April 2007

digit

YOUR TECHNOLOGY NAVIGATOR

Mod-ify!

Be Talk Of The Block With An eXtreme Modded Case

Photoshop CS3: The Hype's Justified

Eight Inkjet Printers Vie For Your Office Space

Digit Goes To CeBIT–And Brings You A Special!

Get Yourself A TV-Tuner Now–We've Tested Them

Cheat In Games Without Cheat Codes

Jasubhai

Will The E-book Take Over?

Deepak Ajwani Executive Editor

HERE'S A QUESTION that's been playing in my head a couple of weeks now: is it at all possible that what Apple's iPod did to the Discman and CD players, electronic books might do to books?

With digitisation of books in progress at many large libraries, with search engines, too, getting into it and publishers even geared up to launch future titles in both printed and digital versions, one is apt to wonder about the future of the printed word, especially books. Concerns have been expressed about the possible switch in our reading habits as well as its commercial impact: will digital technology spell doom for print? And is that a good thing?

A rough estimate states that Google is digitising around 10 million books a year, while the overall number of titles that exist today is about 65 million.

Well, people do want to read excerpts online and base book purchase decisions on their online reading experience, but can you imagine reading a gripping Alvin Toffler or Robert Ludlum on screen, having to adjust your posture, brightness and viewing angle every five minutes?

The latest e-book tool launched by Sony is called the Reader, a book-sized gadget that reads PDFs and JPEGs as well as MP3 and AAC e-books. Its batteries let you read up to 7,500 pages, and it stores up to 80 books. Sony currently makes 12,000 books available online for download.

It seems to me that the most affected by the digital changeover will be sales of reference books and encyclopaedias. Wikipedia, the free and collaborative online resource, for instance, has already caused a dip in the sales of the print version of the Encyclopaedia Britannica and various reference journals. Printed dictionaries, too, have taken a hit from their online counterparts. Books that one would not necessarily read from cover to cover might cease to exist in the printed form, because searching a well-indexed book online is quicker and much more convenient. Additionally, what might likely migrate online are telephone directories, cookbooks, and perhaps textbooks.

> **"The most affected by the digital changeover will be reference works"**

Most authors and their creations, however, will never find a better medium than the paper-bound book. Readers engrossed in a novel, for instance, would certainly not want to be encumbered by connectivity concerns, back-up power, or any other distractions—such as multiple links on a page.

People want a media suitable for unhurried reading in bed, in the loo, on the beach. Printed books are not just a source of information, as we all know: they also look and feel good. They even smell good. They find a place in a well-designed, proudly-owned bookshelf. I think it'll be a while before we change our idea about what "reading a book" means.

editor@thinkdigit.com

Tell Us What You Feel About Digit

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

Product Testing

Want your product reviewed by *Digit*? Contact our Test Centre at **sanket_naik@jasubhai.com**

Software On DVD/CD

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Products Reviewed This Month

HARDWARE
TV Tuners 102
AVerTV Box7
AVerTV Go 007 FM Plus
VideoMate U890
VideoMate U900
VideoMate Action Pro
VideoMate TV Gold+II
WinTV-USB
WinTV-USB-FM
WinTV PCI-FM
PalmTop TV
PVR2000
TV2000 XP Global

PCTV USB2
TV to go
PCTV PCI
PCTV Pro PCI
PCTV Stereo PCI
PlayTV P3000
PlayTV Pro 2
SSD-TV-715
SSD-TV-722
SSD-TV-812Plus
Super TV SSD-TV-670
Super TV SSD-TV-670Plus
External TV Tuner

Inkjet Printers 84
CANON Pixma iP1700
CANON Pixma iP3300
CANON Pixma iP5300
Epson Stylus C79
Epson Stylus PHOTO R390
HP Deskjet 2360
HP Deskjet 4168
HP Photosmart A516

Bazaar 52
Hardware
Asus Commando
Asus EN8800GTX

Galaxy 8800GTS 320 MB
Buffalo DriveStation Duo
Kodak Z612
Iogear Laser Travel Mouse

Software 58
F-Secure Internet Security 2007
GoToMyPC
Quick Heal AntiVirus Plus 2007
Symantec Ghost Solution Suite 2.0

To Advertise

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Phone: (080) 25546370-73
Fax: 41518330

Phone: (044) 28235186/88
Fax: 28230731

Phone: (040) 27894167/ 55221051
Fax: 27720205

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Tel: (886) -2-8773 4199
Fax: (886) -2-8773 4200
marc@imagemediatw.com

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Tech Careers
81 Painting The Page Proper
Web design as a career requires a fine blend of technical and creative skills. Plus, work will never get boring

Test Centre
84 Think Ink!
There are laser printers, then there are inkjet printers. You probably know the relative merits of each. And if it's an inkjet you need, here's our annual test—divided into regular and photo printers

Face-off
93 Adoption Of Vista: Now Or Later?
That's the question quite a few businesses are asking. Here are two views on this. We outline two opposing views—including the one that says, "They'll all have to switch one day"

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94 The Little Server That Could
Server virtualisation—where one physical server gets split into several "virtual" servers—could be a good idea for your business. Should you go for it?

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Some games are so addictive, you might need to get into rehab! Presenting the 10 most horribly addictive free ones we found

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115 Game On
Resident Evil 4 is good on the PS2. Not so on the PC. Also reviewed: two PSP games—*Shinobido: Tales of the Ninja*, which is OK, and *Killzone Liberation*, which is excellent

Test Centre
102 E! @ Your Fingertips
Watch TV on your PC, we've often exhorted you. Featured this month is our annual TV-Tuner shootout. After all, you do deserve the best

Escape

119
Steve Jobs needs no introduction, but here's a little about what he did for Apple—and more

119
Be Good, say all the scriptures. Will games follow suit, slicing off your points if you kill people?

DIGITAL PASSION

Command & Conquer 3: Tiberium Wars

Veteran agent Sam Fisher is back. But he's never faced an enemy like this before. To stop a devastating terrorist attack, he must infiltrate a vicious terrorist group and destroy it from within...

Teenage Mutant Ninja Turtles Demo

Players can control Donatello, Michelangelo, Leonardo and Raphael in ninja-tag sequences. Players can perform acrobatic moves and experience over-the-top ninja action across the rooftops of New York City

Namo WebEditor 2006 suite

Namo WebEditor 2006 suite is one of the most complete Web authoring applications ever created and quite possibly the only software you will need to create, edit, publish and manage your websites

LINUX
- aMSN
- GNOME Commander
- WebGUI 7.3.11
- LinCity-NG 1.13.1
- Opera 9.10
- Valknut 0.3.7
- GParted-livecd 0.3.4-0
- Firewall Builder 2.1.10

DEV TOOLS
- AutoRun Architect 2.2
- Amaya
- Blueprint Software Modeler Community Edition 1.2
- DBScribe for MySQL 1.1
- Report Sharp-Shooter Express
- Google Web Toolkit 1.2.22
- Visual Basic 2005 Express Edition
- MyGeneration 1.2.0.2
- HydraSDO for Databases Java Edition 1

DIGITAL TOOLS

Ashampoo Magical Snap

The ultimate PC and home entertainment solution, is now Windows Vista Ready and has everything you need to manage your digital multimedia lifestyle

Ashampoo AntiVirus

This antiVirus gives you comprehensive protection against viruses, worms, Trojans and dialers, but it's so efficient you won't even notice it's there

FREE full VERSION

Diskeeper 2007

This software provides unparalleled peak disk performance for power users and high powered workstation computing, delivering the ultimate high performance to those who need it most

MULTIMEDIA
- Brico Pack Crystal Clear
- Brico Pack Longhorn Inspirat
- MS RAW Image Thumbnailer and Viewer Powertoy 1.0
- Vista Codec Package 4.3.1
- Corel DESIGNER Technical Suite 12
- Corel Snapfire Plus
- CyberLink MagicDirector
- Ulead VideoStudio 10

INTERNET
- Active Ports 1.4
- Azureus 3.0 (Beta)
- Internet Explorer 7 Add-ons
- Morpheus MP3 5.5.4
- MSN Messenger 8.1.0178.00
- Technitium MAC Address Changer 4.5
- Download Accelerator Plus 8.5
- Download Express 1.9.337
- FlashGet 1.8.1.1002
- Free Download Manager 2.1.494
- Fresh Download 7.72
- LogMeIn 2.20.475
- Internet Download Manager 5.0.9.3
- LeechGet 2006 2.0
- Star Downloader Free 1.4.4
- GetRight 6.2
- TrueDownloader 0.82

SYSTEM
- ATI Catalyst 7.2 Display Driver
- AutoPatcher XP February 2007
- JaBack 7.25
- nVidia ForceWare Release 90
- Windows Vista Hardware Assessment
- ESET NOD32
- System Mechanic Professional 7.1.6

DIGITAL BUSINESS

Office Accounting Express 2007

Microsoft Office Accounting Express 2007 is everything you need to make your small business idea flourish

Altova Authentic 2007

This is a XML and database content editor that allows non-technical business users to view and edit data in XML documents and relational databases without being exposed to the underlying technology

Ashampoo Office 2006 1.1

This software starts up fast, works fast calculates fast. Your documents will be ready while the competition is still trying to calculate their results

VMware Converter 3.0
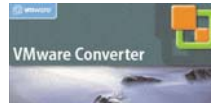
Convert your physical machines to virtual machines in minutes with VMware Converter, a reliable tool that automates the process of creating VMware virtual machines without disruption or downtime

PRODUCTIVITY TOOLS
- Express Accounting 2.0
- Free Accounting Software
- in-Step CoreProcess Personal Edition
- Virtual PC 2007
- MailEnable Professional 2.0

MOBILE APPS
- Sony Ericsson Communications Suite
- MAGIX Mobile Music Player
- SplashPhoto
- CDraw draw and painting
- Spb Pocket Plus
- Documents To Go Premium Edition - For all Platforms
- CryptMagic 3.62
- Mobile Desktop 2
- Mobile Designer 2.0

DIGITAL LEISURE

Chicken Chase

Feeling clucky? The family's chicken farm is perched on the doorstep of foreclosure. If you can solve a series of missions, you will earn enough money to upgrade the farm little by littley

Zuma

Unearth the ancient secrets of Zuma! Survive the hidden jungle temples... shoot magical balls to clear a deadly chain... avoid dangerous traps... and do it all before the chain reaches the golden skull

SMALL GAMES
- Alien Decimation 2.1.1
- Pirates: Battle for the Caribbean
- Ace Ventura
- Feeding Frenzy 2
- Peggle

MOVIES
Steal This Film Part - 1

MOVIE of the MONTH

- Pyrats

MP3
Album: WhiteRoom

- Intro
- Papillons
- Enma's Bridge
- At Odds
- Interlude1
- Barrio Chino
- Barcelona
- Ender
- Puppeteering
- Simple Mood
- Interlude 3
- Play It As It Lies
- Ordinary Day
- Interlude 3
- All Pieces Broken
- Running On Empty

DIGITAL PASSION

Altova DatabaseSpy

This software connects to all major databases and eases SQL editing and database structure design for a fraction of the cost of single-database solutions

VistaDB 3.0

Build fully managed and typesafe ASP.NET and WinForms applications using C#, VB.NET and other CLR-compliant languages

SqlDbx 2.88

Easy to use powerful IDE for database and application developers. This software sports syntax highlighting, Intellisense, Speed typing, schema scripting, schema browser, and many more
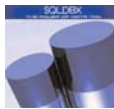
SuperKaramba 0.39

SuperKaramba is a tool that allows anyone to easily create and run little interactive widgets on a KDE desktop

DEVELOPER TOOLS
- DiffSchema 1
- Java Class Finder 1
- Java Runner 2.1
- Just BASIC v1.01
- Nvu 1.0
- SoftTree SQL Assistant 1.0.70
- Wink 2.0
- Deluxe Menu

LINUX
- BitTorrent 5.0.6
- EyeOS 0.9.3-5
- Kaffeine 0.8.3
- MetaMonitor 0.4.5
- MySQL 5.0.36
- Shoreline Firewall 3.4.0 RC2
- Super Grub Disk 0.9575
- SuperKaramba 0.39
- xvidenc 5.4
- WordPress 2.1.2

DIGITAL TOOLS

Namo FreeMotion 2006

With Namo FreeMotion, you can create Flash movies easily and conveniently. This design software provides various functions like shape designing, various text-editing tools, movie clip, button and many more

eTrust PestPatrol Anti-Spyware

Having an antivirus or firewall program is not enough to protect you from spyware. eTrust PestPatrol Anti-Spyware will find and remove spyware threats

BatchSync Secure FTPS/SFTP V2.0.31

Secure automatic file synchronization over FTP, FTP/SSL and SFTP. BatchSync Secure is a secure and high speed solution for automating file synchronization, backups, mirroring and replication over the FTP, FTP/SSL

MULTIMEDIA
- Inkscape 0.45
- Microsoft Photo Info 1.0
- RocketDock 1.3.0 Final
- Universal Vista Inspirat Brico Pack 1.1
- VirtualDub v1.6.17
- TextAloud 2.238
- Video to Flash Converter Pro 5.6
- Zoner Photo Studio 9

INTERNET
- Hydranode 0.3
- i.Scribe
- i-Fetch
- Tor
- Wireshark
- Yahoo Messenger 8.1
- Active WebCam 8.3
- FTP Voyager 14.0.0.3
- WikiReader

SYSTEM
- Ashampoo Magical Optimizer 1.20
- e Notes
- HD Speed
- Debug Diagnostic Tool v1.1
- DirectX End-User Runtime
- nVidia Windows XP / 2K - Audio Driver 4.31
- Realtek AC'97 Drivers A3.98
- CyberLink Power2Go

ESSENTIALS
- Avast Home Edition 4.7
- Comodo Free Firewall
- Digit Software Archive
- Foxit Reader 2.0
- Irfan View 3.99
- K-Lite Mega Codec Pack

DIGITAL BUSINESS

Advanced Call Manager

With this software you can organize your phone book into custom lists like Black, White list or a very special custom group could be your family to which you can wish to send a personal SMS if somebody calls you during a meeting
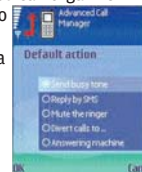
MobiGuard

The application sits in the operating system of the handset and can lock the handset with a simple SMS if the handset is lost or stolen

Reminder-Organizer
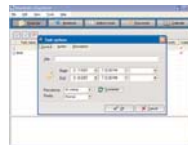
It`s powerful and easy to uset PIM, that helps you plan your business life

Compare PDF

You can compare two texts by characters, and then compare the same texts by keywords by changing comparison method

Shabdakosh

The Shabdakosh or Dictionary is a duplex and very powerful tool for learning English and finding meanings in either English or Hind

PRODUCTIVITY TOOLS
- actiTIME
- Anuvaadak
- Calendar 2000
- EditPad Lite 6.2.1
- Idea 2.1.5.62
- Word Fusion Beta 1.31

MOBILE APPS
- Face Warping
- Flash Lite 2.1
- MMS Home Studio Version 1.1.283
- mNote
- Nvu Portable & KompoZer Portable
- PuTTY Portable 0.5.9 XP
- Theme for Pocket PC 1.0
- Smart Contacts Synchronizer for Sony Ericsson

DIGITAL LEISURE

MONOPOLY HERE & NOW EDITION

What would MONOPOLY be like if it were invented today? Find out as this classic family favorite gets a modern makeover for today's would-be billionaires!

Stand O' Food

Feed a host of hungry consumers in this original, fast-paced restaurant challenge. Slap together burgers, sandwiches, omelets and more as you race to fill orders before your patrons leave in a huff

Hostile Skies

You're a fighter ace, complete a series of dangerous missions then challenge the evil 'Red Baron' for supremacy of the skies!

SMALL GAMES
- Cell Out
- Disc Golf
- Monkey Lander
- Rigelian Hotshots
- Rural Racer

VIDEOS

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

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

This month we feature a member tutorial from the forum here.

Click here to go back to
thinkdigit.com

Tutorial: Learn All The Basics Of C++ Language

17-03-2007, 08:57 AM

Shashwat Pant
Fresh Stock In The Zone

Join Date: Feb 2006
Location: Nainital
Posts: 28

C++ LEARNING GUIDE

This is a basic guide which I have come up with for the people who are looking to go for C++. I have tried to keep it simple so that everyone can understand it.

I had been working on this for last couple of weeks. Any comments/suggestions are welcome.

NOTE: This is a beginners guide so don't expect too much. I made this guide . Keeping Mind that learner is a newbie in C++. Hey now don't think I am an expert. Sorry for the mistakes I have tried to cover every aspect.

INTRODUCTION

C++ is an object oriented programming language. It was developed by Dr.Bjarne Stroustrup in the year 1983 at AT&T Bell laboratories, New Jersey {U.S.A}. It was originally named as C

with classes. The name is derived with the increment operation in "C" which is '++'. So it is the incremented version of C.

An object oriented programming language means collection of objects which are self contain collection of both data structure and functions that interact with other objects. It adds classes, inheritance, functions overloading and operator overloading.

"With the help of C++ we can develop editors, compilers, communication systems, database and other real life time applications.

Note: - C++ codes are case sensitive so every command/codes written should be in Small Letters

CHARACHTER SETS

There are 2 types of character sets:-
• Source Character :- The source text

is created with the help of source character such as :
Alphabet: - A-Z, a-z and _.
• Digits: - 0-9.
• Special Characters: - +, -, *, /, ^, ~, %, =, !, &, |, ( ), [ ], ?, " ", ; , : , \, #,.

POST & PRE OPERATOR

An operator that require only one operand or data item are called unary operators. C++ supports unary minus(-), ++ (Increment), -- (Decrement) on airthmatic operands. In C++ the other unary operator are ++ (Increment), -- (Decrement). These operator can be used before or after the variable, to give condition type increment and decerement.

For more visit:
http://www.thinkdigit.com/forum /showthread.php?t=52597"

China Bans Internet Cafés
The Chinese government has issued a notice that directs local governments to "not sanction the opening of new Internet bars." This is just another example of governmental control over what people see online. But they're still optimistic of having more people online than the US in the next two years.

Adobe Launches Apollo
The alpha version of Adobe Apollo was released in March 2007. Apollo is a cross-platform runtime environment, much like Flash player, that will allow Web developers and Flash programmers to start developing Flash, Flex, AJAX, JavaScript and HTML applications for the Desktop.

Enter

CELEB GEEK

Sanjay Gadhvi
Director

Gadhvi made his debut as a director with the movie *Tere Liye* in 2000, and came under the spotlight with *Dhoom* and *Dhoom 2*.

Technology...
...helps me convey my story to the audience. It is a medium through which thoughts can be exchanged. A director who resists the use of technology is making the worst mistake.

What gadgets do you use?
I have a Mac laptop, and I use software for editing, scheduling, screenplay, pre production, story-boarding... I also have a digicam and handycam, which I use a lot.

Your dream gadget?
I wish there were a combination of hardware and software through which I could do away with actors after taking 3D images of them and later recreate them virtually along with their voice...

What do you mostly do online?
I check my Gmail... we exchange loads of photos and data through mail.

Any instance where technology has really helped you?
Technology has helped me a lot with editing. It has simplified processes, and also drastically reduced the time. When we created *Dhoom 2*, we had pre-visualised stunts, thus allowing us to take the shots the way we wanted them.

ADDICTED

Indians And Chinese Addicted To Net

China and India... one-third of the entire Earth's population... and soon, the majority of the online population as well...

An increasing number of Chinese and Indian youth are getting online, and most educated teenagers have already used the Internet. However, it's been said that the Net is like a drug, and apparently, it is.

In March 2007, there was a lot of serious discussion about the addictiveness of the Net, and its influence on the young, in both China and India. Not all of it was talk, however, and two instances of actual steps being taken to prevent or control Net-addiction also made headlines.

The Chinese have been battling this problem for some time now, what with their Internet-savvy populace growing by the minute—much like our population. They do things differently there, and even their version of Netaholics Anonymous (there's no such thing, we made up that name) is like a military boot camp. Actually it *is* a military boot camp, complete with an army colonel, drill sergeants, calisthenics...the works!

The Chinese government has already reported that the amount of Internet users grew by almost 24 per cent from 2005 to 137 million, and this meant that the

Illustration **Harsho Mohan Chattoraj**

number of Net-addicts grew as well—over 2 million teenagers, by some estimates, are addicted to online games, chatting and, of course, pornography.

With grades slipping, an increase in the amount of juvenile crimes, and (gasp!) anti-government sentiment coming from the capitalist-pig-controlled Net, it's no wonder that little rich Chinese boys are finding themselves being rudely awakened by Drill Sergeants at ungodly hours and being yelled at. The Internet Addiction Treatment Center (IATC) in China is where these boys

are, and though they've only tried to "rehabilitate" 1,500 patients since 2004, the IATC claim to have a 70 per cent success rate. "Hmm, 2 million by 1500 into 2 years..." is what most of you are probably thinking, but this is China we're talking about... for all we know, in our April 2008 issue we might be reporting that there are 4,000 IATC branches across China!

Anyway, enough about Chinese boot camps for now, let's get back to what's happening in India:

IIT Bombay has decided to limit and monitor the Net connections they provide to students living in the hostels. Thus far, access was pretty unrestricted and unmonitored, and as a result, a few students' grades have suffered, are late for morning classes due to all-night online gaming, chatting or surfing, and a very marked reduction in human-human interaction.

Prakash Gopalan, Dean, Student Affairs, is of the opinion that it's not healthy that a student doesn't know who his neighbours in the hostel are, or miss the camaraderie and socialising that used to be part of hostel life. With
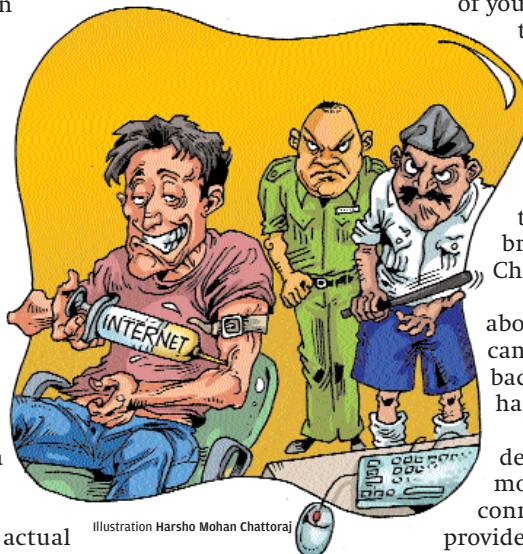
A Little IE7 Bug

The Problem

A minor vulnerability has been discovered in Internet Explorer 7. We say "minor" because security firm Secunia has given it a rating of 2 on a scale of 5, which they call "less critical." The vulnerability can be exploited by bad people to conduct phishing attacks. We're assuming that IE7's phishing warning will not pop up if and when it happens.

Technically, a certain "input validation error" can be exploited to inject arbitrary script code to, for example, spoof the contents of an arbitrary site when you click the "Refresh page" link.

The vulnerability has been reported on IE7 on fully-patched Windows XP SP2 systems, though other versions, too, could be affected.

The Solution

There are two things to do. First, visit http://tinyurl.com/2owakw to see if your system is affected. If it is, don't click the "Refresh page" link when the "Navigation Canceled" page is displayed. No patch had been released at the time of writing.

Mac OS X: A ton of vulnerabilities

This is probably the first time a Mac vulnerability—rather, almost 30 of them—has been in the news in a big way. All you Mac owners out there will probably be aware of the security updates that have just been released, but just in case you aren't, do visit www.apple.com/support/downloads. You'll find all the necessary updates for your system.

---

increasing suicide attempts and an overall higher percentage of students suffering from depression that stems from loneliness, can you argue with him?

The solution will be to cut off Internet access to hostels from 11 in the night through to 12:30 pm the next day. IIT Bombay feels this will force students to sleep early, or at least interact with each other more. Students, on the other hand, feel that this is just another case of the authorities trying to govern their lives, and an infringement on their freedom to choose. With the other IITs also considering such moves, those who didn't get through the IIT JEE can look at the bright side—at least you still have the freedom to be addicted to the Net!

NUMB3RS

Most Internet Fraud Comes From US

Now we're used to news about the US government ordering other countries to take down pirate servers… remember The Pirate Bay fiasco? CEOs of various software companies in the US have chided Asians for high piracy rates. Asians have developed notoriety for being the source of quite a few destructive viruses, while east-Europeans are known to run the best illegal torrent servers…

However, and we'll take a big pause here, it's the US itself that's to blame for the majority of scams and hacks being pulled online. China, obviously, is in second place, but it is a distant second.

Security firm Symantec recently unveiled these findings, in the form of their Internet Security Threat Report.

To give you the numbers: 31 per cent of all malicious activity originates from US networks, and only 10 per cent from Chinese networks. Germany, surprisingly, is in third place on this list of shame with 7 per cent! France, the UK, South Korea are next with 4 per cent each, and Canada, Spain, Taiwan and Italy follow with 3 per cent each.

That's not all, according to the study, 51 per cent of all credit information sold illegally online is done so from US-based servers. The report also says that 52 per cent of all DoS attacks are targeted at US-based servers or computers, so the Americans really are getting the best and worst of everything Net-threat related.

A little unrelated, but fun fact nonetheless is the finding that 77 per cent of all browser attacks were against Microsoft's Internet Explorer. The study also reveals that China has the
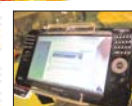
most bot-infected computers, at 26 per cent. So this proves that the Chinese are the worst PC-security-conscious nation, but what's even more interesting is the fact that most of the bot-control PCs are located in the US (40 per cent). Conspiracy theorists in China must be pulling hair out by the clumps!

For those who don't understand the term bot-infected, it means a PC that has been compromised by a Trojan or worm, giving an unauthorised user access to the system via the Net. Bot-control PCs are the PCs used by the same unauthorised users to gain access to the infected PC. So basically, a lot of Americans are illegally controlling a

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❓ **One Silly Question** | **"If Lalu were the chairman of Microsoft, what would Windows be called?"**

"Bihari"
Brijeu Gandhi

"Chhutkan Khidki"
Juthika Mehta

"Yadhav Small"
Maitri Mehta

"Jai Rabadi Devi"
Payal Mody

"Laluwindows"
Vishakha Shah

The Digital World

A Round-up Of Technology News From Across The Globe

SWEDEN
The National Defence Radio (NDR) establishment has been given the power to monitor any e-mail or phone call into or out of the country. The NDR had cracked Nazi codes in WW II

MOROCCO
A man blew himself up in a cyber café because he was refused access to terrorist sites!

ITALY
There is now a nationwide ban on mobile phones in classrooms. This follows videos posted online of the humiliation of disabled pupils and harassment of female teachers.

RWANDA
Google will make available, for free, Google Apps along with e-mail and PC-to-PC voice calls to 20,000 students as well as government officials.

KENYA
Safari.com, the country's biggest cell firm, has launched services for money transfer using text messages. Millions of people in remote areas will now have access to banking

ISRAEL
A portable robot capable of entering most combat zones—with grenades and a Uzi machine gun-pistol on board—has been unveiled, primarily geared towards saving foot-soldiers from falling into booby-traps set by guerrillas

lot of Chinese computers!

All this is quite pointless, of course—it's just a few fun facts that you readers should know. The one time this little news article can come in handy is when one of your *Amreeca*-returned buddies comes back for a holiday and tries to find fault with India, Indians, and our non-functional system for cyber-crime…

ONECARE DOESN'T CARE

Microsoft's Anti-Virus The Worst

Microsoft's Windows Live OneCare security suite is apparently not as secure as they think. OneCare is Microsoft's foray into the security suite world that is already hotly contested by companies such as Symantec and McAfee. Now, one would think that since it's built by Microsoft, it should be able to do a pretty good job, protecting other Microsoft products (namely,

Windows XP/Vista and IE), right? Wrong. Various security experts who conduct security suite tests, including AV-Comparatives (www.av-comparatives.org) have already pish-toshed at Microsoft's attempts. Andreas Clementi, the AV-Comparatives reviewer has gone as far as suggesting that OneCare might not even be included in the next comparison, because it's just no good!

Microsoft was quick to do the necessary PR clean-up job, promising to look into the test, and make sure that OneCare performs better. Of course, since OneCare is still a registered security suite, certified by the International Computer Security Association, it will continue to be sold. We must concede that it's still early days, and OneCare, very obviously, can only get better.

What worries us is that it's a Microsoft product, which is obviously being scrutinised by every hacker and script kiddie for flaws. Do we really want to be using security software from the most virus-

Stat Attack
It's all in the numbers

Nigerian (419) fraud increased in India 900 per cent in 1 year. Losses totalled **$32 million** in 2006. Worldwide losses total **$28 billion**

What types of sites US surfers visited in January 2007

- Adult
- E-mail
- Communities & Chat
- Entertainment
- Business & Finance
- Shopping & Classifieds
- Search Engines
- Portal Front Pages
- News & Media
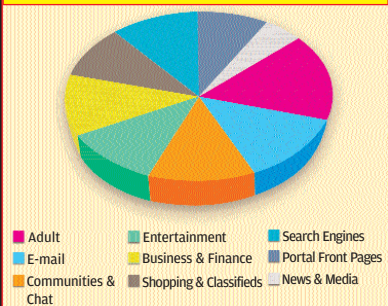
Electronic Surveillance: The World's Top 5

Number of intercepts per 1,00,000 population
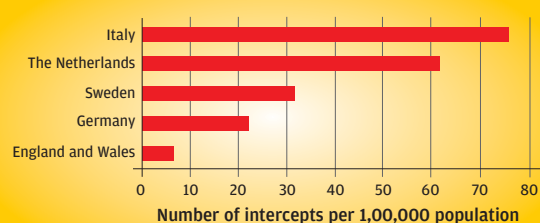
"Intercepts" refers to instances of people being caught on a surveillance device

The average American checks e-mail an average of 4.8 times a day. 41 per cent check their mail **first thing in the morning. 18%** check more than **10 times** a day

Source: AOL's E-mail Addiction Survey

Photograph **Nimish Chandiramani**

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.

targeted software company in the world? Of course, in a few years Microsoft may make us eat this very paper we've printed on, by using the whole experience to build another stable and secure product—and we'll be only too glad to pay for the ketchup to help digest the paper. It's ironic, isn't it? All those virus-writers out there are unknowingly helping Microsoft clean up all the bugs in their code, resulting in more stable products by the day. Perhaps 25 security patches down the line, OneCare will win the 2008 anti-virus test. We look forward to the day.

MORE MICROSOFT NEWS

Live Search Vs. Google

Good news for corporations in the US. Microsoft has offered to pay if companies force employees to use its Live Search engine. Now before you start jumping up and down screaming foul

and shooting off letters to your favourite, Google, you should know that Microsoft is not paying just *anyone* who uses Live Search, well, not yet at least. Instead, it is conducting a study on how well Live Search does in catering to corporate clientele. They're not paying up hard cash either, instead, they're offering the corporations free service or credits (redeemable for products or training). The current rate is $25,000 for enrolling, and anywhere between $10 and $2 per computer, per year, depending on the amount of searching done. What this means is that a company with 20,000 computers, all of them using search

frequently, can earn up to $10 x 20,000 + 25,000 = $225,000 (over Rs 1 crore annually), just by using Live Search!

We're wondering what Google will have to say about this...

SONY MAKES PS3 CHEAPER

PS3 To Be Less Compatible With PS2 Games

In a bid to drop the price of the expensive PS3 gaming console, Sony has decided to remove one

chip. The chip in question is responsible for graphics and data processing for older PS2 games. This means that the PS3 will be even less backward-compatible than it is already. Although the US versions have this chip, the European versions will ship sans the Sony-made microchip, and as a result, many European gamers are either going to have to hock their PS2 games, or use two consoles.

The move seems like a desperate attempt by Sony to drop prices of its console

GENDER BENDERS

Savita Bamne Vs. Alankar Kadam

We're a little addicted to StumbleUpon here at *Digit*, so we thought of bending the genders around that general theme: use StumbleUpon to stumble upon various sites, pick one you like most, and tell us why you like it. In addition, we allowed Savita and Alankar to select site categories before Stumbling.

Creating an account took up some of Savita's time; she took even longer to select her site preferences. Cats turned out to be her first love; for categories, she selected Animation, Clothing, Graphic Design, Movies, Photographs, Arts, Books, and Multimedia. Swcp.com was her first site, and she took an instant liking to it. We didn't. (The site hosts cat pics.) Some more clicking took her to tinyvices.com— hundreds of paintings and photos—fascinating! For Savita, that is. After musicrecovery. com and changer.com, she stopped at petebevin.com. You guessed it—lots of (ugh) cat photos!

A man with varied interests in life, Alankar selected Animation, Graphic Design, Photography, Books, Travel, Clothing, Cats (yes!), Web Development, Music, Movies, Animals, and Multimedia. We were happy he stopped his preference-choosing at this point! His first site— outdoor-photos.com— had some breathtaking landscape photos. A few clicks later, he stumbled upon typenow.net and nerdyshirts.com, and finally, it was bustedtees.com for Alankar. This site has some cool T-shirt logos and text, and is well-designed. T-shirts or cats— take your pick!

a little further, to try and compete with Microsoft's Xbox 360 and Nintendo's Wii. Apart from the advantage of having launched earlier, the Xbox 360 and Wii are significantly cheaper, while the Xbox 360 is completely compatible with older Xbox games.

Another change in the newer PS3s will be the shift from the now-famous Cell processor's current 90 nm manufacturing to the smaller and cheaper 65 nm process.

All this cost cutting was probably because Sony recently announced that it

would be losing a lot more money than it had thought on each PS3 sold. Strange though it sounds, Sony always expected losses on the PS3, hoping to make up the differences in terms of game sales. Microsoft and Nintendo follow the same business strategy. Cheaper parts and technologies translate to lower costs for Sony's competitors, and as a result, the Nintendo Wii costs about half as much as Sony's PS3. Interestingly, the Wii is still the top-selling gaming console, beating both the Xbox and Ps3 in terms of numbers sold in 2007!

Microsoft Open Live Service To PC Gamers

What was always a privilege for Xbox 360 owners is all set to be a globally available, cross-platform gaming service. The Live service will be opened to PC gamers in the first half of May 2007, providing you're gaming on Vista, that is. Windows XP users can put that bottle of champagne away, because you're going to have to cough up anywhere between 10 and 20K to get some flavour of Vista before you can subscribe to the Live service.

To help build excitement, Microsoft is in preparations to launch *Halo 2* for Windows Vista, which should get a few million gamers excited. However, the PC version will differ from the Xbox 360 version, so don't expect to be playing against your Xbox 360 buddy using your PC. For that kind of interoperability, you're going to have to wait for Microsoft's next game, *Shadowrun*, which is expected to be released in mid-2007.

Another good thing is that those with Live memberships will need just one account ID to play on either PC or Xbox 360. In order to be able to play

against an Xbox 360 owner using your PC, you will have no choice but to buy a Gold membership for $50 (Rs 2,250) per year, which isn't that bad.

ANOTHER LAWSUIT

Will YouTube Die A Viacom Death?

For those who haven't heard already: Google is being sued by US cable TV company Viacom. The lawsuit complains about clips of TV shows being shown on YouTube, which Viacom holds copyrights to. Some of said shows include the hit adult cartoon *South Park* and other Comedy Central hits such as *The Daily Show* and *The Colbert Report.*

The lawsuit reportedly asks for a billion dollars (Rs 4,500 crore) in damages, and demands that YouTube put up a proper filtering technique to prevent further copyright infringements.

Thus far, YouTube has protected itself by citing the Digital Millennium Copyright Act of 1998, which basically protects service providers such as ISPs from being sued for the wrongdoing of their customers. So, if you hack into the US pentagon, you can be jailed, but your ISP cannot be penalised. The same goes for hosting copyrighted content, if you host pirated content, on

Buzzword of the MONTH

IPN (InterPlaNet)

IPN is to be used for deep-space data communications between Earth, Mars, and other planets. The project, funded by NASA in collaboration with DARPA, is supporting a team of scientists at the Jet Propulsion Laboratory in Houston, Texas. The objective behind the IPN project is to build an architecture for a future inter-planetary Internet by setting nodes across the solar system for connecting the Internet on Earth with the internet of other planets and spacecraft. The basic components of IPN are NASA's Deep Space Network (an international network of antennas to continuously track data and control navigation of spacecrafts), a six micro-satellite constellation around Mars, and the appropriate protocols. Challenges facing IPN include reducing delay in data transmission, figuring out the protocols, satellite maintenance, availability of domain names, and security from hackers. A link to Mars is planned by 2008.

OpenID

What is OpenID?
It is an identity key to access Web sites you need to log in to without the need to remember usernames and passwords and without needing to register.

Who developed it?
It was originally developed by Brad Fitzpatrick of LiveJournal, and is now being developed by everyone who is interested in working on the project.

How does it work?
Roughly, the user registers on an OpenID provider's site such as MyOpenID. These providers are referred to as i-brokers. Once registered, he receives a URL that will be his identity, for example, yourname.pip.verisignlabs.com. Now when he wants to log in to the OpenID-enabled site, the user types in this URL and clicks "login," which in turn takes him to an authorisation request page on the i-broker's site, where he enters his password. The i-broker site thus confirms that the user wants to be identified by the OpenID-enabled site, and the user gets logged in.

Where can this be used?
OpenID can be used wherever there is a need for identification. Some sites that have implemented OpenID are jyte.com, Wikipedia, ma.gnolia.com, and AOL.

**When can one host an OpenID login on their site?**
Anyone can run OpenID on their site right now, and can also host an OpenID server without having to pay anybody. Just four lines of code have to be included in the site code for a OpenID-based login, and the code is not JavaScript; it works on AJAX.

Why is this good?
Obviously, since the user has a single point of login (the i-broker's site), he need not remember different usernames and passwords. Also, one can log in to sites without registering.

say Yahoo!'s free Geocities servers, no one can sue Yahoo!. Makes sense, doesn't it? The catch phrase in this law is that the service provider must stop the wrong doing when informed of it. So although it is not the service provider's duty to check everything on its servers before it goes up, it is obliged to remove anything that it receives complaints about.

If Viacom wins its lawsuit, it will sure set off a whole range of other lawsuits, with innocent service providers getting sued. Is it really possible for a site as big as YouTube to monitor *all* its content?
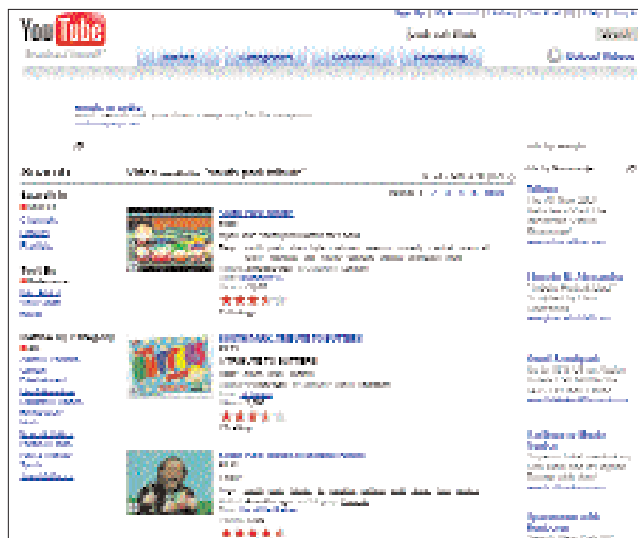
Viacom seems to be saying, you have my content up there, remove it and make sure it doesn't happen again. Here's where the proverbial grey area steps in. Should a service provider hamper the services it provides to try and prevent wrong doing, or should the owner of the copyrights have to shoulder the responsibility of repeatedly checking for copyright infringement. The law is unclear: YouTube (basically Google) says Viacom should check and inform it, and then it will gladly remove the content, while Viacom says it's Google's duty to prevent repeated offences by various users by putting up a filtering system.

Now Google has already struck deals with bigger companies such as NBC, to provide promos and clips to promote shows. Although NBC did start off by writing a little hate mail to YouTube, it soon figured out the benefits of partnering with it. A lot of people have learnt about new shows from YouTube rather than from the channel itself. That's what happens when you have an embarrassment of choices.

What's fishy to us is the fact that although such content has been uploaded for a while now, it's only now that Viacom has put in a lawsuit.

Incidentally, when Google bought YouTube, it set aside $220 million (Rs 1,000 crore) for lawsuits just like this one. Google is also well known to have billions of dollars in loose cash, freed up for investment purposes.

So what will the end result of all this be? Will Google kill the very spirit of YouTube by setting filters in place that will make it much harder to upload any content, copyrighted or not, or will Viacom lose their battle and be silenced by the courts?

Both seem very unlikely, and most experts expect an out-of-court settlement. Wild

speculations are being made about the terms. We know what we'd like to see though: Google deciding to get into the cable TV business and spending some of their billions on buying one.

More recently, however, activist groups got together and sued Viacom for asking Google to remove a particular video. Apparently, this video, created by small-time movie makers Brave New Films and MoveOn.org does have a few clips from The Colbert Report, but only because it parodies it. The lawsuit claims that this is completely legal, and involves "fair use" of clips from a TV show. The lawsuit also states that Viacom should know "fair use" when it comes across it, but deliberately got Google to remove the video. This is a violation of freedom, which as we all know, can amount to a very serious and expensive crime in the US.

The latest lawsuit does not mention Google or YouTube, so they are being treated as a service provider in this case—which might actually help their cause in the lawsuit by Viacom. As far as Google is concerned, it's just a case of, "Hey, don't look at me, they told me to remove it!"

All this makes us marvel at the idea that is YouTube: it truly is more of a public run, video superpower, and less of another Google venture—thus far.

Events are so precariously poised right now, that everyone is taking notice. If Viacom does lose the battle with both Google as well as the latest lawsuit by the film makers, it might send a message out to the world: "You mess with Google, you mess with us!" It also tells bigger corporations to not mess with the little people of the online world—we're little, but we have nasty bites. Something tells us there's going to be more suing in this little controversy—hurrah for lawsuits, the great levellers of our time. ■

Focus CeBIT

Making Lemonade?

Last year, Samsung unveiled the Q1 Ultra Mobile PC (UMPC), which was widely boo-ed and was generally regarded as one of the biggest lemons of CeBIT 2006. Samsung returned this year with the Q1 Ultra, with some upgrades, support for every wireless broadband protocol imaginable, an unnamed dual-core processor from Intel, and Vista Home Premium, no less. The keyboard isn't on-screen any more; you now have a split QWERTY keyboard on either side of the 7-inch screen. The keys are quite tiny, though—it's highly probable you'd be hitting two, maybe three keys with every stroke of even a non-podgy thumb. To control the mouse, you have a PSP-like analogue nub-type-thing, which is easy to get used to in five minutes or so. Battery life is projected at 3.5 hours—a whole 30 minutes more than last year—but is extendable to seven with an add-on battery pack. The best part, though, is its support for Bluetooth 2.0, Wi-Fi (802.11b/g), HSDPA, and WiBro (the mobile version of WiMax).

What's more, the Q1 Ultra trumps ASUS' UMPCs—the T83 (a 7-inch laptop to the untrained eye) comes with a 1 GHz Via processor and 512 MB of RAM, while the Vista-ready-but-running-XP ASUS R2H comes with a 900 MHz Celeron M and 256 MB of RAM (upgradeable to 768 MB). On the plus side, though, the latter two will last seven hours on a single charge. The battle begins...

TV Off Your USB Stick

This neat little thing from SanDisk will launch in a month or so—it's a 4 GB (or 8 GB, should you be so inclined) USB Flash disk that you can carry your movies around on, and comes with an adapter that you can use to connect it to your TV—either by coaxial or RCA connectors—and view your movies right there! The quality of your viewing experience will greatly depend on the format and compression of the movie, obviously—especially so if you're using an LCD TV. No word on cost, though, and we're told that a high-def version is in the works as well. Of course, a solid-state drive for HD content shouldn't cost the 600-odd dollars their new 32 GB Solid State Disk is going to cost.

For one week every year, the sleepy town of Hannover, Germany, creaks under the weight of the hordes of tradesmen and technology enthusiasts that descend upon it with but one thing in mind—CeBIT. We, too, braved the chilly winds and freezing rain (and they call it summer!) and suppressed our tourist instincts to bring you this report. Though it's lost about half its visitors since 2002, the fair still throbs with life...

DDR3 COMETH!

Intel announced its Bearlake family of Desktop chipsets here—the P35 and G33 will support the DDR3 memory standard, upping the bus speeds to 1333 MHz and consequently offering more memory bandwidth. Partners such as ASUS will ship their P35-based boards for the Core 2 Duo and Core 2 Quad soon. The G33 will launch later this year, and will supposedly be the cutting edge of gaming boards.

Immersion And More

The mighty brains over at the Fraunhofer Institute never fail to amaze us. This time, they've come out with, among other things, the world's smallest HD camera and a way to share music that will make DRM redundant while still keeping the money flowing into the record companies' pockets. There was also the 3D display shown here, which doesn't need you to wear any special glasses—just sit in front of it; the two cameras on top sense the distance between your eyes, and the images dished out are accordingly spaced. It also recognises hand gestures, so you can rotate objects that you see, the same way you would touch and rotate a real object.

The aforementioned music sharing system is called Freebies, and will work thus: User A sends a recommendation to User B in the form of a partially encrypted song. User B listens, likes, then buys. User A, then, gets something in return for getting User B to buy the song—a free song, a discount, who knows. Because User A has more to gain by making people buy, he's less tempted to share illegally. Everyone now lives in a happy, DRM-free world where the RIAA isn't after anyone's neck. Sadly, no music store has expressed an interest in this system yet, but we have hopes for it.

Phoenix Delayed

Ever heard of the Commodore Pet? Back in the day, this was the cutting edge of gaming PCs. Now, after being under the radar for so many years, Commodore has returned to what it did best, with its range of über-cool gaming PCs. The specs: an Intel Core 2 QX6600, 4 GB of DDR2 RAM, two 8800 GTX cards with 768 MB of memory each, in SLI, and a total of 650 GB of storage. It also comes with these cool interchangeable panels, which you can buy from their online store. No word on how many banks you'll have to rob to own one, or how they're planning to trump Dell and Alienware at the assembled gaming PC game.

Aside: If you thought racing simulators were boring on the PC, you might try RACE, The WTCC Game, on this simulator that Commodore had set up for visitors—more than just fun.

Optimus Maximus Launch-us Finally-us

This one clearly takes the I-almost-became-vapourware award—the Optimus keyboard (which we've drooled over before) will finally launch in September, at the elevated price of $1490. They didn't have it at the booth for us, but here's what we know for sure: it'll have 104 black-and-white OLED screens that can be used for any key map you can conceive. The screens themselves won't be the keys—they'll have transparent plastic enclosures that slide around them instead, which should shield the OLEDs from the kind of damage constant pounding can do. They're accepting pre-orders from April, so it's *definitely* releasing, the guys at Art.Lebedev Design tell us.

In the meanwhile, we played with this curiously shaped mouse—the Mus. If anything could set off the alarms at the Ergonomics Police Headquarters, it has to be this. Hurrah for pointless cool!

More Gaming Realism

Professor Philipp Slusallek, Head Brain at the Centre for Excellence in Computer Science at Saarland University, showed off his algorithm for real-time raytracing in games and other applications. The system uses a platform called OpenRT, based on OpenGL, and will enable graphics chips (NVIDIA's G80 onwards) to render complex reflections, refractions and shadows in real time. One of the projects based on the system is Quake 3 Raytraced (and you know how we love *Quake III* here at *Digit*), and we were quite amazed at the demo. Frame rates hover around the 24–25 fps mark, and the Prof admits it's going to need some work before game developers can use this engine. However, "since games take more than two years to develop, the engine will be ready by the time the game is," says he. Exciting stuff, this. Incidentally, you can find a video and screenshots of Quake 3 Raytraced at **http://graphics.cs.uni-sb.de/~sidapohl/egoshooter/**

NEC Does It Again

NEC's prototype Dew camera hangs around your neck, and senses your mood by analysing your voice or any other miscellaneous sounds you might be making. When it senses happiness, it promptly takes a snap, deducing that you'd need to keep that happy memory on record. You can then view your photos on the viewer, which recognises hand gestures to navigate through your collection.

Also on display was the LatticeKey interface for mobile phones, which they hope will pave the way for new and more innovative user interfaces where you're more worried about content than the key you're pressing. The keys are arranged in (what else?) a lattice, with no labels. A guide will pop up on screen when you touch it, and instinct should take it from there. Pity they don't offer us hands-on demos.

What do you get when you put a few bored geeks in a room full of scrap?

Extreme Mods!

