



Sort your MP3s ■ Working with MS Office Macros ■ Fun with Photoshop

Rs 150 Special Price Subscriber Copy NOT FOR SALE

December 2002

www.thinkdigit.com

# digit

>> Your Technology Navigator

# zero1

## AWARDS 2002

THE ULTIMATE TECHNOLOGY PRODUCTS



 **Jasubhai**  
DIGITAL MEDIA  
International price: United States \$8



# Check Please!

**R**eliability and Service are two sides of the same coin—a coin moulded from the metal of Expectations. The only difference being that the markings of one side depict the build quality of the product while the other side reflects the support provided by the company. For instance, when we buy a new car from a reputed company, we don't expect it to break down. When it does, we expect a certain quality of service from the authorised garage that we sent it to for repairs.

But what happens when the problem is not rectified? We feel unsatisfied or worse, cheated. Why? Because our expectations were not met.

This simple matter of failed expectations is a cause of concern for the PC industry.

Cutthroat competition in recent times has resulted in price wars that have forced PC makers to curb spending and cut corners at every step. This affects the quality of their products in one way or another. Also, with customers looking to buy PCs with the latest and fanciest of technologies, the likelihood of failure increases, as more features means more parts that could fail.

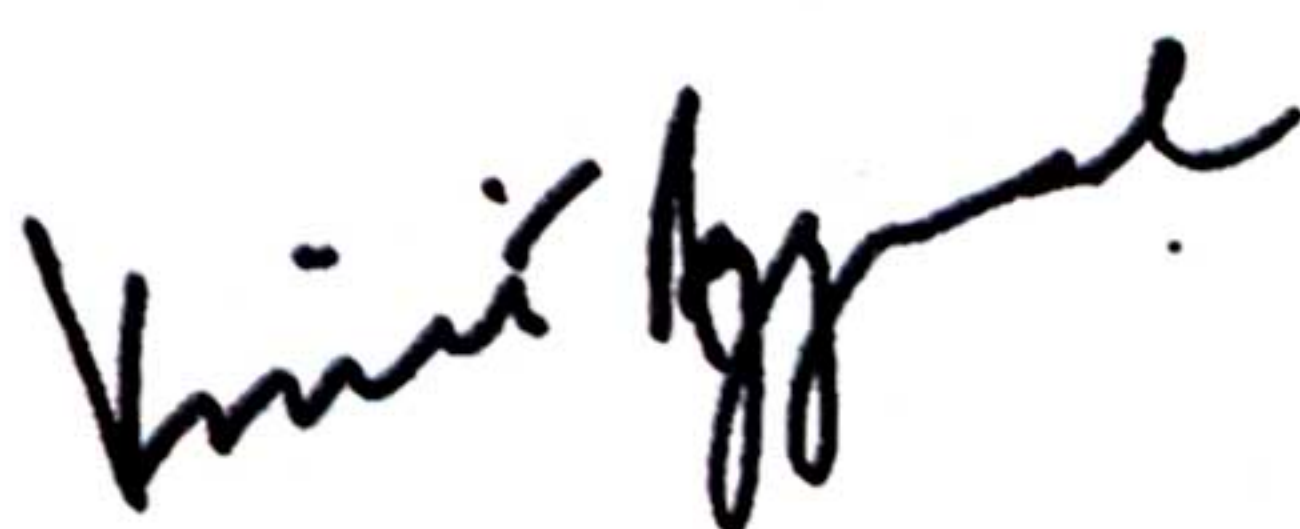
But computer manufacturers aren't investing as much as they need to in service and support. Herein lies the root of the problem.

A company might have the best development team, top-notch management, excellent marketing strategists and financial advisors, but if its customer service department is not properly trained, it's headed for disaster. These support personnel, be it the field engineers or the telephonic customer support staff, are the frontline foot soldiers who connect with the customers on a continuous basis and are often the key to success or failure.

A hospital might have the best surgeons and physicians, but a single ill-trained nurse can cause much harm to its goodwill as the actual and continuous connect of the patient happens with the nursing staff. Similarly, a PC maker's customer service staff is the one that directly interfaces with the company's customers. There's just too much at stake for companies to skimp on their proper training and on the constant upgradation of their service and support networks.

But companies still do. This is where we, the customers, can help set things straight. We need to start demanding more. We need to be more vociferous in communicating our expectations and only accepting the right service and nothing less. For any company that's serious about its business will listen to its customers.

Either that, or it needs to invent PCs that never crash or fail.



vinit\_aggarwal@jasubhai.com



**Vinit Aggarwal**  
Assistant Editor

“The simple matter of failed customer expectations is a cause of concern for the PC industry”



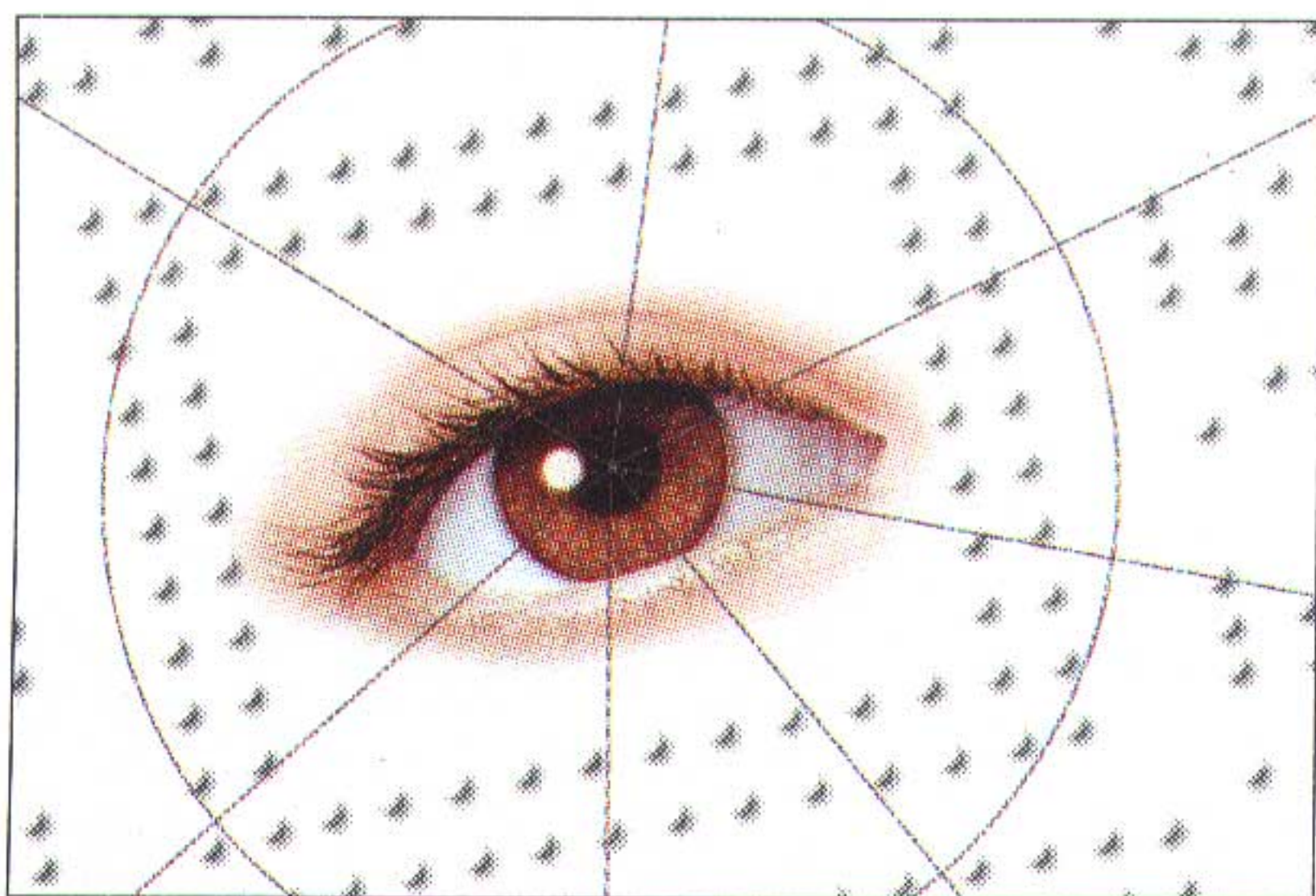
## FEATURES

### The Future of AI .....32

Self-driving cars and programmable maids...just how real is artificial intelligence?

### Computing for Absolutely Everybody .....40

Out of sight is not out of mind. Physical disabilities are no hindrance to computing



## TEST DRIVE

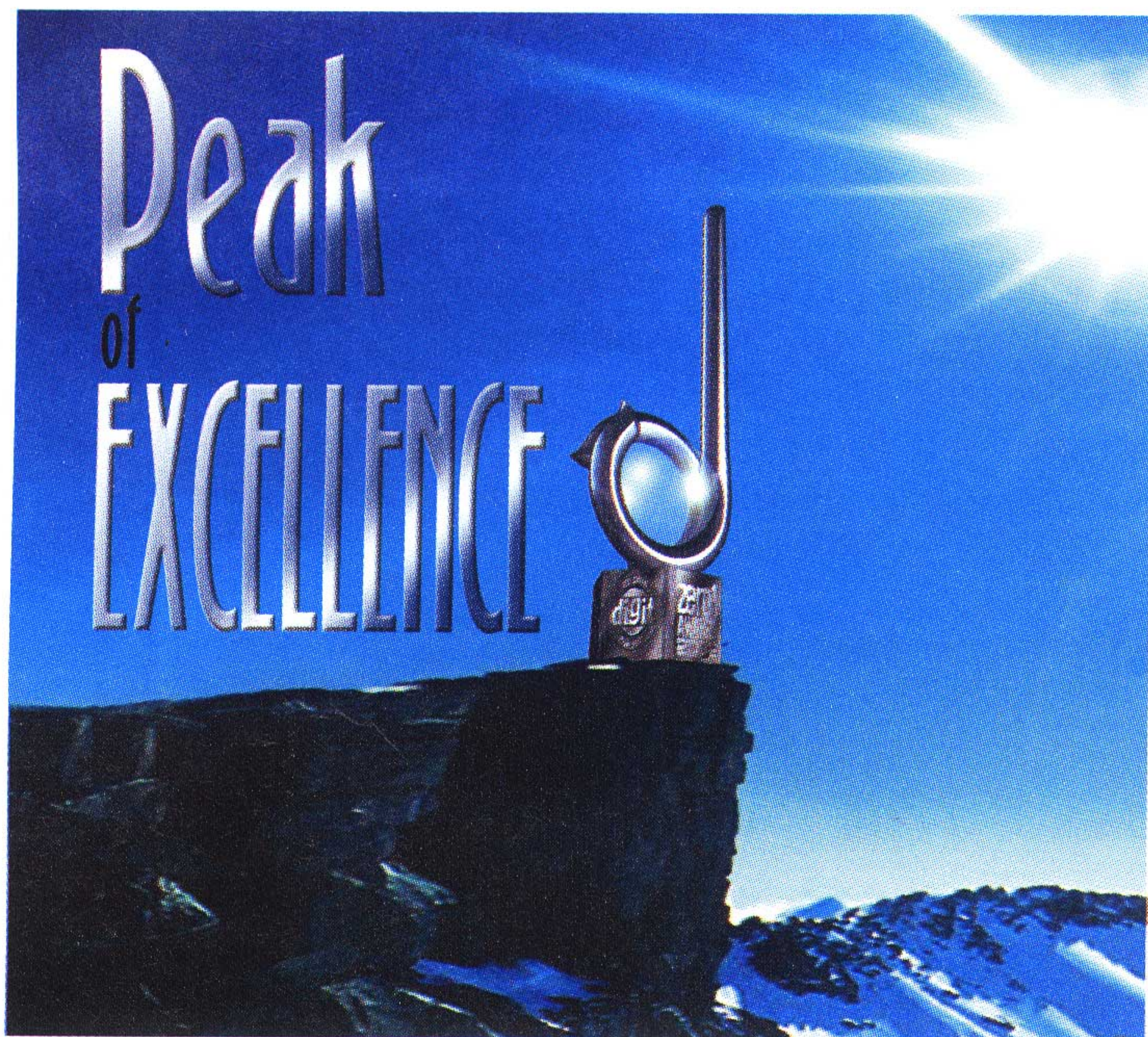
### Peak of Excellence .....46

Products that set the benchmark for excellence—all the best ones this year

## INSIGHT

### gt rdy fr M M S .....86

A picture is worth 160 characters. Why waste words on an SMS when you can send images?



▲ 46 Touching peaks of excellence, here's the best of the best—the Zero1 Awards!

### Thinking in a Brand new Way .....90

Combining hardware and software, Palladium aims to provide the only security your computer will ever need

### Building Software Robots .....94

Let Office do all your dirty work by recording it to macros

### Your PC as a VCR! .....98

Watch TV on your PC, record shows while you are away and replay live TV with your Personal Video Recorder

### Blog in! .....102

Blogging, the latest trend on the Internet, already has millions of users. Check out what the hype is all about

### Follow the Tune! .....105

Have a huge MP3 collection neatly organised by albums? How about organising it by genre or moods?

### Be a Photoshop Guru .....111

Take charge of the most powerful design package

## ARCADE

### A Level Playing Field .....128

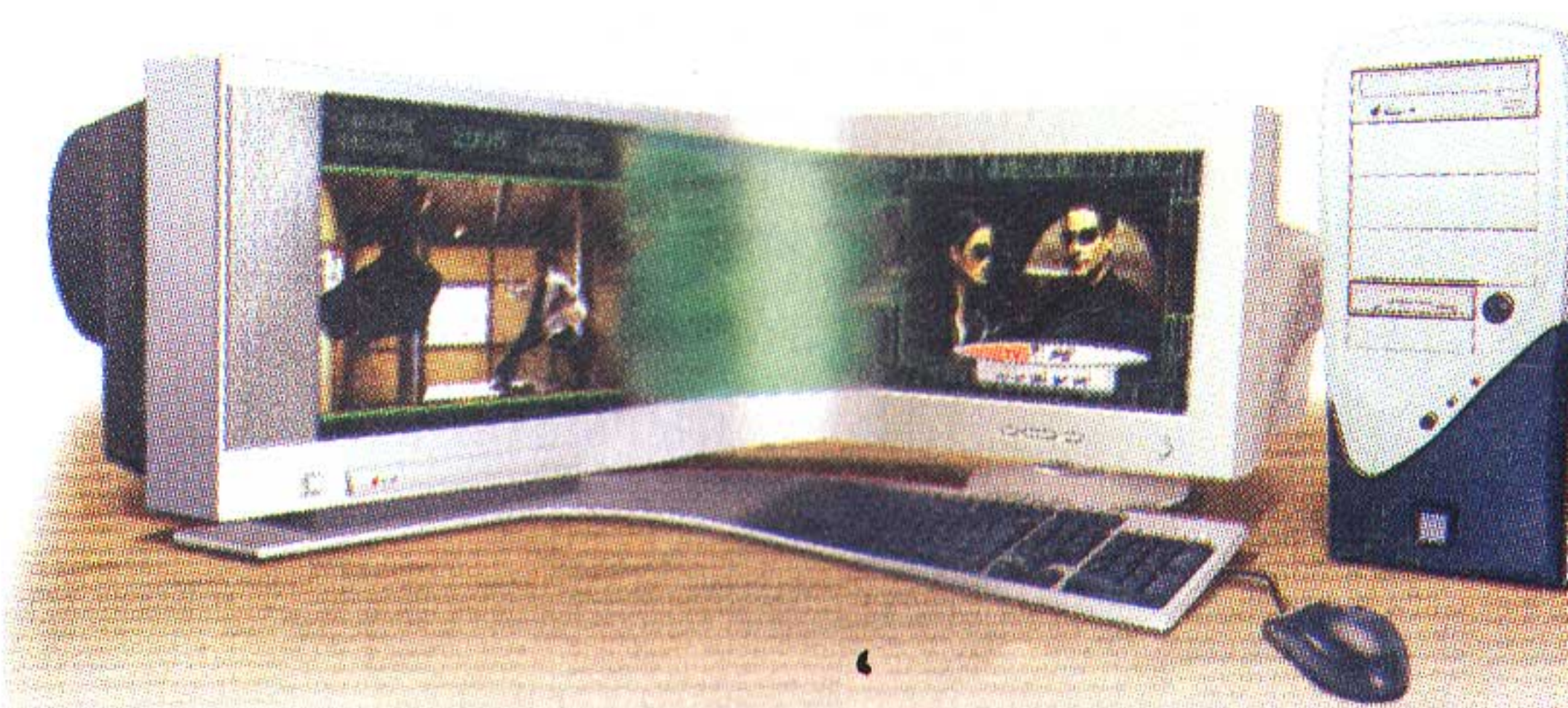
Your turn to play God—make your own worlds in your favourite games



▲ 32 Right out of science fiction novels and movies, here's the reality



▲ 90 Palladium—the ultimate lock and key for your data?



▲ 98 Never miss your favourite soap again—record it on your PVR, even if you are away



▲ 128 Bored with the same old games? Make your own maps and extend the game indefinitely!



105

Can't find the right music when you most need it? Here's how you can organise them more intelligently

94

Don't bore yourself to death doing the same thing over and over again in Office apps. Hand over the work to the software

111

Tips and tricks that help you get the most out of your favourite image editor—Photoshop



46

Better than the best—the Zero1 Awards celebrate the products that have achieved the pinnacle in terms of performance

## REGULARS

NEWS FEED .....	20
LETTERS .....	28
DROOLMAAL .....	38
START UP .....	44
BAZAAR .....	74
UNDERCOVER .....	84
Q & A .....	106
OFF THE SHELF .....	134
DIGIT DIARY .....	136
BACKBYTE .....	138

## Reviewed this month

### BAZAAR Hardware

74

- Antec Performance Plus 660 AMG
- Canon LBP 1210 laser printer
- Hercules 3D Prophet 9700 Pro
- Kodak Digital Camera CX4230
- Logitech Cordless Freedom optical keyboard
- Microsoft Wireless IntelliMouse Explorer

- MSI 845PE Max2
- VIA EPIA Mini-ITX motherboard

### Software

- ACID PRO 4.0
- Adobe LiveMotion 2.0
- Lindows 2.0
- Norton AntiVirus 2003
- Red Hat 8.0

To subscribe to Digit, fill out the subscription form available online at [www.thinkdigit.com/subscribe](http://www.thinkdigit.com/subscribe)



# ON THE CD

**digit**  
interactive

## WORKING WITH MICROSOFT OFFICE XP

Jump start your way into the most popular productivity suite with Fast Forward, *Working with Microsoft Office XP*.

Find everything you need to know to start using Word for creating documents such as memos, letters, faxes, etc. Get a primer on Excel, the powerful spreadsheet software for all kinds of calculations, from basic additions to complex scientific formulas. Learn how to create impressive presentations with PowerPoint, to get the right communication across to your clients. See how you can use Outlook to manage not only your e-mail, but also your daily activities, schedule, appointments, meetings and much more.

Plus, look out for a bonus chapter on using Mail Merge with Office XP to quickly and easily create personalised letters and e-mail for invitations, announcements, product launches, etc.

Microsoft Office is a very powerful suite and here's an equally powerful package to help you start working with it.



## APP OF THE MONTH

**WordPerfect Office 2002**  
Size: 170 MB Section: Office

## HIGHLIGHTS

**Photoshop 7.0**  
Size: 163 MB Section: Multimedia

**ICQ Lite**  
Size: 1.7 MB Section: Internet

**Gmax**  
Size: 35.8 MB Section: Developer Tools

**Read Plus**  
Size: 7.47 MB Section: Home

**PowerVCR II Pro 3.0**  
Size: 8.6 MB Section: Multimedia

**FaxWizard 2000 7.2a**  
Size: 11.5 MB Section: Office

**FreeRAM XP Pro 1.22**  
Size: 547 KB Section: System

## GAME OF THE MONTH

**Unreal Tournament 2003**  
Size: 98 MB Section: Games

## HIGHLIGHTS

**No One Lives Forever 2**  
Size: 158 MB Section: Games

**Brixout XP**  
Size: 4.47 MB Section: FunZone

**Quake III Arena Patch 1.32**  
Size: 28 MB Section: Extras

**Epic Games Pinball**  
Size: 872 KB Section: FunZone

**America's Army: Operations Patch 1.30**  
Size: 28 MB Section: Extras

**WWF Raw**  
Size: 64.8 MB Section: Games

**Gunocide 2**  
Size: 7.37 MB Section: FunZone

## 100+ TIPS & TRICKS

Your 'slow' computer is capable of much more. Fast Forward, *100+ Tips & Tricks* brings you a cool package of over a hundred reasons to *not* upgrade your PC. See how you can use your PC more efficiently and get it to work faster with these tweaks and secrets.

Windows is the most common operating system and is usually the first culprit in slowing down your PC. Learn how to tweak this OS to pull out all the juice from your hardware and hog lesser resources for better performance.

Check out cool tips for Microsoft Office to get your work done in fewer clicks. Be careful not to show that you have a lot of free time though, or your boss may just give you more to do. Gift this Fast Forward to your boss instead!

Frustrated with your Net connection? Tired of spam? Speed up your modem, do more with Internet Explorer and work smarter with Outlook and Outlook Express with these great tips.

Go ahead, become a power user.





# www.thinkdigit.com



taste technology at <http://www.thinkdigit.com>

## WEB SPECIAL

Clean me Now!

### Clean me Now

I'm your hard disk, and I'm here with a simple yet important message. Listen up buddy, because I'll only say this once, Clean me Now!

## CONTESTS

Every month, we bring you a host of contests for you to win hundreds of prizes. It's as easy as clicking the mouse—enter, play and win!

The screenshot shows the Digit magazine website layout. At the top, there's a navigation bar with 'Jasubhai', 'TECHNOLOGY MEDIA SOLUTIONS', and 'CONTENT SERVICES'. The main header features the 'digit' logo and a banner for 'THE DECEMBER 2002 DHAMAKA' with a 'DON'T MISS this Collector's Edition!' callout. A left sidebar contains a 'CONNECT' menu with links like 'FACE-OFF', 'COLUMN', 'TECHNOLOGY NEXT', 'DROOLMAAL', 'PASSPORT', 'NETRETURNS', and 'FIRSTHAND'. Below this is a 'RESOLVE' section with 'WIRED', 'UNWIRED', and 'TIPS & TRICKS'. Further down is a 'SELECT' section with 'TEST DRIVE', 'INSIGHT', and 'REPORT CARD'. At the bottom left, the 'DIGIT INTERACTIVE' section lists 'MINDWARE', 'PLAYWARE', 'DIGIT CD ARCHIVE', and 'BY DEMAND'. The main content area features a 'December '02' section with a collage of magazine covers, including 'Office', 'zero!', and 'Tips & Tricks'. To the right of the collage are several article teasers: 'Make your PC an earning member', 'Small Wonder', 'Perfect with Words', and 'Technology@home'. On the far right, there are contest announcements for 'Canon' and 'Eye Eye', and an 'Opinion Poll' about Digit's unique half-flap covers.

## BY DEMAND

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

- **Lurker 32 2.5** (7.72 MB) for Mindware
- **Battlefield: 1942** (134 MB) for Playware

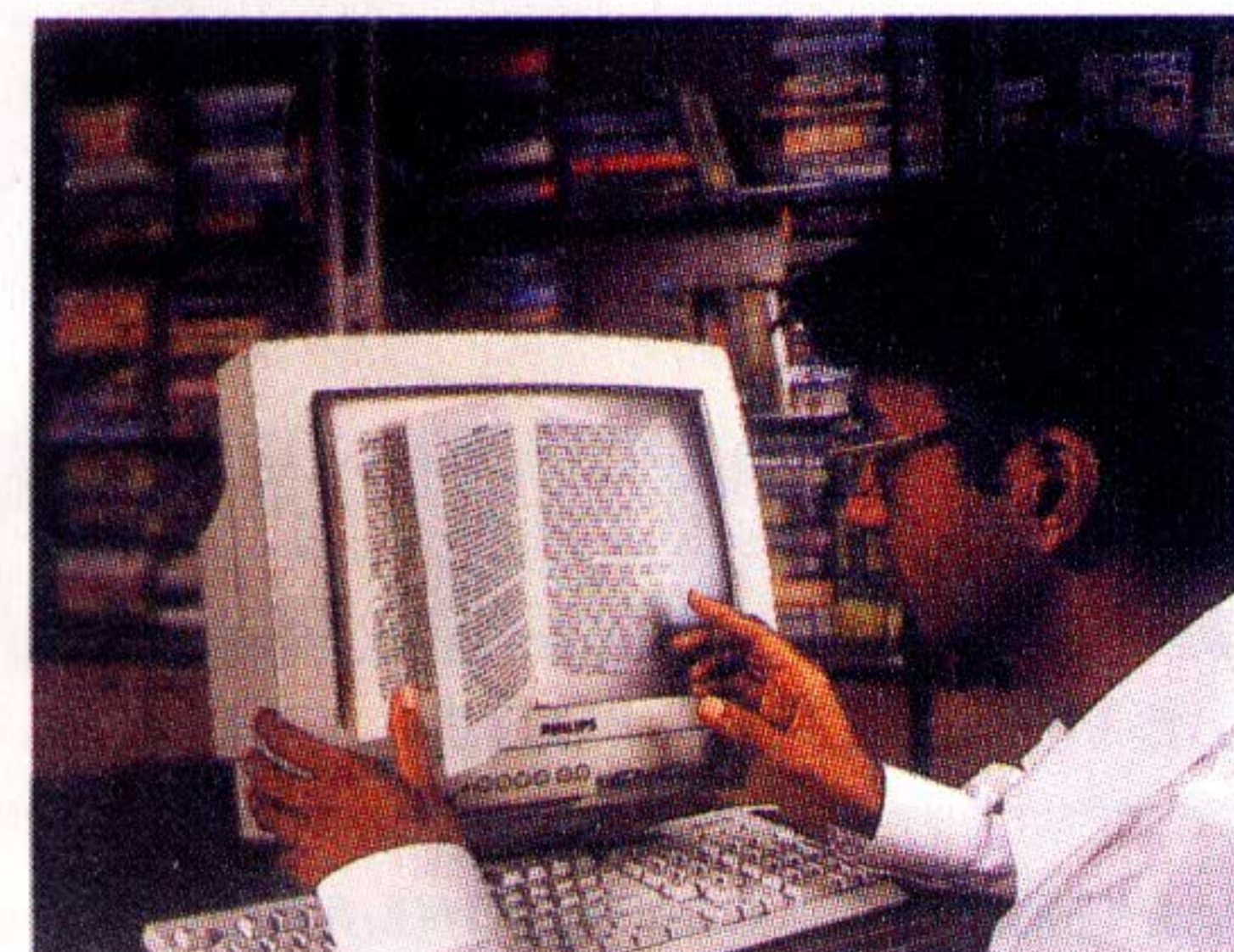
Expect these on the January 2002 CDs.



## WEB SPECIAL

### A library in your pocket

No more lugging voluminous tomes of literature. eBooks bring you all the books you'd ever want to read, right in your hand





## VOLUME 2, ISSUE 12

**Chairman** Jasu Shah  
**Printer, Publisher and Editor**  
 Maulik Jasubhai  
**Head - Publications & Web sites**  
 Louis D'Mello  
**Assistant Editor** Vinit Aggarwal

### Editorial

**Head - Writer** Marco D'Souza  
**Writers** Veer Kothari, Ahmed Shaikh,  
 Rachana Sanghani, Srinivasan  
 Ramakrishnan  
**Features Editor** Sveta Basraon  
**Copy Editor** Mitali Parekh

### Design

**Art Director** Marshall Mascarenhas  
**Manager - Design** Swaroop Biswas  
**Designers** Shivasankaran C. Pillai,  
 Shyam Shirsekar, Jaya Shetty,  
 Neeta Wadiker, Solomon Lewis,  
 Ashwin Boricha, Mahesh Benkar, Atul  
 Deshmukh  
**Photographers** Mexy Xavier,  
 Jiten Gandhi

### Test Centre

**Head** Hakimuddin K. Badshah  
**Reviewers** Aliasgar Pardawala,  
 Yatish Suvarna, Mitul Mehta,  
 Ashu Mehrotra  
**Co-ordinator** Gautami V. Chalke

### Multimedia

**Co-ordinator** V. Ravi Shankar  
**Design** Kabir Malkani, Jo-Ann Rodricks,  
 Hemant Charya, Priyamvada K.K.,  
 Liu Ai Chin

### Media Studio

Bimal Unnikrishnan, Priya Ramanathan,  
 Afzal Mazgaonkar, Prasanth Uyyul

### Production

**GM** Shivshankar Hiremath

### Circulation & Logistics

Adarsh Kaul

### Customer Service

Namita Shetty

### Marketing & Sales

**Deputy Head - Sales** Vijay Adhikari  
**Marketing Manager** Bhavesh Thakor  
**Manager - Consumer Mktg**  
 Nabjeet Ganguli

### Head Office: Editorial, Marketing & Customer Service

Plot No D-222/2, TTC Industrial Area,  
 MIDC, Shirvane, Nerul,  
 Navi Mumbai 400 706  
 Phone: +91 022-7629191/9200  
 Fax: +91 022-7629164  
 Printed and published by Maulik  
 Jasubhai on behalf of Jasubhai Digital  
 Media Pvt Ltd, 26 Maker Chambers VI,  
 2<sup>nd</sup> Floor, Nariman Point,  
 Mumbai 400 021, India.  
 Editor: Maulik Jasubhai  
 Printed at Tata Infomedia Limited,  
 Prabhadevi, Mumbai 400 025



## Write Back

Got feedback on Digit or  
[www.thinkdigit.com](http://www.thinkdigit.com)? Have something to say  
 about an article we published?  
 We'd love to hear from you. Send us your  
 rants and raves at  
[readersletters@jasubhai.com](mailto:readersletters@jasubhai.com)

## Product Testing

Want your product reviewed by Digit?  
 Contact our Test Centre at  
[testcentre@jasubhai.com](mailto:testcentre@jasubhai.com)



## Software on CD

To submit software for inclusion in the Digit  
 Interactive CDs, contact us at  
[cdcontent@jasubhai.com](mailto:cdcontent@jasubhai.com)

## Help!

Complain about your missing copy?  
 Cover CD not working properly?  
 Renew your subscription  
 Report a change in mailing address  
 Order a back issue  
 Need assistance on any of these?  
 Contact Customer Service at  
 022-27629200 Extn: 1013-1016  
[help@jasubhai.com](mailto:help@jasubhai.com)



## Endorsements/Reprints

The Best Performance and Best Value Awards  
 are the undisputed stamp of excellence for  
 technology products in India. If you are a  
 winner and are interested in ordering article reprints or using  
 our logos, contact  
[vinith\\_shetty@jasubhai.com](mailto:vinith_shetty@jasubhai.com)

### ADVERTISERS' INDEX

CLIENT	PAGE
3M	97
AMD	13
ASUS	75,77,79,81
AT&T	45
Canon	17
Dell	10,11,14,15
Elnova	110
Gigabyte	59
HP	18,19
IBM	23
Intel	7
Invensys	BC
lomega	101
Kobian	36,37
Lexmark	27
LG	111, 112, 113, 114, 115, 116, 117, 118
Logitech	9
Maxtor	25
Motorola	5
MSI	53
National Panasonic	41
Numeric	IBC
Onkyo	43
Penram	87
Rooman	83
Symantec	49
Triffin	93
WEP	55,57
Xserve	51

## digit Promise to our readers

While every effort is made to ensure  
 that the information and prices  
 provided are correct, there may be  
 some variation due to differences in  
 local taxes across states. Please keep  
 this in mind before affecting any  
 product purchase.

## To Advertise

### CONTACT OUR BRANCH OFFICES

#### BANGALORE

S. Saikumar  
 Phone: 5325670/88, 2899287  
 E-mail: [s\\_saikumar@jasubhai.com](mailto:s_saikumar@jasubhai.com)

#### CHENNAI

Jayesh George  
 Phone: 8235186-89  
 E-mail: [jayesh\\_george@jasubhai.com](mailto:jayesh_george@jasubhai.com)

#### KOLKATA

Jayanta Bhattacharya

Phone: 2345100/5200

E-mail: [jayanta\\_bhattacharya@jasubhai.com](mailto:jayanta_bhattacharya@jasubhai.com)

#### MUMBAI

Rupesh Sreedharan  
 Phone: 26591849-50, 26591651

E-mail: [rupesh\\_sreedharan@jasubhai.com](mailto:rupesh_sreedharan@jasubhai.com)

#### NEW DELHI

Rajesh Arora  
 Phone: 6483993-4

E-mail: [rajesh\\_arora@jasubhai.com](mailto:rajesh_arora@jasubhai.com)

#### PUNE

Vinayak Inamdar  
 Phone: 4482059, 4494572

E-mail: [vinayak\\_inamdar@jasubhai.com](mailto:vinayak_inamdar@jasubhai.com)

#### SECUNDERABAD

S. Venu  
 Phone: 6329190, 6329181  
 E-mail: [s\\_venu@jasubhai.com](mailto:s_venu@jasubhai.com)



## hypethesis

## Pixie Dust

## ■ What is it?

Pixie Dust is an indigenous technology that IBM uses to pack data on a portable hard drive. IBM developed this new technology a year ago, and all IBM notebooks integrate this technology into their hard disks.

## ■ How does it work?

IBM uses a home grown data storage technology called the antiferromagnetically-coupled (AFC) media. Pixie Dust is a three-atom-thick layer of the element Ruthenium. The Ruthenium element forces adjacent layers to orient themselves in magnetically opposite directions. This makes the structure appear much thinner than it actually is—so small that high-density bits can be written easily on it, while retaining the magnetisation due to the media's overall thickness.

## ■ What can it do?

IBM is now packing five layers of Pixie Dust, allowing up to 70 billion bits of data to be written on each square inch of disk space, up from 40 billion bits. IBM predicts that it will achieve 100 billion bits per square inch in 2003. The Travelstar 80GN series of mobile hard disks have proven reliability with high shock robustness and low power consumption. 8 MB cache makes it the world's highest performing 4200-rpm mobile hard drive.

## Internet on the roof

Soon, a hundred lucky households in Cardiff, Wales, will live the broadband dream and, perhaps, a glimpse into the broadband future—movies on demand, broadcast quality video chats and download speeds at 4 Mbps. This new service is based on Mesh radio, a high capacity wireless network. Unlike conventional wireless networking services, this one turns every end user's house into a mini base station. With four directional



antennas that lock onto other antennas, each mini base station achieves nearly a 100 per cent cover. If a station goes down, recovery is easy—come back on and lock into the neighbour's antenna.

Most broadband users in India suffer because there are too many subscribers and too little bandwidth. In this radical new system, Mesh radio will not slow down when a lot of people access it at the same time.

## SMS causes divorce

With the rapid acceptance of cell phones by the Indian middle class, the newest cause for concern is marital disharmony, claims the National Human Rights Council. The group burned a cellular phone in protest in a demonstration in New Delhi on November 11, 2002. Subhash Gupta, the group leader, alleges that SMS is against Indian culture and has resulted in a rather large number of divorces.



With all the heat on the ill effects of wireless telephony being focussed on the radiation emitted from mobile devices, this is one of the first protests of its kind against the spread of SMS. The Council argues that the brief, yet effective language used in SMS sparks discord among married couples. Perhaps cause for concern rises from the nature of SMS, where one can chat with just about anybody using a mobile phone.

## Playing a new tune

For all MUSICMATCH fans, here is a reason to rejoice—MUSICMATCH Jukebox 7.5 ([www.musicmatch.com](http://www.musicmatch.com)) has just been released. The latest version brings with it new online jukebox technology that allows for effortless transfer to portable devices, lesser time to create custom CDs and advanced music tagging and labelling that will help you quickly and effortlessly add track information for digital audio files using the company's Radio MX subscription service. It also comes with a sleeker, easy-to-use interface.

Though MUSICMATCH decided to stop supporting the Mac version late in October, this one carries support for quick-syncing the Apple iPod for Windows operating systems. It still has syncing support for all the popular portable MP3 players, including the Nomad Jukebox. Version 7.5 also lets you create full-colour CD labels and jewel case inserts for all of your custom CDs.

## snapshot

**89%** of international e-commerce users base their buying decisions on transaction security, while **59%** base theirs on price

Source: WorldPay eCommerce Survey

■ New research proves computing causes strain and lethargy ■ Mitch Kapor, co-founder of Lotus Development, to build a free, open-source equivalent of MS Outlook



# 101 reasons to switch to Mozilla

Word on the street is that there are 101 things that Mozilla can do that Internet Explorer 6 cannot. The list that has been filtering through programmer news-groups and discussion forums was created by Neal Deakin, a 28-year-old resident of Toronto, Canada. Popular with the open source



community, Mozilla is a standalone open source browser created by Mozilla.org. Deakin though cautions against reading too much into his list—quite a few of the items on the list are long time grouses against Internet Explorer, such as the lack of being able to navigate through

multiple windows through tabs and the inability to block popup ads. Other grievances include the lack of people-friendly tools such as the ability to zoom text, save plugins while saving a Web page, adding detailed information about bookmarks and the ability to block images from third-party sites. There is also additional mention of user-friendly cookie management, easy password management, form filling, better security and the claim of being able to run straight off a CD or a network.

redalert

## Roron

A new worm called Roron or Oror.B could help hackers control home computers. It can spread through e-mail, shared drives and the KaZaA network. Each copy of the virus contains several hacker tools that let an infected computer be controlled by messages from Internet Relay Chat (IRC). Once Roron infects a system, it spreads by creating e-mail messages with different subject lines and names for the attached file. Once opened, Roron copies itself to several folders, including those used to share files on the KaZaA network, as well as to any shared hard drives on a network. Finally, Roron installs a backdoor into the PC that lets remote attackers run attack tools. Though Kapersky Labs attaches high risk to the virus, Symantec rates Roron as only two on its threat scale of five. Updating your anti-virus software should take care of the virus.

## Philips joins the DVD format war

Early in November 2002, Philips Electronics announced that it has developed a new DVD Writer in an effort to promote the DVD+RW format. Philips debuted the main meat of a proposed DVD+RW drive that has an integrated chipset, optical pickup unit and a reference design. The drive claims to record at



speeds of up to 8x. Philips holds the key patents and stands to obtain significant revenues from licensing, should DVD+RW become a dominant format in the near future. The company will license and sell components for the drives and hopes to see manufacturers making them available in the first half of 2003.

## Mac-ing it easy

If you are a PC user moving towards a Mac, this is just the software and hardware combination that could ease the transition. Move 2 Mac comes with a lot of software and a customised USB cable that lets PC users move many of their files and settings into a Macintosh running the new OS X. The software will also let you keep your background pictures, by transferring them onto the Mac.



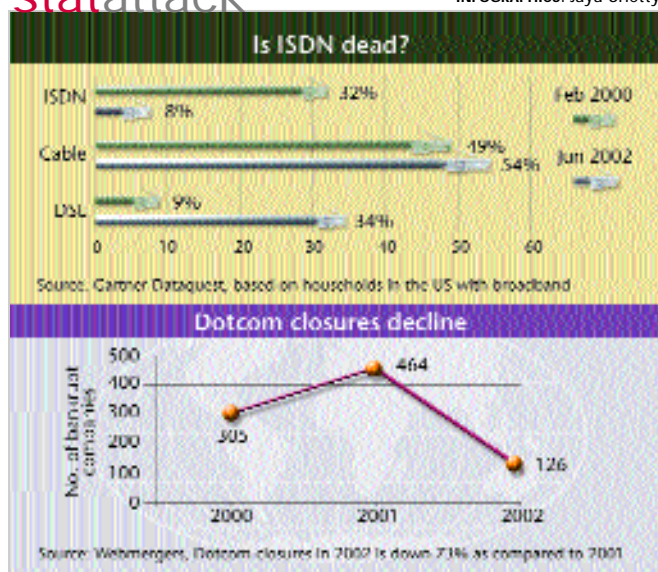
Detto Technologies, the developers of this software, reportedly received no funding from Apple, though Apple intends to carry it into their retail store. Apart from Internet settings, files and contacts, the other things such as pictures and music are automatically moved into the right location on the new Mac, without much tinkering. With Apple's new campaign focussing on luring PC users to the Mac platform, it appears that the scales may just have been tilted!

## Fishy on Linux

Backdoor.Bofishy.C is a Trojan that affects the libpcap packet capture library and the tcpdump sniffer on Unix and Linux systems. It comes as modified source packages that create a backdoor during their installation that gives the attacker access to a shell on the local computer. Users and administrators are advised to turn off unnecessary services, patch all running software with the latest updates, especially Internet services and configure e-mail servers to block or remove e-mail that contains file attachments that are commonly used to spread viruses, such as vbs, bat, exe, pif and scr files.

statattack

INFOGRAPHICS: Jaya Shetty



■ AOL offers instant messaging servers and clients to businesses ■ Japanese firm develops technology to transfer data via handsets at 10 Mbps



## A leaking keyboard

In what looks like an amazing security goof up, an HP wireless keyboard user in Norway discovered that what he typed into his screen appeared on a friend's monitor, some 150 metres away—supposedly far out of range and blocked by at least two solid walls. With HP and the user initially



assuming that this was a one-off fault with that particular keyboard, they settled on a replacement. Even after replacement, the keyboard signals still reach across 150 metres! HP is now considering doing field tests to ascertain the reasons behind it.

HP has sold some 65,000 wireless keyboards in Europe and a smaller number in North America. What is worrying is the fact that such a strong signal gives the users no control over who receives it, compromising on their security. Already, it is possible to illegally intercept signals emitted from them, but in this case, the device is literally beaming the signals far and wide, singing away to all and sundry!

## snapshot

**\$4 billion** worth of Linux servers expected to sell in 2003, shipping about **8 lakh** units

Source: Gartner Dataquest

## followup

### Symantec deletes more than spam

Users of Symantec's Norton Internet Security 2003 have discovered that the software causes e-mail to be deleted before it reaches the

user's inbox. Symantec says that the flaw comes from the anti-spam feature in the software that tags suspected spam, and

has fixed the problem with a patch. If the user had a large volume of mail arriving or if the client was frequently checking e-mail, then Norton Spam Alert would cause mem-

ory allocation errors that lead to e-mail deletions. For such e-mail, all that appeared in the inbox was a cryptic

message with 'Symantec E-mail Proxy Deleted Message' in the subject line.

The problem faced by Norton's customers is simi-

lar to what many Hotmail account users face, with strict spam filters in place. Hotmail follows a very strict policy of blocking all the mail from offending ISPs.



Illustrations: Farzana Cooper

## Blockbusters on the Net

You could soon be buying and legally downloading movies from the Internet, or so hope five of the major studios in Hollywood. Sony Pic-



tures, MGM, Paramount Pictures, Warner Brothers and Universal Pictures have joined together and announced technology partnerships with Microsoft and RealNetworks to jumpstart movie-rental services on the Net. Industry executives are ecstatic at what they call the bounty of video-on-demand. Moreover, distribution is planned to be secure and unbreachable. You can now download over 175 new and old movies from [movielink.com](http://movielink.com). The movies, of course, don't come for free—you are required to pay anywhere between \$1.99 (approx Rs 100) and \$4.99 (approx Rs 250), depending on how new

the movie is. Once downloaded, it will remain for 30 days on the hard drive, though once you have started to play the movie it will remain only for 24 hours. Moreover, it cannot be transferred to any other device, and this they hope will curb trading of movies over the Internet via P2P networks such as KaZaA and Morpheus. This service is operational only in the US right now and dial-up users are strongly discouraged. While it is an interesting concept, it does have its problems. Firstly, you could rent DVDs and keep them for at least two nights for the same price. Moreover, even with broadband connections, it could take up to 4 hours for a single download. On the other hand, code hackers aren't keeping quiet—pirates are already talking about circumventing these measures. They claim that unless the movie 'self destructs', there is every possibility that a solution could be found!



## heroes

### Supercomputing

On November 4, more than 1,000 computers across Canada were wired up to create a huge networked supercomputer, used to model the interaction of two molecules in 20,000 different positions and measure the energy bonds which this creates—a single desktop would take over six years for this.

### Tablet PC

Microsoft has signed deals with top publishers *Forbes*, *Financial Times*, *New Yorker*, *Slate*, *France's Les Echos* and Germany's *Wirtschafts Woche* to help make the Tablet PC more popular. A trial set of the magazines should be available for download in 2003.



## zeroes

### Digital voting

America is pioneering digital voting, but security challenges seem far too many. Large-scale fraud, like vote-buying and selling, are simpler on a computer that is vulnerable to hackers and viruses. Moreover, the software used for voting purposes is proprietary and the vendors control it, leaving its accuracy to question.

### Philanthropy

PowerUp, a three-year-old project that gave away computer equipment to schools and community centres across the United States has been shut down. The weakening economy has forced its founders to close down the program aimed at bridging the great digital divide.



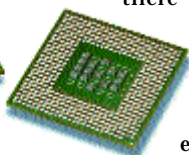
## Buy 1, get 1 virtually free

Intel has just released the fastest ever Pentium 4 processor, that clocks a cool 3.06 GHz and is the first to feature Hyper-Threading. However, Windows XP is the only Windows OS that can take advantage of this.

Hyper-Threading technology should yield between 14 to 26 per cent improvement in performance, claims Intel. The technology 'tricks' the

underlying software into believing that there are in fact two CPUs. The software can't make out the difference, so it works as though there were two actual CPUs. It would mean, for example, that while playing a game, frame rates are slightly lower because of the processing done by the CPU for the soundcard, the

OS and so on. With Hyper-Threading, this overhead will be negligible. Tests by several enthusiast sites on the Internet have revealed that this chip does score very well—in fact, it is not incorrect to call this mock-SMP (Symmetric Multi Processing), a setup where more than one CPU is used. All this is expected to come at an expectedly hefty price and the CPU has already caused an immediate price war with AMD halving prices of its older CPUs.



