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September 2006

digit

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Mobile Games Go Beyond
Entertainment

Disney's Cars:
We Rev Up For You



Heroes Of Might And
Magic V Reviewed

30 Days With WMP 11:
Is It Any Good?



 **Jasubhai**
DIGITAL MEDIA

Of Gambling And Ganesha

AFTER THE DOT-BUST of 2000-2001, a mini dot-boom seems to be brewing again. Marketing spends for online has increased over the last two years, and so has the valuation of sites that held on during the bust. The Internet advertising rebound has once again fuelled the imaginations of those who wouldn't like to spend too much time getting rich.

This time round, I think there will be a more mature and responsible approach to the resurgent online craze. The market for domain name sales has heated up once again—in 2005, domain name sales generated \$29 million.

What caught my attention, though, was an auction on eBay for ganesh.com, for which the bid started at a mere Rs 12.5 lakh (\$2,700). With the festive season upon us and Ganesha celebrations that were held across the nation, this was indeed timed well. But the last bid (and the only one) I found while writing this was just Rs 50,000. Try comparing this with the highest domain name sales thus far: sex.com—\$14 million (Jan 2005), Business.com—\$7.5 million (Nov 1999), Beer.com—\$7 million (2004), Diamond.com—\$6 million (2000), Casino.com—\$5.5 million (Oct 2003). Our gods seem to have lost out to the lucre of porn, liquor and capitalism. And the God of Wealth seems to be finding it difficult to generate enough wealth for his online presence.

Coming back to our point, we must ask whether keyword-targeted domains offer a business an additional advantage over search results or page rank alone. As a matter of fact, data suggests that between 67 and 86 per cent of online consumers reach Web sites through direct navigation, and are twice as likely to make a purchase as those coming to the sites from search engines. Google states that search results pages, as a whole, represent only 5 per cent of Internet traffic.

But we have been forewarned: "Prices at the boom time around the year 1999 had no bearing on reality. Everyone just assumed they were going to be worth a fortune," says Ron Jackson, editor of Domain Name Journal.

Take the case of Business.com: although it fetched \$7.5 million in 1999, today it is all but a



Deepak Ajwani Executive Editor

"Do keyword-targeted domains offer a business an additional advantage over search results or page rank alone?"

shadow of its former self, a simple text-based search engine run by a skeleton staff. Shouldn't this be a warning to would-be speculators?

History has a habit of repeating itself, but this time I'm not too sure—there might be a shake-up rather than a bust in the true sense.

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

editor@thinkdigit.com

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



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Want your product reviewed by *Digit*?
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Software On DVD/CD

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Disclaimer: For every *Digit* contest, there will be only one winner, unless specified otherwise. In the event of a dispute, the Editor's decision shall be final

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Digital Cameras 52	Sony Cyber-shot W50	Kingston U3 DataTraveler Smart USB
Canon Digital IXUS 60	Samsung Digimax S500	Flash Drive 5
Premier ... DC5370	Samsung Digimax S800	Kingston K-PEX 100 2 GB
Premier ... D5082	Sony DSC L1	Levelone BLH-1200 Bluetooth Stereo
Premier ... DC6370	Sony DSC S40	Headset
Premier ... DC8365	Nikon ... coolpix S5	Samsung LA26R71B
Premier ... DS8650	Nikon .. coolpix L4	
Premier ... DS3088S	Olympus ... SP 310	
Canon Powershot A530	Olympus FE115	
Canon Powershot A700	Kodak V610	
Canon Powershot S3IS		
Techcom DSC 512X plus	Bazaar 74	
Techcom DSC 524X plus	A8R32-MVP Deluxe	
Kodak V570	ASUS EAX1900XTX .	
Kodak V603	BenQ-Siemens CL-71	
	JVC GR-D350AG Camcorder	
SOFTWARE		
		Linux 36
		Fedora Core 5
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		Mandriva 2006
		Open Suse 10.1
		Ubuntu 6.06
		Xandros

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technology

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for E3—at least
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gigantic form.
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29 Still Life

Been enthralled by The Matrix's bullet-time effects? Here's how you can make your own!



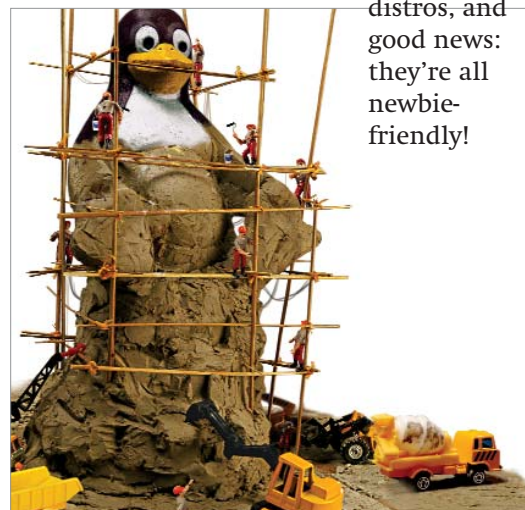
32 Chipmate!

As Intel strikes back at AMD with the Core 2, we delve into the architectures of today's two desktop behemoths—the AMD64 and the Core

36 Free Your Mind

What does today's Linux desktop offer? We took a look at the most popular Linux

distros, and
good news:
they're all
newbie-
friendly!



43 It's Morphin' Time!

Thanks to Chaos Computing, computer chips of the future will take any form you want them to—CPU, memory, graphics card—you name it

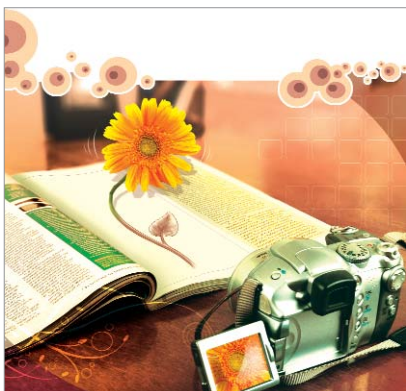
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49 The Photoshop Fix

Sure, Photoshop's great. but without the plethora of third party plugins, anything could just get boring. Presenting ten great Photoshop plugins for that extra imaging buzz, plus a couple of honourable mentions



52 Shooting Stars

Preparing for a holiday? Need a high-resolution memory to show off? Which one of these 24 digital cameras will be your next holiday companion?

70 Tech And You

How does server-based computing help you?

102 Agent 001

Sick of low-quality bundled headphones, the Agent finds the best pair for his portable media player



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How will IE7 protect you when you go Vista? A quick look at the much-hyped "protected mode"

Digital Business

111 Chip Your Way Through!

The career for the hardcore geek—here's your guide to getting yourself into the VLSI and chip design industry

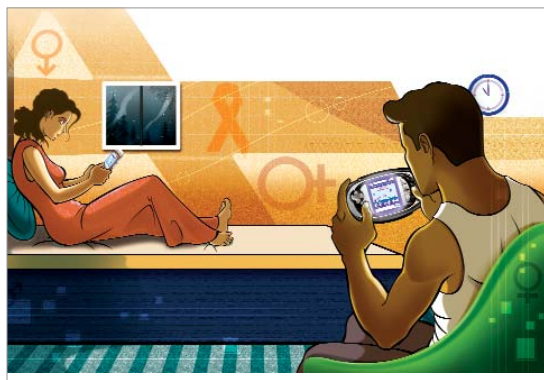


114 Thin Is In

Setting up a thin client network in your office is about 20 per cent cheaper than a full-PC network, and is 30 per cent cheaper to maintain. Are you *still* going to keep buying computers you don't need?

September 2006

Digital Leisure



117 Anytime, Anywhere AIDS Awareness

Who'd have thought that mobile games could join in the war against AIDS and other deadly diseases?



120 Game On

Tekken: Dark Resurrection and Burnout Legends for the PSP, Heroes of Might and Magic V, Disney's Cars (the best game for kids out there) and Black for the PS2

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Find out why Google Earth is on Richard Gere's hate-list

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127 Apple fan or not, you'll agree that the iPod's been designed beautifully. Jonathan Ive did it

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DIGITAL PASSION

GAME

Legends

Legends is a fast-paced first-person-perspective online multiplayer game with beautiful environments with variety of styles of such classics as Quake and Tribes

**Nexuiz**

Nexuiz is a fast-paced, chaotic, and intense multiplayer first person shooter, focused on providing basic, old style deathmatch action

**GTR 2**

GTR 2, which is the official simulation of the FIA GT championship, features more than 140 high detailed cars and 34 different track-layouts

**Mandriva Linux Free Mini 2006 CD**

Mandriva Linux Free Mini 2006 CD Originally a Red Hat Linux variant optimized for Pentium-class CPUs, Mandriva Linux has since diverged to form its own distribution

**KDE**

KDE is a powerful Free Software graphical desktop environment for Linux and Unix workstations. It combines ease of use, contemporary functionality, and outstanding graphical design with the technological superiority of the Unix operating system

**LINUX**

- Globulation 2
- Linux Kernel 2.6.17.4
- Open Blue Lab 1.0.13
- SQL Relay

DEV TOOLS

- Borland C++ 5.5 Compiler
- Java Studio Creator 2
- NVPerfKit
- Visual Basic 2005
- Visual Prolog 6.3
- Servoy
- WorkRoll

DIGITAL TOOLS

Adobe Premiere Pro 2.0

Adobe Premiere Pro 2.0 software delivers real-time editing tools for professional video production

**muvee autoProducer 5.0**

Experience the fastest, easiest, most fun way to transform your videos and pictures into slick productions... in seconds!

**MULTIMEDIA**

- Adobe Lightroom
- Celestia Respiratory Add-on
- QuickTime 7 Player
- Carrara 5.1 Pro
- InstallShield DemoShield v8.0
- MediaStudio Pro

INTERNET

- AIM Triton
- GOIM 1.1.0
- SPAMfighter Standard 4.6.6
- Windows Live Messenger 8.0.0812
- Y! Multi Messenger 8.0.0.508
- Capturix VideoSpy 3.07.1855
- IRCAS Alarm 4.0.6
- My.mail 2.0.5
- TalkyMail
- Notes2 for Outlook 1.00.073
- Safe n Sec Plus Anti-Spyware 2.0.1405

SYSTEM

- Catalyst Radeon Display Driver 6.7
- KGB Free Key Logger 1.94
- NVIDIA ForceWare Drivers
- Realtek AC'97 WDM Driver (Windows)
- Realtek RTL Gigabit and Fast Ethernet NIC Driver (Windows)
- RyanVM Integrator
- RyanVM's Windows XP Post-SP2 Update Pack 2.1.0
- Registry Mechanic 5.2
- Spare Backup 2.4.143

PHOTOSHOP PLUGINS

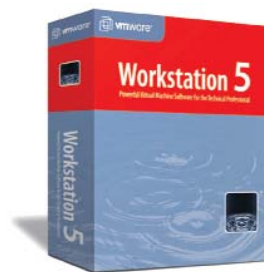
- 3D Shadow
- Flaming Pear Freebie Collection
- Harry's Filters
- Pinocchio
- PixelSampler
- ICOFormat
- Luce
- Thredgeholder
- Topaz DeJPEG
- VanDerLee Collection
- Virtual Photographer
- WallPampered
- Xero Collection



DIGITAL BUSINESS

VMware Workstation 5.5.1

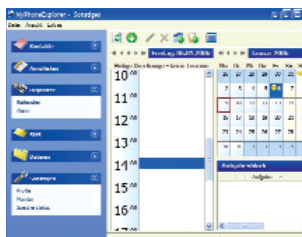
VMware Workstation is powerful desktop virtualization software for software developers/testers and enterprise IT professionals that runs multiple operating systems simultaneously on a single PC

**Prompt Office 7.0**

Prompt Office 7.0 is computer software for translation of texts, e-mails, Web sites, PDF-documents and even image files in just seconds. The program is a perfect solution for the translation needs of small businesses and home users

**MyPhoneExplorer 1.3.3**

MyPhoneExplorer is a free and useful program with the help of which you can administer a Sony Ericsson mobile phone easily

**PRODUCTIVITY TOOLS**

- Group Mail 5
- Rhymesaurus
- Workspace Small Business 1.7

MOBILE APPS

- Float MobileAgent 0.1.1.16
- K700 Remote Profiler 1.0.8
- Nokia PC Suite 6.81 Release 13
- PhoneBackup 1.4.4 for Sony Ericsson
- Series 60 Theme Editor
- Sony Ericsson Themes Creator 1.92

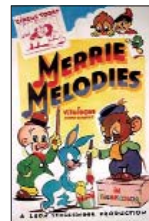


Sony Ericsson

DIGITAL LEISURE

MOVIES

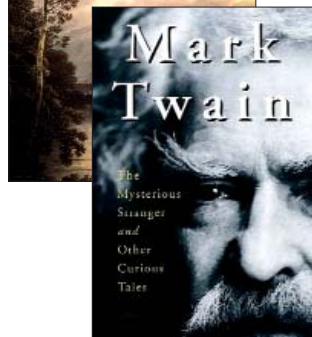
- Merrie Melodies: A Day At The Zoo (1939)
Cartoon characters spend a silly day at the Kalama Zoo
- Merrie Melodies: Falling Hare (1943)
- Merrie Melodies: The Early Worm Gets The Bird (1939)
- Merry Melodies: Fresh Hare (1942)
Bugs Bunny is wanted "dead or alive" by the Mounted Police
- Mack Daddy Mario 3
- Mario VS. Sonic



- Rise Of The Mushroom Kingdom 1
- Rise Of The Mushroom Kingdom 2
- Rise Of The Mushroom Kingdom 3
- Rise Of The Mushroom Kingdom 4

**E-BOOKS**

- The Adventures Of Tom Sawyer
- The Mysterious Stranger
- Three Boys in the Wild North Land



DIGITAL PASSION

3D Webmaker 2.0



This program allows you to build 3D Web sites including malls, exhibitions and museums and can be incorporated into existing Web sites

Stylus Studio 2006 Release 3 XML Professional Edition

This fully-functional software includes all Stylus Studio 2006 XML features including XML editor, XSLT Editor, XSLT Debugger, XML Schema Editor, XQuery



Editor, DTD Editor, XML Mapping, and Legacy Data Conversion and Web Service Tools

Mono SDK

Mono provides the necessary software to develop and run .NET client and server applications on Linux, Solaris, Mac OS X, Windows, and Unix



DEVELOPER TOOLS

- Alambik Script ABC FREE Editor 1.20
- DHTML News Creator 1.1
- EasyStructure 1.2.2
- Flash Lite 2.1 for BREW
- Flash Lite Publisher for BREW
- Protara Standard Edition 1.0
- Excelsior JET 3.6
- ASP Express 4



LINUX

- Apache Server 2.2.3



- Evolution 2.4.2.1
- FVWM 2.5.17
- Knapster2 0.5
- LilyPond 2.9.13
- Mutt 1.4.2.2
- Nagios 2.5
- XChat 2.6.6
- NExS 1.6-0

DIGITAL TOOLS

Backup4all Lite 3.3



Backup4all protects your valuable data from partial or total loss by automating backup tasks, password protecting and compressing it to save storage space

Webaroo 1.1 Beta

Get the power to search and browse unplugged—anywhere, anytime, without a connection



MULTIMEDIA

- FilterMeister 1.0 Beta 7
- OpenFX-1.5
- QuickTime Alternative 1.72 final
- SC Free DVD Copier 2.6.0.1
- Carrara 3D Basics 2
- Duplicate Image File Finder 7.0
- DVD Copy Movie 1.12
- Mimic Pro

INTERNET

- CleanCache 3.4
- Comodo Personal Firewall 2.1
- GeSWall Personal Edition 2.3.1
- MECA Messenger 5.3.1.11
- Paltalk 8.3
- Shockwave Player 10.1.3.018
- Skype 2.5
- Active Email Monitor

SYSTEM

- BIOS Agent 3.55
- BurnOn CD/DVD Free v3.1
- FSL Launcher 1.0.1.6
- Mozy Remote Backup 1.6.3.8
- SideSlide 1.0.35a
- TKexe Kalender 1.0.6.9
- Backup-2006 Studio 5.1.4.211
- Hard Drive Inspector 1.85
- MagicISO Maker 5.3 build 0214
- R-Studio 2.0

ESSENTIALS

- .NET Framework 1.1
- Avast Home Edition 4.7
- Avast Update
- Digit Software Archive 2006 Beta
- ZoneAlarm 6.5.731
- Foxit PDF Reader 1.3 build 0104
- Irfan View 3.98
- K-Lite Mega Codec Pack 1.53
- Spybot Search and Destroy 1.4
- VLC Media Player 0.8.5
- Winamp 5.24
- WinRAR 3.60 beta 8
- Opera 9.01



DIGITAL BUSINESS

Outlook LAN Messenger 3.1.2



Outlook Messenger is a Concept LAN chat for interactive communication within your office network. Outlook Messenger can be plugged into MS Outlook allowing users to share Outlook e-mails, contacts, and appointments

Free 10 user license key of Outlook Messenger for the thinkdigit readers.
Registration Name: **thinkdigit**
Registration Code : **OM-ODTOS-ORSZAZDSRQ**

novaPDF 2.5



With novaPDF you can easily create high quality PDF files in an affordable and reliable way from any application

PRODUCTIVITY TOOLS

- Allway Sync 4.6.8
- Audit Trail Wizard 1.2
- PhraseExpress 3.0.70
- Babylon 6
- Cuevision Server Monitor Professional 2.5.1
- Network Management Suite 5.9
- PDF2XL 2.4.2
- Star Check Writer 1.0
- Winpopup LAN Messenger 4.7
- Easy2Sync for Outlook 1.16

MOBILE APPS

- ImTOO DVD to 3GP Suite 3.1.8.0720b
- Joy RingTone Converter 1.20
- Mobile Ringtone Converter 2.3.25
- Xilisoft DVD to iPod Suite 4.0.53.0721
- Wondershare DVD to PSP Ripper 1.3.3



DIGITAL LEISURE

SMALL GAMES BlazeTris



Blazetris is a new game similar to popular Tetris. It features new improved 3d graphics, and custom in-game music

DevastationZone Troopers



Face more than 50 missions against the Rakkai Empire. Navigate dropship through clouds of space junk and face hordes of hostile ground troops upon landing. Use modular assault rifle technology and choose weapons that tip the odds of survival in your favor

- Enemy Down
- Vivid Conceptions

VIDEOS

- Crossover
- Invincible
- Lassie
- The Guardian



Online



By Demand

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

Adobe Premier Pro 2.0

Size: 563 MB

Muvie autoProducer 5.0

Size: 103 MB



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Digit Reader Poll

This Month's Question

Will you go the Vista way?

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



To vote Log on to www.thinkdigit.com

Last Month's Question

Total: 24668

As regards blogs, I...

- Have a regularly-updated blog – 67.2%**
- Have a blog, but am too lazy to post entries often – 3.4%**
- Just read blogs – 2.5%**
- Don't have one, don't care – 26.9%**

taste technology at www.thinkdigit.com

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

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

Click here to go back to

thinkdigit.com

TUTORIAL: Enable HIBERNATE Button in Shutdown Dialog Box !

20-08-2006,
11:52 PM

[Vishal Gupta](#)
Wise Old Owl



Join Date: Jul 2005
Location: HKEY_CURRENT_USER \ Software \ Microsoft \ Windows \ CurrentVersion \ Policies \ Explorer
Posts: 1,780

So here is the step-by-step tutorial:

- 1.) Open %windir%\system32\msgina.dll file in Resource Hacker.
- 2.) Goto Dialog -> 20100 -> 1033.
- 3.) If u want the following look (Hibernate button at bottom-center) :



Paste the following code:
Code:

```
20100 DIALOGEX 0, 0, 208, 122
STYLE DS_SYSMODAL | DS_SETFOREGROUND | WS_POPUP | WS_BORDER
CAPTION ""
LANGUAGE LANG_ENGLISH, SUBLANG_ENGLISH_US
FONT 8, "MS Shell Dlg"
{
    CONTROL "Flag", 20101, STATIC, SS_OWNERDRAW | WS_CHILD
```

```
| WS_VISIBLE, 176, 0, 32, 26
    CONTROL "Good Bye", 20102, STATIC, SS_OWNERDRAW |
WS_CHILD | WS_VISIBLE, 7, 0, 162, 26
    CONTROL "&Stand By", 20104, BUTTON, BS_OWNERDRAW |
BS_NOTIFY | WS_CHILD | WS_VISIBLE | WS_TABSTOP, 45, 47,
22, 20
    CONTROL "Switch &Off", 20103, BUTTON, BS_OWNERDRAW |
BS_NOTIFY | WS_CHILD | WS_VISIBLE | WS_TABSTOP, 91, 47,
22, 20
    CONTROL "&Reboot", 20105, BUTTON, BS_OWNERDRAW |
BS_NOTIFY | WS_CHILD | WS_VISIBLE | WS_TABSTOP, 140, 47,
22, 20
    CONTROL "&Hibernate", 20106, BUTTON, BS_PUSHBUTTON |
BS_NOTIFY | WS_CHILD | WS_VISIBLE | WS_TABSTOP, 79, 94,
48, 20
    CONTROL "", 20108, STATIC, SS_OWNERDRAW | WS_CHILD |
WS_VISIBLE | WS_DISABLED, 22, 73, 50, 8
    CONTROL "", 20107, STATIC, SS_OWNERDRAW | WS_CHILD |
WS_VISIBLE | WS_DISABLED, 79, 73, 50, 8
    CONTROL "", 20109, STATIC, SS_OWNERDRAW | WS_CHILD |
WS_VISIBLE | WS_DISABLED, 136, 73, 50, 8
}
```

For the full tutorial (and many more) visit:
<http://www.thinkdigit.com/forum/showthread.php?t=34566>

Hitachi Prepares The Terabyte

Close to the 50th anniversary of the hard disk, Hitachi is poised to release the first 1000 GB hard drive by the end of this year. The drives will use the new Perpendicular Storage technology. Seagate is currently shipping the world's largest 3.5-inch drive, with a capacity of 750 GB



Firefox 2.0 Delayed

The September 26 release of the popular browser has been pushed to October 24. A late release is better, they say, than a buggy one. According to the project's latest bug list, there are 87 bugs that still need to be ironed out



Enter

Kailash Kher
Singer

With *Allah ke bandey* and *Mangal Mangal*, Kailash Kher's voice has touched many hearts and received acclaim from around the globe. He is a playback singer, music composer and actor as well. Recently, his voice in the background score of *Fanaa* sent audiences into a trance...

Technology to you is...

...kind of a life-line to me today. It is playing an important role in my personal as well as professional life. I believe it is a boon to mankind.

What are your favourite gadgets?

I am not a very gadget-friendly person, but I do use a Nokia Communicator and an Apple iPod. I recently got myself a Nokia N-series cell phone.

What do you do online?

The majority of my time is devoted to *riyaaz*, and in my free time I observe silence. So I don't get online much. But I do check my mail frequently and surf for information when required.

Any particular instance where technology came to your rescue?

For me, every day is memorable, and technology has helped me a lot. It's an injustice to mention any one incident... Once a producer wanted me to send him my photos and profile, and luckily I was using my Communicator. I was able to send him my full details by e-mail. It's been like a minicomputer for me. I would like to add that technology should be used for the growth and development of mankind, and not misused.

THE GIANT GROWS... SMALLER

The End Of E3 As We Know It

It's true—the massive Electronic Entertainment Expo (E3), otherwise known as gamer heaven, has crumbled under its own weight and collapsed; it will give way to a smaller, toned down version of itself, and will now be held in July instead of May. The news comes in the wake of the pulling out of four of the biggest exhibitors in the expo—Microsoft, Electronic Arts (EA), Nintendo and Sony Computer Entertainment America (SCEA).

It has almost unanimously been agreed industry-wide that the event is more trouble than it's worth. The tremendous budgets (in the vicinity of \$50 million), the planning efforts, the pressure to get game demos done before May, and finally the notion of “winning E3”—having your product noticed the most. Developers and publishers would rather invest in their own self-focused events to get themselves noticed. E3 will now be a platform for smaller companies who don't have the million dollar budgets that it takes to promote a new game. The event has also been shifted to July, which gives developers more time to create their demos—games showcased at E3 are usually those that are slated for release in the November-December holiday

season, and the new date will ensure demos that are less buggy and closer to the final form of the game.

While the community expresses shock over the news, it isn't entirely unexpected, given the way the scenario has changed—while the original purpose of the event was to provide a window of media exposure



for games and the industry in general, it's become unnecessary now. Gaming media is *always* following the industry, so E3 or no E3, people will generally be kept happy.

Ultimately, though, it's still all about the money—there are much cheaper ways to get your product in the hands of people than shelling out \$10 million and making journalists and bloggers stand in a queue all day for a 20-second preview.

EXPLODING LAPS

Dell Recalls Fire-breathing Batteries

Following reports about strange goings-on in the Dell laptop world, including photos surfacing of one Dell laptop spontaneously exploding at a conference in Japan late June as well as one going off in Singapore late July, Dell and the U.S. Consumer Product Safety Commission have finally decided to begin recalling the 4.1 million laptop batteries sold on their Inspiron, Latitude Precision and XPS products between April 2004 and July 2006, making it the largest battery recall in history.

The explosions have been traced to the Lithium ion (Li-ion) batteries, manufactured by Sony, used in the laptops. Li-ion batteries pack more than twice the energy of Nickel-Cadmium or Nickel-Metal Hydride batteries, making them last longer. What's going wrong with them is quite the same that went wrong with mobile phone batteries not too long ago—impurities (mostly small pieces of metal) in the anode and cathode of the battery reach the edge of the electrode and end up damaging the barrier

Windows Vulnerabilities

The Problem

Certain vulnerabilities in Windows have been reported, all of which can be exploited by malicious people to compromise a system. The first is a "boundary error" in the Remote Access AutoDial Helper library (rasadhlp.dll); successful exploitation allows execution of arbitrary code, for example, when a user visits a malicious Web site.

The second is errors in the DNS Client service when processing DNS responses. This can be exploited to corrupt memory, and again, successful exploitation allows execution of arbitrary code on the victim's computer.

Security firm Secunia has rated these vulnerabilities "Highly Critical," which is just one notch below their maximum alert level.

What To Do

These vulnerabilities affect many Windows versions, including XP Home and Professional, and you'll need to apply the patches, from Microsoft's Web site.

For XP with SP1 or SP2, the URL is www.microsoft.com/downloads/details.aspx?FamilyId=c332b95a-2956-406b-9e06-07c5e96b02e3 (<http://snipurl.com/secsep1>). For Windows XP Professional x64 Edition, the URL is www.microsoft.com/downloads/details.aspx?FamilyId=1be5310b-1995-4ef9-a462-04da9833f50b (<http://snipurl.com/secsep2>).

between the two, causing a short circuit. And we all know what that means—sparks, or loads of heat, at the very least. The effects range from melting battery compartments to little explosions, depending on how fast the temperature rises. The potential danger is why cars and other power tools stick to the traditional lead-acid batteries—the reaction inside the Li-ion battery is considered quite violent.

The problem isn't limited to just Dell—other vendors using the Sony battery might be at risk as well, but neither Sony nor any of the other manufacturers have seen this problem at the scale at which it has affected Dell. Sony, naturally, supports this recall and will provide financial assistance in getting the batteries back and invest in the necessary research to resolve the issue.

The news gives the evangelists for alternative batteries another arrow in their quiver, and companies are already working on either safer Li-ion batteries or batteries based on other chemicals. Zinc Matrix, for example, is working on a silver-zinc based battery that it guarantees won't explode. Production will begin in early 2007, they say, and laptops will last up to ten hours on these batteries—longer than Li-ion ones.

Meanwhile, you may want to reconsider using your laptop on your lap.

MAKE YOUR OWN GAMES

Gamers Set To Develop New Games

Hardcore gamer? Well, Microsoft is looking for you—the company has announced a new set of developer tools that will let even the average couch warrior develop his or her own game for the Xbox 360 or PC. It's called XNA Game Studio Express, and should be available in beta by the time you read this. The tool is the next step for the original XNA tools, released in March 2005, before the subsequent release of the Xbox 360 in November.

This is all part of Microsoft's conspiracy strategy to involve the community even more—much like the open beta programmes and the release of Visual Studio 2005 in a free "Express" version for hobbyists and amateur programmers. This release will enable enthusiasts to get together and make their own community-driven games and publish them. The vision behind the initiative is something like a gaming YouTube, and will probably suffer the same flaws—some exceptional content hidden by mounds of gibberish. More importantly, this might endear gamers to the Microsoft camp well before

HOT Performance Per Watt



The new buzzword as processors go, Intel is pushing for it—and seems to have forgotten about clock speeds. They're asking for performance per watt to become the new measure of processor performance.

GHZ Racers

Green is in, gigahertz is out. That's the outlook. No more clamouring for 4 and 5 GHz. Power-efficient, multi-core chips could help spawn smaller, quieter machines. Intel's leading the way, and how long will it be before AMD catches on?



its competitors—the PS3 and the Wii—come to play spoilsport.

Initially, a \$99 fee will induct you into the temporarily-called "Creators' Club", and your games will only be playable within this community. In about three or five years, this club will go open, leading to an open game publishing model.

If the idea takes off, we're going to see a horde of new talent, and the open model will ensure that even crazy, off-beat titles will see the light of day—right now game publishers only want to back games they're sure will make it, what with the huge budgets and eons of development that go into new games.

One Silly Question

"What would you replace your mouse with?"



"A miniature girl!"
Edison Thomas



"I'd use my fingers"
Shoma Bhowmick



"A ball..."
Manoj Singh



"A rat, of course!"
Swati Jain



"How about a steering wheel?"
Siddhartha Saha



MUSIC INDUSTRY WRATH

New Victims Of Anti-Piracy

After Web sites, P2P services, even sites that offer lyrics, the music industry has now trained its guns at sites offering guitar tablature, and some have already been shut down. Guitar tablature sites offer simplified notation for beginners and advanced guitarists alike, to help them learn to play their favourite songs.

The Music Publishers' Association (MPA) cracked down on sites posting sheet music and tablature to “protect the interests of the creators and publishers of music so that, the profession of songwriting remains viable and that new and exciting music will be continued to be created and enjoyed for generations to come.” The MPA represents the publishers of transcriptions of music—usually classics like the

Beatles—and it's worried that such Web sites will run these publishers into bankruptcy. They've been on a rampage since last December, and went worldwide in mid-August. The Online Guitar Archive (www.olga.net) has shut down, and the Rob Belch, Manager of the Guitar Tab Universe (www.guitartabs.cc) laments “When you are jamming with a friend and you show him/her the chords for a song you heard on the radio, is that copyright infringement? What about if you helped him/her remember the chord progression or riff by writing it down on, say, a napkin... infringement? If he/she calls you later that night on the phone or e-mails you and you respond via one of those methods, are you infringing?”

While there is little doubt that there is some law that is being upheld here, we're wondering if common sense isn't taking a serious hit. The chances of you finding the sheet music you're looking for in a store are quite slim, even more if it's an obscure song. The



Three Incredibly Useful Sites

Do you wanna find newspapers or be tickled?

www.foodieview.com

Foodieview

Tired of clicking through recipe sites? Foodieview is a unique recipe search engine that links to free recipe sites. Search can be performed by category—main ingredients, cuisine, type of dish, famous chefs, holidays / special events, special considerations, and much more.

<http://shorttext.com>

shortText.com

Here's a site where you can post information and share it with others by sending them a customised URL! Post your text in the box, and the site will save it and generate a URL for you to distribute! Don't have a Web site or blog? Want to share a piece of code... perhaps a recipe? Just paste the text—and add images if you want to, too!

www.funology.com

FUNOLOGY.COM

A place for kids to find fun things to do. The site speaks about different ways to make things, explore the world, and discover skills within oneself. Jokes, riddles, easy recipes, experiments, and more. It's all strictly for the kids, though—don't expect any entertainment for yourself!



Photograph Alden Shareek

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

Beat That!

Digit Caption

"Hot Plate 2 Duo"

Last Month's Winner!

K. Ramakrishnan
C 29/23 Mohan Nagar,
Tamil Nadu.

"Electronic spread sheet"



E-mail your caption with the subject 'Beat That', and your postal address, to beatthat@thinkdigit.com and win

**Wireless and Mobile
All-IP Networks**

by Yi-Bing Lin, Ai-Chun Pang
Published by

WILEY-INDIA



Internet is the only resource for some, and it would be a big shame—bigger, even, than the shutting down of music services—if the MPA does get what it's fighting for. What will they stop next? Lyrics sites? Will we get arrested for singing along?

NEWS FROM LINUXWORLD

Tux Takes On The Mobile

The LinuxWorld Expo this year was all about Linux on the mobile phone. One of the biggest announcements was Trolltech's demonstration of the first fully reprogrammable mobile handset, called the Greenphone. The Greenphone is an "open" phone, and comes with all the source code that developers will need, including the core Linux operating system and a

phone dialler. It's intended for mobile phone designers, and will help them develop new and innovative mobile phone models based on the Linux OS. The phone is based on Trolltech's Qtopia Phone Edition (QPE) platform.

Trolltech is already the

world's largest supplier of mobile phone software, and with the Greenphone, Linux is likely to take Symbian, thus far relatively unchallenged as the biggest mobile phone OS, head on.

This wasn't the only big announcement at LinuxWorld, either. Motorola has announced that Linux

will power over half of its cell-phone line in the next two years. Also, the Linux Phone Standards Forum and the Open Source Development Lab's (OSDL) Mobile Linux Initiative have decided to join hands to improve and standardise Linux for the mobile. The battle with Windows is old, it seems—the penguin has shifted warzones.



YOUTUBE INVITES TROUBLE

To Host Music Videos

YouTube, the popular community video Web site, is now in negotiations with record labels to host music videos and make them free for download. How will they make money? That's unknown at the moment; ads probably.

YouTube claims over 100 millions viewers a day, and that over 60 per cent of videos viewed online are hosted with them. If their idea takes off, they'll be giving services like iTunes a lot to sweat about.

We, for one, have our doubts—the recording industry is notorious for its desire to keep making money even off beaten old classics, and it's likely they won't concede to this. With copyrighted content being distributed this way, it would start up a whole new era of anti-piracy activism, laws, and probably much more unpleasantness.

GENDER

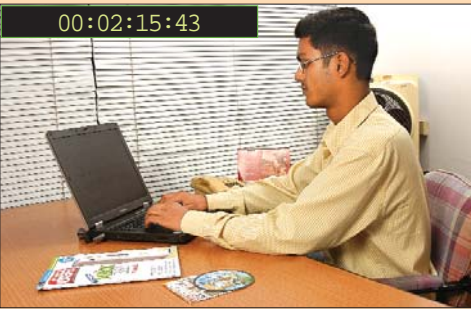
Sudip Mallick vs. Sulbha Chandane



BENDERS

Spend Rs 5,000 on eBay.in

00:02:15:43



The task set was simple—to spend Rs 5,000 on eBay.in. As soon as we told Sudip his task, he jumped into the chair and was at e-bay in no time. He seemed to have a clear idea as to what he wanted to buy. He clicked Computer and Peripherals and in the search box typed “graphic card”. After a quick look through the results, he found what he wanted—the XFX GeForce 7300 LE PCI-E 256 MB DDR Graphics Card. Price? Rs 4,700. It was obvious that he’s been to eBay.in quite often looking for the best deal. He still had Rs 300 left, and decided to buy *Moby Dick - The great stories* for Rs 207, and *Peter Pan* for Rs 112. We were secretly hoping he’d buy *Digit*, but as it turns out, he’s a subscriber!

00:04:30:47



When we told her the task her face lit up at the prospect of getting to shop for free. She did complain, “Only Rs 5,000?”, when we told her the budget... apparently gold prices have sky-rocketed! She lingered her mouse over the ‘Jewellery’ link before moving it down to ‘Kitchen and Home Appliances’. Here she browsed through Food Processors, Small Appliance Sets, Kitchen Accessories, Ovenware, etc. Finally, she clicked on Ovenware, and a Barbecue Grill made her stop for a moment. Finally, she moved on and found an “LG-SOLO MS-1911-19 Lts MICROWAVE OVEN” for Rs 4,999. She bought it and then gave us one of the broadest smiles we have ever seen!

SEARCH SAFE

Google To Protect From Phishing

Google will now warn you of potentially

unsafe sites in your search results, thanks to its latest tie-up with StopBadware.org. The latter has a huge database of Web sites that distribute malicious software—spyware, spam, and the like—and now these sites will be tagged with this warning in your searches: “Warning – The Website you attempted to visit has

been reported to StopBadware.org as a site that hosts or distributes badware.”

With everyone padding up online security in these increasingly insecure times, the move has widely been heralded as a smart one (much like all things Google). Cases of phishers preying on gullible surfers are on the rise, and while creating complete awareness is the only long-lasting solution, this should help keep the general population out of trouble for a good while.

WEB 2.0 HYPE TOPS ALL

Gartner Releases List Of Hyped Technologies for 2006

Every year, Gartner analyses the impact of 36 up-and-coming technologies and their adoption over the next ten years. This year’s hero: Web 2.0. Gartner puts it at the “peak of inflated expectations”, while mobile phone payments and Enterprise Instant Messaging have moved out of the “trough of disillusionment” and up the “slope of enlightenment”. The hype cycle is defined thus: the product is launched and gets plenty of media attention, which pushes it up to the peak of inflated expectations. It then falls into the trough of

disillusionment as these expectations aren’t met, goes up the slope of enlightenment as people realise its potential and finally comes to rest on the plateau of productivity.

The other two technologies making it to the top three are the Real World Web and Applications Architecture. All three technologies are expected to have huge impacts on business.

Web 2.0, the new Web, is a collection of technologies that enables a more collaborative and social form of Internet, with community-driven content and activities. Ajax is one of the more prominent technologies under this head. Its scope is small, they say—it just makes Web applications a little less difficult to use. However, Gartner assures that even this small impact makes it worth it, for the simple reasons that users will appreciate usability more.

The Real World Web will live in a world where objects aren’t isolated from each other—they will be able to interact and network with their surroundings. These technologies will focus mostly on location-awareness and GPS-enabled devices which will let users take advantage of the fact that their devices know exactly where they are.

Finally, Application Architecture is the infrastructure that lies beneath Web applications. *Event-Driven Architecture* is the future of distributed applications—functions packed into modules and triggered by one or more

Zune

Everybody seems to want to know more about Zune, Microsoft’s upcoming portable media player. Details are being leaked and lapped up. “Is the Zune just the Toshiba Gigabeat with some re-arranged buttons?” asks one Web site. “Microsoft to preload music videos” onto the player, claims another. Then there are the opinions: someone here says it looks

“ugly and plain,” someone else says it’ll definitely “be an iPod killer.” Which seems a rather dubious claim to us. One confident point of speculation is that you can use Wi-Fi to “lend” other Zune owners music for some short period, giving them the opportunity to buy the tracks themselves from the Zune music store.

Buzzword
of the MONTH



VoiceXML

What, now, is VoiceXML?

VoiceXML is a standard XML format used when building applications that feature voice interaction between humans and machines—as in you talking to the computer, and it talking to you.

Whose idea was it?

The World Wide Web Consortium (W3C) released the VoiceXML specification to standardise the way voice-enabled applications will work.

How does it work?

Just like HTML is a standard way to format a Web page so it can be understood by a browser, VoiceXML is a standard that works with a *voice browser*—something like a Web browser with a voice interface. It's transmitted using HTTP, and text is converted to speech at either end of the line.

Why did we need this?

As with all things, standardising a protocol for voice-enabled applications lets developers focus on important things like functionality. Moreover, by separating the application and the XML, users don't need to be tied to just one application—they can use different voice browsers if they so choose.

When did this begin?

The first VoiceXML specification was published by the W3C in May 2000; the latest 2.0 specification exists today only as a set of recommendations, and the future will see version 3.0 with a host of additional features and capabilities.

Where can I see it in action?

Thousands of applications now use VoiceXML, including the Opera Web browser. VoiceXML has found tremendous use in over-the-phone applications, like the one your cellular provider might offer—call a number, say a word, and get results.

Interview

Autodesk announced the shipping of Maya 8—the ultra-powerful tool for 3D graphics professionals—at SIGGRAPH 2006, held on the first of August this year. The event saw about 1300 users in all their eagerness, packed into the auditorium. In its wake, Senior Director of Product Management for Autodesk's Media & Entertainment Division Michel Besner was recently on a tour of the Asia-Pacific region to promote the product and interact with 3D user groups in the region. We had a little chat with him about the future of 3dsmax, Maya, 64-bit computing and a good bit more.



Michel Besner
Autodesk

On The Community

"We're increasing focus on our user community, and we've launched The Area (www.thearea.com) on August 22, which is all about building Autodesk's community and will give users a platform to interact with and learn from each other. We've already got Autodesk Labs (labs.autodesk.com), which is where developers and testers give feedback on our products. The Personal Learning Editions of Maya and MotionBuilder have

involved hobbyists as well, as has the 30-day trial of 3dsmax 8."

On The Future Of 3dsmax And Maya:

"Both tools are going to evolve separately—contrary to many beliefs, we aren't killing any products which were in the Alias line-up. Collaboration abilities are being enhanced—something that will be very helpful in India, with all the offshore projects that go on here. Finally, the new FBX file format will work seamlessly with 3dsmax, Maya and

MotionBuilder, so a studio can either be all 3dsmax, all Maya, or a mix of both if they choose to. We've announced 3dsmax 9 at SIGGRAPH, and it should begin shipping in a month or two."

On 64-bit Computing

"Our focus with 64-bit is more on getting data into memory rather than the speed of computing. Both 3dsmax and Maya are going to be fully 64-bit, and this will be a huge advantage for complex projects that need to load a lot of information into memory. The 2 GB limit of current platforms is very limiting, and going 64-bit shatters that barrier."

event objects. *Model-driven Architecture* will draw a clear line between functionality and its implementation. This will help model applications in a standard format, without bothering about the nuances of the platform it will be deployed on.

The publishing of the hype cycle will help businesses decide what technology is best for them in this ever-evolving online world.

SYMANTEC CRIES FOUL

Criticises Vista's Closed Kernel

After its criticism of Windows Vista's network stack, followed by its slamming of the

annoying User Access Control, Symantec still hungers for more Microsoft blood as it throws another burning brick at the new operating system—its closed kernel is hampering security innovations, they say.

The kernel is the heart of any operating system, and naturally, malware authors are always looking to give it a heart attack. However, Microsoft has blocked access to the kernel for security software, instead taking kernel security into their own hands, causing this disgruntlement. The Vista kernel will periodically check for integrity, and will require all third party drivers to be certified by an independent authority.

However, malware authors have already demonstrated that this approach is far from foolproof, and that these

kernel security features can be circumvented. This makes it possible to install a rootkit on the machine, putting it under the complete control of a hacker. All this while security software still remains locked out of the kernel. "These new technologies, along with Microsoft's unwillingness to make compromises in this area have serious implications for the security industry as a whole," says Oliver Friedrichs, director of Emerging Technologies at Symantec Security Response.