AGENT001

It was a day like any other, and that's where the problem began. I was bored out of my skull. Same old chair, booth, meeting room, canteen food, you name it... I've been here long enough to be considered furniture. Don't get me wrong, I love my job, but it's the surroundings that never seem to change. I asked my CEO if he'd considered re-modelling the office; the reply was loud guffaws, very similar to what I heard when I asked for an Alienware rig. Oh well, it was worth a shot.

As usual, I used the lunch break to bitch to my colleagues about how boring everything was. A few pats on the back, the occasional jibe and comments about mid-career crises later, I wasn't feeling any better. I *had* to do *something* different.

While surfing, I came across some extreme case mods online, and lo, a voice said unto me, go forth and mod. I gathered the troops, told them my plan, and... well, apparently, we geeks bore easily, so I had volunteers crawling out of the woodwork.

What Should We do?

Someone asked that. There was silence. Here we were, a group of men (all little boys at heart) aching to start cutting up something, but with no plan in mind. "If we do a case mod, it has to be something practical, something of purpose," said Robert. "It better be for an article," said Deepak (Ed). "Let's use your new LCD," said Nimish. Nooo, anything but that! My new 17-inch LCD was my latest office gizmo, and I had just fallen in love with it.

After a day of fighting over the details, here's the logic that emerged:

We figured that a lot of people will be buying LCDs, or have already bought one. They probably have an old CRT lying around, or will want to sell it for a pittance. So we dediced to use an old CRT monitor and our New LCD and do our bit of geek stuff.

Usually, case modding is considered the gamer's realm, or at least an area where only people with money to blow dare tread. We decided we wanted to break this myth, and do a case mod that would cost as little as possible—something that anyone with a few basic tools and the will to use them could achieve. We decided, with vehement arguments from me, to use my system, LCD and all, for the case mod.

Imaging **Pradip Ingale**

The system is an old AMD 64 3200+ on an MSI RS480M2 with 1 GB DDR 400 and 80 GB Seagate Barracuda SATA hard disk. My new monitor was a Samsung 740N 17-inch LCD, and I still had my non-functional Samsung 793s CRT lying about. Our first thought was to build the world's first AMD-Mac—something that looked like the older CRT-based Macs, but would run Windows and be AMD-based. A lot of disapproving noises by both Apple fans and those well-versed with legal issues put an end to that thought. The idea stuck though, and we decided we wanted to build a complete system into the CRT monitor casing, using the LCD as the display.

The idea is simple: instead of replacing the CRT on your desk with an LCD, make the CRT casing the entire computer... In what follows, we will help you do this at home.

Stuff You Need

All we could find when rummaging through the office supplies were one metal file, a very flimsy hacksaw, a soldering iron, a screwdriver set, a Swiss army knife, a hand drill, and tonnes of nuts and bolts. We decided to use only these implements, because you should have all this at home, and we wanted to keep this strictly low-budget.

Apart from this, you will need a CRT, preferably non-functional. You can always approach your local computer hardware store and ask him to get you an old 17-inch CRT casing. We enquired, and you can get one for anywhere between Rs 200 and 600, depending on the condition of the case. You will also need an LCD (duh!), your existing PC (which you should completely dismantle before beginning) and a lot of free time and energy.

Breaking It Down

Nimish was the one who volunteered to do all the muscle work (I always knew he was just a destructive little boy at heart), while I was made "Project Manager" by Ed. You have to love all the corporate speak, which means all I am doing is writing this, overseeing the ~~minions~~ team, tch-tch-ing away to glory and barking orders! Now this is the life... the ultimate cure for office boredom.

First things first: we had to dismantle the CRT. If you're doing this at home, do so carefully, because CRTs are filled (or is that emptied?) with vacuum. A little heavy jolt or dropping it will result in a rather nasty implosion. The boys dismantled the CRT in the presence of Ajay, our much-hated systems admin—getting hardware out of him is like attaining Nirvana. Very many opened screws later, we picked out the CRT and handed it over to Ajay. Now we finally had what we wanted—the CRT case.

Next, my pretty new LCD had its stand removed. And we found that a 17-inch LCD (non-wide) fits pretty well into a 17-inch flat CRT casing. Just a little cutting and filing required (none by me).

Apparently, a 17-inch CRT has a circuit board holder identical in size to an ATX-size motherboard! All we needed to do was cut the metal container a little on one end to make the back of the motherboard accessible.

We had to get rid of some of the CRT case's internal side supports to get the LCD to fit well.

We used the soldering iron to melt these away. It's not pretty, because it leaves little uneven melted masses, but it does reach those corners easily, and cuts through the plastic casing like butter.

Once we had the LCD seated, it was time to find out just how much screen area was being cut off by the CRT bezel in the front. We found that a good half an inch on all sides was un-viewable, so we drew a few lines and went at it with our little flimsy saw. If you're doing this at home, make sure you don't cut too much off, because you'll never be able to compensate for that. Nimish was a little over-enthusiastic in the beginning, and hacked a little too much away from the top. Our advice: be conservative. It's a lot easier to file a little more of the plastic away than worry about how to cover up faults later. We had already decided we didn't want the LCD's bezel to be visible, as that would spoil the effect of making our mod look almost like a plain old CRT. We cut it accordingly.

This took a whole day to complete, what with all the precise measurements and loads of conservative filing and cutting, after the initial mistakes. If you're doing this alone, it could take considerably longer.

After all this was done, we needed to find a way to fasten the LCD securely in place to the front panel of the CRT case. It's easy to go out and buy something that will do this, but we were determined to use only what we had. Luckily, the old CRT had earthing that ran around the back of the tube, and also acted as a rope that held it in place. Since it was made for this case, it fit perfectly. It even came with a spring, so you can pull it as tight as you require. We screwed in four screws at each corner and literally tied the LCD to the front panel.

Our very next challenge was to make the LCD's controls accessible. Our CRT had its buttons on the right, while the LCD had it's buttons on the front. Quite a dilemma! We then decided that we could use the little holes of the CRT's buttons as front panel USB and audio, and decided to just cut away the CRT's plastic bezel to reveal the LCD's controls. If you're lucky enough to have both an LCD and a CRT with approximately the same button placement, you can rig the same holes in the CRT's casing to be used.

We put the power/reset and HDD/power LEDs on the other end. Just a little cutting and *melting* with a soldering iron is required to achieve this.

This completed the front panel, which now held the LCD monitor, front panel audio and USB, and the power switches.

Component Input Time

The next thing we had to do was fit the motherboard into where the CRT's circuit board once was. Now the problem with the circuit board's holder was that it's made of metal.

One very important thing to remember when fixing your motherboard into a case-modded system is insulation. Never seat your motherboard flush against a metal back. If you look carefully into your cabinet, you will see that the motherboard actually sits a little higher than the back on which it rests. This is done using little elevated screws, which prevent any of the soldered-on contacts behind the motherboard from
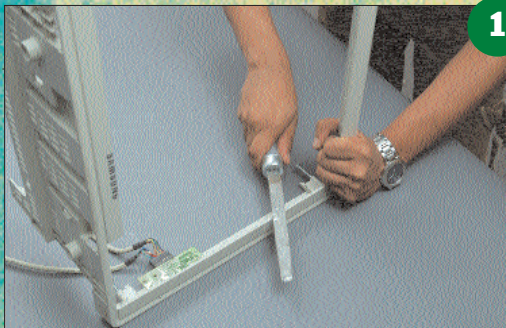
1

Filing the CRT bezel to fit the larger LCD—guaranteed to give you muscles

2

Don't bother being neat on the insides, it's the outsides that matter. Viva la soldering iron
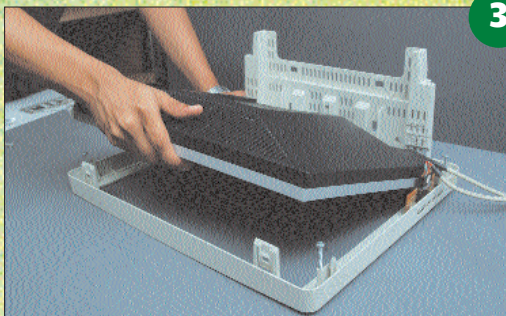
3

Keep placing the LCD back in to make sure you don't file away too much

4

Use the CRT's earthing to hold the LCD in place
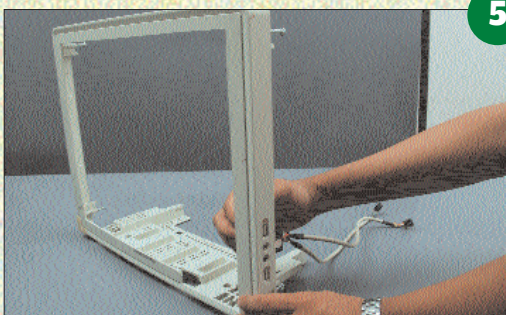
5

We just stuck the front panel USB and audio in place with a lot of super glue—it's still holding out

6

Cut away all the extra bits of the metal circuit board holder—thank God for soft metals
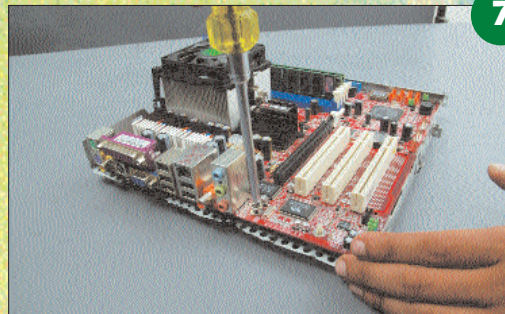
7

After you make sure that there is enough insulation, attach the motherboard
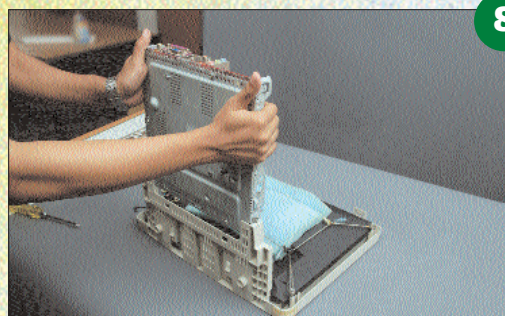
8

Connect the motherboard holder back to the front panel—don't leave it lying around or you'll step on it

9

Ahh! Who needs a drill when you have a soldering iron?

10

That's the only place we could think of for the DVD drive

touching the metal. All it takes is two contacts to touch some metal, and then you power up your computer, hear a terrible pop sound, smell something burning and realise that it's time to buy a new board—and maybe even a new CPU and RAM as well, if you're unlucky enough. So, remember, you've been warned!

We found that none of the screw holes made for the circuit board lined up with those of the motherboard. Oh well, can't win everything. We used the hand-drill to drill a few holes into the metal board holder, and pinched a few of those elevated screws from our cabinet and then screwed the motherboard in. We were satisfied that it was well held in place—which, incidentally, isn't too much of a worry, because in a CRT, the board sits parallel to the table, unlike in most cabinets, where the motherboard is fixed vertically.

Next, we took the motherboard out again, used generous amounts of cellophane tape (you should use insulation tape) to cover areas that the board seems to be touching the metal and checked by frequently seating and unseating the motherboard. Once we were satisfied that there was no way we'd fry the motherboard by turning it on, we prepared to cut away some parts of the metal holder to allow access to the inputs that are behind the motherboard.

Once the motherboard was seated, we attached the metal board holder back to the CRT's front casing. Now all we had left was the back casing to take care of.

Back Breaking

The back half of the casing is where we planned to house the power supply, the hard disk and the DVD-Writer. Our biggest worry thus far had been where we'd seat the DVD-Writer, and to be honest, we were stumped. One very good suggestion we got along the way was to buy a laptop DVD-Writer, remove the casing, and then fix it to the front panel of the CRT casing. Though this would work well, and look a lot better than any of the other options we had, we decided against it because we had started this mod on the premise that this would be the cheapest case mod ever.

If you're OK with spending a few extra bucks, and want to try this at home, you should seriously consider buying a laptop optical drive, and integrating it into the front casing of the CRT. These drives are really thin, and will fit well into the space between the LCD and the CRT bezel. Besides, the finished product will look a lot better than what we ended up with.

Since we insisted on using our favourite Plextor DVD-Writer, we had no choice but to attach it to the top of the CRT case. This means our mod looks like a CRT monitor with an optical drive lying on top of it, but at least we didn't spend any extra money!

In order to fix the optical drive to the case, we would have to drill holes, but how? Luckily we had a cabinet with a vertical holder for optical drives. We detached this and used it to mark our holes. At home, if you don't have access to this, you will have to very carefully pencil the outline of the drive onto the case, and then use precise measurements to mark the holes. You should also check each hole as soon as

you make it, so that you can correct it immediately, or compensate accordingly.

We just used the soldering iron to make the holes—it's just the easiest way. You can just knock off all the little extra bits of melted plastic using your screwdriver, and find that you have a very neat hole. The one thing you need to remember is that the optical drive needs power and an IDE cable coming to it. Because we decided to place the drive on top, we had to make an opening to get power and IDE cables out to the drive. We did this using the soldering iron and the file.

Once that was done, we then looked for space to put the power supply. The little extra bulge that the CRT case has on the back is perfect. It's far enough away from the processor and RAM to allow decent cooling and airflow. We suggest you attach it as high up as you can to get as much distance between the motherboard and power supply as possible. This is exactly what we did.

With the power supply, it's not as easy as drilling a few holes, because you also have the fan and connectors to account for. This means that you're basically going to have to make a rather large opening behind the CRT case, and you cannot use a saw. First things first: we drilled the holes for the screws. Mark them carefully as instructed before, and then check them thoroughly. Once done, you know that those screw holes have to be there and well-supported, because they will bear the load of the power supply.

What we did was roughly mark out an opening in pencil (conservative estimate again), making sure to stay as far away from the screw holes as possible. We then used the soldering iron to melt away the plastic along the line we had marked. Once we had our opening, we kept using the power supply as a reference (attaching and detaching it), and marking new lines and curves that were needed to free access to the connectors and the fan. Then we just used the metal file to shape the plastic, filing it down carefully till we were satisfied. A very common mistake people will make at home is just assuming that the power supply has its screw holes symmetrically placed. This isn't true: if you look at the power supply behind your cabinet, you will see that the screws are asymmetric. So be very careful and precise when marking these screw holes.

Next, it was the hard drive's turn. This was the simplest bit of the mod, because we had already decided to attach it to the side of the CRT case. Most CRTs have a lot of ventilation holes on their sides, and we used these to screw the hard disk into place. Because we wanted to give it some distance from the motherboard, we did make two holes (again, with the soldering iron) and attached it to the inside of the case.

Finally, we had to shape the back of the CRT case to accommodate the back of the motherboard. This we did using the file, and though it was a laborious job, it was much neater in the end. We also had to make an opening for the LCD's power and display cables, which need to come out of the case and connect from the outside. These cables are what make the mod look ugly, but it cannot be helped. Let us know if you have suggestions. If you have a graphics card, however, you can reduce one cable by con-
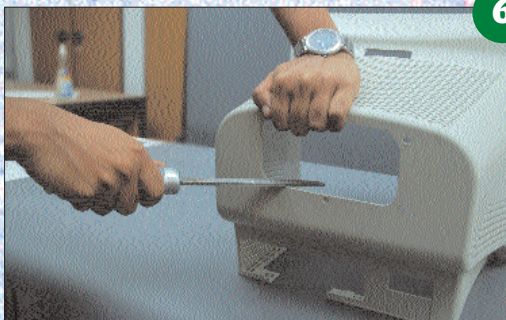
6

More filing, but more carefully this time—make sure you don't file too close to the screw hole
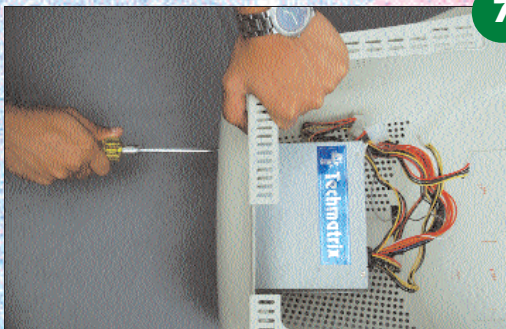
7

Making sure the power supply is firmly held in place. If it falls on the motherboard, that's the end of that!

8

Using the premade holes in the CRT to fix the hard drive on the inside
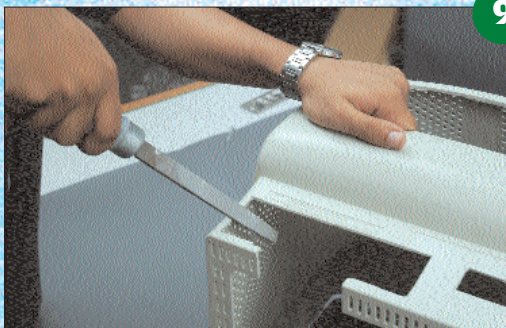
9

Making sure that everything will connect to the back of the motherboard
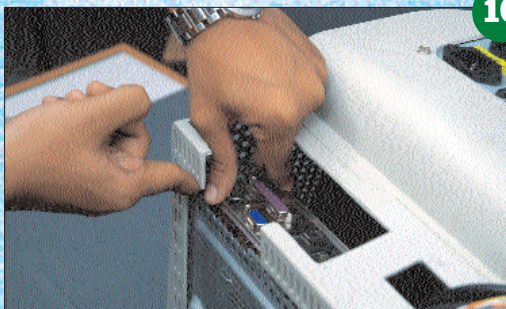
10

Using the back plate on the PC cabinet to make the back of our mod prettier
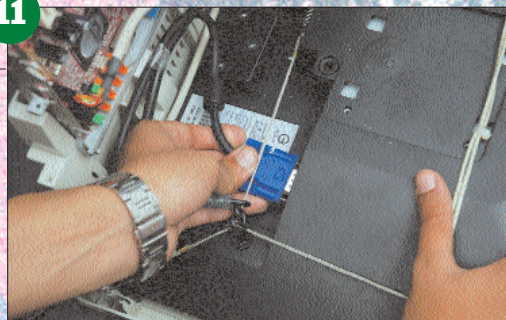
11

Connect everything up—most importantly, remember to connect all LCD connections before you close the CRT case
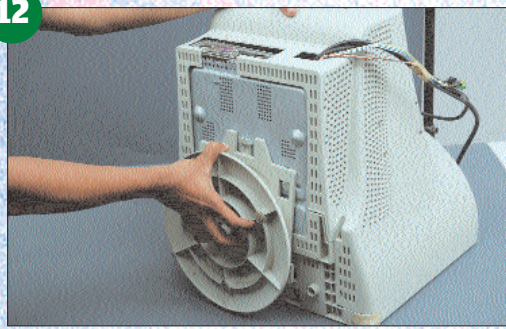
12

The stand not only props our whole mod up, it also holds the motherboard in place

13

That's Pradip, explaining how he'll go about turning what we thought was an almost finished mod, into a monster

14

That used to be Amrut's hand, but now it belongs to monster PC

15

Start making a mess and in no time there's a crowd—using the mould to make a hand

necting the card to the LCD internally itself, but will still have the power cable sticking out.

Once this was done, we connected everything up—power, SATA, IDE, etc., and prayed that we wouldn't hear anything blow. We didn't, thankfully. There we had it, a case mod that literally cost us nothing but beads of sweat and a drop of blood or two (no tears; we're men here). It's easily achievable, and you can start building one tomorrow.

To The Extreme

A day after we were done, some of the designers dropped by to look at our proud feat. Now designers are a hard bunch to please, and the looks they were giving our mod said it all. "Give it to us for a few days..." said Pradip. "...With permission to do as we please," continued Vijay.

Now obviously, the designers were willing to spend a little money to beautify the mod, so there went our whole "almost free" concept. They did promise to keep it as cheap as possible though.

For those of you at home who fancy yourself as artists, you can do something along the lines of what our designers cooked up. This is where things go into extreme case modding territory, and though not necessary, it does add that extra something that you can show off to your friends.

The design guys decided to use clay and Plaster of Paris (PoP) to build a monster PC—literally. After drawing up some sketches—a very important step if you want to do something like this—they began their work. Amrut, one of our photographers, volunteered to lend us a hand (literally) and we used his hands to make the casts for the hands that you will see in the finished product. He also has some experience working with sun-board—used to build props—so he offered to pretty up the bezel.

First the guys put Amrut's hands in a clay cast, in the desired position. Once it was hardened, they removed it and then used that cast to create another hand made of PoP. The trick is to oil the surface of the clay cast and then add the PoP. Once it's all hardened, you have to carefully break away the clay to get at the completed hand.

For the head of our monster, they decided to camouflage that "ugly looking DVD drive" and also include the webcam that we had as its eye. Now there is no cast being used here, just the skill of a designer like Pradip. If you're doing this at home, make sure you can draw straight, or get one of your artist friends to help you out. After doing the necessary sketches, Pradip began sculpting the head. He used PoP to make the head and made the lower jaw separately, and then fixed it together.

The CRT case we had used was also painted to give it a mouldy, moss-covered look. The guys used spray paint for this.

Once everything was done, the hands and head were also painted. They were then attached in place using screws and more PoP.

In just four days (with five people working on it), we had our very own monster PC. At least for this month, we took care of our collective boredom. To be honest, I can't wait to see what our boredom drives us to do next month. Overall a very interesting five days, and the best bit is that because my office computer was used for the mod, I get to keep this monster PC as my own! ∎

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16

That's our monster's head. We told him what his taxes for this year were and his jaw dropped!

17

Painting the hands using spray paint. They don't look scary yet, but wait awhile

18

Giving the case a mouldy old look. Remember kids, clean your PCs and no monsters will come out of them

19

Err. Giving the monster's hand a helping hand?

20

Can you say, "Grr"?

INSIDE
Photoshop CS3

Nimish Chandiramani

**Brace yourself—
Photoshop CS3
(not to forget
the rest of the
suite) will blow
you away**

By the time you read this, you will have witnessed the biggest software launch in Adobe's history—twelve products, spanning the entire range of Adobe's flagship products and those of the erstwhile Macromedia. Some months ago, Adobe released the Photoshop CS3 public beta; we've also been treated to a preview of the entire CS3 suite by Adobe's Director of Product Management (Creative Solutions) Will Eisley, and we're at the edge of our seats with anticipation. Here, we take an in-depth look at Photoshop CS3's new features; get the beta off our February 2007 DVD to check these out. We've used a February 2007 beta of Photoshop CS3 Extended, which we got off Adobe for this review. You'll find the following a lot easier to understand if you've used Photoshop for a while, or if you've read our *Fast Track to Photoshop* in May 2006.

The Obvious

The first thing we noticed about the new Photoshop was the absence of ImageReady. While it was a useful tool, it just didn't make sense, because it shared most of Photoshop's features anyway. You'll find ImageReady's functions embedded within Photoshop itself. The next thing—and we were surprised at this—is that it starts up and runs considerably faster than CS2. In fact, even over time, CS3 runs smoothly where CS2 used to get sluggish. On Windows Vista and Mac OS X, you can even enable GPU support for rendering graphics.

The interface has been spruced up to match the new interfaces of Premiere and After Effects—with docked palettes that can easily be expanded or collapsed as your needs dictate. The layout is the same, though, so you don't have to re-learn anything; the interface affects usability a bit more subtly than you'd think. For one, the quick expanding and collapsing enables you to increase screen real-estate much quicker; no more going to the Window menu to show palettes you closed. The [**Tab**] key now auto-hides the palettes—moving the mouse cursor to the

Imaging **Pradip Ingale**
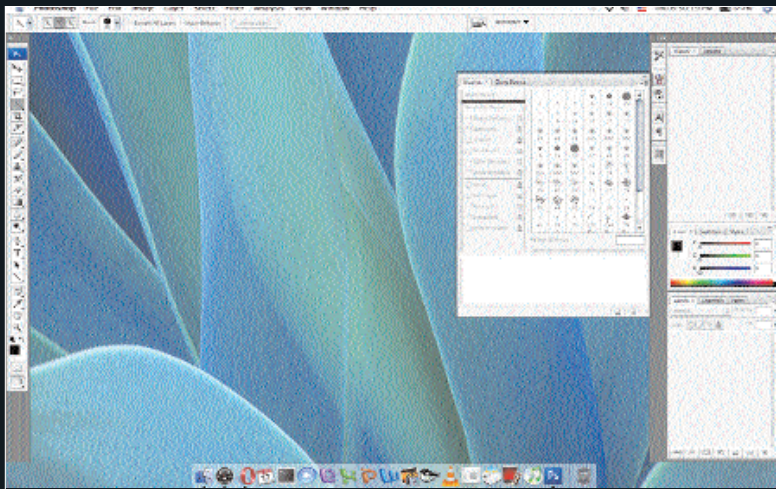
The new interface becomes more manageable without losing its old-school usability

The Flavours Of Photoshop

Photoshop CS3 Standard
The Standard edition is a direct substitute for Photoshop CS2, and is aimed at graphics professionals. It has the same features you saw in the public beta. You'll find it in the Creative Suite 3 Standard editions.

Photoshop CS3 Extended
This one's for people whose demands are a little higher than that of your average design pro. Photoshop Extended features more complex image analysis tools for medical professionals, architects and so on, and a bunch of really nifty features for graphic artists as well. You'll find it in the Creative Suite 3 Premium editions.

Photoshop Lightroom
What started out as just Adobe Lightroom is now part of the Photoshop family, built for professional and amateur photographers alike. Lightroom is all about getting the most out of your raw photos.

Photoshop Elements
This is a cheaper, lighter version of Photoshop for the consumer who wants a lot more than basic image editing. Photoshop Elements gives you features that form Photoshop's core, balancing the requirements of the professional and the Average Joe.

edge of the screen un-hides them, so you always have plenty of space in which to work.

Fun With Selections
CS3 introduces the new Quick Selection Tool—a crazy mix of the Magic Wand and Magnetic Lasso. It lets you "paint" your selection on areas with the same colour, automatically stopping at the edges. It's replaced the Magic Wand as

The Quick Selection tool is fast, and mostly precise, making selections much easier

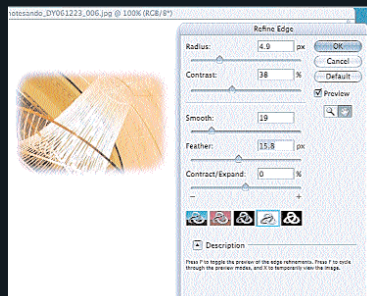the default tool when you hit [W], though the latter is also there should you need it. The Quick Selection does tend to get a little over-enthusiastic at times, and we'd have appreciated a "Tolerance" parameter to tweak; nevertheless, even recovering from its selection errors is simple, and we hope to see more improvements in updates and point releases (if there are any).

Right up to CS2, if you wanted to Feather, Expand, or Contract your selection, you'd have to go to the Select menu, enter a parameter, and guess. CS3 eliminates this with Refine Edges ([Ctrl] + [Alt] + [R]), which lets you tweak these parameters and watch the effects on-the-fly. Brilliant time-saver, this.

Old-World Charm
Converting images to black and white is now much more powerful than plain old Convert To Grayscale or Desaturate. The new Black & White image adjustment and adjustment layer lets you tweak how each channel will look when the image is converted—you can make a sky white by dragging the Blues slider to the right, make reds appear black, and adjust tinting in the same dialog. You can now take boring greyscale images—night scenes, for example—and add a bit of drama to them.

The New Vanishing Point
When it was introduced with CS2, the Vanishing Point filter let you paint on walls and buildings in perfect perspective. However, after drawing a Vanishing Point plane, you could only make planes perpendicular to it—very cumbersome if the surfaces you wanted to paint on weren't perpendicular. With the new Vanishing Point, you can specify an angle as soon as you tear off a plane, giving you a lot more flexibility. It's still a tricky tool to use, though—read our *Fast Track to Photoshop* for a tutorial.

We converted this (very tricky) image to greyscale, and had a go at another copy with the Black & White adjustment. Getting the same result with Levels and Curves would have taken a lot more than the ten seconds it took us for the Black & White

Edit selections with incredible ease using Refine Edges

Angular surfaces galore with the new Vanishing Point

Filter Freaks Rejoice!

One of the best ways to pass time in Photoshop—especially when you're short of ideas—is to apply random filters to your image, and hope that one of them or a combina-

Go crazy with your filter experiments with Smart Filters

tion will catch your fancy. For such creative wanderings, CS3 brings you Smart Filters. Once you convert your layer into a Smart Object, every filter you apply to it becomes like a layer effect—they will always be available for tweaking, you can reorder them to see how the combinations look, and you can turn off filters without bothering with undos and history states. The best part is that your original image remains untouched, so you can experiment with ridiculous ease. Even changing the Blending Mode of a filter—something that was available only immediately after it was applied—is now an option you can exercise at your whim.

Send In The Clones

Even the Clone Stamp tool goes one step ahead in CS3. Hold down [**Shift**] + [**Alt**], and click and drag to see a preview of your cloning. You can also select five different clone sources, which can even be from different documents.

Zoomify!

If you've got a really high-resolution image (a few MB, even) and you want to put it up on your Web site, well, you can't. Not without your visitors abusing you, anyway. Photoshop CS3 lets you export your image using the Zoomify plugin

Zoomify large images for a Google Earth-like effect

(**www. zoomify.com**), which creates a SWF file of your image. You can zoom in and out of it as much as you want, and Zoomify will render only the part you're looking at—just like in Google Earth or WikiMapia, with all the convenience.

Lining Up Perfectly

With all those complex mathematical algorithms at their disposal, the Photoshop team has given us some incredible features for image

correction—one of these is the Auto Align Layers feature; even after plenty of uses, we still can't get enough of it. You need to try it out to believe it!

Try this: get your digital camera out and take three photos of your surroundings to create a panorama. Load all these photos into Photoshop, create a new image that's three times the width of a single photograph, and drag each of these photos as layers on to this new image. Use the Move Tool ([**V**]) to drag the layers around so they roughly line up, with a little bit overlapping. Select all the Layers by [**Shift**]-clicking them all, and go to **Edit > Auto-align Layers**. Select Auto and click OK. In a few seconds, your panorama's images will be perfectly lined up!

This is also a handy feature if you've taken two group photos, and each of them has a different person with his or her eyes shut. Auto-align the two, and with some judicious masking, you're on your way to the perfect photo.

To compensate for differences in colour tone and brightness, select all the layers again and go to **Edit > Auto Blend Layers**. Photoshop will automatically create masks for each layer, making the overall image look perfectly balanced in tone.

Going 3D

Photoshop Extended also imports 3D objects as layers, and you can slap on and edit textures right there—no more switching between Photoshop and your 3D program. Its features are rudimentary,
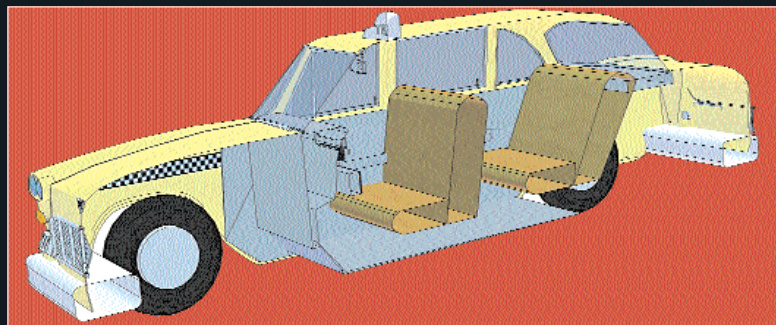
Bring 3D objects into Photoshop Extended

and Adobe insists that they aren't looking to break into the 3D market. Yet.

You can apply effects to these 3D layers just like regular layers, choose from a few preset lighting schemes, and apply rendering schemes that can make them look like line drawings or cartoons as well. Like we said before, this isn't very advanced, and doesn't purport to be. If you've got basic 3D models

From botched to beautiful—even this really badly-shot panorama gets aligned perfectly—with just one click! All right, two

These photos were taken using the camera of a K750i. Note that none of these show the road completely empty

Magic!

In Photoshop CS3 Extended, you can add to auto-align with Smart Object Stacks. You won't find this in the public beta—that's the Standard version—so read on.

The eight photos you see here were taken from a balcony—we wanted to get an empty road sans cars or people, but we couldn't get a single such shot. The time of day didn't matter—you'll rarely find the street in question empty in the daytime. So unless we cordoned off the area, we weren't going to get our shot—and we don't have that kind of clout.

The photos were then loaded into Photoshop CS3 using the very handy "Load Files Into Stack" script from the Scripts menu (also not in the public beta)—this just loads each photo into a new layer rather than a new file. We first aligned the photos using Auto-align, and then converted the lot into a smart object (**Layer > Smart Objects > Convert To Smart Object**). We're probably going to sound like excited children here, but this last bit never ceases to amaze us. Under **Layer > Smart Objects** is Stack Mode—selecting Median under this menu retains the pixels that

haven't moved—which means that all the people and cars are eliminated! All this, and the only effort you expend is a few clicks here and there.

that need texturing for, say, a document for print, this makes it much easier.

In Other News...

CS3 also brings us a bunch of small tweaks that make life that much easier. The Curves dialog, for instance, is a bit more newbie-friendly. New Adjustment Layers are here, too—you can now apply Curves, Brightness & Contrast and Channel Mixer Adjustment Layers. The Brightness & Contrast adjustment now operates on colour brightness rather than absolute image brightness, which makes for some very interesting results. You can also extract images from PDF files and edit them.

Graphics Everywhere

Now that you'll be viewing content on a variety of media, from your cell phone to handheld to who knows what, all CS3 products are tied together with Adobe Device Central. Whether you're creating images in Photoshop, animations and games in Flash or Web pages in Dreamweaver, you'll always have the option to preview the mobile version of your creation using Device Central.

With the CS3 Suite, you can work on your files almost seamlessly between programs. Vector graphics will move swiftly and without losses between Illustrator and Flash, images will shuttle between Photoshop and InDesign in a snap, and site designs will go from Fireworks to Dreamweaver like *that*.

We'll get you more dirt on the lot when we get our hands on the final release—it's going to knock your socks off; that we know. ■

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If only you could find that video where... well, multimedia search is only a question of when, not how

Image Ready

Ram Mohan Rao

We shall not begin this with "a picture is worth a thousand words." Sorry, we just did. Well, whatever we start with, the relevance of that adage here is threefold: first, we mostly search for text; second, 99 per cent of the actual data on the Web is audio-visual (AV); and third, we're going to be searching for non-textual information more and more. Witness the exploding popularity of online video, for example.

The Big Picture

The problem is simple enough: search engines do the text spidering, and all that remains in that domain is how to produce more relevant results. Even if we still mostly search for text, the fundamental problem there—or its solution—won't change. Now when a search engine like Google or Yahoo! gives you image results, it's based on metadata and tags: *someone* has to have spelt out in some way or the other that a certain image depicts Britney Spears (with her hair in place) and not her grandmother. What when such information isn't available? What when you pose in front of the Taj Mahal holding a cigarette, and the image is tagged "Taj Mahal": would you find it by searching for yourself—or for "cigarette"? What when Bill Gates meets up with our IT minister, and you want a picture of the minister? There is, quite literally, an infinity of such questions. Fact is, there's tons of AV content out there, and only things like tags are used to search it—at least in the case of the big search engines.

Imaging **Pravin Warhokar**
Photograph **Amrut Patki**

Looking At The Words

February 8, 2007, it was announced that the European Commission had granted funding to a research project that would be led by a search technology firm called Fast Search and Transfer (FAST). Without going into the specifics, FAST will now be working to innovate search solutions across all types of content, including multimedia.

From a FAST white paper, roughly, standard search is built on four pillars: "treating a load of information as discrete documents; using a distributed architecture for optimal performance; taking free text and metadata to derive each document's 'meaning'; and using a relevancy model to best match each query to the information in the index.

"Multimedia search faces basic challenges to this paradigm: 'documents' are not clearly defined; particularly large data volumes are involved; what each object talks about is not simple to extract; and relevancy models need to take more variables into account."

Let's take a look at each of these challenges.

Looking At The Picture

First, "documents" are not clearly defined. A single news programme can be divided into many parts, with each reportage clip as a separate part. Second, there's a lot of AV information out there, in comparison to text: only 1 per cent of information—in terms of data—is text, by some estimates. Third and most important, knowledge extraction from text is *relatively* simple. Yes, it's not simple at all, but relatively, it is. After all, a machine can be trained to classify stuff with words like "stocks" and "shares" as financial, but

how difficult it can get to classify an untagged video as one featuring Britney Spears! And how much more difficult it gets when she goes bald!

Finally, think about relevance: how easy it is to classify a document as relevant when it contains a lot of your keywords, and how easy (and wrong) it is to say that a picture of a bald Britney is relevant when you're searching for wallpapers! (We're assuming you don't want bald women on your Desktop.)

It is primarily these hurdles that stand in the way of your being able to ask your PVR software, "Show me the episode of Seinfeld where Kramer takes the beer cans to Michigan." Solutions have been mulled upon and are being worked out, and you'd do well—very well—to take a look at *Demystifying Multimedia Search*, at www.fastsearch.com.

"Visual Search Has Arrived!" "Try It Now!" screams Riya.com, a site that claims to look inside images instead of just at the tags and metadata. (We added the exclamation marks.) It's just starting off, and you can see that the database is very small—search for "beautiful" under "People", and you get some random pictures. Search for "ugly" under "People" again, and you get just one picture—of a skeleton hugging a girl. Mouse over the skeleton, and it says "ugly face." How long until we get beautiful and ugly people when we search on those terms respectively?

Riya's sole search result for "ugly" under "people". Yes, it *is* ugly, but there's only one result!

Song By Tune

A vision for AV search different from that of FAST is a P2P model, and is called SAPIR (Search In Audio Visual Content Using Peer-to-peer Information Retrieval). It is an IBM project. In SAPIR, end-users are visualised as peers that can produce AV content from mobile devices. This content will be indexed by super-peers across a scalable P2P network to enable content searches in real-time. The idea is that if you supply a ringtone of a song—which is similar to the song itself—that ringtone will be added to the database—and a similarity search will allow other users to find the song based on its tune. To be more precise, when you, as a leaf node on the P2P network, supply a hint, those who provide similar hints will get the full song as the result of their search.

As the SAPIR page puts it, "An ability to assess

To see how one thing is similar to another requires intelligence of some sort, and that's at the heart of why AV search is so difficult

similarity lies close to the core of cognition. The sense of sameness is the very backbone of our thinking. An understanding of problem solving, categorisation, memory retrieval, inductive reasoning, and other cognitive processes require that we understand how humans assess similarity." Ah, Artificial Intelligence! It should have been obvious, really—to see how one thing is similar to another *does* require intelligence of some sort, and is not something machines can easily do. And that's at the heart of why AV search is so difficult. Again, you'd do well to visit https://sysrun.haifa.il.ibm.com/sapir/ for a proper understanding of SAPIR's vision and problems.

Mimicking The Eye

Yet another one in this space is LTU Technologies. LTU's technology can distinguish between "duplicate," "cloned," and "similar" images. Duplicates are identical copies; cloned images are those modified somewhat, such as by being stretched; and similar images are, well, similar. Like a Boeing and an F16—they're both airplanes.

LTU says they copied the human visual system. Visit www.ltutech.com/en/technology-and-products.technology.html for the details. We'll quote a little: "The analyzer learns object profiles, refines its sense of what an object 'looks like' and, therefore, continuously enriches its internal knowledge base." Artificial Intelligence is, clearly, fundamental to the scheme. The concept of similarity comes in here as well, like in SAPIR.

A Hard Problem

It all seems to have happened over the past year. 16 November 2006, it was announced that NEC had made a "technological breakthrough" in finding TV programmes on your PVR or chapters on your DVD. They call it "topic division technology." Here, patterns from the AV data of a programme are analysed, and all the data related to a specific search term can be brought up. The example at http://web-japan.org/trends/science/sci061116.html goes like this: "When searching for Major League Baseball player Suzuki Ichiro, the technology uses keywords like 'baseball,' 'United States,' and 'outfielder' to locate and play video footage of Ichiro." Naturally, a huge database of terms is required, which is what will link "Ichiro" to "outfielder" and "baseball". In addition, the system would have to have been trained on tons of videos to recognise what a baseball game is, and where the outfielder is.

It'll Happen

The need for AV search will—you guessed it—only increase as more people upload images and videos to the Web. In retrospect, it all happened very quickly—where was Flickr or YouTube or Yahoo! Photos just three years ago?

With almost all accessible content being AV, it is, obviously, only a matter of time before AV search evolves to the level of text search. We should mention that AV search will always use metadata to complement the hard technology. What's not clear is whether it'll happen gradually—or whether there will be a killer app. We're betting on the former. ∎

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AV Search: Great Expectations?

You supply...	You Get		
	(Basic)	(Average)	(Advanced)
A song tune	The same tune supplied by someone else	Similar tunes	The correct song
A picture of a mountain	Nature-related pictures	Pictures of mountains	The *same* mountain from a different angle!
A short clip from a Britney music video	Any *music* video	The full video from where the clip was taken	Other *Britney* music videos

Philips HT9800W

Michael Browne

Another month, another 30 days with... This month I got my hands on Philips' HT9800W—their numero uno offering for the home theatre category

Day 1

The colour-coded plugs on the HT9800W—a 6.1 set—ensured there were no hassles setting it up.

Day 2

Although all the speakers are wired, the three rear speakers (right, left and centre) connect to a wireless receiver box rather than to the subwoofer unit. This ensures there's no cable clutter between the front and rear speakers, and its possible to place them far apart. There's a neat touch-screen display that interfaces with the system, or you can use the large, exquisitely-crafted, fully-functional remote. The touch-screen is slightly quirky at times.

Day 3

The HT9800W features a high-quality HDMI, as well as Component connectivity, ensuring best possible quality to any large screen display—which is a must to take full advantage of the HT9800W's 720p/1080i HD capabilities. S-Video and PC connectivity has been left out.

Day 7

Decided to play a few of my favourite MP3s, waiting for after office hours so I could bring on the decibels. With a rated output of 800 watts RMS, I expected a lot from the HT9800W as a music system alone. However, the sub seems a little low on bass. Drum beats on tracks like "Smooth Operator" weren't as good as I'd have liked. The woofer's specs are 150 watts RMS on tap, and a 6.5-inch driver. Highs were never going to be an issue with neodymium-crafted Ribbon tweeters. The HT9800W is well-suited to classical music and instrumentals.

Day 10

Watched "Kingdom of Heaven"— managed to get an HD-quality copy (720p). Thanks to the quality decoder and HDMI, the experience was truly cinematic on a 32-inch LCD TV. The HT9800W excels as a home entertainment system. Audio is up to the mark, and it up-mixes 5.1 surround to 6.1. There's no 1080p support.

Day 14

My birthday! Deadlines meant we celebrated in office—a late night movie or two. The general opinion was, it rocks. No complaints except for the lack of really deep, resounding bass.

A couple of colleagues commented on the sleekness of the speaker stands. They're flat, wall-mountable, and as unobtrusive as you'd like. Plus, they're stable.

Day 17

The HT9800W supports surround SACD (Super Audio Compact Disc), a new multi-channel audio format. All the regular audio and video formats are supported, including DivX. A good-quality FM antenna is built in. The HT9800W auto-tunes and stores radio channels.

Day 21

Stayed late at office and fired up some of my music CDs. The satellites have an excellent spread, and you don't have to be sitting close to them (or even in front of them) to get the full experience, presumably due to the Ribbon tweeters. The rear speaker receiver unit can be placed a maximum of 35 feet away from the subwoofer. This is the standard range for most Wi-Fi devices, and unless you have a really large room, you'll never be out of range.

Day 25

Time for the Philips to go back. At Rs 59,990, it is not the best setup for the price if you want a high-end music system. What you do get is very decent aural capabilities coupled with a feature-rich HD home theatre system. Add 50-odd grand for a decent widescreen LCD TV, since Philips has included a top-quality multi-format DVD player. The touch-screen adds to the upmarket feel. The HT9800W is a sleek and elegant addition to any living room.

michael_browne@thinkdigit.com

Address

Phone

Notes
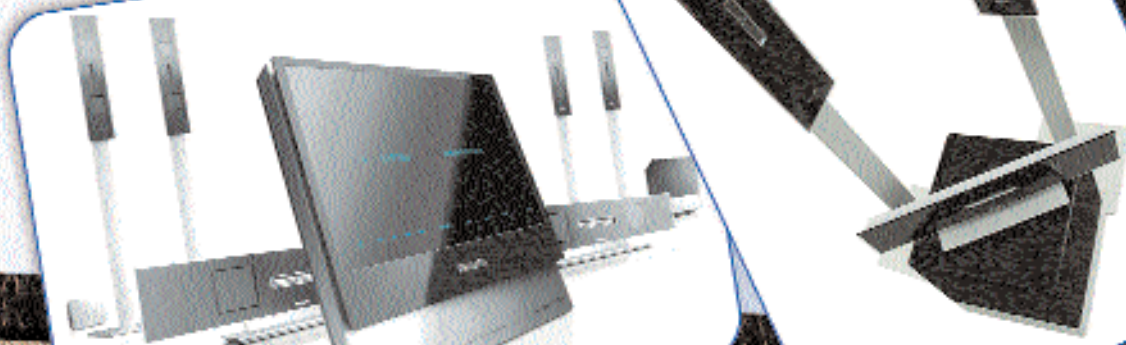
Canon HV20

While most of your friends are busy showing off their clumsy little DV cams, it's a good idea to go get yourself the soon-to-be-released Canon HV20 camcorder. Why's it special? Gone are the days of PAL / NTSC resolutions. The Canon HV20 is powered by a massive 1920 x 1080 sensor. This makes it perfect for shooting HD-resolution videos and then watch them on your HDTV using the HDMI interface. It has a 24p Cinema Mode, which allows even a novice to give a film-like look to videos. It also works as a 3.1-megapixel still camera. The Digic DV II will ensure great video quality, so it's goodbye to all the graininess and dull, de-saturated colors. It also lets you shoot a 2-megapixel photograph, while shooting live video footage. The camera is expected to be priced at a little over $1,100 (Rs 50,000).