## Hitman 2 publishers apologise

Released last month, *Hitman 2: Silent Assassin*, from the UK-based publisher Eidos, had come under fire from members of the Sikh community for having depicted the religions' adherents as members of an evil cult.

In the final mission, *Hitman 2* features a violent showdown in a gurdwara and the player is encouraged to enter and kill a group of fanatical believers. In a statement

released by the company, Eidos and IO Interactive, the



developers, have stressed that no offence was intended and

has apologised to the Sikh community for the depiction. Eidos claims to have reached an amicable position with the Sikh Coalition and will now edit all offending content.

All the relevant content from the *Hitman 2* official Web site will also be removed and changes will be made to the forthcoming GameCube version of the title, which was scheduled for release early next year.

## Don't fight P2P

The last bastion of P2P is under threat—realising that university networks offer students high bandwidth and the opportunity to swap music and movies, the Recording Industry Association of America and the Motion Picture Association of America sent letters to more than 2,000 colleges, warning them that their networks were used to trade illegal file copies. The Electronic Privacy Information Centre (EPIC) sent letters to universities asking them to consider before installing tools to monitor the file swapping networks, as increased network surveillance could dilute the already scarce university resources.

### snapshot

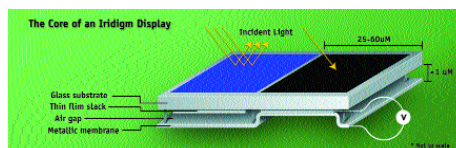
Online music sales drop to **\$545 million** in the first three quarters of 2002, from **\$730 million** in the first three quarters of 2001

Source: ComScore Networks

## Looking better

Iridigm, a San Francisco based company has developed a new reflective screen technology using a micro-electromechanical system (MEMS) called an Interferometric Modulator, or iMoD. This device can yield screen brightness as much as three times that of other liquid crys-

tal displays, while consuming less power. The display is made of two conductive plates—one is a thin film stack on a glass substrate, and the other is a metallic membrane suspended over it. The gap between the two is filled with air. The basic principle is the idea of light interference—the same principle found within shimmering butterfly wings that give it the iridescent colours!



## Musical directory

Philips may soon help you place a song you can't remember. All you will have to do is dial a number and place your cell phone near the speaker when the track is played. A computer tallies it against a database and sends you a text message with the relevant information. Hashing, the technology used here, breaks the tune into 33

narrow frequency bands and the energy of each band is measured. When a tune is played, the computer cross checks it with the existing database. Philips hopes to have a database of over a 1,00,000 songs and estimates that just three seconds of playtime should give you an accurate match. →





## Privacy at stake

In a hard blow to the fight for right to privacy on the Net, the Virginia Supreme Court ruled against America Online's plea that a subpoena calling for revealing a subscriber's identity be quashed. California-based Nam Tai Electronics filed a complaint in January 2001 alleging that 51 unknown individuals, including an AOL subscriber, had posted false and unlawful messages on a discussion board.



Claiming trade label and violations of California's unfair business practice

statutes, Nam Tai requested the California Supreme Court to subpoena the AOL user. Privacy and democratic rights groups are appalled at the ruling, as courts all over the US protect the individual's privacy and anonymity rights.

AOL filed a motion arguing that it cannot reveal subscriber information as it would infringe on the First Amendment rights that guarantees an individual the freedom of speech and the right to anonymity. AOL now has 10 days to appeal to the Virginia Supreme Court or turn over the name. If the Virginia court rules against AOL, then AOL can appeal to the US Supreme Court.

## snapshot

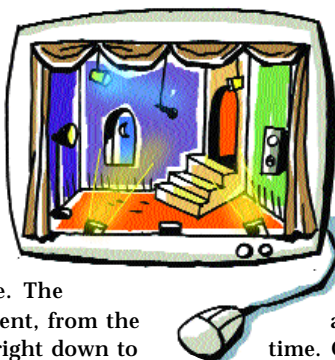
Reliance is targeting **40-50 lakh** customers, and expects to make **Rs 4,000 crore** in the first year of its WLL service

Source: Economic Times

## Acting digital

If it wasn't enough that computers are being used to create special effects in movies, Broadway has now embraced the PC passionately.

In a new musical, *Dance of the Vampires*, the entire set made up of a six-ton cemetery, changes in under a minute. The entire arrangement, from the lighting effects right down to shifting the six-ton graveyard, is governed by a computer needing a supervisor to just



flip a switch. Intelligent lights change colour, focus and fade right on cue with smoke pouring through ports on the floor

and music pumps through speakers monitored by a computer-assisted keyboard, giving enthusiasts the performance of a lifetime. One does wonder though, if the show would go on, should the computer crash!

## No XXX in BMX XXX

Acclaim Entertainment's *BMX XXX* will not contain topless nudity in its PlayStation2 version. The game's trailers featured strippers, coarse language and the tag line 'Keep It Dirty'. However, protests from various parents groups as well

as the refusal by big retailers to stock the controversial game have finally led to an edited version for the PlayStation 2 release. The Xbox and GameCube versions, however, will not be 'sanitised', said the company.



## tomorrow's technology

### Organic Light Emitting Diode

Technology using devices called Organic LEDs (OLEDs) might just end the quest for a more cost-effective alternative to TFT displays. While this new technology initially used an expensive fabrication process where multiple layers of light-emitting materials had to be deposited sequentially in the devices, recent breakthroughs have allowed them to be fabricated using a single layer. This allows

OLEDs to be fabricated at significantly lower costs, giving them higher brightness, contrast levels and resolutions. It will also eliminate the need for a backlight, thus greatly saving power requirements—ideal for mobile display applications.

Also, while OLEDs were originally capable of emitting only a single colour, a newer process called down-conversion created by Anil Duggal, a researcher at the General Elec-

tric Global Research Center in New York, will allow multiple colours. Through this process, an OLED is placed face down on a glass substrate and the opposite side of this substrate is deposited with particles of dyed polymers. When light from the OLED enters the polymer layers, some of the photons are split or down converted by the phosphor particles into two longer wavelength photons.

## quoteworthy

"Breaking into Mac isn't something that gets a hacker kudos in his or her community. Breaking Microsoft gives that person the ego dollars that they depend upon"

Dan Kusnetzky, Vice President of systems software research at IDC, explaining why Microsoft systems are more often hacked than other OSes

"All legitimate businesses online have an incentive to fight piracy, obviously as this study shows. It affects everyone"

A representative for the Recording Industry Association of America, on the need for anti-piracy measures, in view of a study by ComScore Networks that showed a drastic slump in online music sales this year

■ BMG to manufacture only copy-protected CDs henceforth ■ Tablet PCs from Acer, Toshiba and ViewSonic range from \$2,000 to \$2,500



Dear Readers,

We firmly believe that a product must constantly improve itself in order to add more value for its customers. Hence it's been our endeavour from the very inception of the magazine to provide you with the best product mix comprising of useful innovations from specialised booklets, free Linux distributions to specialised video workshops on the Digit CDs.

In this issue, we've tried something radically different by offering two Fast Forward CBTs (Computer Based Training CDs) along with the magazine.

A CBT offers us the opportunity to communicate and explain the finer nuances of computing while overriding some of the limitations of

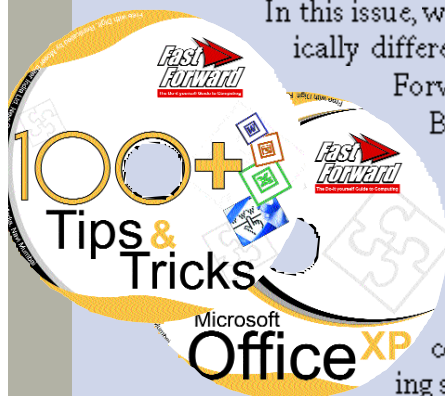
a print publication. The interactive nature of this medium allows you to learn at an accelerated pace while spending a minimal amount of time in the actual learning process.

We hope that you find the *100+ Tips & Tricks* and *Working with Office* CBTs useful learning companions. However, it's quite possible that we might have missed a trick or two in our enthusiasm to compile them. Thus, we would love to know your opinions and experiences with these two CBTs. Are you satisfied with their content quality? Would you prefer extra hands-on tutorials or more learning content?

Please log on to [www.thinkdigit.com/fastforward](http://www.thinkdigit.com/fastforward) and share your views with us. We would really like to hear from you.

Cheers,

The Digit Team



## Driving bad sectors

Dear Vinit,  
In the hard drive test conducted in the November issue, you have specified that by spending a little extra, we can get a 40 GB hard disk drive instead of a 20 GB. A friend of mine recently bought a 40 GB hard disk, which just a few days later developed some bad sectors. I have heard that most of the 40 GB hard drives easily get bad sectors as compared to 20 GB drives.

Venkatesh  
Via e-mail



Dear Venkatesh,

Your belief that 40 GB hard disk drives have a greater tendency to develop bad sectors is a fallacy. A simple case of bad luck might have more to do with your friend's drive crashing, than its 40 GB capacity (we've got a substantial number of similar capacity drives that are running completely trouble-free in our offices). The best way to avoid bad sectors is by taking necessary precautions such as refraining from moving the drive while it's in operation and providing clean, uninterrupted power to your computer.

digit

## Branded Justice

Hi,

This is regarding your test on Branded PCs in the October 2002 issue of Digit. I was shocked to see Zenith's system, which was based on a 2.4 GHz Intel Pentium 4 processor, being outperformed by the 1.3 GHz Celeron based Vinton Elixir 1000. Could you please clarify this scenario?

Guruprasad  
Via e-mail

Hi Guruprasad,

We tested the PCs in the same state in which they arrived in our test labs. Theoretically, a newsystem built with the same configuration as the Zenith PC should have performed much higher than the scores we logged. Thus it's possible that we received a faulty unit for testing, but we'd recommend that you stick with a more sturdy performer such as the HCL Bearstalk4458 as detailed in our article.

digit

## Your vote counts

Q. What do you think about Digit's unique half-flap covers?

For	Against	Gimme Models
34%	33%	33%

Since you are this undecided, we'll stick with the tried and tested for now.

This month's question:

"Would you replace Backbyte with a monthly technology quiz?"

Log on to [www.thinkdigit.com](http://www.thinkdigit.com) and vote on it



## Strange customs

Hello Vinit,  
Since India's customs laws suck and we end up paying high prices for the latest computer hardware such as a GeForce4 graphics card, why can't an Indian company produce these locally? This would definitely reduce prices and make these hardware components more affordable for the common computer user.

Sandeep Banerjee  
Via e-mail

Hello Sandeep,

Manufacturing hardware locally would definitely result in lower-priced products. However, the process of fabricating devices such as graphics cards is very demanding and needs huge capital investments and infrastructure—two factors that are in short supply in India. While there are companies that have set up manufacturing plants for devices such as motherboards and modems, it is not financially viable to manufacture top-of-the-line products such as the latest graphics cards. In fact, Graig Barrett, CEO of Intel, said he would set up a chip fabrication plant in India if he were guaranteed clean power. And that was over one-and-a-half years ago!

**digit**

## Read our letters

Hi Vinit,

I have a suggestion. In your November 2002 issue you said that you couldn't reply to everyone's mail due to the sheer number of e-mails received by you. May I suggest that you implement a program that sorts the mails and forwards it to the proper person? If you are too busy, I will make that program for you.

Nick Carter  
Via e-mail

Hi Nick,

Thanks for your input and I greatly appreciate your offer for help. However, most mail clients have filters that can do what you have suggested. But this is not the problem. We literally receive hundreds of e-mails everyday and it is just not feasible for our editorial staff to devote the time required to do justice to each of the queries that they receive while balancing their regular workload. We do, however, find the time to read through everything that our readers have to say even though we might not be able to reply to every e-mail.

**digit**

## Singing away the blues!

Hi Vinit,

I work for a company that manufactures DSL-based Internet access equipment. As a professional involved in the telecom sector, I think I can explain the underlying issue affecting Internet access in India as described in November's article 'Broadband Blues'. The so-called broadband that is presently being offered is an extension of Ethernet technology—a shared medium technology. Thus, as the users increase for a particular segment, the speed for that segment falls. The result is a typical customer reaction that when the service was started the speed was okay, but worsened as time progressed.

S.A. Srinivasa Moorthy

Via e-mail

Hi Srinivasa,

You are absolutely right. Falling speeds as a result of an increase in the subscriber base is a primary problem affecting broadband services in India. Service providers need to strictly enforce Quality of Service and ensure that their bandwidth increases in proportion to the number of subscribers.

**digit**

## A great idea!

Hi Digit,

I would like to suggest a change for the 'By Demand' section on your Web site. It is hard to choose a game or software by just reading its name. You should include a small write up on these software or provide a suitable link so that the users can make a more informed decision.

Sarosh  
Via e-mail



Hi Sarosh,

Dhanyavad for the excellent suggestion. In fact, we've already started to provide more information on the 'By Demand' candidates within the poll itself.

**digit**

## Short Bytes

### Miss October

Hi Vinit,

Your October edition was a real treat; the centre-spread workshop on 'Reviving your Dead PC' was especially outstanding. I am a hardware student and I found that piece to be of great help.

Shiva Kumar

Via e-mail

## Spread the good word

Dear Vinit,

I have been reading your magazine since its inception and I love the articles and reviews. Lately I've run out of storage space, but I simply cannot get myself to give away Digit to the raddiwalla. Can you please suggest an alternative means to give the old issues away?

Chirag

Via e-mail

*Since knowledge and wisdom are best shared, you could donate the old issues to your local library and give countless others an opportunity to learn about the wonderful world of technology.*

## Goof Ups

■ The Walking Gigabytes story on Page 74, Digit November 2002, incorrectly mentions that the Zip 250 and 750 do not feature a manual eject button. Both the Zip drives have the said button.

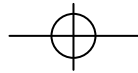
■ In November issue's Bazaar section, the contact information provided for Busy Lite 3.0 on Page 89 is incorrect. The correct contact is Busy Infotech Pvt Ltd, Phone: 011-7375062, Price: Rs 1,500.

■ The Drive-in Bytes story on Page 56 in the same issue mentions that the LG 8320B contains 8 MB of buffer. It in fact only has a 2 MB buffer. Thanks for pointing this one out, Vishwanath.

*Notice any goof-ups? Write to [goof@jasubhai.com](mailto:goof@jasubhai.com)*

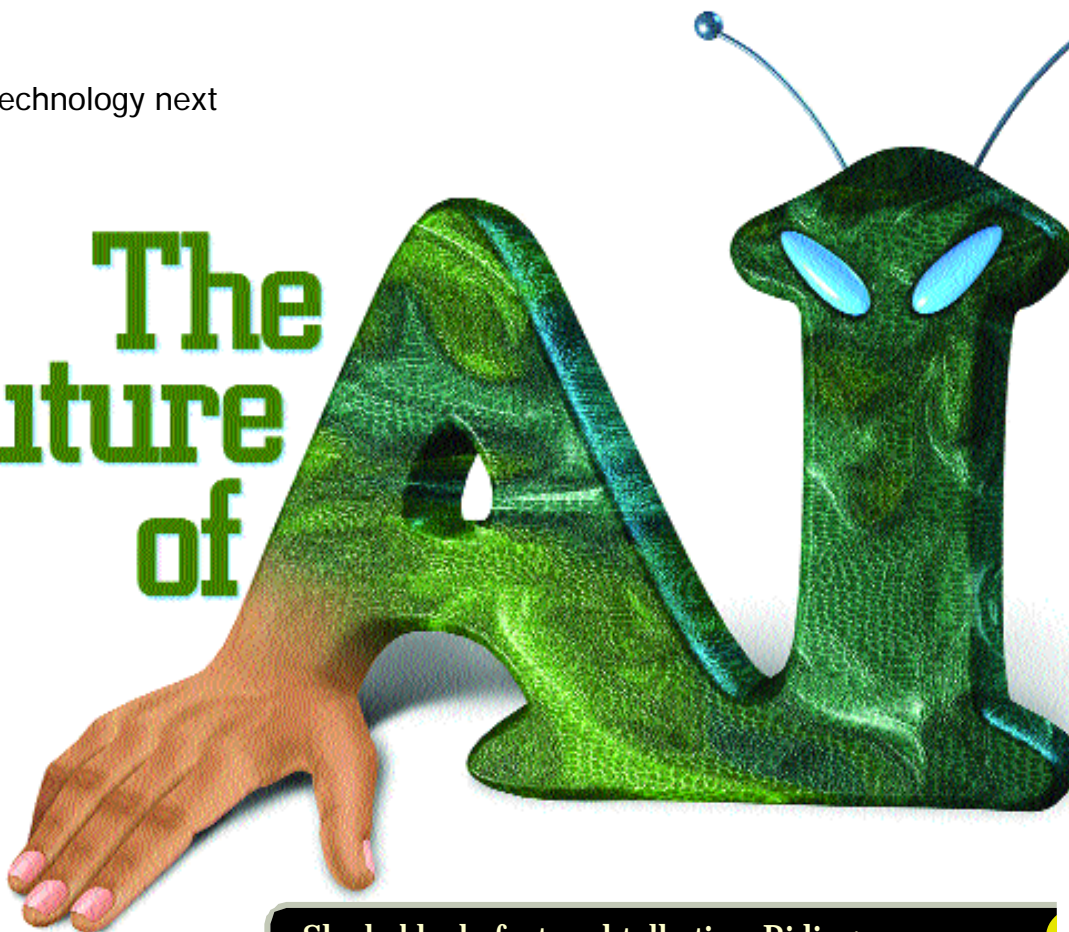
Send your letters marked 'Readers Letters' to the Digit office:  
D-222/2, MIDC, TTC Industrial Estate, Om Sagar Building, Nerul, Navi Mumbai 400 706,  
Phone: 022-7629191/9200 Fax: 022-7629224  
E-mail: [readersletters@jasubhai.com](mailto:readersletters@jasubhai.com)





features ■ technology next

# The Future of



Popular culture has always been bombarded with the thoughts of science fiction writers and pop directors. Whether it is mass-hysteria created by the radio transmission of H.G. Wells' *War of the Worlds*, or the drones of fans that religiously subscribe to the worlds of *Star Trek* and *Star Wars*, fiction has always teased and appeased the human mind. Cars that can talk and drive themselves, buildings that fly, robots that help around the house, and androids that are almost human, universal translators, aircraft that do all the flying for us... joining all these seemingly disparate dots is the common thread of Artificial Intelligence. The concept that we, as humans, will one day create entities that will be non-differentiable from us in thought and in action. Will the line between fact and fiction be always a thick bold one? Are we doomed to conjure up things larger than life whilst we struggle to cure the common cold? Let us see whether science today has succeeded in rendering some of our fondest dreams into reality, even as we look further, into the brave new world of the future. ■

AHMED SHAIKH

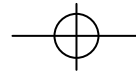
**Sleek, black, fast and talkative. Riding autonomously on all fours with an indestructible body to boot. This was KITT, a Pontiac Trans-Am and the star of the 1982 television series *Knight Rider*. Can we ever hope to own a car that drives itself?**

**T**he bad news is that KITT is still years away—as of now, you cannot hope to control your car with a cell phone. The good news is that there are autonomous systems that allow some amount of back seat driving. Typically such systems, such as the Distronic found in the Mercedes S Class of cars, do little but regulate the distance between vehicles, speeding and slowing as and when required. The better news is that something a little more evolutionary, that can cope with the urban traffic, where lane rules and road regulations are easily forgotten, is in the making. This new car contains two microprocessors that figure out where the car is in relation to others and to the boundaries of the road. The vehicle is driven by software AI techniques of shape recognition and comparison. It's based on a database consisting of three-dimensional models of roads and road elements. Thus, facets of road intersections, types, typical road-widths, cars,

trucks and pedestrians are all allocated within the database. Mounts in front of the car are cameras that take snapshots of the surrounding environment and send them to the processor within. The processor uses the AI routines to compare the features to the ones within the database. The car will thus ascertain its position and speed with respect to the vehicles, the road and pedestrian. The processor then steers, accelerates or decelerates as needed. The system is not perfect since the decision is based on ideal road widths and forms best on slow speeds.

Future cars could share a common consciousness of sorts; a distributed software environment reminiscent of the Borg collective. Akin to the flocking behaviour of birds, AI routines could render this collective to act in a coordinated manner, keeping distance, maintaining a safe path and ensuring that you reach your destination safely and effectively.





"Dave, this conversation can serve no purpose any more. Goodbye." Thus ran the chilling conversation between the AI program HAL 9000 and the space explorer Dave, moments before Dave breathes his last. Are software programs smart enough to be compared with HAL from Stanley Kubrick's *Space Odyssey 2001*?



**M**aking up for the lack of a brain in Dr Frankenstein's monster, scientists are busy tinkering with creations that can think. A computer program that closely mirrors the manner in which humans learn in the social menagerie of life. These new portents of intelligence use a technique called inductive logic programming—knowledge supplied by the scientists in the form of rules and rule-execution criteria. The programs use this information to learn from their system in what can be termed as 'experience'; and for their own benefit, tweak and change the base rules. It is an evolutionary process that relies on feedback from the environment.

So what are the benefits of such programs? Researchers have already assigned them the role of molecular

biologists: the analysis of protein structure. In one such scenario, the programs successfully 'self-discovered' a previously unknown carcinogen. They were also able to extrapolate and extract new rules that govern the manner in which a three-dimensional protein structure is formed. Success has not been restricted to the field of biology—mathematics was gifted a new sequence of integers called refactorables, by a similarly thinking software routine.

A thinking piece of software is well in demand in various fields, ranging from military—a smart bomb that designates and destroys enemy targets; to medicine—a smart pill that finds home in your body and delivers drugs based upon the feedback it receives from your immune and circulatory system.

## Automated Help

Mechanised wheelchairs that help the disabled are already a market reality. These futuristic wheelchairs can take the form of motorised, gyro-controlled vehicles that offer stability and an ability to climb stairs. They also sport pressure-sensitive manoeuvring systems that can be used to steer the machines with the faintest of blows from the mouth. Experts at Osaka University in Japan have used AI techniques to take the current-generation of wheelchairs onto a higher level of automation. You can call the chair towards you, for example by simply gesturing with your hands. Video cameras mounted on the machine along with facial recognition and motion detection software allow just such behaviour. The chair can be steered with sideways head motions.



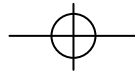
The 1986 Disney film, *Flight of the Navigator*, showcased the story of a young boy taken on an interstellar ride by a sleek silver spacecraft that called itself MAX. When can we expect our current modes of flight to go sentient and fly us around the universe?

**U**sing a combination of data collected from radars, satellites and wireless networks, an airplane is more aware of itself and its airspace than it has ever been. These systems act as early-warning alarms, automated co-pilots, navigational aids and even landing assists. For instance, when a rudder or the wing flaps of an airplane malfunction, there is precious little that a pilot can do to avert disaster, since these systems do not have fallbacks. AI routines developed by NASA have been used to keep a plane flying even when it otherwise wouldn't. The software is based on a neural network—an AI routine that enables a program to perform a series of tasks by learning through trial and error. A flight control system keeps an eye on data such as the plane's airspeed, heading and the forces experienced by its elements such as the wings and the tail. This data is then compared to a safe set of numbers, which would be encountered when things are working optimally. When

something awry is detected by the control system, the neural net kicks in and takes control. The network sifts through the alarming data six times a second to work out the best means of using the operational systems of the plane to maintain normal flight. For example, if it detects a wing-flap, the net would guide the airplane into a pre-manned manoeuvre, maybe banking the entire structure to compensate for the flaps. The neural net was able to keep the plane in control even at a supersonic speed.

A neural net, along with surface recognition algorithms, data gathered from satellites can theoretically, fly and manoeuvre an aeroplane. Although such a system might never find widespread use, scenarios wherein the pilots are not available would be invaluable in disasters, like they currently do. Hostage situations, irregular, could be foiled, as a neural net would guide and land the plane in a safe territory without needing human input.





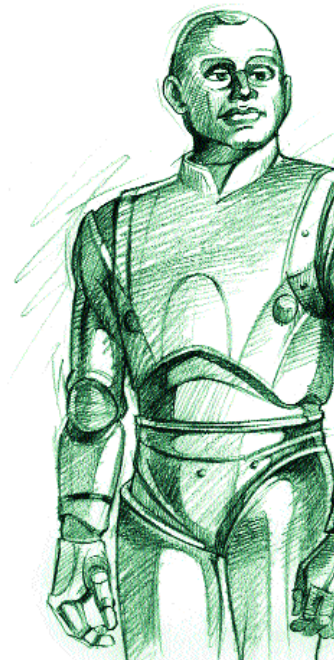
## features ■ technology next

We grew up with the *Jetsons* family and half expected the wonderful world of flying cars, automated sidewalks and the floating buildings to come alive. Will robotics bring Rosie the robot maid out of the television screen and into our homes?



**P**robotics, a small company, has developed Cye—an answer to domestic woes that took 10 years in the making. Cye resembles a dustpan on wheels and is designed to serve you dinner and clean the carpet. It uses a personal computer as the hub of its tasks. The user defines the chores that need to be performed, by dragging and dropping icons within a computer program and Cye takes over from there. Before bending its back though, the robot needs to know the lay of the land. This task requires the owner's input, so that the robot is guided from one extreme of a room to another using a mouse. It then explores between boundaries thus defined,

interpolates the data from its treks and conjures up a map of the space in question. Once mapped, the machine navigates using a pair of wheels that double up as rudimentary sense organs. Whenever the wheels encounter resistance to their motion, the force is translated into electronic signals that the machine can understand. Cye can therefore detect obstacles in its path using these wheels. Thus aided, the robot will arm itself with a vacuum cleaner and attack the carpet with the vigour reserved for mechanical nuts and bearings. When it runs low on power, it stops what it is doing and heads to the nearest recharging pod for a breather.



Go back to the 1986 hit movie, *Short Circuit*, starring an emotionally wrought, self-aware, existential robot, Number 5. Can AIBO, Sony's replacement dog, ever hope as emotive and expressive as that movie's star?

The inimitable series by Douglas Adams, *The Hitchhiker's Guide to the Galaxy*, had a peculiar element to it—an alien fish, which when appropriately inserted could instantaneously translate between any and every language. Termed Babelfish, will the real world ever hold it with its ear?



**T**he German Research Center for Artificial Intelligence (DFKI) along with IBM and Siemens has jointly developed an AI system that aims to bridge the language gap. Language resources such as lexicons, grammar, and test suite form the foundation of the technology. Built upon this are components for the design and implementation of a language such as word 'taggers', sentence parsers and sentence generators, along with tools for the maintenance of terminologies and dictionaries. Finally, AI routines that help in speech analysis and synthesis are brought to task. The entire system performs a bevy of tasks including information extraction from spoken

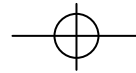
sentences, cross-lingual information access, linguistic analysis and grammar checking. The system has been commercially implemented in the form of Verbmobil, a cellular phone service that can translate spoken English, German, Japanese and Chinese in a few milliseconds at an accuracy rate of close to 90 per cent.

Better AI routines are all that stop speech synthesizers from becoming universal translators. Spoken words are a part of the communication process, which includes gestures and body language. The ultimate translator would thus be one that analyses not only words but also the slight tilt of the head that separates a comment from a conde-

**K**ismet is a robot, complete with eyes, eyebrows, ears and an experiment that is destined to be adorable, if not great things. Developed by a Massachusetts Institute of Technology (MIT) team headed by Rodney Brooks, the robot is designed to self-learn just like a two-year-old human toddler. Traditionally, AI has been about implementing so-called algorithms that define a set of rules to replicate the world and another set to define the robot's behaviour within the simulated world. But Kismet thinks differently. Rules are defined, but are emergent. Kismet is built on a tree-structure of simple components; the complex behaviour is only visible on a large scale—the robot can communicate its desires using a range of expressions that cover interest, happiness, surprise and anxiety. Such techniques can equip us with the tools to implement complex interaction and feedback systems in robots of tomorrow.

ascending remark.





**Precogs: Humans with the ability to predict a crime even before it is committed. Thus went the premise of the 2002 hit movie, *Minority Report*. Can science ever develop a piece of software or hardware to predict the future?**



**H**umans bring with them cognitive biases: they rely too much on one set of information without looking at the entire picture formed, often with disastrous results. To minimise errors and to eventually produce a silicon stock market capable of simulating the lows and ups of the real thing, AI techniques are pitched together. Rule sets are created with data extracted from market snapshots of the past. Software agents are then hired to simulate buying and selling decisions based on these rules. These decisions are then passed on to a human who does the actual transactions. Each decision made by such an agent is accorded a weightage based on the degree of success of the choice. Successful agents are then 'bred' together—a snippet of code from here, a snip from there and you have birthed something new. Muta-

tions can also be introduced in the progeny by toggling the 1s and the 0s involved. The resultant offspring are similarly evaluated on their successes and the process is repeated till a healthy ecology emerges wherein software agents of repute move up the ladder while the faulty ones fade into extinction, taking the associative rule sets with them. To add to the heady mix are fuzzy logic elements that can base decisions on a range of data, rather than discrete values of the same. Such cocktails have been used to construct expert systems—software powerhouses designed to replace a human professional such as a market analyst.

Built upon the power of supercomputers, an expert system can perhaps one day answer the age-old questions about 'Life'. Nirvana, via your friendly neighbourhood computer!

**"Agent Smith", say it in the soporific drone of the villain that plagued Neo and the crew in *The Matrix*. Smith was created as a figure to police, maintain hegemony, the humans in the virtual network that enmeshes the fictional world. Can scientists come up with software codes that serve the Internet in similar fashion?**

**H**ow are viruses, bacteria and the Internet inter-related? The Net is a mass of connections, strung together at nodes that physically manifest as routers. These routers have a fixed buffer capacity that determines their ability to store and re-route data. Sometimes the data arriving at these nodes is lost by the router. What is the mechanism by which buffers monitor themselves, adjust the incoming packets and their lengths accordingly. So does sex come in? Bacteria reproduce in a very efficient, albeit exciting manner: when two cells come in contact with each other, genes snippets are exchanged. Successful genes are propagated while ineffective ones fade. Software codes behave similarly: strings of data imitate the genetic code snippets that are then collated and dispersed between the software. Code snippets let the buffer adapt and evolve as per the needs of the

This could be put to use in phone lines, making dropped and busy lines a thing of the

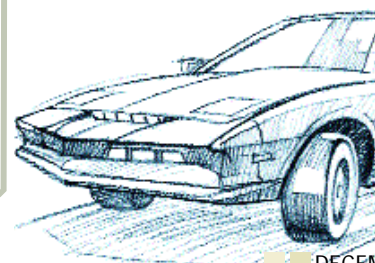
***Bicentennial Man*, the 1999 film starring Robin Williams told of Andrew Martin, a household android who begins to feel genuine human emotions. Will a robot ever reach a level of intelligence to be considered sentient and maybe, even human?**



**M**ove over AIBO, enter Robokoneko. Proving comprehensively that cats are indeed smarter than dogs, the robot kitten is all set to take centre stage with a brain powered by the electrical firings between some 40 million artificial neurons. The brain will consist of 72 programmable silicon chips whose connections between constituent transistors can be electronically rewired. To maximise their potential, connections will repeatedly be reconfigured to represent 32,768 different modules. As the brain cycles through these modules at a rate of 300 times per second, the effect will be akin to a singular entity with a virtual bank of 37.7 million

neurons. Since the task of programming a bank as complex as the kitty's brain seems illogical, the scientists turn to genetic algorithms for respite. Codes of software will be let to brew, intermingle and share snippets amongst each other, eventually leading to the creation of a neural network based on the best-of-breed software snippets.

Take a brain as complex as Robokoneko's, add in the expressions and the emotional ability of a Kismet and stir vigorously. Blend in face recognition software, speech analyzers, speech synthesizers, a healthy dollop of automated limbs and voila, a fully functional android is at your service. Happy living.





## Panasonic DVD-LV65 ▶▶ For your viewing pleasure

This portable DVD player offers 2.5 hours of viewing time. Its 5-inch widescreen LCD monitor can be adjusted for a wide range of viewing positions and allows you to view DVD movies in the 16:9 widescreen format or conventional 4:3 format. The DVD-LV65 can play a variety of audio and video disc formats such as DVD-Video, DVD-RAM, DVD-R, Video CD, Audio CD and CD-R/R. You can also view JPEG images and MPEG4 video, and listen to MP3 files. There are outputs for optional DTS and Dolby Digital surround sound decoders, providing six discrete audio channels. So switch on the DVD player, bring out the popcorn and enjoy!

Web site: [www.panasonic.com](http://www.panasonic.com)



# HOT GEAR

Digital accessories to match your attitude

## ◀◀ HP Jornada 928 WDA Pocket PC Two-in-one wonder

Voice, data and personal information management integrated in one device? That's what the 928 WDA offers you. It is based on Microsoft's Pocket PC 2002 Phone Edition software and combines a PDA with a GSM/GPRS-enabled phone. Thanks to its dual screen design, you can access the phone and Pocket PC functions independently of one another—the PDA applications on a 16-bit colour reflective TFT screen, and the phone functions on a blue-backlit phone display. The 928 WDA features voice-activated dialling and a dual-battery system that includes a rechargeable lithium-polymer battery which gives you an estimated 3 hours talk time or 12 hours PDA usage and 120 hours standby time.

Web site: [www.hp-expo.com](http://www.hp-expo.com)







## Archos Jukebox FM Recorder 20 GB Your entertainment centre

A 20 GB hard drive, USB 2.0 compatibility, data transfer rate of up to 480 Mbps, 300 hours of CD quality MP3 music at 128 kbps, 450 hours of radio recording at 96 kbps, 700 hours of voice recording at 64 kbps, continuous playback time of up to 12 hours or 20 GB of data. No, we are not listing out the specifications of a PC. This tiny little pocket-sized MP3-player-cum-recorder-cum-FM-radio allows you to record from any analog or digital source and to port your recordings back to the PC without any specialised software—just drag and drop MP3 files from Windows Explorer. This versatile device can also be used as a voice recorder.

*Web site:* [www.archos.com](http://www.archos.com)

## Casio Exilim Wearable Card Camera EX-M2 Slim is in!

This little device has a 2.0 megapixel CCD, 4x digital zoom, and the ability to record up to 30 seconds of video. For memory, it has an SD Memory Card, a MultiMedia Card and 12 MB of Flash memory. The camera supports Print Image Matching II and comes with a USB cable and software that simplifies image management—all in a package that is 11.3 mm thin and weighs just 88 grams. Oh and did we mention that it acts as an MP3 player also? You can get nearly five-and-a-half hours of playback on a full charge. What more could you want in a camera?

*Web site:*

[http://world.casio.com/exilim/en/ex\\_s2/style](http://world.casio.com/exilim/en/ex_s2/style)



## MadPlayer Tunes for you

An MP3 player is an MP3 player, is an MP3 player. Right? Take a look at MadPlayer and you just might change your ideas. This MP3 player can store music in all the popular file formats, including MP3, WMA and MIDI. It has a karaoke functionality, an FM radio and uses a soundbank of over 550 instruments and sounds so you can create tunes in a huge range of styles and genres. Besides, it lets you be your own DJ—you can choose the music style, add samples and effects and even share your creations. There's a standard 32 MB Smart Media card, upgradable to 128 MB. A built-in audio output jack lets you connect it to practically anything—your home stereo or any other device that can record MP3s or burn them on CDs. So if you've got a tune, just play it!

*Web site:* [www.madplayer.com](http://www.madplayer.com)



features ■ firsthand

ILLUSTRATION: Atul  
Deshmukh

# COMPUTING FOR Absolutely Everybody

**// Our vision when we started the company was a computer on every desk and in every home.**

**In this setting, I think the word to emphasise is 'Every'. The PC can be a tool for every**

**H**ari Raghavan, aged 24, comes across as your regular MBA yuppie, sporting a clean shave and an endearing twang. What makes his colleagues take a double take as he marches into his office is the red and white stick he uses. 'Challenged' by retinal degeneration since the age of 17, Raghavan is a marketing executive with one of India's leading publishing houses. His job profile involves two extremely sight-centred activities—computing and travelling. Thanks to special tools built into common applications and some add ons, he is able to do his work remarkably well within the same setup that is used by the rest of the office.

In the overall employment and market scenario, where every half a degree separates the employed from the unemployed, physical impairment can be a big drawback—especially so if it is of the visual nature. In a workplace, the employment of any differently abled individual means extra investment in terms of infrastructure and hence, the choice

between hiring an able-bodied person and a blind one is already made. In this kind of economy, especially in a developing country, it is quite a struggle for the disabled to acquire jobs. In order to amend this, it is essential that they are educated by the same standard and have similar skill sets as others so that they can easily fit into existing work environments.

The need then is for chameleon like devices and applications that blend in with the already existing environment. Fortunately, there are plenty of tools available that allow this.

## Inherent support

The source of input and feedback is the most crucial part of an application for those who are incapable of receiving conventional feedback. This naturally points to Braille, the tried and tested medium of communication. However, a basic drawback with Braille is the learning curve involved, not to mention the 'unlearning' one has to do of conventional reading and writing

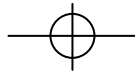
methods. This is especially difficult for those who have lost their sight gradually or by an accident.

K. Ramakrishna, a general manager at IDBI bank, found that Braille was inadequate for his mathematical and statistical requirements. "Not that the teachers at the National Association for the Blind didn't try their very best to teach me Braille," says he with a snigger, 'I think I was just too lazy to learn."

Also, the introduction of, say, a Braille printer or keyboard in a functional workplace spells additional effort, which few are ready to undertake. However, this same crack lets in the light for computing—since Braille has such limitations, we have to fall back upon regular alphabet reading. For those who already have the concept of a PC and its navigation, OCR and screen reading software are ideal.

Visual disability can be classified as either partial or complete blindness. The former obviously lends a certain degree of independence compared to the latter. I

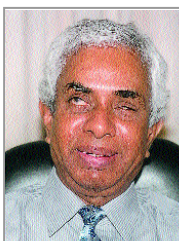




## features ■ firsthand

transparent architecture to support either of the disabilities is inherently present in most technologies. Simple magnification methods present in Windows such as increasing the font sizes and using special, high-contrast colour schemes help the partially blind.

Among the enhanced accessibility features in Microsoft's Windows 2000 and XP are two utilities called Narrator and On-Screen Keyboard, which along with the previously introduced Magnifier, are installed by default with the operating systems. They appear along with the Accessibility Wizard and the new Utility Manager in the expanded Accessibility



K. Ramakrishna  
GENERAL MANAGER, IDBI

“Braille was inadequate for my mathematical and statistical needs”

menu, found under the Start button. Such utilities provide a minimum level of functionality for many people with disabilities, without requiring additional software and hardware.

While Magnifier, Narrator and On-Screen Keyboard do not replace full-featured accessibility aids, they allow users with disabilities to effectively use a computer running Windows. Narrator is particularly useful to the visually impaired as it is a text-to-speech program that can narrate as a user types. The On-Screen Keyboard displays a virtual keyboard on the screen, enabling users with limited mobility to input text using a pointing device like the mouse. The Magnifier, as suggested by the name, enlarges sections of the computer screen for increased read-

ability, a boon for users with weak or failing eyesight.

However, both the Magnifier and the Narrator are but assisting tools that can not offer the user complete independence. The Magnifier helps only those with failing vision, while the Narrator, by its maker's own confession, “allows only a minimal level of functionality for users with special needs”. The situation demands utility programs with advanced features that let users perform day to day tasks with complete independence.

### A glimmer of light

Many a surprised colleague has stopped by Raghavan's desk, kindly letting him know that his monitor is switched off as he types furiously away at his keyboard. Raghavan explains patiently that he doesn't need the monitor to be switched on since he uses a software called Window-Eyes. Developed by GW Micro, this is a screen navigating software that reads out explicitly what is presented on your monitor display—default buttons, spaces, line breaks and punctuation included. A series of configured keys let you choose a particular line to be read out slower or even spelled out. The rest of the functions, such as file saving, changing its location, and maximising and minimising a window can also be configured as per the user's convenience and preference. The pace of reading can be set to a speed comfortable to the user.

Raghavan got through his BCom years with the help of traditional human readers and writers during examination and by studying with the aid of audiotapes recorded by his mother. The vacations preceding his final year took him to the US where he was introduced to various OCR software and to Window-Eyes. By the time Raghavan returned, he was happily rattling away at his keyboard while the speakers prattled

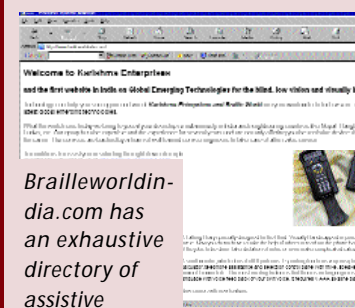
### Hardware Solutions

Apart from software enablers, there are hardware devices that let a visually impaired person use the computer in as natural and effortless a way as possible. Devices that give the users the ‘feel’ of the screen through various products such as refreshable Braille displays, touchpads, screen reading software or speech synthesisers, are all

aimed to provide such an experience. But such devices are not easily available and may not match the budget and preference of the user. Adapting them to an already set infrastructure like say, a work place where the basic work devices such as the printers and PCs are connected to each other, becomes quite a task—to install a

### Assistive Devices

Karishma Enterprises, run by Ra Agarwal, who is also visually impaired, specialises in importing assistive devices. The company's Web site, [www.brailleworldindia.com](http://www.brailleworldindia.com) lists the different devices that can be ordered, and also has a job directory and a space for those



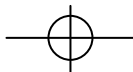
interested in setting up computer and electronic training institutes and projects. Karishma Enterprises undertakes the setting up and installation of these centres as well as the training and orientation of the staff. It also provides consu-

out the words. Since Raghavan was accustomed to using the PC before losing his sight, the screen narration emanating in an American drawl from his speakers/headphones as he used Window-Eyes was easy to decipher.

While the thought of travelling between two continents to learn computing seemed impractical to most visually impaired people, help is available at home. Karishma Enterprises in Mumbai is the master distributor in India for JAWS for Windows ([www.freedomscientific.com](http://www.freedomscientific.com)), a popular and user-friendly screen reading software. It enables the visually impaired to learn and operate a computer independently.

JAWS for Windows, developed by Freedom Scientific USA, has the credit of being a pioneer in its field. Ramakrishna is one of the early users of JAWS for Windows, used a DOS-based version as early as 1986. The software reads information from the computer screen and speaks back via a speech synthesiser. The success of the software is its intuitiveness and ease of use. This is further enhanced by the fact that most of the people working on this project are visually impaired. The s-





## Tool Shop

**Bobby:** A Web accessibility software that is compliant with existing accessibility guidelines. It enables visually impaired people to access and enjoy the same information available on the Internet that is available to the rest of the world.

**Web site:** <http://bobby.watchfire.com/bobby/html/en/index.jsp>

**Focus:** The Focus series of Braille displays come with keys that allow the user to navigate any software without reaching for the computer keyboard. They also have two audio inputs and one output for maximum usability. Two USB ports and programmable buttons further enhance its usefulness.

**Web site:** [http://www.freedomscientific.com/fs\\_products/displays\\_focusinfo.asp](http://www.freedomscientific.com/fs_products/displays_focusinfo.asp)

**IBM Home Page Reader 3.0:** This software utilises IBM's ViaVoice text-to-speech synthesizer for reading out text, frames, images, text links, data input fields and other details on the Web. It is available in Brazilian Por-

tuguese, French, German, Italian, and Spanish.



**Web site:** <http://www-3.ibm.com/able/hpr.html>

**JAWS 4.5:** Job Access With Speech is designed to add speech output to applications. It uses configuration files to record speech parameters such as volume, rate, pitch and frame and macro definitions. The latest version supports Windows XP and Internet Explorer 6.



**Web site:** <http://www.freedomscientific.com>

[/fs\\_products/software\\_jaws.asp](http://www.freedomscientific.com/fs_products/software_jaws.asp)

**PAC Mate BNS:** A handheld designed exclusively for the visually impaired. Running JAWS for Windows, it provides the same applications that have been built for devices such as the Compaq iPaq. The PAC Mate BNS has Braille in and speech out capabilities and the PAC Mate BNS has a QWERTY-style keyboard with speech output.

**Web site:** <http://www.freedomscientific.com>

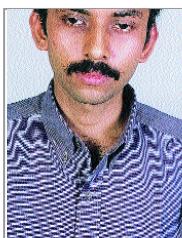
synthesiser offers support for seven languages—US English, British English, German, Italian, French and Latin Spanish.

The latest version incorporates features such as Smart Screen Technology to provide flexibility with menus and dialog

with Windows, which means that any enhancement in the OS, such as XP will be adapted to JAWS for Windows.

### Filling the void

So are these tools restricted to a privileged few? Not at all. The makers of the technologies themselves are instrumental in spreading it to the intended audience. Most NGOs that set up computer training centres for the visually impaired consider only the costs of their sighted teachers—the equipment is sponsored by evangelist NGOs and developers of the technology. The Indian Association of the Visually Handicapped (IAVH), an association dedicated to informing, counselling and aiding the visually impaired, was built on grants from IDBI Bank, Microsoft and the HDFC bank. It has training centres in Mumbai, Pune, Nagpur, Hyderabad and Thiruvananthapuram. The Victoria



**Hari Raghavan**  
CONSUMER MARKETING,

Technology is what technology does, and it has made it possible for me to have a mainstream career

boxes. A speech pad enables single-handed operation and voice configurations. It possesses enough intelligence to analyse the screen content and then speak, making it easier for the user to work unfamiliar applications. It also works in tandem

with Windows, which means that any enhancement in the OS, such as XP will be adapted to JAWS for Windows.



# How we Test



It looks good and the technology is glitzy, but does it do the job?