Let's face it—security isn't really the strong point of a Microsoft OS, and locking out the firms that *do* keep Windows secure isn't the best plan. They need to provide access to security vendors so that they, too, can keep innovating and head off hackers. ■



32 Chipmate!



36 Free Your Mind!



43 It's Morphin' Time!

Digital

Passion

Fuelling the pursuit of technology knowledge

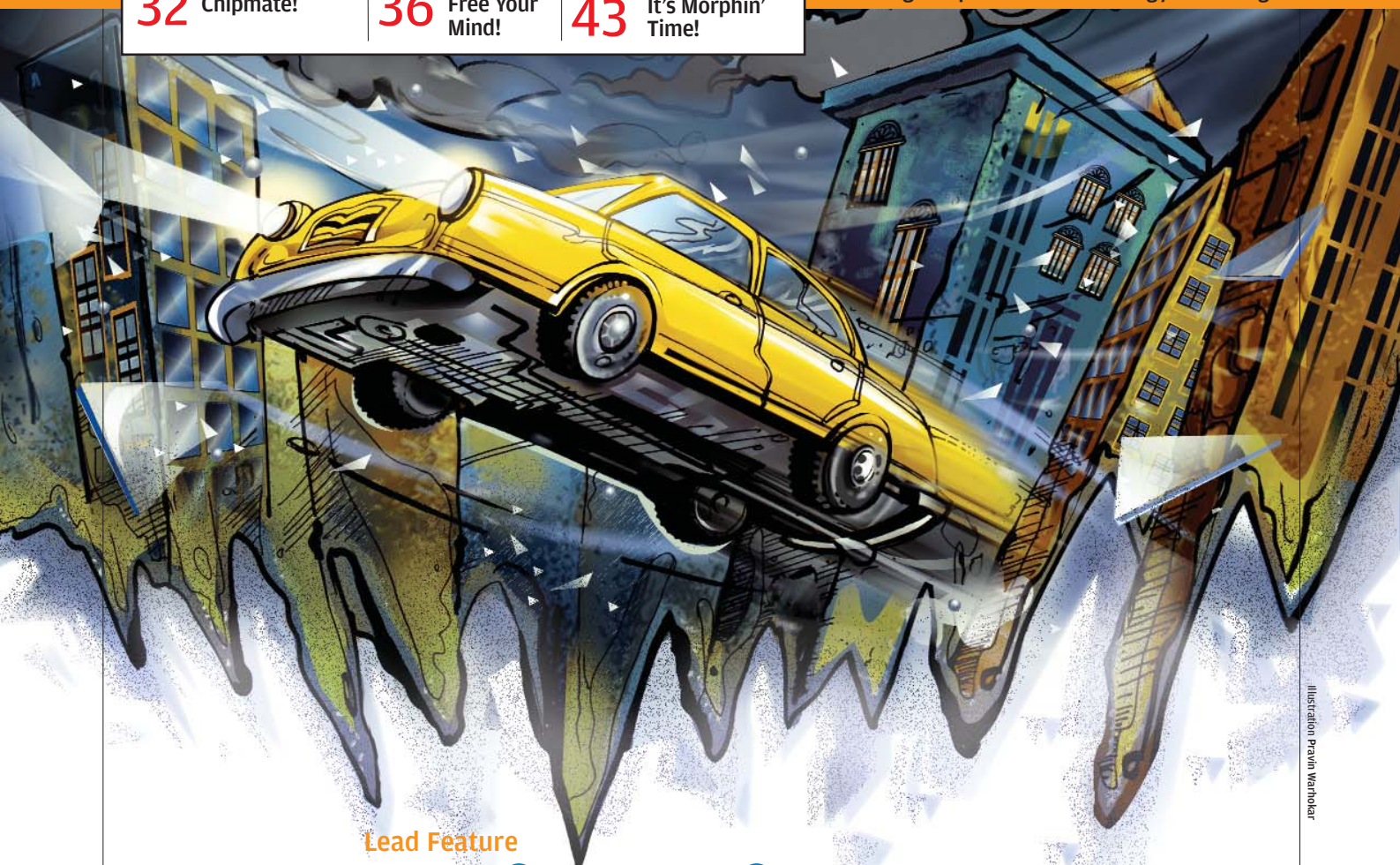


Illustration: Pravin Warthekar

Lead Feature

Still Life

A rainy day and wannabe Wachowski-ism; here's how you can make your own Matrix clone at home

Nimish Chandiramani

Ever since that first scene where Trinity paused in mid-air while contemplating serious damage to that poor cop, we've all been fascinated with the fabled "bullet time." Movie makers and game developers alike have used this technique to death, and then some. We can't beat them though, so we might as well join them. Stranded on a rainy day, we wondered: can one create one's own ultra-low budget (read nearly free) bullet time video to pass the day? As it turns out, one can—in a single day, and in the comfort of one's own home, too!

The Ingredients

Before we get started, we need to take inventory. You will need:

- ❑ At least six friends with digital cameras capable of recording video (if you have many cameras, the friends are optional). Mobile phone cameras will do too, but don't expect too much quality in the final product.
- ❑ An idea for your movie (ours, for example, films a radio-controlled car falling off a table and freezes the fall in between)
- ❑ VirtualDub (Get it off the May 2006 *Digit* CD or download it from www.virtualdub.org)
- ❑ Windows Movie Maker (Masochistic, aren't we)

The first thing you need to do before you start shooting is to make a storyboard. Using paper and pencil, draw a rough sketch of the various scenes in the movie. This will help you better understand the final output, not to mention help you plan the way you will shoot.

Our video, for example, has two scenes—the first one with a shot of the car revving up and jumping off the table; the second is the fall itself. It is this fall that we freeze in time, pan around, and then continue.

The Basics Of Bullet Time

So how do these bullet time videos work, anyway? The effect is simple enough (well, on paper, at least) to create:

- ❑ Take large number of cameras, arrange in circular arc
 - ❑ Wait for subject to enter this arc
 - ❑ Freeze video feed from first camera
 - ❑ Take still picture from all but the last camera at this instant
 - ❑ Show each of these stills in the video to convey the illusion that time has stopped and the camera is moving around the subject
 - ❑ Continue video from last camera
- Now all we have to do is reproduce this.

Ready... Action!

Our setup follows these guidelines, if a little liberally. The location: an abandoned meeting room in our building. As you can see in the picture, we've got eight cameras arranged in an arc on the floor to capture the car in the middle of its fall. You also need to make sure that all the cameras are focused on the same spot. To do this, place an object at the point where you expect the action to happen—where the car hit the ground, in our case—and focus each camera on this point.

Ideally, you should have identical cameras between the first and the last. This way, it becomes easier for you to take a still picture in the middle of the action and have a chance at capturing the same moment on all cameras, thanks to their identical response times. Realistically, though, you'll be dealing with a bunch of different cameras with different response times between clicking the button and the actual taking of the photo, so video mode for all of them would be advisable—we'll just extract the frame we want from the videos. Make sure all of them are recording video at the same resolution—320 x 240 is a likely common denominator.

Ideally, you should have identical cameras between the first and the last

As with many things, more is better—at 25 frames per second, a one-second bullet time effect requires 25 cameras (since we're showing one frame from each camera). High-budget movies use *at least* a hundred. So don't be too picky when soliciting partners in this crime!

Once you've got your cameras and scene set up, there's nothing left to do but start filming! Since we've chosen video mode for all cameras, we don't need to worry about recording at the exact same moment. The trade-off is that we'll have considerable motion blur to deal with, depending on how fast your subject is moving. Canon cameras come with a "Fast Frame Rate" setting that counters this a bit. The cameras otherwise used for this kind of effect are extremely quick, recording more than a hundred frames per second as opposed to the basic camera's thirty.

Turn on all the cameras (extra hands are a big help here) and enact your scene—this completes the easiest part of this exercise.

The Preliminaries

Once you've finished recording and copied all the video feeds to your PC (a good idea is to name the feeds camera01, camera02 and so on), the first thing you need to do is extract all the frames from the movies. You'll require plenty of hard drive space for this. Start VirtualDub and open the first movie. Go to File > Save Image Sequence and select your options from here. To save time, check the box at the bottom to add this to VirtualDub's job queue. Repeat this for all the video feeds, and when you're done, hit [F4] to open the Job Control dialog, click Start to begin extracting all the frames and go get yourself a snack—the process consumes some time.

Once this is done, we begin the tedious process of identifying the perfect frame for the effect—ideally one with as little motion blur as possible—from each of the cameras. Once you've isolated these frames, rename them for easy reference.

Bring It All Together

Start Windows Movie Maker (WMM—it's bundled with Windows XP under Start > Programs) and



A view of the entire scene we set up

Focus all the cameras on one point

Extract all the frames in VirtualDub



The Canon cameras captured our bullet-time moment quite well thanks to the Fast Frame Rate mode

If you have more control over your subject's position, you'll wind up with a better effect

click on Import Video from the column on the left. For now, import just the feeds from the cameras for the bullet time effect—we'll deal with introductory/concluding footage later.

Once done with that, click Import Pictures and import the frames you selected.

In the bottom pane, click "Show Timeline" to bring up the movie's timeline. Drag the feed from camera 1 from the Collection on to the timeline. Naturally, you don't need all of it, so navigate through the video using the Play/Pause button to get to the rough vicinity of the frame where you will freeze the video, and use the Next Frame/Previous Frame buttons to get to the exact frame. You don't need any of the video after this frame, so hit [Ctrl] + [L] to split the clip at this point and delete the latter part.

Now drag the selected frame from camera 1 on to the timeline. To herald the beginning of the effect, we displayed the frame for a good while. We've also applied a Sepia Tone effect (right-click on the frame in the timeline > Video Effects > Sepia Tone > Add). This gives us a cool *Max Payne 2*-like effect, but more importantly, it masks the (very visible) colour differences in the frames from each camera. Do the same for the frames from the rest of the cameras (except the last one), but reduce their presence on the time-

line a lot more, so that they are displayed for less time. A good way to judge is play back the video—if it looks like a slideshow, maybe you should display frames for a shorter time. We've stretched the last frame out too, to mark the end of the effect.

After you're done placing frames, drag the feed from the last camera on to the timeline. You don't need any of the video before the frozen frame, so navigate to that frame, hit [Ctrl] + [L] to split the clip, and delete the first part. There... you've done it! Save your project and your video. Be sure to save in the AVI format; VirtualDub doesn't open files in the WMV format.

Post Production

Now, we'll mask the imperfections in the video and also add the remaining footage. Open the video in VirtualDub. Go to Video > Filters and click Add. From the filter list, choose Temporal Smoother. This will add some intermediate frames in the bullet time video to make it look smoother. From Video > Compression choose the DivX encoder and save the video.

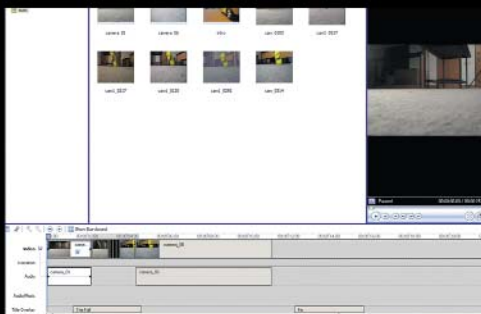
Go back to WMM and import this smoothed clip and the rest of your storyboard-related footage. Unless you need to fine-tune your videos, you can get the job done with the simple Storyboard mode in WMM. Overlay a title, add a soundtrack—anything goes as long as you aren't bored. And you're done!

Pack Up

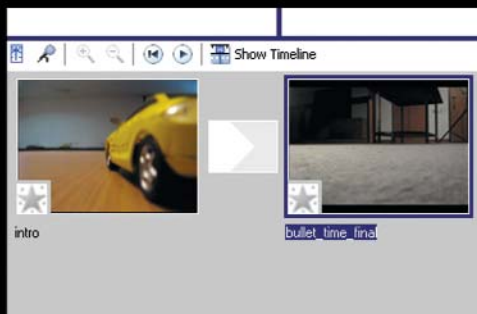
You can find the result of our endeavours on this month's DVD. It won't win any amateur video awards, and here's the biggest reason why: falling cars are unpredictable—as you can see, our car didn't fall where we wanted it to, resulting in a jittered effect rather than a smooth pan-around. If you have more control over your subject's position, you'll wind up with a better effect.

So the next time you're at home in the rain, don't waste your time on the idiot box—make a few calls and start your own directorial venture! And if you send it to us, we'll even feature it on the CD/DVD for all to see!

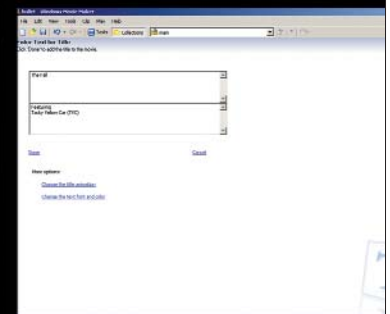
nimish_chandiramani@thinkdigit.com



Add all the videos and frames, and tweak timelines



Add your intros and other footage in Storyboard



Throw in some titles and you're done!

Chipmate!

Michael Browne

The Cores have landed, and AMD's still recovering from shellshock, as their hammers have finally been, well hammered! AMD 64 was a glimpse of the future, and the Core delivers more of the same. Will the trend continue? Well, to know where you're going, you've got to know where you are! Wafers on a plate... The K8 and P8 inside!

The driver of evolution is need. PCs are full-blown entertainment stations, and the term "rig" is used to define that monster lurking inside your cabinet... and it's not a 400-horse V8! Such powerhouses are the realm of Intel and AMD. Their latest Core 2 and AMD 64 architectures are revolutionary, even evolutionary advancements over their earlier NetBurst and K7 cores respectively.

AMD 64s have been dominating the desktop market as far as performance goes for nigh to three years. Intel's infamous NetBurst suffered from a serious case of performance-throttling heat-stroke, and lagged behind on nearly all fronts. Any

The AMD 64s are architecturally leaps ahead of the Athlon XPs of yesteryear. The AMD 64 was designed for two sockets—754 and 939. Socket 754 was reserved for the budget segment, while 939 was reserved for the performance-demanding user; while this dividing line was rather slim, it did exist.

The major difference was in the design of the memory controller. Socket 754 had a single-channel, 64-bit integrated memory controller, while Socket 939's architecture included a dual-channel 128-bit controller. The difference in performance came not only from the memory controller

The Core architecture has a 14-stage pipeline, down from the 31 pipelines that NetBurst processors from the Prescott onwards featured. A classic case of when less is more! The K8 architecture has a 12-stage pipeline, up from its former 10



market needs competition to survive, and it's here, as the Core 2 Duo emerges with significant performance leads over everything in the desktop processor realm! AMD's response is highly anticipated... but that's another story for another time.

The Fearsome Twosome

The processor industry as a whole is moving towards "paral-ism". Dual cores have been available for a while now, and quad cores are expected to make an entry shortly. Both the

type used, but also from the fact that the faster CPUs were all made with 939 pins. The IMC supported up to dual-channel DDR 400; later revisions saw native DDR 500 support.

While Intel's switch from DDR to DDR2 was relatively simple—no processor architectural-level changes were required—for AMD, this got a lot more complex. In case you haven't guessed why, it's due to the fact that the memory controller needed redesigning to support DDR 2.

Architecturally, other than a few tweaks to the memory

latest architectures (Intel's Core 2 Duo and AMD's Athlon 64) are significantly faster than previous-generation products, with significant performance leads across most applications. Let's take a side-by-side look (literally) at all the features the latest architectures from these two CPU giants sport.

The Philosophy Of The Core...

Intel's Core range of CPUs—"Core" being the architectural handle for the Core 2 Duos—are being made on a 65 nm fab. Intel is no stranger to 65 nm: their Pentium D Presler series were the first 65 nm CPUs, remember? The earlier 90 nm core had a bad history as far as heat dissipation goes, but the 90 nm process wasn't the only culprit. Hand-in-glove were the longer pipelines the Prescott sported, not to mention that it sported more of them than did the older Northwood cores.

The die shrink and the 65 nm fab collectively translate to reduced power leakage—less heat dissipation. Besides this, the Core architecture also has fewer transistors than the previous Presler (the 9xx series) cores. Not only this, the size of the transistors has also come down, so while the Core 2 Duo's transistor count is less than that of the Pentium D 9xx family, the density of the transistors can be greater.

Intel is talking about "performance per watt" with the Core range. Gone are the gigahertz wars where 4 GHz was considered the Holy Grail. These days the focus is on

controller (namely DDR2 support), the AM2 Socket-based AMD 64s are nearly identical to their 939-pin brethren. AMD is still using Fab 30, and a newer Fab 36—both 90 nm fabs, at their plant in Dresden, Germany.

AMD has followed "true" dual-core architecture from the very start with their 939 dual-cores. The cores can communicate with each other through the Crossbar Controller (internal to the processor). In the case of Intel dual-cores, any communication between the cores occurs via the FSB (external to the processor), which causes latency, especially when you consider the speed of the FSB is a measly 800 MHz. Compare this number to the CPU clock figures and you'll get the drift.

AMD's On-Die Memory Controller

AMD 64's mainstay has been the Integrated Memory Controller or IMC. This has been one of the major advancements in desktop processing in modern times. What is it? Simply take the memory controller traditionally present on the MCH (Memory Controller Hub) or Northbridge, and relocate it on the CPU die. What happens? Well, for one, the pin count increases (939 and now 940 are a lot of pins!). Performance-wise, the bottleneck between the CPU and the memory is removed, because the FSB route between CPU and memory becomes defunct. Communication occurs at CPU clock speeds rather than FSB clock speeds. Communi-

Prefetching is the name of the cache game. The Core 2 Duo features two data and one instruction prefetcher per core, and two prefetchers for the L2 cache, making for a grand total of eight prefetchers

performance with power saving, and Intel has learnt their lesson from their 130 W Prescott cores, dubbed "nuclear reactors" by many—that hot doesn't pay, at least as far as TDP (Thermal Design Power) goes!

Firstly, the Core 2 Duo loses quite a few pipelines. Of course, clock frequencies will be lower due to fewer pipelines, but the Core micro-architecture has some other nifty tricks up its sleeve. The Core 2 Duos are designed from the ground up to be dual-core solutions, unlike the Pentium D CPUs, which were "pseudo" dual-cores—more aptly "double cores." The Smithfield and Presler processors (Pentium Ds) were basically double cores—the Smithfield consisted of two Prescott cores, while the Presler comprised two Cedar Mill cores.

Looking at the Conroe's Core architecture, it's easy to determine its roots: the quad-bus has been lifted right out of the NetBurst architecture, while the power-saving features smack strongly of the Pentium M Dothan and Banias processors.

Memory Subsystems—Advanced Smart Cache

Minimising the role of memory latencies as a performance deterrent was a major objective for Intel. Also, the processor cache subsystem had to be beefed up in order to counter the latencies that occur due to the lack of an on-die memory controller, as on the AMD64. The L1 cache is a hefty 128 KB (64

AMD—Latency Vs. Bandwidth

Due to the IMC, and the AMD's very architecture, their processors are more sensitive to changes in memory timings rather than bandwidth (read as frequency) changes. This is why AMD 64 939s initially performed much better than the AM2 equivalents; the latencies associated with DDR 2 were much higher.

cation with the memory therefore becomes much faster, and in comparison to all Intel CPUs, AMD 64s utilise memory bandwidth more efficiently.

Hand-in-hand with the IMC, AMD 64s have a massive L1 cache size advantage. 128 KB of L1 cache per core, is a huge figure: it contributes significantly to the percentage efficiency of memory utilisation. The L1 and L2 cache remains identical to Socket 939 processors however, and the L2 cache is either 512 KB or 1 MB depending on the model.

Execution Subsystem And Decoding: Complex Decoders Galore

Let's take a very brief look at what a decoder on a CPU is supposed to do. CPUs are bombarded with instructions,



2000
Pentium 4—in its earliest avatar, NetBurst was hot, P6 was not!

2001

Athlon XPs, faster than the Athlon models, outperform the initial Pentium 4s



2002

Northwood cores emerge, featuring HT and higher clock speeds



2003

AMD crashes Intel's party with their fearsome AMD 64s



2004
(AMD 64 continues)



... And these enjoy nearly three years of supremacy

2005

AMD's Dual Core X2s emerge—the Manchester and Toledo cores



2006

Intel retorts—the Core 2 Duo topples AMD's apple-cart

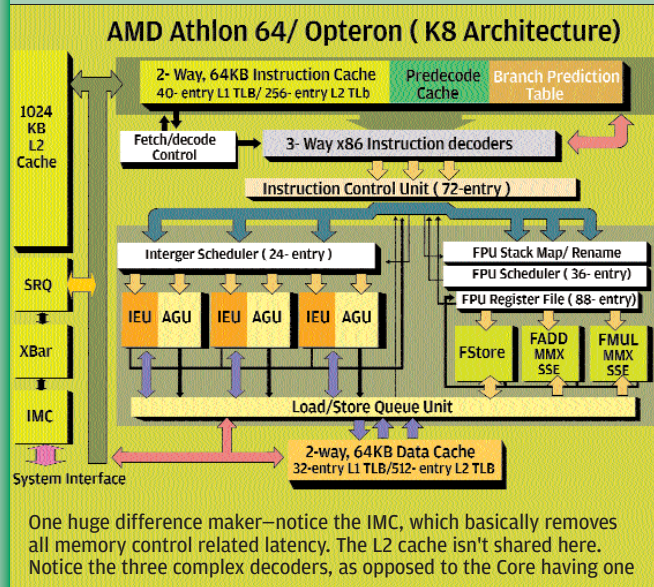


KB for each core); that's 32 KB for data and 32 KB for instructions. Earlier, Pentium D processors had exactly half the L1 cache.

What Intel did with the Conroe's L2 cache is somewhat revolutionary—it's shared! The huge 4 MB of L2 cache is completely shared between the two cores.

Let's take a hypothetical situation. If one of the cores needs more cache during operation (assuming the other core to be idle), all the 4 MB is at its disposal. Intel has termed this technology "Advanced Smart Cache."

Let's look at another scenario, where Advanced Smart Cache scores big time! Suppose both the cores are independently working on the same data synchronously, the data needs be stored only once in the cache, and not twice as in case of traditional discrete-cache CPUs. Normally, each of the cores would need a copy of this data in their respective L2 caches, causing redundancy, and therefore wastage of cache. This is a huge advantage for the Core architecture over Intel's previous products, and AMD's current products. Furthermore, each core would have to communicate with the other to ensure that the other hasn't modified the data in its cache in any way, since both caches need the latest



Out of Order Execution means exactly what the phrase suggests. An instruction needs to be executed immediately, and therefore gets preference over other pipelined and scheduled instructions, the Core 2 Duo excels at Out of Order execution operations

copies of the data, else "Cache Contamination" will occur. This communication causes CPU overhead, and since it must occur via the FSB, the data bus is further bogged down.

Wide Dynamic Execution Revisited

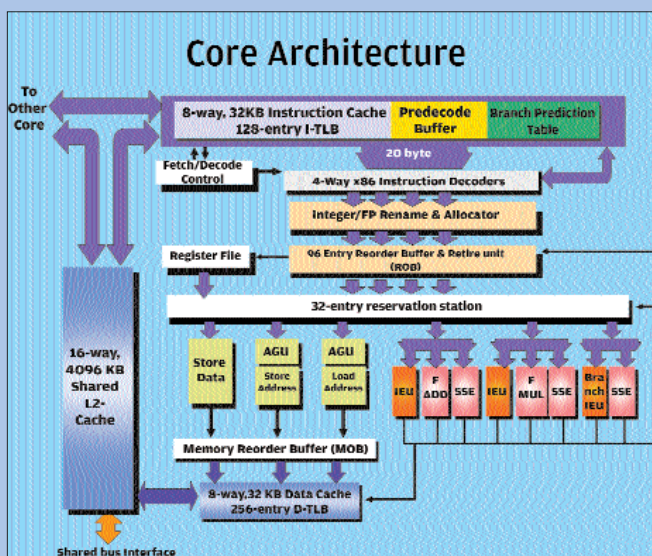
One of the technologies present in the Conroe touted by Intel isn't new at all: "Wide Dynamic Execution" has been at work since Pentium Pro days! What "wide" means is a higher IPC (Instructions Per Clock) or commands per clock count. While each of the cores on the Conroe can handle a minimum of four instructions per clock, previous-generation Pentium 4s could handle a maximum of three. The Core architecture

which can be, very simply, of two types—opcode and addresses, or operations and locations. The decoder on a CPU is tasked with deciphering these instructions and reducing the variance of their length—forming even or close-to-even sized packets, since x86 instructions can be between one and 15 bytes long. In the bargain, RISC-like instructions are created, which make the job of scheduling and execution that much easier.

The Core architecture features three simple and one complex decoder. AMD's K8 features three complex decoders, without any simple decoder.

Typically, the simple decoders are handed the task of working on the most-frequently-used x86 instructions, which are converted into micro-ops, typically a single micro-op per set of instructions. The complex decoders work on more of the heavier CISC-like instructions, and will produce more than one micro-op per operation. Along with the AMD 64 CPUs, older Athlon XPs and Intel's Pentium 4 and Pentium III CPUs all use this method of decoding.

But AMD 64s have 3 complex decoders. How do they stack up? There are two ways of decoding: a direct, easier path, and a vector path that is more suitable for certain complex instructions, but which may take longer to decode. AMD 64s use both these ways of decoding instructions. Each of the complex decoders can perform both direct and vector path decoding, but direct path decoding is preferred because the resultant macro-ops are fewer in number. When it comes to decoding complex instructions, the K8 architecture would definitely score big time. However, x86 instructions are largely simple,



Note the 4 simple decoders. The reservation station improve data bandwidth. Note the massive L2 cache shared between cores, Also notice the larger entry Translation Look-Ahead Buffer in the L1 cache

It's All About The Cache!

AMD 64s still offer double the Conroe's L1 cache at 128 KB per core. That's a massive 256 KB of L1, while Conroe is Intel's largest L1 offering to the desktop segment at 64 KB per core. The L2 cache bus on the Conroe is 256 bits. The AMD 64's L2 cache is half as wide, at 128 bits; Intel still has double the L2 cache though (4 MB), and it's shared!

features “Micro-Ops Fusion” technology. Suppose one complex command contains more than one independent microinstruction. The decoder unit on the CPU will connect these commands to each other. Micro-Ops Fusion bundles these commands together, to be executed in a particular order. For example, an ALU operation and a Load operation will be combined to form a single Micro-Op. To the CPU, however, this encapsulation of microinstructions appears as a single command. It’s only at the execution stage that the individual command threads are executed in succession, and not simultaneously.

The proverbial partner, Macro-Op Fusion, allows set of two commands can be executed as a single command. This means the four decoder units on the Core 2 Duo can in reality decode five instructions, instead of four, in a clock cycle. Such command combinations aren’t always possible, but hypothetically, even if it happens only once per clock (the chances of it happening this frequently are very good) five instructions will have been executed in that cycle.

This fusion has other merits. Since the fused instructions now move along the pipeline as a single entity, buffer space is saved in case of Out of Order Execution, and the decoding bandwidth requirement is also reduced. Macro-Op Fusion increases the amount of instructions can be stuffed into the pipeline CPU processing speed, and saves power due to the fact that the CPU is able to tackle commands in queue that much faster.

Micro-Op and Macro Fusion work hand-in-glove to improve CPU load and execution efficiency.

Intelligent Power Capability—I’m The Frugal One!

The Core 2 range support Enhanced Halt State and Enhanced Intel SpeedStep. This enables huge power savings, as the CPU will throttle down when not under load. The Conroe will work from speeds of 1.6 GHz to 2.93 GHz. This down-clocking is achieved by reducing the multiplier. The Core allows for a minimum multiplier of 6; the maximum is 11, the FSB is quad pumped at 266 MHz.

Equally important—perhaps more so—is the fact that the Conroe as a whole can interactively disable any of its subsystems that aren’t in use at a point in time. Intel takes pains to explain that there is no latency whatsoever involved in this On and Off switching process.

The Conroe can also dynamically switch off parts of its L2 cache that aren’t in use, which was previously impossible. Traditionally in case of any cache transaction, however small in a CPU, the entire block of cache needed to be activated.

Advanced Digital Media Boost—Sounds Impressive?

Multimedia is all about SIMD (Single Instruction-Multiple Data), instruction sets. SSE (Streamed SIMD Extensions) is Intel’s baby, born in 1999 and adopted first by their Pentium III processors. Applications like video and audio editing and encoding, data encryption and their ilk use a lot of SSE. Most SSE instructions today are 128-bit, which are operated on 64 bits at a time—meaning that a complete SSEI can be processed in two processor clock cycles.

The Conroe changes things with the ability to process a 128-bit SSE in a single clock cycle. SSE 4 makes its first appearance in the Conroe, consisting of eight new SSE commands—over and above the existing SSE 3 instructions.

What this should mean for home users is quicker video and audio encoding, and a richer multimedia experience—for example, DVD playback or MP3 encoding. ■

Double-Core Or Dual-Core?

Before the Core 2 Duo, Intel was basically integrating two cores on a single die—double cores. AMD 64s were the first “true dual-cores” for the desktop. The cores on an X2 processor can communicate with each other internally, via the Crossbar Switch. Pentium Ds used the external FSB to communicate with each other, which is much slower.

The Ca(t)ching Game

Platform	INTEL				AMD	
	LGA 775	Socket 478	LGA 775 / Socket 478	Socket 478	Socket 940 / 939	Socket 462
Architectural Code Name	Core (P8)	Dothan	NetBurst (P7)	NetBurst (P7)	Hammer (K8)	Barton (K7)
Processor Name	Core 2 Duo	Pentium M	Prescott	Northwood	AMD 64 / AMD 64 X2	Athlon XP
L1 Instruction Cache (KB)	32	32	16	8	64	64
L1 Data Cache (KB)	32	32	8 - 16	8 - 16	64	64
L1 Cache Latency (lesser is better)	3	3	4	2	3	3
L1 Cache Associativity	8-way	8-way	8-way	4-way	2-way	2-way
L1 Instruction TLB	128	128	128	128	32	24
L1 Data TLB	256	128	8	8	32	24
L2 Cache (KB)	4096	2048	1024 / 2048	512	1024	512
L2 Cache Associativity	16-way	8-way	8-way	8-way	16-way	16-way
L2 Cache Width (bits)	256	256	256	256	128	64
L2 TLB entries	NA	NA	64	64	512	256
Maximum memory bandwidth to CPU (GBps)	10.6	4.2	8.5	4.2	6.4	3.2

and very complex instructions are handled by a Microcode Sequencer, which is another unit placed on a CPU just to handle instructions that are too complex for the decoders. Nonetheless, in case of instructions that are complex, but not so complex as to require the Sequencer to do kick in, the three complex decoders aboard the AMD 64 processors are quite powerful.

Closing Thoughts

An architectural insight is never an easy topic to conclude. That said, the latest architectures from Intel and AMD clearly show a conscious drive towards power processing and parallelism while ensuring a declining power consumption curve—two clearly divergent paths, which means that achieving one often means compromising on the other.

Intel has already paved the way and pretty much atoned for past flaws with their brilliant Core architecture. AMD did pretty much the same thing a couple of years earlier with their much acclaimed K8—the AMD 64. The next couple of years should see the move to yet smaller fabs, as Intel plans a move to 45 nm. AMD is also looking at 65 nm for what could be their next counter-attack. Then there is the much-anticipated appearance of quad cores for the desktop. Just think about it—processing power just got a whole lot cheaper, a whole lot more powerful, and the future promises more of the same! Let’s hope these promises convert to deliverances—they have thus far! ■

michael_browne@thinkdigit.com

Free Your Mind!

**What of the Penguin?
How well do the
newest Linux
distributions rise to the
challenge of making the
desktop easy to use? We
checked out how newbie-
friendly they really are**



Sanket Naik

Bob Dylan crooned, “The times, they are a-changing”, and when it comes to desktop operating systems, indeed they are. Linux, which was once the choice of geeks, has undergone considerable changes. Gone are the days of grisly hardware compatibility, rudimentary graphic interfaces and negligible vendor support; it’s now time to enter the new world of Linux!

The last Linux comparison that we did was exactly 13 months ago; and in that short period, things have really moved to the next level. Newer versions of applications have come up, a lot of work has gone into making the Graphical User Interface (GUI) less intimidating, the Kernel has been spruced up, hardware databases have expanded and overall, using Linux is now an enjoyable experience.

Going by www.distrowatch.com, there are thousands of distros (Linux distributions) available on the Internet for people to download. Each distribution is different from the other in the way it targets its audience. For example, there are distributions that are made specifically for testing network security—such a distribution has all the required tools for testing network security. However, apart from these esoteric flavours, most Linux distributions tend to be desktop centric.

Practically speaking, under the hood, almost all Linux distributions are similar since they end up using the same Kernel, application bundle, etc. There are several factors that go into making a distro better than the others, but the single factor that makes a huge impact is an ‘Active Community’. A community consists of the developers and users of that particular distribution. The developers make sure their distribution is up to date as far as security, bugs and new applications are concerned and the users make sure they provide the necessary feedback to the developers and help other novice users via forums.

On the desktop Linux front, having an active community does not cut it anymore; the distribution has to be polished in terms of look and feel and intuitiveness, since it will be judged alongside Microsoft’s Windows products.

In this comparison we have selected some of the best distros—free as well as paid. Ubuntu 6.06, Fedora Core 5, SuSE 10, Xandros, Mandriva 2006 and Knoppix 5 have been reviewed here.

Based on usage scenarios Linux distributions can be classified into three broad categories—Beginners, Power-users and Corporate.

Distributions aimed at beginners, like Xandros and Linspire focus on making the distro’s look and feel like Windows, so that first time users do not encounter a steep learning curve. This makes the transition from Windows to Linux much smoother for beginners. However, such distributions are made by companies, and hence are often paid propositions, which go against the basic philosophy of Linux being free.

On the other hand, powerusers like to be on the cutting edge and hence the focus is often to

provide the best there is in the Linux world. Such projects are community driven and are free to download and use. Distros like Gentoo, Open-SuSE and Fedora fall under this category.

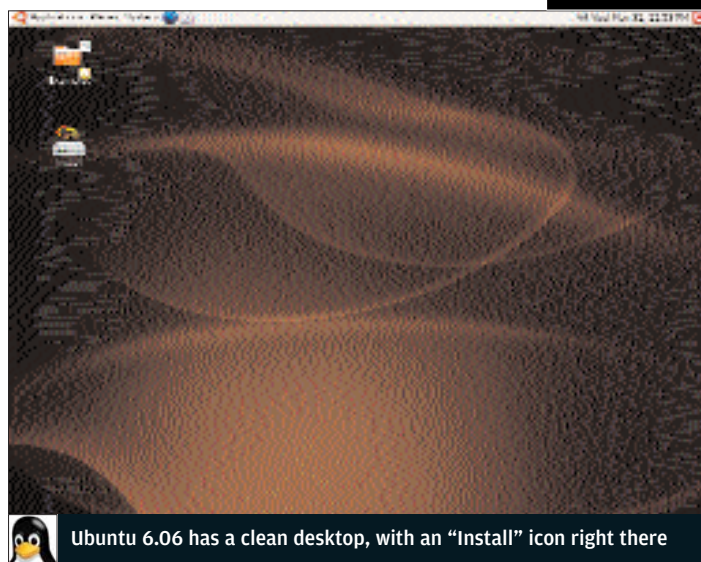
Distributions aimed at the Corporate world, like RedHat and SuSE have an altogether different demand, such as ease of deployment, availability of patches, good technical support and basic sets of applications for office work. Addressing the corporate world requires dedicated resources and hence such distributions are paid—for the services offered, not the software.

THE TEST Installation

Unlike Windows, installing Linux can be a challenge for many. The installer often gets quite technical and at times can be the biggest hurdle for the technologically challenged. Usage of terms such as sda1, hda1, swap, root, mount, etc., can confuse a novice.

Ubuntu 6.06 has done away with the quasi-graphical interface it had in the previous 5.10 version, which proved to be a stumbling block for many novices. In its latest incarnation, Ubuntu utilises a different approach—the Live CD itself doubles as the installation CD. What’s so good about this method? First, one can ascertain hardware compatibility before installation and second, it’s extremely straightforward and simple—any computer user will be able to install Ubuntu without any help. Six steps are what it takes to install Ubuntu 6.06, and that too in 10 minutes flat. During those six steps the installer prompts for basic information such as Locale settings, desired user name, password and partitioning details. We think the partitioning part still requires some polishing—it’s much better than the older version though. During our test, Ubuntu 6.06 was excellent at hardware detection and hence we like to call Ubuntu the ‘Pop it, install it and forget it’ distribution. A point to note is both our configuration were quite standard Intel boxes (assuming that’s what most Indian’s will have), people with ATI or NVIDIA chipsets might land up in some hardware issues. Note: earlier, a colleague had trouble installing the previous Ubuntu version on an ATI Radeon

Six steps are what it takes to install Ubuntu 6.06, and that too in 10 minutes flat





Xpress 200 chipset based system, but was able to install 6.06 without problems—so a few compatibility issues have been sorted.

Ubuntu has yet again gone for the brown GNOME desktop—neat and clean—yet it might not suite everyone tastes.

With **Mandriva 2006**, our first installation attempt failed as the installer hung

mid way. On the second attempt, however, the installation was smooth without any glitches—strange! The Mandriva installer is quite straight forward and its partitioning tool (where most other Linux distros mess up), made sure things don't get dicey. As with last years experience, Mandriva 2006 was able to detect most of the hardware, including the Audigy card as well as the onboard high definition audio. Display resolution, frequency and aspect ratio of the display were perfectly set by default. Right from the onset, Mandriva has always preferred the KDE desktop and Mandriva 2006 is no exception.

SuSE Linux still has its slick YAST (Yet Another Setup Tool) installer and configuration tool. Not much has been changed in the new SuSE version, except for the new green background. The step-by-step menu approach and hints being displayed makes installing SuSE much easier for a novice. The partitioning, however, can use some refinement. The Installer also allows you to configure which applications to install right at the beginning—by default, some 2.5 GB of software is selected for installation. Hardware detection still isn't SuSE's forte, and SuSE needs to accommodate more hardware drivers. On our test machine it

failed to recognise the Samsung 798MB monitor and configured it with the wrong frequencies. Apart from the display, the rest of the hardware was properly detected. SuSE Linux, unlike its previous version, has defaulted to a slick GNOME desktop.

Fedora core 5 (the open source offshoot of Red Hat) has undergone a revolutionary change. The jazzy splash screen and the new logo give the otherwise boring granddaddy of Linux, a completely new look. On the partitioning screen, the installer surprised us with its intelligent selection and optimisation of space for installing Fedora. The manual partitioning tool is also pretty workable if the automatic detection fails. The best part about Fedora is its hardware detection capability; it detected and configured all the hardware we threw at it, which it also did in our test last year. Being in the business for such a long time gives Fedora the edge over its competitors when it comes to hardware compatibility. Fedora Core 5 defaults to a well laid-out, customised GNOME desktop.

Xandros Linux has done commendable work on its installer. The installer directly starts by detecting hardware and then moves on to present a license agreement! Yes, Xandros is a paid OS—hence the license agreement. The full graphical installer is unique in a sense; the interface resembles Windows 98 and is sure to make novices feel comfortable. It even goes to the extent of having 'Custom' and 'Express' options for installing the applications—excellent for those of us used to Windows-style installers. Partitioning is so simple in Xandros that we think Microsoft should take a leaf or two from these guys. We rate Xandros partitioning UI above everybody else because of its simple and yet functional approach. Hardware detection was good—we didn't encounter any problems with our hardware. Xandros default's to a well polished KDE desktop, which resembles a typical Windows desktop—makes it quite easy for a beginner to settle down fast.

How We Reviewed

Our review methodology took into account parameters such as ease of installation, ease of use, out of box usability and to some extent hardware support.

In ease of installation, we checked for how simple the installation process is. Does it allow you to choose empty space on the hard drive to install the new OS? How simple is the user interface for partitioning the drive? Does the installer provide any useful hints or information during partitioning of the drive? These parameters are quite critical for a beginner and may not be as important to a power user.

In terms of ease of use, we took into account general usability of the system. To start with we checked how simple it is to customise the system to your liking—wallpapers, screensavers, applying themes, changing fonts and their size, changing screen resolutions, etc. Once the system was set to our liking we moved on to setting up network connections, Proxy settings, configuring the e-mail client, configuring a printer. Then we checked sharing of folders on the network, browsing the LAN network, connecting to the Internet, updating the system by downloading new patches, etc. In the process we tried simulating typical PC usage.

For out of box usability, we looked at the bundled applications and whether there are enough of them to carry out your daily chores. We looked for an office suite that can be a viable replacement for MS Office, a messenger client to chat, a good browser for Internet browsing and some sort of image manipulation application. We also tried connecting a USB flash drive, a Digital camera to check for plug and play capability.

Right from the inception, hardware support has been a problem with Linux operating system due to unavailability of drivers. For us it is extremely difficult to test them on various hardware, so we decided to test these distro's on the latest hardware. The idea being if they work with latest hardware then there is relatively less chance that they might not work with older hardware. Our testbed comprised of an Intel 3.6 GHz Pentium 4 CPU, Intel D925PBX motherboard, 1 GB RAM, an MSI 7300GS graphics card, a Creative Audigy sound card, a 400 GB Hitachi SATA hard drive and Samsung's SyncMaster 798MB monitor. Another machine we used was the Dell D820 laptop with Intel Core Duo processor, 1GB memory, NVIDIA Quadro NV125 and a 100 GB hard drive.

Knoppix 5.0.1

If one happens to use and appreciate Live Linux CD's then the accolades should go to Knoppix, because it was the first distro to pullout the so called 'Live-CD' rabbit out of the hat.

Installation

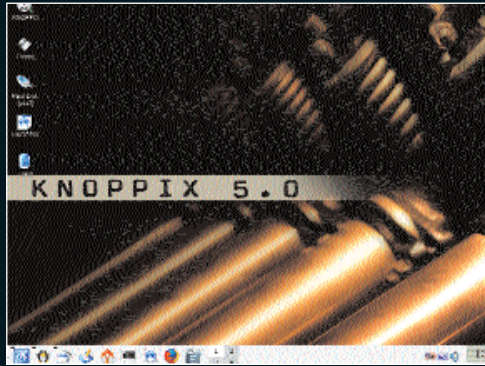
There is no installation required to run Knoppix. Just pop the CD/DVD in your drive and you will have a complete Linux Operating system running in about five minutes. We downloaded the 3.5 GB DVD version and it came packed to the gills with more software than you'll ever need. The Knoppix 5 version was released in CeBIT this year and it offers features like no other Live CD distro.

Most live CD's load the required files into the memory to run, hence generally speaking the higher the amount of memory you have the more responsive the Live CD will be. Since both our test machine were configured with 1 GB of memory, Knoppix was cruising. On machines with 512 MB and less memory, the response times took a hit.

Desktop and Application

Once the DVD boots it defaults to KDE desktop, after seeing Gnome 2.14 in action, we have begun liking the minimalist approach it has; nevertheless Knoppix offers the essential things right up front.

Due to the DVD version we used the menu structure was too long—but that's understandable, it was cramped with application we have never heard off. In case you plan to use



The Best way to try everything in Linux

Knoppix we suggest you download the CD version and not the DVD version; the DVD has just too much stuff on it.

What's really good about Knoppix that we like is that it auto-mounts hard drive partition and makes them available on the desktop. If your Windows machine goes down, this Live CD comes handy—we vouch for it, helped us on numerous counts. Similarly, external devices such as USB drives, external hard drives, digital cameras, etc., were also promptly detected.

Verdict

Hands down the best Live CD Linux distro available! We recommend you to keep a copy of Knoppix, for one day it will definitely come handy.



While distributions such as SuSE, Fedora Core 5, Mandriva and Xandros take a “more the merrier” approach; Ubuntu believes in “just the essentials”

Applications

One good thing about any Linux distribution is the applications that come with it. While distributions such as SuSE, Fedora Core 5, Mandriva and Xandros take a “more the merrier” approach; Ubuntu believes in the essentials.

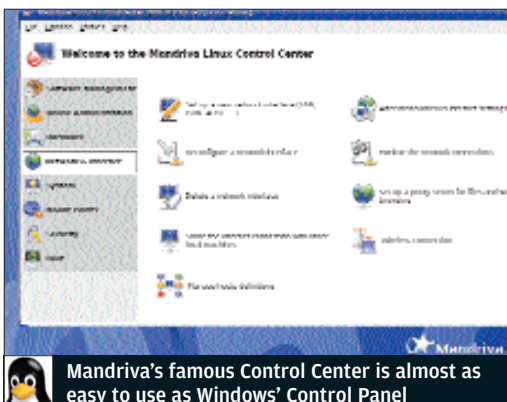
Ubuntu 6.06 is a single-CD distribution and makes the most of the space by providing essential applications only. This might be a good strategy—keep the clutter to a minimum and not intimidate a beginner with too many choices. However, adding extra applications to Ubuntu means a fast Internet connection becomes a must—a scarce commodity in India. Neverthe-

less, the bundled applications are enough for a typical desktop usage. Ubuntu came bundled with the new Gnome 2.14 desktop environment, OpenOffice.Org 2.02, Firefox as the default browser, GIMP 2.2 for image manipulation, Evolution as the e-mail client, GAIM 1.51 for instant messaging and Totem video player. Sadly, proprietary audio/video formats are not supported, but that can be resolved by simply installing Mplayer. One can also install scripts such as Automatix, which automatically installs all the required third party codecs to make the box multimedia compliant.