Droolmaal

The good stuff.
Stuff to lust after.
Stuff for the well-moneyed.
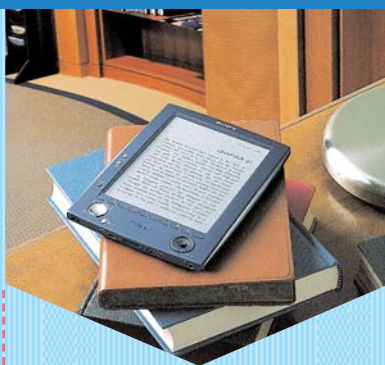
Sony Reader

This is an e-book reader that can read PDFs, JPEGs, BBeB books, as well as MP3 and AAC e-books. The Reader's batteries won't die out on you before 7,500 pages have been read! Connect it to your PC, and start up the CONNECT program—and a wide range of books are available for you to browse through. You can then go on to buy them and download them to the Reader. CONNECT will convert Microsoft Word and RTF files for you before dumping them on to the Reader. There's enough space for up to 80 books, and memory sticks can be attached to increase the space. The screen is better than most LCDs, and has a viewing angle of up to 180 degrees. What's not to like? You can also dress it up in a nice leather cover.
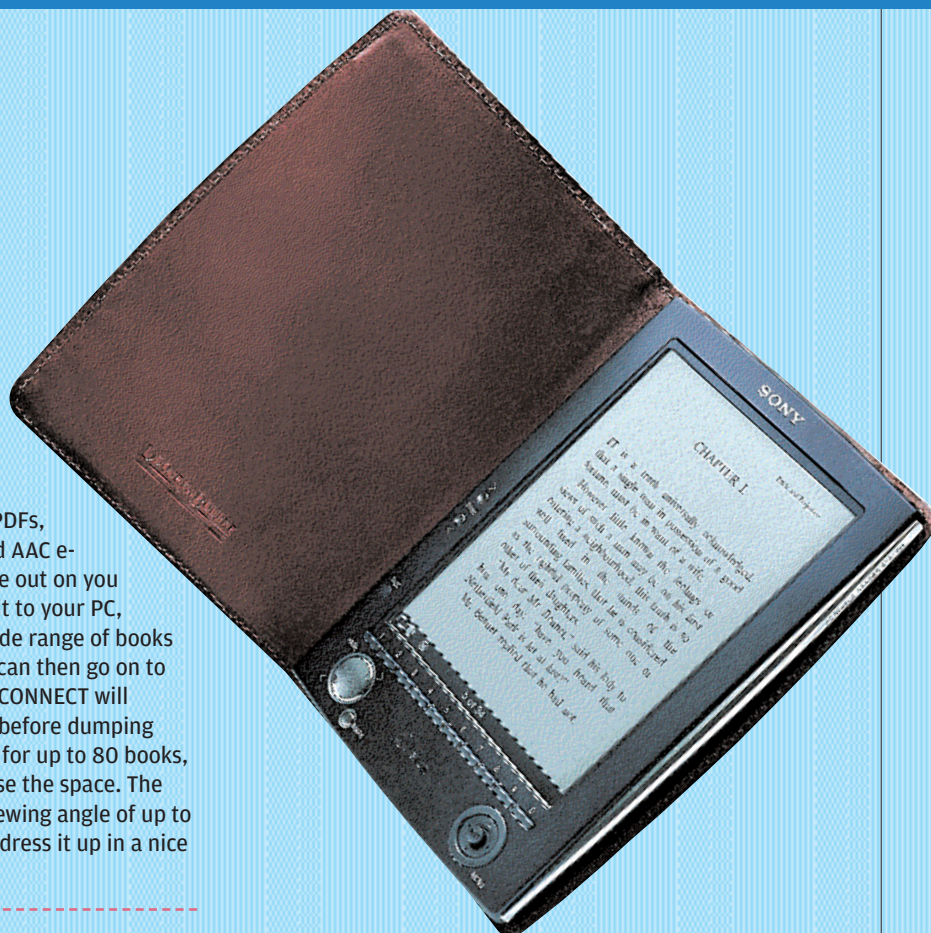
Honda Asimo

Honda started off on their robotics experiments in the mid-80s. Two decades later, Asimo can run at a pace of 6.4 kmph, along with doing a wide range of other activities. The new Asimo is a lot more flexible, and better use of sensors means human interaction has improved as well. It can recognise facial expressions and can follow voice commands. Force sensors allow Asimo to grab trays or carts accurately and manoeuvre them. Visual sensors let it get a proper idea of the surroundings and allow it to easily slow down to adjust or handle any obstructions that might come in the way. Honda hopes to make the Asimo a helper for those who aren't mobile, and also to assist workers in hazardous conditions. Cost? About a million dollars...
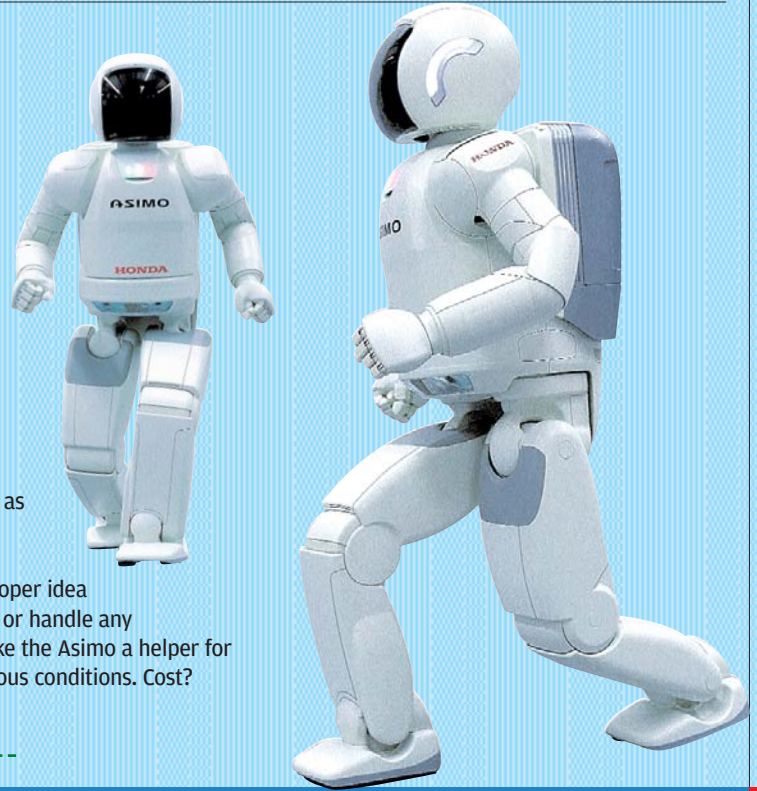
Audio Technica ATH-W5000

This one is for audiophiles who are willing to sacrifice an arm and a limb for this expensive set of headphones. The insides of the headphones are housed in a wooden shell. Most fairly expensive headphones belt out audio between 20 Hz and 20 kHz; the ATH-W5000 absolutely destroys this figure, its range being 5 to 45,000 Hz. High-quality oxygen-free coils are used for superior signal transfer. To reduce the weight of the phones, magnesium alloys have been used in the frame. The magnet is made of neodymium, and the connectors are gold-coated to ensure no static and best conductivity.

Zink Camera Printer

Zink is what the creators prefer to call Zero Ink. Yes, they claim they can print out images without any ink. Instead, they use a special paper called Zink paper, which has three layers of dyes. The fun thing about this device is that it's a camera too, so you can print as you go around clicking photos. The 7-megapixel camera comes with a 3x optical zoom and a 2-inch screen. The printer can then print the 2 x 3-inch photos. The rechargeable batteries are integrated, and SD memory cards can be used to store your photos. But don't pull out your wallet just yet: the Zink camera printer isn't going to be out before the last quarter of this year, and there's no price set either.

TAKE a CRACK

Create A Special Folder In Windows Explorer
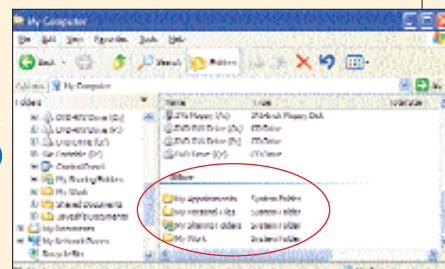
▶ Create A Bootable XP CD That Pre-installs Additional Programs

Last month's solution

This month we had two people sending in the correct solution, and we chose the winner by tossing a coin. Here is the winner's solution; it involves using Windows Unattended CD Creator (WUCC), which was distributed with our December 2006 CD / DVD.

To create a bootable XP CD that pre-installs additional programs, first install WUCC. You need to have Microsoft .NET Framework 2.0 or higher installed.

When you open WUCC, you will be asked for the Windows CD or the directory of the Windows install files (the CD must be bootable). To add these files, click Select. After adding the install files, select a target directory for the new Windows CD (or you can modify the source directory provided it is not read-only). If you going to "Select target directory", then it is better to use a new directory rather than an existing one.

The target directory will be a temporary location the software will use to create your disc image. After you create your disc, you can delete this directory.

Now, you can add Windows hot-fixes like those

The "Source CD" tab—the basics

to Internet Explorer, WMP, DirectX, etc. Find these in the Hotfixes tab. Click the Select button to import the .exe files. When you select one, it will ask for a short name in 8.3 format, like "Explorer.exe". After confirming the name, click Add.

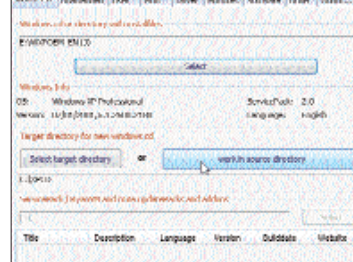Change to the Software tab. Here you add the software you want to install along with the Windows installation. Provide a name for the software in the Software Description box. Then "Select" the software type (Files Only or Directory). You'll see that the files are being added to the program list. Click a program from the list and then click Select to enter the program's start parameters (basically, the path from where it will be installed). Repeat this for every program in the program list.

The start parameter is like **"%CDROM%\Software\..."** If you don't want to copy the programs to the Windows CD, click the checkbox titled **"Install directly from…"**, but when you repeat the step where you provide the start parameters, you must type a valid source path. Change the default **"%CDROM%\Software\..."** to the actual path, say: **"C:\My Software\...\..."**

When all your programs have been provided with their start parameters, switch to the Done tab. Here you'll see the list of directories that will be included in the Windows CD. If the size of the disc you've made is larger than the disc size (usually 700 MB), you can delete unnecessary directories, or you can split the files according to the disc size. You can also use a DVD.
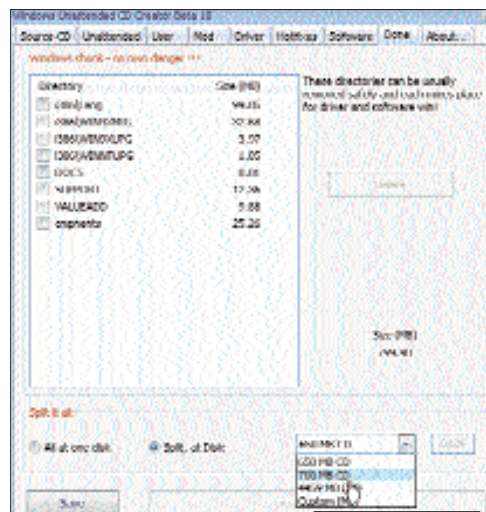
The Done tab—where you can even select the media

Finally, click "Create ISO-image" to create the image for the new Windows bootable CD. Write this image onto a disc. You can now delete the temporary folder (the target directory in the "Source-CD" tab) you created.

The other solution was provided by Mr Pradeep Bishnoi, congratulations! His solution used a software called nLite.■

Enhance

All That
IE Can Be

We scoured the Web for some of the best add-ons for IE7

Mayur Bhatia

Internet Explorer has always been criticised, mostly because of its lack of additional features like a pop-up blocker or support for modifications and add-ons. Since then, IE has changed paths, and now includes the ability to install additional components. What's more is that there are entire sites dedicated towards add-ons for IE7—**www.ieaddons. com**, for example—that contain a rather large library of custom-made add-ons. However, it is difficult to choose which add-ons you will really find useful. Furthermore, there are several add-ons by different authors, but for the same purpose—handpicking the best ones to suit our needs can be a bit difficult. That's where we step in; in this article, we present you the most useful add-ons you can find for IE7. All the add-ons are free to download from **www.ieaddons.com**.

LittleBigBar

Granted, the name doesn't seem too catchy, but what's in a name when the add-on delivers where it matters? LittleBigBar doesn't boast too many features; it's about as basic as they can come. You can search from a rather vast number of sites, and you can even go the point of including **www.eBay.com**, **www.eBay.ca**, and even **www.eBay.co.uk**. The search history can save up to the last 20 entries; you can also manually customise the history if you wish so. Another feature we found to be rather neat is the "One Level Up" b u t t o n

Imaging **Pravin Warhokar**

LittleBigBar
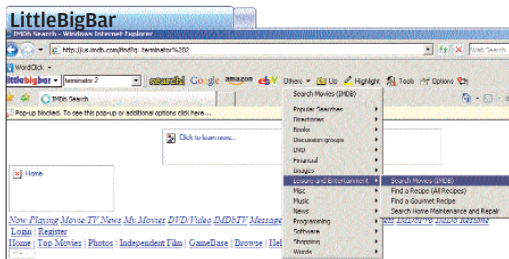
which lets you go a few levels behind in the Web site you are currently browsing. For example, if you are browsing **http://www.forums. com/forums/search.php** then by using the "One Level Up" function, you can move back to **http://www.forums.com/forums** and **http:// www.forums.com**, even if you hadn't gone to those pages before. There are still a few goodies in this add-on, but we'll let you find them out for yourself.

Video Download by Vloader

Not what the title indicates, Video Download is not your generic download manager for videos. How often have you wished to grab files from sites like YouTube, Google Video, etc., which don't provide you with the option to save the video files to your PC? Sure, you can hunt them down by going into your Temporary Internet Files, but using the Video Download add-on for IE7 is more practical, since it lets you instantly save these videos to your hard drive. The downloaded video files will turn out to be .flv video files, from which you can convert to AVI using most converter software.

IE Spell

You know you need one of these! The spell check function has become the bread and butter of apps like Microsoft Office, and we guarantee there was a time when you wished it would be implemented even in browsers. IE Spell fulfils this exact wish by providing you with a spell check for your Web mail, blogs, diaries, forms—you name it. If it can be typed, it can be spell-checked. This is one of the most useful add-ons for those who write a lot of content on the Web. No need to type your stuff in a Word document; spell check and then copy paste to your browser. You can do it on-the-fly with IE Spell!

IOSurf

Chat addicts will instantly fall in love with IOSurf, an add-on that takes online communica-

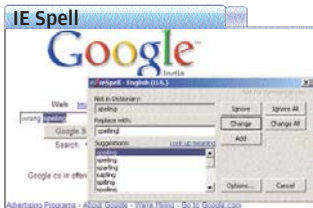tion to its limits...literally! IOSurf allows multiple users viewing the same Web page to chat with each other (provided all users have IOSurf installed, of course). You can group-chat with all users viewing the Web page or select a specific user and chat with him/her. What's more, IOSurf doesn't compromise on security: all messages are sent using SSL (Secure Shell Layer) encryption to keep them safe from prying eyes.
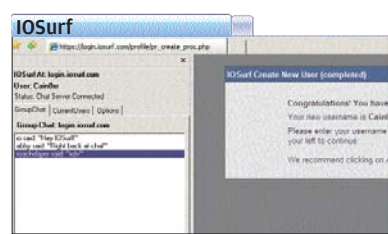
C No Evil Toolbar

C No Evil Toolbar stands up to its name rather cleverly. The "Evil" here pertains to the annoying advertisements and banners you often see on Web pages. While you would normally curse at the very sight of banners, C No Evil will keep your curses, expletives and umm... karma in check by replacing the advertisements with your own personalised images of just about anyone and anything as long as it's an image or a gif animation. The strange thing is that after installing this add-on, you will be looking at sites heavily filled with ads in a more positive light just because you will be showered with pictures of your favourite actress in the place of those pesky banners!

Error Buddy

How much do you hate 404 error pages? With Error Buddy, you can get rid of those bland messages and replace them with Error Buddy pages which give you news, the joke of the day, and so on, while, of course, informing you that the site you were trying to visit is down. What's more, every time you visit an invalid URL and end up at Error Buddy's page, you will actually be contributing for charity foundations—talk about good deeds for bad links! A note of warning though—intentionally going to the dead link too many times can get you banned from **www.errorbuddy.com**.
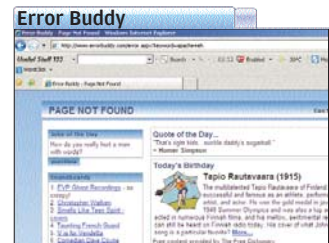
Useful Stuff 123 Toolbar

You will often find Useful Stuff Toolbar almost as handy as a Swiss Army Knife. This add-on is a package containing a bunch of features, including a history and cache cleaner, POP3 and Yahoo! mail checker, and search bars for several search engines, in addition to other nifty features like weather and time for your area. The Useful Stuff 123 toolbar lives up to its name, this should definitely be one of the first add-ons you should install as soon as you get your hands on IE7.

Notefish

Serious Internet researchers will find themselves heavily dependent on Notefish, a nifty tool for researching on the big bad Internet. Notefish allows you to save snippets of Web pages with something as simple as a drag, select and "copy to". In a way, this resembles cutting off snippets from newspapers or magazines and saving them in a separate project file. Images, text, entire HTML pages or even portions of them—if you can select it, you can snip it and

save it to a project file. You can access your profile page to manage your projects at any time using the icon in the system tray, and even share your projects with your co-workers or friends over the Internet.

WordClick

Searching could never be easier when you have WordClick at your disposal, an add-on that allows you to search for just about any word you see in your browser with something as simple as a mouse click. And no, this doesn't require you to remember any complicated six-key shortcuts, all you need is to trigger the Google search is to keep your mouse over the word and simply click on it when it turns into a hyperlink. WordClick doesn't restrict searches just to Google—you have the option to search on Google, search Amazon when you [**Alt**]-click, or search on eBay when you double click. While only three shortcuts are available, you also have the option to change the shortcut assignments to search on MSN and Frazoo in addition to the search engines mentioned above.

QDictionary

As simple as it sounds, QDictionary allows you to select any word when you are browsing and look it up in a dictionary. There are no fancy features to go with QDictionary—who would really need them? QDictionary adds itself in the right-click menu of Internet Explorer 7, so all you would need to look up a word is to select it, right-click and select "Look up" or "Thesaurus". Note that this program actually depends on the Web site **www.m-w.com**, so you'll need to be connected to the Internet before looking anything up.

FindAsYouType

Whoever said that only Firefox has the feature to search text in real-time? The FindAsYouType add-on for Internet Explorer 7, too, does just that. To use this add-on, just press the shortcut key ([**Ctrl**] + [**F**]) to find, enter your word and press... oh wait! There's no need to press OK, because your search result is already highlighted! You can keep pressing [**Enter**] after entering the word to search similar words further below the page. This is extremely handy—live searching is much faster and efficient, enabling you to make corrections to your search in real time.

Trexy Toolbar

Yet one more tool for researchers on the Web. Trexy Toolbar keeps track of all your search trails, making sure you won't forget your search phrases when you need them. All you need to have to do is select a search engine in Trexy Toolbar from which you will be searching, and get then continue searching normally. Trexy Toolbar will silently log all the links you clicked and sites you
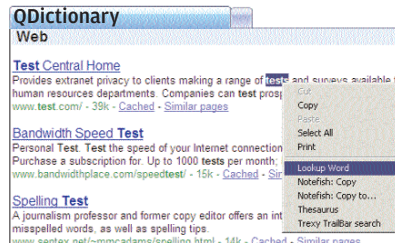
visited since your first search. When you need it, you can trail your search links backwards all the way to when you had initiated your search.

Internet Explorer AutoRefresher 1.0

Small, compact and powerful, AutoRefresher for Internet Explorer 7 is one of the most useful add-ons in the list. With AutoRefresher at your command, you will never need to pound the [**F5**] key to refresh your page; just relax while AutoRefresher does the job for you in an interval specified in seconds. What's more, you can even have different time intervals for different windows and tabs. The AutoRefresher can be quite useful when you need to constantly check certain sites for news (or cricket scores) or when you are awaiting replies on forums.

Wiki-Toolbar for IE7

Everyone is familiar with Wikipedia, especially researchers. In fact, most of us go directly to Wikipedia to look for the information we want instead of search engines like Yahoo! or Google. The Internet is plastered with toolbars for just about search engine out there, and the plague has just been spread even to good ol' Wikipedia. The Wiki-toolbar allows you to enter your search for anything on the Wikipedia site in any of the site languages specified. That's not all this toolbar includes, the Wikipedia toolbar also acts as a general purpose toolbar complete with pop-up blocker, mail checker, Google search, and more.

MySpace Toolbar for IE7

MySpace Toolbar, as you must have guessed, gives you access to shortcuts for the most common actions on **www.myspace.com**, one of the biggest social communities on the Internet. The MySpace Toolbar also acts as a general toolbar for everyday operations—e-mail notifications, weather updates and so on. Only those who frequent MySpace will find this toolbar useful—it provides plenty of hot links on the popular Web site, including the infamous love note maker, wavy and glitter text generators, and common features like search, favourites, browse, blogs, forums, etc. It's a must-have for any MySpace addict!

IMacros Freeware Edition Toolbar

Macros are extremely useful functions in any application. They can automate practically any of your tasks, and now macros extend their reach to even Internet Explorer. No need to check the same sites every time you open your browser, no need to type in your username and password every time you want to login to your favourite Web site. Not when you have IMacros at your disposal. With IMacros, you can browse to your preferred forums, enter your login name and password, create a new thread and write text in it, all the while searching for a specific word in the forums in a separate tab. Any browsing task can be automated with IMacros; people who often work on the Internet will rely on this tool as a bare necessity. ∎

mayur_bhatia@thinkdigit.com
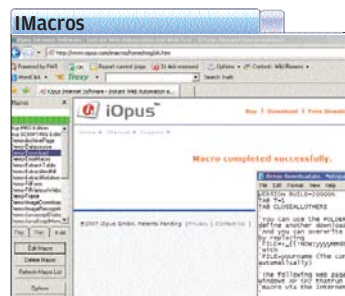
ASUS Commando
ASUS goes big Arnie!

The Commando is a P965-based board that joins the "Republic of Gamers" league, consisting of the Striker (nForce 680i based), and the Crosshair (nForce 590SLI based) motherboards.

The first evident difference between the Commando and the P5B-Deluxe is the fancy heatpipe solution. Secondly, the newcomer features an all-solid state capacitor design, improving the board's life. The all-practical E-SATA back port gets dumped for the LCD diagnostic poster.
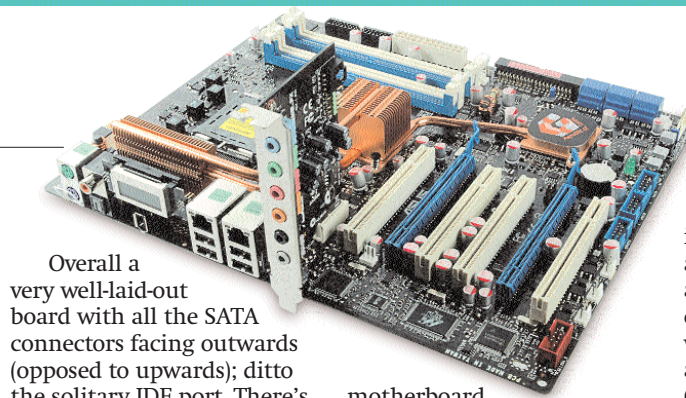
Overall a very well-laid-out board with all the SATA connectors facing outwards (opposed to upwards); ditto the solitary IDE port. There's space aplenty between the CPU heatsink and memory modules. However, the heatpipe solution will make installation of larger heatsinks a little difficult if not impossible. Incidentally, motherboard temperatures remained well within acceptable limits during our tests. Neither did the heatpipe assembly get too warm.

ASUS provides a plethora of overclocking and tweaking options in the BIOS. You can store various BIOS settings as Overclock Profiles, and load them at startup, depending what you plan to do during the session.

Surprisingly, the Commando lagged slightly behind the ASUS P5B-Deluxe we tested a while ago. Priced at Rs 17,500 the Commando is a bit overpriced. After all, aside from the bling factor, and the solid capacitors, it is costlier than the P5B-Deluxe, which adds Wi-Fi and E-SATA as connectivity options. Gamers will also note the full version of *GRAW* that's been bundled "free" with the board.

Specifications

Intel P965 chipset based; ICH8R Southbridge; 6xSATA 2 ports; Expansion slots—1xPCI-Express x16, 1xPCI-Express x4, 1xPCI-Express x1, 4xPCI slots; 4 rear USB ports; 1 FireWire port

Contact: **ASUS Technology Pvt. Ltd**
Phone: **022-40058923**
E-mail: **mamta_bhatia@asus.com**
Web site: **http://in.asus.com**
Price: **Rs. 17,500**

ASUS COMMANDO	
PC Mark 2005 (CPU)	5968
PC Mark 2005 (Memory)	5708
PC Mark 2005 (Graphics)	10558
PC Mark 2005 (Overall)	6180
3D Mark 2005 (GPU)	15762
3D Mark 2005 (CPU)	8700
F.E.A.R 1024x768 (4x AA, 4x AF)	147 fps
F.E.A.R 1600x1200 (4x AA, 8x AF)	80 fps

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

Buffalo DriveStation Duo
This buffalo ain't that fast

The Buffalo DriveStation Duo is an extremely well-built external drive, housed in a tough black polymer casing that looks good. Alas, it is a bit heavy at 2.9 Kg.

Internally, it has two 250 GB SATA hard drives, 7200 rpm. The drives can be configured to work in three different modes: RAID 1 (250 GB with Reliability), Full Capacity Spanning (appearing as a single 500 GB drive for Maximum Storage), and also Normal mode (Default), where you are able to use the two hard drives independently (appearing as two separate 250 GB drives). A Windows-based utility lets you configure these modes. A little indicator at the front displays the power and individual activity status.

The Duo supports both USB and FireWire400, and there are two types of FireWire connectors—4-pin and 6-pin. You can daisy-chain more such units, but the physical design of the unit is not such that you can stack these one over another. FireWire800 is lacking.

The performance of the drive is not stellar by any standards, and it was, in fact, one of the slower ones in its category. It took 55 seconds for a 1 GB file to copy to the drive; a GB of assorted data took 69 seconds.

The Memeo Backup software that accompanies the drive is versatile, and can automatically back up your files and folders to a wide variety of destinations such as hard disk, removable drive, FTP server, Network Places, iPod, and Memeo Internet Disk (a service provided by Tanagra Inc. for Memeo Backup users, where you can back up data to a secure, private area on their servers). Secure Lock Ware is the other bundled application, which uses 256-bit AES encryption to encrypt your data.

The Duo lacks appeal for system administrators who need to take frequent backups, because of its slow performance, but the appropriate price and the software bundle seem to save its day—just about.

Specifications

500 GB (2x250 GB SATA); 7200 rpm; Seek time: 11 ms; Interface: USB 2.0, IEEE1394a (4-pin and 6-pin); software: Memeo Backup, Secure Lock Ware; Dimensions: 221 mm (H) x 163 mm (D) x 99 mm (W); weight: 2.9 kg

Contact: **Advent Infotech Pvt. Ltd.**
Phone: **011-41436752**
E-mail: **anjan@adventelectronics.com**
Web site: **www.buffalo-asia.com**
Price: **Rs. 19,999/-**

RATINGS	
Performance	★★★
Features	★★★★
Build Quality	★★★★
Value for Money	★★★⯪
Overall	★★★⯪
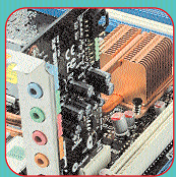
ASUS EN8800GTX & Galaxy 8800GTS 320
DX10 power houses: The Green Duo tested...

Gamers will be pleasantly surprised to discover NVIDIA's newest DirectX 10 cards have hit Indian shores immediately after their worldwide launch. We've managed to procure not one but two such cards: two cards, both based on the same G80 core, from two different brands—ASUS and Galaxy.

ASUS' EN8800GTX is the Full Monty, sporting 128 shader units and 768 MB of 384-bit memory. In fact, till the 8900 series arrives later this year, the 8800GTX remains the highest-performing part from the NVIDIA stables. A couple of notches lower in the pedigree chain is the 8800GTS from Galaxy. This card features all of 96 shader units and 320-bit memory, but there is *only* 320 MB of it. That's because NVIDIA decided to market the 8800GTS with two memory options, and there is a 640 MB part available as well.

ASUS' card uses the stock 8800GTX cooler. A shiny ASUS sticker adorns the fan top, while the
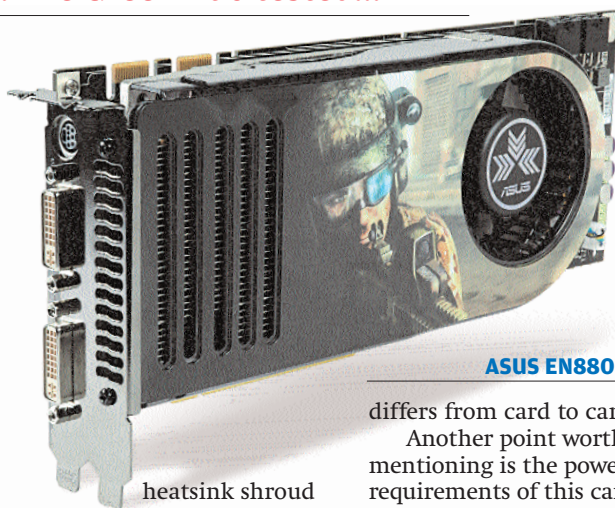
ASUS EN8800GTX

heatsink shroud gets a superb-looking GRAW sticker. ASUS bundles all the connectors you'd need, a leather CD case, and a couple of games. Even the cardboard box is colossal! A full version of 3D Mark 2006 is also there, presumably for benchmark gurus.

Setting up the card was a snap. One thing we'd like to comment on is the operating temperature during our tests. It was consistently lower than NVIDIA's reference card—a good thing. This, however, differs from card to card.

Another point worth mentioning is the power requirements of this card. In case you're intending to assemble a new PC with an 8800GTX, be prepared to invest in a 500-watt PSU, else prepare for instability issues.

The 8800GTS is a little more forgiving as power issues go—understandable considering its lower spec.

Galaxy really packs their card well. The outer box is a sober blue, and the inner box is a jet black, with the brand mentioned in silver. Inside, the card is pampered with a thick layer of foam. Besides connectors and drivers, there's little in the way of a bundle.

Immediately, the 8800GTS—9.5 inches long—looks like a compact offering compared to the 8800GTX at 11 inches, which may not fit some smaller cabinets, including our Antec Super LanBoy. Throughout our tests the 8800GTS remained cool, much cooler (by around 15 degrees) than its bigger brother.

Check out the boxes to see what these cards do to the current-generation benchmarks and games. In the interest of comparison,

we've included last year's winner in our high-performance category—the XFX 7950GX2.

Priced at Rs 44,000, the EN8800GTX is costly, a bit too costly, but then this is a spanking new core on a brand new card. The Galaxy 8800GTS 320 MB is priced lower at Rs 21,000 and a much sweeter deal performance considered! If you want the absolutely fastest cards out there, either of these make a good, reasonably future-proof buy. Holding on to your purse for a while may be more prudent though: prices are expected to fall over the next three to four months in view of the newer cards to be launched. ATI's R600 is also expected sometime this year, though details remain sketchy.
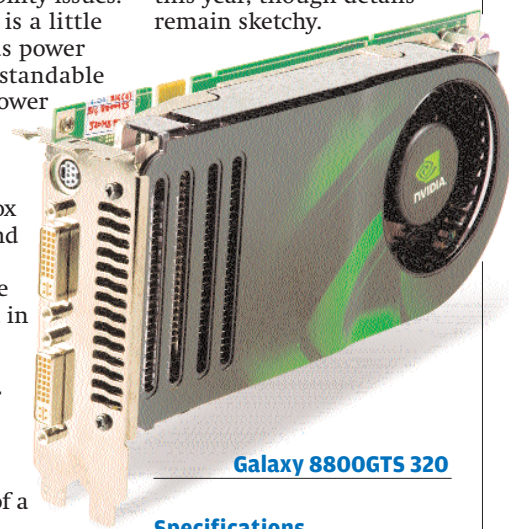
Galaxy 8800GTS 320

Specifications
ASUS EN8800GTX–128 shader units; 575 MHz Core; 1.8 GHz GDDR3 RAM (384-bit); DirectX 10 compatible

Contact: **ASUS Technology Pvt. Ltd**
Phone: **022-40058923**
E-mail: **mamta_bhatia@asus.com**
Web site: **http://in.asus.com**
Price: **Rs. 44,000**

Contact: **Big Byte Corporation**
Phone: **022 23894800**
E-mail: **sales@bigbyteindia.com**
Web site: **www.big-tek.com**
Price: **Rs. 21,000/-**

The Present & The Past

Synthetic Tests

Test	ASUS EN8800GTX	Galaxy 8800GTS 320	XFX 7950GX2
3D mark 2005	157.62	146.43	
3D mark 2006	99.26	82	

PREY

Test	ASUS EN8800GTX	Galaxy 8800GTS 320	XFX 7950GX2
1600 x 1200 (4x AA, 8x AF)	98	74.3	55
1280 x 1024 (4x AA, 4x AF)	141.6	100	75.2
1280 x 1024 (No AA, 4x AF)	182.3	134.6	103.8
1024 x 768 (4x AA, 4x AF)	195	149	107.4

F.E.A.R

Test	ASUS EN8800GTX	Galaxy 8800GTS 320	XFX 7950GX2
1600 x 1200 (4x AA, 8x AF)	80	41	69
1280 x 960 (No AA, 4x AF)	115	76	84
1280 x 960 (No AA, 4x AF)	173	138	149
1024 x 768 (4x AA, 4x AF)	147	114	138

■ ASUS EN8800GTX　■ Galaxy 8800GTS 320　■ XFX 7950GX2

Kodak Z612
Compact and feature heavy

Kodak's Z612 is positioned as a compact ultra-zoom. The 6.1 MP sensor, Schneider-Kreuznach optics, and Optical Image Stabilisation mean the Z612 is no slouch when it comes to serious photography. A delightful 12x optical zoom means you won't miss out on long-distance shots, and IS (image stabilisation) complements this, especially considering the chances of blur increase at the wide-end of tele-zoom.

Button placement is very good. There are a lot of discrete buttons for quick access to essential features. The menu, too, is very well-laid-out, intuitive even for beginners. There's an ultra convenient click-wheel that allows adjusting of essential parameters like Exposure Compensation, ISO, Aperture, and Shutter Speed in full manual mode.

For such a large zoom, there are too few steps, and the zoom tends to race ahead. The over-sensitive zoom button compounds the problem.

Image quality: one problem is the Optical IS doesn't work as well as expected in continuous mode, which is the recommended mode for least camera shake. Setting IS to single mode doesn't make things any better.

At auto settings, image quality is good for close-ups; however, as with most non-D-SLR cameras, the flash range is limited to under nine feet. The Z612 produces great detailing outdoors. The Z612 is unforgiving to the newbie—you should know exactly what you're doing while shooting using manual settings. Some of our outdoor shots, especially shooting a dark subject with bright sunlight in the background produced a purple tinge.

Overall a good camera for casual clickers, and very feature-rich and functional. The specifications position the Z612 in the league of Canon's S3IS and Sony's DSC-H1. Although costlier, those models offer better image quality. At Rs 19,999, the Kodak Z612 offers all the features, at a reduced price and slightly lower quality. Buy it if you want something intermediate and are somewhat financially limited.

Specifications
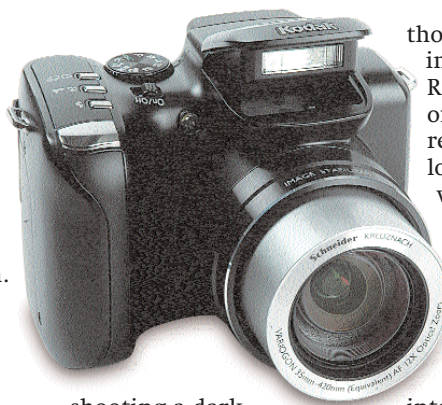Max resolution 2848 x 2144 (6.1 MP); ISO 80 ~ 400 (800 @ 1 MP); lens 35 ~ 420 (W~T); aperture range F2.8 ~ F4.8; shutter range 16 ~ 1/2000; video 640 x 480 @ 30 fps; expansion SD/MMC (32 MB inbuilt); Li-ion 1600 mAh supplied

Contact: **Kodak India Ltd**
Phone: **66416300**
E-mail: **contactindia@kodak.com**
Website: **www.kodak.co.in**
Price: **Rs. 19,999/-**

RATINGS	
Performance	★★★★⯪
Features	★★★★
Settings & Options	★★★★⯪
Value for Money	★★★★⯪
Overall	★★★★⯪

IOGEAR Wireless Laser Travel Mouse1600 GME227R
Precision and value in a small package

The IOGEAR GME227R is a portable wireless laser mouse primarily aimed at laptop users. It features in an antibacterial coating of titanium dioxide and silver nano-particle compound. This coating prevents bacteria from surviving on the surface of the device.

The ergonomics of this little mouse is asymmetric, and the design suits a right-handed person. It is wireless, is powered by 2 AAA batteries, and weighs only 82 grams—light enough for comfortable use.

The GME227R has a 1600 dpi resolution, which is more than enough for regular use. The USB wireless transmitter effectively covers a distance of about 6 feet. The mouse also features a power switch at its base to conserve batteries when not in use. It's a universal plug-and-play device—no drivers required; it support Mac as well.

The mouse is so nimble as to respond to even the smallest of hand movements. Tracking is sensitive enough for speedy word processing and office use. The tactile feel of the right and the left clicks are delicate, whereas the vertical scroll wheel, integrated with the middle click, is slightly stiffer. The small size is a problem for prolonged use, as in a gaming session. A snap-in USB transmitter is missing; its inclusion would improve the portability of the product.

The package contains an extremely useful USB extension, and also a velvet pouch. There is a comprehensive manual and a 3-year limited warranty.

This is a decent laptop mouse, and best suited for regular office applications. Rs 3,000 is a littel steep for a mouse.

Specifications
Resolution - 1600 dpi; battery - 2 x AAA; operating frequency 27 MHz; 256 channel IDs; 6 - 8 kHz band; dimensions: (mouse) 3.74 (L) x 1.97 (W) x 1.18 (H) inches; weight: mouse 82 gm, receiver 18 gm

Contact: **J.S. Equipments**
Phone: **022-23810713**
E-mail: **jse@vsnl.com**
Website: **Web site: www.iogear.com**
Price: **Rs. 3,000/-**

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

F-Secure Internet Security 2007
Feel Secure

An anti-virus, firewall, spam control and parental control are all part of this easy-to-use complete security solution.

Installation begins with the user being prompted with an option for a pre-install scan. After rebooting for the first time, an optional profile Wizard can be run to allot passwords, which will later be useful for parental control.

The interface is not the cleanest, but there are advanced options for the user to fine-tune the suite.

Based on rules set up in the profile Wizard, the parental control filters allow access to specific sites deemed suitable for children. A time scheduler further restricts online activity during a predefined time of day.

In case of more than one network being used by your computer, your home network adapter, for example, can be set as "trusted," and free, uninterrupted access will be allowed to all programs. Even Internet traffic is scanned for malicious code.

The virus scanner itself is pretty light, and the scanning uses moderate processor power. Spam control works hand-in-hand with your mail clients to ensure you don't have spam mails clogging your inbox. Detailed reports of the virus and spyware scan are generated as HTML files.

Updating the suite is automated. 21 MB was downloaded during our initial attempt at updating the suite.

No printed documentation is provided, but an electronic manual is available once the suite is installed. An attractive Flash-based tutorial is available on the Internet to guide the user. There's even a link to an F-Secure site, with a map of the world with statistics and patterns of virus and worm spread.

The installer CD doubles up as the emergency disc, and boots up a Linux-based anti-virus scan, which can help clean out viruses in case of a serious system crash. Changes in BIOS might be required to make SATA hard drives detect properly

RATINGS	
Performance	★★★★○
Features	★★★★○
Ease of Use	★★★★○
Value for Money	★★★★⬕
Overall	★★★★○
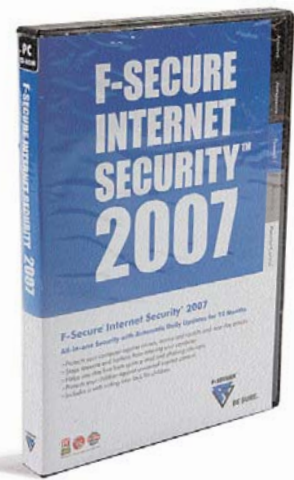
The suite has everything one would need for securing one's PC. Rs 1,600 for up to three users is pretty good value for money considering all the features.

Contact: **Aladdin Multimedia Pvt. Ltd.**
Phone: 66936795/96
E-mail: **rajiv@aladdinindia.com**
Website: **http://www.f-secure.com/**
Price: **Rs. 1,600/-**

GoToMyPC
Remotely Connected

GoToMyPC is a service that lets users remotely access computers over the Internet. After registration, the service requires you to log in into your account at the GoToMyPC site, **www.gotomypc.com**. The next few steps involve installing a small host program on your desired machine.

The user can access the host by using the default Windows application, which automatically downloads itself to your computer when you choose to connect to a host. A Web-based client called Universal Viewer, which is a Java applet, is also available for those with no privileges to run executables, or if they are at a public terminal.

What makes GoToMyPC special is that you can sync files and folders between laptop and home

PC on the move. Also included is access to printers and sound from the host PC, so you can listen to audio being played on the other end. You can even chat with the person on the other end. Guest users can be invited to share a session on a remote machine.

The host machine could be accessed even when it used a proxy server to access the Internet. Basic performance tweaks such as reducing colour depth and disabling wallpapers are available to help improve slowdowns on a slow connection. The data sent and received is through the GoToMyPC servers, so some delay is evident. The connection doesn't require much bandwidth; it worked pretty well even on a 256 Kbps connection, with transfer speeds peaking at 10 to 12 KBps.

Control and data transfers are encrypted with 128-bit AES to prevent data being sniffed. In addition to the standard login and password combination, there's a set of security checks called

RATINGS	
Performance	★★★★○
Features	★★★★⬕
Ease of use	★★★★⬕
Value for Money	★★★★○
Overall	★★★★○

one-time passwords. Users not wanting any of the file transfers and sound features will be better of using VNC where possible.

You shell out Rs. 8,250 for a year's access to this service for a single PC, which is pretty high in our opinion.

Contact: **Citrix Online**
E-Mail: **Vinodraj.Thakur@citrix.com**
Web site: **www.gotomypc.com/**
Price: **Rs. 8,250/yr.**

Quick Heal Antivirus Plus 2007
Good protection but fewer features

Quick Heal Antivirus Plus 2007 is the latest security suite to be released by Cat. A company called Agnitum provides the firewall packaged with the suite.

The installer allows the user to update the virus definitions and register during the installation process. The standard features you would expect from an antivirus program are all there.

Files that can be possible threats, can be tagged and quarantined to prevent any trouble. The DNA Scan feature looks for suspicious files, which can be quarantined and then sent to the Quick Heal labs for analysis. If the files are found as possible threats fixes for these virus or worms can be released in the next updates.In case of
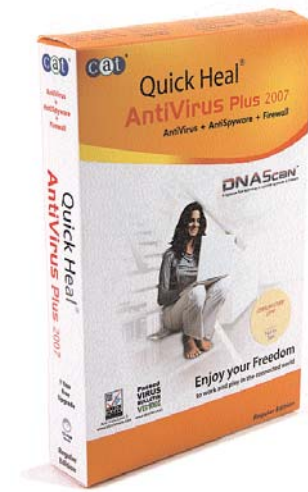
serious problems, an emergency disc can be created, capable of scanning NTFS partitions. For any viruses that load with Windows, a scan can be set to run during the startup process.

Quick Heal can scan your mail for any possible threats, but it lacks the feature to monitor Web traffic for worms or other malicious code.

Moving on to the firewall, live reporting of the connections being made to and from your machine is shown in well-sorted manner. It's the same case with the log viewer, which stores the history of all network traffic and attacks. All this can be a little confusing for the regular home user, but advanced users will find the information useful.

The firewall can automatically scan network and set suitable permissions for them. Manually

setting of permissions for the adapters and networks is easy. Users with multiple network adapters can opt to set one of the adapters as trusted and allow unrestricted access. The interfaces sported by the firewall and the antivirus are completely different something the developes could have tried and unified.

Good documentation is provided in a booklet as well as Windows help for both the anti-virus and the firewall. A single copy of Quick Heal Antivirus Plus 2007, which gives you a year of upgrades, is Rs 1,575. It does its job pretty well, but for the same price, there are competing products that come with spyware protection and parental control.

RATINGS

Performance	★★★⯪
Features	★★★⯪
Ease of use	★★★★
Value for Money	★★★⯪
Overall	★★★⯪

Contact: **Cat Computer Services Pvt. Ltd.**
Phone: **91-20-25663631 / 32**
E-Mail: **marketing@quickheal.com**
Web site: **www.quickheal.com**
Price: **Rs. 1,575**

Ashampoo Magical Snap 1.20
A lite replacement for [Prt Scr]   FREE

This software is aimed at freeing you from the mildly irritating process of pressing [Alt] + [Prt Scr] and then opening MS Paint each time you want to take a screenshot.

Installation is standard, but most of the chaos starts once the program has started. You are greeted with a dock-like bar at the top of the screen which lets you configure the program. Screenshots can be taken using predefined settings, manually selecting the region, or automatically, which takes the screenshot of the window under the mouse pointer. Multiple screenshots can be taken one after the other—a time-saving feature.

Once the screen capture is complete, the user is automatically thrown into full-screen image manipulation mode, where basic changes to the screenshot can be done.

Simple manipulations such as cropping and rotating are available on a dock-style toolbar. A separate toolbar can be used to add special effects such as "spotlight" or "draw shapes." The screenshots can be e-mailed, printed, or saved using a toolbar. Only three formats are supported—BMP, JPEG, and PNG.

Even though Ashampoo Magica Snap is a simple little screenshot app, it is multilingual. The already hyperactive interface can be freshened by applying additional skins. A news channel can be enabled to alert you with updates ad news. Being a software concerned with imaging, we expected support for many more formats.

Help is present as a Windows Help file with basic information on each of the features. Plenty of screenshots do most of the explaining.

Ashampoo Magical Snap is best suited for people creating documentation for software or sites, who need to take several screenshots and highlight certain features of their software. It lets one effortlessly add special effects and make

screenshots look a lot more professional.

The price tag of $9.99 (Rs 450) means it's cheap, and is very good value for money for someone who requires the features on offer. If it's advanced features you're looking for minus the crazy interface, HyperSnap-DX or WinSnap would perhaps be a better choice, but be prepared to shell out a lot more.

RATINGS

Performance	★★★
Features	★★★★⯪
Ease of use	★★★⯪
Value for Money	★★★
Overall	★★★⯪

Web site: **www.ashampoo.com**
Price: **$9.99 (Rs. 450)**

Ashampoo Antivirus 1.40
Good for free

FREE

Digit DVD APRIL 2007

From the looks of it, Ashampoo Antivirus is aimed at the home user. It lets you scan hard drives, memory, removable discs, etc., with a click of a button. Scheduling of scans can be set for a particular folder on a particular day, date, or time. Shell integration means one can right-click on a folder to scan it.

Scanning doesn't take too much processor resources. Our CPU utilisation levels floated around 40 per cent, and memory consumption peaked at around 60 MB. This means it is a light anti-virus to run and use on a day-to-day basis.

The interface itself is probably the highlight of the entire package. It has a colourful set of icons and themes and an easy-to-

understand layout. There's even skin support, though we're wondering why somebody would want to change the default skin of an anti-virus!

Customising the various levels of strictness of scans and frequency of updates is as easy as moving a slider up or down. Logs of all scans are kept within the program, and can be exported whenever needed to HTML.

Documentation isn't required for an anti-virus as simple as this, but is available as a Windows Help file. Screenshots in the Help illustrate the various features and tasks.

A price of $29.99 (Rs. 1,350) means it is a bit on the higher side. Additional features such as inbuilt pop-up blockers, anti-spyware,

and parental control would have been appreciated.

Ashampoo Antivirus, in sum, isn't cheap either. There are a lot more anti-

virus and security suites available at similar price tags too. Those home users who want an extremely easy-to-use, standalone anti-virus software should be buying it. We've exclusively bundled the full version of this software on this month's Digit DVD.

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

Web site: **www.ashampoo.com**
Price: **$29.99 (Rs. 1,350)**

Symantec Ghost Solution Suite 2.0
Spook your worries away!

There is nothing more painful than reinstalling your operating system and then going through hours and sometimes days of customizing and installing your favourite software one after another. Symantec is well known for not just its Norton Antivirus but also the well known data backup tool—Ghost. This latest release of the suite is aimed at both network administrators as well as standalone users.

Ghost Solution Suite 2.0 comes with the latest Norton Ghost 11.0 which is a DOS based application. Creating images from partitions or hard disks from it is easy and straight forward. The interface has changed a little over the years. Restoring or creating images isn't limited to local drives anymore.

Ghostcast offers a unique way of accessing

images from the server over the network. Opening and extracting certain folders and files from an image can be done with a little utility called Ghost Explorer.

Administrating the Ghost enabled systems is made possible by the Ghost Console which gives the user an overview of all the computers on the network running the client. One of the main features with the Ghost Solution Suite is allowing the administrator to run a server with a session and then multiple clients connecting over the network to either dump or access images from the server.

The whole suite comes packed with pretty much everything a network administrator would need to setup new machines. In addition to this, upgrading from a current OS such as Windows XP to Vista is also

made easy as the Ghost console automatically can backup all the necessary settings and system files. The application even goes to the extent of checking the machines configurations to make sure they can run Vista properly. Such features are made to be very customizable. The printed documentation shouldn't be of much use as it's more of a brief of the features available. The real documentation is in the form of well explained interactive flash animations and screenshots on the CD.

The entire package is very good for the network administrator managing several machines on the network; although a home user could have done with

just a plain install of Norton Ghost. With a price tag of $39.20, it is a good buy for anyone who has to make clean installs of customized operating systems on several machines very often plus it also doubles up as a data backup utility.

