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FOUR YEARS OF CELEBRATING TECHNOLOGY

4th ANNIVERSARY

June 2005

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YOUR TECHNOLOGY NAVIGATOR

Hello, Convergence!

What Is It? And What Does **It Mean For Our Future?**

Nicholas Negroponte, Kevin Warwick, Punya Mishra, Anil Gupta, And Ganesh Natarajan Tell Us

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The Ultimate Convergence Accessories
The Converged Home
The Wired Human
The Five Most Wired Countries...

The Digital World

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Publisher's Note

Maulik Jasubhai Publisher

The Great Indian Tech Journey

EXACTLY 366 DAYS AGO, while celebrating *Digit's* third anniversary, I hazarded to write in this column about how India is on the verge of that crucial inflexion point where we could take off into the next era of technology innovation and progress. At that point in time, to be honest, we could have gone either way.

I am happy to report that we have indeed broken the sound barrier, and are now zooming ahead into a new dimension, so to speak. Technology is fast being accepted as an integral part of our lives—both personal and professional—more than ever before.

Over the last four years, with each issue of *Digit*, the team here bet on how technology will change our lives; on how it will help us communicate better, utilise limited resources better, and even cut transaction costs to an affordable level.

We believe that, in our very small way, we helped India reach a stage where its citizens (or at least a certain section) are no longer technologically challenged. We are a nation of technology- and knowledge-hungry people, waiting to burst into the international scene. *Digit* recognises that, and this philosophy is reflected in each article we write, each product we review, and each column we opine in.

The sceptics would say that India is still an elephant, and that it cannot dance. That India is a nation of poor people, with little or insignificant demand for technology, despite its billion-plus population. This may be true to a certain extent. No one can deny that more than half our population is poor, and can barely afford two meals a day.

However, if any one aspect of life can take them towards self-reliance, and later prosperity, it is technology. NIIT's Hole-in-the-Wall innovation, ITC's ambitious e-Chaupal project, and HP's Project Muskaan, are all examples of how our lives can be enriched by leveraging technology to generate employment, and create educational opportunities.

As *Digit* enters its fifth year, we reinforce our belief that technology adaptation is here to stay and to accelerate. The coming year would see greater emphasis on *Digit's* part to break new ground in technology communication. We have always innovated for our readers, and this year would no different. It is no coincidence that the year of India's technological inflexion point was also the year *Digit* saw the most growth in readership and mass acceptance.

We are proud and privileged to be a small part of The Great Indian Technology Journey, together with you.

maulik44@jasubhai.com

Broadband, Narrow Minds

"*YAHAN PAR HAMARI kahani* offbeat *ho jaati hai*," said Rajesh Khanna to budding director Asrani while describing a melodramatic movie story in the evergreen comedy Bawarchi. It loosely translates into: "Here is where we have a twist in the tale."

Any discussion on broadband penetration in India reminds one of this dialogue. Was Rajesh Khanna prescient?

Consider the evidence. First, we had the joke played upon consumers by Internet service providers by categorising 128 Kbps speeds as "lightning speed broadband". The government finally put paid to these claims by defining broadband as "minimum 256 Kbps of download speed". Then, the same ISPs began defining their rate cards based on per MB of download, and priced 1 MB at Rs 1.50 if you ever dared to go beyond the specified limit. What they conveniently hide from customers is that they will charge fees based on data transfer—so technically, both uploads and downloads will be charged. Be that as it may, consumers in India still welcomed the "broadband revolution".

But it is at this juncture that the story turns offbeat. The success of broadband in India does not depend on the government opening up bandwidth. Nor does it depend upon the investments and marketing campaigns by Internet Service Providers. And it certainly does not depend upon consumers (those measly, low-life scum).

It all depends, ladies and gentlemen, on your local cable operator. Only if the mighty Multi-System Operator (or MSO; an MSO is a super cable operator like InCable, or Hathway) deems fit, will you get a broadband connection. This is because the MSO itself has an interest in the lucrative broadband business.

Here is how it works: Most broadband Internet connections are given using the cables already laid by the cable operator. The cable operator cannot provide any broadband connection if the ISP does not have a signed agreement with the MSO. So, suppose your MSO has no infrastructure to provide you a broadband connection, but intends to give it in, say, six months' time, we wish you the very best of luck. He will not allow any other ISP to use his cables to give you a broadband connection. For instance, if you stay in an InCable "territory", and you want a Hathway, Sify, or an Iqara connection, you will have to wait until InCable builds its own broadband infrastructure.

Sachin Kalbag Executive Editor

"Only if the mighty MSO deems fit, will you get a broadband connection."

The options are to a) wait; or b) work with your 56 Kbps modem.

Evidently, the trouble with technology penetration in India is not that people don't want to spend—it is that there are too many hurdles to spend that money. The sooner the authorities realise this, the faster we can progress. And yes, we sure don't need another twist in the tale, do we?

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YOUR TECHNOLOGY NAVIGATOR

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COVER
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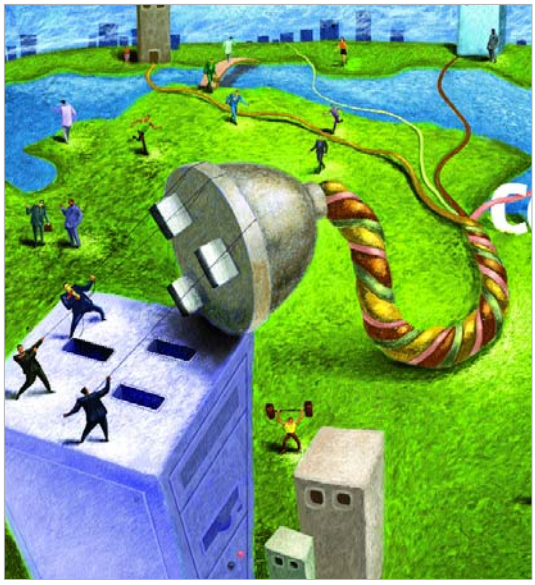

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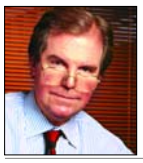

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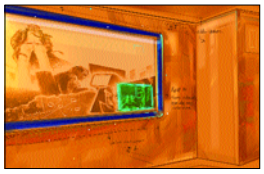

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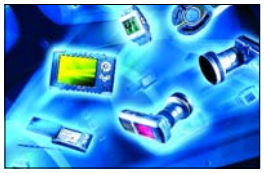

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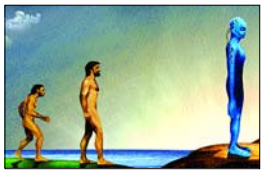

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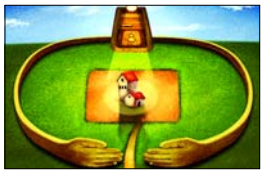

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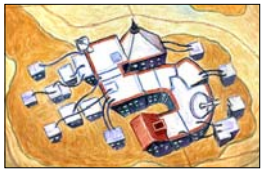

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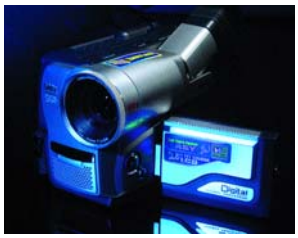

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The Rogues' Gallery

Month after month, these 67 pros work their butts off to bring you India's favourite technology magazine. Meet them right here, right now!

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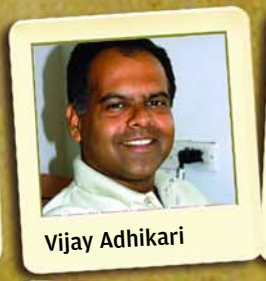
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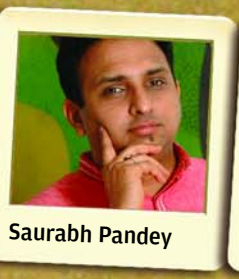
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By Demand

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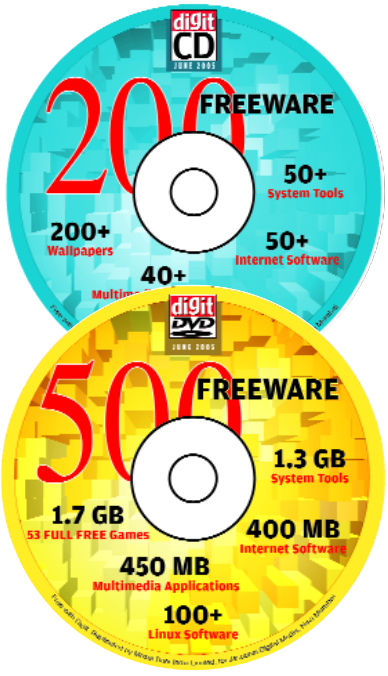

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It really does pay to be loyal! Find out more on **www.thinkdigit.com**

Digit Reader Poll

This Month's Question

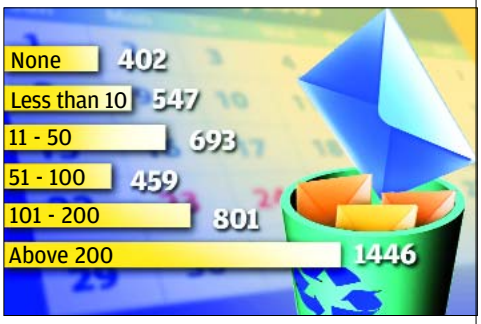
How much of a difference do you think convergence will make in your daily lives?

- ☐ None
- ☐ Make life easier
- ☐ Make life harder
- ☐ Revolutionise it
- ☐ Don't care

Log on to **www.thinkdigit.com** and vote

Last Month's Question:

How much spam mail do you receive in a month?



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- Deepnet Explorer 1.4 beta
- AIMLite 3.0
- CQPhone 2.2
- QWER-Chat 1.2
- Matrix Y2K 2005
- BitWise Chat 1.0.3
- High-Octane Skrypt II
- PalTalk 5.0
- Wysigot Light 5.51
- Maxthon Standard 1.2.4
- AIMutation 1.3.2
- 1site (LITE) 2005.15.186
- GoodAIM build 17
- ircII EPIC4 For Windows 2.2-226
- Belkasoft IE Favorites Extractor 1.01
- VooDoo cIRCle 1.0.29
- Pioneer Report MDI 3.67
- Alleycode HTML Editor 2.15
- EZSurfer 7.3
- Headlines MDI 3.65
- Website Mentor 1.0
- NotJustBrowsing 1.0.2
- Longator 2005 build 5.0.1.5
- LinkLaunch 2.3
- Star Remote Chat 0.34
- Local Website Archive 1.22

121 Freeware 400+ MB

SYSTEM

- Microsoft Data Protection Manager Beta
- Windows XP Service Pack 2

- Autopatcher XP April 2005
- AirSnare 1.06
- IPCheck Server Monitor 4.4.1.521
- DKMessenger 3.8.6
- PC Invoice Free Edition 2.21
- yRead2 2.0.46
- Scannet 3.1.0.143
- PC Inspector File Recovery 4.0
- MiniApps 5.11
- Trend Micro Pattern File
- Madesafe ScanLite 1.0.0.4
- ToolButton 3.5.22
- Task Manager 3.1
- smart recovery 4.5
- Pluck 1.0
- Azureus 2.3.0.0
- NetQuality 2.7
- Personal Stock Streamer 7.0.1
- iNetQuery 2005
- BSpam 1.0.1
- Everest Home Edition 2.00.312 beta
- CS-RCS Basic 4.0.270
- NexMander 0.6.4
- Bart's PE Builder 3.1.4 Beta
- VersionBackup 3.00
- Ad-Aware SE Personal Edition 1.05
- ZenKEY 1.4.13
- SyncBack 3.2.8.200
- AutoIt 3.1.0
- PC Wizard 2005 1.64
- Lexun Backup Solution 2.1
- NT Toolkit 1.80
- DirectX Tweaker Public Beta 2b
- Tarylynn 2.4.722
- ArpCacheWatch 1.1
- Save2FTP 1.5
- Shorts 1.02
- SIW (System Info) 1.49 Build 575
- nLite 0.99.9 Beta 5
- VSO Inspector 1.0.8
- FreePortScanner 1.8
- Favorite Shortcuts 1.8
- Interface Traffic Indicator 1.3.1
- MerX .Network Scanner 2.0.7

122 Freeware 1.3 GB

MULTIMEDIA

- K-3D 0.4.2.1
- GX::Transcoder 2.20.2633 PreBeta 2

- Windows Media Player 10.00.00.3802
- K-Lite Codec Pack 2.44
- Qurio Home Photo Center 1.3
- Focus Free CD Ripper 3.0
- Ace WINScreen 4.5
- ATI DVD Player 7.6 Updated
- Paint.NET 2.1 beta 3
- ATi Multimedia Center 9.03
- Balthers Graphic Groove Box beta
- FXWitz Flash Photo Portfolio 1.0
- Free DWG Viewer 5.2.0.4
- Gordian Knot Rip Pack 0.28.8
- The GIMP 2.2.6
- FotoTime FotoAlbum 4.5.4.1
- AV MP3 Player - Morpher 2.0.96
- Codec Pack All in 1 6.0.2.6
- SilentNight MP3 - CD Player 1.0
- Batch Images Now 1.2
- VCW VicMan's Photo Editor 7.9
- Blender 2.36
- HelDecPack 12OCT2004
- DeliPlayer 2.50 Beta 1
- DVDSubber 2.0.4 (RC1d)
- JukeBox Decoder 2.8.0
- iMp3 1.0
- Monkey's Audio 3.99f
- JustCad 6.0
- Visualizer Photo Resize 2.3
- FairStars CD Ripper 1.02
- JPlayer 1.10
- yPlay 1.0.10
- DScaler 4.1.12
- Wood Workshop 1.0
- Mp3CoolPlay-X 3.4
- PhotoFiltre 6.0.2
- AnaBuilder 2.45.2 beta 7
- Carlanthano v3.6.1280
- Turbosnap 3.0
- Quick Screenshot Maker 2.1.0
- PVAStrumento 2.0.30
- Screen Grab Pro 1.02
- Desktop Manager 1.0
- VUPlayer 2.23

100 Freeware 450+ MB

LINUX

- NetBeans 4.1 beta

- Linux Kernel 2.6.10
- EiffelStudio 5.5
- Netscape 7.2
- Beonex Communicator 0.8.2
- Kdevelop 3.2.0
- Eagle 4.14
- VideoLAN Client 0.7.0
- EMU Webmail 6.0.1
- Nessus 2.0.6a
- Amaya 6.1
- MPP Free Edition 1.12
- Mutt 1.5.9
- IMP 4.0.1
- Balsa 1.2.4
- MZL & Novatech Traffic Statistics Linux Server 1.2.0.0
- FrazierWall 3.5
- FreeWRL 0.28.1
- coindesigner 1.1
- XMMS 1.2.7
- ALOV Map 0.57
- SIP Express Router (SER) 0.8.14
- gxsnmp 0.0.16
- Downloader for X 2.5 Beta 2
- klogic 1.62
- Firestarter 1.0.0
- Mrtg 2.10.11
- xmms-kde 3.1 Beta 1
- StarLink XFwall - KDE Professional Firewall 1.3-15st
- CyberNAS RED 2.2
- AlsaPlayer 0.99.76
- ProzGUI 2.0.5 Beta
- ELM 2.5.7
- Concurrent Versioning System 1.11.1
- KImageMapEditor 0.9.5
- Mason 1.0.0
- Mirrordir 0.10.49
- QmailAdmin 1.2.7
- AWStats 3.2
- CrashMail II 0.71
- Althea 0.5.7
- imp3sh 0.2.3
- KTail 0.5.1
- Gnome Telnet 2.5
- TkAntivir 1.41
- ProZilla 1.3.7.3
- ECLiPt Mirror 2.1.18
- CIPE 1.5.3

103 Freeware 315+ MB

ENTERTAINMENT

- America's Army Special Forces (Firefight)

- Hidden And Dangerous

- Food Force
- GunBound
- Jets 'n' Guns
- Beats Of Rage
- WWII: Rescue
- Alien Shooter
- Laxius Power 1.1
- CheatBook-DataBase 2005 1.0
- Mario Forever
- Xeno Assault II
- Neo Sonic 3: Revelations
- Chex Quest 1 and 2 Combo Pack 0.6
- Gythol Granditti: The Crypt of Darkness
- Well Of Souls
- Inside The Beast 1.0
- The Crypt 1.1
- Billy Bob: Invasion to the Flying Islands
- Icy Tower
- The Sandbox of God
- Super Mario XP
- Nova 3000

53 Free Games 1.7+ GB

CD FEATURING 200 FREEWARE

- 404Browser 2005R1
- Avant Browser 10.0.167
- Chainsaw 4.7
- CoffeeCup Free HTML Editor 7.0
- Crazy Browser 2.0 Beta 1
- Download Express 1.7.315
- EasyLogin 1.0
- eDonkey2000 1.1.6
- Emoticon Studio 6.0
- FastStone 4in1 Browser 1.1
- Free Download Manager 1.7.288
- Fresh Download 7.28
- Gaim for Windows 1.2.1
- Google Toolbar 3.0.121 beta
- IceChat IRC Client 5.50 Build 010905
- ICQ 5.04
- IM2
- iMesh 5.0
- Inbit Messenger 2.01
- iPOPMusic 2.0
- iSpQ VideoChat 7.2.21
- KidRocket Web Browser 0.99F
- K-Meleon 0.9
- LAN Messenger 0.7 beta 4
- LimeWire 4.8
- Maxthon Combo 1.2.4
- mIRC Power Pack 7.10 RC5
- Mozilla 1.7.7

- Mozilla Firefox 1.0.3
- Netscape Browser 8.0 beta
- Opera 8
- PageBreeze Free HTML Editor 3.0c
- Portable Firefox 1.0.2 beta
- Portello 1.04.0004
- Realpopup 2.6 build 167
- RSSNewsTicker 0.9.6
- SpeedyMSN 1.4
- Star Downloader Free 1.4.4
- Star Messenger 1.0
- TeamTalk 3.0
- Trillian 3.1
- TrueDownloader 0.82
- Windows Messenger 5.1.0639
- Windows Messenger Remover 1.0
- XMLEditPro 2.1
- Y!Multi Messenger 6.0.0.1922
- Yahoo Toolbar with Anti-Spy 5.5.5
- Yahoo! Messenger 6.0.0.1922

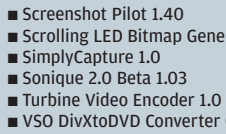
51 Freeware

- 7-Zip 4.18 Beta
- A-ToolBar 3.00
- AutoRuns 7.01
- Autostart and Process Viewer 1.1
- BySoft Network Monitor 1.2
- Central Brain Identifier 7.5.0.0 Build 0409 R1
- Clipboard Recorder 2.1.1
- clone maxx 1.0
- CPUMon 1.30
- Delete Doctor 2.1
- Desktop UI Renamer 1.0
- FastSum 1.9
- Folder Size Explorer Extension
- Foxy SQL Free 1.0
- Fresh UI 7.33
- Game XP 1.5.2.2
- GCPUID 1.9.0133
- Google Desktop Search 1.0 final

- HDDlife 2.0.50
- Headline Viewer 0.9.9
- IBM - Hitachi Drive Fitness Test 4.02
- Intel Chipset Software Installation Utility 6.3.0.1008
- IrfanView 3.97 ALL plugins
- Kerio Personal Firewall 4.2.0 Build 664 Beta 6
- LanSpy 2.0.0.155
- MemSpy 3.6
- Microsoft USB Flash Drive Manager (Standard)
- MountVD 4.0.30
- MSConfig Cleanup 1.1
- MyBackup 1.01
- NetStumbler 0.4.0
- Partition saving 2.90
- Power Defragmenter 1.82
- ProcessTamer 2.00.15 beta
- Renamer 1.4
- SC-DiskInfo 1.11
- Skype 1.2.0.48
- SmartFTP 1.1.985
- SpeedFan 4.23
- SplitFile 1.2
- Spybot - Search & Destroy 1.3
- SpywareBlaster 3.3
- System Spec 1.18
- TaskSwitchXP 2.05
- TitleFix 1.0
- Tweak FX 8.0 Beta
- TypeAndRun 4.6.1
- Unstoppable Copier 1.9
- Urfin 1.2 beta
- Yahoo! Desktop Search 1.1 beta

51 Freeware

- 11view 2.6
- AC3Filter 1.01a RC5
- ac3fix 0.3

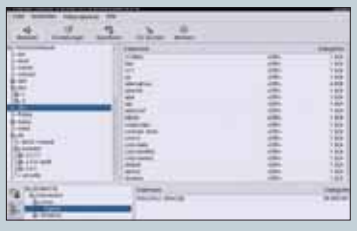


- ACE Mega CoDecS Pack 6.03
- Anvil Studio 2004.10.01
- AOL Media Player Beta 3
- Ashampoo Media Player 2.03

- AVdrum 0.2
- AVI Preview 0.26 alpha
- Avi2Dvd 0.2.4 beta
- AVIcodec 1.2 b108
- Batch AutoCorrector 0.8
- cam2pc - Freeware 4.5.4
- Canopus DV File Converter 1.1
- DivXRepair 1.0.1
- Easydivx 0.8.2.0
- Evil Player 1.00
- FastStone Photo Resizer 1.4
- FastStone Screen Capture 1.5
- FirePaint 2005 1
- FLAC for Windows 1.1.1a
- Fmod 3.74
- foobar2000 0.8.3
- GDS Screen Capture 1.0
- GrabCaptureScreen 2.0.5.3
- Guitar and Drum Trainer 2.0
- Juke 3.8.6
- KaraFun 0.80
- LameXP 1.01
- MPEG2Schnitt 0.6l-b
- Photo Sorter 3.0.0
- QuickPlayer 1.00 beta 36
- Riva FLV Encoder 1.20
- Screenshot Pilot 1.40
- Scrolling LED Bitmap Generator 3.1.0
- SimplyCapture 1.0
- Sonique 2.0 Beta 1.03
- Turbine Video Encoder 1.0
- VSO DivXtoDVD Converter 0.5.2
- xraster 0.9
- Winamp Full 5.08

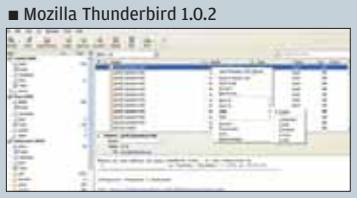
41 Freeware

- AbiWord 2.2.7
- Aethera 1.2.0
- AMaViS Virus Scanner 0.3.12
- aMule 2.0.0-rc8
- Analog 5.24
- Apache HTTP Server for Linux 1.3.33
- Apollo 1.4.2
- Axel 1.0a
- Bluefish 0.11
- BWMon 0.9.1
- Cajun 4.0
- CaMail Modular Webmail 0.21
- CDRecord (cdrtools) 2.0
- Ethereal 0.10.0
- Ezail 0.1.2
- Galeon 1.2.11
- glFTPd 1.26 Beta 2
- GMailWatch 1.2
- Gnome Toaster 1.0 Beta 6



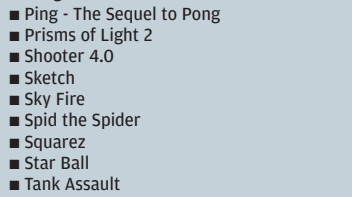
- gShield 2.7.1
- GuardDog 2.0.0
- IAn Webmail 1.0
- KBear 2.0
- KDE Multimedia 3.1.4
- Kino 0.7.0
- kmail 1.0.29.2
- Lynx 2.8.3
- Mozilla 1.8b1
- Mozilla Thunderbird 1.0.2

43 Freeware



- mpg123 0.59s
- MPlayer 1.0 pre 7
- Pine 4.62
- Pure FTP server 1.0.7
- rsync 2.5.0
- Scintilla 1.62
- Sylpheed 1.9.6
- The Circle 0.16
- W3Perl 2.8.8
- WU-FTPD 2.6.2
- X MPEG Player System 2.0
- X-CD-Roast 0.98 Alpha 15
- XChat 2.0.2

- 200+ wallpapers



- Animal Fun
- Bird Hunter
- Bombermania

- GeneRally
- Hangman
- Helicopter Escape
- Hot Air 2
- Infection
- J-Ball
- Jetz Fusion
- Jetz Rampage 2
- Jumper + Level Editor
- Jumper Two
- Liquisity
- Martyrdom Dungeon
- Mummy's Curse
- Nikki the Ninja
- Onslaught
- Ore No Ryomi 2
- Pac-Manic Worlds 3D
- Penguin Panic
- Ping - The Sequel to Pong
- Prisms of Light 2
- Shooter 4.0
- Sketch
- Sky Fire
- Spid the Spider
- Squarez
- Star Ball
- Tank Assault
- Dungeon

30 Freeware

Note 1: Grey areas show content available on the CD. The DVD also contains all that is on the CD
Note 2: If you do not want to boot from the CD, remove it from the drive at startup

Hacking Ported

Developers have figured how to extract files from the Universal Media Discs used in Sony's PlayStation Portable, though there is no way to play the extracted games. Movie studios will release some of their films on the UMD format, but it's not clear if the technique would work for films.

New Windows For Fake

Microsoft is offering Americans compensation if they bought a dodgy copy of Windows in exchange for information on its source. The compensation will be in the form of a handy little product activation key by e-mail, followed by a nice new legit copy of Windows XP in the post.

Enter

Bharat Dabholkar
Film Actor And Director

A lawyer, advertising professional, actor, fitness enthusiast and now a film director—Bharat Dabholkar's roles in real life are as interesting and varied as those in reel life. Here's his take on technology.

What does technology mean to you?
I think technology is essential to make life easier. The new tools are giving a new perspective to life.

What role does technology play in your life?
I read about all the latest developments in the market.

How often do you surf the Net?
Everyday—I check my mails regularly, and get my daily dose of technology updates by reading online.

What gadgets do you own?
I do not own anything beyond my cell phone and Tablet PC.

What do you feel about convergence of devices?
Convergence is very futuristic, but is beneficial to the consumer. However, people usually end up buying things impulsively, and later realise that they do not use these hi-tech products.

You have been a lawyer, actor, and advertising professional. Where has technology has evolved the most?
The entertainment industry has been the largest beneficiary. Today, it is possible to make and transfer films digitally, saving huge amounts of money. Besides, it also reaches a wider audience. Technology can also help improve the quality of films and help curb piracy.

IS THE TIGER LIMPING?

Security Holes And Compatibility Issues Could Plague Tiger

The Tiger is on the prowl and everyone raving about its new features and considering the initial sales figures it may surpass the Panther's first quarter sales figure very soon.

But is everything sunny in Tiger land? Bugs and errors are being reported daily, and the present trickle could turn into a torrent if Apple and their associates don't take remedial measures.

Programmers have detected a security hole in Dashboard, a suite of programs called widgets that often access information on the Internet, which could expose users of Tiger to attack, and may put personal information like passwords and credit card data at risk.

Tiger comes preloaded with 14 widgets, including a world clock, a dictionary and a weather station. For the convenience of users, most widgets automatically install themselves. Experts fear that any program that auto-installs is ripe for exploitation.

A growing number of Mac experts are sounding the alarm over the dangers of widgets—which can carry Unix commands that could be run invisibly from within.

A few of the other widely reported flaws are SMB file sharing and authentication problems with Microsoft's Active Directory. Although Apple's Tiger increases support for Server Message Block file sharing and Active Directory, several sources say that the Finder fails to log on to Windows and Linux Samba file servers.

Some installations are also finding that Windows workstations can't log on to the Mac after upgrading to Mac OS X 10.4.

Another niggling problem is a compatibility issue with enterprise software. Adobe said Acrobat 7 has a problem with QuickTime 7, which ships with Tiger.

Illustrations: Harsho Mohan Chattoraj

"We are aware of an issue that prevents the playback of QuickTime content embedded in PDF files when using QuickTime 7 Player on all supported versions of Mac OS X," said an Adobe representative. Adobe said that it would issue a fix in an upcoming maintenance release, but did not say when.

Five of Symantec's Mac products are incompatible with Tiger, but the company said there was nothing unusual about the Tiger release due to the nature of Symantec's utility software.

Tiger also has caused some incompatibility with driver-level software related to hardware. The Radeon X800 XT graphics card from ATI Technologies has ROM software that is incompatible with Tiger.

The ROM software can cause a kernel panic, a type of crash when the Mac screen is covered with lines of code.

Users can also see kernel panics when upgrading to Tiger with Maxtor FireWire and USB hard drives connected to the Mac. Maxtor, in fact, recommends that users disconnect Maxtor external drives before running Apple's Tiger installer.

The company, though, said it could not predict when a fix for these holes could be available.

Security Watch

Googkle.com

The Problem

In April, a warning was issued by Finnish anti-virus vendor F-Secure Corp. about a problematic site, googkle.com. One can reach this site by misspelling 'google.com'—and typing in 'googkle.com'—in the title bar of a Web browser.

The Damages

When googkle.com is opened in a browser, two pop-up windows are immediately launched, with redirects to third-party sites loaded with scripts. One of the sites, ntsearch.com, downloads and runs a 'pop.chm' file, and the other, toolbarpartner.com, downloads and runs a 'ddfs.chm' file, F-Secure said. "Both files are downloaded using exploits and they contain exploits themselves to run embedded executable files. One of the Web pages of the 'toolbarpartner.com' website downloads a file named 'pic10.jpg' using an exploit. This JPG file is an executable that replaces Windows Media Player," the warning reads. Also launched are a steady stream of pop-up Web pages with different .exe files. One batch of exploits loads a malware package that includes two backdoors, two Trojan droppers, a proxy Trojan, a spying Trojan and a Trojan downloader.

Precautions

It's mostly users of IE that seem to be affected. Windows XP users who have installed SP2 are also safe. However, to be on the safe side, just don't misspell 'google'!

WELL DONE, DELL!

Dell Integrates Windows x64

Dell will factory-install Microsoft's Windows XP Professional x64 Edition and Windows Server 2003 x64 editions operating systems across Dell Precision workstation and PowerEdge server lines. It has also reinforced available professional services that support faster migration of the enhanced features available in the x64-bit operating systems.

"Dell hardware has been 64-bit ready since June 2004, and we have worked extensively with Intel, Microsoft and applications vendor partners to drive development of standards-based solutions," said Jeff Clarke, senior vice president, Product Group, Dell. "Dell is committed to helping customers migrate from costly, proprietary platforms to cost-effective, and standards-based environments.

This is the same strategy that has delivered Dell workstation customers up to 10 times the performance at a tenth of the cost."

Dell PowerEdge servers with integrated Windows Server 2003 x64 Editions will be available in June.

YAHOO! GOES VIDEO

Yahoo's Video Search Is Out Of The Beta Phase

Yahoo! Inc. has shifted its online video search tool out of its test phase, marking another step in the Internet powerhouse's plan to use other media to lure more visitors to its Web site. The Sunnyvale-based company created a separate search channel for online videos in December. The product had been running as a test till recently.

As part of the upgrade, Yahoo! is indexing more video from several new media sources, including MTV and The Discovery Channel. Yahoo! touts its search engine as the Internet's most comprehensive source for finding online video, although the company won't disclose the index's size.

The push into online video has been driven largely by the growing number of homes with high-speed Internet connections, said Bradley Horowitz, Yahoo's director of media and desktop search. The speedier connections make it easier to watch video online without the delays and choppy delivery commonly experienced on dial-up connections.

Video clips available at video.search.yahoo.com include movie previews, excerpts from previously broadcast TV shows as well as original content. Yahoo! is counting on video search to give it an advantage over Google Inc. Google processes about 47 percent of online searches in the US, leaving Yahoo! a distant second with 21 percent of the market, according to Nielsen/NetRatings.

"We want to be the place to go whenever people are trying to find online video," Horowitz said.

Google is testing an online video guide that relies on an index of closed-caption text from previously aired TV programmes, and recently began to encourage visitors to submit personal videos so they can be indexed.

HOT

Opera 8

The latest avatar of this browser doesn't disappoint. It has all the customisable features and tweaks to keep the advanced user happy, while the neat interface should suffice for all the needs of the basic user.

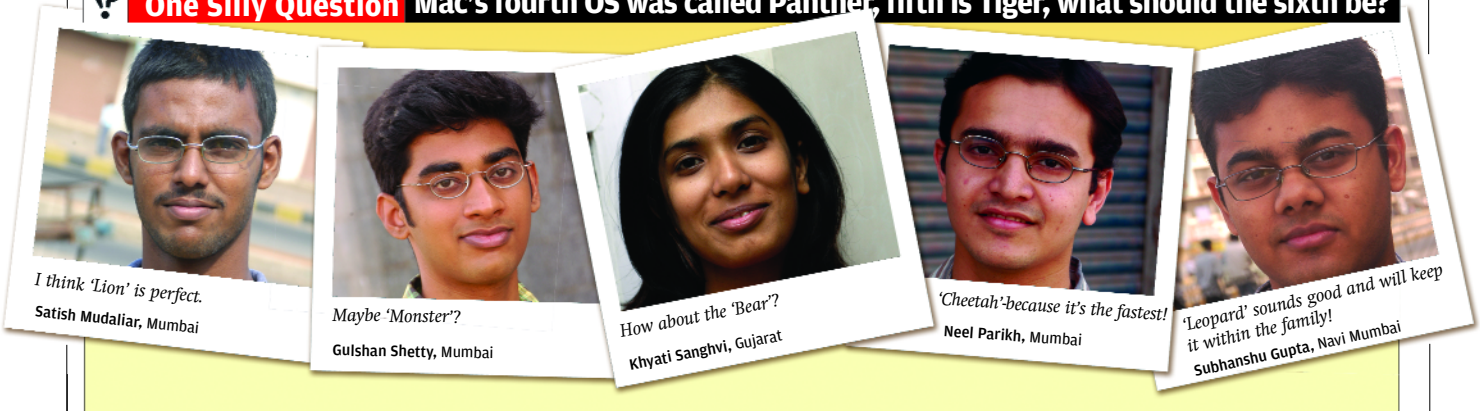
NOT

Netscape 8 Beta

Netscape 8, though in beta stage, comes with a very crisp and sharp-looking interface. This, however, doesn't translate into excellent features. It's based on Firefox, and yet is bulkier, and lacks features and customisation options.

One Silly Question

Mac's fourth OS was called Panther, fifth is Tiger, what should the sixth be?



I think 'Lion' is perfect.
Satish Mudaliar, Mumbai

Maybe 'Monster'?
Gulshan Shetty, Mumbai

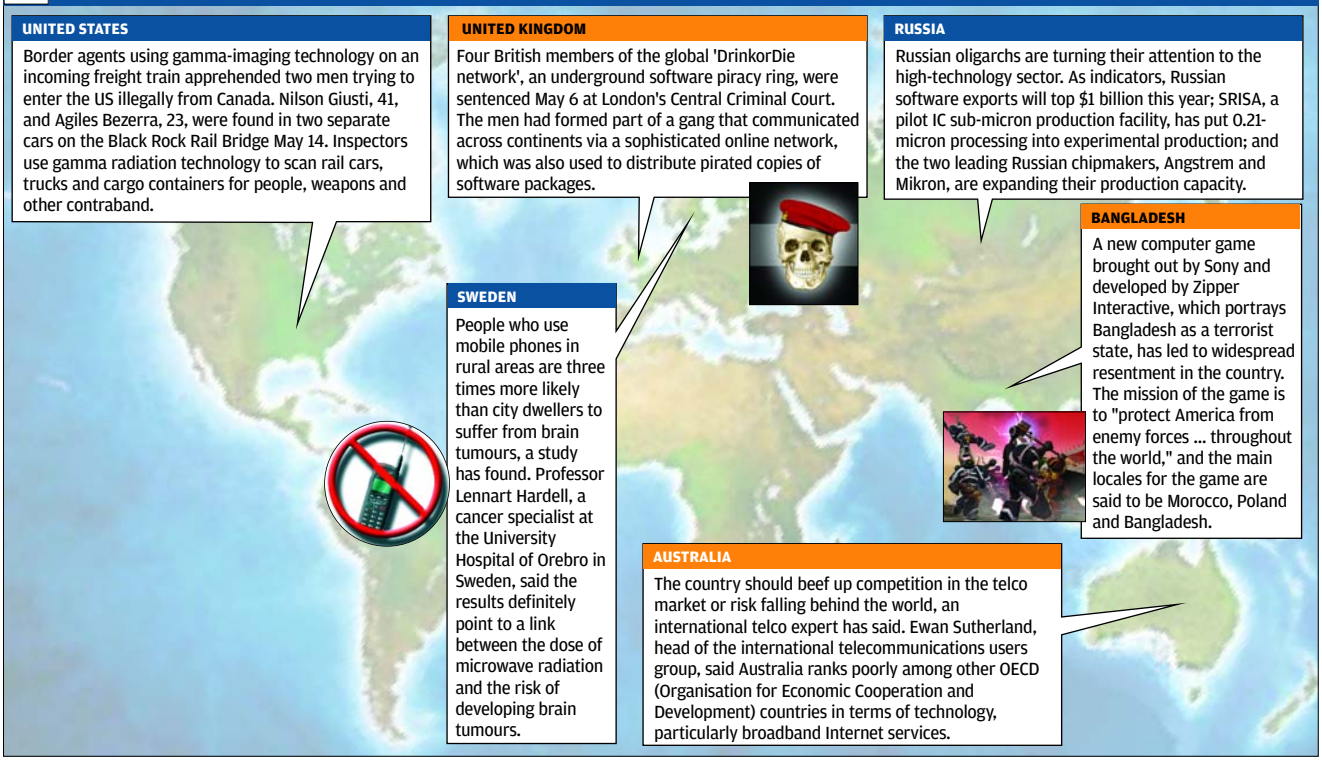
How about the 'Bear'?
Khyati Sanghvi, Gujarat

'Cheetah'-because it's the fastest!
Neel Parikh, Mumbai

'Leopard' sounds good and will keep it within the family!
Subhanshu Gupta, Navi Mumbai

The Digital World

A Round-up Of Technology News From Across The Globe



UNITED STATES

Border agents using gamma-imaging technology on an incoming freight train apprehended two men trying to enter the US illegally from Canada. Nilson Giusti, 41, and Agiles Bezerra, 23, were found in two separate cars on the Black Rock Rail Bridge May 14. Inspectors use gamma radiation technology to scan rail cars, trucks and cargo containers for people, weapons and other contraband.

UNITED KINGDOM

Four British members of the global 'DrinkorDie network', an underground software piracy ring, were sentenced May 6 at London's Central Criminal Court. The men had formed part of a gang that communicated across continents via a sophisticated online network, which was also used to distribute pirated copies of software packages.

RUSSIA

Russian oligarchs are turning their attention to the high-technology sector. As indicators, Russian software exports will top $1 billion this year; SRISA, a pilot IC sub-micron production facility, has put 0.21-micron processing into experimental production; and the two leading Russian chipmakers, Angstrem and Mikron, are expanding their production capacity.

BANGLADESH

A new computer game brought out by Sony and developed by Zipper Interactive, which portrays Bangladesh as a terrorist state, has led to widespread resentment in the country. The mission of the game is to "protect America from enemy forces ... throughout the world," and the main locales for the game are said to be Morocco, Poland and Bangladesh.

SWEDEN

People who use mobile phones in rural areas are three times more likely than city dwellers to suffer from brain tumours, a study has found. Professor Lennart Hardell, a cancer specialist at the University Hospital of Orebro in Sweden, said the results definitely point to a link between the dose of microwave radiation and the risk of developing brain tumours.

AUSTRALIA

The country should beef up competition in the telco market or risk falling behind the world, an international telco expert has said. Ewan Sutherland, head of the international telecommunications users group, said Australia ranks poorly among other OECD (Organisation for Economic Cooperation and Development) countries in terms of technology, particularly broadband Internet services.

TALK THE TALK

Cisco And IBM To Launch Speech-Enabled Solutions

IBM and Cisco plan to deliver to contact centres speech-enabled self-service solutions that combine IBM's WebSphere Voice Server product and Cisco's Customer Voice Portal.

The solutions would combine IBM's integration and application infrastructure software and speech technology with Cisco's Internet Protocol (IP) communications and focus on self-service speech applications, which together can enable easier deployment of customised speech applications that enhance the customer experience.

The IBM/Cisco offerings will be designed to let businesses extend enterprise-class speech self-service to remote locations across both IP and non-IP networks—including local and branch offices. When banking customers make after-hours calls to their local branch, they won't be limited to voicemail, or be asked to call another phone number. The Cisco and IBM solutions can allow customers to use speech to interact with centralised automated applications that reflect up-to-date transactions and past history.

Three Incredibly Useful Sites

Files, Freebies, Answers

www.softpedia.com

SOFTPEDIA

A deft download site with scores of free software. The site claims to be the encyclopedia of free software categories such as Science and CAD to the usual games, system, media routine. The neatly arranged interface is user-friendly with no download more than a couple of clicks away. The site also has links to the latest news from the software and media world.

www.dll-files.com

DLL-files.com

What do you do when a program fails to load because of a missing .dll file? Go to www.dll-files.com. This site is your one-stop shop for such problems with over 400 common .dll files available for free download. So the next time your PC shows a ".dll file missing" message, don't wring your hands in despair.

www.answers.com

Answers.com

If you have the questions, these guys will give you the answers. That's right. Detailed answers culled from over a hundred online encyclopedias and not just links to those answers. www.answers.com has a search engine-like interface and throws up very comprehensive results for your queries.

Beat That!

Photograph **Jiten Gandhi**

Every month, *Digit* will carry a caption for a photo. Come up with something funnier, and beat the *Digit* team at their own game!

Digit Caption
"No, sorry I don't make house calls!"

Last Month's Winner!
Dr Vikas Malhotra

"Kabad-E-walla.com"

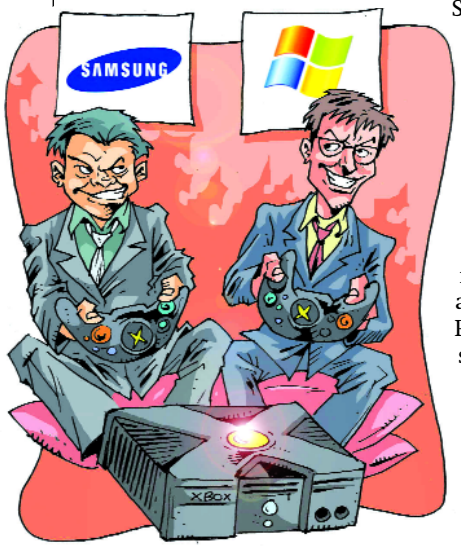
Send your captions to **beatthat@thinkdigit.com** and win the **Family UtilityCD** from Numeric Power Systems Ltd

OPPOSITES ATTRACT

Samsung, Microsoft Join Hands On Next-Gen Xbox

Samsung Electronics and Microsoft have allied to elevate gaming to the next level through high-definition (HD) technology. Microsoft has chosen Samsung as the exclusive High Definition Television (HDTV) worldwide marketing partner for the next-generation Xbox HD gaming platform.

The next-generation Xbox and Samsung HDTV combination is designed to deliver the most advanced and realistic high-definition experience to gamers worldwide. To promote the HD Era, the companies plan to place over 25,000 Samsung HDTVs in Microsoft Xbox retail kiosk locations across the globe.



The new 23-inch Samsung LCD TV (LNR238W) to be paired at retail with the new Xbox console offers a 12-millisecond pixel switching speed, which will enable intense action while overcoming any motion artefacts. In addition, the Fixed Pixel Device eliminates scan lines, further ensuring the game play is smooth and flicker-free. Picture quality combines with advanced audio technology to create the perfect gaming experience. To leverage this Samsung's HDTV inbuilt speakers would emulate the most realistic surround sound using SRS Tru-surround XT, so the action feels even closer.

WORLD CUP VIRUS

Virus Spreads By Promising Free Tickets

A bilingual computer virus spreading through fake e-mails crashed the computers of the World Cup organising committee, overloading the system with millions of e-mails.

The virus is contained in attachments coming from senders with addresses such as ticket@fifa.de or gewinn@fifa.de, telling fans they have won tickets to next year's tournament. Organisers were still unable to send e-mails, spokesman Gerd Graus said.

Like earlier versions of the 'Sober' worm, the virus can travel in both English and German-language e-mails as a malicious attached file. The worm can use a variety of different subject lines and message bodies, said Graham Cluley, senior technology consultant for London's Sophos computer security firm.

If a user opens the attached file, they'll get infected, and the worm will mass-mail itself to other e-mail addresses found on the infected computer. "Many people will be eager to attend one of the biggest sporting events in the world next year, and may think it is worth the risk of opening the e-mail attachment just in case the prize is for real," Cluley said.

Fans who got tickets got an immediate e-mail confirmation, without an attachment. Organisers already have foiled a fraudulent attempt to place more than two million orders for World Cup tickets from the United States.

FLOATING CLASSROOMS

XIMB Launches PG Course On A Virtual Platform

Come July and 150 students enrolled into the PCPBM programme offered by the Xavier's Institute Of Management, Bhubaneswar, will log into the Reliance WebWorlds closest to their homes for their lecture. Part of a new e-learning initiative, this virtual classroom platform will offer a real-time multi-way audio and visual presence of the professor and the students.

This one-year programme will be divided into three trimesters and have 300 contact hours. Of these, 240 would be via the virtual classroom format and 60 on campus with direct classroom contact. "This is the first time that such a programme has been taken via video-conferencing to the entire country," said E Abraham, Director, XIMB.

Reliance Infocomm would be providing the latest in broadband and video-conferencing technology with a dedicated 768 kbps line to enable video communication in real-time. This high bandwidth would allow students to make presentations, refer to course materials online, and interact with the professor simultaneously. An added feature would be the recording of every lecture.

This database of lectures would therefore be useful for students for future reference. "This sort of technology provides both the students and the professors with a large amount of flexibility," says Sarup Chowdhury, CEO, Reliance WebWorld. "A student will not miss a class just because he is another city. All he has to do is patch in from the city that he is in."

Currently targeted at executive level students, the total cost of the course is Rs 1.8 lakh. This programme will be followed by another in Rural Management, which will employ the same virtual classroom platform and commence in Oct 2005.

NEW AND IMPROVED

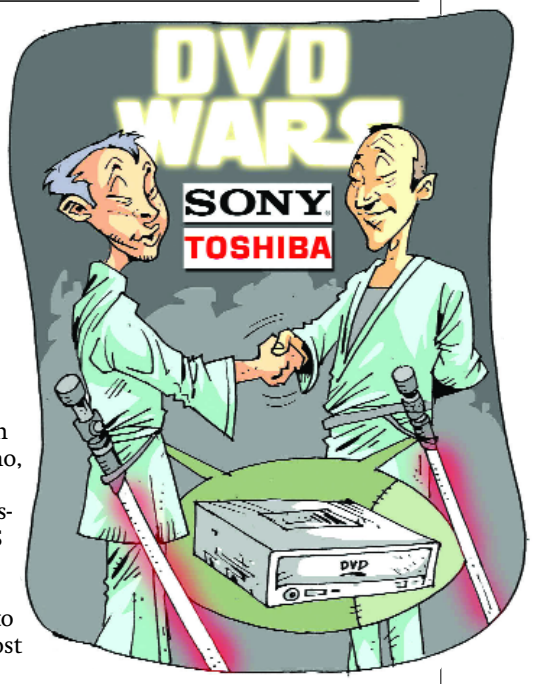
Autodesk Combustion 4 Launched

The Autodesk Media and Entertainment Division (earlier called Discreet) of Autodesk Inc, a leading design and digital media creation, management, and distribution company, launched the Autodesk Combustion 4 software, the upgrade to its visual effects desktop software solution.

With Combustion 4, artists will have access to 3D compositing, comprehensive motion graphics capabilities, numerous filter and particle effects, advanced colour correction, tracking and image stabilisation technology, powerful vector paint, warping and morphing, text effects, simple editing, advanced animation and expressions, Flash output and more, all from the specially designed, unified and easy-to-use interface.

Version 4 also provides enhanced interoperability with most 3D animation products including Discreet's 3ds Max, cleaner encoding software, and its systems products such as Flint, Flame, Inferno, Fire and Smoke.

Autodesk Combustion 4 will sell for US $995 (Rs 42,700 approx); an upgrade from Combustion 3 to Combustion 4 will cost US$ 249 (Rs 11,000 approximately).



UNITY IS STRENGTH

Sony And Toshiba Want To End Format War

Japanese technology giants Sony and Toshiba are working towards an agreement to develop a new unified standard for next-generation DVDs, after battling three years for separate rival standards.

Sony and Matsushita Electric Industrial introduced the Blu-Ray standard in February 2002 and Toshiba and NEC followed with the HD DVD standard. Both camps were also courting a number of Hollywood studios for support of their format. However reports suggest that the two camps are working towards reaching an agreement on their joint development.

Nihon Keizai Shimbun, a Japanese daily, popularly known as Nikkei, said Sony and Toshiba stepped up closed-door negotiations in February to find a resolution to their standoff. After reaching a basic agreement that a unified standard would be desirable, they were now looking to develop a hybrid standard that took advantage of each standard's strengths, the newspaper said.

Sony and Toshiba had begun briefing Walt Disney and AOL Time Warner, as well as Hollywood movie studios, to receive their approval for a unified standard and to pave the way for the signing of an official agreement between the rival camps, Nihon Keizai Shimbun said.

Buzzword of the MONTH

360

First it was Yahoo!, offering their Yahoo! 360° service—the regular Geocities-style free Web hosting with the added feature of a blog. Next it was Microsoft, christening the latest Xbox version 'Xbox 360'. We preferred Xbox 2, but since when did we have a say!

We did a Google search for the word '360' and got 104 million results. Then we did a search for '360 degrees', and got almost 3 million results!

Although it's nice that the biggies are trying to offer 'complete' solutions (thus the term 360), we think they could do with some new blood in their creative departments!

RSA

What is RSA?
RSA is an encryption algorithm. It is widely used for encrypting important messages or digitally signing documents for e-commerce, and is included as part of the Web browsers by Netscape and Microsoft.

Who developed RSA?
The encryption algorithm was developed by Ron Rivest, Adi Shamir and Len Adleman (R, S and A) at the Massachusetts Institute of Technology (MIT) in 1977.

How does it work?
RSA encrypts on the principle of a private key and a public key. Users who wish to encrypt data first encrypt the message using a private key. This encrypted message can only be decrypted using a public key, which has already been distributed to the recipients of the message. The primary advantage of RSA comes from the fact that, while it is relatively easy to multiply two huge prime numbers together to obtain their product, it is computationally difficult to do the reverse.

Where does RSA stand today?
RSA is still the most widely used encryption algorithm. However, while other standards such as DES are faster to decrypt, RSA remains an industry favourite for encrypting data, with many believing that its 2048-bit key encryption is virtually unbreakable.

Why use an encryption algorithm at all?
With so much electronic data interchange (EDI) taking place in the form of e-commerce, it's essential to secure critical data. Several privacy laws make it mandatory that personal information of customers and its integrity is not compromised.

When will RSA be cracked?
Although RSA securities claim that the 2048-bit key encryption cannot be cracked, they offer bounties of up to $200,000 (Rs 87 lakh) to anyone who can crack their algorithm.

THE VISUAL PRISM

SGI Introduces Linux-based Visual System

Silicon Graphics Systems India (SGI) launched the Linux-based visual computer product line, the Silicon Graphics Prism family of visualisation systems in India. With the Silicon Graphics Prism, SGI becomes the only hardware company in the world to offer a visual computer product line, based completely on open standards with Linux OS and commercial off-the-shelf components such as Intel Itanium 2 processors and graphics accelerators from ATi.

Scaling from one to 16 graphics pipelines and from one to 256 processors, the Silicon Graphics Prism family offers many times the visualisation capacity of any currently available computing system. For users, this scalability translates into the ability to interactively visualise terabytes of data in their native form without spending time culling it beforehand.

PROTECT YOUR SYSTEM

HP Launches Desktop With Security Features

Designed to help protect customers' business systems, the new HP Compaq dc7600 Business Desktop will be the first to ship standard with the HP ProtectTools embedded security chip. Developed by Broadcom, the chip provides customers with hardware-based encryption, enhanced data protection and system access.

The new chip allows HP to deliver the first business desktop compatible with the future security features expected in Microsoft's Longhorn OS.

The dc7600's customised thermal design also helps enhance productivity and minimises system downtime by providing customers more reliable systems. The airflow design is structured to help cool all components of the desktop, as increasing demands for power are required.

In addition, the dc7600 series is the first desktop PC from HP to fully meet the European Union's Restrictions on Hazardous Substances directive. All PCs sold in EMEA must meet these requirements by July 2006 and HP is moving quickly to make it easy for customers to plan their desktop deployments.

NEW CHIP ON THE BLOCK

AMD Launches Multi-Core Opteron Processor

AMD has launched its dual-core 64-bit Opteron processor for servers and workstation PCs in India almost a month after its launch in America. According to AMD the new processors will improve performance by almost 90 percent as compared to single-core Opteron processor.

With the Direct Connect Architecture AMD has eliminated the Front Side Bus Architecture, thus eliminating the data transfer bottlenecks. The processors were designed from ground up to directly connect two cores on a single die, along with memory, I/O and dedicated caches. Each of these CPU core has it's own 1 MB L2 cache. An integrated DDR DRAM memory controller decreases the memory latency and increases performance power. With support to upto three coherent HyperTransport Technology links each processor provides a peak I/O bandwidth of upto 24 Gbps. The company also claims that the processor provides the best performance-per-watt ratio. The non-disruptive upgrade path of the Opteron is

another elegant feature that will attract consumers, says the company. The dual-core processor will work just as fine with the same infrastructure as a single-core AMD 64 processor.

Speaking at the launch, Ajay Marathe, President AMD India said that the simple out of the box offering ensured that the users would not have to undertake huge upgradation costs while moving from a single-core to a dual-core processor. The new processor also supports the present 64-bit and 32-bit software available in the market.

Offered in three series, 100, 200 and 800, the Dual-Core AMD Opteron 800 and 200 series has been available since May.

AMD also announced that the AMD Athlon 64 X2 processor will be launched in June this year.

Compiled by Aditya Kuber, Mithun Kidambi, Preethi Chamikutty, Ram Mohan Rao and Renuka Rane

Contour Perfit Mouse Optical

At first glance, the Contour Perfit Mouse looks like an optical mouse with two scroll wheels. One of them, in fact, is a rocker switch that works as a 'Forward' and 'Backward' button for Internet Explorer.

The mouse is available in small, medium, large and extra large sizes for right-handed use, and small, medium and large for left-handed use.

The Contour Perfit Mouse is designed to fit the palm perfectly, and considering it is available in different sizes, hardly would anyone not find a match for their hand.

This is an ideal product for users who need greater control over their mouse movement.

Company **Contour Design**
Price **US $109.95 (Approx Rs 4,947) (all sizes)**
E-mail **info@contourdesign.com**
Web site **www.contourdesign.com**

Rating 1 2 3 4 5

Siemens SX66 PDA

What A Pity—No Camera

Making a grand entry into the PDA phone market is the Siemens SX66. This quad-band phone features a design similar to the O2 XDAs.

The SX66 features a 240 x 320 3.5-inch 65K colour screen, and for connectivity, it has Bluetooth, infrared, and Wi-Fi (802.11b), not to mention the USB connection.

It features a fully-functional QWERTY keyboard, which slides out from under the screen. Powered by a 400 MHz Intel Xscale processor, it comes with Windows for Pocket PC 2003 and has excellent handwriting recognition, in addition to MS Word, Excel, Outlook Express... the works!

Although the Siemens SX66 comes with 128 memory onboard (apart from the 64 MB ROM), the interface does become slow if you multi-task. Also featured is an SDIO slot for memory expansion.

A sorely-missed feature is the camera—which is pretty much standard on anything that costs over Rs 8,000!

Company **Esource Global**
Price **Rs 38,500**
Phone **9820822205**
E-mail **charan@esourceglobal.com**
Web site **www.esourceglobal.com**

Rating 1 2 3 4 5

New&Notable

Apple 30" Cinema HD Display

Bigger Is Better!

With a native resolution of 2560 x 1600—or 4 million pixels—this top-of-the-line display from Apple is currently the world's largest screen for a desktop computer. Couple that with a thin bezel made of anodised aluminium that feels divine to the touch, and you have a product that can truly be called awe-inspiring.

The display's design reflects the classic Apple style. There are just three soft-touch buttons along the right side of the bezel—a power/sleep button, and two brightness controls.

Since the LCD uses an all-digital interface through a dual-link DVI connector (not to be confused with the two single-link DVI ports present on certain cards), image correction controls such as horizontal/vertical position and size are not required at all. Also, with a nice little contrast ratio of 400:1, the contrast settings have been eliminated. The result is an elegant-looking screen that's extremely simple to use.

One of its USPs is the 170-degree viewing angle. No matter where you view it from, seeing its crystal-clear image reproduction and massive size will leave you dumbstruck!

There are a couple of niggles, though. For one, it only supports resolutions with a 1.6:1 aspect ratio (2560 x 1600, 2048 x 1280, 1920 x 1200, 1280 x 800, and 1024 x 640). Set the display to anything else, and all you'll get is a blank screen. This severely limits the applications that it supports. Most games, for example, do not have widescreen resolutions. This seems a particularly pointless design decision considering the fact that widescreen displays by vendors like LG support all commonly used resolutions.

This problem is further compounded by the huge bandwidth requirements of the screen. Resolutions of 1920 x 1200 and above require a dual-link DVI port, whereas almost all current cards have only single-link DVI connectors.

Thus, to actually get to use the screen at a decent resolution, you'll require a card like the GeForce 6800 Ultra DDL, which will set you back by Rs 45,000 or so. Again, this limitation is not present in the displays made by other manufacturers.

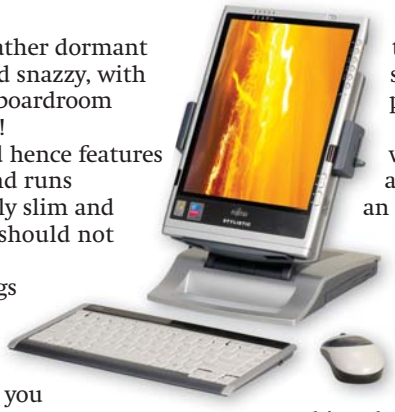
Thanks to this, the 30-inch display is certainly not recommended for home desktop owners, even if they have the Rs 1,90,000 to pay for this baby! Of course, if you're a hotshot multimedia designer with an unlimited budget in a multinational design studio, your search for the perfect display has ended. The rest of you can start saving now!

Company **Apple Computer International**
Price **Rs 1,89,500**
Phone **080-25550575**
E-mail **deepanshu@asia.apple.com**
Web site **www.apple.com**

Rating 1 2 3 4 5

Fujitsu Stylistic Tablet PC

Tablets For Corporates



Fujitsu is the latest entrant into the rather dormant tablet PC market. It is really sleek and snazzy, with loads of flaunt value! Your entry into a boardroom with this tablet PC is sure to turn heads!

It comes in the slate form factor and hence features no keyboard (unlike a regular laptop) and runs Windows XP Tablet PC Edition. It is really slim and fairly light, so holding it in your hand should not be much of a problem.

The added functionality that it brings due to the Tablet PC edition is the Windows Journal where, using the stylus, you can scribble notes even in a hurry—perfect for those meetings when you can't be bothered to type all you hear!

As regards hardware, it's fairly feature-packed, with a 1 GHz Pentium Mobile processor, 256 MB of DDR RAM, Wi-Fi, infrared, a modem, Gigabit Ethernet, MMC and Memory Stick reader, two USB ports, a microphone and a phone port. You can toggle the screen between portrait and panorama views.

Speaking of the screen, once in the sun, no matter how much you squint your eyes or tilt the tablet, there is precious little that you will be able to see. It is way too reflective, so any background light will surely reflect off it and make viewing things a pain.

The tablet performed quite well on our tests with sequential read/write scores of 28/28 MB/s and Random read/write scores of 21/20 MB/s, and an average access time of 12 ms. The Business Winstone test score was 10.5, which is respectable for a 1 GHz processor.

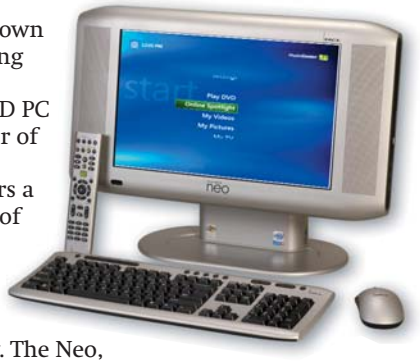
You have the option of getting a docking station and a wireless keyboard and mouse to facilitate your desktop needs. The tablet PC is handy—not to mention cool—for taking instant notes. If you are not too keen on taking down notes or have terrible handwriting, keep away from this—else, this tablet will not let you down!

