviskar

# Distances
# Don't Matter

**Bhaskar Sarma**

Managing businesses in the pre-glob-alization days was pretty simple. For example, in a large company like IBM, design and production teams were housed in the same or adjoining locations (Poughkeepsie being one of them), with only the sales and marketing people separated geographically. If people wanted to discuss something face-to-face they would just schedule a meeting or walk over to the respective cubicle or cabin.

However, things got more complicated as companies had to expand across countries, continents and time zones. For a while, e-mail was used as the primary means of communication when documents needed to be exchanged among team members who might have never seen each other. But anyone using e-mail knows that in spite of it being pretty instantaneous and reliable, it's only good when the number of people involved is kept to the bare minimum. You really can't have 20 people mailing back and forth discussing minor changes and making modifications to a document - after a couple of hours the entire thread would look as convoluted as an online debate about "PCs vs. Macs".

**With collaborative software, businesses spread over multiple locations can now work seamlessly with just a click**

## Collaborating Online

This realisation led to a more proactive and imaginative use of the Internet when it comes to collaborating on work. Online office suites like Google Docs and Spreadsheets and Zoho Office Suite were introduced, which were intended to replace offline office suites like Microsoft Office. However, these tools didn't really cut down on multiple applications like e-mails and chats.

Therefore, another type of software known as collaborative tools, which allow remote users to synchronise and regularise their workflow were launched. Two examples of this kind are Microsoft Groove and Collanos Workspace. These collaborative tools act as a combination of online whiteboard, message forums and chat rooms, so that physical distances are no longer a hindrance to effective communication. Users also have access to management tools, which help in assigning tasks, deadlines and managing multiple assignments.

In this article, we are previewing Collanos Workspace—a free software that works across multiple platforms and though a bit bare-boned compared to the paid Microsoft Groove, it does its job pretty well. The latest version can be downloaded from www.collanos.com. Also check the December 2007 Personal Tech DVD for a slightly older version (1.1.16) of the same software.

## Inside Collanos Workspace

After you have installed the software, you would need to adjust your settings, if you are working behind a proxy. You would also need to create a user account and create a profile, which can be viewed publicly. Once that is done, you are all set!

Collanos Workspace is based on Eclipse, so if you have used that IDE, you will find yourself on familiar territory. The default interface is made up of different modules like Members, Workspace and Discussions, though the View option in the menu can be used to show more modules. Here is the full deal on the ins and outs of Collanos.

## Workspaces

Workspaces are where a user typically spends maximum amount of his / her time. This space lists all the files, links, discussions, etc— basically all the activity since the start of the current session. It also includes all the members that you have invited to share those resources as well as the discussions, which go on in the discussion pane. You can open unlimited number of workspaces with their own separate collaborators, resources and discussion threads. The current workspace in
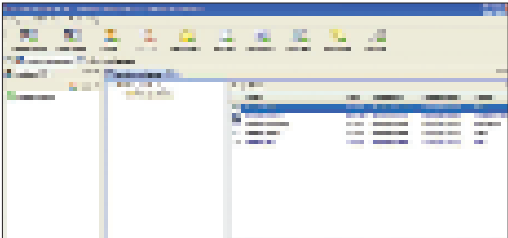

**The default view of Collanos Workspace**

which you are working is called the "Active Workspace". You can have multiple number of workspaces open at the same time and can switch between them instantaneously.

You can create Workspaces by clicking on the "Create Space" icon in the toolbar. Each Workspace has a name and a description. The new workspace can be created within a previously created workspace, or as an entirely independent entity by selecting the appropriate radio button in global space.

## Members

The Members module shows the number of people who are online during a particular session. If you are starting the session this space will initially display only your name. To invite other users, click on the Invite icon from the menu bar and type the name or e-mail address in the search box. These users, however, need to be online when you send them invites. Online members are represented by a green circle against their names. They can also change their profile status to busy by clicking on the icon in the taskbar and selecting either "Busy", "Online" or "Offline".


**Different user permissions in Collanos**

You can invite virtually unlimited number of collaborators for each of the workspaces that you have opened. Members typically have three types of permissions—Guest, Participant and Manager. The Manager initiates the session and can invite others to participate or observe. These permissions, along with other options, like change of status and uninviting or leaving the workspace, can be accessed by right-clicking on the member names in the Member panel.

## Content

Collanos Workspace can work with differing content, which are called objects and are contained within a single folder. You can create a folder by clicking on the New Folder icon in the toolbar. Users can share Word documents, PDF files, spreadsheets, slides, links, notes and even music and video. All these are viewable in a single place, so that you know what resources are being viewed by every member in your workspace.

## How Things Work

Such organisation is also essential when you have to keep track of changes people make to "live" documents. Consider this scenario—you are working with your team members on a report, and they are all scattered across various locations. You are required to give inputs on a report, which is going to be presented in an important meeting. In a conventional situation, people would give their brief via e-mails, which would then be probably collated by one member of the group into a single document. This document would go back and forth between the participants, until all issues are

sorted out. In practice, however, anyone who has attempted this sort of exercise knows that it is a time consuming affair which ends up with someone or the other not really having their say in the final report, along with some unpleasant eye strain and migraine or two.

Compare this with the way Collanos Workspace handles this task. A draft report is shared by the manager of the session. All other participants simultaneously read it and append their own modifications or updates. Each time a change is made a bright orange marker appears over the document, alerting you of the changes. The document always represents the latest changes made, while overwriting earlier changes. In case someone deletes your version with a new version your version will be stored in the Conflict Bin, which can be accessible from Tools > Conflict Bin.

Launching chats in this software is also really simple. Just click on the Discussion icon in the toolbar and give a name to the Discussion. Invite other members to join the discussion by clicking on the Start Chat icon on the top right of the Members pane.

Links and notes can also be added as objects in the workspace. Links are added by using the Add URL icon while notes are added using the Post Note icon. Notes are short messages that can be about anything and are visible to anybody in the Workspace. Each object in the Workspace has its own creator / modifier, the date and time on which it was modified.


**Creating a new task takes seconds**

One management tool which is of great value in the context of managing teams and projects is the Tasks object. Users can allocate deadlines and set priorities for themselves and others for specific assignments. Click on the Add Task icon and complete the data fields. One limitation here is that you can only allocate tasks to people who are online and present in the Workspace. Other than that we found the Task object pretty useful.

## Concluding Remarks

Collanos Workspace is still evolving and is best suited for students, small teams and organisations who can't afford the resources and the training needed to deploy enterprise level offerings like MS Groove. Similar to Skype or Kazaa, it uses the P2P model, instead of client-server model for networking. This means that even without an Internet connection, members can keep working and collaborating on the local network. Changes are saved on the local machine and when the Internet connection is back up, all the changes are synchronised in the final version, which is viewable by all members. Security used is 256-bit AES encryption, which is the same as used by banking software. The help documentation is pretty exhaustive—you would, however, need to be online to access it.

Use this software for a quick, cheap and no frills way of collaborating with your team!

*bhaskar.sarma@thinkdigit.com*

**Lead Feature**

# The Best Indie Games You (n)Ever Played

There are games that cost a small country's GDP to make, and are about as much fun to play as dipping naked into a pool filled with hungry piranhas must be. And then, there are Indie games. Small, short, fun, and brimming with unique ideas. These are the games that take the risk. These are the games that protect you while you sleep. This is thus a public service announcement: adopt an Indie game, save the world.

**Ahmed Shaikh**

## And Yet It Moves
http://www.andyetitmoves.at/

*And Yet it Moves* is a classic platformer with a twist—while it lets you run and jump around the game world, like any *Mario* game might, it also gives you the unique ability to rotate the entire world. This simple mechanic opens up opportunities in level design which are used to great effect by the game. Platforming puzzles take on a new bend asking you to literally get your head around them to solve: rotate the world around and walk on the ceilings or run along the walls! When you rotate the world, all objects are briefly frozen in mid-movement, only to continue in their original velocity after the rotation. The game, created by a group of students at the Vienna Institute of Technology, also uses an attractive "ripped-paper" look to translate its world. Give it a go!