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

Contact: **Ingram Micro India (P) Ltd**
Phone: **080-26564445**
E-mail:**Deenu.m@ingrammicro.co.in**
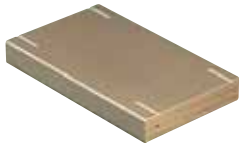Web site: **www.symantec.com**
Price: **$39.20**

External Portable Hard Drives
Lacie Design by F.A. Porsche 40 GB
⊞ Inexpensive, good performance
⊟ Looks bland

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

Internal SATA Hard Drives
Seagate ST3750840AS
⊞ Huge (750 GB) capacity!
⊟ Expensive

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

Linux
SuSE Linux Enterprise Desktop 10.1
⊞ Good software bundle
⊟ A little resource-heavy

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

Internal DVD-Writers
Lite-On LH-20A1P
⊞ Fast performance, 20x writing to DVD+R and DVD-R
⊟ None in particular

Contact Mediatech India Distribution Pvt Ltd
Phone 022-26361111
E-mail digit@mediatechindia.com
Price Rs 2,095

Digital Cameras (High-End)
Sony Cybershot W50
⊞ Excellent image quality, vibrant colours
⊟ Trouble focusing in low light
Contact Macro Photo
Phone 022-22618639
E-mail macro.photo@gmail.com
Price Rs 15,000

Digital Cameras (Mid-Range)
Sony Cybershot DSC L1
⊞ Great image quality
⊟ Only 4 MP CCD
Contact Macro Photo
Phone 022-22618639
E-mail macro.photo@gmail.com
Price Rs 9,000

Graphics Cards (High-End)
NVIDIA GeForce 8800 GTX
⊞ Blistering-fast
⊟ Runs slightly hot
Contact Rashi Peripherals Pvt Ltd
Phone 022-67090810
E-mail navinderc@rptechindia.com
Price Rs 41,000 + taxes

Graphics Cards (Mid-Range)
XFX PV-T73G-UDL7 (NVIDIA 7600GT)
⊞ Great bundle and performance
⊟ None in particular
Contact Rashi Peripherals Pvt Ltd
Phone 022-67090810
E-mail navinderc@rptechindia.com
Price Rs 10,500

The A-List

BEST BUY digit   **BEST BUY digit**

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

2.1 Speaker Sets
Altec Lansing ATP3
⊞ Great overall performance
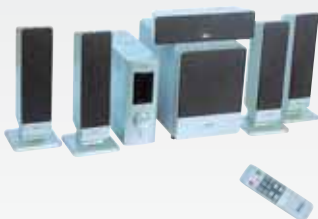⊟ None in particular

Contact Rashi Peripherals Pvt Ltd
Phone 022-67090909
E-mail navinderc@rptechindia.com
Price Rs 3,400

5.1 Speaker Sets
Artis S6600R/FM
⊞ Good performance, radio
⊟ None in particular

Contact Kunhar Peripherals Pvt Ltd
Phone 022-66345758
E-mail mail@kunhar.com
Price Rs 8,500

Hard-Drive-Based MP3 Players
Apple iPod 80 GB

⊞ Large capacity; great fidelity
⊟ Expensive

Contact Apple Computer International Pvt Ltd
Phone 09886039424
E-mail avinash_ramchandra@asia.apple.com
Price Rs 23,900

LCD Monitors (17-inch)
Samsung SyncMaster 740N
⊞ Crisp images and vibrant colours
⊟ None in particular

Contact Samsung India Electronics Ltd
Phone 011-41511234
E-mail subrotah.b@samsung.com
Price Rs 11,500

Processors
Intel QX6700 Core 2 Extreme
⊞ Extreme performance
⊟ Expensive
Contact Intel Corporation
Phone 080-25075000
E-mail saranya.rustagi@intel.com
Price Rs 52,000

Projectors
Acer PD726W
⊞ Great overall performance
⊟ No remote sensor at rear

Contact Acer India Pvt Ltd
Phone 9880544226
E-mail alankar_s@acer.co.in
Price Rs 1,50,000

Wi-Fi Access Points
Linksys WAP54G
⊞ Great performance
⊟ None in particular

Contact Ingram Micro India Pvt Ltd
Phone 9323112279
E-mail sunil.z@ingrammicro.co.in
Price Rs 3,816

Wi-Fi Routers
ASUS WL-530G
⊞ Very fast; well-priced
⊟ None

Contact ASUSTeK Computer Inc
Phone 022-40058923
E-mail mamta_bhatia@asus.com
Price Rs 4,400

AMD AM2 Motherboards
ASUS Crosshair AM2

⊞ Great bundle and performance; accessories for the enthusiast
⊟ None in particular

Contact ASUSTeK Computer Inc
Phone 022-40058888
E-mail media_india@asus.com
Price Rs 15,400

AMD 939 Motherboards
ASUS A8R MVP

⊞ Good performance
⊟ Skimpy bundle

Contact ASUSTeK Computer Inc
Phone 022-40058888
E-mail media_india@asus.com
Price Rs 8,700

Intel High-end Motherboards
Foxconn 975X7AB-8EKRS2H

⊞ Inexpensive, good performer
⊟ None in particular

Contact Mediatech India Distribution Pvt Ltd
Phone 022-26361111
E-mail info@mediatechindia.com
Price Rs 10,750

Intel Mid-range Motherboards
Gigabyte GA-965P-DQ6

⊞ Good build quality and performance
⊟ Expensive

Contact GIGABYTE Technology India Ltd
Phone 022-26526696
E-mail sales@gigabyte.in
Price Rs 16,000

Home Inkjet Printers
HP Deskjet 2360
⊞ Excellent value; decent results
⊟ None in particular

Contact HP India Pvt. Ltd.
Phone 0124-2566111
E-mail vibhor.bansal@hp.com
Price Rs 2,999

HP Deskjet 4168
⊞ Excellent value; very good results
⊟ None in particular

Contact HP India Pvt. Ltd.
Phone 0124-2566111
E-mail vibhor.bansal@hp.com
Price Rs 3,999
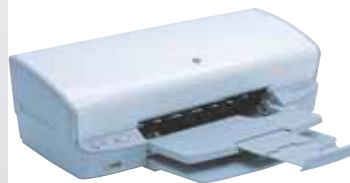
PCI TV-Tuners
Leadtek Winfast PVR2000
⊞ Excellent video quality and software
⊟ Expensive

Contact Topnotch Infotronix (India) Pvt Ltd
Phone 044-42042565
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 0124-2566111
E-mail kakuni.mahto@hp.com
Price Rs 6,999

Feature-rich Cell Phones
Nokia N80
⊞ Brilliant screen; heavy on features
⊟ Slightly bulky
Contact Nokia
Phone 0124-5199000
Website www.nokia.com
Price Rs 21,000

Budget Cell Phones
Nokia 6070
⊞ Great value for money
⊟ Poor-quality camera

Contact Nokia
Phone 0124-5199000
Website www.nokia.com
Price Rs 5,500

Flash Drives
Transcend JetFlash 150 1 GB
⊞ Fast
⊟ Poor package bundle

Contact Mediaman Infotech Pvt Ltd
Phone 022-23828100
E-mail santosh@ mediamangroup.com
Price Rs 1,500

Mice
Logitech MX Revolution
⊞ Has a flywheel
⊟ Expensive

Contact Logitech Electronic India Pvt Ltd
Phone 022-26571160
E-mail response@logitech.com
Price Rs 8,000

Mono Laser MFDs
Samsung SCX-4521F
⊞ Good performance and quality
⊟ Low input tray capacity

Contact Samsung India Electronics Pvt Ltd
Phone 011-26431313
E-mail vikram.negi@ samsung.com
Price Rs 21,990

PC Webcams
Tech-Com SSD-641-MP
⊞ Good image quality; inexpensive
⊟ No software bundle; poor build quality

Contact Shree Sagarmatha Dist India Pvt Ltd
Phone 011-26428541
E-mail contact@ techcomin-india.com
Price Rs 549

Thin And Light Laptops
Dell Inspiron 6400
⊞ Amazing performance
⊟ Looks gaudy

Contact Dell India Pvt. Ltd.
Phone 080-25068026
E-mail belgundi_indrajit@dell.com
Price Rs 64,000

Performance Laptops
Sony VAIO AR18GP
⊞ Mind-boggling performance
⊟ Very expensive

Contact Sony India
Phone 022-28231558
E-mail sonyindia.care @ap.sony.com
Price Rs 1,99,900

Tips & Tricks

EXCEL 2007— GENERAL TIPS

This is a selection of general tips for Excel 2007 which most of you will find useful. Many of these apply to earlier versions of Excel as well.
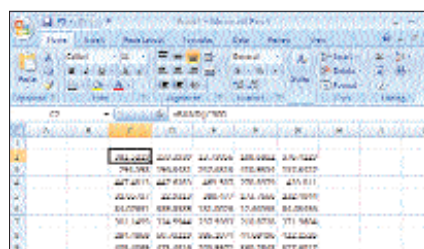
Random Numbers

At times, we need to generate random numbers to simulate a scenario. It can get a little irritating to keep on typing random digits all the time. To generate a random number, use the RAND() command.

For example, to generate a number between 0 and 500, type:
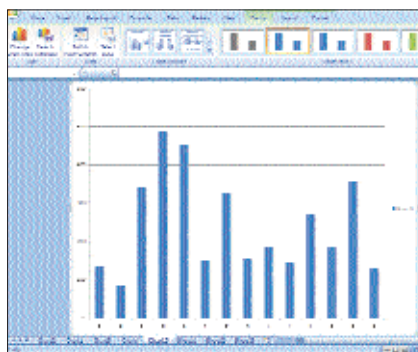
=RAND()*500

Similarly, randomly generating

Random numbers for multiple cells

numbers between any two numbers can be done using RANDOMBETWEEN().

For example:

=RANDOMBETWEEN(50,100)

will generate numbers between 50 and 100.

Quick Graph

One expects to go through a dozen steps in a Wizard to make a graph. Assuming that the graph data is

Graph creation is a single key-press process

basic, simply pressing [F11] will create a graph with the selected cells instantaneously. That's not all! In case you don't like the graph that's been created for you because it's chosen the wrong fields or the style doesn't suite it, you can right-click on the graph and change the graph type or the cells selected.

Insert The Current Date And Time

This can be done using shortcuts. Pressing [Ctrl] + [;] will add the date; pressing [Ctrl] + [Shift] + [:] will add the time.

Quick-sort Data

If you end up creating a huge table filled with tons of data and want to easily sort the data according to a certain column or row, select the cells that you want to sort. Then, click on the Data ribbon and click Sort. You will then be shown a Sort window where you can choose the columns you would like to sort by.

The Quick Access Toolbar

This is a toolbar that can enabled by right-clicking on the Ribbon and choosing Show Quick Access Toolbar Below the Ribbon. This toolbar is a space where you can choose to place your most commonly-used tools. To add a certain button to the Quick Access Toolbar, right-click on the particular feature and choose Add to Quick Access Toolbar.

Navigate Through Tables

Assume you have a big table of data on a worksheet and you want to easily move through it without going beyond its boundaries. Here's a way to do that: first you select the region of cells you want to set as the table. Press [Enter] to move vertically downwards. Pressing [Shift] + [Enter] will let you move vertically upwards.
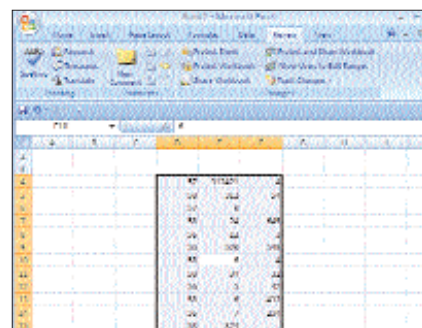
Limit movement within a highlighted selection

Similarly, [Tab] will move horizontally across to the right, and [Shift] + [Tab] will do the opposite: move to the left.

Moving to and from to each extreme end of the table—the corners—can be done by pressing the [Ctrl] + [.]

Replicate Worksheets

There may be cases where a copy of an existing worksheet is required as a blueprint to work on; you can make a copy of it by pressing [Ctrl] and left-clicking on it and dragging it to the location where you need it.

Delete Blank Rows

Blank rows make their way into spreadsheets whether we like it or not. Sometimes it could be because of missing information. The quickest way to delete blank rows is to highlight the cells and click on the Sort button. All the blank spaces are removed leaving only rows with data on them in the table.n off this option to save memory.

Formatting Cells

Very often, users come to a point where their values take a different form. Usually, the formatting is at fault. It could be decimals or the format used to

display dates and times. You can change this by selecting the cells and then right-clicking on them, and clicking Format Cells. A wide range of choices is available for every type of number.

A Mouse-free Experience

Moving a mouse to the different menus and toolbars very often during your work can be a little inefficient at times. The easy-to-use shortcuts are highly recommended. One does not have to remember three key combinations to do a particular task. All the shortcuts are displayed on the ribbons.

Shortcuts to features in the Ribbon

Pressing [Alt] + [R], for example, will show you the Review Ribbon along with the additional keys for each of the tools on it. So pressing [C] now will create a new comment.

You can also be using a particular Ribbon, and pressing [Alt] will show up the shortcuts for that Ribbon. Once you get used to this technique and slowly start remembering the keys it can save a lot of time.

Move Cells Around

Moving a certain cell around would mean cutting and pasting the value onto another cell. Another way one can move chosen cells around is by moving the mouse pointer over the border of a particular cell till it becomes an arrow. Then move the cell to the chosen destination and let go of the left-click.

Resize Scrollbars?

When there is only a single worksheet to work on, the extra tools meant for navigating between worksheets become useless. This space can be made useful by clicking the edge of the horizontal toolbar and then dragging it.

Show All Formulas

Normally, viewing the formula used in a cell includes clicking on each and every cell. Instead of doing this, a view for looking at all the formulas on the worksheet at one glance can be enabled by clicking on the Formula ribbon and then on Show Formulas. All the formulas in each cell on the worksheet are immediately displayed.

The Same Old Gridlines

Gridlines is probably what most Excel users are staring at most of the
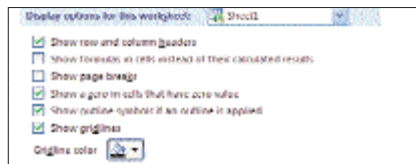
The option to change gridline colours

time. Try some other colours for the gridlines to lighten things up a bit. In Excel 2007, you can change the colours by clicking the Office button and then on Excel options. Click on Advanced and then scroll down till you come across Gridline Colors.

The New Tools View

If you find that many of your toolbars and options are missing, they are most probably hidden away. Each of the toolbars only appears when the related type of action is done. For example, if you select a graph, the Ribbons such as Design, Layout, Format, and Analyze appear.

Multi-sheet Working

Multiple worksheets can be allowed to receive the same data being added to a particular sheet. Press [Ctrl] and go on left-clicking on the worksheets that you want to add data to. Then enter the text or numbers you want to replicate onto all the sheets.

Saving Paths For Images

While inserting images for headers and footers, it's important to save the paths for header and footer images. To do this, click on the Page Layout Ribbon. Click on the arrow at the right bottom of the Page Setup section. Click on the Header/Footer tab and then on Custom Header OR Custom Footer. Here you can manually enter the path of the image—which might be on a network, for example.

Divide Worksheet Space

Worksheets are bound to get very large, and navigating through one can get hectic. The best way to reduce the large amount of scrolling required to move from one corner of the table to another is to split the worksheet. It
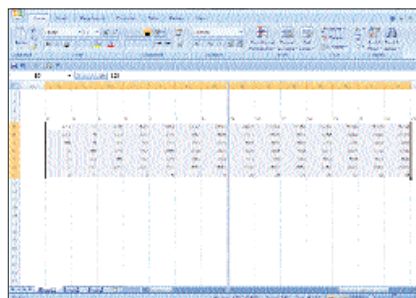
Creating virtual partitions helps in navigation

makes a window, so to speak, which lets you view one area of the worksheet while you use the main region as well. To do this, look for a tab at the right bottom of the screen where the two scrollbars meet, click on it, and drag it. The newly-created division can also be disabled by clicking on the divider and moving it to the extreme end of the screen.

Selecting A Certain Type Of Data

To quickly select a type of data in a spreadsheet, press [F5], which is the shortcut for Go To. Choose Special and choose the type of data you want selected. Excel will automatically highlight that data type.

Tracking Changes

If you're working on an important spreadsheet and are not sure whether the changes you're about to make are the right ones, the Track Changes feature will alert you of the cells on which any modifications were done. To enable Track Changes in Excel 2007, click on the Review Ribbon and then click Track Changes.

Once the changes are done, you can move the mouse over the now-highlighted cells and a pop-up shows the original and the current value of the cell.

Copying Elements To Other Office Applications

Very often, one might need to move, say, a spreadsheet table or a graph to another Office application such as Word or PowerPoint. These applications work well hand-in-hand, so like you would normally copy and paste text within Windows applications, you can select a image or table, press [Ctrl] + [C] to copy and then [Ctrl] + [V] in the other program.

Quickly Select

When doing loads of work with several sets of smaller tables, the easiest way to select a table is click the cell at one corner of the table, then press [Shift], and then click the other corner of the table.

Merge And Center

Excel's new Merge and Center feature lets you align and format text with ease. You first enter your text, such as your heading or name of the columns, and then select these cells. Simple go to the Home Ribbon and click Merge and Center under the Alignment section.

Pivot Tables

Pivot tables are a way to easily access information entered into vast

tables. The Pivot Table checks through the various cells in the rows and columns and figures out the headings.
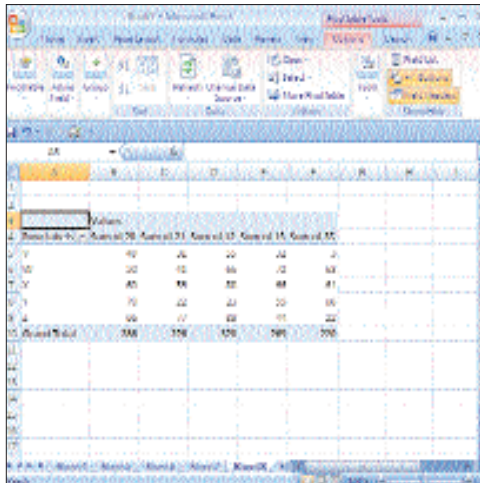
Pivot table creation helps in accessing data

To create a Pivot Table, click the Insert Ribbon and then click PivotTable > PivotTable. Highlight the area of cells containing the table. The next step will involve telling Excel what fields to use in the Pivot Table. Your Pivot Table is ready. You can also choose to make a Pivot Chart in a similar fashion.

Widen The Audience

Excel spreadsheets are no longer limited to local drives and then mailing them to your recipients. With the Publish to Excel Services, people on the Internet or a network can access the spreadsheet. To do this, click on the Office Button at the left top corner of your screen and click Publish > Excel Services.

External Data Sources

The latest Office suite allows the user to grab information from external sources such as the Internet. An example of a connection is the MSN MoneyCentral Investor Currency Rates. To make a connection, click on the Data Ribbon and click Connections. Click Add and choose one of the available connections, or choose to load a third-party data source. Click Open, and Excel will retrieve the information from the source and dump it onto the spreadsheet.

In the same manner, data can be acquired from other sources such as SQL servers. This option is available when you click on Data > From External Sources.

Access files can be used to import data from by clicking on the From Access button on Get External Data. Similarly, the From Web button opens up a Web query where you can select a table and have it imported into Excel.

Visual Relations

When formulas are used for calculating numbers, there is no clear way to find out how a particular value is derived. To look at the cells affecting the value in a visual representation, first click on the result cell, then click on the Formulas Ribbon, and finally click Trace Precedents. Lines and highlighted boxes will be drawn displaying the various elements involved in the calculation.

Evaluating Existing Formulas

Chances are you might wonder if the calculations made to get a certain result are incorrect. It could be human error, and you would want to see at what step the calculations go wrong. The Evaluate Formula option, which can be accessed from the Formulas Ribbon, lets you do just that. Click on the Evaluate Formula button while highlighting the cell with the formula. The next window will show you all the steps involved in the calculation.

Lighten Up Your Worksheets

Using a plain black and white table can be boring, so themes are available which can be used to colour up tables in a workbook. Office 2007's themes are applied as you move your mouse pointer over them. So click on the Page Layout Ribbon and then click on Themes, and select a theme from the list. Themes are add-ons available on Microsoft's Excel site.

The Name Manager

The Name Manager is like a database of certain tables in the various spreadsheets in your book. It is very useful to quickly gain access to these tables. You can add entries by first starting the Name Manager, which can be found under the Formulas Ribbon. Click the Name Manager button and give a name for the selection you're about to add. Next, for the Refers To entry, enter the range of the cells manually, or highlight them using the mouse. Click OK and the selection will be added to the database.
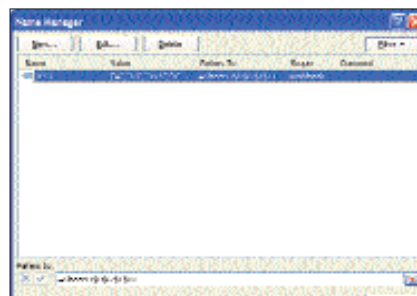
Maintaining groups of selected cells is easy

Add-ons For Excel

Excel supports add-ons, which can be loaded and unloaded according to your needs. There are even add-ons which let you read data from PDF files and get this data into Excel. To enable or disable add-ons, click on the Office Button and then on Excel Options. Click on Add-ins, and a large list of available add-ons will be displayed. Additional Add-ins are being developed and can be downloaded from Microsoft's Excel site.

The Office 2007 Open XML Format

The latest Office suite stores data in its files in a different manner. Excel inherits the same characteristics. An Excel file, for example, when renamed to .zip, can be opened by any file compression application. All the media—such as images and audio used—can be accessed. The clear advantage to this is that the files are obviously smaller, as they are compressed. The other advantage could be, in case of data corruption, it would be possible to extract the undamaged content. Corrupted older Office documents would mean complete loss.

Changing Names

During the installation of Office 2007, you are required to enter your name. The same name will be used as
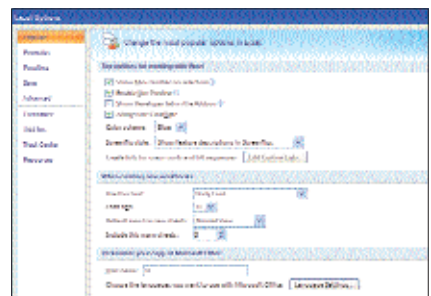
Changing the name from the licensing name

Windows Scripting Host

More power to the double-click!

Mayur Bhatia

Few are aware of scripting with batch files, but people don't use batch files much unless when working with mountainous tasks. Even fewer are aware of Windows Scripting Host (WSH), a scripting environment that comes integrated with Windows to help automate your tasks, and what's more, unlike batch scripting, WSH has very few restrictions; you can create scripts to create, edit, and delete text files, Registry entries, create users, change passwords... you name it.

Scripts alone can be so powerful that one can even create viruses using it: the dreaded ILOVEYOU virus is, at its core, just a text file containing a script. Don't despair—creating and executing scripts in Windows doesn't require you to install any software or compile anything; instead, it requires code—a lot of code. OK, despair a bit, but in the end it'll be worth it.

To be clear, first and foremost, this is not a tutorial to WSH itself, but rather a collection of scripts for automating certain tasks. So if anyone wants to jump straight to creating and using the script, you can simply type it in and save it as a file. For those hungry for detail, we'll be explaining each script as it comes. Hopefully, this should be help enough for you to start writing your own scripts.

About the only thing you will need to create and run the scripts is the trusty Notepad. Enter the script text and save the file with a .vbs extension. Whenever you want to use the script, simply double-click the file to execute your script. That said, let's get down to the scripts.

Start multiple programs and documents at the same time

This one will allow you to start several programs and open several documents upon opening a single file. You can start any number of programs you want in this manner. Individual files will open as if you'd double-clicked on them. This means the files will open the program associated with them. Remember that this function, at its core, is a simple Run command. Anyhow, here it is:

```
Set WshShell =
```

```
WScript.CreateObject("WScript.Shell")
WSHShell.Run "Notepad"
WSHShell.Run "C:\Reports\Reports.doc"
WSHShell.Run
"C:\Presentation\Presentation.ppt"
WSHShell.Run
"C:\Presentation\Presentation.pps"
WSHShell.Run "www.google.com"
WSHShell.Run "C:\MP3\Dragula.mp3"
```

Simple, isn't it? This one uses only a single function—"run". The line at the top indicates we want access to the Wscript.Shell object. The following lines, like they suggest, tell Windows that we want to use the Run function. Remember that these programs will open in order from top to bottom, and you can enter as many run functions as you want. This means you will be able to open your Word file, your presentation document, Notepad, and also browse to your favourite site, all the while listening to an MP3—all with nothing but a simple double-click of a file. No more hunting around for different icons!

Take care not to make little mistakes when it comes to the spaces, quotes, commas, and dots, though the script text is not case sensitive.

Copy and move files and folders

On we come to the main part. This is what you will find yourself using the most. Performing daily tasks like copying / moving files and folders to and fro from one folder to another can be a painful task. Not anymore, not when you have this script at your disposal:

```
Set FSO =
CreateObject("Scripting.FileSystemObjec
t")
FSO.CopyFile "C:\text\*.*", "C:\text1"
FSO.MoveFile "C:\test\*.*", "C:\test1"
```

The first line declares the filesystem object, since we want to make changes to the filesystem itself. FSO.CopyFile and FSO.MoveFile are the functions used to copy and move files respectively. In this case it's all files in the folders "text" and "test"; the *.* characters indicates we want to copy all files from their specified directories on to the destination, whose path is declared at the end. Again, you can use these commands however many times you want in the script for multiple tasks.

Delete files

You probably saw this coming after the last one: you can use the "deletefile" object to delete any files. This is useful when you want to make sure that certain directories are empty or certain files are deleted before you shut down Windows, or simply to clear out all temporary files. The script:

```
Set FSO =
CreateObject("Scripting.FileSystemObjec
t")
FSO.DeleteFile "C:\test1\temp.doc"
```

Rather self-explanatory. You're already familiar with the first part by now; the next line has an easy-to-understand function, "FSO.DeleteFile", followed by the path to the folder or file you want to delete. If you want to nuke the entire directory, use the *.* variable to include all files in the directory specified in the script.

Map a network drive using a shortcut

Ever wanted a simple shortcut to map your network shares to a drive? You can do so using this script. Remember that you can also add as many drives you want to map, similar to WSHShell.Run. Here it is:

```
Set WSHNetwork =
WScript.CreateObject("WScript.Network
")
WSHNetwork.MapNetworkDrive
"S:", "\\network\share 1"
WSHNetwork.MapNetworkDrive
"T:", "\\network\share 2"
WSHNetwork.MapNetworkDrive
"U:", "\\network 2\share 3"
```

Again, the first line asks WSH to declare the "WSHNetwork" object. As mentioned before, since we are making changes to the network subsystem—a network drive in this case—we'll need to declare it, like we have done in the first line. Further down, we see "WSHNetwork" using the "MapNetworkDrive" function, this is the actual command for creating a network drive. Take note that the drives themselves are in their own set of quotes followed by the network shares. Similar to the Run function earlier, the drives will be mapped in order from top to bottom.

Disconnect network drives

Yes, similar to how you can map your network drives together, you can also

disconnect any number of network drives you mapped, thus not requiring you to manually do it every time you shut down your computer. Remember, simply because this is the opposite of the last script, it won't need your drives to have been previously created by WSH. Here's the script.

```
Set WshNetwork =
WScript.CreateObject("WScript.Networ
k")
WshNetwork.RemoveNetworkDrive
"S:", True
WshNetwork.RemoveNetworkDrive
"T:", True
```

The first line is used to declare that we want to make changes to the network subsystem. This is followed by the function used in the network object, which is to remove a network drive. This function is followed by the network drive you want to disconnect. Enter this command however many times you want to disconnect more drives; just remember to replace the drive letter. Disconnect commands are executed in order from top to bottom, as usual.

The "True" Boolean at the end of the script indicates to WSH to disconnect the drive even if it's still in use. You can change this Boolean to "False", or not enter it at all, to prevent WSH from disconnecting drives in use.

Create or edit Registry values

This script will allow you to create one or more Registry values using a single file. This can be useful when dealing with tweaks concerning the registry, which require you to create values. The script:

```
Set WshShell =
WScript.CreateObject("WScript.Shell")
WshShell.RegWrite
"HKLM\Software\new\text", "Normal
text", "REG_SZ"
WshShell.RegWrite
"HKLM\Software\new\Numbered
value", 543, "REG_DWORD"
```

As always, the first line declares the object. The function in the next line is RegWrite, which indicates we want to make changes to the Registry. Next comes the path to the values you want to create, followed by the data you want to input. Finally comes the value type: REG_SZ indicates that it be a string value, REG_DWORD indicates a DWORD number (the value will be stored in decimal format), REG_BINARY indicates a binary value, and so on.

Also, don't be confused by the "HKLM"; this expands to HKEY_LOCAL_MACHINE. For HKEY_CURRENT_USER, you can use HKCU, and so on. Remember that the steps to create and edit values are the same. This script can create a single file full of all your custom tweaks for the Registry with a mere double-click.

Delete Registry keys

Using this script, you can delete multiple registry entries using a single file. This should allow you to delete even entire keys. Here's the script for it. Enter it in Notepad and save it with the .vbs extension.

```
Set WSHShell=WScript.CreateObject
("WScript.Shell")
WSHShell.RegDelete
"HKCU\Software\EAG\"
WSHShell.RegDelete
"HKCU\Software\EAG\username"
```

The first line declares it's going to make changes to the shell. The second line—WSHShell.RegDelete—is self-explanatory and asks WSH to delete a Registry key. The key to be deleted is entered after this command in double quotes. You can add as many entries as you want.

We have added two commands for deleting; this is for the sake of explaining the difference between deleting values (the entries on the right-hand pane in the registry) and keys (the folder-like entries on the left-hand pane). The only difference between the two is that you have to include a "\" at the end of the path when deleting a key. For example, "HKCU\software\value" will remove a *value* called "value", while "HKCU\software\value\" will delete a *key* called "value".

Open important documents located in network shares

As you probably are now aware of the general format of the scripts, this one is an example of how you can combine two scripts to make tasks easier. This script will first map a network share to a drive and then open a document located on it.

```
Set WSHNetwork =
WScript.CreateObject("WScript.Network
")
WSHNetwork.MapNetworkDrive
"S:", "\\network\share 1"
WSHShell.Run "S:\reports.doc"
WSHShell.Run "\\network\share 1"
```

The first line is what we explained earlier, declaring the network object and then including the "MapNetworkDrive" function. The second line should map your network share to a drive letter, and the other lines, containing WSHShell.Run, will open a document located in your network shares. Note that one of the lines containing the Run function has S:, a drive letter that was mapped earlier in the script. Were you to put this line on the top, WSH wouldn't be able to determine where S: is located. This example is solely to explain that you should indeed plan out your scripts as they occur in order from top to bottom. (Yes, we said that already, but it needed mentioning once more.)

Start the Registry editor without remembering the last used key

How often do you hate it upon starting the Registry editor, that the path you were last working on shows up directly in the window? With this script, you can start regedit without opening the last window used. It works by first removing an entry in the Registry that contains the last-used key path, thus clearing it, and then starting regedit.

```
Set WSHShell=WScript.CreateObject
("WScript.Shell")
WSHShell.RegDelete
"HKCU\Software\Microsoft\Windows\C
urrentVersion\Applets\Regedit\LastKey
"
WSHSHell.Run "REGEDIT"
```

The first line declares the "WSHShell" object; this is necessary whenever you're working with scripts that make changes to the Registry or to individual files.

The second line contains the major change, which is to delete the value storing the path to the last-used key; it naturally uses the "regdelete" function, which was explained earlier.

Finally, once the last-used path in the Registry is cleared out, the simple "WSHShell.Run" function explained earlier will start regedit at its root folder.

Mix it up

That's pretty much enough to get the feel of scripting; you can also combine several scripts together to form a single one, like we've seen in the last two examples. Remember that scripts run in order from top to bottom: So make sure you plan out your scripts properly since the earlier functions won't be aware of the commands below them and won't be able to execute if they depend on the functions at the end.

If you wish to go deeper into scripting, check out msdn.microsoft.com and search for Windows Scripting Host to get a rather lengthy manual containing all the functions possible. It won't be long before you become so addicted that you will end up writing lengthy scripts for simple tasks instead of executing them normally—just for the sake of it! ∎

mayur_bhatia@thinkdigit.com

you go on creating new workbooks and spreadsheets. There is an option available to change that name. Click on the Office Button, and in the Popular section, at the bottom you will find a text entry space to change the name.

Add Custom Dictionaries

When the default dictionary that comes along with Microsoft Office isn't doing its job as you want it, you can
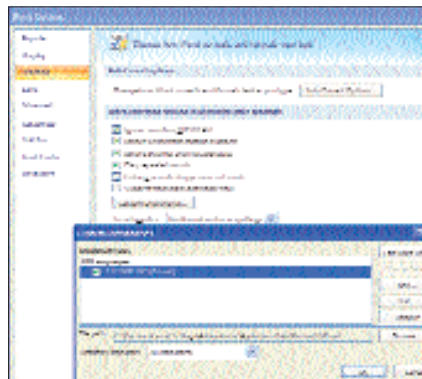
Adding your own custom dictionaries

always refer to other dictionaries. Dictionary files can be set up for Excel in a few easy steps. In Office 2007, first click on the Office Button. Then click on the Excel options. Click on Proofing and you will find a button saying Custom Dictionaries. Clicking on it will load a small window with options to create your own, new dictionary of words or even load existing, downloaded dictionaries.

Embedding Fonts

Excel usually doesn't let you embed fonts into your documents, so mostly likely the people opening up the spreadsheets won't see them either. The trick is to embed your Excel elements into a normal Word file and send it to people. This way, people can finally see the Excel spreadsheet with the fonts you intended to show, but they'll have to use Word to view them.

Multi-core Power For Excel?!

Yes, Excel 2007 gives you the option to use your dual-core processors to speed up your work. Sure, the performance gain won't be very noticeable. But if you do have a dual-core processor, you might as well take some advantage of it.

Head off to the Office Button. Then,
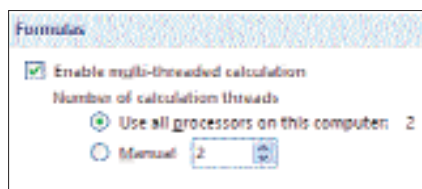
Excel actually "supports" multi-core!

scroll down till you see a Formulas section. You will find an option to enable multi-threaded calculations, or manually choose the number of processors on your machine.

No More Blank Spreadsheets!

Every time you load up Excel, you stare at a blank workbook which you then close and open your existing workbook. If you want no workbooks starting up by default, you can do so by adding a "/e" parameter to your Excel startup.
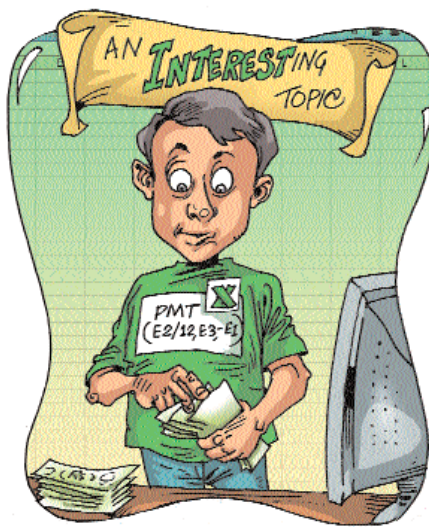
To do this, you can create a new shortcut. Choose the location where

you want to create the shortcut, the Desktop for example. Right-click on the Desktop and click on New and then on Shortcut.

Click Browse and locate your Office installation. We use Office 2007, so our Excel EXE was located in C:\Program Files\Microsoft Office\Office12. Click on EXCEL.EXE and Click OK. Add a "/e" at the end of the path such that the location is "C:\Program Files\Microsoft Office\Office12\Excel.exe" /e.

Double-click on the shortcut, and Excel will load up without any open worksheets. ∎

EXCEL FORMULAS

Everyone is familiar with Excel, the most popular spreadsheet program ever. However, what makes Excel truly stand out is its ability to support a wide range of formulas. If it weren't for Excel supporting formulas, we would still be stuck spending half the time [Alt] + [Tab]-bing back to Calculator, all because you made a minor change in your spreadsheet.

Most use only the most basic formulas; few are aware of the rather wide range Excel supports. We'll be covering most formulas you can use with Excel; some you will use often, while some you will use rarely, depending on your needs. These formulas are tested thoroughly on Excel 2007, and though just a few, we have included Excel 2007-specific formulas as well.

Basic Formulas

These are formulas which aren't too complicated and are easy to remember. Also, these are what you will be using the most in your spreadsheets. The first few, while being rather simple, are included to help you get a feel of things.

Addition / Subtraction

These functions, while not being exactly formulas, are the most basic functions used in Excel and have been included here for the sake of those new to formulas. Needless to say, any Excel file with formulas will contain these basic functions the most. You can perform addition or subtraction between data located in cells. For example, if you want the total of all numbers in cells A1, A2, A3 and D6, and you want to subtract the total with a number situated in cell D8, and you want the grand total to be displayed in cell F10, you can do so by going to cell F10 and typing in
=A1+A2+A3+D6-D8

Note that when you change the data in any of the cells F10 mentions, then the result will change on its own without requiring you to recalculate the result. Like in the example above, you can use mathematical functions randomly, that is, you can add the data in cells A1 and A2, and subtract the result with the data in cell D6—just change the "+" sign to "-" when you need it. A small tip: if your formula consists only of additions, you can use the SUM function instead of putting in the plus sign between the cell numbers:
=SUM(A1:A6)

This will give the sum of the values entered in the cells A1 to A6. Should you need to add in another cell that isn't sequential, for example, you also need the add the data in cell D7 in addition to the above, you can enter in the following:
=SUM(A1:A6, D7)

There, a comma is all that's needed if you need to add more cells to the formula. This method of including cells is valid for any other formulas you work with.

A thing to remember is that you can also use constants at any time when needed in your formulas. For example,

you might want to subtract the total of the numbers in cells A1 to A6 by a specific number, say, 50, which is not in any cell. Simply edit the formula and stick in your constant like in the following:
=SUM(A1:A6)-50

Multiplication And Division

These functions are quite simple to use at the outset, but there was a reason we didn't stick it in with the addition and subtraction functions. We'll look at the reason soon. First the regular functions:
=A1*A2/A3*D6

Simple enough: use the required signs when necessary. However, the answer can differ depending how the calculation is done. You can choose how it's done with the power of the brackets:
=(A1*A2/A3)*D6
Or
=(A1*A2)/(A3*D6)

Also similar to our SUM function, we have a function for multiplication called "PRODUCT". You can use it like so:
=PRODUCT(A1:A6)

You should have figured out that this function will give you the product of all cells from A1 to A6. However, there's a chance that you might encounter a problem should one of the cells you included in the above formula contain a value of 0 (which you don't want to include in the calculation), in which case your result will end up in a straight zero. You can use this solution to avoid the problem:
=PRODUCT(IF(A1:A3,A1:A3))

Careful when entering the brackets here; this formula should give you the product of the cells A1 to A3 while ignoring the zeroes.

Calculating Percentage

Again, one of the most basic, yet useful functions: you can calculate what percentage an amount is out of the total, assuming you have both values. For example, you can see scores in percentages instead of the actual scores. The formula:
=E4/E5

As usual, enter it in the cell you want the result to come into. E4 pertains to the amount, out of the total, which is E5. While this looks like a simple division formula, you can change the view to percentage by clicking on the Percentage icon on the formatting toolbar.

Increase or Decrease a Number By A Specified Percentage

There are more interesting things you can do with percentages, like increasing or decreasing your values by a set amount of percentage. For example, you can use this function if you want to

increase someone's salary by 35%:
=E4*(1+35%)

When increasing the percentage by a value situated in another cell, the "%" isn't needed as long as the cell itself contains the "%" sign. You can simply use
=E4*(1+E3)

Here you need to make sure that E3 contains a "%" after the value, like "30%". Or you can simply change the formula itself to look like
=E4*(1+E3%)

For subtracting by a certain percentage, simply replace the "+" operator with a "-" sign.

Calculating Averages

A slightly more complicated formula but still useful and easy to understand. The "AVERAGE" formula will display the average of the numbers located in several cells. This comes in most handy when calculating averages for students' mark-sheets.
=AVERAGE(E1,E2)

If your data is in a sequential line of rows or columns, you can simply enter something like:
=AVERAGE(E1:E3)
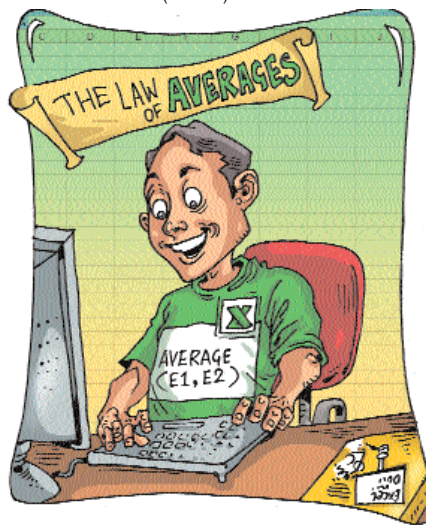
This will include all the values in the cells E1 to E3 to calculate the average. Remember, you can do this for just about any formula as long as the data is aligned sequentially. Again, similar to multiplication, you can edit this formula accordingly so that it doesn't include the zeroes or blanks that may be located in any of the cells E1 to E3:
=AVERAGE(IF(E1:E3,E1:E3))
Note: In such formulas, including the ones that follow, you might have to press {Ctrl} + {Shift} + [Enter] after typing the formula into the cell.

Interests

Interest is a function used regularly. This formula will allow you to

know the interest you have to pay every month when you have access to the info of the total loan received, the interest rate, and the number of payments you have to make. You can do this with the following formula:
=PMT(E2/12,E3,-E1)

E2 is the rate of interest, 12 indicates a monthly payment, E3 denotes the number of payments in months, and -E1 is the total amount of loan received.

Root And Square Root Functions

These functions can be useful occasionally. The syntax for this function / formula is rather simple. For square root: =E1^(1/2), and for cube root,
=E1 ^(1/3)

The above formulas will give you the square and cube root results of cell E1. However there's also another way to write these formulas, by directly using the square and cube functions, which is, for square root, =SQRT(E1), and for cube root, =POWER(E1;1/3).

Amount of Time Passed Since a Specified Date

On we move to the date and time formulas. This one will display, in a cell, the amount of time since a date specified in another cell. An example:
=YEAR(TODAY())-YEAR(E9)
Be careful when entering the brackets. The date entered in cells is in MM / DD / YYYY format (Month, Date, and Year) by default in Excel 2007, so make sure you get the format right. (Or else mess around with the International settings in the Control Panel.)

If you need to display the number of months or days instead of years, use the following examples. For displaying the amount of time passed in months:
=DATEDIF(E9,TODAY(),"m")
In days:
=DATEDIF(E9,TODAY(),"d")

Calculating the Number of Days in a Specified Month

Suppose you have the months listed in column A, while the year is specified in column B, and you want to find out the number of days a month contains. This formula helps you find exactly that. Move to the cell you want the result to come in and enter:
=DAY(DATE(B5,A5+1,0))

Edit your formula accordingly. In the above example, B5 is the cell containing the year, such as "2007", while A5 contains the month, such as "02". remember that Excel works with numbers, and the formula will not work if you entered "February" in cell A5 instead of "02". ∎

(We continue this series next month.)

OBLIVION: GETTING THE BEST OUT OF IT!

When it was released a year ago, *Oblivion* quickly became one of those titles that brought graphics cards to their knees. While the expansive game itself along with the open-ended gameplay have their attractions, it definitely doesn't hurt that the fourth instalment of *The Elder Scrolls* is one heck of a visual experience!

The downside to all the amazing scenery and abundance of HDR effects is, of course, the nosedive in recorded frames per second. Yes, *Oblivion* kills most cards off right away; the few that survive stutter along. Of course, turning down all effects—ditto the resolution—cures this,

experience framing. Try experimenting with values between 64 and 256. For those with latest-generation cards, go with 512 or 1024. You can change this number in multiples of eight.

bDoCanopyShadowPass

When this key value is set to zero, it will remove shadows from trees, which can boost fps especially in forested areas.

bUseRefractionShader

Setting this value to 0 will greatly boost frames in areas where transparency effects are used, such as around *Oblivion*

GB, set the values to 6 and 72 respectively. In case of 2 GB, double that—12 and 144, and so on. This tweak works well in conjunction with the next one.

iPreloadSizeLimit

The value here represents, in bytes, the maximum value useable by the game for preloading data. For a system with 1 GB of memory, try doubling the default value. In case of 2 GB, redouble it. However, setting this value too high will cause crashing, owing to extra game data uselessly lying around in memory.

Pretty-pretty Mods:

Here's a little collection of mods to make *Oblivion* look even better, if your rig is up to the challenge. We're assuming

Low LOD, textures low, grass off and 250+ fps

Max details, notice the castle (fog is due to clouds and not textures) 82 fps

but then you miss out on the visual element.

We can't work miracles here. *Oblivion* will not run satisfactorily on anything less than GeForce 6600GT and ATI x800 class cards. While the GeForce 4/ATi 9xxx series aren't supported, the GeForce FX series will stutter at all but the most basic of resolutions. We're assuming you have a *decent* graphics card.

Besides the numerous options in *Oblivion*'s in-game menu itself, here are some hidden options that can be tweaked. All these are available in the oblivion.ini file in your My Documents\My Games\Oblivion directory. We suggest you back up the file!

GRAPHICS SETTINGS

bAllowConsole

Setting the value of this key to 1 will allow access to the in-game console. There's nothing to be gained from keeping it at 0, so you may as well!

ShadowMapResolution

This key determines the resolution of shadows in the world of *Oblivion*. Since shadows can tax older systems a lot, we suggest you keep this value down if you

Gates, or the shimmering effects around invisible characters.

bAllowPartialPrecision

This specifies whether the shaders run in partial precision DX 9 mode or not. For the best possible image quality, set this to 0. For a decent compromise, set it to 1.

iMinGrassSize

This one controls the density of grass clumps, which are visible pretty much all over *Oblivion* maps excepting interiors of course. The fps will experience a nice boost in areas of dense grass; however, lowering this value too much will thin out the grass too much.

MEMORY SETTINGS

Oblivion is a memory hog too! Here's what you can do to help:

uInterior Cell Buffer and uExterior Cell Buffer

This tweak determines the number of cell buffers for interior and exterior areas of the game. Obviously, exterior areas need more memory. The default setting, 3 and 36, works well for less than 1 GB of memory. In case you have 1

you are already running the game at maximum visual settings and a resolution of at least 1024 x 768.
1. Landscape LOD Replacement 1.1—Visually better distance objects and LOD, this mod is around 28 MB, and is available at www.tessource.net/files/file.php?id=2182
2. Beautiful Meadows—The regular grass texture in *Oblivion* shows very obvious tiling. This mod reduces the tiling and grassy hillsides look much better as a result: www.tessource.net/files/file.php?id=2415
3. Higher-resolution landscapes—This mod is large (325 MB) but it effectively updates all the landscape textures with higher-resolution samples, making scenery look that much better. The downside is, it's very resource-intensive, and so only recommended for higher cards in the GeForce 7 and ATI X1800 and X1900 series cards. Available at http://planetelderscrolls.gamespy.com/View.php?view=OblivionMods.Detail&id=708
4. Coloured map mod—This mod adds colour to the regular drab-looking *Oblivion* world map. Only 3 MB, this one is a must-try! Get it at www.elderscrolls-oblivion.com/index.php?option=com_repository&Itemid=16&func=fileinfo&id=126 ■

Q&A

PCs lying about their disk space? Refusing to talk sans a password? Here's how you get them to behave!

Farewell, 98

Q I dual-boot Windows 98 on the C drive and Windows XP Pro on the D drive. Now I don't want to use Windows 98, but since it is on a primary partition, whenever I format it, Windows XP fails to load since it is on the secondary partition. How can I format Windows 98 without losing the existing Windows XP? I have a Ghost backup (Symantec Ghost) of both partitions.

Darshan Wadikar

A When you formatted your C drive, Windows 98 was removed, but along with it went the boot.ini file, which is required for Windows to boot properly. We suggest you perform a repair of your OS. To do this, boot your computer using your Windows XP CD, and when presented with the options called "To install Windows XP, press enter" and "To repair your computer using the recovery console, press R", press [Enter]. When you're presented with the list of installed OSes, select Windows XP and press [R] to repair it, and follow the on-screen instructions. This should fix the boot.ini file, and you should be able to use your Windows XP installation as it is.

Should you choose to use your Ghost backup

you can also set timeout=0 to get your PC to boot immediately in Windows XP

and restore the drive to its original state, we suggest restoring only the backup for the C drive. You can then boot into Windows XP and delete the Windows folder (the folder where Windows 98 is installed) from the C drive, and remove the Windows 98 entry from boot.ini located in the root of the C drive, using Notepad. This entry should look something like

"multi(0)disk(0)rdisk(0)partition(1)\WINDOWS="Microsoft Windows 98" /Execute"

Memory Doesn't Serve

Q Whenever I play *Gun* for five to 10 minutes, it crashes and gives an error saying "virtual memory too low." My computer is a Pentium 4 with an Intel original motherboard, and 256 MB of DDR RAM, with Windows XP SP2. What can I do?