The Digital Media Test & Research Centre (DMTRC) conducts a series of elaborate tests to evaluate the merit of each hardware and software product. To ensure that our readers have all the information they need to make an informed buying decision, engineers at DMTRC evaluate and review the latest hardware, software and technology services in accordance with the most up-to-date evaluation processes and methodologies used around the world.



## The Awards

Digit awards outstanding products by selecting a Best Performance and Best Value winner in each comparison test. The winner of the Best Performance Award will be the product that scored the highest in the performance segment of our tests.

This award represents the best performing product in our tests and doesn't factor in any other parameter such as value for money, features, support, etc. The winner of the Best Value Award will be the product that scores the highest in our value for money parameter which is derived taking into account the ratio of a product's performance and features to its price. The product winning this award offers good performance at a great price.



## In Bazaar

The second part of the rating system is used to evaluate individual hardware and software products in the Bazaar section. The evaluation covers parameters such as performance, ease of use, value for money and the build quality/features of the product in question and then arrives at an overall rating.

Here each of these parameters is given a weightage of 25 per cent and is rated on a scale of 5, which is represented by arrows (▶).

The greater the number of arrows, the better the product. This simple five-point rating system is designed to give you an easy-to-interpret assessment of a product. For example, a product that receives an overall score of five arrows signifies an outstanding buy!

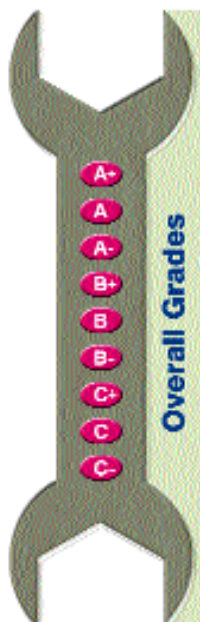
## Comparison Tests

We use a dual rating system, the first of which is applied to the Comparison Tests in which we compare the performance of products within a particular category.

Each product is evaluated under different parameters such as performance, value for money, features, warranty and support, etc.

Weightages are then applied to the various test parameters according to their importance for that particular category of products.

These weightages are then used to arrive at an overall grade for each individual product. An overall grade of A+, therefore, indicates that the product is close to perfection.



## The 5-point Rating System used in Bazaar

▶▶▶▶▶	<b>Excellent:</b> a brilliant combination of price, performance and features—far beyond expectations
▶▶▶▶▶	<b>Good:</b> a good buy, better than most products in its category
▶▶▶▶▶	<b>Average:</b> reasonably competent but nothing spectacular about the product
▶▶▶▶▶	<b>Mediocre:</b> does not live up to expectations, needs improvement in many areas
▶▶▶▶▶	<b>Poor:</b> has serious drawbacks and needs improvement before it can be used for its target application

## In Test this Month

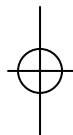
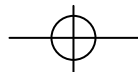
After having tested and reviewed 588 hardware and software products during the course of this year in Digit, we bring to you the Zero1 Awards, the definitive award for excellence in performance. If you want to find out who's the best-of-class in the various product categories, turn to the Zero1 Awards feature this month. From 3D graphics cards to games, laser printers and scanners, we bring you the products that have excelled in technology, innovation and performance.

We also bring you a crop of some of the most bleeding-edge products in our Bazaar section. Reviewed here is the formidable Hercules 3D Prophet 9700 Pro graphics accelerator—to date, the fastest graphics card in the world for gaming. The product that could just make the sub-Rs 20,000 PC become a reality. Find out also how the new Mini-ITX form factor motherboard from VIA stacks up in our tests.

There are also a host of droolable peripherals such as the Logitech Cordless Freedom Optical keyboard and Microsoft's new wireless Intellimouse Explorer optical mouse.

On the software front, we review the newest iteration of Red Hat, version 8.0, and also a couple of great tools such as Norton AntiVirus 2003 for combating the threats posed by the increasing army of viruses, and Adobe LiveMotion 2.0, which will help you add pizzazz to your Web sites.

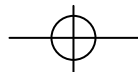




# Peak of EXCELLENCE





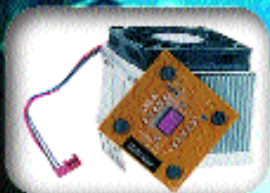


Like with passengers on a speeding train, our perception technology is but a fleeting blur—technology is constantly changing, sometimes faster than you can grasp! And this year has seen some of the most influential arrivals in the field. With advancements in processor fabrication processes, quantum leaps in 3D graphics hardware design, and smoother and more efficient application software, our experience of technology evolved from working with toolbars to getting the maximum of our beige box.

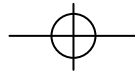
Be it games, communication or office tasks, the combination of today's bleeding-edge hardware and feature-rich software has raised our levels of interaction, efficiency and experience to higher peaks. We have been witnessing these changes throughout the year in our labs, so we think it only fitting to bring you the best on a platter at the end of the year.

In the never-ending quest for the faster, higher and stronger we bring you the Zero1 Awards 2002.

IMAGING: Swar





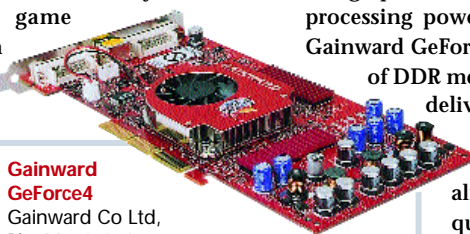


## 3D GRAPHICS

**A**rdent gamers are not used to settling for anything lower than the best when it comes to their favourite games, be it a first person shooter or a racing simulation. But at the rate that graphics technology advances, what's hot today is stone cold a few months down the line. This year has seen some of the most formidable technologies, where more pipelines, and faster core and memory speeds have allowed cards such as nVidia's GeForce4 and ATI's Radeon 9700 to blur the line between high performance gaming and cinema-like graphics.

### Behind the polygons

Forthcoming games will use larger, more detailed textures. Game developers are already going all-out in creating high-polygon count models and game characters. These games will demand Programmable Pixels, at least 64 MB of DDR video memory and of course, faster core and memory speeds. Programmable GPUs allow game developers to create custom effects in models and environments—all this spells the need for the fastest video memory you can afford on your graphics card and faster AGP interfaces such as AGP 8x. Also remember that you will need a powerful system processor to run these graphics powerhouses.



**Gainward GeForce4**  
Gainward Co Ltd,  
Ph: 886-2-26966777

**The verdict:** This card has a massive 300 MHz core and 640 MHz of DDR memory. It shattered all record on our gaming benchmarks, proving to be the fastest vehicle for a killer gaming experience!

### Nominees

Name	Contacts	Comments
<b>GeForce4 Ti 4600</b>	Xserve India Pvt Ltd, Ph: 080-5202915	This GeForce4-based card has a massive amount of DDR memory. It logged a commendable score in our gaming benchmarks, making it an ideal choice for a fast gaming system
<b>GeForce4 Ti 4200</b>	Xserve India Pvt Ltd, Ph: 080-5202915	With a 250 MHz core and a memory speed, this 64 MB DDR memory-based card packs the power to get you through your gaming escapades comfortably

These factors will ensure that you won't have to live your first *DOOM 3* experience like it was a slideshow!

### And the award goes to...

The graphics card that impressed us this year with its best processing power and stunning frame rates in games was the Gainward GeForce4. Sporting a 300 MHz core speed and 640 MHz of DDR memory (effectively running at 640 MHz), it delivered the highest frame rates we have ever seen in gaming: in *Quake III Arena*, even with resolution cranked up to 1024x768, with aliasing, 32-bit texture depth and with quality settings kept at their maximum value, this card pushed out over 100 fps on a test system comprising of a 2.8 GHz Pentium 4 processor. With this card, you will be able to enjoy the latest games at butter-smooth frame rates without sacrificing graphics quality.

## GAMES

### Unreal Tournament 2003

**S**moke streaming through floor gratings, a flickering blue light reflecting off a steel door, rusted girders looming through a murky corridor—*Unreal Tournament 2003* is the path-breaking game that set new standards for realism in 3D gaming. It sports a radically new game engine that allows for an intensive level of detail and environmental splendour, which can be enjoyed even on a mid-range machine without slowing down to a slideshow. Retaining all the classic elements of a winning First Person Shooter, the game has vast and playable levels, radical weaponry and modes of gameplay to keep an enthusiast riveted for hours. It also features one of the most realistic physics engines where bodies and elements move and react to external stimulus more realistically.

Incorporating a very powerful set of level editing and creation tools, the playability and the level of variation in this game can be supplemented with user-created add-ons and enhancements, ensuring that *Tournament 2003*, like its predecessor, will continue to live a long life.



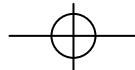
**Unreal Tournament 2003**  
Milestone

Interactive Software,  
Ph: 022-28381614

**The verdict:** With a new game engine that allows greater detail, *Unreal Tournament 2003* sets new standards for realism







## CD-WRITERS

Once upon a time, CD-Writer drives were so expensive that they didn't feature on most people's upgrade list. But the technology behind these drives has developed rapidly and simultaneously, the cost of manufacture has dropped, resulting in a range of very affordable drives.

Today, prices of CD-Writer drives equal those of DVD-ROM drives and most budget processors. Most CD-Writers (in similar speed ranges) are priced in the same range, making it difficult to choose one. However, keeping in mind the parameters that do affect the performance and reliability of these drives, one can decide which is best suited to a particular task. While different CD-Writers support varying speeds for write and re-write tasks, there is a point beyond which the effective speed of CD-Writers does not make any real difference.

### The burning decision

A year ago, CD-Writers supported speeds such as 12x write, 4x re-write and 32x read. Then a 650 MB CD-R written at an 8x speed, for example, would take about 15 minutes. In comparison, today's fast 48x20x48x drives can write a 700 MB CD in under 4 minutes at the fastest setting. However, every disk has a lead in and lead out which takes about a minute to complete. Therefore, even with faster CD-Writer drives, you would not be able to tell the difference in speeds as you would between, say, a 12x and a 24x drive. Also, you need to have media that is compliant with such high write and re-write speeds.

Hence, your choice of CD-Writer should not be dictated by speed alone, but in conjunction with other parameters such as the buffer size and the buffer underrun technology. The larger the buffer on your drive, the lower are the chances of facing buffer underrun errors while writing a CD even if you are performing other tasks on your computer. This becomes very crucial, as most of us tend to multitask.

Along with faster write speeds, today's CD-Writers also try to write more reliably even with other applications running in the background. In order to take full advantage of these technologies, you need to look for similar support in your drive's software for creating various types of CDs such as Video CDs and for creating Audio CDs directly from the MP3s on your hard disk. With most internal drives pushing the 48x write speed mark and the lowest drive beginning at 32x, the limits of speed have been redefined. Also, prices for most internal CD-

### Nominees

Name	Contacts	Comments
<b>ASUS CRW-4816A</b>	Neoteric Infomatique, Ph: 022-24172600	This 48x CD-Writer boasts of good write speeds and technologies that let it write disk data is temporarily suspending it to take off from where stopped
<b>LITEON 48x12x48 CD-Writer</b>	Mediatech India, Ph: 022-56396696	This CD-Writer drive did well in write and re-write tests and its performance, it is also very affordable

RW drives are such that the variance is not more than a few hundred rupees between the slowest and the fastest drive there. If your work involves occasional CD-writing work, an entry-level 40x drive would be a good choice. However, if speed is critical, especially in professional applications, quality is also paramount, then it would make sense to go for a 42x drive that features at least an 8 MB buffer with a form of buffer underrun protection so as to prevent buffer errors. CDs while other applications are also running, the burn process.

In the case of external CD-Writers, the most important parameter is the interface. While external CD-Writers are functionally similar to internal drives, their performance is maximised only if your computer sports an interface that is faster than that of the external drive. The new plan to buy an external drive that supports the new USB 2.0 standard, it exploits the fullest potential only if your computer has a USB 2.0 port. Otherwise, it is

limited to the significantly lower 12 Mbps bandwidth of USB 1.1 and you won't be able to write CDs at more than 1x speed. If you are going to be taking the drive with you between computers, it would also be advisable to invest in one that is compact yet built sturdy so that it can withstand a rigorous journey on the road.

### And the award goes to...

The Winner that came out a winner this year was the LITEON CDRW55296INT-B 48x24x48x drive. It boasted of high write speeds and very good data transfer performance, excellent buffer memory, its SMARTBURN technology ensures it reliably writes CD-Rs and CD-RWs even at the highest write speed setting.

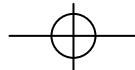


**lomega**  
**CDRW55296INT-B**  
Neoteric Infomatique,  
Ph: 022-24172600

**The verdict:** This 48x write, 24x rewrite drive boasts of best-of-class speeds and also performs very well while reading CDs







## CELL PHONES

**T**his year has witnessed a host of new technologies in the cellular cosmos. While the beginning of the year saw a lot of improvement in the basic GSM cellular services, towards the latter half of the year, many of the big service providers introduced new, more advanced functionality in cellular services such as always-on Internet connectivity and new standards such as CDMA and MMS. While we are gripped at the cusp of this explosive growth, it is only testament to the fact that the forthcoming year will put the world in your palm, via your cell phone. With service providers ramping up their technology, it follows naturally that the Indian market will be flooded with new cellular devices that support these technologies and services—we are already seeing the first trickle with GPRS and MMS-capable cellular phones.

### Make the right call

Various factors are instrumental when you go out to buy a cellular phone. At its very basic level, every cellular device in the market lets you make and receive calls, work with SMS and provides basic scheduling and contact management functionality. Depending on personal preferences, one would either need as many functions and features the phone has to offer with the price being no bar, or one would require basic functionality, with the price being a crucial aspect.

If you intend buying a new cell phone in the new year, look for a combination of basic functionality and support for future standards and services. Along with considering the traditional factors such as memory for contacts and messages, long battery life, scheduling, calendar and PIM functionality, you should also demand higher specifications in each of these. Set your sights on a phone that offers storage for at least 250 phone numbers, greater memory for storing SMS, and standby and talk time in excess of 15 days and 5 hours, respectively. Even in the lower end phones, you should ensure that there is some form of basic PIM functionality such as scheduling and reminder capabilities. Also, it is a wise choice to go in for a phone based on Lithium Ion batteries as they feature long talktimes and useable life.

On a higher plane, you should also look at more advanced features that will let the phone adapt to newer technologies. Bluetooth compliance is one such feature to look for. This wireless standard promises to deliver a transparent wire-free

### Nominees

Name	Contacts	Comments
<b>Nokia 5510</b>	Nokia, Ph: 011-6779000	Boasting of a keyboard for e-SMS entry and an in-built MP3 player, this cellphone integrates a lot of functionality
<b>Nokia 8310</b>	Nokia, Ph: 011-6779000	With trendy looks, a large colour screen and an integrated camera, this phone delivered very good performance and functionality

experience when used with other Bluetooth-capable devices. GPRS compliance and MMS functionality should also be kept in mind for a better multimedia experience and for easy access to information on the Web. To facilitate all this, the phone will need a good screen with a relatively high resolution and preferably with colour support. Last but not least, consider parameters such as weight, size and look. These would, of course, depend upon your individual preferences and personality!

If you want exclusive boasting rights, search for features such as backlit displays with many colour options, polyphonic ring tones and full-colour screens. Finally, ask the vendor to demonstrate the features of the phone to you. Use it for a while and see if it is comfortable to hold and operate, especially if you have large hands. Make and receive calls and see if the volume of the speaker is loud enough to hear clearly without having to shout at yourself.

### And the award goes to...

The cell phone that stood out from the shoulders above this year's crowd of functionality, features and performance was the Sony Ericsson T68i. Fusing technology with great looks, this phone supports various standards such as GSM, GPRS, MMS and Bluetooth, and is a true contender of cellular phones to come. It keeps you busy on long trips with eight ga-

can hold 510 contacts, 150 messages and 30 calls. With an advanced Lithium Ion battery, it delivers a standby time of up to 15 days and a talk time of over 6 hours on a single session.

With its 256-colour screen, joystick menu navigation system and lightweight form factor, this phone packs a surprisingly wide array of technology in a very compact package.



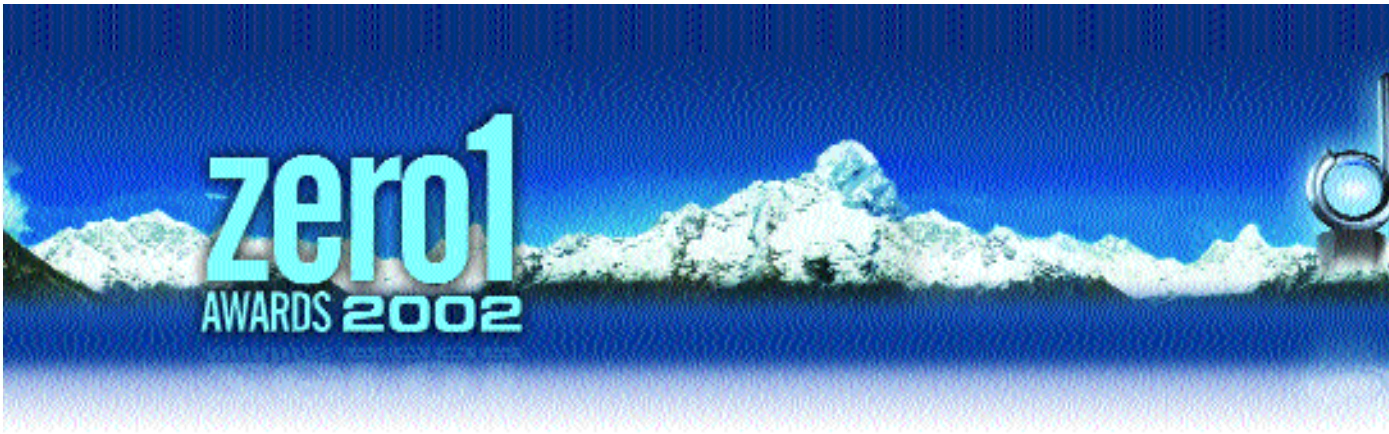
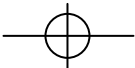
### Sony Ericsson T68i

Ericsson  
Ph: 022-24962142

**The verdict:** With features like MMS and GPRS capability, a large phone and message memory and a full colour screen, this tiny cellphone packs a lot of technology into a small size







DESKTOP PCS

The type of computer you buy is largely decided by the choice of its components and your budget. At the outset, there is an array of system components and even platforms to choose from. The best way to approach this decision is from the point of view of the applications you have in mind for your machine—are you going to use it for gaming or to surf the Net?

Name your brand

A Pc for gaming and entertainment would need a robust multimedia subsystem. For gaming, buy the fastest processor, the most RAM and the best graphics card your wallet permits. Also invest in a 17-inch monitor at the very least and a good sound system. The latest motherboards integrate full 5.1-channel sound and Dolby Digital soundcards are also pretty affordable now. Team up one of these sound systems with a good speaker system—go for at least a four-channel speaker system. A good system for entertainment would be one based around a 1.5 GHz processor or higher, 256 MB to 512 MB of RAM, at least a 40 GB 7,200-rpm hard disk and the best 3D accelerator card you can afford.

For Web and multimedia authoring, or system-intensive software such as page layout and image editing applications, your system should allow you to multitask effectively, with ample room for running and storing your applications and data. Go for a system with a 1.3 to 1.5 GHz processor, 256 MB RAM, at least a 40 GB hard disk and a 17-inch monitor to give you enough real estate to work the applications at higher resolutions.

For simply surfing the Net

Nominees		
Name	Contacts	Comments
HCL Beanstalk 4455	HCL Infosystems Ltd, Ph: 0120-4555219	With a 2.4 GHz Pentium 4 CPU, DDR RAM, this computer delivers good performance and also has a good set of connectivity options and peripherals
HCL Beanstalk 4458	HCL Infosystems Ltd, Ph: 0120-4555219	Running on a 2 GHz Pentium 4 CPU, DDR RAM, this computer fared well in the tests

and using e-mail, word processing and spreadsheets, a worthy choice would be built around an 800 MHz to 1.2 GHz processor, 256 MB RAM, a 40 GB 5,400-rpm drive and a monitor. A motherboard with integrated sound, video and working subsystems would be quite economical here.

And the award goes to...

The computer that delivered the best performance during 2002 was the Visualan Lavish. With its best-of-breed components, it showed excellent performance in all our tests. Running on a 2.53 GHz Pentium 4 processor, 256 MB of DDR RAM and a 40 GB 7,200-rpm Seagate EIDE hard disk, this PC did very well in all productivity tests. When coupled with an ATI Radeon 7500 and a 17-inch LG Iontron monitor, its gaming performance was also quite commendable. This system offered additional functionality with its mouse and its 32x CD-Writer drive.



Visualan Lavish Visualan

Technologies, Ph: 022-27686817  
The verdict: Powered by a formidable 2.53 GHz Pentium 4 CPU, DDR RAM and an ATI Radeon 7500 graphics card, this computer performed brilliantly—ideal for processor and graphics-intensive applications



SYSTEM SUITES

Ontrack SystemSuite 4.0

The system suite most worthy of the Zero1 Award this year was Ontrack SystemSuite 4.0. This software comprises a wide array of tools and functionality to keep your system operating at its peak levels. Its good performance can also be attributed to its effective firewall and registry cleaner. This registry cleaner provides a power interface that lists duplicate and null entries from where you can delete specific entries. The firewall not only protects your computer by blocking ports but also includes functionality that makes it suited to home users.

This software presents a unique tool called EasyRecovery, which recovers permanently erased data as well as files from formatted

partitions! Another tool backs up critical system files—an invaluable feature for users who install numerous applications and expose their critical files to rogue programs. All these protective and innovative measures are available at a very reasonable price tag, spiralling Ontrack to the top pedestal.

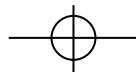


Ontrack SystemSuite 4.0 Ontrack, E-mail: sales@ontrack.com

The verdict: With plenty of functionality such as an integrated firewall and the ability to recover files from even deleted partitions, this suite is a must-have.







## DIGITAL CAMERAS

Once things get into the digital realm, it naturally gains advantages such as portability, ease of archiving and most importantly, no loss of quality even after duplication. Though digital cameras have been around for some time now, their technology and functionality has come to the fore only in the recent past. With denser CCDs, smaller form factors, more features, exhaustive options, longer battery life and, most importantly, a fall in prices, digital cameras are slowly but surely creeping into the price bracket of the amateur shutter-bug.

### Getting in focus

The optical parameters of a digital camera are identical to those of conventional cameras. This includes the focal length of the camera, the optical zoom, the exposure modes, the manual and auto focussing methods and metering modes. However, more important than these are parameters such as the CCD sensor, the amount of memory for storage, the LCD viewfinder, battery type and menu navigation system.

A camera with a 1.3 megapixel CCD sensor is a good place to start for beginners—their resolutions go up to 1280x1024 at 72-dpi. Though not suited for printing, it is adequate for viewing and sharing them online. For basic print photo needs, you need at least a 2.1 megapixel CCD—this allows a resolution up to 1600x1200, which is adequate for postcard-sized prints.

All digital cameras use some form of Flash

### Nominees

Name	Contacts	Comments
<b>Fuji FinePix 2800 Zoom</b>	Jindal Photo films Ltd, Ph: 022-28514441	Boasting of a 6x optical zoom, 2.1 megapixel camera sports controls for great photographs for amateurs
<b>Nikon CoolPix 800</b>	Aver Software Technologies, Ph: 022-26320472	Sporting a 2x optical and 2.1 megapixel camera, this Nikon boasted of a large number of options for creative photography, many controls over manual

storage. Opt for at least 8 MB of Flash memory or higher, the more you can afford, the better. Optical zoom gives clear up shots compared to digital zoom. Digital cameras are notorious for chewing up batteries. Opt for Lithium Ion batteries, they are lighter and offer greater capacities; the next best are NiMH batteries.

### And the award goes to...

The camera that shone bright in our year was the formidable Olympus C-2100 Ultra Zoom. With its 2.11 megapixel sensor and various modes for metering, white balance, the camera captured sharp images. The icing on the cake was the optical zoom and class-leading 27x digital zoom allowed you to get really close and personal with your subject. With a wide array of features, excellent build quality and brilliant image performance, this camera turned out to be an undisputed winner.



**Olympus Camedia C-2100 Ultra Zoom**  
Komal International,  
Ph: 022-22614015

**The verdict:** This 2.11 megapixel camera, with its outstanding 10x optical zoom and 27x digital zoom, delivered unbeatable picture quality with plenty of features for creative digital photography



## IMAGE EDITING

### Adobe Photoshop 7

The most-loved image editing software has just become better. Adobe Photoshop 7 has enriched the user interface with smoother buttons and inherent cosmetic enhancements. Your workspace and the arrangement of palettes and toolbars can now be saved and used later by different users. Underneath this new interface is a range of new tools such as the intuitive visual image management system. You can browse through your image files here in a thumbnail view with an intuitive Explorer-like navigation interface, which also displays a preview and information about the image. Another enhancement is the bloated number of over 50 brush presets. The newly incorporated AutoColor com-

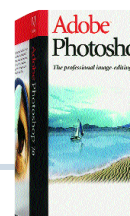
mand is an effective one-click colour correction tool. With numerous additional functionalities such as the improved Liquefy tool and the Pattern Maker, the creative possibilities are widespread, making Photoshop 7 a clear winner.



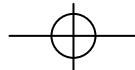
**Adobe Photoshop 7**

Adobe Systems India Pvt Ltd,  
Ph: 914532026

**The verdict:** With plenty of enhancements such as the visual image management interface, many new brush settings and tools that simplify commonly used tasks, Photoshop still remains the best in image







## DVD-ROM DRIVES

**D**VD-ROM drives are here to stay. Armed with complete backward compatibility for CD-ROM drives, enhanced functionality in terms of larger data storage and the fact that you can watch Dolby Digital movies on them, these entertainers are on everyone's wish list! A lot has changed over the past year with DVD-ROM drives—most importantly, the speeds and the price. Till recently, users dismissed DVD-ROM drives as an unnecessary expense. But due to the spread of DVD movies and the fact that their price has been plummeting for the past one year, DVD-ROM drives are now considered an essential upgrade from the CD-ROM drive. Even though there aren't too many applications made for the DVD, it still makes sense to invest in this drive as it warrants higher speeds and total compatibility with CD-ROM drives, especially if you are a movie buff.

### Under the lens

When considering a DVD-ROM drive, there are a few parameters that you should consider. These are not very different from the things that you would examine when buying CD-ROM drives—the read data transfer speeds, access time and interface still need to be considered. Most 16x DVD-ROM drives available today boast of sequential read speeds in the range of 6 MBps to 8 MBps. The access times of these drives range from 70 ms to 150 ms—the lower, the better. Don't buy a drive that is rated to run lower than this speed and stay far away from sub-16x DVD-ROM drives. Drives with access times lower than 70 ms will be slow when you work with CD and DVD-based applications, especially if those applications cause the drive to read in a random fashion.

As with any optical drive, make use of its DMA (Direct Memory Access) support by enabling the DMA mode from your operating system and from the BIOS. Your machine may show symptoms of degraded performance during DVD playback if you run the drive in PIO (Programmed Input/Output) mode.

Most drives are based on the ATA/33 standard though there are a few that support ATA/66. However, this standard isn't very crucial, as optical drives never reach even half the bandwidth offered by this interface. Finally, look for a drive that has a large buffer—512 KB is standard but some drives are built around 256 KB buffers—stay away from these. Apart from performance, also consider support for as many standards as possible to ensure that it can be used with a vast spread of media.



#### BenQ DVP-1648A

BenQ India Pvt Ltd,  
Ph: 022-25705230

**The verdict:** This 16x DVD drive

performed brilliantly in the read tests over various types of data, making it the best suited to applications needing frequent CD and DVD access



### Nominees

Name	Contacts	Comments
<b>Liteon LTD-165H</b>	Mediatech India, Ph: 022-56396696	A very commendable performer, this 16x DVD-ROM drive offered very good performance and is also very competitively priced.
<b>Pioneer DVD-106S/2</b>	Mnemonic Systems, Ph: 022-28010871	With its slot-in interface, the Pioneer DVD-ROM drive boasted very good performance with excellent build quality.

Also, it is always advisable to go for a DVD drive package that comes with a good bundle of software which can be used for applications such as DVD playback applications. Since the use of DVD-ROM drives is for DVD movie playback, go for a drive that bundles an application such as PowerDVD or VobSub. Some of the less popular drives do have an advantage of being better-priced, but they might not have a corporate backing that features things like regular updates to the BIOS to take care of possible bugs or adding functional features.

Finally, if you create a lot of MP3 files, you should see if the drive supports Digital Audio Extraction (DAE). If it does, see that it is able to do so at speeds of at least 12x for better performance.

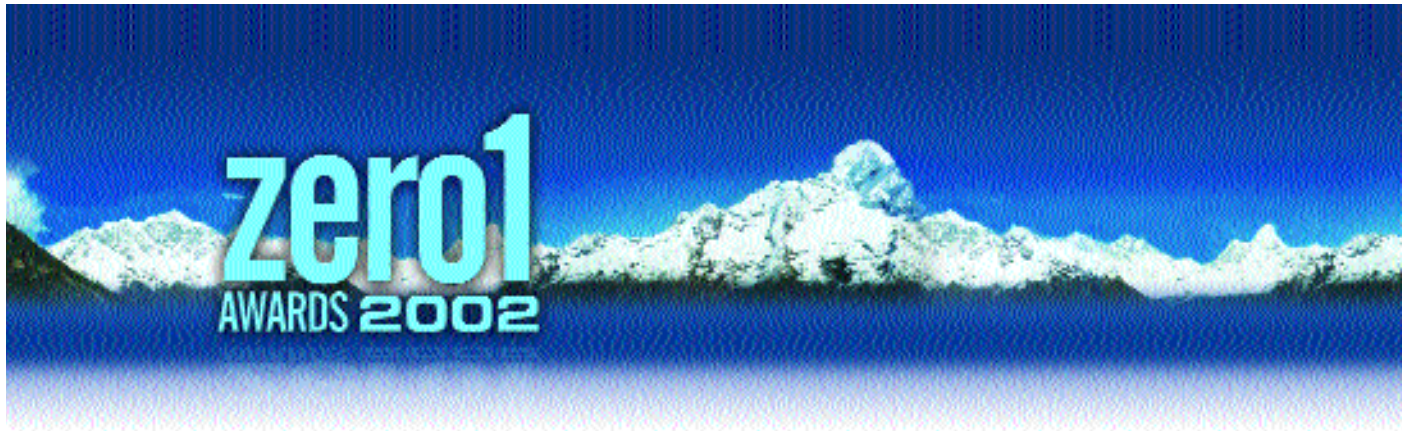
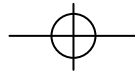
There are standards like DVD-R, DVD-RW, DVD-R, DVD+R and all of them are not necessarily supported by all drives—if a drive does not support a particular standard, you will not be able to read from that media. Though most users stick to DVD disks, it will come a time when other DVD media formats will be available. Therefore, it makes sense to go for a drive that supports as many standards as possible.

Finally, make sure that the drive is region-free to play all the DVDs available in your region. Most DVD drives are region-locked, that is, they can only play DVD movies from regions that match their own. You can change the region code a maximum of five times, after which it stays locked to the last setting.

### And the award goes to...

The drive that really shone in performance this year was the BenQ DVP-1648A 16x DVD drive. With blistering performance in the read tests and an excellent access time, topped off with a crunched-through-all-the-applications-it-was-subjected-to icing on the cake is that it is also one of the most affordable drives in the market.





## EXTERNAL STORAGE

**W**ith the barriers between our professional and personal lives blurring, the need of the day is something that will let you transport your data efficiently and reliably between computers. At one time, all we had were the trusty CD-R and Zip drives. But today, there is a vast variety of external storage devices tailor-made for our many requirements such as the storage capacity, speed and most importantly, adaptability with the wallet. As a result, we have portable CD-Writers based on the USB 2.0 standard for fast write speeds and even portable hard disk drives that can withstand physical shock and rough treatment.

### Choosing your backpack

The ideal external storage device for you is largely dependent on your applications. There are three basic kinds of portable storage solutions available today—portable CD-RW drives, portable hard disks and Zip drives. Each of these are characterised by different performance levels, capacity, compatibility and cost.

The performance characteristics you need to consider are the read and write data transfer speeds between the drive and your host computer for different file types. Also consider the latency and the access time when transferring and reading data. External CD-RW drives are known for the low cost and universal compatibility of their media and are therefore most suited to home users and applications that involve file sizes under 700 MB. Zip drives are suited only to applications where the installed base of the drives among users is large enough to warrant you to buy one. Since they are not known for their speed and have storage

### Nominees

Name	Contacts	Comments
<b>Iomega HDD 20 GB</b>	JIngram Micro India Pvt Ltd, Ph: 022-25202901	This sleek 20 GB portable has provided quick access times transfers, making it highly suited to transporting large multimedia files.
<b>Freecom FHD-1 60 GB HDD</b>	J.S Equipments, Ph: 022-23810713	Boasting of a 60 GB size, this disk sports a USB 2.0 interface suited to transferring large amounts of data between computers.

capacities comparable to CD-RW drives, they are not situations that require transfer of large volumes of data.

The most suitable performance devices for external storage are the external hard disk drives. They offer high-speed transfer and plenty of storage capacity. Also, since they use around high-speed interfaces such as USB 2.0, data transfer from these devices is faster than any other external device. The USB 2.0 standard connects them to any computer that has a USB port, though you would see the maximum transfer rates only when used on USB 2.0 compliant computers. The only downside is that they are expensive.

### And the award goes to...

The external storage device that gets kudos for best performance this year is the Freecom FHD-1 20 GB external hard disk drive. It is based on the USB 2.0 standard and delivered data transfer rates of 17 MBps when transferring data sequentially. With blistering performance in both read and write tests across a variety of file types, this drive is ideally suited for applications that required gigabytes of data to be transferred between locations.



**Freecom FHD-1 20 GB**  
J.S. Equipments,  
Ph: 022-23810713

**The verdict:** With USB 2.0 functionality, this drive provides the fastest method to get large amounts of data ported from computer to computer

## VIDEO EDITING

### Adobe Premiere 6.0

**A**dobe Premiere brings with it a host of added functionality and a very powerful set of features for working with digital video. It includes FireWire support through which you can hook up a DV cam to your computer and transfer high-quality video for processing in NTSC or PAL format. Many parameters such as the frame size and rate, compression ratio, colour depth, audio, etc can be configured.

There is also support for the widescreen (16:9) format. A DV editing mode enables the program to send captured and rendered digital video through the FireWire port to an external device direct-

ly for full-quality previewing. You can create video for the Internet in a variety of optimised formats such as QuickTime and RealMedia. Premiere 6.0 also contains a complete 99-track Audio Mixer for professional-level audio mixing.

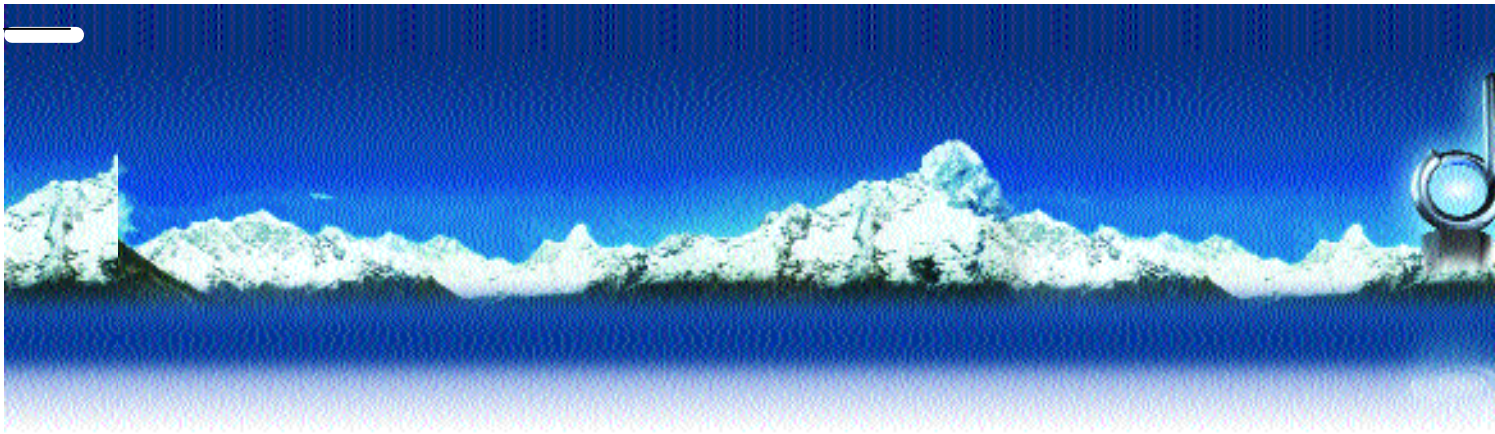
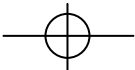


**Adobe Premiere 6.0**  
Adobe Systems India Pvt Ltd,  
Ph: 914532026

**The verdict:** With a host of features like FireWire support for DV cam export to web-based video for added effects and robust audio port, this a brilliant digital video editing tool for professionals







## HARD DISK DRIVES

Over the past year, hard disk drives have evolved from the entry-level standard of 5,400-rpm to 7,200-rpm and capacities now dictate that hard disks of 40 GB are the bare minimum for any application. With further enhancements in fabrication processes, manufacturing costs have been lowered and this has resulted in a drop in prices. This is the primary reason why some 7,200-rpm drives today are only marginally more expensive than their 5,400-rpm counterparts.

### On the right track

When looking for a hard disk drive, the best way to decide which one is ideal for you is to evaluate the technology used, along with the capacity it offers. The parameters that influence the performance are the data transfer rate while reading and writing different types of data, access time, amount of buffer memory and finally the interface.

The 5,400-rpm drives naturally deliver lower data transfer rates compared to the 7,200-rpm drives. For example, 5,400-rpm drives generally offer sequential read data transfer rates in the region of 32 to 42 MBps, while 7,200-rpm drives offer 48 to 54 MBps. The access times specified for 5,400-rpm drives should not be more than 12 ms, while for 7,200-rpm drives it should not exceed 9 ms. Faster access times will result in speedier access to distributed sets of data across your hard disk.

Today's hard disks sport ATA/100 interface and the newer ones are just beginning to feature ATA/133 interfaces. Both these interface feature maximum data transfer rates of 100 MBps and 133 MBps, respectively. However, in order to utilise them to their



**Western Digital  
WD1000**  
ACI Infocom,  
Ph: 022-28266031

**The verdict:** Boasting of a 7,200-rpm spindle speed and a 100 GB storage capacity, this hard disk drive shattered all records for data transfer speed over various applications



Nominees		
Name	Contacts	Comments
<b>IBM IC35I080A V VA07-0</b>	Wales Technologies, Ph: 022-23828100	This hard disk has a 2 MB buffer and a 7,200-rpm spindle speed. It is suited to applications that require fast response from the storage subsystem.
<b>Western Digital WD2000</b>	ACI Infocom, Ph: 022-28266031	Sporting a whopping 200 GB capacity, this hard disk delivered astonishing performance in various types of data-intensive applications.

maximum potential, they have to be supported by your motherboard and the resultant speed gains are only noticed when the rotations speed of the hard disks are higher. The 7,200-rpm drives use these interfaces more efficiently than 5,400-rpm drives. Finally, the buffer on the hard disk plays an important role in holding information temporarily while data is being written to or read from the hard disk—the larger the buffer, the faster is the response of the hard disk. Nearly all hard disks available today have a 2 MB data buffer.

### And the award goes to...

The drive that has the honour of being the fastest drive of the year is the Western Digital WD1000. This 100 GB hard disk is based on a 7,200-rpm spindle speed. It blazed through various tests and clocked some of the highest data transfer rates we've ever seen in an IDE hard disk drive. With its high data transfer rates in both sequential and random reads and writes, it is ideally suited to applications that demand the best in storage performance.

## OPERATING SYSTEMS

### Windows XP Professional

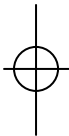
A proven operating system in a swanky new dressing, Windows XP Professional still rules with its powerful features, security and added functionality in a good-looking and intuitive interface. It incorporates features such as ClearText and the integration of hardware-accelerated graphics for the GUI. The re-worked Start menu gives access to often used applications and can be customised to individual preferences. On the security front, it incorporates the robustness and stability of Windows 2000 and has a firewall for added security. With a redefined layout for applications and system settings, controlling and accessing the settings and components of the OS is easy. The process of config-

uring new peripherals and technologies is intuitive with most of the management tasks being wizard driven. This OS even works well with older programs as they can be defined to run in an environment that mimics older Windows OSes.

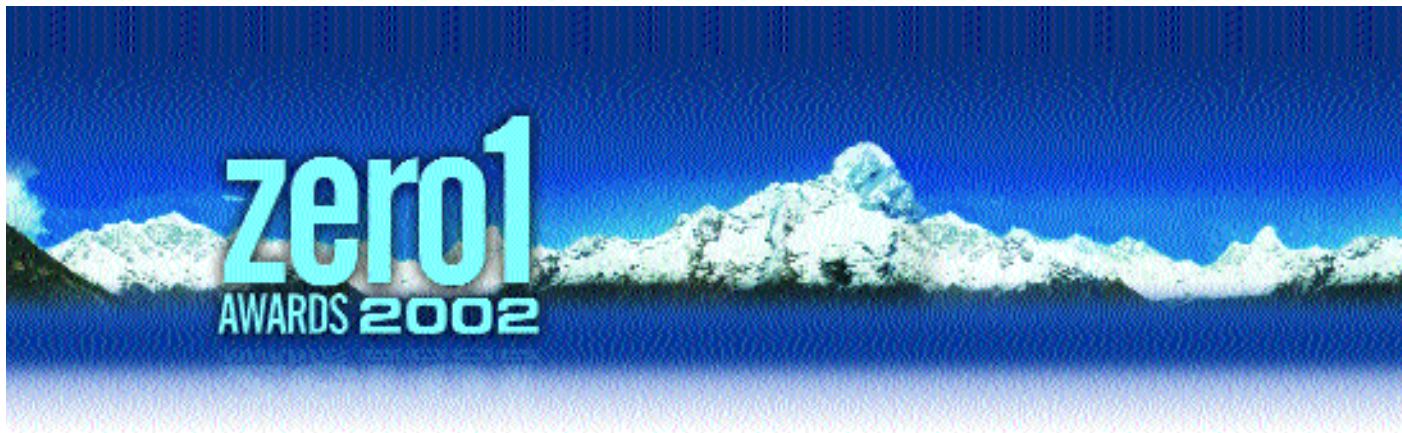
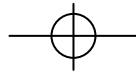


**Windows XP Professional**  
Microsoft Corporation

India Pvt Ltd,  
Ph: 011-26292640  
**The verdict:** With a host of features, great looks and a robust architecture, this operating system still stands out as the most demanding applications.







## INKJET PRINTERS

**I**nkjet printers bring all those visualisations, documents, presentations and pictures to vivid life on paper. While most high-quality printers in the beginning of the year touched resolutions of 1440-dpi, towards the end of the year we saw the best of the pack boasting print resolutions of up to 2400-dpi—and there seems to be no signs of this rise in resolutions stopping.

### Read the fine print

When talking about the performance of a printer, there are two parameters that should be kept in mind—print quality and printing speed. In print quality, the primary factor that determines the clarity is the resolution of the printer—the greater the resolution, the greater is the number of dots it can pack into a unit of area on a page. The latest printers support print resolutions of up to 2400 dpi, which results in photo-quality prints when using the correct paper. Before buying a printer, always analyse a sample print under best quality mode and make sure it meets your quality needs.

If you are looking for quality, the type of paper supported and the setting of the driver are two very important factors. For the best possible prints, make sure that your printer prints on special kinds of paper such as coated, glossy or inkjet paper, as this results in superior quality printouts. Also see that the printer has special modes of printing images and photographs.

Secondly, analyse the print speed—this is

largely dependant on the type of document being printed. In the case of graphics-intensive documents, the speeds would

### Nominees

Name	Contacts	Comments
<b>HP Deskjet 920C</b>	Hewlett-Packard India Ltd, Ph: 011-6826000	This printer sports a print resolution of 2400-dpi and features a 2 MB buffer. It delivered excellent results in photo printing
<b>Canon S4500</b>	Canon India Ltd, Ph: 011-6806572	Based on a 1440-dpi print engine, this bubble jet printer delivered excellent results when printing graphically demanding images

understandably be lower than while printing plain text. An inkjet printer should have a text printout rate of about 10 pages per minutes (ppm). In the case of colour photo printing, the time taken will vastly vary according to the type of image and the quality chosen.

While looking for speed, print using draft or economy mode as this uses less ink and subsequently takes less time to print. Finally, the interface plays an important role, especially if you print in large quantities or if you print graphical files. A faster interface such as USB allows the printer to spool print information much faster than an older interface such as a parallel port. Finally, choose a printer with a print buffer of at least 64 KB. The larger the amount of buffer memory, the better the performance in the printing of larger files such as photographs.



**HP Deskjet 970Cxi**  
Hewlett Packard India Ltd,  
Ph: 011-6826000

**The verdict:** With an astounding 2400-dpi print capability and 4 MB of buffer memory, this printer delivered stunning results in photo printing and graphically demanding applications

### And the award goes to...

The best inkjet printer this year was the HP 970Cxi. With its formidable 2400-dpi print resolution, it offered excellent print quality and support for a variety of papers, faster print speeds and better performance when it came to print speeds over large files. It even managed to impress us in the professional print domain.