Company **Fujisan Technologies Pvt Ltd**
Price **Rs 1,80,000; docking station Rs 20,000**
Phone **022-56368718**
E-mail **sales@fujisan.co.in**
Web site **www.fujitsu.com**

Rating 1 2 3 4 5

HCL Beanstalk Neo Media Centre PC

A Dream Of A Media Centre



HCL's Beanstalk Neo is a full-blown media centre PC for your living room. The sleek looking Neo is designed along the lines of an LCD PC and should go well with the décor of any living room.

The 17-inch LCD monitor offers a crisp display, and its aspect ratio of 16:9 adds that extra punch when watching DVD movies. The Neo is powered by an Intel Pentium IV 3 GHz, 800 MHz FSB processor with HyperThreading technology. The Neo, though, comes with a measly 256 MB of DDR RAM which makes the Media Centre OS interface slow.

A DVD writer is integrated into the body; on the left edge, a flap covers a four-in-one memory card reader. USB ports, Firewire port, six channel sound jacks, Ethernet jack, modem jack, and optical SPDIF ports are available on the base of the stand. Similarly, component Video-in and S-video in/out are also available on the back of the base stand. A TV tuner and FM radio is integrated into the main body.

The Beanstalk Neo comes with a full-featured remote. It will set you back by Rs 78,990. However, we feel the sleek design, good hardware and desirable software bundle makes up for the price.

Company **HCL Infosystems Ltd**
Price **Rs 78,990**
Phone **0120-2537660**
E-mail **sjuneja@hclinsys.com**
Web site **www.hclinfosystems.com**

Rating 1 2 3 4 5

Looking for more information on any of the products featured here?

Write to **products@thinkdigit.com**. The *Digit* Test Centre will be delighted to respond to your queries.

Sagem My X-8

The Sagem My X-8 combines elegance and functionality in a single package. Encased in an elegant white and metallic silver casing, the My X-8 looks rather business-like.

Apart from its appealing design, the other claim to fame of the Sagem X8 is its multimedia capabilities—including the stunning 262,000 colour 240 x 320 screen, 1.3 megapixel camera with flash and audio playback. Standard features such as tri-band, GPRS, MMS, and Java MIDP2.0 support are in place.

The phone comes with various applications including an organiser, alarm, and timer. Infrared and Bluetooth are integrated. The phone offers 40 MB of space for images and other data, and allows for memory expansion using the mini-SD format. The phone clarity is superb. The 1.3-megapixel camera delivers good results when lighting conditions are good. The flash serves its purpose, but leaves you wishing for more power when shooting in the dark.

The audio output is superb for a mobile phone, and you can easily use it as an MP3 player. The battery should last you about three days with standard usage.

Company **Cenzer Industries Ltd**
Price **Rs 22,000**
Phone **022-26858594**
E-mail **mktg@sagemindia.com**
Web site **www.sagemindia.com**

Rating 1 2 3 4 5

1 **Poor:** Has serious drawbacks and needs improvement before it can be used for its target application. 2 **Mediocre:** Does not live up to expectations, needs improvment in many areas. 3 Average: Reasonably competent but nothing spectacular about the product. 4 **Good:** A good buy, better than most products in its category. 5 **Excellent:** A brilliant combination of price, performance and features—far beyond expectations.

Palm Treo 650

The 650's Better!

The upgraded sibling of the popular Treo 600 (reviewed in the December 2004 issue of *Digit*), the 650 boasts of some significant enhancements—really making it worth a *dekko*! Major upgrades in the new model include a faster processor, an upgraded operating system, EDGE connectivity, a better screen, Bluetooth support, removable battery and video capture functionality—which was lacking in the Treo 600.

The Treo 650 is powered by an Intel PXA270 312 MHz CPU, running version 5.4 of Palm OS. The quadband GSM/GPRS device offers about 23 MB of user-available memory—expandable through the SDIO (Secure Digital Input Output) slot.

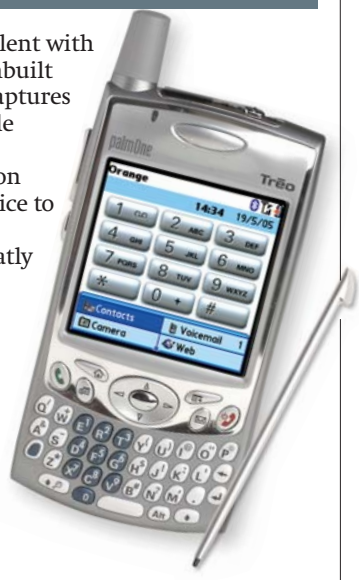
Installed applications include Phone, VersaMail, Web browser, Camera, RealPlayer, and World Clock apart from standard PIM applications such as Contacts, Calendar, Tasks and Memos. RealPlayer can be used to play MP3 files, but you would need an SD/MMC card to store the tracks, it does not play from internal memory.

The Treo 650, as was the case with its predecessor, is designed for single-handed operation using the five-way navigator and other hardware buttons. However, you need to use both hands (thumbs, in fact) while typing text on the QWERTY keyboard. The phone operation is smooth, and there are no issues as far as voice clarity is concerned.

The screen vibrancy is excellent with colours reproduced well. The inbuilt camera with 2X digital zoom captures stills and videos at an acceptable quality, if there's enough light.

The rechargeable lithium ion battery will give you enough juice to last for three to four days with standard usage, but will be greatly reduced if you play media files, games, or leave the Bluetooth perpetually switched on.

Surely worth considering, if you want a device that lets you stay connected anywhere in the world, and offers business and entertainment functionality, all-in-one.



Company **Esource Global**
Price **Rs 36,000**
Phone **9820822205**
E-mail **charan@esourceglobal.com**
Web site **www.esourceglobal.com**

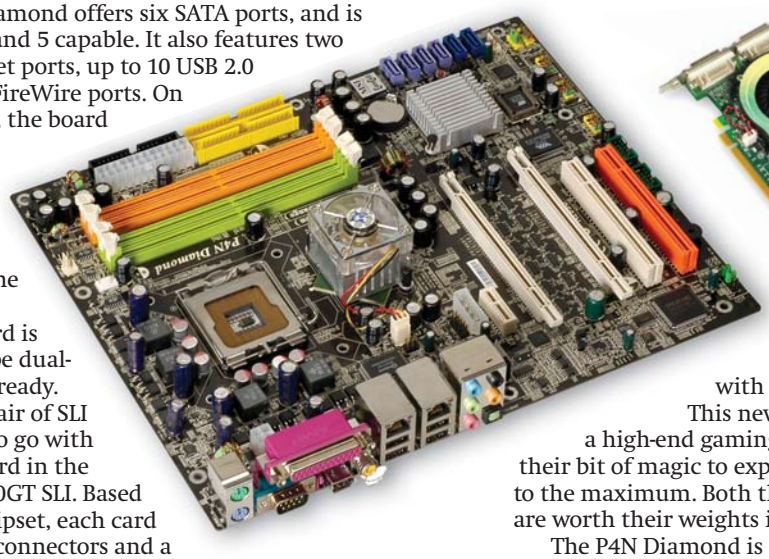
Rating 1 2 3 4 5

MSI's P4N Diamond And NX6800GT SLI

A Real Diamond Of A Motherboard!

MSI's P4N Diamond SLI motherboard ships with nVidia's Nforce 4 Intel Edition chipset. The board features Scalable Link Interface (SLI) technology for plugging in two graphic cards. This is the first SLI board for the Intel platform from nVidia.

The P4N Diamond offers six SATA ports, and is RAID 0, 1, 0+1 and 5 capable. It also features two Gigabit Ethernet ports, up to 10 USB 2.0 ports and two FireWire ports. On the aural front, the board comes with a dedicated 24-bit sound chip from Creative that is equivalent to the Creative Live! series. The board is also touted to be dual-core processor ready.

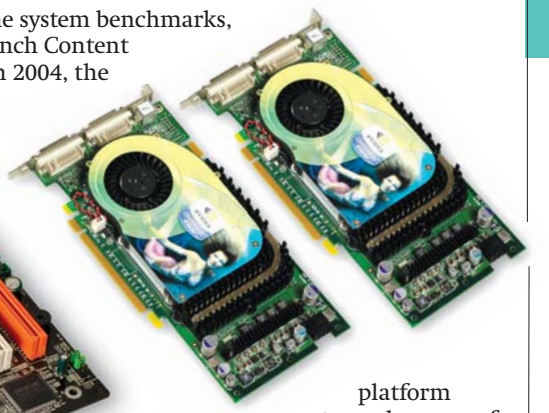


MSI has a pair of SLI graphic cards to go with the motherboard in the form of NX6800GT SLI. Based on the 6800 chipset, each card offers two DVI connectors and a composite video out.

The test platform we used was a Pentium IV 3.6 GHz processor, 1 GB of Micron DDR2 RAM running at 533 MHz in dual-channel configuration, and a 250 GB hard drive from Maxtor. We loaded the Forceware 71.89 drivers from nVidia, along with the latest system drivers for Windows XP. The bench returned some of the best results ever; with scores of 7905 and 19170 in 3DMark05 and 3DMark03 respectively.

Doom 3 returned an impressive 99.6 fps at 1024 x 768 and 86.5 fps at 1600 x 1200. *Halo* also returned impressive scores of 106.94 at 1024 x 768 and 91.37 at 1600 x 1200. The gameplay in all the games was smooth, and the card played them effortlessly when the resolutions were cranked up, and even with full AA.

In fact, the system benchmarks, such as ZDBench Content Creation 2004, the platform returned a score of 32.4, which is on par with AMD Athlon 64-based systems.



This new nVidia-based platform is meant for a high-end gaming machine. As usual, MSI has done their bit of magic to exploit the potential in the nVidia chips to the maximum. Both the P4N Diamond, and the NX6800GT are worth their weights in gold.

The P4N Diamond is priced at Rs 18,500, and the NX6800GT pair of graphic cards will set you back by Rs 57,000. Although expensive, you have to see it perform to believe it!

Company **Micro Star India**
Price **Rs 18,500 (MSI P4N Diamond Motherboard), Rs 57,000 (MSI NX6800GT)**
Phone **9821551801**
E-mail **info@msi-india.com**
Web site **www.msi.com.tw**

Rating 1 2 3 4 5

Photograph Sandeep Patil
Imaging Atul Deshmukh

Let There Be Space!

With the ever increasing size of personal and professional data, most of us just cannot make do with thumb drives and CD-Rs. Meet the external drives that have come to save the day!

Varun Dubey

It all began with the first production model—the IBM 305RAMAC (Random Access Method of Accounting and Control) hard drive in 1956. It had a mere 5 MB of space and had writing speeds of about 8 KB/s—hardly considered a hard drive today!

We have, since then, come a long way, but our desire to cram more and more into less and less space has grown exponentially. Thankfully, so has the capacity of the hard disks of today.

Most computer systems today come with 40 GB as the default disk space, and people are already finding this insufficient—so 80 GB hard drives are becoming increasingly common.

The limitation with these drives is that they aren't really plug and play. Sure, if you're a tech-savvy person, it just means disconnecting a data cable and a power supply cable, and porting it around - but for the rest of us, messing around with the internals of a computer isn't an exciting option. Enter external hard disk drives. Let there be, umm, space!

Understanding The Tests

We realised there are broadly two usage patterns for external hard disks. One is for people such as graphic artists or designers and photographers who need to carry a fairly large amount of data back and forth between the workplace and the home or other places. For such people on the move, we tested portable drives.

The other usage pattern that exists would be the data backup and storage kind. Here, the need is basically to back up lots of data - probably once a day or once a week - and the backup device will stay put on your desktop, whether at home or at the office. For this, we tested desktop storage and backup drives.

We conducted the following series of tests:

Drive Index: A cumulative figure that gives an overall performance grade based on the average of read, write and seek tests, as well as the file and cache size of the disk. The drive index simulates, and hence benchmarks, the drive performance under typical PC usage, so the higher the score, the better the drive.

Sequential Read/Write: This test is conducted with a single large file, so the data is 'in sequence'. The hard disk already knows where to look for the data, and hence this results in faster data transfer. If you transfer a single large file of, say, 1 GB, instead of multiple smaller files totalling up to 1 GB, the single file will be copied faster.

Random Read/Write: This is conducted with multiple smaller files instead of a single large file, and the drive has to search for the next file every time it is done copying another. This test, therefore, results in slower times clocked.

Average Access Time: The interval between the time the request for data is made by the system and the time the data is available off the drive.

CPU Utilisation: Since a copying or backup job would probably be going on in the background and not as a dedicated process, the drive that utilises less CPU time is a better drive. It will give you better system performance. Lower CPU utilisation also means that the drive can be attached to older, lower-end processors without the system hanging due to lack of availability of computing resources.

The tests we described so far were synthetic tests—they measure drive performance reasonably well. But they are called synthetic for a reason; they might or might not reflect real-world usage. So we also did a good old copy-pasting test, and copied 1 GB of assorted data to and from the drive, as well as single 1 GB file to test the sequential and random read/write parameters.

Freecom FHD2 - Pro 60 GB

Now that you have a basic understanding of the tests, let's get straight to the tests themselves.

PORTABLE HARD DISK DRIVES

Looks, Size and Build

We received drives in various shapes and sizes, from circular to rectangular to square. The only shapes missing were triangles and ellipses!

The Seagate pocket drives were just that—pocketable. They were scarcely bigger in circumference than a cookie: they were 1-inch drives and were quite thin as well. But all they could hold was a mere 2.5 and 5 GB.

In this segment, the largest capacity was that of the Seagate 100 GB. This was a cool-looking square drive that had a metallic mesh. It was slightly bulky and somewhat heavy—not exactly a 'pocket' drive.

A really light and pocketable drive was the Freecom FHD2 Pro 60 GB. This drive is wafer-thin and extremely light. You wouldn't feel it if you were carrying it in your pocket, though the pocket would need to be large—the drive is rectangular and rather long.

The Western Digital (WD) 40 GB Passport was low on storage space, and quite bulky. But it featured a rubberised underbody that ensured that vibrations and noise—which are, in any case, next to nothing—were minimised, and that the disk stayed put on any surface. The ports are protected by a rubber flap that resembles the port concealers on everyday digicams.

If you are looking for something that's stylish with lots of space, and is not just portable but actually pocketable, look no further than the Transcend Storejet drives. They come in 20 and 40 GB models, and are smaller than a deck of cards. They weigh just 100 grams!

In our portable HDD shootout, the only drive that came with the one-touch backup feature was the Freecom FHD Pro 2 60 GB.

Funnily enough, in terms of visual indicators, all the drives preferred a cool blue for the LED, or even on the buttons (as in the case of the Maxtor and the WD). That could be an oblique reference to the blues of backup!

On To The Tests

Synthetic Benchmarking: We started with the SiSoft Sandra file system benchmark. The drive that absolutely blazed through the synthetic benchmarks was the Seagate 100 GB. It returned a drive index of 28. The only hitch, performance-wise, was that the CPU utilisation was marginally higher, at 3.75 per cent. Remember that the CPU we were using is extremely fast, so CPU utilisation on lower-end CPUs would be a lot more than this.

This drive could put up such a fantastic show because of its 8

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MB cache, which was bettered only by the massive 300 GB Maxtor One Touch II, which had 16 MB of cache.

The drive that came second here, and second by a long way from the third-placed Freecom drive, was the Western Digital 40 GB Passport. The drive had fabulous 31 MBps sequential read and 21 MBps random read speeds.

The performance of the other drives was strictly ordinary, though special mention must be made of the 2.5 and 5 GB Seagate pocket drives, for the simple reason that they're so small. They utilised 1-inch drives as opposed to 1.8 inches for the Transcend drives and 2.5 inches for the Freecom, WD and Seagate 100 GB.

Sadly though, these drives were our worst performers, with speeds of 6 and 8 MBps respectively for the sequential read and sequential write tests. They have a spindle speed of 3,600 rpm, whereas all the other drives were at least 4,200 rpm. In fact, the Seagate 100 GB and WD Passport were 5,400 rpm drives. Remember, the faster your drive spins, the better the transfer rate and the lower the seek times.

Seagate 2.5 GB Pocket Hard Drive

CPU Utilisation: There is nothing much to differentiate these drives in terms of CPU utilisation—they just varied between 3.4 per cent for the Seagate 2.5 GB to 3.75 for the Seagate 100 GB. This was true even for our tests in the desktop storage/backup category, so there really isn't too much point dwelling on this.

So why do we need to talk about CPU utilisation at all? There are other drives out there in the market that hog much more than 3.75 per cent, but in the batch of drives we received for this shootout, it just so happened that no drive—in either the portable or the desktop category—was worse than roughly 4 per cent.

Real-World Tests: We now come to our real-world test results. For these tests, we used a single 1 GB file for our sequential read/write tests, and an assorted set of MP3 files totalling 1 GB. The files were copied to and from the hard disk, and we recorded time using a stopwatch.

Here, 'write' means copying files to the hard drive being tested, and 'read' means copying files from the disk.

Transcend Storejet 40GB

The results we saw were mixed. There was no drive that beat all the others in every test. But the drive that did beat the others in most of the tests was the Seagate 100 GB. It was beaten fair and square in two tests (and that's half of the real-world tests!)—the assorted read test—where it was beaten by the WD Passport, which clocked a time of 39.95 as compared to 40.26 seconds for the Seagate—and, rather surprisingly, the sequential write test. Here it was beaten by the Freecom FHD 2 Pro 60 GB, which clocked 42.89 seconds as compared to 47.02 for the Seagate.

The worst performers were again the Seagate 2.5 and 5 GB disks, with times that were as much as 5 times slower than the frontrunners.

The drive that really impressed, apart from the lightning-fast Seagate 100 GB, was the WD Passport. It almost matched the Seagate in every test and beat it in one, and was light-years ahead of the rest of the pack.

The Transcend drives were slow considering they have the same spindle speed and cache as the Freecom drive. This shows that the Freecom disk's cache

How We Tested

Our test bed comprised an AMD Athlon 64 FX 53 Processor, with an MSI K8T Neo 2 motherboard, 512 MB of dual-channel DDR RAM, along with a Seagate 120 GB SATA HDD. The graphics card we used was a GeForce 5700 LE (128 MB).

The hard disk was formatted as FAT 32 and loaded with Windows XP Professional with Service Pack 1.

The drives were benchmarked on the basis of Features, Performance and Price.

We ran several benchmarks on the drives to find out which was the best performing, and then weighed that against the price. We were looking for the drive with the best all-round performance, features, as well as price.

Features

We looked at the various inbuilt characteristics and qualities of each of the drives. For the products being marketed as portable devices, we laid particular emphasis on the drive's weight and dimensions for 1.8 and 2.5-inch drives only. We looked less at the weight and dimensions of the 3.5-inch drives, because they will be primarily used as a stationary backup device.

We also observed the build quality, with more importance being given to the sturdiness of the product. Extra points were awarded for features such as extra USB/FireWire ports, configurable buttons, and so on.

Performance

To gauge performance, we conducted two types of tests-synthetic and real-world.

For the synthetic tests, we used the SiSoft Sandra Professional 2005 benchmarking suite to assess theoretical read and write speeds, as well as average access times. We also tested with Winbench 99 2.0 to measure the CPU utilisation of each drive.

In the real-world tests, we transferred a set of assorted files of varying sizes totalling 1 GB, back and forth from the system hard disk to the external hard disk, and noted the time taken for each transfer. Similarly, for noting sequential speeds, we transferred a single 1 GB file.

Price Index

Price Index was calculated using the price-per-MB ratio. That is the ratio of the actual usable space—not the rated space, as there is always some loss due to formatting—and the price of the hard drive.

How The Awards Were Given

The score from Features, Build Quality, Performance and Price Index are given weightages relevant to the specific category. An overall score out of 100 is then calculated. The product that scores highest here is adjudged the winner of the Digit Best Buy Gold award for its category. The second-highest scorer gets the Digit Best Buy Silver award.

Seagate 100GB

implementation and utilisation, is far superior to that of the Transcend drives.

The King of Space: Without a doubt, the Seagate 100 GB is the clear winner. The drive is exceptionally fast and has a huge cache, not to mention the massive 100 GB it can store, and is priced at a very competitive Rs 13,000—just Rs 1,000 rupees more than the Seagate 5 GB pocket drive.

The drive that came in second by a reasonable margin was the WD 40 GB Passport. It is a really good performer, and is eminently comparable to the Seagate except when it comes to size, where it lucks out at a mere 40 GB. The WD Passport is priced very reasonably at Rs 6,400, and is, in fact, cheaper than the Transcend 20 GB—priced at Rs 8,320.

Comparing the WD Passport to the Seagate: if you buy two of these WD drives, you'll be paying Rs 12,800 for 80 GB of space, whereas the Seagate 100 GB gives you a cool 20 GB of additional space at virtually the same cost—Rs 13,000.

For overall performance, price and features, the Seagate 100 GB portable HDD gets the Digit Best Buy Gold Award. The Western Digital 40 GB Passport comes in a comfortable second to receive the Digit Best Buy Silver Award.

Western Digital Passport 40 GB

DESKTOP STORAGE/ BACKUP SOLUTIONS

Looks, Size And Build

In our desktop storage/backup segment, all the drives were very bulky, and seemed even more so when compared to the portable drives we've been talking about so far. In terms of looks, nothing beat the Seagate drives with their sturdy, square exteriors. The quality of materials that make up the outer casing is excellent, and the use of high-grade plastic makes the drives sturdy and also light. Their design also enables stacking of one drive on top of another.

That's not to say that the Seagates were the sturdiest of the

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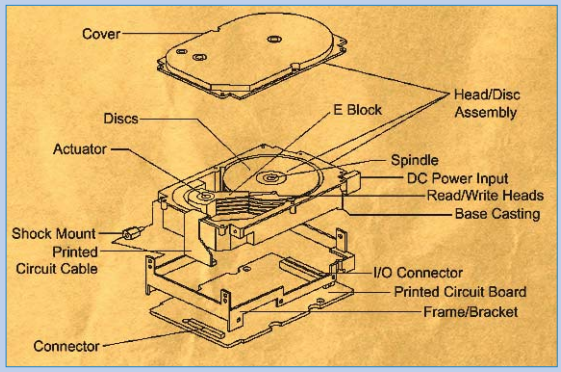
How Hard Disk Drives Work

A hard disk essentially consists of a flat plate-like object that is polished to achieve a mirror- like effect. This is the hard disk's platter, and this is where the data is actually stored using the magnetic properties of the material the platter is made of.

Hard disks of today feature multiple platters. Each platter usually has a read/write head attached to it, which in turn is attached to an arm or actuator that moves the head over the platter.



Writing is achieved by subjecting the platter to a magnetic flux by the write head, which leads to the change of polarisation on the platter. The process is reversed for reading—the magnetic field of the platter affects that of the read head, and this is interpreted as data.

A platter and a head can be thought of as the gramophones and record players of yesteryear, where the needle moved on the record to read the record and play the song. The case is pretty much the same here, except the read/write heads don't touch the platter—they fly less than a hairsbreadth above it.

The platter can spin at roughly 3,000 inches a second, which is approximately 270 kmph! Today, hard disks generally run at 5,400 or 7,200 rpm, though you do get hard drives where the platter spins at 15,000 rpm!

Western Digital Media Centre

lot—that honour goes to Maxtor. The drives from Maxtor have the strongest cases we've ever seen. They're built of solid metal! You can keep stacking and these babies will take all the weight you can throw at them, and more!

The drives that disappointed here were the WDs, which were rather plain-looking, and had bodies of plastic that felt flimsy. If you were to try stacking up these drives, we wouldn't be surprised to see some cracks after a while!

All the drives—except for WDs—in the desktop storage/backup category came with a single button. This, when pressed once, activates the power; when pressed twice, it acts as a 'one-touch' backup button. If you keep it pressed for a while, the drive shuts down.

The WD drives came with three buttons: one dedicated power button, with the other two for automatic backup and on-demand backup. In automatic backup, the drive just goes ahead and backs up stuff pre-specified by the user. In on-demand backup, the backup software opens up and you can back up data as you please.

The only drive that featured something apart from what we've mentioned so far was the Western Digital Media Center. It featured a Multiple Multimedia Card Reader, which is stipulated to read pretty much every kind of card you can throw at it. You can copy stuff to the hard disk directly using the on-demand backup button. There is no screen, so you're limited to copying the entire contents of the card—you can't see or choose what you're copying.

On To The Tests

Synthetic Benchmarking: The test process used here was exactly the same as with the portable drives.

Almost every drive we got here was a 7,200 rpm drive. For some reason, the Maxtor 250 GB was a mere 5,400 rpm drive with an extremely low 2 MB of cache. All the others had at least 8 MB, and the Maxtor One Touch II came with 16 MB of cache onboard.

We started with the synthetic benchmarking using SiSoft Sandra 2005. One drive that absolutely blew everyone away was the Maxtor One Touch II. It

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Jargon buster

ATA: Advanced Technology Attachment. This is a standard interface for connecting storage devices such as hard drives, CD-ROMs, etc. It allows only 18 to 36 inches of cable length, and is therefore seen mostly as an internal solution.

Cache: This is a buffer available to the hard drive, and is usually a physically separate entity on the hard drive's IC. It synchronises data transfers between the disk, reading it off the platter and the disk's I/O system to the computer. Normally, a larger cache will result in faster read/write speeds and access times.

DMA: This gives devices within the computer the ability to communicate to and access the system memory without utilising the CPU—which results in faster overall computing. All modern disk drives support this.

Heads and Actuators: Modern hard disks have multiple heads and multiple platters to read from. The head is what reads the data from the platter, and the actuator is the arm that moves the head across the areas of the platter.

IDE/EIDE: IDE stands for Integrated Drive Electronics, and is the standard used for all the drives commonly found in computer systems today. EIDE is enhanced IDE; it is a specific type of attachment interface specification that allows for high-performance, large-capacity drives.

MTBF: Mean Time Between Failures. This is essentially the reliability index signifying the average time for which the device will definitely work. Typically, hard drives have an MTBF rating of 500,000 hours.

Head Parking: When the platter of the hard drive is not spinning, the head rests on the surface of the disk. When the platter does start spinning, the head drags along the surface till enough speed is gathered for it to disengage from the surface and stay nanometres above the platter to read or write data. This dragging can corrupt data, so there is a special track where no data is written and is used for the head while it is idle or gathering speed.

Platter: The flat disk that actually holds all the data on the hard disk, in magnetic format. When requested, the head reads the data off them.

SCSI: Small Computer Systems Interface; pronounced 'skuzzy'. This is an advancement of the IDE/ATA interfaces. While IDE is an interface, SCSI effectively is a system-level bus with controllers on each SCSI device working to optimise data flow. SCSI has multiple standards such as ANSI, ITIC, NCITS and T10.

SATA: Serial ATA. It was primarily developed to replace the parallel ATA technology. Transfer speeds for SATA start at 150 Mb/s, and the newer SATA II is touted as being capable of 3 Gb/s.

Spindle Speed (rpm): This the speed at which the platter in the hard drive spins. The faster it spins, the faster the access time, as the time taken by the head to reach and access the data is lesser. Till recently, 5,400 rpm was quite common, but with the fall in prices, more and more computers are shipping with 7,200 rpm drives. Laptops usually have 4,200 rpm drives.

Seek Time: The seek time is the amount of time between when the CPU requests a file and when the file is sent. On an average, seek times are in the 2 to 5 ms range for internal hard drives. It's a lot more for external hard drives due to the interface limitations.

Scoreboard — Portable HDD

BRAND	Seagate	Seagate	Transcend	Transcend	Western Digital	Freecom
Model	**Pocket Hard Disk 2.5 GB**	**Pocket Hard Disk 5 GB**	**Storejet 20 GB**	**Storejet 40 GB**	**Passport 40 GB**	**FHD-2Pro 60 GB**
Features	9.37	9.43	10.07	10.58	7.84	10.23
Drive Specifications						
Physical Dimensions (LxWxH) (mm)	70mm(diam)	70mm(diam)	95x71.5x15	95x71.5x15	144.3x89.1x21.4	127x79x15
Weight (in grammes)	65.00	65.00	118.00	118.00	400.00	175.00
Drive Form factor (in inches)	1.00	1.00	1.80	1.80	2.50	2.50
Capacity (in GB)	2.50	5	20	40	40	60
Spindle speed (in RPM)	3600	3600	4200	4200	5400	4200
Data Buffer size (in MB)	2	2	2	2	2	2
Interface type	USB 2.0	USB 2.0	USB 2.0	USB 2.0	USB 2.0	USB 2.0
Visual Indicators	Blue LED	Blue LED	Blue LED	Blue LED	Blue LED	Blue LED
Additional configurable buttons	None	None	None	None	None	One Touch backup
Power over interface	USB 2.0	USB 2.0	USB 2.0	USB 2.0	USB 2.0	USB 2.0
Miscellaneous	None	None	None	None	None	None
Build Quality						
Sturdiness (Scale of 5)	2.75	2.75	3.50	3.50	3.50	3.75
Aesthetic design (Scale of 5)	3.50	3.50	3.75	3.75	3.25	3.50
Package contents						
Bundled software	Toolkit	Toolkit	SJ Utililty	SJ Utililty	None	Backup Software
Carry-case included (Y/N)	✖	✖	✔	✔	None	None
Other accessories	USB Cable	USB Cable	USB Cable	USB Cable	USB Cable	USB Cable
Documentation:						
Quickstart guide	✔	✔	✔	✔	✔	✔
Manual	✔	✔	✖	✖	✖	✔
Performance	**14.04**	**16.67**	**23.72**	**35.41**	**47.58**	**43.37**
Sisoft Sandra 2005 Drive Benchmark						
Drive Index (in MBps)	4	8	10	17	26	22
Sequential Read (in MBps)	6	8	11	19	31	25
Random Read (in MBps)	4	7	9	15	21	18
Sequential Write (in MBps)	6	8	11	19	25	25
Random Write (in MBps)	3	5	11	14	21	17
Average Access Time (in msecs)	22	24	19	16	14	15
Winbench 99 2.0						
CPU Utilisation in %	3.40	3.70	3.60	3.65	3.74	3.63
Real world file transfer tests						
Sequential Write (1 GB) (in secs)	198.41	156.74	97.00	56.09	44.72	42.89
Assorted Write (1 GB) (in secs)	227.00	226.05	100.00	71.24	53.22	58.26
Sequential Read (1 GB) (in secs)	196.44	141.66	96.45	55.05	38.90	46.08
Assorted Read (1 GB) (in secs)	148.78	128.90	96.78	55.28	39.95	42.13
Price index:	0.55	0.93	5.43	5.50	13.74	8.59
Actual storage space (in GB)	2.32	4.70	19.00	37.00	37.00	56.00
Price (Rs)	10000	12000	8320	16000	6400	15500
Price per MB	4.21	2.49	0.43	0.42	0.17	0.27
Overall (100%)	**23.97**	**27.03**	**39.21**	**51.48**	**69.16**	**62.18**

scored a blazing 41 MBps in the sequential read score test. To be fair to the others, though, the Seagate 400 GB Barracuda did score the same points as the Maxtor most of the time, except in the sequential/random write test, where it scored 28 MBps, as compared to the One Touch II's 31 MBps, and in the random read test, where it scored 31 to the Maxtor's 26 MBps.

The other drives did OK, but were really not up to the mark. The Seagate 400 GB Barracuda and the Maxtor One Touch II were completely in a league of their own!

CPU Utilisation: The story is identical to that of the portable hard disk drives. Scores varied between 3.74 for the Maxtor 250 GB and 3.96 for the Seagate 160 GB and the WD 250 GB.

Real World Tests: We now come to the tests that separate the winners from the also-rans. In terms of pure data transfer, both from and to the drive, no drive was even close to the Maxtor One Touch II. The drive absolutely blazed past the competitors, being at least two seconds faster in every test. It comfortably annihilated the competition, but this was totally expected, given the huge amount of onboard cache.

Maxtor One Touch II

Contact Sheet — External Harddirves

Brand	Company	Telephone	E-mail	Web site
Freecom	J.S Equipments	022-23860976	jse@vsnl.com	www.freecom.com
Maxtor	Fortune Marketing	011-26427627	yogi@maxtor.com	www.maxtor.com
Seagate	eSys Information Technologies ltd	011-51811694	naresh@esysmail.com	www.seagate.com
Transcend	Mediaman	022-23828100	sales@mediamangroup.com	www.transcend.com.tw
Western Digital	Priya ltd	022-566631000	priyabom@priyagroup.com	www.wdc.com

Desktop Storage/Backup Drives

Seagate	Seagate	Seagate	Western Digital	Western Digital	Maxtor	Maxtor
100 GB ST9100801U2-RK	**160 GB with Firewire**	**400 GB Barracuda**	**WD2500BO11 RNN**	**250 Media Center**	**300GB One Touch II**	**One Touch 250GB**
13.25	8.24	9.99	8.68	10.18	11.01	7.73
127x99x25.4	180.9x165.5x57	180.9x165.5x57	230x150x50	230x150x50	210x120x4	210x120x4
100.00	1050.00	1176.50	1360.00	1360.00	1380.00	1380.00
2.50	3.50	3.50	3.50	3.50	3.50	3.50
100	160	400	250	250	300	250
5400	7200	7200	7200	7200	7200	5400
8	8	8	8	8	16	2
USB 2.0	USB 2.0/Firewire	USB 2.0/Firewire	USB 2.0/Firewire	USB 2.0/Firewire	USB 2.0/Firewire	USB 2.0/Firewire
Blue LED	Yello LED	2 Blue LEDs	Blue LED	Blue LED	Blue LED	Blue LED
None	Single Power/Backup Button	One Touch backup	Power, Auto backup, and On Demand Backup	Power, Auto backup, and On Demand Backup	poewr button single press is backup	poewr button single press is backup
USB 2.0	Power Adapter	Power Adapter	Power Adapter	Power Adapter	Power Adapter	Power Adapter
None	None	None	None	MMC card reader!	None	None
4.25	4.00	4.00	3.50	3.50	4.00	4.00
4.00	3.25	3.25	3.50	3.50	2.75	2.75
Seaget utilities	Backup	Backup	Backup	Backup	Backup	Backup
✖	✖	✖	✖	✖	✖	✖
USB Cable	USB/Firewire cable/Power adapter/stand	USB/Firewire cable/Power adapter/stand	USB/Firewire cable/Power adapter/stand	USB/Firewire cable/Power adapter/stand	USB/Firewire cable/Power adapter/stand	USB/Firewire cable/Power adapter/stand
✔	✔	✔	✔	✔	✔	✔
✔	✔	✔	✔	✔	✔	✔
50.14	**33.61**	**46.89**	**44.24**	**40.96**	**49.77**	**33.73**
28	24	35	29	24	35	22
34	28	41	29	24	41	25
23	20	31	29	25	26	21
25	20	28	27	21	31	19
25	18	28	27	21	31	19
14	15	8	9	2	14	9
3.75	3.96	3.87	3.96	3.89	3.79	3.74
47.02	56.91	41.90	43.65	54.46	34.20	58.26
52.66	62.28	46.63	44.98	58.08	42.24	57.50
31.89	39.15	39.42	31.16	37.36	26.99	48.71
40.26	54.79	33.88	34.93	45.90	31.54	48.73
17.00	5.49	8.57	7.16	8.55	10.05	8.95
93.00	149	372.00	233	232	300.00	233
13000	12500	20000	15000	12500	13750	12000
0.14	0.08	0.05	0.06	0.05	0.04	0.05
80.39	**47.34**	**65.09**	**59.76**	**59.38**	**70.48**	**50.05**

The painfully slow drive here was from Maxtor—the Maxtor 250 GB. No surprises, as the drive has a slow 5,400 rpm spindle speed coupled with a devastatingly low cache (a mere 2 MB). There was no way this drive was competing for anything with anybody. The rest were simply out of its league.

The other drive that was impressive and really kept a consistent performance was the Seagate 400 GB Barracuda. Although it can't be compared to the One Touch II, it was commendably fast, and its value-for-money proposition is simply to die for! A massive 400 GB for a mere Rs 20,000!

The fact that the Seagate 400 GB scored some pretty impressive numbers is not to say that it was second only to the One Touch II. In fact, the WD 250 GB drive beat the Seagate 400 GB in every real-world test, and was slower only in the sequential write test.

So if massive storage is not what you are looking for, and if you are a WD fan, this one is a pretty good buy.

Seagate 400 GB Barracuda

Mr Spacious: The drive that eventually won had everything going for it: price, performance and some pretty decent features. The Best Buy Gold goes to the Maxtor One Touch II 300 GB. This is an excellent backup solution as it is affordable, performs like a dream, and features a huge 300 GB of space.

The Seagate Barracuda 400 GB comprehensively beat the rest of the competition, and though the price tag might seem a shocker, the fact is that no other drive or drive manufacturer out there gives you a 400 GB hard disk drive. Cost per MB, though not the lowest, is certainly competitive—so we adjudge it our Best Buy Silver award winner. ⊠

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Hello, Convergence!

Technologies are coming together in every aspect of life. A look at convergence from every possible angle

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Ganesh Natarajan

What Is Con

'Convergence' is a lot of things, and means different things to different people—as you'll find out in the pages that follow

Few devices exemplify digital convergence better than the smartphone with its various functions—that of a PDA, cell phone, camera, and more. There was a market—now fast declining—for dedicated PDAs; and a huge market for cell phones. Someone tacked those two together, and the result was a huge success. And then, someone else threw in a camera as well, and that was the masterstroke. Smartphone sales are already eating into PDA and vanilla cell phone sales, and ABI Research (Allied Business Intelligence Research, New York, USA) predicts that by 2009, smartphones and connected PDAs will represent nearly a quarter of all handsets shipped.

In simple terms, this is what digital convergence is all about—the coming together of diverse technologies into simple devices that are more useful than the original individual devices themselves. But there's more to convergence than just this. It's an inexorable force that is driving markets worldwide; it's a force that is pushing innovation to the limits; it's a revolution.

Let's get back to the clock—the simple time-displaying device. In days bygone, a wristwatch or pocket watch were solely how we told time. Then came the LCD and LED, and we had clocks all over the place—in those old Nintendo and Casio pocket video games, in home music systems, in TVs, in VCRs. This is a primitive, but very indicative, example of convergence. Think about it. It is, in fact, a very good example. What happened?

Essentially, manufacturers decided to throw in clocks into diverse devices, and people liked it—they, in fact, began to expect this of all electronics devices. You might ask why a video game should display time, and that brings us back to the smartphone: who wants a camera in a phone? In fact, many do. Which brings us to the question: Was it the market that drove the innovation, or did the finished product create demand?

All we know as of now is that someone took a piece of duct tape and stuck a camera onto a phone (and perhaps we'll soon see people throwing in phones into cameras!). The idea clicked (no pun intended) and as a result, a huge new market was created in a short span of time.

One driving factor here, could have been the fact that with a phone, which these days is equipped with Infrared and Bluetooth communications possibilities, people could share their photos at the press of a button unlike with other media.

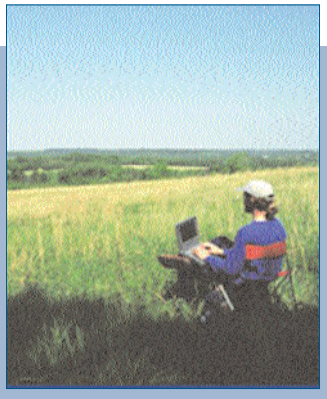
If markets drive convergent innovations, we have to ask, what are the ideal converged devices people want? And if innovations create demand, we have to ask, what of ideas that don't work out?

As regards the former, think of the following as the ultimate example of digital convergence: your fridge automatically detects there's not enough milk. Without your even having to press a button, it uses your home's wireless network to get on the Internet, places an order at your local supermarket and the milk is delivered. Some call this the Holy Grail of digital convergence.

One needs to see what is at work here: it's the same thing that drove almost all technological innovations—the idea of making human life easier. That is the essential driving force. But there's more on the subject of what people want. With huge flat-screen TVs making their presence felt everywhere, courtesy dropping prices, they will become essential components of the networked home in the not-too-distant future. And people will want content to fill those TV screens with. That hunger for content will come simply as a result of the TVs being there. The fulfilment of one market will create another.

What about convergence ideas that didn't take off? Sometimes, when one idea is shotgun-married to another, the result turns out to be something no one wants. A prime example is the CueCat—a mouse-like device that could scan bar codes, whose corresponding products you could look up on the Internet with one click. For reasons unknown, it flopped.

No one can pinpoint why exactly the CueCat flopped; think about an almost identical concept—a camera in a phone that can click a bar code. One can then log on to the Internet for information. Say you're buying meat: the barcode contains information about how the animal was bred and reared, and you get this within a moment of scanning the barcode; this helps



Convergence is not just about gadgets. It's also about connectivity (*left*) and the facilitation of everyday things, exemplified by the fingerprint scanner (*right*)

vergence?

in your decision to buy. This is happening now, and seems a good idea to many people.

That said, there is no single definition of convergence. A popular definition on the Internet says that digital convergence is "the technological trend whereby a variety of different digital devices such as televisions, mobile telephones, and now refrigerators are merging into a multi-use communications appliance employing common software to communicate through the Internet." Someone else says, "What is really happening is the convergence of content, communication, and computing."

Think about how content reaches us nowadays. Radio, satellite, cable, fibre optics, wireless, the Internet are some of the more common media. This is an example of how our lifestyles are changing, or are being changed, by the fact that we go anywhere we want, do anything we want, and the content reaches us anyway. Cable disconnected? Turn to the Internet. Net connection down? Get it from someone's GPRS phone, on the move. And so on. Content is making its way across boundaries.

Communications is key when we're talking convergence: devices are talking to each other more and more. Your iPod talks to your PC. Your phone talks to another in the sense of being able to transmit a picture to it—whether you're standing near the other phone or whether you're thousands of miles away from it.

Everything has a chip—from phones to cars to stereo systems. And all these chips will talk to each other—or are already talking to each other. Companies want to put a chip into everything.

Says Gottfried Dutiné, an executive vice-president at Philips, "Digitisation is creating products that can't be categorised as tech or consumer electronics. The walls are coming down." And as an article in *BusinessWeek Online*, dated 21 June 2004, puts it, "That sets up a collision of three massive industries. In one corner stands the $1.1 trillion computer and software biz, with its American leaders. In another is the $225 billion consumer-electronics sector, with its strong Asian roots and a host of aggressive new Chinese players. The third camp is the $2.2 trillion communications industry, a behemoth that extends from wireless powerhouses in Asia and Europe to the networking stars of Silicon Valley. All the three groups will have a hand in building the digital wonders that are headed our way."

The rush to churn out those digital wonders has reached critical mass. Innovation is now a full-time job. Many products coming out of this rush will flop: this is uncharted territory, and there are few precedents to draw from—there are few standards, and interoperability and security are key issues. The ones that make it will define our digital future.

Some converged gadgets just flop—refer *Crash Landing* in this issue. Others, like the Kaleidescape (*at right*), are at the cutting edge of innovation

Going back a little, think about the PC. What can't you do on a PC these days? You can have one browser window open showing you the latest cricket scores. Another brings you an e-learning class (you shouldn't be looking at cricket scores when you're studying, but anyway). An MP3 song plays in the background. And on and on... all at the same time, most of them via broadband.

Broadband is the enabler: if communication is to happen and content is to be delivered, you need a fat pipe. How could streaming Internet video be delivered to your smart TV without an always-on broadband connection? The PC, with its broadband connection, is a wonderful example of how 'just a device' became a converged device. Convergence is all around; and with most people owning PCs, the PC had to be affected sooner or later.

As with the refrigerator example, another Holy Grail of convergence is the perfect, networked living room. The all-in-one living room device hasn't yet been manufactured, but it will soon be.

Market factors dominate here: how soon will ultra-high bandwidth get to homes? How soon will large flat-screen TVs become affordable to all? When all that is worked out, the idea is simple enough: one centralised entertainment device with a broadband connection and wireless satellites. The device will be fed from diverse sources, and the satellites may be anywhere—even in your house—and without any wire clutter whatsoever.

In Singapore, Australia and other places, you can pay for a can of Coke at a vending machine with your cell phone—beam your phone at the machine, and your Coke is billed to your phone account. Luddites may ask, why not just pay using coins instead?

But the revolution has already begun. The Coke machine example states what digital convergence is all about: everything digital will talk to everything else digital, and things digital will be near you all the time, everywhere.

HP dc7100— A perfect business partner

Reliable, beyond doubt!

The HP Compaq Business Desktop dc7100 series provides the stability and manageability which customers need to increase productivity, reduce ownership costs as well as the complexity associated with PC ownership. These desktops offer a common software image, enhanced manageability solutions, easy to understand product offerings, global availability and warranty. Offered in an ultra-slim desktop, small form factor and convertible mini tower, the HP Compaq Business Desktop dc7100 delivers a combination of features - flexibility, serviceability and manageability for today's IT environment. It provides all the benefits of a full-size enterprise desktop in a sleek, space-saving design without sacrificing speed, power or serviceability. An optimal combination of small size and mainstream expandability for efficient business computing, so to say. Undoubtedly, an all time favourite for business users worldwide.

Pre-failure warranty

In the world of business where critical data loss can wreak havoc on profitability, the HP Compaq Business Desktop dc7100 is equipped with a unique pre-failure warranty to get things working quickly and easily in case disaster strikes. Its Drive Failure Prediction system keeps a tab on the hard disk and raises an alarm in case of any impending failure. Further, Off-Line Data Collection tracks fault prediction and failure indication parameters while Off-Line Read Scanning with Defect Reallocation monitors entire hard drive including non-utilised sectors for faults. Combine this with the world famous HP warranty and assurance, and you have a worry-free office infrastructure ready to take on any eventuality.

Lower total cost of ownership

It is estimated that purchase price in case of desktop computers forms only 23% of the total cost of ownership. So where does the rest of your money go after you have bought a desktop for your office? Well, the answer lies in a startling fact that 77% of your computer's cost hits you after you have bought it. As is evident, the bulk of your ownership expense goes into maintenance, upgradation, purchase and general trouble shooting. Which is where, the HP Compaq Business Desktop dc7100 scores over the rest. The last word in cutting-edge technology, it is adequately equipped to handle future advances in terms of both technology and performance. Combined with world famous HP warranty and assurance, the HP Compaq Business Desktop dc7100 is a machine that requires extremely low maintenance. Thus giving you higher returns on investment over its life cycle of use.

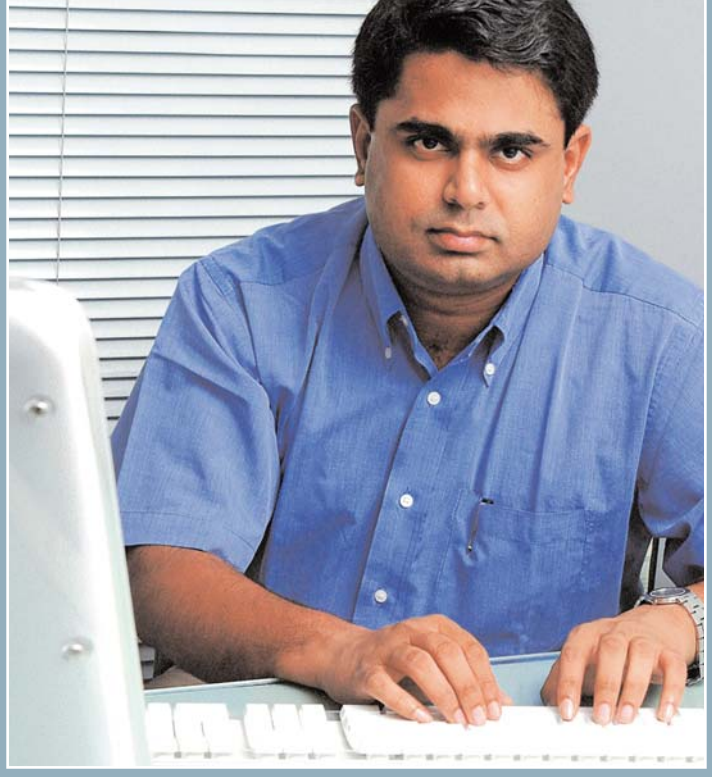
Enhanced security

The HP Compaq Business Desktop dc7100 is a virtual fortress against any threat to data or hardware. It allows all drives and ports to be

disabled and comes with a pre-failure warranty on its hard disk drive. The dc7100 also comes loaded with mechanical hood security & Kensington lock, remotely operable electronic solenoid hood lock & sensor for physical security. It has a surge tolerant (upto 2000V) power supply and its thermal alerts warn you in advance when the system overheats. Memory change alert, Altiris Local recovery software for data protection and TPM module for data encryption security make it secure beyond doubt and ensure business continuity. The best part being, its pre loaded manageability suite for simple & central hardware tracking, monitoring & management, which gives you complete control of your network.

Get more than you demand, with HP

Features	HP dc7100	IBM S50 Ultrasmall	HP Benefits
Chipset	Intel® 915GV Chipset	Intel® 865GV Chipset	Latest chipset technology
Processors	P4 560 (3.6GHz)	P4 3.2E (3.2GHz)	Latest Intel® processor
Pin Technology	LGA 775-clip on	PGA 478-older pin technology	Lesser heating and processor damage
USB Ports	8	6	More options
HDD	SATA	PATA	Faster, better technology
Memory	3 memory slots (max 3GB)	2 memory slots	More flexibility
Towerable	Yes-with IWC	No	Smaller footprint
Chassis	integrated work centre stand		with IWC stand
Noise level	27dbA	39dbA	Crystal clear audio output
Graphics	Integrated Intel® Graphics Media Accelerator 900	Intel® Extreme Graphics 2	Richer media experience
Warranty	3 years comprehensive onsite	3 years limited	Peace of mind -better TCO



"Convergence can often be a daunting word, where more is misunderstood than understood"

Sachin Kalbag is Executive Editor of Digit

Convergence As The Opiate Of The Masses

Nearly 30 years after the PC, we are due for one more revolution

In the beginning was the singularity—the physical state of being everything, yet nothing. A state of being so dense that the entire universe was all of one dot. Just then, the big bang happened. And the universe was created.

The singularity, in a sense, was the ultimate converged world—where dark matter, the stars, the black holes, the planets, the comets, well, just about everything, was one. Mankind, it has been conclusively proven, evolved from a converged world.

It is therefore apt that we are moving once again, technologically at least, toward a converged world—where more is less, and less is more. Where gadgets come together, and technologies meet halfway. We are coming full circle, so to speak.

Convergence can often be a daunting word, where more is misunderstood than understood. Trouble is, truly very little of it is understood. Is convergence limited to communication? How can convergence increase productivity at the workplace? And so on.

These are questions that require answers derived from evidence gathered over a period of time. Yet, we all know that convergence is where we are headed. It is as if we are in a primordial soup of technological evolution, where cell phones are still cell phones (add a small camera here and a small PDA there), MFDs still do only four functions at most, and personal entertainment gadgets are still just that—personal entertainment gadgets.

The time, therefore, has come to create a revolutionary product. Very few technology products have changed the course of history. The last time a product did that was the personal computer, and that was in the 1970s. The 'big ticket' product prior to the computer was the television, in the 1920s. And around 30 years prior to that came the radio.

Nearly 30 years after the PC, therefore, we are due for one more revolution.

Some say the Sony PlayStation Portable is the ultimate converged tool. How shortsighted can we be? The PSP is a glorified personal entertainment gadget. It gives you gaming, it gives you good video, and it gives you great audio. At best, it is an iPod killer; at worst, it is the first step to the ultimate convergence tool—the OmniPerpetual Machine, as I would like to term it.

The OmniPerpetual Machine (or OPM, or Opium!) would do just about everything you ever wanted the ultimate convergence tool to be—a PC, a personal entertainment gadget, a credit card, a mobile phone, a camera, a printer, a scanner, a fax, a copier, an instant messenger, a pager, the works. I can already see the headlines: "Opium is the opiate of the masses." Marx just turned in his grave.

The Opium is your car key, your personal information databank, your personal banker. It connects to the Internet to give you the latest tax information, and tells you how much you have spent in the last month. It is connected to the camera at home so you can keep constant vigil. The Opium is also the one-stop GPS navigator, your one-stop connect to the unknown world in whatever country you are in. It is your interpreter, your communicator within an alien country; it gives you the latest currency rates, the sights to see, the people to meet, and the maps to reach them.

It allows you to make phone calls over the Internet. It allows you to downloads songs, videos and TV programmes, and broadcast video around the world. Corporations will video-conference with any other company around the world using wireless broadband, thus reducing air travel and creating an alternate cost structure for any company.

Well, you get the picture. The Opium will be a do-all gadget. I don't know what shape it will take, and I daresay, even the most intrepid of artists would dither to make a prototype illustration.

Yet, it is a gadget that could well be the ultimate achievement of mankind. Are we dreaming? Maybe. But if the ultimate objective of physics is to find the Grand Unified Theory, the ultimate objective of personal technology should be a gadget that can do all of the above, and more. Most of all, the gadget will serve to make the world smaller than ever before, and create a world that has answers at its fingertips.

Sociologically, though, it will be a nightmare, further dividing the haves and the have-nots. But then, what gadget or technology has not divided the world? Today's world, more than ever before, is cleaved into the haves and the have-nots. If 20 million people in India have access to the Internet, there are 980 million who do not. If there are 160 million people with access to TV, there are 840 million who don't.

Despite these daunting figures, it is only inevitable that technology will move towards this machine. It may not be called Opium (anyone with a better name can send their suggestions to editor@thinkdigit.com), but it will be there.

To be sure, building such a gadget would not be too much of a problem. As aviation experts put it when the Airbus 380, the world's biggest passenger plane, was in flight: "It is only a matter of scaling up." Today, the strongest candidate for such a universal machine is the humble cellular phone. Build

Who will provide the infrastructure to support information on the Opium?

the devices around the cell phone, and you would slowly, but surely, move towards the ultimate converged device.

However, the bigger issues will be: Who will provide the surrounding infrastructure to support information of all kinds on a machine like the Opium? Will the government address the bandwidth issue to clear broadcast issues? Will ultra-wideband technology become *de rigeur*? Will wireless data access be cheap enough for the common man to access without restriction?

We don't know the answers yet, and it would be foolish to hazard a guess. We wouldn't want to predict what government regulations could be, nor can we even predict what the public's reaction would be. What if we never take to the Opium, just as we never took to the Apple Newton?

Admittedly, the Opium will not take us even a step closer to Utopia. At best, it may create a new army of technocrats. No technology in the history of mankind has been ubiquitous, none omnipresent. It would be wrong to assume that the ultimate convergence device would be a ubiquitous device. The presence of such a device in anybody's hand would be more of an exception than the rule. It would definitely mean that humans have advanced technologically to a very high degree, but not so much as to turn technological utopia into reality. That, unfortunately, would remain a topic for science fiction novels. ■

1/2 pg V AD

One World,

Your home is all set to become the central computing device of your life

Robert Sovereign-Smith

We're on the verge of an age of convergence, and the very first place you'll interact with the new technologies will be at home. Manufacturers are in the fight of the millennium, trying to get into consumers' homes, trying to introduce technology solutions—and, consequently, their gadgets—into every aspect of your life.

The fine line between electronics and computing devices is almost invisible already—everything from music systems to cars have computer chips embedded in them, and they're touted to get a lot smarter.

We take a look here at what technologies and gadgets you can expect to see in your house over the next few years. Some of them have already been implemented, and are beginning to gain popularity, while others are still in the prototype stage, or have only just been envisioned.

Those with millions in the bank can possibly go out right away and get their house outfitted, just as is described in this article. The less fortunate among us will have to wait a few years.

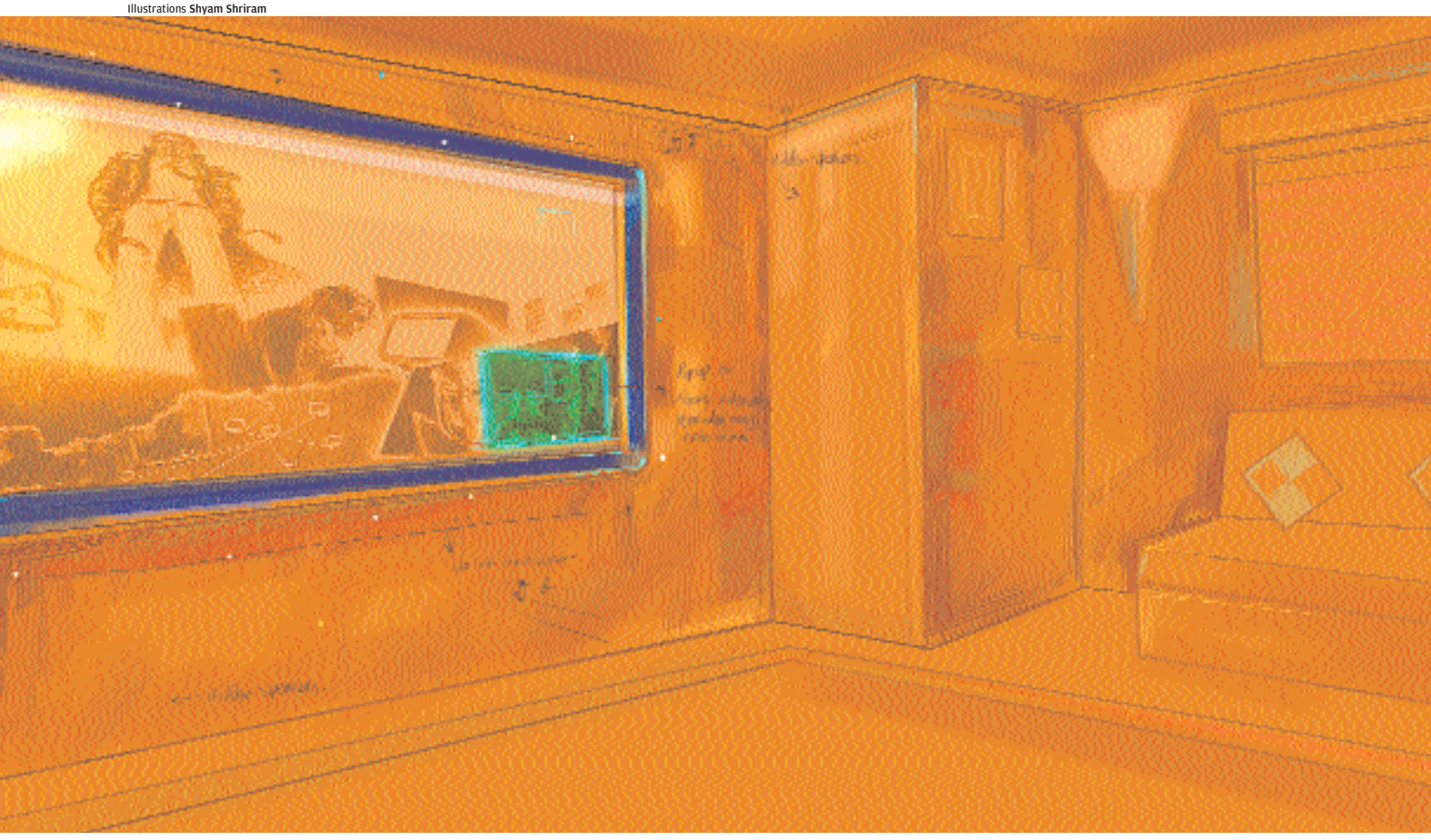
The Living Room

The most important room in the house, the living room, is where the majority of gadgets being made are targeted. This is because this is the room where you and your family spend most of your waking hours—seeking entertainment. All entertainment devices can be broadly classified into two groups:

The Display Device: The TV is currently the default family entertainment centre, and thus, is a multi-billion dollar market. We have seen the TV go from a dumb visual output device to the interactive entertainment centre that it is today. With more technologies and companies coming up with increased interactivity, such as Direct To Home (DTH) and Pay-Per-View, and even more companies already offering Internet access to your TV via set-top boxes, it's merely a matter of time before the TV becomes a one-stop entertainment centre.

The Audio Device: Everyone loves music—it's just tastes in genres that differ. Today, music systems are already offering VCD, DVD, MP3, and Audio CD playback. Some digital entertainment centres come equipped with wireless networking so they can connect to your PC and stream audio and video to your audio and display devices.

Illustrations **Shyam Shriram**



One Home

The living room of the future will still serve as a family entertainment room, and will divide all content, whether from satellite channels or from your own PC, into audio and video. These audio and video streams will be sent to unified audio and video output devices.