Prajkt Yeole

A It seems the partition where the virtual memory is stored has run out of space or,
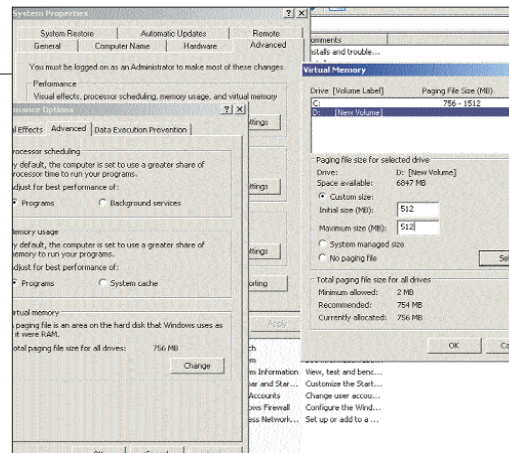
Remember to click SET to save your changes before clicking OK

like the error says, your virtual memory is set to too low a value. You can change the partition where the virtual memory is stored, and/or increase the amount of virtual memory. Go through the following steps.

▣ In the Control Panel, double-click on the System icon. Next, click the Advanced tab and click the Settings button under Performance at the top.

▣ Again, click on the Advanced tab and click Change.

▣ You will be presented with a list of drives at the top with the swap file allocated to them shown on the left.

▣ Highlight a drive where virtual memory is not already allocated, and click on the Custom Size radio button.

▣ Enter an amount that is at least twice the amount of your RAM. In this case it would be 512 MB, though if you wish, you can enter more. After you are done allocating the swap file to a partition, click Set.

▣ Next, highlight one of the drives where virtual memory was already allocated, click "No Paging File", then click Set, and finally OK to apply changes. Restart.

Damn Drivers!

Q I have an HP m7382in Media Center PC with a Pentium D 2.8 GHz, 1 GB DDR2 RAM (533 MHz), and an ATI Radeon X1300 Pro graphics card. Upon starting Windows, I get this error:

"Title bar contents: ATI video bios poller client: ATI2evxx.exe—Application Error

The instruction at "0x7c910f29" referenced memory at ""0x00000000". The memory could not be read."

Why does the error appear, and what can I do?

Ashish Masurekar

A Your problem is directly related to ATI's drivers. To troubleshoot your problem, you can try the following:

▣ Use Driver Cleaner from **www.drivercleaner.net** and eliminate all traces of your previous ATI drivers. Then download the latest drivers from **http://www.ati.com/support/driver.html** and install them.

▣ If the latest drivers don't work, try using an earlier version of the ATI drivers. You'll find these too at ATI's Web site.

▣ ATI2evxx.exe is a service that stays in the system tray and runs in the background. Its main function is to serve as a client program, which when activated allows you to use hotkeys for rotating displays, changing resolutions, etc. Your ATI drivers will function if you disable it; this will also rid you of the error message. You can disable ATI2evxx if you don't use it. You can do this by typing in "services.msc" at a command prompt and clicking OK. Scroll through the list to find the ATI Hotkey Poller service, double-click on it, and select "Disabled" under "Startup Type". This should remove the service from being executed, and ultimately, the error itself.

Exploring Processes

Q I am running Windows XP SP2. My problem is that when my PC boots up, Explorer doesn't start, although it's there in the process list. Moreover, when I kill the Explorer process and start a new one it starts fine. What's up?

Sundeep Baghel

A Your problem is most likely the cause of a malfunctioning process at startup. You need to find out which one. To do this, run "msconfig" and click on the Startup tab. Here disable and enable processes one by one and restart your PC after each to pin down the culprit, after which you can disable it.

If you can't find the program that's causing the error, we'd suggest you perform a repair of your OS: boot your computer using the Windows XP CD, and when presented with the options called "To install Windows XP, press enter" and "To repair your computer the recovery console, press R", press [**Enter**] to perform a new install. When presented with a list of installed OSes, select your Windows XP installation and press [**R**] to repair it. All your critical files should be now repaired / replaced, and explorer.exe should no longer have problems.

If you still face the problem, it is likely a problem caused by a virus, in which case you should update your anti-virus to the latest version and virus definitions and run a thorough scan.

Stats Lie!

Q I bought a new Compaq Presario SR1732IL two months ago, which has a Seagate ST3160023AS HDD. When I installed HDDLife Pro 2.0.50, it informed me that my hard disk health and performance are 56%. However, this changes every day—sometimes the health and performance are 54%, sometimes 60%, and sometimes 61%. Is HDDLife displaying correct information?

Abhinav Jangda

A HDDLife's health and performance bar aren't spot-on accurate. The bar is only a rough estimate of your HDD's performance / life, and can vary.

I Made A Boo-Boo...

Q About three weeks ago, my computer started acting weird because of a file I downloaded from the Net. Now from one week ago, a lot of ads have started coming randomly when I log on to the Net. I

QUESTION OF THE MONTH

A Disappearing Drive

Q I recently repaired Windows XP and installed the drivers from the CD that came with the motherboard. Now whenever I plug in my USB drive, the icon shows up in the System Tray and I can safely remove it, but I cannot access it. It is not displayed in My Computer.

Manu K

A First, you need to check whether your USB drive is formatted. To do so, insert your drive into the slot, right-click on My Computer, and click Manage. Next click on Disk Management. Here, if the white space next to your USB drive doesn't say "Unpartitioned Space", then right-click on it and select
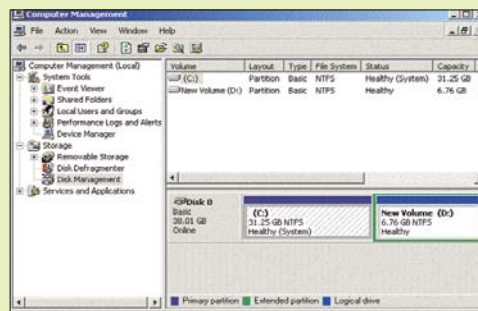
Your USB drive will show as an additional disk further below disk 0

"Assign a drive letter or path" or "Create a partition". If it does say "Unpartitioned Space", then create a partition by right-clicking on the white space and choosing that option.

If this doesn't work, you will need to remove your USB drivers from your computer. Go to "System" in the Control Panel. From here, click the Hardware tab and click Device Manager. Scroll down to the area called Universal Serial Bus controllers, and uninstall all of them. Reboot to get the components detected again and install the drivers that came with your USB drives. Plug in your drive—it should work fine.

have used spyware removers but to no avail. Sometimes Net activity continues even when the computer is idle. Please tell me what I should do.

Kunal Singh

A Always immediately virus-scan any file you download from the Internet! Anyway, now, boot up in Safe Mode With Networking and run updates on all your spyware removers (Spybot S&D recommended; **www.spybot.info**) and anti-virus software. Again restart in Safe Mode, but this time, don't choose the Networking option. Run Spybot S&D, perform a full scan, and clean out any entries that come up. Don't forget to use the "Immunize" option on the left hand panel. After the scan is complete, perform another scan using your anti-virus. Finally, run HijackThis (**http:// www.merijn.org/**), perform a scan, and clean out any suspicious entries from the scan.

In the future, it's best to use a firewall like ZoneAlarm, which, in addition to keeping a tight check on your downloads, also gives you the option to block ads or unwanted traffic.

Startup Woes Again

Q I use Windows XP Pro SP2. The problem is that Scandisk does not load at bootup when the computer is switched off without shutting down properly. I think this problem started after I installed Autopatcher XP. What do I do?

Jayakrishnan

A In Windows XP, "ChkDsk" (Check Disk) is started if your computer shuts down improperly. You can disable this option to gain a few seconds while booting, or, in your case, you can

Cheat in games without cheat codes

A memory editor called Artmoney can be gainfully used to give yourself a false sense of greatness!

Mayur Bhatia

You've been playing your favourite FPS religiously for over six hours braving one obstacle after another, until you reach the final batch of levels. Here you are—numb fingers, sweaty forehead, bloodshot eyes, and the reflexes of a snail... that's when the real trouble starts. The enemies start becoming too difficult, you're extremely low on ammo, your last "good" save is ages away, and you are frustrated retrying a fight for the twentieth time. Walkthroughs don't help, and to make things worse, you can't find any cheats for the game. That's where Artmoney steps in. Regardless of whether your game has cheat codes or not, and regardless of what game you're playing, this program allows you can attain God mode, gain unlimited ammo, get as much money as you want, freeze time, increase skill points in RPGs, and much more!

What You Need
Artmoney is a memory editor. There's a freeware and a pro version available for download. Here, we'll naturally be covering the freeware version, which has limited features, but which should be sufficient for most games. Get Artmoney from **www.artmoney.ru**. Next, the game you want to cheat in needs to support task switching; if the game is prone to crash when you [**Alt**] + [**Tab**] out of the game, you are pretty much out of luck. As an example, we'll be using Spider Solitaire, which is included with Windows XP.

Step 1
Hunt down your target!
Open up Spider Solitaire and set your eyes on something that you want to change. As an example, we'll use the score of 500, which you have initially in the game. Open Artmoney and click on the "Select Process" dropdown box, and select "Spider Solitaire". Try to keep the game window visible in the background as in the screenshot below. Next, click Search and enter 500 in the box, under Type, select "All (standard)". Don't bother with the rest; click OK, and on we move to the next step.
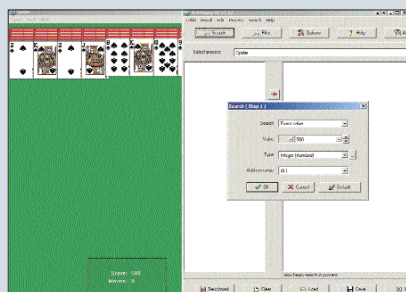

Search and Hunt Down the Desired Code

Step 2
Will the real John Smith please stand up?
All right, don't be discouraged by the search results; these are simply from a search of the entire memory the game is using, which means all addresses in your memory that have a value of 500 are shown on the left-hand side. The trick is that only one of these results contains your score, and you have to find out which one. To do this, switch back to the game and play a bit to change your score, and note down your new score. In our case it's 495. Now switch back to Artmoney; see that button called Filter? Click on it, enter "495" in the text box, and click OK.
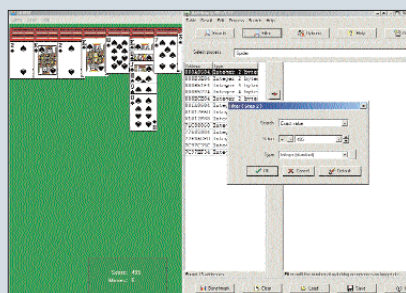

Highlighting all related instances of the code

What this does is, it goes through all the previous results and sees if any of the results have changed to the new value, which is 495, and shows only the addresses that have been changed to 495 on the left side. Neat, isn't it? Keep sieving until the number of results in the left hand pane won't reduce, and then use the arrow in the middle to add those results for your editing pleasure.

Step 3
Playing God
All set and finished, you have the score in your hands. You can basically do anything you want with it. God mode, literally! Go ahead and right-
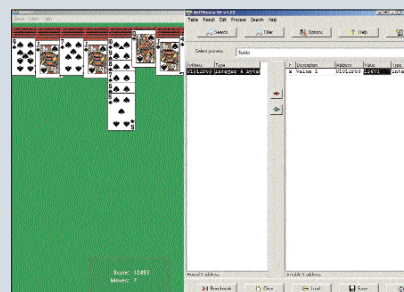
Re-energise your health/score with one click

click on the value to the left and click Edit, enter "100", and press [**Enter**]. Switch back to the game and check your score: voila! Your score in the game is now 100, and you can continue playing normally with the modified score. If you want your score to stay the same, you can "freeze" the score by clicking the checkbox at the far left in the right pane of your value. One thing to be noted is that the freeze function is not a real "freeze" per se; it will only constantly scan the value for changes, and if any, change them back to the value we stated for it. So if you are trying to get achieve god mode, but something in the game takes down all 100 of your health in a fraction, the "death" function will trigger in an instant and you will die before the freeze function can change the value back to 100. So if you are stuck in a situation like this, you're pretty much dead.

Stick to ethics
Remember the steps—pretty simple and straightforward, as you've seen. Set your eyes on a value, be it 100 health or 30 ammo or 50 strength, search for the value in Artmoney, go back to the game, hurt yourself, shoot some, gain some more strength, switch back to Artmoney and click filter, and enter the changed amount. Cheating this way in most multiplayer games is out of the question since the values are stored on the server. Even if you succeed, you will be easily detected and rightfully kicked or banned off the server.

Have some decency and don't even try using Artmoney in multiplayer games—improve your game instead!∎

mayur_bhatia@thinkdigit.com

enable it. To enable ChkDsk upon booting your PC, at a command prompt, use one of the following commands to enable or disable disk checking at startup:

chkntfs /D

(Default; this will check all volumes upon bootup when Windows is shut down improperly.)

chkntfs /C [volume]

(This will instruct ChkDsk to check only the volume you specify, which in this case is the [**volume**] variable. Replace it with the drive you want to be scanned, for example, **chkntfs /C E:**. You can then add more volumes to be checked by re-entering the command with the drive letter of your choice.

chkntfs /X [volume]

This will exclude a drive from being checked by check disk. Replace [**volume**] with the letter of the drive you don't want to be scanned. You can enter this command multiple times with different drive letters to exclude them from being checked.

the **/D** switch will set all options to default thus checking all drives following an improper shutdown

Reading, Writing, And NTFS

Q How do I create a bootable CD that will allow me to read from and write to NTFS partitions?

Nilesh Pawar

A You can use BartPE to create a bootable disc from your original Windows XP / 2003 CDs that will read from and write onto NTFS partitions. Get BartPE from **www.nu2.nu/pebuilder**, start it, and make it search for the source install files by clicking on Source and then on Search.

Your Windows CD should be in the CD-ROM drive when you're searching. Then select to create an ISO file. After the ISO file is created, you can burn it on an empty CD using a CD recording software like Nero.

Seeing Double

Q I am running Windows XP on an AMD 3000+ (939), MSI RS480M2 IL motherboard, 512 MB RAM, and an 80 GB hard disk. I have installed the graphics drivers that accompany the motherboard (display driver version 8.071 and control panel version 6.14). My problem is, I've connected a TV to the composite-out of the motherboard, and the system shows the TV as connected, but I am not able to get a display on the monitor and the TV at the same time (what the manual refers to as cloning of displays). I've tried using the latest Catalyst drivers but the problem persists. Please help. Also, how can I use the Extended Displays option?

Abhishek Mathur

A Try the following steps to troubleshoot your problem:
- In the BIOS, go to Advanced Chipset Features and change the TV standard option. Try all the options if you are unsure of which standard to use.
- Again in the BIOS, under Advanced Chipset Features, set the Video Display Devices option to "CRT force, TV force". This will force the computer to also use the S-video connector.
- The cable you're using might be faulty; try a different one.

The Extended Display feature, called SurroundView in ATI's case, will allow you to work across multiple displays, allowing you to spread your windows between them. You will need an additional video card for using your second display; look in the manual for a list of supported display cards for using the Expended Displays feature. After you have a video card in addition to your onboard video, you will also need to enable onboard graphics in the BIOS. Do so by going to the BIOS, and in Advanced Chipset Features, set the internal video mode to UMA. Move further down to find an option called "UMA frame buffer size"; change this to at least 64 MB. Next, move back to the main BIOS screen and set "Init Display first" to PCI-E, enable the SurroundView option just a notch below, and restart your computer after saving the changes. You can then use SurroundView by going to the Settings tab in the display properties in Control Panel.

A Bouquet Of Questions!

Q I have Fedora Core 4 installed. The problem is that I can't mount other drives in it. I have seven drives; Fedora is installed on drive F. Drives C, D, and E are on the first hard disk (40 GB, FAT32), while the other three drives, I, J, and K are on the second hard disk (80 GB, all NTFS).

I've read about commands for mounting drives in other Linux editions, but the problem is that I couldn't find where exactly to enter those specific commands.

In Windows XP SP2, I've got Winamp 2.91. The problem here is that it doesn't save the song it was playing before being closed. That is, it starts playing from the very first song of the playlist. On enabling the enqueue option as the default, it remembers the song but copies the playlist, so I get the same playlist twice. What can I do?

I couldn't convert my E drive to NTFS. It gives an error and says I should run checkdisk. But this doesn't solve the problem.

Finally, could I run *Max Payne* on Windows XP though it is mentioned in the Readme that the game is not thoroughly checked on XP? It crashes after a stage completes and when the next one loads. Changing compatibility mode doesn't help!

Amit Kumar

A
- For mounting your drives in Fedora Core 4, just open a command line terminal and type in the commands you've already read about.
- It's not possible in this version of Winamp to remember the last played song. There happen to be software like Neutrius which automatically play the last song upon starting.
- Make sure you use the /F switch for fixing when using chkdsk; the syntax would be **chkdsk** E: **/F**
- *Max Payne* does not officially support Windows XP. However, you can try to improve things by setting the compatibility mode to Windows 2000 or upgrading *Max Payne* to the latest version (1.5). ■

Hard Drives, Soft Prices

"Prices are falling," we say for almost everything, but it's not true for anything as much as for hard disks. Calculate price per GB and see for yourself—but also factor in things like rpm and buffer

I recently assembled a PC for myself, and have been slowly collecting components for over three months now. Peripherals aside, my PC is complete, except from one very important component—the hard disk. Now I'm a data hog, and my backups consist of a veritable treasure trove of applications, music, games, movies, and various utilities spanning some 300-odd gigabytes!

Recent trends indicate that Serial ATA drives are completely dominating the market, and Parallel ATA is almost completely phased out. De facto spindle speeds are 7200 rpm, with 8 MB I/O buffers. In fact, many hard drives boast of SATA 2.0 features like NCQ (Native Command Queuing) and 16 MB buffers. It seems 80 GB drives are the bare minimum available, with 160 GB drives topping the sales figures. Larger capacity drives have two advantages:

1. Cost per GB is at an all-time low, and it can only get better.
2. Newer drives feature better drive electronics and the platters generally have higher areal densities, which translates to faster performance.

Hard drive warranties are also right up there, with players like Western Digital (WD) offering a five-year, at-your-doorstep replacement warranty. From a price point, 250 GB hard drives offer best bang for your buck, followed by 320 GB drives.

It's important to calculate the price per GB of a hard drive. For example, a 250 GB drive that costs Rs 3,800 gives you a price per GB of 3800/250 = 15.2, while a 160 GB drive that costs Rs 2,800 offers just 2800/160 = 17.5 Rs/GB.

The first vendor I visited at Lamington Road showed me drives from Seagate, Samsung, and WD. He had capacities ranging from 160 GB to 320 GB, and the Seagate 7200.10 series 320 GB caught my eye. This drive features a 16 MB buffer, and uses perpendicular recording. This allows for fewer platters and more storage—a good thing from a performance point of view. Also noteworthy are the Western Digital KS series, which although a touch lower on performance (as we've tested earlier) run very, very cool. Samsung's SP 2504C is another very strong performer, but most of their lower-capacity drives are outperformed by Seagate's equivalent models.

Vendor #2 had most of the same models, except he stocked Hitachi drives as well. The Hitachi T7K series features 8 MB buffers, but more

Illustration **Pravin Warhokar**

Hard Drive Prices (Rs)

Capacity	Hitachi	Samsung	Seagate	Western Digital
80 GB	2,000	1,875	2,100	2,100
160 GB	2,600	2,400	2,700	2,700
250 GB	3,500	3,480	3,650	3,650
320 GB	4,500	–	4,600	4,600
400 GB	6,450	–	6,500	6,500
500 GB	9,000	–	9,500	9,500

importantly, they support NCQ (which older WD drives don't). In addition, Hitachi drives are known to be silent and cool. Performance is about par with WD, though the Seagate 7200.10 series drives are the fastest. This guy told me he could arrange for Raptors, which are Western Digital's performance kings for the Desktop. WD Raptors are available in 80 and 150 GB sizes, and feature 10000 rpm spindle speeds. This gives them huge performance boosts in almost every type of read/write operation. Unfortunately, the pricing (see box) will scare off nearly everybody. I also saw a couple of larger drives—a Seagate 500 GB, and a WD 400 GB. However, when accounting for price and performance, it's probably better to opt for two smaller-capacity drives rather than a single large drive.

Vendor three showed me a similar mix of drives. Interestingly enough, all the Seagate models he had were their 7200.10 series. According to him, the 160 GB is a single platter drive, and blazingly fast. He also recommended the Seagate 320 GB. When I enquired about heating issues, he vehemently said Seagate drives rarely come back for RMA (Return Merchandise Authorization). This guy did have a Maxtor hard drive too, the first I've seen after the Seagate takeover. It was a 500 GB Diamond Max 11 drive. The fellow was insistent that I choose from one of Seagate, Hitachi or WD, in that order. According to him, Samsung and Maxtor are not the first choice when it comes to performance.

I was tempted by the storage space offered by a 400 GB drive, but the price per GB was too high. Finally, the 5-year door-to-door replacement warranty that Western Digital is offering won me over. Since speed was also important, I bought two Western Digital 2500KS drives, and plan to set up a RAID 0 configuration—which will take care of the speed parameter.

Look at the table above for the best hard drive prices I came across while looking about. ∎

Want more of Agent 001? Turn over to read his answers to your buying questions

Motorola It Is!

Q I've been using a Nokia 6600 since last year. I want a new phone with the following features:
1) Clamshell form factor
2) Expandable memory
3) FM Radio
4) Good battery life
Please tell me which models are available in the market. Should I buy a Sony Ericsson, Nokia, or Motorola? Assume no budget constraints.

Nagesh Deshpande

Motorola has several clamshell models that will suit your needs. Look at the Motorola RAZR V3xx. It's a reliable phone with all the features you need. Since price isn't a factor, also spare a glance at the new KRZR K3. This is a clamshell model with a 2.0-inch display, a gorgeous resolution of 240 x 320 pixels, and it also sports a 2-MP camera.

50 - 30 = ?

Q I want to buy a new digicam on a budget of Rs 10,000. In your digicam shootout, you've mentioned the best camera being the Sony DSC W50. What is the difference between this model and the DSC W30?

Deobrata

The Sony DSC W50 is a good camera, and its price has fallen since the time we tested it. Also available at a very good price of Rs 14,000 is the Canon A710IS. The special thing about this camera is the inclusion of image stabilisation and a 6x optical zoom. The Sony W30 is a model launched officially for the Indian market, and there is a single difference between the two technically—the W30 has a 2-inch LCD viewfinder, whereas the W50 has a 2.5-inch viewfinder. The DSC W50 should cost approximately Rs 11,500 in the grey market.

80K—Game Away!

Q I want to upgrade my PC to a fast gaming rig. I currently have a 915GM motherboard with a Pentium IV and 512 MB RAM. My budget is Rs 80,000.
Via e-mail

With a budget of 80K, I suggest you sell off your old system, and invest in a new set of components. My recommendations are in the table below. That configuration totals up to Rs 76,450. Such a rig will easily see you through all the games and applications you can throw at it. The graphics card I've suggested is DirectX 10 ready, so upgrading to Vista will be a snap. If you want more processing power, look at the E6600 (2.4 GHz) with 4 MB of L2 cache as opposed to the E6400's 2 MB, for around Rs 5,500 more. You could also buy another hard drive and opt for a RAID 0 storage solution, which the motherboard supports.

Components	My Suggestions	Price
Processor	Core 2 Duo E6400 (2.13 GHz)	10,500
Motherboard	Gigabyte D965P DS3	9,000
Memory	Transcend 2x1 GB DDR2 667 MHz	8,000
Graphics Card	Geforce 8800GTS 320 MB	21,000
HDD	Hitachi T7K 250 GB	3,700
Power Supply	Corsair's HX520W	5,500
Monitor	ViewSonic VX2025WM	18,750

Ask Away!

Want a tech product, but don't know how to go about buying it? E-mail agent001@thinkdigit.com with your complete contact details, and he might answer them here! Please note that Agent001 only answers purchase-related questions in this space.

Go For Gold!

Q I want to buy a DVD-Writer; my budget is Rs 2,000. In your December and January issues, you have suggested the Sony DRU-830 as the best buy. In the February issue, you tested DVD-Writers, but the Sony DRU-830 wasn't mentioned. You said the Lite-On LH-20AIP and LH-16AIP were the winners. Since all of them cost the same, I am confused about which one to buy.

Rakesh Biswas

The Sony DRU-830A was the former best performer; it was outperformed by the two winners from Lite-On if you look at the comparative scores. The build quality is quite similar. Choose the Best Buy Gold in any of our tests if you're looking for the best performance-to-price buy.

Stuck On AGP

Q I have a Pentium IV 2.8 GHz with 768 MB of RAM, and a 15-inch monitor. My motherboard is an Intel D865GBF. I want to buy an AGP graphics card for my PC, but am confused about brand and model. Would a 128 MB or 256 MB card be better? My budget is Rs 3,000 to 4,000.

Debjyoti Dutta

Since you haven't mentioned your usage, I assume you are interested in speeding up your PC a bit, and aren't interested into serious gaming. In this case you won't need a "high-end" graphics card, and are limited to AGP cards. I'd recommend a GeForce 7300GS; make sure you get a 256 MB AGP version. If you are willing to extend your budget a bit, you could consider the GeForce 7300GT 256 MB, which will further improve graphics performance. Budget constraints aside, I must warn you that both these options—7300GS and 7300GT—may not be the best options to accelerate Vista. If you're interested in upgrading to Vista in the near future, I'd suggest you upscale your budget and invest in a 7600GT 256 MB, which will cost you around Rs 8,000.

Upgrade One, Upgrade Two...

Q I have an Intel Pentium IV 3 GHz processor with HT technology, 256 MB DDR 400 RAM, and an 80 GB SATA hard disk. I now want to upgrade my motherboard to support DDR2. Will my current processor work with DDR2? The board must also support SATA 2.0 and have a graphics card slot.

Vinay Krishna

You haven't mentioned exactly what CPU interface you have—478-pin or LGA 775 type. Check your manual as to whether your board supports DDR2 or not. If not, I recommend upgrading your motherboard to a 946 platform if you are on a budget. These motherboards support the Core 2 Duo processors. A better buy would be a 965G-based board. Both these platforms will also allow DDR2 and PCI-Express graphics. Remember, you will also have to upgrade your processor and memory. If you cannot afford a Core 2 Duo (the cheapest being the E6300 at Rs 9,500), I'd suggest a Pentium D 805, or a Pentium D 920 (which will save you Rs 4,000), along with 1 GB of DDR2 667 MHz memory. This should provide an inexpensive yet powerful upgrade—best bang for your buck. ∎

NAT and Firewalls

How does IP mapping for data transmission over networks work?

Samir Makwana

You probably know what TCP/IP is; any computer using TCP/IP will have a unique IP address by which data in the form of packets is sent and received from other computers. The process of passing data packets from one computer to another by analysing the "routing tables" to reach the destination is known as routing.

A routing table is a database of defined rules that determines the best path for data packets as they go towards their destination IP address. The process of routing is performed by a device called a router.

But IP addresses used for internal or private networks are not registered; they are referred to as local IP addresses. These addresses are used for data transmission within the LAN, and are not visible on the Internet. For data transmission from the internal network to the Internet, the local IP is registered as a global IP address by Network Access Translation (NAT).

NAT provides security by hiding internal IP addresses, enables the use of more IP addresses without the possibility of IP conflicts, and multiple ISDN (Integrated Services Digital Network) connections appear as a single Internet connection. This provides a first line of defence, but because NAT only translates IP addresses, a firewall is usually used in conjunction with a NAT router for security against incoming data packets from the Internet. The firewall could be software or hardware.

In Some Detail: NAT

NAT is a standard that enables use of separate sets of IP addresses for internal and external traffic. The translation of local IP addresses to a global IP is done on a one-to-one (one internal address to one global address) or many to many-to-one (a group of internal address to one global address) basis while connecting to the Internet. NAT can be used by a computer, a router, or a firewall.

NAT has several forms, such as static, dynamic, overloading, and overlapping. Static NAT translates any unregistered local IP on a one-to-one basis to a registered global IP address. The Internet Assigned Numbers Authority (IANA) has reserved three blocks of the IP address space for private networks:
10.0.0.0-10.255.255.255
(24-bit block)
172.16.0.0-172.31.255.255
(20-bit block)
192.168.0.0-192.168.255.255
(16-bit block)

Any enterprise can use such IP addresses, and these will be unique within that enterprise. When the enterprises needs to connect to the Net, it needs to get a unique global / public IP address from the Internet registry. That public IP address will never be assigned from the three blocks for private networks.

As an example, **192.168.21.14** will be translated as **212.15.48.105** and used for external traffic. Dynamic NAT translates any local unregistered IP address to a registered global IP address from a group or range of global IP addresses. For example, **192.168.21.14** will be translated to any of the global IP addresses ranging from **212.15.148.105** to **212.15.148.120**.

In the case of overloading, each IP address on the private network is translated to a registered IP address, but with a different port number. The internal IP might be in use by any other network.

In some cases, the internal IP range might be a registered range in use by another network. Here, the NAT translates addresses to avoid potential conflicts. This is called overlapping. It can be done by using static NAT or by using DNS and dynamic NAT.

Firewalls are intrusion protection systems to prevent packets from unsecured, unknown, or unauthorised locations coming in. Firewalls can be software or hardware. You probably know about software firewalls. NAT routers offer packet-filtering firewalls (hardware). These examine the source IP address and port, as well as the destination IP address and port, to determine whether the packet is to be accepted or dropped.

Hardware Firewalls

On a hardware firewall, user-created or predefined rules about data packets to be blocked from specific TCP/IP ports are configured. The firewall uses a technique of packet filtering by which it examines the header of incoming packets to determine their source and destination. It is then determined whether to take in or exclude the packet.

With hardware firewalls, only incoming traffic is restricted, and not outgoing traffic. So a malicious program such as a keylogger, which has already entered the local network and is concealed as safe program, can send information to its destination.

Also, at times, routing through the router is blocked, and peer-to-peer activity on the network is not possible if the private network uses a NAT-enabled router.

There is debate on whether NAT will be necessary, whether it will provide better security, etc. when IPv6 is implemented. Refer to *Know More About IPv6* in our October 2006 issue. ∎

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Google Vs. Yahoo! Answers

Karmanya Aggarwal *(readersletters@jasubhai.com)*

Everyone goes through this at least once during student life—a major assignment due on Monday, and you have no idea what the topic is. And having found out, you're clueless! So you turn to the Net for help...

Ah, it's all explained so clearly!

On Yahoo! Answers, it's up to Them...

1

One good way to figure what you're in for is to *look* at the assignment sheet. If the symbols look too complex, you'll need to copy a friend's assignment, that's the rule. So I looked, and there weren't too many funny symbols. Mostly word problems. Unfortunately, I didn't understand the words. So I Googled them.

For my next assignment, I decided to be the ne'er-do-well cheatin' student, and let someone else do my work for me. I'd heard of Yahoo! Answers—where you post your questions and wait for someone to reply—and how delighted was I to see there was a section called "Homework Help"!

2

Turned out these were "statistics" problems. What is standard deviation? What is sigma? I did get answers to all these, but not too much on how to solve the problems themselves. The alarm bells are ringing in my head.

I didn't bother to figure what the terms where all about: just put in my questions under Homework Help, and hoped for the best. I'm living dangerously, I know. Except I'd added a "PLEEEEZ HELP ME! :-(" at the end of my post.

3

Some soul-searching later, I had the idea that I'd just have to keep looking, hoping to stumble upon a tutorial or something. That's what I did, and about an hour later, I'd found the general method to solve the problems.

Ten—yes, just ten—minutes later comes a mail saying "You've received a new answer to your question." Yahoo! Someone had posted the solution to one of the problems!

4

Self-help needn't be the best help, as they say, so I enlisted the help of a friend to explain that method to me. We worked together—through the night—and our assignment was ready. Hope we don't each get half the marks!

The ecstasy and the agony! How was I to get the answers to the rest? The answers poured in, but three of them solved the first question again in a different way, and the rest were unkind: "Do ur own hw you ne'er-do-well cheatin' student!" "U think I'll spend time doing your homework?"

5

Who needs textbooks when you have the Net? I'm just so proud of myself I solved everything without knowing the name of my textbook!

So all I had to show was one problem solved. And here I'd thought someone, somewhere in the world would do it for me! Homework Help indeed!

Usefulness meter: **4**

Usefulness meter: **2**

AND THE WINNER IS...

It's clear the old way of Googling up stuff wins. Really, you can't expect anyone to devote time for someone else. Yahoo! Answers is good, but when you're asking questions that have short answers—or when the subject of your post is a popular topic—or if you post a puzzle.

No-one's going to give you a tutorial out there: if you need to do your homework, you're better off finding out how to solve the problems, believe me. Besides, your parents are paying those exorbitant school/college fees for a reason! Teach a man to fish...

Food, ~~Women~~ Gadgets, And Song

Featured this month is one of the best online radio sites you'll see, a recipe site with a difference, and a place to learn how you can create an H-Bomb. But careful—don't blow up your kitchen

Prakash Ballakoor

www.last.fm

Many of us are familiar with the social revolution that Orkut brought about—allowing you to share photos, video, catch up with friends, and their friends, and your friends' friends' friends—online socialising. But if you want to listen to and share your audio files with like-minded people, there's no site like last.fm. The site, unlike other online radio places, where all you can do is tune into a preferred genre, lets you listen to songs from a particular artist, album, complete with tracks, tags, and labels.

The site builds a detailed profile of your tastes by installing small plugins in your media players, and then recommends similar artists. This profile is used to customise the Web site according to your music preferences.

A radio site you just can't afford to miss

Let's say your playlist contains mainly hip-hop; after you install the plugins, the site reads your tastes, and displays various albums in the genre. In order to show you more music that you may not have heard of, the site lists music that other people with similar tastes have liked—you can also manually recommend songs, artists, or albums. Last.fm boasts of a stock of more than 1,00,000 songs for free download. Music producers and artists are drawn here as they can promote themselves, and this translates into an ever-growing variety of music for us.

Music from big record companies obviously cannot be downloaded, but you can listen to 30-second previews of songs to decide whether or not you want to buy the album. If the label has authorised it, songs are also made available as low-quality streaming audio, which means you can use the site as your streaming audio jukebox as well.

Information about artists is maintained in the spirit of a wiki, so you can edit and add your own comments. Some of the other tabs on an artist page will let you browse through pictures of the artist or concerts, and even pictures you have taken can be uploaded. You can click the Events tab to see where they're performing next, the Albums tab to see if you've missed any for your collection, and much more. Overall, Last.fm is a wonderful site every music lover should visit.

www.cookingbynumbers.com

There are thousands of wonderful Web sites dedicated to cooking, but none of them can hold a candle to this site. Anyone who cooks on a regular basis will testify to the lack of feasibility of other sites—any recipe on another site will inevitably end-up with you having to dash to the market to get that missing ingredient, or just ignoring the recipe and doing-your-own-thing.

Cookingbynumbers.com, on the other hand, lets you tell it what you have in stock, and then whips up an interesting and tasty recipe. All you have to do is select what you have stashed in your cupboard and fridge, and the site will find recipes for you from the items you selected. If this isn't enough, click on "Skillsbynumbers" on the same page to improve your cooking skills. Here you'll find detailed instructions on various must-know cooking skills. How to... chop an onion, make breadcrumbs, seed and cut a pepper, boil an egg, peel a tomato, cook rice... it's all here. The site is a must-visit for those who cook on a daily basis, and a must-see for those bachelors who need to


Hungry? Say what you have, and up pops a recipe!

learn how to cook from scratch after shifting away from home.

www.scitoys.com

Do you feel an itch whenever you see electronic toys? Have you ever wanted to build your own science toys, but were never able to do so because you didn't know how to? Head to scitoys.com. The site teaches you how to make electric and electronic toys using common household materials, and all in a few minutes.

You can experiment with magnetism and electromagnetism—subjects you (never) learnt in school—create an electric motor in 10 minutes flat, or your very own rail-gun!
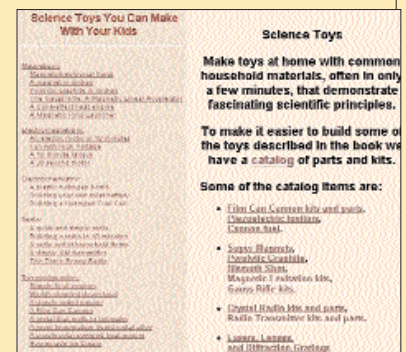

Destructive or constructive—you choose

You can get your hands dirty with electrochemistry, and create your own hydrogen bomb (well a little one, at any rate!) or a hydrogen fuel cell. If you're not into world domination, perhaps you could try to build your own radio... There are many more projects that might interest you, based on thermodynamics, aerodynamics, light and optics, biology mathematics, computers and electronics, etc. Everything is explained in exquisite detail, with the requisite diagrams and photos that make it easy to understand.

This site will explain the "How" and "Why" of every principle as well, so even beginners or science novices will understand what they're doing. Overall, it's a great resource for that summer project that you have to do for your school or college. If not, there's always the human nature to be inquisitive, and to build... go here and satisfy that urge. ∎

prakash_ballakoor@thinkdigit.com
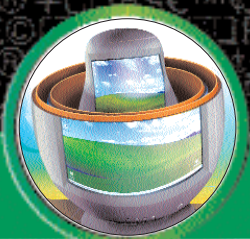
Tech Careers

Painting The Page Proper

As business becomes increasingly Web-driven, the Web designer's skills are playing a role larger than ever before

Samir Makwana

In the early years of the development of the Web, sites were largely HTML-only. Then came Flash animation, JavaScript, Perl, Python, ColdFusion and more. When broadband became common, Web designers began to make Web pages heavier and more content-rich. And today, a lot of large, medium, and small start-ups are designing Web sites conforming to Web 2.0 standards. The role of a Web designer now encompasses more than ever before.

Good Web site design means appropriately laid-out content, working buttons and animations, and no glitches such as misleading links and distracting ads or pop-ups. Of course, there's more to it. But ultimately, information on Web sites helps consumers with purchase decisions, and a well-designed site appeals to customers, clients, and even potential investors.

Business undertakings have foreseen the potential of an online identity, and have started investing in that area to remain in competition.

"Ample opportunities lie in the industry today, both in India and abroad, but especially in India. There is a dearth of quality Web designers, and demand for them is growing gradually in the country. Businesses, both big and small, as well as individuals, want to have their own Web sites," says Deepak Bedi, project manager, eCreed's Creative Labs located in Mumbai, who are involved in Web design and other Web services.

Profiles

After the necessary education and the gaining of proficiency over Web designing tools, a number of specialisation options await budding Web designers. The design of a Web site takes place at many levels, but at certain times, roles may overlap: a graphics designer may also design the user interface, depending on several factors such as the proficiency of the designer or the lack of a skilled person for the job. Also, one person can be an expert in Flash with ActionScript as well as other scripting languages.

Graphics Designers use images, colour combinations, animations, and other supporting elements for good presentation, navigation, and layout of the site. They create the visual feel to the site. A knowledge and expertise of the latest Web design tools such as the Adobe graphics suite, Flash, Dreamweaver, etc. is a must.

Interaction Designers focus upon human interaction with the site, and strive to bring out better solutions in terms of the user-friendliness of the design. They decide what kinds of animation should be placed, how navigation would be done, etc. Their work profile involves interacting with designers, content developers, programmers, the marketing team, and others. The designer then builds an interaction plan for the site and the functions offered, such that the goals of the client's business and the user's needs are met.

Working with wire-frames (visual guides to suggest placement of design elements and their layout), content flow, mock-ups (models that look like the real thing but without functionality), concept briefs, and conceptual models form part of their routine.

User Interface Engineer/Designers: The interface of the site is designed using scripting languages and other tools. The interface designer actually designs the interface layouts, the size, style, and flow of text, CSS (Cascading Style Sheets), and process movements, and uses scripting languages such as ASP, PHP, JSP, Perl, Python, etc. as required, for a better user experience. He also designs templates for the site as well as prototypes for testing. Designing a Web site that has a login option is more difficult, because the best measures to prevent ID theft, hack attacks, etc. need to be implemented.

Illustration **Shrikrishna Patkar**

> **"** With the growing IT jobs every year in India and abroad, the Industry itself is growing multifold - with the prima donna being Internet. People who want to make a career in web designing can hope to reap a reap a rich and fulfilling harvest."
>
> **Salil Desai**
> Asst. Vice President,
> Arena Multimedia

Freelancers: Working as a freelancer is always a good option. Many Web designers who work with Web design firms initially go on to freelance. Running a Web design business of one's own would only happen after some good experience. A freelancer can work on individual projects and can even earn more than some salaried employees.

Qualifications

The field of Web design runs on creativity, expertise, and experience. Anyone with aesthetic sense and knowledge of Web designing tools can get absorbed in the industry. However, graduates in the fields of fine arts, visual communication, digital media, and multimedia are preferred.

One's background and educational qualifications will matter depending upon the type and size of the organisation. With small or medium enterprises, a Web design certification after graduation is usually accepted.

"As far as Web designing is concerned, degree from a particular field is not required. Being highly creative and having the ability to think out of the box are musts," says Irshad Sheikh of Net4Nuts located in Ahmedabad, a leading Universal Resource Management service provider.

In the rarest of cases, creativity and the ability to create really good Web pages can make up for certifications and qualifications.

If you want to work with a large IT organisations that has CMM (Capability Maturity Model) standards, then the proper educational qualifications and technical certifications become necessary. CMM refers broadly to the approach of an organisation to improve its process models.

Engineering and computer science students can select programming as their major strength.

Skills

A good Web designer must have knowledge of front-end operations (the look of the Web site) as well as back-end systems (how the site would work). He must be creative enough to make use of the tools he chooses to specialise in—such as imaging tools, scripting languages, animation suites, sound creation / editing tools, etc. The front-end is undertaken by junior-level designers. After the site prototype is ready, senior designers test, fix bugs, and validate the design.

"We only look for a person's design ability and how engaged they are with their profession. I usually prefer people who use the Internet a lot, as only regular Net users know what sites are good and what is considered bad," says Harish Chouhan, freelancer and owner of DreamsOnline Web Services located in Mumbai.

One can hone skills such as drawing, sketching, scribbling, and painting from an early stage—even right from the pre-college level—and take up Web design courses that complement their skill sets.

"Course material should be planned only after talking to industry leaders. Faculty should ideally be art graduates with relevant industry exposure. Just teaching candidates how to use software is not enough; the software is just a tool—creativity has to come from the candidate," says Bedi.

Designers should be able to express technical issues in normal parlance. They should have the willingness to be updated on emerging technologies, as well as sound technical knowledge. Sketching, drawing, writing, etc. along with this would also be required for a proper blend of skills.

Training

The portfolio of the Web designer is an important aspect of his profile. Large IT corporations with CMM standards will look at projects done.

"Training is important, and grooms a fresher to industry standards. There is no specific courseware. To me, design is more like mathematics. One will need to keep working on it, hands-on, in order to master it," says K Pradeep, project director, Niyati Technologies Pvt Ltd located in Chennai, which offers Web designing and development services.

A freshly-employed Web designer undergoes training for a period ranging from three weeks to six months. The nature and duration of the training period is dependent entirely upon prior skill sets and proficiency over scripting languages such as PHP, JSP, ASP, and others. Hands-on knowledge of tools such as Adobe Photoshop and CorelDraw (for imaging), for example, would be procured during training. Organisations are also flexible in terms of the employee undergoing education while still working.

▼ Design Schools

National Institute of Design, Ahmedabad
Program: Graduate Diploma in Graphic Design; Post Graduate Diploma in New Media Design. www.nid.edu

Industrial Design Centre, IIT Bombay
Program: Master of Design in Visual Communication; PhD in Design in Visual Communication. www.idc.iitb.ac.in

Srishti School of Art, Design and Technology
Program: Professional Diploma in Visual Communication. www.srishtiblr.org

Department of Design, IIT Guwahati
Program: Bachelor of Communication Design; Master of Communication Design; PhD in

Communication Design.
www.iitg.ernet.in/design

IIT Kanpur
Program: Master of Design in Visual Communication Design
www.iitk.ac.in/design

Symbiosis Centre of Design, Pune
Program: Bachelor of Design in Communication Design
symbiosisdesign.ac.in

Department of Visual Communication, Loyola College, Chennai
Program: Bachelor of Science in Visual Communication; MSc in Visual Communication. www.loyolacollege.edu

D J Academy of Design, Coimbatore
Program: Undergraduate Program in Communication Design. www.djad.in

Raffles Design International, Mumbai
Program: Bachelor of Arts (Hons.) in Visual Communication Design (Multimedia); Bachelor of Arts (Hons.) in Visual Communication Design (Graphic). www.raffles-design-institute.com/india

Apeejay Institute of Design
Program: Bachelor in Design; Bachelor in Multimedia; Post Graduation in Design; Master in Design.
www.apeejay.edu/aid/home.htm

"Usually, training is not given to candidates, as the work processes of the companies are same. Also, candidates are expected to actually have the skills mentioned in their profile. Once a trainee gets along with the working style, he is ready for the next level," says Chouhan.

Career Path

At any level, Web designers should be able to work with close deadlines and under pressure. Needless to mention, the time span between promotions, as well as the remuneration, is highly variable and dependant on the calibre and the contribution of the person in company projects. The career path in Web design can be divided into three levels.

Junior Level: Here, one begins as a trainee, and assists the senior Web designer with all the minor front-end tasks such as drawing, designing logos, and learning scripting processes and workflow. One gets to know the work process of the company and gets hands-on experience with various software tools, scripting languages, and other aspects of Web design.

Once promoted as a Web designer, the work profile includes activities like preparing HTML pages, designing logos, drawing, creating PowerPoint presentations for showing prototypes to clients, generating graphics and animations, determining flow of content, designing user interfaces, etc.

A Web designer can get promoted to a senior designer in about one to three years. While at this level, he can earn as low as between Rs 5,000 to Rs 10,000 per month in a non-CMM IT company. In a CMM organisation, one can expect to start off somewhere between Rs 8,000 to Rs 15,000 per month.

Senior Level: Here, one prepares the architecture of the Web site. The senior Web designer plans the activities to be performed for designing the site in accordance with the requirements of the client. He is in charge of the layout of the page, selection and usage of Web tools, image usage, colour combinations, additional features to be included, planning the content flow, etc., in addition to testing, bug fixing, and validating the Web site. The person at the topmost position in this "senior" territory is responsible for project co-ordination.

Advancing to the next level takes from three to five years. Remuneration ranging from Rs 15,000 to Rs 35,000 per month can be expected by a senior Web designer in an organ-

isation with CMM standards. In a non-CMM or small to mid-sized undertaking, one can expect somewhere between Rs 10,000 and Rs 25,000. Moving further, one can start an independent undertaking.

Top Level: At this level are the project managers and the client relations executives. The design team and the other teams involved in the development of the site are managed and co-ordinated by the project manager. He takes care of the requirements of the design teams in general. Task schedules, deadlines, and progress reports are prepared and passed on to higher management. The job is similar to that of account executives, and thus requires good interpersonal skills.

Client interaction is taken care of. Issues between the client and design team in the context of the site are addressed. Regular checks on the progress help decide whether the site has a unique appeal in accordance with the corporate ethos of the client organisation.

The project manager is at the top position; this is more of a managerial function. He takes care of clients and brings in more business for the company. The average remuneration for project managers in an organisation with CMM standards ranges from Rs 35,000 to figures in lakhs.

Parting Words

"As more and more companies shift part or all of their operations to the Web—such as advertising, purchasing, selling, and researching—the demand for Web designers climbs exponentially," says Salil Desai, asst. vice president, Arena Multimedia, which provides multimedia education.

Ultimately, Web design requires a nice blend of creativity and technical expertise. This is the field for you if you think you have a feel for the Web, and are willing to learn what drives it. ∎

samir_makwana@thinkdigit.com

The Webby Awards

Here is a random list of five sites that won awards for best Web site design at the Webby Awards 2006 (also known as "The Oscars of the Internet").

www.leoburnett.ca
The site, developed by ARC Worldwide Ad Agency, a Division of Leo Burnett, won the Webby Award 2006 for Best Visual Design—Aesthetic. The site has an innovative design where pencil replaces cursor on a white background for navigation between letters.

www.stylewars.com
Developed by Code and Theory, this site won the Award in the People's Voice category. The site is about the documentary shot by Tony Silver on hip-hop and community.

earth.google.com
Google's Earth homepage received the Award for Best Visual Design—Function. Google Earth enables one to view geographic information of places all over the world with satellite imagery, maps, terrain, and 3D buildings.

www.bookofcool.com
Designed by Ocelot Productions Ltd, the site won the Award under the People's Voice category for Best Navigation / Structure. Book of Cool is a showcase for three DVDs and a 320-page book for learning fun skills in the holidays.

www.dreamstudiodesign.com
The site, designed by DSD Animations, won the Award for the best use of animation and motion graphics. It is a showcase of DSD Animation's own profile: services offered, work done, etc.