## Cactus Arcade
http://www.cactus-soft.co.nr/

Jonatan Söderström is a young game designer from Gothenburg, Sweden and Cactus Arcade is a compilation of some of the best games he has released under the banner of his fledgling game development company Cactus | Games. The compilation consists of 17 games that vary across genres—from platformers to shoot 'em ups.

*Clean Asia*, for example, is a vertical shooter in which you play the role of some US fighter pilots as they go against an alien menace. The game has three levels and two selectable ships, each with unique controls and abilities. It faces you off against fourteen bosses and
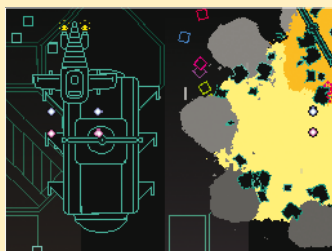


around ten regular enemies.

The compilation also contains *Shotgun Ninja*—a platformer, and *SeizureDome* which Jonatan describes as a sumo wrestling game but with guns: the goal is to avoid letting the swarm of enemies push you outside of a ring; using powerups, and special weapons to garner combo kills.

## Karoshi 2.0
http://gmc.yoyogames.com/index php?showtopic=369491

Karoshi and its sequel both consist of a series of levels in which the goal is for the player character to kill himself. The levels are essentially puzzles, each with a different goal—while some might ask you a simple Yes / No question ("Are you an idiot?"), others will see you pushing crates and collecting coins. With progressing levels, the puzzles get more bizarre and clever and the game succeeds in being fun by not resorting to obtuse puzzles. The second game is more varied in its content than its predecessor, which had one too many levels consisting of crate-pushing puzzles.



## Trilby: The Art of Theft
http://www.escapistmagazine.com/content/games/yahtzee/artoftheft

As its name suggests, this game is all about pulling off heists. In *The Art of Theft* you control Trilby, a thief out to "scare the ignorant rich by hitting them where it hurts—their wallets". It is a mission-based, stealth platformer, presented in 2D and created by Ben "Yahtzee" Croshaw—the British-born author of several adventure games and the hilarious Zero Punctuation series of video reviews.

Your goal in *The Art of Theft* is to infiltrate a variety of buildings in Chapow City, steal loot, avoid alarms and security guards and get out again without being caught. The game allows you to trigger a certain number of alarms each level, before forcing you to play the level again. Similarly, you can tazer security guards to knock them unconscious—this too can only be done a limited number of times each level. The game then scores you on the basis of time taken, loot stolen, and alarms triggered, and so on.



## You Have To Burn The Rope
http://www.mazapan.se/games/BurnTheRope.php

Perhaps the shortest game in this list, or not, depending upon the way you interact with games. The game has been described as a "joke" by its creator—the 21-year old half-Persian, half-Finnish Kian Bashiri. Kian describes it as "this really silly idea... a statement about how games are too hard and complicated. It's also a subtle reference to how some games are kind of patronising toward the player, like too easy." The tongue-in-cheek nature of the game is also reflected in the ending credit song which declares: Now you are a hero / you managed to beat the whole damn game / we are happy you made it / but how are you gonna spend the rest of the day?

You of course, hit refresh and play it all over again.

## Gesundheit
http://www.underwaterbase.com/

This game has you from hello—playing a sneezing pig to save a city from snot-eating monsters? If your heart doesn't skip a beat to the idea, then you sir, have no soul! *Geshundheit* is a 12-level action / puzzle game created by Matt Hammill. The game features handmade "scratchboard graphics" and an original toy-instrument soundtrack, making it a true treat



for both the eyes and the ears! Matt has only released a demo, but the demo contains the aforementioned twelve levels and a tutorial to teach you how to sneeze.

The puzzle aspects make this game an interesting experience through its levels: while keeping out of sight, you must lure your enemies with your delicious nasal discharges. Objects scattered around town provide your pig with different ways of solving each puzzle. Boogericious!

## PAROXYSM
http://neuralscan.co.uk/Paroxysm.html

Spinning blades, swinging axes, pools of blood, and lots of fun, that's *Paroxysm* in a nutshell. If you crave for a platformer with cool traps and fiendish jumps to sink your afternoon into, this game will do you little wrong. The concept is simple: You have fallen into the Dungeon, and the only way out is through it.
As the game says, "Be quick, be smart. Your life depends on it."



## Cottage of Doom
http://sourceforge.net/project/showfiles.php?group_id=197730

If *Geshundheit* (read on) grabs you by its concept and artwork, *Cottage of Doom* does so by the sheer force of its name. Cottage, OF DOOM. DOOM. Admit it: you want to play this bad-boy right now, caress its DOOM, rub your mouse all over...

*CoD* is an arcade shooter with a survival-horror bend. The game puts you inside a Cottage (of DOOM) and throws an ever-increasing number of zombies





at you. The goal is simply to survive as long as possible. What makes it cooler than cool is that you can interact with your surrounding—repair doors and windows to serve as barricades, pick up and use furniture to get ammo and planks, and of course right-click to shoot (combo kills rack you bonus points). It's a hectic little shooter that fittingly always ends with your DOOM.

## Dot Fighters
http://www.indiegames.com/blog/2006/10/news_39.html

Takase's *Dot Fighters* is a 2D fighting game with a unique art style. The game's sprites are made up of exaggerated pixels and coloured squares. As a fighting game, while it does not reach the level of complexity of a *Virtua Fighter* or even a *Dead or Alive*—its fighting engine is nevertheless satisfying enough to entertain. Two attack buttons are used—to punch and to kick, however there are plenty of moves that emerge from this two-button combination. Successful fights see you accumulate Dot Power which can then be used to unleash special attacks. Four fighters are available in the latest version of this Japanese title. Gameplay is extended slightly by the Quest Mode which adds additional boss fights and bonus rounds. (CONTROLS: [A] = punch [S] = kick. [ESC] = pause the game. [Alt] + [Enter] = fullscreen mode). Combos are usually initiated by tapping one of the action buttons repeatedly. Additional moves such as air combos, reversals, throws, safe landings and rolls are all here.

## Toribash
http://www.toribash.com/

Toribash is an idea that at first seems bizarre and gimmicky but soon presents itself as a wickedly good twist to an age-old genre. Toribash is a turn-based fighting game. Yeah, you read that right. The turn-based fighter features character customisation, online multiplayer, saving and sharing of replays, and plenty of gore and dismemberment. The core of the game sees your character represented by a rag-doll (the appearance of heads, limbs, and joints can be changed). The game is then played by manipulating the various joint that comprise this rag-doll, and then hitting the spacebar to inflict dangerous kung-fu on the opponent's rag-doll. When properly manipulated your rag-doll will strike the opponents and will do a certain amount of damage based on the angle of attack, the momentum, and so on. The hours disappear into Toribash as you seek to find the best combination of angled arms, twisted hips, bent ankles and so on… to effect flying limbs and fountains of blood from your opponent.
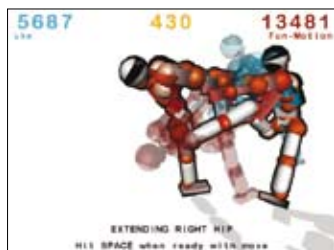
## De Blob
http://www.fun-motion.com/physics-games/de-blob/

De Blob entered the mainstream radar when THQ picked it up for a release on the Wii console. The game was a project by students at the Utrecht School of the Arts, developed by a team of nine in just four months. De Blob is a 3D game in which the player controls a blob of paint rolling through the city. The goal is to paint the entire town—not just red but in various colours available. The blob absorbs new colours by rolling over characters in the game world and as it does so, it also becomes larger. The game also allows mixing of colours to create new colours: if you need to turn green you'll have to pick up a blue and a yellow person. Almost everything in the game can be painted—the trees, the buildings, the cars, the blob even leaves a trace of paint on the ground as it rolls along. The game offers 17 landmark buildings which must all be painted to fulfill the goal of the game. De Blob also hides 50 coins across its level that can be found by meeting platforming challenges.