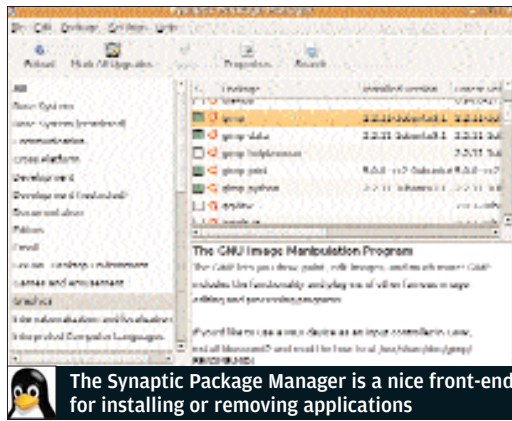
We still remember when the SuSE 6.2 box landed in our Lab some five years ago—not for the green box, but for the bundle. Some five CD's and two huge comprehensive installation manuals. And the tradition is still intact; **SuSE 10** is a five CD distro containing hundreds of applications that most people will never require for standard desktop usage.

The package includes Firefox 1.5 for browsing, Evolution for e-mails and contact management, Helix Banshee music player, F-Spot photo browser (looks similar to Google's Picasa) and OpenOffice.org 2.0 for word processing. While these might be the regular applications, there are some applications that are unique to SuSE.

Novell, the network company that took over



Mandriva's famous Control Center is almost as easy to use as Windows' Control Panel



SuSE, is responsible for much of the development in the new SuSE Linux. To take on Microsoft's Vista in terms of eye candy, SuSE Linux comes with XGL X server—an OpenGL accelerated X server. Getting it started is slightly tricky, but once it's set, the effects are mind boggling! Transparent windows, 3D desktop, water effects and many other effects can

be applied. XGL is open source and can be made to run on other Linux distributions as well. Beagle, an indexing tool that debuted in SuSE Professional 9.3, works near perfectly in SuSE 10. It found all files we searched for, such as mail, documents, images, etc. AppArmor is something interesting that SuSE 10 is bestowed with. In layman's terms it's a firewall for applications—from a conceptual point of view it looks like an interesting concept. YAST (Yet Another Setup Tool) still remains the best configuration tool across the various Linux distros. One-click access to various hardware and software configuration makes life easier.

Fedora Core 5 is in no way behind the chameleon—it too comes in a five CD pack or a single DVD for download. The usual suite of applications makes its way to Fedora too. OpenOffice.org 2.0 for spreadsheets and word processing, Firefox for Internet browsing, GIMP 2.2 for image manipulation and loads of other stuff you will never use. Since Novell took over SuSE it has contributed immensely to the Open source movement by sponsoring projects that are utilised by other distribution as well. Beagle indexing tool, F-Spot photo manager, etc., are some of the fine examples. Beagle was installed by default on our test rigs, but wasn't running, and we had a little trouble hunting down documentation to get it up and running. Tomboy—again a Novell-SuSE innovation, is a nifty note-taking utility, residing besides the Applications (Start) menu. TomBoy is lightweight, making it

an ideal application for taking down phone numbers and small notes on the fly.

Mandriva 2006 is no stranger in the 'give it all' bandwagon and its PowerPlus pack with 4000-odd applications will definitely satisfy anyone's craze. The package includes the standard applications such as Firefox 1.06 (with all plug-ins included) for Internet browsing, GIMP 2.3 for image manipulation, OpenOffice.org 2.0 as the default office suite, Amarok for music, etc.

Some unique Mandriva innovations include 'Kat'—a desktop search tool. For now, Kat supports limited text formats such as PDF, MS documents, OpenOffice.org documents, HTML, etc. However, it supports wide variety of graphics formats. We would say organising your files properly is much better way of staying organised then using some indexing application. Mandriva 2006 also includes an interactive firewall. The firewall operates in two modes namely, Automatic and Interactive. As the name suggests, automatic mode protects the PC from any incoming threats by automatically adding source address to the blacklist. In the interactive mode the application prompts for user intervention by means of a small pop up.

Similar to SuSE's 'YAST' configuration tool, Mandriva has the famous control centre. It has applets for controlling various hardware and software components of the system. While it is similar in look and feel to the Windows 'Control Panel' it can't match the granularity offered by the latter from the GUI. Further, to make life easy for a beginner, Mandriva has plethora of wizards that help in setting mundane applications such as Evolution.

Xandros, on the other hand, is quite reserved in offering applications and that's understandable given the fact that it's targeted at beginners who need not require everything that is cultivated on the open source farm. The Xandros network is a common pool from where one can download and install new application that too at the click of a single button. As far as default applications are concerned they were up to date, OpenOffice.org, Firefox, KDE office suite, etc., are present. Xandros also offers Codeweaver's Crossover Office 4.1 tool. With this, it is possible to install MS Office XP, Adobe Photoshop 7, IE 6, Windows Media Player, and many more applications. Xandros file

Some Observations

A couple of years back, getting Linux running on a typical desktop machine was a pain—mostly due to hardware incompatibilities; laptops were simply out of question. However, today most Linux distributions are better suited to run on a laptop than on desktop machines. In fact almost all distro's that we tested here installed smoothly on the Dell laptop. Most surprisingly this laptop had a 15.4 inch wide-screen that is capable of reaching a resolution of 1920x 1200 and even SuSE, which had problems detecting the Samsung 17-inch monitor, detected such a esoteric resolution perfectly. What more, power management features also worked with some distro's out of the box. With SuSE we were able to suspend the laptop to hibernation. The point is, though gradually, Linux is finally getting there! We would love to see hardware manufacturers

working with these Linux vendors and providing the necessary Linux drivers, which still seems to be the Achilles heel.

On the software front, open source software is rivalling the best in the proprietary world. They have the ability to get your work done, and done quickly. A good example would be OpenOffice.org, this office suite is sufficient for day to day working. Though it does not have the ease of use that the new Office 2007 offers, it gets the work done at absolutely no price.

KDE desktop used to be the preferred desktop environment. However, GNOME seems to have caught the fancy of most Linux distributions now. Even SuSE 10 and Fedora Core 5, once ardent KDE-biased distributions, have suddenly taken a somersault and started using GNOME. We have no complaints though, the new GNOME 2.14 is slick and fast and exactly what we want.

manager is quite unique. It is the primary system browsing tool for file management. CD/DVD drives, network folders and more are listed in the left window pane and a simple drag and drop operation makes it possible to take a backup of the files, quite like Windows XP.

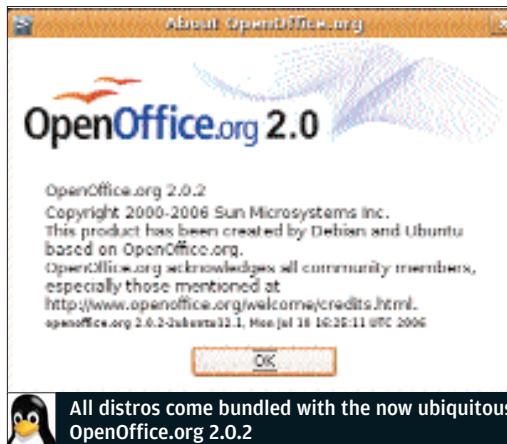
System update

Security is one of those things that is often touted as Linux's core advantage over rival operating systems. To keep the system up to date, one has to often update the system with new patches and bug fixes. Simplifying this update process certainly works in the favour of a novice Linux user. Apart from security, installing new applications also needs to be simple, because installing them is not as simple as a double-click—further dependencies need to be resolved too. The point is, how good were these Linux distros at updating and software installation? Let's figure out.

Ubuntu, being based on Debian, is robust and 'aptitude' still is the preferred application installing tool on the command line. In addition, the Synaptic package manager makes it simpler for a Linux newbie. And finally, the GDebi installer makes installing .deb files a simple double-click affair. Ubuntu also has a software updater, which pops-up messages when new patches or upgrades are available from Ubuntu.

SuSE's YAST has an integrated software updating module. You can select the location from where you want to update from, such as the CD-ROM or the online repository. The YOU (YAST Online Update) makes sure new upgrades and patches are delivered to the system at regular intervals.

Mandriva 2006 comes with a new Smart package manager. Unlike other package managers, Smart differs in the way that it can use different types of packages other than what Mandriva specifically uses—Slackware repository and .deb repositories as well. The original urpmi package manager is still present and is as simple to use as any other packager manager today.



The Xine Movie Player comes built-in with Xandros and plays DivX files out of the box

Xandros network is the tool that helps keep the system up to date on the software part. It is simple to use and allows single-click install of new software. We found Xandros approach quite simple, however it is quite reserved in the number of new applications it makes available.

Conclusion

When it comes to Ubuntu, we have just one thing to say—try it, it's fun! The sleek installation, out of the box operation, great package selection, easy to use package management and a fantastic community makes Ubuntu our choice of Linux distro for the masses.

SuSE still remains the evergreen Linux distro that we have known for years. Novell's takeover has simply added more professionalism and the urge to stay ahead of the competition is bound to grow. However, SuSE still has to work on its hardware compatibility list—it's not perfect yet. We recommend SuSE to Linux fans who want to try out a lot of applications.

Fedora Core 5, probably the oldest community in the Linux world, still holds its own, especially in India where 'RedHat' is synonymous with Linux. Brilliant hardware detection, a dedicated community and a blinding legacy is what gives Fedora its fair share of dedicated users. There is nothing wrong with this distro; it's just that it was left behind in making the necessary cosmetic facelifts that other distros successfully pulled out at the right time.

Mandriva 2006, practically speaking, doesn't have anything wrong with it, but we don't see the point in coughing up money for it. We'd rather opt for Ubuntu, which is free, or pay for SuSE—Novell is well-settled here in India, so support will be good; we can't say the same for Mandriva.

Xandros was a brilliant concept when it first came out, a 'Windows-like Linux'. However, if Ubuntu continues at this pace, we don't see the need for a Windows clone increasing. Of course, we're not criticising the brilliant work done by Xandros, because it achieves nearly everything it originally set out to do.

Finally...

Is Linux ready for the desktop? The level of piracy in India means that for most users, Windows is also 'free'. With an increasing level of security measures being added in Microsoft software, soon you might find yourself forced to either pay up to legally use Windows, or find other free alternatives. But will you be ready?

We suggest you try Linux and decide for yourself. Remember, Linux does not work as well out of the box as other OSes, but you may find yourself liking the power to customise everything. ■

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It's Morphin' Time!

Yield to the Computer Chip that can be moulded into anything you want

Nimish Chandiramani

And a dark time came, for RAM was scarce, and the swap was reduced to naught. And the OS said unto the Chip, "Be Memory!", and lo! For the Chip was now Memory.

— *The E-Testament, Chaos 21:12*

All right, so there's no such thing as the E-Testament. But imagine a time when you are running the immensely taxing *Doom V*, and your system finds itself desperately out of memory. All it needs to do now is tell one of the other chips to transform itself into a memory chip, and all is well in the gaming world again. Even as these words spill out, the idea seems quite absurd. After all, whoever heard of hardware running around transforming itself into new components? We ranted about adaptive software not too long ago (*The Lizard of Oz*, Digit, January 2006); how about hardware that can adapt itself to the demands of the situation? If William Ditto, chair of the Department of Biomedical Engineering at the University of Florida, and his colleagues, have their heads screwed on right (and many, including the US Navy, believe they do), we might actually see a prototype chip that can transform itself from CPU to memory to graphics card to take-your-pick as early as next year! The idea is called Chaos Computing, and will, as the name suggests, use a phenomenon that scientists are otherwise known to hate—chaos.

The Butterfly Effect And Other Stories

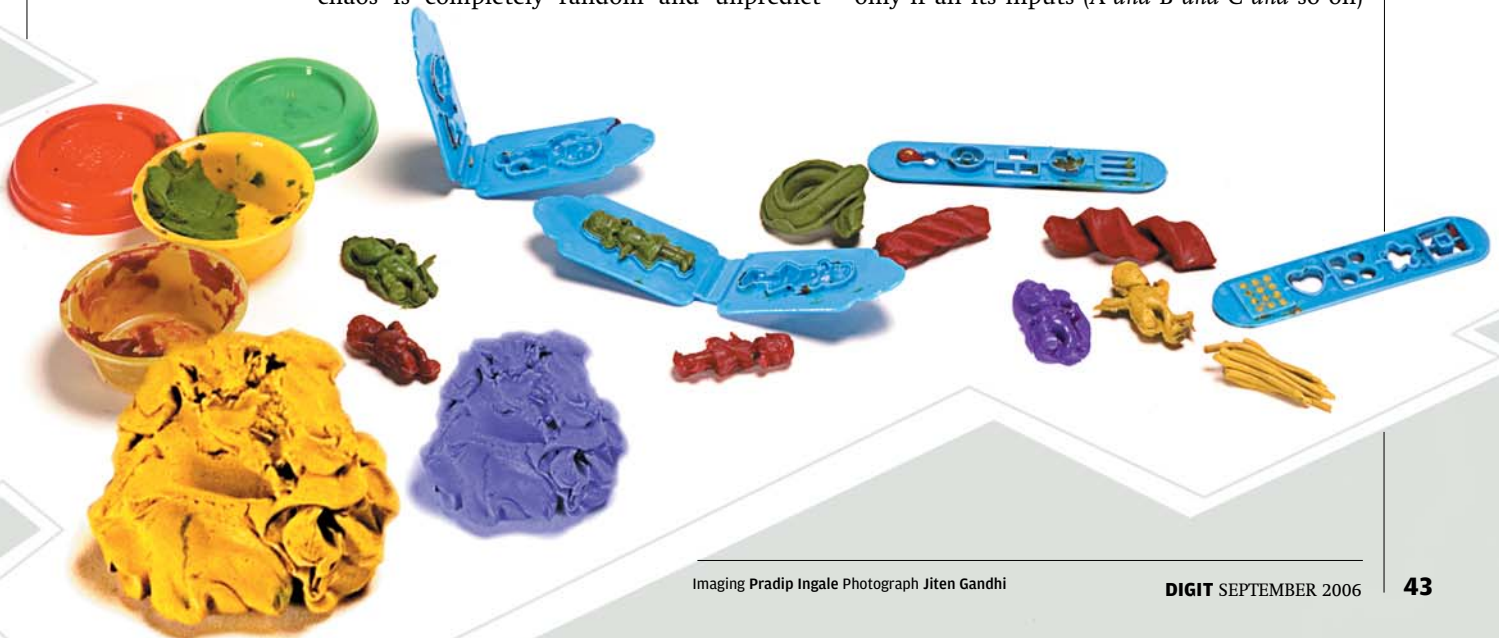
Chaos, in the scientific sense, isn't quite the same as we know it in real life. While life's chaos is completely random and unpredict-

able, science defines a chaotic system to be one that is quite predictable, but extremely sensitive to its initial conditions. To understand the concept better, try this: get your hands on a crazy ball (those little unnaturally bouncy balls) and bounce it down a sufficiently bumpy slope. If you can find it after that, repeat the exercise *exactly* as you did it before, right down to the movement of your arm. Most likely, it won't follow the same path down as it did before; in fact, it will probably go so astonishingly off course, you'd think it has a mind of its own. This is because even the slightest extra movement or the tiniest irregularity on the surface of the ball has a dramatic effect on the way it comes up from the first bounce. This then affects the next bounce and the one after that, and so on, and now nobody will believe your "exact reproduction" story. Note, however, that calculating these paths is quite possible, though horribly complex, so the system isn't really random—just fickle.

Such fickleness is what led Edward Lorenz, American mathematician and meteorologist, to talk about the *Butterfly Effect* while studying chaos in weather. It's a little like the Domino Effect, only with a bigger, meaner domino falling each time. The tiniest change in his simulation caused major changes in the weather system, and his subsequent paper read, "One meteorologist remarked that if the theory were correct, one flap of a seagull's wings could change the course of weather forever." The seagull was soon replaced by the prettier butterfly.

Chaos And The Chip

The main idea behind Chaos Computing is the manipulation of *Logic Gates*, the basic elements of computing. You might have heard of these—the AND gate, for example, outputs a binary 1 only if all its inputs (A and B and C and so on)



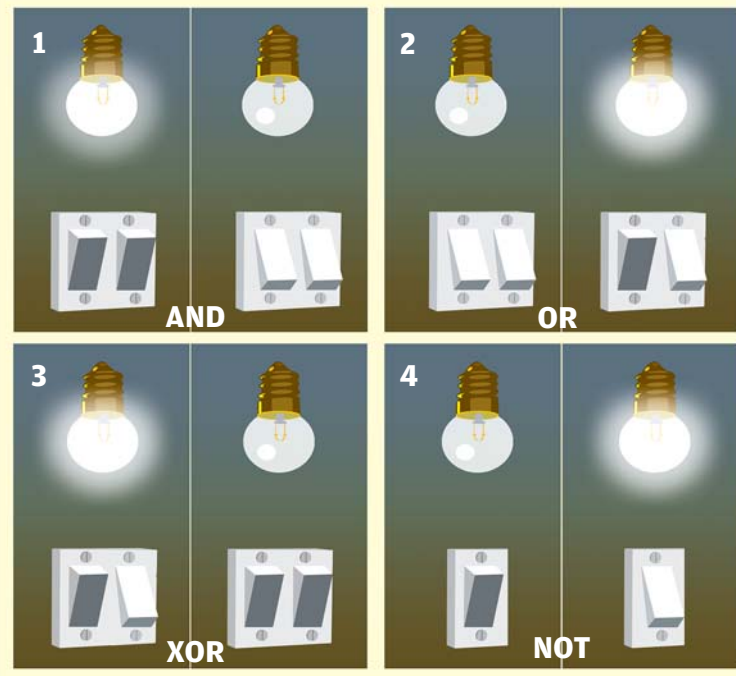
are also 1. To construct any chip, you're going to need the most basic AND, OR, NOT and XOR (eXclusive OR) gates. Today, each gate serves one specific purpose, so if you wanted a chip that could perform AND operations and OR operations, you'd need to fabricate one with both gates, even if you don't need them both at the same time. With Ditto's idea, however, you'd just need to fabricate one circuit, which can then become any gate you want it to be with only a slight programmatic adjustment.

We always talk about chips dealing with ones and zeroes, but we overlook the fact that at the bottom of it all, they're actually dealing with electric current. A typical IC today treats any voltage below approximately 0.8 volts as a logical 0, and any voltage above approximately 3.1 volts as a logical 1. Life between these two thresholds is grey area, and will generally confound the chip in question. Now, imagine if you played around with these thresholds a little.

Let's take an example: we have at our disposal an OR gate, and give it one input of 0.4 volts (a logical 0), and 5 volts (a logical 1) at the other input, resulting in an output of, say, 4 volts (still a logical 1). Now let's change the threshold for 1 to 4.5 volts. The inputs are still 0 and 1, but the output will now be taken as 0, and poof! Our OR gate is now an AND gate. The example is crude, and purists would probably come after us with torches lit, but you get where the chaos angle comes in. Since there's really no limit to how many new thresholds you can set, each change can result in the formation of a new gate. The changed outputs of these gates will affect the outputs of the next set of gates, then the gates after those, and in full compliance with the Butterfly Effect, a tiny change in the threshold (the butterfly's wing flapping) has enormous consequences (the hurricane). By manipulating thresholds in this manner, gates can be transformed on a wide scale, making it possible to create complex chips that can change their behaviour whenever we want them to. These chips will be built using *chaotic elements*—devices that have inherent chaotic behaviours, and it isn't limited to electrical circuits; we'll soon be seeing lasers and even neurons joining in. Ditto's company, ChaoLogix Inc., has already begun work on the Reconfigurable Chaotic Logic Gate Array (RCLGA), which will subsequently be interfaced with an existing operating system to show off its capabilities.

Programming The Madness

It's probably not that awe-inspiring to talk of reconfiguring one or a few gates, but think about the chaos that will ensue when you deal with circuits that contain thousands, even millions of gates—one false move and you could turn your CPU into a sound card instead of a memory chip, and you know you don't want that! Programming these chips is going to be quite difficult, and if programmers find that programming for the chaotic chip is more trouble than it's worth, we wouldn't put it past them to reject the idea altogether and carry



How Logic Gates Work: (1) The AND gate only turns on when all its inputs are on (2) The OR gate turns on when any one, or all inputs are on (3) The XOR gate is like the OR, but turns off when all inputs are on (4) The NOT gate is the exact opposite of the input—it turns off when the input is on, and vice-versa

on writing code for existing single-purpose hardware. ChaoLogix will also be developing a programming language for the RCLG arrays; time will tell how programmers react to it.

Why?

Doubtless you're trying to see what's so great about chaotic chips other than their "I'm-so-cool-I-can-do-anything" claim to fame. The most obvious advantage is, of course, the end of the single-purpose chip. If you were a chip manufacturer, and spent five years and millions of dollars on a "sure thing," only to find out that nobody in the world wanted it in the first place, you'd be feeling mighty stupid, wouldn't you? Instead of wasting years developing the innards of an otherwise silly device like, say, the next revolutionary toaster, manufacturers will be able to use a single, generic chip and program it to do serve their purpose, leaving them time and money to focus on more important things.

Designing and fabricating a chaotic chip is going to be a lot easier and cheaper than current chips, especially now that everyone's straining to get as many transistors into as small an area as possible. And really, who doesn't love cheap technology?

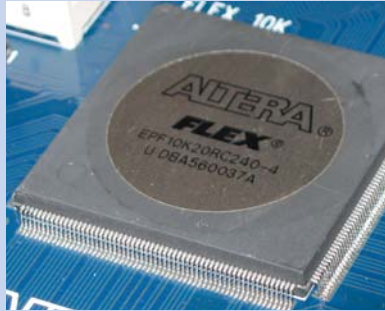
Finally, Ditto claims that because the chaotic chip can switch roles in a single cycle of the system's clock signal, smart design can enable it to perform many more operations per second than existing chips, resulting in faster computing than we know today. Imagine a computer with two chaotic chips—at a given time, we could have one dedicated to processing and one playing the role of system memory. If we need more number-crunching power, we could then have both playing the role of processor!

Been There, Done That?

The idea of a reconfigurable chip that can take on many different roles isn't new, however. It's been around in the form of the Field Programmable Gate Array (FPGA), a semiconductor device built from logic gates, with reconfigurable interconnects between them. These were the original "stem cells" of the electronic world—out of the foundry in no particular form, and then configured depending on their intended use.

The first FPGAs were configurable only once, then came the era of the reprogrammable FPGA—which allowed you to rewire the interconnects as and when you needed to. Soon enough, the FPGA was proposed as a replacement for embedded microcontrollers, culminating in the manufacture of fully-functional CPUs. Xilinx's MicroBlaze and Altera's Nios II are both "soft CPU cores" based on FPGAs (called "soft" because you could reconfigure them if you wanted to), but they found little mainstream use as they were remarkably slower than their specifically-built counterparts.

You'd expect that a chaotic chip would be based on the FPGA, but you would be quite wrong. The trouble with the FPGA is that it takes a few milliseconds to reconfigure the interconnects for a new operation—highly unacceptable. A chaotic chip, however, will be able to change its role in just one clock cycle, making it (quite literally) a million times faster.



The Altera Flex FPGA is one of the more commercially popular FPGA chips

Pandemonium Ahead

In March 2005, Indian scientists K Murali and Sudeshna Sinha, along with William Ditto, published their first experiments with building a real-life reconfigurable cell, and implemented a binary half-adder with it. They've also had some success with building a chaotic element using a leech neuron, though it will still be time before we see nerve cells in our PCs.

If all goes well (and even the creators admit that's a big if), we'll probably see the first commercially viable chaotic chips before the decade runs out. But then, they said similar things about quantum computers, and we all know what's become of *that* story. The truth is, there's a lot that might hinder chaos computing—from design issues to inherent electrical flaws that can't be removed, to the possibility that programmers will find it too difficult and throw the concept to the dogs. Still, the idea is a lot more appealing than building new chips from the ground up, and definitely shows more promise of becoming a reality sooner than quantum or DNA computing. When it does get off the ground, well, your imagination will be the only one limiting the possibilities—smaller, smarter cell phones with days worth of talk-time, faster CPUs that spend their spare time as graphics and sound cards, PCs that can heal themselves—take your pick!

And you thought chaos was a bad thing. ☒

nimish_chandiramani@thinkdigit.com

On the battlefield, he made hearts stop.
In love, he made them beat faster.

Napoleon Bonaparte

In you, he lives.

ROYAL CHALLENGE
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To know more about Royal Challenge Golf Accessories, call: (080) - 23340355.

August 2006

Windows Media Player 11

 Agent 001

Microsoft's answer to iTunes—WMP 11—was finally released in July. Here's about how I liked it

Day 1

I was at a friend's place when I got an excited call from a colleague: he gushed, "WMP 11 is here!" I wasted no time in getting online and starting the download. It refused to install because my friend, like so many of us, has a pirated version of XP Professional. A quick lecture about the wrongs of piracy later, I headed home to get what I was hoping would finally be competition for Apple's iTunes.

Day 2

My "broadband" connection at home had decided to play truant the previous day, so it was only when I got to work that I could complete the download and installation of WMP 11. Nothing different here—it looked and felt exactly like the WMP 10 installation, until I came across the option to sign up for URGE. Reassured that this was indeed WMP 11, I skipped the URGE sign-up and finished the installation. URGE, if you missed out on the news, is a tie-up between Microsoft and MTV which aims to do just what iTunes has done to the world of online music.

"So pretty!" were the first words a female colleague who passed my desk when she had a passing look at my monitor. I have to agree, though not in those same words. The interface somehow manages to look fresh, while still providing you with the familiarity of the older WMP interfaces—much unlike what Microsoft did with their Office suite!

Day 4

Managed to accumulate a large number of MP3s from my friends—quite illegally! Before you send the cops after me, I should tell you that I did this as a test, and have since deleted all of them. I scattered the collection across four partitions and various folder levels, and then had WMP 11 search all my drives for media. In earlier versions this would take ages; WMP 11 took about five minutes to find almost 20,000 files including music, pictures, and videos.

Day 10

"Where's the setting that lets me add a song to the Now Playing List by double-clicking it?"

Older versions of WMP would allow you to choose what would happen when you double-clicked a song in the Library—it would either play that song, or if you had set it up that way, it would add the song to the queue in the Now Playing List. Being so used to the previous versions, I happened to queue up 47 songs, and then accidentally double-clicked the 48th song I wanted to add to the playlist. The result? Just one song in the playlist...go back and add the first 47 all over again! I aged a year in one day!

Day 17

Someone sat at my computer and turned on visualisations. I always hated those, but WMP 11 has some new ones, and they're not half bad!

Day 24

Minor glitches aside, WMP 11 is a pleasure to use. It's fast, good looking, comes with URGE, and has syncing capabilities—very useful for those with portable digital audio players.

Day 26

Uninstalled WMP 11 today. The double-click-plays-now-instead-of-queuing-songs irritant finally got to me! For now, it's back to WMP 10. If and when I get the time to hack my Registry, and if I find the offensive key that causes this major irritant, I will re-install it in a flash. All else taken into account, this is the best version of WMP yet.

agent001@thinkdigit.com



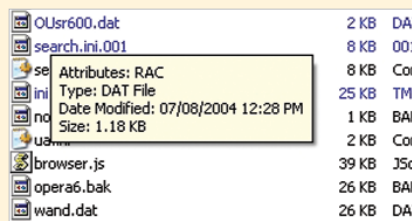
TAKE a CRACK

How would you get Windows to display the file attributes in the tooltip when the mouse cursor is moved over a file icon?

Send in your solution with the subject "Take a Crack", and your postal address, to takeacrack@thinkdigit.com

THIS MONTH'S CHALLENGE

Display File Attributes In Tooltips



LAST MONTH'S CHALLENGE

Get Tux onto your USB drive

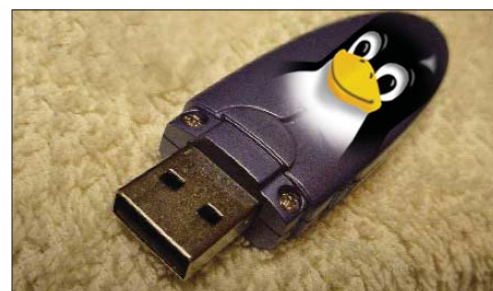
For the purpose of this workshop, we will use Damn Small Linux—it's the smallest distro for USB drives. You could also use distros like Puppy or SLAX.

What You'll Need

1. A USB thumb drive, 256 MB or larger, with USB 2.0 recommended
2. A PC that can boot from a USB device (look in the BIOS, or check the user manual)
3. The Damn Small Linux (DSL) Distro. Download it from <http://distro.ibiblio.org/pub/linux/distributions/damnsmall/current/dsl-embedded.zip>
4. Syslinux V3.11. Download it from www.kernel.org/pub/linux/utils/boot/syslinux/syslinux-3.11.zip
5. The HP USB Disk Storage Format Tool. Download it from <http://selfdestruct.net/misc/usbboot/SP27213.exe>. This is used for formatting the USB drive.

Formatting the USB drive

- Insert your drive into a USB slot. Download and install the HP USB Disk Storage Format Tool, then run it. Use the following settings in the HP USB Disk Storage Format Tool dialog box:
- ☒ Device: The name and capacity of your storage device
 - ☒ File system: FAT
 - ☒ Volume label: Name it as whatever you want
 - ☒ Confirm the Format by clicking Yes
 - ☒ Once the Format is complete, you'll get a list with information about the file system, volume, etc. about your device. Click OK.



Extracting the necessary files

Download and extract the DSL distro (dsl-embedded.zip) to the root of the USB device using WinZip or any other extraction software. Then download and extract all the files from syslinux-3.11.zip to a folder named Syslinux on your primary hard drive, that is, "X:\Syslinux", where "X" is the drive letter of the primary hard drive.

Open a Command Prompt (Start > Run > cmd), type in "cd X:\syslinux\win32" and press [Enter]. Then type in "syslinux.exe -f Y:" (where Y represents the drive letter of the USB device). Hit [Enter]. Close the Command Prompt.

Bootling to Linux

Keep your USB device plugged in, and reboot your PC. Enter the BIOS and set the boot order with the USB device first. Save your changes and exit the BIOS. (There are many different BIOSes, and you need to figure out if your PC supports booting from USB.)

If all goes well, you'll be presented with Damn Small Linux's boot screen. Press [Enter] to continue the boot process. ■

Win!

Take a Crack and win

Instant Video Album

by Pinnacle Systems

LAST MONTH'S WINNER

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Kolkata - 700048

Rules and Regulations

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As a general, he had the world at his feet.
As a host, he had the party on its feet.

Julius Caesar

In you, he lives.

Game for life!

**The RazorBerry—
combining
Blackberry
functionality with
RAZR Style!**

Good performance does not come at the cost of style. And Motorola just reiterates that with its uber-cool Moto Q, unofficially known as the RazorBerry—it combines the power of Blackberry with a slimmer body than the V3 RAZR! The Moto Q is the slimmest SmartPhone on the planet, measuring a mere 4.33 x 2.52 x 0.45 inches with a weight of just 115 grams. Salient features include a full QWERTY keyboard, 2.4-inch VGA screen and a plethora of connectivity options.

The 2.4-inch screen is capable of displaying 65K colours at a resolution of 320 x 240—lower than Nokia's E61 on this front, but the large size will definitely help when viewing content.

Q is powered by the new Windows Mobile 2005, and claims to be optimised for Microsoft

Exchange and other third party e-mail solutions. Windows Mobile 2005 endows the Q with enough PIM functionality to synchronise perfectly with Outlook.

The Moto Q is not far behind on the multimedia front, with its 1.3 megapixel camera and flash. Its support for various audio and video formats can rival any portable media player.

Connectivity includes Bluetooth and IR for short range data transfer and GPRS and EVDO for the Internet. The ubiquitous mini-USB cable will feature with the Q as well.



Motorola Moto Q





52 Shooting Stars



102 Ear Mufflers



106 How IE7 Protects You

Digital Tools

Technology For Personal And SoHo Productivity

Enhance

The Photoshop Fix

We dug around a bit to find you 10 awesome plugins for Photoshop—all completely free!

Nimish Chandiramani

One of the things we love about Photoshop is the ridiculous number of plugins constantly being developed for it. They take away the inevitable tedium that Photoshop users start experiencing after spending lots of time with it, and, more importantly, extend Photoshop's abilities beyond its out-of-the-box-version—especially useful if you're the type who needs to use weird and fun special effects every now and then. We've generally been sceptical about free plugins, especially considering commercial ones like the legendary Kai's Power Tools and AlienSkin's EyeCandy, but could a bunch of free plugins change our minds? More importantly, how useful will they be? You'll find nearly all these plugins on this issue's DVD, so you can see for yourself as well.

Installing A Plugin

First things first—not all plugins are going to come as installers, so you'll need to know what to do with the contents of some of

those ZIP archives. Photoshop looks for plugins in [Drive]:\Program Files\Adobe\Adobe Photoshop CS2\Plugin-Ins (assuming you're using CS2; the general idea hasn't changed much over time, so you should do fine even with an older version of Photoshop). To keep plugins organised, we suggest you

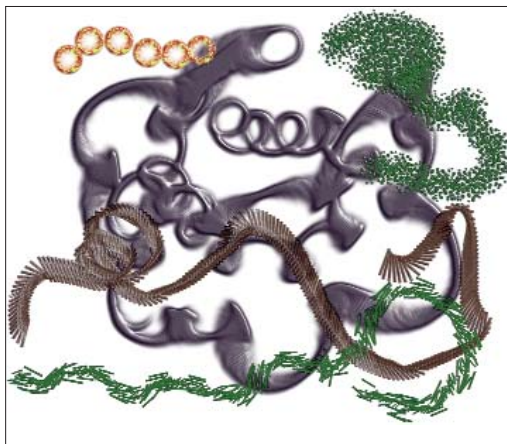
create a folder here called "My Plugins" or something to that effect. Plugins have extensions like .8bi or .8bf—generally beginning with the number 8, the remaining two letters signifying the type of plugin. Just put the plugin file into the My Plugins directory, start (or restart) Photoshop, and you should see it under the Filters Menu. And now that we have that out of the way...

Deep Paint

Our first plugin isn't so much a plugin as an application that can run standalone, but which integrates very well with Photoshop. A must-have for wannabe painters, Deep Paint lets you take painting far beyond anything you can experience with Photoshop's standard set of brushes, with its Corel Painter-esque natural media brushes. It also features "cloners" that you can use to give photos an oil-painted or sponge-painted look if you choose. You can send an image to Deep Paint from within Photoshop, and fetch it back when you're done with it.

We did experience some unpredictable undo behaviour with Deep Paint, so tread cautiously lest you

We would have liked some configurability with these filters, though—nearly all of them have their settings hard-coded into them



Create wacky paint effects with Deep Paint

reach a point when you can't undo as much as you thought. It's also not the easiest thing to learn, and will require that you invest some time exploring it.

Note: If you don't see Deep Paint in the Filters menu after installing (it will be under Right Hemisphere), copy DeepPaint.8bf from the Program Files\Right Hemisphere\Deep Paint\Plugins\PSplugin directory on your PC to your Plugins directory.

Luce

Luce is a simple, no-nonsense plugin to create volumetric lighting in your photograph. All you need to do is decide where to place the light source, and Luce will calculate all the necessary shadows and streaks to light up the scene. We recommended this for pictures of clouds and cityscapes—the results are startlingly good!



The disco ball comes to life with a few streaks of light, courtesy Luce

Topaz DeJPEG

If you've ever cursed at the way JPEG compression destroys detail in an image—especially at the edges of objects—then DeJPEG is for you. It compensates for JPEG compression losses, which makes it an indispensable tool for photo restoration (within reason, of course—there's only so much you can do for an image).

Freebie Collection by Flaming Pear

This is a collection of 33 free filters, ranging from basic channel-swapping effects to distortions—notably the Ornament effect, which will

straighten out any image with strong spherical distortion (the reflection of a party in a Christmas ornament, for example). The Solidify filter will fill out any transparent areas in a layer by approximating the colour from the nearest pixel, and the Tachyon filter inverts brightness levels without inverting colours for a pseudo-negative effect.

We would have liked some configurability with these filters, though—nearly all of them have their settings hard-coded into them.

Xero

Xero is a collection of 40 filters, each of which takes Photoshop's inherent filters one step further. We were also impressed by their sense of humour—in the Caravaggio filter, for instance, the parameters you'll be tweaking are Creativity, Exuberance, Attentiveness and Moodswing. Just the thing for an artistic filter—tweak the artistic temperament!



Xero packs some more interesting filters—like the Fritillary filter here

3D Shadow

Shadow effects in Photoshop have always been a sore point for some. Drop shadows are all very well, but when it comes to creating more advanced shadow effects, like the shadow of an object on a wall perpendicular to it, great pains must be taken. The 3D Shadow plugin lets you easily create and customise your shadows in any direction you choose.

Getting used to the plugin is a tad tricky, since it doesn't really offer you a 3D interface to create the shadows, favouring a bunch of sliders instead. However, once you get the hang of it, you'll have better control over those shadows.

Harry's Filters

The third collection of filters we're featuring here—and with good reason, too. Harry's Filters impressed us first with the amount of tweaking it allowed us for each effect. The number of options is quite dizzying, and even better, the 69 filters can all be accessed from the same dialog. There's even a Play button, which you can use to watch as your computer comes up with all the possible options for an effect.

PixelSampler

The TwistingPixels plugin comes with trial versions of PixelCreation, PixelPack and PixelPaper, and a free set of filters called PixelSampler, which lets you create some interestingly exaggerated movie-style effects. The StarLight filter, for



Harry's YUV Intensity filter turned Notre Dame into the product of a psychedelic dream

example, adds a starburst to the lighter areas for the image. You can even paint over areas of the image to decide where an effect will be applied, or alternatively, erase the effect from areas where you don't want it.



Create movie-style sparkles using PixelSampler's StarPoint

Virtual Photographer

Suggestive enough by name, Virtual Photographer gives you all you need to tweak photos in the manner of the professionals—choose your



These ruins benefit from the stark Fashion filter in Virtual Photographer

film type, speed or photographic filters. The collection of presets, even categorised under colour and black-and-white, are sure to keep you busy for a while—be it the soft-focus and “glowy” look of Glamour, or the grim, horror-movie look of Spooky.

The VanDerLee Collection

These five individually available filters aren't really intended to be more than fun, but as you can see in the picture above, they can be used to very interesting ends. The Camouflage filter generates (what else?) camouflage patterns, the Harmonix plugin will let you create your own wave, the NightVision plugin alters the image to look like you're watching it through night vision goggles.



It wasn't snowing when this picture was taken—the VanDerLee SnowScape and Snowflake filters did that!

Some Honourable Mentions

While the plugins featured above are doubtless our current favourites, a few more deserve to be worthy mentions:

WallPampered: This one lets you set an image as your desktop wallpaper from within Photoshop itself. It even lets you select the co-ordinates of your image rather than the plain old Tiled, Centred or Stretched. After installing, you can access it from File > Automate.

Thredgeholder: A slightly more advanced version of Find Edges, this allows you to specify a threshold for bringing out the edges in a picture.

ICOFormat: This enables Photoshop to open icon (.ico) files for editing, and save them as well.

Pinocchio: A simple warp effect, Pinocchio lets you drag a portion of the image out for a “long nose” look.

Endnote

When you install a large number of new plugins, you run the risk of slowing down Photoshop considerably. If you find this too annoying, download Photoshop SpeedUp from www.acropdf.com, which lets you select what plugins to load at Photoshop's startup.

Finally, there are a lot more free plugins out there, and if you have the programming skills, you can even make your own! FilterMeister (on our CD this month) is a tool for creating Photoshop plugins, and with some basic knowledge of image processing, you can get cracking at your own. Now, pop in that DVD and plug them all in! ■

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SHOOTING Stars

Digital cameras are no longer the domain of amateur or budding photographers—they're now mandatory additions to every household. Let's find out what models are out there, and which ones you should look to buy

Michael Browne

Capturing poignant memories, depicting significant events, and preserving them for future generations has been one of mankind's obsessions right from the time of the caveman. Etchings found in rock caverns are a mute testament to this. Nostalgia aside, we have things easy, don't we? Yes we do, courtesy the Digital Camera. There are a lot of options available, however, and the cavemen probably had it easier—they didn't have to do the choosing! But then, you've got us on your side!

We tested 24 digital cameras spanning all three price categories as mentioned in our *How We Tested* box: an entry-level category that consisted of an upper budget of Rs 8,500, a mid-range category with prices ranging from Rs 8,500 to Rs 14,999 and last, the Rs 15,000 and above category.

There are no strict parameters by which to judge the performance of a digital camera, excepting what you see. Megapixels and other factors being no bar, the ultimate test for any camera is the quality of the output. As a value-add to this test, we've decided to include the test shots of all the cameras on our DVD that will come with the next issue. Look out for it!



For any given budget, there will always be a particular set of features that you, as an informed user, will be looking at. Some of you might have a slightly flexible budget (we're talking upwardly-flexible here). We've provided you with a look at all the camera features together—subdivided under the price headings of course.

FEATURES Entry-Level Cameras

People buying within this category are mostly value-conscious users, and those making a first foray into the realm of digital photography. The term Casual Clicker comes to mind.

We received nine cameras in this category, spanning five vendors—Sony, Techcom, Nikon, Olympus, and Premier.

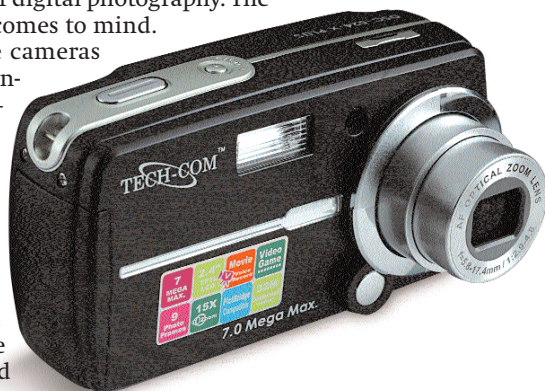
We'll give the award for the "best-looking sub-8,500 camera" to the Premier DC6370 and DC5370 duo, since their look garnered the most votes in our test labs. A hairs-breadth behind in second place is the Techcom DSC 512-X Plus. The Nikon L4 looked rather plain and even the Sony S-40 was quite a disappointment as far as looks go—rather bland.

With looks out of the way, it was time we looked at durability. Both the above-mentioned Premier models also had good build quality. Techcom gets to pole position for the DSC 524-X Plus: great build quality, feels solid in the hand. The Premier DC6370 and DC5370 finished a close second.

We weren't too surprised at none of the bigger guns like Sony, Nikon or Olympus getting kudos for build quality, simply because they are pricier; to get to their better-built models, you need to shell out more!

Let's get to the two stragglers as far as quality-of-build goes: the Premier DS5082 was abysmally lacking, especially when compared to its cheaper cousin, the DS 3088S, which at Rs 3,850 broke all price barriers as far as we know. The DS 3088S even has metal adorning some parts of its body, while the DS 5082 feels "plasticity". Both these models from Premier feature sliders that conceal the lens which is a sore point, because, the less the number of moving parts in a camera the lesser are its chances of being damaged due to regular usage. However, since both these models are cheaper than the other cameras in this category, we shall refrain from being too condescending.

The cameras in this segment costing less shouldn't necessarily equate to a nose-dive on the features count. And in fact, we were pleasantly surprised at the number of features thrown aboard by cameras available in the



TechCom 524-X PLUS

We liked those suave dark looks, but the sticker looks gaudy, though

market today. Last time we conducted such a test, the "budget" price bracket was kept at Rs 10,000. Even that has fallen!