The Technical Armoury Of A Web Designer

- Adobe Creative Suite—Photoshop, Illustrator, etc.
- Macromedia Flash with ActionScript
- Macromedia Fireworks
- Macromedia Dreamweaver
- The ability to use CSS
- HTML, DHTML
- ASP
- PHP
- JavaScript
- AJAX (an added advantage)

THINK INK!

Inkjets offer the binary benefits of unmatched quality and value, especially for home users. With very few players in the market, competition is fierce. Read on to find out how our comparison tests brought out the best performers

Imaging **Pradip Ingale**

Michael Browne

Of all the technologies that evolve every year, one of the last products you'd expect to see any changes in are good old inkjet printers. We've seen breakthroughs in processor technology, the world of graphics has had its share of innovations as well... the list is too long to mention here! So like CRT monitors, you'd probably expect inkjet printing as a technology to stagnate as well... right? After all, what could change? Definitely not the number of colours used. Nor the number of ink tanks.

Surprise! Inkjet printing as a technology has evolved, even over the past year, since our last test. While these changes may not be pathbreaking, there are constant advances being made in printing technologies as a whole—whether they are advances in dyes and pigments used in inks, or print-head technology. Seeing is believing, and last year's test prints compared to this year's batch reveal everything.

Our contestants came from four major players—HP sent us three printers, Epson sent two, three Canons made it for the test race and a lone Lexmark arrived too. Nine devices to bring colour to your pages, and we're spotlighting each of them.

Canon Pixma iP1700
Look at my pix, ma!

The iP1700 was the smallest offering from Canon in our labs. It is built reasonably well, but at Rs 3,995, it seems built to a price. Apart from the classy looking badging on the front, there's nothing much to write about its looks. The iP1700 misses an output tray, so make sure your printer is placed away from the edge of the table, unless you want to decorate your floor with printouts.

The power adapter is visible underneath the printer, tucked away in a recess. The top is pretty bare, with just two buttons—one for power, and the other to resume printing.

Canon's printer settings interface is good. In fact, most of the settings are not hidden. The iP1700 is reasonably speedy, but demanding tasks will see it lagging—expected, really, considering it's a very entry-level offering. Our text document fared well, though we did notice aliasing even at higher settings. The fonts were readable at all sizes though—no serious issues there.

As soon as our combination document was printed, we immediately noticed the lack of detail in the embedded photograph. Highlighting on the fruit was decent, colour saturation was at par with the similarly-priced D2360 from HP. Text readability was better, and the reverse text test was a complete success at both economy and extravagant settings.

Bearing the Pixma badge should translate to at least decent photo printing; however, Canon makes no bones about declaring the iP1700 a value offering. We were surprised to see the little Pixma bringing up some very acceptable results. Though it took its time (over three and a half minutes), our test photograph came out well, exactly the way it should be. Of course, the HP D4168 and the Canon iP5300, not to mention the R390, all get the job done better, but at under Rs 4,000, the iP1700 makes a strong point for itself. The only shortcoming is, it probably won't be as suited to portrait printing because it had issues with skin tones and texturing.

For Rs 3,995, Canon's iP1700 is a good printer for basic, everyday use with the occasional photo print thrown in. For a little more, though, you can get the D4168, which is a better all-round performer.

Canon Pixma iP3300
The middleman

Canon's iP3300 immediately strikes you as a big printer. That quality feel to the plastic material is present right down to the quality of movable trays and flaps. Although we've definitely seen better build quality from Canon, the iP3300 is much better built than the iP1700. It cashes in on a pleasing light-grey / dark-grey finish, and the rounded corners will appeal to the aesthetic senses. There are two buttons on the front—a resume-print button and the mandatory power button, a cool transparent one that fits flush with the front panel. There's PictBridge support inbuilt as well.

The iP3300 is positioned as an intermediate product, bridging the gap between regular inkjet printers and the much costlier photo inkjets. It's got a four-tank individual colour ink system.

The iP3300 makes for a good text printer, but its four individual tanks may seem a bit much for such a task. There was slight visible aliasing around text edges, but well within acceptable levels. This printer performed just behind its bigger brother (iP5300) and HP's D4168.

Printing PDFs and other such documents, and combining text with colour images, is very possible on the iP3300 without sacrificing on details. One area the iP3300 missed out on in our combination document test was the highlighting on the fruit. Though not as bad as the Epson printers, it peerformed a bit behind the D4168, with decent results. The photograph also lacked some detail, but wasn't downright unacceptable. From experience, Canon's forte as far as printers go is contrast. In typical fashion, the iP3300 did very well in the reverse text test, and provided a clear view even with tiny font sizes.

Photo printing isn't something the iP3300 is built to tackle. However, the iP3300 manages to perform well here, with good reproduction of finer details like texturing on the leather and the hair in the portraits. Where it misses out a bit on is the actual portrait part of the test photograph: skin tones were slightly off, the colour a little too warm. We'd estimate it was 15 per cent short of the quality of its excellent sibling, the iP5300, but it's priced lower, at Rs 6,495. You decide if this disparity is too much.

How We Tested

Test Machine Configuration
Processor: AMD 64 3800+
Memory: 512 MB DDR 400
HDD: Seagate 7200.8 120 GB SATA
OS: Windows XP Professional SP 2

We used Adobe Acrobat 8.0 for the PDF (combination test) and Adobe PhotoShop CS2 for the photo printout.

Before the printers were tested, we calibrated each of them using the toolbox utility that is built into all printer drivers these days. First, the cartridges were cleaned (by the utility), then they were aligned. Only after we were satisfied with a couple of test prints did the testing commence.

Performance Parameters
1. Speed
2. Quality

Test Documents
Text Only: monochrome text in different font sizes
Combi Document: a PDF file consisting of text at different font sizes, a reverse text test (yellow text on a black background) at varied font sizes, an embedded photograph, a colour chart, and a pie diagram, with lines to check for aliasing
Photo Test: our test photo consisted of eight individual scenes. Each of these had something to test the individual parameters that collectively make for great photo printouts.

The Speed Tests
All the tests were carried out with A4 size sheets. We used the "click-to-clunk" method to time the printouts, which essentially means we measured the time period between the moment at which we hit "Print" to the moment at which the printout was thrown out of the printer.

For the speed tests, we used all three types of documents at two printer settings—Low and High quality. For the Text and Combination documents, we used Executive Bond Paper, while for the photo printout, we used 150 gsm Kodak glossy photo paper.

The Quality Tests
In addition to the already printed pages, we also printed a Word document with a line of text printed with font sizes ranging from 2 to 12 at Best Quality. We examined this printed text for clarity, smudging and skewing, at all font sizes. We also looked for aliasing, which is the occurrence of jagged edges around the edges of the fonts.

Similarly, we also examined the printout of the PDF file. Here, we noted things such as the colour tone and clarity of the small photograph, discrete reproduction of concentric circles, and yellow text against black background. The combination document also had a basket of fruit, which we studied for detailing and highlights as well as for texturing.

In the photograph, we first looked at the overall colour tone. We examined details such as reproduction of correct skin tone, discreteness in the hair, colour variation in flowers and fruit, discrete bands of colour and greyscale in colour charts, and solder points on the circuit board. We also looked at highlighting on the metal flask and glass jars (specular highlights) as well as detailing on the golf balls (the dimples).
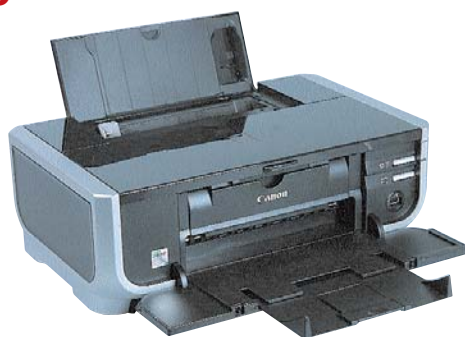
Canon Pixma iP 5300
World-class photo prints

One look at the iP5300 is all that's necessary to confirm its status as a high-end product. It's finished in translucent black with opaque silver-grey around the corners. The angular corners are deliberate and add to the aggressive tone the iP5300 sets. Build quality, needless to say, is very good—leagues ahead of its lesser siblings.

The output tray is accessible via a push-button system; very classy-looking and works well.

Positioned by Canon as a dedicated A4 photo printer, one look tells us where the iP5300 is most comfortable. It uses a pigment-based five-colour individual ink-tank system and supports printing on a variety of media, including CDs and DVDs. PictBridge, a must for any photo printer, is available.

One of the little features we liked (common with the iP3300) is the red ink-tank bay LEDs. Once you slot in a cartridge the corresponding LED lights up. If you installed it incorrectly (which is very difficult to achieve), the LED will not illuminate. These LEDs also turn on when the service flap (on the top of the printer, allowing access to the cartridge bay) is opened. This makes the task of installation of cartridges even easier.

The iP5300 is a printer that doesn't like to keep its patrons waiting—prints are completed fast, just the way you like it! Text quality was exemplary; not that we expected anything less for its price. However, as the Epson R390 proved, nothing should be taken for granted! We noticed that quality in text output didn't come at draft settings, and the D4168 does better when on a diet. Our combination document looked good, especially the reverse text and the tiny fonts, which were ultra-readable—this printer was *numero uno* here. Highlighting on the fruit was also reasonably well done, second to the brilliant (in this aspect at least) D4168.

One look at the test photo printed on the iP5300 tells you where this printer's heart lies. Good colour reproduction in general was complemented with excellent contrast and specular highlights. The highlights on the steel flask looked real, as did the shimmering effect on the glass aquarium. Even the leather handbag felt very substantial. For those looking for a great photo printer, look no further than the Pixma iP5300, which retails at Rs 12,995.

Epson Stylus C79
Terrible in our text test

Epson's C79 is positioned as an affordable home printer capable of little more than the usual home printing tasks. Although it's well built and the body feels sturdy, the C79 looks a little angular. But that's not necessarily a bad thing. It's reasonably light on desktop space. Efforts to further reduce its footprint are evident from the detachable input and output trays. With a two colour (light-grey / dark-grey) combination and a translucent fibre top, Epson has gotten their colour combinations right.

A few minutes into our tests, it became clear that the C79 is a slowcoach. Taking close to four and a half minutes to print an A4 photo isn't exactly express. Similarly, the combination document took a painful amount of time. The adage goes, "A little late, but worth the wait!"—not so with the text printing capabilities on the C79. Unlike its

sibling the R390, which redeemed itself somewhat when the settings were bumped up, the C79 brought out substandard results throughout the monochrome tests, totally

inexplicably, even after we repeated the tests several times. We do hope this is a one-off glitch with the piece we received, and not a fault in general with the model.

Performance in the combination document test was more like what we expected. The C79 did well in the point readability test (text), and performed very

well (in fact, the best in its class) with the embedded photo. However, reverse text production suffered somewhat.

It's not that it's very bad—just that the Canons ran away with all the accolades here thanks to better contrast in the output.

The C79 isn't very capable at professional photo printing. It performed decently overall, but a closer perusal of the test photograph showed that the portraits weren't as detailed as we'd hoped, with highlighting on the skin missing. The C79 also had noticeable issues with the exact skin tone, which it got wrong. Specular highlights were as good as with the other printers.

Overall, at Rs 4,299, the C79 seems to excel at pretty much nothing. We weren't expecting world-class photo printing at this price point, but it's the failure to impress in the text printout test that worries us—because text is what its intended target audience will be printing most of the time.
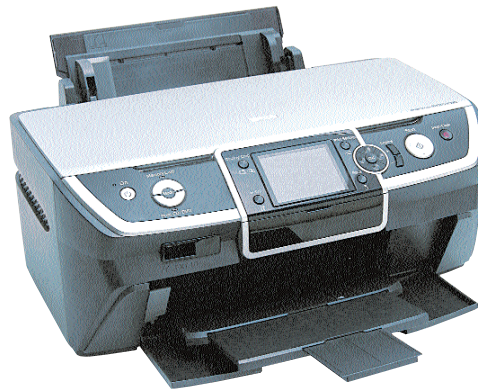
Epson Stylus PHOTO R390
A photoholic's companion

No, *we* didn't emphasise that, Epson did. As the capital letters suggest, the Epson R390 is indeed a ~Photo printer. Epson has packaged a lot of functionality into the massive-looking R390, which is nearly as big as some MFDs we've come across. Build quality is very good, right down to the movable parts, which look like they can stand the rigours of daily use. With an aggressive, forward-sloping design, the R390 looks good, and the grey and silver colour tone goes well with the sculpt.

The front of the printer is adorned with more buttons than ever. The 3.5-inch LCD screen gives you previews of what you're printing. While not necessary when printing from a PC, it's most welcome while using the PictBridge slot, or any of the memory slots (MS Pro, CF, xD, SD) as the image source.

The software suite is suitably rich and deviates from Epson's regular bundle by including an Image Editing Studio (Epson's own). An ultra-convenient RAW plugin is also provided for working with professional-grade RAW image files. Then there's the CD/DVD printing utility sporting a user-friendly yet powerful interface.

Once we got to using the R390, we were pretty amazed at how far photo printers have really come. But it's a pity that specialisation means losing out on general capabilities. The R390 produced abysmal results printing text at draft settings. In fact, the text looked more brown than black!

We expected a turnaround of sorts at the higher settings, but that just didn't happen, not to the expected levels anyway. The R390 refused to get text printing right.

Our combination document fared much better, particularly the embedded photograph—this printer aced *that* test. However, performance on the whole was a mixed bundle: the highlights on the fruit were missing—in fact, the berries in our combination document looked like spherical lumps of clay. The R390 performed well on the reverse text front, much better than the HP printers, but that's an unfair comparison when you look at the prices.

Our photo printout took just 66.2 seconds to complete—excellent for an A4 size sheet! Considering the quality of the printout, we can easily recommend the Epson R390 as a photo printer.

With great colour reproduction and proper rendition of finer details (the dimples on the golf balls aside, that is, which looked better on the D4168), the R390 also produced great-looking skin tones with accurate highlighting. This makes it really suitable for portrait photos.

It's got features galore, it's got a host of connectivity options, and it showed some great printing results in the domain of its expertise—so we'd recommend Epson's R390 for photo printing professionals. You'll have to cough up Rs 15,000 for it, though.
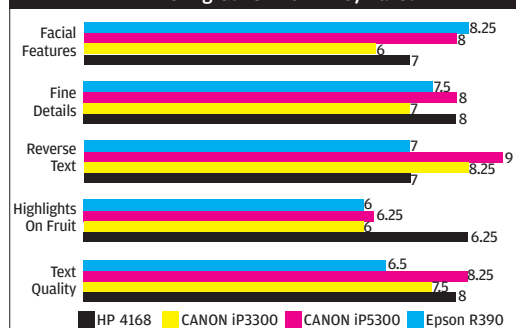
Media Issues!

Take the best printer in the world, give it some very ordinary consumables, and the results would be substandard. Sure we all know our printers. But how well do we know our media? Manufacturers take pains to assure consumers of the fact that the choice of media greatly affects quality of output. The problem in India is the low availability of both knowledge about and availability of printer media (both inkjet and laser).

Most users will typically use either photocopy paper or executive bond paper in their inkjet printers. While the results may be acceptable for regular document printing, must better results can be had if you make an informed buying decision when choosing media.

Firstly paper is classified on the basis of its weight, which determines its quality. The unit of measurement is GSM or Grams per Square Meter. In general the higher the GSM value (i.e. heavier paper) the better its quality. The difference in weight is mainly due to the thickness of the sheet. This thickness isn't due to the paper being thick though. Most print media undergoes heavy processing especially photo papers which have to be imbued with certain desirous qualities like fade resistance, water resistance, blot-free, smudge resistance and even resistance to wear and tear. The processing involves either coatings applied to the surface of the paper, or molecular level treatment, whereby substances are embedded into the sheet of paper. These substances could be micro-ceramic coatings - to enable quick drying for heavy ink jobs, or wax treatment to help resist moisture.

For example 80 GSM paper is considered the norm for regular office use. 100 GSM paper is basically Executive Bond, used for letterheads and such. Anything over 130 GSM is considered as Card Paper for printing colour brochures, pamphlets etc. Photograph printing can be done on anything around 130 GSM or above. Anything thinner should not be considered for photo printouts simply because the chances of blotting are very high. Professional photo printers will use glossy or matte finish papers (depending on their requirements) to the tune of up to 245 GSM. For regular photo printouts matte or glossy photo papers with a GSM rating of160 will suffice.

The Big Guns—How They Fared

	HP 4168	CANON iP3300	CANON iP5300	Epson R390
Facial Features	7	6	8	8.25
Fine Details	8	7	8	7.5
Reverse Text	7	8.25	9	7
Highlights On Fruit	6.25	6	6.25	6
Text Quality	8	7.5	8.25	6.5

HP Deskjet D4168
The Twin-Tank Wonder

HP has a winner here, at least in the looks department. A sleek yet long printer, the D4168 is, visually, a stunner. Some may find the permanently-affixed tray an eyesore, particularly since it protrudes upwards—but it does blend in well at the base.

The same shiny white cover that looks appealing on the D2360 exudes a touch of class here. The D4168 proudly wears HP's "Vivera Inks" Badge, which *should* translate to better photo quality.

HP once again deviates from the myth that photo printers must have individual tanks. The D4168 has just two cartridges! The printer offers PictBridge support, but this is more a necessity than a bonus feature nowadays. The bulky power adapter rears its ugly self again here, and is a real irritant.

The drivers are excellent, and you can create multiple profiles with finely-tuned settings for each type of printing job—mono-chrome, text/image, photo printing, etc.

The Deskjet 4168 is a good performer for its price—Rs 3,999. Text documents were printed clear and crisp, with no visual anomalies or aliasing of any sort. In fact, even at fast draft settings, the D4168 is one good text document printer, which is the way it should be, in our humble opinion!

Our combination document did have a few issues. Most noticeable was the fact that the 4168 failed to print the embedded photograph well. The line aliasing was absent (a good sign), however, the text readability at 2-point size wasn't as good as the Canon Pixmas' offerings. The same goes for the reverse colour test, where the text wasn't readable once the font size became tiny.

The photograph test was handled well, with superb specular effects and some great neutral colour tones throughout the printout. Detailing was very good, as was the texture effect, especially the grainy feel of the leather bag and the dimpling on the golf balls.

In fact, all the printers missed out on the dimpling which, while not immediately noticeable, does become apparent when you scrutinise the printout for a while. Unfortunately, the D4168 had some issues with the facial print-outs, where there seemed to be a lack of dpi, and fine white grains (unprinted parts of paper) were visible where there should have been none.

All in all, a great deal for the price. If you want something for printing superb text printouts as well as something that'll be able to give you some great photo memories on a budget, the Deskjet 4168 is the way to go.

HP Photosmart A516
The tiniest printer we've seen!

HP's Photosmart A516 is the smallest printer we've ever received for a test, period. Smaller even than their Deskjet 460B which we tested last year! The major difference was, this isn't an A4 printer. Instead, HP touts the A516 as an ultra-compact 4x6 photo printer.

Build quality is right up there with the best, and despite its diminutive dimensions, the A516 feels extremely sturdy to hold. Quality of both the doors (which serve as the in and out trays) is very good.

The body is finished in the piano-white we've come to love, with an off-white matte-finished strip on the top and down the sides. The top of the printer is adorned with five soft buttons, including a tiny "print cancel" button—something we missed on a lot of the big printers.

Interfacing doesn't require a PC, and is done via a 1.5-inch LCD screen that's sufficiently sharp to ensure you can see what you're printing easily. Naturally, PictBridge is present, which is mandatory on such a printer. Also concealed under the paper-out flap are the memory-card-reader slots. There are individual slots for CF, SD, and MS cards, while SM and xD type memory cards share a slot.

Despite the fact that the A516 is reasonably operable without a PC nearby, HP has provided a complete driver set, easily on par with their excellent drivers on the Deskjet 4168. Once again, all the settings you'll be using are available on a single page, and yet it doesn't seem cluttered. Paper options are obviously limited here, due to the size of the printer, of course, and a few printing options available on the other HP drivers are also missing.

Because of its non-A4 nature, we didn't pit this little printer against the bigger boys, however capable it may have seemed to the task. What we did was fire up a couple of photo prints including our test sheets, which we scaled down to an appropriate size. Printing photographs is what the A516 is all about (whoever heard of text documents on 4x6 media?), and the A516 uses a single cartridge to achieve this!

To its credit, print quality was good, though our test photo at once seemed to lack that vivid look. The photo had very good detailing, however, and finer details were visible. Highlighting and specular effects were reproduced well.

Overall, HP's A516 is a very capable little photo printer that you can carry around in a rather large pocket. At Rs 5,499, the A516 is clearly aimed at the segment of users that wants photo-quality 4x6 prints, anywhere, anytime.

Now, all you need to have to get great 4x6 prints is a spare power outlet!

Scoreboard — Home Printers

BRAND	Canon	Epson	HP	HP	Canon
MODEL	Pixma iP1700	Stylus c79	Deskjet D2360	Deskjet D4168	Pixma iP3300
Features (Out of 30)	12.11	14.55	15.84	18.9675	15.66
Printing Technology	Thermal	Piezoelectric	Thermal	Thermal	Thermal
Resolution (dpi x dpi)	4800 X 1200	5760 X 1440	4800 x 1200	4800 x 1200	4800 X 1200
Interface	USB	USB	USB	USB	USB
Input Buffer (KB)	96	32	NA	NA	96
Output Tray / Input Tray (Capacity)	NA	NA	NA/100	NA/100	100/150
Cartridges Included	✔	✔	✔	✔	✔
Auto Dual-side Printing Support	✘	✘	✘	✔	✔
PictBridge Support	✘	✘	✘	✔	✔
Memory card Printing/Types of Cards	✘	✘	✘	✘	✘
LCD screen for previews (Y/N)	✘	✘	✘	✘	✘
Special Control Buttons	✘	✘	✔	✔	✘
Status of Ink Tanks Through Driver	✔	✔	✔	✔	✔
Accessories					
Data/Power Cables (Y/Y)	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔
Manuals/Setup Guide/Drivers	✔/✔/✔	✔/✔/✔	✔/✔/✔	✔/✔/✔	✔/✔/✔
Ease of Use of Drivers (So10)	6.5	7.5	8.5	8.5	6.5
Usability of Bundled Application(s) (So10)	4.5	5	5.5	5.5	5
Type of Cartridges	Individual tank	4 Individual tanks	2 Individual tanks	2 Individual tanks	4 Individual tanks
Weight (kg)	3	4	2.5	3.5	4.6Kg
Dimensions (mm) (H x W x D)	165 x 435 x 253	195 x 447 x 240	140 x 467 x 415	169 x 459 x 220	147 x 437 x 300
Build Quality					
Movable Parts: Trays, Sliders, etc (So10)	6	7.5	6.5	7.75	6.5
Movable Parts in the Cartridge Bay (So10)	6.5	7.5	6.5	7.5	6.5
Performance (Out of 55)*	43.75	36.14	40.84	46.64	46.2
Speed Tests (Seconds)					
Text print (B&W mode) (Normal/Best)	8.03/8.93	9.31/29.48	12.18/18.64	8.62/17	10.89/16.21
Combi Document (Normal/Best)	33/118.98	121.68/243.89	64/137.78	36.03/96.1	27.22/92.87
Photo Printout (Best)	212.2	268.53	85.1	205.23	161.73
Image Quality Tests (So10)					
Image Quality (Black Only Text Document, Draft)					
Text Quality/Aliasing	6/6	2.5/4.5	7/7	7.25/7.5	6/6.5
Image Quality (Black Only Text Document, High)					
Text Quality	6/6	4/4	6.75/6.5	8/8	7.5/7.5
Image Quality (Combi Document, Normal)					
Colour Saturation / Highlights On Fruit	6/6.5	5.5/6	6/6.5	7/7	7/6.75
Shade Gradations/Line Aliasing	6.5/5.5	6.6/5.5	6/6.5	6.75/7	7/6
Quality of Photograph	5.5	6.5	5.75	6	6
Text readability (Point 2/Point 3)	7/7	6.5/7	6/6.5	7.5/7.5	7.75/7.5
Yellow text on black background	7.5	6	6	6	8
Image Quality (Combi Document, Best)					
Colour Saturation / Highlights On Fruit	6.5/5	6.25/6	6.25/6.5	7/8.25	7/6
Shade Gradations/Line Aliasing	6.5/6.25	7/7.25	7/6.5	7.75/7	7.25/7
Quality of Photograph	7.25	7	6.5	7	7.25
Text readability (Point 2/Point 3)	7/8	7/8	6.5/7.75	7.25/8	7.5/8
Yellow text on black background	8	7	6.25	7	8.25
Photo Image Quality (So10)					
General Colour Reproduction	6.5	5.5	6.5	7.5	6.75
Fine Details / Specular Highlights/ Contrast	7/7.5/7	6/7.5/7.25	6.5/7.5/7.25	8/8/8	7/7.75/7.5
Reproduction of Textures	7.25	6	6.25	7.5	7.5
Facial Features &Texture	5.5	5	6	7	6.25
Price Index (Out of 15)*	10.33	9.60	13.75	10.32	9.28
TOTAL (Out of 100)	66.18	60.28	70.43	75.92	71.1
Price (Rs)	3995	4299	2999	3999	6495
Price of Cartridges (Rs)	1125 + 1145	460 x 4 (CMYK)	702 + 810	781 + 900	130 + 945 + 825x3
Warranty Period	1	2	1	1	1
Number of service centres in India	130	221	342	342	130

* Price index Out of 10 for high-end and Performance Out of 60

	Canon	Epson	HP	HP	Canon
+	Speedy, good performance throughout	Elegant looks	Excellent value, good results	Excellent value, Very good results	Quality Results
-	Pricey for the features	Performance, Price	None in particular	None in particular	Expensive

Photo Printers

	Canon	Epson
	Pixma iP5300	**Stylus Photo R390**
	16.98	24.72
	Thermal	Piezoelectric
	9600 X 2400	5760 X1440
	USB	USB
	128	64
	100/50	NA
	✔	✔
	✔	✔
	✔	✔
	✘	✔/ SD, xD, MS Pro, CF
	✘	✔
	✘	✔
	✔	✔
	✔/✔	✔/✔
	✔/✔/✔	✔/✔/✔
	6.5	8
	5.5	8
	5 Individual tanks	6 Individual tanks
	6.8	6.9
	160 x 444 x 303	285 x 452 x 538
	7.25	7
	7	7.25
	52.9	48.3
	4.39/6.17	6.9/20.93
	18.76/45.64	27/60.2
	155.8	66.2
	6/7	2.5/5
	8.25/8	6.5/5
	7.25/7	7/5
	7.25/7	6.5/6.75
	6.25	7.25
	8/8.25	7/7
	8.25	6.5
	7.5/6.25	7.25/6
	7.5/7	7.5/7
	7.75	8.25
	7.75/8.25	7.25/8
	9	7
	7.25	7.75
	8/8/8.25	7.5/8/8
	7.75	7
	8	8.25
	4.62	4.00
	74.5	77.03
	12995	15000
	130 + 945 + 825x4	850x6
	1	1
	130	221
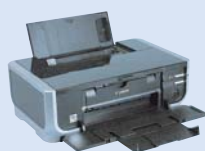
+ Brilliant photo quality, features
- Expensive

+ Excellent photo prints, fast, good bundle
- Expensive

Sugar And Flour—What's The Difference?

We've tested inkjet printers, and we've even told you about the kind of paper you should be using. Well, here's some information about the magical fluid that squirts from those tiny little nozzles!

Inks are of two types, Dye-based and Pigment based. The major difference between the two is the fact that dye-based inks are water-soluble, whereas pigment inks are non-water-soluble. Here the dye or pigment (as the case may be) is the colour component in the mixture with water. Water is, of course, the carrier of the colour that is either dissolved (dye) or suspended (pigment) in it.

Dye-based Inks

Think of a dye-based ink as a solution of sugar dissolved in water. Because there is no suspension involved, dye-based inks flow better, and are less likely to clog the minute nozzles on an inkjet printer. Because of their water solubility, any printout that has used dye-based inks will be more susceptible to damage when exposed to moisture. Another shortcoming of dye-based inks is their susceptibility to fading. Not only fade but also colour-shift, as we've noticed in some cases.

Dye-based inks work well on glossy paper, which doesn't completely absorb all the ink inside the paper, rather allowing some of it to actually dry on the surface—which is why the best photo results with dye-based inks are with glossy paper.

Pigment-based inks

In contrast to dye-based inks, pigment-based inks can be compared to a flour-in-water mixture. The flour doesn't dissolve; rather, it forms a suspension, also thickening the water slightly in the process. Due to this, pigment inks are thicker, and also tend to clog a printer's inkjet nozzles more easily. However, modern pigment-based inks have remedied this situation to a large extent, but the problem is of an inherent nature and therefore cannot be done away with entirely.

Pigmented inks also fade slower, owing to their larger molecular structure, and therefore ultimately thicker coating on the paper. Due to the fact that the pigment isn't water soluble, they are also water-resistant, though not completely waterproof. On exposure to water, 5 ~ 10 per cent of the colours may run, which is significantly lower than the damage that would be caused in a similar situation with a dye-based ink.

There are disadvantages to pigment-based inks as well. They're costlier than dye inks. Also, dye inks give much better colours, and much sharper, more vivid printouts. This is the reason why most manufacturers use pigment inks in their black cartridges, but prefer to use dye inks in their colour cartridges. Incidentally, there is a lot of research on to produce cheaper hybrid inks, which will have the benefits of both ink types.

HP Deskjet D2360

Quality on a budget

HP's D2360 is a compact-looking printer sporting a shiny pure-white top combined with a matte-finished grey body. Needless to say, it'll draw looks atop any desk. Build quality is good per se, though the D2360 does exude that built-to-a-budget feel.

As with most HP printers, the input tray doubles as the output tray—a neat design. Ergonomics is a sore spot—you need to lift the top cover to open the input/output tray. Another sore point is the bulky power adapter that HP supplies—all the other non-HP printers had power adapters built in.

One word that describes HP's driver interface? Excellent! The settings are very transparent, and virtually all the adjustments can be done from a single page. As with the D4168, you can create multiple profiles for each type of print job—monochrome, text/image, photo printing, and more.

HP doesn't use individual ink cartridges, and makes do with the regular two tanks. While not so noticeable on this printer, its bigger sibling—the D4168 demonstrates how individual tanks aren't always necessary for good photograph printing.

Surprisingly, the D2360 has some issues with text printing. Some aliasing was noticeable, and the smaller fonts weren't as well defined as we'd have liked on paper.

While miles ahead of Epson's C79 and inches ahead of the Canon iP1700, the D2360 does have something to boast about. If only we'd tested it before we did the D4168, we'd have been happier too!
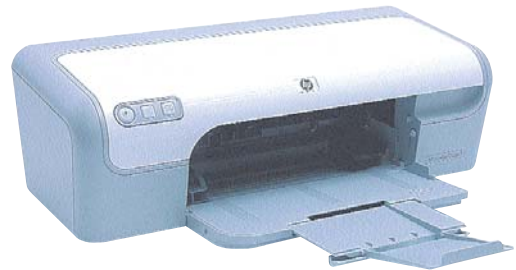
The combination test was a close affair, especially at lower settings. Once you set your printer to guzzle ink (the higher settings), both the Canon iP1700 and Epson's C79 leave the D2360 coughing in their dust trails. The D2360 does score in the highlighting-on-the-fruit department, something both Epson and Canon miss out on.

Our test photo saw very decent colour reproduction on the whole. Specular highlights, once unheard of on inkjets, is now very much a reality, and HP doesn't miss out here.

While the D2360 languishes in the shadow of its more expensive sibling, it makes for an attractive alternative for home use.

At just Rs 2,999, it does put the competition to shame. ∎

michael_browne@thinkdigit.com

Contact Sheet — Inkjet Printers

Brand	Company	Phone	E-mail
Canon	Canon India Pvt Ltd	1800-345-33-66	info@canon.co.in
Epson	Epson India Pvt Ltd	1800 425 0011	murthy@eid.epson.co.in
HP	HP India Pvt Ltd	124 - 2566 111	vibhor.bansal@hp.com

Adoption Of Vista: Now Or Later?

Is it a feasible option—and for whom does it work best?

In the near future, they will all have to use Vista

Macawber Beekay Pvt Ltd are experts in pneumatic conveying. Combining the need of environmental pollution control with energy conservation, Macawber Beekay's unique Dense Phase Pneumatic Conveying systems offer solutions to the bulk material handling problems of core sectors—power, cement, steel, chemicals, and more.

"We've deployed Windows Vista on 30 computers at present for our designing operations; the rest of the systems run XP Professional. Sooner or later we would have to deploy Vista, so why not now? Early deployment would help our workforce get accustomed to working with Vista.

"Windows Vista has a number of positive aspects. Better connectivity and security options are a couple

> Going by our working experience with Vista, it has an excellent GUI, and improved connectivity and security features

Gautam Gupta
Executive Director
Macawber Beekay Pvt Ltd

of reasons for its early deployment. We use licensed applications such as the Microsoft Office suite for our daily operations. As a result, we never face any compatibility issues.

"According to the information we have, Vista-ready versions, support, and drivers for software applications and hardware will be soon rolled out to complement Vista. We are aware of the issues and bugs being discovered, but we have not had any problems at our end. Since Vista is in its nascent stage after the recent release, Microsoft will get it fixed and provide solutions.

"Going by our working experience with Vista, it has an excellent GUI, and improved connectivity and security features. The outcome of the last 45 to 50 days has been stable with our operations and work processes. However, it is too early now to comment upon its overall stability and performance. Our employees have given positive feedback of their experience.

"We recommend migrating to Windows Vista to other business undertaking because of the GUI, security features, and several other features—drive encryption is one of them. In the near future, they will all have to use Vista. Besides that, the use of original and licensed applications is advised with Vista, since drivers and support for third-party applications is yet to be provided."

Certain software are not yet Vista-compatible

TCE Consulting operates mainly in the Power and Infrastructure sector. In the Power sector, they offer services and products for Thermal, Combined Cycle, Hydro, Diesel Generators, and Transmission & Distribution. In the Infrastructure domain, they offer services for urban and rural development, roads and bridges, water supply, waste water, IT Parks, hotels, and more.

"We still are using earlier versions of Windows such as XP, 2000, and even Windows 98 for our designing, accounting, and other computational purposes. Those systems are currently serving our needs.

"For designing purposes, 70 per cent of our systems are used for basic-level designing purposes, which can be done with low-end systems as well. The rest of the

> Compatibility issues and the cost of migration to Vista-supported hardware are the prime reasons why we want to wait

Aneesh Joseph
Officer, Systems
TEC Consulting Engineers Ltd

systems are used for high-end designing.

"We are aware of Vista's launch and we did install an original copy on one of our systems for testing purposes. We found that certain applications such as design applications and accounting software are not yet compatible with Vista.

"The majority of designing applications and software packages like AutoCAD, STAD Pro, and PDMS are functional on XP, but support on Vista is not available. Also, Vista did not support certain anti-virus software packages and a few of our in-house design applications.

"Secondly, the hardware in the systems we use ranges from Pentium III to Pentium IV for normal systems and the workstations. If we shift to Vista, we will have the cost of hardware migration like adding graphic cards and RAM.

"Compatibility issues and the cost of migration to Vista-supported hardware are the prime reasons why we want to wait for at least the next eight to 12 months.

"Migrating to Vista is not recommendable at this point of time. The lack of Vista-ready versions of applications, adequate support for those, and the likely heavy cost of migration are the prevailing issues. Deploying Vista at this stage might disrupt current projects and activities."

As told to Samir Makwana
(samir_makwana@thinkdigit.com)

THE LITTLE
Server That Could

Thanks to virtualisation, a single server can manage a lot— including saving money and managing resources better

3D Modelling **Shrikrishna Patkar**

Nimish Chandiramani

In an ideal world, you'd invest in one server for each function in your office—one file server, one domain controller, one proxy server, and so on. All are isolated, so changes in one won't affect the others, and if one crashes, the rest remain unharmed. This is all nice, but did you know that even a Pentium II running on Linux (or a Pentium III running Windows Server 2003) can act as a file server for a hundred-odd people? Even entry-level servers have much more power; imagine the processing power you waste if you buy one dedicated server for each function!

The best way to put all this unused power to use is *server virtualisation*. Despite it being around for ages, very few people are even aware of the concept; however, it's been gathering momentum over the past couple of years.

What It Is

It's a broad term and is used in many contexts, but the simplest explanation is that virtualisation splits a single server into many "virtual" servers, each running a different operating system. For example, a dual-core processor-based server can be virtualised to behave like two single core-based servers, and so on. If you run your file server on one, you've got plenty of processing power to run your proxy server on the other. It is estimated that it will take eight such virtual servers to bring CPU utilisation up to 50 per cent at full load, as opposed to the paltry 5 for just one OS. And since you paid good money for that CPU, you might as well utilise it properly.
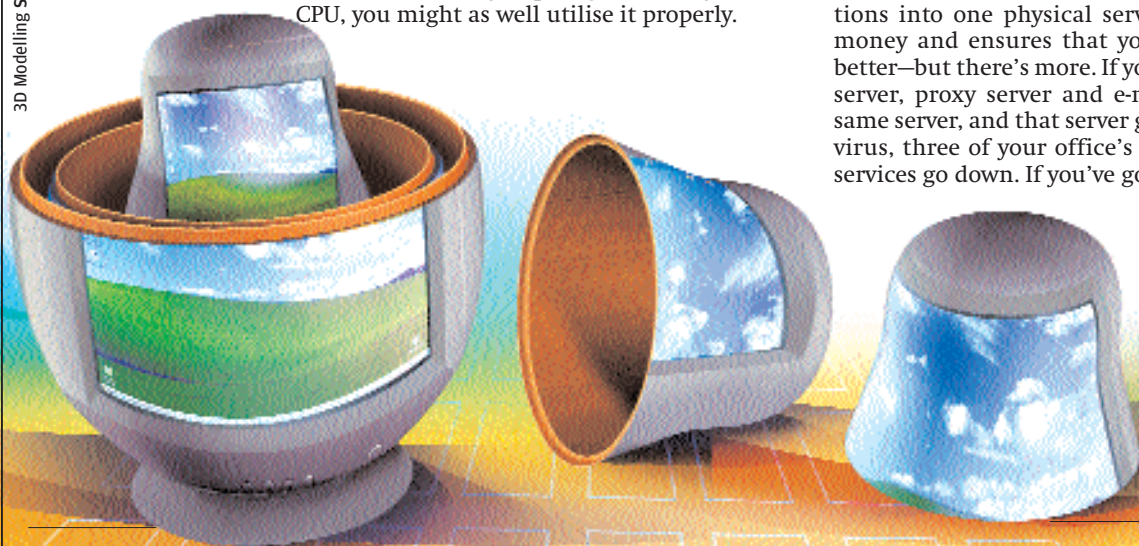
How It Works

When you install a single OS, it talks directly to the hardware. Any application that needs to perform a system task—writing to the hard disk, for example—needs to do so through the OS. If many applications need access to the hardware, the OS lets them have it on something of a "time-share" basis. With virtualisation, this concept goes one step ahead. Instead of the OS, you now have a *hypervisor* or Virtual Machine Monitor (VMM) running directly on the hardware, and the operating system runs on top of the hypervisor. Another way virtualisation is implemented is with the hypervisor running within a "host" operating system, and the remaining "guest" operating systems running on that hypervisor. In the first case, one layer of code has been added between applications in guest operating systems and the hardware; in the second, two.

Of course, you're probably appalled at the performance hit this represents. It's been estimated that for every layer of code between an application and the hardware, performance drops by a factor of ten. Virtualisation software developers have been battling this problem for a long time—at the stage they've reached today, the performance hit is a fair price when you consider the bigger picture (which we'll come to in a bit). Intel and AMD have started supporting virtualisation on their new server processors, so we should see better performance from virtualised servers in the future.

Why Do I Care?

The first advantage of virtualisation, as mentioned before, is the consolidation of many functions into one physical server. This saves you money and ensures that your CPU is utilised better—but there's more. If you're running a file server, proxy server and e-mail server on the same server, and that server gets infected with a virus, three of your office's most important IT services go down. If you've got each service run-

ning on its own virtual server, only one of these will get infected with the virus, enabling you to quickly isolate it from the network and troubleshoot—all this while the remaining two continue to function properly. Even a crash only affects the individual virtual server, leaving the rest unharmed.

Virtual servers also come in handy when you want to test the effect of installing a new program or update on the server—just make a clone of the virtual server, install whatever you want to, and test. Once you're satisfied with the results, you can move everyone seamlessly to the new virtual server with no downtimes at all. If you're used to coming to work on the weekend to upgrade your server or shift services to a different physical machine, fret no more—virtual machines can be moved to new physical locations without ever going offline.

The Providers
In the beginning, there was only VMWare, but now you'll find a lot of software vendors offering virtualisation solutions for businesses of all sizes.

Microsoft Virtual PC and Virtual Server
Available as free downloads, both Virtual PC and Virtual Server support the virtualisation of Windows operating systems; the former is aimed at the home tinkerer, and the latter at servers. One of the advantages they're touting is the ability to run legacy applications (Windows 98-based and older) while still enjoying the benefits of Windows XP.

If you're using software that isn't supported under XP, you can create a virtual PC with Windows 98 to run it while you wait for a compatible version. Virtual PC is ideal for SoHo environments—it's very user-friendly and supports all Windows workstation operating systems, as well as DOS and OS/2.

If you need to run Windows Server 2003, though, Virtual Server is the one you want. It supports Windows 2000 Server and Server 2003, in addition to those supported by Virtual PC. You can also run Red Hat and SuSE Linux by downloading the Virtual Machine Additions for Linux.

XenSource
This open-source virtualisation solution has been making quite a few headlines recently, especially when Microsoft announced that they will be working with the developers to support Linux on Virtual Server. It runs directly on the hardware, and requires that any guest OS be modified to run on it—something that prevented it from running Windows till hardware supported virtualisation came along.

Xen comes in three flavours—the free Xen Express, which comes with no support, and can host only four virtual machines—ideal for small organisations. If you want to run Windows virtual servers, you'll have to invest in Xen Server for $99 per year—not that Xen Express doesn't support Windows, mind you. However, this is possible only with processors that have hardware-supported virtualisation—

When you're creating virtual servers, make sure your peak CPU usage doesn't cross 50 per cent

the AM2 platform processors from AMD and the Pentium D, Core Duo, and Core 2 Duo series from Intel, for example. You'll find the full list at **http://wiki.xensource.com/xenwiki/HVM_Compatible_Processors**.

Setting up Xen is quite a task; you'll have to install it on the server, and then use a client PC to administer it (using the Java-based control panel) and install more operating systems. However, since the guest operating systems will run closer to the hardware, performance is significantly better, and makes it worth the effort.

VMWare
The leader in the virtualisation market, VMWare offers a slew of products for all sorts of environments and tasks. VMWare Server is now free, in response to Microsoft Virtual Server going free, and offers a lot more features—you can run any Linux distribution under it, for example.

You can also use it to test applications inside virtual machines before you finally decide whether or not to install them on your primary OS.

VirtualCenter for VMWare Server lets you administer VMWare servers from a central location. VMotion, bundled with VirtualCenter, lets you shift virtual servers to different physical servers without any downtime.

Overall, though, most of VMWare's products are targeted at much bigger enterprises and datacentres.

Virtual Iron
Proudly taking on VMWare with its "Free Enterprise-class Virtualisation" is Virtual Iron, another newcomer with a lot of promise. Virtual Iron is based on the XenSource engine, but doesn't require guest operating systems to be modified, nor does it require a processor supporting hardware virtualisation. It's also easier to use than Xen, and shows a lot of promise at this stage. You can try it out yourself from our March 2007 DVD.

Finally...
Before you run out and start making virtual servers, you'll need to look at the license agreements for the software you use. Microsoft recognises virtual installations of their operating systems as new installations, so you'll have to pay for each copy of Windows XP or Server 2003 that you run on a virtual machine. Most software companies do the same, so be sure to get all your licensing doubts cleared before you go ahead. With Linux, of course, none of these problems arise.

When you're creating virtual servers, make sure your peak CPU usage doesn't cross 50 per cent—it's an accepted ceiling to ensure a balance between proper resource utilisation and system stability. In addition, make sure you create virtual servers only for services that don't require too much processing power—those are best left to their own servers. Now you can stop payment on that cheque for the new server. ∎

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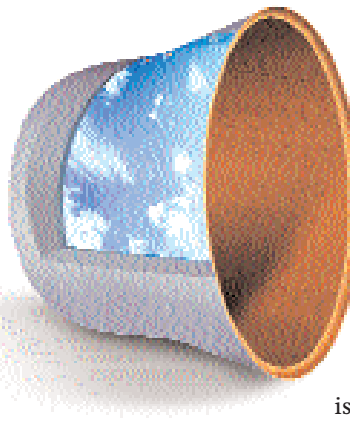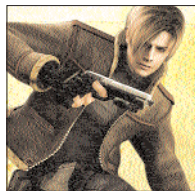
Lead Feature

Addicted To Love...

...of the game, that is. Here are 10 games that are addictive enough for you to feign headaches!

Mayur Bhatia

They may not look beautiful with features like HDR lightning or 16x FSAA, they may not have great storylines, and they may not have anything you are aware of that makes they stand out from anything else. Hell, they could be just average games you probably haven't even heard of. But they've got *something,* and they'll keep you trapped inside their world like a fish in a barrel. This trait is probably what every game must have; this trait is what no game should ever compromise on—addiction, pure and simple.

Haunting the back of your mind all the while and making it increasingly difficult for you to concentrate on anything else, you desperately will be waiting for your next 'fix'. In this article, we have compiled the list of the ten most addictive games we have come across. No reasons to fret here if you hate shareware or have a box from the Stone Age— all these games are free and should run on most PCs out there, and you'll find most of them on our Jan 07's CD and DVD. That said, let's get started on the countdown.

Illustration **Chaitanya Surpur**
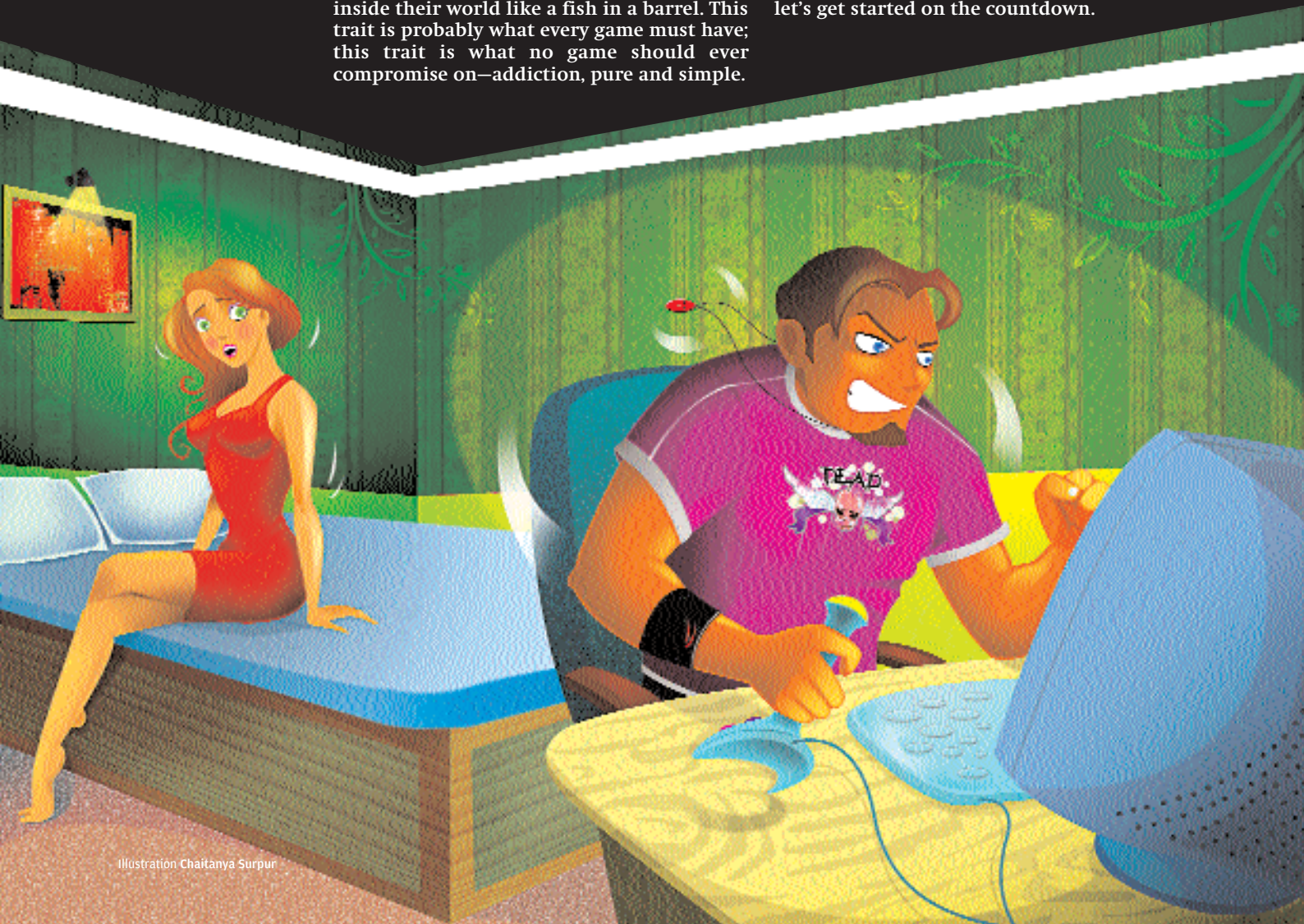
10 LASERAGE GOLD

What It Is

This game is simple. No story... literally! No complicated controls, no complicated options, no nothing. Just start the game and get straight to business. The objective is to guide your ship to dodge and destroy waves of enemy ships with differing weapons and AI on the top of the screen. As you destroy waves after waves while not dying, you will encounter the final boss of that tier who will be much more difficult to deal with. The game becomes more difficult as you keep playing—the enemy ships become harder to dodge. The controls are rather simplistic—just the mouse movement and the good old left-click can control the entire game.