## Chalk
http://www.konjak.org/chalk.htm

Draw your way to glory! Chalk is a unique action game created by Joakim Sandberg—some of his professional work can be seen in games such as X-Men 3: The Official Game released for the Nintendo GBA and Contra 4, released for the Nintendo DS. In chalk your drawings are the means to interact with the game world.

Your right mouse button controls player movement, while you draw shapes with the left button to interact with the game elements.

Chalk allows you to draw lines across shapes in the game world in order to destroy them, or turn bullets back at your enemies, and defeat bosses by bouncing stuff off them, much like a game of Arkanoid.

The game comes with six levels. Beating each of them with an A ranking, unlocks the endurance challenge.

## Phun
http://www.phun.at/

Phun is a game in the most classic sense of being an open sandbox which allows you to do pretty much anything that is anchored with a pretty good simulation of the basic laws of physics. As a sandbox game, how much fun you have with it, is entirely up to you. It was created as a thesis project by Computing Science student Emil Ernerfeldt. Think of Phun as The Incredible Machine meets your physics professor.

## Racing Pitch
http://secretexit.com/games/racingpitch

Well here's a strange one from an independent game development company of two called Secret Exit. *Racing Pitch* calls on you to race around the track using, wait for it, your engine-mimicking skills to race down tracks. A microphone is an essential tool for the game as you literally blow "vroooom vrooooom" noises into the phone to move your race car around. The speed of the car is controlled by the pitch
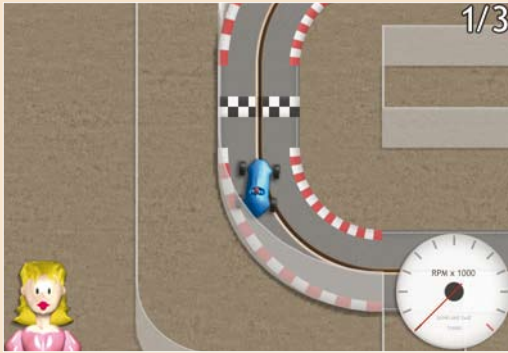


of your engine mimicry and no other control points are required except for your voice.

Racing Pitch also has party games to break the monotone, and its track challenges add another layer to this simple concept. The game also allows you to take a break from the racing by taking a flight in a hot air balloon. While not a game one would sink hours into, it's definitely one that will leave you breathless!

## Rose and Camellia
http://nigoro.jp/game/rosecamellia/rosecamellia.php

In *Rose and Camellia*, the goal is to slap your opponent silly, in order to climb the social ladder. Why are you still reading this?

Since this is in Japanese: To launch your slap, move the mouse from the bottom right of the screen to the upper left, creating a line that crosses the opponent's cheek. Click on the evasion button to avoid your opponent's attacks, and counter attack. Move the cursor from the bottom left of the screen to the bottom right to sidestep a slap.



## Ocular Ink
http://pistachioproductions.com/dart/

An oldie from 2005, *Ocular Ink* is a bizarre game that features you as the role of a paintbrush-wielding eyeball. Gameplay is through gestures rather than button presses— think *Black & White*—these gestures play a variety of effects on your surroundings and help you vanquish the evil dismembered body parts (are those kidneys?!) that roam the countryside as you make progress to defeat the evil eye-pirate known as Patches Deadlights. Cute. The game also comes with a full-featured level editor, called DARLA which can be accessed from



the main menu. All the game assets are available to edit and you can either alter existing maps or create your own levels via neat features such as terrain height manipulation, which allows you to lower, raise, and deform terrain to create landscapes.

## Knytt / Knytt Stories
http://nifflas.ni2.se/index.php?main=02Knytt_Stories

Knytt is a 2D platform game developed by Nicklas Nygren. The game sees a creature called Knytt ("tiny creature" in Swedish) abducted by an alien and taken to a planet, where the abductor's ship crashes trapping both Knytt and the alien on an alien land. The story then sees Knytt venture into the alien world to look for the missing parts of the spaceship. The game has no bosses or alien creatures to defeat—it is described as "ambient gaming", in that you explore a world which is at best oblivious to your presence. The game has a prequel to



its name called Knytt Stories which builds upon Knytt by offering four worlds of varying sizes to explore. Each world is a self-contained adventure. For example, in one particular level, you have to stop a machine that sucks the life out of the planet.

## Warning Forever
http://www18.big.or.jp/~hikoza/Prod/
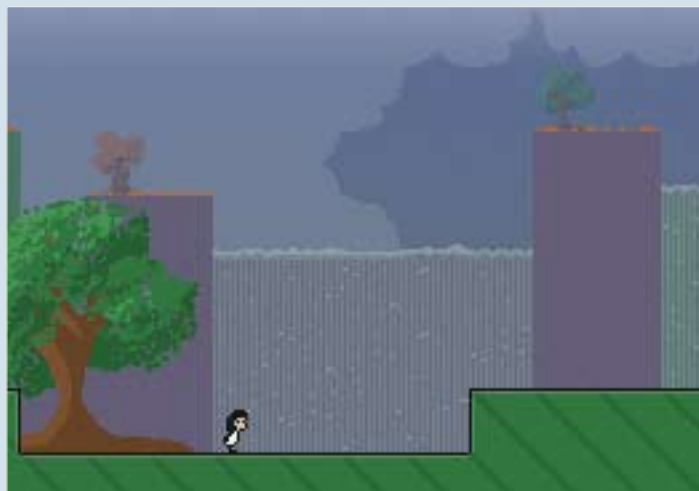
Warning Forever is an amazing shoot 'em up that throws in the mechanic of a boss-rush to make it an absolute must-play for fans of the genre. The game pits you against a constant stream of battles that increase in difficulty as you progress. Each of the game's stages consists of a single boss battle. To progress to the next stage, the boss must be completely destroyed within the time limit. The game starts with a default time limit of 180 seconds, with 30 seconds rewarded for every boss defeated and 20 seconds lost for each time the player is destroyed. It's fast, it's frantic, it's clever, and it's a lot of fun.

## Cave Story
http://agtp.romhack.net/project.php?id=cavestory

Cave Story is perhaps synonymous with Indie game development. First release in 2004 by Daisuke Amaya, it is the second Metroidvania game in our list and is perhaps the most sublime game created, not with a large budget, but with over five years of love and attention to detail. Simply put, Cave Story is a must-play for every gamer.

The game starts you off without any weapons but items are soon acquired throughout the game's progress. Jet packs, beam weapons, bubble gun, and so on are some of the weapons and items that see you through the game's tale of amnesiac robots, bunnies, and power-hungry scientists. The graphics, presentation, and music are deliciously retro and serve to underline the classic roots of this title.

## The Underside
http://www.superfundungeonrun.com/insignificant-studios/preview.php
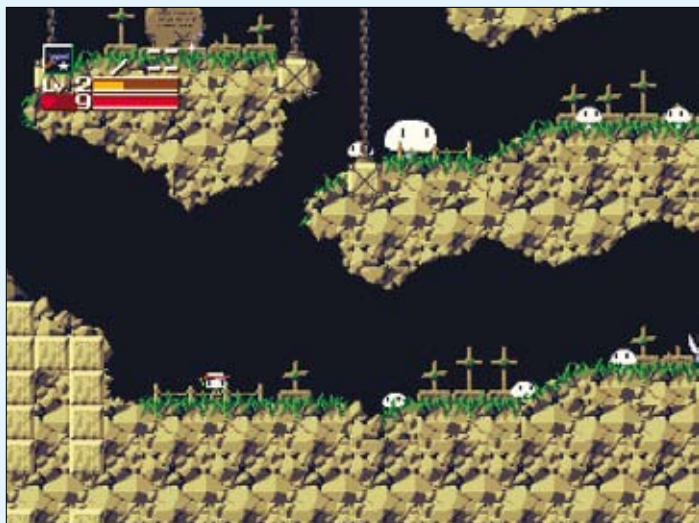
Described by the author as an "exploration platform game", Underside is a Metroidvania game similar to Castlevania, Metroid, and Cave Story. The difference lies in how progress is made: while classic Metroidvania games reward free-roaming exploration, Underside is more driven by plot.