Since speakers are meant to be heard and not seen, you will be able to install hidden speakers throughout your house that will act as the audio output devices. Volume and settings will be visually controlled via the room's video output device. More likely, however, is that your walls themselves will become your speakers; or for that matter, perhaps the ceiling as well—talk about surround sound!

Perhaps, much further in the future, we will be able to install paper displays that can cover our entire walls as wallpaper, and give us the freedom to demand the appearance of a screen, of any size, on any part of a wall or ceiling.

However, for now, we'll stick to the already-popular LCD screen that can cover one wall of each room and act as a visual output device for entertainment, computing, and as a graphical user interface (GUI) for changing the settings of all other devices. One such display device can be installed in every room of the house, and the device will connect to all others in the house wirelessly. The device will be controlled by the house CPU, and will automatically follow you as you move around the house—switching on displays when someone enters a room, and switching off once everyone leaves.

The Hallway/Entrance

The logical place for the main home security panel is somewhere near the front door, so why mess with logic? This will merely control the security settings of the house, such as turning on or off the movement sensors outside, setting the burglar alarm, and auto-locking the house at predefined times. All these settings will also be accessible from anywhere else in the house using touch-sensitive video output devices, and entering the correct username and password combinations.

The main CPU will govern the security settings as well as other important semi-AI functions, such as privacy and data synchronisation.

When watching a movie or having dinner with your family, the house will automatically recognise that the entire family is involved in a particular activity, and will automatically screen calls and e-mails.

Let's assume you have three levels of callers—'one' for unidentifiable callers, 'two' for friends, and 'three' for VIPs. So when your family sits down to dine, the house will automatically change its status to 'Dinner', and, depending on the setting you've preset, will screen callers from the three levels—for example, only allowing level three calls to come through. It will also give callers from the other two levels a polite reason for not connecting them, and give them a tentative time to call back, or even call them back as soon as you finish dinner—again, all preset.

Believe It Or Not!

Devices exist that will blow your mind with the advancement of technology they display. Check them out for yourself online.

Solid State Hard Drives: Ahh, a thing of fiction for every hardware junkie. After all, it's the hard drive that's the bottleneck of systems today! But, how about memory-cum-hard drives that offer read speeds of 8 GBps, and write speeds of 6 GBps (a SATA hard drive offers a mere 150 MBps). Quantum Optical memory offers just that, and a 250 GB memory chip-cum-hard drive is about as big a glucose biscuit! Check out Atom Chip Corporation at **www.atomchip.com**, and don't miss the Consumer Products link—there's a tablet PC with 250 GB non-volatile memory (RAM + hard drive), and a 4 GHz AtomChip CPU. The products are mainly developed for the US Military, but you can pay the site a visit and dream, can't you?

Not-So-Crazy Ideas: Most of these inventions have to be dreamed up before they are invented. It's a pity not many companies are willing to share their dreams with us. However, the NEC Design studios is kind enough to share some of their future projects online. Visit **http://www.nec-design.co.jp/showcase/** to see some really innovative ideas. We loved their "tag" soft shell mobile phone so much we were inspired to use it in the visual below, as an illustration of the Personal Digital Device (PDD) of the future.

Using secured wireless networks, the house will also connect to various other devices, such as the entertainment centre in the living room to send it instructions about what movies you requested for the evening, or what audio playlist is most popular at this time of day, and on this day of the week.

This house CPU will also monitor the external security camera and watch for movement or people approaching the doors or windows. You will be able to set it to pop up a visual of the person approaching on the video output device in the room you are currently in, while the speakers will play a soft alert sound.

The Kitchen

Keeping with the current popularity of open kitchens, perhaps the kitchen no longer needs to be just that, and can be converted into more of a chore and recreational area.

Devices such as washing machines and dishwashers will connect wirelessly to the house CPU and receive instructions from it. The house CPU will also control other devices such as the refrigerator, your Personal Digital Device (PDD) and the central heating or cooling.

The house CPU informs your family when the fridge is low on food stocks, or when you are running out of dishwash detergent. It also monitors the functioning of these devices, and will even be able to draw a bath for your family, remembering the temperature that each family member prefers.

On a more personal level, convergence will mean that your house CPU will be the central repository for all your family's personal data. Each

member will have a PDD, which is nothing short of a wearable (and perhaps flexible) laptop-cum-cell phone-cum-PDA that can use your house network or public networks outside for its computing needs. It will act as a complete personal communications device that will make and receive phone calls, send and receive e-mail and other communication from your family, friends, colleagues, and the authorities.

The house CPU will synchronise itself with your PDD to make sure that both are up-to-date all the time—taking care of all data changes that have occurred when you were out.

The Car/Garage

Currently, our cars are the dumbest of the gadgets we interface with, and hopefully, manufacturers will bring some of the technological sophistication that already exists in luxury sedans into the models for the masses.

Even currently available technology can make our cars a million times smarter than they are today, and hopefully this segment will be less ignored in the future—especially as traffic congestion increases, in turn increasing the time we spend inside our cars.

Global Positioning Systems (GPS) are already available in more expensive cars, so imagining this in every car is hardly far-fetched. This will enable your house CPU to connect to the central traffic server, using your predefined authentication, and inform your family of your whereabouts. It will also let your family contact you on your car's communications system.

The car will also have a computer running some very basic functions, such as fuel injection and communications, and could also be set to govern safety—keeping safe distance from other vehicles and objects by using radar or imaging. This could put an end to accidents, traffic congestion and rash driving.

The car's communications device could be a mini-home theatre system, offering both audio and video outputs for video conferencing, phone calls, music or even movies—hopefully the auto-drive functions will be well developed by then.

Your PDD could interface with your car, telling it where your next appointment is, and pinpoint your destination to the car's GPS device. Satellite imagery could help your car automatically chart the fastest route to your destination, taking into consideration traffic and weather conditions.

The car locking system and ignition could be fingerprint-controlled, doing away with the entire "Now where are my car keys?" scenario. It would also help the car identify the driver, adjust the seat accordingly, as well as select the appropriate music playlist and user account. This will ensure that you always hear the music you like, or prevent you from receiving e-mails meant for your dad, or worse, him receiving "I love you" messages from your significant other!

The Gadgets

We understand why many people reading this article might make incredulous sounds, and call it all mumbo jumbo. Well, here are a few gadgets that have already been developed, or prototyped, and are expected to be available to consumers soon...

Many people reading this article might make incredulous sounds, and call it all mumbo jumbo...

Visteon Family Entertainment System

Here's a neat way to have fun while driving—well OK, so the fun is all for the back seat passengers!

This product is great if you have a driver, or if you are driving and have kids. Long car journeys, or even short ones on our congested roads, can feel like an eternity, but with a Visteon Family Entertainment System, the kids will never ever complain again.

Blaupunkt's 15.4-inch Video Monitor

At 15.4-inches, and with a WXGA pixel resolution, this overhead car monitor delivers superb video performance. It also boasts of the simplest cable installation possible—almost plug-n-play. This is just another example of well-known brands coming up with more gadgets targetted at entertaining your family while inside your car.

See **www.blaupunktusa.com** for more details.

It features a DVD player, so you can pop in a DVD movie for the kids to watch while you are driving, or you can plug in a video camera, or anything with an audio/video out, and view its contents. Kids of all ages can even plug in a video game to have some fun. Use an Xbox, play *DOOM 3* in a car?

See **www.visteon.com** for more details.

LG Television Refrigerator

The LG Television Refrigerator includes a cable-ready, 13.5-inch television screen, FM radio, two speakers and a TV tuner.

No longer will your mom, your spouse, or even you, have to miss out on your favourite television shows just because you have to be in the kitchen preparing dinner.

It's also easy to see this device being fitted with Wi-Fi and hooked up to a home network.

See **www.lgusa.com** for more details.

Kaleidescape

This is a system that records your DVD movies onto a hard drive, then connects to the Net to get high resolution DVD cover images and all other details it can get, such as year of release, cast, rating and reviews, etc. It will then let you search through your library and instantly play any movie you want.

Since the device connects to all TVs in the house, you can easily access your movie playlist from just about anywhere in the house. It also has a cool-looking touch-screen controller, and a really simple to use interface.

Problems of piracy abound, as users could rent DVD movies from the local movie library and copy them to the Kaleidescape. There's a court battle ongoing between the makers of Kaleidescape and the DVD Copy Control Association (DVD CCA), but the products are still avialable, pending a judgement on the case. Get one before the final court ruling, just in case!

See **www.kaleidescape.com** for more details.

Arrow Biometric Fingerprint Identification Lock

This is sort of a dream device for the more forgetful of us. Never again will you find yourself locked out of the house, office or even your car.

The Arrow biometic fingerprint identification lock is powered by batteries, that will give you enough advanced warning, so don't worry you won't be locked out because the batteries died!

This device will fit perfectly into the future, as we move towards more secure ways of transacting, whether it's paying a bill or opening a door. We can see this device being utilised not just in houses, but also for cars, safes, personal lockers and even at supermarkets—it can make identity theft and the use of stolen credit information a thing of the past.

A more creative line of thought could see them implemented in schools and colleges, to make sure that only students authorised to enter a classroom can do so. It could do away with 'cheating by proxy' (where someone else appears on your behalf, usually a smarter someone!), and even help in maintaining foolproof attendance records!

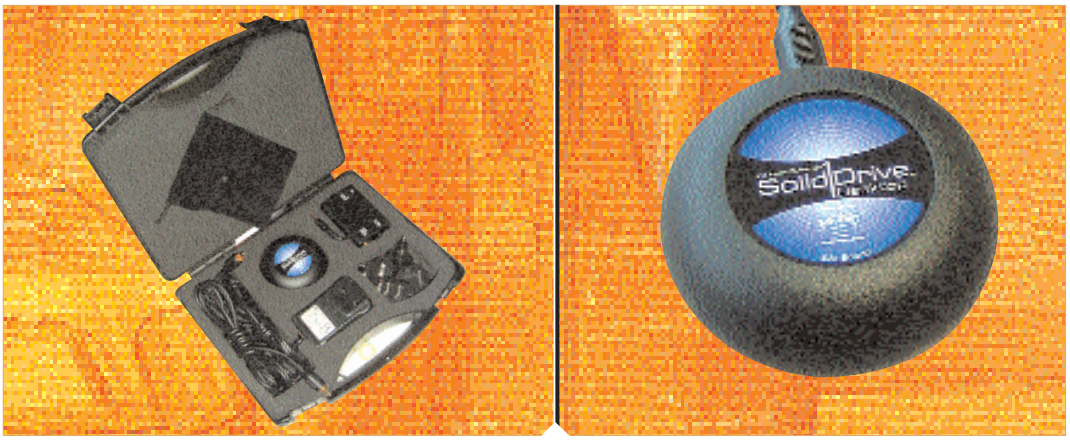
See **www.arrowvision.us** for more details.

Solid Drive Speaker Drivers

Turn a wall or a table into a speaker. Sound unbelievable? Believe it! Solid Drive speaker drivers can make any flat solid object into a speaker, by vibrating it to produce sound. Even windows can become speakers, or the door, or a conference table—use your imagination!

The best use for it though, would be inside the walls of your converged house, so that you get a true, complete surround experience, and no speakers are ever visible.

See **www.soliddrive.com** for more details.



The House

As you can see, most of the devices mentioned here are hardly components of a science-fiction flick. If you have enough money, you can have the home of the future today! The good news is that as these devices become more popular, the prices will fall, and all of us will be able to afford the converged home of our dreams!

The home of the future will blur the existing lines that we draw between different types of devices. And, if at all we're forced to divide the digital content, it can only be into audio and video—only because that's how we as humans experience multimedia content.

The demarcations between PCs, PDAs, TVs, audio systems, etc, will be obliterated forever, as it isn't really important to us what we're interfacing with; what's more important is that we get the content we desire, and are able to compute and communicate via the audio-visual devices at will.

The box ***"Believe It Or Not"*** on page 60 points you towards some more devices that we can expect to see in the near future. Technology, of late, has become boring. It's true! All we could see happening over the past decade was CPUs getting faster, and hard disk sizes increasing, but nothing groundbreaking. Now, thankfully, we seem to be past this stagnation, and have started climbing again—the next 10 years promise tons of exciting changes, not just in technology, but in the way we lead our lives! ■

robert_smith@thinkdigit.com

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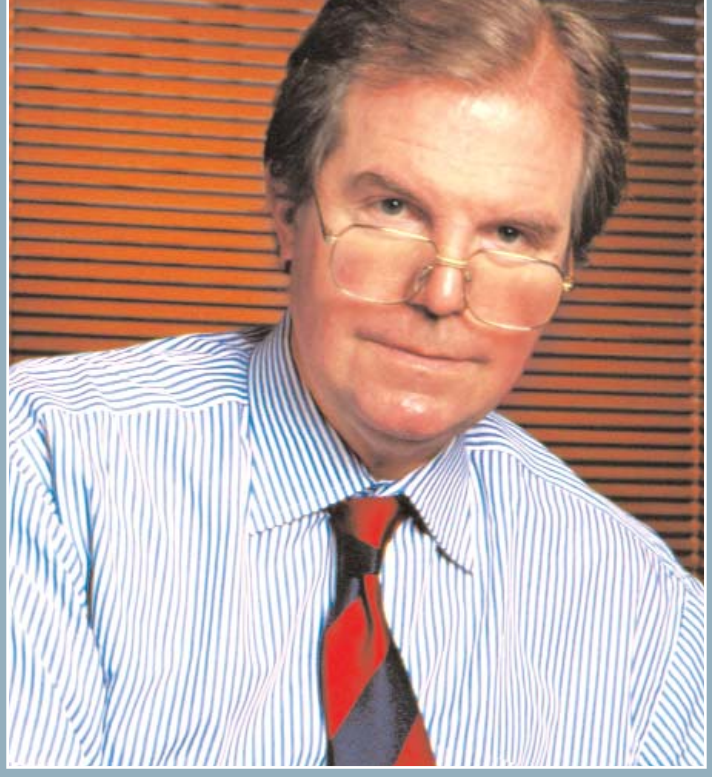
GUEST COLUMN



"Computing is not about computers any more. It is about living."

Nicholas Negroponte is founder and director of the Media Laboratory at the Massachusetts Institute of Technology, Cambridge, USA

Of Bits, Atoms, And Softwear

One of the first definitions of convergence came from Nicholas Negroponte: "Bits co-mingle effortlessly. They start to get mixed up and can be used and re-used separately or together. The mixing of audio, video, and data is called multimedia. It sounds complicated, but it's nothing more thanco-mingled bits."

Negronte pointed out in his 1995 bestseller *Being Digital* that our world is fast exchanging the trade in atoms for the trade in bits. In other words, he has been a big proponent of the 'bit switch'—the idea that we're moving from producing and distributing atoms in the form of products to producing digital things in the form of bits that get pushed around the world.

We present two columns Negroponte wrote for *Wired* magazine—'Wearable Computing' and 'Bits And Atoms'. These columns read as well today as they did when they were first published.

Wearable Computing

The digital road warrior's kit—laptop, cell phone, PDA, and pager—is just capable enough to bother you everywhere without necessarily helping you anywhere. It's absurd that each device is still on such poor speaking terms with the others. We walk around like pack horses saddled with information appliances. We should be in the saddle, not under it.

The Evolution Of Softwear

More than 20 years ago, The Architecture Machine Group at MIT built a mediaroom based on the idea that one should be inside a computer rather than in front of it. While that vision foreshadowed today's immersive environments, it did not go far enough and shrink the room to the size of a person.

In the future, the PC will be blown to bits, many of which, naturally, should be kept near you rather than in your home or at your office. But so far, software has not been particularly soft. Though bits are as insubstantial as the ether, they tend to be packaged in hard boxes. For hardware and software to comfortably follow you around, they must merge into softwear. Developing wearable computing requires as much attention to the medium as the message.

In fact, the medium becomes the message.

What single manufactured material are you exposed to the most? The answer is fabric. We wear it, stand on it, sit on it, and sleep in it. Marvellous technology goes into looms, but all we ask fabric to do is protect us from the elements, look pretty, and not wrinkle or shrink. Can't it do more?

Advances in conducting polymers and reversible optical media are pointing towards fabrics that can literally become displays. Amorphous semiconductors can be used to make solar cells to power fabric. Polymer semiconductors are candidates for wearable logic. The result would be the ultimate flexible computer architecture. Fashion accessories will take on new roles, becoming some of the most important Internet access points, conveniently surrounding you in a Person Wide Web. How better to receive audio communications than through a earring, or to send spoken messages than through your lapel?

Footwear is particularly attractive for computing. Your shoes have plenty of unclaimed space, receive an enormous amount of power (from walking) that is currently untapped, and are ideally placed to communicate with your body and the ground. When you come home, your shoes can talk to the carpet in preparation for delivery of the day's personalised news to your glasses.

The Body Bus

A wearable computer will be useless if you have to walk around looking like the back of your desk. Fortunately, bits are more than skin deep. Tom Zimmerman has shown that the non-contact coupling between your body and weak electric fields can be used to create and sense tiny nano-amp currents in your body. Modulating these signals creates Body Net, a personal-area network that communicates through your skin. Using roughly the same voltage and frequencies as audio transmissions, this will be as safe as wearing a pair of headphones. Keeping data in your body avoids the intrusion of wires, the need for an optical path for infrared, and conventional problems such as regulation and eavesdropping.

Your shoe computer can talk to a wrist display and keyboard and heads up glasses. Activating your body means that everything you touch is potentially digital. A handshake becomes an exchange of digital business cards, a friendly arm on the shoulder provides helpful data, and picking up a phone downloads your numbers and voice signature for faithful speech recognition.

Cyborgs

Cyborgs are here already. No, this isn't a paranoid fantasy about intruders from the future. Two cyborgs have been roaming the Media Lab, wearing computers day in and day out for over two years. It's an uncanny experience teaching a course to Thad Starner, who is simultaneously watching you lecture and annotating the lecture notes behind you through Reflection Technologies' Private Eye, a wearable heads-up display.

Steve Mann goes further, wearing a completely immersive system: movable cameras connect to a computer and transmitter to send video to a workstation for processing and delivery back to displays in front of his eyes.

This lets him enhance what he sees (he likes living in a 'rot 90' rotated world) and position his eyes. (Some days he likes having his eyes above his head, or at his feet, and when he rides a bicycle he sets one eye looking forward and one backward.)

He can assemble everything he's seen into larger mosaics or 3-D images, and through the radio-frequency link you can see through his eyes (at www.wearcam.org).

Don't expect to see much computing featured in Bill Blass' next collection, but this kind of digital headdress will become more common. Bear in mind that 20 years ago, no publisher anticipated that teletype terminals would grow into a portable threat to books, that paper tapes would merge with film into multimedia CD-ROMs, or that telephones would threaten the whole business model of publishing by bringing the Web into your home.

The difference in time between loony ideas and shipped products is shrinking so fast that it's now, oh, about a week.

This article was co-authored by Neil Gershenfeld, an MIT professor and one of three co-principal investigators of the Media Lab's newest research consortium, Things That Think.

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1/2 pg V AD

Bits and Atoms

The $400 Limit Applies To Atoms Only

When returning from abroad, you must complete a Customs declaration form. But have you ever declared the value of the bits you acquired while travelling? To Customs officers, the value of any diskette is the same—full or empty—only a few dollars; the value of the atoms.

I recently visited the headquarters of one of the top five integrated-circuit manufacturers in the US. I was asked to sign in and, in the process, was asked whether I had a laptop with me. I did. The receptionist asked for the model, serial number, and the computer's value. "Roughly US$1 to $2 million," I said. "Oh, that cannot be, sir," she replied. "What do you mean? Let me see it."

I showed her my old PowerBook, and she estimated its value at $2,000. She wrote down that amount and I was allowed to enter.

Our mindset about value is driven by atoms. The General Agreement on Tariffs and Trade is about atoms. New movies and music are shipped as atoms. Companies declare their atoms on a balance sheet and depreciate them according to rigorous schedules. But their bits, often far more valuable, do not appear. Strange.

Atoms Are Judged Less Greene Than Bits

When Judge Harold Greene broke up AT&T in 1983, he told the newly created regional Bell operating companies that they could not be in the information business. Who did he think he was fooling? The seven sisters were already in the information business and doing just fine, thank you. Their largest margins were—and still are—from the Yellow Pages, which they have sold at great profit. Judge Greene, sir, the companies are and always have been in the information industry. What are you talking about?

What the judge is saying is that the companies have every right to kill thousands of trees, to litter our homes, and to fill garbage sites with their information business, as long as this information is in the form of atoms. But as soon as the companies deliver the exact same information with no-deposit, no-return, environmentally friendly bits, they have broken the law.

Doesn't that sound screwy? Was anyone thinking about the meaning of 'being digital' during the time that AT&T was being disassembled? I fear not.

Pay Per View

During a speech I gave at a recent meeting of shopping centre owners, I tried to explain that a company's move into the digital future would be at a speed proportionate to the conversion of its atoms to bits. I used videocassette rental as an example, since these atoms could become bits very easily.

Wayne Huizenga, Blockbuster's former chairman, was the lunch speaker. He defended his stock by saying, "Professor Negroponte is wrong." His argument was based on the fact that pay-per-view TV has not worked because it commands such a small piece of the market. By contrast, Blockbuster can pull Hollywood around by the nose, because video stores provide 50 per cent of Hollywood's revenues and 60 per cent of its profits.

I thought about Huizenga's remark and realised that this extraordinary entrepreneur did not understand the difference between bits and atoms. His atoms—videocassettes—prove that video-on-demand will work. Videocassettes are pay-per-view TV. The only difference is that in his business he can draw as much as one-third of the profits from late fees.

Library Of The Future

Thomas Jefferson introduced public libraries as a fundamental American right. What he never considered was that every citizen could enter every library and borrow every book simultaneously, with a keystroke, not a hike. All of a sudden, those library atoms become library bits and are accessible to anyone on the Net. This is not what Jefferson imagined. This is not what authors imagine. Worst of all, this is not what publishers imagine.

The problem is simple. When information is embodied in atoms, there is a need for all sorts of industrial-age means and huge corporations for delivery. But suddenly, when the focus shifts to bits, the traditional big guys are no longer needed. Do-it-yourself publishing on the Internet makes sense. It does not for paper copy.

> **"Our mindset about value is driven by atoms. Movies ship as atoms. Companies declare their atoms on a balance sheet. But their bits, far more valuable, do not appear."**

Markoff-On-Production

It was through *The New York Times* that I came to know and enjoy the writing of computer and communications business reporter John Markoff. Without *The New York Times*, I probably would not have been introduced to him. However, now it would be far easier for me to collect his new stories automatically and drop them into my personal newspaper or suggested reading file. I would be willing to pay Markoff five cents for each of his new pieces.

If one-fiftieth of the 1995 Internet population subscribed to this idea, and Markoff wrote 20 stories a year, he would earn $1 million, which I am prepared to guess is more than *The New York Times* pays him. If you think one-fiftieth is too large a percentage, then wait awhile. Once someone is established, the added value of a distributor becomes less and less in a digital world.

The distribution and movement of bits is much easier than atoms. But delivery is only part of the issue. A media company is, among other things, a talent scout, and its distribution channels, bits or atoms, provide a testbed for public opinion. But after a certain point, the author may not need this forum. In the digital age, *Wired* authors can sell their stories direct and make more money, once they are discovered.

While this does not work today, it will work very well, very soon—when 'being digital' becomes the norm. ■

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Ultimate Converged Accessories

Illustration **Binesh Shreedharan**

The stuff dreams are made of... for geeks anyway! Presenting the best of the converged devices available today. A word of caution: Highly obsessive!

Sanket Naik

After a decade of blank and weightless proclaims, the age of digital convergence has finally dawned upon us. With industry bigwigs including Intel, AMD, Sony and Microsoft, to name a few shifting to solution-centric strategies, digitally converged products are making it to the mass markets—slowly, but steadily.

Digital convergence is bringing three major industries together—the IT industry with its hardware and software expertise, the consumer electronics industry—deeply rooted into entertainment and the telecommunication industry that enables short to long range communications.

Such a diverse communion results in the manufacture of extremely versatile products that combine the best of technologies from all three sectors. Just a few years ago, cell phones that doubled as digital camera, audio/video players or gaming consoles that transformed into a media-centric device were unthinkable. But now, they seem to be the imminent future.

Rapid developments in technology leading to faster chips, higher bandwidth buses and broadband communication are proving to be the major driving factors behind the convergence trend; not to mention the warm-hearted acceptance from consumers who are always on the lookout for that something new.

In this article, we bring to you some of the coolest products that incorporate cutting-edge technology and convey the very essence of digital convergence in their own unique way.

Oakley Thump

Oakley's Thump is the coolest converged product that combines fashion with technology in a unique way of its own. While audio players have been built into watches, headphones and cell phones, Thump is the first audio player to be built into sunglasses.

The Thump is made out of lightweight durable plastic and is hence suitable for use all day long. The lenses can be flipped up, making it possible for the shades to be used indoors without skipping on listening to your favourite music.

The earphones are well-placed and highly adjustable. They can be rotated, extended or raised to fit any ears without much discomfort. The controls are placed on the two arms of the shade.

Buttons on the left side are for volume control while those on the right are for Play/Pause/Power and Skip/Shuffle. Songs are played back either in the order they are copied or alphabetically. There

are also some pre-configured equalisers to be cycled.

On the specifications front, the Thump is available in two versions—128 MB and 256 MB. The Thump supports MP3s, WAV and DRM protected WMA audio formats. A USB 2.0 port is provided for faster transfer of songs and it is even backward compatible with USB 1.1.

A non-removable Lithium-ion battery provides the necessary juice for keeping the audio player running for the claimed six hours. But, with prices starting at $400 (Rs 17,400) for both versions, Oakley's Thump isn't for shallow pockets.

Fossil PDA Watch

Dick Tracy fans will love Fossil's wrist PDA watch. This rather 'cute' looking device harbours a fully functional PDA based on Palm's OS 4.1. Looks wise, it is hardly distinguishable from a traditional wristwatch, but speak of functionality, and it has enough features to beat the most hectic schedules without missing any events.

The PDA watch is powered by a Motorola Super VZ 66 MHz Dragonball processor and has 8 MB of RAM; enough for hourglass-free operation! The petite touch screen display has a 160 x 160 pixel resolution offering 16-level greyscale depth and backlighting for viewing in dark.

Inbuilt applications include an address book for contact management; a date book for scheduling; a To Do list; a Memo Pad for taking notes; a calculator. And yes, it also tells time.

These applications apart, the watch can run most Palm software; however, Fossil recommends using specially designed applications to take advantage of the watch navigation system, a rocker switch and larger font set.

For connecting with the PC, the watch comes with a USB port and an Infrared transceiver for communicating with other Palm devices. Power is derived from an internal rechargeable Lithium-ion battery. Fossil claims a battery life of three to four days provided you use it for 30 minutes a day without backlight and IR.

Priced at $249 (Rs 10,900), Fossil's PDA wristwatch costs as much as a decent PDA from Palm. But it's the size that distinguishes it from the rest. Now, does size really matter?

Adidas_1

Sportswear giantAdidas, a synonym for high quality footwear has introduced a shoe for the geek. The Adidas_1 was conceptualised around 2001 and after slogging for all these years, Adidas finally managed to get in on the tarmac. So what's tech got to do with a shoe? Well, this is the first shoe with an embedded microprocessor that adapts the shoe cushioning based on the terrain and the user's demand.

While the fact is that no two runners have the same physical characteristics, the same pair of shoes can't always provide the necessary comfort to both. To tackle this problem Adidas_1 can dynamically change the cushioning depending on the terrain, your weight and the speed, to provide the right amount of comfort.

The shoe has a magnetic sensor placed in the heel and monitors any changes in weight, pace and surface type at a rate of 1,000 times per second. This information is then fed to a microprocessor, the brain that determines whether the cushioning is in the ideal zone. If the cushioning is not right, the microprocessor sends a signal to a motor that is connected to a cushioning cylinder in the heel to either relax or tighten depending on whether soft or firm cushioning is required.

Running just got high-tech, thanks to the Adidas_1

There are two buttons on the sides of the shoe, which are required to be pressed simultaneously to switch on the active cushioning system. Moreover, there are five preset levels of cushioning that can be achieved using these two buttons. A small battery powers the entire system and is located under the foot soles of each shoe.

Priced at $250 (Rs 10,875), the Adidas_1 are a really expensive pair of shoes. Would you really want to get them dirty?

O'Neill's H2 Series Backpack

Energy source is a persistent problem with many portable computing products such as MP3 players, cell phones and other electronics devices. The built-in rechargeable batteries can hardly hold fort for a day and if you are the adven-

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O'Neill's backpack also incorporates a snowboard carry system, shovel stash and compression straps

turous type, this problem is simply compounded by the lack of access to electricity.

Your prayers seem to have been answered. O'Neill's H2 series of backpacks is what you should be looking at. The H2 series integrates two flexible solar panels with necessary electronics to control communication and entertainment devices.

The solar panels generate power during favourable lighting conditions and supply it to your iPod, mobile phone and integrated Bluetooth module via a USB connection. The system also has an electronic board that senses which device is in the most need of power and smartly allocates it accordingly.

Apart from the solar panel, the backpack also has an integrated Bluetooth module for handsfree calling. A microphone is built into the left shoulder strap and a universal headphone jack is integrated in the chest pocket. Moreover, when you get a call, the iPod is automatically paused till the call ends.

Both—the iPod and Bluetooth module—is stowed away in discrete water-resistant compartments. A soft, washable, fabric control panel is placed on the left shoulder strap to control playback of the iPod without having to reach for the device deep inside the pack.

The backpack is constructed from ultra-light and strong nylon for maximum durability. The pack also incorporates a snowboard carry system, shovel stash and compression straps. Prices are not yet out, but we fear they will be astronomical. Adventure calls!

HP ep9012 Instant Cinema Digital Projector

The ep9012 from HP is an all-in-one projection solution for home users combining the ambience of a projector, fidelity of a 2.1 sound system and the versatility of a DVD player.

The projector is based around DLP technology and delivers sharp and crystal clear images. For better colour saturation and depth, a six-segment colour wheel makes into the projector. The 840 lumen built-in lamp offers enough brightness and contrast for big screen viewing at home.

The integrated DVD player can play DVD-video and DVD±R/RW straight from the projector.

The DVD player also supports VCD, SVCD, CD-R, CD-RW, CD-audio and MP3 audio formats for maximum versatility. Other interesting features include playing JPEG files from a CD directly as a slideshow; just short of allowing direct camera connection.

To complete the cinematic experience, the system is equipped with a 2.1 speaker system. It has two speakers on each side, capable of delivering 20W and a third 30W sub-woofer base for bass. For a full immersive aural experience you can connect the ep9012 to any 5.1 enabled home theatre system.

The ep9012 is further equipped with S-video, composite video, component video, PC DVI and VGA (via adapter) inputs. To make it future proof the eop9012 is HDTV ready. Expected price for the ep9012 is around $2000 (Rs 87,000), so get ready for a compact home entertainment system.

Microsoft Xbox 360

Microsoft's soon-to-be-released next generation gaming console—the Xbox 360—takes convergence to the next level. While the gaming aspect is at the core of its design, looking at the specs and the functionality one can't argue the fact that it is more than just a gaming console.

The new Xbox is supposed to derive its computing power from a triple core processor running at 3.2 GHz, where each core is capable of running two threads simultaneously, leading to generation of six threads at once. Such huge reserves of computing power means a lot of data can be thrown at the CPU for the ultimate gaming experience.

Microsoft's XBox 360 that's making waves, and Archos' PMA400

The graphics section is handled by a custom-made ATI chip with 512 MB GDDR3 RAM and a 10 MB frame buffer. The chip also has 48 Shader units working on a new Shader language to deliver the best eye candy ever seen on a console.

Storage is provided via a detachable 20 GB hard drive which can further be upgraded when you run out of space. The Xbox 360 comes with a 12X dual layer DVD drive and will support most formats including WMA and MP3 CDs. The console also has two memory unit slots.

On the I/O front, the console offers three USB 2.0 ports for connecting it to a PC, has an Ethernet port, is wireless-ready supporting 802.11a, b and g standards and is video camera-ready.

Further, you can stream media from portable devices, digital cameras, Windows XP PCs and can rip music to the Xbox 360's hard drive. In also comes with a Windows Media Centre extender built-in.

Archos PMA400

Archos Pocket Media Assistant400, as the name suggests, is a portable media player that also acts as a digital assistant. Based on a Linux platform, the PMA400 offers class-leading features in a small and compact structure.

The PMA400 can record directly from your TV, VCR, cable box or a satellite receiver with the help of a cradle that comes with the package. The device also allows transferring of media from a Windows PC or a MAC on to its 30 GB hard drive. The recording is saved in MPEG4-SP format and the device can playback MPEG4-SP videos with soundtrack in MP3 format up to a resolution of 704 x 480 at 30 fps.

Samsung's revolutionary 7-megapixel camera phone—the first-of-its-kind to be launched

On the audio front, the PMA400 can play MP3, WAV, WMA and DRM-protected WMA files. The PMA400 can be used as a Dictaphone using the built-in microphone. It also has a recording application that can record in MP3 and WMA in real time from most analogue devices.

The PMA400 also allows playing of Qtopia-based games and it also has Mophun game engine for playing games based on the format. You can also transfer your entire photo album can store around three lakh photographs to be viewed on its small screen.

The device is Wi-Fi ready and supports 802.11b standard. You can also connect using the Infrared and Ethernet port provided via a USB to Ethernet adapter.

You can browse the Internet using the built-in Opera browser and send and receive e-mails via the integrated e-mail client. A personal information manager lets you schedule your meetings and events just like a PDA, as the PMA 400 has a touch screen for easy data input. Since the PMA400 is based on the Linux platform you can customise it by adding new third-party applications or your own.

Archos claims a battery life of four hours for continuous video playback and nine hours for music playback. Priced at –800 (Rs 48,000), it's not cheap but the functionality demands it.

Samsung SCH-V770 Cell phone

A 7-megapixel camera phone! Yes that's what Samsung's SCH-V770 offers. Launched at CeBIT 2005, the SCH-V770 ushers in a new era of true digital photography convergence in cell phones.

While most cell phones today offer cameras with primitive features, the 7 mp camera on the SCH-V770 has a level of sophistication seen on standalone digital cameras with 7 mp sensor. Boasting impressive features such as 3x optical zoom and 5x digital zoom and auto-focusing, it should offer good results. The SCH-V770 can also attach to a wide-angle and tele-conversion lenses, a first for any mobile phone.

Other interesting firsts on a cell phone include the manual control of the camera. The SCH-V770 allows manual adjustment of focus, shutter speed and auto exposure lock. It also offers shutter priority, aperture priority and fully manual options for exposure control.

The display on the SCH-V770 uses a new TFD (Thin Film Diode) LCD that ensures QVGA resolution on the small display size. The screen can reproduce a breathtaking 16 million colours to give lifelike pictures.

Video-on-demand (VOD) and music-on-demand (MOD) are the other new features that are available on the V770. It also supports a TV-out function for viewing those photographs on a TV set.

For storing the pictures, the phone comes with a 32 MB MMC Micro apart from the internal memory. The set is supposed to go on sale later in the year, so stay connected.

BMW 3-Series Cars

BMW is a name that epitomises opulence and performance in cars and does not shy away from using the best available technology so they go faster, handle better and have the best safety and comfort.

The 3-Series from BMW has been a favourite among techies for its practicality and sporty character. The new 330 is packed to the gills with technology.

Under the hood, you have a magnesium and aluminium composite engine block fitted with BMW's Valvetronic ignition system that digitally controls the ignition to improve the car's power and fuel efficiency.

BMW's iDrive system is a digital interface that manages a lot of functions such as GPS navigation, Internet access, BMW Assist System in case of emergencies, climate controls and the stereo functions. The interface is operated via a knob and a small in-dash LCD display. and can also be controlled via voice commands.

Full control over the internal climate is also provided. The windshield has built-in sensors that can detect rain, mist and can automatically switch on the wipers.

The car is also equipped with radar-based cruise control and, once set, it keeps the car at a safe distance from other vehicles even in high traffic. We didn't even dare ask the price! ☒

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Crash Landing

Illustration Binesh Sreedharan

Convergence is the new gadget mantra, but not all converged devices make it past the labs—or flop when they do

Preethi Chamikutty

Convergence is, generally speaking, a good thing, and converged gadgets are supposed to make life easier for us. But not all converged products are good. Some, in fact, never made it to market. Others did and flopped.

It's not just about the products themselves being good or bad. It sometimes turns out that a good idea is not well-received by the market. It's a different story with each converged device that turns out to be an also-ran. No-one can pinpoint why some tack-ons, such as the phone-cum-PDA, become the norm, while others, such as the TV-VCR combo, never gain momentum.

Here, we take a look at some products that seemed to have been driven by market forces pointing towards convergence, but never became bestsellers.

Silicon Film Technologies' (e)film

Silicon Film Technologies' (e)film held the promise of changing regular film cameras into digital ones. This might have been a great product, because it would mean savings for people who already owned regular SLRs and didn't want to invest in a brand-new digital camera.

EFS-1, a 'digital film insert', was an electronic film cartridge that slipped into the back of an SLR camera body. The (e)film cartridge could capture up to 24 1.3-megapixel images. You were supposed to be able to use your SLR the way you normally did—with the lens, filters and accessories. Your SLR camera could be loaded with (e)film, and any of its accessories could be changed without much trouble.

Since 24 images is generally considered insufficient, you could invest in an (e)box, where the images could be downloaded—after which you could continue shooting.

The product was expected to hit the market around 2001, but is yet to do so. What went wrong is not clear. But what's also at question is the utility of (e)film: would the captured images be as good as those captured by a digital SLR? And with costs of digital SLRs—as well as those of regular digital cameras—dropping, is there a place in the market for such an innovation?

This is, ultimately, an apparently good idea that didn't seem to have stood up to the scrutiny of the market.

The TV-VCR Combo

A TV-VCR combo is not be such a good idea, for multiple reasons. There are, in the market today, CRT TVs, LCDs, plasma displays, projection TVs, and more. VCRs—yes, don't forget the good old VCR!—also have multiple features such as super-fast motion, slow motion, freeze frame, on-screen programming and so on.

Several companies have confused what was possible with what is useful

So what happens when you take the combo? Do you get the best of both worlds? The simple answer is no. Manufacturers choose a TV model and a VCR model, and just put them both together. The converged product does not offer you as much variety as the individual ones do.

If there are five VCR models you could choose from, and ten TV models, and the features in each of these are to be combined in the new offering, the permutations and combinations are limitless. What is a manufacturer to do? You are, ultimately, stuck with a model of TV that you like somewhat, and a model of VCR that you like somewhat. Here, it's a case of too little choice, unlike with most converged products where the choices seem overwhelming.

Web TV

Television and the Internet have been on a collision course for a long while now—the idea of converging the two into something useful has been doing the rounds for some time. Microsoft's WebTV, which was brought to market around April 1997, is still struggling to get noticed. Time Warner's AOLTV, a combination TV and Internet service, included a TV-like set with a keyboard and remote. It was to enable consumers to watch regular TV and access the Web at the same time.

So what happened? AOLTV has many features such as a program guide and the facility to record shows or remind you when they're on the air. You could watch programmes while simultaneously browsing the Web, exchanging instant messages, chatting about a show or sending e-mail. However, the service was extremely slow and clumsy. It was priced at $249 (Rs 10,800), which included the set-top box, wireless keyboard and remote.

Installation was a painful task. On most Web TVs, it was difficult to get a TV program and a Web page on the screen at the same time, though that's supposed to be the prime feature. Another point is that the picture quality on TV and that of Web pages is, of course, different—most TV screens produce pictures that are 544 pixels wide, while PCs have at least 800-pixel resolutions. So when you try to fit a Web page on a TV screen, the text becomes difficult to read.

E-book readers

Passionate book lovers would have embraced e-book readers whole-heartedly if only it offered the same reading pleasure that a paperback does. There are quite a few in the market, but it is still difficult to find one that serves the purpose satisfactorily. E-book readers, though a good idea, never took off in a big way.

Many factors contribute to choosing a good e-book reader. First comes cost, not only of the reader, but of the downloaded books as well. Size, weight and ergonomics also contribute to the decision to purchase the reader. Then there's readability, clarity, glare, and the reader's ability to handle different fonts and symbols. Low resolutions make the type look strange; reading in sunlight is also difficult.

One example of an e-book reader is the REB 1100, introduced by electronics giant RCA. The company stopped promoting the product for reasons unknown.

Sony eVilla

Sony Corporation's eVilla was an Internet appliance that fit on kitchen counters, and enabled users to surf the Internet, send e-mail, and store music. The eVilla featured a vertical 15-inch monitor, ran on the BeIA operating system, had a memory stick reader instead of a hard drive, and had two USB ports for connecting to Zip drives and printers.

Priced at $500 (Rs 21,750), the eVilla weighed nearly 32 pounds, and was 16 inches in depth. In fact, the manual had directions on how to lift the device!

The product was launched around June 2001, but was hastily withdrawn from the market two months later. Although no clear reason was given by the company, a spokesperson attributed the withdrawal of the product to "falling short of our initial expectations with regard to stability and usability". The operating system also could not cope with the network demands placed on it.

The CueCat

The things companies do to be called 'the first' or to gain attention is best demonstrated by the CueCat. When it was launched towards the end of 2000, the product was highly lauded. DigitalConvergence, the company, designed the CueCat as a cat-shaped barcode scanner about the size of a candy bar. Customers could attach CueCats to their PCs, and the device could read barcodes at the back of products. When a customer swiped one, the CueCat directed the user's browser to a Web page with information about the product.

The designers also envisioned that the CueCat would read barcodes in newspaper and magazine articles, and take readers to related stories on the Internet. The problem: not many people thought that a product that only scanned bar codes was worth investing in.

What Next?

Silicon Film Technologies, Sony and DigitalConvergence may argue, "at least we tried"; but they confused what was possible with what is useful. Companies may churn out converged products by the dozen, but demand will be decided only by the usability and efficiency that the products have to offer.

Moreover, these products were driven by market demand more than the actual evolution, if you like, in the lab. They will, therefore, always remain stop-gap options until the real thing is developed. A cut-paste job will not get convergence far. It will only mar the image of convergence in general, and make the consumer wary of the next device that will be launched.■

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"The Name Is Connected. Dr Connected"

Illustration Shyam Shriram

Most of us salivate over the gadgets Bond uses—and many of them reek of convergence

Varun Dubey

James Bond is the flamboyant secret agent who almost always seems to be able to dodge certain death, and always manages to find time off from saving the world to romance some of the most beautiful women on the planet! But the women, the death-defying close shaves, or the martinis—shaken, not stirred—are not the only things that constitute Bond's aura.

Most of us salivate over the gadgets he uses, perhaps even more than we do over the women in his company. That's where Bond fits into this special issue that celebrates convergence: many Bond gadgets reek of convergence. They're smart, they're multifunctional, and they talk to other gadgets. The makers of the Bond movies do seem to have put some effort into envisaging a converged world—although, of course, it was necessary that only Bond, and no-one else, had the gadgets!

We plunge into the wonderland of Bond's gadgetry, and analyse what is possible in the real world and what will remain in the reel world. We've rated all gadgets by a 'Coolness Quotient' based on how much we'd love to own one of them, and also a 'Plausibility' score, based on how likely it is that such gadgets can be made available. Scores are out of five.

Gadget: Briefcase

Movie: From Russia With Love

This was the first gadget the Quartermaster—or Q—gave James Bond. The briefcase held an AR7 foldable sniper rifle, 40 rounds of ammo, a tear-gas cartridge disguised as a tin of talcum powder, some money in the form of 50 gold sovereigns, and concealed throwing knives.

Plausible?

Yes, but we need to ask: with all that equipment inside, how did Bond manage to carry it around? Ten on ten for Q's packing skills—but we've got to subtract a few for the sheer craziness of lugging around something so heavy and trying to save the world while you're at it!

Coolness Quotient: 2.75
Plausibility: 4.5

Gadget: Mini Breather

Movies: Thunderball, Die Another Day

This gadget, slightly larger than a pen, allowed Bond to breathe underwater for about four minutes.

Plausible?

This is one of Bond's gadgets that fall in the 'fantastic' category. To get to hard facts today, a four-litre scuba tank will give you 30 to 35 minutes of breathing air,

and the smallest tank today is still as big as a cola can—and will provide only two minutes of breathing. Sorry Mr Bond—this doesn't gel with reality.

Having said that, we must give credit where it is due—hats off to the guys who thought this up. When Bond's engineers came up with this kind of portable design, portable air tanks had not yet been invented!

Coolness Quotient: 4
Plausibility: 2

Gadget: Omega Watch

Movies: Golden Eye, The World Is Not Enough

This beautiful Omega Seamaster is a collector's item in itself, but of course, for Q, and hence for Bond, beauty is not enough. By the time Q was done with it, this watch boasted of a high-power laser diode that could cut through two inches of steel! It also featured a button that could arm or disarm any deployed magnetic mines.

In *The World Is Not Enough*, the gadgetry is enhanced, and the watch incorporates a miniature grappling hook including a 50-foot high tensile micro filament, which could support a massive 800 pounds. Q also incorporates dual high-powered lasers into the design, and the casing is made of titanium.

Plausible?

Well, a lot of Omegas do come with a titanium body, but that's pretty much where the semblance to reality ends. Even if you could incorporate a high-powered diode into the watch, where would all the power come from? And let's believe that the wire filament can hold 800 pounds of weight, let's also suppose that the watch strap can withstand the same weight—we still fail to see how it's possible for a human wrist to take that much stress! Also, we think it's improbable that any 800-pound people would want to scale 50-foot walls!

Here, audience intelligence seems to have been ignored, and this watch, though absolutely cool, remains in the reel world.

Coolness Quotient: 3.5
Plausibility: 1

Gadget: Bell Textron Jet Pack

Movie: Thunder Ball

The pack strapped on to the user's back like a backpack, and was the size of about two scuba tanks, filled with propellants and a turbine thruster. With this thing strapped on, the user could fly at extremely fast speeds to a height of 600 feet!

The Bell Textron Jet Pack Bond used in *Thunderball*

Plausible?

Oh yes! It sounds fantastic, but not only is it possible, it was, in fact, a working prototype on loan from the US Army. It can carry a person over nine metre-high (30 foot-high) obstacles at a speed of 11 to 16 kmph. Now that's what we call a flight of fancy!

Coolness Quotient: 4
Plausibility: 5

Gadget: Latex Fingerprints

Movie: Diamonds Are Forever

These false fingerprints were like latex stickers. Fingerprints were taken on hot latex, which was then allowed to cool and set in shape. You could stick it on to your fingers and assume a whole new identity!

Plausible?

Absolutely. Details of how to fake fingerprints are easily available on the Net, and all you need is things available in your own home. Of course, it's illegal to fake fingerprints!

Recently, a study from Yokohama National University in Japan showed that phoney fingers concocted from gelatine, called 'gummy dummies', were able to trick quite a few fingerprint systems.

Coolness Quotient: 3
Plausibility: 5

Gadget: Watch/Ticker Tape

Movie: The Spy Who Loved Me

The ultimate in faxing, this watch had an inbuilt satellite link. MI6 could send Bond short messages that would then be printed out on a spool of tape.

Plausible?

Not really. If you have ever seen a fax machine, you'll know that if it was possible to make the unsightly device any smaller, it would already be in mass production.

But the possibilities are interesting. Imagine a news report, or stock market updates, being spat out of your watch on ticker tape. You'd have to be careful to not trip on the tape though...

Coolness Quotient: 3.5
Plausibility: 1

Left: Fake latex fingerprints from *Diamonds Are Forever*; **Right:** The AR7 foldable sniper's rifle and the briefcase from *From Russia With Love*

Bond has always preferred British cars, and his preferred mode of travel is an Aston Martin—the DB5 in *Tomorrow Never Dies*

Gadget: Pen Grenade

Movie: Golden Eye

Perhaps the most clichéd of spy gadgets—no spy is complete without one! The pen looks like any other pen, but is actually a Class 4 grenade. You click the pen thrice (careful, fidgety people!) to activate the four-second detonation timer. If, within the four seconds, you click the pen thrice again, the bomb is deactivated. Here's one pen that's mightier than the sword for sure! Since Hollywood has done this gadget to death, not many people find it cool any more.

Plausible?

Well there is nothing against this really, except for how much of explosive you could store in such a tiny device—which leads to the question of whether any serious damage could be caused by such a small explosion.

Coolness Quotient:1.5
Plausibility: 1.5

Left: Bond spying and clicking pictures with his digicam in *Golden Eye*; **Right:** controlling his BMW 750iL with his Ericsson phone

Gadget: Digital Camera

Movie: Golden Eye

Now this is a really cool gadget: a high-res camera that could send pictures directly to MI6 headquarters using a satellite link.

Plausible?

Why not? Many handhelds of today (the O2 XDA II, Treo, and more) have Wi-Fi connectivity. All a camera manufacturer needs to do is put in a Wi-Fi chip to connect to a network. From there on, you can e-mail the image just like you do from a regular cell phone. In fact, the Nikon D2H is already Wi-Fi-enabled!

The only problem might be the size of a high-resolution image. That apart, it would be cool to be able to send pictures to everyone the minute they're clicked! In fact, you could send them to your local digital studio and pick up the prints on your way back home! Now that's the convergence we need to see!

Coolness Quotient: 3.75
Plausibility: 5

Gadget: Ericsson Mobile Phone

Movie: Tomorrow Never Dies

Once Q was done with this phone, it was equipped with a stun gun capable of delivering a 2,000 volt electric shock (activated by pressing 'Recall 3'), a fingerprint scanner for breaking into safes, and a mini screwdriver that appeared when the antenna was removed. The phone opened up like a book to reveal a small LCD screen and disc-tapping the disc twice would start the car, and moving the fingers on the disc would drive the car!

Plausible?

Well, apart from the 2,000-volt shocker and the fingerprint scanner, everything else is plausible—the technology of today would certainly let you do it.

As for the 2,000-volt shocker, we wonder what batteries were used! God help Bond if he spilled one of those shaken-but-not-stirred martinis on himself!

It isn't too difficult to incorporate the driving through a cell phone though; most Mercedes cars employ drive-by-wire, wherein everything is computer-dependent and controlled, and whether it receives the instructions from a pedal or from a cell phone is immaterial.

Coolness Quotient: 4.5
Plausibility: 3

Gadget: Aston Martin DB5

Movie: Tomorrow Never Dies

Bond has always preferred British cars, and his preferred mode of travel (when not snatching enemy cars or running from them on foot!) is an Aston Martin, in this case, the DB5.

The DB5 featured tyre shredders that could be extended from the wheel hubs; bullet-proof windshields; a retractable bullet shield that rose from inside the boot area; revolving number plates that made the car legal and valid in all countries; a passenger ejector seat for dispensing of unwanted hitchhikers; oil-slick dispensers to get rid of pursuants; smoke screen dispensers; retractable duel machine guns mounted beneath the headlights; rear-mounted duel water cannons for blasting away pursuers; a cellular fax machine, disguised as a car stereo console; a cellular voicemail system; and let's not forget the refrigerated glove box for storing a bottle of Bollinger and two glasses—after all, Bond never knows when a lady friend might hop in for a spin!

Wouldn't it be cool if our Maruti 800s could have some of this gadgetry? To be fair, the cars of today will let you have a fair bit of the above luxuries—barring the military installations such as machine guns, of course. Let's take a look.

Plausible?

Tyre shredders: Not needed in India, as our government has provided these already; they're called 'roads'!

Bullet-proof windshields: Already a reality in most cars with flashing red lights on top—Dr Manmohan Singh has a reinforced BMW Series 5, which can withstand rocket-launcher attacks!

Revolving number plates: Though illegal, these are far from high-tech.

Most limousines already have cable TV and full communications capabilities. In fact, some outrageously luxurious models even have a mini swimming pool and a helicopter landing pad! For once, Bond was actually *behind* in terms of gadgets.

Coolness Quotient: 4
Plausibility: 4.5

Gadget: BMW 750iL

Movie: Tomorrow Never Dies

This was the top-of-the-line BMW at the time. With a roaring V12 inside, this car also featured not one, not two, but *12* surface-to-surface missiles on the sunroof!

Coupled with Bond's Ericsson cell phone, this car was drivable via the controls on the phone without Bond being physically present in the car. Such an expensive piece of machinery would obviously need to have protection measures built in.

After the security system was activated, anyone who touched the car would get a rather nasty electric shock, and if he or she managed to recover from that, there were tear-gas dispensers incorporated as well.

To let Bond travel 'no strings attached', the BMW logo on the bonnet rose to form a cable snipper! The car also had metal tyre spikes deployed from underneath the rear bumper. The most mundane of the features were the re-inflatable tyres, which could re-inflate at the touch of a button after a puncture.

This technology is already in the market, with tyre companies selling 'Run Flat' and self-sealing tyres, wherein the tubeless tyres can take around 10 punctures and carry on without any problems.

Plausibility

The car is a complete fantasy, except for the remote-controlled driving and the re-inflatable tyres. Even the latter seem a little far-fetched the way they've been portrayed in the movie.

Coolness Quotient: 4.5
Plausibility: 1.5

Gadget: X-Ray Specs

Movie: The World Is Not Enough

The stuff that every kid's dreams are made of! The glasses are rather stylish (as are all things Bond!) and very functional. In the movie, they help Bond roam around a casino scanning for concealed weapons and inspecting ladies' lingerie.

Plausible?

Wouldn't it be simply great if they *were* plausible? We'd surely get one of those for our *New and Notable* reviews, not to mention a *30 days with...* article on it. But sadly, it's not to be. X-ray technology works on the principle of absorption and reflection, a lot like radar, and it works fine on guns, metals, and, of course, bones. But *not* on lingerie—it just doesn't reflect anything! 007 gets 000 here.

Coolness Quotient: 5
Plausibility: 0

Gadget: BMW Z8

Movie: The World Is Not Enough

If the BMW Z8 roadster, which can do 0-100 in less than five seconds, isn't enough eye-candy in itself, Q was at it again and added more weapons than the US carried into Iraq!

The car incorporated surface-to-air missiles, and a needle-thin sonic beam that let Bond eavesdrop on conversations in surrounding areas and buildings. It also had all the equipment from previous cars—rockets fitted behind headlamps, remote handset driving, and much more. The car, using sensors, could drive itself to where the remote control was located!

Q practically choked it with technology. The car had the absolute latest in intercepting equipment, surveillance and countermeasures. The car's body was redone and fitted with titanium plating and armour, and a multitasking heads-up display.

The BMW Z8 being bisected by Bond's enemies

Plausible?

Yes. Even the sonic beam technology to eavesdrop on conversations was available in 1999, when the movie was released. It's currently being researched so it can work by bouncing off obstacles! The only thing is, we wonder if the car would really be able to carry the weight of all the heavy stuff—surface-to-air missiles included.

Coolness Quotient: 4
Plausibility: 4

Gadget: Aston Martin Vanquish

Movie: Die Another Day

In *Die Another Day*, Bond was back to his ever-faithful Aston Martin, as in the Vanquish V12.

As always, Q gave it a complete overhaul, post which the car had two under-hood mounted auto-aiming machine guns, front-firing rockets behind the main air intake grille, seat with spring-loaded ejection system, enhanced waterproofing, under-chassis air cannons, and central console-mounted controls.

This car was more feature-packed than any of the previous Bond cars. It incorporated four grille-mounted rockets plus two machine guns; two motion-sensing guns hidden under the bonnet; and spiked tyres for ice driving.

But all this was routine stuff which Bond has had movie after movie, so Q decided to do something new—and gave this car the capability to turn invisible at the flick of a button!

Plausible?

All the regular features of this car are plausible. And do we need to actually go ahead and state that a car that turns invisible is *not* plausible?!

Coolness Quotient: 5
Plausibility: 2

Over the years, James Bond has become synonymous with the absolute cutting edge in technology. There's now a controversy over who will play the next Bond, and with the death of Q, it would be interesting to see what MI6 can conjure up for Bond in the next movie. We just hope it is every bit as entertaining and far-fetched as the devices in the earlier movies! ■

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Whither Mankind?

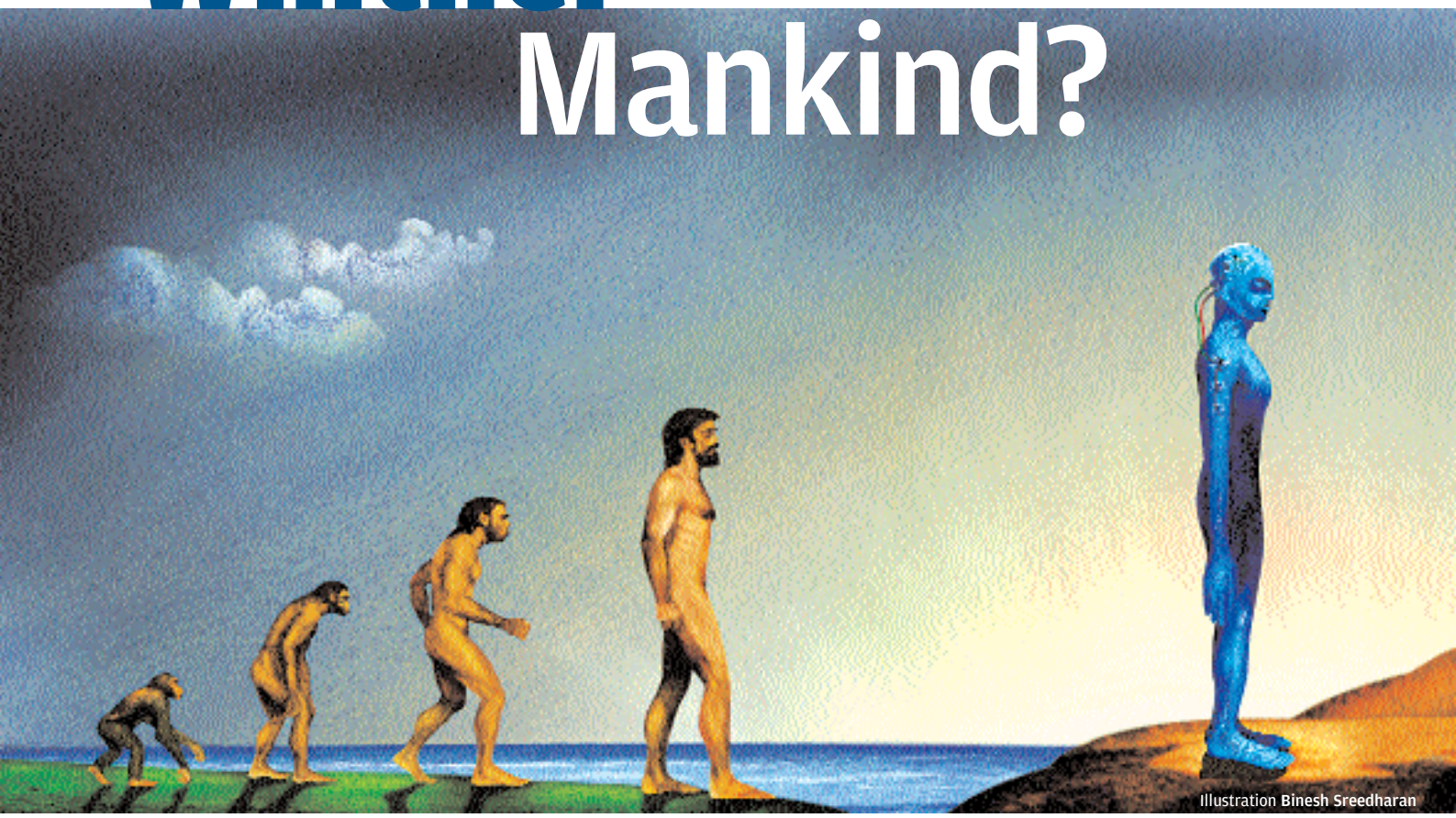


Illustration Binesh Sreedharan

The advancement of the physical form is possible using implants and various electro-mechanical devices

"The body is neither a very efficient nor very durable structure. It malfunctions often and fatigues quickly; its performance is determined by its age. It is susceptible to disease and is doomed to a certain and early death. Its survival parameters are very slim—it can survive only weeks without food, days without water and minutes without oxygen."

—Stelarc
Principal Research Fellow,
Performance Arts Digital Research Unit,
Nottingham Trent University, England

Ram Mohan Rao

Immortality! Mankind's greatest desire, and the driving force behind the medical sciences. Utter the word, and most of us start dreaming of all the things we could accomplish or the way our lives would alter if we could live forever; the thought is surreal. However, immortality, or at least a vastly enhanced and elongated lifespan, is not entirely fictitious or far-fetched any more. All mankind needs to do, is evolve.