Why It's Addictive

Laserage Gold has absolutely nothing other than raw addictiveness to stand up for it. The controls are simple; the power-ups that spawn as you battle through your enemies keep things a bit interesting. But the game has a kind of tendency to train your reflexes to a point that you click restart every time you die, without even thinking about it. The high score feature adds to the motivation of playing the game; you will be constantly hungering to beat your last high score. *Laserage* doesn't have much, and has plenty at the same time; you will be getting yourself a 'fix' of it every single day.
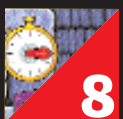
8 ICY TOWER

What It Is

It seems the developers thought, "Guess we better add a story?" and just slapped one into the readme. Icy Tower's story is rather simplistic—one day, Harold had nothing else to do when he came across a huge tower after which he thought "Ey, I bet a homie like me can do some mighty cool jumps and moves in here". And so it goes—you have to help Harold make the highest and coolest jumps in history.

You choose from up to 3 players to play in the game. It's a 2D game which consists of you trying to jump up levels of icy floors, the screen will scroll up faster as you go to the higher levels, you die if your character disappears below the screen as it scrolls up, or if you fall down, so make sure to keep jumping up without looking back...er...down.

Why It's Addictive

If you are thinking, 'What's so addictive about jumping up platforms?', then you really need to get a taste of the game to find out. Icy Tower requires a decent amount of skill to get a good score. There's more than just jumping up platforms. There are tricks to make higher jumps, your character accelerates as it moves further and makes higher jumps. You can make combo jumps, or have your character bounce off the walls to get to a difficult to reach platform, or jump only on special platforms (we'll leave it to you to find out what they are like) to make sure you rake up the points.

You will find yourself hooked on boosting your overall score, or finding different ways to perform jumps. If that's not enough, there's also the ability to save your replay and upload it to the main Web site to give you your fifteen minutes of fame.

9 BIKEZ II

What It Is

In *Bikez II*, you are a mercenary biker in the future; the state of the city is bleak with gang wars erupting everywhere. Enter Bikez, the local criminal faction that has just signed a contract with you to complete missions for them, which become increasingly difficult over time. And of course the missions don't include babysitting or bringing vegetables for them—it's about a whole lot of action, killing, guns and blood.

You can satisfy your destructive desires with the weapon attachments on your bike. The world is fairly big for a freeware game, and there are outlets where you can customise your weapons—including things like homing bullets and an increased rate of fire. Of course, customisations require precious moolah, which you can earn by completing the missions thrown at you.

Why It's Addictive

There's already a shortage of Bike games in the market; couple that with something like *Carmageddon* on a bike, and you have a game you will not want to let go of. The hunger of firing a weapon at its maximum rate of fire drives you to complete missions for the money to buy them. However, that's not the only way to earn money—if your bike is too damaged to complete a mission, you can always run over innocent citizens to generate money, repair your bike and go on to the missions. And for bullet time lovers, there's also a slow motion key to drool over the carnage you dish out. *Bikez II* is sure to keep you hooked for hours completing one mission after another, you will forget what the words 'quit' or 'exit' mean.

ICE WARS

7
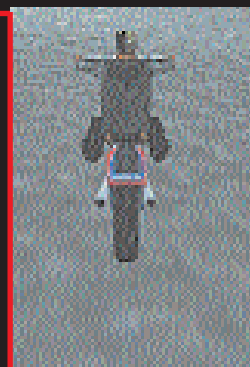
What It Is

Ice Wars looks like a side scrolling action game at first glance. However, it's a lot different from being an action game. Set somewhere in the Arctic Circle, *Ice Wars* is a turn based strategy game where your goal is to eliminate all players of the opposing team using a large variety of weapons. The game's setting reminds you of *Worms Armageddon*, but there's the added feature of letting you choose your players from 3 different classes, each with its own strengths and attack stats along with special attacks. As you play the game, you will realise it's a lot more than just aim, shoot and end turn. You will often end up stuck deciding on what weapon to choose for maximum damage. Even the maps are strategically designed; everything you read in Sun Tzu's *Art of War* will come into play when playing this.

Why It's Addictive

A single game of *Ice Wars* could stretch for up to an hour. The number of ways to take out your enemies is tremendous, with the huge array of weapons at your disposal. You are limited to the amount of moves you make in a single turn, requiring you to carefully calculate your moves before making them. Adding to the fun is the fact that you can play multiplayer with your friends with game modes like Last Man Standing and Capture The Flag. The replay feature is something you will often find yourself using after you have just whacked four enemies with a single shot. For this game to truly shine it has to be played in multiplayer, and believe us when we tell you that you will never go back to chess after this!

COUNTER-STRIKE 2D

6

What It Is

Counter-Strike (CS), originally nothing more than a mod for the legendary *Half-Life*, is still the most played multiplayer game, even now—almost ten years after the game was released. If your PC is something that would soon make its way into a museum showcase, or if you still can't convince your dad to shell out around Rs 1,000 for a computer game, there's an answer for you—*Counter-Strike 2D*. Almost everything in the game is the same as *Counter-Strike*, except for one major change—it's 2D. You have a top view of your player and control him along the map.

You can play as terrorists or counter-terrorists, and your objective is either to plant the bomb as the terrorists or to defuse it as the counter-terrorists. You can also have different objectives like rescuing hostages.

Why It's Addictive

Counter-Strike 2D is a mini-*CS* at heart, and shares its big brother's addictiveness.

Though it's primarily a multiplayer game, you can also play with bots. In multiplayer, the game truly shines; you can play with teams on the same maps for *CS*, including de_aztec, de_dust, etc., except in 2D action. The large amount of maps included with *CS2D* adds to the replay value of the game. Not enough? Well, there's also the fact that there's a simple to use map editor included within the game itself to keep you busy for quite a few hours. Even heavy console and cfg-tweakers (that's configuration file tweakers) will be satisfied with the vast amount of commands and variables offered with this game, most of which are similar to the original *Counter-Strike*. Well, actually we could have probably just written the review in a few words: it's 2D, but it's still CS!

5. WORMINATOR

5

What It Is

Like the name suggests, the story of *Worminator* is similar to the ever-popular *Terminator*. However, instead of the good of worm-kind, you fight for the Worminators, who are fighting a losing battle against the rebels led by Wrom Conner. You are a prototype Worm-borg, just created at one of the factories controlled by Dirtnet, the leader of Worminators. No one knows exactly who, or what Dirtnet is. You must escape the factory surrounded by the Worman rebels; you are now the Worminators' last hope.
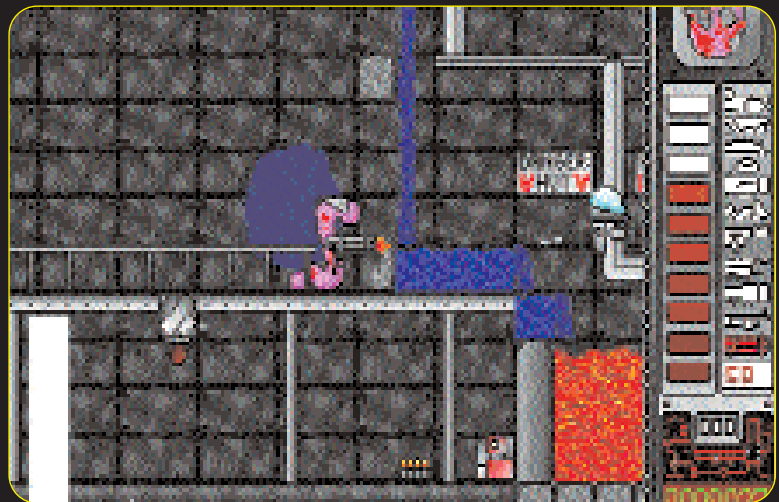
The story is unique and funny to the core, but that's not all. *Worminator* is a side scrolling action game that allows you to choose from up to 12 unique weapons, and 12 kinds of enemies to test them out on. There are also small nifty features like your character changing its appearance as it takes damage *(a la Wolf 3D)* and skin support for the interface.

Why It's Addictive

Like RPGs, side-scrolling games never fail to grab our undivided attention and *Worminator* does so perfectly. The main campaign itself is lengthy and tough enough to keep you occupied for days. Even if you do manage to finish it, you will want to play it again and again. If you do get bored, which is rare, you can always make your own levels with the integrated editor. The 12 weapons, including the BFG (yup! ou heard us), keep your experience fresh and varied. This is one of the few games which will keep you addicted despite lacking a multiplayer mode.

BLAST DOORS

4
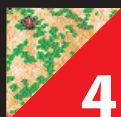
What It Is

Blast Doors doesn't have a great storyline; at best, it's clichéd. Set in the 21st century, nations are thrown into a chaotic war for depleting resources. Enter Militech, a company touting the motto "Bigger guns for a brighter future", selling weapons to the highest bidders. Now if you have a problem with some other country, use Militech's weapons and wipe them off the world map. Who says wars cannot bring peace and that treaties help settle matters?

The game itself doesn't have anything to do with the story, literally, and it's just slapped in there for the sake of it. The goal of the game is simple—destroy your opponent by firing missiles at them in turns. It's reminiscent of classic cannon games where you set your angle and shoot at your enemy, except in Blast doors the world is shown in 3D and you can also select bearing. Again, the fun here is in the number of players you can play with in a map—up to 8—carnage indeed.

Why It's Addictive

The game isn't just aim-and-shoot—you will be spending the majority of your time choosing weapons, shields and other accessories. Weapons, shields and upgrades are plentiful, and you can even design your own weapons. The more powerful items require more money and prestige, which is your entire reason for getting addicted. You will often find yourself choosing to play 250+ rounds, despite not really wanting to just to see what those elite weapons, that can cost 1000 prestige points, are made up of.

The ability to play with up to 8 players against the computer or your friends over the network adds to the overall fun and addiction the game has to offer. You simply won't get bored of this one. Blast doors will stay etched on your desktop, for a long time.
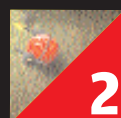
BABO VIOLENT 2

2

What It Is

Babo Violent 2 is an action packed multiplayer game featuring support for up to 32 players, and no, all of 32 players won't be snoozing around trying to shoot slow missiles or spend half an hour camping. It'll be carnage, absolute carnage, with rapid firing machineguns, chain guns, bazookas, dual machine guns, bouncing grenades and Molotov cocktails. You control a ball armed to the teeth from the top view with both your keyboard and mouse simultaneously. As you fire your weapons at your enemies, your player (the ball) will be bounced back because of the recoil thus requiring constant attention to both aim and movement. There's no shortage of maps to play in, either—you can choose up to 13 different maps to frag your opponents to smithereens.

Why It's Addictive

Babo Violent 2 is extremely fast paced, requiring constant attention to control your ball and frag your opponent in style. Imagine 32 players on a single map going crazy bouncing each other all over the map, there won't be any boring games to remember in *Babo Violent 2*. The three modes included with the game make sure you don't get bored playing only one game type—you can add in more variety by playing Free for all, Team Deathmatch or Capture The Flag with your friends. This game is well worth wasting your hours on; just be sure to stay away from it during your exams for the sake of your grades!

LITTLE FIGHTER 2

3

What It Is

You must remember the good old days of *Street Fighter*; how we miss bashing everyone's heads in spamming fireball after fireball with Ryu. This game fulfils all your retro desires, with more spice added to it. A fighting game to the core, it comes with ten different characters, each with their own style of fighting; the game lives up to its name...literally! The fighters are a c t u a l l y smaller than you would expect them to be, but that doesn't deter the amount of fun that *Little Fighter 2* offers.

You have up to 10 different backgrounds to fight in and 5 game modes to choose from including the Versus mode, 1 vs. 1 championship, 2 vs. 2 championship, Battle mode and Stage mode. The Stage mode is something that gives the game a different feel to it, turning it into a side scrolling action game.

That's not all this small game has to offer, there's also the fact that in a single ring, you can have up to 8 different players and divided to up to four teams or independent, this makes it a mustplay for a great multiplayer experience

Why It's Addictive

The option of playing with up to 8 players, is why. There's nothing better than the surge of glory in seeing yourself as the last man standing after a long match. The items that are dropped randomly on the level, like rocks, bottles, boomerangs etc in the middle of a fight to pick up and throw at your enemies, adds to the fun and makes every game unpredictable thus the amount of repetitiveness is extremely low and the addictiveness bar is high. Oh and just in case you forget—the key to exiting the game is [Alt] + [F4], but we don't expect you to remember that anyway, especially when you are in the middle of a fight at 4 AM.

1. DINK SMALLWOOD

What It Is

You are Dink Smallwood, just another simpleton in a small village and performing simple chores like tending to your pig farm and helping out the village folk doing petty chores. However things change fast, as once, when coming back from your chores, you find out that your house is burnt and your mother is no longer in this world. After the grievous incident, you venture farther from the village and encounter a horde of adventures while becoming famous along the way, going on from being a no name pig farmer to the saviour of the world and whatnot. The story seems to be something straight out of a classic fantasy book, complete with kings, castles, goblins, demons, flying dragons and tiny magicians wearing pointed hats to complete the recipe.

Played in an RPG setting, as you interact with characters in the game and complete quests, you gain experience and upgrade potions for attack, defence, and magic...and of course, the usual inventory where you can equip yourself with swords, bows, bombs, potions and spells to help you stand up against your bloodthirsty enemies. Even the music is nostalgic, reminding you what it was like gaming in the old times, and of course, the cheesy humour to go along with it to constantly remind you that it's a game you are playing after all.

Why It's Addictive

RPG games are notoriously known for their effectiveness for pulling the players inside their world. *Dink Smallwood* is no exception to this rule and does this rather well, you will be craving for the next quest or to see the area which you can't explore yet or can't wait to interact with the next merchant offering newer items (Vorpal sword with an attack rating of 835692 anyone?). Looking for secret areas alone, will take a huge chunk of your time, but in the end, it's all worth it. While the amount of inventory items is not particularly high, they are rare, which gives you that satisfying feeling of accomplishment when you finally get one. Even the enemies get crazily tough as you progress, forcing you to spend a good amount of time towards upgrading your abilities before engaging them.

The main story is rather long, keeping you hooked on it as you are constantly kept wondering "What's next?" The world's size is rather big, the map you acquire later in the game doesn't do justice to the area, and it brings out the true definition of small-scale maps. You will constantly want to finish off all quests in the current area possible to advance to the next. Even if you complete the main story and are left hungry thereafter, you can always download add-ons free from the developer's Web site, or make your own maps with the included editor. This small 16 MB game will keep you busy for days while you are cut off from the rest of the world.

Final words

As you may already have seen from the list, a game needn't have DirectX 10 graphics or a Havok 2 physics engine, or make a dent of Rs 1,000 in your wallet to be fun. Games, at the end of the day, are just games, and even ones with mediocre graphics will grab your attention with superior gameplay, compared to something that will run on a box only Russian Czars and BIll Gates' relatives could afford, but fail to grab your interest because of boring gameplay! □

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E! @ your Fingertips

TV on your PC is an excellent proposition, and the contemporary TV-Tuners handle the task very well indeed

Jayesh Limaye

More and more people are viewing the PC as a source of entertainment. The television remains the major home entertainer, but for many PC users, nothing beats the convenience of TV right on the PC.

After a hiatus of two long years, we bring to you this, our fresh shootout of TV-Tuners available in India. We take a look at tuners of all shapes and kinds, and will help you decide what suits you best. If you haven't thought about TV on the PC, trust us, once you've tried it, you will not be able to live without it!

There are quite a few players in this category—veterans such as AVerMedia, Compro, PixelView, and Pinnacle, as also new players such as Hauppauge, Leadtek WinFast, and Tech-Com. Of the 25 TV Tuners that arrived at our Test Centre, there were 12 PCI TV-Tuners, nine external USB ones, and four set-top TV-Tuners. We assure you these are the choicest solutions available in India!

INTERNAL TV-TUNERS
The most popular and the oldest kind of TV-Tuners are those that fit inside the PC cabinet—the internal TV-Tuner. These cards fit in a free PCI (or in some cases, PCI-E or AGP) slot of the motherboard. These are the most inexpensive, and are generally richer in features.

Features
The Chipset
The chipset around which a TV-Tuner is built is a basic thing that anyone should note before venturing to purchase it. The chipset determines the absolute highest quality that a TV-Tuner card can deliver. The ageing yet reliable Philips chipset is one of the most popular amongst manufacturers; this is because of its splendid performance thanks to its 9-bit ADC (Analogue to Digital Converter) and its amazingly low price. But there are differences to note here: the Philips SAA713x series can only deliver mono TV sound, while the rest are capable of stereo. The AVerMedia AVerTV Go 007 FM Plus, Compro VideoMate TV Gold+II, and Pinnacle have such chips.

Then there are 10-bit ADC chips from Conexant (the CX2388x series) which also deliver excellent video quality, albeit at a much higher price. Hauppauge, Leadtek Winfast, and PixelView sport such chips, and are all stereo TV sound capable, including the PixelView PlayTV Pro 2, which has the older Conexant Fusion 878A chip.

Hardware MPEG-2 encoding offloads the CPU from the task of MPEG-2 encoding. This is not of much relevance these days, though, because computers have ample horsepower at their disposal. The Leadtek WinFast PVR2000 is the only one that has a Conexant MPEG-2 encoder chip.

FM Radio
All the cards had FM radio, except for the Pinnacle PCTV Stereo and Tech-Com SSD-TV-670. FM Radio is not an expensive implementation, and is a great value-add.

I/O Ports
All the cards have S-Video inputs, while all but the Pinnacle PCTV Pro PCI and PCTV PCI do not have composite inputs. Connect your old camcorder or a VCP to these inputs and you can capture and convert old analogue memories from tapes to digital format on your hard drive—a reason strong enough for some people to buy a TV-Tuner.

The Remote Control
All the TV-Tuners came with remotes. Remote controls come in all shapes and sizes, some as large as police batons (the PixelView PlayTV P3000), while some were card-remotes that will fit in your palm.

Unlike the last time we tested TV-Tuners this time round, the remotes presented better features such as recording and timeshift along with media player controls. Only the Tech-Com SSD-TV-670 has a remote without timeshift.

How We Tested
The test bench comprised an AMD Athlon64 3800+ processor on an MSI RS480M2 motherboard with 1 GB of Corsair DDR RAM running at 400 MHz and a 250 GB 7200 rpm Seagate Barracuda SATA II hard drive. The video card was a GeForce 6600, and the sound card was a Creative SoundBlaster Audigy 2 Platinum. Windows XP SP2 along with the latest versions of all necessary drivers as well as DirectX was installed on the testbed.

We created a System Restore Point, which would serve as a reference point to which we would restore the system after testing each TV-Tuner. This is done in order to avoid possible driver conflict issues: many TV-Tuners that featured the same chip had drivers that consisted of similarly-named files, but which differed in the version number.

We noted the various features of the TV-Tuners such as the chip, presence of a hardware encoder, whether FM radio is supported, and whether the sound was stereo or mono. We noted the number of input/output ports. We also rated the bundled accessories such as a remote control and its functionality, cables, and the software package. Where PVR software was provided, its functionality—such as whether timeshifting was available and whether MPEG-1/2/4 capture facility was provided—was noted and rated. Windows XP Media Center Edition compatibility and Vista readiness were also noted.

The ease of installation of each device was noted and rated. In the cable TV channel detection test, we deliberately created a cable TV point with weak signal strength. This was achieved by introducing joints in the cable that caused signal strength drops. The TV viewing utility provided with the TV-Tuner was used for determining the number of channels each TV-Tuner detected. (There were a total of 90 cable channels available) We also noted whether channels required fine-tuning.

After this test was done, we rated the visual quality of the detected TV channels on a scale of 10. This was a subjective test, so we looked for artefacts and anomalies such as the feathering effect.

Other issues such as crashing of applications and drivers were also noted. Finally, the features, performance, and price together determined the final scores, and thus, the winners.

Scoreboard — Internal PCI TV Tuner Cards

BRAND	AVerMedia	Compro	Hauppauge	Leadtek Winfast	Leadtek Winfast
MODEL	AVerTV Go 007 FM Plus	VideoMate TV Gold+II	WinTV PCI-FM	PVR2000	TV2000 XP Global
Features (Out of 45)	**33.61**	**35.21**	**34.56**	**42.45**	**38.76**
Type(Internal/External)	Internal	Internal	Internal	Internal	Internal
FM Radio (✔/✘)	✔	✔	✔	✔	✔
TV Chip	Philips SAA7131HL	Philips SAA7134HL	Conexant CX23881-39	Conexant CX23882-39	Conexant CX23883-39
Hardware Encoder (✔/✘)	✘	✘	✘	✔	✘
Stereo or Mono TV Sound	Stereo	Stereo	Stereo	Stereo	Stereo
TV Standards (NTSC / PAL)	Both	Both	Both	Both	Both
Video I/O Ports					
Coaxial	✔	✔	✔	✔	✔
S-Video	✔	✔	✔	✔	✔
Composite	✔	✔	✔	✔	✔
Remote Control					
Remote Control (✔/✘)	✔	✔	✔	✔	✔
Number of Buttons on Remote	32	35	45	49	49
Recording/Timeshift Using Remote	Both	Both	Both	Both	Both
Other Features	Media Player Control	Media Player Control	Media Player Control	Media Player Control, PIP	Media Player Control, PIP
Connecting Cables (List)	FM Aerial, IR	Audio, Internal Audio, Internal Power, FM Aerial, IR	Audio, FM Aerial, IR	Internal Audio, FM Aerial, IR, AV-In	Internal Audio, FM Aerial, IR, AV-In
Other Accessories	Coaxial Adapter	None	Comp to S-Video Conv.	None	None
Software Bundle (List)	PVR Application	PVR Application, Ulead's PhotoExplorer 8.5 SE, DVD MovieFactory 3 SE, VideoStudio 8 SE DVD	SoftPVR	WinFast PVR, Cyberlink PowerDVD, Orb, Ulead's Cool 3D, DVD MovieFactory 3 SE, VideoStudio 8 SE DVD	WinFast PVR
PVR Features (✔/✘)					
Timeshift	✔	✔	✔	✔	✔
Scheduling	✔	✔	✔	✔	✔
MPEG1	✔	✔	✔	✔	✔
MPEG2	✔	✔	✔	✔	✔
MPEG4	✔	✔	✔	✔	✔
WinXP Media Centre Edition Compatible (✔/✘)	✘	✘	✘	✔	✔
Windows Vista Ready (✔/✘)	✘	✘	✘	✔	✔
Performance (Out of 45)	**33.03**	**35.18**	**34.59**	**35.18**	**35.18**
Ease of Installation/Use (So10)					
Driver	9	9	9	9	9
PVR	8	9	8.5	9	9
Number of TV Channels Detected (Max. 90*)	86	87	85	87	87
Fine Tuning Necessary? (✔/✘)	✔	✔	✔	✔	✔
Visual Quality (So10)	8	9	9	9	9
Price (Rs.)	**2,900**	**3,195**	**2,150**	**5,500**	**2,500**
Price Index (Out of 10)	**2.78**	**2.52**	**3.75**	**1.46**	**3.22**
Final Score (Out of 100)	**69.41**	**72.91**	**72.90**	**79.09**	**77.15**

* This is the total number of
available cable channels
during the test

+ Decent performance
- A bit expensive

+ Excellent video quality & software
- A bit expensive

+ Excellent video quality
- No premium software

+ Excellent video quality & software
- Expensive

+ Excellent video quality
- No premuim software

Cables and Accessories

In addition to FM aerials, IR, and audio cables, there were very few accessories. The Compro VideoMate TV Gold+II comes with an internal audio connector as well as a power cable that goes to the motherboard, so the remote control of this TV-Tuner can be used to switch the PC on or off.

Likewise, cards from Leadtek Winfast and Pinnacle, and the PixelView PlayTV P3000, have internal audio cables. These do away with the jungle of external audio cables.

The AV-in cables that come with the Leadtek Winfast cards present a very good opportunity for people to brush the dust off their old camcorders or VCPs and connect them to these cards.

The Software Bundle and PVR

All the TV Tuners come with PVR software that not only lets you view and record TV programs,

Pinnacle	Pinnacle	Pinnacle	PixelView	PixelView	Tech-Com	Tech-Com
PCTV PCI	**PCTV Pro PCI**	**PCTV Stereo PCI**	**PlayTV P3000**	**PlayTV Pro 2**	**Super TV SSD-TV-670**	**Super TV SSD-TV-670Plus**
34.01	36.98	30.82	32.11	33.56	18.33	28.48
Internal	Internal	Internal	Internal	Internal	Internal	Internal
✔	✔	✗	✔	✔	✗	✔
Philips SAA7131E	Philips SAA7131E	Philips SAA7134HL	Conexant CX23881-19	Conexant Fusion 878A	Philips SAA7130HL	Philips SAA7130HL
✗	✗	✗	✗	✗	✗	✗
Stereo	Stereo	Stereo	Stereo	Stereo	Mono	Mono
Both	Both	Both	Both	Both	Both	Both
✔	✔	✔	✔	✔	✔	✔
✔	✔	✔	✔	✔	✔	✔
✗	✗	✔	✔	✔	✔	✔
✔	✔	✔	✔	✔	✔	✔
41	41	41	46	32	22	23
Both	Both	Both	Both	Both	Recording	Both
Media Player Control	Media Player Control	Media Player Control	Media Player Control	Media Player Control	Media Player Control	Media Player Control
Internal Audio, FM Aerial, IR	Internal Audio, FM Aerial, IR	Internal Audio, COM Port to IR	FM Aerial, IR	Audio, FM Aerial, IR	Audio, FM Aerial, IR	Audio, FM Aerial, IR
Comp to S-Video Conv.	Comp to S-Video Conv.	None	None	None	None	None
Pinnacle PCTV Center Analog	Pinnacle PCTV MediaCenter, Pinnacle Studio QuickStart 10	Pinnacle PCTV Stereo PVR	PV Center, InterVideo WinDVD	HonesTech TVR 1.54	PVR application	PVR application
✔	✔	✔	✔	✔	✗	✔
✔	✔	✔	✔	✔	✔	✔
✔	✔	✔	✔	✔	✔	✔
✗	✔	✔	✔	✔	✔	✔
✔	✔	✔	✗	✔	✔	✔
✔	✔	✔	✗	✗	✗	✗
✗	✗	✗	✗	✗	✗	✗
32.90	33.58	35.18	31.94	30.04	28.08	28.08
9	9	9	8	8	9	9
8	9	9	8.5	7.5	6	6
85	85	87	80	81	68	68
✔	✔	✔	✔	✔	✔	✔
8	8	9	8	7	7	7
2,900	4,400	2,500	2,300	1,400	895	1,095
2.78	1.83	3.22	3.50	5.75	9.00	7.36
69.69	72.39	69.21	67.55	69.35	55.40	63.91

+ Good video quality	+ Good PVR	+ Excellent video quality	+ Good video quality	+ Decent video quality	+ Inexpensive	+ Inexpensive
− A bit expensive	− Expensive	− No FM radio	− Drivers take long to install	− Drivers take long to install	− No FM Radio, Basic PVR	− Basic PVR

but also use the timeshift feature. Timeshift is a feature that lets you pause or even rewind live TV, so you can watch an action replay as many times as you wish to. This is a resource-hungry feature, requiring at least a 1.6 GHz CPU and a 7200 rpm hard drive, both of which are standard on any PC these days. This feature is supported by all but the Tech-Com SSD-TV-670. MPEG-1/2/4 recording is standard in all PVRs, except some such as those which come with the PixelView PlayTV P3000, which do not support MPEG-4, and the one that comes with the Pinnacle PCTV PCI that does not support MPEG-2.

Recording requires oodles of free space. While most PVR software can hold their own against each other, some such as the WinFast PVR shine because of features such as PIP (Picture-in-Picture), which lets you view live video in the background and captured video in a window.

Leadtek Winfast PVR2000
The Undisputed King

The Compro VideoMate TV Gold⁺II and Leadtek Winfast PVR2000 are bundled with software that consist of premium video editing software like Ulead's DVD MovieFactory and VideoStudio. Pinnacle PCTV Pro PCI is the next best, with Pinnacle Studio QuickStart 10—a lite version of their deluxe software.

Windows Media Center Edition and Vista Media Center Readiness
Windows Media Center and Vista Media Center have the same basic requirements, and most of the TV-Tuners cannot not fulfil these. The Leadtek Winfast and Pinnacle are the only ones that qualify in both the above criteria, and are therefore future-proof. The Pinnacle is only Windows XP MCE ready card.
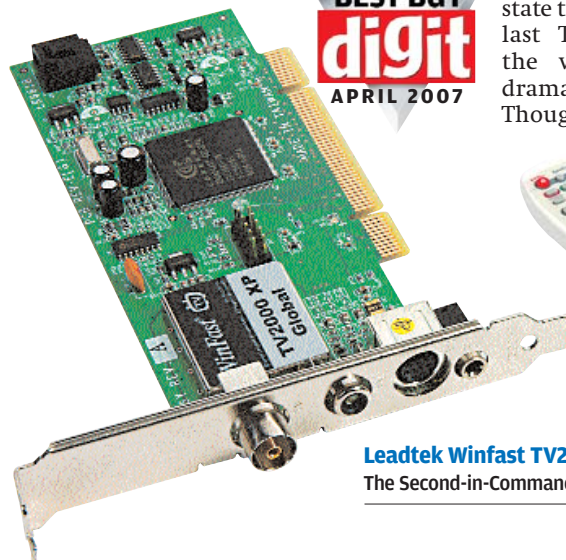
Performance
Ease of Installation and Use
Installing the TV-Tuners was very straightforward. Driver installation was also hassle-free, save for the PixelView cards, which took a considerable amount of time because they had drivers for too many cards on the same CD.

Some PVR software are very elementary in appearance. A good example would be the one that came with the Tech-Com TV-Tuners, and also the HonestTech PVR that comes with the PixelView PlayTV Pro 2. Some such as the ones from Hauppauge, Leadtek Winfast, and Pinnacle not only have all the functionality but also a beautiful interface.

The Field Tests
A TV-Tuner is expected to be able to detect all the channels a cable operator has to offer. Of the 90 channels that our cable operator offers, the Compro VideoMate TV Gold⁺II, Leadtek Winfast cards, and the Pinnacle PCTV Stereo PCI could detect 87; most of the other cards were somewhere behind in the 80s. The Tech-Coms were far behind everyone, managing to detect just 68. We expected no card to reach 90, as we had weakened the signal strength to a great extent. A card that manages over 80 is just about as good as any card can be. It is therefore no surprise that fine-tuning was necessary for all the TV-Tuner cards.

Visual quality is an important parameter for judging a TV-Tuner card. We would like to state that compared to the last TV-Tuner shootout, the visual quality has dramatically improved. Though the chipsets are

Leadtek Winfast TV2000 XP Global
The Second-in-Command

Windows Vista: Media Center

Vista, the latest avatar of the world's most popular operating system, has been released. For those of you eagerly waiting to hear about the much-touted Media Center in Windows Vista, there is good as well as bad news. We shall go with the bad news first.

If you expected Vista Media Center would be more generous in its acceptance of TV-Tuner types, you are in for a disappointment: it has exactly the same requirements as Windows XP Media Center Edition. The TV-Tuner must have certain features such as a listed at http://www.microsoft.com/windowsxp/mediacenter/partners/dfw/tvtunercardsreq.mspx, which is niche. Not only are such TV-Tuners expensive, they are really hard to find, especially in India.

The good news is that Vista Media Center is extremely easy to set up. It has Wizards—very similar to those in its predecessor—that guide you through the setup process, and everything is well-explained. Vista Media Center is seamlessly integrated with the OS and therefore appears as an extension of it. It is not just another PVR software: it is a whole multimedia entertainment suite that includes a music player, DVD player, and so on.

Unlike Windows XP Media Center Edition, which only comes bundled with Media Center PCs and cannot be bought as a separate OS, you can pick up your copy of Vista off the shelf. Compatible TV-Tuners, such as one from Hauppauge, are already appearing in the market, and it will not be long before their prices go down.

Microsoft launched the MCE program early last year, and has already made available features such as EPG (Electronic Program Guide). An EPG provides you not only informative program schedules for various channels, but also lets the Media Center schedule recordings of programmes when you aren't around. Being seamlessly integrated, it has one of the best interfaces you may see in PVRs (Personal Video Recorders), and it also performs remarkably well.

One can record HDTV broadcasts. Unfortunately, neither this broadcast standard nor the supporting TV-Tuners will be available in India at least for the next few years. All of the Media Center can be controlled using the remote bundled with the TV-Tuner.

essentially the same, the improvements in the drivers and the PVR software seem to have done the trick. All the TV-Tuners were decent in this respect, though we would pick the Hauppauge, the Leadtek WinFast duo and the Pinnacle PCTV Stereo, given a choice. The Tech-Com duo was once again behind the lot, though we can safely attribute this to their poor PVR.

EXTERNAL TV TUNERS

For those who happen to own a laptop (and there are quite a few), an internal TV Tuner is not an option. Some find opening a PC, a daunting task, or some motherboards may not have a free PCI slot to accommodate an internal PCI TV Tuner card. In such cases, an external TV Tuner is the only viable solution. There are certain advantages that external TV Tuners have over internal ones, such as its better image quality, thanks to the reduction of interference from internal PC components. External TV Tuners are further subdivided into two categories: External USB and External Set Top TV Tuners.

External USB TV Tuners

External USB TV-Tuners can do everything an internal TV Tuner can do. They connect to the PC via the USB 2.0 interface, which sports an ideal data throughput of 480 Mbps. The bandwidth of USB 1.1 (11 Mbps) is insufficient for the data passing between the TV-Tuner and the PC. External TV-Tuners come at a premium, and are bundled with a lot of cables and accessories.

Features
FM Radio
FM radio in an external USB TV Tuner was something we'd never seen before. This time, we actually received two such products: the Compro VideoMate Action Pro and the Hauppauge WinTV-USB-FM.

Hardware Encoder And TV standards
Like FM radio, we had not anticipated a TV-Tuner would boast of a hardware MPEG-2 encoder, but the Leadtek Winfast PalmTop TV has this feature. As already explained, this

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WinFast PalmTop TV

Leadtek Winfast PalmTop TV
Dual Channel PIP? Wow!

offloads the CPU from the encoding task. All the TV-Tuners except for the Leadtek Winfast and Pinnacle PCTV USB2 (which support only PAL) support both PAL and NTSC. This is not much of a concern, as NTSC is non-existent in India.

I/O Ports
Being the most popular of I/O ports for video, S-Video is present across the category. The exceptions are the Compro VideoMate U890 and U900, and the Tech-Com SSD-TV-812Plus. A Composite port is present only in the Compro VideoMate Action Pro and the two Pinnacle PCTVs.

The Remote Control
It's hard to understand why, but the Hauppauge TV-Tuners do not have a remote. Recording and timeshifting are features common to all the TV-Tuners, but PIP in the Leadtek WinFast make it stand out.

Cables and Accessories
Compro made it a point to provide all the required cables with the VideoMate U900 and the VideoMate Action Pro. The Tech-Com SSD-

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Scoreboard	External USB TV Tuners				
BRAND	**Compro**	**Compro**	**Compro**	**Hauppauge**	**Hauppauge**
MODEL	**VideoMate U890**	**VideoMate U900**	**VideoMate Action Pro**	**WinTV-USB**	**WinTV-USB-FM**
Features (Out of 45)	**27.40**	**28.93**	**32.64**	**16.79**	**21.83**
Type(Internal/External)	External	External	External	External	External
FM Radio (✔/✘)	✘	✘	✔	✘	✔
Hardware Encoder (✔/✘)	✘	✘	✘	✘	✘
TV Standards (NTSC / PAL)	Both	Both	Both	Both	Both
Video I/O ports					
Co-axial	✔	✔	✔	✔	✔
S-Video	✘	✘	✔	✔	✔
Composite	✘	✘	✔	✘	✘
Remote Control					
Remote Control (✔/✘)	✔	✔	✔	✘	✘
Number of Buttons on Remote	32	32	44	NA	NA
Recording/Timeshift Using Remote	Both	Both	Both	NA	NA
Other Features	Media Player Control	Media Player Control	Media Player Control	NA	NA
Connecting Cables (List)	USB Data	USB Data (short and long), USB Power, Stereo to RCA-In, Video to Composite-In	USB Data, USB Power, Audio, FM Aerial, S-Video+Audio cable	Audio	Audio, FM Aerial
Other Accessories	Coaxial Converter	Coaxial Converter	None	Comp to S-Video Conv.	Comp to S-Video Conv.
Software Bundle (List)	ComproDTV 3, ComproDVD 2, Ulead's PhotoExplorer 8.5 SE, DVD MovieFactory 4 SE	ComproPVR 2, ComproDVD 2, Ulead's PhotoExplorer 8.5 SE, VideoStudio 8 SE DVD, DVD MovieFactory 3 SE	ComproPVR 3, ComproFM 2, ComproDVD 2, Ulead PhotoExplorer 8.5 SE	SoftPVR	SoftPVR
PVR Features (✔/✘)					
Timeshift	✔	✔	✔	✔	✔
Scheduling	✔	✔	✔	✔	✔
MPEG1	✔	✔	✔	✔	✔
MPEG2	✔	✔	✔	✔	✔
MPEG4	✔	✔	✔	✔	✔
WinXP Media Centre Edition Compatible (✔/✘)	✘	✘	✘	✘	✘
Windows Vista Ready (✔/✘)	✘	✘	✘	✘	✘
Performance (Out of 48)	**34.69**	**34.69**	**37.39**	**36.59**	**36.59**
Ease of Installation/Use (So10)					
Driver	9	9	9	9	9
PVR	9	9	9	9	9
Number of TV Channels Detected (Max. 90*)	82	82	86	84	84
Fine Tuning Necessary? (✔/✘)	✔	✔	✔	✔	✔
Visual Quality (So10)	7.5	7.5	9	9	9
Price (Rs.)	**3,195**	**3,395**	**3,295**	**5,200**	**7,150**
Price Index (Out of 7)	**3.15**	**2.96**	**3.05**	**1.93**	**1.41**
Final Score (Out of 100)	**65.24**	**66.58**	**73.07**	**55.83**	**60.35**

* This is the total number of available cable channels during the test

+ Good software bundle
- No AV-In port
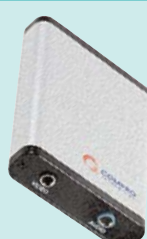
+ Good software bundle, Sleek
- None in particular

+ Excellent video quality
- None in particular

+ Excellent video quality
- Expensive

+ FM radio
- Very expensive

TV-812Plus also has all the required cables. Compro also bundles coaxial converters with the U890 and the U900, though it is not needed with the U900, which has a coaxial port compatible with Indian standards.

Software Bundle And PVR
PVR software is standard with all the TV-Tuners, and they are more or less similar in features. Some, such as the WinFast PVR that accompanies the Leadtek Winfast, feature PIP (Picture-In-Picture), but with a major difference: it is capable of displaying two channels at the same time!

Compro and Leadtek Winfast bundle heaps of premium video editing software such as Ulead's DVD MovieFactory and VideoStudio. Pinnacle bundles Studio QuickStart 10.

Looks And Build
The external TV-Tuners came in all shapes and sizes, and we would like to mention a few notables. The Compro VideoMate Action Pro is, with-

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Leadtek Winfast PalmTop TV	Pinnacle PCTV USB2	Pinnacle TV to go	Tech-Com SSD-TV-812Plus
36.33	23.37	28.35	23.83
External	External	External	External
✗	✗	✗	✗
✔	✗	✗	✗
PAL	PAL	Both	Both
✔	✔	✔	✔
✔	✔	✔	✗
✗	✔	✔	✗
✔	✔	✔	✔
28	41	42	22
Both	Both	Both	Both
Media Player Control, PIP	Media Player Control	Media Player Control	None
USB Data, AV-In	USB Data	USB Data	Audio, USB Data, MMI
None	None	None	None
WinFast PVR, Cyberlink PowerDVD, Orb, Ulead's Cool 3D, DVD MovieFactory 3SE, VideoStudio 9 SE DVD	Pinnacle PCTV TVCenter Analog	Pinnacle PCTV MediaCenter, Pinnacle Studio QuickStart v10	PVR Application
✔	✔	✔	✔
✔	✔	✔	✔
✔	✔	✔	✔
✔	✗	✔	✔
✔	✔	✔	✔
✔	✗	✔	✗
✔	✗	✗	✗
37.25	34.16	36.99	30.16
9	9	9	9
9	8	9	7
85	78	83	75
✔	✔	✔	✔
9	8	9	6
3,900	3,490	5,500	1,595
2.58	2.88	1.83	6.30
76.16	60.41	67.17	60.29

+ Excellent video quality	+ Decent video quality	+ Good performance	+ Inexpensive
- A bit expensive	- A bit expensive	- Expensive	- Below average video quality

out a doubt, the most rugged of them all, with a strong metallic casing. The sleek VideoMate U900 is shaped like and as small as a cigarette lighter. The U890 has the appearance of a USB thumb drive. The Hauppauge TV Tuners are housed in elegant translucent casings.

Windows Media Center Edition and Vista Media Center Readiness

Windows XP Media Center Edition compatibility and Vista readiness exists only on the Leadtek Winfast Palmtop TV, while the Pinnacle PCTV to go is only XP MCE compatible. We would like to make it clear that when we speak of compatibility and readiness, it does not mean that only those TV-Tuners that are "ready" for these operating systems can be used with them. With the proper drivers and their own PVR, non-compatible TV-Tuners can work without a problem, but they will not function with the inbuilt PVRs of these operating systems.

Performance
Ease Of Installation And Use
Driver installation was hitch-free in all the cases. The PVR software provided by all the TV-Tuners were functionally almost on par; only, the one that comes with the Tech-Com does not have an interface as good as the others.

The Field Tests
In the channel detection test, there was not too much of a variation. The Compro VideoMate Action Pro detected 86 of the 90 channels, while the Leadtek WinFast PalmTop TV was very close, at 85. The Tech-Com did 75, which is not too bad a figure. Fine-tuning of channels was necessary in all the cases.

As far as image quality goes, there were several contenders for top spot. The Compro VideoMate Action Pro, the Hauppage duo, the Leadtek Winfast, and the Pinnacle PCTV to go are the best. The Tech-Com is at the lower end, its image quality can still be called decent.

External Set Top TV-Tuners
Many people—such as those who leave their homes and stay at rented accommodations in another city—have a computer that is used for study or work. Recording is not of importance to them, and they're not too technically inclined—and also do not want to get themselves a TV set. For such people, there are External Set Top TV-Tuners, which don't need a computer: all they need is a monitor. These are TV-Tuners that offer the best video quality amongst TV-Tuners of all kinds.

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Compro VideoMate Action Pro
Missed by a Whisker

Features

Video Features

The maximum resolution of the TV-Tuner determines the sharpness and detail of the image. The maximum resolution of three of the TV-Tuners in this category is a healthy 1280 x 1024, which is as high as what most 17-inch monitors can handle. Only the Tech-Com SSD-TV-715 has a resolution of 640 x 480, which is low by any standards. If you're using an LCD monitor, this is a concern, because LCDs display fuzzy images when not using their native hardware resolution. The other three TV-Tuners can handle as many as eight different resolutions, one of which would surely be that of your LCD.

Picture-In-Picture is present on the AVerMedia AVerTV Box7 and the Tech-Com SSD-TV-722. Using this feature, you can continue working at your PC, while the TV window will be perched unobtrusively in a corner of the Desktop.

AVerMedia AVerTV Box7
Bet You Can't Get Anything Better Than This!

I/O Ports

Being external set-top tuners, these did not lack any of the necessary inputs such as S-Video and Composite. The Zebronics has a port that looks like the USB port, but we found it's there to accept a connection via the AV cable from an external AV source such as a DVD player. The AVerMedia AVerTV Box7 even has a headphone socket.

The Remote Control

The remote controls accompanying these TV-Tuners are very much like those of a regular television set. This was because of the fact that these tuners are functionally very much like a TV set, except for the display and speakers, of course. Some additional features such as Picture-In-Picture—in the case of the AVerMedia AVerTV

Box7 and the Tech-Com SSD-TV-722—can be controlled using their remotes. The Tech-Com SSD-TV-715 has a Menu button to access functions such as inbuilt games, which are of the most elementary kind.

Cables And Accessories

These TV-Tuners are placed between the computer's display adapter and the monitor, if you're using a PC. If you wish to switch between PC and TV on-the-fly, the tuners connect to the monitor and also receive input from the display adapter. An audio cable is another accessory to get audio from the unit to the sound card's Line-In. The Tech-Com SSD-TV-722 comes with an MMI (MultiMedia Interface) cable, while the Zebronics comes with an AV cable to get video and audio inputs from external sources such as a DVD player. This way, you can play a DVD without the need for a PC.

Looks and Build

The AVerMedia AVerTV Box7 is the most rugged, and it comes with a stand that allows it to stand upright. This not only adds to visual elegance, it also conserves desktop space. The Zebronics has a better build than the Tech-Coms. Overall, these look dull compared to the Box7.

Performance

Ease of Setup and Use

Setting up these TV-Tuners is, again, extremely easy. The accompanying manuals have easy instructions in any case. Using them is as easy as using your TV set. Of all of them, the AVerMedia AVerTV Box7 is the easiest to use.

The Field Tests

We had high expectations from these as compared to TV-Tuners of the other categories, because these can be disconnected from the PC and its interfering radiation. True to our expectations, these tuners performed remarkably better.

The AVerMedia AVerTV Box7 was ahead of the pack, detecting 88 channels. The Tech-Com

Digital Television

Digital Television is a telecommunication system that uses digital instead of analogue signals to broadcast moving pictures and sounds. It employs digitally modulated data which is compressed and scrambled, and requires specially-designed set-top boxes and televisions, or a digital PC TV-Tuner.

This type of television broadcast has several advantages over analogue, the immediate one being that digital channels take up less bandwidth, so it is possible to squeeze more channels in a given bandwidth. A greater availability of bandwidth is also useful for special services such as multicasting (multiple programs on the same channel) and EPG (electronic program guide). This is also used to deliver television with higher resolution—HDTV—which delivers not only superior image quality, but also multi-channel audio. HDTV broadcasts has some problems such as slight deterioration of image quality because of MPEG-2 compression, but these will soon be ironed out.

Digital Television is very reluctantly being accepted by several countries, the primary reason being the heavy cost of the

necessary infrastructure. The consumer has to upgrade his TV and recording equipment, while the government has to invest a considerable amount to upgrade its broadcast systems. Even a developed country like UK will switch over from analogue to digital only in phased stages starting from 2008 to 2012.

Currently, only The Netherlands has completed the switchover to digital broadcasting, but this is attributed to a large extent to the fact that over 90 per cent of households receive television over cable in the analogue format, thus leaving less than 10 per cent to be affected by the switchover.