It's hard to ignore the on-paper specs of the DC6370. Premier has done their homework well, and once again the issue of price rears its head—you get a lot of features here for Rs 7,500. A 2.4 inch, 1,15,000 pixel screen ensures you see all the action without squinting, while the 6-megapixel CCD ensures you'll also be able to capture that on-screen action for fun viewing later! The Nikon L4 sported a crisp two inch TFT (thin film transistor) display, that was the clearest among all except the Sony S40, which was half an inch smaller. The Nikon L4 is also very newbie friendly—no ISO settings, just an 'Auto' mode. The Techcom 524-X has a decent menu layout—it's very simple and intuitive.

The Techcom cameras were the only models here to feature inbuilt games. This sounds weird: games on a digital camera? Well, the feature is there, and you decide whether it's a value-add or not! Incidentally, the Techcom and Premier models don't come with manual viewfinders, so you'll be using the LCD viewfinder all the time. You should know that using the LCD adversely affects battery life, as compared to the plain old viewfinder.

The Premier DS-3088S warrants mention as well, though for the wrong reasons. It's really feature-shy: no optical zoom, no autofocus, and a depressing LCD. Following its cheaper brother faithfully is the DS-5082: a slightly better LCD, but missing many essential features.



Nikon L4

Feature rich performer that needs a body makeover!

Mid-Range Cameras

Any camera falling in this category has a tough task ahead of it when it comes to proving its mettle. It has to be feature-rich enough to justify the higher price, and should also perform accordingly. Those buying within this segment also tend to be more discerning than the folk in the first segment, and they also value each and every goodie (read neat feature) they are getting—even if they aren't as informed as those falling in the third category.

This was the most sparsely-populated price segment, with just six cameras. The Sony W50 is

priced at exactly Rs 15,000, and we could've easily placed it in this segment, but we're strict about rules, and 14,999 isn't equal to 15,000. Moreover, this is a higher-end camera, despite the price.

All the big brands made it into this category—Canon, Sony, Olympus, Nikon and Samsung had one model each here. The sole small-town boy was the Premier DC-8365.

The best looker in this category just has to be the Sony DSC-L1. That dark maroon body contrasts well with the steel grey highlights. The camera is so perfectly finished, we spent some time just passing the model around to just ogle at it.

The sheer quality and the actual fit and finish of the entire body including the all the moveable parts is excellent. Not as excellent as another beauty though—the Nikon S5. Sporting a beautifully finished

gun-grey body, this, too, is a very slim camera, slimmer than the L1, but with a slightly higher profile.

As far as build quality goes, the S5 inches ahead, though the “gorgeous” award is still very much in Sony DSC-L1 territory! The Nikon S5 also had that definitively solid feel in the hand; the same can be said for Sony DSC L-1, but it wasn't so noticeable with the other models.

The Canon PowerShot A530 looks unassuming; nothing too special, but decent and solid. Olympus' SP310 was a more attractive dark grey, while the A530 sported the silver. Build quality-wise, the Canon and Olympus were similar.

There were no real losers here as far as build quality and looks go (all the models were above what is considered acceptable), but someone has to bring up the rear—and those positions go to the Samsung Digimax S-500 and the Premier DC-8365.

The crispest screen belonged to the Samsung S500, followed by the 2.5-inch TFT on the Olympus SP-310. The Canon A530, too, had a good screen, but it's a little small at 1.8 inches. The Premier DC-8365, too, was measly



Canon PowerShot A530
Doesn't quite live up to its name

How We Tested

We received 25 digital cameras for our shootout. For the sake of simplicity and to enable correct and informed buying decisions within a particular price bracket, we decided to segregate the cameras we received into three price zones.

Price Brackets

First we have the entry-level or budget segment. To qualify here, cameras needed to be priced below Rs 8,500. We set 8,500 as a ceiling because this is typically the maximum amount that a budget-conscious user will spend.

The next category is the pricier and more feature-filled segment. All the cameras that fell within the price bracket of above Rs 8,500 and below Rs 15,000 were included in this category.

Last came the 15,000 and above segment: these cameras, of course, offer better performance than the lower-priced models. Such cameras can also be considered by photography enthusiasts. These are by no means professional cameras—true professional cameras could start from as much as Rs 40,000! We didn't cap the price for cameras in this segment.

Features

The features we looked for included the megapixel rating of the CCD sensor, the degree of optical zoom provided, the number of shooting modes, the presence of a flash, and the number of flash modes present. We also checked for the metering modes available, shutter speeds, white balance settings and autofocus options. Presence of macro shooting mode, its minimum range, the presence of an optical viewfinder, the size and clarity of the LCD viewfinder, and video-out capabilities were also noted. We awarded points to a good bundle, and the presence of a memory card, a battery charger, and a USB docking / recharge station was also rewarded appropriately.

Testing Scenarios

We kept the ISO value at Auto during all the test shots. Similar lighting conditions were used to ensure a level playing field. The white balance was set to Auto. Digital zoom was turned off for cameras that supported the feature. We used the maximum MP rating of the cameras for all the tests. The flash was turned off, since it causes loss of finer detail, assuming decent lighting. A flash also causes reflections and the bloom effect in certain shots. We did a separate flash test to check their effective range. We used a tripod all through to rule out camera shake.



Our tabletop scene. Note the number of diverse elements!

1. The tabletop scene: This consisted of fruit of various kinds, a glass partially filled with a soft drink, and three soft drink cans—one was bright red, one was blue, and the third was orange and green. There were a number of paper clips strewn in a heap, with a few odds and ends thrown in for good measure. All this was placed on a wrinkled satin cloth. This shot allowed us to check for quality of detail, sharpness, colour and contrast, and white balance.

2. The outdoor shoot: We took several shots of our office building and of the greenery around. This type of photography allows for testing of the quality of the metering modes, along

with the effectiveness of the white balance at the Auto setting. We also checked for fine details, such as the texture and appearance of the veins on the leaves, and subtle variations in colour.

3. Up close and personal: A simple yet elegant watch was used in a macro shot. The close-up of the dial with all its minute calibrations presents an opportunity to test both the camera's macro range as well as its capabilities in this mode.

4. The video test: We shot videos to check for the quality during video shoot, and for audio clarity. The videos were checked for dropping of frames (jerky playback) and, of course, loss in quality.

on screen area: just two inches. If you like to zoom into the action, the Canon A530 sports the largest optical zoom (4x) in this group. The others all manage with 3x.

A noteworthy feature on the Olympus SP-310 was its support for the RAW format in addition to the usual JPEG, which all 23 cameras

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SEPTEMBER 2006



Sony DSC L1
A petite performer

supported. RAW is an uncompressed format unlike JPEG, and this feature is usually present only on professional-grade cameras.

High-End Cameras

Populated by eight models, this is the segment where we focus more on performance and less on value. In the major league, two players were really well represented—Kodak and Canon had three models each. Sony had one—the W-50—as did Samsung with its S-800. Premier made yet another appearance with their top-end DS-8650.

We liked the menu layout of the Canon A700 in particular. This intuitive layout is shared by the other Canon models as well, but the large 2.5 inch screen makes all the difference. Sony's W-50 has an excellent screen as well, 2.5 inches of pure viewing bliss! We also liked the W-50's layout, which happens to be common to all the cameras we received from them. The W50 has excellent ergonomics as well, button feedback especially the half click at which your camera's lens starts auto-focusing is tactile to say the least. The navigation



Kodak V-570
Those dual-shooters ain't doin' much!

buttons on the A700 (Canon) and the S800 (Samsung) were also rather nicely laid out and comfortable to use. On the DS-8650, Premier follows the same, rather simple menu of the lower-end models. The DS-8650 deserves special mention for its LCD, the largest among the crop we received at 2.8 inches, (the Kodak V610 was the only other model with a screen so large). We found the Kodak screens in general to be good, —nothing really fancy, though they get the job done.

No competition for the best looking this side of town: the Sony W-50 stomps all over the others in this regard! It's sleek, and the satiny black finish oozes quality (it's also available in silver). We even found the sticker on the Sony to suit its overall looks (some other models had rather garish stickers). For such a small footprint, the Sony W50 feels solid to hold. Another solid little thing is the Canon Digital Ixus 60, which is even smaller than the Sony while maintaining a large feature set. These two (the W-50 and the Ixus 60) were the smallest cameras in this category.

Canon PowerShot S3-IS

The biggest and costliest camera in our test, the S3-IS doesn't fit into any of the categories of camera we received. Priced at Rs 32,995, the S3-IS definitely isn't cheap. Canon positions this model as a true intermediate offering, bridging the gap between the compact cameras for casual clickers and the bulkier professional-grade cameras that are beyond most users' financial boundaries!



Canon has excelled here as far as design goes. The camera is a sober black—inconspicuous compared to the S2-IS, which is a flashy silver. The S3-IS is very nicely contoured and easy to grip, even more so because of the non-slip soft grip material used on the areas of the body where your hands are most likely to be. The controls are perfectly laid out. Under the hood, the S3-IS features the same Digic II processor that Canon has dropped under the bonnet of all cameras in their PowerShot range.

The S3-IS offers six megapixels, up from the five that its predecessor, the S2-IS, offered. A two inch swivel and twist action LCD ensures you can see what you shoot at from nearly every conceivable angle. 12x optical zoom means you can get up close to the action. The camera also features image stabilisation—good for those with shaky hands.

The S3's performance was excellent during our outdoor shoot: we were amazed at the clarity of the long-range zoom—perfect for the adventurer who doesn't want to burn too large a hole in his pocket! It was a touch disappointing to discover that the intrepid (and expensive) S3 didn't perform as well indoors. Our test scene with the fruit basket was used, and as you will see (test shots of all cameras will be included on next month's DVD), the S3 produced an image with slight amounts of graininess. We did a double take just to be sure. The indoor macro scene was quite similar results-wise. The outdoor macro was a runaway hit—no noticeable faults at all. To be quite frank, the indoor results weren't all that bad; it's just that we expected so much more from a 30,000+ camera!

A good buy if you're looking at a lot of outdoor shooting—read natural light. It's a slightly different story once you get indoors.

In fact, the outdoors guy *is* the camera's intended audience—whether the S3 spells value for money depends on how you plan to use it.



Scoreboard

Entry Level Cameras

BRAND MODEL	Premier DS-3088S	Premier DS-5082	Premier DC-5370	Olympus FE 115	Nikon Coolpix L4	Premier DC-6370
Features						
Dimensions (w x h x d) cms	8.9 x 5.6 x 2.4	8.9 x 5.6 x 2.4	8.8 x 6.0 x 2.5	8.8 x 6.3 x 3.9	8.7 x 6.1 x 3.5	8.8 x 6.0 x 2.5
Weight (gm)	82	80	130	160	165	130
Maximum Image Resolution	2048 x 1536	2560 x 1920	2560 x 1920	2560 x 1920	2272 x 1704	2816x2112
CCD Sensor (Megapixels)	3.2	5	5	5	3.9	6
Focal Length (35mm equivalent)	NA	NA	32~96	38~106	38~114	34~102
Optical Zoom	✗	✗	3x	2.8x	3x	3x
Digital Zoom	4x	4x	4x	4x	4x	4x
Autofocus	✗	✗	✓	✓	✓	✓
Manual Focus	✗	✗	✗	✗	✗	✗
Macro Focus Range (cm)	40	60	5~40	2	4	5
LCD Viewfinder Size (Inches)	1.5	1.7	2.4	1.5	2	2.4
LCD Viewfinder Resolution (pixels)	35000	50160	115000	130000	115000	110000
ISO Setting	Auto	Auto	✓ / 4	Auto (64~400)	Auto only	✓ / 4
White Balance Settings (Y/N)/settings	✓ / 5	✓ / 5	✓ / 5	✓ / 5	✓ / 6	✓ / 5
Shutter Speed Range (Min - Max)	0.5 ~ 1/1500	0.5 ~ 1/1500	0.5 ~ 1/1500	2 ~ 1/2000	4 ~ 1/3000	0.5 ~ 1/1500
Metering Modes*	M.S, Spot	M.S, Spot	M.S, Spot	C.W	M.S	M.S, Spot
Self-Timer (If Yes time in sec)	✓ / 5 / 10	✓ / 5 / 10	✓ / 2~10 + 2	✓ / 2~10	✓ / 10	✓ / 2~10 + 2
Flash/Ext Flash support (Y/N)	✓ / ✗	✓ / ✗	✓ / ✗	✓ / ✗	✓ / ✗	✓ / ✗
Memory Types Supported	SD + Internal	SD + Internal	SD + Internal	XD + Internal	SD + internal	SD + internal
In-built Memory (MB)	16	16	8	28	10	11
Video-out	✓	✓	✓	✓	✓	✓
PC Interface	USB	USB	USB	USB	USB	USB
Video Capture Capability	✓	✓	✓	✓	✓	✓
Battery Form Factor (If applicable)	AAA	Lithium - Ion	AA	AA	AA	AA
Battery Charger Included	✗	✗	✗	✓	✓	✓
Tripod Mount Capability	✓	✓	✓	✓	✓	✓
Extra Accessories	Carry pouch, strap, USB cable, video out cable	Carry pouch, strap, USB cable, video out cable	Carry pouch, strap, USB cable, video out cable	Carry pouch, data cable, video out cable	Strap, data cable, video out cable	Carry pouch, strap, USB cable, video out cable
Ergonomics						
Design						
Comfortable To Hold (0-5)	2.75	3	2.75	3.5	3.5	3
Menu Navigation Ease (0-5)	2.75	2.75	3	3.25	3.5	2.75
Button Ergonomics(0-5)	2.5	2.5	2.5	3.25	3.5	2.5
Build Quality Of body (0-5)	2.25	2.75	3.5	3.5	3	3.5
Build Quality Of movable parts (0-5)	2.5	2.75	3.25	3.5	3	3.25
Protection						
Lens Cover	✓	✓	✓	✓	✓	✓
Performance						
Photograph details						
Zone 1 Colour Reproduction	1.75	2.25	3.75	3.5	4	3.5
Zone 2 Text And Wrinkles	2	2.25	3.25	3	3.5	3.5
Zone 3 Details	1.75	2	3.5	3	3.5	3.5
Zone 4 Specular Effect	1.5	2	3.5	3.25	3.75	3.5
Zone 5 Shading	1.75	2	3.25	3	3.25	3.5
Zoom Quality	1.25	1.25	3.25	3	3.5	3.25
LCD Screen/Viewfinder (Scale of 5)						
Quality Of Screen	1.75	1.5	3.25	3	3.5	3.25
Outdoors Visibility	2	2	3	2.75	3.25	3
Scores						
Features (out of 40)	17.34	21.19	25.64	27.26	26.14	25.86
Performance (out of 45)	12.38	13.73	24.08	22.05	25.43	24.30
Price Index (out of 15)	13.64	8.82	7.55	7.50	7.00	7.00
Overall Score	43.35	43.73	57.26	56.81	58.56	57.16
Price (Rs)	3,850	5,950	6,950	7,000	7,500	7,500

Metering Modes*
C.W – Center weighted
M.S – Multi Segment (also called Evaluative Mode)



+ Amazingly cheap
- Poor performance



+ Cheap
- Poor build quality and low on performance



+ Aggressive pricing, good value for money
- None



+ Decent all round performance
- Better priced alternatives available



+ Good performance, great price
- Mediocre build quality



+ Decent performance
- None

Techcom DSC 512X plus	Sony Cyber-shot DSC S40	Techcom DSC 524X plus
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10.8 x 5.6 x 3.8	9.9 x 5.2 x 3.4	9.9 x 5.5 x 3.5
140	184	140
2560 x 1920	2304 x 1728	2560 x 1920
5.1	4	5.1
35~105	32~96	35~105
3x	3x	3x
5x	3x	5x
✓	✓	✓
✗	✗	✓
10	11	10
2	1.5	2.4
110000	77000	110000
✓ / 4	✓ / 5	✓ / 4
✓ / 7	✓ / 5	✓ / 7
8 ~ 1/1000	30 ~ 1/2000	8 ~ 1/1000
M.S, Spot	M.S	M.S, Spot
✓ (2~10)	✓ / 10	✓ (2~10)
✓ / ✗	✓ / ✗	✓ / ✗
SD + internal	MS / MS pro	SD + internal
32	32	32
✓	✗	✓
USB	USB	USB
✓	✓	✓
AA	AA	AA
✗	✗	✗
✓	✓	✓
Carry pouch, strap, video out cable	Strap, carry case, USB cable, video out cable	Carry pouch, strap, video out cable

3	3.5	3.25
3	3.5	3
2.75	3.25	3
3.25	3	3.25
3.25	3	3.5

✓	✓	✓
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3	3	3
3.5	3.5	3.5
3.25	3.5	3.5
3	3.25	3
3.25	3.25	3
3	3.25	3

3	3	3.25
3	3	2.35

25.14	24.92	27.76
22.50	23.18	22.14
6.57	6.56	6.18
54.21	54.66	56.08
7,990	8,000	8,490



+ Good image detail
- Slightly over-rich colours



+ Nice button layout
- Mediocre performance, lacks build quality



+ Good image quality, decent build quality
- Over-rich colours

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Sony W-50
Fine Shooting needs the best shooter

The largest zoomer here was the Kodak V610, with an optical zoom of 10x, excellent for its size. The Canon A700 was the runner up as far as zooming capabilities go with a 6x optical zoom. The other models were pretty much on par with 3x optical zooms. Two Kodak models—the V570 and the V610—sport something unique: they had two lenses! We did a little digging around: it turned out that one of the lenses is a wide-angle, and the other is the zoom lens. Kodak claims this offers the best of both worlds. The trick is that both the lenses don't work simultaneously. With the V570, a 5-megapixel camera, each lens has a CCD sensor that offers 5-megapixel resolution. During normal shooting, the wide-angle lens is used, and while zooming, the camera seamlessly switches to the zoom lens.

PERFORMANCE Entry-Level Cameras

We'll do this brand by brand; we randomly picked the Premier range first. Quality-wise, the outputs of the DC6370 and DC5370 were nearly identical, with the higher megapixel rating becoming slightly noticeable only when the image is enlarged and viewed at its maximum size. The dearth of pixels will not be noticeable in a 4" x 6" printout, for example. The overall tonal balance was well-maintained by both cameras. This is noticeable as the colours are quite natural, and not artificially bright. The lower-end DS-5082 offers a much softer image, without a lot of detail, and noticeable graininess. The DS-3088-S shows up graininess that is noticeable for the most part, and particularly when the image is viewed at 100 per cent. It loses out on colour reproduction; the image looks rather faded. This is understandable taking into consideration its diminutive megapixel count (3.2 MP).

One look at the Techcom duo will redefine the meaning of the phrase "rich colour". While rich is generally a good thing, the 512-X and 524-X overdo the colours, and the image looks

Two Kodak models—the V570 and the V610—sport two lenses. One of them is a wide-angle, while the other is a zoom lens

artificially colour-bright. The white balance is spot on, though—as was the case with the Premier 6370 and 5370. Overall, good image detailing, and minimal pixelation.

Among the trio of big brands, the Nikon Coolpix L4 produced the most neutral-looking results (great white balance). In fact, the L-4 produced the most neutral-looking image across the sub-8,500 rupee board. But the Premier 6370 and 5370 produced slightly more realistic-looking colours; kudos all round to Premier! Nonetheless, the detailing on the Coolpix L4 was good.

Sony's DSC S-40 produces slightly over-rich images that look a touch too bright to be termed truly natural. The S-40 also produces a yellowish-looking image with white balance set to Auto. This just proves that different manufacturers use different methods to calculate the amount of white balancing required in a scene. Of course, with a little tinkering around, and setting the white balance to "Incandescent", we were able to get rid of the yellowish tinge. The Olympus FE-115



Premier DC-5370
An unassuming performer from a new market player

came somewhat in between the Sony and the Nikon as far as white balancing goes. Shot quality-wise, we noticed that the FE-115 didn't produce highlights (on the glass and metal surfaces) quite as well as the Sony, Premier (DC-5370 / 6370 only), Techcom and Nikon models, and also suffers from the "over-bright colour" syndrome.

Bringing up the rear in this price category, we have the cheapest of the cameras—the Premier DS-3088S. Sure, we agree Premier priced this one judiciously, but it's basically on par with cell phone cameras; some of the newer camera phones from Sony Ericsson and Nokia will put it to shame. There was noticeable pixelation upon scrutiny, and it lacked crispness of colour—overall, rather drab-looking results. The DS-5082 was a bit better, with much accurate colour representation, but it, too, lost out big time on detail. Both these, the cheapest of the cameras on display, offered sub-par results—overall, not worthy of much word space.

Mid-Range Cameras

Two cameras fought it out for top position here; these were also incidentally the best-looking cameras. The Sony DSC L-1 and the Nikon S5 prove that beauties can have brains, or in this case, brawn! The L-1, in typical Sony style, produced a sharp image, though there was a slight yellowish tinge; adjusting the white balance quickly remedied this. This camera also produced vivid detailing with good specular effects—for example, the play of light on the glass bottle was caught nicely. We liked the

Jargon Buster

The key to making a good purchase for any product is information, holds true for Digital Cameras as well! Too many of us buy a digital camera only to find out a little too late that something better was available. The best buyer is an informed one. If you've taken the plunge and got that shiny new shooter, this little list will demystify all those tech terms flying around, and should enable you to understand the most basic settings on your camera.

Pixel

Before getting into millions of pixels i.e. megapixels, let's see what a pixel is. The word "pixel" stands for Picture Element. What you see on your digital screens—be it your PC monitor or the LCD viewfinder of your camera or even a cell phone—is basically a bunch of pixels. A general rule of thumb is that the greater the pixel count, the better and sharper the image. A greater pixel count means the image can be viewed at its native resolution, that is, the resolution it was captured at, with less loss in visual detail.

Megapixel

The megapixel (MP) rating of a camera represents the resolution (in millions of pixels) that the camera is capable of producing. A 6-megapixel camera's CCD sensor would be capable of capturing an image containing up to approximately 6 million pixels.

Sensor

The digital image on your digicam is produced by the camera's sensor. The sensor is basically a unit that measures the brightness

of each pixel. The sensor unit consists of millions of tiny pixels arranged in an array-like fashion. Each pixel is tasked with capturing photons, and each pixel can capture a certain number of them. The photons collected by each pixel are converted into an electrical charge via a Photodiode. After this, the electrical charge needs to be amplified, and then converted to a digital value—which is done by the ADC (Analogue to Digital Converter).

CCD & CMOS

Digital camera sensors are of two types. The most common are CCD (Charge-Coupled Device) sensors, used in nearly all cameras, and CMOS (Complementary Metal-Oxide Semiconductor). CMOS sensors are relatively faster and smaller than their CCD counterparts, and are found only on some select high-end cameras.

Optical and Digital Zoom

It's simple: Optical = good, Digital = not so good! In brief, optical zoom uses the camera optics, that is, the lens, to bring the subject in focus closer. This is the actual way a zoom should work, and even film cameras used this sort of zoom. Digital zoom is "simulated" zoom: the sensor crops the image and then enlarges the cropped portion to the size of the original; this is called interpolation, and results in image quality loss. Digital zooming thus has nothing to do with camera optics.

Pixelation

This refers to the graininess you sometimes see in an image, and can be caused by either a weak pixel fill rate, improper geometry of the individual pixels, or other factors such as colour accuracy,

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Nikon S5
 Sleek looks, performs well!

finer detail on the paper clips, which was something the S5 missed out on. So we'll give the L-1 a slight lead here. If you like softer images, the S5 inches ahead.

The Premier DC8365 loses out a bit on clarity at the top end of its zoom, and this is clearly visible while viewing the test shots of each camera. It also loses out on specular detailing and colour reproduction. There were also noticeable grains when a photo is viewed at 100 per cent size.

The Samsung S-500 did reasonably well here, with overall good reproduction and colour rendition. It loses out slightly as far as detail goes; the image lacks that extra dash of crispness.

The Canon A530 loses out on some of the specular effects, which has to do with the fact that Canon models in general seem to produce a much softer set of colours than the other models here. Canons also typically perform less post-processing, meaning the results will always appear naturally soft, losing out on some of that aggressive sharpness. There were slight grains around some of the fruit photos, suggesting the camera has problems producing subtle variations in colour.

The Olympus SP-310 reproduces colours well, with good specular highlights, but misses out while highlighting finer details and textures.



The Decision Maker

Your Budget	You Need	We Recommend
Up to 8,500	Something small, not very complicated, that offers decent quality	Premier 5370, Premier 6370
Up to 15,000	High performance with a good price tag	Sony Cybershot DSC W-50, Nikon Coolpix S5
More than 15,000	High quality output and excellent detailing	Samsung S-800, Canon Powershot A700
NA	Something really compact without sacrificing on quality	Sony Cybershot DSC L-1, Nikon Coolpix S5
NA	Outdoor shooting capabilities with a lot of zoom	Canon Powershot S3-IS

noise, and artifacting of pixels. It's an unwanted element in digital photography.

The ISO Rating

This value represents the sensitivity of the image sensor to the light present in a scene. The higher this figure is (64, 100, 200, 400, 800 and higher), the better equipped the camera will be to take good photos in low-light conditions.

White Balance

White balance is a camera setting that can be tuned to adjust the tone of the colour in the resultant output. Its objective is to make the scene as neutral as possible as far as white goes, so white actually appears white without hues. Generally, without any white balance, white actually appears with hues; these depend upon the lighting conditions under which the white is viewed. For example, a camera will display a white object with different hues under yellow, fluorescent, or natural light. This is a naturally-occurring phenomenon that can spoil photographs with even the best cameras if the white balance is not set correctly. Cameras have settings such as Auto, Incandescent, Fluorescent, and more, for the white balance.

Scoreboard Mid-Range Cameras

BRAND	Sony	Premier	Samsung	Olympus	Nikon	Canon
MODEL	Cyber-shot DSC L1	DC-8365	Digimax S500	SP310	Coolpix S5	Powershot A530
Features						
Dimensions (w x h x d) cms	9.5 x 4.4 x 2.6	9.1 x 6.1 x 2.7	9.6 x 6.1 x 2.6	10 x 6.5 x 3.5	9.3 x 5.9 x 2.0	9.0 x 6.4 x 4.3
Weight (gm)	152	150	136	230	165	220
Maximum Image Resolution	2304 x 1728	3264 x 2448	2592x1944	3072 x 2304	2816 x 2112	2512 x 1944
CCD Sensor (Megapixels)	4	8	5.1	7.1	6	5
Focal Length (35mm equivalent)	32~96	36~108	35~105	38~114	35~105	35~140
Optical Zoom	3x	3x	3x	3x	3x	4x
Digital Zoom	✗	4x	5x	4x	4x	4x
Autofocus	✓	✓	✓	✓	✓	✓
Manual Focus	✗	✗	✗	✓	✗	✓
Macro Focus Range (cm)	12	6	5	5	4	5
LCD Viewfinder Size (Inches)	1.5	2	2.4	2.5	2.5	1.8
LCD Viewfinder Resolution (pixels)	78000	130000	112000	115000	230000	77000
ISO Setting	✓ / 1	✓ / 4	✓ / 5	✓ / 5	✓ / 5	✓ / 6
White Balance Settings (Y/N)/settings	✓ / 5	✓ / 5	✓ / 7	✓ / 5	✓ / 6	✓ / 6
Shutter Speed Range (Min ~ Max)	1 ~ 1/2000	1 ~ 1/1500	8 ~ 1/1500	15 ~ 1/2000	2 ~ 1/500	15 ~ 1/2000
Metering Modes	M.S, Spot	M.S, Spot	M.S, Spot	M.S, C.W, Spot	M.S	M.S, C.W, Spot
Self-Timer (If Yes time in sec)	✓ / 10	✓ / 2~10+2	✓ / ✗	✓ / ✗	✓ / 3 or 10	✓ (2/10)
Flash/Ext Flash support (Y/N)	✓ / ✗	✓ / ✗	✓ / ✗	✓ / ✗	✓ / ✗	✓ / ✗
Memory Types Supported	MS duo / MS Pro duo	SD	SD + internal	XD + internal	SD + internal	MMC
In-built Memory (MB)	✗	32	20	32	21	✗
Video-out	✗	✓	✓	✓	✓	✓
PC Interface	USB	USB	USB	USB	USB	USB
Video Capture Capability	✗	✓	✓	✓	✓	✓
Battery Form Factor (If applicable)	Lithium-Ion	AA	AA	AA	Lithium-Ion	AA
Battery Charger Included	✓	✗	✗	✗	✗	✗
Tripod Mount Capability	✓	✓	✓	✓	✓	✓
Extra Accessories	Strap	Carry pouch, strap, USB cable, video out cable	Strap, USB cable, video out cable	Carry strap and pouch, USB cable	Carry case, USB cable, video out cable	hand strap, USB cable,
Ergonomics						
Design						
Comfortable To Hold (0-5)	3.75	3.25	3.5	4	4	3.5
Menu Navigation Ease (0-5)	3.5	2.75	3.5	3.5	3.5	4
Button Ergonomics (0-5)	3.75	3.25	3.75	3.75	3.75	3.5
Build Quality Of body (0-5)	4.5	3.75	3.25	4	4.5	4.25
Build Quality Of movable parts (0-5)	4.25	3.25	3.25	4.25	4	4
Protection						
Lens Cover	✓	✓	✓	✓	✓	✓
Performance						
Photograph details						
Zone 1 Colour Reproduction	4	2.25	3.75	2.75	4	2.75
Zone 2 Text And Wrinkles	4.25	2.5	3.5	2.75	3.75	2.75
Zone 3 Details	4	2.5	3.25	2.75	3.75	3.25
Zone 4 Specular Effect	3.75	2.25	3.25	3	3.5	3
Zone 5 Shading	3.5	2.5	3.25	3	3.5	3
Zoom Quality	3.5	2.75	3.25	3.5	3.5	3.5
LCD Screen/Viewfinder (So5)						
Quality Of Screen	3.25	3	3.75	3.75	3	3.25
Outdoors Visibility	3	3.25	3.5	3.25	3.25	3.25
Scores						
Features (out of 40)	28.07	27.76	27.96	28.49	30.00	30.25
Performance (out of 45)	29.50	20.90	27.30	24.60	28.40	24.80
Price Index (out of 15)	14.17	12.14	11.60	10.63	10.20	8.50
Overall Score	71.74	60.81	66.86	63.71	68.60	63.55
Price (Rs)	9,000	10,500	10,990	12,000	12,500	14,995



+ Looks great, good performance
- 4 MP rating only



+ Good Value for money
- Results not satisfactory



+ Decent performance
- Slightly over priced



+ Looks great
- Lacks performance,











+ Excellent sleek looks, performs well
- None



+ Good ergonomics
- Low on performance

High-End Cameras

Sony Cyber-shot W50	Premier DS-8650	Kodak V603	Kodak V570	Samsung Digimax S800	Kodak V610	Canon Digital Ixus 60	Canon PowerShot A700
8.9 x 5.7 x 2.3	9.3 x 5.7 x 2.5	9.2 x 5.0 x 2.1	10.1 x 5.0 x 2.0	9.9 x 6.1 x 2.6	11.1 x 5.6 x 2.3	8.5 x 5.4 x 2.2	9.4 x 6.7 x 4.3
157	164	120	175	169	195	170	250
2816 x 2112	3264 x 2448	2832 x 2128	2569 x 1929	3264x2448	2832 x 2128	2816 x 2112	2816 x 2112
6	8.1	6.3	5	8.1	6	6	6
38~114	37~222	36~108	39~117	35~105	38~380	35~105	35~210
3x	6x	3x	3x	3x	10x	3x	6x
2x	8.5x	4x	5x	10x	✓	4x	6x
✓	✓	✓	✓	✓	✓	✓	✓
✓/5 step	✗	✗	✓	✗	✗	✗	✓
2	2	5	5	4	5	3	1
2.5	2.8	2.5	2.5	2.4	2.8	2.5	2.5
115000	230000	230000	230000	112000	230000	173000	115000
✓/7	✓/5	✓/4	✓/6	✓/5	✓/6	✓/6	✓/6
✓/5	✓/6	✓/4	✓/4	✓/7	✓/4	✓/6	✓/5
1 ~ 1/2000	1 ~ 1/1500	8 ~ 1/1448 sec	8 ~ 1/1448	8 ~ 1/1500	8 ~ 1/1200	15 ~ 1/1500	15 ~ 1/2000
M.S, C.W, Spot	M.S, C.W, Spot	M.S, C.W, Spot	M.S, C.W, Spot	M.S, Spot	M.S, C.W, Spot	M.S, C.W, Spot	M.S, C.W, Spot
10	✓/2 ~ 10+2	✓/2 ~ 10	✓/10	✓/2~10	✓/2~10	✓/2~10	✓(2~10)
✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
MS Duo/Pro Duo + Int.	SD + Internal	SD + Internal	SD + Internal	SD + internal	SD + internal	SD	SD
32	32	32	32	20	32	✗	✗
✓	✓	✓	✓	✓	✓	✓	✓
USB	USB	USB	USB	USB	USB	USB	USB
✓	✓	✓	✓	✓	✓	✓	✓
Lithium-Ion	AA	Kodak Lithium-Ion	Kodak Lithium-Ion	AA	Kodak Lithium-Ion	Litium-Ion	AA
✓	N	✓	✓	✗	✓	✓	✗
✓	✓	✓	✓	✓	✓	✓	✓
hand strap, USB cable, carry case	Carry pouch, strap, USB cable	dock, USB cable, video out cable	Dock, USB cable, video out cable	Strap, USB cable, video out cable	Dock, USB cable video cable, carry case	hand-Strap, USB cable, charger, video cable	handstrap, USB cable, video cable
3.75	3	3.5	3.25	3.5	3.5	3.25	3.75
4	2.75	3.5	3.5	3.5	3.5	4	4
3.75	3.25	2.75	2.75	3.75	3	3.25	3.75
4.5	3.75	4	4	3.5	4.25	4.25	4.25
4.25	3.25	3.75	3.75	3.5	3.75	3.75	4
✓	✓	✓	✓	✓	✓	✓	✓
4	3	3.5	2.75	4.5	3	2.5	3.5
3.75	3.25	3.75	2.5	4	3	2.75	3.5
4.25	4	4	2.75	4	3	2	3.75
4.25	3.75	3.5	3.25	4	3.25	2	3.25
4	3.5	3.25	2.75	4.25	3	2.25	3.5
3.75	3.25	3.25	2.5	3.75	3.5	2.75	4
4	3.75	3	3	3.75	3.5	3.5	3.75
3.5	3.25	3	3	3.5	3.25	3	3.5
21.80	18.82	20.13	21.32	18.79	19.36	18.73	20.27
39.375	34.75	34.375	27.75	39.75	31.75	25.625	36.125
9.66	9.50	8.52	7.25	6.59	6.30	6.04	6.04
70.85	63.07	63.03	56.32	65.14	57.41	50.40	62.44
15,000	15,250	16,999	19,999	21,990	22,999	23,995	23,995
							
+ Excellent performance - Flimsy battery compartment door	+ Good feature set - Loses out on image quality	+ Good LCD viewfinder & build quality - Bad value for money	+ Great build quality - Lacks performance	+ Great performance, very ergonomic - Slightly costly	+ Good zoom & build quality - Very expensive	+ Ultra compact - Poor performance	+ Ultra realistic colours decent performance - Highly priced



Olympus FE115
Performs decently; the somewhat cherubic profile didn't garner any beauty awards though

As far as our outdoor test goes, quite a few cameras did reasonably well. Most noteworthy were the Samsung S-500, Sony DSC L-1, and the Nikon S5, though not necessarily in that order. The Nikon did very well in the macro test: the leaves we photographed looked ultra-realistic. The DSC L-1 was also very good, with excellent colouring on the leaves, and the leaf shadows were very well depicted. The Canon and Premier models trailed slightly in this test.

We would like to insert a little note here—outdoor shooting is typically more camera friendly: natural lighting is the perfect condition for any camera to show its mettle. It is with indoor shooting, that is, with less-than-ideal lighting conditions that the difference in image quality between cameras becomes more apparent.

High-End Cameras

If you're shelling out fifteen grand and more for a digital camera it had better look good, and perform just as good, too!

The Sony W-50 performed commendably as far as highlighting goes: the play of light on the bottle in our test scene was very realistic. As usual, the W-50 produced slightly richer colours, and this was noticeable on the fruit in particular.

Fruit in general tend to be very soft-coloured, and are therefore an excellent subject to judge colour reproduction capabilities. The detailing was excellent. The slight spots on the pear in our fruit basket pix were clearly evident. Equally impressive was the Samsung S-800: very accurate colour reproduction, and overall excellent results.

Trailing a hairsbreadth behind these two was the Kodak V603, with some good results throughout the tests. Its two siblings were lost far behind; surprising, considering it's the cheapest of the Kodaks on display.

The Canon PowerShot A700 also did very well in this test—perfect white balancing, even at automatic settings, and a very clear and crisp image. The “soft” that is signature Canon was also noticeable, but as mentioned, this isn't necessarily good or bad.

The Premier DS-8650 produced good

What Sort Of Camera Do I Need?

Unless you know exactly what you plan to do with your digital camera, you can't possibly pick a model. Yet, many first-time buyers don't really have an answer in mind when they set out to buy a digicam. We've listed out four shooting scenarios below, and what sort of equipment you should be looking for in each case.

The Home Shutterbug

If you're buying a camera just for the occasional family portrait, you don't need anything fancy: a simple camera with a five megapixel rating will do. You don't need anything more than 3x optical zoom. You also don't need many shot settings, because you will probably be using Auto most of the time. Batteries aren't that important; just note that even a few shots with the flash drains batteries. We recommend 750 mAh rechargeables, as non-rechargeable batteries are more expensive in the long run. Consider ordinary batteries only if you shoot very infrequently.

The Traveller

If you're always on the move, you need something compact that you can slip into those jeans comfortably. You may also want just the casual shot, and enough detail to capture those unforgettable moments that come by when you're travelling. A five to six megapixel camera with a 3x to 6x optical zoom should be good enough. Slim models happen to be the in thing, so it shouldn't be hard to find one.

Click-and-send

Some people want a digital camera mostly for sending photos to family and friends over the Internet. If you're such a person, you need nothing flashy, and in case the photos are going to be viewed on a computer itself (without prints being taken), you

need something simple and relatively cheap. A 4-megapixel camera will do just fine, along with 2x or 3x optical zoom, as you need dictates.

The Naturalist

So you like the wide outdoors? Heading out in your car into the blue yonder? Need to capture those stunning sights? Since size won't matter, you can go with a bulkier camera. Outdoor shooting means intermittent zooming and several wide-angle shots.

Wide-angle lenses don't come cheap, but the mid-range digicams of today offer decent wide-angle shooting capabilities. A 5-megapixel and above should be your starting point. Look for 12x optical zoom. Higher-end cameras typically use four batteries. Look for a 1600 mAh and above rating, and go with rechargeable batteries. Some 2300 mAh batteries are also available, and will set you back a pretty penny, but are worth the extra time you'll get with your shooter! You'll also need a large memory card: we suggest a 512 MB or 1 GB card. In case you like to click a lot, make sure to keep a backup card, in case the primary one gets full and you have no computer nearby to do a transfer.

The Enthusiast

This refers to someone who wants quality. He is ready to spend on a good product, and is more demanding as far as what he expects from his camera goes. An enthusiast doesn't have a specific need: he is fascinated by digital photography, and will buy a high-end camera to satisfy his desire to click photos like a professional. He needn't be a professional—simply an avid fan of the art. For the enthusiast, we recommend at least a 6-megapixel camera. Look for features like extra zoom and a wide-angle lens.

Buying Tips

Now that you've decided on what sort of camera you need, and are raring to part with some of that hard-earned cash, here's a few tips on doing it wisely.

- ❑ Don't fall for the Megapixel Myth. Megapixels ratings are important but are not the whole story. An 8-megapixel camera *can* produce substandard results as compared to a 5-megapixel camera—it's been tested and proved! The optics of a camera is what is most important. Then come the megapixel rating and the image processor. Generally, manufacturers give higher megapixel ratings to their better models; however, quality will differ across manufacturers with the MP rating kept constant.
- ❑ Brands of some significance. A bigger brand may have spent more on R&D, and chances are the quality of components used will be better. Bigger brands also offer better support as a general rule. Compatibility across memory cards from different manufacturers may also be better.
- ❑ The camera shop guy may be your friend, but he's primarily a businessman who gets a commission when you buy a camera from him. This commission differs from brand to brand, model to model. Don't take his word as the gospel truth when he tells you a particular model is good. Also, don't fall for the—"this-model-is-fast-moving-and-a-lot-of-my-customers-have-bought-it" thing. Check out the camera by taking a few shots. Most authorised dealers will have demo pieces with them. Remember: learn to demand—it's your money after all!
- ❑ Digital zoom specs are highly misleading, and you should learn to shy away from the term. Digital zoom is in fact not even a real zoom at all. Look at the optical zoom figure as a deciding factor as far as zooming goes.
- ❑ Most digital cameras today have a plethora of shooting options and settings. However, the layout of these settings—that is, the menu—varies a lot. Play around with the menu to see how intuitive it is. A clean menu structure with a clear hierarchy of options is what you should be looking for.
- ❑ Batteries are important no matter what kind of user you are. Better brands pay in the long run. The larger the mAh rating, the longer the battery will last. Good rechargeables outlast regular batteries 99 per cent of the time because they're rated for high-drain devices like toys and cameras. Alkaline batteries are deceptive—even high-rated batteries (by mAh rating) drain comparatively fast.
- ❑ In conjunction with point #1, if you plan to print your photos, the megapixel rating takes on more significance. For a 4" x 6" photo, look for a 4 MP camera. For an 8" x 10" photo, something in the range of 5 megapixels should do fine. 10" x 12" photos will demand 6 megapixels or above.

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2356464, Chennai - 09040077334, Bangalore - 080 41235275

Contact Sheet		Digital Cameras	
Brand	Company	Phone	Web Site
Canon	Canon India P Ltd	0124-5160000	www.canon.co.in
Samsung Premier	Samsung India Electronics P Ltd	011-41511234	www.samsung.com/in
	Mediatech India Distribution P Ltd	022-26361111	www.mediatechindia.com
Sony	Macro Photo	022-22618639	www.sonyindia.co.in
Nikon	Macro Photo	022-22618639	www.nikon.co.in
Kodak	Kodak India P Ltd	022-56416819	www.kodak.co.in
Olympus	Macro Photo	022-22618639	www.olympus.com
Tech-Com	Shree Sagarmatha Dist. P Ltd	011-26428541	www.techcomindia.com

detail—the text on the bottle was very clear—but the colours seemed a touch lacklustre; faded, if you will.

We were pretty surprised by the Canon Ixus 60's rather dismal performance. Although this is a sleek model aimed at making a fashion statement (which it does), but quality of output is a camera's bread and butter, and we do not like compromises there. In our outdoor photo shoot, three cameras stood a shoulder above the others—the Sony W-50, Samsung S-800, and the Canon A-700, in that order. The Sony impressed the most with its outdoor abilities: the detailing on our building and on the shrubs was excellent.

The rest of the models also performed acceptably well here, with the exception of the Digital Ixus 60 and the Kodak V570. There was slight pixelation in both images, and the shadows between the leaves in particular lacked detail and depth.

Home Ad

The Verdict The Sub-8,500 Category— Budget Performers

The winner of the Digit Best Buy Gold award in the sub-8,500 category is the Nikon Coolpix L4. At a price of Rs 7,500, you get a solid camera that performs well and isn't shy on the feature count. Our Silver award belongs to the Premier DC-5370; this camera battled it out with the L4 and its slightly costlier sibling, the DC-6370, won; but in the end lost out to the Nikon marginally in terms of sheer performance.

Rs 8,500 to Rs 14,999— Mid-Range Cameras

Our Gold award in this category goes to the best fusion of show and go—the Sony DSC L-1. The Nikon S5 bags the Silver award. There was no real competition from the others for these two. Also, they were neck and neck in all the tests, but the L1 won largely due to its aggressive pricing.

Rs 15,000 And Above—High-Enders

Gold is once again in Sony territory with the W-50, which is Rs 15,000. Bagging the award from among costlier models is no small feat, and the Cybershot W-50 does this with style. Waltzing into second position is another excellent camera—the Samsung S-800; we bestow it with our Digit Best Buy Silver award.