## PAGE LAYOUT SOFTWARE

### Adobe InDesign 2.0

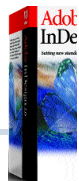
**I**n the battle for the perfect page layout software, Adobe InDesign 2.0 proved its mettle. With its extensive support for text and image handling, it makes working with complex files such as brochures and magazines a snap. InDesign has special support for working with image files from within the program itself, therefore, you don't need to resort to a separate image editing software. Its ability to handle text effects and tables is far superior compared to other page layout software and

tables can be imported directly from Word and Excel files. The magic of layers has been exploited well. It can also open files from other applications such as Quark Express.

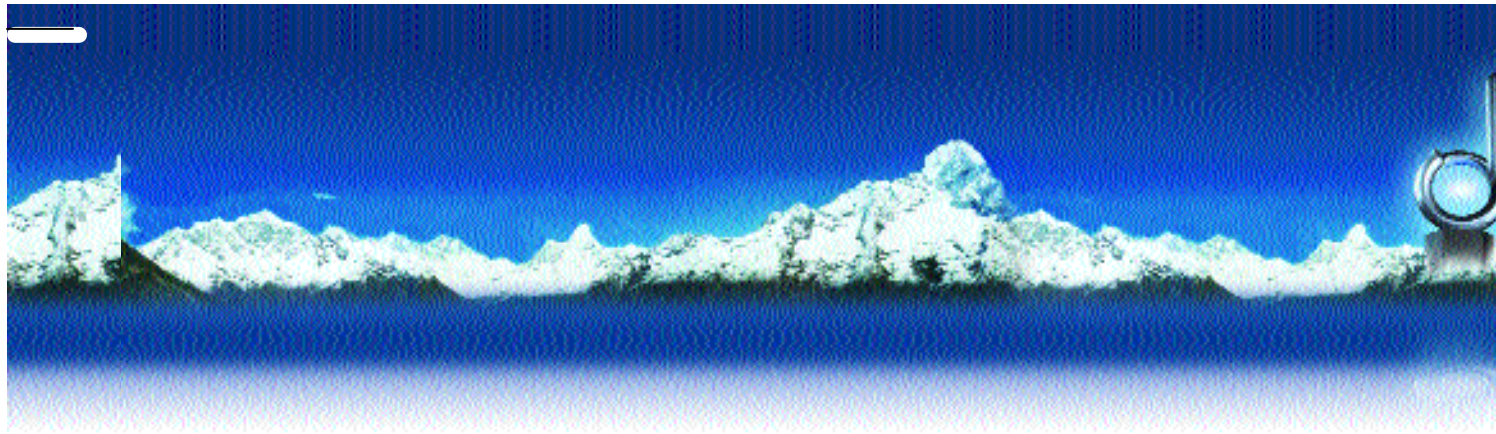
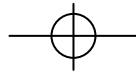


**Adobe InDesign 2.0**  
Adobe systems India Pvt  
Ph: 914532026

**The verdict:** Adobe InDesign is a very powerful text and picture handling capabilities, and gets top marks in the page layout software category. For users of Adobe professional applications, Adobe InDesign application sports a similar interface.







## INPUT DEVICES

The ubiquitous mouse and the keyboard are our real interfaces into the digital world. Though there have been numerous suggestions for more advanced forms of getting information into the computer all through the years, there is no device that has quite matched the convenience that the keyboard and mouse offers—even after the arrival of such tools as speech recognition.

### Pushing the right buttons

Input devices are broadly characterised by their interface, functionality, ergonomics and the technology used. In the case of keyboards, the best kinds are those that offer good features and are comfortable to type on. If you use many multimedia applications such as audio and video players, look for a keyboard that offers many function keys with programmable buttons for specialised tasks. Go for one with a USB interface.

Wireless radio-frequency (RF) or infrared keyboards eliminate the tangle of wires on your desktop. Opt for the RF kind since they offer the freedom of being anywhere in the room, and not necessarily in the line of sight of the computer to be able to use them.

The most important performance characteristic of a mouse is the resolution (in dpi) and the sampling rate—



**Logitech Cordless Freedom Optical Keyboard**  
Logitech, Ph: 022-26427501

**The verdict:** Using a wireless RF technology, this keyboard offers a hassle free interface to your computer. It sports a good design, with responsive keys and plenty of shortcuts for accessing often-used applications



this decides the smoothness of the response. Choose a rating of at least 1000 dpi and a sampling rate of at least 1000 Hz. Avoid mice based on a serial interface as these support low sampling rates. Look for additional buttons

for added functionality in working with applications. For performance, choose an optical mouse over a roller mouse as the former is far smoother and requires less maintenance. Finally, try it out for feel and make sure that it is comfortable in your hands and offers enough tactile response.



**Microsoft Wireless IntelliMouse Explorer**  
Microsoft Corporation  
India Pvt Ltd,  
Ph: 011-26292640

**The verdict:** Using the tried and tested optical sensor, this mouse takes full advantage of the wireless advantage with a very compact and comfortable styling

### And the award goes to...

Sporting a great looking design and colour combination, the Logitech Cordless Freedom Keyboard is easily the key of the year. It has an array of buttons to control your multimedia applications and has shortcut keys and application keys for accessing specific features of your programs. The buttons are ergonomically placed and are tactile and responsive.

The mouse voted to be the best in its category is the Microsoft Wireless Intellimouse Explorer. Using optical sensor technology, this mouse features programmable buttons that can be used to navigate through applications and control various functions in games. It gives you accurate control without the hassle on your desktop.

## VECTOR GRAPHICS/ILLUSTRATION

### CorelDRAW 11

One of the best illustration software has just got better—CorelDRAW 11 has some amazing new features and functionality, making it one of the most powerful vector drawing applications. Its numerous drawing tools let you create a variety of elements, and the customisable toolbars and menus with individual macros can be saved to specific workspaces. The cross-platform functionality lets you work with files from different sources and the import/export filters make this task simple. The three-point drawing tools let you create a variety of curves and shapes with a minimum number of clicks. Tools such as Weld, Trim and Intersect allow speed and efficiency when working with a variety of objects in a single drawing. You can also save shapes and drawings that you've

created as 'symbols', which can then be saved in a library and recalled on later projects. A bundled application called 'Puzzle' lets you create cool rollovers and 3D vector extrusions to add pizzazz to your vector-based animations. With numerous new intelligent tools, CorelDRAW 11 is the best illustration application you can work with for fast and professional results.

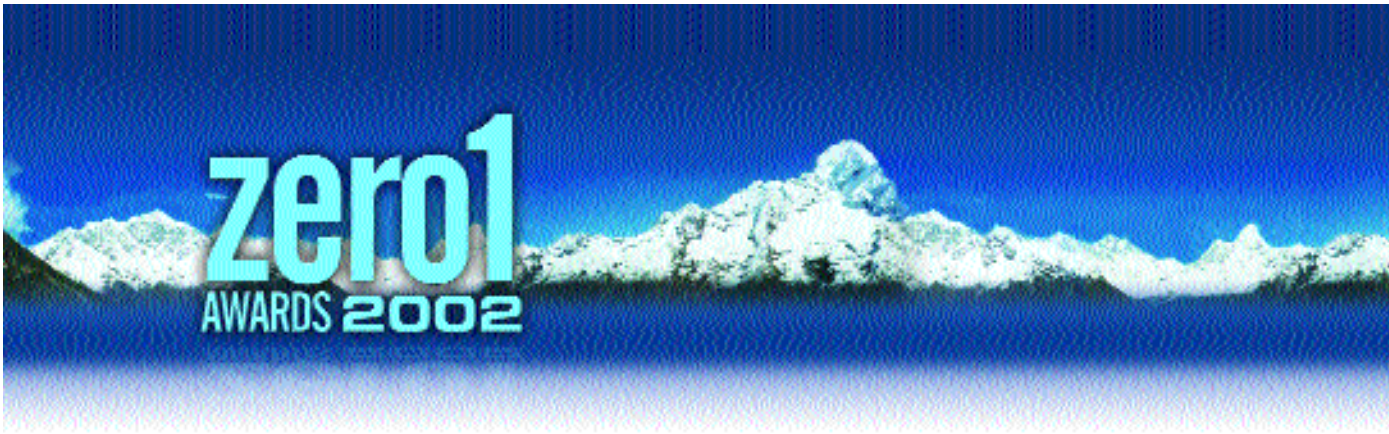
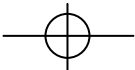


**CorelDRAW 11**  
Triffin Technologies, Ph: 011-6486447

**The verdict:** Integrating powerful new vector image manipulation capabilities, support for user-created macros for accessing often-used commands, this is the most comprehensive and powerful software for vector illustrations







LAPTOPS

Laptops let you take your work home, your home to work and your play to the road—and today’s laptops do this better than ever. Now the name of the game is immense functionality in terms of integrated peripherals and connectivity, with no compromise on processing power.

One for the road

The most important question to ask when buying a laptop is what application is it going to be used for? This will help give you the parameters to judge it by. For example, a laptop replete with features and processing power but slightly heavy and on the larger side, would suit users who plan to carry it between places but the bulk of the usage would be at a desktop and in transit. On the other hand, those who want portability over all else, should look for the smallest, thinnest and lightest device they can find, even at the cost of a slight loss on the processing power and perhaps on the functionality front too.

This gives us a few characteristics that need to be evaluated before buying a laptop. Firstly, the processor is very important since it gives you the power to run all your applications. Go for one that complements your applications and needs. The same applies for the amount of RAM and the hard disk capacity. Next, evaluate the number of connectivity options you need. If you make many presentations, you need video outputs for displaying on a projector, integrated Ethernet and modem for connectivity. In newer laptops, you can even get features such as 802.11b WiFi compliance or Blue-

Nominees		
Name	Contacts	Comments
ACi Impression	Allied Computer International (Asia) Pvt Ltd, Ph: 022-26366800	This laptop features a 1.5 GHz 4 Mobile processor, 256 MB memory and even a DVD-ROM ideal for the power-hungry pro
Zenith Portable Desktop	Zenith Computers Ltd, Ph: 022-28377300	Sporting a 1.6 GHz Pentium processor and 128 MB of DDR memory, this laptop is a suitable desktop replacement and offers many configurability and peripheral

tooth connectivity. Also keep an eye out for integrated als such as a CD-RW drive or a DVD-ROM drive.

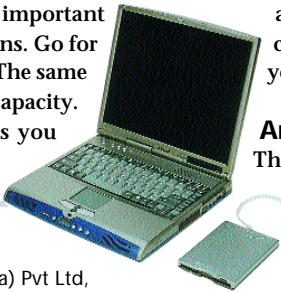
If portability is your main requirement, go for the smallest laptop you can find, though you might have to on processing power and integrated functionality. Finally, er the battery life—since the device is primarily meant for search for a laptop that specifies a standby time of at least anything less would require you to carry around a charger and stay on a constant lookout for power you can charge it from.

And the award goes to...

The laptop that screamed with sheer performance was the ACi Emerald. Boasting a 2 GHz Pentium 4 processor, 128 MB DDR RAM and a 20 GB hard disk, this laptop has the power to keep you working smoothly while on the road. In terms of connectivity, it featured four USB ports, a FireWire port and integrated Ethernet and modem. With adequate power and plenty of connectivity options, this device blurs the difference between a desktop and a laptop.



ACi Emerald  
Allied Computer International (Asia) Pvt Ltd,  
Ph: 022-26366800



The verdict: Built around a 2 GHz Pentium 4 mobile processor with DDR memory, this computer is a very viable desktop replacement, even for the most graphically intensive tasks

ANTI-VIRUS

Norton AntiVirus 2003

One of the most trusted names in the industry, Norton’s newest version strives to give you higher security. Norton AntiVirus 2003 incorporates a new scanning engine; it even scans your instant messenger for any harmful programs that might sneak in through file transfers during chat conversations. Norton AntiVirus 2003’s new, smoother engine is both light on the system and fast at scanning, making it less tedious to scan large volumes or entire hard disks.

The software protects your computer against SMTP-based worms, Trojans, etc. It is extremely user-friendly, with numerous wizards for configuring and setting the various parameters essen-

tial for safety. It packs the trademark compulsory scheduling agent and auto-update feature.

With a wide array of features, easy interface and the ability to track even your instant messenger, Norton AntiVirus 2003 wins top honours for protecting your systems.

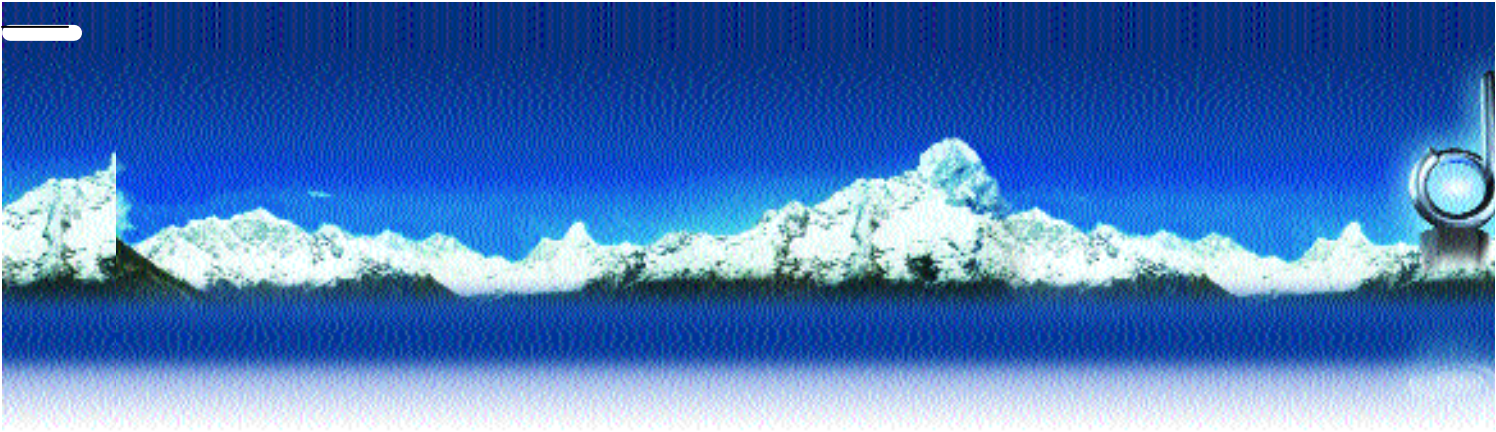
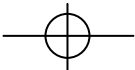


Norton AntiVirus 2003



Symantec, Ph: 022-26570651  
The verdict: Norton AntiVirus boasts of a new scanning engine that is significantly lighter on the system, newer and up-to-date definitions and the ability to restore files damaged due to





## LASER PRINTERS

**L**aser printers have always been the machines of choice for applications that require large volumes of printouts without sacrificing on print clarity. As a technology, it is more expensive than any other print technology, but when it comes to dealing with text, no other comes close to delivering the speed and quality of a laser printer. This is why they are the *de facto* standard for mass printing in the corporate environment, where the workflow is heavy.

### Look sharp

When evaluating the performance of a laser printer, two parameters need to be considered—the print quality and the print speed. The resolution of the laser printer defines the clarity of the printouts and is usually in the range of 300 to 600 dpi for most laser printers. High-end printers boast up to 1200 dpi resolution. While this is significantly lower than inkjet printers, it is adequate for printing text and graphics with reasonable clarity.

Most laser printers have speeds ranging from 15 to 25 pages per minute (ppm) and some others built for enterprise applications go all the way up to 40 ppm. This is the primary specification that defines the cost of the printer. Another very important component is the buffer, which is the memory that holds the print jobs before they get printed—since laser printers are meant to handle large print volumes, they must have a signif-



**Canon LBP1210**  
Canon India Ltd,  
Ph: 011-680 6572

**The verdict:** Based upon a 600-dpi print engine and sporting both a USB and a parallel interface, this laser printer boasts of commendably high print speeds in the text as well as graphics modes



### And the award goes to...

The laser printer of choice for 2002 is the Canon LBP1210. This top printer sports a 600-dpi print engine and has a USB as well as parallel interface. With a 250-sheet paper tray, it packs the ability to handle most medium load print jobs. It has a 2 MB print buffer and delivers swift speeds while printing both text as well as graphics.

Nominees		
Name	Contacts	Comments
<b>Samsung ML-1450</b>	Samsung Electronics India Information & Telecommunication Ltd, Ph: 011-6322517	This printer returned very good quality in text and graphics. Some interesting features such as the ability to print documents on sheet sizes for posters
<b>Hewlett-Packard Laserjet 1200se</b>	Hewlett-Packard India Ltd, Ph: 011- 6826000	This printer offers very good quality for monochrome documents and fared very well even in speed when printing large documents thanks to its 8 MB print buffer

icantly higher amount of buffer memory compared to inkjet and dot matrix printers. Entry-level laser printers should feature at least 2 MB of buffer memory. Depending on specific needs, this can go all the way up to 64 MB. Some enterprise-class printers even have dedicated hard disk drives for large print jobs while they are being processed.

## OFFICE SUITES

### Microsoft Office XP

**T**he arrival of Microsoft Office heralded a new age of simplicity for tasks such as word processing and working with spreadsheets. Even though Microsoft Office XP has been around for a year, it is still the best office suite in terms of functionality and features. With a range of intuitive and task-simplifying tools, getting work done in Office XP is easier than ever.

New features such as the task pane give you a dashboard view of everything from wizards to settings and options for the various tools. This arranges all your tools in front of you so that you don't have to dig deep into the menus to look for a particular formatting setting. Small enhancements such as the Smart Paste function let you choose whether you want to copy text along with formatting options or if you want to discard them and use new formatting options. Along with this, it also has multiple

paste options that let you choose from a variety of copied objects, from different formats. You can also perform multiple selections from documents, which helps you manage formatting options and editing tasks with much greater ease. Incorporating a greater number of features such as formatting, fonts, etc has also enhanced the right-click menu. With excellent functionality and intuitive methods of accessing configuration menus, this application incorporates features that let you get more done, faster

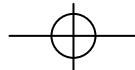


**Microsoft Office XP**  
Microsoft

Corporation India Pvt Ltd,  
Ph: 011-6292640  
**The verdict:** Still the reigning champion, Office XP integrates wizards, task pane and extensive toolbars offering you the greatest functionality and features for working on Office tasks







## CRT MONITORS

**W**hile the basic functioning of a CRT monitor has not changed much over the years, there have been tremendous advancements in the way CRTs are manufactured. Resolutions have increased, and technologies used to fabricate the picture tubes have been improved, resulting in image quality far greater than what we were used to even as recently as a year ago.

### The big picture

CRT monitors range from the lowly 14-inch screens to the 22-inch big screens. If most of your work is centred on word processing, spreadsheets, the Internet and e-mail, a 15-inch monitor will serve you adequately. However, with the fall in prices of 17-inch monitors, it would be a wise decision to invest in a 17-inch or in view of the higher resolution and refresh rate it supports. This greatly enhances the experience in the gaming and entertainment areas. Also consider the resolution. With a 17-inch monitor, you should be able to run your display at a resolution of 1280x1024 and a refresh rate of at least 75 Hz to reduce eyestrain.

Finally, look for a monitor that lets you adjust the colour and resolution settings for finer picture and image quality. This would include support for modification and tweaking of parameters such as focus, colour correction, along with screen geometry control such as raster size and shape—all this will let you tailor your monitor's display to suit your applications and needs.

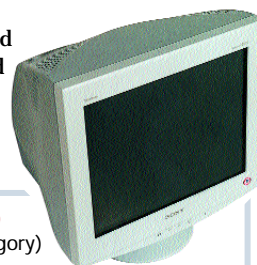
### And the award goes to...

The Sony Multiscan G520 impressed us with its top-of-



**Sony Multiscan G520**  
(19- and 21-inch category)  
Rashi Peripherals,  
Ph: 022-28260258

**The verdict:** This 21-inch true flat CRT monitor sports a resolution of an astounding 2048x1536 with a stripe pitch of 0.24 mm, resulting in truly brilliant image quality



### Other Winners

Name	Contacts	Comments
<b>14- AND 15-INCH MONITORS</b>		
<b>Viewsonic E53</b>	Priya Ltd, Ph: 022-22663611	This high-performance 1280x1024 capable 15-inch monitor features a 0.28 mm dot pitch and even includes a USB hub in the base. It is a great choice for office and home applications where quality is a must.
<b>17-INCH MONITORS</b>		
<b>Viewsonic G73f</b>	Priya Ltd, Ph: 022-22663611	Sporting a 0.25 mm dot pitch, it is one of the few 17-inch monitors that delivered a screen resolution of 1600x1200. This was accompanied by brilliant imaging and high performance.

the-line specifications and features. With support for a 2048x1536 resolution, this 21-inch monitor is a designer's toy. It performed brilliantly in our tests and delivered outstanding image quality in the colour and screen geometry tests.

In the 14- and 15-inch category, Viewsonic E53 performed brilliantly in terms of colour reproduction and resolution support—this was the 15-inch monitor that supported 1280x1024 resolution.

In the 17-inch monitor category, Viewsonic G73f delivered brilliant performance. It was one of the few monitors to support a resolution of 1600x1200. This flat monitor offered good colour and geometry reproduction, making it an ideal choice for demanding professional applications.

## WEB AUTHORING SOFTWARE

### Dreamweaver MX

**D**reamweaver offers WYSIWYG functionality to Web site creation. In its new MX incarnation, the familiar multi-window, floating-palette interface is replaced by the new MX look and feel. It takes some getting used to, but the dockable panel groups and tabbed document windows prove far more efficient. Other welcome changes include the new tabbed Insert toolbar, integrated file browsing and the revamped context-sensitive Properties panel. HTML coding has also been brought to the fore with enhanced functionality while working directly with code—Code Hinting suggests appropriate alternatives to your code as you type it. Greater stress is laid on the tag-based nature of Web authoring with the new Tag Inspector showing an

editable list of all tags and their attributes in the current document.

UltraDev—an invaluable tool for high-end Web developers working with ASP and JSP to produce data-driven Web sites. Overall, Dreamweaver MX shines with its ability to author hard-hitting Web sites with the greatest of ease.

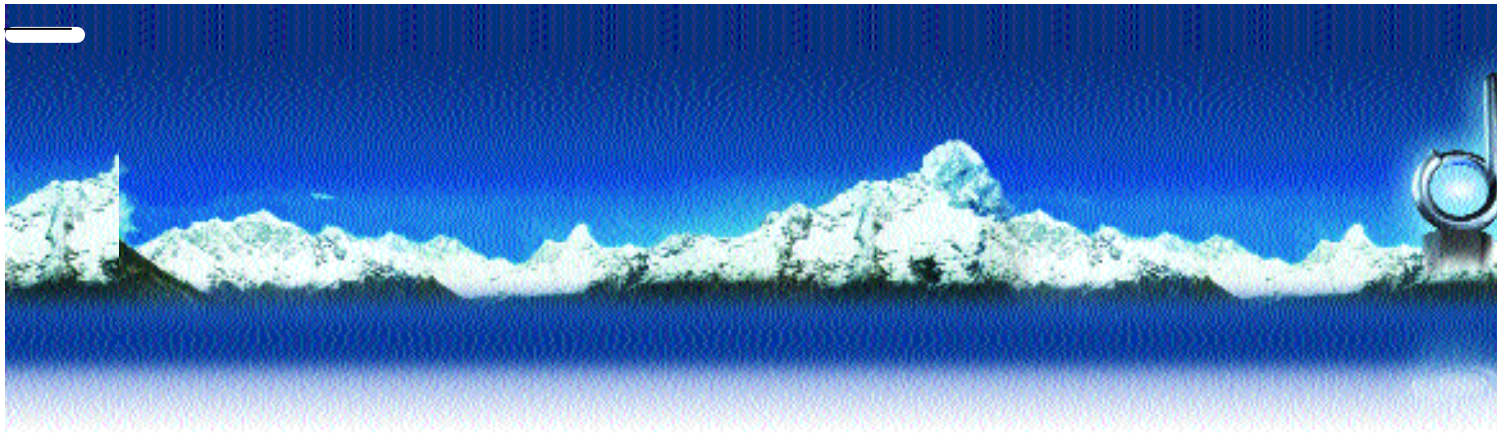
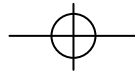


**Macromedia Dreamweaver MX**

Wipro Infotech  
Enterprise Software  
Ph: 080-8440011

**The verdict:** With a brilliant combination of WYSIWYG functionality coupled with powerful HTML coding capabilities, this application is ideally suited to authoring as well as advanced database-driven Web sites.





## LCD MONITORS

There is something inherently futuristic about LCD displays—their sleek form factor makes them every PC owner's dream peripheral. While LCD-based displays boast of lower space requirements, higher contrast and brightness levels compared to their CRT counterparts, they still lag behind CRT monitors when it comes to performance. The best LCD monitors offer resolutions of up to 1600x1024, but this is still lower than that of a CRT's 2048x1536 resolution on a similar screen size. This is attributed to the fact that the pixel size of LCD monitors is lower than that of CRT technology.

### The flat truth

At this point in time, however, the main reasons why one would choose an LCD monitor is not for its performance but for convenience and for staying ahead of the technology curve. When looking for an LCD monitor, besides the specifications of resolution and pixel size, note its response time—this specification decides the speed with which a pixel can be switched on and off. The lower the response time, smoother will be the display and this will be apparent while viewing fast-moving content on your screen such as games and video. The area where LCD monitors score over CRT is the inherently higher contrast and brightness levels—these specifications should be at least 300:1 and 150 cd/m<sup>2</sup> to ensure sharp images even with bright ambient light. This characteristic makes LCD monitors ideally suited to a public display system



**Samsung SyncMaster 171MP**  
Samsung Electronics India  
Information &  
Telecommunication Ltd,  
Ph: 011-6322517

**The verdict:** Supporting a maximum resolution of 1280x1024, this TFT monitor features an integrated TV Tuner and at 250 cd/sq.m, it is one of the brightest LCD monitors around

### Nominees

Name	Contacts	Comments
<b>LG Flatron 295LM</b>	LG Electronics, Ph: 0120-4560900	This whopping 22-inch LCD monitor features a widescreen and supports a resolution of up to 1600x1024 and is ideal for viewing DVD movies and demanding page layout and graphics applications
<b>Sharp LL-T15V1</b>	Sharp Business Systems India Ltd, Ph: 022-2884452	This 15-inch TFT monitor supports a resolution of up to 1024x768 and delivered sharp and vibrant images

where their higher brightness and contrast levels allow them to be viewed from a distance. Many LCD monitors support features such as integrated USB ports. Finally, since LCD monitors are inherently digital, some of them support a port for special kinds of input such as DVI—this allows the monitor to be driven by a pure digital signal, resulting in significantly greater image clarity.



### And the award goes to...

The LCD monitor that excelled in performance proved to be the Samsung Master 171MP. With stunning image quality and a resolution support of up to 1280x1024, this TFT monitor produced very good results when evaluated for colour reproduction and response time in real world applications.

## WEB GRAPHICS

### Adobe LiveMotion 2.0

Adobe LiveMotion 2.0 matches and even exceeds the capabilities of Flash. Users already familiar with the Adobe suite of products will find the interface of LiveMotion very comfortable to work with. It provides a comprehensive set of tools for editing bitmaps and ties seamlessly with Photoshop for more advanced pixel editing.

LiveMotion packs some very effective vector-handling tools, by allowing basic vector shapes to be effortlessly converted into buttons. Like Photoshop, it also allows you to place special editable effects to your elements such as drop shadows, bevels and embosses. A unique feature built into this application is the ability to plot changes to object attributes over time, instead of

doing so by frames. This makes it a snap to change element properties without editing its attributes in each frame.

Armed with a powerful set of tools, LiveMotion provides a lucid and effective platform to accomplish Web graphics and animation with the greatest of ease.

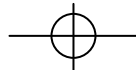


**Adobe LiveMotion 2.0**  
Adobe systems India  
Ph: 914532026

**The verdict:** This software provides numerous capabilities for handling virtually every aspect of Web animation. All in all, LiveMotion provides a lucid and effective platform for creating dynamic content for a Web site.







## MOTHERBOARDS

**T**here have been continuous advancements in desktop technologies ranging from display to storage, to processors, stretching even to the RAM. All of these advancements are reflections of the new, futuristic motherboards.

### Across the board

For Intel processors, check if your motherboard supports either RDRAM or DDR memory. RDRAM offers greater bandwidth, while DDR is a good cost-effective solution and with the advent of DDR II memory, its performance is close to that of RDRAM. However, availability of this new memory is scarce and the full potential of these motherboards will not be realised until they are used with the compliant memory. The second most important factor is the type of processor supported. While the Pentium 4 Northwood is still Intel's most popular processor, there are others on the anvil that will support even greater clock speeds such as the new Pentium 4s with HyperThreading technology. Check if the motherboard supports these new processors, especially if you want to upgrade later. Even with AMD processors, evaluate whether the motherboard reflects the technology supported by the new processors, especially the Opteron.

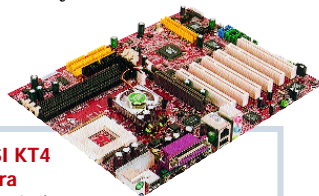
### And the award goes to...

The AMD motherboard that shattered our records in performance and utility was the MSI KT4 Ultra. With a host of features such as the new VIA KT400 chipset, support for DDR/333 memory, 8x AGP, a 200/266 MHz



**MSI KT4 Ultra**  
Priya Ltd,  
Ph: 022-22663611

**The verdict:** Based upon the formidable KT400 chipset, this motherboard features support for DDR memory, has six USB ports, six-channel onboard audio and serial ATA, making it the highest performance platform for AMD processors



### Nominees

Name	Contacts	Comments
<b>For AMD CPUs</b>		
<b>DFI AD70-SC/SR</b>	Zeta Technologies, Ph: 022-24102288	Built around the KT266 chipset, motherboard features a bus speed support of up to 266 MHz and supports DDR memory
<b>DFI AD73 PRO</b>	Zeta Technologies, Ph: 022-24102288	Sporting the KT266A chipset, motherboard also supports Pentium 4 processors, DDR memory along with ATAPI and IDE drives
<b>For Intel CPUs</b>		
<b>Intel D850MD</b>	Nebula Technologies Pvt Ltd, Ph: 022-2673 0567	This motherboard is based on the Intel D850MD chipset and supports PC800 RDRAM along with integrated Ethernet and audio functionality
<b>MSI 845E Max2-BLR</b>	Priya Ltd, Ph: 022-22663611	Built around the i845E chipset, motherboard supports a bus speed of up to 533 MHz, supports DDR memory and also integrates Bluetooth

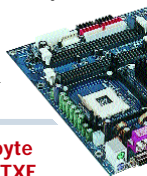
bus speed support and the inclusion of Bluetooth connectivity, this motherboard provides the fastest platform for AMD processors and has a host of connectivity and peripheral options.

The Intel motherboard that shone this year was the Gigabyte GA-8ITXE, based on the Intel D850GB chipset. With support for PC800 RDRAM, this implementation of the i850 family of chipset lets the Northwood P4 processors see their maximum performance levels.



**Gigabyte GA-8ITXE**  
Nebula Technologies Pvt Ltd,  
Ph: 022-2673 0567

**The verdict:** Built around the i850 chipset that supports a bus speed of 400 MHz and RDRAM support, this motherboard proved to be the fastest platform for Pentium 4 processors



## LINUX DISTRIBUTIONS

### Mandrake Linux 8.2

**A**n immensely easy installation and an attractive interface makes Mandrake Linux 8.2 an excellent Linux distribution. Its ability to install to different profiles of application areas makes it ideal for users who don't want to install components of the OS they don't really need. This means that you can tailor your installation to a specific need such as gaming, Web server, e-mail server, multimedia authoring, office applications, etc. There are numerous wizards to help you with everything, from installation to loading and configuring hard-

ware and installing drivers. If you want to switch to Linux, Mandrake Linux 8.2 is a brilliant place to start for professionals who need an OS that offers tweakability, as well as for first-time adventures into the world of Linux.

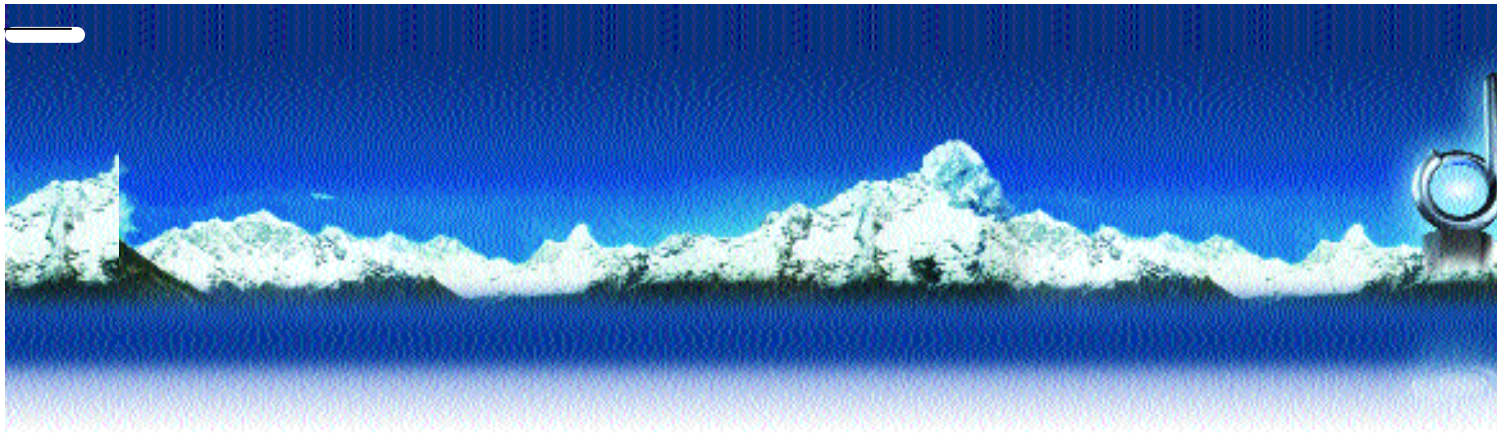
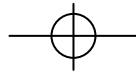


**Mandrake Linux 8.2**  
G.T. Enterprise,  
Ph: 080-6606093

**The verdict:** With very comprehensive support for virtually every type of application and usage area, this Linux distribution is highly configurable and suited well to amateurs and seasoned users alike







## MP3 PLAYERS

When MP3 players first came out, the very thought of carrying along a part of your 500-track MP3 collection sent a surge of excitement through every audiophile's spine. The primary components that these devices are built around a signal processor to decode the MP3 tracks and Flash memory to store the tracks. Since these ingredients accounted for a major portion of the cost of the player, acceptance was not very high initially. However, with the drop in Flash memory prices over the latter half of this year, MP3 players are coming closer to every music lover.

### Hear the right notes

MP3 players are characterised by the features they support in a given form factor and by their price tags. Also, since they are meant to be used while on the move—while exercising, commuting or walking—the effective audio quality of most MP3 players hardly differs. It is only when the audio signal is closely scrutinised that differences begin to emerge. However, these differences are too minute to be noticed when these devices are used in everyday situations. Therefore, one of the most important considerations in buying an MP3 player is the number of features they offer in a given size. Also, look for an intuitive navigation system that lets you locate and play your tracks quickly and easily. The controls of the player should also be easily accessible and the bundled software must be easy to understand and work with.

Enhancements to digital audio codecs and standards keep emerging and it is therefore important that your player has robust driver support on the company Web site for newer digital audio formats.

Arguably, the most important component of an MP3 player is its storage system and capacity. Since the MP3 player is meant for being used while on the move, it is important that you have enough room for your songs. Most entry-level MP3 players come with 32 MB of memory and this can store about 30 minutes of near-CD quality audio. Therefore, it is recommended that you choose one with at least 64 MB of memory—the more the merrier. Also, if you happen to have another device with Flash memory, such as a digital camera, go for an MP3 player that supports a similar format of memory so that you can exchange memory between the two devices. If price is not a bar, then the best you can opt for when it comes to storing all your songs would be an MP3 player that features a hard disk drive in it—these are available in capacities ranging from 8 GB all the way up to 40 GB and

### Nominees

Name	Contacts	Comments
<b>Creative DAP-CD0001</b>	Compuage Infocom Ltd Ph: 022-23842200	Capable of reading CDs, CD-CD-RWs, this MP3 Audio CE supports ID3 tags and boasts a variety of song control features
<b>Napa DAV316</b>	Moon Computers Ph: 022-22653390	Capable of reading CDs, CD-CD-RWs, this MP3 Audio CE features NiMH batteries and ID3 tag support

at their highest capacity, can store audio equivalent to 2,000 CDs worth of music!

If you want reasonable storage capacity but are on a budget, CD-MP3 players are your best bet. With the ability to store about 120 songs on a single CD, they are a good solution compared to solid state and hard disk based MP3 players. In all, this genre of MP3 players are the most inexpensive.

When on the road, another very important factor to consider is power—you have to have a portable device is power—you have to have a device that can run through your journey.

Look for an MP3 player that has a long battery life and one that uses an easily accessible battery format such as the AA batteries.

There should also be an adequate number of modes for your tracks such as looping, repeat, and programmed play. Look out for players that offer special support for digital audio playback on the player itself—an MP3 player that has a graphic equaliser or specialised bass and treble controls with preset audio profiles is preferred.

Finally, since you might have to carry your MP3 player around with you, make sure that it is portable to hold and navigate through. CD and hard disk MP3 players are larger in size and also involve moving parts that could be prone to damage due to rough treatment or physical shock. Therefore, if you are going to tag your MP3 player along for your workout or morning jog, it would be a good idea to opt for a solid state MP3 player as it will be significantly more robust compared to other kinds.

### And the award goes to...

The MP3 player that wins this year is the Creative PA-20. On account of its great audio performance, a small size and form factor. Built around a very small form factor, this MP3 player offers superior audio quality and the ability to support MP3 and WMA formats, in addition to the range of audio control features such as shuffle and programmed playback.

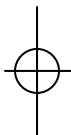


#### Creative PA-20

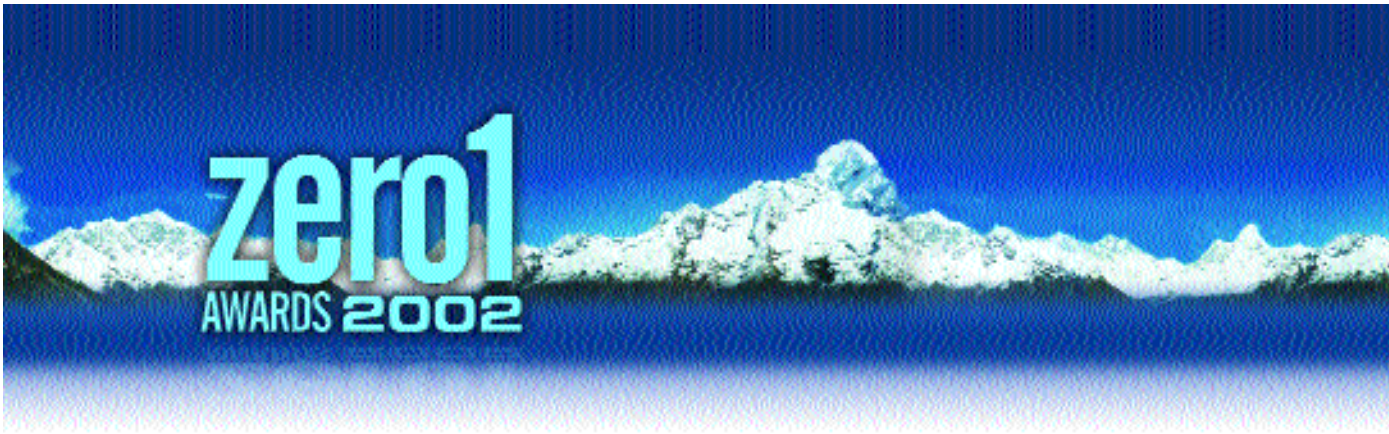
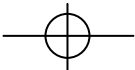
Compuage Infocom Ltd,  
Ph: 022-23842200

**The verdict:** This little player

packs plenty of performance into a very small package. With 32 MB of memory and support for formats such as MP3 and WMA, this MP3 player is the ideal companion during those morning jogs







## PROCESSORS

The processor landscape changes more frequently than the seasons. Every few months, the megahertz war reaches a culmination and begets a new breed of processors to be born of AMD and Intel. With each family of processors, these chips feature lower power consumption and heat dissipation for greater reliability and lower operating costs. Also, as processors advance at a frantic pace, other system components sprint to keep up with them, resulting in a healthy situation where you have faster overall systems.

### The power trip

When choosing a processor, the most important factor is its application. Once you've defined your application area, look at suitable specifications such as the processor speed, the brand and other factors such as the L1 and L2 cache, fabrication process, etc.

If your needs centre on non-intensive tasks such as word processing, surfing and e-mail, then your processing requirements will be satisfied by a 1 GHz-class processor. However, if you like to live on the cutting-edge with 3D games and 3D rendering and multimedia authoring software, then you will need a processor with enough horse power to efficiently run these applications.

The cache on the processor is crucial in applications such as image-editing and gaming, where there are repetitive routines and frequent access of data sets.

Newer processors have moved to the 0.13 micron fabrication process. When considering such a processor,

Nominees		
Name	Contacts	Comments
Intel Pentium 4 2.8 GHz	Nebula Technologies Pvt Ltd, Ph: 022-2673 0567	Reaching still higher with faster speeds and with support for 100 MHz bus, this processor is highly suited to processor-intensive applications.
Intel Pentium 2.53 GHz	Nebula Technologies Pvt Ltd, Ph: 022-2673 0567	Based on a 0.13 micron core, this processor delivers brilliant performance without drawing on too much power.

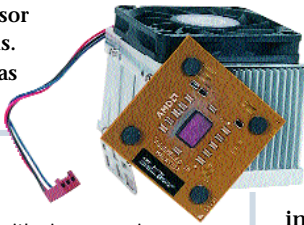
ensure it is supported by the motherboard as well. Albeit Intel Pentium 4 or an Athlon XP, it is important to choose supporting components such that they complement the processor and do not slow it down. Therefore, if you are looking for pure performance in, say, a 2.8 GHz Pentium 4 processor, pair it with an RDRAM-based system and a fast hard drive. Similarly, pair up an Athlon XP processor with the fastest RAM you can afford, along with a complementary motherboard.

**And the award goes to...**  
The processor that wins kudos as the fastest one as per our lab tests this year turned is the AMD Athlon XP. With the 0.13 micron technology, integer and floating point units, the processor is ideally suited to applications involving streaming data such as audio and video encoding.



**AMD Athlon 2600+**  
AMD Far East Ltd,  
Ph: 011-6238620

**The verdict:** Armed with six processing units and a high clock speed, this processor turned out to be the best overall performer across applications.



## 3D AUTHORIZING TOOLS

### 3ds max 5

The 3D rendering application that scaled new levels of utility and enhancement, 3ds max 5 is a bubbling cauldron of functionalities, ranging from the interface, modelling, rendering, animation and special effects features. In the interface, the menus have been re-ordered such that similar tasks are grouped in more logical and intuitive task groups for easier access. Tools such as the Dope Sheet make it easier to change animation characteristics, without worrying about the animation curve, while the Bones tool greatly simplifies skeletal animation. When used in conjunction with the IK Spline solver, the connected elements in complex models move much more realistically and far greater control has been affected over them. In tasks such as realistic lip-synching, the Progressive Modifier gives animators control over the morphing stages in steps, providing a much smoother and

realistic effect. Once a separate package, Reactor is now bundled with 3ds max 5 and allows you to add dynamic properties to objects such as water droplets, explosions, smoke, etc. The Toon Shader function provides far smoother control over the colours and textures in cartoon animation.

With a plethora of added functionality and a far greater control over complex tasks, 3ds max 5 provides an unbeatable age for 3D animators and modellers.

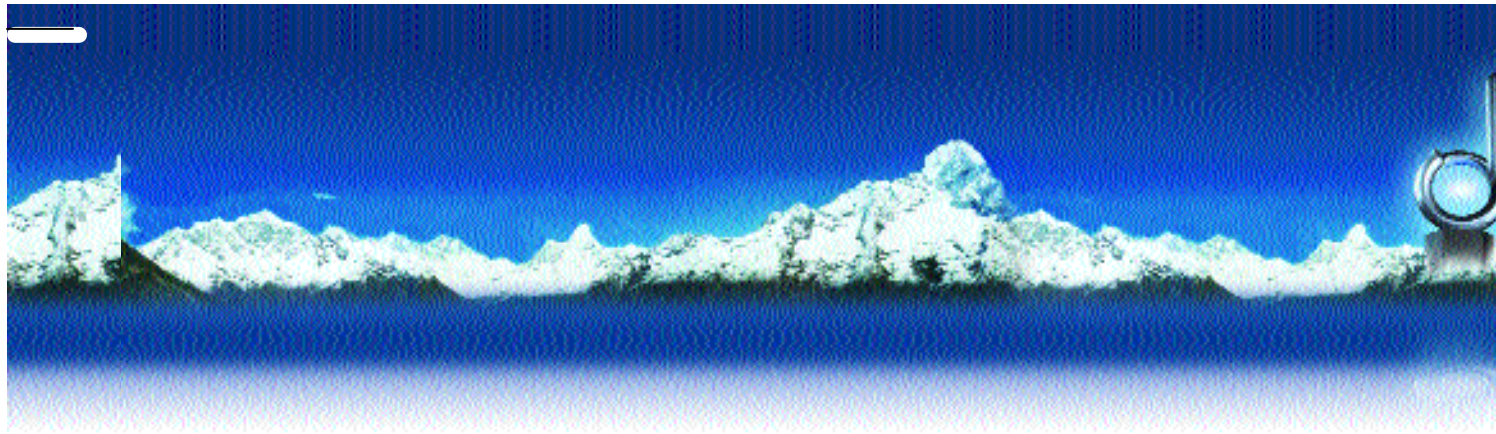
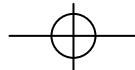


**3ds max 5**  
Discreet,  
Ph: 022-26952000

**The verdict:** With an array of features such as advanced animation controls, environment effects, improved menu layout, 3ds max 5 bags top honours for 3D animation applications.