India adopted DVB-T or Terrestrial Digital Video Broadcast, a digital broadcast standard, in 1999. India switched off analogue terrestrial broadcast and has been broadcasting terrestrial channels in this way ever since. There are a few TV-Tuners that sport DVB-T receiving capabilities, but don't rush for these yet—this service is only available in four metros thus far. The number of channels is also limited; in Mumbai, you can view DD1, DD2, DD Sports, DD Bharti, and DD Sahyadri.

SSD-TV-722 could manage 84, while the remaining could do 82. But as we've already mentioned, this is not a bad figure at all.

Nothing came even close to the AVerMedia AVerTV Box7 as far as image quality goes. Even at the same resolution, the Tech-Com SSD-TV-722 and the Zebronics lagged in this respect. The Tech-Com SSD-TV-715, which has a resolution of 640 x 480, was way behind the former three, owing to its much lower resolution.

Conclusion

Even with the same chipsets, we saw that many TV-Tuners performed differently and exhibited variation in image quality. Therefore, it is not only the chipset that matters, but also the PCB design and the PVR. Most TV-Tuner manufacturers go by the reference board design, but an innovative few dare to invest in R&D and make design improvements. It is therefore fair that such manufacturers charge a premium for their products.

In the internal PCI category, the Leadtek WinFast TV-Tuners stole the show. These have all the features one would expect from a TV-Tuner, and they are also compatible with Windows XP MCE and Vista. The PVR2000 is the only tuner with an MPEG-2 encoder chip, and comes well-endowed with a useful software bundle. Both these cards excelled in performance as well as features, and come with all the necessary cables. The *Digit Best Buy Gold* therefore goes to Leadtek WinFast PVR2000, while the *Digit Best Buy Silver*
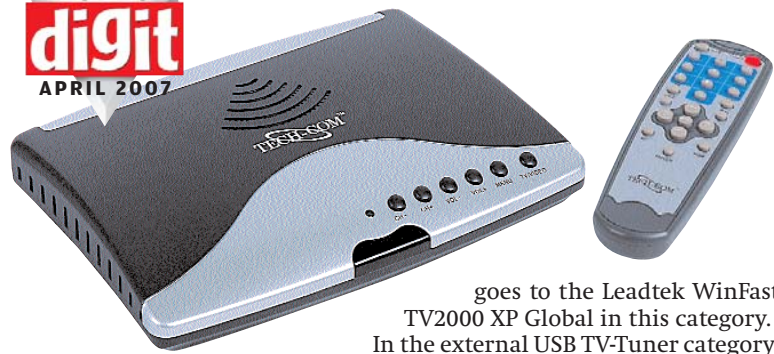
Tech-Com SSD-TV-722
Good Value For Your Money

goes to the Leadtek WinFast TV2000 XP Global in this category.

In the external USB TV-Tuner category, the Leadtek WinFast PalmTop TV exhibited performance par excellence. It is the lone card with features such as hardware MPEG-2 encoding, PIP with two channels simultaneously, and MCE compatibility. At Rs 3,900, this is without hesitation the winner of the *Digit Best Buy Gold* in this category.

The Compro VideoMate Action Pro has good video quality—as good as the Gold winner—and with it comes the most extensive and useful software and cable bundle. Priced just right at Rs 3,395, this is rightfully awarded the *Digit Best Buy Silver*.

Nothing came close to the AVerMedia AVerTV Box7 in terms of performance, and it rode ahead of the rest with the best channel detection score and video quality at a high resolution of 1280 x 1024. It has all types of connectors, enabling you to connect any AV source to

Scoreboard — External Set Top TV Tuners

BRAND	AVerMedia	Tech-Com	Tech-Com	Zebronics
MODEL	AVerTV Box7	SSD-TV-715	SSD-TV-722	External TV Tuner
Features (Out of 40)	**29.64**	**21.12**	**26.46**	**22.67**
Type(Internal/External)	External	External	External	External
FM Radio (✔/✘)	✘	✘	✘	✘
TV Standards (NTSC / PAL)	Both	Both	Both	Both
Maximum Resolution	1280 X 1024	640 X 480	1280 X 1024	1280 X 1024
Picture-In-Picture (✔/✘)	✔	✘	✔	✘
Video I/O ports				
Co-axial	✔	✔	✔	✔
S-Video	✔	✔	✔	✔
Composite	✔	✔	✔	✘
VGA-In	✔	✔	✔	✔
Headphone-Out	✔	✘	✘	✘
Remote Control				
Remote Control (✔/✘)	✔	✔	✔	✔
Number of Buttons on Remote	34	31	23	25
Connecting Cables (List)	VGA-VGA, Audio	VGA-DIN, Audio	VGA-DIN, Audio, MMI	VAG-DIN, AV-Out, Audio
Other Accessories	Coaxial Converter, 12V Power Adapter	Composite-S-Video Converter, 5V Power Adapter	5V Power Adapter	5V Power Adapter
Additional Features	None	Game	None	None
Performance (Out of 45)	**42.05**	**34.21**	**37.16**	**30.16**
Ease of Installation (So10)				
Setup	9	8	8	8
Use	9	7.5	7.5	7.5
Number of TV Channels Detected (Max. 90*)	88	82	84	82
Fine Tuning Necessary? (✔/✘)	✘	✘	✘	✔
Visual Quality (So10)	9	5	7	7
Price (Rs)	**7,500**	**975**	**1,750**	**2,700**
Price Index (Out of 15)	**1.76**	**13.50**	**7.52**	**4.88**
Final Score (Out of 100)	**73.44**	**68.83**	**71.14**	**57.71**

* This is the total number of available cable channels during the test

+ **Excellent visual quality**
- **Very expensive**

+ **Economical**
- **Low resolution**

+ **Good channel detection rate**
- **None in particular**

+ **AV-In functionality and cables**
- **A bit expensive**

it. Though priced a bit too high, this is as close to TV you can get on a monitor, and it is therefore the winner of the *Digit Best Buy Gold* in this category.

At a fraction of the cost of the Gold winner, the Tech-Com SSD-TV-722 has most of the features you would expect from any TV-Tuner option in its category. We award it the *Digit Best Buy Silver*.

While Digital Television in the form of DVB-T has been in India since 1999 (See box *Digital Television*), it has been limited to the four major metros. Then there is DTH CAS (Direct-To-Home Conditional Access System, a pay-per-view cable system), which again is limited to the four major metros at present. But with satellite television providers such as DishTV and TataSky making strong forays into the market, the Indian consumer outside of the metros will finally get to see what digital television looks and sounds like.

The problem here is that these providers install a dish receiver and a set-top box tuner. What this means is that the tuner in your TV or your PC becomes obsolete (along with your trusty remote), and the sole function of a TV set or TV-Tuner is to accept the audio and video signals of the channel descrambled and tuned by the set-top box. We hope that in the near future, TV-Tuners that can descramble video signals and also tune channels from these providers.∎

jayesh_limaye@thinkdigit.com

Contact Sheet — TV Tuner

Brand	Company	Phone	E-mail
AVerMedia	ACCESS	022-23840789	accessinfoworld@vsnl.com
Compro	Mediatech India Dist Pvt Ltd	022-26361111	digit@mediatechindi.com
Hauppauge	ACCESS	022-23840789	accessinfoworld@vsnl.com
Leadtek Winfast	Topnotch Infotronix (India) Pvt Ltd	044-42042565	naqui@zebronics.net
Pinnacle	Pinnacle Systems	0120-4248672	ptsci@pinnaclesys.com
PixelView	Rashi Peripherals Pvt Ltd	022-67090909	navinderc@rptechindia.com
Tech-Com	Shree Sagarmatha Dist Pvt Ltd	022-26428541	techcom@airtelbroadband.in
Zebronics	Topnotch Infotronix (India) Pvt Ltd	044-42042565	naqui@zebronics.net

4 resident evil

It's releasing. Really

The number of times *Resident Evil 4* missed its schedule release dates almost had us dismissing it as vapourware. This is the third of Capcom's biggest console games to make it to the PC, after *Onimusha 3* and *Devil May Cry 3*—both of which were handled very half-heartedly and sported keyboard controls that looked like they were mapped by retarded monkeys with blindfolds on. But where *Onimusha* and *DMC* were half-hearted, *Resident Evil 4* makes it to three-quarter-hearted.

For those who came in late—2005's *Resident Evil 4* has you playing Leon Kennedy sent to a village in Europe to rescue the president's daughter, who has been kidnapped by a strange cult. Instead of the zombies from the previous games, you must fight parasite-infected villagers on your quest. The game raked in the accolades for its excellent environment design, tense atmosphere and the incredible boss fights. It does have its sore points, though—you can't strafe, and the action isn't as fast-paced as it should be.

The PC held incredible potential for this game—the ability to use the mouse for fast movements meant that the game's difficulty level could be kicked up a notch with no problems, and new graphics cards could add another ounce of zing to the brilliant atmosphere. Sadly, Capcom chose to ignore all that and feed us a direct port that doesn't even have mouse support. The keyboard controls, while not completely idiotic, don't do much for the playability of the game—don't even go near it if you don't own a good game controller, especially considering that in-game instructions don't mention any keyboard keys. You will also hate the fact that all the dynamic lighting and shadows have been ripped out of it. Half of the atmosphere is the lighting, and without it, *RE4* looks flat as a board.

If you have a PS2, go buy *RE4* for the PS2 (if you haven't already). Buy the PC version only if you're a masochist who wants to experience the horrors of seeing a good game treated like trash.

nimish_chandiramani@thinkdigit.com

Rating: **4/10**
Developer: **Capcom**
Publisher: **Ubisoft**
Distributor: **E-Xpress Interactive**
Contact: **sales@e-xpressindia.com**

A Ninja Doesn't Trip On His Shoelaces

Running on walls, leaping buildings with your grappling hook, stealth kills—who would have thought you could do this on the PSP? *Shinobido: Tales of the Ninja* takes you through to 16th-century Japan, where you play Goh, the last Ninja, out for revenge against those who wiped out his kin. This revenge involves stealing documents, assassinations, and some gratuitous murder. And you know how much you love gratuitous murder.

The game's controls are rather clunky, and mar an otherwise enjoyable game. Fighting enemies is all about mashing a single button and hoping to hit home, and the "lock to target" scheme can goof up considerably if you're fighting two or more of them. Camera angles are all wonky, and a second analogue stick is sorely missed. The missions are designed to get over quickly, though—perfect for playing on the move.

Overall, pulling off stunts and stealth kills is fun—especially in the "Total Destruction" missions, but there's really nothing about this game that screams, "Buy me!"
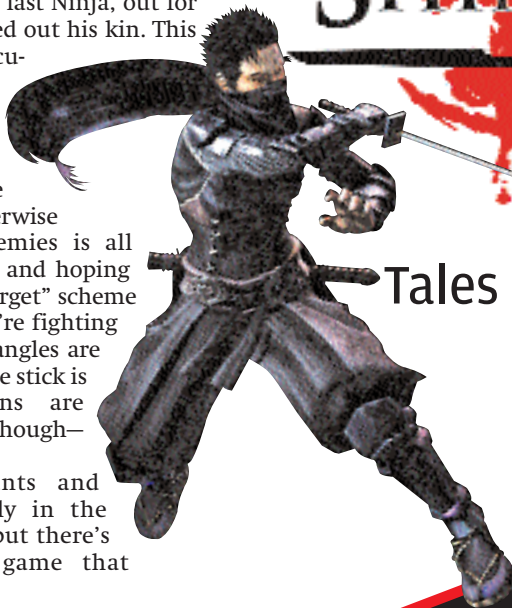
nimish_chandiramani@thinkdigit.com

SHINOBIDO™

Tales of the Ninja (PSP)

Rating: **6/10**
Developer: **Acquire**
Publisher: **Sony Computer Entertainment Europe**
Distributor: **Milestone Interactive**
Contact: **sales@milestoneinteractive.com**

KILLZONE
LIBERATION

Rating: **9/10**
Developer: **Guerilla**
Publisher: **SCEA**
Distributor: **Milestone Interactive**
Contact: **sales@milestoneinteractive.com**

Sony's PSP inherits *Killzone Liberation*, of 2004 *Killzone* fame, a PS2 shooter. *Killzone's* gameplay was seriously lacking. While *Liberation* inherits the storyline, the gameplay deviates—a good thing!

For those unfamiliar with the *Killzone* universe: mankind's taken to the heavens, inhabiting planets and such. A militant group of humans occupy a planet called Helghan. Over time, these guys mutate into a race called the Helghast. Flashback over, you belong to the *other* group a.k.a. the Vekta, humans who are fighting against the, umm, Helghast.

At the outset, *Liberation* doesn't follow a very sharp storyline; there's VIPs to be rescued, and a pesky Helghast general who keeps messing up your plans. Normally this would translate into a game 15 minutes with which would cause you to yell "next!" After all, how redeeming could gameplay and eye-candy be on the PSP, and can it make up for an ordinary story? In a word, emphatically, *yes*! Gameplay is excellent. *Liberation* grips you, then makes a believer of you. The graphics engine is very good, though not the best I've seen on the platform. Audio's up there—superb in-game sound and good voice acting.

You'll deactivate trip lasers, snipe bots, man turrets, crunch Helghan bone beneath your tank treads, and even control non-player characters—all while completing your mission objectives. In each mission you'll collect Vectan, the currency of the *Killzone* world, and buy weapon upgrades. You'll also unlock player abilities—carrying five grenades instead of the default two, or increased health and armour. AI is very sharp... enemies will duck behind cover when you shoot at them, only to pop up and snipe at you. Needless to say, you'll end up dead quite a few times. Thankfully, the autosave works well and is aptly-timed.

Killzone Liberation is a great deal of fun, and immersive, action-laden gameplay coupled with great video and excellent audio.

michael_browne@thinkdigit.com

Check your TQ

It's April. Here are 10 trick questions!

1 At the 7th annual Game Developers Choice Awards 2007, which game won the prize for Best Game?
a) Gears of War
b) Company of Heroes
c) Okami
d) Wii Sports

2 Which of the following recently turned 25 and is now being made available with the 5th-generation iPod?
a) Ms PAC-MAN
b) Naruto
c) Snoopy
d) Digimon

3 After Dell, which leading brand had to recall units because of battery issues?
a) HP
b) Acer
c) Lenovo
d) Toshiba

4 What does ICMP stand for?
a) Interface Communication Management Port
b) Internet Control Message Protocol
c) Infrared Communication Masking Port
d) Interlace Centred Management Protocol

5 What is Intel's next major release of the Centrino platform codenamed?
a) Santa Maria
b) Kensfield
c) Santa Rosa
d) Quadro

6 Who recently got to eighth position in the list of the top chip makers?
a) Freescale
b) NXP
c) AMD
d) Samsung

7 What is the largest partition size supported by Windows 2000 and XP Pro running FAT32?
a) 4 GB
b) 900 MB
c) 2 GB
d) 3 TB

8 How many bits are in an octet?
a) 8
b) 4
c) 32
d) 2

9 Which Windows OS was codenamed "Whistler"?
a) XP
b) 95
c) 2000
d) 2003 Server

10 What is the system for switching calls between VoIP users on local lines within an organisation?
a) EPABX
b) IP PBX
c) IP Intercom
d) IPABX-E

> **Did You Know?**
> Intel's 4004 chip, the world's first universal microprocessor, was used in the Pioneer spacecraft in 1972. It was the first microprocessor to enter the asteroid belt—if that counts as a record.

Answers

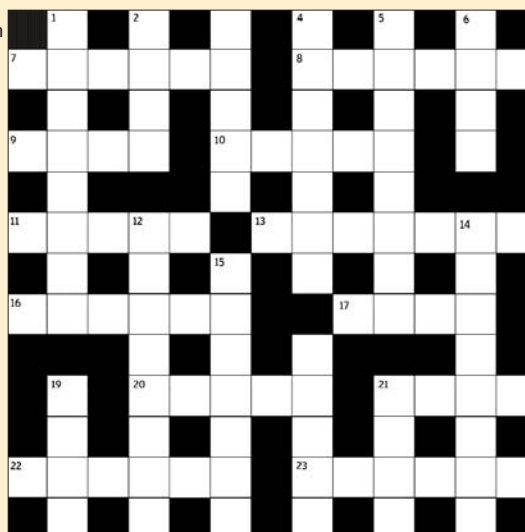|	
10. b, IP PBX	5. c, Santa Rosa
9. a, Windows XP	4. b, Internet Control Message Protocol
8. a, 8	3. c, Lenovo
7. c, 2 GB	2. a, Ms PAC-MAN
6. c, AMD	1. a, Gears of War

Crossword

ACROSS
7. Hardware device connecting two alike or dissimilar LANs (6)
8. Mistakes (6)
9. International Game Developers Association (abbr) (4)
10. Google's social network service similar to Friendster and MySpace (5)
11. Java_____object-oriented API created by Sun Microsystems (5)
13. Liquid metal in normal state used for electrical switches (7)
16. Play_____ – game console made by Sony (7)
17. 'B' in B&W screen (5)
20. ASCII character 44 (5)
21. Server not functioning temporarily (4)
22. An online service from News Corporation in Cambridge, Massachusetts (6)
23. Doublet antenna (6)

DOWN
1. De_____–reorganize storage space on hard disk (8)
2. _____Cellular-new IPO by Aditya Birla Group (4)
3. Photo copying machine (5)
4. Line of printers from Hewlett Packard for PCs (4,3)
5. 'P' in TCP (8)
6. 'Click and _____' – ellipse graphic tool command (4)
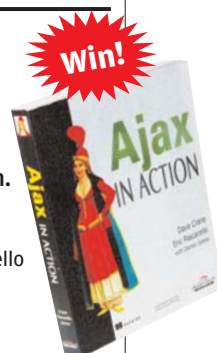12. Popular web browser-part of AOL (8)
14.'R' in RPI modems (8)
15. Sabeer Bhatia's free Web-based service acquired by Microsoft (7)
18. Mobile phones _____ free sets- used while driving (5)
19._____blue- chess playing computer developed by IBM (4)
21. Dynamic multi-pathing (abbr) (3)

Crossword by **Nitta Jaggi**

Last Month's Solution

S	F	F		C	K	D	
S	O	S	O	F	O	O	N	E	W	E	B
F	U	N		L	Y	L	
S	T	A	R	T	H	U	M	B	L	
W		S	M	O			
S	A	M	B	A	E	N	C	A	R	T	A
R	A	B	S	R	R	
D	E	G	R	E	E	I	D	E	A	
N	E	J	N	
S	A	P	P	L	E	H	O	S	T	
P	C	E	R	I	A	
C	A	L	L	E	R	R	E	D	U	C	E
M	E	S	Y	E	T	

Driving Games Bad For Drivers
Driving-game players are bad drivers! Gamers and non-gamers were asked how safe they were and how often they played games. Gamers were more likely to display aggressive behaviour. The British School of Motoring is calling for a pop-up on driving games warning of the risk.
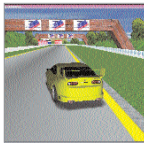
Gates For Prez!
A group of Microsoft fans wanted to get Bill Gates to run in the 2008 US presidential elections. They say Gates would make a "good president" because he's "rich, rational, unselfish and knows management." They even put up a site to convince Gates, but "Gates probably didn't feel the drive."

Escape

PIRACY IS GOOD

Thus Spake Raikes

This kind of thing doesn't happen too often, so it's all the juicier when it does. Microsoft business group president Jeff Raikes has admitted that software piracy *does* end up benefiting the company—Microsoft in this case. The reason he stated was that it can lead to purchase of other software packages.

Of course, we knew it all along—as we had suggested in an earlier article titled *Is Piracy Good*. There, amongst other things, we put forth the argument that if you pirate Windows at home, you're likely to get used to it and recommend Windows be used at your office, instead of having to recompile kernels.

Here's the official thing: Raikes told delegates at the Morgan Stanley Technology Conference in San Francisco mid-March, "If they're going to pirate somebody, we want it to be us, rather than somebody else." Which makes a lot of sense, come to think of it. Of course, who else would they pirate but Microsoft is a pointed question. Still, the idea is, no-one can prevent a die-hard pirate from pirating—just as a barbed-wire fence won't deter a determined thief—and so, why not pirate "us"? Now, this argument holds water only when you *don't* go by the official statements like "The software industry lost 10 zillion bajillion dollars to piracy last year." That argument assumes that a pirated version means a lost sale, which is too simplistic for words. Think about it: you download an album off P2P, and the RIAA counts that as a $20 loss. What loss? You wouldn't ever spend that $20, period!

OK, let's not get into the whole P2P argument, which we've dissected in an earlier issue. The point here is, Raikes' argument comes at a controversial time—a time when the Windows Genuine (Dis)Advantage programme is getting flak because a lot of genuine users have been misidentified as pirates.

So is Microsoft going to give up on fighting piracy and suing Russian teachers and sending them off to Siberia? No. It's going to be a "soft" kind of effort, as we can gather. Raikes says it's against Microsoft's interests to "push" pirates so hard that they end up using "alternative" products, meaning mostly open source. What these statements will do to Microsoft's stuffiness, we can't imagine.

An amazing confession, this—that piracy might actually be helping M$. What do Ballmer and Gates and all the rest have to say to this letting-the-cat-out-of-the-bag? Mind you, Raikes is not a puny spokesman; he is, like we said, a business group president! Well, Gates had nothing to say to Romania's

Whatever Happened To...

The Amiga

You've likely not heard this name unless you've spent some time finding out the origins of the first operating systems. Just a year after the first Macintosh, the Amiga brought rich colours to the desktop, crisp 4-channel sound in tow, complete with pre-emptive multi-tasking, even. And yet, right from the beginning, it's been relatively ignored by the media.

Gaming enthusiasts, though, recognised its abilities and the Amiga became quite the gaming platform during the 80s. With future releases, it started to become a platform for serious video editing. And so, as the years went by, the Amiga enjoyed a niche, but secure place in the computer market—till Commodore, who owned the Amiga brand, ran itself into the ground. Gateway, the company that eventually took over, managed to release AmigaOne motherboards for the OS, but strangely, forgot that the OS wasn't ready yet! AmigaOne motherboards shipped with Linux instead.

Today, Amiga is the responsibility of Hyperion Entertainment, who announced the final release of Amiga OS4 earlier this year. Unfortunately, you can't try it out on your regular PC—it needs the AmigaOne platform to run. But the bigger question—will Amiga regain the cult following it once had? Chances are, no—it may still have a few nostalgic followers, but that's about it.

president when he said the country had become an IT-savvy nation (or something like that) because of using pirated Windows and Office. But that was the Romanian president. Will he sack Raikes?

Now that the cat *is* out of the bag, we can ask: if they're saying "Pirate Windows if you must pirate," why not shorten that to "Pirate Windows"? It comes to the same thing...

FIRST, DO NO HARM

Defragging Drive

A Thai game developer, obviously not in touch with the times, is developing a goodness game. That's not what he calls it, but the aim of the game is to be good—according to the tenets of Buddhism. These happen to be: do not kill, do not steal, do not commit adultery, do not lie, and do not drink alcohol. Now we haven't seen a game where you get points for quaffing on a bottle of Jack, but except for

that, you pretty much do all the rest of those no-nos in today's games. (Witness *GTA: San Andreas*—the "Hot Coffee" mod—for the third of the vices.)

The good man, called Pakorn Tancharoen (don't blame him, he didn't name himself), is a senior officer in Thailand's Religious Affairs Department. He got concerned about the moral impact of gaming when he heard about a boy who attacked his mother when she wouldn't pay for an online gaming session.

Tsk, tsk. That's not behaviour anyone would condone, but Tancharoen went to the extent of developing this game where you follow three children on a pilgrimage with a wise old monk. You have to deal with obstacles along the way, of course, but you have to be good while doing it. No fragging old monks. No drinking Old Monk. No fragging monkeys, either—even shooting animals will cost you points.

Since that's the report, we assume you *can* frag people, so it might still be a normal game—the man with the highest negative

score wins. How alarmed the good man would be if people began doing such bad things with his game!

Thai people can download the game at www.khondee.net/game. No, you won't be blocked if you're non-Thai, but the page and the game are in Thai, so it's not much fun going there, is it? Still, how about checking out the graphics and the AI and dropping us a line? Seriously! Do the monks actually turn the other cheek and stuff?

We're being frivolous about the whole thing, which is not *good*, we know. It's only that we don't believe that gaming causes violent behaviour; we don't believe that anyone will play this game without giggling; we don't believe people *won't* frag some monks.

With this announcement, we can think of similar games to address many of the world's problems and create better people.

Feed The Hungry: Here, you get points for collecting pieces of food. You get bonuses when you feed

The Younger Steve

Steven Jobs is co-founder and CEO of Apple, the company that has captured the imaginations of millions, and is renowned for great design of products.

Steve Jobs

After his schooling, he enrolled in Reed (a college in Portland) only to drop out after his first semester.

Returning to California, he took up a job as a technician at Atari, and was offered $100 (a lot back then) for every chip that he could reduce in size on a gaming circuit board. Jobs partnered with Steve Wozniak and decided to split the offer, and Wozniak reduced the number of chips by 50 per cent.

It was around this time that Jobs noticed Wozniak's computer, which the latter had designed himself for his own use. Jobs convinced Wozniak to start a company together, and started off manufacturing printed circuit boards. In the end, however, they ended up manufacturing assembled computers. A few years later, Jobs was ousted from his own company when it was making losses, but in 1997 he returned to the company as interim CEO. Jobs, after his return, emphasised the importance of design and public appeal with the finished quality that Apple is now synonymous with.

Here's a toast to Steve Jobs, the man who started making things prettier—not just at Apple, because competitors were forced to follow suit in order to match (or better) the functionality and elegance of design that Apple's products exude to this day.

Bluff YOUR WAY THROUGH

Programming

Computer programs drive the world, and we can't tell you much about it in one column. Still, use these terms the correct way and they'll think you're way beyond "Hello, World"!

Argument: Hardly what it suggests, an argument is something you give a *method* (or function, or procedure) to operate upon. Like, "3" would be an argument for an addition *method*.

Class: Tricky one to explain, but think of it as a template for an object, amongst other things. For example, class "Digit" could be defined as having four sections, two covers, and one cover babe.

Concatenation: Putting together two *strings*, as in "bl" concatenated with "uff" gives "bluff".

Inheritance: The posh flat you get from your diabetic grandmother. No, seriously, it means the properties a *sub-class* has in common with its parent *class*—as in, *class* "Digit1" could *inherit* the sections and covers, but no babe.

Instance: A tangible thing based on something abstract. Like "3" is an instance of an integer.

Invocation: Chants and all. Well, somewhat. You invoke a method by passing it its *arguments* and saying the magic word "Go!"

Literal: When "a" should be taken as the letter "a", not as an algebraic value, it's a literal.

Method: A piece of code that does a particular job.

Return: A *method* does its job and gives you something new to play with it—that is, it *returns* something.

String: A bunch of characters in a line. As in g-u-i-t-a-r makes the string "guitar".

Usage: I had three *strings*—all *instances* of my "Digit" *class*—which I *concatenated* with two *literals* to make up my *argument*. Now the "Tech" *method inherits* its *string* manipulation from the "Navigator" *class*, so I *invoked* it with that *argument* and it *returned* the same strng bt wtht th vwls!

Wild Wild Web

Subliminal!

This happened when the new PlayStation 3 was in the spotlight for the delayed release. One fine day, on the Web site of the PS3, the Apple logo flashed on a pic of the console, as you can see.

People began talking about Apple's latest venture. In about three and a half minutes, the Web was agog with speculation about what Apple was up to.

Some hinted at a Sony-Apple joint venture. One bit of frenzied guesswork was that Sony had bought Apple's Shake software, and was experimenting by adding watermarks of Apple's logo to the PS3.

It's a wild wild world—one logo, and people go hysterical. Imagine how clogged the pipes would have gotten if that logo had made it to the Microsoft site...

Dumb And Dumber

419 scams could account for a considerable portion of Nigeria's GDP, going by the facts and figures. The latest one is as hilarious—or boring—as the rest: a fake site purporting to be that of the London Metropolitan Police, www.metpoliceuk-gov.com. This one included an "anti-terrorist" hotline number. The long and short of it is that the scam refers victims to a Web site—an official one, of course—that sells "anti-terrorist certificates," which are purportedly needed to secure payments from abroad. The Met Police reported it, and the site's no longer there. In case you didn't know, enterprising Nigerians have gone way beyond offering millions of dollars to be transferred to your bank account. In 2006, they launched sites for Interpol and the US Secret Service, amongst others. Why are these folks so dumb? As in, Who'd fall for these scams? But worse, how come people are dumb enough to make their efforts worth their while?

someone, and points are lost if you eat the food yourself. You get a level-up when someone burps.

Be God-Fearing: Read a scripture and you get points. Level up when you finish a chapter. Read porn and points get slashed. Steal a copy of *Penthouse* and then lie about it and it's game over.

Anti-AIDS: There's naked women all around. You lose points for leering, and gain points for getting into an exclusive relationship. Hunt for condoms: five points each. Level up at 150 points. Do the nasty without a condom in your bank, and it's Game Over!

ROBOTS AS WIVES
They're Crazy!

We've reported earlier that a UK government study had predicted that robots could demand the same rights as human beings within the next 50 years. We'd titled that bit of information "They're Crazy!"

Now, South Korea is a very forward-looking country, and the Ministry of Information and Communication has predicted that every South Korean household will have a robot by the time we get to 2015 or 2020. In view of that, and also the fact that robots have already gone beyond being factory workers, they're drawing up some rules there—a formal set of rules, as in a charter.

Formally, it is an ethical code to prevent humans abusing robots and vice versa. The glibly-stated "Robot Ethics Charter" will cover standards for users and manufacturers. There's one science fiction writer aboard the team of experts that are putting up the Charter, so you can imagine the general flavour of the whole thing.

Now here's what the South Korean ministry of Commerce, Industry and Energy has said about it: "The government plans to set ethical guidelines concerning the roles and functions of robots as robots are expected to develop strong intelligence in the near future."

"Expected to develop"? "Strong intelligence"? English doesn't have a word for how silly that sounds, but "goofy" is probably closest.

The guidelines could reflect Isaac Asimov's Three Laws of Robotics, Park Hye-Young of the ministry told the AFP news agency. The important considerations would include ensuring human control over robots, protecting data acquired by robots, and preventing illegal use. Incidentally, Asimov's Three Laws go, in short, as so: a robot may not injure a human being; a robot must obey orders given to it by human beings; a robot must protect its own existence.

Why does all this have a ring of balderdash to it? For the most part, it's because we can't get ourselves to believe robots will get that intelligent anytime soon, intelligent enough to merit a charter. And second, even if we were to assume that they would, why now? Why not wait for the robots to develop "strong intelligence," or at least get halfway there? Where's the tearing hurry?

You haven't heard the best yet. The same sane-sounding Park Hye-Young, who happens to be a woman, went on to say to AFP, "Imagine if some people treat androids as if the machines were their wives." That, we gather, is a polite way of saying men would try and have actual sex with female robots. No, sir. We do not see that happening. For

obvious reasons, which we cannot print.

And: "Others may get addicted to interacting with them just as many Internet users get hooked to the cyberworld." So a *Charter* to prevent robo-addiction?

We're getting a surreal feeling of dreaminess, as though all this isn't really happening, as though sense and nonsense are getting inextricably interwoven.

"As if the machines were their wives," indeed.

RETHINKING EDUCATION
Games Vs. Books

The latest gaming-related news story doing the rounds is about more video games and fewer books in schools. It's a proposal that's being actively investigated.

We (at least, those in developed countries) live in a digital world, so why should education be so "analogue"— as in old-school? The specific point is, people need to rethink what the best means of delivering education is.

Games can be effective; the question is, how effective, and what kinds of games.

"We've organised our schools using methods from the Middle Ages," said David Shaffer of the University of Wisconsin-Madison, and author of *How Computer Games Help Children Learn*. "The trend toward administering more standardised tests does not prepare children for a digital future."

Of course, no-one is talking about *Doom* and such in classrooms. They're talking about new-gen infotainment games. In a game designed by an Indiana University associate professor, players assume the role of investigators looking to find why fish are dying in a park. Theories are offered, such as excessive logging, and players share data and compare

hypotheses. Does that sound interesting enough? It probably depends on how the game is executed, including such things as the visual feel.

The idea behind the exercise—research into which millions of dollars are being poured—is that games are engaging, so students will play them. Like they'd play *Doom*. Can this new crop of educational games hold as much interest? ∎

FatBeing Gets a *Phoren* Trip

"Bugger Nimish," everyone's fuming. Poor chap—all he did was get a ticket to Krautenland, aka Germany, for CeBIT 2007. Even as this is being written, Shady (Samir) and Michael have a glazed look of unadulterated hatred in their eyes, thinking of all the stuff Nimish gets to ogle at and feel and touch. And Ram is seething thinking of the Fräulein Nimish is currently pawing. Poor chap again—when he mails us, he's actually always talking about the blisters on his feet from walking through all the aisles there. Yeah right, we feel sorry!

Raaabo got a few stitches in his arm just the day after Ram warned him of the dangers of bike-riding in India. Naturally, Raaabo's now working from home—but typing with one hand means he isn't

submitting much work.

There's even more other news: three young men have joined our team—Rossi, Asfaq, and Sumedh. We're hoping The Vandal (Michael) won't beat them all up for silly reasons. (He has that irritating habit, and is currently under medication for it.) Asfaq is relatively safe, since he's not in the Test Centre. (Ed told him he could go to CeBIT next year, that's why he's joined us.)

And so, we're (not) waiting for Nimish to return, laden with pics of him with Fräuleins and cars and gizmos. We're thinking of getting Vandal to beat him up— just a little, mind you, no more than one limb—when FatBeing (Nimish) whips out his photo album. Asfaq will probably quit when he sees what he's in for, next year.

DIGIT DIARY

Blog WATCH

Chris Pirillo's rant on Vista: M$ has failed to provide a smooth transition from XP. And Orkut is co-operating with the Mumbai police!

Xeni Jardin
(www.boingboing.net/2007/03/13/india_googles_orkut_.html)
India: Google's Orkut helps cops censor?
The Indian Express and other regional media are reporting that Google's social networking service Orkut will cooperate with the Mumbai Police to share IP addresses of users who post "objectionable content" on Orkut. If reports are to be believed, the police need only to email a complaint to Orkut, and Orkut will send back the personally identifying data. The police are said to be targeting a number of "problematic" Orkut posts, including items that criticize various public figures in India, others that glorify Indian mobsters, and "anti-Indian words."

Chris Pirillo
(http://chris.pirillo.com/2007/03/09/windows-vista-help/)
Windows Vista Help
It's not about the software anymore—it's about the people who are using the software, and despite all your R&D—these are the very same people you've effectively abandoned by not providing a smooth transition between XP and Vista. You're spending HOW MUCH MONEY on ADVERTISING an OPERATING SYSTEM that PEOPLE ARE HAVING MAJOR ISSUES WITH. Why

NOT spend a FRACTION of that BUDGET on making SOME KIND OF SOLUTION AVAILABLE. Convenient? No. Affordable? Probably not. But who are you serving if you're not serving your customers? ...Don't tell me you can't do it. Microsoft *CAN* do anything.

Tony Hawk
(http://thomashawk.com/2007/03/how-to-turn-microsoft-around.html)
How to turn Microsoft around
Microsoft continues to lose market share in search to Google. What is more surprising to me though is what seems like an almost daily slate of negative news on Microsoft. Yesterday I noted that influential analyst Michael Gartenberg was leaving Microsoft as an "enthusiastic evangelist" after less than a month, also this week you had another "enthusiastic analyst" Stephanie Quilao leaving her post after 9 1/2 weeks...

...Now the numbers are not necessarily going to reflect this yet, but when your key influencers, bloggers, journalists, etc. begin abandoning Windows and moving to the Mac it's like a wave and over time this wave can actually threaten Microsoft's monopoly on the operating system. Look for Apple's numbers to continue advancing here in the months ahead. So the question becomes how should Microsoft turn this around?...

You Made Me

I have been reading *Digit* whenever I could afford one and find it at a bookstall. The magazine has greatly increased my knowledge in the field of computing, and the knowledge I've acquired has made me a geek amongst my friends. They come to me with all their problems... and it has enabled me to build my very own rigged Desktop. Thanks to you all, I have even secured a very good percentage in my university exam!

I say *Digit* rocks... and keep it up you guys... the magazine and the disc are great. I hope to subscribe soon, if I can find a vendor.

Tandin
Bhutan

Dear Tandin
Nice to hear that our magazine goes all the way to Bhutan! Or is it that you are in India and have picked up our magazine here?

Anyway, we are happy that our mag has given you the knowledge to be popular amongst your friends, not to mention that it has also helped you with your studies.

Keep writing to us—good or bad remarks— we love to listen to our readers!
— Executive Editor

Only You

This is my first letter to Team Digit. It rocks! A few days ago I got my gift: the CD was very useful.

Even my mother and father have started taking interest in the magazine; they too are getting aware of techies in the modern world.

I have been reading your mag from class six; my first issue was a gift from my brother on Christmas day. My experience with the other magazines has been disgusting! Please keep up the good work.

Aditya Agarwal

Helping Hands

I have read almost all your issues. I am a programmer. I am doing an M.Phil. in computer science and have taken the topic "Novel Solution to Personal Addressing with Timer" as my thesis. I have tried my best to find a Hindi text-to-speech Engine, but I was unable to. Perhaps it has not been developed yet. If it has been, please provide it in your forthcoming issue. Otherwise, provide a Text to Speech Engine which has the feature of an Indian announcer speaking in English. I have tried my best, but I was unable to find such a speech engine. I have chosen Visual Basic 6.0 as the development platform. Thanks!

Bijender Kumar
Sisar (Haryana)

Dear Bijender,
Here's a link that might help you out: **www.blissit.org/hinditexttospeech.htm**. It speaks of a Hindi text-to-speech engine, and it is not the only one being developed. Do visit that link, contact the creators, and you're sure to take off from there. If you need some clarification, don't hesitate to write back.
— Executive Editor

Review Freak

I bought my first copy of your magazine in August 2005 and haven't missed a single issue since then. All the columns and articles are very informative. I especially like Agent 001 and the product reviews.

I'd like to suggest that you make your reviews more elaborate, since many of your readers (including me and my friends) rely on this for their next purchase or upgrade. I have noticed that many of the good products out there in the market get missed. Moreover, it would be better if you include some programming tips in your "tips and tricks" section. I also want to know whether you conduct reviews of camcorders or not.

Anyway, you guys are doing a fabulous job!

Ravi Shankar Singh
Bokaro Steel City
Jharkhand

Dear Ravi,
Thanks for your mail and suggestions. We will certainly incorporate them as and when possible. Nice to know that our readers read our magazine so closely, and also feel like writing in with honest feedback. We do conduct reviews of camcorders once in while, but not extensive reviews like our scheduled tests.

Programming tips and tricks is currently not our expertise or our target domain, but we will try and get someone to do that for us in the future.
— Executive Editor

Get Better Already!

It is great to see your magazine growing fast and better compared to other magazines throughout the past many years. I wish *Digit* would become more relevant for all. I think you can now choose programming as a *Fast Track*. It may help starters or hobbyists. Some reading material can be added in the disc. Some book reviews may help all. A column for students would be good.

Inderdeep

Dear Inderdeep,
Good suggestions. We are indeed thinking about one or more *Fast Tracks* on programming, and we are also pondering devoting space in the magazine for students. I am sure you will find this month's *Fast Track to Students' Web* pretty interesting
— Executive Editor

World's Greatest?

"*CRAZY KIYA RE!*" Hey *Digit*, you make me crazy. Change your mag title from DIGIT to DilJEET because *aap ne logon ka dil jeet liya hai*. I await your magazine like a *bird chatak*. I really like the content of the CD/DVD and magazine. I'm a fan of your *Fast Track* series too. You had given a *Fast Track to Web Designing* in July 2006. Can you give a complete *Fast Track* to HTML designing?

Is there any translation software that can translate from English to Hindi or other languages? If so, then I'm very happy if it has been given on your CD/DVD—either a freeware or a trial version.

Again, thanks for giving us the world's greatest tech magazine!

Satyajeet S Patil
Amravati

Thanks for your mail, Swapnil. We are delighted to hear that our magazine makes such a difference to the lives of people.

Regarding a *Fast Track to HTML*—well, let's see if we can do that too. The translation

software for English to Hindi is *Sulipi* and the site that does the same eonline for you is quillpad.com There also exists a Web site for Gujarati translation—**www.gujaratilexicon .com**

— Executive Editor

Who's Your Daddy?

My son is a subscriber, and I get to read his copy of *Digit* and use his CD/ DVD. I have an XP machine, and your mag and CD/DVD are a great help. A couple of suggestions / requests :

1. At the top right-hand corner of every window, there are three little squares—clicking on these will minimize / maximize /close the window. Could you please give the Registry hack for increasing the width (not the height) of these squares ? (It's a little difficult to move the mouse there)

2. Frankly, I am not very comfortable in tackling the Registry—very afraid of it in fact. And you give any number of Registry hacks in every issue of *Digit*! Could you please include these as .reg files on the CD/DVD (a separate file for each hack)—this will help old fogies like me a great deal!

Via e-mail

Dear Sir,
You can change the size of the "Caption Buttons", but both width and height will change. Go to the desktop, right-click and select Properties. Click on the Appearance tab, then click the Advanced button. In the dropdown, select Caption buttons and then increase the size. Click OK and Apply to see the changes.

About .reg files on the CD/DVD, it's a dangerous proposition, because wrong registry values can require a format to fix. Every computer is different, with different hardware and software, so what is just a registry change for one could be a nightmare for another.

— Executive Editor

Even Teachers Dig It

Your sincere efforts in organising technical information is indeed commendable. When I first came in contact with this magazine, it was in my college library, and from that time, I have become a regular reader. I am a lecturer. This magazine really helps me a lot during my lecturership, helps me in organising seminars on various latest hardware and software technologies such as Bluetooth, Wi-Fi, USB ports, wireless tech, etc. It certainly complements our knowledge.

There are three requests I hope you'll consider.

● Please provide some networking and programming content, which is really needed in the present state of affairs.

● Provide Windows Vista OS in detail and its Window working environment with its distinct features in a *Fast Track* issue.

● Please give more consideration to new software applications, their features and usage; it proves to be commercially beneficial.

I know that you take into consideration your overall readership before considering my request, but then, I am also a part or a single drop of your entire ocean of readers.

Bhavana Gupta

Dear Bhavana,
Your first request has been echoed by many readers. We probably will be getting into programming content in the near future. As for your second request, expect a *Fast Track to Windows Vista* soon! And third, we have already begun giving more importance to new software and their features and usage— for example, this month, we have an article on Adobe Photoshop CS3.

Yes, you're just one drop, but many a drop makes the ocean… Thanks very much for writing in!

— Executive Editor

The New Interface

Hi Team Digit, you are doing a splendid job. You never disappoint the buyer; in course of time, your magazine has reached the top position. Hats off to the *Digit* CD/DVD interface—it's mind-blowing. With the customisations you've made, one can be in a separate *Digit* world!

The *Fast Track* gives very, very valuable info. And regarding the March issue, you have given freeware, which is very useful to many enthusiasts.

Murali Krishna

Dear Murali
We put a lot of hard work into the designing of the new interface, and we're so glad to get mail from people like you, appreciating it! Thanks for your feedback.

— Executive Editor

Must...Resist...

LETTER OF THE MONTH

I have been in subscription for two years now, and let me tell you that *Digit* has really gotten better if not excellent in the due course. *Digit* really delivers what readers want from it, but above all, the feeling of awe and adventure we get from waiting for the mag to come out each month is above all the joy we get from reading it.

Digit is as good as any international tech mag, but it needs to create its distinct ground and level of articles to stand out in the spotlight. *Digit*, as I know, is the only mag in India who sets its own standards, and that's what I want it to do at the international level.

However, you can extend the online presence by distributing a special e-copy over the Net for subscribers only. I think that can extend the magazine's ground to the international level. Also, you should publish articles in ratio of the readers based on the interest and knowledge they have; this point becomes clear by saying that a geek doesn't want know how we can effectively use a freeware, while a casual reader would love to know it! Apart from that, what I really miss is a live chart of latest hardware based on performance, performance per price, etc. on the Internet, since the chart you publish is based on your old reviews and does not reflect the present situation.

I would thank *Digit* for bringing out the *Fast Track* to blogging right when I started my own! I am able to generate 30 visits per day!

Aashit Verma

Dear Aashit
Your ideas are all well-thought-out, I must say. The idea of distributing e-copies on the Net for subscribers, however, is not really feasible, since one of the main reasons people enjoy *Digit* is that they can take it around on their commute, read it in bed, in the loo… wherever! I mean, this is not only about *Digit*, it's about any print publication.

We might be doing a nationwide survey of our readers to find out what exactly they want, but until then, what we publish is indeed the "average" of what people want.

Again, a live chart of the type you mentioned is not really possible as of now, for various reasons. We put considerable effort into our tests, and we cannot continually keep them updated.

In any case, keep the letters coming!
—Executive Editor

"Celebs" Autograph Xboxes In Oz

Australia is a sad place. They don't make any movies there, they don't write any books (ever read an Australian book?), in fact, they don't do much except play sports and drink beer—Foster's, of course, which is made in England.

Testimony to that is the list of "celebrities" who will sign customised Xbox 360s for sale on eBay, on the occasion of the first anniversary of the console. The proceeds will go to charity.

Apart from well-loved actor Russell Crowe and well-hated bowler Shane Warne, here are most of the others.

Peter Jackson: There are many of them. A search on IMDb brings up a few. A Wikipedia search brings up a few, too—you get to one of those "disambiguation" pages. And the sixth Google search result takes you to Peter Jackson, Information Extraction expert, definitely not the celebrity in question.

"Legendary" kiddie entertainers The Wiggles. Bet they haven't heard of them in England or places like that.

Megan Gale, who's been called "Australia's favourite face." Never heard of her, of course. But she's mildly pretty, as you can see. And she's of Italian descent, as it happens.

Sportsmen including Andrew Johns. Andrew who? Johns who?

Imagine an Xbox 360 autographed by The Wiggles. That's what they're going to lap up down under—soon.

"Too Thin"

A lot of people in America hate Perez Hilton (no, he's not Paris Hilton's father). It's mostly celebrities who hate him. Here's from the Wikipedia entry for the controversial blogger: "On his Web site, (Hilton) posts gossip items about a variety of celebrities. His posts are usually delivered with an irreverent, tongue-in-cheek and sometimes even cruel slant." Don't you want to visit perezhilton.com already?

Now, in corporate language, people asked, why didn't he stick to his core competence? "PEREZ HILTON'S INTERNATIONAL NEWS AFFAIRS BLOG FAILS," screams the headline on a popular site. If you knew Hilton, you'd know there's no way on earth his style would beautify international news affairs. (He's got pink hair right now, as an indicator.)

Hilton has a lot to say about it. Let him speak for himself:

"I thought my faithful readers would follow me to my new website, but so far, it hasn't panned out, and I don't understand why." "I've had everything from Nicole Richie telling me to call her anorexic to her face, and I've had Tara Reid threaten to throw me in a pool at a party. I wanted to get the very same attention from Iranian President Mahmoud Ahmadinejad and Pakistan's suspended Chief Justice Iftikhar Chaudhry." Just not happening.

PerezHilton.com's daily readership tops four million, but his international news blog's readership is just 400 per day.

Why? Here's a hint. Hilton doodles on the photographs he puts up, and there's one pic on his new blog of a malnourished African kid. Hilton's doodle-comment, pointing to the kid's ribs: "too thin."

The Anderton Tape That Will Be

Never heard of Sophie Anderton? You soon will. We're so ready to report Internet scandals in this space, and we're so shameless about it, this time we're doing it *in advance*! For the benefit of our hot-blooded male readers!

Anderton happens to be a nice-looking English lingerie model, as you can see alongside. A tape of her doing the nasty with her ex-boyfriend "is being circulated," and could come up on the Internet any time now.

Anderton is most known for her appearances in *Maxim*. So why the hullabaloo about this tape? According to our Chicago special correspondent, this tape will make the Pam Anderson/Tommy Lee Jones sex tape look like something for kindergarten kids!

There's a twist to the tale: the tape is up for sale! Our special correspondent says Anderton is desperately trying to buy it to stop it from getting to the Net for all and sundry to watch (after whipping out their credit cards, naturally). And this, despite her ex-boyfriend having assured her it had been destroyed.

It'll be a bid-fest between Anderton and the webmaster who estimates a few million for his new site with the tape on it... remember parishilton-exposed.com?