Samsung Digimax S-800
Clear and crisp—just what the doctor ordered

In Sum

Our digital camera test this time round was rather interesting, with a new brand, Premier, being thrown into the mix of Sonys, Canons, and so on. We very nearly lived with these cameras for over a week, clicking away without reservation.

With the convenience offered by these devices and the amount of detail they can produce, even hardcore sceptics were swept away (we do have some old-timers around who still believe film rules). Quite a few from among our band of disbelievers are—even as you read this—planning to take the digital plunge. Those that can't just yet have begun saving up for one of these shiny new shooters! ■

michael_browne@thinkdigit.com
(Professional assistance: Amrut Patki)

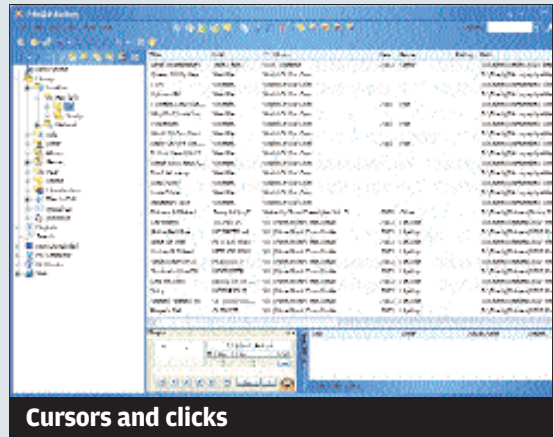
Organise your music collection!

Collecting music has now become more than a hobby. Some of us have a huge collection of music, but it's not always organised. We waste a lot of time looking for a particular song or album from a massive collection of CDs. I decided to compare the difference between organising my music the old way and using a PC

Samir Makwana (samir_makwana@thinkdigit.com)



Pen and paper



Cursors and clicks

1

Every time I wanted to listen to a song, I had to search for the right CD from amongst the pile of CDs in my collection—very annoying. I decided to organise it all—it was taking more time to find a song than to listen to it!

After a particularly wild party—my family was out of town—I woke up one afternoon, groggy-eyed, and screamed! All my CDs were strewn about and all the labels had even been used as tissues. Luckily Varun, a friend, had just the cure

2

I set up my music system, purchased a permanent marker (Rs 20), a pen and two pads (Rs 20 each). I also bought a CD wallet for Rs 98 to store my discs, and sat down amidst the pile of CDs on the floor.
Time taken: 15 minutes

He picked up all the CDs, put them all into a bag and then bundled me off to his house. Once at his place, we sat down in front of his computer and he started ripping all my CDs at 320 Kbps MP3s. At the end of it all I had 42 GB of music ripped at near CD quality!
Time taken: 4 hours 30 minutes

3

Now, a lot of my CDs are old, and some of them scratched, so all I had were copies, without any markings. I also lost quite a few CD cases, so I had no clue what songs were on them. When I found a cover for the CD, I just put the CD along with the inlay into my CD pouch. I first sorted all my music by genre.
Time taken: 20 minutes

Next, Varun started the Media Monkey software on his system, clicked on the Music Library option and pointed it to the folder that contained all my ripped music. The Monkey (the program, not Varun) started listing all the files.
Time taken: 7 minutes

4

Only when there was no cover, or when I was using a copy of the original that I had lost, that I had to use the music system to note down each track and each artist. Thus I made sure all my CDs were labeled and had track lists that I could scan through easily.
Total Time taken: 22 hours

Next, he started weeding out all the duplicate entries and adding genres. This brought my collection down to 30 GB. I must add that all this went a lot faster because Varun knew exactly what he was doing.
Time taken: 25 minutes

5

I also made a favourites list; complete with details as to which CD the song was on. I now had a well organized collection that was a lot easier to sort through than before.
Time taken: 1 hour 40 mins

Finally, I started adding all the tags and missing information to complete my collection.
Time taken: 3 hours.

Time taken: 24 hours, 15minutes
Total Expenses: Rs 158
Ease: 2/5



Time taken: 8 hours, 02 minutes
Total Expenses: None
Ease: 5/5



**AND
THE
WINNER
IS...**

The tech way wins hands down here—not because I didn't do any of the actual work myself, but because searching through and playing music is a snap now. It's just so much easier to queue up all my favourite songs and let them all play one after the other. Earlier, I would have

to change CDs manually and search through various albums for that one song I wanted to hear. If I have to find fault with anything, it has to be that the speakers on my computer cannot compare to my beautiful Hi-Fi music system, so the music does not sound as good.

How Transistors Work

What cells are to your body, the transistor is to the chip

Team Digit

If we were to identify one component as “the building block of computers,” it would have to be the Transistor. Invented at Bell Labs in 1947, the transistor is a small electronic device used in all things digital—from your digital watch to supercomputers. We therefore think some understanding of how a transistor operates is required.

To begin, one needs to know a little about semiconductors. These fall under a class of materials that behave as either conductors or insulators depending on certain conditions. Silicon, Germanium, and Gallium Arsenide are the most commonly-used semiconductors. A semiconductor can be of two types, an N-type—which has “excess” electrons—and a P-type material, which has a deficiency of electrons. The N or P is determined by an “impurity” element that is added to a pure semiconductor. If the impurity has more free electrons than the pure semiconductor, the resultant material is a N-type, and if it has less free electrons, you get a P-type material.

The simplest of semiconductor devices is a diode, which is formed when a P-type and an N-type material are brought together, adjacent to each other. The

electrons from the N-type fill up the deficiencies (called “holes”) in the P-type, which leaves a neutral layer at the junction that does not conduct. This “barrier” is overcome by applying a small positive voltage to the diode. When the voltage is removed, the barrier is recreated, making the device not capable of conducting. Similarly, when a negative voltage is applied, the device does not conduct.

The transistor, in a very simplistic way, can be thought of as two diodes joined back to back. We can therefore have two kinds of transistors—N-P-N and P-N-P. Both these configurations can be used in devices; NPN is usually chosen for explanation.

The three blocks that make up a transistor are the Emitter, the Base, and the Collector. The Emitter and Collector are made from the same type of semiconductor, but you can’t interchange their connections—their width and the way they are manufactured are different.

When the blocks come together, two barriers are formed—between the Emitter and Base, and between the Base and Collector. Typical transistor operation sees the Emitter–Base junction “forward-biased”—this means the positive of the battery is connected to the Base, which is P-type, and the negative battery terminal is connected to the Emitter, which is N-type. This ensures that the barrier between these two terminals is eliminated. Similarly, the Base–Collector junction is “reverse-biased.”

Now, electrons are pushed from the Emitter into the Base. The Collector has a positive voltage applied to it, which therefore draws (the negatively-charged) electrons towards it. Thus the electrons that come to the Base from the Emitter are

The transistor, in very simplistic terms, can be thought of as two diodes joined back to back

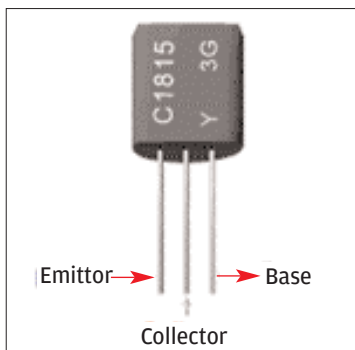
drawn into the Collector, which leads to a current flow in the device. The device is now in the On state. When the voltage applied to the Emitter–Base junction is removed or its polarity reversed, the barrier at the Emitter–Base junction reappears, and the current flow stops. The transistor is now in the Off state.

This switching action is the most important capability of a transistor, which is used in digital circuits such as those in computers. Computers work by treating all data as a series of 1s and 0s, or On and Off states. Transistors are used to perform complex calculations based on long series of 0s and 1s: a 32-bit CPU can add, subtract and perform several functions on data that contains a total of 32 0s and 1s.

For each 0 or 1 that needs to be stored or operated upon in a CPU, one transistor is needed. In order to store two 64-bit numbers, a total of 128 transistors is required. This is only to store the numbers during calculation: for each operation such as multiplication or comparison, a thousand or more transistors are required. Today’s CPUs have millions of transistors to perform the myriad calculations that make games, video editing, and so on work for us. All these millions of transistors are basically working in a switching mode—in an On or an Off state at any given time.

Entire books have been written on transistors, and we’ve just taken a cursory look. Over the decades, continued innovation has happened, with the result being smaller sizes, lower power consumption, higher speeds, and reliability. As we enter the age of nanotechnology, we’re likely to see even smaller and newer kinds of transistors—which create the 1s and 0s we’re so dependant on ■

readersletters@jasubhai.com



Server-Based Computing



It's not a new idea, but is definitely something you should consider

P K Chatterjee

Server-Based Computing (SBC) has the potential to reduce IT setup and running costs drastically—down to about 50 per cent! You will see a radical reduction in the hardware estimate. The technology also permits tremendous flexibility in the arrangement of the office interior.

The entire architecture is centralised, so anybody can sit and work from any terminal; employees' work downtime can be reduced considerably. As data is stored in a centralised location along with a backup, if one terminal goes out of order, urgent jobs can be taken up from any other terminal. It also saves time as transferring data from one PC to another is very quick—practically instant.



The movement of employees inside the office, that is, traffic on office aisles can be reduced through the adoption of this system. Hardware security management costs come down, since the client computers are not high-end—sometimes dumb PCs can be used. It is always easier to take care of valuable data when it is at one place. Remote data access facility through the Internet is another exciting feature.

As the feeding of new software or uploading a new version of an existing software is done at the server level, individual clients are

not stressed or halted; moreover, this reduces the chance of their sudden failure.

Obviously, the misuse of office PCs can also be controlled.

Why?

The Server-Based Computing market is growing together with the need of companies and end-users for individualised, benefit-oriented and low-cost IT solutions. Terminal server / thin client solutions have been successfully established, and they fulfil their task at a much lower Total Cost of Ownership. They also offer ecological, ergonomic, and security-relevant advantages.

To be more specific, in this architecture, the terminal does not require a CPU, hard-drive, or a CD-ROM, unlike in regular PCs. This is what brings down the terminal PC cost significantly. However, each terminal can also be operated—if one wishes to do so—as an individual desktop, so as to maintain users' privacy. Server-based architecture gives you an opportunity to modernise your office without scrapping your old PCs—which tend to be just given away at throwaway prices.

Right now, if you depend on a number of individual, outdated PCs that may be connected to the Internet, you need to modernise your architecture. Running full-fledged PCs increase your power, hardware, maintenance, and backup costs. Also, you are vulnerable to security threats, time loss, and data loss, as explained above. A paradigm shift to server-based technology is needed.

How It Affects You Today

Power: India is a power starved country, and the power situation is worsening day by day. The terminal PC models and the server software form the right combination to provide you the right solution at the right time, as most modern terminal PCs run at low voltages and wattages.

Safety: Growth in attrition rate is a common feature in most developing countries. If no centralised data backup (inaccessible to the client PC operators) is maintained, you are always at risk of losing valuable data: ill-intentioned employees may destroy or delete their work before leaving your organisation. Thus, the SBC architecture acts as a stitch in time that will save nine in the coming days.

Costs: As a businessman, you must know that it is not only the PC hardware maintenance cost; other accessories like UPS and its storage cell maintenance costs amount to a big sum at the end of each financial year. Adoption of server-based technology will bring relief. ☑

readersletters@thinkdigit.com



Making An Informed Decision

You have to assess what the requirement of your workplace is. How many terminals do you need right now, and what may be the requirements of the near future? Find out whether the vendor has an offer that suits your requirements. Assuming you're opting for a completely new set of products and architecture, find out from him:

- ☑ What is the server cost, and how many terminals can be connected without an upgrade?
- ☑ What is the operating platform?
- ☑ How much power can you save by installing thin terminals?
- ☑ What software will they supply for the proposed architecture, and what is its reliability and future upgrade terms and conditions?
- ☑ What are the warranty, Annual Maintenance Contract offers, etc.?



Samsung LA26R71B

A dusky beauty that's a TV too!

The smallest of Samsung's latest Bordeaux series, the Samsung LA26R71B is a 26-inch beauty: the satin-smooth, piano-black finish makes you want to keep running your fingers over the body, then frantically wiping it to get rid of fingerprints! A sleek swivel panel means you can spin it around for an all-angle view.

Once you get to focusing those over-wide retinas elsewhere, you'll notice the large, widescreen 26-inch PVA Panel. "PVA" is a Samsung patent that stands for "Patterned Vertical Alignment." Actually, PVA is Samsung lingo for MVA—Multi-domain Vertical

Alignment, one of the types of LCD panels available. This one has a whopping contrast ratio of 3000:1! The panel is HDTV-ready, and supports 720p (1280 x 720 progressively scanned) and 1080i (1920 x 1080) resolutions.

The LA26R71B can be hooked up to your PC via a 15-pin VGA connector; pity Samsung missed out on a DVI-D connector. An HDMI (High-Definition Multimedia Interface) connect is also provided. HDMI offers uncompressed audio/video that is an all-digital interface by nature, so visual and aural elements will be astoundingly clear. We watched several late-night DVD movies, not to mention hours of blissful Xbox 360 gaming on this beauty, and were, quite simply, bowled over by the visual quality. We even used a native 720p video—just amazing quality on this display.



A negative is the tacky sound, courtesy the two inbuilt 5W speakers, and seriously, if you plan to buy this display, you should include a high-end 5.1 speaker and amp setup—anything less would be criminal!

Is Rs 64,900 a bit too much for visual bliss? That's all you need to know. If you're looking for a flat TV this size, the LA26R71B will more than satisfy!

Specifications

26-inch LCD panel, 3000:1 contrast ratio, HDTV-ready, up to 1080i resolution (720p supported), outputs: HDMI, 15-pin D-Sub, 2 discrete component-ins, 10.2 Kg

Contact: Samsung Electronics India Information and Telecommunication Ltd
Phone: 011-41511234
E-mail: sabiha.k@samsung.com
Web site: www.samsung.com/in
Price: Rs 64,900

RATINGS	
Performance	★★★★★
Ease of use	★★★★★
Build quality	★★★★★
Value for money	★★★★★
Overall	★★★★★

Kingston K-PEX 100 2 GB

"A steal of a deal!"



The Kingston K-PEX 100 2 GB is a media player—Kingston's first such offering.

The device has USB-On-The-Go support, which lets you transfer files from a digital camera or Flash drive without a PC. It supports MP3, WMA, Ogg and WAV. Many users will be thankful for the five-band equaliser, but admittedly audio quality

is not really up to the mark when you use the bundled earphones. The highs and mids were well-reproduced, but the bass was virtually non-existent—and this means you'll have to get yourself a good pair of earphones, a la Agent001.

For video playback, the box states support for AVI, ASF, WMV, and MPEG 1 and 2, but what it does not state is that these formats are not natively supported. You need the bundled transcoder software to convert videos from these formats to the MPX format, which is the only format that sees native support on the device. After

conversion, though, the video is pleasant enough on the bright 2-inch TFT display. Photo support is limited to JPEG. The inbuilt FM player allows you to configure the signal strength: in a weak signal area, you can set it to Low, and the signal will be amplified; set it to High in strong signal areas so the signal is attenuated.

The recorder can be used to turn the K-PEX 100 into an audio recorder supporting voice and line-in sources, and

recording at 32 to 128 Kbps. You can read text files while on the move.

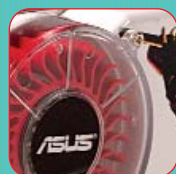
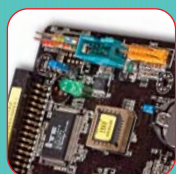
A 256 MB miniSD card is also included. Claimed battery life is 17 hours, and that figure is pretty accurate. All this comes for just Rs 7,050—a steal, if you will!

Specifications

2 GB, 256 MB miniSD card, 65 gm, 2-inch TFT LCD, USB-On-The-Go; music formats: MP3, WMA, Ogg, WAV; video formats: MPX, photo format: JPEG

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

Contact: Kingston Technology
Phone: 9820652221
E-mail: trista.wana@kingston.com.tw
Web site: www.kingston.com
Price: Rs 7,050



A8R32-MVP Deluxe

The last of the (939) Mohicans

The A8R32-MVP Deluxe is Asus' implementation of ATI's much-acclaimed, enthusiast-grade RD580 Northbridge-based chipset. This is a dual-chip solution unlike the nForce 4 series. The Southbridge is based on ULI's M1575 chipset.

Catering to the fastest Socket 939 AMD dual-cores, the A8R features support for dual x16 CrossFire gaming. Four DIMMs allow a maximum of 4 GB of memory, dual-channel. The lack of integrated graphics and its four-phase design bolsters the board's gaming identity!

Build quality is excellent. It doesn't have a heat-pipe like nForce 4 SLI 32-based boards, but the chipset hardly ever heats up enough to justify one anyway.

The A8R can easily accommodate two dual-slot graphics cards in its PCI-Express slots. With a single graphics card, at least two of the PCI slots are still usable. The 24-pin motherboard power slot and the PATA slot are placed rather close to each other, though. Sufficient space has been provided between the individual memory slots and between the CPU region and the memory slots.

The BIOS brims with numerous overclocking and tweaking options—the FSB can be tweaked in increments of 1 MHz all the way to 300 MHz. The BIOS also allows you to tweak the voltages of the Northbridge components by 0.1 V; these components include the core power, the HT bus, and the PCI-Express bus. CPU voltage fine-tuning is allowed, with adjustments of 0.025 V at a time.

Features-wise, with six SATA 2 ports, external SATA, two onboard LAN controllers, two full 8 GBps PCI-Express slots

in addition to three PCI and two PCI-Express x1 slots, the A8R will keep you future-proof for quite some time. FireWire and coaxial audio-outs have also been provided. Asus provides a mean bundle with this board, including three add-on PCI cards, and four SATA connectors, among others.

When it comes to performance, the A8R holds its own with some great scores across the board. 3D Mark 06 showed a score of over 7000!

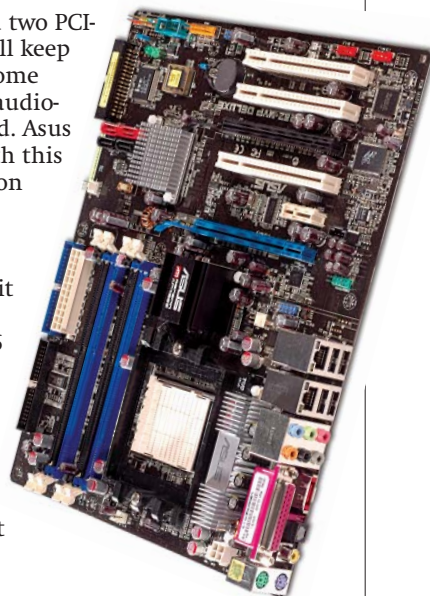
At Rs 14,000 plus taxes, the A8R MVP 32 Deluxe certainly isn't cheap. If you have/want a fast Socket 939 processor this motherboard should be right up your alley.

Specifications

ATI RD580 Northbridge, ULI M1575 Southbridge, dual x16 PCI-Express slots (CrossFire-ready), 3 PCI slots, 1 PCI-Express x1 slot, dual LAN, 7.1-channel audio with S/PDIF and coaxial outs

RATINGS

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



Contact: AsusTek Computer

Phone: 022-40058923

E-mail: media_india@asus.com

Web site: www.asus.com.tw

Price: Rs 14,000

BLH-1200 Bluetooth stereo headset

Not quite the audiophile's phones



Almost every PC peripheral is going Bluetooth—mouse, keyboard, or headset. LevelOne's BLH-1200 is a Bluetooth headset that promises to work with any music device or cell phone. The bundle consists of a pair of headphones and a USB dongle.

The headset sports an articulated design and folds into a small package—the folding joints ooze quality. The padding on the headset feels comfortable; however, the small size of the cans means external noise isn't effectively sealed.

The USB dongle has a 180 degree-moveable 3.5 mm jack that allows connection to CE devices and streaming of music over Bluetooth. Driver installation is required for using the dongle with a PC, and the provided applications stream music to the headset. If you are on Skype, for example, wireless communication with your PC is made possible using the headset-dongle combo.

We paired the headset with a few cell phones—a Nokia E61, a Nokia 6630 and a Sony Ericsson W800i, for music. The pairing was a no-brainer; we were able to stream music from the phones, except for the W800i, which only supports a headset profile. The pairing is good for at least 10 feet—after which quality starts degrading.

We used the headset for voice communication, and

it performed appreciably well. Where voice quality is concerned, reception was great, and the microphone does a good job, too. When the headset was used along with the dongle for listening to music, the range was slightly better than when it was used with the cell phones.

The headphones streamed music for four and a half hours on a full charge. All very well, but they still leave a lot to be desired when it comes to actual music quality. At Rs 5,095 (MRP), we felt that the price was somewhat high given the sound quality, but as a decent Bluetooth headset for cell phones, we have no gripes.

Contact: LevelOne

Phone: 9818299663

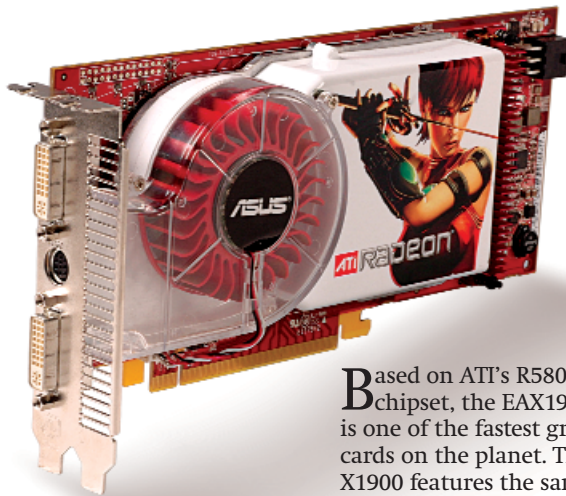
E-mail: jerry.albert@level1.co.in

Web site: www.level1.co.in

Price: Rs 5,095

RATINGS

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



Based on ATI's R580 chipset, the EAX1900XTX is one of the fastest graphics cards on the planet. The X1900 features the same 512-bit ring bus controller of the X1800 series. With the R580, ATI followed up with more pixel crunching power. The core architecture remains the same—the 90 nm 16-pixel pipe design. What ATI did was ramp up the Pixel Shader processors to a massive 48 units. This effectively triples the pixel throughput of the X1900

RATINGS

Performance	★★★★★
Ease of use	★★★★☆
Build quality	★★★★☆
Value for money	★★★★☆
Overall	★★★★★

Asus EAX1900XTX

Furious 'n' fast

series. The "XTX" signifies a top-of-the-line product, and the Asus EAX1900XTX is clocked at 625 MHz core and 1500 MHz memory speeds.

Asus has used the massive dual-slot stock ATI cooler unit. The fan is totally enclosed, and it's a touch noisy. Hot air is blown out through the second slot of the cooling solution, out the rear of the cabinet. This helps cool the 384 million transistor core, and also 512 megabytes of GDDR3 memory! We saw the temperatures rise to 76 degrees, but with rock solid stability, no complaints here!

We set up the EAX1900XTX on a Socket 939 based 4800+ and fired up F.E.A.R., which saw a little over 50 fps at 1600 x 1200,

with all the eye candy invoked! This card churned out in excess of 12000 in our 3D Mark 05 test, an all-time high in our test labs for a single card.

The EAX1900XTX costs Rs 40,000 plus taxes, but gamers will gladly sell a body part for such a card!

Specifications

ATI Radeon R580 core, 48 Pixel Processors, 8 Vertex Shader units, 650 MHz core, 1.55 GHz memory (512 MB GDDR3), Shader Model 3.0 (Direct X9.0c), Open GL 2.0 compliant

Contact: AsusTek Computer
Phone: 022-40058923
E-mail: media_india@asus.com
Web site: www.asus.com.tw
Price: Rs 40,000

JVC GR-D350AG Camcorder

Gets The Basics Right

This is an inexpensive camcorder suited for first-time users. The package includes the usual bundled components, but no USB cable and video capture software!

This compact camcorder measures only 2.38 x 3.75 x 4.5 inches (WxHxD) and weighs only 400 grams. Features include 1/6-inch 680,000 pixel CCD, 32x optical zoom, and 800x digital hyper-zoom. The LCD screen is 2.5 inches, and the claimed battery life is 80 minutes with the LCD on and 90 minutes using the viewfinder. The camcorder uses mini DV as the recording media.

The GR-D350AG offers many shooting modes. Image modes include sports, snow,

spotlight, and twilight. Night-scope mode makes subjects brighter, but due to the slow shutter speeds, it looks as if it is strobing. You also have effects such as sepia, monotone B&W, classic, and strobe. Also included is the snapshot mode, allowing you to use the camcorder as a digital camera.

As with other JVC camcorders, the GR-D350AG offers the data battery function—showing the

remaining battery and recording time without the need to turn on the camera.

We recorded in SP mode, with digital image stabiliser turned On and wind cut enabled. The 2.5-inch LCD screen is well-suited for outdoor use—it is clear and bright. Colour reproduction in the recording was remarkably good. Indoors, recording quality wasn't as good; the quality was further degraded due to the absence of a flash. We changed the exposure settings, and recording quality improved marginally.

The digital image stabiliser fails after 10x,

so at 32x, images are rather shaky. Another problem is that while zooming in, it does not pause at the point where it switches from optical to digital zoom.

Photo quality leaves much to be desired. Sound quality is good enough. The wind cut function also worked well at all times.

The camera claims to have Webcam functionality using FireWire, but since it did not come with a cable, we could not test this.

Overall, this is a basic camcorder at a decently low price.

Specifications

32x optical zoom, 2.5-inch LCD screen, uses mini DV, shutter speeds 1/50–1/4000, full-auto/manual white balance, approx. weight 430 g, dimensions 56 x 94 x 112 mm

Contact: MCC group
Phone: 011-26102975/77
E-mail: vipin@mcc.co.in
Web site: www.mcc.co.in
Price: Rs 19,990



RATINGS

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

Kingston U3 DataTraveler Smart USB Flash drive

Applications On The Move



Kingston's 2 GB, U3 offering is a smart looking, a true data carrier the U3 feature means you'll be able to carry around your software and their preferences around for use on any computer you plug it into! Once you've installed any software on a U3 drive, it allows you to access that software on any computer.

The drive comes with an application called Launchpad. It allows you to manage programs, install

programs and access data. There's also software that allows you to password-protect data. The drive also comes loaded with Pass2Go—a portable version of RoboForm, as trialware for 60 days, ACDSee limited version, and Zinio magazine reader as trialware for four issues. There are various software available at U3 Software Central and Kingston's Software Center, where you are taken to with one click.

When we tested this plug-and-play drive, Launchpad came up. It

showed two drives, the first as a USB Flash drive and the second as a CD drive with different drive letters. We downloaded an application from U3 Software Central and installed it. We then tried using the drive on different computers to check for portability, and it worked like a charm.

In our tests, the drive showed good read/write speeds. As of now, the U3 feature works only with Windows 2000/XP. Warranty is five years.

Specifications

2 GB storage capacity, USB 2.0 interface, 2.64 x 0.80 x 0.35 inches

Contact: Kingston Technology
Phone: 022-26592961
E-mail: techsupport_india@kingston.com.tw
Web site: www.kingston.com.tw
Price: Rs 2,990

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

BenQ-Siemens CL-71

A slick looker

The CL-71 is part of the crop of cell phones post the BenQ-Siemens merger. It is a tri-band phone that's neat-looking to boot, with a slider-type form factor. The phone is clad in black and silver, with emphasis on the black. Typical of slider phones, the navigational buttons are decently-laid-out, with the left and right and call accept / reject buttons being quite large and easily accessible. The button feel is tacky though.

The phone slider is slick; once opened, it reveals a 1.3 MP camera which offers

decent shot quality. The number keypad is good, and is much better than the outer keys. We say "good" because slider phones typically have cramped number pads. The keypad backlight is a soothing blue and very evenly lit.

The screen sports a spec of 262,000 colours at a resolution of 176 x 220. We noticed that the screen doesn't really live up to its specs—even some of the default wallpapers had colour gradations.

The CL-71 comes with 24 MB of onboard memory, and memory is upgradeable via micro SD TransFlash. On the music front, the phone supports the MP3, AAC and WMA formats. The bundled earphones are just about decent. The CL-71 has the

9-icon (3 x 3) layout, meaning a lot of functions are bundled together under a single menu icon, some of which don't make sense.

With the usual array of call features available, the CL-71 makes a good fashion statement, though it's not quite as curvy as some would like. At Rs 12,799, we think the CL-71 is overpriced.

Specifications

GSM tri-band, USB and Bluetooth, 176 x 220 TFT, 262K colours, 24 MB internal memory, micro SD expandable, 115 gm

Contact: BenQ India Pvt Ltd
Phone: 011-41601707
E-mail: salesenquiryin@benq.com
Web site: www.benq.co.in
Price: Rs 12,799



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

Tips & Tricks

SECRETS THAT KEEP YOU AHEAD IN THE RACE

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OPERA

Various user settings of Opera are stored in the Opera6.ini file located in the user's profile directory. Don't let the name Opera6.ini confuse you about the version of Opera this is meant to be used with. The version stated in the file name—6—corresponds to the version of the configuration file, not the browser. This file is automatically modified and saved when a user modifies any setting in the preferences of the browser. Likewise, if you open this file using a text editor such as Notepad, you can edit the settings and save the file for the settings to take effect the next time you launch Opera. We shall see how to go about tweaking this particular file to change the look, feel and functionality of Opera.

Warning

Opera should not be running while you edit Opera6.ini. Make a backup of Opera6.ini before you start editing this file in case you break it! Follow the syntax of these tips carefully. If you mess up, just replace the edited file with the backup you made, or just delete the edited file and launch Opera again to create a new file with default settings!

Find The File

In Opera, go to Help > About Opera. It will tell you the exact location of the Opera6.ini file. In the tweaks that follow, an integer value of 1 means True and 0 means False. Let's look at one section of the file at a time. The names of the sections are mentioned in square brackets, and the sections are thus easily recognisable.



Illustrations Harsho Mohan Chatteraj

But you didn't know

Emulate other browsers: Some Webmasters aren't catching up with the continuously-evolving browsers, and their Web sites, unfortunately, may refuse to function in any browser other than Internet Explorer. So, if you ever receive an error like "Browser not supported", go to Tools > Quick preferences > Identify as Internet Explorer or Identify as Mozilla.

[User Prefs]

Accept Cookies Session Only = 0

Some Web sites require you to accept cookies to use their services. If you want to make sure that sites work, while avoiding keeping cookies between visits, make Opera delete all cookies every time you close the browser by setting this value to 1.

AddressBar Alignment = 2

The position of the address bar in the browser window can be set using this setting. The different values to which it can be set and the corresponding different positions are: Off = 0, Left = 1, Top = 2, Right = 3, Bottom = 4

Allow Context Menus = 1

This setting lets you specify whether the context menu or right-click of the mouse should work in Opera. Setting this to 0 will disable right-clicking in the browser—this can be used by the system administrator to prevent users from using the context menu.

Allow script to change status = 1

This parameter can be used to disable JavaScript from performing certain actions such as manipulating the status bar of the browser window. This helps sometimes when JavaScript embedded in Web pages are used intrusively. Set this to 0 to disable JavaScript.

Allow script to hide address = 1

This parameter allows JavaScript to open tabs without a full address field, thus the address field is not visible. If you want to disable this feature, set this parameter to 0.

Allow script to lower window = 1 Allow script to raise window = 1

These parameters allow JavaScript to minimise or maximise pages of the browser. This feature is usually employed by aggressive advertising and porn sites to minimise other pages or maximise their page, so that only their page is visible to the user. You can turn this feature off by setting this value to 0.

Allow script to move window = 1

Once again, this is a feature that is used commonly by aggressive advertising and porn sites. You can disable this by setting the value to 0.

Allow script to receive right clicks = 0

This parameter allows JavaScript to override the default right-mouse click action configured in Opera. The JavaScript specified action will be performed instead when the value is set to 1.

A value of 0 here means "do not cache decoded images and chrome in memory." And if you put in a positive integer here, you're specifying a value manually. Naturally, you'd want to set the value depending on how much RAM you have, and on your browsing habits.

Always load User JavaScript = 0

If you wish to make your custom JavaScript load on all pages, including documents containing non-scripts, set this option to 1.

AskClosingDialUpConnections = 0

Setting this option to 1 will prompt you before closing a dial-up connection, instead of automatically closing it along with the browser.

Ask For Cookie Confirmation = 0

Setting this option to 1 will make Opera prompt you to accept cookies whenever a site sends you cookies. You may use your discretion to accept or reject the cookies—some cookies can be harmful.

Auto Dropdown = 1

If you have visited certain Web sites or typed any search term in a dialog box, the next time you try typing the same term or address, a dropdown option to auto-complete this will appear when the above option is set to 1.

AutocompleteOff Disables Wand = 0

Setting this option to 1 allow autocomplete attribute in forms to disable the Wand.

Automatic RAM Cache = 1

When this option is set to 1, the space used by the memory cache is automatically decided.

Automatic Window Storage File = C:\Program Files\Opera\profile\autopera.win

This is the path to the file where Opera continuously stores the session when it is closed. You can set it to any location of your choice.

Avoid Flicker = 1

This option enables double-buffering to disable flicker on the monitor when set to 1.

Browser JavaScript = 0

This option allows you to decide whether to download and use the browser.js file. Enable by setting to 1, Opera will then download the file and set to 2. If you wish to never download, use = 0, download and use = 1, use and check for updates weekly = 2

Cache Directory4 = ""

Specify the full path to the cache directory here. If an empty string is specified, the default cache4.dat will be used.

Center Mousebutton Action = 2

Using this option, you can configure



Bet you didn't know

Tiny url: Adding this option to the context menu will allow you create a tinyurl for the website you are vieweing. The method is identical to adding bugmenot.

1. Open the menu file.
2. Locate the [Document Popup Menu]
3. Add the following line:
Item, "Create TinyURL"= Go to page, "http://tinyurl.com/create.php?url=%u"
4. Save the file and use it with Opera. If it isn't working then from Tools > Preferences > Advanced > Toolbars, make sure that this edited menu file is selected.

the middle mouse button click action.

Open link = 0

Open in new page = 1

Open in background = 2

Open in new window = 3

Open in background window = 4

Do not open link = 5

Check For New Opera = 1

Setting this option to 1 instructs Opera to keep track of weekly updates.

Hide Mouse Cursor = 0

This setting hides the mouse cursor when set to 1. This is useful typically for kiosk setups where there is no mouse.

Maximize New Windows = 1

Setting this to 1 will always maximise newly opened windows. If this is set to 2, the windows along with the popup windows will be maximised. Setting the value to 3 will cascade all the windows whereas setting it to 4 will tile them.

Maximum Font Size = 10000

This specifies the maximum value of the font size in pixels.

Min Allowed GDI Resources = 20

This tells Opera about the minimum percentage of system resources that it must free up if they are low.

Number Of Hits = 0

This option specifies the preferred number of search results per page. If this value is set to 0, the search engine's own default value will be applied.

Rendering mode = 0

You can set the rendering mode of Opera at startup by this option. Set this to the following values: Normal = 0, SSR = 1, CSSR = 2, AMSR = 3, MSR = 4

Save Password Protected Pages = 1

This setting allows you to save password protected pages to sessions when the value is set to 1.

SaveTxtCharsPerLine = 80

This setting specifies the number of characters that you wish to save per line when saving a document as a text file.

[BitTorrent]

Enable = 1

This when set to 1, enables file distribution using BitTorrent. The default is 1.

Bandwidth Restriction Mode = 1

When this value is set to 1, the bandwidth allocated for BitTorrent file downloads is automatically restricted. Useful if you don't want your browsing to be slowed down too much.

[Disk Cache]

Cache Figs = 1

Images are cached when this option is set to 1.

Images Expiry = 18000

This is the cache expiry time in seconds.

[HotlistWindow]

Hotlist Single Click = 1

To activate panel items with a single click, set this value to 1.

Visible = 1

This should be set to 1 for the panel to be visible.

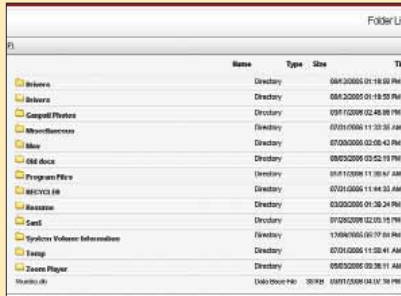
[Mail]

ExtAppParamSpaceSubst = 0

To replace undefined parameter

Bet you didn't know

The file browser in Opera
Opera comes with a basic file browser inbuilt. To access it, type "opera:drives" in the address bar.



with a space when launching external applications, set this value to 1.

[Multimedia]

Interpolate Images = 1

When this setting is enabled, smooth zooming of images is enabled.

Show Animation = 1

Setting this to 0 will disallow animation in animated GIFs.

[Network]

Allow Pre Authentication = 1

Setting this value to 1 allows faster HTTP authentication when the password has been sent for the parent directory.

Disable HTTP OPTIONS requests = 1

When this option is set to 1, the "options" header is not sent to proxies.

Permitted Ports =

Here you can specify a list of permitted ports separated by commas.

[Performance]

HTTP Error Strategy = 2

This decides the strategy for error messages when a site is not accessible. The allowed values are as below.
Always show server error = 0
Never show server error = 1
Show custom error messages = 2

Max Connections Server = 8

Here you can specify the maximum number of connections allowed to the same server...

Max Connections Total = 128

... And this is the maximum number of connections allowed in total.

[System]

DisableTextSelect = 0

Setting this value to 1 will disallow selection of any text within the browser window.

[Security Prefs]

Minimum Security Level = 1

This is the minimum level of SSL security level that is allowed.

OCSP Validate Certificates = 1

When set to 1, online SSL certificate validation is enabled.

Password Lifetime = 5

This is the time period in minutes after which the master password will be removed from the memory.

Use Paranoid Mailpassword = 0

If you wish to use the master password to access even e-mail and the Wand, set this value to 1. Which, as the name suggests, is useful if you're paranoid!

[SVG]

Rendering Quality = 25

This affects the smoothness of curves in SVG display. A lower value means a higher quality.

Did you know?

Apart from the Opera6.ini file that can be customised to set the various settings of the Opera browser, there are two more configuration files that you can create, and which are given different priorities by Opera.

System Fixed File

This file allows the system administrator to define settings that an individual user will not be able to override. These can be settings such as proxy server settings. This file is named

Bet you didn't know

G!Chat in Opera

Google recently introduced G!Chat for Gmail users. However, by default Google chat doesn't work with opera. That is not because Opera doesn't support it, but because Gmail is sniffing out Opera. The simple solution to this problem is to fake your user ID for Gmail:

- Open mail.google.com.
- Right click anywhere on the page and click on the "Edit Site Preferences" from the context menu.
- Under Network tab, change identification option to Mask as Mozilla. Now click on OK and refresh the page to start using Google chat from Gmail.

as "Opera6.ini" and resides in the system directory for Windows.

For Windows XP, this directory is Windows\System32 whereas for Windows 9x, this is Windows\System. For Linux, this file is

/etc/opera6rc.fixed. The syntax and structure of this file is exactly the same as that of the Opera6.ini file in the user's profile directory.

The settings that you set here are visible to a user, but cannot be changed. Needless to say, this is a high-priority file.

System Defaults File

This is, what we may call, a default fallback file. The syntax of this file is also the same as that of the Opera6.ini in the user's profiles directory.

The system administrator can store default values for the various settings of Opera6.ini and the user can override these settings. This file will only be used when a setting is not accessible in the user's Opera6.ini file. Thus, though this file has the lowest priority, it can be a lifesaver of sorts.

This file is named "Operadef6.ini" and is placed in the Opera install directory in Windows. For Linux, look in /etc/operarc6.

Rename Opera6.ini

The user configuration file or "Opera6.ini" need not always have this name. You can set it to any other name of your choice and specify it in the command line. The syntax for this command line is "C:\Program files\Opera\opera.exe /settings D:\MyOperaProfile\MyOperaConfig.ini"

Do It All In Opera Itself

Just type in "opera:config" in the browser's address bar and click on Go to launch a page that lets you tweak all the settings you can find in the Opera6.ini file. This way, the chances of you fumbling while editing the file are minimised.

View PDF files Within An Opera Tab

By default, Opera saves PDF files instead of opening them in the browser window. To change this behaviour, browse to \Reader\Browser and locate the file nppdf32.dll. Copy this file to Opera's plugins directory. Then go to Tools > Preferences > Advanced > Downloads. Uncheck "hide filetypes..." Locate the extension "pdf" select it. Click Edit. Make sure that the "Use plugin" option is enabled and that the "Adobe Acrobat" plugin is selected. You should now be



floAt's Mobile Agent

Here's a really addictive software for all the Sony Ericsson fans out there

Robert Sovereign-Smith

In the past, in this same section, we've spoken about phone managers. Admittedly, most people have Nokia phones, and most phone managers are therefore targeted towards those models. However, with the growing popularity of other brands, and some very nice models being released, it's time to look at something else.

floAt's Mobile Agent (fMA) is an option everyone with a Sony Ericsson phone should consider. It's an open source project, started by—arguably—the biggest Sony Ericsson fans around. In what follows, we'll show you how to install and start using this advanced phone manager.

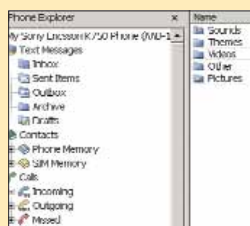
01 : 00 Getting Started

Before anything else, head over to <http://snipurl.com/v9hr> and look for your phone model number, and confirm that the stable release of fMA supports it. Though this software is designed for Sony Ericsson phones, it also works with some models of other brands.

Next, install the software from this month's Digit CD.

05 : 00 Connecting

You will need to install your phone's drivers on your PC and connect your phone via either Bluetooth or USB. With this done, launch fMA and go to **Phone > Connect**, or press [F7]. fMA will connect to the phone and get a list of all the contacts, messages and data on your phone. It will then ask you to sync times between your phone and computer, which



Browsing the contents of a phone is a snap

to arrive at correct decisions about which file version is newer.

10 : 00 The Interface

No problems here; fMA is designed to look like a cross between Windows Explorer and Microsoft Outlook—the folder navigation is Explorer-style, while contact and event handling will make MS Office users feel right at home. Take a look at all the menu options and you'll find they're all self-explanatory. On the left, you'll see the folder structure, and on the right you'll see details including call history, messages, battery status, and even signal strength.

12 : 00 The Basics

Once you start using fMA, you'll find yourself more addicted to it each day. At least when you're sitting at your computer, you're likely to never touch your phone—and you don't need to.

If you want to shoot off an SMS to someone, just press [Ctrl] + [N]. Type in your text, choose a recipient, and click Send—it really is that simple. The same goes for making or receiving a call—just press [Ctrl] + [Shift] + [C], or go to **Action > Call Contact**, choose a contact, and click Call.

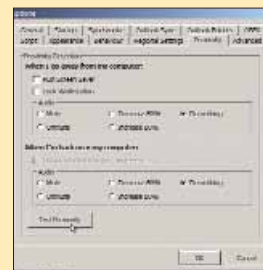
you should do. This step is more important than you might think, because any two devices that exchange data should have the same date and time

15 : 00 Expert Stuff

The developers of fMA seem to have taken note of the fact that a lot of us are absent-minded. Using fMA, you can make sure that as soon as you step out of Bluetooth range, your computer automatically locks itself. You

can also set it to mute sounds or reduce the system volume, and reset itself when you return. Go to **Tools >**

Options, click on the **Proximity** tab, and change the settings there.