## SCANNERS

In today's age of free Web sites and Web-based image hosting services, it would be great to port all your memories to a lasting digital format to be viewed by your relatives around the world. Scanners enable this and with increasing resolutions, vivid colours, smaller form factors and low prices, it is easier than ever to embark on your digital imaging journey.

### Get the picture

Since scanners are used to convert photographs and printed documents into digital format, their performance is largely dependant upon the resolution, the colour depth and the speed offered. The primary factors that affect the quality of the scanner are the resolution along with the colour depth supported. For most entry-level scanners, a 600x1200 dpi resolution is a good start as it can scan with a maximum optical resolution of 600 dpi.

The most crucial scanner specification is the optical resolution—this is the true resolution with which the scanner operates. Second comes the interpolated or software resolution—this is the resolution at which the scanner increases its resolution and creates the in-between scan points by 'guessing' their value using algorithms in software. Therefore, the interpolated resolution will not necessarily have the same clarity as an optical scan. The scanning resolution decides the size of your scanned image as well as the size it is converted to as a graphic file.

The other important parameter that decides the image quality is the colour depth. As a rule of thumb, the higher the colour depth, the greater is the scanner's ability to reproduce true-to-life colours. Go for a scanner with a colour depth of at least 48 bits. During the scanning process, information is generally lost and therefore, if the scanner can sense a greater number of colours, the greater is its ability to capture the original colour.

Another important parameter

### Nominees

Name	Contacts	Comments
<b>Microtek ScanMaker X12USL</b>	Rashi Peripherals, Ph: 022-28260258	Built around a 1200x2400, 48-bit colour scanning engine, this Legal-size scanner is ideally suited to applications where large documents need to be scanned at the highest quality.
<b>HP ScanJet 5400</b>	Hewlett-Packard India Ltd, Ph: 080-5216121	Featuring a 2400x2400 resolution and 48-bit colour support, this scanner exhibited very good performance characteristics in photo and text scanning.

of a scanner is its scanning speed. This is decided by the motor used to advance the scanning element and the interface of the scanner to the computer. Some brands offer inherently better implementations of the scanning engine, allowing them to scan faster without sacrificing on image quality. Therefore, before purchasing a scanner, take a close look at the scans using different modes such as photo quality, monochrome, etc.

Finally, the other factor that affects the scanning speed is the interface—choose a scanner with a USB interface as this offers much higher speeds compared to parallel port scanner.

### And the award goes to...

The scanner that delivered outstanding scanning quality was the HP ScanJet 5400.

With its support for true 24-bit colour resolutions and a 48-bit colour depth, this scanner shows excellent results in colour and clarity. Added functionality, it has 11 preset tasks that can invoke a range of tasks you use the scanner as a copier, have a printer connected, also a range of other cross-application shortcut keys.



#### HP ScanJet 5400

Hewlett-Packard India Ltd, Ph: 080- 5216121

**The verdict:** With its robust 2400x2400 scanning resolution, coupled with a 48-bit colour depth and a host of intuitive controls, this scanner delivered stellar performance.

## OCR SOFTWARE

### ABBY FineReader 6.0 CE

In the OCR software segment, ABBY FineReader 6.0 CE logged 96 per cent accuracy in identifying words. This application is a brilliant solution for getting all those hardcopies and newspaper clippings into editable document format. The factor that set it apart from others was that it managed to retain even the formatting in the document—even newspaper and magazine pages were correctly reproduced. The

application created an editable document that retained the columns, images, formatting and even the fonts in the original document with unparalleled accuracy.

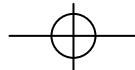


#### ABBY FineReader 6.0 CE

Net Spider, Ph: 022-28260258

**The verdict:** This OCR software offers unmatched capability in recognising documents. It is also able to retain formatting faithfully, and is your best bet for digitising your printed documents.





## SOUNDCARDS

Until recently, system integrators and branded computers alike, did not pay much attention to the audio subsystem. As long as one could attach stereo speakers to the computer, that was all the audio needed. However, things have changed—with the integration of advanced audio processing in most motherboards, entry-level users can enjoy multi-channel sound, with some budget cards even boasting Dolby Digital compliance. This is corroborated by the fact that most entertainment applications such as games and movies are now authored using more than two channels of audio. Due to this convergence, most sound systems today are integrated directly into the motherboard in the form of a codec. The main processor handles the audio processing and in some cases, discrete audio processors are built into the motherboard. While this has been consolidated by a number of soundcard manufacturers, some prefer to go with dedicated external soundcards.

### Are you listening?

Numerous factors affect the performance of a soundcard, such as the frequency response, S/N (signal-to-noise) ratio and the MIDI implementation. Good soundcards have a frequency response of 20 Hz to 20 KHz with an S/N ratio of 80 dB. The wider the frequency response and the greater the S/N ratio, the better the soundcard. Another important characteristic is the extent to which the soundcard depends upon the main processor while in operation. Ideally, a soundcard should be able to handle all audio requirements independently. However, in reality, the soundcard uses some part of the main

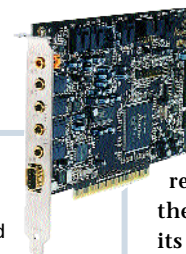
### Nominees

Name	Contacts	Comments
<b>Creative SB Live! DE 5.1</b>	Compuage Infocom Ltd, Ph: 022-23842200	With brilliant performance in multi-channel audio for movie gaming, this sound card is a for home theatre systems
<b>Zoltrix Nightingale PRO 6</b>	Kunhar Peripherals Pvt Ltd, Ph: 022-22345758	Sporting 4-channel support & low CPU utilisation scores, the card delivers plenty of performance even at a low price

CPU's power while in operation. Go for a card where the utilisation is not more than 5 per cent. Though the difference is significant with newer processors, it could be noticeable when you upgrade the soundcard into an older machine.

The features that a soundcard supports are just as important as the price. Choose a soundcard that supports at least four channels and a standard such as EAX or A3D, as these standards are supported in many of today's games.

Finally, make sure the soundcard can drive your speakers—some high-end speakers have a provision for line input and your soundcard should have a similar output for the same level of audio quality.



### Creative Audigy Platinum

Compuage Infocom Ltd,  
Ph: 022-23842200

### The verdict:

This soundcard has 24-bit digital audio playback, robust audio interface support and 5.1-channel support. It hits the highs in gaming and movie performance

### And the award goes to

The soundcard that shined in performance and class is the Creative Audigy Platinum. Thanks to its support for true 5.1 channel Dolby Digital support, 24-bit audio quality, very low CPU utilisation, this soundcard performed excellently in all the applications.

## SOUND EDITING

### Sound Forge 6.0

With digital audio, very few tools come close to the capability and power of Sound Forge. This robust audio editing software incorporates a vast range of tools to let you perform basic audio editing on digital audio such as copying, pasting, and lengthening and shortening audio files. In addition, it offers full 32-bit file support, with sample rates from 2 KHz to 192 KHz, giving very high-quality audio. The zoom ratio for working with audio has also been increased to 24:1 to let you edit the waveform on even a sample level. The new multitasking environment allows the application to render in the background while you are editing other files in the foreground, saving

precious bits of your time. There is also a set of 35 preset effects such as flanging, chorus, reverb, etc, that help to add a dimension of depth to your audio tracks.

With professional-quality audio editing features and a host of controls and effect capabilities, Sound Forge 6.0 is your ticket to mastering audio at the home or in

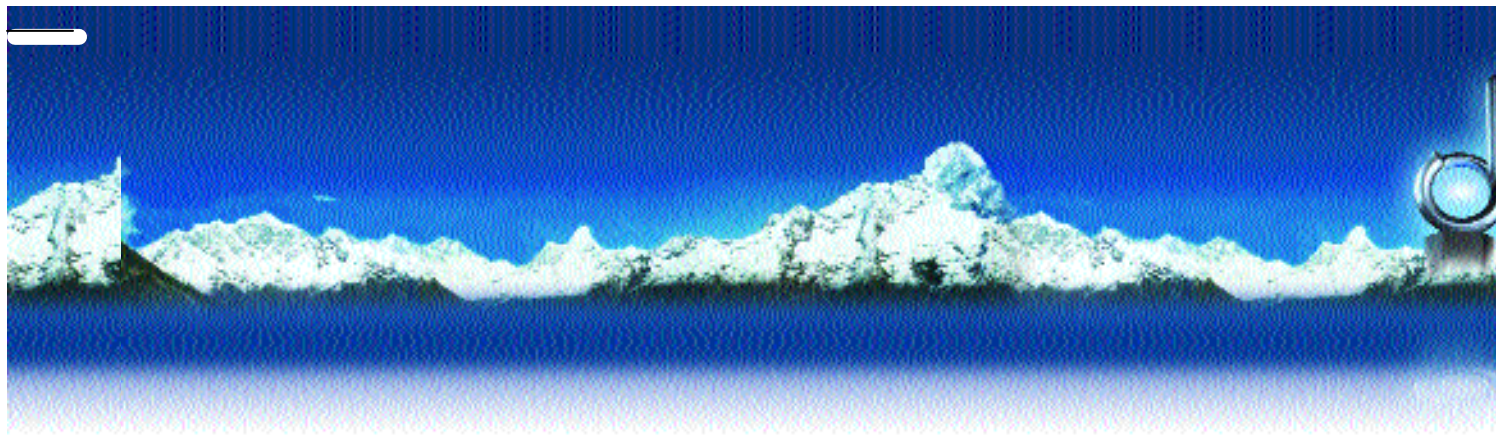
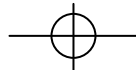


### Sound Forge 6.0

Sonic Foundry,  
E-mail: customerservice@sonicfoundry.co

**The verdict:** One of the most powerful Wave editing tools around, the application boasts unparalleled features and functionality for creating effects and processes with au





## SPEAKERS

Computer speakers used to be humble boxes spreading the sound in a 50 cm radius. Now they've grown into mammoth sound blasters. It all started with the advent of multi-channel audio support on the computer. Ever since the quad channel and 5.1 soundcards hit the scene, manufacturers created speaker systems that were complemented these systems. Thus was born the 4.1 and the 5.1 speaker systems we know today.

### Hear the difference

PC speakers are specified by the audio characteristics of frequency response, Total Harmonic Distortion (THD), Sound Pressure Level (SPL) and of course, power rating. However, the specified characteristics often belie the true capability of the speakers. Thus, always judge the speaker quality after you have heard how they sound. Always consider the RMS rating—the PMPO rating, though larger in value, is misleading and should not be relied upon.

In a four-channel speaker system, ensure that the power rating of each satellite and the subwoofer is at least 4 Watts and 15 Watts RMS, respectively. The higher this rating, the greater is the power delivery of your speakers. For THD, the acceptable levels are 0.3 per cent. The frequency response should be between 20 Hz and 20 KHz. SPL should be 75 dB.



**Artis S880**  
(4.1/5.1-channel category)  
Kunhar Peripherals Pvt Ltd,  
Ph: 022-22345758

**The verdict:** Though diminutive in size, this quad-channel speaker setup boasts crisp highs and defined bass, making for an excellent speaker system for performance gaming and immersive movies



Consider buying digital speaker systems—these have a decoder that encodes multi-channel encoded sound such as Dolby Digital. These speakers produce the highest sound quality, but you need to have a soundcard that features a digital-out to drive them. At the upper end of the scale, speaker systems feature dedicated multi-channel amplifiers that can decode four-channel and 5.1-channel audio signals from your games and movies, amplify them and send them to the matched speakers. These are ideal for a PC-based home theatre system, where you need power and compliance with multi-channel standards.

Newer breeds of four-channel and 5.1-channel speaker systems have taken audio power levels to new heights with support for industrial-strength audio standards such as THX. These speakers boast of power ratings in the realm of 300 to 500 watts RMS—enough to bring the roof down! Such speakers are best suited to home theatres—there is virtually no difference between watching a DVD movie in your home and in a movie theatre!

Make sure that you hear how the speakers sound with the

### Nominees

Name	Contacts	Comments
<b>4.1 and 5.1 SPEAKERS</b>		
<b>Artis X8 5.1</b>	Kunhar Peripherals Pvt Ltd, Ph: 022-22345758	This speaker system boasts of and powerful subwoofer with satellites, making it a very go companion for a 5.1-channel hon system.
<b>Labtec Arena 530</b>	Aditya Infotech Ltd Ph: 022-26338555	This quad-channel speaker sy foms very well, especially wh ducing sound effects and is k ed to movies and really loud
<b>2.1 SPEAKERS</b>		
<b>Artis S320</b>	Kunhar Peripherals Pvt Ltd, Ph: 022-22345758	Boasting of especially good p ance during DVD playback, th system also provided very sha
<b>Labtec Pulse 325</b>	Aditya Infotech Ltd, Ph: 022-26338555	Suited very well for gaming, speakers delivered excellent in reproducing sound effects out impressively even at high

music you specifically listen to—carry a CD of your favour to test the speakers' quality. When testing, set the bass a controls to a mid point and see how loud the speakers g the sound begins to distort. This will help you decide wh 'room-shaking' power of the speaker is actually present or if there's just a tinny cacophony!

### And the award goes to...

The 4.1/5.1-channel speaker system that delivered outstanding performance in the categories of gaming as well as



**Sumoku Alpha 4R**  
(2.1-channel category)  
Palesha Electronics Industries, Ph: 9520-6355702

**The verdict:** Sporting a separate amplifier unit cont the controls, this speaker system delivered sound quality and that belied its size



movies was the Artis S880. This speaker system was als handle high volume levels with ease and is therefor suited to users who like to play audio at blaring volun

Among the 2.1 speaker systems, the Sumoku Alpha ered very good response in our tests, especially during I back where the response was very sharp. This was also in its superior treble response.

The speakers have a separate amplifier that contain controls, so they can be placed in a convenient location: bothering to keep them within arm's reach. If it's ster that you're looking for, this one offers superior sound c



# Bazaar

We test the latest and the best hardware and software products available in the market

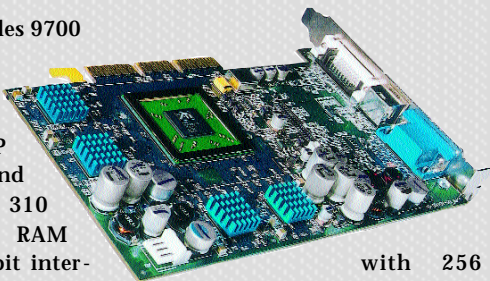
## Hercules 3D Prophet 9700 Pro

When speed matters

The Hercules 9700 Pro graphics card boasts of an 8x AGP interface and 128 MB of 310 MHz DDR RAM with a 256-bit interface. With a maximum of 256 MB of RAM onboard, it can reach a bandwidth of 19.2 GBps! It has a 325 MHz core, eight rendering pipelines, dual 400 MHz RAMDAC for dual-monitor support and DirectX 9.0 support.

The 9700 Pro nicely blends form and function. It features an all-copper fan assembly and heat sinks on both sides of the card, which gives it a very powerful look. For the very first time, it actually packs a floppy-type power connector on the card, because the AGP bus cannot satisfy this power-hungry monster. So unless you have a power supply of at least 300 watts, don't even consider owning this graphics card.

We tested the card on a 2.2 GHz Pentium 4 processor, on the 845-based MSI Max2 BLR motherboard,



with 256 MB DDR RAM. In the 3DMark 2001 SE test, the card achieved an impressive score of 12,085. The *Unreal Tournament 2003* benchmark was also very high—130 fps when played at 1600x1200 in the flyby demo, with all settings at maximum level.

If you're looking for the fastest video card around, then this is the one for you. All this goodness comes at a high price, though—Rs 34,750 to be precise.

**SPECIFICATIONS**  
ATI's R300 GPU, 128 MB DDR RAM, dual output, DVI to D-sub connector included, *The Elder Scrolls III: Morrowind* game CDs  
**System Requirements:**  
Pentium 4/III/II/Celeron or compatible with AGP 8x/4x/2x slot, 128 MB RAM, 300 watts power supply, Windows XP/Me/2000

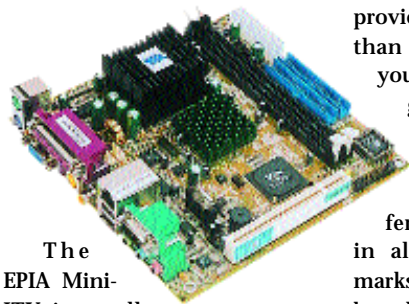
Hercules 3D Prophet		B+
Performance	▶▶▶▶▶	
Build quality	▶▶▶▶▶	
Value for money	▶▶▶▶▶	
Features	▶▶▶▶▶	
OVERALL	▶▶▶▶▶	

Price: Rs 34,750  
Contact: MediaTech India  
Phone: 022-2396696  
E-mail: sales@mediatechindia.com

## VIA EPIA Mini-ITX motherboard

Good things come in small packages

The VIA EPIA series motherboards are based on the EDEN platform and are intended as low-cost, ultra low-power and compact platforms for mobile and compact systems that are mainly used for surfing the Net, watching movies (DVDs), or working with office applications.



The EPIA Mini-ITX is an all-inclusive board that features an embedded VIA Cyrix C3 E-series processor with an optional fan-less EDEN ESP 5000 processor (these cannot be upgraded), support for up to 1 GB of 100/133 MHz SDRAM, AGP 2x Trident Blade graphics controller with up to 8 MB of memory with a TV Out option, AC '97 sound codec with S/PDIF output and a 10/100 Mbps integrated Ethernet.

There's only one PCI slot and one serial port, but this shouldn't be a problem, as its intended users will not need the extra expansion slots, and new devices can make use of the two USB ports (expand-

able to four) present.

When used with the fan-less EDEN ESP 5000 processor, the CPU heats up a bit during intensive operations, so a fan is recommended—when using the optional CPU with the fan, it was always at below-room temperature.

The motherboard system provides you with more power than you'll need for running your everyday business programs. Try to give it something even remotely graphical though, and it suffers—it performed poorly in all our graphics benchmarks. To be fair, this motherboard is aimed at the average budget user and not at gamers and graphics professionals and it's powerful enough to smoothly run DVDs and DivX movies. At Rs 4,500 for the 533 MHz variant, you really shouldn't be asking for more.

The motherboard supports processors ranging from 533 MHz to 933 MHz, and variants that support DDR memory are also available.

**SPECIFICATIONS**  
Embedded 533 MHz processor, onboard AGP 2x graphics, integrated sound, 10/100 Ethernet, mini-ITX form factor, ATX-compliant power supply

Price: Rs 4,500  
Contact: Via Technologies  
E-mail: ravi@quaza.com  
Web site: www.via.com

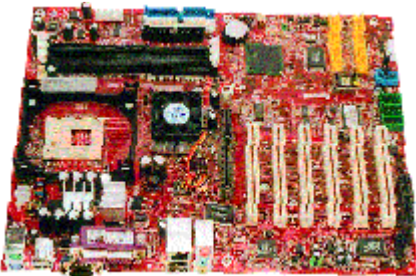
VIA EPIA Mini-ITX		B+
Performance	▶▶▶▶▶	
Build quality	▶▶▶▶▶	
Value for money	▶▶▶▶▶	
Features	▶▶▶▶▶	
OVERALL	▶▶▶▶▶	



# MSI 845PE Max2

A feature-rich and stable performer

This motherboard features a DDR 333 solution based on Intel's latest 845PE chipset, which supports Intel's HyperThreading technology. This allows software



applications to exploit the processor's resources to the fullest by running threads belonging to applications in parallel. However, it requires a CPU that can perform HyperThreading, and Intel has just launched its first such CPU—the P4 3.06 GHz. Also, applications need to be written to take advantage of this technology, so it might be some time before its benefits are actually visible.

The board was tested on a P4 2.8 GHz, with 256 MB of 266 MHz DDR RAM along with a 7,200-rpm hard disk, and a GeForce4 Ti 4600 graphics card on Windows XP. The board performed well in individual tests, though, the overall performance was slightly less than an RDRAM-based motherboard. One area where it showed excellent performance was in the video encoding test, where it encoded a 55 MB MPEG file to the DivX format in just 58 seconds—this means we can expect a better performance when used with the upcoming 333 MHz memory module. This board is excellent for CPU-intensive

applications such as floating point computations. In the Business Creation and in the Content Creation test, the scores were well above your average P4 motherboard.

The board is armed to the teeth with features. It has six-channel sound capability with an onboard AC'97 5.1 sound decoder. The motherboard supports a maximum of 2 GB of DDR RAM with three DIMM slots. A Gigabit Ethernet controller is also integrated. Another interesting feature is the presence of an onboard Promise RAID controller with RAID 0 as striping and RAID 1 as mirroring. The board comes bundled with a USB 2.0 module with diagnostic LEDs. This helps in debugging system problems without opening the case. Also included are an IEEE 1394 module, an S/PDIF (Sony/Philips Digital Interface) module, four detailed manuals and a driver and software CD that contains Live Update, a BIOS updating software for Windows and PCAlert4, a diagnostic utility that gives information about various system parameters and displays a warning when the threshold limits are crossed.

## SPECIFICATIONS

845 PE chipset with HyperThreading technology, DDR 333 support, onboard AC '97 5.1 channel support, IEEE 1394, Gigabit Ethernet, Promise RAID controller, 4x AGP, 6 PCI slots, 1 CNR slot, USB 2.0 module

Price: Rs 9,000  
Contact: Priya Ltd  
Phone: 022-22663611  
Fax: 022-22664154  
E-mail: salesbom@priyagroup.com  
Web site: www.priyagroup.com

MSI 845PE Max2		B+
Performance	▶▶▶▶▶▶	
Build quality	▶▶▶▶▶▶	
Value for money	▶▶▶▶▶▶	
Features	▶▶▶▶▶▶	
OVERALL	▶▶▶▶▶▶	

1/2 p AD



## Canon LBP 1210 laser printer

In black and white

If you are scouring the market for a workgroup laser printer that can take care of



your daily office print jobs, then look no further than the Canon LBP 1210.

The front panel has a simple interface design; the back panel features a USB and a parallel port interface along with the power connector.

This printer is provided with a 250-sheet paper tray, which is sufficient for most daily printing loads. There is also a provision for manual paper loading and the paper-in tray can be detached.

The printer comes bundled with a power cord, interface cables, manuals, a driver CD and also a quick start guide.

**Price:** Rs 21,192  
**Contact:** Canon India Ltd  
**Phone:** 011-6806572  
**E-mail:** brijesh@canon.co.in

In the test, the LBP 1210 delivered good results, printing a text and graphics document in under 17 seconds. The tonal variation and greyscale reproduction in monochrome images was smooth.

Even when taking a large number of printouts, the printer did not cause any paper jams. With a good set of features, fast speeds and sharp and defined prints, this monochrome printer is the best bet for office applications that need a combination of both speed and quality.

**SPECIFICATIONS**  
600 dpi maximum resolution, 2 MB buffer, 250-sheet paper tray, parallel and USB interface

Canon LBP 1210		B
Performance	▶▶▶▶▶▶	
Build quality	▶▶▶▶▶▶	
Value for money	▶▶▶▶▶▶	
Features	▶▶▶▶▶▶	
OVERALL	▶▶▶▶▶▶	

## Logitech Cordless Freedom optical keyboard

Freedom from wires

The Logitech Cordless Freedom Optical uses radio frequencies and doesn't even require you to be in the line of sight of the receiver. The keyboard-mouse combination is good looking and packs a lot of features such as 20 hotkeys for Internet, multimedia and so on. The receiver has two PS/2 connections for the keyboard and mouse.

The keyboard has an excellent layout—given its



comfortable tactile response and feel, it is ideally suited to those who need to type a lot such as programmers and layout artists who use a lot of hotkeys. The keystrokes are

smooth and silent, and the layout and shape of the keyboard makes for very comfortable typing.

The keyboard, when used from 20 feet away worked quite satisfactorily, but the bundled mouse (Logitech Cordless MouseMan Optical) was not as responsive—it missed the signals at times, making it unsuitable for applications such as presentations, where you would be at a distance from the base computer. The mouse is also a bit heavy but works quite

**Price:** Rs 3,380  
**Contact:** Rashi Peripherals  
**Phone:** 022-28260258  
**E-mail:** ho@rptechindia.com  
**Web site:** www.logitech.com

## ACID PRO 4.0

Music on the rocks

ACID PRO 4.0, the latest version of Sonic Foundry's music creation tool, has a very clean interface that might take a little time to get used to, but it's powered to create professional-grade music. The new version has a lot more features than its predecessors, such as Auto-save, Crash Recovery and 5.1-channel mixing to enable great music creation. One particularly new, useful feature is the ability to rip CDs, edit the music files and burn them.

ACID PRO saves to a variety of formats such as WAV, WMA, RM, AVI, and MP3. It allows you to add effects such as Resonant Sweeps and dra-

smoothly. The Logitech MouseWare Control Centre lets the user program functions for the extra button as well as the middle button.

With great looks, plenty of functionality and comfort, this keyboard-mouse combination is a good deal for users for whom price is not an issue.

**SPECIFICATIONS**  
Radio frequency communication, 20 hotkeys, PS/2 interface, 6 feet range, package includes keyboard, mouse and radio receiver

Logitech Freedom		B+
Performance	▶▶▶▶▶▶	
Build quality	▶▶▶▶▶▶	
Value for money	▶▶▶▶▶▶	
Features	▶▶▶▶▶▶	
OVERALL	▶▶▶▶▶▶	

matic fades. It also supports 16-bit and 24-bit Audio formats, as well as importing of WMA and WMV files.

The package includes a CD containing more than 400 music loops from Sonic Foundry's 'Loops for ACID' collection.

ACID PRO is most definitely recommended for professionals and is priced as such—amateurs will probably be put off by its Rs 19,551 price tag.

**SPECIFICATIONS**  
**System requirements:** Windows 98 SE/Me/2000/XP, 300 MHz processor, 64 MB RAM (128 MB recommended), Windows-compatible sound-card and DirectX 8.0

ACID PRO 4.0		B
Performance	▶▶▶▶▶▶	
Ease of use	▶▶▶▶▶▶	
Value for money	▶▶▶▶▶▶	
Features	▶▶▶▶▶▶	
OVERALL	▶▶▶▶▶▶	

**Price:** 19,551 (local taxes extra)  
**Contact:** PRO-MUSIC Inc  
**Phone:** 91-44-8261445/8213607  
**E-mail:** promusic@vsnl.com  
**Web site:** www.promusic-online.com



# Adobe LiveMotion 2.0

## Animate your world

**L**iveMotion 2.0, Adobe's latest offering, is pitted against Macromedia's Flash MX. It allows object-based animation—instead of frames as seen in Flash, there's a TimeLine that displays a list of layers within which you can make changes to the objects and also control how an object's attributes will change over time. Layer groups appear as a collapsible list of objects, so you can animate individual objects as well as the complete group. Changing the frame rate does not involve re-doing the timing of the movie—a 10 second animation will take 10 seconds irrespective of the frame rate it is played at.

Version 2.0 has a new feature called Time Scaling—by pressing [Alt], you can resize segments on the timeline and the key frames within those segments are automatically repositioned so that the existing animation is scaled to fit in the new time period. This feature allows you to make last minute changes without having to alter any of the animation.

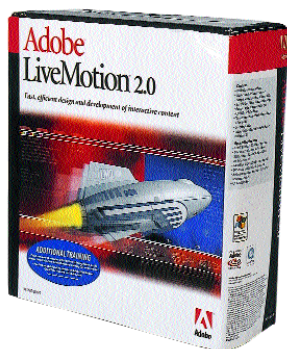
LiveMotion offers you a great set of tools. The drawing tools offer four shapes—circle, ellipse, rectangle and square, to help you draw the basic layout of your animation. You can then play around with the advanced alteration tools such as opacity, size or distortion to give it any look you like. The software includes image editing features and integrates well with Photoshop and Illustrator, so you don't have to invest in a separate image editing application. It supports BMP, JPEG, PSD, ES, AI

**Price:** Rs 20,700

**Contact:** Adobe Systems India Pvt Ltd

**Phone:** 0120-4444711

**E-mail:** sandeepm@adobe.com



and TIFF formats.

It brings along with it a library with predefined styles, textures, sounds and shapes. You can store presets in the Styles palette and apply them later to objects in the same or in other compositions.

The Export panel allows you to set global quality options for all bitmapped objects in the document, as well as specific settings for particular objects. Hence, by reducing the quality of all bitmapped elements in the object, you can cut down on the size of the animation.

In version 2.0, the support for scripting has been beefed up. The scripting language is based on JavaScript. The script editor is extremely functional and relatively easy to use. Plus there are a number of sample scripts to make your task simpler.

To sum up, Adobe has brought LiveMotion to a level where it can be thought as a serious alternative to the Flash authoring environment.

## SPECIFICATIONS

**System requirements:** Pentium III 600 MHz or faster processor, Windows 98/Me/2000/XP, 64 MB RAM, 50 MB free hard disk space, CD-ROM drive, 800x600 or greater monitor resolution

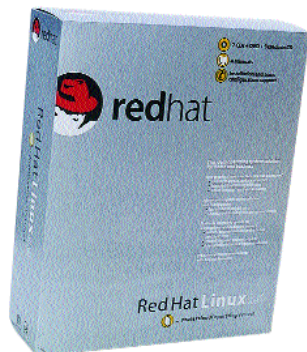
Adobe LiveMotion 2.0	
Performance	▶▶▶▶▶
Ease of use	▶▶▶▶▶
Value for money	▶▶▶▶▶
Features	▶▶▶▶▶
<b>OVERALL</b>	▶▶▶▶▶



## Red Hat 8.0

## Hat full of goodies

**A** first look, Red Hat 8.0 might fool a Red Hat user into thinking that it's a brand new distribution. The graphics have changed quite a bit, and the images and characters look clear and bold. This new look has been dubbed by Red Hat as 'Blue Curve'.



Looks aside, version 8.0 offers several enhanced features. For instance, there's a new option to check the installation medium for problems just before installation begins—quite a thoughtful addition given that less-than-flawless installations are a sure-shot recipe for disaster in Linux.

A new installation type, called Personal Desktop, has also been added. This is in addition to the usual Workstation, Server and Custom installation types. The package selection and installation has been given a new look and has been grouped into five categories: Desktop, Applications, Servers, Development and System. The Desktop group contains KDE and Gnome, the Application group contains various editors, calculators, games and applications. The Servers group contains FTP, DNS, SAMBA and other protocol servers, while the Development group has compilers and several Software Development Kits (SDKs). When you choose the installation type,

packages pertaining to it are selected by default.

A standard Personal Desktop installation consists of 369 basic packages (these are non-deselectable components) plus 132 additional packages such as Gnome, games, etc. This installation type will need 1,558 MB of space and takes about 20 minutes to install. A Complete Personal Desktop, with all the packages, takes 4,680 MB of hard disk space and 50 minutes to install. These times were logged on a system using the Intel 1.7 GHz CPU, Intel D845GBV motherboard, 256 MB DDR (266 MHz) RAM, nVidia GeForce2 Ultra graphics accelerator, a 40 GB Seagate Barracuda hard disk and a 48x LG CD drive. Since a majority of potential Linux users may not have such a high system configuration, installation times can be expected to be significantly longer.

The Boot Loader Configurator, which sets up your system to boot Linux or shares it with other OSes, has upgraded features. You can now specify the boot sequence (for example: CD-ROM first, then floppy, then hard disk). For a single-boot system (only Linux), installation is quite simple but for a dual-boot system (say, Linux and Windows), experience in creating and assigning partitions is required.

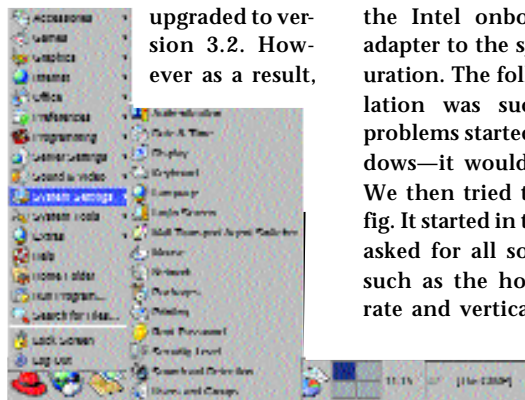
The first time Red Hat starts, a new agent activates itself and configures system date, time and sound settings. The Setup Agent also helps in installing any other packages from the additional CDs.

Red Hat 8.0 also has a better control panel—the entire menu structure is well-organised. Repetition, an essential element of user-friendliness, has been achieved by making

the same configuration tools appear again and again under different headings.

Integration is another user-friendly design aspect. Red Hat integrates some applications such as Open Office 1.0, Mozilla Open Source Browser and Ximian Evolution (an e-mail client, calendar and contact manager, all in one) as part of the installation process. It provides an alternative to Star Office with the Open Office package.

The most important feature for developers, the GNU Compiler Collection (GCC), has also been upgraded to version 3.2. However as a result,



*The Red Hat 8.0 features a neat and clean new interface*

the GNU C++ compiler has some compatibility issues over the type of object code it produces. GCJ (GNU Compiler for Java) has been upgraded, as also the GDB (GNU DeBugger). The C and C++ libraries have also been enhanced and the overall compiler performance has been improved.

The bundled MP3 players present in version 7.3, mpg123 and XMMS, are not included in version 8.0 due to

**Price:** Rs 8,750 (Professional),  
Rs 2,200 (Personal)  
**Contact:** Red Hat India Pvt Ltd  
**Phone:** 022-22853452  
**Fax:** 022-22845343  
**E-mail:** [info-india@redhat.com](mailto:info-india@redhat.com)  
**Web site:** [www.in.redhat.com](http://www.in.redhat.com)

patenting issues, this causes a major setback in the multimedia performance. It also lacks some games that were present in the older version.

In order to see just how Red Hat 8.0 performs under 'stress' tests such as hardware changes (this has always been a thorny issue in previous versions), we decided to change some hardware. The Intel motherboard used in the test bed had an onboard GPU, so we decided to remove the GeForce2 card. When we started the machine, Linux properly detected the change and prompted us to remove the GeForce drivers and add the Intel onboard graphics adapter to the system configuration. The following installation was successful. The problems started with X-Windows—it wouldn't initialise. We then tried the XF86Config. It started in text mode and asked for all sorts of details such as the horizontal scan rate and vertical refresh rate and so on.

Even after giving all the details, X - W i n - d o w s wouldn't start. This is one area where the user-friendliness needs to be enhanced.

Overall, Red Hat 8.0 promises to be pretty good but if something fails, it's quite difficult to amend things.

## SPECIFICATIONS

**System requirements:**

Pentium-class CPU or better, at least 650 MB hard disk space, 128 MB RAM

	Red Hat 8.0	B
Performance		
Ease of use		
Value for money		
Features		
<b>OVERALL</b>		



# Norton AntiVirus 2003

## The ultimate protector

Anti-virus software continually strive to reach higher levels of effectiveness to keep pace with viruses that evolve to find stealthier and more devastating ways to attack our data. Norton AntiVirus 2003 is one such software that has earned plenty of respect and confidence for protecting computer systems from virus attacks.

Norton AntiVirus 2003 has some additional features compared to the previous version. It has an expanded file repair and deletion feature, which helps in restoring and repairing files infected with worms or Trojans with the possibility of even saving the original document. Like in the older versions, if the virus cannot be removed from the file, Norton offers to delete the file.

In today's connected age, small files can be easily transferred through instant messengers and these could contain viruses—the instant messenger support option safeguards the system from these. Norton automatically detects the messengers installed on your system and enables the protection mode by default during installation. It scans MSN, Yahoo! and AOL messengers for possible malicious files—all files received through these messengers are scanned for viruses and then passed forward. Users do have the option of enabling or disabling this feature.

Norton AntiVirus 2003 scans all outgoing mail for

worms and blocks infected mail. It notifies the user of such attachments and also suggests an appropriate action for the situation.

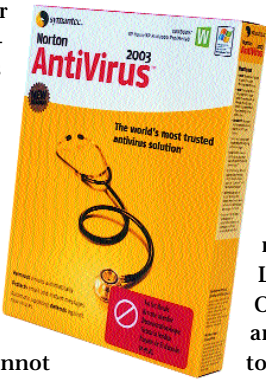
The software allows you to password protect the access settings. This is helpful if several people use your PC, as it prevents others from accessing your data.

Norton AntiVirus 2003 is easy to use and sports the same interface as the earlier one; but even if you haven't used any of the previous

versions of the software, you will not have to struggle with its interface and configuration. The icons and captions are self-explanatory and the Scan, Live-update and Option setting tasks are very easy to get to and perform from the convenient front interface.

The Live-update feature is very transparent and one of the best implemented amongst anti-virus packages. If you are updating the protection updates daily, the download size will not be more than 80-90 Kb.

If data protection under any circumstances is your priority, then Norton AntiVirus 2003 will put your mind to ease.



### SPECIFICATIONS

**System requirements:** Windows 98 SE/Me/2000/XP, 300 MHz processor, 128 MB RAM, 70 MB hard disk space, IE 5.0

Norton AntiVirus 2003 <span>B</span>	
Performance	▶▶▶▶▶
Ease of use	▶▶▶▶▶
Value for money	▶▶▶▶▶
Features	▶▶▶▶▶
OVERALL	▶▶▶▶▶

**Price:** Rs 2,025  
**Contact:** Symantec  
**Phone:** 022-6570658  
**Fax:** 022-6570671  
**Web site:** www.symantec.com

1/2 p AD

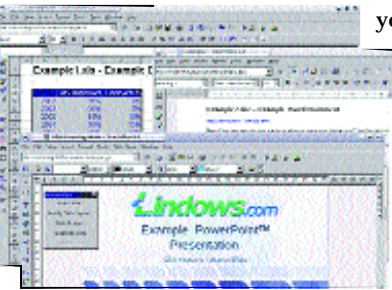


## Lindows 2.0

### Stepping stone to Linux

**L**indows, as the name suggests, tries to bridge the gap between Windows and Linux.

The installation is pretty smooth. You can let Lindows take up the whole hard disk, or, if you've already installed Windows, it can share the partition and set up your



computer to boot to either OS. If you have some experience in partitioning hard disks, you can perform the whole process manually.

Lindows 2.0 eliminates all applications it considers unnecessary for a first-time user. That would include over 50 per cent of the applications normally found in other distributions. It might make no difference to a new user, but is certainly a disadvantage for a veteran.

Like most new distributions, Lindows automatically configures a wide variety of hardware, including the network card and the network connection—a definite advantage for the new user.

After the startup, you're taken straight to the graphical interface, which is very similar to Windows. With nearly the same layout, this is nothing but a Lindows version of KDE. Exactly like Windows, in the left hand corner is an L-shaped icon that serves as a start button. From here you can access any program or

configure settings for display, sound, etc.

The interface is extremely simple to use. If you've chosen a dual-boot configuration, Lindows automatically mounts the partitions belonging to the other OS so that it is accessible directly from the 'My Computer' icon in Lindows. If you're on a LAN, you will get an icon called 'Network Browser', similar to 'Network Neighbourhood' in Windows.

On the applications front, Lindows is minimal, but these are sufficient for a non-power user. One feature that stands out is the Click-N-Run. It allows you to

download an application, install it and run it with a single click—a definite improvement over the RPM package management software used by other distributions. However, to use this feature, you need to register with the Web site for a fee of \$99.

Lindows uses WINE (Windows Emulator) to run many Windows-compatible applications such as MS Office.

One cannot deny the extreme simplicity of use, the freshness of the interface, the ease of configuring hardware and the various settings present in Lindows—an excellent stepping stone for those who want to venture into the world of Linux.

#### SPECIFICATIONS

**System Requirements:** Intel or compatible CPU at 400 MHz, 128 MB RAM, 2 GB free hard disk space, broadband Internet connection recommended for Click-N-Run

Lindows 2.0		B
Performance	▶▶▶▶▶▶▶▶▶▶	
Ease of use	▶▶▶▶▶▶▶▶▶▶	
Value for money	▶▶▶▶▶▶▶▶▶▶	
Features	▶▶▶▶▶▶▶▶▶▶	
OVERALL	▶▶▶▶▶▶▶▶▶▶	

Price: Freeware  
Web site: [www.lindows.com](http://www.lindows.com)

## Antec Performance Plus 660 AMG

### Sturdy and cool

**W**hat are the specifications for a top-class cabinet? The basic requirement of any cabinet is a capable power supply, proper ventilation system and sturdy build.

The Performance Plus 660 AMG from Antec is awesomely rugged. The 5.25-inch drive bay front cover is made of plastic and can be removed just by pushing the two side buttons. Below these bays are the

3.5-inch bays. On the front bezel, a small plastic spring-loaded flap opens to give access to two USB and one FireWire connection. The power and reset buttons are present on the front bezel, with two LED indicators and two extra LEDs in case you want to monitor the status of any other device. The only sore point is the reset switch—it's too small and a bit hard to reach.

The cabinet comes with 330 watts power supply with two fans—one normal exhaust at the back of the case, while the other is placed right above the CPU. This design really provides some heavy-duty cooling and is recommended for people using the AMD Athlon CPU. The quality of wiring used inside is splendid, with the motherboard power supply connector wire wrapped in nylon net and all the peripheral power connectors you will ever need. The drive bays are

designed such that the drive has to be fitted to a clip and then slid into the bay—nice and easy. The hard disk can be fitted into the internal 3.5-inch bay cage, which can be removed just by sliding a clamp. The bay is provided with a clamp for a fan; useful if you use one of the faster drives which dissipate a lot of heat. Just next to the hard disk cage is a washable filter



for ensuring clean airflow. Finally, there is space for a stock fan just below the hard disk cage.

Being a mini-tower, it's slightly cramped, especially near the CPU region, due to an irritating cross metal rib that serves as the lateral strengthening device. Also, the power supply needs some sort of support, since it was seen to tilt a bit due to its own weight and due to the dangling cables.

Overall, we were pretty impressed with the build quality and the smart thinking that went into making this cabinet user-friendly. But then all good things come for a price—at Rs 7,650, it's priced way too high by Indian standards.

#### SPECIFICATIONS

Mini-tower, 17.25x8.1x18.6 inch (HxWxD), seven expansion slots, three 5.25-inch bays, five 3.5-inch bays (two of them convertible), P4 compatible 330 W power supply, net weight approx 10 kg, two USB and one FireWire front connectors, washable air filter

Price: Rs 7,650  
Contact: Cyber Space Abacus Pvt Ltd  
Phone: 044-4464468  
Fax: 044-4915490  
E-mail: [shunmugavel@theitdepot.com](mailto:shunmugavel@theitdepot.com)  
Web site: [www.antec-inc.com](http://www.antec-inc.com)

Antec Performance Plus		B+
Performance	▶▶▶▶▶▶▶▶▶▶	
Build quality	▶▶▶▶▶▶▶▶▶▶	
Value for money	▶▶▶▶▶▶▶▶▶▶	
Features	▶▶▶▶▶▶▶▶▶▶	
OVERALL	▶▶▶▶▶▶▶▶▶▶	



# Microsoft Wireless IntelliMouse Explorer

## Smooth operator

This wireless mouse is contoured so that it fits snugly into your palm, making it easy to use even over prolonged periods. During installation, the mouse was detected and automatically configured in Windows XP.

The buttons are easy to click and the two hotkeys are just under the thumb for faster access to commonly used tasks that they can be programmed to activate.

**Price:** Rs 3,380  
**Contact:** Microsoft Corporation India Pvt Ltd  
**Phone:** 011-6292640  
**E-mail:** connect@microsoft.com  
**Web site:** www.Microsoft.com

The mouse is good for gaming as well as regular office applications. The smooth response will make for very accurate aiming when playing *Quake* sessions! The additional buttons are especially suited to gaming since they can be configured to perform special tasks.

Overall, it's a great companion to applications where you need accuracy in your pointing device.

**SPECIFICATIONS**  
Two AA batteries, a receiver, software CD and manual

IntelliMouse Explorer	B+
Performance	▶▶▶▶▶▶
Build quality	▶▶▶▶▶▶
Value for money	▶▶▶▶▶▶
Features	▶▶▶▶▶▶
OVERALL	▶▶▶▶▶▶

# Kodak Digital Camera CX4230

## Sharp shooter

The CX4230 is fully Plug-n-Play compatible, with USB connectivity for downloading photos to your computer. During the test, the installation



was automatic with Windows XP detecting the device and installing the drivers on its own, without requiring the driver CD. A 1.6-inch LCD screen enables even a novice

to properly set the target area. Indoor photographs with flash capture all the details, but the ones without flash are not too clear. Outdoor photographs come out pretty clear. The Macro Mode option for close-ups captures even finer details. The colour composition is truly excellent in this mode. However, this camera is costly for the 2 Megapixel, 16 MB mid-range segment.

**SPECIFICATIONS**  
16 MB internal memory, MMC/SD slot, 2 Mega pixel resolution, 3x optical, 2x digital zoom, 1.6-inch TFT colour LCD screen, weight 220 gm, JPEG/EXIF v2.2 compression

Kodak Digital CX4230	B-
Performance	▶▶▶▶▶▶
Build quality	▶▶▶▶▶▶
Value for money	▶▶▶▶▶▶
Features	▶▶▶▶▶▶
OVERALL	▶▶▶▶▶▶

**Price:** Rs 19,900  
**Contact:** Neoteric Informatique Pvt Ltd  
**Phone:** 022-4172600  
**Fax:** 022-418 5294  
**E-mail:** sales@neoteric-info.com  
**Web site:** www.neoteric-info.com

1/2 p AD



## Samsung ML-1210 laser printer

---

Print baby, print

The Samsung ML-1210 offers speedy printing at an affordable price. The printer supports a maximum resolution of 600 dpi, has a USB as well as parallel interface and comes with 8 MB of onboard memory. The paper in tray can hold 150 sheets of paper. The printer also supports manual paper feed.