We have seemingly hit a plateau on the ladder of evolution, and it's time we started climbing again. It's time we broke out of the shackles we were born into, not just in terms of lifespan, but also in terms of physical limitations. As the Extropy Institute (www.extropy.org) puts it, "Human beings achieved 'civilisation' thousands of years ago.

Yet, we have not shaken off the ancient tyrannies that haunt the human condition. We suffer physical and emotional sicknesses ending in decrepitude and death. The primitive parts of our brain spur us to envy, hate, despair, and kill. Our philosophies and religions attempt to express our highest values, yet, we use them to oppress and control. We use them to crush the world's complexity into a simplicity that we can clutch to like a security blanket for the human condition."

The Human Condition

Hundreds, perhaps thousands of things, define the human condition. We do not communicate efficiently enough—our speech is but glorified grunts compared to the immense possibilities of direct brain-to-brain communication. Our experiences are defined by hundreds of limiting factors such as distance, time, atmospheric conditions, and so on. The simple fact is that our minds are evolving, but our experiences are limited by the imperfect construction of these vessels called bodies that carry our advancing brains.

The logical progression would then have to be the advancement of the physical form. This is possible using implants and various electromechanical devices. To put it succinctly, mankind needs to physically evolve by turning Cyborg.

The cyborg is a convergent form, and he has the tools to defy death

The Cyborg

We've spoken about cyborgs earlier, in the January 2005 issue of *Digit*. We laid out a definition, and spoke about what kind of research is going on in the field of cybernetics, which, according to Dictionary.com, is "the theoretical study of communication and control processes in biological, mechanical, and electronic systems, especially the comparison of these processes in biological and artificial systems."

'Cyborg' happens to be short for 'cybernetic organism', and a cyborg, with his (or her) implants and wirings-up, is neither purely human nor purely machine; he is a convergent form, and he has the tools to defy death.

Apart from just living forever as cyborgs, we could have greatly enriched lives. No more will our minds, which can traverse vast lengths of space and time in the blink of an eye, be bogged down by the physical limitations of speech, language, touch, sight and other boundaries.

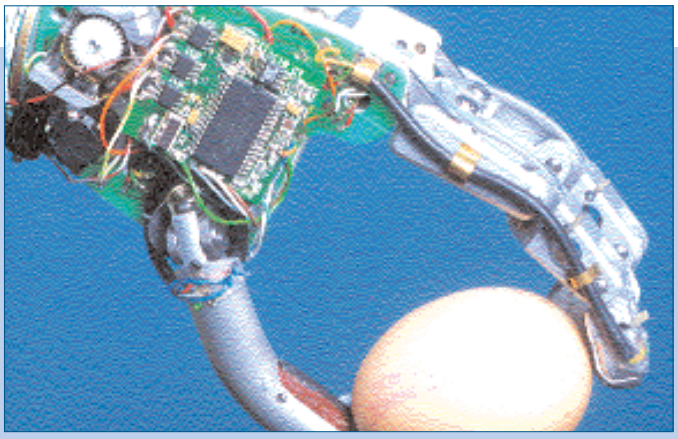
Wired Humans

Strictly speaking, anyone with an implant of some sort may be called a cyborg, because his or her body has been augmented. That includes people with pacemakers and artificial limbs. An extreme example of this is clothing—it can be considered an augmentation of the skin.

However, we must remember that what defines a cyborg is that his relations with the universe have changed, usually for the better. Seen in that light, while it is true that someone with an artificial limb has a slightly different interface with the universe, he is not, in a subjective sense, a 'true cyborg'. He experiences, and responds to, reality pretty much the same way we non-cyborgs do. What, then, do we mean by a 'true cyborg'?

We may define a true cyborg as one whose relations with the universe have changed in a dramatic way; as one whose body has merged, quite literally and very significantly, with the mechanical.

So what kind of creature are we imagining? We can borrow from science fiction and talk about limbs that can be torn apart and replaced, eyes that can pop out of their sockets and have the capability of zooming in or out, and infrared or ultraviolet vision. But we can go further, and imagine a being with add-ons that give him tremendous powers.



There is nothing, conceptually speaking, to prevent us reaching a state where we augment all our body parts—limbs and internal organs included

For example, this creature would have transmitting and receiving antennas wired to its brain through which it could communicate directly via thought; most of its body parts and internal organs would be replaceable, mechanical and synthetic; its senses would be augmented in such a manner that it takes in reality in richer colours than we do; its implants would give him memory and brain power far superior to ours. It is this organism we are calling the true cyborg.

Cyborg Experiences

So how would you spend you time as a cyborg? The same way you do now, except that your reality is enhanced by a variety of implants and accessories.

All unpleasantness is done away with, and only desirable experiences pass on through to your brain. You could have a special interface, exclusively through which you communicate with the world. This interface might filter out unwanted people and conversations; the interface could also enable the recording of your thoughts and experiences so that you can play them back later. You could actually re-live your favourite experiences.

Think about what defines our lives today...

Books and movies? As a cyborg, you could 'read' and 'view' via your thought receiver antenna, from a central server common to all of cyborgdom. This server would record the experiences of all fellow cyborgs, so there is a much vaster pool of information to draw from than what we have now. And the transmission would be instantaneous, doing away with the need for spending hours reading a book or watching a movie.

Social interaction? Already, many people prefer interaction over the Internet, rather than face to face. In cyborgdom, there would be no need for any unwanted interactions; entities could be screened for suitability, and interactions would be at light-speed, without the need for elaborate, time-consuming social customs.

Sex, and other pleasures? If, or when, you felt the desire for such experiences, you could simply tap into your experience server, and have the experience delivered—either as a standalone experience 'applet', or in conjunction with a fellow cyborg. As a matter of fact, there need be no males or females in cyborgdom; all entities would be equal.

Work? Ah, that lowest common denominator of all human endeavour! Well, there would be no work required of the cyborg version of you, since work only serves to support the being—and in the stage of evolution we're talking about, life-support systems, Matrix-style, would be the norm.

In essence, your life as a cyborg would revolve around experience; you create your own experience-space, think and live in it, and are isolated from nature. You are no longer bound by space and time.

Ethics

According to Kevin Warwick, professor of cybernetics at the University of Reading, UK (see his column *Human-machine Convergence* on page 86), it is possible to control nearly every aspect of our psychology by the means of implants. Stage fear? Rely on the implant to get rid of it.

In such a scenario, there is bound to be a rush for these mind and body-altering augmentations. Will human qualities mean anything any more?

Every human will be defined by the augmentations they carry; it will mean the end of jealousy, of the concept of talent, but will also spell the end of art and uniqueness.

To elaborate, we are defined by our all-too-human qualities such as confidence, motivation, inhibitions, love, hate, and so on and so forth. In cyborgdom, these will mean nothing, as we could simply augment any quality at will. You could choose to play the guitar as wonderfully as Joe Satriani does, paint like Michelangelo, or bat like Virender Sehwag; all you need to do is choose. You could choose to alter your feelings so you begin to actually hate someone you love, or to love someone you hate. You could even go as far as changing your physical feeling of heat or cold, and decide to shiver in the summer and sweat in the winter. The possibilities

Will we all become "nodes on the Internet," as Warwick says? The possibility of a eugenically-enhanced, mass-produced population is real, and very scary

are endless, and limited only by the imagination.

Is this ethical? Debates already rage about mind-altering substances—recreational drugs as well as prescription medications. What kind of debates would begin once such implants became available?

Anti-implant advocates would essentially say that the use of implants is unfair, that it gives an unfair edge to those who can afford them. In the beginnings of the rush to the cyborg state, then, would be another Digital Divide: the implanted rich and the only-human poor.

Eugenics

Ultimately, all this could boil down to the classic have and have-not situation, where the rich can afford to live forever, while the poor die dreaming of better lives. It could also lead to more serious scenarios, where implants are restricted to certain countries or races. Imagine the western world living forever as cyborgs, with third-world countries suffering in the human condition. The last thing mankind needs is another Hitleresque vision, where someone decides who lives and who doesn't.

Nature

Do we have an idea about what will happen to the race if we rush ahead to embrace a wired future? In fact, do we have an idea, even now, of what it means to be human? If we have no defining idea what humanness means, how can we possibly know what it will be like to lose it?

What has the human race done thus far? We were born into nature, comprehended and won over it, and destroyed half the planet. We built inhuman cities where people lead artificial lives, alienated from nature; we fell prey to diseases that are caused because of this disharmony with nature.

What this points to is that even in the purely human state, we never did comprehend the essential need for the bond with nature; and so, how can we expect to understand what will happen when that bond is broken altogether—as will happen when we turn cyborg?

Death

Returning to the question of immortality: will we not be toying with the natural balance of the planet if people were to live, say, for 300 years or more? Think overpopulation. And who would decide when and why someone was to die, if the need arose to kill off some people when the need to reduce the population arose?

This has a strong link with what we had to say about eugenics. Who gets to live, and who gets killed? Can we comprehend the power structure and government that would be necessary to manage such a world, where nature is not in control any more?

And what if a particular individual decided to live on indefinitely—would such a life be worth it? The question is pertinent because that's where we're rushing to: one of the defining qualities of Utopia in cyborgdom is the possibility of living as long—and as happily—as one wanted to.

A quote from Anglo-American novelist Susan Ertz is in order here: "Millions long for immortality who don't know what to do with themselves on a rainy Sunday afternoon."

This is, of course, one point of view: there are many who would maintain that immortality is the way to go. And this is a deeply philosophical question as well—whether to die or not. We will not go into that here. Suffice it to say that such questions will become more and more pertinent as we move into the wired future with its extended life-spans.

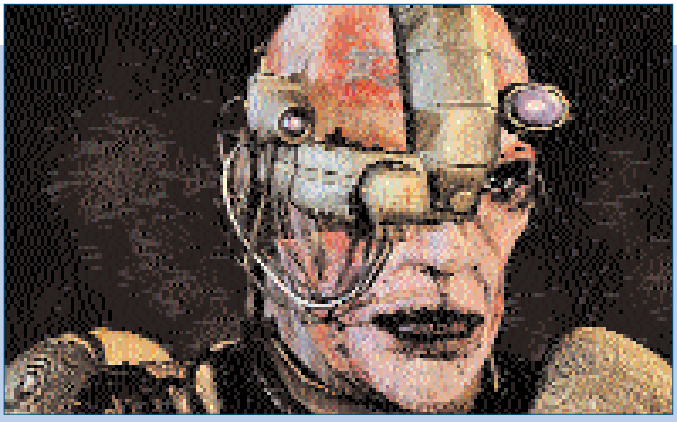
The 'Matrix' Trap

When we achieve the levels of automation required to support human beings on run-of-the-mill life support systems, without the need to eat, the human being will have an option. Some aver that this will open up the avenues required for people to finally do what is worth doing: creativity will be unleashed, entertainment will be on-the-spot, and the struggle for survival will be gone.

But the cyborg will necessarily fall prey to inertia. He will have the option to choose entertainment exclusively and indulge in nothing else. He will have the option to lie in the permanent state of artificial stimulation of the senses. This raises the spectre of a *Matrix*-like situation, where a powerful few govern the sleeping, experience-immersed majority.

To see how this is a very real possibility, think again of recreational drugs. It is a known fact that laboratory rats prefer cocaine to food, and will starve to death given the option—continually choosing the offered cocaine rather than the food.

We know very well how strong the drive towards inertia is. And if the drive towards inertia is so powerful, what about the drive to an entertained inertia—



A typical, very representative artist's impression of what a half-human, half-machine organism will look like. Augmentation of the senses is a crucial feature of such impressions

a world where one needs to do nothing, simply experiencing, with five senses or more, rich worlds we cannot even describe today?

Such will be the temptation that will face the cyborg.

Who will have power over them? What will the politics of such a situation be like? There are no clear answers.

The rush to converge with machines may have benign motivations: a longer, healthier life, free from disease and pain. But there are hidden dangers that need serious looking-into.

Given the socio-economic divides of today, not everyone will have access to implants that interface with the nervous system

Reality

Thus far, we have spoken as though the ideal cyborg form is indeed achievable. It may be. But receiving an implant is no simple matter. Warwick and others have proved that simple implants do, in fact, pose no long-term problems. But what of more complex ones, those that interface with the nervous system? We just don't know yet.

In fact, the order of the day is unanswered questions. What does it mean to 'experience' ultrasonics? Is direct-thought communication really possible? Will implants, in fact, successfully interface with the brain, with its billions of neurons? We do not entirely understand memory; how can we assume that memory augmentation is possible via implants?

The demand for augmentation will certainly be there when the time is ripe. As of today, human cloning is banned, but is a very real possibility. And what an immense demand for human cloning would be there if and when it were legalised!

In the same way, when implants that interface with the nervous system become available, there will be tremendous demand. It will first be for medical reasons, as in restoring sight to the blind. Then there will be the experimenters—those who will treat such implants as a method of toying with the boundaries of experience.

Given the socio-economic divides of today, not everyone will have access to them. However, the experiences of a few will be sufficient to prove the concept, and make it known what it is like to be a 'true cyborg'. What happens if those first reports turn out to be positive?

Whither Mankind?

Warwick and others maintain that cyborgdom is the next, natural step in our evolution. This, they say, is because we are creating machines more powerful than ourselves, and the only way to keep up if they jostled for power with us would be to merge with them. This, of course, assumes that the machines will have a will of their own, that they will want to dominate. If that ever becomes the case, turning cyborg will be the only way to go!

There are other compelling forces that will drive humanity the cyborg way: the sheer desire on mankind's part, as we said at the outset, to overcome our inherent limitations. The desire to cure all disease permanently, to forever negate Adam's sin and not have to work any more. The promise, thus, of a utopian existence.

What direction humanity will take will be determined only after the first 'real' experiments. It's then that we'll know what will happen to mankind, to cyborgdom. We can only hope that we learn a lot more about what it is to be human before that day arrives. ■

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"Electronic signals can be used to alter the workings of the human brain in a variety of ways"

Kevin Warwick, the world's first Cyborg, is a Professor of Cybernetics at the University of Reading, UK
For more of Kevin Warwick, visit www.kevinwarwick.com

Human-Machine Convergence

If asked to name the two technical advances that will have a profound effect on society in the not-too-distant future, my answer would be clear and certain.

Firstly, the ability to communicate directly from brain to brain between humans, which could be called 'Thought Communication'. Secondly, the use of electronic signals, as opposed to chemical, for the treatment of all sorts of ailments, particularly those that are mental in nature, which could be described as 'E-Medicine'.

These two seemingly disparate realisations have, perhaps surprisingly, a common technological base—namely the use of implant technology to link the human brain directly into the computer network. Essentially, humans will become nodes on the Internet. From a cybernetic viewpoint, signals on the human nervous system and those in the computer network are interchangeable, and are effectively one and the same.

The two major advances of Thought Communication and E-medicine also have commonality, in the sense, important initial steps have been taken in the appropriate direction. In both cases, we are already on the way to achieving the results.

In the case of Thought Communication, contact has been successfully achieved thus far, in the form of radio telegraphic communication that takes place directly between the nervous systems of two humans.

An experiment repeated between two human brains is merely a matter of time. What will be interesting then is how swiftly things will move forward. Will it be a case of telephonic communication, followed by memory uploads and downloads, or will we all learn to think in a new language—with our original spoken language, with speech (in general) becoming obsolete?

It's important to realise how poorly humans communicate at present, converting complex electrochemical brain signals into relatively trivial bursts of pressure waves, by mouth movement, which is called speech. These waves are picked up in the ears of other individuals, who in turn, try to put some sense into the signals they are receiving.

Unfortunately, the understood message is invariably altered from the original, intended message, especially when different cultures are involved. Thought Communication, therefore, offers a much more powerful, effective, and less error-prone means of communication.

As was the case with the telegraph, the telephone and the mobile phone—all had a significant impact on society, culture and commercial interests. Thus, communicating by thought is likely to have an even more profound effect than all the above three combined.

E-Medicine also depends on the basic electrochemical nature of the human brain and nervous system. Chemicals have, for some reason, been the mainstay in the Western world for treatment of all types of diseases for centuries. However, in the twilight of the last millennium we witnessed the first twinklings of the successful treatment of diseases by means of electronic brain stimulation through implanted electrodes.

The treatment of Parkinson's disease by this approach was found to be very successful. In fact, in the new millennium, the number of patients so treated had already run into hundreds. Now we can witness reports on successful trials and further studies involving individuals with epilepsy or multiple sclerosis. Clearly, the field is rapidly growing and diversifying.

Indeed, it is exciting to look at the range of absolute potential in the broader sense of E-Medicine. Basically, what we are looking at is the use of

purely electronic signals to dramatically alter the functioning of a human brain. In the case of Parkinson's disease or epilepsy, the result is to override or counteract the nature of the disease, restoring the individual to a semblance of normalcy. In this sense, the use of electronic signals can be seen as a viable alternative, and in many cases, an improvement on the more traditional chemical alternative.

Electronic signals can be used to alter the workings of the human brain in a variety of ways. For instance, we can consider the possibilities of memory download—giving individuals memories, which hitherto, they have never experienced.

This can even be extended to education. Want to play golf like Tiger Woods? Well, perhaps the mental ability can be downloaded, even if physically you might be a little overweight or out of condition. But potentially, even that could be dealt with. Why not try the patented 'Slimplant'—electronic signals used to control a brain's functioning regarding eating and drinking patterns and the amount of regular exercise?

Research on rats has shown that their planned movements can be controlled externally by the computer. When this is transferred to the human brain it means that you will not be able to have that extra meal that you know you shouldn't; the implant will not let you! Of course, this could put McDonald's out of business!

All sorts of behavioural patterns could be controlled in the same way. For instance, one individual could potentially control some of the movements and decisions made by another. Not sure what your spouse is doing? Well, now you could be, via an implant.

Conversely, a person might want such signals to allow them to deal confidently with an interview, or make a presentation, or to do the right thing on a first date. The possibilities are endless. Any time you are not sure—rely on the implant.

At the same time, such possibilities raise enormous social and ethical questions. It is one thing to use this technology for therapeutic purposes in order to help someone who has, say, Parkinson's disease or paralysis—very few people would disagree with such usage.

However, it's a very different thing when it comes to controlling another individual's habits or movements. Even if technology allows it, the society on the whole may not be keen on the idea. Society is, indeed, a strange creature.

The ethical issues are further exacerbated when enhancement of an individual is contemplated. The ability to communicate by thought is one feature. However, brain implants offer the possibilities of: extra-sensory input (such as infrared, ultrasonics), extending your nervous system across the Internet (your brain can directly control technology in cyberspace), having the mathematical and memory features of a computer directly linked with your brain, and being able to think in many dimensions.

Through my own implant self-experimentation research, I have already experienced an extra, ultrasonic sense. I have directly controlled a robot hand on a different continent by brain signals alone, and have communicated directly from one nervous system to another.

To me, the prospect of upgrading from the limited world of a human into an exciting part-human part-machine world—a 'Cyborg', in science fiction terms, is so exciting that I cannot wait. Although many others will feel like I do, some may feel quite differently.

For instance, if some humans have extra abilities, how will they treat those that remain mere humans? Nevertheless, just because some people do not want to be upgraded, why should they stop those who want to be upgraded? Clearly, we face tough ethical questions in the years to come.

One area where this is highlighted is the military domain. Implant technology opens many avenues to a whole new world of technological warfare. Not only can those involved have more improved intellectual capabilities, including extra senses, but also, humans themselves no longer need to be physically present in the battlefield.

"With a nervous system that can be extended via a network, human soldiers can be safe at home, while some of their senses are remote, at the point of combat."

With a nervous system that can be extended via a network, the human soldier, pilot or sailor can be safely ensconced at home, while some of their senses are remote, at the point of combat. Any thoughts of the individual on control or movement, as would be the case in firing a missile, can then be translated into immediate, direct commands in the combat zone.

From the home side's perspective, this has the distinct advantage of saving the lives of those in combat. For the opposition, however, it becomes more of a challenge. Destroying a vehicle or machine would be just that and only that. If it can be replaced, it will be.

Moreover, the attacking machine will need no intelligence, no computer, and no high technology on board. Effectively, it can almost become a 'throw-away', low-cost artificial soldier, with the actual personnel residing safely at home.

Space travel, too, would take on a distinctly different meaning. Why send astronauts into the extremely dangerous environment of outer space when they can stay at home and have their nervous system linked to a distant planet, by satellite?

In this way, we will soon be able to experience planets at the extremes of our solar system, which would, at present, appear to be impossible otherwise—simply because of the time required to safely transport humans across space for such a distance, never mind bringing them back again.

In all probability, we will develop space travellers that spring to life when they arrive at a

distant planet, carrying and relaying signals from and to the human astronauts back on planet earth.

With this brave new world, just as we have tremendous positives, just as we can enable a lot of people who would otherwise have a more restricted life, just as we can upgrade all human mental capabilities and replace worn-out biological body parts with shiny new mechanical prostheses—we have a potential goliath of a negative hiding around the corner.

The big question is, can we as humans stay in control? Can we remain the dominant life form on earth, or will we hand over power to a machine species, the likes and nature of which we really do not understand?

I believe it's not our physical prowess that has put humans in the powerful, controlling position we have on earth; rather, it's our intelligence. To put it simply, courtesy our intellectual capabilities, and because human brains can mostly out-think and outwit those of other creatures, we have claimed for ourselves the driving seat on earth. But as machine intelligence is rapidly improved, as computer-based systems become more powerful, how long can human domination last?

It is estimated that within a decade, standalone computers will have more processing power than an individual human brain. Not only that, but they will be networked. And what is the intelligence of a machine-brain network?

Even now, a typical computer can perform more calculations in the blink of an eye than a human brain can perform in a week. By giving such machines the ability to defend themselves under all conditions, we endow them with survival instinct—and this doesn't have to be programmed in.

As of now, it would be quite impossible to actually 'switch off' the Internet. We humans are far too dependent on it. Many lives revolve around the Internet on a day-to-day basis, and already, our present way of life demands that the Internet remain operative. Humans are, in fact, the machines' defenders!

Just as humans do not listen to sheep or dogs—creatures we feel are less intelligent than ourselves, similarly, intelligent machines are very unlikely to listen to humans now. For instance, if a sheep came into your room today and said "Baaah", you would not say to it, "OK, yes, I will do what you tell me". After all, the noises the sheep make are trivial in comparison with human language. Likewise, in the future, intelligent machines will find human noises (speech) trivial.

What is to be done about this? Are we all doomed? Clearly, our only hope is to upgrade our own abilities, to create a partnership between human intelligence and machine intelligence. So, far from being something that would be good to do, linking human and machine brains together is quite simply something we have to do.

"If you can't beat them, join them", appears to be true here. The decision is yours. Will you be happy remaining a human, part of a sub-species in the years ahead? Or wouldn't you rather be upgraded and have extra memory and extra senses? Wouldn't you like to converge with technology? ■

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Applied Convergence

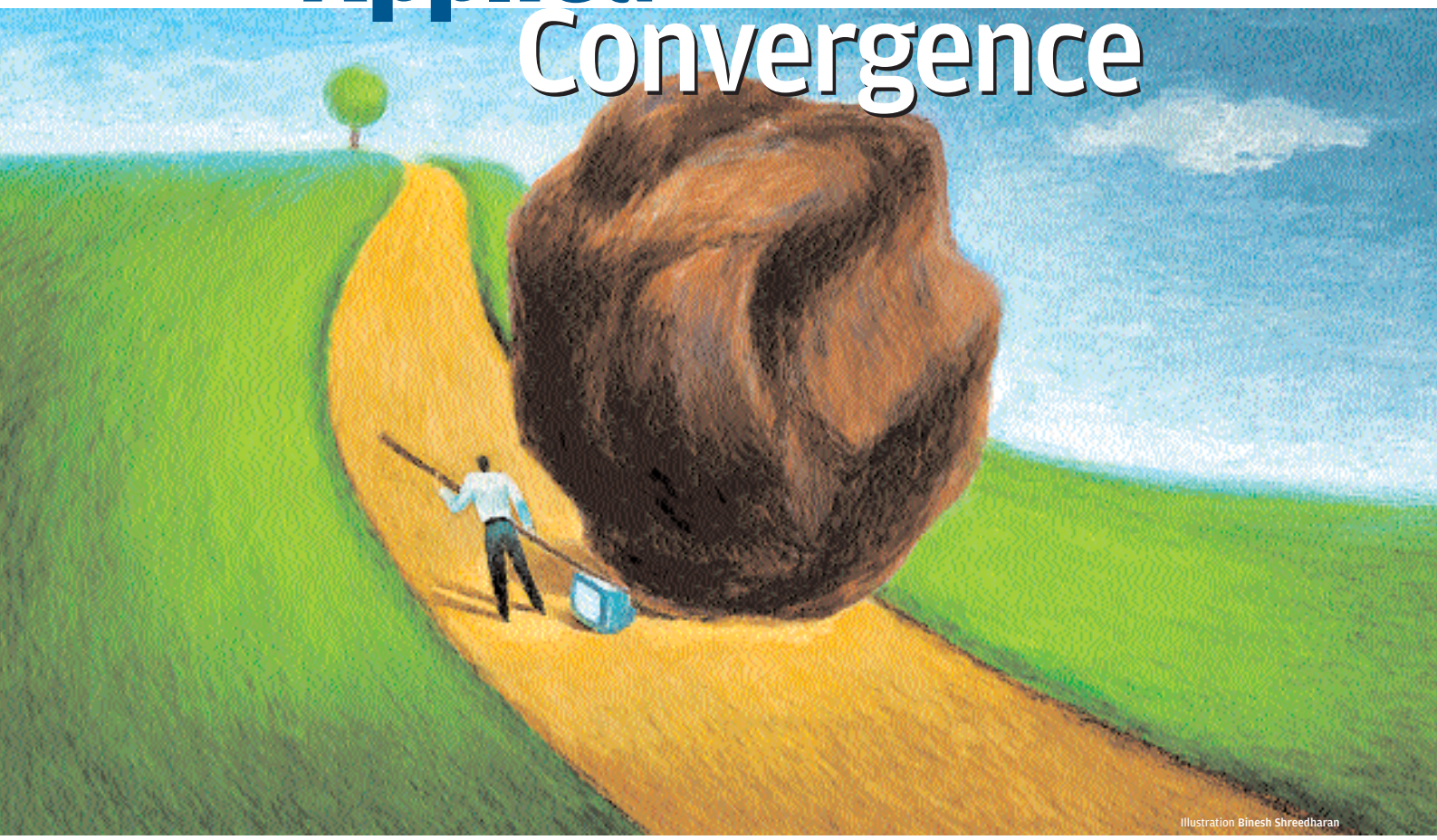

Illustration Binesh Shreedharan

Convergence is here to stay. But what type of convergence is practical? How far can we go to make it work and that too, effectively?

Aditya Kuber

Technology, in a way, needs to go back to the basics to implement the latest in cutting edge. Cryptic as that may sound, sample this: fingerprint identity could well be the most secure way to protect your data and identity. This is a classic example of convergence that could take us back to our roots in an attempt to secure us. What are some of the other practical areas that convergence could make life easier in?

Communication

Perhaps the industry that would benefit most from widespread application of convergent devices is the communications industry. There are various avenues where the communications industry could implement converged devices or technologies.

Telecommunications

Cell phones have already integrated MP3 players, cameras, PDA functionality, Web browsing capabilities and payment options. Add to this the possibility of using this as a hub for all communications, including security for your home, and you have a truly converged device. After the race to make devices smaller, vendors are back to manufacturing bulkier cell phone handsets, but this time, it's not because of the lack of know-how in controlling sizes. It's just that the handsets have so much packed in to them that there is no other option!

Coming back to the handset as a security hub, it may sound far-fetched, but it's as simple as using the WAP facility on the phone. Your home could be secured with cameras that are accessible through the Internet (even on your office desktop) and there is a WAP site for this as well. All you do is log on securely and choose the room you want to view. In case of a problem (a burglary, accident, etc), you are on top of it. Even if you are not watching, you could be intimated of a problem via a text message and you could then log on to see what's going on.

Imagine this being used by doctors to monitor patients or dispense advice if they cannot be present personally. Yes, this also opens up some more security loopholes, but the benefits far outnumber the pitfalls.

Entertainment

Considering entertainment as a part of communications, you will no longer need to buy a newspaper. In an ideal world, this could also help save trees and cut down on the production of paper. But more practically, you could just download a page (or a news article) from your favourite site (or news-

Doctors need not travel far at the risk 10 patients' lives to operate on one patient

paper) and read it on your handheld device. Technologies that are enabling foldable OLEDs (Organic Light Emitting Diodes) can make the experience even richer. You just plug in the sheet of screen to your computer (or phone) and download the day's newspaper. Navigation keys placed right on the sheet will help you read through the entire newspaper.

Of course, these services would be paid for, but they are at your convenience. Like newspapers, books and even movies or music could then be downloaded to such devices and accessed at your convenience. That, in the future, would be the true operative word. Convenience.

Education

Videoconferencing and virtual classrooms already exist, and this is one of the best marriages of technology, the Internet and a necessity that we have yet seen. In areas where schools or colleges are inaccessible, but telephone lines are available, virtual classrooms or teaching via videoconferencing can prove to be interactive and almost as good as the real thing. Using tools such as instant messaging and e-mail can further boost practicability. Reliance Infocomm, for example, offers good connectivity, and could be perfect for this purpose.

Distance learning *(left)* and fingerprint identity *(right)* are two areas where convergence of the old and the new can facilitate things a great deal

Good old Doordarshan has been telecasting the UGC classrooms on its National Network for a while and it the programme has been popular. Even without videoconferencing, education can reach a large audience thanks to technology. Just VCD payers—or even VCRs for that matter—can aid in this. It's just a question of the drive being there.

Agriculture And Farming

Picture this: a farmer has a huge crop and it has been hit by a bug, but he has no idea which one it is... no one around seems to know. He doesn't have enough time to go to the big city and get it analysed and then treated. But somewhere in the annals of the World Wide Web lie the answers. Problem is, he cannot access it since he does not know English. But, thanks to the one computer- and Internet-savvy person in the village, he finds the answer to his problem and saves his year's crop.

Taking it further, from the consumer point of view, an animal being reared for meat could be tracked from birth. Information about its parents, medical history, diet history and the way it was killed could be made available just through the bar code on the final package. Buyers could just scan this using their cell phone and get the information on their WAP-enabled cell phones before making a buying decision. Why not?

The camera phone could work well for farmers as well. In the first scenario, instead of the farmer going on to the Internet, he could just take a photo of the bug and MMS it to the nearest authority—government or private—and get personalised information and help faster than any other means. Moreover, this information could then be logged for the future reference of other farmers.

Healthcare

One of the major fields of convergence of basic, consumer-friendly technology could be healthcare. The worst time for a patient is after he suffers his injury or ailment and before medical help arrives. Using cameras or camera phones, in such situations could help address this better.

In fact, in an ideal world, a doctor need not leave his chamber again unless absolutely necessary. It's akin to telecommuting for doctors. Agreed, this may not be the most convenient way in all cases, but in some, it could definitely save doctors and patients a lot of time and grief.

In today's day and age, when operations are also happening via videoconferencing, nothing is fantasy. Experts, in particular, need not travel thousands of kilometres at the risk of 10 other patients' lives to operate on one patient. There are doctors who are competent enough to successfully operate with just the expert's guidance, and this is already reality. It's like TeleOperate.

Identity protection

Fingerprint identity or cornea scanning could combine the uniqueness of the human body and technology to create perhaps the most secure form of identity protection.

Contrary to what films may show us, there is a certain amount of surety this form of security lends us. A fingerprint is made of a series of ridges and furrows on the surface of the finger. The uniqueness of a fingerprint can be determined by the pattern of ridges and furrows as well as the minutiae points. Minutiae points are local ridge characteristics that occur at either a ridge bifurcation or a ridge ending. The other method is the correlation based method that is more practical since matching minutiae in low-quality scans could be difficult.

But where can it be implemented? Can colleges and schools have this to avoid cheating? Can offices secure data and maintain the secrecy of classified information? Can governments implement this to ensure that information is not stolen and misused? The first example may be a bit far-fetched, but the other two are certainly practical and have, in fact, been implemented in certain setups.

Prohibitive costs are the main hindrance, although devices from companies like Sony and Microsoft are aimed at the mass market.

Plus, the huge amount of data and the cumbersome nature of including new and dynamic data could prove restrictive.■

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"Convergence should be of communication, community and institute."

Dr Anil K Gupta, Kasturbhai Lalbhai Chair in Entrepreneurship, Indian Institute of Management, Ahmedabad

Convergence Is Not Congruence

Convergence is not just about technology but is a combination of technology, institute and culture. Take the case of villages, where physical communication is tough vis-à-vis in the cities. But, despite distances being lesser, communication in cities is poorer than in villages. Technology is not necessary for communication.

In terms of communication, technology is the word while the institute becomes the grammar. Communication within communities where modern means are absent is a study. The real problem is communication within the communities.

In a city, the problem is communication within the community. We send e-mails within offices. Communication is not merely about getting information across. There is more to it. Semiotics—the science of symbols—also forms a big part of communication, and cannot be ignored. Often, more is said through signs than through words... if you take this away, communication is limited.

One point I would like to make here is that in areas where 'modern' communication is weak, intra-community communication is strong, and vice-versa. There is, of course, a paradox to this. As mentioned earlier, convergence should be of communication, community and institute. If you consider analogical communication, there are metaphors involved, which may convey part of the meaning. This involves a sender and a recipient. In the case of digital communication, the entropy is much more.

The other paradox is that societies are created and based on the myths, legends and stories they have passed on. This is what creates a culture. This can go forward only through analogue communication. One needs to apply their mind to understand the meaning. What is also does is allows you to understand, own and derive your own meaning.

In the case of digital communication, there is high entropy. Information is trashed much faster. But things like folklore and folk songs are still alive. These have been passed down through analogue communication.

One main challenge we are faced with is the asymmetry of modern technology. There is a division between the 'haves' and the 'have-nots'. There is a need to reduce this, but it is not possible.

By design, any service—including telephony—would like to recover their cost, and wider deployment can help them do this fast. But there is a cause-and-effect angle to this as well. In such a case, they can survive through innovation. Take, for example, the case of someone in a village who needs to access a doctor or an expert for a crop disease. There are various reasons he cannot; he doesn't have the money, there is no access to a doctor, or the expert has no knowledge in his area, or there is no research available in the problem he needs addressed. What's worse is if the wrong problem is focused upon.

A systematic approach could actually help solve this. Let's re-look the above problem. The common refrain is, "What should I do?" If there were a kiosk, the villager could go and ask the operator for the answers. But what if the operator does not know English and the farmer, too, is illiterate? Does this mean they have to be deprived of the information?

Indian language content is the only solution to this. Although funds have been earmarked for this, they have so far been spent in the wrong manner.

Which brings us to the question, "Who is paying for this?" In India, the poor pay more taxes than the rich. While direct taxes in India are progressive, the indirect taxes are still regressive.

In convergence, culture and language need to be bound very closely. Nuances of language, which may say more than anything else, are better in one's own language than in any other.

India is a diverse country and that is its richness. By trying to do everything in English, we might just kill our own character.

Our language shapes our habit of thought. Different languages shape different thoughts. We need all these languages to thrive if we want different, rich thoughts to be thought out. Information and Communication Technology (ICT) can enable this. But for that, we need people who are passionate about diversity.

There are different groups of people with different needs. Those for whom convergence must happen need unique solutions. A VCD player and a black-and-white TV that costs Rs 3,000 can help communities access information that was hitherto beyond their reach. This is convergence.

Convergence solutions need to be robust and cheap, not necessarily interactive. One-way communication with a time lag is fine—so long as it happens.

Thinking that we need continuous interaction could make people miss out. The Internet is not available in our languages, and depriving people of information till that happens could leave people out in the cold. Providing solutions in ten days is also fine so long as there is an assurance that it will happen.

Innovation, as I said earlier, is the way ahead. Innovation will come through diversity—the very character of India.

Convergence can be a shortcut to diversity. It should not lead to congruence to identical things. Imagine, then, innovation that has come about thanks to convergence, converted into enterprise. A grassroots revolution can trigger globalisation. Sharing these innovations is the way to move ahead and the way to true convergence. Yes, you could charge a licence fee and patents could be granted... but this is the way ahead. ■

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Secure Your Home Now!

Illustration Binesh Sreedharan

Get introduced to the latest in home surveillance systems for foolproof protection

Mithun Kidambi

In many places today, the night watchman has been replaced by a host of electronic sensors; these detect changes in temperature, suspicious movement and sounds of broken glass. Security systems today have become watchdogs that don't sleep and keep a watch for you 24/7.

If someone breaks into your home, the sensor informs the main control unit, which in turn sounds the alarm. The system is like a guardian who's always watching over you, lest you slip up.

Security And Surveillance

Break-ins and burglaries are not the only reason you need to install a security or surveillance system. These setups also act as a nanny when there are toddlers alone in the house or when older folk are without company.

When deciding on how best to protect your home or how to keep a tab on the activities inside, you need to take several factors into account. There are many home security systems, ranging from the very basic to the extremely complex. The key to a quality system is to find one that is effective, yet simple to use.

Earlier, security setups required extensive wiring of your premises and expensive equipment such as motion or touch sensors. This meant high costs, and hacking of your walls to set up a surveillance system. The most common system still widely used in a number of housing complexes is the closed circuit television (CCTV). This, coupled with a few basic intrusion detection devices, was your security setup.

The protection afforded by such a system wasn't a very big deterrent for potential burglars. Also, these acted more as a warning and recording device. There was only that much you could do—watch a recording of your house being broken into.

Ultramodern Technology

With the age of convergence upon us, a lot of progress has been made in security and surveillance systems. Remote monitoring of your house and protection does not come at a premium any more. Also, the technology used is becoming foolproof and easy to adapt to.

With the advent of the Internet and GSM technology, you can now monitor your house and property in real-time. Moreover, you can take remedial measures in case of a housebreak or other forms of emergencies. So, what are the gadgets that play the role of a watchdog and a protector?

Picture a scenario where a burglar has broken into your apartment. You, of course, have the new security system in place, complete with video surveillance in real-time. A break-in would trigger an alarm. This alarm could be set off by a series of infrared or laser beams set at strategic points. You get a notification of the intrusion via your cell phone in the

With security becoming a buzzword and with advancements in technology, people are pushing for better and more efficient products to secure their homes

form of a text message, or as streaming video through your Internet connection. This message can also be relayed to the nearest police control room or security centre.

In addition to this, companies now offer you systems where the doors and windows get locked automatically in case of a break-in, and open up only when a particular security code is entered. This practically traps the thief inside.

Turning Futuristic Into Real

Sound futuristic? Well, it's not just a prediction. Companies around the world are actually providing their customers with such technology. In India, Zicom Electronic Security Systems and Honeywell are providers of high-tech security systems.

With security becoming a buzzword today and with advancements in technology, people are pushing for better and more efficient products to secure their homes. Equipment such as colour CCTVs, digital recording devices, wireless systems, radio frequency identification tags and access control cards, and automated contraband detection devices have an increasing demand.

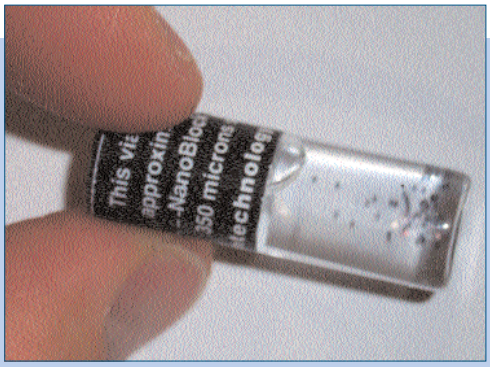
You also have biometric and multiple-PIN security access systems. With multiple-PIN access systems, each house has a secure PIN.

Each member of the household is given another unique access code, too. For entry into the premises, both combinations have to be entered. A failure to do so would trigger an alarm. But are these really high-tech security systems the only effective way to stay protected?

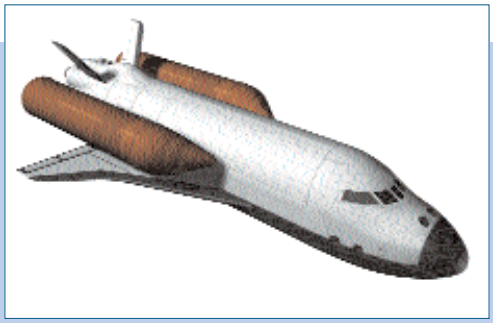
Keeping It Simple

Skylink, a US-based security service provider, has a series of simple security products, such as a little motion detector that you can mount outside the house, and if someone invades your space it signals the base unit to beep and flash. By putting the base unit in the living room and mounting the motion sensor outside the front door, the LEDs (Light Emitting Diodes) on the base unit give you intimation if someone is at your door if you're playing your music or TV so loud that you can't hear the doorbell.

While their basic system configurations require you to be home to see the lights flash and hear the beeps beep, Skylink also offers optional equipment that will send an emergency phone call to your cell phone, pager, or wherever else you want it to yell for help. All this is simple technology packaged elegantly



RFID sensors as small as this can help in authentication as well as in other areas of home security



CCTV cameras can be disguised to look like almost anything. Shown above is a tiny CCTV camera!

that works quite well in today's hi-tech world.

Inix Technology from Malaysia has come up with a simple security system called 'Secure Smith'. Accessible over the Internet, Secure Smith is a wireless product comprising a home security system, electrical equipment automation, home surveillance and CCTV surveillance system.

Secure Smith does not need a PC to run, and neither does it require wiring through your homes or any additional infrastructure. This is because of a proprietary technology that utilises electricity lines to transmit digital data. Each Secure Smith control panel is able to control up to 4,000 home appliances. When the systems are clustered together, they can also be used in office buildings and factories.

Convergence Yet Again

Sophisticated wireless technologies are also being exploited for home automation, which will not only keep our homes secure, but also help us manage the PC and the audio system. By plugging various home devices into Lucent Technologies' HomeStar network, you can set a VCD/DVD player with the same controls used to manage the alarm system.

Before going off on holiday, you can program your audio system to switch on during the evening. This network can control your lighting as well. A passerby would therefore be under the impression that your house is occupied. You can turn your PC with a Web cam into a video surveillance system, too. There also exists software that let you control and manage a video surveillance system and the lighting of your home as well.

Security For The Masses

Housing complexes across the country are wiring up their homes with the latest security systems. Though many such systems come at a premium (being imported), people aren't cutting expenses on the security front.

Equated monthly payment schemes have made most security features accessible to more people. Residential societies that already have such systems installed just have to add a couple of hundred rupees to the monthly bill for each apartment.

However, a few simple precautions such as securing all windows that could be accessible from the outside, locking your doors, keeping track of your keys, need to be done to secure you homes and your valuables inside. No matter how high-tech a security system you might have in place, there is always a chance that it might fail or be cracked. ■

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GUEST COLUMN

"Digital convergence obscures physical and temporal boundaries..."

Punya Mishra, Associate Professor,
Learning, Technology & Culture, Michigan State University

Technologies On The Verge...

Look up the word 'convergence' in the dictionary, and you will come across a range of meanings. My favourite is the reasonably useless definition that says convergence is "the act, condition, quality, or fact of converging."

Huh? Other meanings and uses of the word are not quite as circular. For instance, in biology, convergent evolution means the adaptive evolution of superficially similar structures, such as wings in birds and insects. In mathematics, convergence is the property of approaching a limit, or as my friend Hartosh said, convergence is the way in which infinities can be controlled, captured and understood. In physiology—and this was something I didn't know—it is the coordinated turning of the eyes inward to focus on an object at close range (what in other words we would call being cross-eyed). And finally, convergence is a meeting place, a site where things come together.

Though digital convergence is often used to indicate the last of these definitions, the other meanings still prevail, making the idea of convergence both slippery and richer. This is a good thing, because dictionary definitions can sometimes be straitjackets, and digital onvergence is different things to different people.

These different meanings of the term play out in different ways when we speak of digital convergence. There are shades of the biological idea of convergence, where different media and technologies develop similar features (your cell phone includes a camera while your camera may double up as an MP3 player). The mathematical idea of convergence, in the sense of a series of events adding up to a finite, manageable whole, highlights the manner in which this current talk of digital convergence is just the current consequence of media and knowledge coming together, which began thousands of years ago when people scribbled on cave walls. And of course, while the physiological definition reminds us that despite the wonders of technology, we need to focus our eyes inward, to reflect and think about the meanings and consequences of technological marvels.

However, the focus of this piece is not on biological, mathematical or physiological convergence. It is on digital convergence, and what it means for us as learners and educators. In this context, I would like to speak about three different kinds of convergence. The first is *digital convergence*, the kind of convergence that has received a great deal of attention lately (this special issue is a good example). This digital convergence is, for the most part, here already, which is maybe why we spend so much time talking about it.

Digital Convergence

The words *digital* and *convergence* taken independently or together are today's latest buzzwords. People have argued that this new world of ubiquitous and invisible computing, through small, relatively inexpensive devices that merge multiple media and communications technologies, will reshape the way individuals and organisations collaborate and share information.

Convergence in this sense of the term includes *content and application development* for film, video games, music, advertising, and mass media; *distribution*, including wireless, broadband, VoIP and more; *hardware*, such as cell phones, mobile devices, game consoles, and so on.

This digital convergence is often talked of in technological terms (such as my cell phone, digital camera or my gaming console). This emphasis on the technical is not surprising because there is still a lot of intricate and difficult work (regarding communication standards, interoperability, hardware handshakes and software bugs) that need to be configured and deciphered.

At the same time, this emphasis on the technical should not obscure the psychological, social and cultural aspects of these technologies. These technologies are reshaping the way individuals and organisations collaborate and share information. This digital convergence, in an important sense, removes, and maybe more importantly, obscures, physical and temporal boundaries that in the past served as impediments between individuals and the world.

When communication integrates, maps and borders have less meaning—if any—and barriers of distance begin to dissolve. In some ways these technologies of 'action at a distance' simplifies our lives, since it allows us to connect with the world in ways that we might not otherwise. It becomes the centre of our social network and constructs a 'virtual space' within which we live, learn and work.

Pedagogical Convergence

Living in the physical and social world—for both work and play—requires acquiring knowledge. To survive and thrive in these new social and physical spaces, new ways of learning that meet the demands of this new era will have to be developed.

The convergence of our strategies and theories of learning to live in this digitally integrated world is the second kind of convergence I am alluding to—what I call *pedagogical convergence*. This convergence deals with how our approaches to teaching and learning need to converge with the new trends in digital technologies.

Learning today can no longer be restricted to 12 + 4 years of schooling and college. Not only do we have more to learn, we need to do it more often and in less time. This puts severe stress on our existing pedagogical systems including schools, training workshops, colleges and universities.

Learning can no longer be limited to being able to recite multiplication tables by rote and such. Learning today is continuous, just in time and perpetual. This fast pace of change means that there is little time for leisure and reflection. Lifelong learning is not just an idle hope, but rather, the need of the hour.

What role can technology play in developing solutions to these problems? The first thing to remember is that education and learning is always about more than the technology. We must never forget that technology is a medium, a tool for converting ideas into action.

However, technologies do not force one set of actions over others. Technologies can be used for 'old style' learning as easily as for newer, flexible pedagogy. The technology does not care. In some sense it may even be easier to use technology to achieve 'old style' goals. This is why we often see the online course that is merely a set of static Web pages—a textbook moved onto the Web; or the naïve drill and practice programme, cosmetically enhanced by irrelevant and pointless flash and fizz. We must remember that all the technologies in the world are of no use if they are to push the same old agenda. The language of pedagogy needs to rise up to meet the language of convergence.

I remember visiting a school in Nagpur and talking to the computer teacher there. The school did not think of using computers to learn science. They did not consider using computers to develop writing skills, though there is increasing evidence that using word processors actually makes students better writers and better thinkers.

Sadly, this is true of most schools today. So the constraints are not as much cost and access, though these are critical issues—rather a failure of our collective imagination.

A part of the problem is, given the fast pace of technological change, our learning theories and pedagogical approaches have often been engaged in a game of catching up. This is not to say that we don't have a sense of what this pedagogical convergence will look like. The new pedagogical convergence is informed by thinkers such as John Dewey who urged us to base all educational strategies on the impulses of the child—the urge to communicate, inquire, construct, and express.

Some of these new understandings are inspired by the technology itself. Games and simulations, with their rich multi-player, immersive, interactive, social worlds are showing us the way to the future of learning. The title of James Gee's recent book says it all: *What Video Games Have To Teach Us About Learning And Literacy*. This is not to say that games and simulations are the only way forward. Not at all. Education is a multi-dimensional beast, and there is space for various genres and ways of doing—as long as they are thoughtfully implemented, and we resist being seduced by the shiny, sexy surfaces of technology and are prepared to peer deeper into their essences.

"Being on the verge is to be somewhere unstable and unpredictable... There is also a sense of excitement, mingled with fear, mystery and anticipation."

Deep Convergence

This brings me to the third and final kind of convergence, which for want of a better term, I call *deep convergence*. There are many people who pontificate on the social and cultural consequences of digital and pedagogical convergence. However, I take these well-meaning pronouncements with a grain of salt because forecasting often overestimates short-term effects and underestimates long-term ones.

One thing that humans do is construct new understandings of themselves, and the world they live in through using these media. As the Foresight group (http://www.foresight.gov.uk/) says in a report:

"At some point in our evolutionary past humans entered the 'cognitive niche' and fundamentally changed their relationship to the world around them and the rate at which they could develop their culture. The artificial world is about to do the same, with humans as partners in the process—the effects will be equally far reaching."

What these new effects will be is hard to imagine. These new technologies allow us to imagine new worlds; to create new selves in this world. In some sense, this idea of digital convergence is the first step towards an unfolding journey that will spark other convergences, many of which we cannot even imagine at this moment.

One of the things that humans have done over the years, as new media have emerged, is play with their capabilities and constraints, and then used them to develop new ways of expressing themselves. These new expressions are ways of developing a deeper understanding of who we are as individuals, as groups (such as organisations or nations) or who we are as a species.

This is a different kind of convergence and is somewhat difficult to explain. Maybe the only way to do is through an example. The beginning of the twentieth century was a time of immense upheaval in our way of understanding our place in the world. In the arena of technology, those early years saw a range of inventions that forever changed the way we lived. These include the airplane, the radio receiver, neon signs, air conditioning, the vacuum diode, colour photography, motion pictures, crossword puzzles, zippers, tommy guns, insulin and the precursor to what we now call television.

And then there were the revolutions in science and art, from relativity theory to cubism, from quantum mechanics to surrealism. Within the space of a few years we moved from a worldview where time and space were absolute, to a relativistic, fractured, unstable one. This change in zeitgeist was reflected in the sciences as well as in the arts.

Consider the year 1922. This was the year that Einstein won the Nobel Prize, James Joyce published *Ulysses*, and T S Eliot published *The Waste Land*. This was also the year that Picasso designed the sets for a ballet performed by Diaghlev and scored by Stravinsky, the debut of which was attended by the likes of James Joyce and Proust.

This kind of a convergence is larger, deeper and more fundamental than the other convergences I have discussed above. In some fundamental way, these convergences, developed a century ago, still define the world we live in today.

It would be foolhardy on my part to even attempt to make predictions about the nature of deep convergence that will emerge from the technological changes happening around us today. Not the least because the effects of technology on society, and of society on technology are complex and multithreaded. Simple cause and effect relationships are difficult to trace.

Moreover, thinking of such deep convergences can also be risky. At the heart of the word convergence is the word 'verge' with its connotations of being on the edge (as in the leading, or as others say, the bleeding edge).

Being on the verge, or at the edge, is to be somewhere unstable and unpredictable, and this instability can be nerve-wracking. There is also a sense of excitement, mingled with fear, mystery and anticipation. There is a realisation that decisions we make today will have ripple effects and consequences, both intended and unintended, far beyond what we can imagine.

The era of digital convergence that this special issue justly celebrates is the culmination of thousands of years of biological and cultural evolution, even as it is the first step in an unfolding process that will yield its fruits in the years and decades to come. ■

1/2 P V Ad

Con-vergence

Illustration Binesh Shreedharan

The era of digital convergence is not without its misgivings

Robert Sovereign-Smith

Every technology and standard has its drawbacks, its loopholes. Though convergence isn't a technology by itself, it is the process of amalgamation of others, and as a result, the new technologies inherit the same problems that plagued the parent technologies.

In this section, we spell out a few warnings for manufacturers and users alike, and pose a few questions that don't really have an answer right now.

A Matter Of Choice

Technology was always meant to ease our lives, and it did; until now, that is. The problems really begin when you decide to purchase a gadget.

Take the example of a mobile phone—you decide you need a new one. You even set yourself a budget and think, "I'll just buy the best phone available in this price range." Well, good luck finding one—you'll be hit in the face with over 200 models, each boasting one little thing or another that the other models don't have.

Let's assume you're loyal to a few manufacturer brands. So you decide it has to be from your favourite brand. You manage to whittle the choices down to less than 20. Of course, every dealer out there has his 'favourites'—the phones he gets the most profit out of—and will try and sell you everything but what you want.

The days when dealers sold phones by the kilo are long gone, too. Every second dealer reads up on phones now.

Of the 20 phones available from your favourite brand, about 10 will be out of your budget—and teasingly so. You'll be tempted to spend that little extra. You'll read the features list and drool—Bluetooth, GPRS, 3G, PIM Applications, Java-enabled, games, PDA Applications, multi-megapixel video cameras, MP3 support—ad infinitum, ad nauseam.

The accepted practice today is to buy a phone with features you'll never use! Why? Because mobile phones are so common today that you need to have that something extra just to be able to maintain your identity in your circle of acquaintances!

The convergence of a whole lot of technologies into everyday devices is making it harder for us

It's bad enough that technologies have such short life-spans; Convergence compounds this problem by orders of magnitude

end-users to choose, and more often than not, we end up with a gadget that has features we will never use, or offers everything but the features we really wanted.

A common example is that of smartphones that have so many features and complicated menus that one cannot figure out how to turn the damn T9/dictionary function off, so as to be able to type in our Indian names in SMSes. Don't you miss your old phone now?

Incompatibilities Abound

It's bad enough that technologies have such short life-spans; convergence just compounds this problem by orders of magnitude. Just when you're getting used to one technology, they change everything and you are stuck with outdated and incompatible hardware.

The Laser Disc (LD) player was the best example. It could play VCDs, Audio CDs and Laser Discs (LDs were the size of vinyl records, and about twice as heavy). Those of you who bought one, will remember that within a few years, some genius decided that LDs were too big and awkward to carry about, so they invented the DVD. Now you are stuck with an LD player.

Want to watch the latest movies? Pop them into the DVD player and enjoy Dolby surround sound. Want to watch Pink Floyd's *Pulse* concert, which you have on LD? Climb up to the attic, sift through 20 boxes, pull out the LD player, wipe off two inches of dust, connect it to the TV, realise that it doesn't work, spend four days trying to find an engineer who has at least heard of an LD player, leave alone fix it, give up, pack it all up, put it back again, and go out and buy Pulse on DVD! It's just not fair!

Let's not forget that even our two-year 'old' DVD players are on the brink of extinction, what with Blu-ray and a host of other formats that promise utopia on the horizon!

Upgrade Mania

Technology has always been fickle; what's in and cool today will not necessarily be the norm tomorrow. Hardware changes are especially irritating, as it usually involves you having to take a day off from everything and going out and buying new parts for something that actually works just fine!

Again, as with the mobile phone example, you bought a phone less than two years ago, and it boasted of Bluetooth then. Today, you find it actually has Bluetooth version 1.0, whereas the standard today is 1.1.43.5572.x, or something equally innane. So you can't connect to certain newer devices. Doesn't that just want to make you want to tear your hair out?

And it's not like you can just pop in a new card and have it all work again. Take your phone to an 'authorised service centre' and tell them that you want to have your phone upgraded to Bluetooth 1.1.43.5572.x, and they start shifting away from you uneasily, and signal the receptionist to call the loony van!

Even if that doesn't happen, the cost of upgrading a chip inside your mobile is almost 80 per cent

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Security is perhaps the biggest worry of the digital age

of the phone's cost! You'd be better off pawning the phone and buying a later model with the feature set you want—if you can manage to figure out what you want!

Even computers are not spared: Just when you thought you had everything you wanted in a computer, along comes Apple with their enticing iPod, mesmerising you with its coolness, compactness and sound, and before you know it, you're twenty-something thousand rupees in debt on your credit card and have an MP3 player that can store 50 times more songs than you own, or have even heard!

That's still not the problem, however. You get home, unpack your little beauty and think, "Ah, my precious, I can't wait to download my entire collection of MP3s to you!" Easier said than done—"What the hell is this whole FireWire business, where's the damn USB connector?" you hear yourself scream.

Time to upgrade your computer with a FireWire PCI card! There goes another Rs 1,000, and more if you decide to get a card that adds USB 2.0 heads.

Security Snags

Security is perhaps the biggest worry of the digital age. Everyone and their uncle are paranoid about security, and with good reason—what with all the millions of worms, Trojans, viruses and malicious code floating about in cyberspace. As devices and technologies converge, they increase the risk of creating even bigger security holes in the end product.

Take Bluesnarfing and Bluejacking for instance! It's bad enough that hackers are finding it easier and easier to get into Bluetooth-enabled devices; do we really need to give them access to all our devices? Or for that matter, do we want to put ourselves at additional risk by letting convergence force us to store all our data on just a single exploitable device?

If an older cell phone was hacked, the hacker only got hold of, say, contact numbers and SMSes, but if your smartphone-with-a-camera is hacked, the hacker can get hold of your address book, your pictures, your files, meeting schedules and more. Think Paris Hilton!

Let's not even begin to imagine what a hacker would do with your Bluetooth-enabled laptop—which, incidentally, is Bluetooth-enabled only because you need to transfer data to and from your smart-phone!

Of Standards

There are none! At least that's how it seems when the latest technologies are released, and subsequently incorporated into new gadgets.

It's quite silly that some device manufacturers form small consortiums and test interoperability only between themselves. As a result, when new technologies are released, you get a rush of devices that are only half-tested and released, just to keep up with the first-to-market brand.

As a result, a device made by manufacturer A works with a similar device made by B, but not with devices made by C and D. And, with your luck, all your friends will buy devices from manufacturers C and D.

So now what? Either you cross your fingers, hope that your manufacturer will release a quick fix (such as a software ROM update/flashing) that will make the devices compatible, or you junk your device and buy one from the same manufacturer as your friends.

On The Blink

Convergence means that you depend on fewer gadgets to help you do more of your daily tasks. But what happens when the device fails, or when you drop it?

As it is, devices aren't made to be even half as sturdy as they used to be; now you have the additional worry of knowing that this one little gadget in your hand is your cell phone, PDA, laptop, MP3 player and more, all together.

Take a smartphone that you use as a cell phone, MP3 player and PDA. If you drop it and the phone display goes kaput, you have to send it for repairs. While the phone is being butchered at the service centre, you're stuck without your PDA contact list, meeting schedule, and even your travel music!

Even with MFDs (Multi-Function Devices), if the scanner unit stops functioning, you have to do without printing, copying and faxes while it's being repaired!

Jack Of All

Manufacturers are so busy trying to offer you a whole range of uses for a single device that they end up compromising on quality.

There is no contest between the quality offered by specialised devices and the quality of converged devices. A standalone scanner will always work faster and better, ditto for a printer; digital cameras will always offer more functions and better picture quality than cell phone cameras. It's the same for all devices.

It's Not All Bad

The point of what we've said here is not that convergence shouldn't happen; it most definitely should. But manufacturers and users alike need to be more discerning about the problems we've mentioned, so as to best avoid wasting their time and our money.

Manufacturers need to test and verify the compatibility of technologies properly, not just with their devices, but also with devices from other brands. This is only possible when brands stick to offering technologies that have proper standards and guidelines in place. Perhaps reaching a standard before launching a product is the solution. But is it possible?

As end users, we also need to be more discerning about what we buy, and think a lot before spending our hard-earned money on the latest gadgets—just because they showcase features that we've never even heard of! We also need to realise that the latest, is not always the best.