Decide what your computer does when you move away from it

25 : 00 Irritants

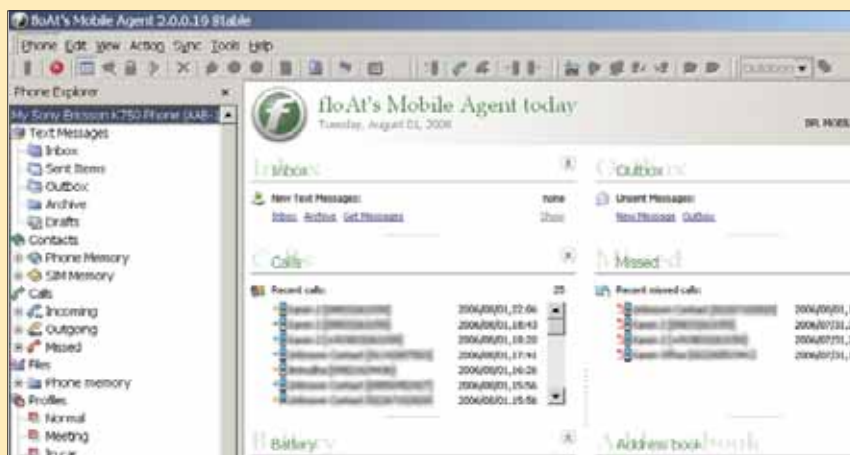
No software is perfect, and by now you will have found a fair share of bugs in fMA. For instance, we used it in conjunction with a Sony Ericsson K750i on an AMD Athlon 64 3000+, MSI RS480 MII motherboard with 1 GB of DDR 400 RAM, and found that very often it would hang, and start consuming 99 per cent CPU. If this happens to you, the only way out is to open the Task Manager ([Ctrl] + [Alt] + [Delete]) and end-task MobileAgent.exe.

Another thing that will have you tearing your hair out is when you try and type a new SMS using fMA. The window that pops up tries to use a transparency effect but fails miserably. The first thing you're going to want to do is get rid of that transparent look by heading over to **Tools > Options** and clicking on the **Appearance** tab. Here, you will see various values at the bottom. It's best to change everything to 255 (solid), so you can see what you're typing.

And You're Done!

Most of what you'll see in fMA doesn't need much explanation, and you should have no trouble getting by. Our thanks to the floAt's Mobile Agent developers for keeping this open source. If you're a developer, you will find that it's really easy to make scripts work with fMA, so go ahead and add some functionality to the project! ☑

robert_smith@thinkdigit.com



The fMA interface is neat and clean, and easy to navigate

Corel Photo-Paint X3



Straight Lines And Steps

When using any brush tool in Photo-Paint (paint, eraser, image sprayer and so on), hold down [Ctrl] to paint along a straight line. To switch directions from horizontal to vertical and vice-versa, hold [Shift], and then release [Shift] to get back to your original direction. Try using this to draw stairs—hold down [Ctrl] and move diagonally; hit [Shift] every time you want a step.

Quickly Select All Objects

To select all the objects (Corel's equivalent of Photoshop's Layers) in your image, just double-click the object pick tool (the first one on the left-hand toolbar) and all the objects will be selected at once.

This is an issue of some debate—some people have reported faster browsing speeds by increasing the value from 0. You'll therefore need to experiment. First try 0, then try something else.

Zooming Fun

To instantly restore the image's zoom level to 100 per cent, just double-click the zoom icon. And to enable Interactive Zoom, hold down [Alt] and the mouse button and move the mouse around to zoom in and out.

Make Your Own Image Sprayers

The Image Sprayer tool is one of Photo-Paint's most fun features—especially when you want to scatter a bunch of objects on your images—notes, leaves, garbage, you name it. To create your own image sprayer, you will need (naturally), a few images, preferably with no background colours. If they do have backgrounds, you'll need to use either the Magic Wand tool (W), Cutout Lab (explained later) or any of the other selection tools to cut them out of their

backgrounds. Once you've done that, bring all these images together in one file as separate objects. Use the object picker (O) and hold down [Shift] while clicking on all the objects to select them all. Select the Image Sprayer and open the Brush Settings docker from **Window > Dockers > Brush Settings**. Click on the arrow at the top-right corner and select **Save Objects as Image List** from the menu. Voila—your own image sprayer!

Quick Mirror Objects

To flip objects horizontally or vertically while working, just select the object picker (O) and select the Scale Mode button from the toolbar on top. Now with [Ctrl] held down, click one of the object's handles and drag to flip it along that axis.

Crazy Characters

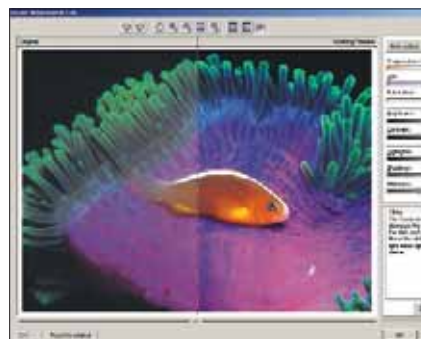
A nifty new feature in Photo-Paint X3 is the ability to move and rotate individual characters for some cool text effects. Select the text tool (T) and on the toolbar that appears on the top of the workspace, click on the "F" icon to



open the Character Formatting docker. You will find the aforementioned effects under Character Shift. Select individual characters and rotate them or move them vertically or horizontally as you please! The text remains editable, so you can change it any time you like.

To The Lab!

For finer control over tweaking images, you can now use the new Image Adjustment Lab. Select **Adjust > Image Adjustment Lab** to start it. You can adjust colour temperature to give the



Tweak images in the Image Adjustment Lab



Create your own image sprayers

whites a warm, yellowish tinge, or make it cooler to give it a bluish tinge. If the image is a little lacklustre, your best bet is to brighten the highlights and midtones.

To fix a dark image, brighten the shadows, and to add intensity to a washed out image, darken them. To see a "before-and-after" view of the image, click on the **Before and After Split Preview** button on the extreme right of the toolbar. You can even define the split by dragging the boundary between the two pictures.

Cut It Out

If you've ever used Photoshop's Extract filter, you can appreciate how important it is to be able to cut out objects from their backgrounds—especially ones without clearly defined edges—the fur of an animal, for instance. Now even Photo-Paint X3 has an answer to this—the Cutout Lab.

You will find this under **Image > Cutout Lab**. Use the Highlight tool to draw a rough border around the object you want to extract, fill the area with the Inside Fill tool and hit Preview to see what the result will look like.

Under Cutout results, select **Cutout** for a simple cutout, **Cutout and Original Image** to preserve the original image and make a cutout in a new object, and finally **Cutout as Clip Mask** that creates a mask for that layer which you can edit later.

Use The Interactive Tools

Whether it's drop shadows or gradual transparency, Photo-Paint offers you interactive tools for both—just click and drag to start with the effect, and you can now use sliders right there to adjust the settings. The Interactive drop shadow tool lets you adjust the Feather (the fuzziness of the edges) of the shadow and its transparency. The interactive object transparency tool lets you adjust the mid-point of the gradient.



Hey Tiddle Tiddle

Get yourself organised with your own personal Wiki—the TiddlyWiki!

Nimish Chandiramani

The TiddlyWiki is a single HTML file that you can carry around with yourself to organise your thoughts, information, and life in general. You can carry this file around on a USB stick as well, making it your wiki on the go. You can even put it up on the Internet as your own personal Web site—no fancy web design required! TiddlyWiki's own web site is a TiddlyWiki. It's even useful on an office network—setting up an internal wiki server is going to be quite a pain, not to mention expensive, and using a web-based solution can't be good for sensitive information. But put this on any PC on the network, and you have a simple, secure wiki for everyone in the office to access and contribute to.

You will find the "empty.html" file for it on the May 2006 *Digit* CD or get it from www.tiddlywiki.com.



TiddlyWiki—Your organiser, your journal, your wiki

1

Get It To Work With Opera

While TiddlyWiki works just fine with IE and Firefox, Opera's security features prevent TiddlyWiki from saving any changes to your wiki. So if you're an Opera user, you'll have to use this hack to be able to save your TiddlyWiki:

Use WordPad to open the `opera.policy` file in `C:\Program Files\Opera\Classes` and put in this line of code before the final `};`:

```
permission java.io.FilePermission
"~c:\\[wiki path here]\\*", "read,write";
```

(The double backslashes are important here.)

It will still take time for your wiki to save while Opera validates the permissions, though.

2

Your first Tiddler

Everything in a TiddlyWiki is organised in tiddlers—for example, the equivalent of a

"Shopping List" page will be a "ShoppingList" tiddler, containing your entire shopping list. A tiddler has a title, a body, and a tag (a keyword you can assign to it for quick reference). A shopping list for electronic goodies, for example, can be tagged "gadgets", and essential shopping can be tagged "essentials", or something to that effect. You can link to other relevant tiddlers by using WikiWords—words joined together with their first letters capitalised—JustLikeThis. Now all you need to do is create a tiddler with the title JustLikeThis, and your link is made. Links come in handy for cross referencing—if you're writing a tiddler about, say, video editing, you could link to a review of your favourite video editing software, which you might have written before or plan to write soon.

If you don't want to use WikiWords, enclose the tiddler title you want to link to in double square brackets `[[Just Like This]]`. If you don't want a WikiWord to turn up as a link to a tiddler, precede it with a tilde (the character you get by pressing `[Shift] + the key to the left of [1]`).

When you're done with your tiddler, hit `[Ctrl] + [Enter]` to confirm it. To edit a tiddler, just double-click on the content.

3

Formatting Fun In Tiddlers

To format your text in a tiddler, use these formats:

"This makes text bold"

==Use this for strikethrough text==

__Use two underscores for

underlining__

//Italics thus//

^^Superscripts^^

~~Subscripts~~

@@And highlights@@

To embed images into a tiddler (either from your PC or the Web), use the following code: `[img|Text for optional tooltip|address of the image|]`.

If you want floating images that text will wrap around, use `<img|` to left-align the image and `>img|` to right-align them.

To emphasise text, enclose it within double curly braces `{{like this}}`. To place text inside a "code" box (a yellow box with a fixed width font like courier), use four curly braces on either side `{{{{like this}}}}`.

To link to an external site, use this format: `[[put text here|www.urlhere.com]]`



4

Swift Operations With Macros

The TiddlyWiki lets you use inbuilt macros to add more features to a tiddler: To insert the current date and time, use `<<today>>` in your tiddler text. Putting in `<<tag tagname>>` will result in a button that pops up a list of all tiddlers with the tag "tagname". Finally, to include the content of another tiddler (TiddlerTitle, for example) in the current one, use `<<tiddler TiddlerTitle>>`.

5

Tiddling On The Web

You can put up your TiddlyWiki on the Web. Before you do so, you need to prevent others from editing it. On the right side of the page, click Options and at the bottom of the panel, click AdvancedOptions. Make sure you check HideEditingFeatures before you put the wiki on your site. Conversely, if you want your wiki to be a public collection of ideas from all and sundry, just uncheck that box.

If you want to generate an RSS feed for the wiki, check the GenerateAnRSSFeed option. The URL to this will be the same as the TiddlyWiki, but with `.xml` instead of `.html` as the extension.

6

Tiddling On The Web II—Permaview

Let's say you have the Welcome, AboutMe and FAQs tiddlers open, and you want to share your TiddlyWiki with your friends in this very state. The "permaview" feature generates a URL for your TiddlyWiki in its current state, with all the tiddlers you have open. To get a permaview URL, click on Permaview on the right. You can now copy the URL from the browser and send it to people—when they follow it, they'll reach your TiddlyWiki with just the tiddlers you want them to see. ☐

nimish_chandiramani@thinkdigit.com

Keyboard Shortcuts For Corel Photo-Paint X3

Acquire...	[Ctrl] + [Q]	Imports an image from an external device
Align and Distribute...	[Ctrl] + [Shift] + [A]	Aligns object(s) within an image or with each other
Artistic Media	[Ctrl] + [F10]	Opens the Artistic Media Docker window
Back One	[Ctrl] + [PgDn]	Moves the selected object(s) down one in the stacking order
Bold	[Ctrl] + [B]	Bolds text
Brightness/Contrast/Intensity...	[Ctrl] + [B]	Brightness/Contrast/Intensity
Browse...	[Ctrl] + [F12]	Browse ScrapBook Tab
Brush Mask Tool	[B]	Creates a mask from brush strokes
Brush Settings	[Ctrl] + [F8]	Opens the Brush Settings Docker window
Cascade	[Shift] + [F5]	Cascades image windows
Center	[Ctrl] + [E]	Centre Alignment
Channel Selection	[Alt] + [O] - [9]	Select channels 0-9 (Channel 0 is the main image)
Channels	[Ctrl] + [F9]	Opens the Channels Docker window
Clone Tool	[C]	Paints with current clone
Close	[Ctrl] + [F4]	Closes the active Image Window
Color	[Ctrl] + [F2]	Opens the Color Docker window
Color Balance...	[Ctrl] + [Shift] + [B]	Colour Balance
Color Palette Browser...	[Ctrl] + [F5]	Displays a list of Colour Palettes
Color Transparency Tool	[2]	Colour Transparency Tool
Combine All Objects With Background	[Ctrl] + [Shift] + [DnArrow]	Combines all objects with the background
Combine Objects Together	[Ctrl] + [Alt] + [DnArrow]	Combines the selected objects together
Combine Objects With Background	[Ctrl] + [DnArrow]	Combines the selected object(s) with the background
Copy	[Ctrl] + [C]	Copies the selection and places it on the Clipboard
Copy	[Ctrl] + [Insert]	Copies the selection and places it on the Clipboard
Copy Visible	[Ctrl] + [Shift] + [C]	Copies the visible area in the selection and places it on the Clipboard
Crop Tool	[D]	Crops the image
Customization...	[Ctrl] + [J]	Allows you to customize the application
Cut	[Ctrl] + [X]	Cuts the selection and places it on the Clipboard
Cut	[Shift] + [Delete]	Cuts the selection and places it on the Clipboard
Duplicate	[Ctrl] + [D]	Duplicates the selected object(s)
Effect Tool	[V]	Paints with current effect
Ellipse Mask Tool	[J]	Creates a circular mask
Ellipse Tool	[F7]	Draws ellipses
Eraser Tool	[X]	Erases areas of the image
Exit	[Alt] + [F4]	Exits the application
Export...	[Ctrl] + [E]	Saves a duplicate of an image to disk
Eyedropper Tool	[E]	Selects a color from the image
Feather...	[Ctrl] + [Shift] + [F]	Feathers the selected object(s)
Fill Tool	F	Fills areas with uniform, fountain, bitmap, and texture fills
Fill...	[Ctrl] + [Backspace]	Applies fills and transparency to an image
Fit Text To Path	[Ctrl] + [Alt] + [F]	Fit Text to a Selected Path
Fit in Window	[F4]	Displays an image to fit in the window
Forward One	[Ctrl] + [PgUp]	Moves the selected object(s) up one level in the stacking order
Freehand Mask Tool	[K]	Creates an irregular mask
Full-Screen Preview	[F9]	Displays a full-screen preview of the image
Grid	[Ctrl] + [Shift] + [E]	Shows or hides the grid
Grid	[Ctrl] + [Y]	Toggles whether tools snap to the grid
Group	[Ctrl] + [G]	Groups the selected objects together
Guidelines	[Ctrl] + [Shift] + [Y]	Toggles whether tools snap to the guidelines
Hide Windows	[Ctrl] + [Shift] + [F4]	Shows/Hides all floating/docked windows
Hue/Saturation/Lightness...	[Ctrl] + [Shift] + [U]	Hue/Saturation/Lightness
Image Slicing	[Alt] + [F1]	Opens the Image Slicing Docker window
Image Slicing Tool	[6]	Description
Image Sprayer Tool	[I]	Paints with current image list
Import...	[Ctrl] + [I]	Imports an image from disk
Info	[Ctrl] + [F1]	Opens the Image Info Docker window
Interactive Drop Shadow Tool	[S]	Adds a drop shadow effect to selected objects
Interactive Fill Tool	[G]	Applies a fill across an image or mask
Interactive Object Transparency Tool	[1]	Applies transparency to objects

Warhammer 40000 : Dawn of War

Dawn of War (DoW), the latest in the Warhammer 40,000 series, brings splendid graphics to the franchise, with realistic and brutal combat. Multiplayer is where DoW excels - the action is hot, yet key elements of the RTS (Real Time Strategy) genre haven't been forgotten.

Whether you're a newbie or a DoW fanatic, these tips should prove invaluable.

He Who Scouts Early Wins

Build at least two as the game starts. You need to capture as many requisition points as early as possible. This gives you an early resource lead. Additionally, wresting resource points later in the game from the enemy is never easy.

Race For Those Wheels

Try to build vehicles as early as possible. Your enemy will most probably not have an infantry response to vehicles early in the game. Avoid wasting resources on research very early on.

Offend... Don't Defend

Do not build turrets around captured points. An exercise in futility because even a commander unit with a single squad will easily destroy them.

It's All About The Leader

Commanders units are formidable opponents early in the game, and use devastating melee, so make sure your Commander is at the forefront. Later on in the game Commanders fall prey to powerful squads and vehicles so make sure to keep him attached to a fully upgraded squad.

Space Marines

Perhaps the most balanced of the DoW races, with strong tier one, an unstoppable tier three units, and some of the best vehicles in the game.

Marine Tactics

Harass enemies early. Use scouts with sniper upgrades and stealth to get close to the enemy base and clonk a few enemy units. When you withdraw, keep space marine squads and your commander on either side of the route of retreat. Enemies following will surely get fried in the ensuing crossfire.

Get That Bazooka...

Upgrade your space marines with rockets. Anti-infantry upgrades aren't necessary, because dreadnoughts can easily take out multiple squads.

Maximum Loadout = Maximum Hammering

When using the orbital relay to teleport terminators, make sure to first teleport them near your base, and fully upgrade the squad and their weapons. Never send weak squads into battle.

Command Me!

A commander attached to an Assault Terminator squad makes more sense than him being attached to any other squad. This combination can even take out vehicles and buildings. Assault Terminators are the strongest of the melee grunts available.

Space Marines

The Orks are the most "fun to play" race in the DoW universe. They aren't very tough, and victory while playing as Ork should be attempted while in Tier 1, because they aren't that tough later on.

If DoW = Earth, Ork = China

Orks are all about numbers, that title just says it all doesn't it? Slugga's are the most powerful of the initial infantry among all the civilizations, and will easily defeat scouts, guardians and cultists.

No Retreat, No Surrender

Don't forget to push forward, when you play as Ork, don't dawdle - fight and advance as much as you can, because their later units aren't that powerful.

Rokkit Launcha time

Ork vehicles aren't that powerful - the faster ones are low on firepower, and the powerful units are too slow. Upgrade your tank busta squad with anti-vehicle rockets ASAP.

Eldar

The Eldar or 'foul Xenos' as other races refer to them, are the most mobile of strike forces in the DoW universe. Good variety in ground troops, but unfortunately their melee is pathetic. You need to play carefully as Eldar, and use a lot of micro. Fire Prisms are good, and very mobile, you'll be using a lot of them.

Fleet-Foot

Eldar are fast - just as well, because their infantry melee sucks. Use Dark Reapers/ Wrap Spiders in cover positions if you want to snipe or prepare for hit and runs. You could use two groups, one to hit and the other to cover whilst retreating.

She's The One

The Farseer has the most special abilities amongst all the commander units, however she is weaker than other commanders as well, and will fall in melee combat, and even to some ranged



Fire Prisms "Jump" in action



Lasercannon? Naw that's a lascannon in action

units. Keep her attached to a squad, even early in the game.

Skip bombing tactics...

Use the Fire Prism's jump capability to jump near enemy buildings (target ones with defense capabilities or strategic ones first), and quickly jump back to avoid taking retaliation fire.

Use Those Lasers

Make sure to upgrade your Wraithlords with anti-vehicle weaponry and not anti-infantry, as they are already effective against infantry squads.

Chaos

The forces of Chaos have good commanders, and even more infantry versatility than the almighty Space Marines. Unfortunately their vehicles sorely lack depth.

Possessed And Lovin It

The forces of Chaos have a very underutilized unit called Possessed Space Marines. This unit is excellent at destroying enemy morale and entire squads in a jiffy. They also pose a serious challenge to non-melee vehicles in close combat. The best part is they are Tier 2, so they can be built long before Terminator squads. Attach a Chaos Commander for that added punch!

Sneaky Pests...

Chaos Space Marines can also use invisibility (much like) Marine Scout squads. Only they pack a greater wallop. Upgrade them and use for hit and run attacks. Only don't forget to run! ■

Q&A

Your Questions, Our Answers

A Sticky Problem

Q I just purchased a Sony Ericsson K750i. When I record a movie or sound, or even click photographs and save them on the provided Memory Stick, and try to access them later, the photos appear blocky and movies fail to play. Even when I play MP3s stored on the card, they crackle. I do not experience such problems with files saved on the phone's internal memory.

Mahesh Naik

A You probably have a damaged Memory Stick Duo card. Try and use the phone with a different Memory Stick to verify that the problem is with the Memory Stick and not with the phone itself. If your phone is under warranty, take it to the reseller from whom you bought it; remember that the Memory Stick is covered by the warranty, so if that's where the fault lies, you will get a replacement.

The Sound Of Silence

Q I'm facing problems after having installed Red Hat Linux Enterprise WS v3 (Taroon). Everything runs fine, but sound doesn't seem to work. I have an Intel Pentium 4 2.4 GHz processor on an Intel 865GBF motherboard with 256 MB RAM.

Dipayan Samanta

A The Red Hat Linux Enterprise WS v3 (Taroon) has inbuilt support for onboard audio devices based on the AC97 codec. Since the Intel 865GBF motherboard has such an audio device onboard, it is, of course, supported by this flavour of Linux. Download the open source ALSA drivers from www.alsa-project.org and install them. These drivers support most sound devices.

It Works Both Ways

Q Is there paid or free software to convert DVD movies to Xvid (not DivX)?

Runeet Saraf

A SimpleDivX is a good and easy-to-use free-ware application that can convert DVD movies to DivX as well as Xvid. It is available from www.simpdivx.org.

A Burning Issue

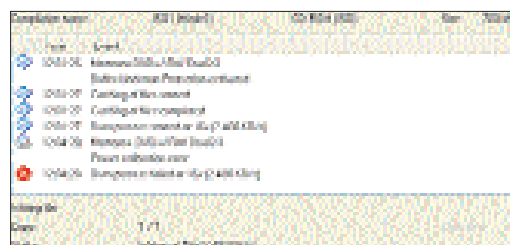
Q I have a Pentium 4 1.6 GHz, 256 MB of RAM, an 80 GB hard disk running Windows XP Pro, and

a Samsung CD-Writer with Nero burning software. When I try to burn a video compilation or even just data, I get a message saying "Burn process failed, power calibration error". I cannot burn even at 4x. What can I do?

Sunil Malhotra

A There are several points to mention when it comes to the "Power Calibration Error":

1. The first and easiest method to deal with the problem is to download the latest firmware for your CD-Writer and flash it. You can get the latest firmware from the Samsung Web site (www.samsungodd.com).
2. Try changing the brand of the media you are using to see if the problem goes away.
3. Power consumption can also be an issue. To check if this is the case, disconnect the power connectors of all the devices that are not neces-



Nero Power Calibration Error

sary for the burning process.

4. The error could be because of the accumulation of dust on the lens. Use a lens-cleaning CD, or if you are comfortable with the idea, you can also open the unit and clean it. Remember, this voids your warranty.
5. If the writer is under warranty, avail of it: if your dealer finds that he cannot burn a disc using the writer and the bundled software, he will probably be willing to replace the writer.

"Sony NS-11": Beware

Q I bought an MP3 player with pen drive (256 MB) with a "5 in 1" option. The model number printed on the drive is "Sony NS-11". After I formatted the drive, the capacity changed to 120 MB. Is it possible to recover the lost memory?

M D Kishore

A You've been taken for a ride by your dealer. This MP3 player is not from Sony, and it has been reported that while it may display a capacity of 256 MB, it decreases to 120 MB the first time you format it. There is no way to recover the lost space—simply because the drive does not have 256 MB of space! The "NS-11" is a fake MP3 player that has swamped our markets.

A Question Of Voltages

Q Can an AGP 8x card work in an AGP 4x slot?

Joe

A Yes, all AGP 8x cards are backwards-compatible, and can work with motherboards that

have AGP 4x slots—provided the voltage of the slot is 0.8 V. AGP 8x cards can work in AGP 4x slots with 1.5 V voltages, but may not function properly. Some cards, though, can tolerate the extra voltage. Remember, these cards cannot work with motherboards that have AGP 1x or 2x slots, which generally have 3.3 V.

Conflicting Codecs

Q I have an Intel 3 GHz processor with 256 MB of RAM running Windows XP SP2. A few days ago, I installed K-Lite Codec Pack from your DVD. I also have Windows Media Player 10. The problem is, whenever I play a movie file in WMP10 or the Media Player Classic software that comes with K-Lite codec pack, it hangs, but the sound continues. After I finish my work, when I try to shut down the PC, a pop-up tells me that WMP10 or MP Classic (whichever I used first) is still running, and if I choose “End now”, the PC hangs with a beep. I have no option but to restart and then shut down again. What should I do?

Mandar

A As you might know, K-Lite Codec Pack is a collection of different codecs and related tools. The problem you described can occur if you installed certain codecs and then installed the K-Lite codecs on top of them, thus improperly overwriting the previous versions of those codecs without properly uninstalling them.

Uninstall K-Lite Codec Pack and also uninstall all other previously installed codecs. Then install the latest version of K-Lite Codec Pack from our CD, or download it from www.free-codecs.com/K_Lite_Codec_Pack_download.htm.

While installing the Pack, click Next a few times and do not change the default settings of the installation. At the end, you will be presented with “Additional Tasks”. If you do not want to make Media Player Classic the default for a number of file types, be sure to uncheck the boxes. Leave the rest of the options untouched and finalise the installation process.

We Aren't There Yet

Q I've heard that Bungie studios will soon release the PC version of *Halo 2*, and I'm worried that my current PC won't run it with all the eye-candy. Can you tell me what configuration will let me run *Halo 2* in all its glory (when the PC version arrives)?

Boney Joseph

A *Halo 2* will require Windows Vista, and will not run on older operating systems. One of the system requirements of *Halo 2* is a graphics card that supports DirectX 10. As you may be aware, DirectX 10 has not yet been released, and graphics cards compliant with this version of DirectX are still a few months away. Also, Vista is slated to be released in early 2007, and will ship with DirectX 10 inbuilt. So there's little you can do but wait and watch!

I'm Left With No Option...

Q I have an Intel 865GBF motherboard, a 2.4 GHz Celeron processor, and 256 MB of RAM.

Recently, I downloaded and installed a BIOS setup from the Intel site for the 865GBF motherboard. And now, when I shut down the system, it shuts down perfectly, and I switch off the main power. However, when I switch on the main power again, the PC starts automatically, without waiting for me to press the power button on the cabinet. What's wrong?

Siril B Barot

A Your PC has been set to go to “power on” state while booting. You can configure this option in the BIOS: go to the power options and look for the option that says “After Power Failure” (or something like that). This option determines the mode of operation of the PC if a power loss occurs. It can be set to:

Stay Off—The PC will remain off once power is restored

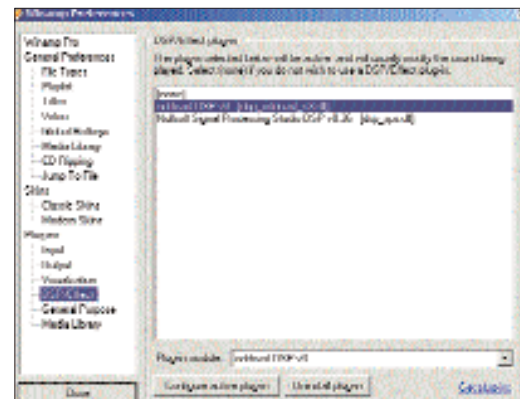
Power On—The PC boots after power is restored

Last State—The PC is restored to the power state it was in when the power loss occurred

You'll want to select the Stay Off option.

It's Whipping The CPU's A**!

Q I have a Pentium 4 2.8 GHz, an original Intel D945GTP motherboard, 512 MB of DDR2 RAM, a 160 GB Seagate SATA, an 80 GB Hitachi ATA, and Windows XP with SP2. This system is too slow and it feels like I'm using a Pentium III, particularly when I play an MP3 using Winamp: the CPU usage shoots up to 100 per cent. What's the problem?



DSP Plugins in Winamp

Aman Jamwal

A First, check if WaveOut is selected as your output API. If it is, select DirectSound; this is the newer and better API—it is faster and consumes less CPU. Second, check to see if you've set Winamp's priority to Realtime—if so, change it to Normal. Third, set Winamp to use no DSP plugins—some of them are CPU hogs.

Access @Home

Q I have a broadband connection from Dish Antenna, with a static IP. I would like to know how I can connect to my server at JNPT, Navi Mumbai, from my residence at Ghatkopar (in



...Use The Windows Recovery Console

A broken Windows installation doesn't necessarily mean a reinstall is required—try using the commands in the Windows Recovery Console first

Team Digit

No operating system is immune to damage, and Microsoft OSes are certainly no exception—viruses and spyware don't help matters at all! Thankfully, Windows 2000 and XP make recovery possible in a few easy steps. If XP refuses to start up or run properly, or if the OS choice does not appear, for example, you can fix it in a matter of minutes. All you need is your bootable Windows 2000 / XP CD.

We suggest you do a dry run of the Windows Recovery Console and familiarise yourself with it after reading this, so you don't feel lost when you do try a recovery. The process is easy if you have some knowledge of DOS.

Bringing Up The Console

Set your first boot device to CD-ROM and boot using your Windows boot CD. When you see "Press any key to boot from CD", do so. Next, choose the repair or recovery option by pressing [R]. If you have more than one installation of Windows, they will appear in the choices menu, so be aware of where the copy of Windows you wish to repair is installed, so you can choose it correctly. You need to enter the Administrator password in order to "log on" to the Windows installation in question. (Bear in mind that if you type a wrong password thrice in succession, the computer restarts.)

You will see a command prompt that says "X:\WINDOWS", where X is the partition where you installed the operating system ("C" in most cases). You can now access the troubleshoot / repair commands. Type "help"



Driver Conflicts

If your Windows is not starting up due to a driver conflict and the programs are all fine, you can first replace just the "system" file and check if Windows starts up. If this does not work, then replace the "software" file as well.

and press [Enter] to see a list of available commands. There are several powerful commands available, and we will explain the more important of these.

```

Microsoft Windows XP [i386] Recovery Console.

The Recovery Console provides system repair and recovery
functionality.

Type HELP to quit the Recovery Console and restart the computer.

C: >
C: > help

Which Windows installation would you like to log onto
[To cancel, press ENTER]?
  
```

Following this is a plain DOS prompt

fixboot And fixmbr

When you are installing a new OS, or have accidentally deleted system files from your boot drive, these two commands come to your rescue. The "fixboot" command rewrites the boot sector code onto the chosen partition. The syntax for this command is "fixboot <drive letter>". The "fixmbr" command repairs the boot record of the boot partition. The master boot record can be damaged by a virus or a faulty installation of a second OS. Just use the "fixmbr" command to repair your boot record and have Windows working again!

If neither of the above commands can get your Windows installation started, the next step will be to try the "bootcfg" command. Type "bootcnf /rebuild" for the recovery console to display all available Windows partitions. Choose the one you want to add to the boot menu.

chkdsk

The Check Disk (chkdsk) command scans a partition for errors and tries a data recovery if possible. If a bad sector is encountered, the Check Disk tool marks them as bad such that data will not be written to it. If Windows refuses to start and you suspect a failing hard disk (screeching noises, sudden hangs, etc.), use this command to check the status of your hard disk.

The syntax is "chkdsk X", where X is the drive letter assigned to the partition in question.

Restoring The Registry

Windows XP stores its Registry information in two files named "software" and "system" in the Windows\system32\config folder. Soon after installation, a copy of these files is stored in the Windows\repair folder. In the event of Windows not starting up at all, a sure-shot way of getting it up and running is to replace the existing "software" and "system" files in the Windows\system32\config with the files from the

Windows\repair folder. Note that none of your programs or drivers will work—you need to reinstall each of them. While it may seem like a tedious job, it sure is quicker and easier than a full-fledged reinstall and data backup.

To do this, at the "C:\WINDOWS" prompt, type "attrib -h -s \system32\config\system" and press [Enter]; next, type "attrib -s -h \system32\config\software" and press [Enter]. This is to remove the "system" and "hidden" attributes of the files. You can now copy the files from the repair folder by typing "copy \repair\system \system32\config", pressing [Enter], then typing "copy \repair\software \system32\config" and pressing [Enter]. When you're prompted to proceed with an overwrite, press [Y].

Run It From The Hard Disk

You can install the recovery console to your hard disk so that you can access it without the need for the Windows install CD. This speeds up performance because reading from hard disk is way faster than from CD. This is also useful if both your Windows installation and your CD-ROM drive die at the same time.

To do this, insert your XP CD while Windows is running, go to **Start > Run**, and type "X:\i386\winnt32.exe /cmdcons" where X is the letter of your CD-ROM drive. Bear in mind that if the boot record or boot files on your hard disk are corrupted, you will still need the CD to access the recovery console. ■

readersletters@thinkdigit.com

Do Not Disturb

Q When I try to hibernate my computer after using my TV-Tuner card, it goes into hibernation, but when I turn on the computer, an error is displayed: “Attention: Out of Range”, and the computer stops responding. I have to restart after that.

HarSachin Singh

A Your TV-Tuner sets the refresh rate of your monitor to a value that it cannot handle, hence the problem. First, download the latest drivers for your TV-Tuner from the manufacturer's Web site, and get the latest version of DirectX available for your OS (from the Digit CD/DVD). To

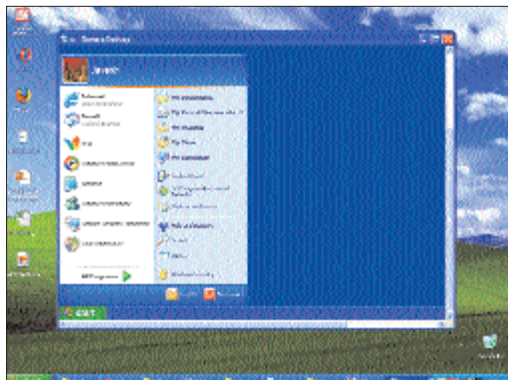
fix the problem, you need to know the refresh rate that is normally used by your monitor. To find this, open Display Properties, click on the Advanced tab, click Settings, select the Monitor tab, and note down the refresh rate that has been chosen under the “Monitor settings” section. Now go to **Start > Run**, type in “DXDIAG” and press [Enter]. In the window that appears, click on the “More Help” tab and click the Override button. Select the “Override Value” radio button and enter, in the adjacent box, the refresh rate you noted down earlier. Click OK and then Exit for the changes to take effect. The problem you described should go away.

QUESTION
OF THE
MONTH

Mumbai). I also want to access my hard disk and the software loaded on the server.

Mehul Meruwalla

A We shall assume that you have Windows 2000/XP/2003 installed on both computers. The operating systems on the computers need not be the same. You need to do the following on the PC in your office: open System Properties from the Control Panel. Click on the Remote tab. Under Remote Desktop, check the box next to “Allow users to connect remotely to this computer”. Once this is done, you can remotely log into this PC from your home PC. To do this, at your home computer, go to **Start > All Programs > Accessories > Communications > Remote Desktop Connection**. The Remote Desktop Connection application will open. Type in the



The Remote Desktop Connection in Windows XP

IP address of your office computer in the dialog box next to “Computer”. Click on Options, and in the expanded window, enter the username, password, and domain of the office computer. Click on Connect to log into the remote computer.

You can go one step further by clicking on the Local Resources tab. Here, click on Disk Drives, Printers, and Serial Ports, according to what you want.

When you select one of these (Disk Drives, for example), you will be able to view your local disk drives as additional drives on the remote computer after you have logged into that computer. You can transfer files between the remote PC's hard drive and your local hard drive.

Just In Case...

Q I have a Pentium IV machine with Windows XP SP 2 running. I log into Windows using a password. But if I ever forget my password, how can I log into Windows?

Nirmalya Chakrabarty

A Download the file “cd060213.zip” from <http://home.eunet.no/~pnordahl/ntpasswd/cd060213.zip>. Extract the ISO file that is in this Zip file, and burn this image to a CD; this is a bootable Linux kernel image. Note that you need to burn it as an image of a CD rather than an ISO file on a CD. Set your computer to boot from the CD/DVD drive, insert the CD in the drive and reboot your computer. You will now boot from this CD, and all you need to do is follow the easy instructions to reset your Windows XP password.

Spaced Out

Q I have a Celeron 1.1 GHz processor and 128 MB of RAM. We use Windows XP, but after having installed AutoPatcher from the *Digit* July DVD, when I run any application, after a few minutes, a “denied instruction” box pops up and asks if it is OK to terminate the running application. I also get a message in the System Tray: “Windows - virtual memory minimum too low; your system is low on virtual memory. Windows is increasing the size of your virtual memory paging file. During this process, memory requests for some application may be denied.”

Kapil Agarwal

A This error appears when the hard drive does not have enough space to accommodate the Windows swap file. The swap file is usually present on the drive where Windows is installed (usually the C: drive). You should free up disk space on the drive by deleting unwanted files and uninstalling unnecessary programs. Alternatively, you can set the location of the swap file to a drive that has more free space.

To do this, open the Control Panel and double-click the System icon. In the Advanced tab, click on the Settings button under Performance. Click on the Advanced tab where you will see the Virtual memory heading. Click on Change, and in the window that opens, you can set the paging file to any location. ■



Get Help Now!

E-mail us your computing problems along with your contact details and complete system configuration to sos@jasubhai.com, and we might answer them here! Since we get many more mails per day than we can handle, it may take some time for your query to be answered. Rest assured, we are listening!

Ear Mufflers

Agent 001 goes hunting for good headphones—something not many of us tend to bother about!

After a long, tiring day, many of us at Digit like to relax listening to music. The iPod is the device of choice for many, but there are few of us who have MP3-playing cell phones. However, no matter which of these devices one buys, the earphones or headphones turn out to be the spoilsports.

In fact, I recently upgraded my cell phone to a Nokia E61, and was horrified at the single earpiece Nokia had bundled along with it. That forced me to look for better earphones, and this began my window-shopping for all kinds of earphones / headphones available in the market.

Of course, when it comes to headphones and earphones, there is just too much on offer, so I've broken my experiences into categories—for PCs, you have to choose between headphones with microphones and standalone headphones. Earphones for MP3 players, cell phones, etc., are a completely different category.

Headphones/earphones are designed for specific situations, so when buying a pair, make a decision based on your needs. For example, a pair of headphones for a TV set can sound terrible with MP3 players or portable CD players because of the impedance difference.

A word of caution before I proceed: don't use headphones for too long at high volumes—that can cause *permanent* damage to your ears!

The majority of us use headsets with our PCs. These have large over-the-ear phones and an integrated microphone. iBall, Intex, Frontech, and Zebronics are some of the notable vendors offering such solutions. The typical price range is between Rs 500 and Rs 1,500. The top models generally have bigger earpieces and better padding, but don't offer too much more in terms of sound quality. All this is fine for video-conferencing, Skype calls and IM-ing, but for music... think again. Personally, I'd rather opt for a separate headphone and microphone solution.

You can get a decent set of Philips headphones for Rs 800, and a Rs 150 microphone for your computer. However, if you want a quality headset, Plantronics is the name you should be looking for. They have good headsets, which are expensive but comfortable. The basic models cost between

Rs 1,500 and Rs 2,000, and as more features come in, the price goes up.

I found that headphones come in all sizes and price brackets. Entry-level ones cost as little as Rs 250, and the best pair I saw would set you back by a whopping Rs 40,000! These are, of course, audiophile-grade. Philips has been a long-time player in the headphone market, and every music shop sells them (yes, Planet M too). The basic ones retail at around Rs 250, and are designed for low-impedance devices such as cassette recorders, MP3 players, and portable CD players—not for TVs or music systems. Moving up the ladder, you can get headphones for TVs and amplifiers for about Rs 800—the Philips set I mentioned earlier.

If you want something better, opt for Sony or Panasonic headphones, which are readily available at any electronics shop—they're priced between Rs 1,500 and 2,000. Headphones from Sennheiser, Grado, AKG, and others are in a different league altogether, and some of their low-end models are available in India—only in places selling imported goods, of course. In Mumbai, you will find these brands at Alfa or Heera-Paana. Expect to pay a premium for them!

As far as earphones are concerned, you need to be very careful when choosing. Almost every MP3 player we've tested thus far comes bundled with shoddy earphones—even models from big brands. Since they are plugged directly into your ear, they can do much more harm than headphones can. Most shops will offer "Sony" earphones for Rs 100, and these are patently fake—original Sony earphones will cost at least Rs 500.

I think the ones that are bundled with the Sony Ericsson "W" range of phones are decently comfortable and offer good sound quality. They are called "Fontopia", and I recommend them for all Sony Ericsson phones and MP3 players—about Rs 1,500. Sennheiser has also recently launched earphones, and you can be sure that these are good.

When it comes to Nokia cell phones, except for the N91, all the others require an adapter. Any Nokia phone with a pop-port will require the Nokia AD-15 adapter to connect a standard 3.5 mm headphone set. This will allow you to connect any pair of earphones, and you won't be limited to a Nokia pair.

For my new phone, I chose to buy the Nokia adapter and Philips headphones—a temporary solution till I get myself a Sennheiser set! ■

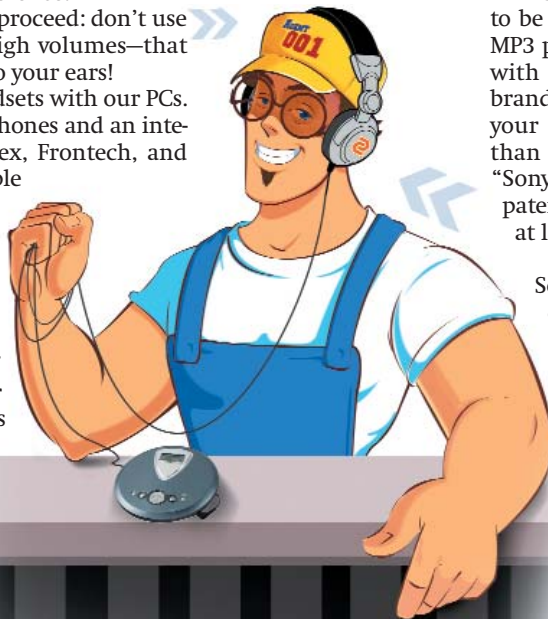


Illustration Pradip Ingale

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

SATA II Supported?

Q I have purchased an Asus A8N-VM motherboard, but I am unable to determine whether it supports SATA II. I have visited their Web site and read the manual, but that didn't help. There are two ports on the motherboard, and in the BIOS setting, it says "First SATA" and "Second SATA": what does that mean? I want to buy a SATA II hard drive if the motherboard supports it; can you help me?

Praloy M Sangma

A Yes! Your board does support SATA II for hard drives. In any BIOS, the First SATA and Second SATA refers to the number of SATA ports on the motherboard. If a particular board has four ports, then the BIOS will have four entries, one for each. These entries let you individually control the behaviour of each SATA port on the board.

A Tale Of Two Phones

Q I have allocated a budget of around Rs 12,000 to 17,000 for a cell phone, but I'm confused. Which is a better phone—the Sony Ericsson K750i or the W810i?

Devi Prasanna Bej

A According to Sony Ericsson, the K750i is their imaging-oriented cell phone, while the W810i is targeted at music enthusiasts. The K750i is quite an old model, but still has a whole load of desirable features. The 2-megapixel camera is still one of the best amongst all brands, the music player sounds great, and, best of all, at a street price of around Rs 11,000, it's a great buy.

The W810i looks terrific and rivals any MP3 player in terms of music playability. The 2 MP camera is similar to that on the K750i, but lacks lens protection. The W810i comes for around Rs 16,000. I still think the K750i is a better deal than the W810i; however, if you want something that looks and sounds better than the K750i, opt for the W810i.

Confused About Cores

Q I am in the process of buying a new computer. However, being out of touch, I have some confusion as far as the processor and motherboard combination is concerned. Intel manufactures so many processors—dual-cores, Extreme Edition, etc. I have assigned a budget of around Rs 7,000 to 9,000 for the processor-motherboard combo. Can you help me decide?