The story revolves around 'Ip' who must make his escape from the Underside, and prevent the world from being destroyed by the world's god—The Universal King—while he's at it. The game's creator, Arthur Lee, claims to have been inspired by the classic Earthbound series (also known as Mother in Japan) in shaping the game's concept of a flat world turned upside-down. Underside sees characters and dialogue that take on a quirky appeal, with a decidedly whimsical plot.

# Ye Gods!

## Kratos' bad-assed goodness—now on the go!

I could try, but I still couldn't come up with a flaw for the *God of War (GoW)* game, except this: they end. While we wait impatiently for *God of War 3*, we must content ourselves with *God of War: Chains of Olympus (CoO)* on the PSP...

*CoO* takes us to a time that predates the first *God of War* game, to establish further why Kratos is so ticked off with the gods of Olympus. The madness begins when Morpheus, the god of dreams, kidnaps Helios, the Sun God, plunging the world into darkness. As he goes on his quest to bring light back to the world, Kratos will, once more, get acquainted with the innards of many beasties, from basilisks to Cyclopes to Minotaurs and floating suits of armour.

The action begins about five seconds after you select "New Game", and stops at the last cutscene, so prepare for a really sore pair of thumbs. The control system had to change because the PSP doesn't have the L2 and R2 buttons or the right analog stick—this takes about ten minutes to get used to. Kratos' Blades of Athena are still the most fun weapons you get to use, but there's also the Gauntlet of Hercules that does enough damage in a single blow to make you grin from ear to ear.

This title has everything you could possibly love about a *GoW* game—huge, beautiful environments, insane action, lots of blood, a sex minigame, more blood, a story befitting a high-budget B-grade movie, puzzles that give you a "sense of accomplishment" (even though a five-year-old could accomplish them), a little more blood, and best of all—no annoying loading screens! For the best-looking game on the PSP yet, that's saying a lot. So why am I not giving it a 10?

About seven hours into the game, when you've realised that you're addicted and should go warn the world that you're unavailable until further notice, *CoO* ends. Just when you're getting warmed up. Poof—Main Menu. Grr. You can satisfy yourself with the challenges, but it's just not the same. Bah.

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# BURNOUT Paradise

## Xanadu! Utopia! Valhalla!

While *Burnout Dominator* was something of an incremental update on *Revenge*, Criterion has taken *Burnout*'s original concept, thrown away all but the essentials, and given us a lot more to love. Instead of racing on a collection of tracks, you're thrown into Paradise City (yes, the game even begins with the song) and told to go forth, crash, and burn(out).

*Paradise*'s heart is still in the right place—there's lots of racing, and *lots* of crashing. Thanks to the power of the X360, crashes are minutely detailed, and so beautiful you'll want to crash again. Racing speeds start at eye-widening and move up to eye-popping—there is much adrenaline to be secreted here.

My favourite new game mode is Marked Man—you have to survive the journey from point A to point B, while other racers try to take you down. Opponents in this mode are particularly nasty too. Race events evoke mixed feelings—you're only told your destination, and you get to choose the route you take to it. While this is nice—you can blast your way through shortcuts and win easily—it also means that in your first few races, you'll take a wrong turn and lose your way.

For some reason, Criterion has removed the tremendously fun aftertouch takedowns (taking down opponents even after you've crashed) from the game, but after spending so much time in the game, I'm not too sore.

*Burnout Paradise* is easily one of the best-implemented games ever. Explore Paradise city all you want, find shortcuts, super jumps and other secrets, and when you want to start an event, drive up to your nearest traffic signal. The Multiplayer mode is loaded with different sets of challenges for two, three or more players, so there's a lot to do when you're online. Even if you don't go online, it'll probably take you a hundred or more hours to actually hit the "100% Complete" mark, and it'll be time well spent.

*nimish.chandiramani@thinkdigit.com*

Rating: **9/10**
Developer: **Criterion**
Publisher: **Electronic Arts**
Distributor: **Redington**
Contact:**xbox360@redington.co.in**
Price: **Rs 1,999**

# All Hail The Web

**1** What does AIR in Adobe AIR stand for?
a) Application Instruction Runtime
b) Adobe Integrated Runtime
c) Application Interface Realtime
d) Anonymous Installation Repository

**2** According to a survey by brandchannel.com, Apple is considered the world's best brand. Which of the following *didn't* make to top five?
a) Google
b) Microsoft
c) Coca-Cola
d) Nike

**3** Which of the following is *not* a browser from the early 90s?
a) Cello
b) Opera
c) Nautilus
d) Mosaic

**4** Only one of these artists hasn't released an album that isn't a free or "pay what you want to" download. Who?
a) Nine Inch Nails
b) Radiohead
c) Eminem
d) Madonna

**5** Which of the following games recently hit the 100-million-sold mark?
a) Half-Life
b) Diablo
c) The Sims 2
d) Lineage 2

**6** Find the odd one out
a) Bluetooth
b) Zigbee
c) Wibree
d) Infrared

**7** This software for the Apple II computer established personal computers as viable business tools.
a) VisualCalc
b) OpenOffice
c) Lotus 1-2-3
d) Word Star

**8** Which of the following companies released the Open Computer—one that could run Mac OS X natively?
a) Psystar
b) Spystar
c) Rockstar
d) Psychstar

**9** By using the computing power of PlayStation 3's Cell Broadband Engine, over a million users donate computing resources to a project called...
a) Folding@home
b) Rosetta@home
c) SETI@home
d) Proteins@home

**10** Which Web browser is tuning itself for the upcoming release of Android?
a) Firefox
b) Safari
c) Opera
d) Skyfire

Got an interesting question? Send it in with the answer to **TQ@thinkdigit.com** Mark "TQ" in the subject area.

> **Did You Know?**
> Although online documents showed the Opera browser at The Third International WWW Conference in 1995, it was called MultiTorg Opera and was not available to the public until version 2.0 was ready for public release as shareware.

| Answers | |
| --- | --- |
| 1. b | 6. d |
| 2. b | 7. a |
| 3. c | 8. a |
| 4. c | 9. a |
| 5. c | 10. c |

## Crossword

**ACROSS**
7. A vertical set of data as in a table or spreadsheet (6)
8. Program that runs continuously in the background on Unix machines (6)
9. Forward Explicit congestion Notification(abbr) (4)
10. To enter data into a computer (5)
11. Famous internet portal (5)
13. Audio or video file that subscribers can hear or view online (7)
16. 'C' in CPU (7)
17. Bug-free code (5)
20. Social networking site sponsored by Google (5)
21. Available software that is not paid for (4)
22. 'O' in OSI (4)
23. An image representing a user in a multi-user virtual reality space (6)

**DOWN**
1. Front sheet of a Web site (8)
2. To write content on a CD,DVD, or other recordable disc (4)
3. To decompress and open up a file compression program (5)
4. Automatic DAta Parallelism TranslatOR(abbr) (7)
5. A column in spreadsheet software (8)
6. Connector on a computer to which peripheral devices are attached (4)
12. Call initiated from a call centre agent to a customer (8)
14. Keyboard part when pressed, enters ASCII character 32 (5,3)
15. Part of the Microsoft Windows GUI typically occupying a fixed strip along the bottom of the screen (7)
18. Abbreviated Test Language for Avionics Systems(abbr) (5)
19. Readable and writable external storage medium (4)
21. File Transfer and Access Method(abbr) (4)
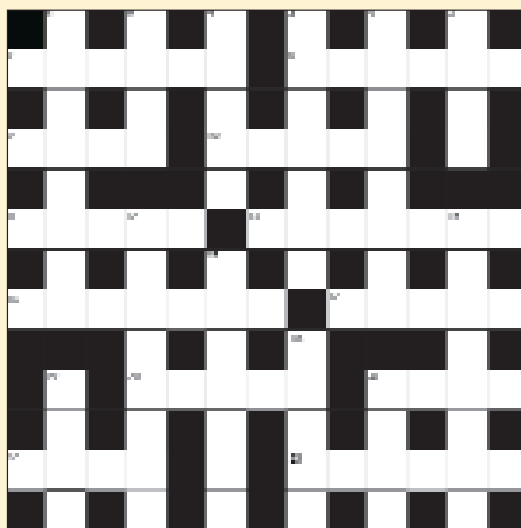
Crossword by **Nitta Jaggi**

Last month's Winner
**No Winner!**
Better luck next time!