The build quality of the toner flap, the paper-in and the paper-out tray is quite impressive. As far as performance goes, this printer took

**Price:** Rs 14,500

**Contact:** Samsung Electronics  
India Information & Telecommu-  
nication Ltd

**Phone:** 011-6322517

**E-mail:** [marketing@samsungindia.com](mailto:marketing@samsungindia.com)

**Web site:** [www.samsungindia.com](http://www.samsungindia.com)

just 26.73 seconds for the image print test. However, it took a slow 280 seconds to print 50 pages of the test word document. It logged some good results in our print quality tests, especially when printing text and was able to print even small sized text with clarity. All in all, this printer is a good choice if you need a value solution.

## SPECIFICATIONS

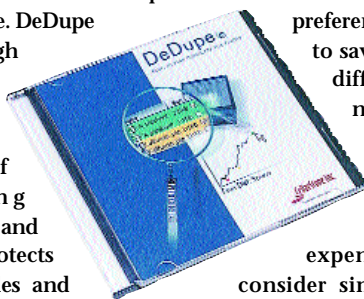
600 dpi resolution, USB and parallel interface, 8 MB onboard memory

Samsung ML-1210		B
Performance	►►►►►►	
Build quality	►►►►►►	
Value for money	►►►►►►	
Features	►►►►►►	
<b>OVERALL</b>	►►►►►►	

## DeDupe 1.0 duplicate file finder

Copy cat

**D**eDuper 1.0 is designed to search and eliminate duplicate files that clutter up your hard drive. DeDuper provides enough safeguards against losing files in the process of eliminating duplicate files and by default protects the system files and folders.



drives). However, each time you need to look for duplicate files or change your preferences, you have to save them with a different file name.

Though a feature-rich application, it's expensive if you consider similar freeware utilities available on the Net.

## SPECIFICATIONS

**System requirements:**

Windows 95 or higher,  
Pentium or compatible proces-  
sor at 100 MHz, 32 MB RAM,  
20 MB hard disk space

DeDupe 1.0		B
Performance	►►►►►	
Ease of use	►►►►►	
Value for money	►►►►►	
Features	►►►►►	
OVERALL	►►►►►	



It was not a particularly dark night and the weather was especially upbeat. I leaned over Atul's shoulder as he flicked open the sleek, black case and triumphantly exhibited the six-stringed beauty. It was a Fender! It took a dedicated application of my secret agent training to muffle my excitement and broadcast it as a nonchalant grin. "Plug it into the amp", said he. I plugged the beauty into the home-made 400 W beast, which drove my Sony speaker set, the showpiece of my computer system. A riff, a strum and away it went, taking the speakers with it. "Must have been the OP-Amp, I had to compromise with its specs", the wannabe engineer put in. Right. To market, to market,

to buy a set of speakers... Armed with cash and a spring in my step (new gadget up ahead!), off I went.

I started with a small shop that had the knack of disappearing into its surroundings when viewed at a particular angle. The keeper was adamant that I buy the Adcom 660 W Multi-media Speaker—a 2.1-channel speaker set. The asking price was a shade over Rs 600 and I was intrigued. The set had reasonable bass output, but the treble lacked the aural nuance I was looking for. My next run-in was with an even cheaper unit, a Mercury 440 W that alas was only stereo. Mercury speakers are affordably priced and are hot sellers and I could tell that the set would be



■ If you are into music only, a good 2.1 speaker set will serve you well

■ Always test the speakers you buy on your music—take a CD or tape with you and test the speakers using your music

■ When you buy a multi-channel speaker system, make sure that your sound-card has the correct outputs

■ There are some THX and Dolby Digital certified speaker sets available in the market—look for these if you want to set up a home theatre

# Speak easy

Agent 001 goes out on a hunt for a replacement set of speakers after blowing up his original set



an ideal buy for a desktop setup where music makes a sporadic appearance. The shop also exhibited a two-piece Philips system, rated at 600 W and priced at Rs 699. An elder sibling from the same company packed a 1000 W punch, called itself the Philips Fun Power Plus and was Rs 1,295 away from a purchase. None enticed me however, not even the Rs 750 Creative SBS15, another stereo set. These were all good systems, with output ranging from very decent to pretty good, but the punch that I was looking for was missing.

So on I went, bravely venturing into the my-wallet-feels-lighter territory. Three sets greeted me on this side of the market. The Aztec (rated at a cool 2000 W), the Creative Inspire 2.1 (12 W RMS subwoofer and 4.5 W RMS satellites) and the Cambridge SW320 (12 W RMS subwoofer and 4 W RMS satellites). Priced equally at Rs 2,500, my vote went to the Cambridge set for its wonderful sound reproduction (the bass, especially) but the set lacked the multiple-channel support and the inputs that I was looking for. Dejected, but neither shaken nor stirred, I pointed to the Creative 4.1 speaker set that nestled in the corner. At Rs 4,150, the set seemed like a nice compromise between price and performance.

Logitech is doing great things in the speaker segment, a vendor told me, pointing to the Soundman Extrusio DSR-100, an 800 W, 4.1 set that was priced Rs 12,000. He also told me that the Z560, a 400 W, THX certified, 4.1-channel speaker set was expected to arrive any time soon. Patience was never my forte and I settled for a Jetway Artis 5.1 unit, a Rs 12,000 set code-named X8L/5. It has discrete inputs for all the channels and the requisite plugs where the Fender could find port—all in all, a perfect fit. Though my wallet is lighter, my ears ring with pleasure. ■



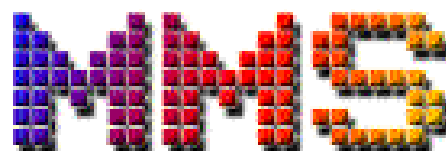
Colours. They rule our lives. We enjoy them. But all along, on a one-and-a-half inch by one inch screen on a mobile handset, all you could see, receive and share were monochrome text-based messages interspersed with the odd emoticon. Then, there's the 160-character limit. While SMS has had its share of the lime-light and was once the killer app in cellular technology, there was something missing—SMS is fun, but it isn't colour-

Partnership Project (3GPP), which is also collaborating with other standards bodies such as the WAP forum to assist in certain areas. The Global System for Mobile Communication (GSM) association is active in collecting operator requirements to address to 3GPP to help advance these standards.

MMS itself will emerge in two phases, the first phase being 2.5G, right now, followed by services on the 3G networks of the future. In practical terms, it means

sages. At some point, additional services are envisaged, such as receiving messages with rich multimedia content from commercial content creators. These services may be commercial transactions, where users would have to pay for them, much like the Web sites that allow users to pay for and download ringtones and logos for their phones.

With the newer mobile devices, people will soon be sharing small video clips or slideshows (complete with audio). In



You aren't satisfied simply saying it with words? How about adding some colour and pictures?  
MMS makes all this possible on your cell phone

ful. You can send short messages but you still cannot send pictures, videos, audio clips. Creativity is still limited to sending monochrome pixellated emoticons. And it grossly under utilises the bandwidth offered by technologies such as GPRS, which promise desktop-level Internet access speeds on your mobile handset.

Well, not any longer. Multimedia Messaging System (MMS) is the new buzzword in mobile communications. You have heard of it. It promises the ability to send colour pictures, video clips, audio clips and eventually, a whole lot more—a quantum step up from the text-only SMS service and a shift into rich multimedia content on mobile handsets. This shift isn't far in coming; in fact in parts of the world, including India, this is already happening. From North America to Japan, telecommunication companies are integrating MMS services into their network.

### What it means

For MMS to be deployed, the network operators have to upgrade their infrastructure and devices supporting MMS must be available.

The principal standards setting organisation for MMS is Third Generation

that at present, under the 2.5G standard (which includes GPRS networks), your MMS messages would look like an animated slideshow or like the Flash files you see on the Internet. With 3G, MMS would be available as streaming video and audio and more bandwidth-demanding downloadable multimedia content.

MMS will allow for several elements within the message. Immediately, we can expect messages with rich text content, photographs (in JPEG, PNG and GIF formats), sound and animation. As with SMS messages, users can create their own mes-

short, MMS is all about dynamic messages. Even if the phone may lack a proper true life colour screen, with shades of greyscale one can still enjoy a dynamic message. Using this technology, you could send picture postcards with phones that feature imaging capabilities, animated greeting cards,

PHOTOGRAPH: Jiten Gandhi,  
IMAGING: Neeta Wadiker



## Connecting People

In order to implement MMS, it needs to be enabled on the side of the service provider as well as the user. When you send an MMS, it is sent through the existing cellular

connectivity standard the user is using, which could be GPRS (which is 2.5G) or a newer 3G standard like UMTS. On receiving the message, the Multi Media Service

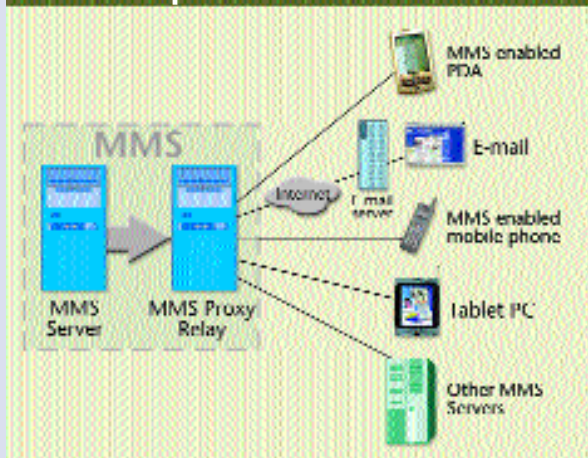
Centre (MMSC) sends the sender a confirmation that the message is received. The MMSC then sends the receiver a notification that a new message is waiting. Since MMS messages are larger than SMS messages, service providers have introduced an option where the user can choose to download the message immediately or download it later.

On downloading the message, the receiver gets an acknowledgement from the MMSC that the message is successfully down-

loaded. Once the receiver has successfully downloaded the message, a confirmation is sent by the MMSC to the receiver—some-what like what happens when you download a file from the Internet.

On the side of the network operator, the user's MMS handset (the MMS client) talks to a central MMS server. This is the core component that handles the technology behind the MMS service where messages are stored and transmission protocols are implemented. This server works in tandem (and is sometimes even integrated into) an MMS Proxy-Relay. The Proxy-Relay is the intermediary between the user and the MMS server. It works to grant access to the messaging and storage services, which could be as varied as cellular phones, tablet PCs, PDAs, etc. It also provides access to the messaging services on other messaging systems such as e-mail, SMS and paging.

### Setup of MMS Network



scribbles and doodles to other handsets that support MMS.

The fun doesn't stop with just making and sharing movies, audio and picture clips. MMS is just the beginning of a whole slew of services. In its present form, 2.5G networks let you access the Net on a mobile device at between 20-70 Kbps (the theoretical speed is 144 Kbps), equivalent to a regular modem/phone line access. An average MMS is 5 to 15 KB in size. Hence, most new MMS-compliant devices have at least 30 KB of memory to support them.

When 3G, the next level, finally turns up, you could experience speeds anywhere from 144 Kbps right up to 384 Kbps. Your MMS messages would then take on the form of high-quality streaming video and audio. Services like these are already being seen in the new 3G networks in Japan and South Korea.

### The gear

To use and enjoy this multimedia-rich service over a mobile device, you need an MMS-enabled mobile device or an MMS-enabled PDA (see box, 'Phones that Make you Go Mmmm!'). Though older handsets that do not have support for MMS will not be able to use this services, already mobile phones are getting smarter. Phones now offer PDA like functionality (the Sony Ericsson P800 comes very close to doing just

that) and yes, they are meant for more than punching numbers and exchanging messages. They don't talk back (yet!) but the newer phones are more than just phones. With Java enabled functionality, you can actually download and play games, whenever and wherever you want and create richer MMS messages.

Mobile phone manufacturers are making newer phones into colourful, fun devices. There are going to be quite a few technological innovations in the near future as manufacturers scramble to integrate more into a phone. The Sony Ericsson T68i, for example, has built-in support for POP3 e-mail. The T68i as well as the upcoming Sony Ericsson P800 and the Nokia 7650 all feature cameras.

# 1/4th AD



## Phones that Make you Go Mmmm!

**Sony Ericsson P800:** With a 208x320 pixel, 4,096-colour display, built-in camera and Bluetooth connectivity, this is one power-packed MMS device. It features the Symbian 7 OS and can download Java applications. There is an internal 12 MB and an external 16 MB Memory Stick. It comes with viewers for numerous formats, including Word, Excel and PDF documents, and you can send and receive e-mail, surf the Net and do just about everything a PDA can do.

**Nokia 7650:** The 7650 features a tiny camera and comes with the Symbian OS. The screen is 176x208 pixels and the phone has Java applications support. This MMS-capable camera-phone features several modes, and images can be captured at a 640x480 resolution.

**Sony Ericsson T68i:** This is a curvy MMS-enabled phone. It features Bluetooth and has a plug-n-play camera. The screen is a 80x201 pixels, capable of displaying 256 colours. This phone packs in a number of features and boasts of being one of the first to feature MMS. It supports POP3 e-mail and also has 80 KB of internal memory.

**Nokia 7210:** The 7210 weighs in at a mere 83 grams, features stereo FM radio, and comes with some rather wild colour options and exotic styling. It also features a high-resolution screen, is set as a triband world phone and is Java enabled.

**Panasonic GD87/88:** This phone boasts of a high-resolution 65,536-colour TFT screen, and an elegant clamshell body design. Did we mention the built-in camera and IrDA support to connect to your PC? The 110,000-pixel CMOS camera also has a built-in timer to take those priceless group pictures!

Of course, your cellular network operator should offer MMS services. Companies around the world are jumping into this. In Japan NTT DoCoMo is a leader, having been in this business for some time now. DoCoMo offers next-generation services such as high-speed 'always on' Internet access at an astounding 384 Kbps—true 3G services. Another emerging market is South Korea, where the DoCoMo's Japanese success story has inspired local carriers to implement 3G-level services. In Europ, service providers such as Orange and Vodafone have just introduced MMS services. In the US, all the big players have introduced or are introducing a whole range of services.

Closer home, BPL Mobile is the first off the block having introduced these services in India. The full range of MMS services available is dependent on the network operator. Compatibility issues may exist initially, but as the standards are finalised, one can expect these to get resolved.



Simon Buckingham  
CEO OF MOBILE STREAMS

“ The step up from SMS to MMS is as important as the transition was from DOS to Windows for your PC ”

## The costs

The rate structure for MMS traffic is controlled by the operator, so costs are going to vary from region to region. Within the same region, expect the costs to be more or less identical once all the operators implement MMS. Internationally, customers get charged either on a per message basis or by the amount of data transferred in the MMS message. There are also some tariff plans that charge a flat rate for Internet access (this would include MMS), over a fixed period. As a basic guide to the cost of an MMS message, the Mobile Stream's MobileMMS forum at [www.mobilemms.com](http://www.mobilemms.com) suggests a rate equal to three times the rate for one SMS message. Ultimately though, the rates will be set by the operators themselves.

## I don't wanna be left out!

Maybe you don't have a mobile phone or, even more frustrating, your device does not support MMS. So you feel left out? No

problem. Realising that the penetration of MMS-enabled phones is going to be slow, the standard setters have a simple strategy: use e-mail to send and receive MMS messages.

Don't expect to do this overnight, though. Implementation and functionality depend upon the network operators. Industry insiders such as the Mobile Streams believe that this is going to be a primary driver for the MMS services to take off, so once rivalries kick in, everybody should be offering it. Those with SMS enabled phones should receive a URL pointing to where the message has been stored.

## The future

Now that users will get a taste of what multimedia messaging offers, the need for greater support for audio and video in a handheld device is only going to increase. Perhaps the single most influential driver that would facilitate true multimedia and advanced forms of interactive messaging will be a cellular service network that allows for greater bandwidth. We've already heard of 3G networks like NTT DoCoMo, which offers bandwidths of up to 384 Kbps on a mobile device. Tomorrow's 4G networks are going to boast of wireless bandwidth like most people can only dream of. In Octo-

ber, DoCoMo announced the impossible: under experimental conditions, with a working prototype of a 4G mobile system, an incredible 100 Mbps downlink and 20 Mbps uplink conditions. This, DoCoMo claims, is the fastest data transmission achieved to date over mobile links. DoCoMo itself is looking at the key technology being developed by 2005 and possible commercial deployment of the 4G architecture by 2010. The possibilities that this kind of bandwidth, coupled with the slew of more advanced mobile devices, is going to bring is only limited by one's imagination. However, MMS will become popular only when prices come down and services and devices become easily available. Analysts predict that it would be a couple of years before MMS reaches the same level of acceptance and reach as SMS. But for now, MMS holds promise and is a definite step towards pictures, sound and video on your mobile device. ■

SRINIVASAN RAMAKRISHNAN



insight ■ palladium

# thinking in a Brand New way

Microsoft's Palladium is all set to secure the computing world in ways unimaginable...we find out

**S**ecurity has been reduced to an 'all talk and no show' buzzword that is so typical of today's fast and furious world. You can keep your virus definitions updated, configure your favourite e-mail client such that it does not automatically execute attachments and hope that your children do not stumble onto adult Web sites while surfing. You can try to avoid spam by using a number of whitelists, blacklists and mail filtering services. You can hide your personal data within encrypted partitions and folders to save it from the prying eyes of spyware. With all these measures, things ought to be fine and secure in the computing world. But reality dictates otherwise; security and privacy are community-derived—you cannot hope to be secure even if one person on your network does not take the same defensive measures that you do. You cannot afford to pretend that your server is safe when all it takes is just one mouth to utter a vital password. You certainly cannot pretend that your kids are safe from the social scum that seemingly influence a large chunk of

the content on the Internet.

The trick apparently, is to make security ubiquitous—like the buzzword that it is, but only practically implemented and not verbally announced. If everyone is secure and every computer 'trusts' every other machine, there is little reason to be afraid of a malicious hack or attack. Thus goes the thinking behind some new-fangled initiatives that are meant to bring together the seemingly dichotomous boons of security and privacy within the same computer. We take a close look at one such initiative, Microsoft's Palladium, with the intent of offering an insight into both the workings of the technology involved and the implication that it will have on the way we work and communicate.

## Think different

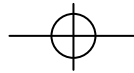
Palladium is a content-protection concept that has spawned from the belief that the PC, as it currently stands, is not architecturally equipped to protect a

user from the pitfalls and challenges that an all-pervasive network such as the Internet poses. A drastic change in the PC hardware is not feasible largely to economic reasons. What Microsoft hopes to introduce is a mid-range change that will serve the dual purpose of granting a computer user security even as it maintains backward compatibility with existing applications.

These changes will be reflected in the key components of the computer: the processor, a motherboard chip, memory devices and output components such as the graphics processor. Palladium is not a separate operating system; rather, it is based on low-level changes to the operating system's kernel itself. Secondly, it is not just an enforcer of security measures but also a measure that will either be defin-

IMAGING: Solomon Lewis





an end user or a content generator. Think of Palladium as a policing system whose actions are guided by laws set by a third party, akin to the judiciary.

### Think secure

Palladium is meant to cultivate a computing environment, termed as 'trusted space', which a user can rely on for security and privacy. At the heart of the system lies a secure cryptographic co-processor, that is, a tamper-resistant embedded smart card, which contains unique keys and a variety of cipher implementations. It thus acts as a unique identifier of a particular system and is the base on which Palladium's security measures are implemented. Additional changes made to the CPU (in terms of extensions, similar to 3DNow!) will allow the central processor to run in a special mode. Finally, to enable secure communication over a motherboard's data buses, the chip too will have to be modified.

Built upon this hardware foundation and extending its functionality is a tiny piece of software termed the Nexus. It represents a change in the kernel of the operating system and takes the form of an independent micro-kernel. The Nexus is run in an ultra-privileged mode of the CPU where certain areas of memory are strictly reserved for it and are restricted to other,

potentially malicious, pieces of code. This micro-kernel dictates the rudimentary security policies that the rest of the system must follow. Under Palladium, a Nexus can be changed, thus changing the security parameters and guidelines. Under Palladium, these rudimentary policies can be changed by using a different Nexus.

The Nexus is the manager of trusted memory and an arbitrator of access to the cryptographic co-processor. When a Palladium PC is booted for the first time, an inventory of the system hardware is taken and authenticated. If a part of the hard-

cations do not trespass into rest memory or file systems. Thanks to the way a CPU works, it is not possible for software to modify the Nexus or its policies laid down by it.

The Nexus is thus protected by hardware, while it protects the software that forms the applications and data. The Nexus maintains a low profile, in a general stance, entities known as TAs (Trusted Agents) do the legwork of interacting with the user. A TA can either be a Palladium-enabled application or an add-on to an existing program, imparting Palladium awareness to it.

Although existing applications will run on a Palladium system, they will not be able to use the security features without TAs. To better comprehend the relation between applications and TAs, consider the analogy of a language. If the language defines the rules of grammar, the TA uses these rules to construct sentences as a means of communicating securely with other systems and users.

### Think trust

The Nexus and TAs together provide a secure data storage, encryption services, applications and facilities to enable hardware and software to authenticate themselves and each other. Central to the Palladium concept are 'Spheres of Trust' wherein a user can not only define a program to trust but can also ask it to store only a certain set of data. Its like trusting your doctor with very sensitive health information. You are unlikely, however, to share with him the particulars of your bank account—details that your broker is aware of. The broker, in turn, is in touch about the details of your health. The trust you lend to your physician does not extend into your financial life, just as a broker's 'sphere of trust' does not encompass information on your health.

Similarly, Palladium divides use into separate spheres or vaults. A trusted application is granted access to either a section or an entire vault; the user thus controls what is revealed to whom. This policy is akin to the one that can be set within Internet Explorer and it can be used to grant you a secure environment while working on a low or zero-security space while playing games or movies—all on the same machine and in the same user session.



John Manfredelli  
GENERAL MANAGER,  
MICROSOFT PALLADIUM  
UNIT

// Palladium is a new hardware and software architecture that will run applications in a memory space that is highly resistant to tampering and interference //

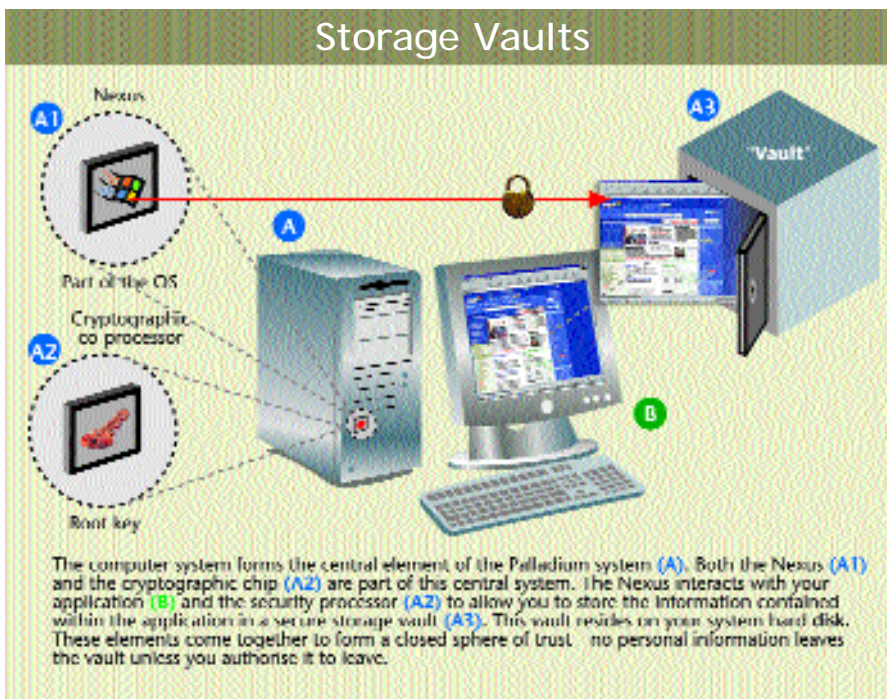


ILLUSTRATION: RITA SHETTY

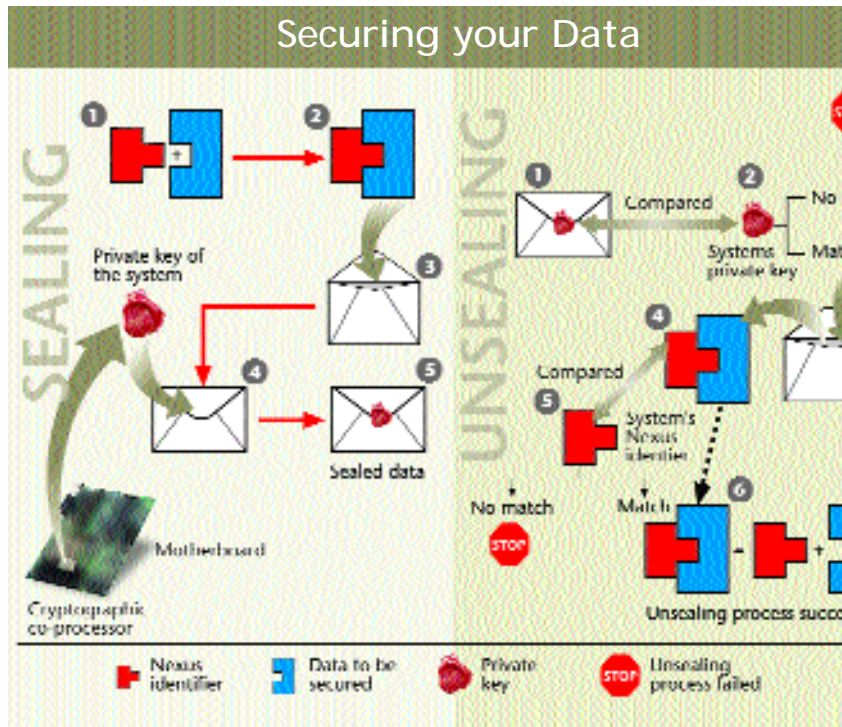


**Think information**

Using the Nexus and the supporting hardware, a Palladium system is cryptographically verifiable to the user and to other computers or services. The system can ascertain that other computers are trustworthy before engaging them in a transaction involving sensitive data. This is termed as attestation and it forms a cornerstone of successful security and privacy measures. Take the instance of a bank operation. Banking software has to be highly trusted and moreover, it must be ensured that the computer dealing with it does indeed belong to you and not to some malicious party masquerading under your identity. Your hardware should thus trust the banking software and vice-versa. This virtual handshake to exchange and verify credentials is made possible by attestation.

Once attestation is done, exchange of data takes place. It is important that data is only accessible to applications that have been identified as trusted. Once your personal data is transmitted to the bank, you could so arrange the transaction that only particular software can read your information. Such control is made possible by a mechanism called sealed storage.

Sealed storage is done by encryption or decryption techniques using the crypto-



graphic co-processor. To seal a piece of data, it is appended with the hash of the system's Nexus identifier (a 160-bit number). It is then encrypted with a private key—a secret key unique to each system. When a sealed data is given to a Palladium system, the co-processor attempts to decrypt it using its platform-specific private key. If successful, the hashed Nexus identifier is extracted and decrypted to determine which Nexus is permitted to receive the data. If the Nexus that currently resides on the computer is the same as the one that was present while the data was sealed, the data is unsealed and read. Two things emerge from this:

1. You cannot take a sealed file and transfer it to another machine to be unsealed there since the platform-specific key will change and the process will fail at the first step. Such a measure is essential if you wish to store sensitive data on a non-trusted hard disk or over a network. Since this is an inconvenience to most users who demand transportability of their data, Microsoft has defined wrappers, which are software extensions that will implement one of three migration policies: (a) migration is entirely prevented by default setting, (b) migration is permitted upon entry of a valid password, (c) migration is allowed with the consent of a third party, for instance, permission is required while downloading an MP3 file from a music company.
2. The same Nexus must be present while sealing and unsealing the data. If you have changed the micro-kernel after

encrypting a file, you will have to go to the older one to read the file.

Thus, your applications can decrypt sealed data if they run on the hardware and under an identical so environment (as dictated by the N under which the data was sealed. ensures that under a trusted Nex application can decrypt and proce data but cannot subvert a TA's pol you're not running under a trusted I you could run software that under the policy set by a TA, but the appli will no longer be able to decrypt the data since the Nexus has changed (s diagram, 'Securing your Data').

**Think implications**

Palladium does not require user in tion for authentication purposes; inst secures the hardware and software ronment. The Nexus identifier i unique to a system, since it is likely tl majority of people will use the same I The only identifier unique to your s will thus belong to the cryptograph processor. Although Palladium disco the transmission of any private inf tion, Microsoft has defined the conc identity servers. These are third-part ices that will grant you a unique id credential using Palladium, and n may not reveal personal informatio

The implications of using Pall are many and not all scenarios m

**A Nice Thought**

Palladium is widely touted as a system that will put an end to virus attacks and spam. Can it hop to achieve those lofty goals?

**How does Palladium hope to stop viruses?**

Trusted code runs in memory that is physically isolated, protected and inaccessible to the rest of the system, making it inherently impervious to viruses.

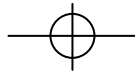
Most viruses exploit the way software applications use scripting. A virus can thus infect a trusted application and use it maliciously without infecting memory space. You will still need antivirus software.

**How does Palladium hope to stop spam?**

A Palladium enabled e-mail client will only download mail from 'trusted' machines and servers, thus spammers are automatically blocked.

Spamming is a very lucrative business. To get around the security measure imposed by Palladium, all a spammer had to do is use a trusted machine to do the dirty work.





rosy picture. To begin with, although you could write and use your own Nexus, or trust a non-Microsoft party to service you one, chances are that like the Web browser, most users will stick to the micro-kernel that ships with a Palladium PC—a Microsoft one. If Microsoft emerges as the sole or the most used identity server, the system could place the company as the gatekeeper of identification and authentication, a powerful role to say the least. Finally, if the Nexus and TAs served by Microsoft take a monopolistic market share, the company could ask application developers for royalties while granting them use of its enabling software.

Palladium is also a good Digital Rights Management (DRM) solution. Content can be granted or denied to a computer based on its identity and the level of trust tagged to it. Consider content renting, where a content provider can release a movie to your PC in return for a contract (implemented by TAs) that dictates your application to collect Rs 50 from you every time you view the movie. This is understandable till the content provider insists that you download its trusted software at a price to watch the movie, also at


a price. The way that software and hardware work together under Palladium could ensure that while running the movie, screen capture hardware and software can be disabled as part of the contract, dictated by the content provider and enforced by the TAs and the Nexus. While this may slow down piracy, it could also mean that your TV tuner and video combination card has been disabled, rendering one section of your system useless.

A TA, in combination with a Nexus can also define expiry dates for data. E-mail can be automatically and permanently deleted after a period of 30 days, doing more harm than good. While national security might demand such a system, market manipulation, shady accounting or other anti-trust policies of companies might very well go unaccounted for. Finally, a security policy defined by a TA can ascertain that only a particular pair of application and data goes hand-in-hand. While such a system can provide enhanced security to a user—your e-mails, for example, can only be read by a proprietary application developed in-house, thus minimising corporate espionage and information leaks—it can also be used as a mar-

ket-grabbing tactic. If a leading office refuses to read files created by other applications, what can you do?

### Think about it

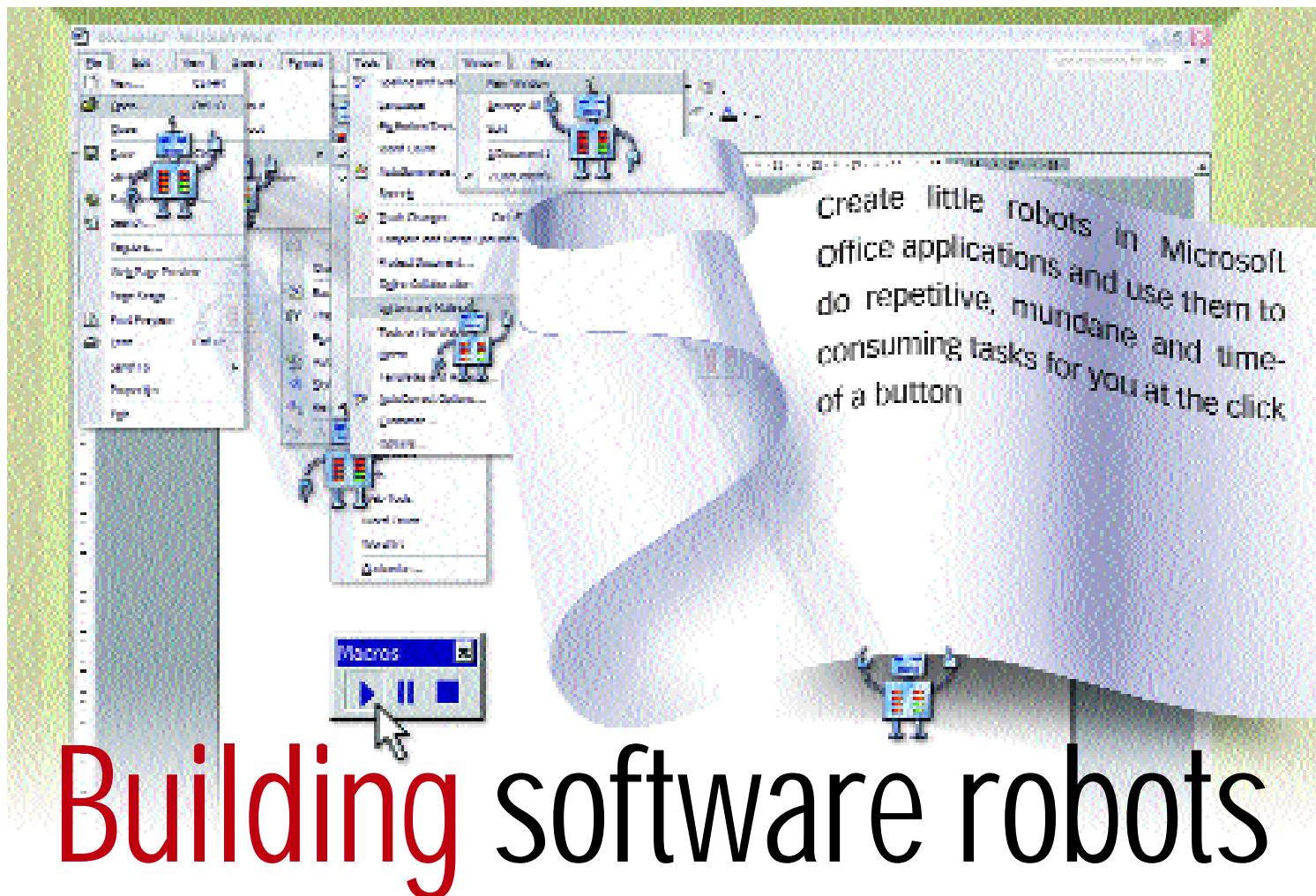
Thanks to product activation, Microsoft has already prevented Office XP and Windows XP from working if parts of the computer are changed or if you divulge some personal information. A central security repository has been implemented in the form of the MS Passport's Wallet system—if your Wallet account is cracked, all the sensitive information be visible to any malevolent user. The port system has already shown some weaknesses. Security patches for Microsoft server, OS and even its mail clients are a regular feature in our download queue.

The cornerstone of the Palladium system is trust. It is a philosophy that is reflected across its architecture via trusted spaces, trusted agents and spheres of influence. The question to ask is then, 'Can we have a single monopoly to manipulate our personal data and communication under the pretext of security? Is this really secure and at what cost?' 

AHMED

1/2 page H AD





**K**aul, the logistics manager at the head office of the courier company, walks into office and boots up his PC. It's the end of the month and he has a lot of work today—managers from all regions have sent him reports which he has to compile and pass on to the accounts department and his boss. He fires up his mail client, saves all the attachments into neatly organised folders and starts compiling all the data into one document. Having worked hard at it till a much-delayed lunch, he gives the entire document one final glance before sending it off. It wasn't a slow PC, the copy-paste operations or the two cigarette breaks that took him five hours to make the final report—he was busy changing the formatting of each document from the various regions to one consistent look and cross-checking the data in the Excel sheets.

Microsoft Office is by far, one of the most common Office suites in use today. Whether it's for writing letters, making project reports, managing balance sheets or making presentations, it is used as much at home as it is in the office. All applications in the suite highly simplify the processes of creating, updating, managing and, to some extent, even sharing content. However, often we find ourselves playing

with the same tools, doing the same things over and over again. Not only does this get thoroughly boring, it also turns out to be quite time-consuming. Microsoft has included support for macros that can automate a lot of repetitive tasks and, contrary to popular belief, the feature is extremely simple to use.

### Personal robots

A macro is a series of commands and instructions grouped together, which, when run, execute these instructions automatically. They are used to perform repetitive tasks in Microsoft Office. Thus, they are actually software robots that are 'taught' a specific set of instructions once and these are mimicked in the exact same manner every time you 'switch them on'. Structurally, a macro is a block of program script, using Visual Basic for Applications (VBA). VBA is a modified version of the popular programming language, Visual Basic.

You don't need to understand a single line of code for creating basic macros. In all Office applications, you can literally 'record' a macro—the software tracks your actions (mouse clicks and keyboard entries) to generate the macro for you.

Macros are stored in the file you are working with, its template, or the default

template. Macros stored just in the file are available only while that document is open. If the macro is stored in the template for that file, it will be available to all doc-

### Macro Viruses

Since macros are actually executable code, they can be malicious, just like viruses. Viruses are also executable code and can be executed independently, or via another program (an infected EXE). Similarly, macros are executed via Office documents. A simple block of code that selects all text on the document, deletes it, saves the file and closes it can be the worst nightmare for most people.

Microsoft has included a very crude virus protection technique in Office applications. Click **Tools > Options** and enable Macro Virus Protection. With this, whenever you open a document containing macros, the software will ask you whether you want to enable them or not. If it's a document that is not supposed to have macros, or if you are unsure of its source, you can disable macros and thus prevent infection. However, you should always have a good anti-virus software running that can trap and warn you of macro viruses.





uments that are based on that template. Macros stored in the default template (for example, Normal.dot for Word) are always available while the application is open, irrespective of where and from what template the file is created. These robots can also be shared with other users, either by sending them the file containing the macros, or by saving the macros to a separate script file.

You can use macros for virtually any task in an application, such as formatting, styling, replacing text, printing, sorting, filtering, etc. If you are comfortable with scripting, you can even stretch the functionality of the application to do tasks that are not readily available in the software. For example, many dotcoms and content management systems use macros to automatically generate XML from Word documents. The XML documents can be directly uploaded to their Web site. Thus, converting existing content is just a matter of opening a document and clicking a button. Also, writers can continue writing in the comfortable Word environment, instead of having to work with clunky HTML forms.

## Recording macros

To begin with, we'll use Word. Before you start you need to decide where you want to save the macro—in the document or in a template. If you want to save the macro in a template other than the default template, a document based on that template or the template itself must be open.

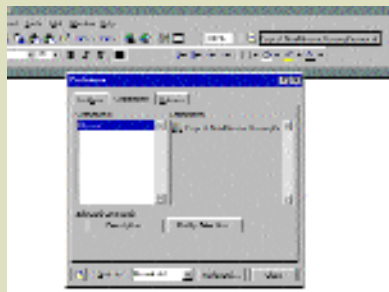
Plan the steps you want the macro to perform. List them down if required. A macro will perform each and every recorded action, exactly as it is executed, so this is important. If you make an error while recording a macro, the error and corrections will also be recorded. If you are comfortable with scripting, you can edit the macro later to remove the extra lines of code, otherwise it is best to start over.

If you want to use the macro in other documents, ensure that it does not depend on the current document's contents. If you record a macro to embolden and italicise some text in the document, Word will assume that it has to stylise whatever text is currently selected. If you need to stylise a particular string in several documents, it would be better to use the Find function to find that text, then stylise it, so that the Find action is also recorded and only the matching text will be formatted.

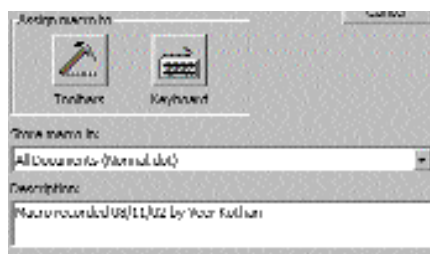
To record a macro, click **Tools > Macro > Record New Macro**. Alternatively you can click the area marked REC on the status bar.

## One-click Fix

Assigning macros to toolbar buttons or keyboard shortcuts makes it very convenient to access them. One way to assign these shortcuts is when creating the macro itself—just click the relevant button. If you click the Toolbars button, you will see the



Assigning macros to toolbar buttons



Name your macro and choose where it should be saved

You will be asked for a name for the macro and where it should be stored. You can also enter a description for the macro and assign it to a toolbar or keyboard shortcut (see box, 'One-click Fix'). Click OK and Word will record every action henceforth. It will also show the Stop Recording toolbar, from where you can pause or stop recording the macro. Click the Stop Recording button once you are done. It is best to undo all the steps you recorded in the macro, then run the macro to test it. Next, test the macro with another similar document if you intend to use it across documents. You are now ready to use the macro and let it do all the tedious, time-consuming work for you.

To use a macro, click **Tools > Macro > Macros**. From here, you can run, delete, edit and debug macros. Editing and debugging will require at least basic knowledge of VBA. You can also copy macros across documents and templates by click-

ing the Organizer button. If you have assigned a toolbar button or keyboard shortcut to the macro (see box, 'One-click Fix'), you can also use these to run the macro.

If you click the Keyboard button, simply type in the key-combination that you want to assign to it. If the combination is currently assigned to some other action, it will be displayed. Make sure you check this before clicking Assign—you may not want to override one of the existing keyboard shortcuts.

Another way to assign macros to toolbar buttons and keyboard shortcuts is to right-click on any toolbar and click Customize. Click the Keyboard button to assign a keyboard shortcut, or select Macros in the left pane and drag the relevant macro to any toolbar.

ing the Organizer button. If you have assigned a toolbar button or keyboard shortcut to the macro (see box, 'One-click Fix'), you can also use these to run the macro.

If you want to save a macro to an external file, say, to distribute it to all the regional offices, open **Tools > Macro > Visual Basic Editor**. On the left pane, you will see the templates and documents that are open. Double-click each item to open the code stored in it. Locate the code you want to save, right-click the module on the left pane, and click **File > Export**. The recipient would have to follow a similar procedure to import the code. However, it is easier to simply send over a document or template containing the macros and use the Organizer to copy the required macros.

## Removing unwanted text in Word

When you get Word documents from several sources, or even when you collect information from the Web, you may get a lot of junk that you spend hours cleaning. The most typical replacements are for double spaces, multiple paragraph marks, manual line breaks, acronyms, etc. Let's create a macro to remove these from the document and apply some formatting to the text.

To list out all the steps, we want to Find and Replace all double spaces with single spaces (doing this several times over will take care of multiple spaces), then do the same for paragraph marks and remove manual line breaks. Next, we will replace '&' with 'and',



When you record a macro with a name that already exists, the existing one will be overwritten without warning



'%' with 'per cent' and ', etc.' with ' and so on.'. Finally, we need to format paragraphs to include 12 point spacing after them and format the entire document with Garamond, black, 12 pt.



1. Text copied off the Internet



2. The document after running the macro

Click **Tools > Macro > Record New Macro** and name it **CleanupDocument** (macro names cannot have spaces). Since we would be using the macro with several documents, save it in the Normal template. Click **Edit > Replace** and click the More button. Ensure that the search direction is set to All and enter double spaces in the Find box and a single space in the Replace box. Click **Replace All** and repeat this for paragraph marks (you can access special characters by clicking the Special button). Next, choose to find Manual Line Breaks and replace it with a blank; replace the symbols and acronyms too. Use [Ctrl] + [A] to select all text and click **Format > Paragraph**. Set the Spacing After to 12 pt and click OK. From the Formatting toolbar, set the font to Garamond, font size to 12 and the colour to black. Hit the Stop Recording button and you are done.

Printing in Excel

When printing from Excel, usually, we would want to change the scale at which it is printed, specify headers, footers and margins, change the print quality, etc. This is true with several kinds of documents in Word too. All you need to do is create separate macros for your different printing needs, and run the right one when you need to print.