Remember, if the buying stops, the manufacturing will too! ☒

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Top Five Wired Countries

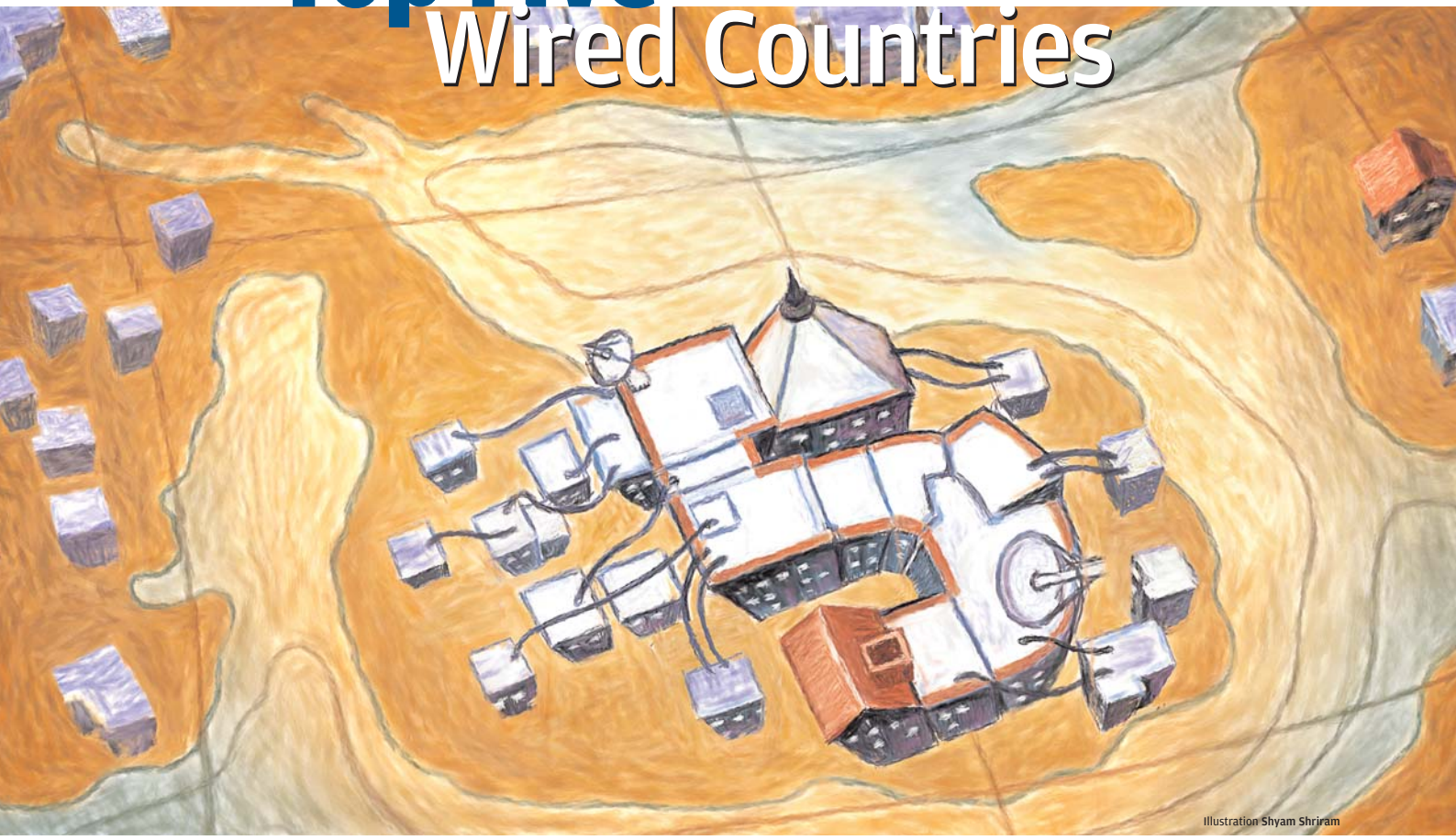

Illustration Shyam Shriram

The top five wired nations are not just about the highest number of PCs or mobile phones. They also have policy support for digitisation and a tech-savvy citizenry

Renuka Rane

Which are the five most-wired nations in the world today? We have shortlisted five countries that are leaders in the wired revolution, with soaring technological innovations and a rapidly multiplying Internet community. We considered various parameters to arrive at the select some.

We took into account the Information Society Index (ISI) 2004—research firm IDC's annual survey, which evaluates the information wealth of 53 countries around the world. It combines 15 variables in four infrastructure pillars (computers, the Internet, telecommunications and social factors) to calculate and rank each nation's ability to access and utilise information and information technology.

We also considered the annual 'E-readiness' rankings for 2004 and 2005, prepared by the Economist Intelligence Unit (EIU) of *The Economist* and IBM's Institute for Business Value. The 65 countries surveyed are assessed on their ability to promote and support digital business and information and communications technology (ICT) services—a weighted collection of nearly 100 quantitative and qualitative criteria.

However, keep in mind the estimates arrived at by the surveys may vary. Also, the rankings accorded to the nations by research firms are very dynamic.

SINGAPORE

A global hub in Asia, Singapore is a kind of bellwether for the introduction of new technology. It ranks first in the Global IT Report 2004-2005. Also, in the 2004 e-readiness rankings by the EIU, Singapore emerged as the top country for Asia-Pacific. The island nation is also the second most wired country in the world, according to the 2004 Networked Readiness Index.

It is strategically location within ASEAN (Association of Southeast Asian Nations), which represents a combined market of more than 500 million people. Singapore has the lowest rates of corruption and is ideal to initiate e-commerce and Internet marketing. Singapore is host to more than 6,000 multi-national corporations; the high-tech and financial services industries are lightly regulated, and telecom was privatised in 2000.

Capital: **Singapore**
Population (millions): **3.54**
Area: **683 sq km**
Internet penetration: **60.2 % (Sep 04)**

Consider Singapore's port: it has a first-mover status as the world's IT leader in seaport logistics. A world leader in broadband rollout, there are thousands of broadband access points across the country.

DENMARK

The erstwhile seat of Viking raiders, Denmark has evolved into a modern, prosperous nation with an advanced broadband infrastructure and one of the highest levels of broadband penetration in Europe.

Denmark replaced Sweden as the information champion in the IDC Information Society Index (ISI) 2004. It leads in the telecom variable—notably wireless subscribers, high user penetration and mobile Internet users. Almost 69 per cent of the Danish population accesses the Internet, with 84 per cent connecting from home, 22 per cent of households using broadband while the total mobile subscriber penetration in Denmark reached 60 per cent.

Capital: **Copenhagen**
Population (millions): **5.4**
Area: **43,093 sq km**
Internet Penetration: **68.7 % (Mar 05)**

Denmark also ranked No. 1 in the EIU's 2005 e-readiness rankings, and was proclaimed to be the best place in the world to conduct business over the next five years. The government has promised to boost spending on R&D, and facilitate the creation of knowledge industry.

According to the Computer Industry Almanac, Denmark is among the leading countries in computer and Internet penetration—as of 2004, there were 682 surfers per 1,000 Denmark residents, compared to 649 in Australia; 641 in Canada; 611 in Japan; 570 in the UK; and 628 in the US.

Denmark has it all—highly developed infrastructure and institutions, a skilled labour force, low inflation rates, political and economic stability, and an internationally plugged financial sector.

CANADA

Canada has one of the highest rates of Internet usage and broadband adoption in the world. It ranked fifth on IDC's Information Society Index (2004). Residential broadband access enjoyed continued growth in 2004 as the increase in dial-up accounts slowed.

Broadband deployment continues to progress under active government encouragement, with 85 per cent of Canadians now living in communities served by high-speed Internet access.

The 2004/2005 Telecoms, Mobile and Broadband in Canada Report by BuddeComm indicates that almost 43 per cent of Canadians use a wireless device. Canadians are heavy Web users, with 90 per cent using e-mail weekly. Anti-spam/virus software company, Sophos, ranked Canada as the fourth highest spamming nation in November 2004 with 5.7 per cent of all spam in the world originating from Canada.

The Canadian Government launched an anti-spam action plan in 2004. The Canadian Internet Registration Authority operates the dot-ca Internet country code Top Level Domain—there are more than 530,000 .ca domain names.

Capital: Ottawa
Population (millions): **32.5**
Area: **9,976,137 sq km**
Internet penetration: **63.8 % (Dec 03)**

SWEDEN

Another Scandinavian nation, Sweden has one of the world's highest life expectancies and one of the lowest birth rates. It's the most tech-savvy country in Europe according to a 2005 report by Jupiter Research, a US market analysis firm. Sweden was ranked as the third most e-ready nation by EIU (2005).

The EIU named Sweden as best-in-class in key areas of connectivity—mobile penetration and Internet use, and a standard setter in e-government implementation. Sweden ranked second in the Information Society Index by IDC in 2004—with highest penetration of Internet access, highest usage of mobile phones, and a very high level of Internet and computer skills among business managers. For instance, it has the highest business penetration rates for Microsoft Windows and Apple OS.

Capital: **Stockholm**
Population (millions): **9.04**
Area: **449,965 sq km**
Internet penetration: **73.6 % (Feb 05)**

The gadget loving populace doubles as an advanced testing ground for a range of mobile commerce applications—even the Bluetooth technology was invented in Sweden. The country's WCDMA (Wideband Code Division Multiple Access) 3G mobile infrastructure covers over 70 percent of the population, state wireless consultants Northstream.

Incidentally, Sweden is the only country in the world to have more mobile phones than inhabitants—thanks to lower calling costs than any other European nation!

THE UNITED STATES OF AMERICA

The US ranked third on the Information Society Index by IDC (2004), and ranked second on e-readiness (EIU 2005). This land of silicon chip innovators and manufacturers scored highest for PCs per household and software spending, steadfast in its position as the world's largest consumer of computer products and services. The US also ranked higher because of secure Internet server penetration, overall spending on IT and growth in broadband adoption.

The US remains the world's leading broadband user with nearly 31.7 million lines in the third quarter of 2004. The number of broadband users increased 36 per cent in 2004, accounting for 55 per cent of the total at-home users by the end of 2004, according to a survey by Nielsen/NetRatings.

In fact, nearly three out of four US households with a phone line have access to the Internet, states the February 2004 Nielsen/NetRatings survey.

Capital: **Washington D.C.**
Population (million): **296**
Area: **9,629,047 sq km**
Internet penetration: **67.8% (Feb 05)**

According to Sophos, the US continues to lead the world in originating spam attacks; accounting for over two out of every five (42.1 per cent) spam e-mails sent throughout the world.

According to research group Point Topic, the total number of US DSL (digital subscriber line) subscribers is growing, but still lags behind the country's 19 million-plus cable modem subscribers.

In July 2004, residential broadband connections in the country overtook the use of slower, dial-up connections for the first time. Almost one-third of the wireless services budget in the US is now dedicated to data. The vast majority (91 per cent) of US firms use wireless data. ☒

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GUEST COLUMN

"...the world is changing faster than many of us would imagine."

Ganesh Natarajan is Deputy Chairman and Managing Director of Zensar Technologies, Pune, and chairs the Innovation initiative of NASSCOM

slow to adapt to the new trends in communications technology.

Not for long, though—passing through Denver airport on a recent trip to the US, I was amazed to see that almost all boarding gates have now become wireless 'hot spots'. Take out your computer, click your browser and you are on the Web faster than you can say 'PDA'!

With the number of hot spots expected to soar from a few hundred in 2003 to over a hundred thousand by the end of the decade, and cellular providers such as Sprint and Verizon boosting the capabilities of their wide area networks to facilitate high speed data transfer, the world is changing faster than many of us would imagine.

Picture three scenarios so eloquently described in *Hemispheres* Magazine and you will get the message: Wireless Point of Sale devices are beginning to augment, and in some cases replace, the traditional billing stations at major retailers such as Home Depot, Sears and K-Mart, with agents walking up customer checkout lines armed with handheld PCs and order scanners—a process that is being referred to as line busting. Barton Marlow, a Michigan construction firm, is setting up wireless networks at all its construction sites to help engineers, financial analysts and other site and corporate office employees share architectural blueprints, project plans, spreadsheets and e-mails to speed up the construction process. And the third, Studio Pipelines of America, a Vancouver television production company, has given PDAs to all studio hands, producers and even actors on production sets, and connected them to a wireless network to enable set planning and even script updating to be done 'on the fly'.

The Inevitability Of Technology-Led Transformation

Alvin Toffler once talked about people who "suffer from the dizzying disorientation caused by the premature arrival of the future," and it is not surprising to find that the rapid changes that technology is causing in many lifestyles and workplaces often happens at a pace that staggers even the most techno-savvy of communities and even countries.

Nothing epitomises this more than the telecommunications industry in India. In a land where a famous Harvard professor once said "half the population was waiting for a telephone while the other half was waiting for a dial tone", it is amusing, though not surprising, to find not just educated professionals but even farmers and milkmen making effective—and sometimes innovative—use of the mobile phone.

In fact, a few years ago, it seemed that the wireless revolution would catapult Asia ahead of the long-developed nations of the USA and the UK, where the traditional population were

What has been the sequence of events leading up to this movement of wireless technologies into the mainstream of business? The ill-fated Apple Newton, introduced in 1993, was probably the first attempt in this area, but it was the introduction of the Palm Pilot three years later that really set off the revolution in handheld computing.

And now, notebook computers with Intel's Centrino technology come with inbuilt wireless capabilities; PDAs provide wireless connectivity through national and international carriers; smartphones and pocket PCs are beginning to merge in terms of features and functionalities; and tight integration between computing and communications is enabling seamless handling of voice, data e-mail and text messages, with multimedia messaging services now being provided as well.

The ubiquitous Bluetooth will soon make seamless and cordless communication between smart devices a feature of all working

environments. Public WiFi systems are becoming the order of the day, with more and more people slipping in a wireless LAN card in their computer and connecting at airports, bookstores and coffee shops. Airlines such as Lufthansa and SAS have introduced the service on their flights, and SBC plans to make countrywide access points a reality, starting with 13 states in the US.

The proliferation is being helped by the substantial reductions in costs with routers, access points, LAN cards, and other devices all witnessing dropping prices, and the cost of setting up and moving wireless networks now becoming a fraction of that associated with wired Ethernet. As the 802.11b standard yields to the more advanced standards with higher bandwidths and higher ranges, more advanced applications, such as video, will be enabled. The only concern that remains is one of security against hackers, but newer third-party software will result in industry-strength features in this area as well.

The concept of ubiquitous computing that makes wireless so attractive is also being extended to Global Positioning Satellite (GPS) technologies, wireless cash registers, and Radio Frequency Identification (RFID) systems. Logistics firms running delivery operations across vast geographies are able to schedule and service customer needs better and faster using GPS, while retailers and manufacturers can track supplies and inventory across the supply chain using RFID.

> **"The concept of ubiquitous computing that makes wireless so attractive is also being extended to GPS technologies, wireless cash registers, and RFID systems"**

The day is not far when all these facilities will get fully integrated, and the science fiction dream of locating a restaurant, making a reservation, finding the lowest prices and paying without cash are all available to completely transform the day to day processes of working and living.

I remember writing in a column a couple of years ago about the modern man in a smart world leaving his office in a car that receives a message from the fridge at home that there is no milk and routing its journey via the grocer's store, where the order has already been placed and is ready for pickup. All that and more is waiting to happen in the very near future.

Will the wireless revolution transform this country soon? Of course it will, as some industry leaders such as RPG Retail, Hindustan Construction, Star TV, etc, begin to emulate the global best-in-class, and of course, use the software that would inevitably have been developed by Indian software companies.

If there is one area where Indians are already ahead of their US corporate brethren, it is SMS. Sitting in a plane at Newark airport in New Jersey one morning and busy sending and receiving messages to and from my office in Pune, it was wonderful to watch the amazement on the face of my American neighbour witnessing this wireless transaction happening across thousands of miles.

This technology transformation is not just restricted to the telecommunications arena—in field after field, from information to education to entertainment, the rapid proliferation of technology is enabling animated movies to be produced in just months instead of years. It is enabling educators to move from chalk and talk. From teachers to facilitators of computers and Internet-enabled learning, it is happening and spawning a new set of cartoons such as the recent one with the smug face of an American kid saying, "Thank God I've found a way to outsource my homework to India".

On a more serious note, though, the great Indian Software Industry, which has found the magic mantra of low cost and high quality to move huge quanta of IT and Business Process work to Indian centres, are themselves preparing for a new paradigm, when programs will be generated by technology rather than human programmers, and many professionals would have to learn new tricks to continue to be ahead of the world.

What does this mean for the Indian software industry? A generation of programmers for whom artistry in Java has been the path to the holy grail of dollar salaries will have to retool themselves to become true architects—a challenge akin to the humble bricklayer or plumber or mason who suddenly takes on the role of an architect. This will cause a true paradigm shift, where analysis of business problems and creation of efficient designs will enable automated code factories to be set up even in expensive countries, thereby bringing the entire Indian success model of large campuses in low-cost economies into question.

Is that, then, the end of the dream promised by even the finance minster P Chidambaram in his Budget speech, where he promised the creation of over 70 lakh jobs in the IT sector by the end of the decade?

Not really, because there is enough innovation in the Indian industry and India's youth to seek new opportunities to demonstrate the strength and quality of Indian initiative and intelligence.

In sector after sector, city after city and generation after generation, we have seized opportunities that have come our way and will continue to do so. It will definitely need a strong partnership between the industry, the academic institutions and all the State and Central governments to identify opportunities early and capitalise on them, and our technology-friendly youth will have enough openings to build their own new global dreams. ■

The Digital World

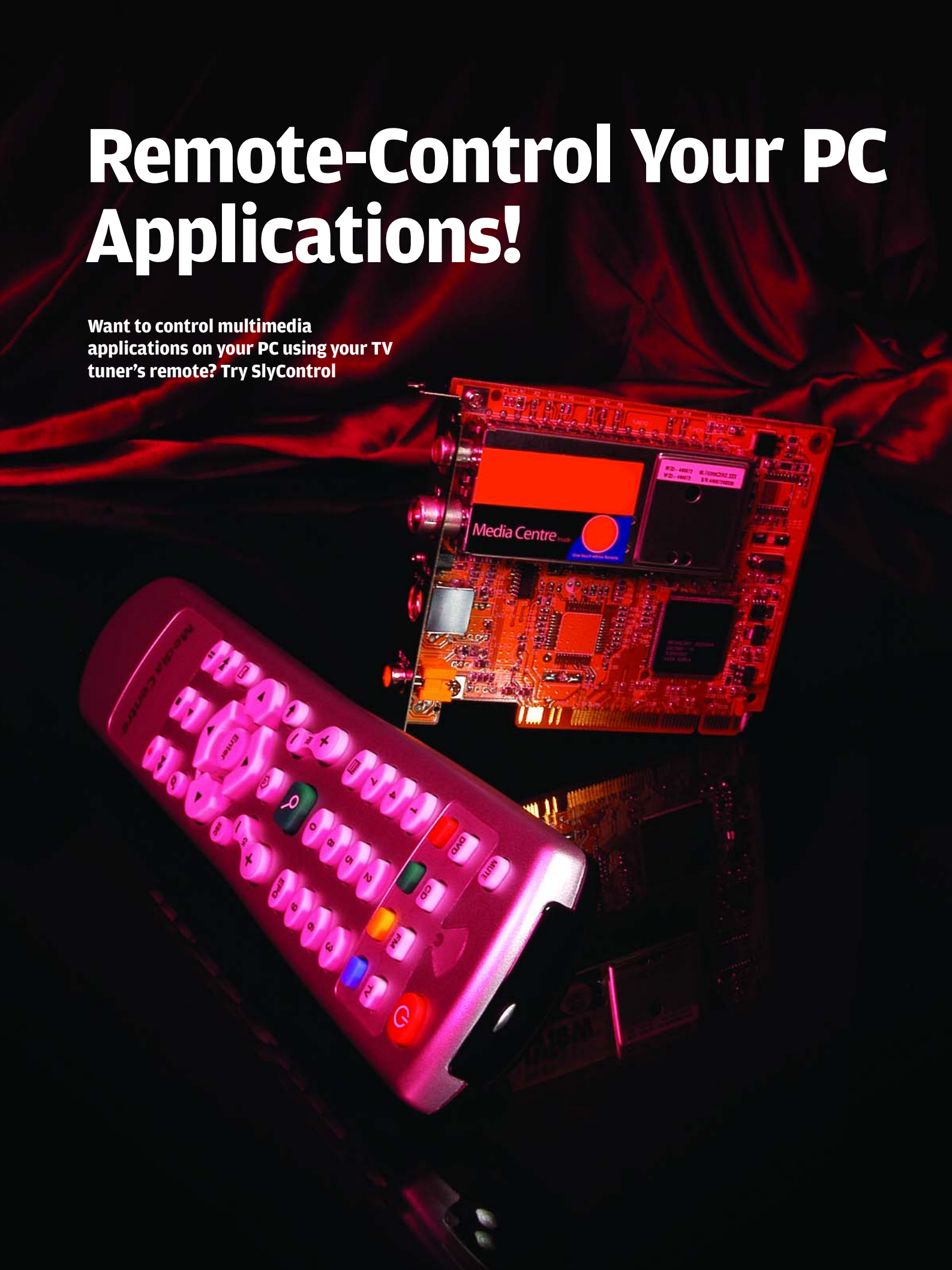
Your ultimate dream home and workplace comprises gadgets that talk to each other making life a push button experience... How far away are we from this? Looking at the gadgets already in existence and those that will make it to the marketplace soon, not too much.
The following pages could give you a good idea of how you can totally digitise your home, your office and your life

Photographs **Sandeep Patil**
Imaging **Atul Deshmukh**
Location Courtesy **Zeos Infotech, Mumbai**

home automa

Remote-Control Your PC Applications!

Want to control multimedia applications on your PC using your TV tuner's remote? Try SlyControl



SlyControl brings the comfort and convenience offered by the Media Center PC to your computer

Jayesh Limaye

The comfort and convenience offered by the Windows XP Media Center PC is worth drooling over—all you need is the remote, and you can do almost whatever you want!

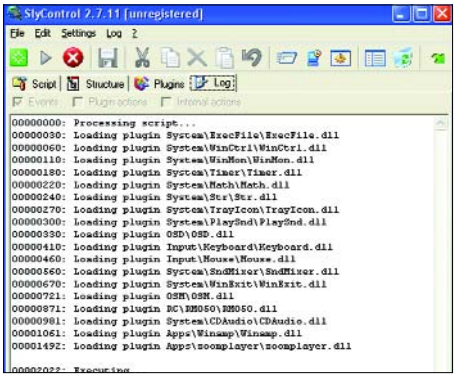
A remote is a good thing. And if the Media Center PC is not something you're keen on buying, there's an alternative way to control PC applications using a remote—your TV tuner's remote control, to be precise.

You can get the SlyDiman's SlyControl software at http://snipurl.com/ez29. It allows you to run and remotely control any Windows application, such as Winamp, PVR software, FM Radio, Windows Media Player, and much more.

You can also remotely log off, reboot or shutdown the system. SlyControl achieves this by using the remote from a TV tuner card package, or through other devices such as joysticks.

SlyControl supports several devices including IR remote controls of TV tuners using the BT8x8 and Philips chips, the Creative Live! Drive, the ATi Remote Wonder, the Generic DCD (LIRC) and Serial (UIR/Irman) devices, WinLIRC, uICE, and also through a sound card by plugging the IR photo module to the line-in jack.

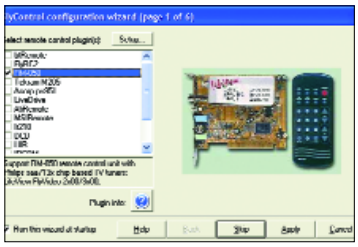
Here, we will only talk about using SlyControl in conjunction with your TV tuner's remote—whatever brand you may have, SlyControl will probably work with it. The software costs $26.89 (approximately Rs 1,170).



SlyControl up and running

STEP 1 When you start SlyControl, the configuration window opens. Here, you are presented with a multitude of remote control plugins to choose from.

Select the appropriate plugin that corresponds to the TV

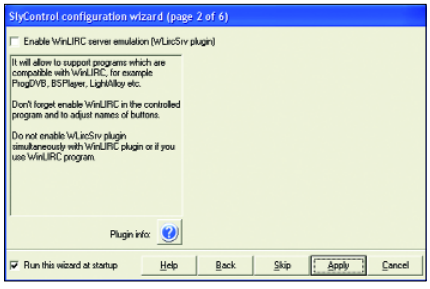


Choose the right corresponding remote control plugin

remote installed on your system. If you click the 'Setup' button at the top of this window, you can view the remote control button assignments. Click 'Apply'.

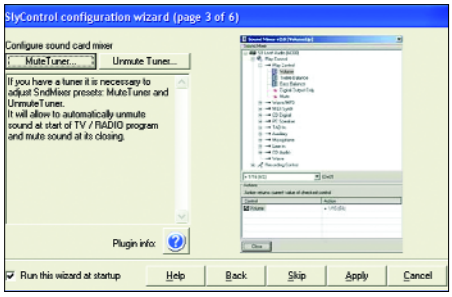
STEP 2 In this step, you can enable WinLIRC server emulation by simply clicking 'Apply'.

Also, you might want to enable WinLIRC server emulation in case you have programmes such as ProgDVB, BSPlayer and LightAlloy. These programmes are supported by WinLIRC, and can be supported in SlyControl if you use WinLIRC emulation.

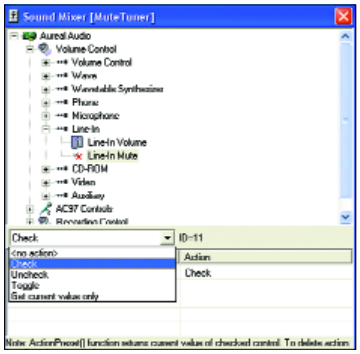


Enable WinLIRC server emulation

STEP 3 Now, let's configure your sound card mixer. You can set up the sound to automatically un-mute



Configuring the sound card mixer



Set default action for 'Mute' function

at the start of a TV or radio programme, and mute when it's over (applicable only if you are using a TV tuner remote control, and not the other devices that we have mentioned).

Click the 'Mute Tuner' and then the 'Unmute Tuner' buttons in order to adjust these settings. Click 'Apply' to proceed.

You can use your favourite application for playing audio, video, TV and FM radio

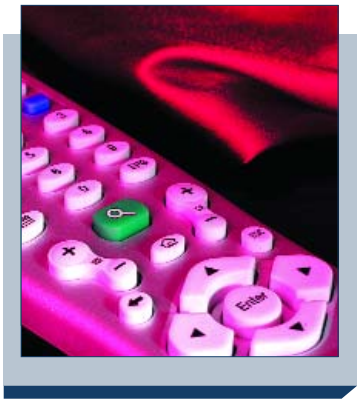
More Alternatives

Didn't like SlyControl or want to try something different? Well, there are more options available for you. Here's a list of software that are similar to SlyControl.

uICE: Available from www.mediatexx.com, this software is in every respect as good as SlyControl except that it supports fewer devices. The control provided by uICE is very good, and its interface and OSD (on screen display) are much better than SlyControl.

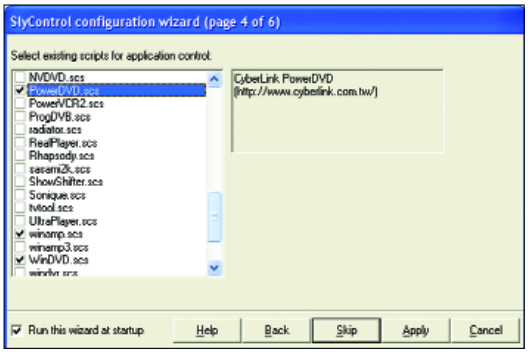
ARC2000: It is an Advanced Remote Controller with a Scheduler and HTTP Server for your computer. It can be configured with plugins and remote modules. It has a very small skinnable interface and can be minimised to the system tray. A freeware, it can be downloaded from http://snipurl.com/ez34.

Girder: Girder is a very good software that lets you control and automate your computer. Girder opens up almost unlimited possibilities, from home theatre automation, PC-based media player, business applications, and IT functions to home applications. There are hundreds of plugins available for Girder. Girder is available for $19.99 (around Rs 867) at www.promixis.com.



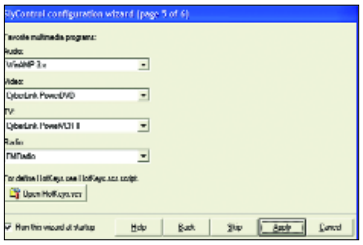
STEP 4 This step allows you to select the various application plugins depending on the kind of applications you wish to control using SlyControl.

When SlyControl starts, only these application plugins will load, and the corresponding applications will be available for control. Click 'Apply' to go to the next step.



Select the existing scripts for application control

STEP 5 At this point, you choose the applications you wish to use for playing audio, video, TV and FM radio. You can choose only one application for each of these. Click 'Apply'.



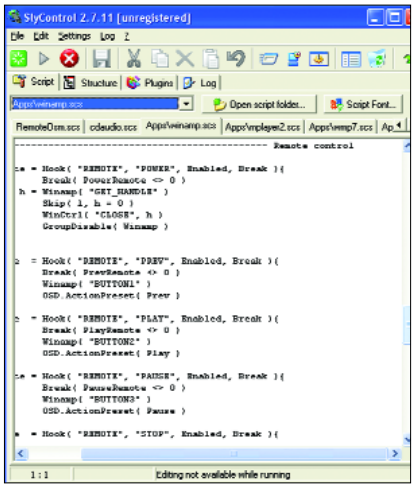
You can select your favourite multimedia application

STEP 6 This is the last step—you can configure miscellaneous options such as enabling Test-To-Speech (TTS), disabling the SlyControl icon in the system tray, and using ZSoft Lupa for the Zoom/Fullscreen button.

This button is equivalent to the magnify feature in Windows' Accessibility menu. Click 'Apply' to finish the configuration, and start using SlyControl!

You may configure some more options

To learn about the keys used to launch the various applications, refer to the help provided with SlyControl. There is another way to find out: after SlyControl is up and running, click the 'Script' tab, and click the tab of the particular application, the controls of which you want to learn.



View the remote control buttons used in each application

SlyControl plugins are frequently updated, and hence there is a great chance that you may find new plugins that support your model of the TV tuner remote. ☒

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Turn On The Volume!

Good acoustics make for a good aural experience. Speaker placement also plays a big part. Read on to learn more...

Photograph Jiten Ganhi
Imaging Atul Deshmukh

intex
Demand More

We show you how to set up your speakers the easy way without breaking your head

Bhaskar Banik

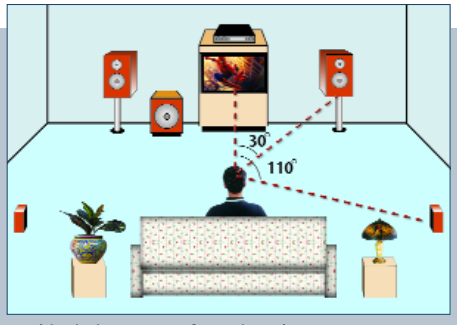
After having read the *Digit* May 2005 speaker comparison test, you must be eager to get your hands on a good set of speakers. Irrespective of what you desire, it is imperative that you install the speakers right. Why? Because even if you get the best set of speakers, and play a song or a film on your PC, it won't sound right if the speakers are not placed properly. Read on, and we will help you place your speakers right.

The Surroundings

The acoustics of the room in which you intend to keep the speakers are important. Even if you get high-end speakers, if the acoustics of the room are not up to the mark, your investment is likely to suffer.

Curtains, carpets, wood and/or metal furniture, all ultimately add to the room's acoustics. So, before you actually get down to screwing the satellites to the wall, check thoroughly at different angles. Of course, not all of us are audiophiles or movie freaks, but a slight exercise in installing the speakers will go a long way in getting a good aural experience.

One aspect is the angles at which you set the speakers. Depending on the dimensions of your room, you should try and stay close to the defined angles. This should be taken as a rule of thumb for users with a 5.1 setup.



An ideal placement of speakers in a room

Connect Right

Once the new speakers arrive, the first thing you must do is connect them properly to the sound card. Most new motherboards have support for 5.1 speakers, and connecting them to the integrated sound card can be done in a jiffy. This is easy if the cables are colour-coded. However, if they are not, you will need some time to get the configuration right.

A. Colour-coded integrated audio jacks on the back panel of the PC

First, let's take a look at the back panel connectors of the PC. You will see three distinct colour-coded audio jacks—green, blue and pink. The audio jacks have two roles.

In the general onfiguration, a green jack is meant to be the audio line-out, perfect to connect a stereo or a 2.1 set of speakers (most 2.1 speakers don't come with a separate sub-woofer connector). The blue audio jack acts as the line-in, and is used to connect devices such as a walkman to the PC for recording from the walkman.

The pink one serves as a microphone jack. This is the general configuration (image A). While the placement of audio jacks may differ amongst motherboards, their colours essentially denote the same functions as mentioned above.

Remember to switch off the PC first, and then connect the speaker wires. You may invariably disturb or unplug any other cable when you are fiddling on the back panel of a powered on computer. If the power cord gets unplugged, you could end up losing a lot of data.

The speakers we used for this workshop had colour-coded audio connectors at both ends which let us easily plug in the cables to the audio jacks on the back panel of the connector.

For a 5.1 setup on an integrated sound card, here's what you should do:

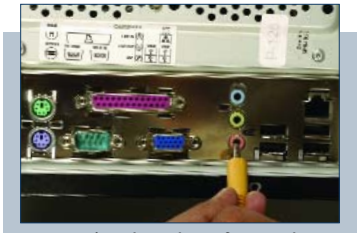
B. Inserting the front speakers connectors to the back panel of PC

C. Inserting rear speakers connectors

The green or front channel speakers go into the green jack (image B). The rear speaker connectors go into the line-in or the blue jack on the back panel of the computer (image C). Finally, the subwoofer connector goes into the microphone or the pink jack on the back panel of the computer (image D).

The final assembly of speaker cables on the back panel of the computer is shown in image E.

Configuring sound card drivers is important when setting up the speakers



D. Inserting the subwoofer speaker connector to the back panel of the PC

Once this is done, connect the other colour-coded audio cables to the back of the subwoofer (image F). Since the jacks are labelled, you are spared the guessing game!

E. The final assembly on the back panel of the computer

Once the speaker cables are connected to the back panel of the computer, we can concentrate on the speaker itself. For most part, we shall deal with the subwoofer.

F. Connected audio cables on the back panel of the subwoofer

All multimedia PC speaker satellites connect to the subwoofer by means of a connecting wire. These wires may or may not be colour-coded and labelled. Generally, they are not, but if they are then it is definitely a plus for easy installation of

G. Connecting the satellites

speakers. The image G depicts connecting a single satellite connector to the subwoofer.

The final assembly of cables on the back of the subwoofer is shown in image H.

This completes the hardware connections part for speakers. Next, we move into the driver configuration for speakers.

H. The final Subwoofer assembly

The Driver Deal

After connecting the speakers, it's time to configure the drivers. For most motherboards, integrated sound solutions are based on the Realtek AC6XX chips. High-end motherboards have ALC8XX chips.

However, some motherboards such as the Asus A7N8XE-Deluxe are based on the Nforce 2 chipset, which uses the extremely good SoundStorm audio solution. Newer motherboards such as the MSI P4N Diamond SLI have the Creative Live! 24-bit chip as the on-board audio solution.

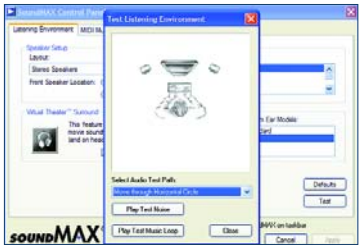
Since Realtek is the generic chip that most motherboards have, we will stick to that. You can access the driver configuration panel by either going to **Start > All Programs**, and locating the name of the program, which could either be Realtek or Soundmax, and clicking the Control Panel.

Alternatively, double-click the System Tray icon at the bottom of the screen for opening the driver configuration panel.

Once you have opened the driver configuration panel, you will see that the default option is chosen as 'stereo speakers'. So we will have to change the default option to '5.1 speakers'.

With that done, we need to test if each channel is properly configured. Press the 'Test' button at the bottom of the configuration panel, and choose the default settings.

I. Changing the speaker options



J. Click the 'Play Test Noise' button

Now, click the 'Play Test Noise' button. This will play the noise from each of the speakers including the sub-woofer. If everything sounds as it should then you are done. The next step would be to put up your feet and relax! ☒

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Laptop Maintenance Tips

A little care in maintenance will go a long way in increasing your laptop's life

SAMSUNG

Photograph **Jiten Gandhi**
Imaging **Atul Deshmukh**

The bane of most laptop users is the lack of really long battery life

Varun Dubey

Laptops are expensive gadgets made for mobility. Generally, they are not very tough, and are not known to take too well to being mishandled .

If you do end up messing your laptop, even the smallest of repairs will set you back by thousands of rupees. Read on to learn how to care for your laptop.

We have also included some important pointers you need to stick to before, during and after using your laptop.

Clean It Right

Since your laptop is such an expensive gadget (falling prices notwithstanding), be extremely careful while cleaning the screen. Make sure the cloth is very soft, and has no imprints or monograms on it, as these may scratch the screen.

Also ensure that the cloth is lint-free, else it will leave fibres on the screen, and make the display unclear. Make sure you don't spray any cleaner directly on the screen. Instead, spray onto the cleaning cloth, and allow the cloth to capture the dirt and contaminants.

Choosing The Spray

The screen is the most expensive component of your laptop. Adequate care must be taken while choosing the cleaning spray. Harsh sprays could turn the screen yellow, and may even cause cracking. Use plain water or vinegar to clean the screen.

Placing The Laptop

Hard drives work on the property of magnetic flux, so any electrical field may damage the hard disk and the data on it. Make sure your laptop is at least 13 cm away from any electrical appliance that generates a strong magnetic field—such as a microwave oven.

Give It A Breather

If you have just shut down your laptop, give it 30 seconds before you start it up again. This ensures that the hard drive has spun down, and is not subjected to sudden switching on and off.

Data Backup

Always back up your data. Laptops are mobile devices, and are susceptible to breakage. Also, it's possible that the hard disk simply crashes. Remember, you can *never* back up too frequently.

Laptop Battery Care

The bane of most laptop users is the lack of a really long battery life. There are three main types of laptop batteries:

- Nickel-Cadmium (Ni-Cd)
- Nickel Metal Hydride (Ni-MH)
- Lithium Ion (Li-ion).

Nickel-Cadmium

This type of battery must be fully discharged and then fully recharged every few weeks. If you don't do this, it will quickly lose battery life due to what is known as the 'memory effect'.

The memory effect means if you don't follow the above procedure, your battery will only charge up to the percentage of the last charge. For instance, if you discharge it to 30 per cent, it will only charge up the remaining 70 per cent.

Do this repeatedly, and the 30 per cent will become unusable, giving you an effective 70 per cent charge even though the indicator will still show a 100 per cent charge each time you charge it.

Nickel Metal Hydride

Ni-MH batteries are similar to Ni-Cd batteries, although they are less susceptible to the memory effect. They also have a higher capacity.

Lithium Ion

These are the latest type of batteries, and have no real problems as far as the memory effect is concerned.

The problem with these is that they lose their effectiveness if overcharged or left for a long time with a full charge. Always discharge these batteries if you're going to be storing them away.

A hard reboot should only be used as a last resort

Keep Your Battery Healthy

- Before the first use, charge the batteries for 12 hours or the minimum charge time, as mentioned in the manual.
- For daily use, charge the battery to capacity, then run the laptop on battery power until it is completely drained (for Ni-Cd or Ni-MH batteries, this prevents the memory effect) or almost drained. (For Li-ion batteries, this can help prevent overcharging).
- Don't leave your battery unused for long periods of time. Even if you use AC power most of the time, use the battery regularly to keep it in good condition. Switch off your AC adapter when the laptop is not in use. This prevents overcharging.

To extend battery life, you can try decreasing the LCD brightness while using your notebook. You can activate the 'Standby' and 'Hibernation' power-saving modes, too, for better battery life.

Battery Storage

- If you do not use your laptop for extended periods of time—a week or more—remove the battery pack from the laptop, but only after discharging it fully.
- The batteries should be stored in a cool dry place, removed from heat, humidity and dust as well as metal objects.

Use A Laptop Case

It is advisable to spend a couple of thousand rupees and get a sturdy carry-case for your laptop.

The case should ideally be hard from the outside and soft on the inside, while being a comfortable fit. It should be able to absorb shocks and carry your laptop accessories.

Keep Eatables Away

Obviously, no eating and drinking near or around your laptop. The least bit of water could short-circuit some sensitive laptop circuits, and render it useless.

No Hard Booting

You may sometimes be tempted to turn your laptop off by

simply holding down the power button until it powers down. Although quick, this method is harmful to the laptop and could cause data loss.

A hard reboot should only be used as a last resort. Sometimes this is inevitable,

for instance, when Windows hangs. But this should not be a regular practice.

General Tips

Shortcuts To Success
Create shortcuts to your most commonly used applications, folders and files on the desktop. This way, you can access them quickly. If you like your desktop clutter-free, you can also create custom toolbars in Windows XP.

To do this, right-click on the Windows taskbar, go to 'Toolbars' and click 'New Toolbar'. Next, choose the drive or folder you want to access using the toolbar. You can create different toolbars for different drives and folders.

This is expecially useful for sales executives who want easy access to presentations, proposals and other information they use on a day-to-day basis.

Clean Up The Junk
Uninstall applications you don't use. Apart from saving on disk space, you'll also prevent your notebook from slowing down.

Be resourceful—keep backups of the OS, drivers and commonly used applications on a secondary partition so you can do some re-installing on your own if you face any issues when travelling. Carry driver CDs and recovery disks.

Laptop Security

Don't Be A Jerk
Don't subject your laptop to jerks and shocks. This will help avoid damage to your hard drive. Preferably, power the notebook off before moving it from one place to another.

Dusty Notebooks Don't Impress
Protect your laptop from dust. Ensure vents are clean to enable good air flow.

Drinks And Laptops A No-No
Don't place any containers filled with beverages (hot or cold) near your notebook, to prevent accidental spills.

Power Saving Tips

Let Power Be Managed By The Pros
Set the device to switch off the LCD screen, and hard drive after fixed intervals of time.

Disconnect
External peripherals and accessories such as external optical drives, PC cards and USB keyboard lights draw power from the notebook. Disconnect such devices when not in use.

Suspend Your Notebook
Booting the notebook when it is not connected to a power source draws a lot of power from the battery.

Instead of shutting down your laptop in the middle of a meeting, choose the 'Suspend' mode if you wish to use it again after just a short interval. This will save battery and help you restart your work faster. ☒

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Do It All With Laser MFDs

Save costs and work faster with all-in-one laser-based MFDs that can print, copy, scan and fax

Photograph **Jiten Gandhi**
Imaging **Atul Deshmukh**

SAMSUNG

Bhaskar Banik

Most workgroups and departments consisting of 25 people or thereabouts generally use a laser-based MFD solution. This is not only because a laser-based MFD is far cheaper courtesy the laser printing functionality, but it's also faster. And that leads to improved productivity.

Some models of laser-based MFDs have special features that remain largely unused, since most users are unaware of them. Here's looking at some of these features to help you get the most out of your MFD.

Copying

The copy button is one of the most-used buttons on the MFD. Generally, copying is done at default or preset settings. However, in some models, you can tweak this. Here's a small list of such tweaks.

Autofit Copying

This is a copying mode that works when you manually place the document on the glass and not on the Automatic Document Feeder (ADF). Next, you can press the 'Special' button on the MFD and then, using the 'Scroll' button, locate the 'Autofit' option.

Pressing 'Enter' will save the selection, and you can start the copying process. This is especially useful in scenarios where you need to spread a small amount of data over a page. This gives the page a professional appeal.

Clone Copying

Clone Copying is another technique that spreads a small amount of data over the whole page, and instead of just spreading the data, it creates identical copies of the data on the same page. For instance, if you want four copies of a receipt—by using the Clone Copy option, you can fit this on one page, and cut the page to get the four copies.

Again, this mode works only when you manually place the document on the glass, and not in the ADF. You can do so in the same manner as mentioned above in Autofit copying, but instead of looking for 'Autofit' when you access the menu, choose the 'Clone' option.

Collation Copying

Collation Copying is an extremely useful feature. In this process, you can get a set of documents collated and sorted automatically as per your needs.

Control panel of a laser-based MFD

For instance, if you want to copy a five-page document, sort the pages in a manner in which they have to be copied, place them in the ADF, and then press the 'Special' button. Next, access the menu, go to the 'Collation' option. Then press 'Enter' to choose that menu, and start the copying process to get accurately sorted sets of the number of copies you had specified.

Two-Sided Copying

This option is present on some MFDs. It's useful for copying information from smaller sheets of paper and showing them on the same page.

Consider business cards that have printed data on both sides. A card can be kept on the glass document scanner, and both sides of the card can be copied onto a single sheet of paper on one side.

In order to get to this menu, follow the same path as given above for 'Autofit Copying'. All you need to do is look for the '2-Side' option in the menu. Then press 'Enter' and start copying.

2-Up Or 4-Up Copying

This is another useful mode, if you want to compare two documents, or want a copy of two different documents on the same page. You can also choose to have four documents fitted onto a single sheet of A4-sized paper—good enough for comparing four documents on a single sheet.

There will be a reduction in the size of the printed text when you choose this mode. This mode can only be accessed when you are manually copying documents, and not using the ADF.

Poster Copying

This is a special mode that lets you expand a single document to a poster. Poster copying is only possible when you are manually copying a document. It's a good technique for blowing up a single image on one page to multiple pages. Choose the 'Poster' option from the menu and start copying.

Faxing

Faxing is available on most laser-based MFD models. Generally, you can use the MFD to receive faxes using the preset settings.

However, if you are worried about confidential faxes falling into wrong hands, you can configure the MFD to not

provide a printout for the faxes. This is called the secure receiving mode, wherein all incoming faxes are stored in the MFD's memory. You can later access the MFD, and print the faxes by punching in the password you provided earlier when configuring the MFD.

For system administrators, such MFDs can also provide detailed prints about fax usage on the particular MFD. You can get a report about the phone numbers stored in the MFD's memory, a sent-fax report, received-fax report and more.

Some MFDs also have a power failure report generator that automatically generates a report after restoration of the device from a power failure.

Similar to e-mail spam, there are people who randomly send junk faxes to other fax numbers. If your fax machine receives junk faxes regularly, use the junk fax barrier feature through which you can specify upto 10 fax numbers as junk.

Any incoming faxes from these junk numbers are blocked from being printed, and are included in the generated received-fax report.

These were some of the features available on most high-end laser-based MFDs. The manner in which you access them will vary for various MFDs.

Take Your Pick

Laser-based MFDs can be broadly classified into three distinct categories—Personal, Workgroup and Heavy Duty, and cater to a specific segment.

Personal MFDs contain devices that are sheet-fed, and have limited scanning abilities. Most are monochrome scanning devices restricted to 256-colour grayscale scanners.

Some are actually fax machines, with laser printing and scanning capabilities built around them. They are best suited for very low print volumes, as the cost per page is high.

Workgroup MFDs utilise a laser-printing engine. The consumable used is a unified toner cartridge. The toner life is usually 3,000 pages, and a drum is said to last for 7,000 pages. The toner and drum are in a sealed cartridge, so when your toner is used up, you have to replace the entire cartridge including the half-used drum.

Heavy-duty MFD technology is the same as copier machines, which are quite rugged. Here, the toner is stored in a separate cartridge from the drum; so you only replace what you use up. Typically, a drum is rated to last for 50,000 pages, and the toner lasts for about 5,000 pages. So, a copier-based MFD actually works out cheaper in the long run.

Personal MFDs

In small offices, devices with a smaller footprint are preferred over huge machines. Due to the absence of a flatbed scanner, sheet-fed MFDs score in terms of space, and do the same job as their bigger counterparts.

Such MFDs are recommended for work environments where space is at a premium, and also for professionals who carry work home. A small footprint and greater usability make these devices a good option for getting work done faster.

Workgroup MFDs

For a low to medium volume of printing and copying, MFDs based on laser printer engines are preferred. These are generally deployed as shared resources in departments. These MFDs can handle a fair amount of work-load and also provide fast-paced printing and copying.

Heavy-duty MFDs

Heavy-duty MFDs are good for high volumes of printing and copying, have low running costs, are rugged and offer longer duty cycles. They are costlier and generally meant for large firms.

These MFDs are the best in the laser-based category, and offer a host of additional features.

The MFD Buying Guide

Before Buying An MFD

Consider your usage pattern: if you print and copy a lot, choose a copier engine-based MFD. If you print more and copy less, opt for a printer engine-based MFD. If fax is your main concern, opt for a specialised laser fax that doubles as a laser printer and scanner.

Look for handy features such as paper capacity, buffer memory, duplex printing, and toner save. Ensure that the MFD can print on the type of paper products you use, say, envelopes or index cards.

Consider upgradeability and scalability, as these options will extend the life of the device. Being bulky, lugging laser MFDs around is not feasible. Make sure your model is covered by an on-site warranty.

Try the console interface to figure out how to operate the device. Examine the control panel. It should have a good LCD panel to display status messages and warnings.

Some More Functions

You can scan multiple documents in batch processing mode or optionally, use Optical Character Recognition to convert scanned documents and faxes into text documents for editing.

On some MFDs, you can save the received fax on the PC and print only the required faxes.

If your machine is out of paper, or the ink cartridge is low, faxes will be stored in the 'fax memory'. When the paper tray is refilled or the cartridge is replaced, then the stored faxes will be printed. Some MFDs can store up to 500 pages.

Use the 'PC Faxing' option if you would like to send faxes directly from your computer's modem without having to print the document and feeding it manually into the fax machine. ■

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Print Photos Using Your Inkjet MFD

Using an inkjet MFD, you can take your photographs and convert them into digital memories—and also make copies for family and friends as well

Photograph **Jiten Gandhi**
Imaging **Atul Deshmukh**

EPSON
EXCEED YOUR VISION

Your MFD can be the single device that enhances and prints your digital photos and does more...

Varun Dubey

Has there recently been a function you neglected to attend? Or one you forgot to carry your state-of-the-art digicam to?

Perhaps one of your friends was present, and therefore has photographs you would love to add to your collection. But he can't find the negatives for reprints, and he definitely isn't going to give his copies to you!

In this age of digitisation, photographs are one of the few things people prefer to have hard copies of.

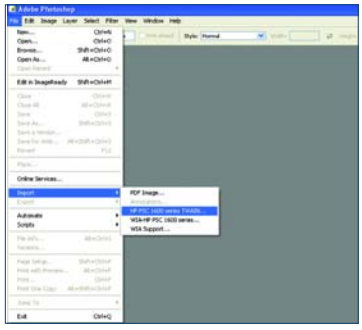
We show you here how you can copy photographs from friends and, perhaps, magazines using your inkjet MFD. You can also enhance them to make them look better than the originals!

What You Need

An inkjet MFD, some photo-quality paper, and let's not forget the photographs you want to copy!

Typically, you should buy photo paper that is around 270 gsm—'gsm' or grams pre square metre is the density of the paper, and as a general rule, determines the quality of the paper. A 15-sheet, A4 size, 270 gsm bundle costs about Rs 200. Also, most of the top manufacturers have their own set of papers that are optimised for their devices, and it's recommended you opt for those.

STEP 1 Once you've connected your MFD to your computer and installed



Choose the appropriate capture device

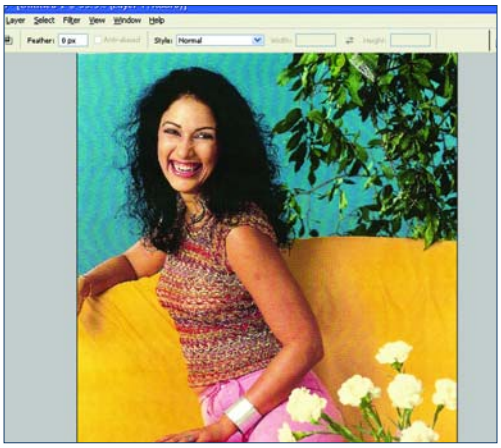
Preview the photo to be scanned

all the software and drivers that came with it, you're ready to get prints of your own!

Place the photograph(s) that you want to scan on the scanner bed of your MFD. If you are placing multiple photographs at the same time, make sure you leave a small gap between them so it becomes easier to separate them when you're editing them.

Most MFDs come with bundled image-editing software that will satisfy most of your basic needs. However, we'll use the most popular image editing

MFDs can make for a very useful investment—they let you scan and print your photos from the comfort of your home



Tweak your images in Photoshop

software—Adobe Photoshop.

STEP 2 Open Photoshop and go to **File > Import**. Here, you will see a list of the image acquisition devices that are installed on your computer.

Select your MFD's scanner from amongst these. It will probably be listed as something like 'WIA-xxxxxx', where 'xxxxxx' is your scanner name; or it will be listed as 'xxxxxx TWAIN' (an industry standard for scanning), where again, 'xxxxxx' is your scanner's name. If both are listed, select the TWAIN source.

STEP 3 Clicking on that will get you to the driver interface for your scanner. Now, depending on your driver's abilities, you can adjust the scan size, quality settings, image size, scan size, etc. If you want to print a large image, it's recommended that you scan at a higher resolution and then resize or crop, if required.

STEP 4 Once you have imported the image into your image editing software, you can tweak it to your heart's content. You may want to adjust the colour, brightness, and sharpness, or even apply cool filters and effects to your image. If your image has the red-eye problem, correct it! If it's overexposed or underexposed, correct that too! In fact, refer to the *Fast Track* book on digital photography that was given with the March issue of *Digit*. There are plenty of Photoshop tips and tricks in there.

Play with the menus and settings in Photoshop, and when you are pleased with the results, continue to the next step.

The Epson Stylus PHOTO CX1500

STEP 5 Once you are done with the editing part, simply go to **File > Print**. You will see the print dialog box, where you can select the printer you want to use (if you have a printer installed in addition to your MFD). Then, click the 'Properties' button.

STEP 6 This will open the printer driver's interface, and allow you to tweak various image settings, such as image quality, paper quality, landscape or portrait mode, etc. Make sure you set the printer to print at high quality, and set the correct paper size, else you will mess up your photo paper!

Finally, just click 'Print', and watch as your tweaked photograph is printed! You now have your very own copy, which, may be better-looking than the original.

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Copying An Image

We've told you what you need to do to scan, edit and print a photograph. What if you do not want to edit it? If you simply want to copy it, and feel that the effort required—however minimal it may be—to scan and then manually click 'Print' is too much for your taste, all MFDs will let you copy images at the touch of a button!

To copy your image, simply place it on the scanner bed and press 'Copy'. The device will first scan the image and then print it.

But hang on! Before you go and starting wasting paper, keep a few things in mind. Just pressing the 'Copy' button may not give you the best image quality. It's fine if you just want to copy text and are going to use your device more as a Xerox machine than as a photo printer, but for photographs, you may need to tweak your printer settings a bit.

Most MFDs have an LCD screen—and some have a colour LCD screen—where you can view and change settings.

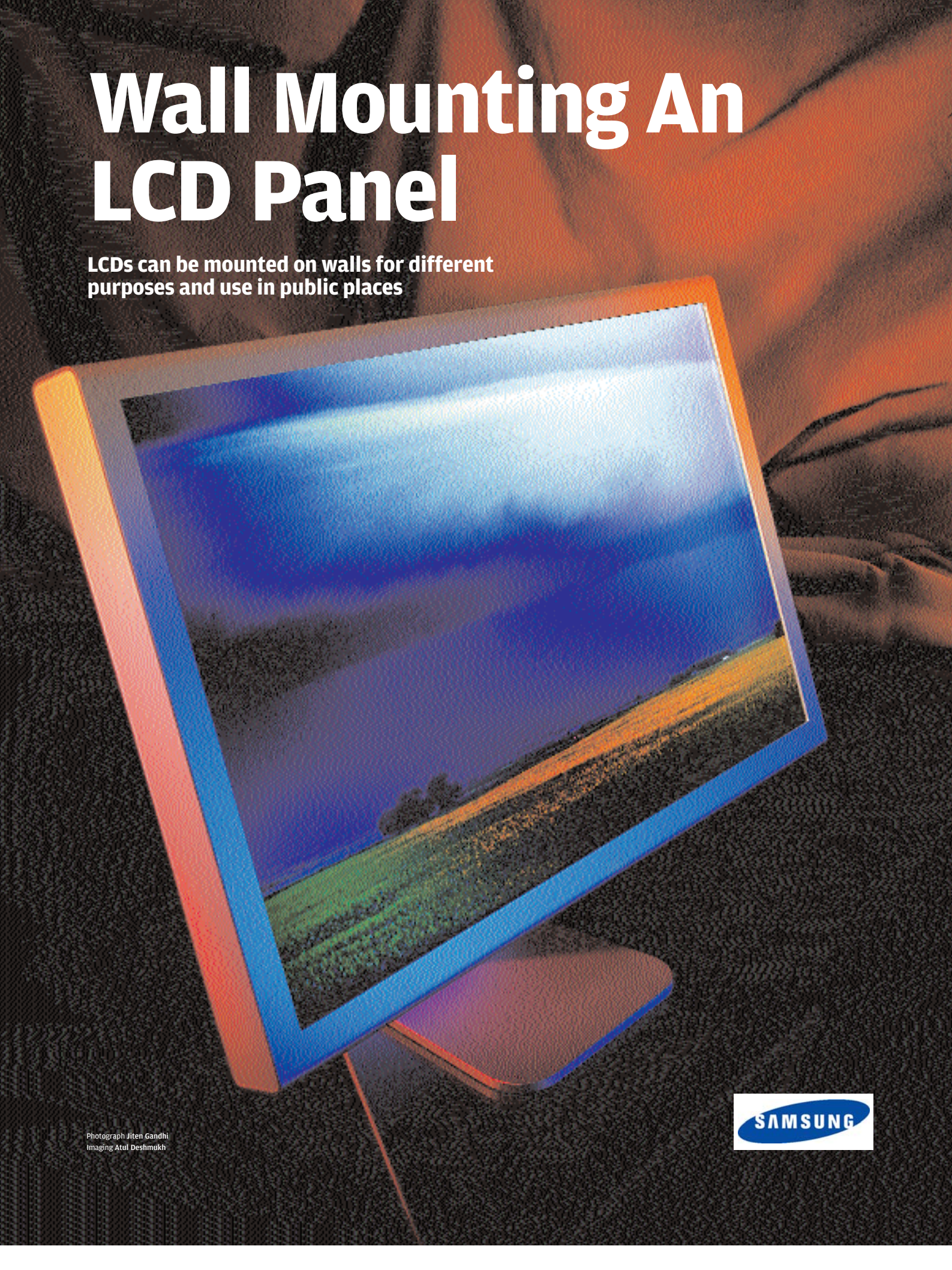
Navigate to the printer settings on your device and select 'Photo Quality' from the print quality settings. Then navigate to the page setup and make sure your page size is set to the same size that you will be printing the picture on.

Note that if you have a 4 x 6 size paper, and an image much larger in size, you should also select the 'Scale to page' option. This will ensure that your photograph is resized, and that the print sizes of the image and the page match.

Some MFDs, such as the Epson RX630, come with memory card readers—so you can just take your memory card out of the camera and plug it into the MFD. You can view the LCD to edit and print the image! Some other MFDs also let you do basic image editing, such as cropping, rotating, resizing, and even increasing and decreasing brightness and contrast!

Wall Mounting An LCD Panel

LCDs can be mounted on walls for different purposes and use in public places



Photograph **Jiten Gandhi**
Imaging **Atul Deshmukh**

SAMSUNG

Courtesy wall mounts, LCDs can now be used in airports, showrooms, and hotels, and do not mess up the décor as CRTs did earlier

Aliasgar Pardawala and **Varun Dubey**

LCD panels have gained popularity primarily because of their small footprint and low power consumption. These factors have made a lot of people turn a blind eye to their shortcomings such as their restrictive viewing angle.

Due to this popularity, manufacturers took LCDs a step further by introducing a wall mount. Since an LCD panel doesn't weigh much, it is easy to mount it on an adjustable arm that's fitted on your wall. This meant that LCDs could now be used in places such as airports, showrooms, hotels and restaurants, and not mess up the décor as CRTs did before.

However, none of the panels available in India come with the Video Electronics Standards Association (VESA) compliant wall mount. This is done to decrease costs, as India is a very price sensitive market.

Wall mount VESA arm

If you would like to get a wall mount, you will need to buy it separately from your vendor. Here, we have elaborately explained how you can fit the panel in the wall mount.

STEP 1 Disconnect The Panel

If the panel is in use, you will first need to disconnect it from the PC by plugging out the video cable and power cord, and if possible, detaching both these cables from the panel as well.

Remove the panel from its current stand and place it face down, gently, on a flat, dry and smooth surface. Make sure there is nothing in the way that could damage the screen.

STEP 2 Hole Spacing

In the LCD manual, check out the VESA wall mount page to find out the spacing between the holes. There are two standards; the 75mm and 100mm. This spacing will decide the type of wall mount you need to buy.