Send in your entries to **TQ@thinkdigit.com** on or by the **20th of this month.** One lucky participant will win **3ds Max 9 Bible** By Murdock Published by **WILEY-INDIA**

**Win!**

April's Solution

## FACE OFF
# Bashed Book

Like people, organisations and companies too have their bad days. In such times, a company would find its touch with the normally appreciative press to be shaky and it gets flak for all mistakes—big and small, when the media honeymoon ends and real life begins.

This seems to be happening with Facebook a lot these days. Not long ago, Facebook was this cool new kid in town with most media sites heaping scorn on rivals like MySpace. Starting with the Beacon fiasco, however, Facebook has seen only combative attitudes from the press and millions of users. People were not the least amused when the Beacon started showing purchases made by them on their friend feeds. After the hue and cry, Facebook withdrew

the feature and even though it still gets bad blood over Beacon, it seemed that the worst was behind it.

But Facebook didn't reckon with the litigious tendencies of its American users. Cathryn Harris was embarrassed when her friend's feed showed that

she had purchased a tacky horror movie from an online retailer Blockbuster. We don't know why she wanted to keep her choice of movies hidden from contacts—perhaps she belonged to a club dedicated to shunning tacky horror movies, but she was very clear on her next step. She went ahead and filed a class action suit against Blockbuster, demanding damages for causing mental pain, agony and invasion of privacy. We are following the case with fingers crossed.

In related news, Facebook is messing up its ad placement algorithms. This became known when a user who had kept his sexual preferences as straight had multiple offers from chat Web sites offering to set him up with gay men. Contextual advertising is how social sites are supposed to earn their revenue, and we can't help wondering how fudging up something as

### My Desktop

**No Winner!**
Better luck next time!

Participate in this contest and win next month

**.net Interview Questions**
by Nagaraju B
Published by

WILEY-INDIA

Send us your desktop with a description of how you made it to **mydesktop@thinkdigit.com** with the subject **"My Desktop",** and tell us your postal address, too.

### Whatever Happened To...
## ZigBee

ZigBee is one of these myriad wireless standards that have a funky name and peddled by a committee called IEEE 802.something.

Touted as a low-power, low-cost and wireless mesh networking standard ZigBee 1.0 specification was ratified in 2004. The basic goal of the standard was to wirelessly network and control heating, lighting and security sensors. The radio frequencies would be short range with a speed of 250 Kbps, enough for such kind of applications. The basic premise was to set up the network once, start it, and replace the battery after four to five years. This seemed ideal for the home segment and analysts and the media were confidently predicting the demise of Bluetooth and the market being awash with ZigBee products very soon.

Fast forward to 2008 and the ZigBee Alliance (the body responsible for standards) has very little to show for their efforts. Personal Area Networks are still ruled by Bluetooth, while newer standards like WiBree are gaining popularity. While there are odd ZigBee products being peddled on the Internet, they're few and far between.

So what happened? ZigBee's proponents say that they were too enthusiastic. However, they also promise that ZigBee's time has finally come and millions of devices using it will be sold very soon. Don't bet money on that happening soon though, and for now, you have to switch the toaster off manually!

### DigiPick of the month
### *The age of the Terabyte!*

**Last month's winner:**
**Abhishek Mukhopadhyay**
Kanchipuram

Participate and win next month:
**Microsoft Office PowerPoint 2007 Visual Quick Tips**
by Paul McFedries

Published by

WILEY-INDIA

**WIN!**
Send in your entry and you could win an exciting gift by sharing an amusing picture with a tech angle to it. The picture should have been shot by you, and should not have been published anywhere earlier.
E-mail your picture with **"DigiPick"** in the subject line, mentioning your postal address, **on or before the 20th of this month** to **digipick@thinkdigit.com.** One prize-winning picture will be published each month.

vital as this is helping their cause. Somebody sure has a lot of explaining to do!

## IMMMORAL POLICE
# Illegal Records

While file sharing and downloading movies isn't a big deal in India, in the west, people go to jail or land up in courts for illegally downloading content. Therefore, it was surprising when a security audit in South Australia police stations yielded movies in computers belonging to hundreds of officers. It has been speculated that all these movies were illegally downloaded using P2P software, either at these computers or transferred from other computers. What tickles the bones of oppressed file sharers and dismayed the anti piracy industry bodies is that authorities have flatly refused to prosecute the officers involved for copyright infringement.

On paper, this "crime" in

Australia carries a stiff penalty of A$ 60,500 (about Rs 22,72,440) per file and also a jail sentence of 5 years. This means that if the bosses in the South Australian police force heed the anti-piracy body's pleas, then the whole state would face a problem enforcing the law, because hundreds of officers would be broke and behind bars. And come to think of it, when you have problems like drugs and terrorism, file sharing is just a harmless schoolboy prank. People don't get hurt, nobody loses money, artists get free advertisements and the only ones getting pinched are the record labels.

With this decision, it has become harder to make money off selling music and movies in South Australia. People down under complain that they download files because latest movies and TV shows beamed in Australia are about 4 years old! A single DVD also costs an arm and a leg, swelling the ranks of those using Bit Torrent and other P2P applications. Here is a bit of free advice to the suits—lower the prices and

give the Aussies an updated dose of the daily feed of movies and soaps. That would keep them busy. Meanwhile the constabulary can always be offered some complimentary copies so that everybody is happy.

## I DO... WHILE GAMING
# Bejewelled Liaisons

You are a geek! You are great at writing code, serving up spiffy applications and fragging opponents in FPS games. You are the king of all you survey, as long as you only survey your PC. Once you have left those familiar environs, the world and its customs seem too complicated and you make yourself and people around you feel uncomfortable with your lack of social conventions.

That's the reason geeks and nerds don't really have a great life when you take computers out of the scene. Sure, there are many geeks who have girlfriends and singing careers, but on the

### People Who Changed Computing

## Jay Wright Forrester

Random Access Memory (RAM) was developed by Jay Wright Forrester around 1949. Born in 1918, in Nebraska, Forrester grew up on a cattle ranch. The cattle ranch had no electricity and is believed to have spurred his interest towards
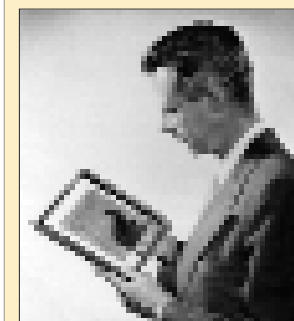
*Jay Wright Forrester*

electricity. In high school, a young Forrester assembled a 12-volt electrical system from old car parts, which effectively gave the ranch its first electrical power. This was a wind driven system.

Forrester later attended the University of Nebraska and then graduated from the prestigious Massachusetts Institute of Technology. He joined as a research assistant at MIT's high voltage laboratory. After working and pioneering feedback control systems at MIT, he went on to develop the RAM as we know today. We all know the importance of the Random Access Memory, popularly called RAM. Contrary to magnetic media such as hard disk drives, there are no movable parts in the RAM. As a result, this piece of technology significantly boosts up computing speed by reducing the access time required for data read / write cycles. Forrester still serves at the MIT Sloan School of Management.

## Bluff
### YOUR WAY THROUGH

### SEO

**SEM:** This stands for Search Engine Marketing. SEM is the marketing of a Web site through search engines, either by improving page ranks or buying listings on search engines.

**Pagerank:** Also referred to as Google Pagerank, this signifies the importance of a Web page on the World Wide Web, with respect to a search string.