Jasdeep Lehr

A Based on your budget, I am assuming that you will be using this PC for routine work such as word processing, Internet browsing, etc. Just to give you an update: on the Intel front, you get two lines of processors—the Pentium 4 and the Pentium D. The D version is the dual-core variant of the Pentium 4 line-up. Intel has already launched a new processor family called Core 2 Duo; hopefully, it should be

made available for Indian consumers within a month. You can safely consider the entry-level E6200 model of the Core 2 Duo; it runs at 1.86 GHz, has 2 MB of cache, and should be available for Rs 7,500 to 8,000. If you don't find the E6300, opt for the entry-level Pentium D805 processor.

You will have to opt for a motherboard based on the Intel 945 chipset. AMD has recently slashed their prices as well, so you can get a good deal on the entry-level Athlon 64 X2 processors. If you opt for AMD, pair it with a motherboard based on NVIDIA's 6150 chipset, such as the Asus A8N-VM.

Serving Up Performance

Q I am planning to assemble my own computer and have kept aside Rs 65,000 for it. I am considering buying a server processor, most probably the AMD Opteron—I want something really different. This decision stems from the fact that I have seen AMD's Athlon 64 performing better than Intel's processors, so I thought the server processor from AMD should be even better.

Is the Core 2 Duo (Conroe) from Intel really better than the Opteron? If not, what motherboard and power supply will I require for the AMD Opteron processor?

Shirish Tiwari

A There is no need to buy a server processor for a gaming machine. Server components are designed from a different perspective—fault tolerance is the key consideration. Moreover, other components such as the motherboard, power supply, memory, etc., required for servers are quite different too—overall, an unnecessary expense.

As of now, Intel's new Core 2 Duo processors outperform AMD's new processor, the AM2. However, since we haven't reviewed the Opteron processors, I can't tell you whether the Conroe beats it.

If you want to build a really good rig, I'd suggest you base it on Intel's Core 2 Duo platform. For Rs 65,000, you can certainly build a great gaming rig. For the graphics card, opt for any card based on NVIDIA's 7600GT chipset.

Wanted: A Registry Guide

Q I want to purchase a book on the Windows Registry. It should cover the Registry in detail. Is such a book available in India? What would it cost me?

Pradeep

A There are lots of books available on the Windows Registry. Jerry Honeycutt's Microsoft Windows Registry Guide is one book you should consider. Priced at \$30 (Rs 1,350) at www.amazon.com, the book is expensive, but you might find a lower-priced edition as well. Check for it at your local book store.

If you're looking for a beginner's explanation and tweaking tips for the Windows Registry, we've published a *Fast Track* to the Windows Registry last month: read that first to get started! ■

Ask Away!

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

How IE7 Protects You

Internet Explorer 7 takes online protection seriously in the upcoming Windows Vista



Internet Explorer 6

2. If malicious code manages to bypass the protection built into IE6 and enter your system, it, too, gets to run with the same privileges. It has access to everything you have access to, and can wreak havoc



1. When you surf the Internet as the Administrator of your PC, Internet Explorer 6 runs with the same privileges you have—including the ones that can cause damage. Now, as you know, there's a lot of malicious code out there

3. After the damage has been done, you'll just be left feeling mighty miffed—and all you wanted to do was surf the Net!

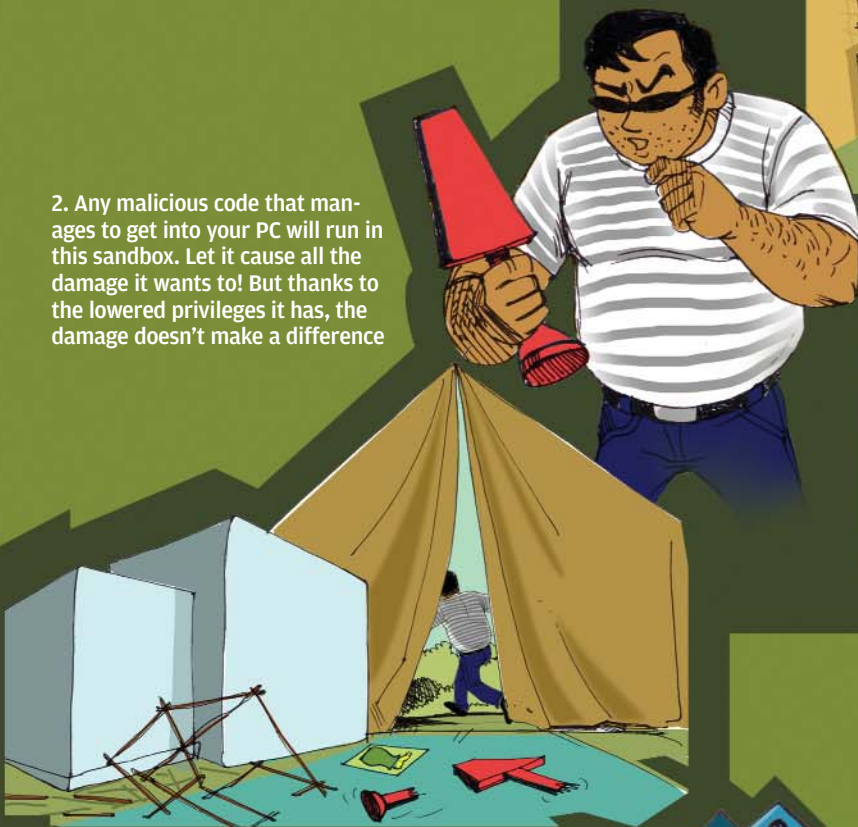


Internet Explorer 7

1. In Windows Vista, Internet Explorer 7 runs in a separate “sandbox” of its own, with much lower privileges, even if you run it as the Administrator. You’re still open to potential attacks, of course



2. Any malicious code that manages to get into your PC will run in this sandbox. Let it cause all the damage it wants to! But thanks to the lowered privileges it has, the damage doesn't make a difference



3. Finally, when you close IE7, the sandbox is done with and packed up, leaving the rest of your OS safe and sound





114 Thin Is In

Digital Business

How Technology Can Help Your Organisation

Tech Careers

Chip Your Way Through!

VLSI design is a lucrative career prospect. It's also not for the faint hearted

Samir Makwana

Chip designing in India began when Texas Instruments started its operations in 1985 in Bangalore. Many multinational companies have since followed, and there are quite a few Indian companies that have also begun VLSI chip designing. We now have home-grown intellectual property, including digital, analogue, mixed-signal, and RF technologies being developed to meet the demands of electronics manufacturing companies from around the globe.

Outsourcing chip design from the US was done for the advantages of lower overheads and labour costs. Also, time-to-market integrated device manufacturers and ASIC (Application-Specific Integrated Circuit) vendors utilise the expert services of integrated design houses to design their chips.

Atul Arora, President—Commercial Relations, ARM Embedded Technologies Pvt Ltd, says, "The advantage ARM has by having

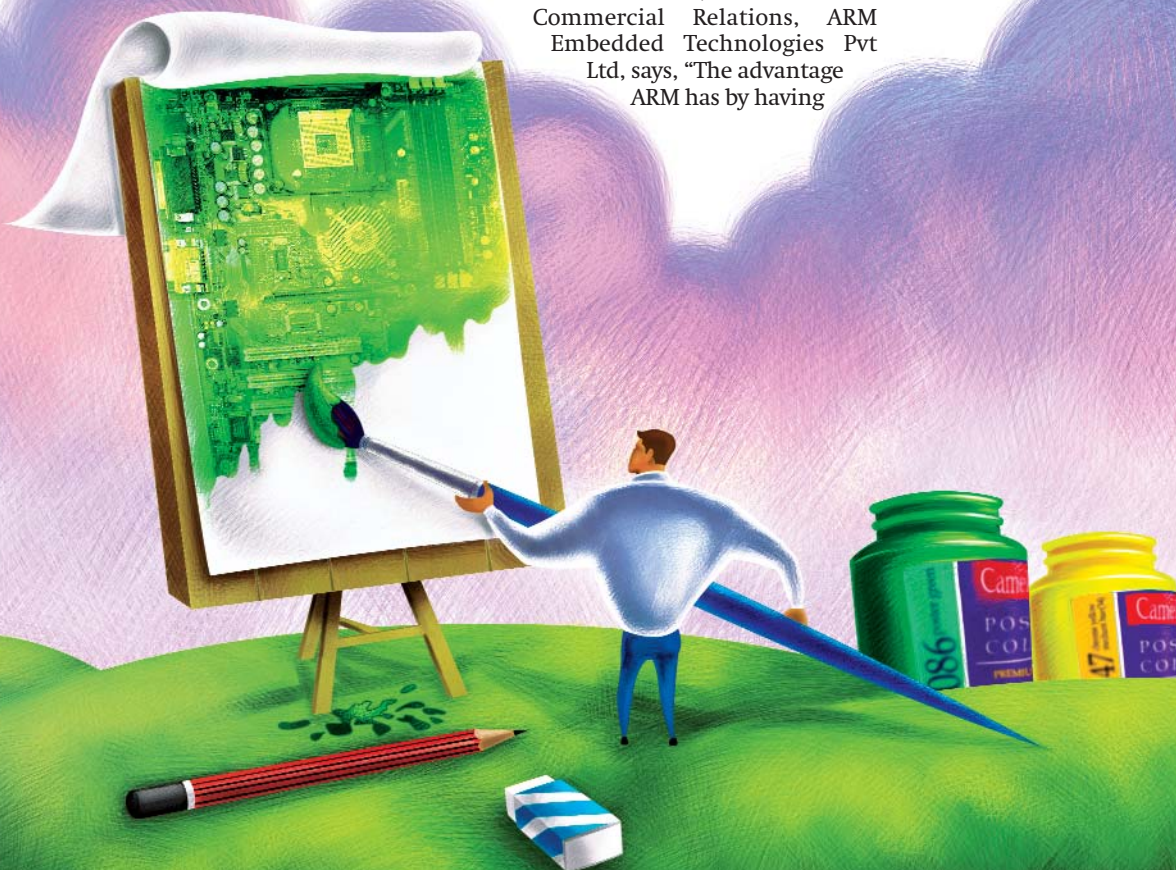
operations in India is the ability to tap into the talent pool of Indian engineers. That gives us the long-term investment ability to nurture and train engineers in ARM-based architecture for the development of innovative products."

About 120 semiconductor players engaged in chip designing are contributing to the Indian industry. According to a report by The ISA and Frost & Sullivan, the Indian chip design industry is expected to derive an output of more than Rs 150 crore in the financial year 2005-06. So what does it take to get into this field? What options are available? Let's have a quick look.

The Basic Requirements

The chip design industry is still in its early stages, and is set to grow. An important aspect is that in this field, demand is higher than supply—a rarity indeed. "The first and foremost requisite (to enter this field) is to have an early understanding of the industry, rather than just deciding to become a

Illustration: Chaitanya Surpur



VLSI design engineer after graduation. Most of the people who enter this industry have an engineering degree with an electronics specialisation. There is a small need for people with computer science and other specialisations as well," says Raghuram Tupuri, General Manager—Microprocessor Solutions, AMD India Engineering Center.

Chip design is a highly specialised and challenging field that involves working with sophisticated design tools, chip architectures and test methods. "Aspirants are expected to have an immense interest in and passion for the field, with a good understanding of semiconductor physics. Besides this, good logical thinking capacity and the aptitude to carry on high-intensity work is expected," says Praveen Vishakantiah, senior manager, Digital Enterprise group, Intel.

Certifications

Chip design companies look for undergraduates (B. Tech.), post-graduates (M. Tech.), and/or research-level scholars with a specialisation either in electronics, microelectronics & VLSI design, electrical engineering, or computer science and instrumentation. Candidates should have opted for one Hardware Description Language—VERILOG or VHDL—in their course of study. Sound knowledge of assembly-level programming and C programming is necessary. The most preferred qualification by the industry is an M. Tech. in Microelectronics and VLSI. Graduates from different engineering domains can also undergo post-graduation training courses provided by institutes—private and government—that offer short-term courses in VLSI design.

Obviously, certifications play a major role during the recruitment screening process. Companies prefer to employ engineers with a strong electronics background and who have studied VLSI design as a subject. "An electronics



Engineering graduates who have strong fundamentals of electrical or electronics engineering make good VLSI chip designers"

Sanjay Bhan
General manager
HR - Shared Services
Texas Instruments
India

engineer will definitely have an edge over a computer science major in the recruitment procedure, simply because we look for their practical skills towards designing chips. Freshers are expected to have good fundamentals of what they have studied," says Aruna Padmanabhan, HR Director - India, Freescale Semiconductor.

Recruitment

To reach every Regional Engineering College campus is time consuming and costly, so semiconductor companies have joined hands to form a common platform to recruit design engineers.

"Initiatives like Si-Quest (in association with Campus-Connect by ISA) act as a common platform for semiconductor companies and universities. Through such programs, students get the leverage of internships, sponsored programmes and placements," says Raj Khare, MD India, Broadcom Corporation.

The companies have set a minimum cut-off percentage (40 per cent) for candidates from any institute, for the written tests and personal interviews. The technical test focuses on digital/analog design fundamentals or software—usually C, algorithms and data structures—depending on the candidate's areas of interest and the positions available. Also, a typical aptitude test is taken. Besides this, interviewers check for basic electric and logic design knowledge. Good communication skills are a must, as is the ability to work in a team.

For experienced candidates, hands-on knowledge is also tested, on the basis of the candidate's area of interest and the capacity to work on highly complex designs and architectures.

What Comes Next?

Once absorbed into the field, one will have to undergo rigorous training programmes before handling complex design architectures of chips,

Courses

Here's a list of some of the top places that offer courses in VLSI Design and allied fields, as recommended by most VLSI chip design companies.

IIT Kharagpur: Dept. of Electronics and Electrical Communication Engineering: Post-graduate course in microelectronics and VLSI design, short term course on VLSI signal processing

IIT Delhi: Dept. of Electrical Engineering: Post-graduate course in integrated electronics and circuits; an interdisciplinary M. Tech. programme. Participating departments: Dept. of Computer Science and Engg, Dept. of Electrical Engg, Centre for Applied Research in Electronics

IIT Bombay: Dept. of Electrical Engineering: Post-graduate course in microelectronics and VLSI

IIT Chennai: Dept. of Electrical Engineering: Course in microprocessors, digital and analogue systems, VLSI design

IIT Kanpur: Dept. of Electrical Engineering: Post-graduate course in VLSI system design

IIT Guwahati: Dept. of Electronics and Communication Engineering: Post-graduate course in VLSI and signal processing

IIT Madras: Dept. of Electrical Engineering: Post-graduate course in microelectronics and VLSI design

IIT Rourkee: Dept. of Electronics and Computer Engineering: Post-graduate course in semiconductor devices and VLSI

NIT Silchar: Dept. of Electronics and Telecommunication: undergraduate course in computer science and engineering

NIT Calicut: Dept. of Electronics Engineering: Post-graduate course in microelectronics and VLSI

NIT Karnataka: Dept. of Electronics and Communication Engineering: Post-graduate course in microelectronics

NIT Trichy: Dept. of Electronics and Communication Engineering: Post-graduate course in VLSI systems

BITS, Pilani: Post-graduate course in microelectronics

BIT, Mesra: Dept. of Electronics and

Communication Engineering: Post-graduate course in instrumentation and control

Other institutes that offer short-term courses in the VLSI domain:

Bitmapper (Pune): Diploma in VLSI design
CDAC Advanced Computing Training School: Diploma in VLSI

V3Logic (Bangalore): Diploma in VLSI design

Accel Ltd (Chennai): Post-graduate diploma in VLSI design

Benms Technologies (Bangalore): Part-time / Full-time course in VLSI

Calorex (Ahmedabad): Course in VLSI ASIC chip design

Vedant (Chandigarh, Lucknow): Course in front-end and back-end design including Analogue & Mixed Signal design

Sandeepani (Bangalore, Hyderabad):

Post-graduate diploma in VLSI design, corporate training, workshop and seminars, and on-site customised training

The Growth Path

One climbs up the designation ladder by acquiring relevant experience and knowledge in the domain. The nomenclature of these designations differs from company to company. The average industry benchmark is Rs 2 to 2.5 lakh per annum for freshers.

Designation	Salary per annum (Rs)	Relevant Experience (Years)
Director of Engineering	66 lakhs and above	8 - 10
Project Lead/Manager	48 - 64 lakh	6 - 7
Lead Designer	24 - 42 lakh	4 - 5
Senior Designer	6 -12 lakh	2 - 3
Fresher	2.4 - 4.8 lakh	NA



While hiring designing talents, we look for... the individual's demonstrativeness, creativity, innovativeness, and passion for designing"

Praveen Vishakantiah
Senior Manager
Digital Enterprise
Group, Intel India
Development Center

or getting one's hands on design tools. The initial training period ranges from six weeks to a year, depending on the company and their area of operations.

Rahul Arya, Marketing Director—India and Saarc, Cadence Design Systems, says, "At Cadence, we have a well-structured assimilation programme, which includes gap analysis (a business assessment tool for comparison of actual performance with the potential performance). In addition, all freshers have a 'mentor' assigned to them, who guides the new employee through his or her first few weeks at Cadence, to make the assimilation process quick and smooth."

Training programs are undertaken at various levels. For example, specific orientation happens for freshers in terms of the RTL (Register Transfer Level) languages, RTL coding guidelines, and specific tool usage. During the technical training, designers have to work on circuit designs, circuit layouts, signal processing (analogue, digital, mixed), chip architecture, logics, etc.

"Organisations mostly focus on EDA (Electronic Design Automation) tool training to provide insights into chip design, and undertake training programmes in partnership with specialist companies like Cadence, Magma, Synopsis, Mentor and others," says Praveen Acharya, VP, Semiconductor Solution Group, KPIT Cummins Infosystems Ltd.

Multinational companies such as Texas Instruments, Intel, AMD, Broadcom, Cadence and others send promising freshers as well as experienced employees for training or work on projects outside India. Designers thus get to enhance their skills. Companies like Intel believe that their design engineers should be exposed to corporate culture as well.

Summing It Up

Wipro has more than 1,450 chip designers, Sasken has 350, and ARM India has 200 engineers—and they're all looking for more. According to a report by The ISA and Frost & Sullivan, the semiconductor and embedded industry is projected to bloom from \$3.25 billion in 2005 to \$43.7 billion by 2015. There's already a dearth of highly-skilled chip design engineers, and the needs are only going to rise—which works out perfect for interested candidates. The future of Indian chip designers looks good, and we're already getting our space on the global map. Don't get left behind! ■

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Thin Is In

Actually, the thin client idea has existed for a long time, but it hasn't been the "in thing" for businesses in India—yet. Here's a look at why "Thin" might be just what you're looking for

Robert Sovereign-Smith

There are three basic computing needs for any business. First, and before anything else, businesses need stability in their IT infrastructure. Downtimes are the mother of all evils in any business—they negatively impact productivity, and means that your employees are sitting around waiting for IT problems to be fixed. Secondly, we have data security, and we need not emphasise how important that is in today's competitive world. And last but by no means least, we have costs, and it's but obvious that the lower the cost of infrastructure and the total cost of ownership (TCO), the better for any business out there.

A solution that fulfils all three of the above needs has been available for a long time now, but not many have come forward to adopt it. Why? We'll let you, all the small and medium-sized businesses out there, answer that for yourself.

Cut The Fat

No, we don't mean to tell you to fire all the department heads (though that would reduce the outgoings from your coffers considerably). We mean this in terms of IT infrastructure.

Let's take the example of a typical medium-sized company with around 200 employees. Let's now say only 60 of them have any need for a computer, and so you have 60 computers in the office.

If you divide the users into groups, you'll see groups like Accounts, Sales, Inventory, and so on. Once you've done that, you will realise that all employees who fall under the "Accounts" group have mostly similar requirements, yet their computer configurations will vary. It's not surprising to find that some will have Pentium 4-based systems (or their AMD equivalents), running Windows XP, while others will have Pentium II-class systems running Windows 98. Why the discrepancy?

Typically, employees in a company get better PCs based either on the number of years they've worked in the company, or on seniority. It may not be planned that way, or even be noticeable at first, but our Indian ideals of respecting age and respecting seniority are all-pervasive. As a business, however, do you really think it's desirable to have one employee waiting a few minutes for data to open while another waits just a second or two? Aren't all account books created equal? Doesn't your business deserve the same amount of productivity from all your employees?

The fastest solution is to make sure that all people in a department have machines with the same configuration, and you'll even get a bulk-buying discount! So is the answer an upgrade?

After some reflection, you will see that "Cutting The Fat" is exactly what you need to do. Every employee does *not* need a 40 or 80 or



even a 200 GB hard drive. Ditto for sound cards and speakers. And CD/DVD-Writers. How much RAM does everyone need? Do they all need to connect to the Internet? And let's not forget that apart from all this, you also have to throw in a file server!

So, then, if you have an "Accounts" group that consists of, say, 10 employees, you have 10 hard disks, 10 256 MB RAM sticks (for example), etc. Basically, everything is multiplied by 10—it's unnecessary, and a complete waste of money! Wouldn't it be a lot easier to maintain a server that has all your data and files that need to be accessed, with a huge amount of space and RAM, and give all 10 employees access to it with barebones PCs? Welcome to the world of thin clients!

Weight-Loss 101

The concept is simple: invest in a thin client setup from one of the many service providers, get a nice, robust server, and, in our hypothetical case, 10 thin client PCs that come with no hard drives, just enough RAM to give you fast access to anything (generally 256 MB DDR), and none of the unnecessary add-ons like sound cards or optical drives. These are, obviously, cheaper than full-fledged computers, and you will still need the basics—a monitor, keyboard and mouse.

The servers will set you back a pretty penny, of course, and will probably have dual-CPU's, at least 2 GB of RAM, and in some cases a terabyte of storage space. The difference is that this server will have all the necessary applications loaded, and will be the only thing your system's admin will need to worry about. None of the 10 accounts employees in our example will have any hard drives or software loaded on their computer. All they have is, say, 512 MB of Flash memory that holds the basic OS (Linux or Windows CE/XP embedded), and everything they need to get the PC up and running and connected to the server. If your company uses, say, Tally, all employees with access to the accounting software loaded on the server will be able to run it simultaneously—from the server—after logging in.

Now the same goes for, say, the sales team. They may need access to Microsoft Office and e-

Thin, Thick, Fat, Huh?

Thin clients come in various flavours. Some of them have embedded OSes, and have everything a normal desktop would have, except for a hard drive. These are Thick clients. In such cases, all the processing is done by the client, and the server holds just the data and the applications.

Other thin clients are really thin, and come only with a basic processor and RAM, and enough hardware to connect you to a network. All processing and data storage is done by the server.

Then there are solutions that will let you use your old hardware, which you would get rid of when you upgraded, to act as thin clients.

Then there are the peripherals which fit into fully functional desktops, allowing a few more monitors and input devices to be connected, so that you have one PC and between two and four employees using it simultaneously. These are not really thin clients, as you may have guessed, but do the job just as efficiently for small businesses with less than 15 computer users—just buy four or five powerful computers and connect everyone with additional keyboards and monitors!

mail—and nothing else. So you set the necessary permissions on the server, and all the employees who make up the "Sales" group have access to whatever software you allow for that group.

Of course, let's not forget that you could also use Linux in place of Windows, and save even more money.

Skinny Supermodels

There are quite a few companies that are providing thin client hardware, software and services. The most notable around the world are Wyse (www.wyse.com), Chip PC (www.chippc.com), HP (www.hp.com), and Sun Microsystems (www.sun.com).

All these manufacturers make very elegant-looking thin client workstations. Chip PC needs special mention here for making some really *small* thin clients. An example is their Jack PC, which can actually fit into a standard LAN jack wall mounted box—those little white boxes that we connect LAN jacks to in offices!

Lean, Mean, Working Machines?

It's very obvious from the above that thin clients will save a company a lot of money, but what about security and uptimes? These were the first two needs for any business that we listed. Well, consider the fact that in a thin client environment, there really is nothing to manage except the server(s). So all a system admin needs to do is make sure the network stays up, and that the server remains secure and runs. And it's certainly a lot easier to manage the security of data at one location than at several.

Depending on how thin your clients are (whether they run an OS themselves, or boot from the LAN), there's virtually no risk from viruses and worms, except to the server, of course, which had better be well protected.

All companies with over 50 computers in their office should consider thin computing as a viable alternative. All you need to do is contact one of the companies we mentioned, and they'll help you choose thin clients that are ideal for your requirements. ■

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Chip PC's Jack PC is only as big as a wall-mounted LAN jack board. Now that's thin!



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What?

Digital Leisure

Technology Beyond Work

Touched By Tech

Anywhere, Anytime AIDS Awareness

How mobile gaming might help the cause of one of the world's biggest epidemics

Samir Makwana

Society has the general mindset that games are primarily a leisure activity—just for fun, so to speak. But that's been changing, and still is. There are those for whom gaming is more of a religion than leisure: the key-mashers with their games like *Doom* and all. And now we have games being developed for specific purposes, such as for education, skill development, stress reduction, memory improvement, therapy, and more. And they're not just PC-based either, they're available on multiple platforms—consoles, handhelds and mobile phones as well.

There is also development of games for the treatment of specific ailments. Recently, a boy called Ethan Myers—whom we've

spoken of earlier in *Digit*, April 2006—recovered by playing games, after he was declared brain-dead by doctors. A computer game was recently tested for the cure of stress-related illness by doctors at the Royal Free Hospital in London.

The segment gaining most in popularity is mobile games, because these work on devices that most people own, and is something people can play anywhere—the middle of the street, in a train, at work, at home, in a coffee shop. Mobile gaming is spreading like never before in India, and it's no wonder that mobile gaming companies are sprouting faster than tea-stalls outside colleges. And it's not like they're making bad games—some very creative and good-looking 3D games are being created now.

The Mobile Gaming Championship organised by Nokia in the recent past attracted more than 26,000 people across the country, the cash prize being Rs 10 lakh.

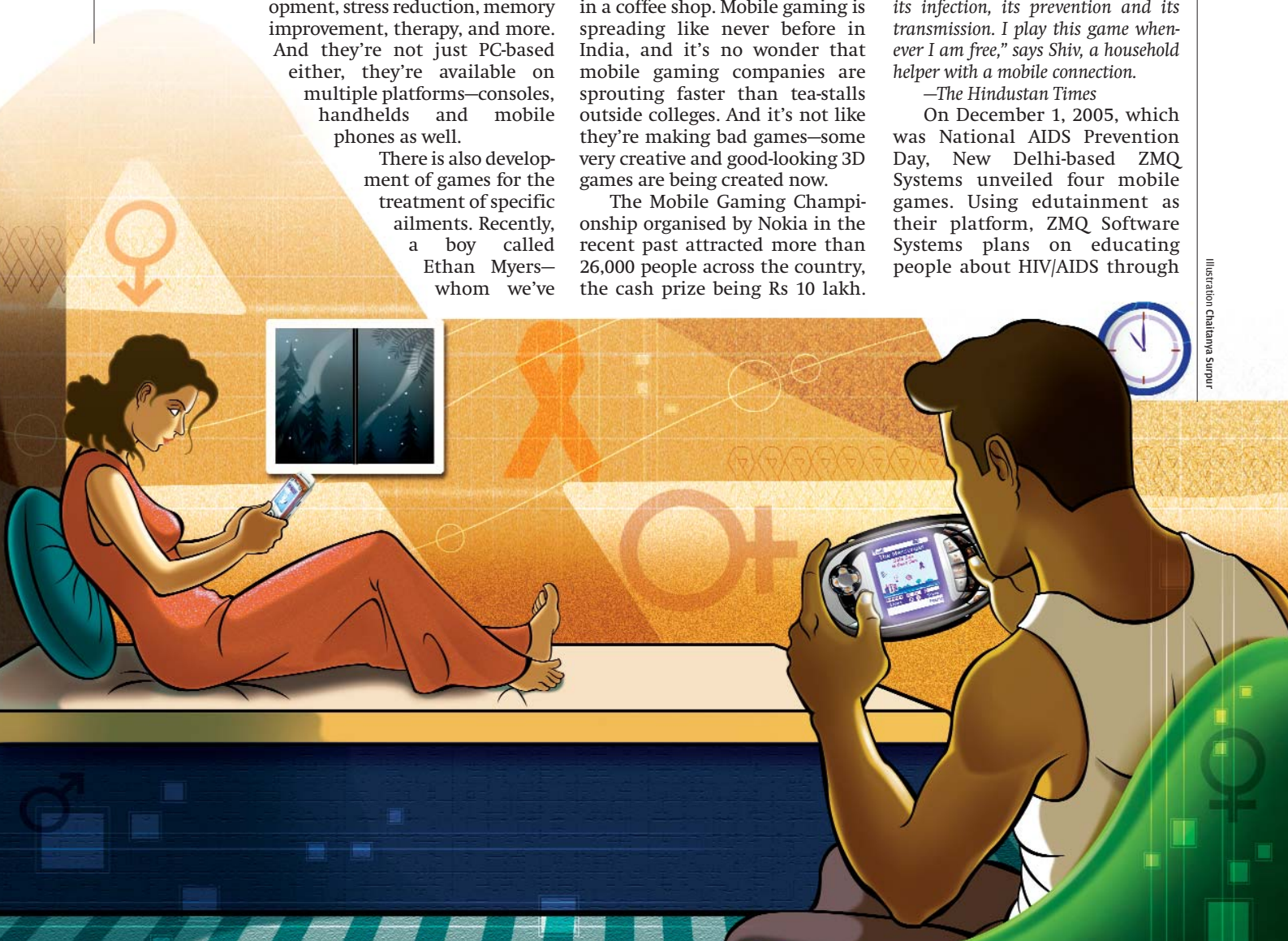
With more than 105 million people using mobile phones as of now, the mobile gaming market is set to explode: the number of mobile phone subscribers is expected to exceed 350 million by 2010. Mobile content developers are releasing games with an "international" look and feel.

Social Causes

"I had heard lot about HIV/AIDS on TV. The idea was vague. Now after playing this game, I have become aware about its infection, its prevention and its transmission. I play this game whenever I am free," says Shiv, a household helper with a mobile connection.

—The Hindustan Times

On December 1, 2005, which was National AIDS Prevention Day, New Delhi-based ZMQ Systems unveiled four mobile games. Using edutainment as their platform, ZMQ Software Systems plans on educating people about HIV/AIDS through



these games—*Safety Cricket*, *Ribbon Chase*, *Messenger*, and *Quiz with Babu*.

The games can be downloaded for free from Reliance. “We are privileged to be pioneers in the field of social marketing using mobile devices. Today, mobile devices are the most prevalent tools in the hands of the common man, whether it’s children or adults, rural or urban populations; even the high-risk population like migrant population and sex workers. It is our social responsibility to spread HIV/AIDS awareness using the latest technologies”, said Subhi Quraishi, CEO of ZMQ Software Systems.

It’s common knowledge that one of the major reasons for the steep increase of HIV-positive people in the country is a lack of knowledge about AIDS. And the problem is not just prevention; it’s also the hardships that people already infected with HIV are facing. ZMQ Software Systems has three basic reasons for pioneering this new form of AIDS awareness: to prevent transmissions and infections from taking place, to improve the quality of life for HIV-positive people, and to reduce stigma and discrimination.

The games have been downloaded by more than 3 million people already, and that’s just the figures for downloads between December 1, 2005 and May 31 of this year! The firm has been invited by many countries to develop more such games for social awareness about HIV/AIDS.

The development started with a team of seven people, and the games were developed on the Java

platform with Brew technology (in partnership with Qualcomm). Nearly 75 to 80 per cent of cell phones available in India can run these games.

The Games

Developed using the innovative IEC (Information-Education-Communication) methodology, the games we mentioned were designed keeping in mind the tastes and habits of Indians—like cricket, game shows (KBC), etc. Information, education and communication (IEC) combines strategies, approaches and methods that enable individuals, families, groups, organisations and communities to play active roles in achieving, protecting and sustaining their own health. Let’s take a look at the games.

Safety Cricket

Safety Cricket is a role-playing game based on cricket, which is a religion, not a sport, in India! There’s probably no better way to convey awareness messages than with cricket. Based on a village cricket match between Demons XI and Safety XI, Safety XI has to chase runs in 10 overs and 300 seconds, with 10 players to spare. Balls appear in form of safety symbols such as condoms, a faithful partner, HIV information, and the red AIDS ribbon.

Ribbon Chase

Ribbon Chase is an arcade game where you are the red ribbon while the HIV virus is in hot pursuit. Different cities in the world are asking for information on HIV/AIDS, and you need to deliver by visiting the cities, while

Games are helping solve problems in areas as diverse as education, healthcare, legal issues, and more

the HIV virus tries its best to stop you from doing so.

The Messenger

This is an adventure game for casual users who enjoy playing exciting but easy-to-manoeuvre games. A dove—the traditional symbol of peace and love—is used as a messenger of HIV/AIDS awareness. The dove flies from village to village, collects condoms and red ribbons, and distributes them to the villagers based on their needs.

Quiz with Babu

A quiz-based game, *Quiz with Babu* requires you to use intuition and reasoning. Babu, a village boy, makes a resolution to spread HIV/AIDS awareness in his village. In the game, you play a quiz to test your knowledge of HIV/AIDS from a huge database of questions. No two crores at the end; just the satisfaction of being well-informed about AIDS.

Games For Healing

A game for physical therapy is under development by a research team of the University of Southern California. It will employ items such as special goggles, high-tech mitts, pinching devices and a pencil-like stylus, which will be used to simulate a 3D experience.

Games For Many Causes

Educational game makers have come out with games to make people aware of real-world issues. Games like *Darfur is dying*, *Peace maker* and *Food Force* are the most popular examples. They have been downloaded more than 2 million times. Games are being developed in Korea to promote multicultural awareness amongst Asian children who have migrated to other continents.

Indiagames, an Indian mobile content publisher, has released games like *Jai Hanuman*, *Ganesh Stuti*, and *Shree Ganesh* for the religious consumer.

Games are helping solve problems in areas as diverse as education, healthcare, legal issues, national defence, analytics, corporate management and more. The ideas, skills, technologies, techniques, and the innovative method of play-and-learn is successfully being employed by game developers. Kudos to those who are making a difference! ■

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Games Beyond Entertainment

The 21st century has become serious about gaming with a purpose beyond entertainment. Game developers, artists, designers, individuals and organisations are joining hands to address real-world issues.

Education and learning-based games: Many game titles focus on education and learning. Such games aim at actually developing the cognitive abilities of those playing the game. Games like *MeChem*, *Environmental Detective*, *Making History*, and others have been exclusively developed for educational purposes.

Public policy games: Some games educate the masses on public policies and help them understand their roles as citizens of society. *Sim City* is a very popular example.

Business Games: Formulating business policies, strategies, budgeting, management issues, team work, and so on can be dealt with virtually with the help of games that simulate workplace scenarios and assign tasks.

Military Games: Wartime situations, strategies to be followed, rescue operations, war time crises, and such, can be “experienced” by playing games that enable war scenarios. *America Army Operations* is one such game, which gives one an idea about how a soldier is trained.

Political Games: Games on political events and procedures such as elections give a picture about issues such as why voting is important, how the government functions, how social issues are addressed, and so forth.



TEKKEN

DARK RESURRECTION



The best way to injure a thumb

The combat legend goes handheld, as Namco releases the PSP version of *Tekken 5*, or as the game calls itself, the King Of Iron Fist Tournament 5. Play through the stories of each of the thirty characters, pit yourself against the best in the Tekken Dojo, go into the practice room to perfect your skills, even play the frivolous Tekken Bowling game—there's enough there to keep you busy for a long, long time, and then a couple of days after that.

The best thing about *Tekken* is the no-nonsense fighting system. Defending yourself is as easy as hitting the right button at the right time, leaving you more grey cells to concentrate on timing and improving your fighting style. One unique thing that has always stood with the franchise is the

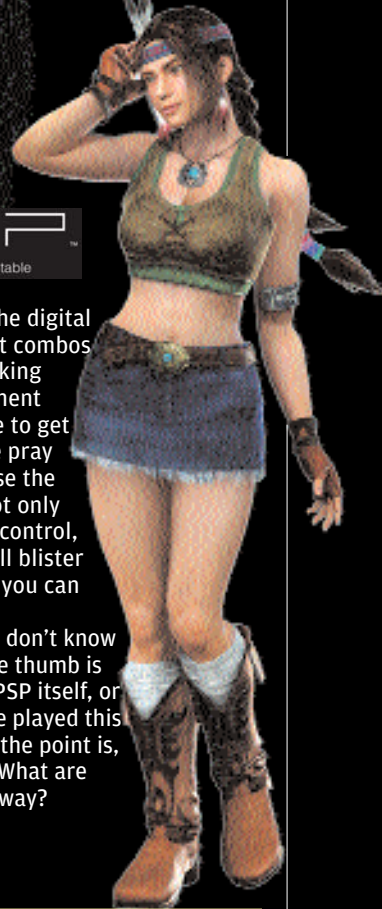
fact that different buttons are assigned to ~each~ limb for punches and kicks rather than the simple "punch" or "kick". This gives you a lot of room for cooking up your own creative sequence of moves.

For the newbie, the game's learning curve is near-perfect. Combat gets progressively tougher at roughly the same pace that you'd get better. The game's brilliant for all kinds of fighters - the safe, defensive fighter will emerge victorious with some well-timed kicks, and the aggressive button-masher will get his dues with some wild and brutal combos.

The only let-down about this game is the platform that it's on—the PSP isn't what one might call conducive for this kind of game. The fighting system was

designed with the digital pad in mind, but combos that involve making diagonal movement will take a while to get used to. And we pray for you if you use the analog stick—not only does it hamper control, its rough top will blister you faster than you can say "hai-yaaa".

Ultimately, I don't know whether my sore thumb is because of the PSP itself, or the fact that I've played this game so much—the point is, it was worth it. What are doctors for, anyway?



Rating: **9/10**

Developer: **Namco**

Publisher: **Sony**

Price: **Rs 2499**

Distributor: **Milestone Interactive**

Web: **www.milestoneinteractive.com**

Rating: **8/10**

Developer: **Criterion Games**

Publisher: **Electronic Arts**

Price: **Rs 1999**

Distributor: **Milestone Interactive**

Web: **www.milestoneinteractive.com**

BURNOUT

LEGENDS

Irreverent, in-your-face and in your pocket

Everything that was good and beautiful about the ~Burnout~ series on the PS2 has now found its way into the PSP—the fast cars, the glorified violence and the ego-boosting kudos for each time you destroy a rival.

For those alien to the series, *Burnout Legends* is the pure-blood racer's nightmare. To win races, you need to come first, of course, but your path to that position involves the destruction of your opponents in the most creative and violent manner possible. It's been criticised for its tongue-in-cheek nod to violence on the road, but nobody can deny it's all a load of fun. What we love about *Burnout Legends* is its vastness—you have 89 cars to unlock and literally hundreds of events to participate in.

The Road Rage mode is undoubtedly the most entertaining—you just need to take down any car you see, with special points for esoteric takedowns like having one of them get nervous and hit the wall.

Unfortunately, the PSP doesn't really lend itself to prolonged enjoyment of this game. Staying aware of your complex, constantly-whizzing-by environment is quite difficult on the PSP's small screen. Loading times are exasperatingly long, and there were quite a few instances (especially in crowded Road Rage events) when the graphics would start crawling for a bit. Even so, this shouldn't be too much of a bother for the determined car-crasher, and the game's amazing replay value makes you overlook any such flaws.

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Oh no! Not another Hollywood game

That's what I was thinking when I saw *Cars* on my table. "Oh well, time to be merciless, and destroy this game!", I thought. Turns out, the game isn't anywhere near as bad as I thought it would be!

Those of you who have seen the movie, and are above the age of 13, will have to admit that it was nothing special. We're a spoilt bunch, us moviegoers of the 21st century—after *Shrek*, *The Incredibles*, *Finding Nemo*, et al, we've been pampered to the extent where even superb animation movies from Pixar don't impress much anymore.

Cars (the game) is set in time just after the movie—thank God, because I really didn't want to have to re-live the movie. No, I'm not biased—I just think that if you make a game that's inspired by a movie, at least come up with a fresh script! *Cars* does not disappoint here—though if you plan on buying this game, watch the movie first, else you won't enjoy it as much.

The story is pretty simple—there are no people; cars are the only "living" things on earth; they can talk, have expressions, fall in love, get embarrassed, and have the voices of very famous Hollywood actors. This may sound like gibberish to the four people who haven't watched *Cars*, and is probably a complete waste of a paragraph to the rest of the world. So, that's all the story background I'm giving!

The graphics are cartoonish, and match the look of the movie. The voice acting is fantastic, the script is funny, and the open-ended map of "Radiator Springs" is just so much fun to explore that you might not feel like playing all the mini games that let you unlock new levels, challenges and features. I know—I took a timeout and explored the world for about an hour!

Most of the mini-games are racing-oriented—and we expected nothing less. Some of the other games bring back the funny characters from the movie. I had a lot of fun "tipping tractors" as Mater, and collecting abandoned tyres as Luigi—two

of the funniest characters in the movie. Yes, you get to play as the other characters on and off, which keeps the game interesting—being Lightning McQueen, the fastest racer, kind of gets boring after a while.

The game seems to be targeted at both kids as well as the kids-at-heart, but seems challenging enough only for the former. Even at the highest difficulty level, racing was just a little too easy for my liking—I never lost once, even when I was only half-trying!

Of course, the kids-at-heart will be able to enjoy the humour and better appreciate the voice acting and dialogue. Despite being repetitive as hell, I don't think I was ever bored of hearing my character say "Ka-chow" in mid-air every time I jumped the car.

The game ought to give you about a dozen hours of entertainment—unless you're under the age of 13, in which case your parents will get bored well before you do—after about the 986287458976th time they hear "Ka-chow" on your speakers.

As an arcade racer, it has most of what you'd want—power sliding, boosting, no damage, custom paint jobs, and more. If you're a more serious racer, don't touch this game—it's not for the realists.

Getting back to whether you should buy this game: I think you should. It's a must play... once at least! With decent graphics, a good storyline, fabulous voice acting and entertaining mini-games, *Cars* earns a 7/10 from me.

I should add that I made the mistake of showing my 12-year old cousin this game, and she hasn't let me touch the home computer since. She spends every waking hour playing it, and now has at least six friends over all the time—they're not playing (she's too mean to allow them to have a go at it), but just watching her play—with mouths wide open, cheering for Lightning McQueen and giggling their heads off every time he says "Ka-chow!"

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Rating: 7/10 (10/10 if you're below 13)
Developer: Rainbow
Publisher: THQ
Distributor: E-Xpress Interactive
Contact: 022-28850245
Price: Rs 699

Minimum System Requirements: Pentium 4 or AMD Athlon 1.5 Ghz, 512 MB RAM, DirectX® 9 compliant graphics card with 64MB RAM

HEROES V

OF MIGHT AND MAGIC

39

10

9

11

55

13

26205

Could have been

Set in a fantasy world full of Humans, Elves, Pixies, Demons and other strange regurgitations of Nature, *Heroes of Might and Magic V* (HOMMV) is Nival Interactive's resurrection of the immensely popular turn-based strategy franchise that almost faded into the darkness. As with the previous games, you will be commanding heroes, building armies, developing your cities, and yes, waging battle against those who dare cross you.

You can either play the game's campaign, or indulge in one of the custom games which ought to keep you busy for hours at a stretch. As you go about your business, you will be recruiting for your army, and gain combat experience every time you battle a foe. As you get more experience, you can learn new skills, and progressively mould your hero into anything you wish—from all-powerful sorcerer to brutal warrior or even suave diplomat, adept at attracting new troops to your cause. The number of skills and abilities you can learn runs into the hundreds, so you could play the game ten times over and never repeat a set of skills.

The story starts off with celebration in the Griffin Empire on the day of Emperor Nikolai's wedding to Isabel. The party is crashed by demons, and in the onset of war, Isabel is sent off to hiding while Nikolai goes off to fight. You start the game as Isabel, who isn't content with sitting and waiting, and must build an army that will aid Nikolai. The campaign mode is linear, and you must complete the first mission before moving on to the next, and so on. It spans the stories of each of the six factions—Haven, Inferno, Dungeon, Necropolis, Sylvan and Academy.