STEP 3 Various Wall Mounts

There are several types of wall mounts available, such as the one in the form of an arm, which gives you the flexibility to move the panel and face it in all directions.

You also get non-flexible types. Make sure you make the right choice, since once it's bolted on to your wall, there's not really much you can do to change it.

Two mounting plates

STEP 4 Fix The Wall Mount

Once you know the size between the threaded holes, get the wall mount of your choice and get prepared to bolt it to the wall. First of all, fix the sheet metal back plate of the wall mount to the LCD panel.

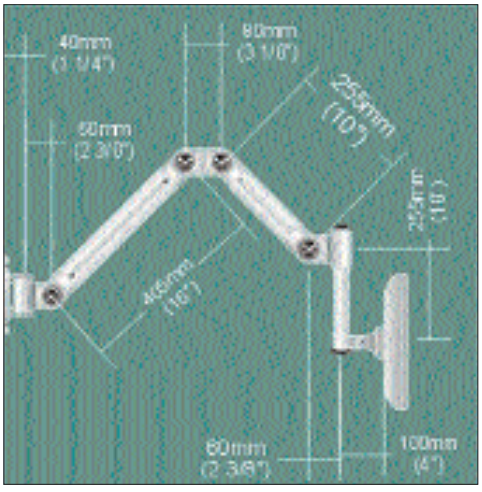
This back plate has four U-shaped pegs, which fit exactly into the provided groove on the wall mount.

STEP 5 Drilling Holes

Now it's time to drill holes in the wall as per the size and diameter mentioned in the manual, so you can fix the second plate. This is the plate on which the panel, along with the arm, will be fastened.

STEP 6 Arm Assembly

Fix the arm assembly on to the wall plate with the help of the provided nut and bolt. Make sure that the arm assembly is secured tight enough to take the load and



Wall mounting design map

PPM63h3 63-inch Samsung Plasma TV

Since an LCD panel doesn't weigh much, it can be easily mounted on an adjustable arm fitted on your wall

HLP6163 61-inch Samsung Rear Projection TV

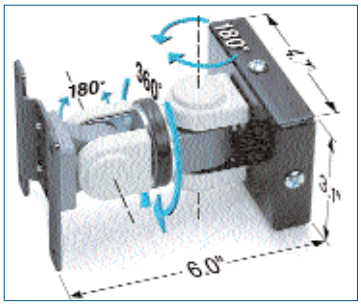
occasional jerks that it will be subjected to.

STEP 7 Mount Your Display

Fasten the arm with screws to the plate that you fixed on the back of your LCD panel earlier, and check for tightness. That's it. The panel is mounted on a VESA wall mount and ready for use. All you have to do is reconnect the wires!

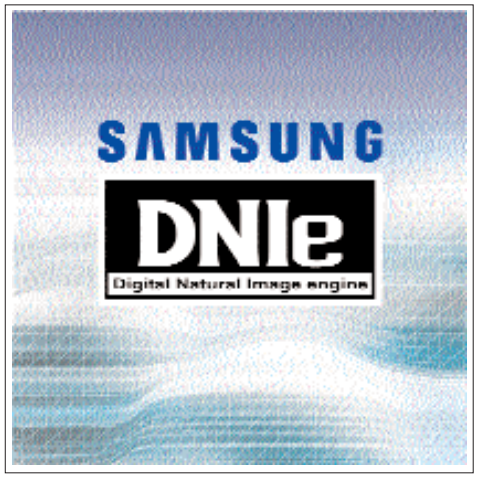
TV Or PC Monitor Or Both?

Some LCD monitors come with the neat feature of having an inbuilt TV tuner. These devices have a regular port for connecting to your PC or laptop,



Swivel arm assembly

and also have a socket to plug in your cable. The inbuilt TV tuner then scans and stores all the



channels available, letting you operate your monitor as a regular flat screen TV! Moreover, you don't even need to have your PC switched on in order to watch your favourite TV show!

Apart from the aforementioned video inputs, LCD monitors feature the whole gamut of connectors for attaching your DVD, VCD or other video input sources—such as handycams—as well. They generally support various screen aspects (16:9; 4:3). They will also let you zoom into the image!

Mounted display

This is where it gets really cool. Some of them also support the PIP (Picture-in-Picture) function wherein if you want to watch a show but have a pressing deadline at work, you can start working on your presentation and have the TV program run as a small window on the screen.

The beauty of this function is that the window need not remain small. You can resize it to whatever size suits you, and you can also place it anywhere on the screen! ■

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Display Technologies

DLP (Digital Light Processing): A technology by Texas Instruments, it uses a Digital Micro Mirror, which consists of a million small mirrors that reflect light and hence create the image. DLP is touted to be the best digital picture you can get because of a better fill rate. The fill rate is essentially the ratio of the frame making up the image to how much of the frame lies between the elements. For DLP, the fill rate is a massive 88 per cent!

D-ILA: Digital Direct Drive Image Light Amplifier is a type of LCD display that was developed by JVC. Unlike LCD, its elements reflect light twice before letting it pass through the lens. D-ILA offers a 93 per cent fill rate.

LCoS: LCoS stands for Liquid Crystal on Silicon, and is Hitachi's version of D-ILA.

Plasma: A plasma screen is different from the regular screens as it contains millions of small compartments filled with stable noble gases Argon, Xenon and Neon. To turn a pixel on, an electric current is passed through the compartments, thus charging the gas, and hence producing red, green, or blue colour.

Rear Projection: The size of a rear-projection television generally ranges between 40 and 80 inches. The front projector projects the image onto a mirror, which then reflects it onto the display screen where we finally see it.

Front Projector: This is a two-piece unit similar to the stuff they use in movie theatres. With this kind of a setup, you will have two parts to your TV: the projector and the display screen. It can be made from any of the above mentioned display types, namely LCD, CRT, DLP, D-ILA, or LCoS.

Two-Piece Rear Projection: This is similar to a front projector, except that the image is projected onto the screen from behind, instead of from the front (unlike in a theatre where the projector is placed at the front of the screen).

High Definition Television (HDTV): Regular NTSC TV signals will provide you with 525 lines of resolution, and as a thumb rule, the higher the number of lines, the higher the resolution. HDTV gives you five times those many lines, and thus, the clarity and sharpness is simply outstanding. Moreover, the aspect ratio of HDTV is 16:9 (widescreen) as opposed to 4:3, which is the regular television format these days.

HC-P4741W 47-inch Samsung Widescreen HDTV Monitor

The flip side is that since it has such high resolution, the transmission of signal requires a massive amount of bandwidth which makes it almost prohibitively expensive. HDTV receivers are on an average 30 per cent more expensive than their conventional top-of-the-line counterparts.

Adding Effects To Your Home Videos

Your home videos no longer need to be bland and boring. Make your own movie with a title and credits at the end... Here's how

Photograph **Jiten Gandhi**
Imaging **Atul Deshmukh**

Adding effects to your home videos that can make the videos look professional, and make you look good

Jayesh Limaye

So you've finally managed to store the memorable videos you captured during your holidays last year. And now you even have it on your computer's hard drive. What next?

You could add some transition effects to your videos to give it a professional feel.

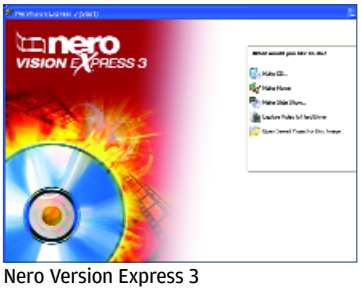
You might have frantically searched the Internet looking for tools that might let you do this, and probably found that everything available is either shareware, or whatever is freeware, has very few features.

Most of you might not be aware that Ahead, the makers of Nero Burning ROM, has developed a tool—NeroVision Express 3—that lets you do all the editing you want.

NeroVision Express 3 can also be downloaded from http://nero.com, where it is also updated quite frequently.

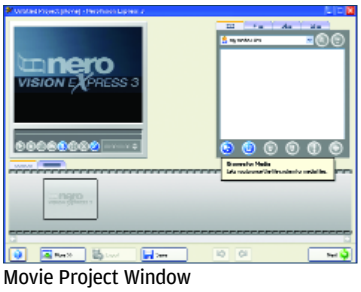
This utility not only supports adding transition effects to captured video, but also lets you capture video using your TV tuner card, video capture devices and DV cams.

STEP 1 To start off, open NeroVision Express from the Nero program group. Now, click on 'Make Movie', located on the left of the window.



Nero Version Express 3

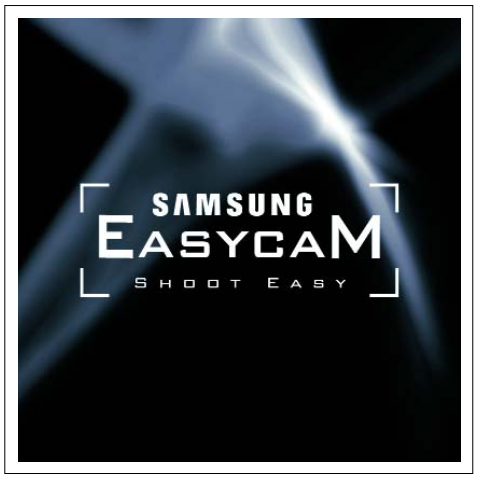
STEP 2 A new 'Untitled Project' window will open up. In this window, you will have a preview pane on the left, while on the right, you will be able to view the 'My Media' files, in which the videos selected by you for the addition of transition effects are listed. The area at the bottom are the 'Storyboard' and 'Timeline' areas, where you will be able to monitor how your video progresses.



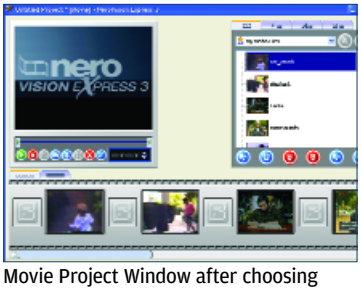
Movie Project Window

While 'Storyboard' displays the videos and transitions you are using, the video effects, text effects and audio items can only be added to the 'Timeline' view.

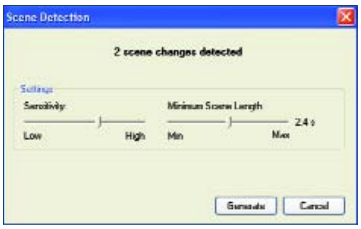
In the 'Storyline' view, these items appear as symbols below the video.



STEP 3 Click on the first blue button below the 'My Media' files to browse and select the video clips to be added to the compilation. A browsing window will be opened and you may choose as many video clips as you want. Now, just click 'Open'. Almost all popular video formats—except Real Media—are supported. The video clips added will be visible in the 'My Media Files' list.



Movie Project Window after choosing video clips



Scene Detection Window

Detected scenes are displayed

STEP 4 For transition effects to be added, you need multiple clips to add transitions in between. Hence, it is recommended to have as many clips as possible.

But, if all your videos are just one file, you can also insert transition effects into the video.

Right-click on the video in the 'My Media Files' list and click on 'Detect Scenes'. Scenes will then be automatically detected and displayed.

STEP 5 Detected scenes can be added to the project by dragging and dropping them to the 'Storyboard' and 'Timeline' areas.

Then, click on the 'Display Transition' tab, which is the last tab above 'My Media' files.

Here, you will find a host of transition effects, which are further classified into 3D, Wipes, Others and Fades.

3D effects consist of many three-dimensional effects such as Exploding Cubes, Horizontal Spinning Strokes, Spherise, Tunnelise, and so on.

'Wipes', as the name suggests, consists of several wipe effects such as Circles, MeltDown, Paper Roll, Wipe Left, Right, Up or Down, etc.

'Others' has Move In and Move Out while 'Fades' consists

After adding the transitions in between the scenes

Digital camcorders with 10X and 20X optical zoom that can really let you get 'into' the thick of things!

of several effects such as Additive Blend, Blinds, CheckerBox, Blur Fade, and many more.

These transitions can be added between the scenes by just dragging and dropping them in the desired place.

STEP 6 Once you have added all the effects you want, click on 'Export' to bring up the window of the final stage, where you can specify various settings regarding the video file to be output.

Here, you may select an export template from DVD, SVCD, VCD, or Custom, if you wish to specify the format of the output video file. In file types, the options available are MPEG-1, MPEG-2 and AVI.

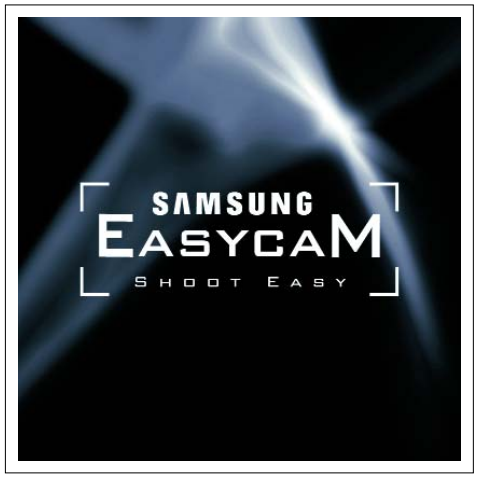
In the 'Export Template', when you select DVD, it essentially means the MPEG-2 video standard. This standard is known for its high video as well as audio quality.

If you choose NTSC, the video resolution chosen is 720 x 480 at 29.97 frames per second and the bit-rate is 5,073 kbps.

If you wish to choose the PAL standard, the resolution becomes 720 x 576 at 25 frames per second with the bit-rate remaining the same. You can configure the different settings by clicking the 'Configure' button. In the 'General' tab, you can choose the video standard according to your country or between PAL and NTFS.

In the DVD-Video tab, you can choose the aspect ratio from between 4:3, 16:9 and Automatic. In quality settings, you can choose from Automatic, High, Standard, Long Play, Extended Play, Super Long Play and Custom. If you choose custom, you can specify the bit-rate and resolution for the output video.

In the 'Sample Format' drop-down menu, you can specify the interlacing method. It is best to set this as Automatic. You can also specify the Encoding mode—choose between 'Fast' and 'High quality'. Finally, you can specify the audio format—you can choose between Dolby Digital (AC-3) 2.0 and Stereo. Choose 'Stereo'.



You can also view the duration of video that can be accommodated on one disc. This video format requires the highest amount of space.

When you choose VCD, the output video is created in MPEG-1 format. Resolution for PAL is 352 x 288 at 25 fps.

In the 'Custom' template, if you select MPEG format, then you can also specify an aspect ratio of your choice. If you select AVI, you can select the compression codecs for video and audio. You can also specify the video format such as PAL, NTSC or Custom.

When 'Custom' is selected, the frame rate and resolution can be specified. Once you do this, choose a location of your choice for your output file and name the file.

When you click 'Export', the final file with the transition effects you added is created. It's as simple as that. ■

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Other Software You Could Try...

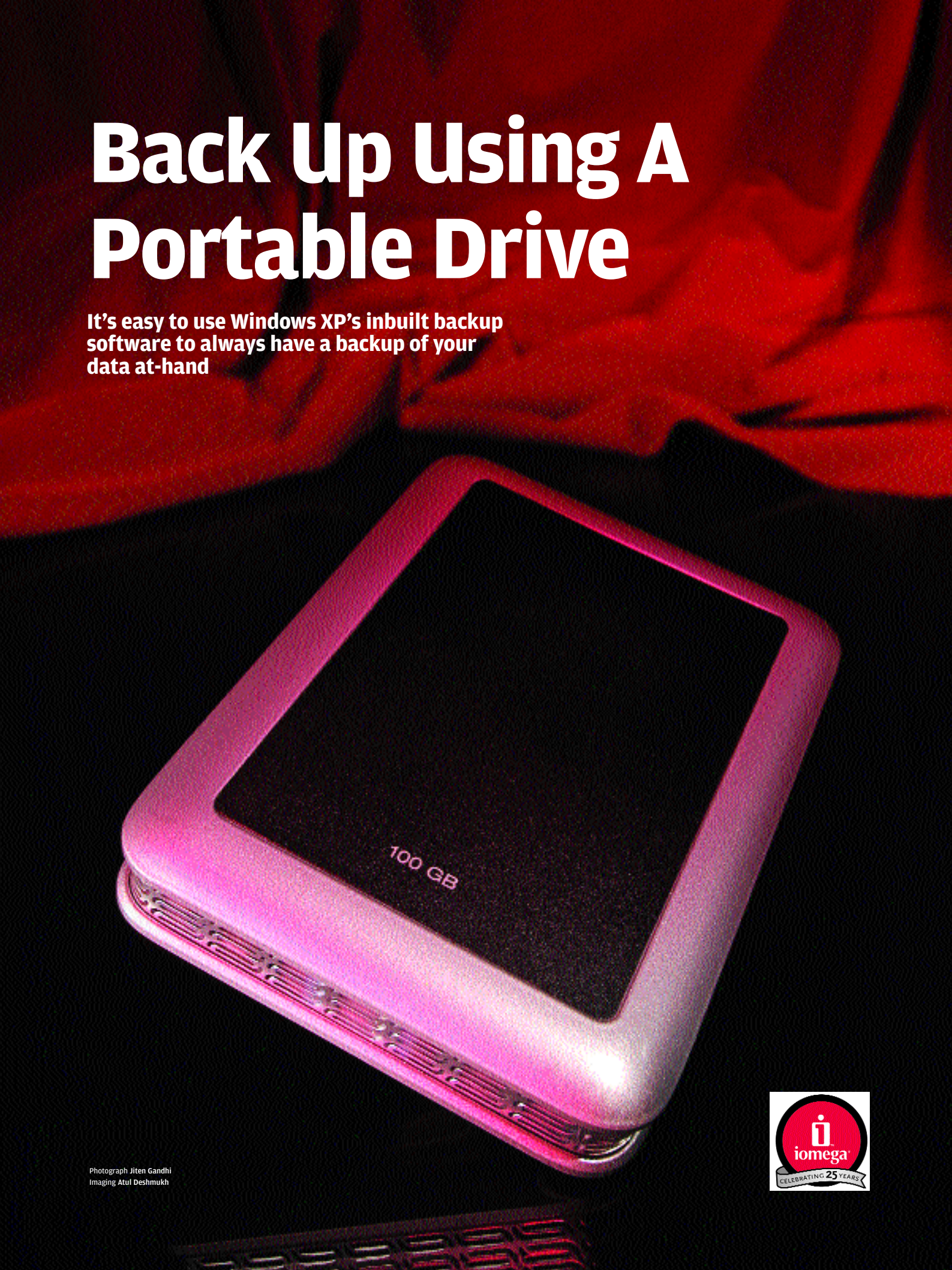
Adobe After Effects 6.5: This is a high-end tool for video editing and motion graphics. It has stunning 2D and 3D transition effects that create professional-quality videos. It is available in Standard Edition, which costs $299 (approx Rs 13,000) and Professional Edition, which costs $999 (approx Rs 43,450). Additionally, the Professional Edition has flexible Motion Tracking, powerful scripting, precise keying and matte tools, advanced visual effects and much more. These are some features the Standard Edition does not have.

MainConcept MainActor v5: This tool grants you high-end power at entry-level price. It has all the necessary features for good quality video editing, plus a dynamic interface. The demo version can be downloaded from www.mainconcept.com. The retail version is available for $199 (approx Rs 8,650).

Windows Movie Maker 2.1: Windows Movie Maker 2.1 is included in Windows XP SP2 and Windows XP Professional x64 Edition. This tool can capture—as well as edit—videos from various devices including DV Cams. You can create home movies and give them a professional look from the 130 new titles, effects and transition options that are available with this software.

Back Up Using A Portable Drive

It's easy to use Windows XP's inbuilt backup software to always have a backup of your data at-hand



Photograph **Jiten Gandhi**
Imaging **Atul Deshmukh**

iomega
CELEBRATING 25 YEARS

You can choose the type of backup: Normal, Copy, Differential, Incremental or Daily

Varun Dubey

So you have a sprawling MP3 collection, a whole lot of movies, and, of course, important documents and contacts, addresses and the like. Wouldn't you sleep a whole lot better at night knowing that you have a secure and safe backup of all your important, and possibly critical, data?

We give you step-by-step directions to back up your data to an external drive. In fact, you can back it up to pretty much any drive using the instructions given here!

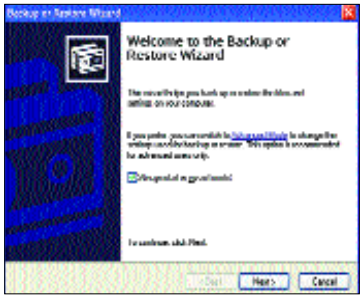
What You Need

A drive to back up your data on (any USB or FireWire external HDD). The software we will be using is Windows XP's inbuilt backup software.

STEP 1 Accessing The Software

To launch the software, go to **Start > All Programs > Accessories > System Tools > Backup**. If you don't have the software installed, you will have to add the feature from your windows XP installation CD.

The software starts with a wizard. If you just use the wizard, it is fairly simple to carry out routine backups, but we will take you through a guided tour of the advanced feature set.



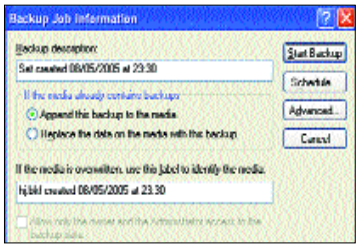
The backup software starts with a wizard

STEP 2 Backup

Click on the backup tab, and you will be taken to a split window akin to a file explorer. Here, you can check the boxes next to the folders on the left pane (if you want to back up the entire folder or drive). After you select folders, the entire contents (including files) are displayed. Select the files or folders you want to back up.

Once you're done, select the location to where you want to back up, and also what name you would like to specify for the backup, from the drop-down menu below. Now click 'Start Backup'. Remember, it's a good practice to keep a date and data-indicative nomenclature.

When you click 'Start Backup', you will be presented with a backup 'Job Information' window where you can modify the name and description of the backup.

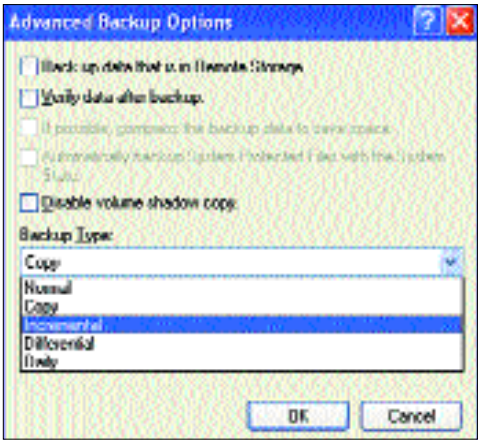


Enter the name of the backup file

Now you have two options: you can either append the backup to your existing backups on the media, or you can wipe out other backups and create a new one by selecting 'Replace the backups in the media with this backup'.

STEP 3 Advanced Options

Clicking on the 'Advanced' tab will get you to a backup options window where you can choose to verify the data after backup, or back up data onto remote storage. You can also choose the type of backup, as mentioned below.

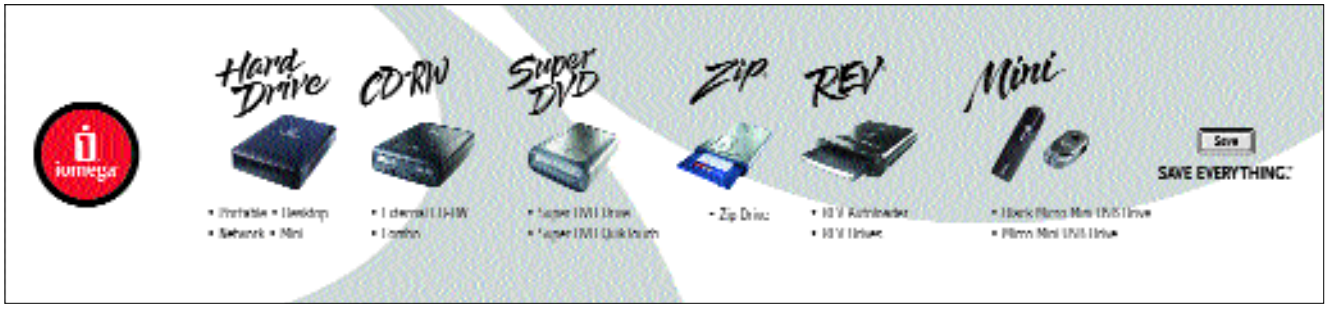


Choose from the various backup types available

Normal: A regular backup.
Copy: Simply backs up the selected data, but does not mark anything as backed up.
Incremental: Backs up the selected files only if they have been created or modified since the last backup.
Differential: The same as incremental, except that it does not mark the files as backed up.
Daily: Backs up the files created or modified only today.

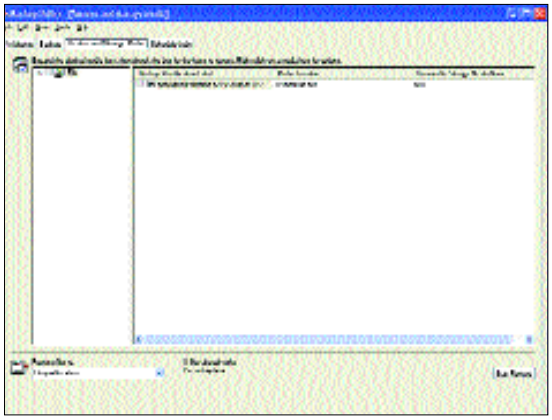
When you click 'Schedule', you will be prompted with a warning that says you should save your backups before scheduling. Click 'Yes', and you will be prompted to set up a password for security reasons. Just enter a password and confirm it, and you will be ready.

You will be taken to a window where you can give this schedule a name, and using the options button, configure options such as 'don't backup if running on



The reason you need to install two OSes is different configs will have different drivers that will be loaded, and doing it off the same OS will lead to system instability

The settings for a scheduled backup



Restoring a file from your backup

battery' (in case it's a laptop), the time that the backup should show, and of course, you can also configure when you want to schedule the action. You don't want your work to be disturbed because of backing up going on in the background. You can choose to back up on weekends, when you won't be using the machine; at system startup, if you're a little paranoid; when the system is idle, so you have a backup ready when you're done with a work session—and so on.

Once all this is configured, you can finally start your backup. The backup file is saved with the .bkf extension.

To restore your backup, simply fire up the software, and if you are in 'Advanced' mode, click on the backup file you want to restore, and click 'Start restore'.

Digit Tip!

Are you synchronisation-phobic? Well, you aren't alone! We offer you our heartfelt sympathies—we know that synchronisation isn't the easiest of things. Add to that the trouble of remembering to synchronise and back up, and all the cables—and it makes you wonder, "Isn't convergence supposed to make life easier? Isn't that what we have 'standards' for?"

Efforts are on, but true plug-and-playability is still some way in the future.

But we have a really neat solution for all your data synchronisation between office and work.

Most motherboards today support booting via an external USB drive. What you can do is, format and partition your external storage drive.

- While connected to your office PC, install the OS on the first partition.
- Once all the drivers have been installed, migrate your data to that partition.
- When you get home, boot up your PC and install your OS on the second partition. Migrate all your work-related documents from your home PC to the second partition.
- Now this portable drive has essentially become your laptop—*sans* the screen and CTS-inducing keyboard!

The reason you need to install two OSes is because different configurations will have different drivers that will be loaded, and doing it off the same operating system will lead to system instability.

Now, depending on where you are—home or office—boot up using the appropriate partition, and you will never need to synchronise data to carry it back and forth: it would all be stored and worked upon from the USB drive.

If you have installed the same OS on both partitions, the dual-boot option will give you the same name, so how will you know which one to use? Simple...

The name that appears is configurable. To configure it, right-click 'My Computer', and select **Properties > Advanced > Startup and Recovery > Edit**.
In the window that opens, look for the text in quotes stating with "Microsoft Windows XP..."
You can type whatever you want within the quotes, and that will get displayed as the boot option.

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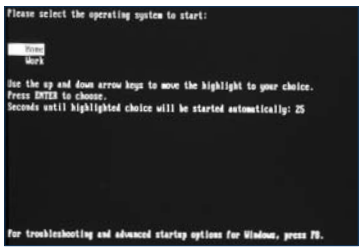
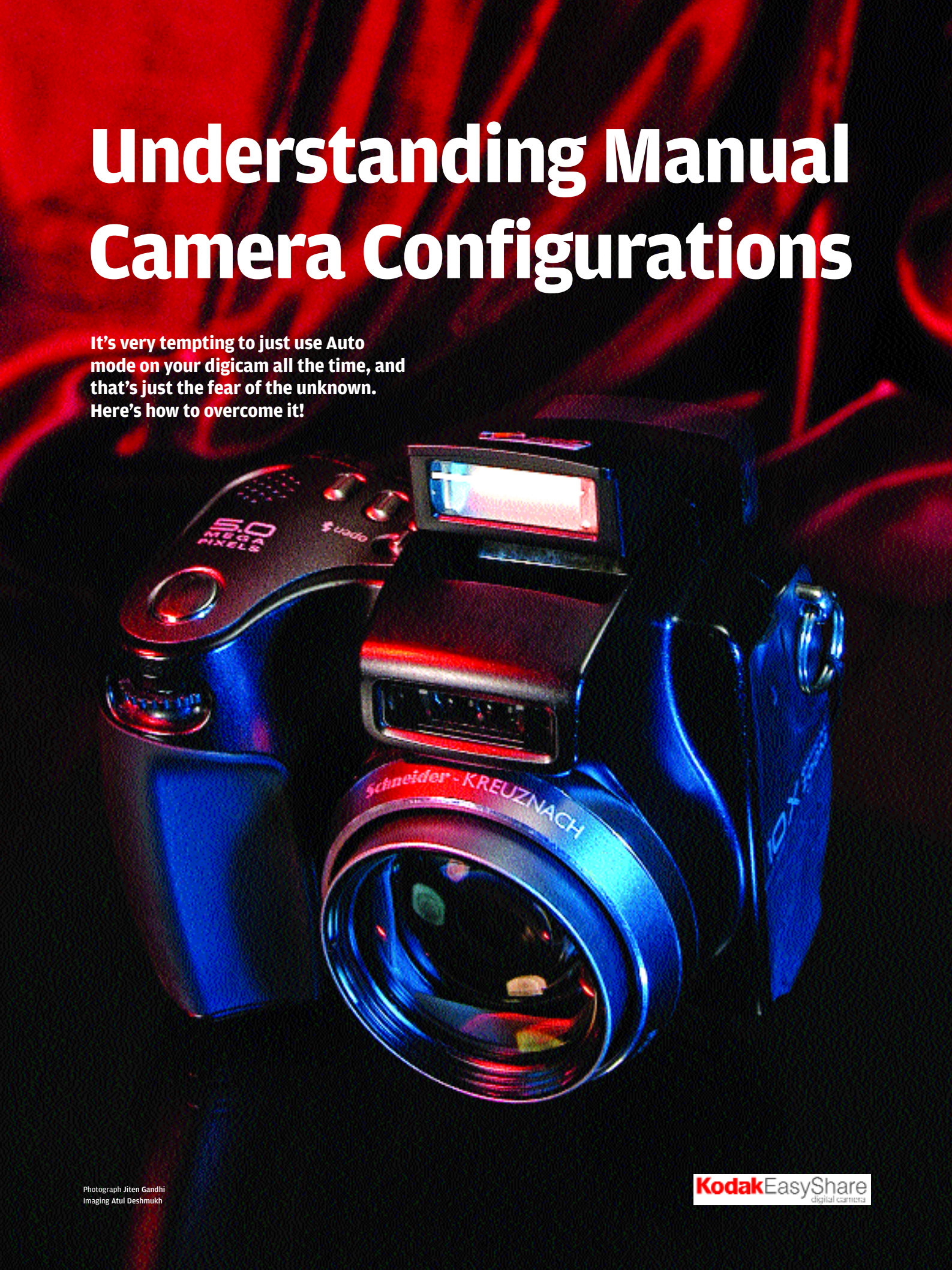


A choice of OSes shows up at bootup...

...Rename these to anything you like!

Understanding Manual Camera Configurations

It's very tempting to just use Auto mode on your digicam all the time, and that's just the fear of the unknown. Here's how to overcome it!



Photograph **Jiten Gandhi**
Imaging **Atul Deshmukh**

KodakEasyShare
digital camera

With manual control, you can experiment, and capture what the Auto mode will not

Varun Dubey

Are you one of those who would love to get friendlier with your digicam but find that the menus and acronyms are just too confusing to bother with—and simply use the Auto setting on your camera? Many people do not realise the true potential of their camera and tend to do this.

It's true that most of the default settings in cameras these days work just fine, and the hassle of tweaking puts people off of the manual controls. But with manual control, you can experiment, and capture what the Auto mode will not—especially when it comes to things such as shadows, lighting effects, black and white photography... Read on and find out how you can tweak those settings to get the best out of your digital camera.

Aperture Settings

The aperture is the size of the opening in the lens, which determines how much light received falls on the camera's sensor (in the case of digicams) or film (in the case of conventional cameras). This setting affects the exposure (the amount of light received by the sensor) and the depth of the photograph.

This setting works in tandem with the shutter speed, so if you want shots of something moving fast, you should increase the aperture size and increase the shutter speed to minimise the blur. In fact, if you get the balance right, you can even get brilliant blur effects—like the ones you see on F1 posters!

Aperture Priority

You can select the desired aperture and the camera will automatically select the best shutter speed for it. (Some cameras will let you set both independently, but these are mostly professional cameras).

AE Lock

Automatic Exposure Locking is the ability to lock the aperture and shutter speed (and hence, Exposure) settings for a series of images. That is, for every image in the series, the aperture and shutter speed settings will be the same. This is extremely helpful if you are trying to merge multiple images together (while creating a 3D walkthrough, for example, or during the creation of a panoramic image).

Exposure Compensation

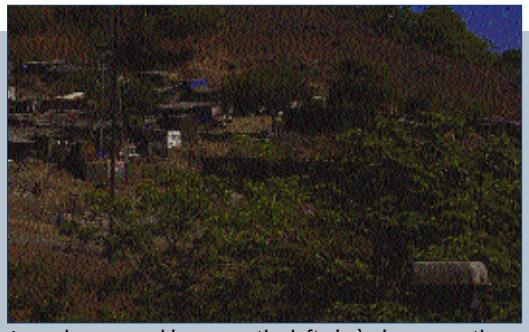
In Auto Mode, the camera basically selects a part of the image to determine the correct exposure value. Sometimes, though, it selects the wrong part, and your photo may turn out over- or under-exposed (depending on the selected area). To counter this, most cameras today let you change the wrongly-calculated exposure value using the EV (Exposure Value) compensation feature. The camera usually provides you with a slider operated by the 'navi' keys, and the EV compensation values range from -2 to +2 with incremental steps of 1/3.

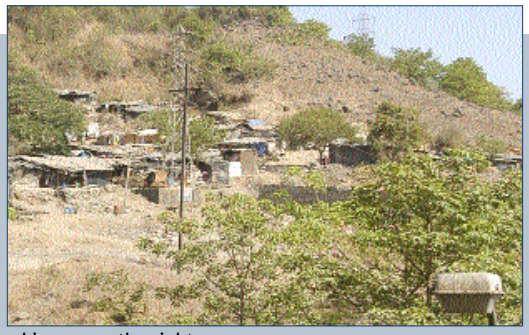
Flash Output Compensation

Some cameras even allow you to determine the power of your flash. This means you can control the amount of light the flash emits when you shoot. This is helpful when, due to confusing light conditions, the flash metering (calculated automatically) goes awry.

ISO

The ISO setting on your camera basically tells you how sensitive the camera sensor is to the light falling on it. Now, for regular film cameras, the ISO rating is on the film roll, but in digicams, the setting is related to the camera's sensor. As a thumb rule, the higher the ISO setting, the faster the shutter speed required. So, if the ISO setting is too high, you will start seeing a lot of noise and





An under-exposed image on the left vis-à-vis a correctly-exposed image on the right

Most prosumer cameras today let you shoot a photograph as close as 4 cm from the subject

Incorrect white balance leads to incorrect colours in the left image. The image on the right shows the image using the correct white balance, and therefore the correct colours

the image will become grainy. You therefore need to maintain the correct balance between ISO and shutter speed and aperture, as well as the exposure setting.

Macro Mode

Macro mode is used for extreme close-ups. When set in Macro mode, the camera will assume that the subject is extremely close, and will adjust the settings accordingly. Most prosumer cameras today let you shoot a photograph as close as 4 cm from the subject.

Metering

The "metering" in a digicam basically scans the entire scene, calculates the amount of light and then calculates the appropriate exposure value. There are three types of metering modes.

In the automatic mode, you just select the type of metering, and the camera will calculate the rest. The various methods of metering differ from each other depending o the way the scene is scanned for the determination of the exposure value.

Matrix or Evaluative Metering

In this kind, the scene is divided into different zones (like a matrix) which are then evaluated individually for the light availability and exposure requirements. Then the algorithm, which differs from camera to camera, calculates the correct amount of exposure.

Centre-Weighted Average Metering

This is the most common metering method, and is implemented in pretty much every digital camera. In this method, the camera scans and calculates the exposure for the entire scene, but the centre of the photograph is given a higher weightage than, say, the edges.

Spot (Partial) Metering

In Spot Metering, only a small area of the whole frame is metered and the exposure of the remaining frame is ignored. This is helpful when shooting portraits or close- ups of people.

Shutter Priority

This is similar to Aperture Priority except that in this case, you can select the shutter speed and the camera will automatically select the appropriate aperture setting.

Shutter Speed

This is the duration for which the sensor of the camera receives light. If you keep the shutter speed high, the camera sensor will receive light for a lesser time, and vice-versa.

Time Lapse

Some cameras can be programmed to take multiple photographs over a specified interval of time with a set time gap between each shot. This is mostly used for photography in astronomy, or for special photos like capturing the opening of a flower bud.

White Balance

In digital cameras, white balancing is done on a per photo basis. The camera decides the white balance for each photograph by scanning the image and taking a portion of it as a reference point.

This system can easily be fooled if the image is dominated by a single colour. For example, if you are shooting a room, and there's a bulb throwing yellowish light on a white wall, the camera will assume the wall to be white and calculate everything else based on that—and would get it wrong. So, the cameras of today let you change the white balance for such circumstances. The basic available modes include Sunlight, Tungsten (A and B), Indoor, Fluorescent light and others. ■

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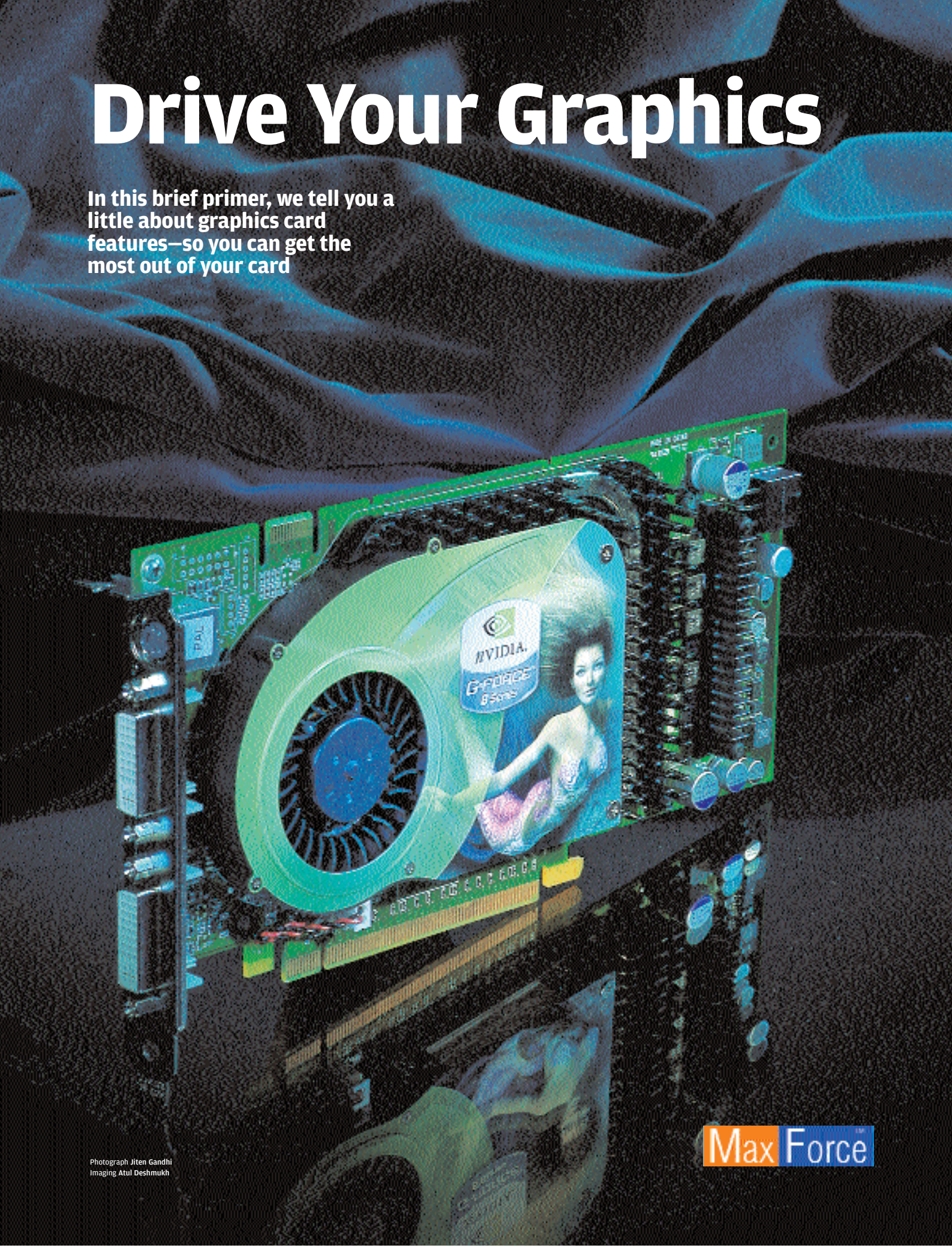
Drive Your Graphics

In this brief primer, we tell you a little about graphics card features—so you can get the most out of your card



Photograph **Jiten Gandhi**
Imaging **Atul Deshmukh**

MaxForce

There are two APIs using which games are developed. The first is DirectX, and the second, OpenGL

Aliasgar Pardawala and **Jayesh Limaye**

Graphics card drivers are software that help the card work seamlessly with the rest of the system, and can enable better performance. Graphics card vendors usually release updated versions of these drivers on a regular basis, so you can get that little extra from your card.

Many features and enhancements depend on the way drivers are written. Some games are specifically optimised for certain versions of drivers, and vice-versa. Here are some critical features to get more performance from your games.

There are two APIs (Application Program Interface) using which games are developed. The first is Microsoft's DirectX, of which Direct3D is a critical component. The second is OpenGL—Open Game Language.

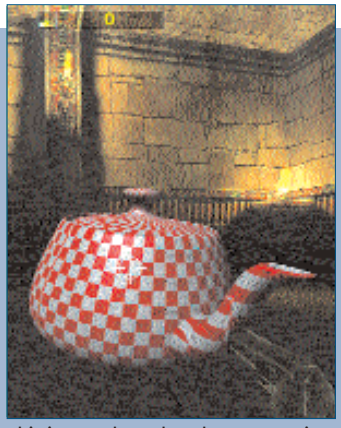
Games developed using either of these APIs use different sets of features, which can be enabled or disabled to improve quality and/or performance. We've classified the various features under 'Direct3D' and 'OpenGL'.

DIRECT3D

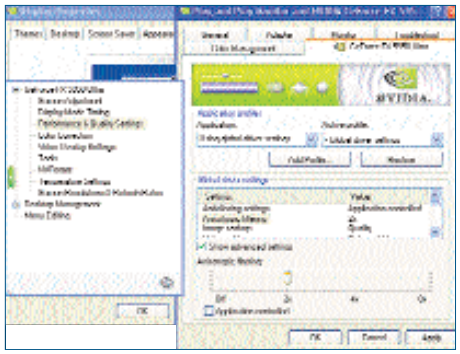
Bump Mapping

This feature—when enabled—allows textures to show depth. Tiles on the floor, or a tiled stone wall, will actually appear bumpy. This feature was introduced in DirectX 6 and thus, most current-generation games support this feature by default.

When enabled for older games, it will improve image quality, but reduce performance. This, again, depends on the game, and whether the game supports this feature. Games these days use two types of bump mapping—EMBM (environment mapped bump mapping), and DOT3 bump mapping.



This image shows how bump mapping is used to create the emboss effect on the kettle



Adust the Anisotropic Filtering in the nVidia control panel

EMBM can generate the bump mapping effect with intricate details such as the pock-marked surface of bricks, scratches on a metallic surface, realistic reflections on water ripples, and more. This was introduced in the Matrox G400 graphics chip for the first time back in 1999.

DOT3 bump mapping, also known as

Graphics Jargon

Anti-Aliasing

This is a technique that removes jaggedness at the edges of an object. Since it eats up lots of GPU cycles, a higher setting will lower the frames per second that you can get. Most cards are set by default to the lowest setting of 2x, and the 'Application Preference' option lets you define the setting from the game.

Anisotropic Filtering

This filtering technique—when enabled—lets you see distant objects clearly. A good example is a straight road. With this setting enabled, you will be able to see the texture even at the farthest point clearly. Similar to Anti-Aliasing, the lowest setting is 2x, and there is also the 'Application Preference' option. A higher setting of, say, 8x, will dramatically improve image quality, but will also adversely affect the output frames per second.

Texture Compression

This is a technique, using which, a compression algorithm built into the hardware of the graphics processor compresses and decompresses the texture data, which results in an increase in the effective bandwidth of the graphics data path between the graphics chip and the CPU.

This was developed by S3 for OpenGL applications, and was known as S3TC. It was later adopted by Microsoft and used in DirectX, and became known as DXTC (DirectX Texture Compression). This feature requires that the hardware be capable of supporting it.

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Branch Offices :
Ahmedabad - 079-6744384 Bangalore - 080-6545383 Chennai - 044-52137840/41/42
Delhi - 011-51602925 Gurgaon - 09810611008 Jaipur - 0141-5114305

With TCL Back Face Culling, objects not visible to you are removed. This means better performance at no decrease in graphics quality

per-pixel lighting, allows you to add high detail to surfaces or objects without increasing the number of polygons.

Dither Mode

This is a mode setting for ATi drivers that works in tandem with Alpha Blending. It is instrumental in deciding the wave pattern created by water bodies and other similar effects. Alpha blending, on the other hand, is used to impart the transparent look to water or glass.

When enabled, this will hit performance, but will make game scenes on a beach or when swimming look very real.

Pixel Shader Version

The latest generation cards from ATi support Pixel Shader 2.0, while those of nVidia support 3.0. However, by default, the setting is 'Driver Default'. There are other options such as 1.0, 1.1, 1.2, 1.3, 1.4, 2.0 and 3.0 also available.

A higher version of Pixel Shader can only be selected if your hardware supports it and if you have installed the latest version of the display drivers and the appropriate version of DirectX (e.g., Pixel Shader 3.0 is supported only in DirectX 9.0c). You can even lower the setting to get better performance, albeit at the loss of image quality.

Adust Anti-Aliasing in the nVidia control panel

Vertex Shader Version

This is similar to Pixel Shader, and choosing a lower Vertex Shader version will offer better performance.

TCL Back Face Culling

When you select this function from the driver, objects that are not visible to you are removed. This frees up a lot of bandwidth, which improves performance. This means better performance at no decrease in graphics quality!

OPENGL

3DNow!/SSE and SSE2

3DNow from AMD and SSE2 from Intel are optimisations built into the processors. Enable this feature to reap its benefits when playing OpenGL-based games—you'll get increased performance.

Adust the image quality here in the nVidia control panel

AGP Textures

If you haven't upgraded to a PCI-Express-based graphics card yet, and are still using an AGP interface-based graphics card, you should enable this setting. It provides OpenGL-based games access to your system RAM to store texture information when necessary. This option should be used if the card has about 64 MB of onboard RAM, and you are playing texture-heavy games such as *Doom 3* or *Far Cry*.

Video Memory Textures

When enabled, this only uses video RAM, and doesn't transfer texture information to system RAM. This feature should be enabled if your graphics board has more than 128 MB of RAM. However, cards with lower memory will experience a drop in performance if this feature is enabled.

Force 16-bit Texture

When enabled, this feature forces down colour depth from 32-bit to 16-bit. This improves performance but makes textures look flat. ■

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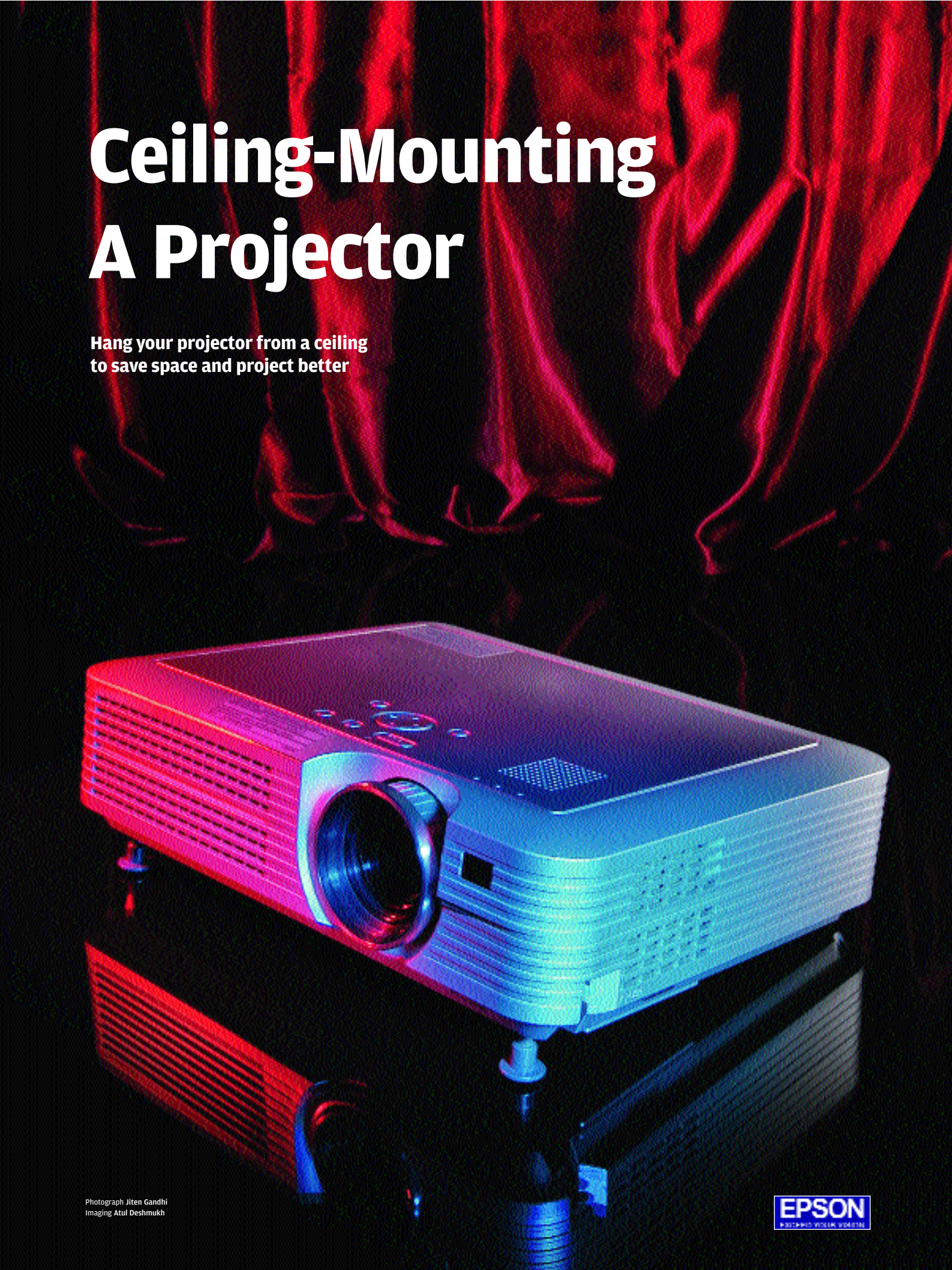
The above image is an example of how anisotropic filtering has been used to clearly display the floor tiles even at a long distance

Ceiling-Mounting A Projector

Hang your projector from a ceiling to save space and project better



Photograph **Jiten Gandhi**
Imaging **Atul Deshmukh**

EPSON

If you feel the screen size of a plasma display or a rear-projection television doesn't justify the price tag, the best answer is a projector

Aliasgar Pardawala

Home theatres are all the rage now, as prices of the plasma displays and sound systems have dropped to affordable levels. But if you feel the screen size of a plasma display or a rear-projection television doesn't justify the price tag, what alternative do you have?

The best answer is a projector. Projectors are compact compared to rear-projection televisions or plasma displays, and the screen hangs on a wall—hence not occupying any floor space.

The only problem is the position of the projector: it has to be in front of the screen. This will leave you with the option of either sitting behind the projector or beside it.

Sitting behind the projector can be troublesome because of the noise of the fan and the bright light from the lamp.

A typical ceiling mount attachment

You can free the table space and reduce cable clutter by fixing the projector on the ceiling.

This will eliminate the problems that you might have faced, had the projector been placed on the centre table or in a bookshelf. Also, mounting the projector on the ceiling will help in better air flow, but this will depend on the design of the mount as well.

A bad design might block the air flow and damage the components or reduce the lamp life, and lamps are expensive.

A ceiling mount for a projector is also useful in boardrooms where you need to have a fixed projector for presentations. Here, we help you to perform the mounting task all by yourself.

A projector with ceiling attachment

STEP 1 At present, there are no specific standards on adhering to dimensions for the ceiling mount. You will have to get one that will work with your projector.

The right place to enquire for your model-specific ceiling mount is, of course, the vendor from whom you purchased the unit. Since ceiling mounts are not readily available, there may be a waiting period before you can get one.

STEP 2 The ceiling mount is not a single unit. In most cases, it is either in two (or a maximum of three) pieces—two plates and an arm.

The first plate with the drilled hole will exactly match the four drilled and taped holes at the bottom of the projector. If the mount is brand and model-specific, be rest assured—you will get a smooth fit.

If you get a universal ceiling mount, you will need to adjust the plate to match the mount holes at the back of the projector. There are several designs available, for example, a single plate with many drilled holes so that it can match a wide variety of projector models.

Alternatively, use four flexible arms instead of a plate, so that you can move it to the position exactly over the mount holes on the projector and fix it.

Fix another plate on the ceiling securely, as this plate is the one that will bear the weight of the projector and the mounting arm.

STEP 3 Fix one side of the flexible arm first to the ceiling plate, and then

Buying Tips

Some considerations to bear in mind when selecting a projector

LCD vs DLP
- Differences are minimal for most educational uses
- Better contrast ratios of DLP may be better suited for high ambient light situations

Image features
- Check the brightness first and then the contrast ratio
- Match the resolution of projector to that of the computer
- Consider short throw distance and keystone correction as extra features

Connectivity
- Wireless connectivity is the latest new feature in projectors
- Wireless is useful for rapidly switching between multiple inputs

Size
- While smaller projectors provide flexibility, it is at the cost of some advanced features and physical security

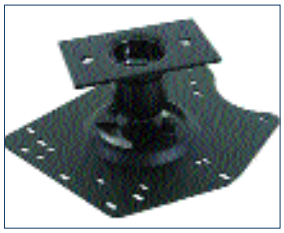
Educational features
- Blackboard mode helps compensate when projecting without a screen
- Bundled document cameras can project paper and 3-D objects
- Copy-boards can be used for annotating and saving images

You can use the flexible arm to correct keystone errors

fasten the projector with the mount plate to the other end of the arm. Once this is done, you are through with the fixing part.

STEP 4 Switch on the projector. We're assuming you have taken care of the cabling part, as you will need a longer cable—both video and power—to plug in your video source (such as a DVD player) to the projector and power it up. Since the projector is ceiling-mounted upside down, the first time you'll see the company logo or a wallpaper upside-down on the screen.

To correct this, click the menu button on the projector and go to 'Options'. Here, you will see an option that reads similar to 'Desk/Ceiling Mount'. By default, this is set to 'Desk'; change it to 'Ceiling Mount'.



Different kinds of ceiling mount attachments

Align the screws of the ceiling mount exactly with the drilled holes at the back of the projector

Epson EMP-SiH

STEP 5 You will now need to adjust the focus and the zoom for image sharpness, and also perform keystone correction such as trapezoidal and rotation corrections.

Since the flexible arm can roll, pitch and yaw (swivel in three dimensions), you can use it to correct keystone discrepancies. In fact, you can also use software to achieve the same effect.

Now, you view your favourite movies large and clear, without having the projector as your immediate neighbour! ■

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How To Buy A Projector

Some dos and don'ts of buying a projector:

LCD Or DLP: If your usage is more document-oriented rather than multimedia-oriented, you won't notice much difference between DLP and LCD projectors. The higher contrast ratios offered by DLP make it much more convenient to use your projector in less-than-ideal light.

Brightness: The brightness is an extremely important aspect of a projector's performance. As a thumb rule, the brighter the projector, the better the image. In most cases, for a regular room, a 1000-lumen projector will work just fine. For a larger room or a larger size of the projected image, a brighter projector is required, because the larger the image, the dimmer it appears. Conversely, as your room grows dimmer, the image projected becomes brighter and clearer.

If you cannot buy a brighter (read: more expensive) projector, then investing in a high-quality screen with high reflectivity is advised, as this will reduce the dimness of the image to a large extent. If you plan to use your projector primarily for PowerPoint presentations and for watching movies, you really don't need a really bright projector, as the amount of detail required to be shown here is fairly low.

However, if you plan to use it for graphics and Excel spreadsheets that require a higher amount of detail, you need to get a brighter projector. As a general rule, the higher the brightness, the lesser the life of the projector. Almost all projectors will let you adjust the brightness, as a lower lumen value can significantly enhance the lamp life.

Contrast Ratio: A higher contrast ratio allows you watch your movies with ease even in less than optimal light conditions. Also, a higher contrast ratio will improve colour shading. A low-end projector can make up for its relative lack of brightness by having a higher contrast ratio.

Resolution: The higher the resolution, the higher the price. The most common projector resolutions are 800 x 600 and 1,024 x 768, but you do get 1,280 x 1,024 and 1,600 x 1,200 projectors that are very expensive and meant for specialised uses.

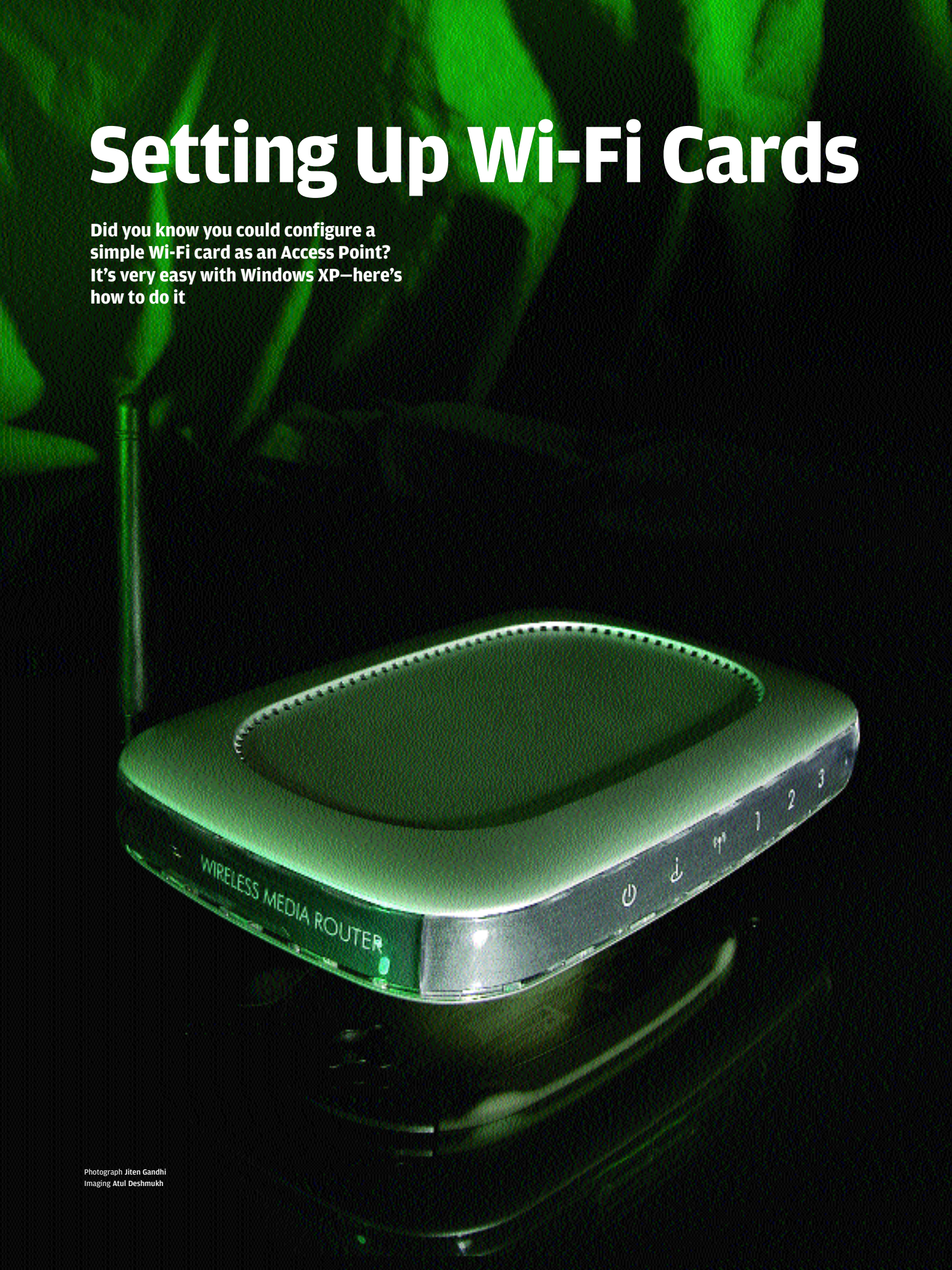
Throw Distance: The further you move a projector from a wall, the larger the screen area is. However, some projectors are equipped with wide-angle lenses that provide large image projections even if they are at a small distance from the screen—useful in places where there isn't too much space available.