**Spiders:** These are programs that search engines use to index Web pages. Spiders are also known as crawlers and regularly scan through Web sites to update the search engine's records.

**CPC:** This refers to cost per click and is the amount that the company being marketed has to pay to the search engine for each of its links clicked.

**CTR:** CTR is an abbreviation of Click Through Rate. This signifies the success of an online ad campaign. For example, the clicking on a banner or ad is considered a success only if it materialises into further business with the company.

**PPC:** Pay per click is a very popular term in online marketing. This refers to the service where the company pays for each of its ads that visitors click on.

**Black Hat SEO:** This is the act of using "unethical" measures to promote one's Web site. This is done at the risk of being blacklisted by the respective search engine.

**White Hat SEO:** A white hat is one who follows ethical methods to promote his/her site.

**Usage:** I had started my new venture. I thought the best way would be *SEM*. I designed my site as per Google's *spider* requirements and improved my *Pagerank*. To avoid unnecessary costing, I chose words with lower *PPC* and *CPC* rates, so that with a lower budget I could still manage an economical *CTR*. I have principles and so chose to be a *White Hat*, unlike others who don't mind being *Black Hats*.

# Wild Wild Web

## Dress Up Games

If you were to head over to **http://www.petsin uniform.com/**, you would have only one question in your head—why would anyone want to do this? This Web site provides a valuable service to doting pet owners who want to see their dogs and cats in full military regalia. Simply chose a uniform and a background, upload a high resolution close up picture of your pet and wait for three business days to get the photos of your pet fitted out in glittering ribbons and peaked caps. For this dressing up, the good folks at Pets in Uniform would charge you $19.99 (almost Rs 800). Pay up for the sake of your cuties.

Seriously, this Web site has convinced us that we are wasting our time writing articles when there is so much easy money to be made off the Internet. Sigh.

## Documentation Humour

Normally, technical documentation and signboards are dry and boring. Manuals are the last place for finding comic relief while signboards convey serious hazards with a minimum of fuss. However, sometimes quite unintentionally, these dull instructions have the potential for a laugh or two. Hall of Technical Documentation Weirdness (**http://www.darrenbarefoot.com/hall/main.php**) documents hundreds of sources of comic relief that sometimes make you go crazy!

For example, what would be your reaction when you see a sign inside a toilet forbidding either leaves inside the bowl or swan dives off the seat? Or the bit of honest advice on a warning board for "Wet Floor" which counsels you to recline luxuriously in case you happen to slip?

whole, the picture looks quite gloomy. However, for geeks that are lucky to have a lady willing to put up with their eccentricities, they face the final hurdle—how to pop her the question! Even normal people find it hard to utter the golden words, so you can imagine the stress a geek faces!

Bernie Peng was one geek who was determined not to go down that way. A financial software programmer, he felt lucky to have a great girlfriend and hoped to spend the rest of his life with her. While he could have taken her for a romantic dinner and dropped down on one knee, he was not very comfortable with the idea. Instead he spent one month hacking Bejeweled, an arcade game that was his lady's favourite. The game was so programmed that when she reached a certain score a ring would appear on the screen, along with a marriage proposal. When Tammy Li ultimately attained that score, she saw the prize and happily accepted the proposal.

This story has another happy ending. When the makers of the game came to know that it was hacked and

used to spell out the marriage proposal, they didn't get mad or consider legal action. Instead the Seattle-based company PopCap, plan to give all the guests at the wedding, a copy of the popular game and also fly the couple down to Seattle for their honeymoon.

### PERSONAL AGAIN?
## The Server Conspiracy

A virus is a nasty piece of malicious code, which wriggles through smallest of the holes in the big walls. In the past, there have been a couple of instances where codes have even entered manufacturing processes of storage products and infected a batch of them. HP Australia happened to ship its ProLiant servers with optional USB keys, and they happened to contain viruses! Two low-risk worms namely Fakerecy and SillyFDC to be precise.

If the hardware carries a virus even before being used, then where's the guarantee of protection and security against those that originate later!

But why wasn't this

found out at the factory itself? HP is giving chance to derive as many cool names that might help them re-brand themselves such as "highly prerogative". Sounds cool, eh?

### SEX, SWEETS AND SECRETS
## Privacy For Porn

Marketing is one viral disease (or so they say) and can make anyone run for the hills. According to a survey conducted by Infosec, outside Liverpool Street Station, London, women were far more likely to give away their passwords than males. The survey was part of a social engineering exercise for security awareness.

About 45 per cent women shared their password in exchange for chocolate bars with fake market researchers, whereas only 10 per cent of men gave away their login details. Now if you ask for login details and passwords in exchange for something that's tempting, then people tend to melt easily. A poll by Cadbury revealed that 52 per cent of women preferred chocolate over sex.

While nearly 15 per cent males would give up chocolate for sex, (obviously). It's just a password which I can change over the next hour. Many may share this opinion, while a fraud worth a couple of millions could take place using their account details. That's being way too imaginative, yet closer to being a possibility.

It's high time people start using password managers and even Web browsers have password management option. So, the next time some one offers free chocolate or sex / porn, don't get tempted.

### OOPS
## Dot Causes Blood Feud

Turkish couple Ramazan (24) and Emine (20) Çalçoban were having quite a disturbed marriage and had mutually separated. However, the "love" still remains—they continue to exchange strings of text messages over their phones.

Yet another fight ended

with a message that Ramazan sent to Emine which was intend to mean "You change the topic every time you run out of arguments." Apparently, Ramazan's cell phone didn't support the Turkish closed "i" (an "i" with no dot). The word "sikisinca" (see? even our font doesn't support it) appeared as "sikisince", which made it severely offensive.

Enraged by this message

to Emine, her father and her two sisters attacked him with knives. In the ensuing kerfuffle, Ramazan wound up with a knife in his chest, which he managed to extract and share with Emine. Ramazan managed to escape, but Emine bled in the ambulance, while waiting for traffic to clear.

Ramazan was soon nabbed by the cops, and still baffled by the

proceedings, killed himself, confused for eternity.

This flaw in localisation has apparently been the cause of many misunderstandings, but none as deadly. Sadly enough, this causes problems with "delicate" words more than anything, so the result will likely never be funny. It's about time someone yelled bloody murder about these localisation problems. ▄

# Take A Crack, And zOther zStories

There are times when we receive letters of adulation that brings tears to our eyes. This month, however, we were all reduced to the type of tears that the human body secretes when opening the mouth way too wide to laugh your guts out!

A reader, who shall remain un-named, took our "Take a Crack" section a little too literally, and sent us a mail that said:

*"Hello Digit, I want to **take a crack** of Adobe Photoshop. Pls send fast."!*

In other news, Fatbeing (Nimish) decided to bunk a day of work. He was also shameless enough to tell Raaabo (Robert) that he's bunking because he didn't "feel like coming in to work". Usually, we reward honesty here at *Digit*, but shamelessness is another thing altogether.

Here's a chat transcript of

what transpired:

*Raaabo: zdude, zi zgot za zvirus zthat zadds za zz zbefore zevery zword zi ztype.*

*Fatbeing: riiiight!*

*Raaabo: zno zseriously, zand zi zcan't zeven zsearch zgoogle zfor za zsolution zbecause zit's zlike ztyping z"zvirus" zin zgoogle*

*Fatbeing: lol. really? You serious?*

*Raaabo: zdo zi zsound zlike zi zam zkidding zaround zhere? zi zthink zit's zadding za zz zafter zevery zspace. zcheck zgoogle zfor zme zplease*

*Fatbeing: Alrighty then. hang on. One hour later...*

*Raaabo: zfound zanything?*

*Fatbeing: Nope, been looking for ages, can't find anything.*

*Raaabo: LOL! April Fool!*

*Fatbeing: You $*&#@%$!*

## DIGIT DIARY

## Blog WATCH

**Twitter stops twitting, and robots plan doom!**

**MG Siegler**
http://tinyurl.com/5m6g69
http://www.parislemon.com/2008/04/if-twitter-breaks-in-woods-and-no-one.html
**If Twitter breaks in the woods......**
I noticed a few people thinking the same thing as me today: is everyone taking a break from Twitter? People do get burnt out from the web after all...... But no, Twitter is broken. People are updating and most of the updates are simply not coming through.