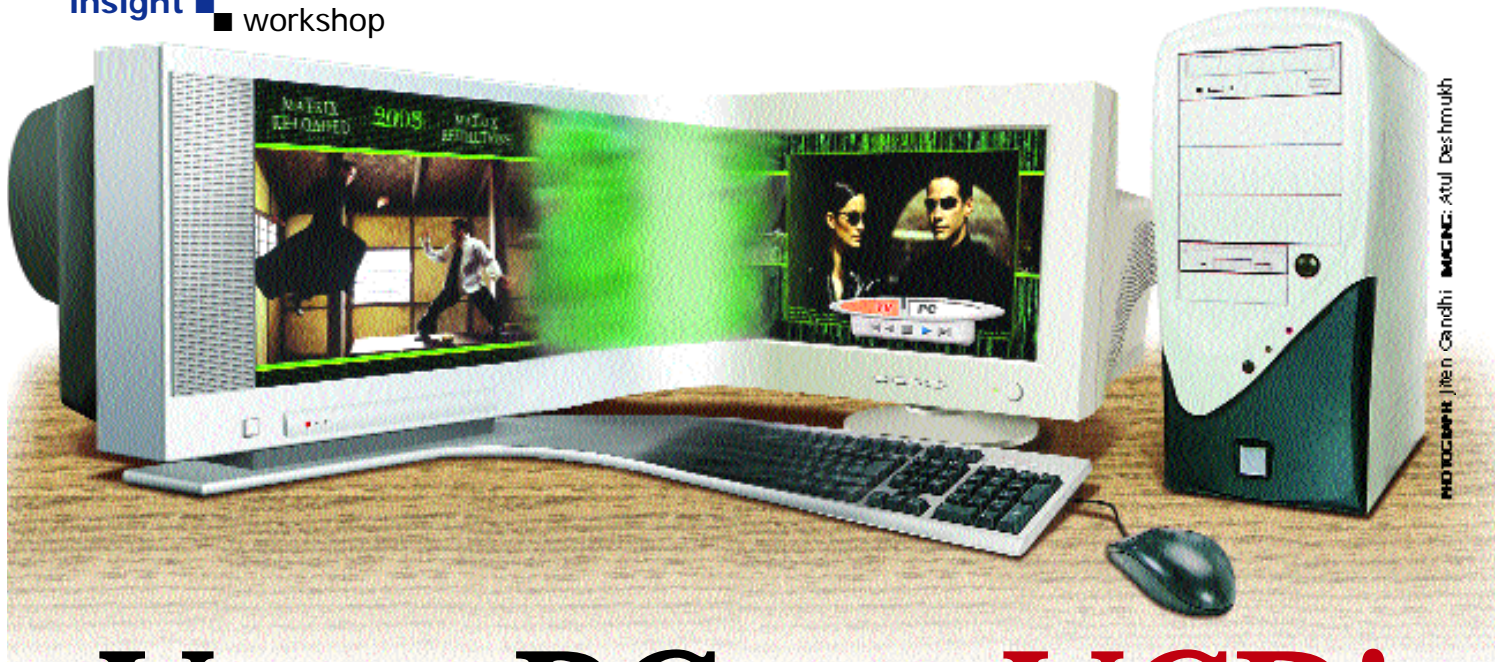
Let's create a macro in Excel that prints three copies of the worksheet in Landscape format with gridlines, scaling the sheets to 70 per cent. The pages should be centred horizontally and vertically and must be numbered. Click **Tools > Macro > Record New Macro** to begin recording. Name the macro **Print3CopiesNumbered** and click OK. In Excel, macros saved in the Personal Macro Workbook will be available to all sheets. Click **File > Page Setup** and choose Landscape for the Orientation and 70% for the scaling under the Page tab. Under the Margins tab, check the boxes to centre the worksheet horizontally and vertically. On the Header/Footer tab, choose 'Page 1 of ?' for the footer and enable Gridlines on the Sheet tab. Click the Print button and set the number of copies to 3. Hit Print and stop recording the macro. To allow for further customisation, you may want to skip the last step and just stop recording. Now, whenever you want to print a worksheet with these settings, simply run this macro.

Macros provide a very powerful and efficient way to perform repetitive tasks, so why spend your time doing mundane, time-consuming tasks when you can have the software do it for you?

VEER KOTHARI

1/2 page Ver AD





PHOTOGRAPH: Jiten Gandhi; ILLUSTRATION: Atul Deshmukh

# Your PC as a VCR!

Tired of hunting for blank video cassettes every time you want to record your favourite soap while you are away? There's a better way if you look towards the digital realm

**T**he hottest thing about TV today isn't TV anymore. With access to virtually every type of television programme, the challenge is in taking charge of seeing what you want, when you want. Enter Personal Video Recorders (PVRs).

These devices are incredibly utilitarian—just plug your cable TV line into them and you can record straight to the built-in hard disk, then burn all of it onto optical media through a built-in DVD-RW or CD-RW drive. They get even better. You can program them to avoid recording advertisements. They also have timer facilities so that if you don't want to miss *The Simpsons* while working, you can set the clock and the channel and the device does the rest. You can then watch it whenever you want. Besides, having it in a digital format gives you the advantage of enjoying clear digital quality video and sound, and easy distribution through the Internet, P2P networks and other means of sharing.

So where's the catch? Well, the catch is that they cost an arm and a leg. A Toshi-

ba RD X2, with an 80 GB hard disk and DVD burner retails for around \$1,499 (approximately Rs 75,000). The Panasonic DMR-HS2 comes with a 40 GB hard disk and a DVD burner and retails for \$999 (approximately Rs 50,000). Devices like the TiVo let you program the device so that you can see any show by downloading listings from the Internet. Again, they don't come cheap.

But here's the cool thing—you don't have to spend serious money to get most of the features that commercial PVRs give you—a little hardware and software tucked into your PC will give you almost all of this functionality!

## Putting together the bits and pieces

You should have the TV tuner card and its driver CD. There may also be additional CDs containing software—it's time to get them all out. You may be prompted for some Windows components, so get hold of your Windows installer CD. Don't forget the screwdriver.

**Install the TV Tuner card and drivers:** Ground yourself of all static charges by touching a metal object and open the casing of the cabinet. Locate an empty PCI slot in the motherboard and insert the TV Tuner card into it. Apply even pressure along the



## The Shopping List

### Hardware

- A standard PCI TV Tuner card (available for as little as Rs 2,550 to Rs 3,700). For this workshop we chosen the Pinnacle PCTV Plus (Aditya Infotech Pvt Ltd, Phone: 022-26338555)
- Pentium III 500 MHz processor
- 128 MB RAM
- At least 1 GB of free hard disk space for the replay buffer and additional 1 GB space for saving video footage—the more free space, the better
- A normal coaxial cable that is hooked into your TV to provide cable and satellite TV channels. The RF connector that goes into your card is the same one that goes into the TV set
- If your budget permits it, add a CD-RW drive. You can archive your recorded shows without filling up your hard drive

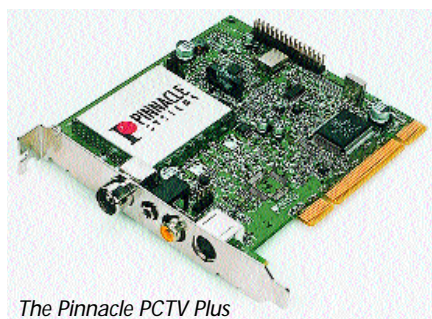
### Software

- PVR software—for this workshop, we are using Cyberlink PowerVCR II 3.0 Deluxe.
- The latest versions of your graphics card drivers and DirectX 8.1 on your system

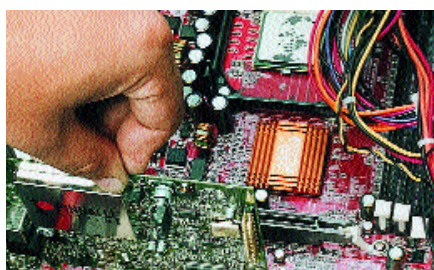


DirectX 8.1  
Cyberlink PowerVCR II  
Find them on the  
Mindware CD





The Pinnacle PCTV Plus



Inserting the TV Tuner card

whole card and lock it down with a screw. You can now close the computer.

**Connect the equipment:** Before you load the software, hook up the cables into the card. There will be directions for this in the card's manuals, but here's generally what you have to do. Connect the coaxial cable (from the cable TV line) into the cable/antenna socket. Also, connect the cables from the card to your soundcard. The external interface is easily connected—hook up the 3.5 mm jack into the Audio Out on the TV Tuner card and on the other end, into the Line In connector for the soundcard.

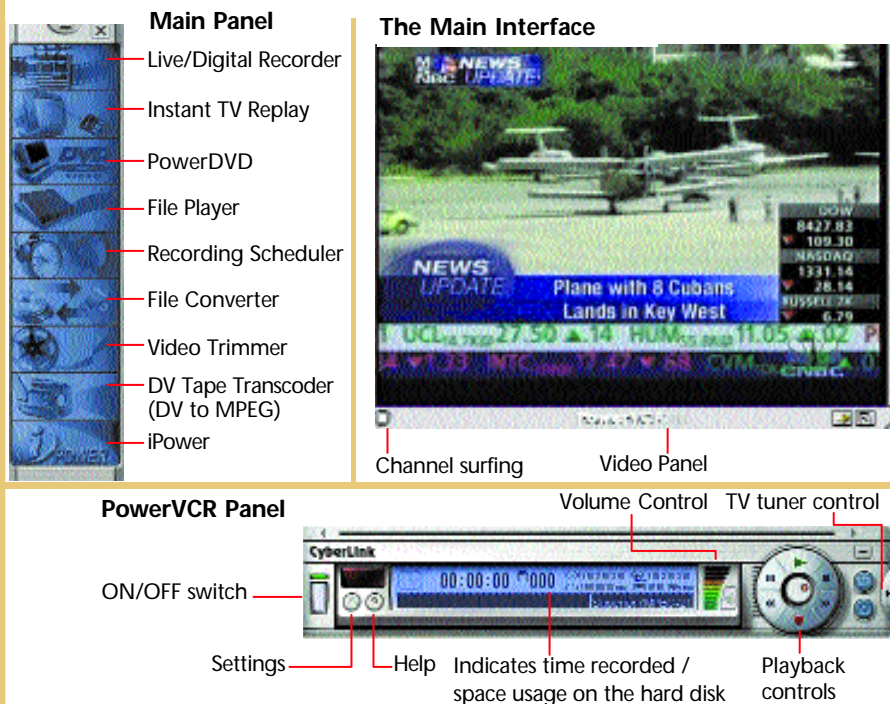
Having done this, boot up your computer. As Windows loads up, it will detect your card and prompt you for the card drivers. Insert the driver CD and follow the instructions on screen.

### 3, 2, 1... PVR!

A PVR software may be bundled along with the card, but it would be better to use a dedicated third-party PVR software for higher control and functionality. Cyberlink PowerVCR II has an attractive interface, is highly configurable and the codecs that come bundled with it are fast and deliver good quality video. Before installation, check for any known conflicts (see box, 'Tweak Me!').

**Install the software:** Install the PVR software and follow the directions on screen. The installation program will then locate a working directory on the drive that has the maximum free space. You will need a minimum of 500 MB for a 10

## PowerVCR: What's Where?



minute replay buffer to view 10 minutes of real time TV. You should optimally keep at least 1 GB for this working directory and additional space for saving video footage. After this, the software will run a couple of diagnostic tests and recommend some settings based on it. Since capturing video feed is a stressful exercise on the subsystem, we suggest you tweak your hardware settings to get the best out of it (see box, 'Tweak Me!').

**PowerVCR comes bundled with PowerDVD.** This is very useful if you have a DVD-ROM drive, as PowerDVD is one of the best DVD playback tools available. The install program will also give you the option of installing the Intel Indeo codecs. **Configuring the software:** Before starting the software, make sure that the cable line is plugged in firmly. Also check and see if the audio connectors are in place.

PowerVCR is made of three primary elements—the main panel, the video display and the PowerVCR panel. The main panel will let you switch between PowerVCR, PowerDVD, Recording, Editing, and Live/Replay as well as File play modes of the software. The Video display panel shows the video feed as is received by the TV Tuner card. Finally, the PowerVCR panel comes with controls to switch between channels, play and stop the video (buffered or on file) and increase and decrease volume levels (see 'PowerVCR: What's Where?').

When you start PowerVCR for the first



### Tweak Me!

Capturing, encoding and storing video footage is quite stressful for your computer. These are the tweaks that will help you on your road to PVR bliss.

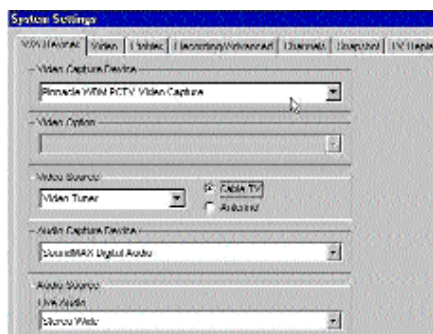
**DMA:** Enabling DMA (Direct Memory Access) for hard disk drives and CD-ROM drives results in freeing up the CPU during read/write operations. To enable DMA, right-click on My Computer and choose Properties. Open the Device Manager tab and expand the Disk drives tree. Choose your hard drive and click on Properties. Under Settings, check the DMA option. Windows 98 may have a small warning popping up. Don't worry about it and select close. Repeat the same with your CD-ROM drives. Restart. DMA should now be enabled. If DMA is not enabled, check if your BIOS, hard drive and CD-ROM drive support DMA.

**Drivers:** Get the latest drivers for your graphics card from the vendor's Web site. Most PVR software require DirectX drivers, which you can download from Microsoft's Web site. Also, check with the TV Tuner card's manual and Web site to see if there are any known conflicts with your graphics card drivers, and install patches for these. Also install the codecs for converting raw video footage into an appropriate format.



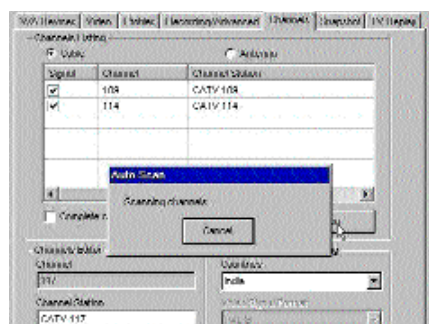
time, the system settings menu opens up and allows you to enter the settings.

To check and see if the card is correctly recognised by the software, go to the System Settings menu and under the V/A Devices tab you should be able to see the TV Tuner card in the Video capture device menu. V/A Devices sets the configuration for all video and audio devices. Set video source as Composite Video, and click on Cable. Also check the audio settings.



V/A Devices tab shows the TV Tuner card

The Channels tab lists available stations in your area and allows you to name specific channels. Under Video Signal Format Setting, select India. This would automatically set the Video Signal Format for India, which is PAL B. You can then choose the Cable option and click on Auto Scan. The application will scan across all available input signals and list them out in the Channel Listing table. As the auto scan proceeds, you will be able to see the video feed in the main viewer panel. Once set, you can view the video, but hold on—you haven't set the other options yet.



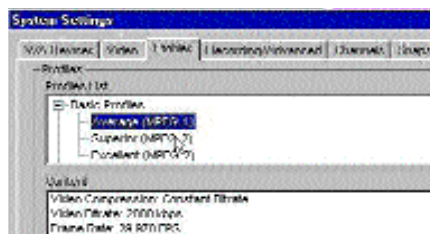
Auto Scan detects available video signals

Under the Video tab, you can change the options for brightness, contrast, hue and saturation. Now you can also set the snapshot and TV replay options. Go to Snapshots and set the options for where you want the screen captures to be stored—these can be used later to sort through archived videos.

Under the TV Replay tab, set the Replay Buffer Time/Disk Space options. Remember, the minimum amount of space required is 500 MB for 10 minutes of replay time. Set the Replay Buffer Time/Disk Space to the highest possible, subject to the free disk space available. You may also want to change the Replay Working Directory.

The Profiles tab allows you to set the quality of encoding raw video footage coming in through the TV Tuner card. There are several default profiles and you can also define your own.

You should apply a profile that best suits the hardware you have. A rule of thumb is to use MPEG-1 for low resolutions (normal usage) and MPEG-2 for high resolutions. For example, if you have a machine that is not too high in processing power and system resources, settle for the Average profile—at MPEG 1, the picture quality is still reasonably good. Likewise, if you have a machine that's absolutely state-of-the-art, go ahead and choose the Superior profile, at MPEG-2. If you want to further specify the quality of the encoding, you can do so by trying out the other options under Advanced and DVD Profiles. You could also set custom values for video and audio compression, bit rates, frame rates, frame sizes and other parameters. Remember though, for recording at resolutions such as 640x480 and upwards, you need to have at least a Pentium III 700 MHz-class processor.



Set the profile that best suits your hardware

Although you can leave the settings at their default values, you should consider experimenting with some customised options to take advantage of your hardware and get better results.

## Director's cut

Ever seen something on TV that you wanted to see again? Like a football goal you just can't believe? Or maybe a catch that you just missed seeing? Those are the times that you wished you could replay 'live' TV! Your PVR can actually do that! Switch to the Instant TV Replay mode and



## Jargon Buster

**Television standards:** Television standards used around the world vary. Unfortunately, video recorded in one particular format is not normally compatible with another format. The television standards are:

■ **PAL:** Based on a 50 Hz power system, PAL (Phase Alteration Line) is the standard format for television broadcasts in Asia and Western Europe. By reversing the relative phase of the colour signal components on alternate scanning lines, it avoids the colour distortion that occasionally appears in NTSC broadcasts.

■ **NTSC:** NTSC (National Television Systems Committee) is a standard format adopted by the FCC for television broadcasts in the United States, Japan, Canada and Mexico. This is commonly referred to as Composite Video because of the convergence of luminance and colour into a single analog signal.

■ **SECAM:** SECAM (Sequential Couleur a Memoire or Sequential Colour with Memory) is the video format used in France, Eastern Europe and some Middle Eastern countries. Like PAL, SECAM is based on a 50 Hz power system. Colour signals are transmitted sequentially.

**MPEG:** MPEG (Moving Picture Experts Group) is a compression technology for digital video and audio signals. It includes the following standards: MPEG-1 (Audio/Video), MP3 or MPEG-1 Audio Layer 3 (Audio), MPEG-2 (Audio/Video), MPEG-4 (Interactive Multimedia System). MPEG is responsible for multiplexing and synchronising one video stream with a single or multiple audio streams. MPEG-1 was designed to reproduce VHS/VCR quality in digital format, while the MPEG-2 concept, similar to MPEG-1, is intended to cover a wider range of applications with DVD quality and broadcast TV.

**Composite Video Signal Format:**

Generally used for less expensive types of video devices, it produces a single video signal. Used in VHS camcorders or VCRs.

**Digital Video Format:** Digital video signals are split up into three components: luminance, luminance minus red and luminance minus blue. The component video signals can create a picture free of common distortions that result from combining and then separating the video signal components. This technology is used for DVDs.




you can pause, rewind, play in slow motion, replay live TV feeds and also skip those pesky commercials! All this can be easily achieved with the keys on the Control Wheel of the PowerVCR Panel.

Of course, there is even more that the PVR software can do—refer to the manual and see the facilities offered by it. Some of the functions include unattended video recording (by scheduling it), DVD Playback, playing and editing video files and trimming video files.

Set it and forget it

You can use the Scheduling Wizard for recording programs when you're away from your computer. So there will never be a show that you will miss!

To start the Recording Scheduler, click Recording Scheduler on the main panel to launch the wizard. The wizard can also be started by clicking on the Scheduling Wizard icon located in the Recording Scheduler panel. Select Enable this Schedule, verify and confirm the video settings and choose the channel from the drop down menu. For the Record-



Remember to keep your computer on during the period for which the recording is scheduled!

Saving for the Future

MPEG files occupy a lot of space on the hard drive. To counter this, there are other formats such as DivX that have higher compression. You could also convert your MPEG files into VCD format (DAT files) and write them onto CDs. Most CD writing software has built-in tools for this. You could also convert your MPEG files into DVD files. This can be done by DVD authoring tools such as MyDVD and others, when used in conjunction with a DVD-R drive.

ing Mode, you can choose between recording daily, a particular day of the week or on just weekends or weekdays. You can also set a date and choose to record only on that date.

**Editing scheduled tasks**  
For editing scheduled tasks, switch to the Recording Scheduler mode and double-click on the task in the Recording Scheduler panel.

To delete a task, click on Delete or press [Delete] on your keyboard after selecting the task in the display area.

So there it is. You have unleashed the awesome PVR capabilities of your computer with just a little software and hard-



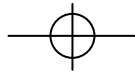
Scheduling recordings in PowerVCR

ware tucked in. No more scrounging around for mouldy old tapes and messing with arcane VCR settings! So hop into a nice, comfortable armchair with a king size bowl of popcorn and enjoy. And don't forget to junk that VCR!

SRINIVASAN RAMAKRISHNAN

1/2 page H AD





insight ■ netreturns

# Blog in!



ILLUSTRATION: Mahesh

**Blogs offer a little private space in the public domain of the Internet. Are blogs just another fad or will they be the biggest offering since Napster?**

The Internet has become a dominant means of communication across the globe. It has enabled highly successful services such as e-mail and chat for direct conversation, and newsgroups and forums for publishing ideas and thoughts. People share not only opinions over the Internet, but also photographs, video, music and money. The Internet has evolved into a huge graffiti board where anyone can stick up their creations, for feedback and comments from people from all walks of life.

The Internet has also produced its share of fads and failures. One phenomenon that ranks high on the hype meter is Web logs, or blogs. Being free and without the burden of requiring additional infrastructure, they may just become as popular as forums, attracting large, like-minded communities.

## Scientifically speaking...

Essentially, at the heart of it, blogging is just a personal online diary that you can share with your friends and family. They are quite like the online photo albums you can create at various Web sites, only blogs

are meant to hold more text content than images.

Blogs are quite similar to Web forums. On a forum, the creator sets the mood and topic for the discussions, and people post their views and ideas for others to see. The forum may be moderated to allow only certain content to be made public, to maintain the quality of the forum. A moderator can also ban malicious users from a forum. Think of a blog as your own personal forum, where you are the creator and moderator. The topic of discussion is you and your activities. You can invite several people to view and comment on your posts. If you wish, you can control what they post. When you sign up with a blogging site, it creates a personal space for you that is completely under your control.

Over time, people tend to discuss specific threads on their blogs and lots of blogs have evolved into valuable discussion chains of topics as diverse as technology, sports, art and even kung fu. People concentrate more on the quality of the content than on writing styles and punctuation—in fact, blogs enable a lot of ingenious essays to be published, which

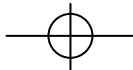
otherwise may not get published by publishers of traditional media like

## Personally speaking...

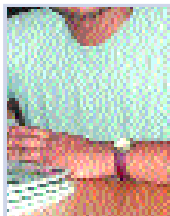
Blogs provide the ideal medium for jotting down all the interesting things you learnt, the little things you do, the pranks you play, anything you want. It's an easy way for others to keep up with you, so the next time you meet a friend, your conversation can go a bit further than, "...so what have you been up with you?"

The most important attribute of blogs is that they are personal. In a vast public medium such as the Internet, the concept of personal space can be very compelling. Not only is it quite addictive for those who maintain these diaries, it has a similar effect on visitors too. Also, personal blogs by nature are attached with a credibility—a person tends to write the bare truth, so a first-person view of the Twin Towers on a blog holds more value than a similar write-up in a local newspaper. Readers know behind the blogs are people who are





## insight ■ netreturns



Jacob Joseph  
MARKETING PROFES-  
SIONAL, SYNAPSE

“My work involves a lot of research and I use blogs to find relevant and reliable information on a particular topic at one location”

(www.livejournal.com).

In fact, the site has become so popular that the developers have put up restrictions for signing up. If you have a friend who's already blogging on it, he or she can invite you to join LiveJournal for free, otherwise you

restrained by industry or social pressures.

Blogs can be completely personal, that is, the writer may not allow anyone to see what's on it, but this is not the idea of the Internet. One of the primary reasons why material is published on the Net is the unhindered wide audience it automatically offers. However, a person can dictate what appears on his or her blog and what doesn't. This increases the respect and trust a blogger gains because unlike forums, though the blogger allows others to post messages on the blog, it is still his or her personal space. No blogger would allow any violation of this personal space even though he or she may try hard to get together the ideas of several people to get as open an opinion or as real a truth as possible.

Blogging can also be used as a means of direct communication with your peers, building a thread of conversation and an ever-valuable archive of intelligence. Omar Javaid, Chief Technology Officer and founder of the mobile-computing consulting firm, Mobilocity, used to regularly e-mail interesting URLs to colleagues and clients. Now he just maintains a Web log, which he updates frequently.

### Window shopping

There are several free blogs on the Net. One of the most popular is LiveJournal

will have to blog at a price. LiveJournal, like many other sites, takes blogging very seriously and provides excellent security features so that bloggers can freely discuss whatever they want to, without worrying about intruders. LiveJournal is open source and has been used as a base by many Web sites to provide free blogging services.

At LiveJournal, you can configure your account so that you have complete control over the content posted in your space. You can choose to display your contact information, location and birthday with your blogs, and whether everyone can view it or only the users listed in your Friends list. As a measure against spam-robots, which harvest e-mail addresses from Web sites, LiveJournal can display your e-mail address differently, so that it is not recognised by such software. Whether your space is indexed by search engines or not can also be controlled by you. You may even choose to hide your Friends list from your online profile with the site.

To ensure high quality of content on your blog, you can enable or disable various restrictions. You can choose to disable message boards completely, which means that no one can post any replies to your posts. You can allow anyone, only users registered with LiveJournal or only users from your Friends list to post messages on your blog. The service can optionally log IP addresses of people who post messages. This can sometimes be useful in determining whether the message was actually posted by that person, especially with the growing number of cable Internet connections, where a lot of computers have static IP addresses.

Being open source, LiveJournal gives you complete access to the code. Thus, advanced bloggers can simply understand the LiveJournal structure and take better control of their blogs. For example, you can override the stylesheet your blog uses by modifying the header information or

### Blogging Etiquette

Blogging is a form of communication publishing on the Internet. It involves several communities, from various walks of life so it's wise to follow a few guidelines so that you don't end up offending anyone.

- Don't use abusive language on public blogs. Though it may be common among your friends and peers, there could be several others reading your blog. An alternative is to keep your blog completely private, allowing only friends to read it.
- Be discrete with the pictures and don't use revealing ones—they might offend even friends.
- Respect all bloggers. Be polite when you post comments on someone else's blogs, be it in tune with or against what they have posted. Blogging is no different from conversation. Don't say anything on your blog that you wouldn't say to a friend.
- Healthy blogging is for the open-minded. Don't ban a user because he or she has a differing opinion. Opinions should be welcomed, or disabled completely.
- Don't hesitate to ban mischief-makers from your blog. You will be doing a disservice to your fellow-bloggers.
- If you are referencing items from other Web sites, provide a link to them. This not only helps readers, but also tremendously increases the credibility of your blog. Also, remember to give due credit to the original source of content, be it articles or quotes.

even help towards the development of the service.

Another service, Blogger (www.blogger.com), has an impressive Web logging, ideal for those who don't want

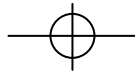


LiveJournal is one of the most popular blogging sites, offering excellent features for amateur and seasoned bloggers



Blogger is a simple, no-frills site, where you post your thoughts, opinions, ideas and happenings of the day





**Mahesh Shantaram**  
AN INDEPENDENT  
WRITER, REGULARLY  
UPDATES HIS BLOG AT  
[www.techrose.org](http://www.techrose.org)

Writing HTML, uploading and managing archives for my Web site was tedious. Blogging allows me to concentrate on what I do best—think and write //

many frills. You can simply sign up with the site and start blogging. When you create a blog, you can specify whether the blog is public or private. Next, you choose whether you want to host the blog with BlogSpot ([www.blogspot.com](http://www.blogspot.com)), or FTP it to your own server. With the former, your blogs will be attached with advertisements, though you can pay to remove these. Finally, you choose the colour scheme for your blog and you're done. All you have to do now is keep posting messages. The site puts up fresh and noteworthy blogs right on the homepage, so you can browse through the ones you find interesting.

## Starting your First Blog

Let's create a blog at LiveJournal, one of the most popular blogging sites. If you want to blog for free, find someone who already has a blog there and ask him or her to invite you. Your friend can create account creation codes, which you can use to get in. Once you enter the code, simply sign up with the site and you can begin.

LiveJournal will send you an authorisation e-mail, to make your blog live. You can now edit your personal information, which helps people identify with you or find you based on your interests. You can also enable or disable various security features for your blog on this page. With a new blog, when you are just building your community, you may want to display your e-mail address and instant messenger details with your online profile. Also, make sure your biography and interests are as descriptive, yet concise, as possible. You can even upload your photograph here. If you already have a group of friends whom you want to share your journal with and can do without additional people, you just need to build up your Friends list. Now choose who can view your contact and personal information, who can reply to your posts and other content security options from

here, save your changes and you are done.

You may want to download the desktop software for uploading messages, or do it from the Web directly. Now you can keep posting messages as you see fit.

If you want to use a different style for your journal, you can change the look and



Configure how your blog is used and by whom

feel as and when you like by clicking Modify Journal. You may not want to bother with the advanced options yet, until you've seen the source code of LiveJournal from the Developers' section.

If you have restricted your blog only to friends, remember to add other users from LiveJournal to your Friends list by clicking the Your Friends link.

At Blogroots ([www.blogroots.com](http://www.blogroots.com)), you can easily create your own blogs and other users can reply to your posts. Blogroots keeps a track of news about the Web logs. Here, you can suggest a post by providing its URL, title and a short description. You will find a dense jungle of information here, but this site is not quite like



At Blogroots you can post your views or comments on articles posted on the Net in three categories: News, Technology and Culture

in environments and vocation. again, there are people across countries that have similar interests and information needs. NASA researchers, for example, need the same information that observatories in Australia and Russia. Bloggers typically read up news, join discussions and blogs from various sources. If they find value in what they read, they may link to it from their own blogs. Thus, they are a filtering system for information, and people with similar interests can further contribute to their research benefit from their postings.

On the personal front, blogging is a much more efficient way of letting everyone keep in touch with you and staying in touch with others. It is also a great way to make new friends with the same interests, experience even expertise.

However, the primary advantage of blogging could turn out to be its downfall—blogging is completely personal, so bloggers must update their blogs often enough for them to stay alive. The content on blogs determines the value of the Good bloggers tend to develop blogging as a discipline and take great pride in the quality of their blogs. In fact, blogging is now giving rise to some professional bloggers. Andrew Sullivan ([www.andrewsullivan.com](http://www.andrewsullivan.com)) makes as much as \$6,000 (about Rs 3,00,000) every month from just his blog. The Poynter Institute ([www.poynter.org](http://www.poynter.org)), a journalism school, hired Jim Romanesko, an early blog producer, to produce the MediaNews Web ([www.poynter.org/medianews/](http://www.poynter.org/medianews/)), as early as 1999. These and many more examples show the value that people find in blogs and bloggers. If nothing, it is a great way to publish your mind on the Internet. ■



# 30 Minutes Expert

## Follow the Tune!

**Y**ou know the problem all too well—all those years of sourcing MP3s from friends, the Internet and your personal CD collection has left a mass of music that is difficult to sort through. The problem with MP3s is that most of them don't use any particular system of classification as they are created from numerous sources—you probably have songs with their names misspelled, under wrong band or artiste names and they are probably placed in random folders on your hard disk.

But take heart. With tools that help you rename, organise and even categorise your MP3 files, there is still hope of introducing some sanity and organisation into your 8 GB music collection. Let's take a look at MoodLogic, one such tool that helps bring order to your MP3 chaos.

### Getting started

MoodLogic incorporates a suite of MP3 management tools that let you organise, fix and playback your MP3s in a more intuitive and orderly manner.

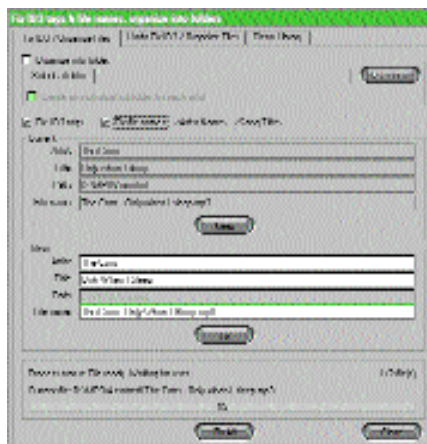
You need to activate the MP3s on your hard disk so that MoodLogic can recognise them and process them further. Simply select your songs from the song listing in

MoodLogic and click on the 'Activate' button. The trial version allows you to activate only 25 songs for free, beyond which you have to activate additional songs by logging credits or by paying for it.



### Configuring MoodLogic

Navigate to the My Active Music section from the main interface to find the 25 songs that MoodLogic has sorted by genre, category, artiste, etc. Here you can fix the ID3 tags and even the song names for sorting the MP3s by clicking on the ID3 & Files button at the bottom of the interface. MoodLogic has a large database of music on its Web site ([www.moodlogic.com](http://www.moodlogic.com)), which you can access to fix your MP3 track's naming and ID3 information.



Fix and format ID3 information using the ID3 & Files button


MoodLogic can even move the renamed songs into specific folders for each artiste. Once you hit the Fix All button, you'll have all your MP3 files organised and properly tagged. The time taken to complete this process is, of course, dependant upon the number of MP3 files you have on your hard disk.



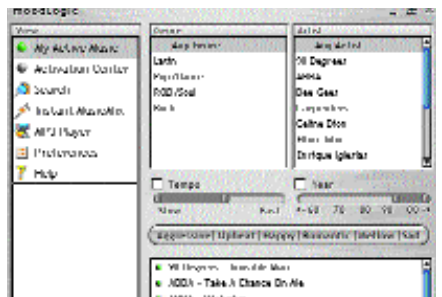
### Let's get rocked

The real benefits of organising your music come through when you want to

**TagMaster, MoodLogic, MP3db v1.40**  
Find them on the Mindware CD



play it—you can easily customise a playlist to suit your mood by choosing songs from various artistes and albums. But MoodLogic takes you one step further—you can view your music based on a number of parameters such as tempo, year of the track and even the mood of the particular piece. So you can choose songs by tempo such as romantic, party, relaxing, etc. You can also view them by genre.



Activated and recognised music shows up in the My Active Music screen

Another very interesting feature is the Instant MusicMix tool. This tool lets you group songs that 'sound' like each other, taking into account musical phrasing,

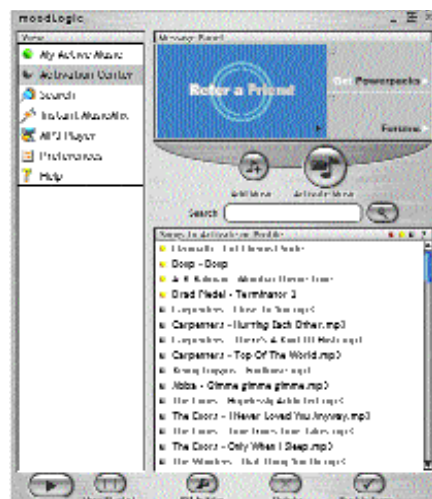


Generate playlists of your favourite music by sound, tempo, genre, etc

tempo, etc. Finally, with MoodLogic you can also transfer your MP3s to a portable MP3 player and refer to and categorise your music from other sources such as CDs or Zip disks.

Now that you finally have command over all your MP3 files, play away!

MARCO D'SOUZA



The main interface of MoodLogic lets you activate songs





From problems with Web cam drivers to AGP compatibility issues—find your answers here

### XP incompatible Web cam

**Q.** I have a PC with a Pentium III 933 MHz CPU and 256 MB RAM running two OSes—Windows Me and Windows XP. Now the problem is that Windows Me runs my Web cam (D-Link's DU-C300) but XP doesn't. Whenever I try to install it from the Scanner & Camera section in the Control Panel, it gives a list of different brand names but D-Link is missing. When I try to install it from the driver disk, a message appears saying, 'The specified location does not contain information about your hardware'. What could be the cause of the problem?

**Rajesh Iyer**  
Secunderbad

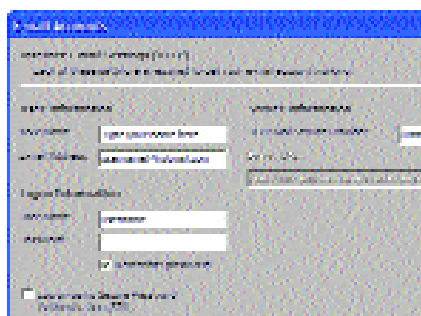
**A** It looks like your driver disk does not contain the drivers for Windows XP. All you have to do is download the relevant drivers from [http://www.dlink.co.in/dlink/Drivers/WindowsXP/dsbc100whitecase\\_XP\\_driver\\_b2.exe](http://www.dlink.co.in/dlink/Drivers/WindowsXP/dsbc100whitecase_XP_driver_b2.exe) to get your Web cam up and running.

### Transferring Hotmail to Outlook

**Q.** I want to know how to transfer Hotmail messages to Microsoft Outlook (not to Outlook Express). I have tried to configure Outlook but have not been successful. Please help me.

**Preetinder Virk**  
Via e-mail

**A** You can set up a Hotmail account only if you have Outlook 2002. If your version is earlier than 2002, then



Downloading Hotmail messages into your Outlook Inbox

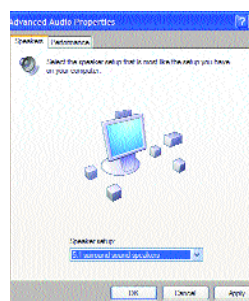
chances are you won't be able to create a Hotmail account. To download your Hotmail messages, go to **Tools > E-mail Accounts > Add a new account** and click Next. When asked which protocol to use, select HTTP and click Next. Now type your Hotmail login name for User Name: and ensure that Hotmail is displayed in the top right box. Click Next and then Finish. The next time you click on Send/Receive, Outlook will download the mail from your Hotmail account.

### Dolby Digital from the soundcard

**Q.** I have a discrete 4.1 channel speaker system. If I buy an AC-3 5.1 channel PCI soundcard, can I enjoy Dolby Surround Sound while playing Audio CDs and MP3s? Will there be much difference between a Dolby Pro-Logic Surround home audio system and my PC sound system?

**Sumanta**  
Via e-mail

**A** There are a few things you'll need to do to enjoy the full benefits of your sound system. Once you've bought the 5.1 channel soundcard, in Windows XP, go to the **Control Panel > Sounds and Audio Devices**. Click Advanced under Speaker Settings and set your speaker setup to 5.1 channel. You will find extra settings in the Control Panel, depending on your soundcard, which will let you set up and test your speaker system. We're using Windows XP as an example, since the closest options



Set up your speaker system to receive 5.1 channel sound

available in Windows 98 SE are Quadrophonic and Surround Sound. You will also have to ensure that your MP3 and CD player support 5.1 output. Check your audio player's Web site for any available plugins. However, since you have a 4.1 speaker system, you will miss out on the centre channel. Fortunately, most applications such as software DVD players are able to send Dolby Digital sound streams into your four-channel speaker system.

As far as your second query is concerned, Dolby Pro-Logic is far inferior to the Dolby Digital 5.1 channel system, so stick to the latter.



## Dial-up networking

**Q.** In the Quickstart section of Digit, September 2002, you demonstrated how to connect to another computer through a dial-up connection. Is it possible to connect to a computer in another country too? My husband wants to connect to my system in India and he is in the UAE. Will the calls be charged by ISD rates? Please let me know.

**Abha**

*Via e-mail*

**A** The Quickstart primarily dealt with connections established over a telephone line and though connections can be established across the globe, one of you will have to call the other to establish them, inviting international call rates. An alternative is to set up a dedicated point-to-point connection between your computers, but the costs of such an operation for home users is too prohibitive to even discuss. So if you need to transfer files to each other, the best solution is to use instant messengers such as MSN Messenger ([www.msn.com](http://www.msn.com)) or Yahoo! Messenger ([www.yahoo.com](http://www.yahoo.com)). The Windows XP Messenger gives you far greater control over a remote computer and the file transfer application is also very user-friendly.

## Post removal hard disk problems

**Q.** When I connect my 20 GB hard disk to a friend's PC, both our computers work fine. But after I disconnect my hard disk, my friend's machine shows two CD drives, one of which does not work. The system also slows down a lot. Please give us a solution for this.

**Taral B. Khasiya**

*Via e-mail*

**A** Unfortunately, you haven't mentioned your system configuration, so based on your information, do the following. Reboot the PC and enter the BIOS by pressing [Del] or the appropriate key for your BIOS. In Standard CMOS Setup, set the drive type for all the IDE drives to Auto. Then go back to the main menu and enter Integrated Peripherals. Change the PIO and UDMA modes to Auto. Now save your settings and reboot. It's also a good idea to examine the IDE cables to see if they're properly connected. The long end should go to the motherboard, while the two connections close by on the other end go to the devices. Finally, download the latest drivers for your motherboard's chipset. If you don't know the motherboard's manu-

## Buying a new computer

**Q.** I'm contemplating buying a new P4-based machine, primarily for entertainment purposes. But after going through some comparisons, I have a few doubts:

1. Is it true that with a GeForce2, 3 or 4-based AGP card, I can play the latest as well as older games?

2. If an AGP card is marked OpenGL/DirectX compatible, does it mean that it has both capabilities and can play both types of games?

3. What types of CD formats are supported by a DVD-ROM drive? Is it also capable of writing CDs?

4. Is it true that in order to play games I must have the same type of RAM for my processor and AGP card?

**Vishal Arora**

*Delhi*

**A** Let's tackle your questions point by point:

1. Yes, you will be well equipped to play new and old games with any of these cards, particularly the GeForce4 Ti 4600 or the ATi Radeon 9700. Please note that any new card is backward compat-

ible, that is, it will be capable of running older games. However, the latest card is the latest only till a new game pushes the graphics higher.

2. Yes, any AGP card marked thus will support both kinds of games and the newer the Direct3D/OpenGL version supported, the better. The newest cards are DirectX 9 and OpenGL 1.3 compatible.

3. The CD formats supported by DVD drives vary according to the manufacturer, but generally, they support CD-ROM, CD-ROM XA, CD-R, CD-RW, Photo-CD, Video-CD, Multi-

Session, CD TEXT and CD Extra. A DVD-ROM drive, as its name suggests, is only able to read DVDs and CDs. DVD R/RW drives are able to write DVDs and CDs, but again, the exact formats supported depend on the manufacturer and the model. Check the specifications of the writer before you buy one.

4. The RAM types of your system and your AGP display controller have absolutely nothing to do with each other and do not affect one another in any way.



facturer, you can go to [www.motherboards.org](http://www.motherboards.org) to identify the board type.

## Problem with free memory

**Q.** I have a 466 MHz Celeron CPU, Intel 815 motherboard, a 40 GB hard drive, 52x CD-ROM, 320 MB RAM and onboard graphics with 1 MB of shared memory. When I run and then close a lot of programs, Windows' System Monitor shows 244 MB of RAM utilised. Is this reading harmless or do I have to do something about it? Please help.

**Raviteja**

*Via e-mail*

**A** Since you have 320 MB of memory, you should not have any problems with low resources for most applications. The reason why System Monitor shows this high reading is because it probably takes some time to refresh its information or because the memory used by these programs is not

completely de-allocated until some other program requests it. Check to see that too many programs aren't loading themselves during startup—ensure that your System Tray is not too filled with running programs. To free up more RAM, remove unnecessary programs from the Startup program group in your Start menu. Anyway, as long as you don't get any 'Low virtual memory' messages—which, considering your RAM, is highly unlikely—you have nothing to worry about.

## Virus problems

**Q.** I have two computers running Windows 98, which are connected to each other through a LAN card. The main computer is plagued with the Win32.Worm.datom virus and gives the following error messages: 'Cannot find file MSVXD.EXE. Could not load or run MSVXD.EXE specified in the WIN.INI file.' Is there any software to remove this virus?



### Unstable motherboard

**Q.** When I turn my PC on, it boots perfectly, but it goes blank after 20-25 minutes. The LED on the monitor flickers on and off too. When I switch on the power switch on the LED, the monitor goes on and off nearly 10-12 times before it boots. Why does this happen?

**Vaishali**

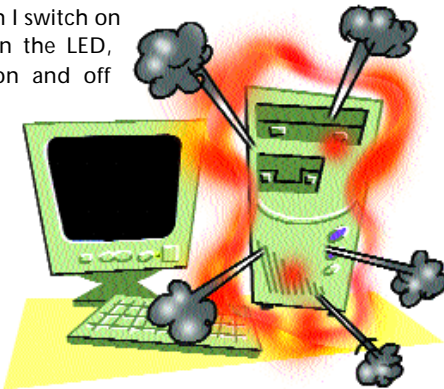
*Via e-mail*

**A.** Your problem seems to be possibly heat-related. It's possible that the CPU or the motherboard chipset is generating too much heat for the system to handle, resulting in the crash. In case you aren't comfortable with opening your

PC, call a service technician to examine your processor to see if the heatsink is properly seated on the CPU

and that the cooling fans are operating correctly. Your CPU fan may be blocked by a wire or might have accumulated dust; or your cabinet might not be able to ventilate and air the system enough. Also, observe if certain actions trigger the crash.

This should help you pinpoint the cause of the problem. Also, enter the system's BIOS during power-up by pressing [Del] and select the Load Fail-safe Defaults option.



ILLUSTRATIONS: Mahesh Benkar

selection. Go to *Start > Settings > Control Panel* and double-click on *Regional Settings*. Make sure that the language listed here is English (United States). If the problem still persists, reinstall the fonts in your system from another Windows 98 computer. If all else fails, the best (but most time-consuming) solution would be to re-install Windows 98 on your computer. This will restore the required fonts, as well as other system settings that might have been corrupted due to a malfunction.

### Hidden free space

**Q.** I have a Pentium III 700 MHz CPU with 196 MB RAM and 20 GB hard drive running Windows Me. The hard disk has six partitions, allotting the C: drive with 2,532 MB. I have a tough time formatting and reinstalling Windows Me at least once a month. I have set the swap space manually to 196 MB. The problem is that the C: drive gets filled up and a message appears saying, 'Warning: Low disk space. Would you like to uninstall any programs to free up disk space?' But since I did not install any applications on the C: partition, uninstalling programs from other partitions would not make any difference. The strange thing is, when I select all the files and folders of C:, it shows 1.14 GB and a free space of less than 100 MB. Nearly 1 GB of disk space is missing! How do I retrieve this disk space? Where is this 1 GB of space?

**Vyresh**

*Via e-mail*

**A.** There are several reasons why the disk space might be reported incorrectly. Foremost among them is the possibility of an error in the filesystem, which results in incorrect reporting of disk usage. Run *ScanDisk* from *Start > Programs > Accessories > System Tools > Scandisk* and choose the *Thorough* option. Scan all your partitions for errors. If that doesn't throw up anything, check your disk's actual allocated size and available space. To do this double click on *My Computer* and then right-click on C:. Check the capacity and ensure that it is actually 2,532 MB and see how much of it is being used. Click on *Disk Cleanup* to start the wizard and remove unwanted files from your computer. Finally, consider moving your permanent swap file to another partition to free up space on the C drive.