What You Can Connect It To: It is advisable to have as many additional inputs as possible. Modern projectors incorporate multiple video and audio inputs such as digital input, HDTV input, S-video and composite inputs. Apart from these, if your projector has WiFi connectivity, so much the better.

Size Matters: These days, you can get projectors as light as a laptop, though much thicker. It is, of course, advisable to get a projector that can be easily carried, but the smaller and more powerful the projector, the more expensive it is.

Setting Up Wi-Fi Cards

Did you know you could configure a simple Wi-Fi card as an Access Point? It's very easy with Windows XP—here's how to do it



Photograph **Jiten Gandhi**
Imaging **Atul Deshmukh**

It's easy to get an Access Point or router and set up a connection, but that can be pretty expensive

Aliasgar Pardawala and **Varun Dubey**

Don't you wish you could access stuff on your PC—and indeed, your broadband connection—from your laptop, without going through the hassles and the mess of metres of wires?

It's very easy to get an Access Point or router and set up a connection, but remember it can be pretty expensive.

The following is a step-by-step explanation of how you can turn your Wi-Fi card into an Access Point, and thus share data and an Internet connection over it.

What's more, this is no tougher than taking time out on a lazy weekend to go shopping for an expensive and wholly unnecessary device!

Setting Up A Wi-Fi Card As An Access Point

Access points cost over Rs 5,000—an investment that doesn't make sense for a very small setup of, say, two PCs. There are cheaper alternatives that will be easier on your pocket. By 'cheaper alternative', we mean Wi-Fi cards, which can be PCMCIA-based for laptops, or PCI-based for desktops.

In the following steps, we take you through the process of configuring a Wi-Fi card as an Access Point to which wireless clients can connect—and subsequently share an Internet connection and access shared resources.

We used the SMC2802W PCI-based Wi-Fi card plugged into a desktop PC. It was configured as an Access Point to which Wi-Fi clients connected.

STEP 1 Installing The Card

Switch off your system and remove the side cover. Locate an empty PCI slot. Plug in the Wi-Fi card. Close the cabinet and attach the detachable antenna to the card.

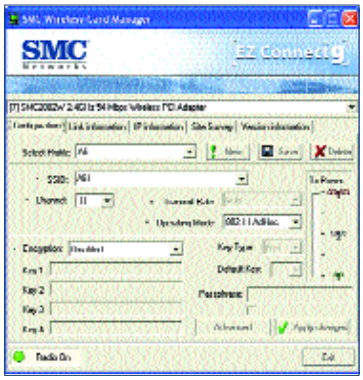
Since Wi-Fi uses radio signals, line of sight is not an issue—but at the same time, make sure that the antenna is not in a corner; this might affect performance.

STEP 2 Installing The Drivers

Boot the system, and the card will be detected. Install the driver and utility that comes on the CD. You might have to restart the machine depending on the driver's requirements.

STEP 3 The Configuration Utility

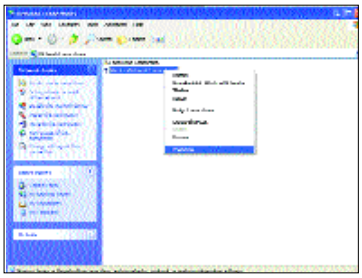
The utility installed for the card is where you can do most of the setup from. Since different manufacturers design their utilities differently, you will have to look at the different tabs on your card's utility to get the hang of it. It's pretty simple with most cards—you can initialise the configuration/monitoring utility from the 'Start Menu' or from the Taskbar.



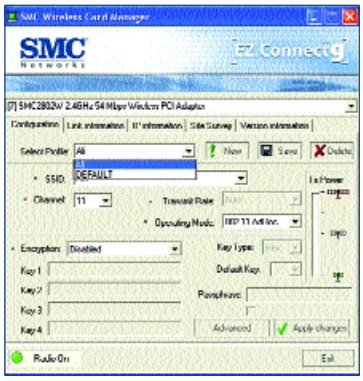
Configuring your Wi-Fi card

STEP 4 Create A New Profile

In the utility, you will need to create a new profile. Give it an appropriate name, and under the SSID field, type in "New SSID", or anything else. Leave the channel to its default value, which is 11 in most cases if you have just one Wi-Fi setup. Save this profile and exit the utility.



View your network properties



Creating a Wi-Fi profile

STEP 5 Producing An IP Address

You will need to give the network an IP address. To do this, go to the 'Control Panel' and click the 'Network Connections' tab. Select 'Wireless Connection' and right-click it.

In the window that pops up, click 'Properties'. This will open a new 'Wireless Network Connection Properties' window, where you'll see a TCP/IP field.

Highlight it and click the 'Properties' button. This will open a window where you can assign the IP address, subnet mask and DNS server.

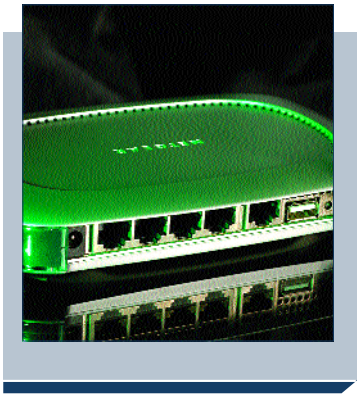
The technique of 'driving' around town looking for Wi-Fi hotspots is termed as 'war driving'

Give an appropriate IP address and click on the subnet mask field once. This will fill the empty field with a subnet mask. Click 'OK' and exit the Control Panel.

Check your IP information

Your network SSID

If all the settings are correct, you should be able to see the SSID—the one you typed in—highlighted in the utility after it scans for an available network.



When you see the SSID highlighted, your Wi-Fi card has successfully been set up as an Access Point! ■

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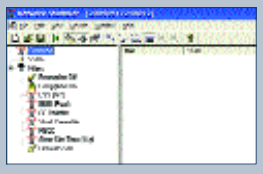
War Driving

NetStumbler is a neat tool made for the purpose of network scanning, and is a great addition to the arsenal of any network administrator worth his salt. This freeware utility is available for download from www.stumbler.net. It scans the surrounding area for available wireless connections within reach.

Note, however, that just by scanning, you cannot expect to log on and surf using that connection.

Using the utility is fairly simple. Install and run the utility, and click on the button on top that's shaped like a 'play' button. This will start the 'Scan' mode for NetStumbler, and it will start scanning and recording data.



NetStumbler's default view

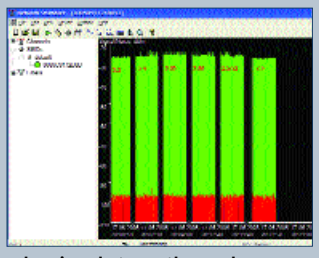
The information provided is quite descriptive. It tells you about the signal strength, and whether or not any encryption (WEP) is used. The SSID, too, is displayed.

The display of the signal strength is particularly helpful for network administrators, as you can go around with a laptop and locate and mark dead spots or areas of poor signal strength.

In fact, the advent of pocket PCs prompted the author of NetStumbler to come out with a version that works with hand-held PDAs that have Wi-Fi built in. This is called MiniStumbler, and can also be downloaded from www.stumbler.net.

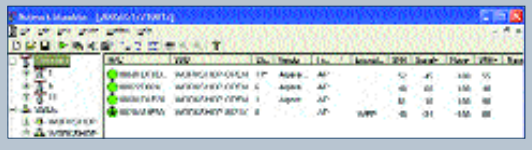
Windows XP can natively display signal strengths, but the information is not as accurate as that provided by NetStumbler.

With NetStumbler, you also have the option of using GPS. If you have a Wi-Fi card with GPS capabilities, then you can run NetStumbler, enable GPS, and it will pinpoint the location of the Access Point!



The signal strength graph

The device requires absolutely no user input (apart from the click at the start!) and you can keep it running in the back seat of your car while you drive around the neighbourhood scouting for Wi-Fi hotspots.



Available active APs show up

The technique of 'driving' around the neighbourhood looking for Wi-Fi hotspots is termed as 'war driving'. Whether war driving is ethical is an ongoing debate: say you leave your house door open—intentionally or unintentionally; are you thus inviting people to take what they want from inside?

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Basic Keyboard Shortcuts

[Ctrl] + [Spacebar] removes all style formats from highlighted text
Superscript: [Ctrl] + [=]
Subscript: [Ctrl] + [Shift] + [=]
Small Caps: [Ctrl] + [Shift] + [K]
[Ctrl] + [Shift] + [F] accesses the font menu, the arrow keys select what you want, and [Enter] changes the selected text to that font
[Ctrl] + [Shift] + [P] accesses the font size menu, the arrow keys select the size, and [Enter] enables the change
[Ctrl] + [Shift] + [>] increases the font size by half a point
[Ctrl] + [Shift] + [<] decreases the font size by half a point
Move between the current page view and actual size view: [F9]
Check spelling: [F7]
Copy formatting: [Ctrl] + [Shift] + [C]
Paste formatting: [Ctrl] + [Shift] + [V]
Return character formatting to the current text style: [Ctrl] + [Spacebar]
End one line and begin another without starting a new paragraph: [Shift] + [Enter]
Begin a new paragraph: [Enter]
Nudge to the left: [Alt] + [Left Arrow]
Nudge up: [Alt] + [Up Arrow]
Add a page after the current page: [Ctrl] + [Shift] + [N]
Move between the background and the foreground page: [Ctrl] + [M]
Go to page: [F5]

Changing The Page Size

You can start a new document of any page size, and even change an existing document to any page size you like. All you need to do is go to **File > Page Setup**, and under 'Choose a Publication Layout', select 'Special Size'.

Under the option 'Choose a Publication Size', select 'Custom'. You may then enter the physical dimensions of your printed piece making sure the orientation is correct. Once you finish, click 'OK'.

The Nudge Option

In order to achieve a high degree of control over the positioning of objects on the page, use the 'Nudge' option. Just select the object you need to move and use [Alt] + [Arrow key] (up, down, right, or left), and your object will move one pixel for each keystroke. Use **Arrange > Nudge** to change the increment of movement.

Add a Reply Form To A Publisher 2000 Publication

Reply forms make it easy for your readers to respond to a survey, sign up for an event, or place an order. Add a reply form from the Publisher 2000 Design Gallery to your brochures, newsletters, catalogues, Web sites, or other similar publications.

In order to add a reply form to your publication, go to **Insert > Design Gallery Object**. Under 'Categories', click 'Reply Forms'. Now, double-click the reply form you want. Drag the reply form to the desired position in your publication, and resize if necessary. Be sure to replace any placeholder text, such as "First Question" and "Answer A", with the appropriate text.

Use The Design Checker To Check For Missing Text

Missing text often occurs when you resize a text frame after inserting text, or when you add a graphic that pushes text into an adjacent text frame. Adding a continued notice to a text frame can also cause missing text. Publisher indicates that text is missing by showing the text in the 'Overflow' symbol at the bottom of a text frame when the frame is selected. Use the Design Checker to check your publication for missing text. It analyses your publication, stops at every text frame that contains text in the overflow area, and also suggests possible solutions.

To run the Design Checker, go to **Tools > Design Checker**. To check your entire publication, click 'All'; or, to check specific pages, click 'Pages', and then type the page numbers in the 'From' and 'To' boxes. Click 'OK'.

Publisher checks the design, and displays a dialog box if it finds a problem. If you want to fix the problem, go to the publication, and make your changes; you don't have to close the 'Design Checker' dialog box. When you've finished, click 'Continue' to have Publisher continue checking your publication. If you don't want to fix the problem, click 'Ignore' or 'Ignore All', and click 'Continue'. Click 'OK'.

Get Your Publisher Files Together

When you take your publication to another computer, you can be sure it looks the same on the other computer as it does on yours by including the fonts and graphics you used in your publication with the files you save. When you use the Pack and Go Wizard to pack your files, Publisher can include both fonts and graphics with your files.

If you are taking your files to another computer on disk, Publisher automatically compresses and splits your files so they fit on multiple disks. Publisher also includes a program to unpack your files on the other computer. To start the Pack and Go Wizard, go to **File > Pack and Go**, and then click 'Take to Another Computer'. The Pack and Go Wizard takes you through each step of the packing process.

Keep An Object's Centre In The Same Place

To keep the centre of an object in the same place in your publication while you resize the object, click the object, then hold down [Ctrl] while you resize the object. Release the mouse button before you release [Ctrl].

Apply Text And Graphics Formatting Multiple Times

If you have ever wanted to make several non-sequential words stand out by using a special font, or have ever wanted to change certain solid lines to dotted lines in graphics created with the drawing tools, you might not realise how easy it is.

Instead of clicking the 'Format Painter' button on the Standard toolbar every time you want to apply the new format, you can take advantage of the button's 'sticky' feature.

First select the item whose format you would like to copy. To copy the selected

format to several items, double-click the 'Format Painter' button. The button stays selected, or 'sticky'. Select the text or graphic where you want to apply the new format. When you have finished applying the format, click the 'Format Painter' button again or press [**Esc**].

Change How Text Wraps Around A Graphic

You can adjust the amount of whitespace between text and a piece of clip art, scanned photographic image, or any other graphic in Publisher.

To change how text wraps around a graphic, click the graphic. On the Format menu, click 'Picture Frame Properties'. Click 'Picture Only'. Click 'OK'. On the Formatting toolbar, click the 'Edit Irregular Wrap' button. Grab the picture handles that surround the graphic until the space between the text and the graphic is the way you want it.

To add additional Adjust handles, hold down [**Ctrl**] and click where you want the new handle to appear. To delete a handle, hold down [**Ctrl**] + [**Shift**] and click the handle. Once that is completed, click anywhere on the page.

Make Alignment A Snap

Align objects in Publisher without hassling over your mouse. Click **Arrange > Rules guides** and choose either 'Add Horizontal Ruler Guide' or 'Add Vertical Ruler Guide'. To move the guide, hold [**Shift**] and drag the guide to the position you want. Click **Tools > Snap to Guides**. Now any object you move near the guide will snap to the grid and be automatically aligned.

DREAMWEAVER

Close Some Panels

Dreamweaver by default comes with all the panels (or 'palettes') open, taking up all the space on your screen, and making the program hard to use. Since you need only a few of these panels, open the panels listed below and close all others (all panels are listed in the Window menu. You can always open them again later through the Window menu). So, keep the following panels open: Objects, Properties, Site Files, CSS Styles, History.

HTML Styles

Don't use 'HTML Styles'. HTML Styles aren't real stylesheets; they are good only for one-time formatting. If you use real style sheets—CSS (Cascaded Style Sheets) Styles—you can change a style anytime you want and the change will be automatically applied to every instance of the style.

Add An Extra Space Between Items

To add an extra space between items in a bulleted list, place your cursor at the end of the item and press [**Shift**] + [**Enter**] twice. This adds two <BR> tags after the list item instead of adding another <LI> tag. Or, if you are familiar with CSS, control the spacing in your style sheet.

Break Out Of A List

Pressing [**Enter**] when in a list gives you a new bullet instead of a plain paragraph. With your cursor at the unwanted bullet, go to the 'Properties' panel, and deselect the bulleted list button. Also, deselect the numbered list button for numbered lists.

Add Space Around Items In A Table

Select the whole table (the easiest way is to click on the <table> tag in the bottom of the Dreamweaver window). With the table selected, go to the 'Properties' panel, increase the cell padding and cell spacing until the table looks the way you want it to appear.

Break Only To The Next Line

Unlike a word processor, Dreamweaver inserts 'two paragraph spaces' (two lines) when you press [**Enter**], as Dreamweaver is writing HTML as you type, and HTML works a little differently. Pressing [**Enter**] creates a paragraph (<P>) tag, leaving a blank line after the preceding paragraph. To break to the next line without creating an extra line space, press [**Shift**] + [**Enter**], which creates a break (<BR>) tag.

Controlling The Size Of A New Window

A new browser window is usually the same size as the original browser window containing your site. This can be confusing for some novice Web users.

To make navigation as simple and straightforward as possible, you may want to set the new browser window to a smaller size. You can do so using the 'Open Browser Window' behaviour. To use the behaviour, choose **Window > Behaviors** to display the 'Behaviors' palette. Then, select the link in your HTML document.

Next, select 'Open Browser Window' from the 'Behavior' menu. In the resulting dialog box, enter the URL of the link and set the desired width and height of the new window. Click 'OK'. At this point, when the user clicks the link, a small window opens with the linked page.

Allowing The User To Resize A Window

Dreamweaver makes it very simple to set the new window so the user can resize it. Simply use the 'Open Browser Window' behaviour. To do so, choose **Window > Behaviors**. In the 'Behavior' palette, choose 'Open Browser Window'. In the resulting dialog box, now select the 'Resize Handles' checkbox.

Viewing The Head Section

Dreamweaver places a Title and a Metatag element in the Head section of an HTML document. These elements are normally invisible while you view the page in Dreamweaver WYSIWYG (What You See Is What You Get) mode.

However, you can set Dreamweaver to display elements in the Head section of your HTML document. To do so, choose **View > Head Content**. Dreamweaver creates a frame in the page window and displays the items in the Head section. Now, you can add, modify, or delete these items.

To modify an item, first choose **Window > Properties** to display the 'Properties' palette. After that, select the 'Head' object and modify the values displayed in the 'Properties' palette.

Cleaning Up Word HTML Documents

Microsoft Word can save documents in the HTML format. However, the HTML, XML, and CSS code that Word generates is geared more to format and display documents in Word than to display the HTML file in a typical Web browser. Because of its complexity, it's a good idea to clean up the Word-generated HTML code.

Moreover, Dreamweaver can instantly remove the extraneous Word-generated HTML code. To do so, launch Dreamweaver and choose **File > Import > Import Word HTML**. In the resulting dialog box, select your Word-generated HTML file and click 'OK'.

At this point, you can choose to customise the cleanup process by selecting options from a series of checkboxes that Dreamweaver displays in the 'Clean Up Word HTML' dialog box.

When you are ready, click 'OK'. Then, Dreamweaver scrubs the imported Word HTML document clean of the Word-generated HTML code.

Bet You Didn't Know

Make Text Wrap Around An Image

Place the image just before the text (whether you want the image to sit on the left or right of the page). Then, select the image. In the 'Properties' panel, select either 'Align Left' or 'Align Right'.

30 Minutes Expert

Creating Your Own RSS Feed

With a program that reads RSS feeds you can add more traffic to your portal or blog

Varun Dubey

RSS stands for Really Simply Syndication, and allows you to do just that—distribute headlines and other Web content.

A family of XML file formats for Web syndication, RSS is used by news Web sites and Web slogs. With Firefox clocking nearly 50 million downloads and incorporating native RSS feed support, no Web site or blog owner can afford to ignore the power of RSS (kindly ignore any political connotation)!

There are many Web sites (for instance, www.feedforall.com) that do it for you for free. But if you are the do-it-yourself technology buff (we know you are dear reader!), we will teach you how to create your very own RSS feed from scratch! As they say, no pain, no gain!

STEP 1 The Essentials

You need to have a simple text editor, (even notepad will do the job), and of course, a Web site or a blog!

STEP 2 The Code

There is no need to feel apprehensive at the mention of the word 'code', it's extremely simple and if you know HTML, it's ridiculously easy! Here is a sample of a simple RSS Script—

```
<rss version="2.0">
<channel>
<title>Nutswork:Latest Stuff</title>
<link>http://www.nutswork.net</link>
<description>Ferrari News</description>
<image>
<title>Ferrari News</title>
<url>http://www.nutswork.net/logo.gif</url>
<link>http://www.nutswork.net/</link>
</image>
<item>
<title>Imola Race Results</title>
<description>The Race Results for the 2005 San Marino Grand Prix</description>
<link>http://www.nutswork.net/f1/2005/imola/race.html</link>
</item>
</channel>
</rss>
```

STEP 3 Understanding The Tags

The first tag is the <rss> tag, where you specify the standards of coding to which the script conforms. We will be using the latest standard—'2.0'.

The second tag is <channel>. This tag incorporates all the data of your RSS feed. The <title>, <link> and <description> tags tell the feed reader the topic your feed pertains to, and the Web site with which the feed is associated.

All tags discussed so far are mandatory but the <image> tag is optional. If you don't put this in your RSS file, you will simply get a text-only feed, which is ok but it's better to have your Web site icon on the feed!

We now come to the part you will be editing frequently—the headlines you want visitors to notice! Every headline in your feed is wrapped inside the <item> tag.

Inside, you have the <title> tag. Whatever you put in here will be seen by subscribers to the feed. If you have used the RSS feed reader in Firefox, then it's the content in this tag that's visible when you click on your bookmarks.

Next, you have the <description> tag. This is a brief description of the article that the <title> tag links to. Then of course, you have the <link> tag, the link of the article. Finally, you have the closing tag for the headline as </item>. You can also repeat the <item> tag for as many items as you want, to get as many headlines you require.

Every time you would like to add a new headline, just add a new <item> tag on top of your earlier <item> tags. See to it that you don't add too many headlines without removing the earlier ones as this could make your feed too big and slow it down.

'Live bookmarks': Automatic RSS feeds

STEP 4 Optional Elements

So far, all the aforementioned elements are required for your feed to work properly. There are quite a few elements that you can add. Consider, <author>. You can put your email address in this tag.

Similarly you can have <pubDate> to signify the publication date. At the same time, keep in mind that the date must conform to the time specifications of RFC 822, i.e., it should be in the following format:
Sun, 22 Aug 1983 00:00:01 GMT

STEP 5 Adding It To Your Web Page

Since RSS is essentially an XML (eXtensible Markup Language) file, we need to tell the RSS reader as much. Hence, you should add the following as your first and foremost line in the document:
<?xml version="1.0" encoding="utf-8" ?>
Note: This tag is not closed in the end i.e., there is no </xml>

Next, you need to save this file with an xml extension. Say, myfeed.xml

Now that your feed is ready, your next goal is to tell Web browsers that it exists! So you need to incorporate the following lines into the <head> tag of your Web page—
<link rel="alternate" type="application/rss+xml" title="My RSS Feed" href="http://www.nutswork.net/myfeed.xml">
Whatever you put in the title=" " field is displayed when someone clicks on your subscribe button.

That's all there is to it really! Your RSS is ready to roll! Or should we say, you can now Roll Your Rss!

If you have incorporated it in your Web page header, then you need not worry as compatible browsers will detect it automatically.

However, for users of IE (since IE does have an in-built RSS reader), you need to show them your feed.

To do this, you can download any of the available RSS or XML images available online, and put the location of your RSS file as the image link.

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MS EXCEL

Sort By More Than Three Columns

Excel's sort feature only allows it to nominate up to three columns to sort by. The key to this is sorting by the last key first and working back to the first key. Say your data is in Columns A:E, and you want to sort by A, B, C, D then E. Select all the columns A:E. Go to **Data > Sort > Sort by C then by D then by E**. Click 'Sort'. Now again with Columns A:E selected, go to **Data > Sort > Sort by A then by B**. Click 'Sort'.

Entering Named Ranges Into Formulas

When you write a formula, sometimes you want to use a Named Range as one of the arguments for the formula, but you cannot remember the name.

In these cases, simply press [**F3**] when you reach the argument that you want the Named Range in, and Excel will display the 'Paste Name' dialog. Click the name you want, and click 'OK'.

Catching Formula Errors

Whenever typing one of Excel's functions, especially nested ones, into a cell, use lowercase. This way when you press [**Enter**], Excel will capitalise only the names of the functions you have entered correctly.

Transpose Formulas Without The Reference Changing

In cell A1 of sheet 2, put "=Sheet1!A1". Copy this a maximum of 255 rows. Now with the formulas selected, go to **Edit > Replace**, and Replace "=" with "#". Now select and copy cell B1, go to **Edit > Paste special**, and choose 'Transpose'. Delete column A, and with row 1 selected, go to **Edit > Replace**, and Replace "#" with "=".

Display Or Hide Scrollbars

Go to **Tools > Options > View**. Select or clear the 'Horizontal scroll bar' checkbox and 'Vertical scroll bar' checkbox.

Add Colour To Sheet Tabs

First select the sheets you want to colour. On the 'Format' menu, point to 'Sheet', and then click 'Tab Color'. You can also right-click on the sheet tab and then click 'Tab Color'. Click on the colour you want and click 'OK'.

Four Conditional Formatting Options

Conditional formatting in Excel allows for three conditions. However, by setting up conditions correctly—from least to most restrictive—you can really allow for four conditions, when the default formatting of the cell is considered.

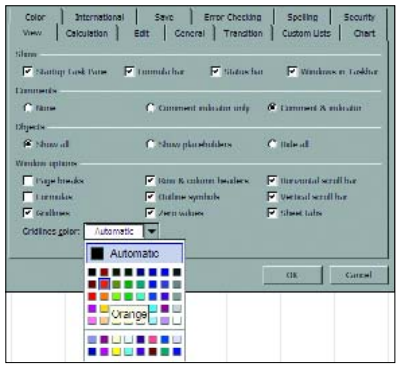
For example, say you want to add colour to your data in the following manner. You have four ranges, with fill colours Red, Yellow, Green and Black respectively. The four ranges are "Less than or equal to -25", "Between 0 and -25", "Between 0 and 25", and "Over 25". This can be achieved by doing the following.

First select your range of cells. Click 'Conditional Formatting' on the 'Format' menu. Under 'Condition 1', in the first two boxes, choose 'Cell Value Is' and 'less than or equal to' respectively. Then type the value "-25" in the third box. Now click the 'Format' button, choose a red fill colour from the 'Patterns' tab, and click 'OK'. Click 'Add'. Under 'Condition 2', choose between in the second box, type the values "0" and "-25" in the third and fourth boxes, and then choose a yellow fill format. Click 'Add' again.

Under 'Condition 3', choose 'Between' in the second box, type the values "0" and "25" in the third and fourth boxes, and then choose a green fill format. Click 'OK' to close the 'Conditional Formatting' dialog box. Finally, while your range is still highlighted, choose a black fill from the colour palette. Your range is now pseudo-conditionally formatted to cover all four cases!

Change Cell Background Colour Using VBA

To modify the background colour of a cell using Visual Basic for Applications (VBA), you need to use the 'Interior' property of the cell, and then you can use ColorIndex (to use one of the 56 'preset' colours in Excel) in this way, for example: ActiveCell.Interior.ColorIndex = 36 Instead of 'ColorIndex', you can use 'Color'. In this example, you are colouring cells A1 through A6: Range("A1:A6").Interior.Color = RGB(200,160,35)



Changing gridline colour in Excel

View Multiple Sheets Or Workbooks

To view multiple sheets or workbooks at the same time, open the workbooks you want to view. To view multiple sheets in the active workbook, click 'New Window' on the 'Window' menu. Switch to the new window, and then click a sheet you want to view. Repeat for each sheet you want to view. On the 'Window' menu, click 'Arrange'. Under 'Arrange', click the option you want.

In order to view sheets in only the active workbook, select the 'Windows of active workbook' checkbox.

Change The Colour Of Cell Gridlines

Select the sheets on which you want to change the gridline colour. Go to **Tools > Options**, and then click the 'View' tab. Under 'Window options', click the colour you want in the 'Color' box. To use the default gridline colour, click 'Automatic'.

Change The Hole Size In A Doughnut Chart

Click a data series in the doughnut chart you want to change. On the 'Format' menu, click 'Selected Data Series', and then click the 'Options' tab. In the 'Doughnut hole size' box, type a value between 10 and 90 to specify the diameter of the hole.

Change The Plotting Order Of Data Series

Click a data series in the chart you want to change. To change the plotting order of data series in a surface chart, click a legend key. On the 'Format' menu, click 'Selected Data Series' or 'Selected Legend Key', and then click the 'Series Order' tab.

In the 'Series order' box, click the series you want to move. To place the series in the order you want, click 'Move Up' or 'Move Down'.

Change The Cell Range A Chart Is Based On

Click the chart you want to change. On the 'Chart' menu, click 'Source Data', and then click the 'Data Range' tab. Make sure the entire reference in the 'Data range' box is selected.

On the worksheet, select the cells that contain the data you wish to appear in the chart. If you want the column and row labels to appear in the chart, include the cells that contain them in the selection.

MS OUTLOOK

Display Non-consecutive Dates

The Outlook Calendar displays dates consecutively—usually in single week or month view. But sometimes it's useful to see several non-consecutive, key dates at a glance. For example, if you met with the same client on January 12

and 19, March 31, and April 4, you might want to view those dates in a single pane, giving you easy access to meeting summaries, attachments, and lists of attendees.

To view non-consecutive dates, on the right side of the window in the Date Navigator (the small calendar that displays the current month), click the first date you want to view. Then, while holding down [**Ctrl**], click any other dates you want to view. To remove a date, click it again.

You can display up to 14 non-consecutive days.

Save Multiple Attachments Simultaneously

When you receive an Outlook message containing several attached files, you don't have to open and save each file separately. You can save multiple attachments to the same location in a single step.

Click 'Save Attachments' on the 'File' menu. When the 'Save All Attachments' dialog box opens, click OK. Then select the folder where you want to save the files, and click 'OK'.

When you use this shortcut, you must save all the files to the same folder. To save each attachment to a different folder, you will need to save them individually.

Calendar-Viewing Shortcuts

In Outlook Calendar, do the following:

Press [**Alt**] + [-] to display the current week.

Press [**Alt**] + [=] to display the current month.

Use vCards

Outlook supports the use of vCards, the Internet standard for creating and sharing virtual business cards. By adding a vCard to your e-mail signature, you can easily include your business contact information with every e-mail message you send.

If you receive a vCard and would like to save the information it contains, simply double-click it, and it will open as a contact item that you can easily save to your Contacts folder.

To include a vCard with your e-mail signature, go to **Tools > Options**, and then click the 'Mail Format' tab. Under 'Signature', click 'Signatures', and then click 'New'. Select the options you want, and then click 'Next'. Under 'vCard options', select a vCard from the list or click 'New vCard from Contact'.

Get Rid Of Space-Stealing Files In Outlook

When it's time to clean up their mailboxes, most people have trouble finding and deleting the messages that take up the most space, such as those with large attachments. Here's a fast way to expose the space stealers hiding in your Outlook folders.

To create a customised search file in Outlook, go to **Tools > Advanced Find**, and then click the 'More Choices' tab. In the 'Look for' box, click 'Messages'. In the Size list, click 'greater than', and then type a number such as 500 (for files that are 500 kilobytes or larger). Select the remaining search options you want, and click 'Find Now'.

When the search is complete, you can save it as a shortcut. Here's how: click 'Save Search' on the 'File' menu of the 'Advanced Find' dialog box, and save it somewhere you can find it easily later, such as your desktop. Then, the next time you want to run this search, just double-click the shortcut.

Colour-Code Your Calendar

In your Outlook Calendar, you can use colours to help you manage your appointments. For example, you can choose colours with predefined labels such as "Personal", "Needs Preparation," or "Must Attend"; or, you can create your own labels. Here's how.

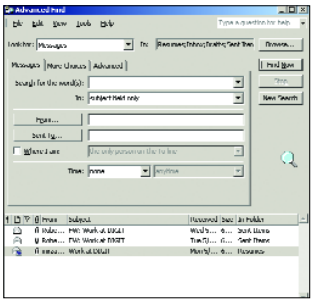
To colour an appointment or meeting with a predefined label, click 'Calendar'. Right-click an appointment or meeting, point to 'Label' on the shortcut menu, and then click a colour-coded label in the list. To remove the colour from the appointment or meeting, in the 'Label' list, click 'None'.

To create your own coloured label, click 'Calendar'. Right-click an appointment or meeting, point to 'Label' on the shortcut menu, and then click 'Edit Labels'. Pick the colour you want to rename, type in your new label name, and click 'OK'.

Find Related Messages In Outlook

Do you end up scanning Outlook folders to find messages previously sent or received as part of an extended e-mail conversation? Outlook can find and display these messages, if they are part of the same conversation string: select one of the messages in the e-mail conversation. On the 'Actions' menu, point to 'Find All', and click 'Related Messages'.

You can also use a shortcut to find related messages. When you open an e-mail message you have already replied to, a yellow information bar indicates the date and time you replied to



Using a message in a thread, you can find all related messages

the message, and provides a link you can use to find all related messages. Click the information bar to view related messages. In Outlook 2002, the bar also indicates if the sender is currently online, and if that sender is an Instant Messenger contact.

Return Meeting Responses To The Right Person

Most administrative assistants have permission to send meeting requests from their bosses' accounts—but sometimes, responses to those meeting requests end up in their bosses' mailboxes. Here's a way to return responses to the administrative assistant.

You can grant someone permission to send e-mail requests for you by using the 'Delegate Access' feature: go to **Tools > Options**, click the 'Delegates' tab, and click 'Add'. With that done, it's easy to specify that responses be returned to that person as a delegate.

To return responses to delegates, go to **Tools > Options**, and then click the 'Delegates' tab. Select 'Send meeting requests and responses only to my delegates, not to me'.

Open, Dismiss, Or Snooze Multiple Reminders

Did you know that you could act on more than one reminder at a time in Outlook 2002? Your reminders are listed in the 'Reminders' window, which is accessible from the 'View' menu. From there you can open, dismiss, or 'snooze' multiple reminders with a single click.

To work with multiple reminders, first select the first reminder. Hold down [**Ctrl**]. Select any additional reminders. Click 'Open Item', 'Dismiss', or 'Snooze'.

Bet You Didn't Know

About Using More Than One Guide

If you like using guides, and wish there were more, you can create additional guides by simply holding down **[Ctrl]** while dragging on an existing guide. This will create a new guide. To get rid of guides, just drag them off the edge of the slide.

MS POWERPOINT

Making Auto-Fit Text Stop Auto-Fitting

To turn this feature off, go to **Tools > Options**, click on the 'Edit' tab, and uncheck 'Autofit text to text placeholder'.

30 Minutes Expert

Create Home Videos Using WMM

Use Windows Movie Maker to cut Oscar winners from your camcorder recordings!

Varun Dubey

So you got yourself a brand new camcorder? And you need to share your videos with family by burning VCDs and distributing them? We get into the nitty-gritty of WMM so you can do just that—rest assured, 30 minutes of familiarisation is all it'll take!

What You'll Need

A camcorder, a TV tuner card if you have an analogue camera, and Windows Movie Maker (WMM), which comes pre-installed with Windows XP. You may want to download WMM2, which is the updated version, from www.microsoft.com/windowsxp/downloads/updates/moviemaker2.mspx

Note that WMM2 comes bundled with XP Service Pack 2. The key difference between WMM1 and WMM2 is that WMM2 allows you to burn a CD in the WMV or HighMat formats.

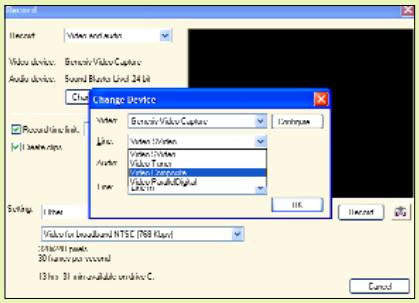
However, HighMat does not enjoy widespread support, so you're better off burning a simple VCD using third-party software such as Nero or Easy CD. The other difference is the added effects. Everything else is essentially the same.

STEP 1 Firing Up Movie Maker

To start the program, navigate to **Start > All Programs > Accessories > Windows Movie Maker.**

STEP 2 Configuring The Audio/Video Devices

To configure your video device in the software, you may click 'Change Device', and you will get a configuration window where 'Video:' will show the various video capture devices available (if you have multiple TV tuners or FireWire ports.



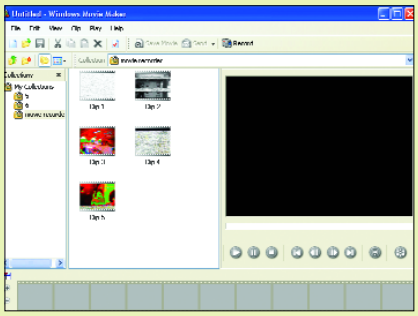
The configuration window for the video device

In the latter case, you will need to have the camera connected to it, otherwise the FireWire port will not show up.)

Choose the appropriate video and audio devices and the correct line-in settings if you are using a TV tuner (as opposed to a FireWire connection).

STEP 3 Encoding

On clicking 'OK', you will return to the previous screen where you can make adjustments to the quality. If after setting the quality to High Quality you are not satisfied,



WMM automatically generates clips for you!

we recommend you click 'other' and select 'Video for broadband NTSC (768Kbps)'.

The automatic clip creation feature works really well. What it essentially does is, it detects scene changes, and saves each scene as a separate video file, or clip, so you need not cut out different video clips or leave too much gap in between the different recordings.

STEP 4

Now you need to play the video file on your camcorder (if you connected via an S-Video cable or a regular A/V cable).

In case, you've connected via FireWire, you'll get the controls on the software itself—now you can play and record the movie from there.

STEP 5

Once you've got all the contents onto the clip area, and you can see the various clips, you are ready to create your movie. Browse through the various clips and drag and drop the suitable ones onto the timeline area below. The neat thing about the timeline and clipping is that you can entirely change the order of the video!

STEP 6

After you have the various clips on the timeline, you can, if you want, edit out unrequired stuff from the clips to make the movie crisp and fast-paced.

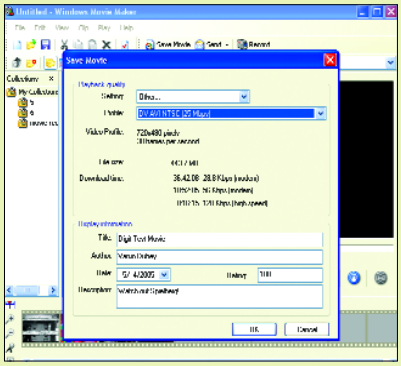
STEP 7

After you've satisfactorily nipped and tucked your movie, you can preview the entire thing by clicking the first clip on the timeline and hitting 'Play' in the preview area.

If all is well and you're happy with the results, you're ready to save the movie file.

STEP 8

Click on the 'Save Movie' button on top, and select the proper resolution. Remember, the higher the resolution, the more time your movie will take to save, and obviously, it'll occupy more space.



Save your movie at the proper resolution

That's all there is to it, your very own home video is ready! Now just burn a VCD using your favourite burning software, and share all those precious moments!

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Using Ctrl-Drag To Copy

You can quickly make a copy of any object by holding down [**Ctrl**] while you drag on the object. You will then 'drag off' a new copy.

Using Guides To Measure

Make the Guides visible by clicking **View > Guides**. Then, hold down [**Shift**] while you click and hold a guide; the tool-tip for the guide will display "0:00".

As you move the guide, the distance the guide covers from the beginning of the drag will be displayed in the units of your ruler. In this way, you can measure distances between objects, place guides at specific places, and so on.

Selecting Small Or Covered Objects

Hit [**Esc**] to ensure that nothing is current selected. Next, repeatedly hit [**Tab**], which will toggle you through a selection of all of the objects on a slide. This is useful to select very small objects, or those objects covered up by larger ones.

Change How A Linked Or Embedded Object Appears

Select the linked object or embedded object you would like to change. On the 'Edit' menu, point to the object, for instance, 'Worksheet Object'—and click 'Convert'. Follow any one:
If you want to display the content, clear the 'Display as icon' checkbox.
If you want to display as an icon, select the 'Display as icon' checkbox.

Control How Linked Objects Are Updated

Go to **Edit > Links**. Click the linked object you want to update. To select multiple linked objects, hold down [**Ctrl**] while you click each object. Now do one or more of the following:

(a) Change a linked object's setting to automatic or manual updating: to update a linked object each time you open the file that contains it—or any time the object changes while the file is open—click 'Automatic' or 'Automatic update'. To update a linked object only when you click Update Now, click 'Manual' or 'Manual update'.

(b) To manually update a linked object when you choose, click linked object, then click 'Update Now'.

(c) To break a connection to a linked object, click 'Break Link'. After you break the connection to a linked object, you must reinsert it into your file to reconnect.

(d) To reconnect a linked object when the source file moves or is renamed, click 'Change Source'. In the 'File name' box, enter the name of the file to which you want to reconnect the linked object. If you don't see the file you want, select a different folder in the 'Look in' box.

Using A PDF File

You cannot insert a PDF file into PowerPoint as an embedded object. You can, however, link to a PDF file from within a presentation using hyperlinks: select the text or object you want to use to link to the PDF file. On the 'Insert' menu, click 'Hyperlink'. Under 'Link to', click 'Existing File or Web Page'. Select the PDF file you want to link to, and click 'OK'.

Draw A Curve

This tip is indicative of how to draw in PowerPoint. On the 'Drawing' toolbar, click 'AutoShapes', point to 'Lines', and then click 'Curve'. Click where you want the curve to start, and continue to move the mouse and click wherever you want to add a curve. To end the curve, double-click any time.

Add Or Remove Arrowheads

Instead of pasting or deleting arrowheads on lines, change the line style to reflect the format you want. Select the line you want to change. (You can only add an arrowhead to a line or connector line.) On the Drawing toolbar, do one of the following:

(a) To add one or two arrowheads, click 'Arrow Style', and then click the style you want.

(b) To remove all arrowheads, click 'Arrow Style', and then click 'Arrow Style 1'.

Flipping An Object

This tip, again, is indicative of how to use the Drawing toolbar. Select the AutoShape, picture, clip art or WordArt that you want to flip. Then on the Drawing toolbar, click 'Draw', point to 'Rotate or Flip', and then click 'Flip Horizontal' or 'Flip Vertical'.

About Grouping And Ungrouping Objects

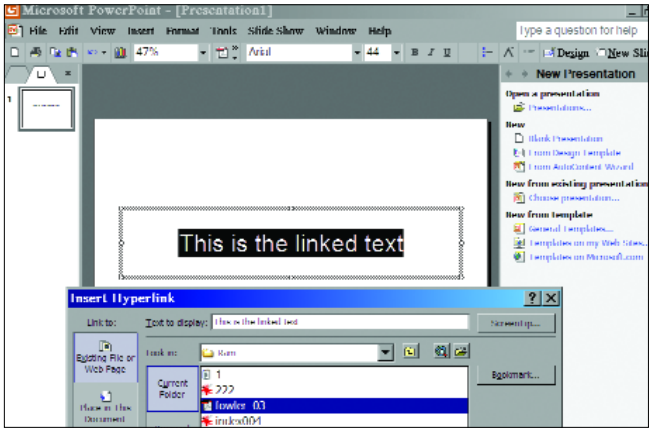
When you use the Group commands, under 'Draw' on the Drawing toolbar, to group objects, you combine them so you can work with them as though they were a single object. You can flip, rotate, and resize or scale all objects in a group as a single unit. You can also change the attributes of all objects in a group at one time—for example, you might change the fill colour or add a shadow to all objects in the group. Also, you can select an item within a group and apply an attribute, without ungrouping.

You can also create groups within groups to help you build complex drawings. You can ungroup a group of objects at any time and then regroup them later.

(a) To group objects, simply select the objects you want to group. Then on the Drawing toolbar, click 'Draw', then 'Group'.

(b) To ungroup objects, select the group you want to ungroup. On the Drawing toolbar, click 'Draw', then click 'Ungroup'.

(c) To regroup objects, select any one of the objects that was previously grouped. Then on the Drawing toolbar, click 'Draw', and then click 'Regroup'.



You cannot use a PDF file as an Embedded Object—but can link to one

FRONTPAGE

Cool 'Backward' And 'Forward' Links

Say you have a Web site with a series of pages in a row. You could be showing slides, for example. It would be nice to have backward and forward arrows on each page. You can do it in FrontPage by inserting a little text into the HTML. It's a simple JavaScript trick. Use this code:

```
<FORM>
<INPUT TYPE="button"
VALUE="BACK"
onClick="history.go(-1)">
<INPUT TYPE="button"
VALUE="FORWARD"
onCLick="history.go(1)">
</FORM>
```

Using Themes

What if you like the idea of Themes but don't like the options available? Most of the themes that come with FrontPage have a very standard look to them. That just won't do with something as personal

as a Web site. Your first option—and this works with both FrontPage 2000 and FrontPage 98—is to buy a theme from a third-party company.

If you don't want to buy one, you can always design your own theme. FrontPage 98 came with a theme designer program on the CD. But one of the more exciting options available in FrontPage 2000 is the ability to edit an existing theme or create a new one from directly within FrontPage.

You will notice there is a 'Modify' button at the bottom of the 'Themes' dialog box. Clicking it will open up three options for editing: the Colours, the Graphics, and the Text. Modifying the colours lets you either pick a scheme for your theme, or lets you pick colours for the colour elements modified by a theme.

The colour options are all on an Internet-safe palette. Modifying the graphics gives you a chance to replace or modify any graphic element on the theme. You can create your own elements in whatever graphics program you choose. The final option, Text, lets you modify or create the text elements of your theme.

Once you are done modifying your theme or creating a new one, you simply click the 'Save As' button in the bottom of the 'Theme' dialog box, and give it a name.

Note that with Office 2000, themes are now used across the tools—Word, PowerPoint, Excel, and others. Consider making use of your new theme in everything you do.

Use Folders Effectively

Folders make your life easier, and have the added bonus of making navigation easier for your audience. It is easy to put everything into the root directory—and that is the program default—but in fact, you don't have to, and there will come a point where you wish you didn't.

Web sites have a tendency to get large rather quickly, and a little advance preparation is always worth the effort.

Create a folder for every group of documents you'll have on your site. Put your images in one folder, your 'about' information in another, and your documents in another.

Label the folders and directories in a way that makes sense. There is simply no need to ever have to say, "Where did I put that file?"

Use sub-folders as deep as you want if it makes sense. Remember, FrontPage keeps track of where every file is, so if you move a file from one folder to another, it will make sure the paths are correct. This is useful if you are contemplating if it would be worth it to organise that out-of-control Web site.

Not only is this technique good for you, it's also easier for the viewer. If your site starts to make sense through the URL structure, they will have another navigation tool for your site—always a good idea.

Quickly Find Clip Art

When you open the 'Clip Art' dialog box in either FrontPage 98 or 2000, there is an under-documented button that can make your life easier. Select the 'Clips Online' button—which, in FrontPage 98, resembles the Internet Explorer shortcut symbol in the lower right hand corner—to open up the Clips Online Web Site.

The Web site will first ask you to agree to the EULA. You'll then be taken to a Web site that is updated on a regular basis, which is a searchable database of clipart, photos and sounds that are all usable as part of your FrontPage license.

You can view clips by a number of categories or types, but the real value lies in the 'search by' option where, you can enter a term on which you'd like to see some clip art. Considering the size of this database, you will surely find something. Once you do, you can either download it by selecting the piece, or checking each piece and downloading a collection in a shopping cart-type of format when you finish looking.

If you select the piece directly, you will see the categories under which this piece was listed. You can select any of these categories to find other similar items. Use this feature if you are looking for a collection of similar pieces.

FrontPage does all the work needed to transfer the file type to something readable on the Web, and Microsoft updates this site on a regular basis.

Make Sure Your Site Works On All Browser Versions

New to FrontPage 2000, and not well-documented, is the ability to choose the browser type and version as well as the server type that you wish to design your site for. To use this tool, open the 'Compatibility' Tab in the 'Page Options' dialog box. The browser's drop-down menu lets you choose between Netscape, IE, and WebTV, and combinations of the three.

The 'Browser Version' drop down menu lets you pick the browser version type. The Server drop-down menu lets you pick the type of server you are designing the site for. Below this are a number of technologies that are either going to be supported or not depending on if the box is checked.

You can check or uncheck any of these items. In case an item is not selected, you will not be able to create anything that uses that functionality. Not all browser types use the technologies on this dialog box. If you want to make sure that your site is as viewable on as my types of browsers as possible, deselect all the fancy options.

It is important to note that this feature won't prevent you from entering anything that uses these types of functions directly into the HTML.

HTML Formatting And Optional Reformatting

You can tell FrontPage 2002 how your HTML page should be formatted, from how many indents should come before each tag, or whether or not to use optional tags.

By default, FrontPage preserves the formatting of existing HTML, but applies new HTML formatting to content you add to the existing page. HTML formatting is viewed in the HTML pane.

The formatting options you choose will apply to all pages you create in FrontPage. New in FrontPage 2002 is the ability to take a page that has been imported into your Web site and reformat it according to your preferences.

In order to apply your HTML formatting preferences to a Web page, open it in FrontPage 2002 and perform the following: go to **Tools** > **Page Options**, and then click the HTML Source tab. Click 'Reformat using the rules below'. Then under 'Formatting', select the options you want.

For instance, if you would like all tags to appear as lowercase instead of uppercase, select 'Tag names are lowercase'.

Under Tags, select the tag and attributes you want. For example, select 'Body', and then change indent to 12 spaces. FrontPage will change the HTML pages you create in FrontPage to use these formatting rules. ⊠

Bet You Didn't Know

Make Sure Your Colours Can Be Seen

There are dozens of different browsers out there. Not all of them use colour, but for those who do, you need what is known as a 'Web Safe Pallette'.

When you select the colour options anywhere from within FrontPage, the dialog box mentions 'More Colors'. Clicking that button shows you several more colours available—it opens up the 'More Colors' dialog box. Everything in that box is a Web Safe colour. Any of those will work on any browser that displays colour.

Q&A

Your Questions, Our Answers

Copy Protected?

Q My PC's configuration is a Pentium 4 1.9 GHz, Intel 845G motherboard, 128 MB of RAM, Intel 82845G graphics chipset with 32 MB video memory. I have a problem when copying CDs to my hard disk. Whenever I try to copy, I get an error message that reads: "Data Error (Cyclic Redundancy Check)" and when I click 'OK', the error procedure cancels, and I cannot copy the data thereafter. How do I solve this problem? I have tried reinstalling the OS, but the error persists. I use Windows XP Home Edition. The error appears in all versions of Windows.

Gurmail Chand
Delhi

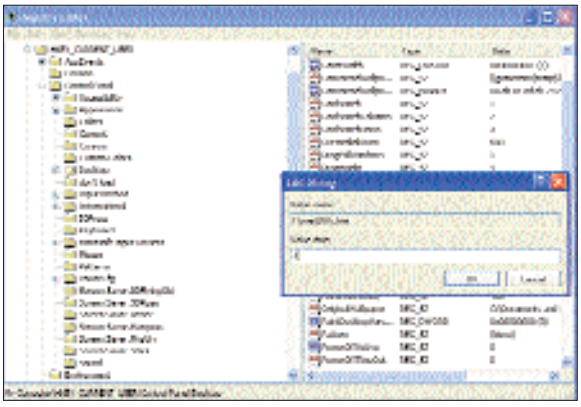
A The error you are experiencing is known as the CRC or 'Cyclic Redundancy Check' fail error. This error occurs when the data being copied appears to have lost its integrity or is corrupt. In your case, there may be two possible reasons for the error to occur: either your CD media is damaged or your CD drive has developed a fault. You may check if it is the first by trying to copy files to the hard disk on another computer. Or, get the CD drive serviced at an authorised service centre.

Mute Computer

Q I have a Pentium III 700 MHz system with an Intel 815 motherboard, 128 MB of RAM and a 20 GB hard drive with three partitions running Windows XP Professional. My problem is that I don't have my sound card drivers for XP. I searched the Intel Web site but found nothing. I have an AC 97 sound ALC100 integrated sound card. Windows XP has installed its default drivers for my card, but the sound is very low even at full volume. My speakers are fine. Please tell me where can I get the drivers, and if possible, please include the drivers on the CD with the next issue!

Bijesh K
Thane

A The latest version of the driver for the ALC100 sound card is 3.71. You can download this driver from the RealTek Web site at **http:// snipurl.com/86p8**. The size of these drivers is 11,453 KB. After installing, you will be able to access the extended features of your sound card as well. Please install the latest version of DirectX for smooth functioning of this sound card along with the drivers.



Edit the PowerOffActive key in the registry

Write Error, Wrong Error?

Q When I write CDs on my PC, after 90 per cent writing is completed, a write error occurs and the CD becomes unusable. Although not consistent, this is a frequent occurrence. This problem occurs once in three to four write attempts. In the process column it shows 'Lead in' and 'Lead out', and in the action column, 'Failed' when the error occurs. The problem occurs in Windows 98 and XP Professional. My PC configuration is: ASUS CD writer, AMD Athlon processor, 512 MB of RAM, 80 GB hard disk, and the software used was Nero 5 and Nero 6 OEM version. I had also tried reinstalling the CD-Writing software.

Mahendra Gajbhiye
Indore

A Your problem could be caused by a variety of reasons. The most probable reason is that the brand of media you use might have a compatibility issue with your writer. You could try using another brand and confirm this. Another reason is that your CD-Writer's lens might have become dirty. This may be cleaned using a CD cleaner disc. If the problem is not solved, you might try upgrading the firmware for your CD-Writer. You may find the latest firmware for your CD-Writer from the ASUS Web site: **www.asus.com/support/support.aspx**.

If your drive is very old, the laser calibration could also have developed a fault. This is a result of the aging process of the CD writer and cannot be rectified.

Anti-virus In Hiding?

Q I own a Celeron 2 GHz Intel motherboard and 256 MB of RAM running Windows XP SP2. Recently, I installed Avast 4.6 Home edition. But the Windows security centre doesn't detect my anti-virus and it alerts me to install an anti-virus. Why does this happen? How can I overcome this?

T A Ravishankar
Palghat, Kerala

A Avast 4.6 Home Edition and other anti-virus software are not recognised by the Windows Security Centre. Hence, many anti-virus manufacturers have released newer versions of their

products to make them compatible with Windows XP SP2. You need to upgrade to the latest version of Avast, which is 4.6.652.

Always On

Q I have a Pentium 3 733 MHz with 256 MB of SDRAM, an Intel 810 motherboard and a Seagate 40 GB hard disk. I use Windows XP. I have not been able to completely shut down my computer for the past few weeks. When I select try to shut down, Windows shuts down but my PC does not power down. Is there any way to re-enable my PC to completely power down?

Parag Trivedi
Nashik

A While starting your PC, enter the CMOS setup. This may be done by pressing the [Del] key on most PCs. In the BIOS, go to the 'Power Options' page and enable 'Advanced Power Management'. Save the settings and restart the computer.

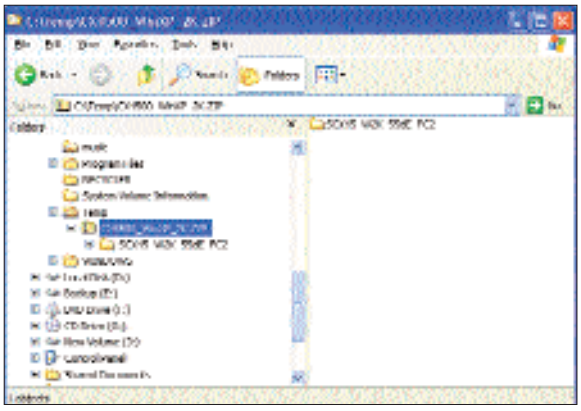
Now, run Regedit. Go to HKEY_CURRENT_USER\Control Panel\Desktop. Edit the key 'PoweroffActive' and give it a value of 1. Do the same in HKEY_USERS\.DEFAULT\Control Panel\Desktop. Close Regedit and restart the computer. Now your PC will completely power down after you shut down Windows.

Hide Folder

Q I have a Celeron 1.2 GHz, Intel 815E motherboard, 128 MB of PC100 SDRAM, and a 20 GB hard disk with an nVidia Riva TNT2 M64 32 MB display card. I have Windows XP Professional with Service Pack 2 installed. I have also installed WinZip 9 on my computer. In Windows Explorer, the .zip files are still shown as folders. I wish to turn this off. Is there any way to do this?

Supriya Khambatkone
Mumbai

A The feature of Windows XP/ME Explorer showing .zip files as folders is not affected by installing WinZip. You can turn this feature off by running a command as follows. Click **Start > Run**, enter "**regsvr32/u zipfldr.dll**" in the dialog box and press [**Enter**]. Restart Windows and you will notice that .zip files are no longer viewed as folders. To re-enable this feature, just run this command at the command prompt: "**regsvr32 zipfldr.dll**".



Windows XP Explorer shows .zip files as folders

Windows—A Non-Starter

Q I have a Pentium 4 3.0 GHz, 512 MB of DDR RAM and an 80 GB hard drive with Windows XP. I have recently started getting an error message—"NTLDR not found"—during bootup, and I am not able to boot into Windows XP. Please help me as I do not wish to reinstall Windows and lose all my data and settings.

Ashutosh Rane
Panjim, Goa

A You have not specified whether you have FAT32 or NTFS on your boot drive. We shall assume that you have FAT32 on your boot drive, that is, the drive on which Windows resides. Just boot with a Windows 98 bootable floppy. Select the 'Boot with CD-ROM' support option and hit [**Enter**]. Insert the Windows XP CD into the CD-ROM drive. Copy NTLDR and NTDETECT.COM files from the i386 folder of the CD to the root of the boot drive.

If your boot drive has been formatted with NTFS, then first boot with the Windows XP CD. At the first 'R=Repair' option, press hit 'R'. Press the number that corresponds to the correct location of the boot drive. If Windows is installed in the C: drive, this number is 1. Enter the administrative password when prompted to do so and then enter the following commands:

COPY X:\i386\NTLDR C:
COPY X:\i386\NTDETEC.COM C:

Bear in mind that you will have to replace the letter 'X' with your CDROM's drive letter. Take out the CDROM and type "exit". This should fix your problem.

Clean Title Bar

Q I have Windows XP Home Edition with Service Pack 2 installed. My Internet Explorer 6 window has title that goes like "Internet Explorer - provided by XYZ company". I wish to restore the window title to the default.

Aarti Gupte
Indore

A The Internet Explorer window title you are referring to is sometimes used by OEMs to brand their computers. You can easily get rid of it.

Open Regedit. Go to **HKEY_CURRENT _USER\Software\Microsoft\Internet Explorer\Main**, and in the right pane, search for a string named 'Window Title'. You will be able to view the OEM branding next to this string. Delete this string to get rid of the window title.

Where's The Space?

Q I use an AMD Athlon XP 2000+ laptop with 512 MB of RAM and a 30 GB HDD single partition running Windows XP Professional SP2. Of late, I seem to be losing hard disk space on the sole partition of my laptop. Once, when I transferred a file of

Catalogue CDs And DVDs Using XBaseCatalog

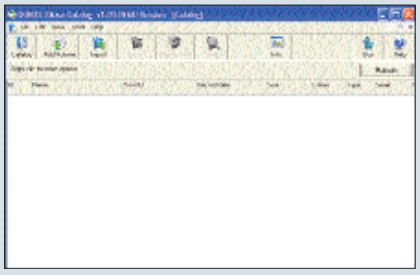
Almost all of us who own CD and DVD-Writers have gone on a burning rampage over the past couple of years. Here's how to organise the results

Jayesh Limaye

It's only natural that as our burnt-CD or DVD collection grows, we lose track of what has been stored on what disk. Remember when you searched for that very special MP3 song you burnt a long time ago? And didn't find it?