Click on some of your friends' profiles. You'll see they have updates, yet those updates are probably not in your Twitter stream. But some are, making things even more confusing, and making it harder for people to tell that Twitter is broken...

**Darren Rowse**
http://tinyurl.com/6q4gee
http://www.problogger.net/archives/2008/04/26/blog-design-does-it-matter/
**Blog Design—Does it Matter?**
How important is the design of your blog and how hard a decision do you think it would be to develop a new theme for it? There will probably be a little debate over this one in the comments on this post because every time I see someone write about design there are two opposing arguments.

On the one side are some bloggers who argue that design is secondary and not that important, and that it's content that is what draws people to a blog and keeps them there...

**Evan Ackerman**
http://tinyurl.com/6l9q99
http://www.botjunkie.com/2008/04/25/robot-laser-deathmatch-is-just-practice-for-world-takeover/
**Robot Laser Deathmatch Is Just Practice For World Takeover**
These little laser-equipped robots may not scare you that much, but this is how it all starts: right now, they're a foot tall, but give them a couple generations and they'll be crushing us under their giant metal feet. In the meantime, though, we get to watch these KHR-1HV humanoid remote controlled robots take part in a 4 v 4 game of laser tag.

Gameplay seems to be a lot like a conventional game of retail laser tag: run around and shoot anything that moves on the way to the enemy base, where you mindlessly pound away at the sensor 'cause it's worth the most points. In this case, hitting another robot causes it to fall over and become incapacitated for five seconds and the team loses a point. Games last five minutes, and the winners (I assume) get to strip the losers for spare parts.

**April 2008**

## Shocked Subscriber

I have been reading *Digit* for years, and I should tell you that you are the ones responsible for increasing my knowledge about computers and other useful technologies. You have been 100 per cent successful in making a great magazine that gives us all sorts of information at a reasonable price. I decided to subscribe to *Digit* and received my first copy this month. I have a few suggestions:

1) You need to improve the packaging of the magazine for subscribers. My magazine came crumpled, because the flimsy cover is of no use.

2) I am very disappointed in the way the CD and DVD are packaged for subscribers. I received a cracked CD, but thankfully to my surprise, I found another CD hidden in the Fast Track book. I'm not so sure I will be as lucky next time. Please give subscribers the hard plastic cases that you give newsstand buyers.

You need to update the prices mentioned in the A-List as well—there is a WD Passport drive that has been listed as Rs 6,500 since last year.

Apart from this I have no complaints with *Digit*, and I love every section. If possible, please make the *Digit Diary* one page again, so we can get to know Team *Digit* better. Wishing you a very happy anniversary...in advance!

**Clinton Dias**

We're glad you enjoy *Digit* and thank you for becoming a subscriber. We're glad you got an extra CD, which saved you from having to wait for a replacement. The problem with the jewel case that we're able to provide to newsstand buyers is that when we package it in subscriber copies, it doubles our courier charges. It's not so much a question of weight, but a question of Indian postal/courier rules. Since the cost of everything is prohibitive now due to inflation, which you have probably experienced yourself, we are forced to disappoint our subscribers on this one matter.

Team *Digit*

## Suggestions Galore

I am regular *Digit* reader, but this is my first mail to you. *Digit* is the best, but you are completely ignoring programming stuff. That would help students like me, as would more Linux stuff. Please reserve two pages for programming and Linux. We also need a guide to help us install additional software in Linux, and demystify things like .tar, .deb, etc. You could also add such tutorials in the form of videos.

Your hardware shootouts are very helpful, but you should provide a long folded page instead of splitting the scoreboard over multiple pages, to help us compare products better.

A Fast Track to programming, covering languages like C++, Java, and Visual Basic, etc., would also be useful.

Your CD/DVD contents are the best, and the interface is awesome, but try and provide something like icon packages, screensavers etc., to spice it up. Also try and give newer movies, released in 50-70s (Ben Hur, Roman holiday, etc.), instead of only 1920s to 1930s movies.

You should also try and give hardware as prizes for your contests, because what would an MBBS or commerce student do with a book called "Guide to Programming" as a prize?

I am eagerly waiting for your anniversary issue, and expecting something different as usual.

**Prathamesh**

Whoa, that's a lot of suggestions! We will come out with a Fast Track to Programming soon enough, keep your eyes peeled. You will notice that we have already increased the Linux content, and hopefully, we can continue to do so. Providing the hardware test tables in a long sheet is quite impossible, because sometimes we get so many products, that it takes more than 8 pages to list them all. We obviously cannot have a page folded 8 times in *Digit*, because it would cost too much (because of the irregular paper size), and completely ruin the binding. We're glad you like the CD/DVD interface, and we will be adding more features to it soon. As for our prizes, we give books because we feel that the world has forgotten the art of reading. Thankfully, *Digit*

readers do not seem to suffer from this disease, which is evident from the fact that you are reading this magazine. Nothing beats a book. Period. Write in again next month and tell us how you liked the anniversary issue.

Team *Digit*

## Even More Suggestions

I am an 18-year old student, and an avid *Digit* reader for over 3 years. *Digit* is a very good tech magazine, with just the right mix of IT content. I still have a few complaints:

1. *Digit* is a little too expensive, at least for us students. Why not make an e-mag for people like me, obviously for a much cheaper price tag. This would take care of people like me who don't buy the magazine for the software on offer.

2. Secondly, please add more information on IT events (tech expos, gaming expos) going on around the world, and cover it properly. Many of them have gone unreported in *Digit*. Just India-centric information of such events would be nice. For example, we were unaware of competitions like Microsoft's Imagine Cup until you guys reported it.

3. Make the A-List bigger to include more categories (budget/mid-range/high-end), and provide information about components like PSUs and cabinets.

4. Also try and offer subscriptions without "free gifts" for even cheaper, for people on tight budgets like myself.

5. If possible, announce what you will be reviewing the next month, so that we can be prepared to buy issues accordingly.

6. What happened to ATI?

**Gowtham Nayak**

Wow! It's truly inspiring that so many readers are taking time out to give us suggestions. Let's look at them point-wise, as you have mentioned them.

1. As for the price of the magazine, in the ideal world, we would charge you nothing. However, everything costs money—paper, courier charges, DVDs/CDs, printing, salaries... the works. We assure you that we are charging you the bare minimum that we can, in order to be able to deliver the quality content that we do. We do have plans for an e-subscription model, and hopefully we can work out all the chinks to get it to you soon.

2. We do plan on covering as many events as possible. You can rest assured that whether it's via the magazine or our Web site, www.thinkdigit.com, we will try and cover everything we attend.

3. The A-List is a quick reference point for the most popular technology categories. Although we may not increase the number of pages, we will try and cram in much more information. And if that plan fails, we can always try and provide it on the discs.

4. You should see more tempting subscription offers soon.

5. We will try and let you know what's coming the next month, but you need to understand that sometimes tests are delayed because of lack of availability of products, in which case our schedules go for a toss. Let's see if we can work this out.

6. ATI cards are very much here. We review them as soon as they're released. Currently, like AMD vs Intel, ATI vs NVIDIA is quite a one-sided battle. Don't worry, we're sure this will not last long, and we're eagerly awaiting AMD/ATI's response. Competition is what makes technology such an exciting industry, afterall.

Team *Digit*

## *Digit* On A Diet?

I am a regular reader of *Digit* magazine and would like to appreciate the effort that Team *Digit* puts in, to create a magazine that makes us tech-savvy and updates us about the latest in the technology world. The only complaint I have with the magazine is that you tend to get slimmer during the February to August period (excluding June). Your disc casing has also become slimmer, and I have seen that all issues before July 2007 had a casing that was 1.2 cm in thickness. After that, the jewel case has become 0.8 cm in thickness, and this results in the DVDs and CDs popping out of their slots and getting scratched or worse, broken. I cannot live without my regular *Digit* software dose, so please make sure you do something about this casing. Also, you guys provide us with great software, but instead of trying to find new software every time, I would suggest you keep providing updates to popular and good software on a more regular basis. I also suggest that you provide Fast Track as an e-book, and make the main magazine fatter. If possible, please also provide us with a trial version of Windows Vista—we have to try it before we buy it!