The game features a chess-style battlefield, and while your initial battles don't

require much in the way of strategy, you'll feel the need to push your cranial capabilities as you encounter more skilled and deadly creatures. Entering a battle takes you from the standard overland view to a much closer-up battlefield view, and it's interesting to note that due attention has been given to making it seem like you've zoomed into the overland view itself: if you're fighting for control of an ore pit, for example, you can see it in the background while you battle it out.

The element of strategy is optional, sadly—while you can use your head and take down a bigger army with a handful of creatures, the enemy AI rarely displays this level of complexity. So generally, if you have a bigger army, you're going to win even if you go for a full-frontal assault. For such times, there is the Auto fight feature that saves you some tedium if you outnumber the foe.

As with any turn-based game, HOMMV is likely to get boring for those who aren't fans of the genre. If you have the patience, though, you can enjoy the concept, the eye-candy and the amazing soundtrack as well. The story isn't much, but it's enough to keep you going through the campaign, though the voice-acting is appalling (not even the so-bad-it's-good kind).

One nagging gameplay annoyance is the fact that you can't multi-task: if you're in control of two heroes, you can only make one of them move at any given time. So if you're thinking "I'll send this guy here, and while he trundles along, let's send that guy there", cease doing so immediately.

Overall, HOMMV owes its accolades more to its already-strong legacy than the innovations of the new developers. Still, it's definitely one you should try out.

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Rating: 7/10

Developer: Nival Interactive

Publisher: Ubisoft

Price: Rs 1299

Distributor: E-Xpress Interactive

Contact: 022-28850245

Minimum System Requirements: Pentium 4 or AMD Athlon 1.5 Ghz, 512 MB RAM, DirectX® 9 compliant graphics card with 64MB RAM

BLACK

An FPS On A console?

I know, it's weird! As an FPS fanatic, I fail to understand why developers build FPS titles for consoles. One of the main reasons why I only got my PS2 a year ago was because I always seemed to be saving for a faster and better graphics card, and a motherboard and CPU upgrade to support that card. I suppose those with consoles are happy that at least some FPS titles are being offered to them, but every hardcore, PC-based keyboard-warrior will probably still shake their heads in disbelief.

I popped the DVD into my PS2 and was immediately impressed with the graphics. I started a game and was thrilled at the look and feel: stuff starts exploding right from the first minute of play and doesn't seem to ever stop. I suppose it was those first few minutes that distracted me from realising that I was struggling with the controls—for PC gamers, it's very hard to get used to moving using one hand and looking using the other—and not having a mouse. Viva la [W][A][S][D] + mouse!

The Story

You're a soldier named Keller. You're a member of some elite anti-terror squad, and are here to save the world—ho hum. Anyway, you're being interrogated by the typical spy-cum-government-suit-type, and you spill the beans, recalling how you killed all members of a terrorist group called Seventh Wave, including the leader.

The best I can say about the storyline is that it's sketchy, and doesn't seem well integrated with the game. It's always just some nonsense cutscene that gets in the way of the fun you're blowing stuff up!

The Playing Experience

Run-n-gun! That's the short description. *Black* becomes a lot easier to play when you give up your stealth tactics, and just start running up to enemies and filling them up with lead, instead of trying to avoid them, sneak up on them or get headshots in from far!

Everything begins to feel scripted after a while: at first you see a bunch of soldiers standing next to something that can make a big boom, and you get all excited. You blow them to smithereens, are thrilled by the visual of the explosion, and then, soon enough, you find even more soldiers idiotically standing next

to something else that can make an even bigger boom! Like shooting fish in a barrel—or in this case, shooting the barrel to kill all the fish at once! After the 8762345th time, this gets boring!

There's enough ammo in the game to let your character start World War III. Kill an enemy and you can pick up his ammo. Since all you're doing in mercilessly killing and blowing up your enemies, ammo is the last thing you'll ever want in this game.

You can only carry two weapons at a time, which is stupid, because this means that though your character seems fit enough to handle heavy guns and rocket launchers, he cannot carry two pistols and a light sub-machine gun instead of an AK-47 and a rocket launcher!

AI

They're stupid. The only time I thought the AI was good was when I chucked a few grenades at them and all the enemies ran helter-skelter for cover. It took so long to explode, I thought the grenade was a dud. Thankfully, a few tips off the Net made me realise that I could shoot the grenade and blow it up faster—really cool!

Of course, the enemy is still too stupid to cause you any threat, and any FPS fan should be able to finish the game in about eight hours.

To Buy Or Not To Buy?

Remember one thing: unlike other FPS games, you *cannot* jump in *Black*. This is irritating, especially when a brick or twig is keeping you from entering a place on the map.

The story is pathetically over-used—terrorist vs. anti-terrorist: sound familiar? The controls are a nightmare to master for any PC gamer.

The good things are that the Internet community calls *Black* "gun porn", because of the sheer amount of shooting and exploding happening. So if "rat-tat-tat. Boom!" is your desire, look no further than *Black*.

Overall, the experience will leave you wanting more, and longing to get back to your PC. A rating of 5/10 is what I award it—four of those points because of the spectacular explosions!

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Rating: 5/10
Developer: Criterion
Publisher: Electronic Arts
Distributor: Milestone Interactive
Web: www.milestoneinteractive.com
Price: Rs 2499
Platform: PS2



No More Googling, Says Google

In a kind of stupid decision, Google intends to crack down on the use of its name as a generic verb. One would think that the use of the word "googling" could only bolster Google's image, but Google says the phrase is potentially damaging to its brand.



Gigabytes For Golf

Samsung has unveiled a "golf phone." It comes with 8 GB of storage, and incorporates the information one needs, to play demanding golf courses! There's a GPS receiver, which is used to work out how far one is from the green, and to suggest appropriate clubbage.



Escape

TOO MUCH MONEY

A Picture For Your Thoughts

Here's the official News-Of-Useless-Research-In-Developed-Countries department in this space. This time, it's about art. (A couple of months ago, it was about music.) Computer art that changes according to your mood. Allow us to explain.

British and American computer scientists have developed computer art that changes according to how the viewer feels. It's a Webcam setup: software picks up facial cues from the Webcam image, and adjusts the colours and brush strokes of the digital image.

"The program analyses the image of eight facial expressions... to work out the emotional state of the viewer," said Dr John Collomosse of the University of Bath in England. "It does this in real-time, meaning that as the viewer's

emotions change, the artwork responds accordingly."

So basically, you're sitting at this computer with a Webcam. You're seeing "art" on the monitor. You frown, and you get dark, sombre artwork. You smile, and you get a bright, flowery image.

Question: What precisely are the practical applications of the system?

And that's why we included this bit of news here—to highlight the fact that there's more and more of such useless tech research going on. Give us some of your money, for God's sake, and let us develop a malaria vaccine!

Top three reasons we aren't impressed:

#1. You already have pictures in your head when you're in different moods. Why the picture on the screen?

#2. All this seems just a hash-up of face-recognition software and Winamp visualisations.

#3. You'd look at art to get an impression of what was in the artist's head, not what's in yours.

CROSSING THE LINE

All Pods Are iPods

A small, family-owned company called Mach 5 Products makes electronic devices. One of them is "an infrared data collection system for arcade games, vending machines, and anything else that you need accurate and easy data collection." Up until now, the only way to figure how much money an arcade game took in, and how many prizes or tickets it gave out,

Whatever Happened To...

PNG?

PNG, though it's there, isn't a very popular image file format on the Web today. Portable Network Graphics is a bitmap image format that employs lossless compression; it was created to improve upon and replace GIF, which had a patent attached to it, and (probably) TIFF.

It's all a story about patents. The LZW compression algorithm—which forms the basis for GIF—was covered by a US patent owned by Unisys Corporation. When CompuServe developed the GIF format, they weren't even aware that LZW was covered by a patent! And in 1994, Unisys discovered that the newly-popular GIF used LZW, and announced they would be seeking royalties on that patent. By that time, GIF was so widespread that most companies using it just had to pony up. And this was mainly why PNG was developed.

Then in 2003, the US patent on the LZW algorithm expired, which meant that royalties could no longer be collected for use of GIF in the United States. The same happened in other countries soon afterwards.

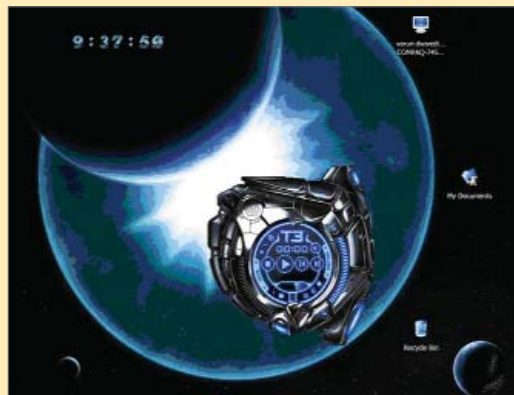
PNG was, naturally, left in the lurch: why shift to PNG when you could go ahead and use GIF without paying a royalty? Well, there do exist some reasons, such as its ability to make images partially transparent, and to exceed 256 colors—neither of which GIF can do. But that wasn't enough to really make it replace GIF, and PNG remains a shadowy presence.

Win! My Desktop

Last month's winner is Varun Kumar Dwivedi, Varanasi. His spaced out desktop comes from interesting use of ObjectDock and DesktopX widgets. He used:
Chameleon clock 3.5 for clock
Icon 1.10 for the desktop icons
Hide window now v2.5 to hide the taskbar
Congratulations!

Participate in this contest and win next month

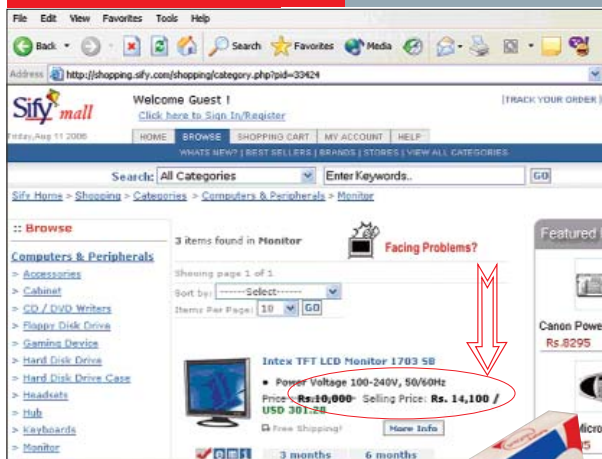
Amkette Multimedia Office Keyboard



Send your desktop with description of how you made it to mydesktop@thinkdigit.com with the subject 'My Desktop'; and tell us your postal address, too.

DigiPick of the month

"Monitor or
Money-Eater?"



Last month's
winner is
Vishvas Rajput
Gwalior

Participate and win
next month
Enjoy Thin Client



WIN!

Send in your entry and you could win an exciting gift just by sharing an amusing picture with a tech angle to it. The picture should have been shot by you, and should not have been published anywhere earlier. E-mail your picture with the subject **'DigiPick'** and your postal address **on or before the 20th of this month** to **digipick@thinkdigit.com**. One prize-winning picture will be published each month.

was to open up the machine and take a reading off a mechanical counter. So, the Ellisons (of Mach 5 Products) came up with a digital device that transmits the accounting information via infrared to a laptop or PDA.

Unfortunately for the Ellisons, they named the product the Profit Pod.

Why this preamble, and why is the name unfortunate? Because—to our sheer disbelief—Apple actually seems to think this is an infringement on the iPod name, and sent the Ellisons a threatening letter, telling them to "cease and desist" and discontinue the product, or something to that effect.

The letter itself makes for a fun read:

"We believe there is confusing similarity between Apple's IPOD mark and the PROFIT POD mark. PROFIT POD is a POD-formative mark and incorporates a substantial portion of Apple's IPOD mark. The products are likewise

related. Both devices receive and transmit data and are used with computers, both are used in connection with video games, and both have other similar components. Moreover, it has not gone unnoticed that, like Apple's IPOD device, the PROFIT POD product is a small, flat, round corned rectangular device with a display screen."

Refer the letter above. "Both devices receive and transmit data and are used with computers." That makes for a similarity? The "similarity" may not have gone unnoticed to Apple's lawyers, but it has indeed gone unnoticed to us. The thing doesn't look, smell, feel, or do anything remotely close to what an iPod does. You can't buy it in a store. And most importantly, the Profit Pod has nothing to do with music.

We thought the folks at Apple were nice, friendly guys, thinking different, and generally doing their thing. Not any more: this bit of news makes them seem like

just any other money-grubbing, litigating corporation. And they aren't setting a good precedent, either. At Digit, for example, we're getting tempted to patent ones and zeroes, because we own what are called the Zero1 Awards.

STARTLING NEW FINDINGS

A Girl Loves Her Gadgets

All you married or casually-hitched men out there hate it when The Loved One spends too much time in the shoe section of the department store. Or in the jewellery section. Or in the clothes section. That's the stereotype, and it's changing, according to a survey commissioned by a US cable TV network: it could soon be in the gadgets section that you'll have to do your waiting.

Girls may still prefer dolls and boys may still prefer to take apart toys, but for grown women, diamonds are taking a backseat to plasma TVs and digicams and such. Seventy Seven per cent of the women surveyed said they'd rather get themselves a large plasma TV than a solitaire necklace. And the plasma TV scored even over a weekend getaway to Florida.

Shoes are losing out to silicon, too: 78 per cent of the women surveyed said they'd rather have a new top-of-the-line cell phone than a pair of designer shoes. And shoes also came second to digital cameras and Media Center PCs.

People Who Changed Computing

The Original iMan!

If there was one person who changed the way we listen to music after the advent of the Walkman, it has to be Jonathan Ive. Ive joined



Jonathan Ive

Apple in 1998 as head of design, and revolutionised the way Apple Macs were designed—the computer placed inside

the translucent monitor design. This design is rumoured to have single-handedly boosted the failing fortunes of the company. Ive was born in 1967 in London, and studied art and design at Newcastle Polytechnic in 1985. He co-founded his own design studio, Tangerine, in London in 1990. He used his skills to design everything from bathroom products, combs, power tools, televisions and even ceramics. Soon Apple was one of their clients, and in 1992, Ive moved to Cupertino, California, to join the Apple design team. Apple was struggling with finances, lawsuits and new lines of products being recalled.

Then Ive and his design team brought out the iMac G3, widely regarded as the birth of the new Apple. After the successes of the G3, Jonathan's products have pushed the boundaries of conventional design with simplicity, elegance and innovation. Everything he lays his hands on seems to turn to gold.

Ive is reportedly a very modest, shy person. This was evident when he won the Design & Advertising award, and it was Steve Jobs who went up, collected the award and gave the acceptance speech—this, despite the fact that Ive was present at the event. Mr Ive, all we iPod fanatics salute you!

Bluff

YOUR WAY THROUGH

Hacking

There's something elitist about hackers, and we all seem to go through this phase of wanting to be one. Well, you can aspire to be one by talking the *h4x0r* talk...

Backdoor

A backdoor is a hole in the security of an operating system or software. It is left there on purpose by the designers of the software, so that they can get unrestricted access in case they're locked out.

Fat-finger

A typo in code or in settings of software that can cause chaos to the stability of a system.

Hammer / Bang

Stress-testing software or hardware to check for security and stability. In the hacker world, it can also mean attempting to gain entry into a system using brute force.

Kiddie

Generally an insult. Used along with the words script, packet, etc. Examples: script kiddie, packet kiddie. Used by hackers to describe other hackers who use pre-compiled software to hack. Basically, a kiddie is someone who can achieve a task like a hacker, but does not know what he is doing, or how he did it.

Mailbomb

To flood a server or a person's Inbox with mail or spam.

Owned / Pwned

A reaction after success. Asserting one's superiority.

Rootkit

Software used by "kiddies" to hack and gain access to root privileges.

Usage: "Here I was minding my own business (just DDoS-ing a few guys), and I notice some strange network traffic. Turns out, this *kiddie* was trying to use a *rootkit* to find a *backdoor* into my BSD box. I *mailbombed* him with a couple of million messages that said "hacking people with quad-T3s is not a smart thing to do!" Then, just for good measure, I hacked his ISP and changed his cable modem config file. He thought I *fat-fingered*, because I gave him a speed boost from 1 Mbps to 10—sent me a cheeky "thank you *fool*, lol" mail. Bet he wasn't laughing when his ISP reported the hack to the cops—can't wait for the papers tomorrow!"

Wild Wild Web

Innovative New Use For Kittens

The item description on amazon.co.uk goes (at the time of writing): "D-Link - Antenna cable - N-Series connector (M) - N-Series connector (F) - 9 m"

Simple enough—a cable that makes lives simpler. Only, it's a nine-foot long kitten. The cable, that is.



<http://snipurl.com/wwwsep>

We're assuming the male N-series connector is the tail, and the female N-series connector is the nose.

Either that, or Amazon has done away with its general policy of keeping product images indicative of the product: you'll notice in the screenshot above that the cable being hawked is in the form of a cuddly black-and-white pussycat.

And here's where it gets most interesting: women are getting increasingly confident with gadgets—79 per cent said they feel "comfortable" with technology. Almost half do their own computer troubleshooting! Really!

The survey revealed, on the whole, that tech isn't all about toys for boys any more. So are women getting smarter about tech? Actually, we think the tech is getting dumber: gone are the days when the VCR would keep blinking 00:00, with no-one having a clue as to how to set it. Ease of use is finally here: you shouldn't have to read the manual to be able to use a gadget.

Taking the chance to toot our own horn, we thought you should also know that in a recent survey, we found that between 18 and 20 per cent of our readership is female—you go girls!

"C'est une lustiger Mistake..."

... I would translate "that's a funny mistake" into "Belgian".

Seriously, for a company that peddles its services across the globe—including language translation tools!—this one is unpardonable. Catch it if it's still up: visit <http://www.google.ie/support/jobs/bin/answer.py?answer=39256>

That's a Google Jobs in Ireland page. The job is for "Inside Sales Senior Representative, Belgian—EU Headquarters."

The "Requirements" list includes the following: "Speaks and writes

Belgian and English fluently and idiomatically."

There's no Brussels Wall, but Google has inadvertently managed to linguistically unify the little country. Belgium speaks several languages including French and German, and demanding proficiency in "Belgian" is like asking someone to say "Tough job requirement" in Indian!

MY BARK IS BIGGER THAN MY BITE! I AM VERY MAD!

Somewhere, someone out there seems to think that's a catchy name for an auction. eBay, of course (<http://snipurl.com/wwwsep2>). We had to throw this one in because the seller is a dog (picture below). "I AM SO MAD AT MY OWNER! THATS ME IN THE PHOTO HE HAS BEEN SPENDING ALL THAT TIME ON HIS OTHER AUCTION AND STAIRING AT THE COMPUTER SCREEN WORKING AND DOING EBAY!"

That's a snippet. LET'S NOT GET INTO WAHT THE ACUTION IS ALL ABOUT! THE SELLER IS A DOG, AND THATS WHAT MATTRES!



MORE OF THE USUAL

Apple Whines: MS Copies Us

At its annual World Wide Developers Conference, Apple, as is its wont, cried foul against Microsoft for happily emulating features of Mac OS X 10.4 in Vista. CEO Steve Jobs whined, "Our friends up north spend \$5 billion a year on research and development, and yet these days all they seem to be able to do is try and copy Google and Apple. So I guess it's a good example of how money isn't everything."

Nothing terribly new about that, of course. They're always saying it. This time round, it's a little sad, because no-one's really

talking about Leopard, and no-one's *not* talking about Vista.

We have to feel sorry for Mr Jobs and his friends, including Apple's senior vice president of software engineering, Bertrand Serlet. Serlet talked about the desktop search technology built into Windows Vista, and compared it to the Searchlight feature in Mac OS X 10.4. Now this will have Microsoft devotees cringing: "We have this incredible technology under the hood," Serlet said, and that Microsoft has "been scrambling to understand how to integrate that stuff."

We think "incredible technology" and "scrambling to understand" are a tad too strong. Copying features and cool buttons is one thing, but does Mr Serlet mean to imply that Microsoft isn't

smart enough to come up with good technologies? Now *that's* an allegation of stupidity, and we Windows folks are a little hurt.

To our disgruntlement, the reported allegations went on and on. "Microsoft has mimicked Apple by integrating an RSS reader into the browser." Like it isn't obvious that an RSS reader is a must-have these days.

Then there's the Time Machine feature in Leopard, which lets users recover documents they deleted in the past, and more. And Microsoft is planning on a similar technology called Previous Versions. And Jobs and co. will, of course, say this is a copied feature. We'd call it "inspiration", not "copying". Seriously, Mr Jobs, we can debate till kingdom come, but the fact is that someone thinks of it, and others get inspired. Did Skype "copy" Net2Phone? Did Yahoo! "copy" the "cached" feature that Google gave us? And didn't Microsoft go beyond your crappy one-button mouse?

At this point, we'll quote Robert McLaws, IT

Excuses, Excuses

If you ever met someone nuts about guns, would you upset him? We won't be getting on the wrong side of newcomer Vishal, that's for sure. His gun discussions with Michael have put many a JDM employee to sleep just by being in their vicinity!

In other news, no doubt you too have noticed all the rain this month—it's caused many of us to... er... fall ill (wink, wink) and not come to work, much to the consternation of Ed Deepak. His vocabulary of expletives has increased manifold, and his impassioned lectures are a joy to listen to, especially for third parties not being scolded.

We found ourselves an unexpected little guest this month—no, no babies, just the ridiculous yellow car Nimish bought for the bullet-time

video. At least forty people's work was disrupted as we drove it around the office under desks, between legs and jumped it off tables, ultimately smashing its headlights before the video could be shot, even! Nimish was not impressed.

And then, towards the end of the month, we had to return our much treasured Xbox 360 (temporarily, we are assured) and all hell broke loose as nearly everyone from Digit and SKOAR! cried tears of blood ("How could you take it away so close to issue-closing?"). The days following closing, as you might know, is the time we're all free to play games and generally raise hell before we begin work on the next issue, so you can imagine the disappointment.

Sometimes, we're reminded of why people tell us to "Leave this fantasy-land and get a real job!"

DIGIT DIARY

consultant and Vista enthusiast: "From what I can tell, there isn't anything in the new OS X that I can't get in Vista, and then some. I can have a Tablet and a Media Center in one computer. I can hook up my Xbox 360 to that same machine (which Mac can't do) and watch TV

recorded off my digital cable tuner (which Mac won't have). And you won't need to have Office anymore to get some basic features like spam protection and calendaring. So I get all the features and more, without the smug self-righteousness of the pseudo-intellectual Mac

zealotry. What more could you ask for in an OS?"

If Microsoft were to be as crude, they would probably write a letter to Apple that said something like, "OK, so you thought of it first, but we at Microsoft will do a better job of selling it, and we'll actually make money! Whine all you want..." ☒

Blog WATCH

Obscene videos on Google, and Apple's new Time Machine—and something about AOL and murder

Michael Arrington

<http://snipurl.com/sept01>
(<http://www.techcrunch.com/2006/08/13/google-porn/>)

Google Porn?

People watching Google Video closely noticed a change this week in the upload area—the restrictions on uploading "pornographic or obscene" material is now just a restriction on "obscene" material. They've also added a "mature and adult" category to the genres and removed (I believe) a box on the initial uploading page that must be checked where the uploader certifies that the "video is not pornographic or obscene material". This may or may not mean Google is allowing, or preparing to allow, porn. Videos containing nudity are clearly available on the site...

John Siracusa

<http://snipurl.com/v3oe>
(<http://arstechnica.com/staff/fatbits.ars/2006/8/15/4995>)

Time Machine and the future of the file system

For Mac geeks of a certain persuasion, the first mention of a soon-to-be-revealed feature of Leopard during the WWDC keynote set off a mental chain-reaction. That feature was Time Machine, and the name alone was enough to cause one particular phrase to hammer in the mind of many people, including me: "New file

system in Leopard!" It was even a bingo square. In fact, it was my personal favorite bingo square, and the one that I most looked forward to marking.

But let's back up a bit. Why should the mere name "Time Machine" scream "new file system" to anyone? And why the excitement about a new file system in the first place? What's wrong with HFS+, Mac OS X's current file system? It's got journaling. It supports arbitrarily extensible metadata. Does Mac OS X really need a new file system?

John Siracusa

<http://snipurl.com/uk0s>
(<http://plentyoffish.wordpress.com/2006/08/07/aol-search-data-shows-users-planning-to-commit-murder/>)
AOL Search Data Shows Users Planning to commit Murder

Users are pissed off at the idea that people can be arrested for planning a crime like murder, calling it minority report like. I ask you why is it that americans have no problems arresting people that are planning or researching how to conduct terrorist attacks? Yet if a person plans on killing his wife that is ok, until he actually does it? How many people do you have to plan on killing before its ok for a company like AOL to hand your records over to the government? This story will open a can of worms, and decide just how private your data online really is.



August Goodies

Congratulations for your wonderful August Edition. *The Fast Track To The Windows Registry* was superb, extraordinary, marvellous... the *Hacks for Windows XP* article in the *Fast Track* helped me tweak Windows, and now my Windows is running faster than anybody else's. I was filled with joy to see the MS Office 2007 Beta on the DVD. I was very surprised as well as happy to see Bazaar back. You are doing a great job. Keep the good work going.

Akshit Gaur

Dear Akshit,
Thanks for your appreciation. Even we were surprised at how special the August issue turned out. It is readers like you who motivate us to work hard and come up with brilliant issues, month after month.

— Executive Editor

Kudos And A Suggestion

You're the only magazine that delivers IT Hot. I've been a *Digit* reader since 2002. Monthly frequency is not enough—make it weekly! Till date I've never skipped the magazine because no one gives a thrill like my dear *Digit* does. Your CD/DVD bundles are awesome—I keep using almost all the software you give. The *Inbox* mail about piracy I saw in the July issue was good, but my suggestion is that we need not have to earn a lot as Americans or price the software to make it affordable enough for an ordinary Indian.

One suggestion—allow readers to share the tips and tricks they've discovered. And I need more than three incredibly useful sites.

Ashish

Dear Ashish,
Thanks for your mail and suggestions. You're not the only one who's asking for a weekly issue, but we can only say that it's virtually impossible to turn *Digit* into a weekly. Tips and tricks by readers is a good idea; we'll definitely try to incorporate that. For now, the *Digit* Forum (www.thinkdigit.com/forum) is the place to share your own tips and tricks with the *Digit* community—give it a once-over when you can.

— Executive Editor

Unaffordable!

I've been a regular reader of *Digit* for the last two to three years. I've been reading them behind schedule by six months; I buy old copies—I cannot afford to spend Rs 125. Do you have a scheme where you sell old issues along with the CD/DVDs at a nominal price?

Janky M

Dear Janky,
I'm surprised that you've been such an ardent reader of *Digit* despite your limiting yourself to old issues. Unfortunately, we do not have a scheme to sell old issues, but you may find copies of old issues being sold at eBay. You might also find a few forum members who will sell you old issues.

— Executive Editor

Uncaged

I have been a *Digit* reader since your 5th anniversary, and was surprised on my chance discovery when I knew that here is a magazine that gives a lot of food for thought. I was dancing and singing, "*Sham Savere Mind Me Mere Technology ka Kida hai Yahi hai Vo Magazine Zisse Tamka Bhida hai*"

I am BCA IInd year Student, and *Digit* helps students like me, because *Digit* gives not only the magazine, but also the Super Hit *Fast Track* series and also the CD and DVD.

This is my first mail to *Digit*. Earlier, my mind was like a fish caged in an aquarium. My thinking was bounded with old software and knowledge like a child. In August, *Digit* gave Office 2007—that was so great because it is an amazing software. Before *Digit*'s 5th Anniversary Celebration, I was oblivious about any magazine like this. *Digit* Is My First Technology Navigator. It is also helping me improve my English. Please add an e-book related to the Windows Registry, computer hacking, or any good book for me and all other *Digit* readers.

Narayan Sharma

Dear Narayan

Firstly, for the sake of those surrounding you, we hope you have a good voice. We've done a *Fast Track to the Windows Registry* in the August issue—a real book—so there's one of your requests done with. Hacking is a delicate subject—while academic interest in hacking is a good thing, the potential for it being used for something illegal is too great, and we certainly don't want to be the ones educating a new generation of cyber-criminals.

Secondly, I guess we could forgive you for starting as late as June 2006. Still, better late than never, I say!

— Executive Editor

A Mistake?

I subscribed to *Digit* at the start of this year, and as per the subscription offer, I received a Gigabyte pen drive last month. But I guess there's a mistake because I received a 256 MB pen drive instead of a 128 MB one. I don't know if the offer was changed later, maybe because we got the pen drives pretty late and *Digit* wanted to compensate for that. If that is the case I appreciate your kind gesture—I think it has gone unnoticed by many.

Shashank

Dear Shashank,
This wasn't a mistake. You guessed right—the extra 128 MB represents our apologies for getting your drives to you so late. I wish it could have been a 512 MB drive, only the costing didn't quite work out that way. The overwhelming demand for the one-year subscriptions caught the supplier quite off-guard, and getting enough drives for everyone became quite a hassle—hence the delay. I hope you enjoy your drive.

— Executive Editor

Networking Woes

I have been reading *Digit* for three years. It's a really enticing magazine, and I have no particular complaint against it. Initially, I did not need to write anything to you because I found everything what I needed in your magazine. I like everything you provide. But of late, I find a problem you should work out—I am pursuing a computer hardware and networking course (N+, CCNA, MCSE, etc.). I don't find anything related to networking in the magazine. I have been searching it for a long time but to no avail, so I made up my mind to write to you. You should include articles on future opportunities as well as careers in this

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

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Inbox

LETTER
OF THE
MONTH

field to make this magazine versatile. I request you to please add a networking section in your magazine. You can add this in your *Tech Careers*.

Amit Belwal
Delhi

Dear Amit,

A section on networking doesn't seem too likely, but we'll definitely include networking-related articles in coming issues. And yes, careers in networking is going to feature in the *Tech Careers* section very soon—maybe even the next issue! Do keep the suggestions rolling in—we sometimes get some really good ones.

— Executive Editor

An Art Exhibit

I don't know what art is, but I do know what *Digit* is to all of us. A standing ovation to all of those Tech-Artists whose work we see in the form of *Digit*. The popular saying "The first impression is long lasting" seems true to me because from the day I had touched your art, I really became ADDICTED to it. I would also like to thank all of you for presenting those little wonders which you call *Fast Track*. I would simply say those little books are a fast track to life for all geeks like us.

I don't know whether you are going to read this mail, but I am going to buy your coming issues as I have done in the past. Keep performing your art and we will keep bringing it into our homes.

I have a request to all those people who haven't subscribed to *Digit* yet—please live with *Digit* and you will know what it is.

Kumar Saurabh Kumbhawat
Khagaul

Dear Kumar

You've definitely given us a different way to look at our work—all this time we thought we were just doing our jobs! As you can see, we have indeed read your mail, and we appreciate your joining us in our effort to attract more subscribers.

— Executive Editor

Git Off Yer 'hind!

I'm a regular reader of *Digit*, and it's helped me a lot. You've made me active. You've made me learn XHTML and CSS. And now, thanks to you, I'm learning PHP. Your *Fast Track* series is superb and I have the complete collection of them. The *Fast Track to Web Design* was really awesome. Why was the *Fast Track to The Registry* so thin? Why don't you also give out a *Fast Track to PHP*, *Fast Track to APL* and *Fast Track to Macs*? That will be very cool.

You guys don't cover much on the developer's side. You also have very less coverage on Macs. Why don't you give at least a three to five page coverage on Macs on every issue of *Digit*?

I'm from Nepal. Can I subscribe to your magazine? What about SKOAR! ?

Sanjivanu Marga
Nepal

Dear Sanjivanu

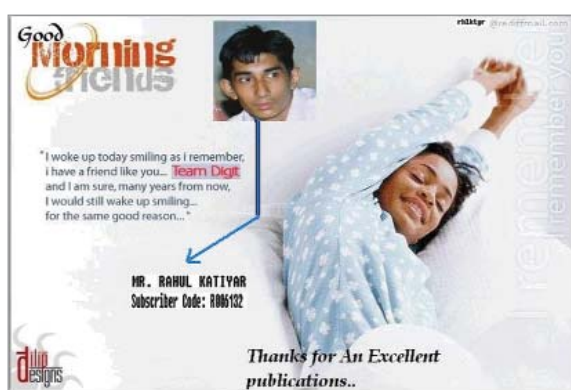
We're glad you've been woken into action by *Digit*. Unfortunately, while we retail in Nepal, you can't subscribe to the magazine just yet. It's something we're working on, and we'll certainly let you know if and when you can subscribe. The same applies to SKOAR!

— Executive Editor

Treading A Fine Line

How do I make a drive play DVDs of all seven regions?

Rahul Tyagi



Dear Rahul,

There are methods to make your DVD drive region-free. There is no law against that, but this is a method to protect the movie against piracy. By unlocking your drive, you're opening up the possibility of someone accusing you of piracy. DVDs released in the US are for US audiences only, and the studios will release Indian versions when they feel a movie will do well in India. It's a reality we don't like, but must be abided with.

— Executive Editor

Rants On Piracy

Your magazine as well as its readers are saying to use original or open source software. I know that open source / original software is a need. I would like to focus your sight on the market region as they will tell you how piracy is growing. A recent visit to Delhi—Connaught Place—is also a hotbed of piracy. Palika Bazaar is a market full of pirated CDs. They sell CDs without any fear of the government or any agency that would act against them. They sell those CDs and attract customers as though they were selling fruits and vegetables. In Mumbai, I have seen discs being sold on the streets. I only want to say that piracy has become a worldwide issue. The government is not looking at this matter.

Also, reducing the price of original CDs (movies as well as software) could not even control piracy. New movies released on VCD cost Rs 150 and above. These, when copied, cost around Rs15, so no buyer would be stupid enough to shell out Rs150. Some companies give their VCDs on 800 MB CD-Rs, but those are crackable too. Just selling the original VCD at Rs 150 or above could not even stop piracy. New movies are easily available for download—torrents, P2P, or even via direct download links. Even if you can't download them, it is available in CD parlours and shops.

Digit says that in the upcoming time, you will be forced to buy original software. But Indians are not creating the software, nor cracks or keygens. The *Fast Track to Web Design* has given some good forum software, both paid and open source. All the forums are available free of charge (in nullified script), so how can you control them on the Internet? Banning even IPs for scams or piracy-related things can't stop them from giving their pirated things out in the open. I want to conclude only that it is time the government realised that piracy is a disease that replicates and is destroying the country's economic progress.

I don't think *Digit* will ever produce my letter. But I'm writing this letter for expressing my views against piracy and how it happens in front of the local police and mainly the government.

Kumar Pratik

OSes In The Wild

1 Apple's latest OS is code-named Leopard. What is peculiar to all Mac OS X (10.0 to 10.5) versions?



- a) All are 64-bit OSes
- b) All were named after big cats
- c) All could be installed on Intel-based Macs
- d) All of the above

2 USB 2.0 has all but phased out the earlier USB 1.1 standard. What is the data transfer rate for USB 2.0?

- a) 100 Mbps
- b) 150 Mbps
- c) 480 Mbps
- d) 48 Mbps

3 What does EULA stand for?

- a) End User License Agreement
- b) Existing Users Listing Archive
- c) E-mail Using Large Attachments
- d) Electronics Using Large Applications

4 XNA Game Studio Express' new product in the pipeline for release by Microsoft is targeted at students, hobbyists and studios. It is basically for:

- a) Xbox 360 game programming
- b) Developing games for Microsoft
- c) Game debugging
- d) Vector graphics scaling

5 A shirt with an inbuilt air-conditioning system has been invented by a former Sony technician. The fans of the AC would be powered by:

- a) Solar cells
- b) Body heat
- c) AA batteries
- d) Dry batteries

6 Google Talk recently celebrated its first birthday. What are the services bundled with the new Google Talk?

- a) Internet radio and podcasting
- b) Video downloads
- c) File transfer and voice-mail services
- d) All of the above

7 What does ATSC stand for?

- a) Advanced Television Systems Committee
- b) Allied Technical Services Corporation
- c) Advanced Translating System Code
- d) Aerial Transmission Security Corporation

8 What is the similarity between the Wi-Fi network by MetroFi and that by Google?

- a) Both provide a 1 Mbps connection
- b) Both are functional municipal networks
- c) They were launched the same day
- d) Both cost a flat \$25 (Rs 1,100) per month

9 A software released by a California computer security specialist showed that networks can be attacked using which handheld device?

- a) Palm Treo
- b) Blackberry
- c) O2 Atom
- d) T-Mobile Sidekick III

10 Who has nothing to do with nanotechnology?

- a) Ralph Merkle
- b) Phaedon Avouris
- c) Norio Taniguchi
- d) Thomas J Watson

Canon Inc. was named after Kuan Yin, the Bodhisattva of compassion as venerated by East Asian Buddhists, usually as a female. Their first camera, Kwanon, was named after the Buddhist goddess of mercy.

Did You Know?

Answers

1. b) All were named after big cats	7. a) Advanced Television Systems Committee
2. c) 480 Mbps	8. b) Both are functional municipal networks
3. a) End User License Agreement	9. b) Blackberry
4. a) Xbox 360 game programming	10. d) Thomas J Watson
5. c) AA batteries	voice-mail service
6. c) File transfer and	

Got an interesting question? Send it in with the answer to **TQ@thinkdigit.com** Mark "TQ" in the subject area.

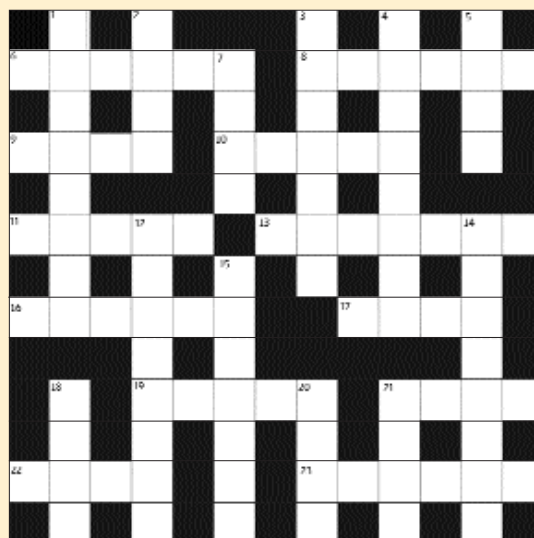
Crossword

ACROSS

- 6. Post ___ or 'after writing'(6)
- 8. Formerly called a 'patchy server'-world's most popular web server(6)
- 9. Online chatting abbreviation 'in my humble opinion' (4)
- 10. ___ Cast-communication between a single sender and many receivers(5)
- 11. Opposite of 'micro' programming(5)
- 13. Consists of sets of network addresses on the Internet(7)
- 16. 'Ctrl-Alt-Delete' keystroke combination(6)
- 17. Videsh Sanchar Nigam Limited(abbr)(4)
- 19. Change shape via computer animation(5)
- 21. ___ ruler or a measuring scale(4)
- 22. Second letter of the Greek alphabet(4)
- 23. Process of copying files or database in case of system failure(4,2)

DOWN

- 1. Unwelcome cookies and viruses(8)
- 2. 'Garbage In, Garbage Out'(abbr)(4)
- 3. Storage device for messages and attachments (4,3)
- 4. 'Caps' in 'Caps Lock'(8)
- 5. ___ or hide icons(4)
- 7. The .Real ___ Transport Protocol(4)
- 12. '___ Square' in RMS-current of an AC wave(4,4)
- 14. Programme name letting an Internet server administrator enter a host name(2,4,2)
- 15. ___ disk-begin the computer again(5,2)



- 18. ___ Or close files(4)
- 20. Computer ___ connect several computers together(4)
- 21. Inter ___ or what you see on the computer screen(4)

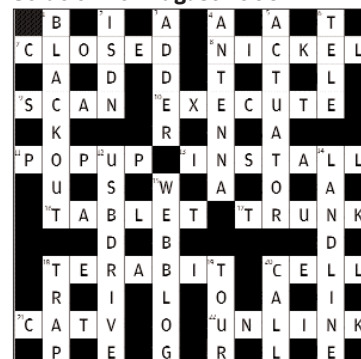
August's Winner
Ashwath Kakde
Bangalore

Win!

Send in your entries with complete contact details to **TQ@thinkdigit.com** on or before **September 20**. One lucky participant will win
Enjay Thin Client



Solution For August 2006



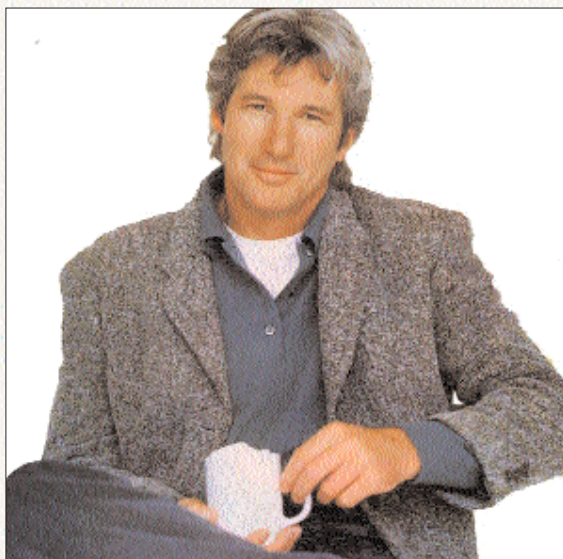
Crossword by Nitta Jaggi

Tabloid TECH

People And Events That Grabbed Headlines—For Better Or For Worse

Tibet What?

Tibet is Richard Gere's favourite country. The Buddhist actor has a lot to do with the Dalai Lama, Tibetan culture, and all things Tibet: he's a founding member of both Tibet House and The Gere Foundation, which "aims to



alleviate suffering and help to restore autonomy to the people of Tibet." And even as you read this, he's fuming.

So as not to inflame the sentiments of our Chinese readers, we'll make a correction: Tibet is Gere's favourite Autonomous Region.

Mr Gere is fuming because Google Earth, possibly because of pressure from the Chinese government, has taken Tibet off the map. Actually, just the name: a search for "Tibet" returned no results for a journo in the UK. Tibet is very much on the map, replete with the usual black helicopters. And lots and lots of roads. Visit www.theregister.co.uk/2006/08/18/google_tibet for several detailed screenshots.

Until the Gere foundation does something about it, we've got to advise Mr Gere: do a search for "Tibet Autonomous Region" instead. Even if it hurts.

"Death By Blending"

Wikipedia founder Jimmy Wales has by now become a Web celebrity. You'll have noticed that, partly because we've mentioned him at least three times in the recent past.

At the recent Wikimania conference, he had a lot of things to say about his goals in general and Wikipedia in particular. "We're not there yet. We're not as good as Britannica—yet. So in the coming years we're going to see a turn towards quality."

We sure hope so. Does Wales even know what kind of articles make up the famed 1.2 million? There are articles on porn stars, porn genres, and porn movies, all of them quite nearly explicit. Who knows just how many of all those articles on the site belong in an encyclopaedia? We googled "weird wikipedia entries," and here's one from many we found:



"List of films by gory death scene: This is a list of films in which characters die violent and gory deaths, often depicted using special effects."

1. Death from being eaten
 2. Death by bisection or dismemberment (excluding decapitation)
 3. Death by blending
- ... and there are 24 of them.
Yes, Mr Wales. Definitely quality over quantity.

Surfus Uninterruptus

Do these things happen only in America? A man and a woman sitting side by side in a cafe, sharing food and drink without saying a word, and typing on their laptops about the tunes played through a shared iPod?

That, our special correspondent in New York says, is the latest fad: couple-surfing. It's essentially about couples, well, surfing together, and saying things they wouldn't say face to face, such as "Your blog sucks."

"Realising that communicating via typing was far more comfortable, we conducted our date without speaking. We traded headphones back and forth, and typed and ordered beer and wine and more food," writes singer Amanda Palmer on her blog.

"It's difficult to communicate things like images, sounds and URLs through speech," writes one of a pair of couple-surfers on his blog. Because every date, as we know, is incomplete without a good URL. Cliché alert: what is the world coming to?

Of course we know what's next: couples sitting next to each other in bed having cybersex.

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