That needn't happen again. There are software utilities that can index the contents of your CDs and DVDs into searchable catalogues. OOBOX XBaseCatalog is one such software—here, we take a look at how it can be used to catalogue your disk collection.

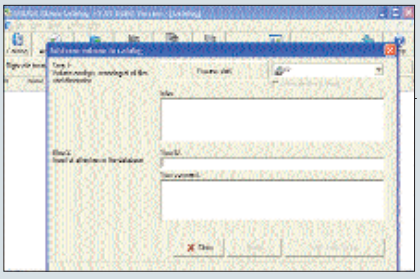
The OOBOX XBaseCatalog Standard evaluation version can be downloaded from www.oobox.com. It can catalogue Zip disks, floppies and digital tapes in addition to CDs and DVDs.



OOBOX XBaseCatalog interface

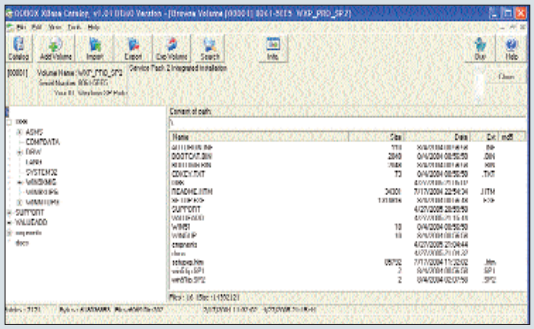
The limitation of the demo version is that you are allowed to create a maximum of three volumes; contents of ZIPped files are not indexed; MD5 authentication, which is used to verify the authenticity of the files, is not available; files cannot be compared with files already present in the database; and a nag screen is displayed every time you start or exit the program.

The Standard version is available for $19.95 (Rs 870), and the Professional version—with even more features—is $49.95 (Rs 2,170).



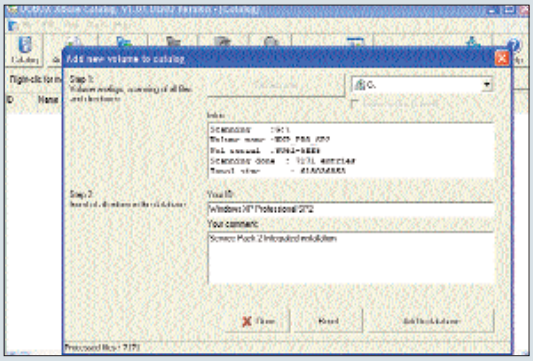
Adding new volume to catalogue

STEP 1 The first step involves creating a new volume to be included in the catalogue—the volume of a CD or DVD is an index of the files on that disk. To create a new volume, click the Add Volume button on the toolbar. The Add new volume dialog box will come up.



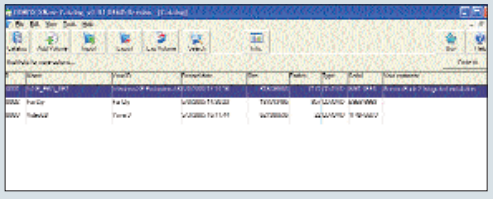
Browsing the media catalogue you created

STEP 2 Place the disk to be catalogued in the CD or DVD drive, and select that drive in the Add new volume dialog box. Click Process Start to start the disk scanning process. After the scanning is complete, the Info window will indicate the information about the media, such as the volume label, total size and serial number.



All files and folders have been scanned at this point

STEP 3 Enter an ID in the ID field to identify the CD or DVD volume in the catalogue. You can also add comments to make it easy to identify the volume later. Now click Add to add the volume created from the just-scanned disk to the database. Click Close to return to the main interface. Here you will be able to view details such as the size, number of files, the serial number, and the name and ID of the volume.

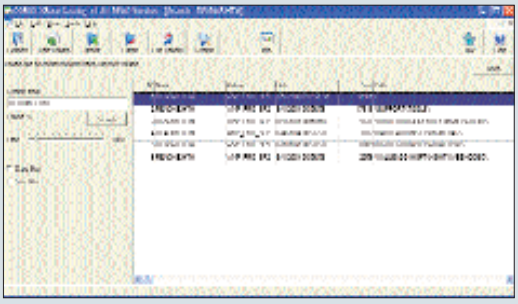


Multiple media in a catalogue

In the same way, you can scan and add more such volumes to the catalogue.

STEP 4 To browse a volume, right-click it and select Browse this volume. You will be presented with a window that shows the directory tree of the volume with files and their details such as size, date, etc.

STEP 5 You can also search the database by clicking the Search button on the toolbar. In the Search dialog box, you may search for a file based on name, creation date, and size. Try searching for a file, and you will be pleased to see that the results are displayed in no time!



Search the media catalogue

STEP 6 There is also the facility to export a volume (or all volumes) in the database, so it (they) can be backed up for archival. Similarly, the import facility can be utilised to export a volume into the database.■

jayesh_limaye@thinkdigit.com

Divide And Rule!

Q My computer configuration is as follows: 2.40 GHz Intel Celeron processor, 40 GB hard disk and 256 MB RAM. My OS is Windows XP. I also want to run Windows 98 on my computer and this is where the problem arises. I have only two partitions on the hard disk. One (D :) is full of system recovery i.e., of 4 GB while the other (C:) has Windows XP, taking up 36 GB. Here, nearly 10 GB of space is free. I want to make another partition without backing up my data so as to install Windows 98 there. Is there any software that allows a partition out of the free space available on C: while working on it?

Question Of The Month

Another problem related to installing Windows 98 over XP. Will it replace the boot loader of Windows XP and boot to Windows 98? If yes, what should be done to correct the boot loader so as when I boot up my PC, it will prompt me whether I want go for 98 or XP. I don't want reinstall Windows XP.

Sunil S Kewade
Nagpur

A To create a partition in the free space of your hard drive without losing any data, you will need to use a utility known as Ranish Partition Manager from **www.ranish.com** or Norton Partition Magic 8 from **www.powerquest.com**. It is never 100 per cent safe to play with partitions and be assured that your data will not be lost. Still it is advisable to back up your important data before you begin the creation of the partition.

In order to restore the Windows XP boot loader, you need to follow these steps: Create a Win98 Startup Disk. Create a text file with the following entries, exactly as shown:

```
L 100 2 0 1
N C:\BOOTSECT.DOS
R BX
0
R CX
200
W
Q
```

Save the file to the Win98 Startup Disk as READ.SCR. Boot the computer with the Win98 Startup Disk and at the A: prompt, type

DEBUG <READ.SCR

These steps will create the BOOTSECT.DOS file needed to boot Win98. You may need to use the **ATTRIB C:\BOOTSECT.DOS -S -H -R** command if BOOTSECT.DOS already exists.

Configure your computer to boot from the CD drive. To do this, enter the CMOS setup which is usually done by pressing Del key during booting. Go to the Advanced BIOS Settings and here you will be able to change the boot sequence of your computer. Boot from your Windows XP CD. When you are presented with a choice of installing or repairing an existing installation, choose repair. You'll be asked which XP installation you want to log into. Enter '1'. There is usually only one installation. You'll be prompted for the Administrator password. For XP Home, the default password is blank, so just hit [Enter]. For XP Professional, enter the same password you did during setup for the Administrator account. At the C:\Windows prompt, type 'FIXBOOT'. You'll be prompted to confirm.

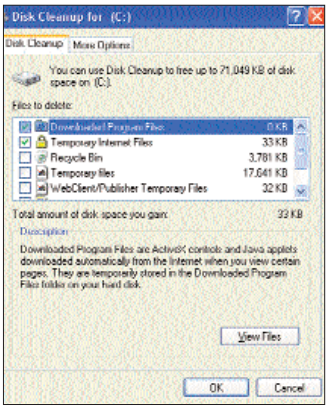
When FIXBOOT is finished, remove the XP CD and type EXIT and the machine will reboot. Reconfigure your computer to boot from the hard drive if necessary. Now you will get the XP boot loader with your choice of operating systems.

700 MB via FTP, I encountered the error due to insufficient disk space and I lost those 700 MB permanently and could not recover it.

Another strange thing I have observed is that my 'Temporary Internet Files' folder is unusually large in size (961MB) and keeps increasing. Windows says that it contains 14 folders but I can't see even a single folder in it. Since this is a special OS folder, I can't even delete it and recreate it. Please help me recover my HDD space!

Nikhil Wason
New Delhi

A Windows creates a lot of temporary files during the course of its operations. The sad thing is that it forgets to delete each and every one of these temporary files and hence these files go on accumulating and eating up your hard disk space.



The Disk Cleanup utility in XP

Most of these files can be done away with, though, using the provided 'Disk Cleanup' utility. But even this utility cannot delete all the unwanted files from the hard drive and you have to live with these files, since some of these are required for the functioning of Windows.

Alternatively, you may use third-party utilities such as Cleanup! from **http://cleanup.stevengould.org** and System Cleaner from **www.system-cleaner.com** to cleanup your system and registry and free up some more space. Since these third party utilities deal with the registry and system files, use them with a little caution. You may not be able to view the folders inside your 'Windows' folders because these are system folders and your Explorer might not be configured to view hidden and system files and folders. The other solution would be to do a clean install of Windows XP on your hard drive.

Get Help Now!

E-mail us your computing problems along with your contact details to **sos@jasubhai.com**, and we may answer them here! Since we get more mails per day than we can handle, it may take some time for your query to be answered. Rest assured, we are listening!

Return To The Game

Q I want to know how I can back up my saved games in *Grand Theft Auto Vice City*, so I can use them after I have reinstalled Windows.

Aamir Khan
Via E-mail

A All GTA Vice City saved games and profiles are placed under "GTA Vice City User Files" in "My Documents". Just copy these to a folder of your choice. When you reinstall Windows and GTA Vice City, just copy these to the original location and you can access your saved games. ■

Cooling Solutions

It's summer, and like you, your computer, too, needs to stay cool!

I could blame it on the Greenhouse effect, but I am not an environmentalist! Anyone who uses a PC and claims to be an environmentalist is fooling himself. But I am digressing even before getting to the point (and that is a first even for me!).

Problem is, the heat is getting to me—and the evidence is pretty clear. Which brings me to this month's topic—cooling solutions.

I hate summers. The heat and humidity drain me completely, and at times leaves me wondering what life in Rajasthan would be like. It is this time of year that I take the maximum care of my PC too—a ritual I started because I've lost too many PC components during the summers. My experience apart, lately, my mailbox has been bombarded with requests for cooling solutions, and I thought this was the best time to address the heating problems so many face.

In PCs, air is used as the medium for transferring heat from the components to the atmosphere. In fact, until some years ago, liquid cooling for PCs was unheard of, and only recently has liquid cooling emerged as an effective alternative to traditional methods.

To achieve maximum cooling efficiency, you need to manage on the macro (system) as well as micro (component) levels. The perfect synergy between system and component cooling leads to the best overall cooling of your PC.

The perfect synergy between system and component cooling leads to the best overall cooling of your PC

When it comes to system-level cooling, a lot depends of the PC case (cabinet) you buy. I have often received letters where users say they have two-fan cabinets, but the cooling is not up to the mark. The culprit is often the types of fans and their placement in the case.

Most cabinets in the market today have provision for 80 mm fans—one at the front lower bottom and other at the rear. Instead of opting for such cases, consider a case with provision for one 120 mm fan at the rear. These fans run at a lower speeds, but dispel a high volume of air and so, in general, are more efficient than the faster-spinning 80 mm fans. Moreover, with the launch of the new Prescott-core Pentium IV processors, Intel has recommended changes in the case design, and these cases are called 38 degree cases. There are ducts on the side panel that open straight on the top of the processor and the graphics card for better cooling.

Not many vendors sell them except for those made by Antec and VIP. Cabinets from these brands are expensive and not for the average user.

Illustration **Shyam Shriram**

However, commonly available brands such as Mercury and iBox have also introduced some good models. Mercury has two series—the KOB and the KM. If you are buying a new PC, I would recommend the new KM series; it conforms to Intel's recommendations. So what if it does not have 120 mm fans?

iBox, too, has the i531 model specifically made in keeping with Intel's recommendations. Zebronics is a popular brand in south India, and has some good models. Such cases, though, will set you back by around Rs 1.5K. Although manufactured conforming to Intel's specs, they work great with AMDs too!

Gamers, though, with high-end processors and graphics cards (nVidia 6800 GT), have no option but to spend that extra cash on an Antec case.

On the component level, the processor, graphics card and PSU dissipate significant amounts of heat as compared to the other components.

Processors are generally provided with a heat sink-fan combo (HSF), and can take care of heating issues under standard working conditions. However, if you overclock the processor, you might need some help keeping the temperature under control.

For processors, three types of solutions are available—the first is the standard HSF, but with better heat conducting materials such as copper in place of aluminium alloy. Such solutions are available from Thermaltake, Cooler Master, AVC and others, and are generally in the range of Rs 1K to Rs 1.5K.

To further improve thermal conductivity, manufacturers introduced a heat pipe—a pipe containing coolant—between the fins of the HSF. Such solutions cost upwards of Rs 2.5K.

The third type are the liquid cooling kits from Thermaltake and Cooler Master. Here, a small pump drives water (or coolant) between a copper block and a radiator. Liquids are more efficient in conducting heat and hence, better cooling is achieved via these kits. Such a kit could set you back by Rs 8.5K. Unfortunately, there are very few shops dealing in such specialised products and hence, the best way to get them would be by importing them.

There are liquid cooling kits available for graphics cards too, but they are extremely rare in the Indian market.

As for PSUs, just buy a good-quality one—it will come with two fans that will keep the heat under control.

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

Ask Agent 001

DVD Switch

Q I read the review of the Mitashi DIVX-555 DivX player, and was planning on buying it. I'd like to know of a dealer in Kolkata. I am also planning to buy a DVD-Writer, and would like to know about the best one that would be available around Kolkata.

Appusarkar

The Mitashi DIVX-555 player is available through Mitashi Edutainment Pvt Ltd, a Mumbai-based company. You can contact them on 022-25006661 and find out about their branch in Kolkata. As for the DVD writer, I suggest you go for the Lite-On 1653S, which costs around Rs 4K and can burn DVDs at 16X. It also supports dual layer +R at 6X.

Print To CD

Q I want to buy a printer that can print directly on CDs, that is, I want to print the CD face directly on the CDs rather than printing it on paper and then pasting that onto the CD. What model would you suggest I go for? My budget is around Rs 8K.

Anil

There are quite a few models from Epson and Canon that offer CD face printing via an attachment. As far as Epson is concerned, the printing quality is not as great as Canon's—I'd suggest Canon over Epson. Canon's new line of Pixma printers has the CD face printing feature in their mid- and top-range printers.

Digit evaluated two of these—the Pixma IP3000 and IP4000—both of which have the CD printing feature. The IP3000, though, costs around Rs 8,495 while the IP 4000 will set you back by Rs 10,995. Speed and cosmetic differences apart, the two models are virtually the same, and you can safely settle for the IP3000 model. Remember that for printing on CDs, you need printable CDs that support this feature.

MP3, FM Radio And Warranty

Q I am looking to buy an MP3 player that suits my needs—a Flash-based device with 256 MB capacity and with FM radio. I would like a player that uses normal batteries or one with rechargeable or user-replaceable batteries. I don't have any particular brand in mind. Warranty, though, is a concern.

Nish Dave

I would suggest you go for Creative's MP3 players as they offer good features, great performance and have good after-sales support in place. Creative has a long line of players to choose from; you can settle for the MuVo TX FM model. This player runs on a single AAA battery and offers decent battery life. Capacities range from 128 MB to 1 GB; prices vary according to the capacity. It also has a FM tuner. The MuVo TX FM is priced at around Rs 8K for the 256 MB model.

For printing on CDs, you need printable CDs that support this feature

Ask Away

Want a tech product, but don't know how to go about buying it? Send an e-mail to agent001@thinkdigit.com to get your queries answered

Laptop With After-Sales

Q I am interested in buying a laptop in the range of Rs 35,000-40,000. On inquiring in the market I got to know about different models from various manufacturers such as Compaq's m2002, Acer's Sempron-based model and Zenith's Salespro. I need help with my purchase decision as I am confused about quality, speed and after-sales service.

Lalit Jain

In your mentioned price range, you will get laptops based on Pentium 4, Celeron or Sempron processors, though I would still ask you to shell out a little more and opt for Centrino-based laptops. As far as raw speed is concerned, Pentium 4 and Sempron will pose no problems. I would suggest you not to look at Celeron processors as an option at all.

Digit reviewed Acer's Sempron-based laptop and found it good in terms of performance, features and price; since Acer is based out of Bangalore, service won't be a problem for you.

As far as Compaq and Zenith are concerned, *Digit* hasn't reviewed them so I don't have a conclusive opinion to offer. In general, though, they will be good as far as quality and service is concerned, while the performance will depend on the configuration you choose.

Video Capture Cards

Q I am interested in buying PCI-based video capture cards. Does any such card offer TV tuning capabilities? My budget is around Rs 8K, and I plan to use it to record from a VCR and handycam.

Jithin Jayaram

There are some players in the video capture segment—Pinnacle Systems have good products, but they are priced a little higher than the others. You can look out for Pinnacle Studio 9, and external solution interfaces for your PC via the USB port, which cost around Rs 14,500.

Monarch Vision, an Indian company, also has products tailor-made for the Indian audience. The MV5 and MV20 models are priced at Rs 9K and Rs 14,800 respectively.

Last month we gave you details on high- and low-end PCs. This month, we take a look at mid-range PCs.

Mid-Range PC

Mid-Range	Make	Cost (Rs)
CPU	939 pin Athlon64 3000+ or 3200+	7,500
Motherboard	MSI RS480M2	6,500
RAM	512 MB DDR 400 Hynix	3,500
HDD	80 GB SATA Samsung/Seagate	2,650
Monitor	17" Acer 715 CRT	6,500
Keyboard	Logitech	300
Mouse	Logitech optical mouse	300
Cabinet	Any cabinet you like	500
Power supply	Antec / VIP 350 W power supply	2,000
Optical Drive	Lite-On / Sony combo drive	2,750
Speakers	Creative Inspire 2.1	2,400
Total		**34,900**

Football Club On eBay!
Dinel Staicu, owner of Romanian second division side Universitatea Craiova, tried to give the club to his local council. The council said they weren't interested. Staicu then said, "The only thing I can think of doing now is putting it on eBay and seeing if I can find someone to take it over."

Linux Leader Quits
Richard Seibt, one of the leading lights behind SuSE Linux before it was acquired by Novell, has quit. Seibt's resignation comes just a week after Novell made Ron Hovsepian president of worldwide field operations. Hovsepian and Seibt had been public about their differing opinions about SuSE's future.

Escape

WHAT SAY BABY?

Scientists Working On Baby Babble Translator

The cryptic cries, grins and gurgles of babies that leave parents dumbfounded could soon be deciphered, if modern technology delivers as it promises.

Three years after a toymaker scored a smash hit with the 'Bowlingual' gadget to interpret the warp and woof of a dog's life, Japanese researchers may have an even bigger sensation—a translator for baby babbling.

"We aim to develop a device to read babies' feelings," says Kazuyuki Shinohara, a neurobiology professor at the state-run Nagasaki University who leads the research team.

Shinohara's group has been conducting experiments involving mothers and their babies by monitoring the infants' cries, facial expressions and body temperature changes in a project backed by the government-subsidised Japan Science and Technology Agency.

"We are trying to read babies' faces numerically such as the distance between eyebrows and the nose tip," said Shinohara. As for other clues on what babies mean to say, researchers are analysing whether high or low frequencies in the sound of the cries show they want specific things.

Illustrations: Harsho Mohan Chattoraj

The team is also monitoring temperatures of the babies' bodies, mostly the face, using thermography. Shinohara says the changes in temperature indicate particular desires.

The professor, who declined to elaborate on his conclusions or the shape of the gadget pending patenting, aims to launch the device by mid-2006.

The product would be for use at medical institutions and homes. The professor would like to price a home-use version below ¥10,000 (approx. Rs 4,100).

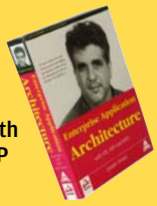
"You may lose confidence as a parent if your baby cries a lot. But your child-rearing ability increases by trial and error," says Yuko Iguchi, clinical psychologist at National Children's Castle in Tokyo. Shinohara claims his device could make bringing up children more enjoyable for parents. "It is cruel just to tell them 'You should naturally know what your baby wants'," he says. "There is no use scolding parents. We want them to have fun raising babies by taking advantage of tech."

Win!

My Desktop

Think you have the most beautiful, most innovative desktop around? Send it to **mydesktop@thinkdigit.com,** and Digit will publish the most eye-catching of them each month.

The winner receives a copy of **Enterprise Application Architechure With VB, MTS and ASP** By Joseph Moniz, published by Shroff Publishers & Distributors Pvt. Ltd.

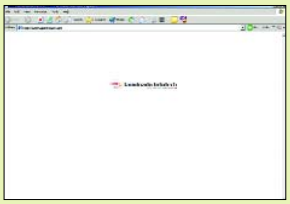


This month's winner is **Shubhajit Maity**

Shubhajit's desktop makes good use of desktop tweaking tools, cursor enhancements and player skins. We love the icons and taskbar transparency. Congrats Shubhajit!

UNUSABLE!

http://tamilnaduinfotech.com



"Tamilnadu Infotech
THE WEB COMPANY"

That's it.

Huh? Well, that's it! Don't get it? OK, let's explain a little bit: that piece of information—that Tamilnadu Infotech is "The Web Company"—is all there is on http://tamilnadu infotech. com. It's a .jpeg logo.

We tried clicking on the logo, then, in frustration, on random places all over the page—to no avail. Then we realised that we could view the page source, and there it was—one jpeg logo, that's all.

We'd assume that the site is under construction, but wouldn't an 'under construction' logo or text have helped? Without that, we're forced to conclude that Tamilnadu Infotech doesn't have anything to tell the world except that it is "The Web Company".

STOP THE GYPSY MUSIC

A Very Selective Virus

A new computer virus reported in Romania deletes only electronic gypsy music files. The Win.32. Antiman.A virus destroys audio and video files containing 'manele' music. Manele is traditional gipsy music played in an electronic style, which has become very popular in Romania. But it also has many detractors who have praised the virus as a utilitarian blessing.

Softwin, a Romanian company specialising in anti-virus software, said the worm works by targeting files associated with singers' names. Softwin spokesman Cosmin Mares said, "The effects of the virus are an increased usage of the Internet bandwidth and serious problems to companies' servers. All these cost money and someone has to pay."

Vali The Blizzard, a popular Manele singer, said, "I don't believe this is a threat for us. On the contrary they are doing us a favour. This way our fans will have to buy the CDs and not take the music from the Internet for free."

PIXEL EYES

Artificial Retina To Help Blind See Again

Scientists are helping the blind see again, one pixel at a time. If all goes well, an artificial retina could be commercially available within three years.

Artificial retinas have been successfully implanted in six patients, allowing them to see light and detect motion, researchers of the Association for Research in Vision and Ophthalmology in Florida announced in May.

Developed by researchers from the University of Southern California and the Doheny Eye Institute, the artificial retina pairs a tiny electronic eye implant with a video camera mounted on a pair of sunglasses.

The implant, a four-by-four grid of electrodes, connects to damaged photoreceptors on the patient's retina. The electrodes stimulate the photoreceptors, which transmit signals to the brain through the optic nerve.

The videocam translates the field of view into electrical impulses that are transmitted wirelessly to a microchip located behind the ear. In turn, the microchip is connected to the retinal implant by wires under the skin.

The system, named 'Argus' after the Greek god who had a hundred eyes, works only with patients with degenerated rods and cones, a condition often

People Who Changed Computing

Pascal Pioneer

Dr Niklaus Wirth is considered the creator of the Pascal family of programming languages. Wirth earned a degree in Electronics Engineering from the Swiss Federal Institute of Technology, Zurich (ETHZ), in 1959 followed by an M.Sc. from Laval University, Canada. He completed his Ph.D. from the University of California, Berkeley, in 1963.

Dr Niklaus Wirth

In 1968, Wirth returned to ETHZ as a professor of computer science. At ETHZ, Wirth developed Pascal (1970), Modula-2 (1979) and Oberon (1988). Pascal turned out to be a new computer language as well as a novel programming paradigm. It became an educational tool that motivated systematic and structured ways of thinking.

From 1992 onwards, his research has concentrated on digital design tools as well as the use of programmable devices.

Wirth has received several honorary doctorates and awards, including the Turing Prize, the IEEE Computer Society's Computer Pioneer Award, and the ACM SIGSOFT Outstanding Research Award in Software Engineering.

Wirth retired from ETHZ in 1999, after more than 30 years of service as a university professor. He has published several books that are considered classics in the field.

Four Down, Many More To Go

"It's been Four Years? Wow!" That's the reaction most employees of *Digit* had. Time sure flies when you're having fun.

It's true, we admit it! Each and every one of us loves our jobs. It's not a crime, is it? It's hard to not love a job where you get to interact with the latest technology and the greatest technological minds on a daily basis. And we don't mean just the employees, or the people we interview; some of our readers have taught us a thing or two thousand over the years. And yes, we did end up hiring them!

That's the beauty of the philosophy of *Digit*; we're an open forum, a community magazine that's, to paraphrase, "of the reader, by the reader and for the reader." Every employee, from the big bosses to the lowly writers, still love reading *Digit*. Some are so tired of magazines disappearing from their office desks, they've subscribed!

While preparing this anniversary issue, every employee took the opportunity to drift down memory lane, reliving their first story, their first ordeal of burning DVDs, their first e-mail from a reader, their first goof up, our reader forums, Planet Digit, the redesign, and a million other things.

We'd like to thank each and every reader and employee that stuck with us through the good and then the better. So, here's to another great year in technology with *Digit*, and we promise to only deliver the best. With apologies to Frost, "We've got promises to keep, and miles to go before we sleep..."

DIGIT DIARY

Bluff YOUR WAY THROUGH

Dreamweaver

How do you manage to look intelligent when someone throws Dreamweaver jargon at you? Here's a very brief primer.

"Add an image swap behaviour..."

Just remember that anytime a user mouses over a menu item and the item gets highlighted, that's an "image swap"; and a "behaviour" is jargon for JavaScript codes that can be built into a document. It's "a combination of an event and an action". "Behaviour" is a term you'll come across pretty often.

"CSS Styles..."

You're bound to hear that from anyone who's building a Web site. All you need to remember is, "The W3C-approved method for presenting and positioning objects in a Web page is using cascading style sheets (CSS). Dreamweaver makes it easy to define styles."

"Layers..."

When someone mentions layers, you'll know what they're talking about if you remember this: "Dreamweaver uses DHTML to make layers. DHTML is a scripting language that allows HTML to change even after a page has been loaded into a browser." Of course, you've also got to remember that layers are a little bit like containers for stuff on the page. You can actually specify exact co-ordinates and some other stuff like hiding particular layers. You can have many layers on one page and hide each one until required.

"Just re-use that snippet..."

Reusing code pieces, also known as 'snippets', is supposed to be "a great way to save time."

And as for **"bindings"**, we don't know what they are, so just rote-learn the following: "The Bindings tab of the Applications panel holds dynamic content in a safe place for you to easily access and bind as you build your documents.

For example, when you create a recordset, it will be listed under the Server Behaviors tab, and accessible under the Bindings tab. You will be able to bind recordset columns into your document."

caused by disease. It will not help people with damaged optic nerves or other types of blindness.

AL'S INTERNET CONNECTION

Lifetime Achievement Award For Gore

Failed presidential candidate Al Gore, who once famously claimed to have "invented the Internet," is to get a lifetime achievement award for services to the Internet.

Gore was widely laughed at for his comments in a CNN interview that he "took the initiative in creating the Internet." In fact, he was only 21 when the Internet was created out of a Pentagon project.

However, the Webby awards for online achievements said that Gore will get a lifetime achievement award for three decades of service to the Internet.

The Webby awards say he did "amazing work for three decades as Congressman, Senator and Vice President."

Ironically, one of the key founders of the Internet, Vint Cerf, will give Gore the award at a June 6 ceremony in New York.

When Gore joined Congress eight years after the Internet was created, he promoted high-speed telecommunications for economic growth and supported funding increases for the Internet. He also coined the term 'information superhighway' when he was vice president.

STAR-GAZING SUPERCOMP

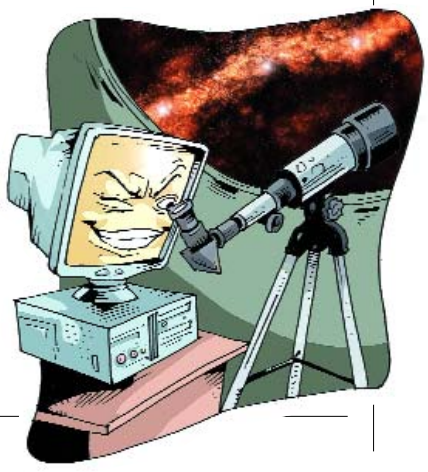
Europe Supercomp To Process Starry Data

Europe's biggest supercomputer will crunch data from thousands of radio antennae eavesdropping on the history of the universe, claims its Dutch developers, the Netherlands Foundation for Research in Astronomy (ASTRON) and the US computer giant IBM.

Based in Holland, the supercomputer will process signals from up to 13 billion light years from earth, as far back in time as the beginnings of the earliest stars and galaxies after the formation of the universe. "Unlike current observatories that use large optical mirrors or radio dishes to point to distant galaxies, ASTRON will harness more than 25,000 simple radio antennas," claims IBM and ASTRON.

Running on 12,000 PowerPC microprocessors, the supercomputer can execute 27.4 teraflops, or 27.4 trillion floating-point operations, per second, which makes it Europe's most powerful computer in terms of sustained performance.

The new computer will form the heart of a new



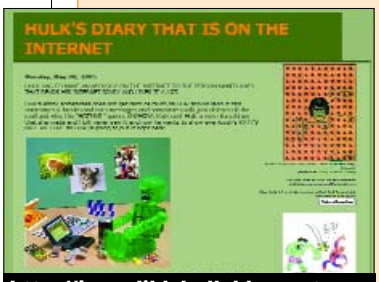
whatwerethey thinking.com

HULK'S DIARY THAT IS ON THE INTERNET

Seriously. We've seen some stupid, corny and outrageous stuff on the Internet, but this takes the cake. It's not actually a site, rather a blog called "Hulk's Diary That Is On The Internet". Supposed to be the Hulk's (the green cartoon monster character) diary (that is on the Internet, so we assume he also maintains one offline), there is nothing but text that seems to be written by people with sub-zero IQs or those who have been drugged before they wrote it. Or maybe both!

The blog is run by someone called Puny Human Kevin (and it seems he gets help from another Puny Human, Scott) and they are the Hulk's flatmates. It has been in existence since January 2001 and apparently, over 3,60,000 people have visited the site since. Incredibly (as much as the Hulk, perhaps), is the fact that there seems to be a loyal following with suggestions like "Hulk must drink Superdrink Red Bull". What?

People are sending photographs and stuff they make to the site and if not put up, they get mad and then, "Hulk apologise". What doesn't surprise us, though, is the fact that donations are being accepted. For what? "To buy Superdrink for Hulk"!



http://incrediblehulk.blogspot.com

It's ridiculous and after reading through half the home page, we were numbed at the lack of intelligence of the entire membership. How seriously can you take a sham? Visit and you shall know!

P.S. Some stuff like the Hulk's song (!) are funny, and make you snicker once.

radio telescope developed by ASTRON, and gather and analyse information from ASTRON's Low Frequency Array 'software telescope' network.

SUCCESSOR TO THE PS2

PS3 Due Next Spring

May 16, Sony announced that PlayStation 3, the successor to the top-selling PlayStation 2, will arrive next spring.

Microsoft's Xbox 360, announced mid-May, is slated for release this fall. Microsoft thus has a head start, and the Xbox 360, too, is aimed at the living room, with high-definition video, music and movies. But Sony boasts that the PS3 will have twice its power.

The system will support Sony's high-definition format—the Blu-Ray disk, and all PlayStation and PS2 formats, in addition to DVDs. It also will have built-in wireless and broadband capabilities.

The PS3 will not only deliver high-definition video games to HDTV sets, it also will allow those who own two HDTVs to create a single, panoramic, ultra-wide screen. A second screen such as a PC monitor could also be used to show tactical and statistical game data or video chat streams.

"This is allowing (users) to merge the real and virtual world together," Ken Kutaragi, largely seen as the father of the Sony Playstation, said.

The PS3 will use the cell processor, created by IBM with Sony and Toshiba, which has supercomputer-type performance 35 times more powerful than does the PS2. The nVidia graphics processor in the PS3 will be more powerful than two high-end PC graphics cards. ■

Compiled by Aditya Kuber, Mithun Kidambi, Ram Mohan Rao and Renuka Rane

Blog WATCH

On using Google Web Accelerator in conjunction with phpMyAdmin; an RSS newsreader with support for iPod integration and more; on saving battery on the Nokia Ngage; and a rant about VB versus C#. That's our pick of blog posts this month

Educational Weblogs
http://weblogs.asp.net/jasonsalas
Albert Delgado

Shrook 2.2 - RSS newsreader

What's New: Full attachment support with iTunes and iPod integration for podcasts Access to podcasts from iPod Notes menu * Spotlight searching support * Support for self-signed HTTPS certificates * Improved feed: support * Various minor improvements and bugfixes
Requirements: Mac OS X 10.3 or later.

Simple Thoughts
http://blog.taragana.com/
angsuman

Thought experiment: Google Web Accelerator and phpMyAdmin combo
What would happen when a GWA user uses phpMyAdmin?

It is not https connection, yet protected by a password, which will be visible to Google. With GWA's pre-fetching and disregard for javascript confirmations, you have the prospect of serious data loss (read database wipeout). Does Google apply its caching ingenuity to password protected pages?

Anyone up for the little experiment? Open phpMyAdmin, while using GWA, and browse around a bit. Let me know what happens.

All about Technology
http://techupdates.blogspot.com
indian

Save Battery using Offline Mode in Ngage
I am a proud owner of Nokia Ngage. I am totally satisfied with the quality and functions of this beauty. One more feature of Ngage is that it can save your battery and even can make you away from annoying and disturbing calls.

Saving Battery: While roaming, if you haven't activated roaming or there is no network, you can set thepProfile of your phone to 'Offline'. Offline mode makes your phone not reacheable to anyone and will stop searching for new network, hence will save battery.

Eric Bowen's .NET technology blog
http://scrappydog.com/blog/

I've become a VB hating C# bigot
I'm not sure quite when it happened, but I've gone over to the dark side and become a VB hating C# bigot. I've had a long career as a Basic programmer going all the way back to my TRS-80 Model I Level II in 1979, following by AppleSoft, QuickBasic, and then every version of VB and Microsoft Access...

Last week I started a major new project for a large corporate client that is using VB.NET, and I just don't want to do it. Yes, intellectually I know VB.NET and C#.NET are almost identical, and I'm equally fluent in both, but I just don't LIKE VB.NET! Moral of the story? None...

FIFA Soccer 2005

FIFA 2004 was not a good game. Actually, that was a huge understatement. OK, it sucked. Real bad. I actually preferred to play FIFA 2003 instead of FIFA 2004. Now EA's come out with FIFA 2005. Is it more of the same, or is it any good? Will it be a waste of your money? Hell, no!

This Is The New Shit

FIFA 2005 is one helluva game. It comes with the customary 350 licences, including 20 leagues, 40 national teams and over 15,000 players. All rosters are also up to date, with all transfers up to October 1, 2004 reflected in the game.

There's an all new interface, which is a real saving grace, because FIFA 2004's interface... well, the less said the better.

Also, for the first time since FIFA 2002, 2005 comes with a Creation Centre built in, so your days of downloading them are gone. It's detailed to the core.

Another nifty feature is the EA Store. By fulfilling certain objectives, you earn points that allow you to unlock certain items. So you have alternate kits, different balls, songs and stadia to be unlocked—even celeb referee Pierluigi Colina! All this is just the tip of the iceberg. What really makes the game so darn good is the First Touch model and ultra-realistic gameplay.

2005 realistically simulates your first touch of the ball

They Call It The Real Deal

EA has introduced, for the very first time, a First Touch model that realistically simulates your player's first touch of the ball. The first touch depends on how the player is positioned and the angle at which the ball is played to him, giving you the most realistic gameplay ever in any FIFA game.

Now you can plan your movements before you receive the ball, ensuring that the opposition's defence can't get anywhere near you. The game's a lot less monotonous, because it allows you to bring variation into your play and lets you try out some of those cool moves you saw on TV.

Everything about the gameplay has been improved. Take the AI. I could swear they read your mind sometimes, because the way they cut your most disguised 'through' ball is just unbelievable.

Another very welcome improvement is the player's ball control at the touchline. If the ball has just deflected off your defender and rolled to a standstill just on the touchline, you and an opponent will now race towards it. In 2004, you'd kick the ball out if you ran at it because of your momentum. In 2005, however, you have complete control of the ball in such situations. Players will even slide and try to keep the ball in play if it's rolling out. The game oozes realism, while still being fun to play.

The game oozes realism, while still being fun to play

Sweet Is The Fruit Of Patience

EA has also put in a whole new Career mode into 2005. This time around, your career lasts fifteen seasons, instead of just five. There are five different regions where you can begin your career, each with its own major leagues.

So England comes under one region, Spain under another, and so on. You start off at the teams in the lowest leagues and have to build a reputation to get a job at a top-level club. You have to keep winning trophies and your Job Security meter up.

Whoa, She's Beautiful!

EA has had the best football title for a long time when it comes to graphics, and this time it's no different. The graphics are jaw-dropping. 3D grass, accurate shadows, and the players look better than ever. However, audio is the one disappointing thing about the game.

One feature in FIFA 2005 that's both realistic and annoying is player retirements. From age 32 onwards, players start to retire and are replaced by randomly-generated characters having their names, skills and looks similar to those they're replacing. While this does make the game more realistic, it also makes it very annoying, because by the time you have enough managerial prestige to get into a top club, the best players are gone! Another irritating feature is the 'Load Replay' menu. You can save all the replays you want, but the menu only lets you see 13 of them.

Basically, there are plenty of ways EA could have improved FIFA 2005, but that still doesn't stop it from being one great game. It really is a must-buy, especially for FIFA fans who gave up on the franchise after FIFA 2004. Go get it now!

FIFA Soccer 2005
Publisher **Electronic Arts**
Developer **EA Canada**
Web site **www.easports.com/games/fifa2005**
System requirements **700 MHz CPU, 256 MB RAM, 32 MB video card, 800 MB free hard disk space, DirectX 9.0b**
Distributor **Gayatri Impex Pvt Ltd**
Price **Rs 1,299**

Courtesy SKOAR! Magazine

Need For Speed Underground 2

NEED FOR SPEED Underground (NFSU) was a revolutionary game where you could mod almost every part of your ride. The game was a little monotonous because you just won a race, unlocked stuff, and went to the Customise menu over and over; NFSU2 throws in a whole city with five distinct parts that you have to unlock while following the storyline. You have the freedom to choose your race and sponsors, you've got three new modes, and many more cool features.

This is the first NFS game driven by a story. The story picks up from where NFSU ended, depicting you as a top-dog racer, when suddenly an idiot in his 4x4 smashes into your ride one night. Once you've recovered from the crash, Samantha (the girl in NFSU) directs you to Bayview, where you need to rise up back to the #1 position. Every few races, a cutscene is played, which leads to the next stage of the plot. The end objective is to find the person who totalled your car and give him hell.

NFSU2 looks splendid, and the night-time races add to the effect. The game uses a tweaked NFSU engine. Motion blurs and light trails have been fine-tuned to perfection. The effects when you hit the nitrous give you a sense of speed hard to find in any other game. The cars are exact replicas of their real-world counterparts.

As for those oh-so-lame crash effects, the introduction of a 'different' camera angle still can't make them look any better. Due to the lack of damage modelling, the only enjoyment you can get is out of the nice sounds that shearing metal makes. Overall, the game isn't more graphically advanced than NFSU.

The night-time races in NFSU2 are really well done

5 TOP SELLING GAMES

1. **Need For Speed Underground 2**
   Rs 1,299
   Gayatri Impex Pvt Ltd
2. **Mafia**
   Rs 699
   E-xpress Interactive Software Pvt Ltd
3. **Harry Potter And The Prisoner Of Azkaban**
   Rs 1,299
   Gayatri Impex Pvt Ltd
4. **Constantine**
   Rs 699
   E-xpress Interactive Software Pvt Ltd
5. **Grand Theft Auto: Vice City**
   Rs 1,299
   E-xpress Interactive Software Pvt Ltd

List Courtesy **Crossword** Mumbai

The city is split into five parts that are unlocked in stages

Car In The Big City

The races in NFSU2 can be completed in any order. The city is split into five parts that are unlocked in stages. Also, instead of a one-stop modding menu, you need to visit shops scattered across the city. You need to unlock these shops by finding them, upon which they'll be added to your GPS map. Points where races will take place are also displayed on the map, but some races you'll have to uncover.

The tweaking in itself is pretty exciting. Almost every car part can be tweaked. Every fancy addition earns you respect, increasing the points you get as well the nitrous boost you have. Your tricked-out car will also get featured in magazines, earning you cash in the process.

Basically, the game revolves around you striking deals with sponsors and fulfilling your contract. Race modes consist of the legendary Drag, Circuit, Sprint and Drift races, with a notable addition being Street X, a combination of the Circuit and Drift modes. Then there's the Time Attack, where you have to complete certain objectives in the given time.

More Sound Than You Want To Handle

Snoop Dogg's remix of *Riders on the Storm* is the best opening sequence we've ever heard. The other tracks aren't that good, though. Effects such as engine sounds, crashes, nitrous boosts, and various other ambient sounds have been done extremely well.

Multiplayer in NFSU2 is as simple as it gets—all single-player modes are available in multiplayer. The servers are good—you can play online even with a slow Internet connection (we used a 33.6 Kbps modem).

The graphics are good, sound effects great, music OK, but the voice acting needs a lot of improvement. If you crave the need for speed this game is definitely for you—it's worth the money. Until the next iteration, satisfy your speed addiction through this game, not in the real world. Drive safe.

Need for Speed Underground 2
Publisher **Electronic Arts**
Developer **EA Canada**
Web site **www.needforspeed.com**
System requirements **933 MHz CPU, GeForce2, 256 MB RAM, 2 GB HDD space**
Distributor **Gayatri Impex**
Price **Rs 1,299**

Courtesy SKOAR! Magazine

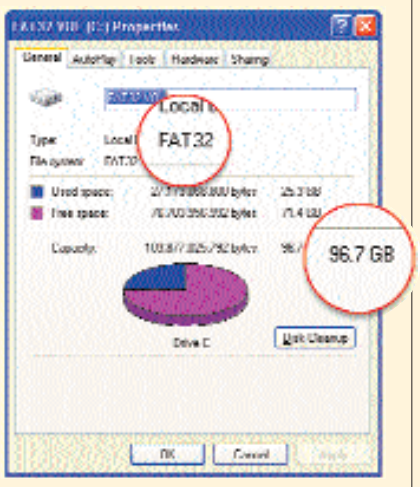
GAMES

TAKE a CRACK

THIS MONTH'S CHALLENGE

So you still love FAT32 and have a huge hard disk... how would you go about creating a FAT32 partition larger than 32 GB on your disk? Sound impossible? Write in to **takeacrack@thinkdigit.com** with your solution

Create a FAT32 partition larger than 32 GB on your hard disk



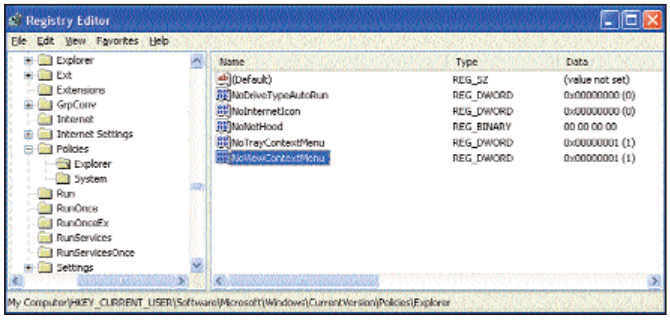
LAST MONTH'S CHALLENGE

Disable right-clicking anywhere on the Desktop

We are disappointed to say that this month, there were no winners for the 'Take A Crack' contest. Most of those who responded, sent in only half the answer. We had asked you to suggest a way to disable the context menu—or right-clicking—on the entire Desktop, **including the Start Button, Taskbar and the System Tray**. Most entries stated the way to disable the context menu only on the Desktop.

Anyway, here is the solution to last month's problem.

You need to use the Windows registry editor. Start the registry editor by going to **Start > Run**, typing in "**regedit**" and pressing [Enter].

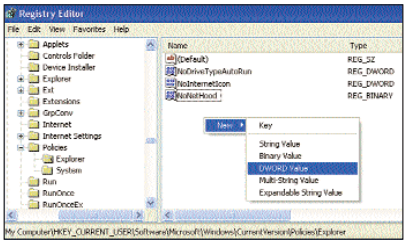


Disable the context menu on the Desktop and in the System Tray

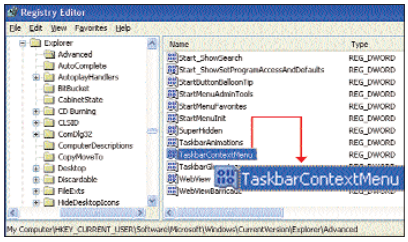
The default Windows XP Desktop

First, navigate to **HKEY_CURRENT _USER\Software\Microsoft\Windows\CurrentVersion\Policies\Explorer**. Right-click in the right pane and create a new DWORD value. Name this DWORD key "**NoViewContextMenu**". Double-click on this DWORD and set its value to 1. Click 'OK'. This step will disable the context menu for the Desktop.

Next, in the same registry key as above, again right-click in the right pane and create another, new DWORD value. Name this DWORD "**NoTrayContextMenu**". Double-click on this DWORD and set its value to 1. Click'OK'. This step will disable the context menu for the System Tray.



All steps involve creating a new DWORD value



Disable right-clicking on the Taskbar

Finally, we'll disable the context menu for the Taskbar. To do this, navigate to **HKEY_CURRENT_ USER\Software\Microsoft\Windows\CurrentVersion\Explorer\Advanced**. Right-click in the right pane and create a new DWORD value as before. Name this DWORD "**Taskbar ContextMenu**". The new DWORD will have a value of 0—let it remain. That's it—you're done.

Exit the registry editor. Log Off and then log back On for the new settings to take effect. Now try right-clicking anywhere—you won't be able to!

To restore the context menus, repeat the above procedures, and simply change back the values from 0 to 1 and 1 to 0 as necessary.

Win!

Take a Crack and Win
Artificial Intelligence A Modern Approach
By Stuart Russell and Peter Norvig
Published by Pearson Education (Singapore) Pte. Ltd.

WINNER
There was no winner for last month's Take A Crack contest.

Rules and Regulations

- Readers are requested to send in their answers by the 15th of the month of publication.
- Employees of Jasubhai Digital Media and their relatives are not permitted to participate in this contest.
- Readers are encouraged to send their replies by e-mail. Jasubhai Digital Media will not entertain any unsolicited communication.
- Jasubhai Digital Media is not responsible for any damage to your system that may be caused while you are trying to solve the problem.

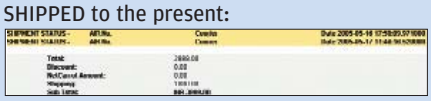
ACi laptop on Indiatimes for Rs 2,999

digen
Brainiac
Location: Belgaum
My bro has ordered it for himself. But the mode of payment he has selected is DD/Cheque. So, unless the payment is received they won't process the order. Maybe I'll just wait and see how it goes. Play Safe! I seriously hope it's not a typo man. Fingers crossed, it's too good to be true.

****

Sourabh
Digitized Flooder
Location: LoSt
Well this thing is really bugging me now! They called me up day before yesterday from Gurgaon saying that the real price of the lappy was Rs 29,990, and there had been a error on the site so they would have to cancel the order.

I paid them then and there thru my ICICI bank account, after some of their phone calls and heavy scolding, they said higher officials will get back in touch with u. 3 hrs from that conversation, I got a mail to confirm my order and shipping address, which I had to reply to. After that I have seen a change in my status of product from STATUS—NOT SHIPPED to the present:



Now I dunno what's happening: I still haven't got my money back, no phone calls, also the status in Indiatimes is absurd, everything is blank so can't figure out anything.

The error was there for almost 24 hours and, about 45 guys booked it and still they didn't stop the product from being ordered. Even after this whole deal had been addressed they still had it on their site for a while for the same absurd price.

I feel that all they are doing this for is to get more visitors on their site and hoping to get more money from the extra traffic.

I got a call from them almost 24 hrs after I had made my payment, also they said that they would return the money within 10 days to my ICICI bank account. Does Indiatimes have problems even for Rs 4k, that they will have to take 10 days to deposit the money in it again?

****

go4inet
Resident Techie
Location: Chennai
They have updated their page now. Still there is an error on their page : MRP: Rs.5,999
Offer Price: INR: 34,999.00 USD: 795.40
You Save: -4.8E+2%. Lol!

To post your comments on Digit Forum, visit www.thinkdigit.com/forum

...That's Why Digit Is No. 1

I was really very angry when I received my April issue of *Digit*. Reason: the DVD was unusable. Though I'm not a subscriber, I am definitely a regular reader. When I had read the DVD contents in *Digit*, I was really eager to lay my hands on the DVD.

But to my horror, it didn't work! It was like separating a mother from her baby; I tried all sorts of ways to execute the installers, but no use. The DVD didn't have a single file that could run. I decided I would definitely call *Digit* and ask for a replacement. And I did.

The lady in your Mumbai office asked my phone number and suggested I put my complaint on the feedback section. I did as I was told, but I had very little hope that I would get another DVD.

Two, five, 15 days went by, but there was no response from your team and I had lost hope of getting another DVD. But then came the turning point... the May issue of *Digit*, that carried the editor's note saying newsstand buyers, too, could get a replacement DVD by simply providing their Patron Code.

This was like a hero who rescues the baby and helps it meet its mother! Right now, I'm enjoying my DVD. I'm greatly impressed by the care that team *Digit* takes of its customers, and this is what makes *Digit* India's No. 1 tech magazine!

Rishabh Jha
Vadodara

I was just thinking of sending you back the DVD shipped with the April '05 issue, since it did not autorun. I was surprised to see the new DVD with your May '05 issue and your apology note. Thank you so much for treating all subscribers at par. You really deserve all the thanks for it.

Kartik Kamdar
Via E-mail

Dear Rishabh and Kartik,
Nothing gives us greater pleasure than to know that our efforts are being appreciated by our readers. You don't need to thank us for sending another DVD... it was the least we could do. Keep reading and let us know what you think... that's what helps us improve.

—Executive Editor

Who Moved My Contest?

I don't know if I am a bit late in sending this e-mail, but I had to... I also don't know whether my mail will be published, because I am writing something which concerns the 'wrongs' in the magazine.

I bought my copy on May 7. I was very happy to read in the magazine about the Contest Carnival. However, I was not able to take part (or couldn't) till May 9.

When I finally sat down by May 10, I entered the exact URL that had appeared in the magazine in my Web browser **http://www.zdnetindia.com/digitcontest**.

A nice and functional page was ready for me to browse, but it also said "This Web page has been upgraded", and there was nothing in it that concerned the Contest Carnival.

Let me also tell you that this was exactly what happened when I tried to view the results of the February contest on March 15, as the site during that contest said that the results would be declared on March 15.

How could it be upgraded so soon? But, thanks to Google and Yahoo!, which opened some related sites, I got access to the site which had the February results. I also opened a few other links provided by the search engines, but it was of no use.

Finally, I reached the site that was relating to the May contest. But, I was surprised to see that the site already had the winners name for the May contest itself.

This happened on May 12. Moreover, the site was also not '**/digitcontest**', but '**/dcnew**' and something else as well!

And all this happens when I was feeling unsatisfied by the April DVD problem. I have been a regular reader for the last nine months was very satisfied by the software and other utilities you have always provided.

And yes, once I read that someone wrote to you saying you can also include full versions of old games such

Write to the Editor

E-mail: editor@thinkdigit.com

Snail Mail: The Editor, Digit, D-222/2, Om Sagar Building, MIDC, TTC Industrial Estate, Nerul, Navi Mumbai 400 706

Digit will publish the best letters on these pages. Letters may be edited for clarity.

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Inbox

as the IGI, Max Payne and many others. You can conduct a poll on your site and find out whether people really want them. I know that probably most of the PC gamers would have the games I mentioned, but as I said, there are many other games and you too, now, give more than 4 GB.

Ayush Dinker
Kanpur

Dear Ayush,

www.zdnetindia.com/digitcontest/ automatically forwards to **www.zdnetindia.com/dcnew/**, which is the new address of the contest.

It appears that you logged in at a time when the pages were being updated, we apologise for any inconvenience caused to all our readers due to this.

Another possibility is that your browser didn't redirect, as it should, or was showing older cached pages. To overcome any such problems, all readers are requested to empty their browser caches before playing the contests.

The contest page is up and running, and can be accessed by going to **http://www.zdnetindia.com/dcnew/** (**http://www.zdnetindia.com/digitcontest** still works as well).

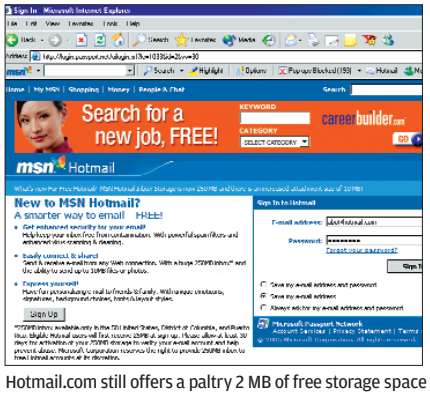
The contest closes on June 15, 2005, so hurry up and start playing!

—Executive Editor

Thanks, But No Thanks

To,
Customer Service,
Hotmail.com
I have the following issues with Hotmail which need remedial action:

1. I have just 2 MB of storage space compared to the 2.2 GB that your competitor offers. This must have been enough space five years ago, but today, it seems a bit less. Don't you agree?



Hotmail.com still offers a paltry 2 MB of free storage space

2. Since you have made Outlook (POP access) restricted to subscribers (which the average Indian cannot pay for), I am stuck with deleting mails on an hourly basis.

3. Like all my friends, I will have to migrate to my other e-mail accounts causing me great inconvenience. If I were in the US, I would have sued you for billions.

Priyank Modi
Was ***prinks4u@hotmail.com*** *for eight years*

Dear Priyank,
We couldn't agree more. For your information, Hotmail offers 250 MB to its North American users. Maybe you could probably inconvenience yourself once and switch over to Yahoo! (1 GB) or GMail (2.2 GB and counting!).

—Executive Editor

More Registry Tweaks, Please

I have noticed that in the Tips & Tricks and Q&A sections, there are many little registry tweaks or hacks.

My suggestion is to devote one or two pages of your magazine for a different section, in which, you can present some registry tweaks and continue it in every issue. In fact, at least 10 registry tweaks per issue would be great.

You could also include only the most useful ones to control space. Else, you can use this as a topic for your upcoming *Fast Track* book.

Continue with your excellent work, and hats off to the *Digit* team!

Shashank Rawoorkar
Via E-mail

Dear Shashank,
That's an excellent suggestion. We will definitely try to implement it either in the magazine or in the form of the book soon. Why don't you write in and let us know exactly what you would like to see in this book?

—Executive Editor

Corrigendum

In the April 2005 issue of *Digit*, the contact details of Esource Global in the Motorola MPx review (page 56) were incorrect. The correct contact number for Esource Global is 9820822205. You may also visit their Web site at **www.esourceglobal.com**. The error is regretted.

—Executive Editor

An Apple A Day...

First up, let me congratulate you for bringing out yet another excellent issue of *Digit*. Your article on the future of inkjet printers was especially praiseworthy.

However, I have a gripe. Your coverage of Apple Mac OSX 10.4 Tiger was treated as very inconsequential in the computing world.

LETTER OF THE MONTH

As you already know, Tiger is the most advanced OS in the world with features that won't even be present in Windows' upcoming Longhorn operating system.

In India, people do not have any idea of the Mac platform and its advantages. The release of Tiger gives a great opportunity to bring to the fore the advantages of this platform. In my opinion, there should have been a full story dedicated to Tiger.

Moreover, people are also discouraged to try out the Mac platform by your magazine, which I find very stupid.

In your Agent 001 section, Vinay Anand has been advised to purchase a Windows-based PC for high-end multimedia applications; something for which Macs have been traditionally famous for. Agent 001 also mentions that Mac OSX is not popular with developers and that "very few professional applications are available for Mac OSes".

This kind of advice reinforces the mindset that the MAC platform is application-starved, which is untrue, as all major applications are supported. In the case of some minor applications, some are supported while there are alternatives for others.

I have been using an Apple iBook for the past one year and have not felt deprived of any software available for my PC counterparts.

While being a magazine of such repute, you have given voice to a rumour that is untrue.

Dr Sudeep Bansal
Via e-mail

Tabloid TECH

People And Events That Grabbed Headlines—For Better Or For Worse

Yank That Cell Away

Parents looking for a punishment for their wayward teens, which does not involve beating or locking them in the wardrobe, should consider confiscating their mobile phones: a study by a South Korean advertising firm shows that a mobile is a Korean teenager's most prized possession, and that taking them away from them is a bit like social castration.

The Cheil Communications survey found that of 13- to 15-year-olds, 77.5 per cent said a mobile phone was a 'must-have' item, while for those aged 16 to 18, the figure was 76.7 per cent, the survey showed.

The survey indicated that teens felt helpless without their mobile, thus taking it away from them would be a really good punishment.

Was Carly all that bad?

They Survived Carly Fiorina!

A Web site is offering a selection of products celebrating the "Carly Fiorina Years". The items available at www.cafepress.com/carly_survivor include mugs, shirts and other paraphernalia, and carry the logo "I survived the Carly Fiorina Years".

The site says the items commemorate "your survival, or not, through Carly's tenure as CEO" and let you tell the world all about it. Was she all that bad?!

Apparently. Some readers might recall that Fiorina was a controversial figure at HP, partly because of the abrasive manner in which the takeover of Compaq was fought in 2001 and 2002. As a matter of fact, HP shares rose 7.5 per cent after the news of Fiorina's stepping down!

DVD For The Mourners!

An Australian undertaker is offering a hearse with its own mini-bar, DVD player and coffee maker. It is fitted with chrome handrails, tinted windows, pop-out cup holders and atmospheric lighting.

The mint green hearse can hold up to 12 mourners and a coffin, reports *The Sydney Morning Herald*.

Martin Tobin, of Tobin Brothers Funeral in Melbourne, said: "We already know that this will not be for everyone, and we are not saying that this is the only way to have a funeral.

"But for those who want to be together and travel with the deceased, particularly those with large families, it is a good option for them."

The family funeral bus costs £400 (Rs 32,600).

What's with all these funeral gadgets coming out these days? Earlier, in this space, we spoke about a German inventor's tasteless invention that lets you talk to the dead—a gadget you bury in the ground along with the body so you can call up the body and speak to it.

And now this! Imagine people dressed all in black, sipping Foster's and watching their favourite DVDs in between sniffles. Whatever happened to good old-fashioned mourning?

Toying With Cybersex

Would you have cybersex with someone you met through an online dating site? Would you go on a date with someone you met through a cybersex chat room? HighJoy is betting you will.

HighJoy is a fusion of a dating database, a proprietary chat client, and 'teledildonics'—the integration of telepresence with sex.

Amir Vatan, CEO, describes the company as something between AdultFriendFinder and Match.com. He sees HighJoy as the logical next step for those who enjoy making connections online. Now that we're used to the idea of meeting people through personal profiles and Internet communities, "people are looking for an increased level of interaction," he says.

Members fill out profiles, in varying degrees of detail. You can search the database by characteristic or member name, contact people through anonymous e-mail and have private chats. A favourites list lets you keep track of people you're most intrigued by.

And, of course, you can invite someone to control your vibrator while you control theirs.

For the monogamous, HighJoy offers a 'one-on-one' membership that lets you sign on to chat privately with each other and control each other's sex toys, without access to the community rooms and profiles. You can't contact people through their profiles, and they can't see yours.

HighJoy—very adult, very "with it"

Seriously, this idea—"something between AdultFriendFinder and Match.com"—strikes us as a good idea, and as a sign of the times.

3-Easy-Steps to Freebies!
1 Log on to www.thinkdigit.com/digitpatron to register.
2 Enter this 16-digit code and score points (you will find your code at this place every issue)
3 Your points get added every month and can be redeemed for exciting gifts!
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