**Kumar Ashok**
Jamshedpur

The magazines are always pretty much the same number of pages (except special issues). What does change is the paper, sometimes, which may lead you to believe that there are fewer pages.

We will look into the disc casing issue and hopefully put an end to any such problems.

Team *Digit*

## Intellectual Property

I was the first amongst my friends to be introduced to computers. I quickly grew in popularity because of my "geek" skills. However, over the years, everyone got a computer, and I wasn't exclusive anymore. I even tried imagining fantastic technologies, but that only lasted a while. All throughout this phase in my life I would see *Digit* gleaming on the magazine stalls, but the cost was prohibitive. Even my parents stopped me from buying my first copy of *Digit*, because they felt I needed to concentrate on my studies, and not waste time and money on magazines.

I stayed adamant, and saved my pocket money to buy my very first *Digit*. That's all it took. I showed it to my parents, and ever since, everyone in our house, including my parents and grandparents, read *Digit* regularly. They even buy me my copies the same day that it's released on the newsstand.

I still have an active imagination, however, and keep dreaming up inventions that I would like to make. However, since I have no means to create them, I find that a few years later, such products are being rolled out already. I wanted to know if there is a way of protecting my ideas. I dreamt up the Vision One Computer Desk several years before it was announced, but someone else beat me to making it.

**Govind Nair P.**
Kachani Karakulam, Trivandrum

We have to admire your persistence in getting your hands on *Digit*. We're glad to have helped in what ever way we could.

As for patenting your ideas, unfortunately, you can't just dream of flying cars and then go and patent the idea, unless you have a viable way of being able to make cars that fly. At least, you need to show that you are actively researching it, and show some positive results. We would suggest that you focus more on what you can implement, instead of day-dreaming of fantastic technologies. If you are technically qualified, you can look to join research labs, where you will not only get the tools, but the funding to work on such projects.

Team *Digit*

## Recreate The Magic

I want to congratulate you for staying India's number one tech magazine. I've been a reader for the past 6 years, and I want to thank my college senior, who introduced me to Digit. In the past 6 years I have missed only 1 or 2 issues, because of the remote place I live in, and my life felt incomplete those months. During this long journey with you, I have never felt the need to complain or suggest anything, because Digit was always perfect. That changes today.

You guys keep innovating, and bringing us new and exciting things, but my suggestion is to go back to your roots. My suggestion is actually something you innovated yourselves! Every issue of Digit has a section called Q&A, that consists of... wait, who am I trying to teach about sections? Anyway, Q&A is something we readers find immensely useful, and Digit already provided us with a book that collected the most common problems that people faced, and gave it to us, long ago. For the life of me I cannot remember which issue it was, but I do remember that it was years ago.

Why not make a Fast Track to Q&A problems and solutions, because in the years that have passed, the problems have changed, so that old book are of no use any more. I think most of us were on Windows 98 when you made that book. I'm even willing to pay extra to get such a book, and I am sure other readers feel the same way, so please give it to us. And in case I haven't said it before, Digit Rocks!!!

**Rhitwick Biswas**
Tata Consultancy Services

First up, Rhitwick, thanks for sticking with us through all the years. You know, we remember that book for Q&A, and you're right, it was ages ago—over 4 years ago if we remember correctly. We have followed that book up with a Fast Track to Troubleshooting Your PC in 2006, which was pretty much a collection of all the problems that readers have, which we cannot answer in the limited space of the magazine.

We might just give you what you want soon, and make an all new "Fast Track to Troubleshooting Your PC #2", but we cannot commit to when as of now. Stay tuned! We should be able to provide it soon enough.

Team Digit

## Play The Movie!

Haven't we told you about movies being made from games and vice versa? Somehow, either both the concepts just don't appeal or weren't given proper treatment. Heard of Uwe Boll? Doesn't that name sound familiar to you? He's the German director, producer and screenwriter who makes movies based on popular video games.

This reminds us of *Doom*. But no, Boll is more interested in gory games like *House of Dead*, *Alone in the Dark*, *BloodRayne*, and more. Reports indicate that there are over 200,000 petitions filed online against him, all complaining so that he may just *stop* making movies! But does Boll feel the lesser itch? No, because he's absolutely in love with the video game industry.

Recently, he was eyeing World of Warcraft and intended to make a movie on it. When he got in touch with Paul Sams of Blizzard, he got a very clear signal—"We will not sell the movie rights, not to you...especially not to you."

## Hey John, It's me!

When was the last time you sent a bug report and got a reply? Can't recollect? Well, try sending one for Safari or any other bug report to Apple Inc., using John Mayer as the lucky mascot. You'll get a reply for sure. Last month when John Mayer blogged about the bug report on crashing iTunes, he mentioned about his long wait for a response.

Mayer happens to be the gig boy for Apple, since he performs a guitar gig sometimes at the Apple events. He also happens to be Mr. Job's favourite poster boy. But has anyone heard from Apple as yet, on the crash report submitted for the Mac OS X? Following this, a guest editor at popular Web site Gizmodo, sent hundreds of bug reports but didn't receive *any* reply from Apple.

After reading about John Mayer's problem, he wrote crash reports and added "John Mayer here" in the report, and waited with fingers crossed. He also mentioned that John Mayer gets personalised replies from Apple. To his surprise he got a mail from Apple Support, asking details about his PC's hardware configuration and OS.

Hence, it is obviously proved that using the "John Mayer here" trick obviously works. So the next time if you have any crash reports with iTunes or Safari for Windows, then do try this gig. It doesn't matter if John Mayer knows you personally or not, but it does matter that you know who John Mayer is!

# Madonna sleeps with her Blackberry

We all know that technology at times becomes so addictive, that resisting it, is at times, next to impossible. Be it surfing the Web or using gadgets, the addiction turns into an obsession which can get really serious. In an interview with a popular lifestyle magazine, Madonna spoke about life in general and her relationship with husband Guy Ritchie.

While talking about dilly-dally things in her life, Madonna revealed that every night "she sleeps with her blackberry". Well to be specific, she keeps the blackberry under the pillow. While she gets ready for bed, her husband plays Brick on the phone. And how does she use Blackberry? In the middle of the night, if she happens to recollect something that she missed out on, then she notes it as a message on her Blackberry.

Well, with all those occasional and supposedly private India tours that Madonna undertakes, Research in Motion should consider signing her up as a brand ambassador—especially with all the security hype over the Blackberry in India.

# Caution...Election

Nothing can be so embarrassing for a Web site programmer, than writing poor HTML code. What would you do if you land up in the midst of the free way to the US elections? Hmmm... it's going to be tough for you to decide on whom to go for—Obama or Hillary.

Nothing bothers a candidate more than a goof up during campaigning. Probably, that's why Obama appeared gloomy, the past few days when visitors got redirected to his opponent Hillary Clinton's site! On one fine Saturday, the visitors at Obama's community blogs section of the site were redirected to Hillary's site.

Later it was discovered, that a person with user name "Mox" had planted the hack for HTML exploit, due to cross-site scripting vulnerability. Another user named "Zennie62" posted this hack video on YouTube, which was later fixed.

Now if Obama is campaigning for such a high position, these silly and common exploits can make quite a few giggle. When small time hackers like Mox can take a dig at his site, what would happen if Hillary hires a gang of hackers!

Soon after the exploit was fixed, Mox sent out an email to a news site, informing that his action was mere "prank" meant for fun. He wasn't politically motivated and Clinton had no hands behind the prank. Mr. Senator Obama, hope you heard that, and your tech team might've heaved a sigh of relief. But be prepared for who knows, a team of liberal hackers may gang up against you. This is politics, dirty politics!