### Backing up virus definitions

**Q.** I run Windows 98 SE on a PC with a Pentium III processor and 192 MB of RAM.

Another virus called BKDR\_NEWBIERO has infected a file in my C:\WINDOWS\SYS-TEM\LVMGI.EXE on the other computer.

**Shaikh Mohammad Wasi**

*Via e-mail*

**A.** Viruses can be removed automatically by most anti-virus software with updated

the Windows directory. Delete all references to these files in the 'load=' and 'run=' lines (the second and third line) in the file. Save the file and close it. Alternatively, download a free removal tool from <http://www.bitdefender.com/download/download.php?file=AntiDatom.exe>.

To remove the BKDR\_NEWBIERO, a Trojan, open *regedit* and go to the key *HKEY\_CURRENT\_USER\Software\Microsoft\Windows\CurrentVersion\Run*. In the right panel, search for the registry key that contains the registry data value 'Microsoft Diagnostic="%Windows%\[random filename].exe' and delete it. Close *regedit* and restart your PC.

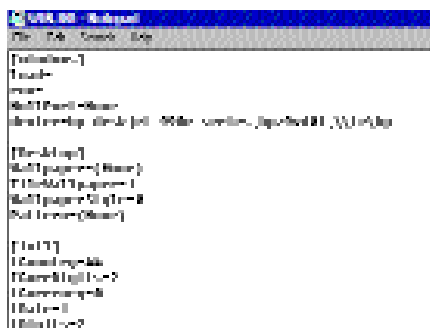
### Font despair

**Q.** When I tried to install Norton AntiVirus 2002 on my computer (based on a P-III 933 MHz CPU, 256 MB RAM, 40 GB hard drive running Windows 98 SE), the setup initialisation box showed some square boxes instead of English letters and I couldn't complete the installation. I also could not install Office 2000. I find these square boxes in some other applications too, for instance, in the left pane of the help window of Outlook Express 5.0. Please tell me how to get rid of this problem.

**Kamal Kishore**

*Via e-mail*

**A.** The problem could lie with missing system fonts or the system language



The 'load=' and 'run=' lines should be empty

virus definitions such as Norton AntiVirus and McAfee. To remove them manually, do the following: For Win32.Worm.datom, restart Windows in Safe Mode by pressing [F5] during boot-up. Now to eliminate the *HKEY\_LOCAL\_MACHINE\Software\Microsoft\CurrentVersion\Run\MSVXD* registry entry, go to *Start > Run* and type *regedit*. Then press [Enter]. Delete all the *MSVXD.EXE*, *MSVXD16.DLL* and *MSVXD32.DLL* files in the *Windows\System* folder. Finally, using Notepad, open the *win.ini* file in



## FAQs

### Unable to search in Windows XP

**Q.** I have a Celeron 1 GHz with an Intel 810-based motherboard and a 40 GB hard drive running Windows XP and Windows Me. When I run the Search function from Windows XP, it gives an error saying, 'A file that is required to run Search Companion cannot be found. You may need to run setup.' The search window appears, but there are no fields in the pane on the left. When I click on the character, it keeps repeating the same action—even right-clicking on it has no effect. Please help me.

**Chandru**

Via e-mail

**A** This is a documented error that happens with some installations of Windows XP—download the patch for it from <http://www.microsoft.com/Downloads/Release.aspx?ReleaseID=39318>. After downloading, follow the on-screen instructions.

### Flickering screen and low virtual memory

**Q.** I have a Pentium 4 1.6 GHz processor, Intel 850 MV motherboard with 128 MB RDRAM and a 17-inch monitor that flickers around the edges. Also, very light curves appear on the display when I set no wallpaper. I normally work in Windows XP. What can I do to solve this problem? Another problem is that after playing *Duke Nukem*, when I exit, sometimes an icon appears in the system tray showing the message, 'Your system is low on virtual memory.' I had the same problem with Real Player until I uninstalled it. What can I do to solve this problem?

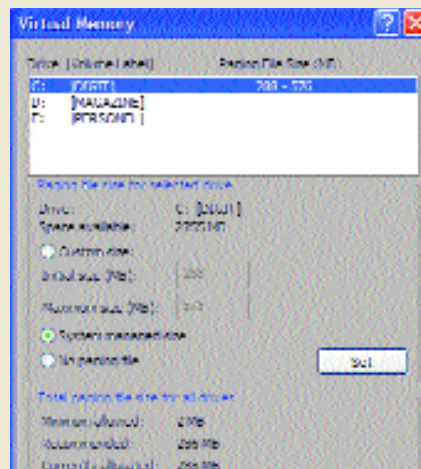
**Yash**

Via e-mail

**A** To solve your first problem go to *Desktop > Properties > Settings > Advanced*. Go to the Monitor tab and set the Refresh Rate to 75 Hz or more. You could set a higher refresh rate but make sure your monitor supports it.

Your second problem lies with the operating system's virtual memory settings. A permanent solution would be to upgrade your memory to 256 MB. Another solution would be to go to *Control Panel > System > Advanced > Performance* and click on Settings. Click Advanced in the new window and go to Change. Here set you

virtual memory management to 'System managed size'—if this option was already chosen, then it means that you're low on hard disk space. You'll need to restart your



'System managed size' suits most users

computer for the changes to take effect. Note the drive in which the swap file resides and free up at least 250 MB in that drive by deleting unnecessary files.

### Restoring file associations

**Q.** My PC has MS Office, therefore MS Photo Editor is installed with it. Hence, I cannot open JPG and GIF files in Internet Explorer. How do I uninstall it?

**Samar**

Via e-mail

**A** Rather than uninstalling Photo Editor, which is rather an awkward process requiring you to re-run the Office installation, you can restore file associations back to Internet Explorer. To do this, locate the JPG or GIF file you want to open. Click on it to select the file and then, while pressing [Shift], right-click on it. In the popup menu, choose 'Open with...' You will then be presented with a list of applications that can be used to open the file. Scroll down until you see the entry 'iexplore'. Select it and make sure that the checkbox titled 'Always use this program to open this type of file' is checked. Click OK and the setting will be finalised. Repeat this procedure for all the other file types that you wish to open with Internet Explorer. The procedure is approximately the same with all versions of Windows.

I use Norton AntiVirus 2000 for protection. I update the virus definitions every month and as a result, I have updated 13 times in the last 13 months. Recently, I upgraded my hard drive from 20 GB to 40 GB. So now I have to transfer all my data to this drive and install a clean copy of Windows 98. How do I back up my virus definitions so that I don't have to update them again?

**Namrata**

Via e-mail

**A** Updates of Norton AntiVirus include virus definition updates as well as updates to the scanning engine. Although you won't be able to carry over your engine upgrades, transferring the virus definitions is a simple task. You can find these definitions in the C:\Program Files\Common Files\Symantec Shared\VirusDefs folder. Just copy this folder and paste it in the same location in the new installation.

### Compatible AGP slot

**Q.** I recently bought an MSI 845E MAX2-BLR MS-6398E motherboard. I intend to buy a GeForce4 graphics card. In the motherboard manual, it says 'AGP 4x slot (1.5V only)'. Will I be able to use the GeForce4 GPU on my motherboard? Is there any way I can increase the 4x to anything higher for future use? How long can I use 4x to play the latest games?

**Leejo**

Via e-mail

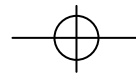
**A** To answer your second question first, you cannot upgrade your AGP slot's capabilities as this will involve changes in the circuit and power requirements. However, you have no cause for concern as your motherboard will support even ATI's Radeon 9700 and other new graphics cards. Regarding the relevance of 4x, as the latest cards have just begun to support the 8x mode, rest assured that you can use your board for quite some time to come. Your 4x AGP interface has enough bandwidth to run the present crop of games, giving you no reason to fret for a while.



Send your computing problems to [sos@jasubhai.com](mailto:sos@jasubhai.com) or write to Digit,

D-222/2, Om Sagar, MIDC, Nerul-400 706, and we may answer it here!





# tips & tricks

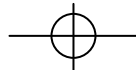


ILLUSTRATIONS: Mahesh Benkar

## contents

- 90 Increasing pro
- 91 Image editing
- 92 Text effects
- 93 Working with
- 94 Web graphics
- 94 Filters
- 94 Special effects





## insight ■ tips and tricks

### INCREASING PRODUCTIVITY

#### Manage multiple images and avoid repetitive tasks through simple actions

##### Gamma correction

Often what you see on screen does not match what you get in print. The gamma correction setting calibrates your monitor so that it remains in synchronisation with your printer and your scanner. Under *Windows > Settings > Control Panel*, select the option Adobe Gamma and the wizard will guide you further. Choose the step-by-step wizard option and then proceed accordingly.

##### Changing scratch disk

Scratch disk refers to the location on your hard disk where the data is stored while you are working in Photoshop. This will be a lifesaver when you are running out of disk space in the current drive. Go to *Edit > Preferences > Plug-Ins & Scratch disks* and under First,



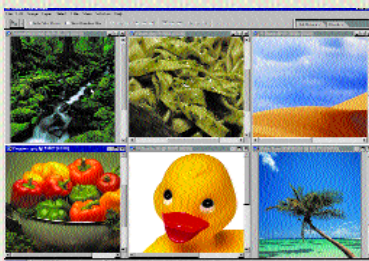
The scratch disk dialog box

fill in the path where you would primarily want all your data. Under Second, Third and Fourth, fill accordingly.

##### Working with multiple images

The Tile feature allows you to view a number of images

together and edit them. To tile the images, open all the images you require and then select *Window > Documents > Tile* from the menu in Photoshop 7 (*Windows > Tile* in



Working with multiple images is easy

Photoshop 6). The images get arranged in tile format—you can toggle between them using [Ctrl] + [Tab] and edit the images.

##### Managing your images (Photoshop 7)

Within the File Browser menu, you can open, select, name, rotate and view images. You can even manage your files and folders—create, rename or delete them. You can rename multiple files using the Batch Rename feature or even rotate one or multiple images with the Rotate feature.

The File Browser displays four panes: Tree, Preview, Metadata and Thumbnail.

**Tree pane:** The Tree pane shows the files, folders and drives of your system, making it easy to navigate and locate images.

**Preview pane:** In the Preview pane, you can view a larger image of the selected thumbnail.

**Metadata pane:** The Metadata pane provides the user with detailed information about the current selection such as the image filename, date when created, image format, along with any additional information entered in the File Info dialog box. It even displays EXIF (Exchangeable Image File) data (that is, information about images created with a digital camera), if it's available.

**Thumbnail pane:** The Thumbnail pane displays thumbnails by size, rank and text detail. They can be viewed with different

size options such as Small, Medium, Large, Large Rank and Detail. The Large Rank displays a large thumbnail along with the image's rank while Detail provides information about each image shown such as file name, date created, modified, copyright, format, colour mode, image size (in pixels), file size, rank.

The Rank By and Sort menus help to create a hierarchy for your images, such as proof or final, and sort images according to the stage of completion.

The File Browser lets you sort images by file name, file width and height, size, file type, resolution, colour profile, date created, date modified, and colour.

### Actions Speak Louder than Click

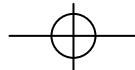
Here's how you can use the Actions feature to save time and effort:

- To open and save multiple files of the same size, resolution and mode in one step.
- If there is a folder of images that you need to convert to Web graphics and if the images are somewhat similar, then don't do it individually—choose Actions.
- If you downloaded an action from the Web but Photoshop doesn't seem to recognise it, then first make sure that the action has the file extension .atn. Then go to the Actions palette and from the drop down menu, choose

Load Actions. Now locate your action and click OK. The action will now appear in the Actions palette under its own section from where you can run it.

- When you create actions Photoshop runs them so quickly that you would generally not be able to track a missing or wrong step. To slow down or even put a pause between each step, choose to play your action Step by Step in the Playback Options dialog box in the Actions palette's drop down menu. As an alternative, enter the number of seconds for which you'd like it to pause





## IMAGE EDITING

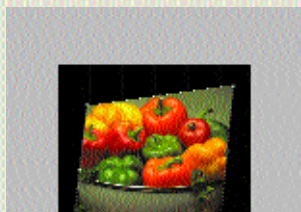
**Crop them, skew them, play with them. Give your images the perfect look**

### Image modes: RGB, CMYK, Duotone, Tritone

Before you begin editing an image, save it in the correct mode, else it won't show accurate colours. If you are going to use the image on the Web, save it in RGB mode; for print, save it in CMYK. You can also save the image as Duotone (two colours) or Tritone (three colours)—these modes impart interesting effects to an image. If you want to use an image for the Web as well as for print, make sure that you have two copies, one RGB and the other CMYK.

### Perspective in cropped images

The Cropping tool offers a wide range of options. For instance, you can skew the cropped image by selecting Perspective in the Options bar. You can even resize the cropped image by expanding the cropping edges beyond the



*The Perspective option lets you skew cropped images*

image size. Use the [Alt] key to maintain the centre and the borders when you click and drag the mouse. Use [Shift] to maintain the proportions.

### Removing noise from digital camera images

Images taken from a digital camera show noise when opened in Photoshop, usually in the Blue channel. To correct this, go to the Channels palette and make the Blue channel active. Now click Gaussian Blur (*Filter > Blur*) and add a slight blur to the image—start with 0.5 and increase the blur by using the Up Arrow key. When the noise has pretty much disappeared, click on the RGB composite channel and continue with the regular image correction.

### Fixing stray pixels

Many a times when we use Magic Wand or Color Range, Photoshop leaves some stray pixels unselected. To select these, under *Select > Modify > Smooth*, enter a sample radius of 1 pixel and click OK.

### Making a dull image brighter and sharper

Need to make a low-resolution image sharper and brighter? Duplicate the layer which has your image and under the *Filter* menu, choose *Filter > Other > High Pass*. In the example shown here, the radius is set to 2 (choose the radius according to the resolution of the image). Now in the Layer's palette, choose the Hard Light option under Blend Modes. You could further flatten the image by choosing



*A low resolution image*



*The low resolution image after brightening and sharpening*

*Layer > Flatten Image* and see the difference between the new and the original image!

### Working with the Healing Brush and Patch tool

With the old Rubber Stamp tool, you can clone pixels from a sampled area and apply them to an area needing correction. However, it does not take care of the shadows and highlights of the flawed area. The new Healing Brush tool in Photoshop 7 clones by using the texture from the sampled area and then using the colours around the brush stroke as you paint over the flaw. You can sample and heal between two images but you need to make sure they are in the same mode.

The Patch tool is similar to the Healing Brush but instead of painting with brush strokes, you select the flawed area and apply the patch to it. It can be useful for selecting larger flawed areas.



### Patch

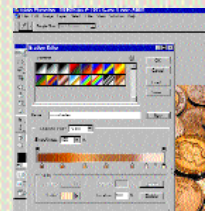
When working with the Patch tool, you make your initial selection with this tool. Instead of dragging the selection with the Patch tool to the position you want to clone, and then release your mouse!

### Creating gradient photos

Seen a nice combination of background somewhat neat little trick will show you can use it on your own creation. Open a new document and select the Gradient tool. In the Gradient Options bar, click on the Gradient bar. Now move the cursor outside the Gradient bar. Now click on the first color swatch in the Gradient bar.

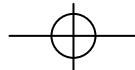


*The original photograph*



*The gradient created in the photograph*





## insight ■ tips and tricks

you want in your gradient. Your Color Stop will take on this colour. Add another Color Stop by clicking just to the right of your first stop under the Gradient bar. Again, move outside the Gradient Editor into your image and sample the next colour. Keep adding stops and sampling colours until you have the required gradient effect. Give the gradient a name in the Name field and click on the New button to add this to the Gradient picker so that you can access it easily.

### Erasing back to your original image

When editing an image, to revert to an earlier stage, select the Eraser tool (instead of *File > Revert*, which will revert to the original image). Press down [Alt] and start erasing the areas you don't want to keep. Usually the Eraser tool erases the image, but when you hold down the [Alt] key, it acts like a history eraser and

erases back to how the image looked originally.

### Changing colour and luminosity effects

Open your RGB image and make a copy of it. Now press



You can add cool effects by changing the image luminosity

[Ctrl] + [I] to invert your image in the new layer. Go to the Layers palette and change the blend mode from Normal to Difference in the inverted layer mode. Now make a copy of the original background layer and place it above the inverted layer. Finally, change the layer blend mode from Normal to Luminosity.

mouse away from the text, it changes into the Move tool. You can now move the Type in the Edit mode too. The moment you bring the mouse nearer to the text, the cursor blinks again and you can edit the text again.

### You [Enter] only once

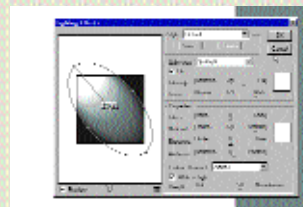
In the edit mode, when you press [Enter], the cursor goes to a new line. When you finish editing, press [Enter] on the Numeric keypad. This will finish the editing task and the cursor will turn into a Move tool.

### Metal and chrome effect

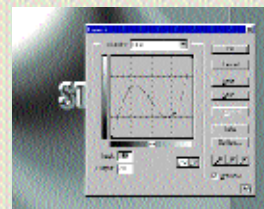
Open a new document in RGB mode and type in *Steel*. Hold down the [Ctrl] key and click on your Type layer in the Layers palette to put a selection around your text. Now under the Select menu, choose Save Selection. Press [Ctrl] + [D] to deselect and then delete the Type Layer.



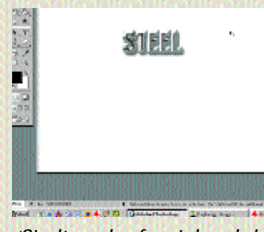
This is the text without the effect



The Lightning Effects dialog box with the angle setting for the light



Get your curve to look like the



'Steel' made of metal and chrome

Go on to the Channels palette and click on Alpha Next, under *Filter > Blur > Gaussian Blur*, enter 1 px. Select the background layer and under *Filter > Render > Lightning Effects*, go to Text Channel and choose Alpha 1; click OK.

Now press [Ctrl] + [Shift] + [Ctrl] + [J] to put the entire image on its own layer.

Under *Image > Adjustments*, choose *Curves*, create a curve like the one shown above, by clicking on the lower left hand side of the curve and dragging upwards. Release the mouse button and then click on the right hand side and click down to give it a chrome effect. Once you get a curve similar to the one in the figure, click OK. Now choose *Load Selection* from the *Select* menu. Make sure Alpha 1 is selected under the *Channel* popup. From the *Select* menu, choose *Modify > Expand*. Here you need to evaluate how many pixels

## TEXT EFFECTS

### Some shortcuts and effects that will make your text stand out

#### Kerning text

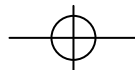
The kerning effect is used to crunch or expand words while retaining even spacing between letters. Just select the word you want to kern and press [Ctrl] + [Alt] + left/right arrow. This will increase or decrease the spacing by 100 points. On pressing the [Ctrl] + [Alt] + up/down arrow key,

the leading changes by 10 points. To increase or decrease the font size, press [Shift] + [Ctrl] + [>] or [<].

#### Moving Type in Edit mode

Haven't you always wished to be able to move the text to its proper position while you edit? As soon as you take the





put in so that it will select all of the text. We've put in 3 pixels as the value. Press [Shift] + [Ctrl] + [I] and press [Delete]. Press [Ctrl] + [D] to

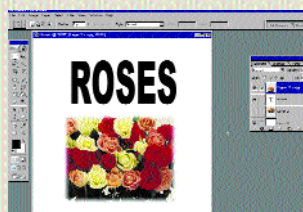
deselect. Add a soft drop shadow by choosing Drop Shadow from the Layer Style. That completes the metallic effect.

## WORKING WITH LAYERS

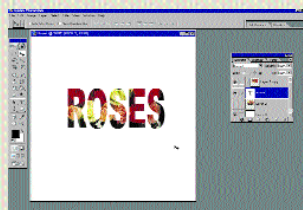
### Managing layers more efficiently

#### Grouping: an excellent bridge

Grouping layers essentially lets you move one object within another. Press [Alt] and in the Layers palette, click between



The two objects before grouping



The two objects after grouping

the layers you want to group. In the figure, first and second layer are shown individually and after grouping.

#### Rotate through the Blend modes

It is a test of your patience when you try to get the right effects in the layer Blend modes because you have to go back to the Blend mode drop down menu every time. There's a simpler way to do this: simply press [Shift] + [-] or [+] to go to the

previous or next Blend mode.

#### Organising related layers

If you need to work on several layers simultaneously, you can keep them in sync by clicking the 'Create a new set' button in the Layers palette and dragging and dropping the related layers in Set Layer. Else, you can link the layers—hold down the [Alt] key and from the Layer palette's drop-down menu, choose New Set From Linked.

You can also keep related data in a more accessible format by pressing [Alt] and double-clicking on the layer. In the Layer Properties dialog box, choose a colour and click OK. This will colour the left side of that layer in the Layers palette and make it easier for visual identification. Apply the same colour to all related layers.

#### Moving multiple layers between documents

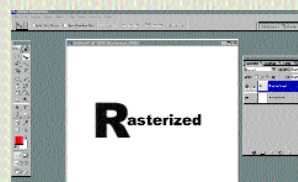
To move more than one layer at a time from one document to another, link your layers and make sure you drag your layer from within the document itself rather than dragging from the Layers palette. If you drag it from the Layers palette, you can only get one layer at a time.

#### Applying the same style across layers

You have a style which you want to apply to all the layers but the thought of doing the tedious action is bugging you? Simply link all the layers to which you want to apply the same style. Then under the Layer menu, go to Layer Style and choose Copy Layer Style. Go back to the Layer menu and choose Paste Layer Style to Linked, and your copied style(s) will instantly be applied to all the linked layers.

#### Selecting a letter after the Type layer has been rasterised

To do this, just make a loose selection using the Lasso tool around the letter. Hold down the [Ctrl] key and press the Up Arrow key once



The selected letter can be tweaked as required

and then the Down Arrow key once. The letter will be selected without disturbing anything else on the layer. Now you can play with this letter as it is now a 'floating selection'.

#### Preventing Layer styles from affecting your new work

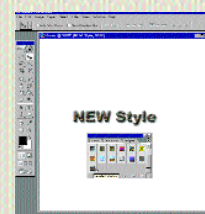
Layer styles apply to all the elements in the layer. For example, if you apply a

Bevel and Emboss to everything you do, every layer will have it applied to it. If you avoid this, create a blank layer by clicking the New Layer icon and drag this new layer over your Bevel and Emboss layer and press [Ctrl] + [E] to merge it. This will remove the active effect from the layer so it no longer has Bevel and Emboss new things on that

#### Creating your own styles

If you have created a masterpiece of art and use it in your future work, you can do so by saving it as a Style.

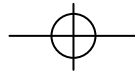
Open the Layer Style box (double-click



Using your own styles when you want

effect on that layer. In the Layers palette) and click the New Style button. In the New Style dialog box, where you can name your style. To apply this style to the Window palette, choose Show Style palette. The style you just created will appear as the last style in the palette.





## insight ■ tips and tricks

### WEB GRAPHICS

#### Smart ways to get sharp, yet small images for use on the Web

##### ■ Reducing file size for Web images

To save images for the Web, preferably save them as transparent images so that they take up less space. Go to the Layers palette and simply delete the Background layer. This leaves only transparent layers above it. Now when you click on Save for web, the checkbox for Transparency is no longer grayed out.

##### ■ Clean Type for the Web

For use on the Web, a type size below 12 points becomes blurry. To maintain the visibility, do not reduce the type size further. Instead, increase the positive tracking and try to keep the tracking anywhere between 20 to 50 points. This will not only keep the size small, but will also maintain the visibility of the type.

##### ■ Trim for the Web

Another way to keep file sizes small is to use the Trim function from the Image menu. It will crop your Web graphic as tightly as possible for the smallest possible file size. It does this by looking at the pixel colour in the upper left hand corner of your image and it keeps cropping down until it hits another colour.

##### ■ Layer-based slices

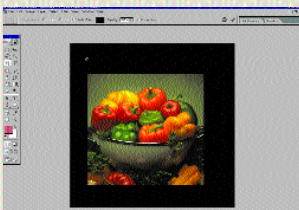
Photoshop can automatically flatten your image for the

Web and slice it too by using layer-based slices. If you create a layer-based slice, when you move the layer, Photoshop will automatically adjust all the slices to accommodate your move and it will also create a new slice layer for your layer. From the Layer menu, choose New Layer Based Slice in case of changes in the layer. Also, if you let Photoshop do the slicing, you don't have to drag out slices—Photoshop does the slicing exactly at the size of your layer.

The new Slice options in Photoshop 7 allow you to link and unlink your slices. Linking the slices allows them to share the same colour palette and dithering options, which prevents visible seams that occur between the lines due to changes.

##### ■ Get rid of those annoying marching ants

There are times when the selected portion in an image shows annoying lines called selection border, popularly known as 'marching ants'. If



The selection still remains even after removing the selection border



### Portable Network Graphics (PNG)

PNG was originally designed to replace the popular Gif format. It supports 24 and 48 bit images, while gif supports only 8 bit. PNG also supports RGB, Grayscale and Indexed colour image modes as well as varying levels of transparency, for example, soft drop shadows, which are not supported by GIF and JPEG. The downside is that in PNG files, the colour images are often larger than in GIF or JPEG images because

they contain more colours and don't compress like JPEG. The biggest disadvantage is that they are not supported entirely by the browser world. Though they are natively supported by Microsoft Internet Explorer and Netscape Navigator, the 32-bit RGB transparency is not supported by Windows Internet Explorer. So they are ideally suited only for small images such as buttons and thumbnails with details.

the selection border gets annoying, press [Ctrl] + [H]. By doing this, your selection remains but the marching ants disappear. This command is known as 'Show Extras'.

##### ■ Using the WBMP format

Photoshop 7 supports a new file format called WBMP. This is designed specifically

for mobile devices such as cell phones and PDAs. The format supports only 1 colour, that is, either pixel is black or white. It can use masks from Type layers, Shape layers and alpha channels to vary the density percentage across an image. This technique produces higher-quality results in small image areas without increasing file size.

### FILTERS

Filters can give you some amazing effects, provided you know how to use them correctly.

##### ■ Straighten those jagged Lasso tool selections

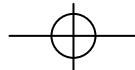
Can a Lasso tool give a smooth selection? Draw the area you want to use as your selection and press [q] to enter Quick Mask mode (your selection will now be surrounded by solid pink). From the Filter menu, under Noise, choose Median. As



Getting smooth selection edge

you raise the radius of Median filter, the edge smoothen out. When you find it satisfactory, press





again to return to Standard mode.

### ■ Placing lens flares

The location of the lens flare centre can be controlled precisely. Go to the Info palette and click on the cross hair in the lower left hand side of the palette. In the screen for measurement values, insert values in pixels or inches. Place your cursor over the exact spot where you want the lens flare to appear. If you look in the Info palette, you will see the exact position in inches. Note this value and go to the Lens Flare dialog box; press [Alt] and click in the Lens Flare preview window.

In the Precise Flare Center dialog box, enter the X and Y coordinates that you have noted. Click OK and you will see the lens flare right where you wanted it.

### ■ Working with the Lightning Effect filter

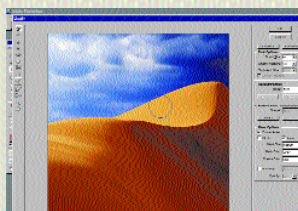
Here are a few things you must remember when using this filter.

- Press [Tab] to jump from one light to another.
- You can create your own styles (presets) by configuring the Lightning Effects and clicking on the Save button at the top of the dialog box, just below Style.
- To delete a light, simply click on it and press [Backspace].
- To add another light, click and drag the Light icon into the preview, or hold the [Alt] key and click and drag

a copy of your existing light.

### ■ Extract and Liquify commands in Photoshop 7

In Photoshop 7, the Extract and Liquify commands have been shifted from the Image menu to the Filter



*The Liquify filter in Photoshop 7 has many options*

menu. The enhanced Liquify filter gives you greater control over image warping with zoom, pan and multiple undo. You can also save your meshes, which lets you return to an image after experimenting with the Liquify tools and start where you left off. You can even apply the same mesh to different images or experiment on a low-resolution image before applying the mesh to a high-resolution version. Create effects such as smoke or fire with the new Turbulence brush. You can also use the new backdrop option to view individual layers or a flattened version of the file so that you can see your distortions in context as you create them.

The Pattern Maker has been introduced in version 7, which is also located under the Filter menu. In order to use the Pattern

maker, highlight the portion of the image you want to use in the pattern and click on the Generate button. A random pattern is made from your selection, which will be tiled to cover the whole canvas. If you don't like the result, simply generate it again. Pattern Maker can

hold 20 patterns in memory, so you can add, back and play around with the controls. You can control the size and position of the pattern tiles together when you get the pattern of your choice, click the Save icon to save it as a preset.

## SPECIAL EFFECTS

Make your design work stand out in the crowd

### ■ Creating a motion effect

This is a simple example to show the motion effect of a moving vehicle. As shown in the image, select one wheel with the help of the Elliptical Marquee tool. Press [Shift] to get a circular selection. From the Filter menu, choose **Blur > Radial Blur** and enter the number of pixels as 50 (select the pixels according to the file size). Now repeat this process with the other wheel. Next, select the car using the Polygonal Lasso tool and use **Filters > Blur > Motion Blur** with a value of 50 pixels. Copy and paste this layer by using [Ctrl] + [C] and [Ctrl] + [V]. Select the Move tool and move the replicated image in the direction opposite to the



*The effect seen on the car after moving the image in the opposite direction and reducing the opacity to 50%*



*The car in rapid motion*

motion. Reduce the opacity to 50 per cent. Make a copy of this layer and move the image further behind the first one in the opposite direction. Reduce the opacity to 50 per cent.

### ■ Reflection in water effect

Here is a special effect that will create the reflection in water effect for a car. Take the Lasso tool




*Radial selection of the wheel in the image of a stationary car*


## The zero-error CD-Rewriter and CD-ROM Drive.



CD-Rewriter Drive  
GCE 8480 B



CD-ROM Drive  
GCR 8521 B

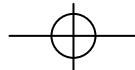




\*The LG 8320B CD-R has been awarded the Best Value Award by Digit Magazine

**LG Digital Storage Device**  
The World's No.1





## insight ■ tips and tricks

select the objects in the image. Copy and paste the selection using [Ctrl] + [C] and [Ctrl] + [V]—this creates another layer. In the



The original image



Align the vertically flipped image with the base of the original

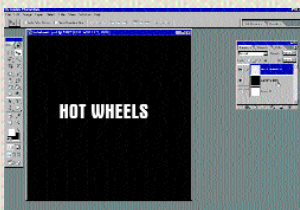


The final image showing the reflection in the water

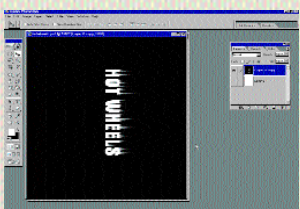
new layer, press [Ctrl] + [T] to bring in Free Transform selections. Right-click and select Flip Vertical from the options. Bring down this flipped image by keeping the [Shift] key pressed and dragging it. Now scale the image to a lesser width and decrease its opacity.

### The flame effect

In order to get the flame effect on text, open a new image in the Greyscale



The plain text without any effects



The text when rotated by 90 degrees CW



The 'flaming' effect on the text

mode with the background layer kept black and the foreground layer white. Now create your type and rasterize the type using **Layer > Rasterize > Type**. Create a copy of the layer by going under the Layer menu and choosing Duplicate Layer. In the dialog box that appears, change the destination to New. This will duplicate your text layer to a new document.

Go back to your original document and merge your text layer with the background layer by pressing [Ctrl] + [E]. Under the Image menu, choose Rotate Canvas and choose 90



## Must-know Shortcuts

Fill selection with foreground colour	[Alt] + [Backspace]
Fill selection with background colour	[Ctrl] + [Backspace]
Display Fill dialog box	[Shift] + [Backspace]
Free transform	[Ctrl] + [T]
Transform again	[Ctrl] + [Shift] + [T]
Increase brush size	[Ctrl] + [Shift] + [>] or [Ctrl] + [Shift] + [Page right]
Decrease brush size	[Ctrl] + [Shift] + [<] or [Ctrl] + [Shift] + [Page left]
New layer	[Ctrl] + [Shift] + [N]
Cut selection to a new layer	[Ctrl] + [Shift] + [C]
Clone selection to a new layer	[Ctrl] + [Shift] + [V]
Scroll image	[Spacebar] + drag with the mouse
Scroll left or right	[Ctrl] + [Page up] or [Page down]
Cancel operation	[Esc] or [Ctrl] + [Z]
Close image	[Ctrl] + [W]
Save Image for Web	[Ctrl] + [Alt] + [Shift] + [S]
Brushes palette	[F5]
Color palette	[F6]
Layers palette	[F7]
Info palette	[F8]
Actions palette	[F9]
Just palettes	[Shift] + [Tab]
All palettes, status bar, options bar and toolbox	[Tab]
View rulers	[Ctrl] + [R]

degrees CW. From the Filter menu, choose **Stylize > Wind**. In the Wind dialog box, make sure your chosen method is Wind and that your direction is From the Left. Press [Ctrl] + [F] to run the same filter again with the same settings.

Now go under the Image menu, under Rotate Canvas, choose 90 degrees CCW.

Choose **Filter > Stylize > Diffuse** and make sure it is set to Normal mode. Again choose **Filter > Blur > Gaussian Blur** and enter 2 pixels.

Now go under the Image menu and under Mode option, choose Indexed Color. Go back to the Image menu and under Mode, choose Color Table and Black Body in the Table popup menu. Go to the

Image menu and under Mode, choose RGB.

Switch to the duplicate of the text layer. Once again, go to the Layer menu and choose Duplicate Layer. In the dialog box, change your destination to the name of your main document (the one in which you've applied the effect). The text layer will appear exactly the same position it was, before the duplication.

Finally, press [d] to set your foreground colour black and then press [Shift] + [Alt] + [Backspace] to fill your text with black. Last, go to **Filter > Distort > Ripple** and choose Ripple. Choose Large for size. Click OK to complete the effect.





# A level **playing** field

Think you could make better maps for *Quake III Arena*? Here's a crash course in level designing to get you started

**P**ick a game, any game; observe the intricate play between the rules that define it and the environment within which it is cast. Specifically note how the said rules and the way they are rendered, as defined by a game level, always harmonise, dance in unity.

Take *Pac-Man* for instance. We follow a lonely dot as it attempts to escape the ghosts, even as it consumes little pills of joy—sometimes eating, at times eaten, always running! Whether in 2D or in 3D, the backdrop of the game always remains the same: an increasingly complex maze that poses a challenge in proportion to the player's skill. If the gameplay is escapism, the environment is a maze, be it *Pac-Man* or *Half-Life*.

Or look at *Serious Sam*. Pity this guy who is stuck in the middle of a desert and is about to be grounded beneath the hooves of fifty stampeding bulls. That is, if he is not blown to constituent polygons by those headless-kamikaze freaks first. Gaze then at the cannon that he carries in his hand, the one that shoots cannonballs, the kind that can lay five dead in a

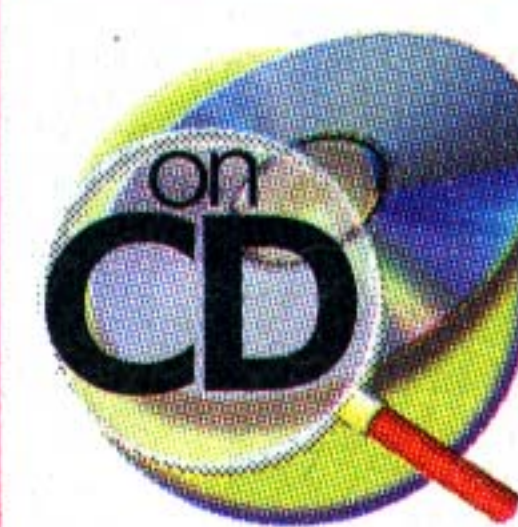
blow. Pity him no more. Besides, its not like Sam is stuck in a cramped room between narrow, claustrophobic corridors (like that poor *DOOM* guy), he has an entire desert to roam and run about. If the gameplay involves blowing up wave upon wave of indescribables, the levels must provide freedom to move about by being vast and open.

The same logic extends to other games. Where else can you loot, plunder, break into vehicles and be a public nuisance but in a metropolis? Thus *Grand Theft Auto 3* finds itself set in the sprawling muck that is Liberty City. A desire to kill your friends with alarming regularity will find yourself in closed, circular spaces with an assortment of weapons within easy reach—principles that drive games like *Quake III Arena* and *Unreal Tournament*. A good game is thus built on good levels and a good level, in turn, is one that emerges from the rules of the game; a square peg for a square hole. A perfect fit. Join us then as we examine the most important element of a game: level design. Take a look at the skills required to be a level designer as we introduce you to

some general design pointers, tools and resources that will help you take up the mantle of creating levels.

## A part of the game

A game is little more than the sum of its parts. What separates a good game from a great one is the quality and skill with which those constituents are crafted. The engine forms the heart of any game. Analogous to a car, a game engine drives the rest of the package and is in turn composed of several elements. We thus have an AI (Artificial Intelligence) module that defines the behaviour of game characters (the level of aggression of the ghosts in *Pac-Man*, for example), an interface for sound and music in the game, a set of rules that define the limits to which physics dictates the game elements, amongst other things like scripting and event triggering.



Discreet's gmax along with companion resources  
Find them in the Developer Tools section on the Mindware CD



# THIS USED TO BE MY PLAYGROUND

gmax is Discreet's attempt at standardising a level design tool for the army of modders and mappers. It is freely downloadable and a developer only needs to supply an appropriate plugin for their game to allow a third-party to start creating custom content. id Software has released the gmax tempest plugin to allow fans and designers to create maps for *Quake III Arena*. We will use these tools to create a simple map with textures and a weapon as an introduction to using the gmax tool.

Before you get started, ensure that you have a complete install of *Quake III Arena*, Discreet's gmax, the gmax tempest plugin, Q3Radiant, which can be downloaded from [www.q3radiant.com](http://www.q3radiant.com) and more than 1 GB of free hard disk space. Next, follow these steps to configure the software involved:

- Locate the *Quake III Arena*\baseq3 directory and a file named pak0.pk3. Extract the contents of this file into the baseq3 sub-directory by using a program such as

WinZip. Install Q3Radiant into the *Quake III Arena*\Tools directory.

- Navigate to the gmax\gamepacks\tempest\textures directory, find the Common folder and copy its contents into the *Quake III Arena*\baseq3\textures directory. Next, go to the gmax\gamepacks\tempest directory and find the file named leveltest.map; copy this into the *Quake III Arena*\baseq3\maps directory.

- We now need to configure gmax tempest to use *Quake III Arena* resources. Start gmax tempest from within the gmax\gamepacks\tempest\ directory and enter the paths to the *Quake III Arena* executable and the *Quake III Arena*\Tools directory in the dialog box that appears when you first run the program. This dialog box can be later accessed via the menu bar under *Customize > Tempest Preferences*.

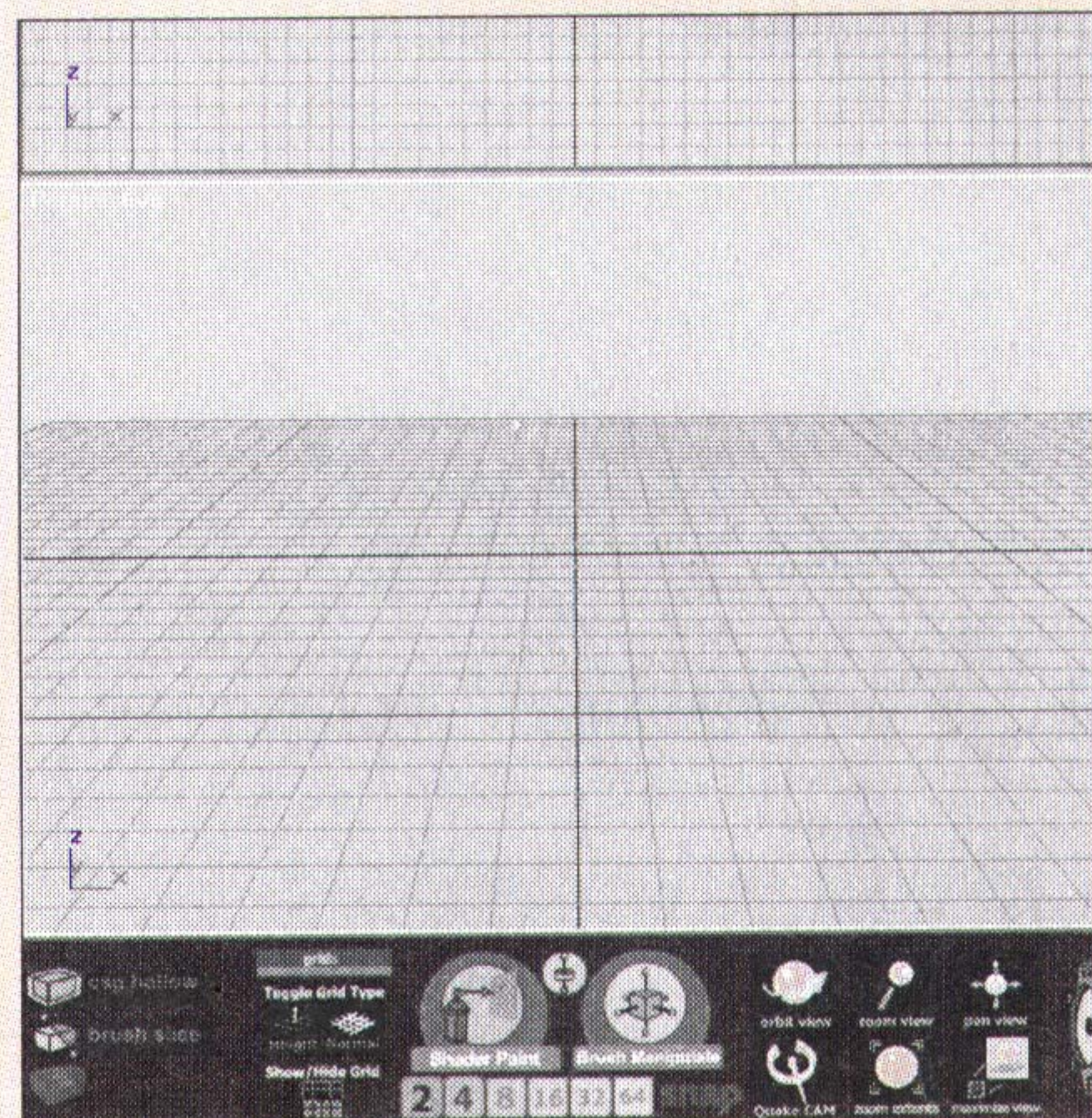
Now that both gmax and tempest are properly configured to use *Quake III Arena* resources, we can go ahead and create a map following these steps:



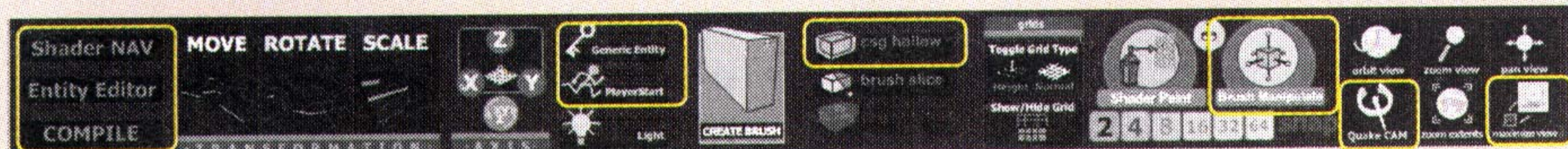
Start gmax tempest by navigating to the \gmax\gamepacks\ directory and then clicking on the 'tempest' icon.



Click inside the perspective viewport to make it active and then maximise this view by clicking the button in the lower left part of the Flash toolbar. What you see is the grid or the grid map. Zoom out to view the entire grid by using the middle mouse button. Activate the Height Grid by clicking on 'grid type'.



Seen here is the maximised perspective viewport



During the course of this workshop, you will come across some frequently used buttons, which can be found on the Flash toolbar of gmax. From left to right these are: Shader NAV, Entity Editor, Compile, Generic Entity, PlayerStart, csg hollow, Brush Manipulate, Quake CAM, maximize view

Built upon this foundation are set pieces that are immediately visible to the player. Animations breathe movement and pseudo life into polygonal characters, which use the rules set by the physics unit to move about levels or maps (the environment) within which the characters interact and interplay.

Amongst all these elements, the most visible and omnipresent is the level or

map, which is awarded the maximum polygon count from within the budget of a game. Not only does a level give form to a game, but it also extends its lifecycle, thanks to the concept of modding and mapping. A development studio will willingly give away the tools they used to create the game with the hope that enterprising men and women will create new content that will grant visibility to

the game and allow it to sell for a longer period of time. Most of the current games thus, come bundled with their own level-creation tools. The benefits of mapping go both ways—many a talented gamer has found him or herself working at a favoured development studio, thanks mainly to the quality of maps created by using these tools.

There are skill sets that are required to take up the job of level design. Familiarity with a 3D authoring tool such as 3ds max 5 or Maya is a given, since even proprietary tools bundled with games closely mirror the functionality of these industry standards. Formal training in the field of architecture is also a requisite, since creating levels is a mathematical task that requires knowledge of geometric shapes and how well they fit together. A level designer might also need to be a good texture artist, armed with working knowledge of tools such as Photoshop or Paint Shop Pro. However, don't be discouraged if you

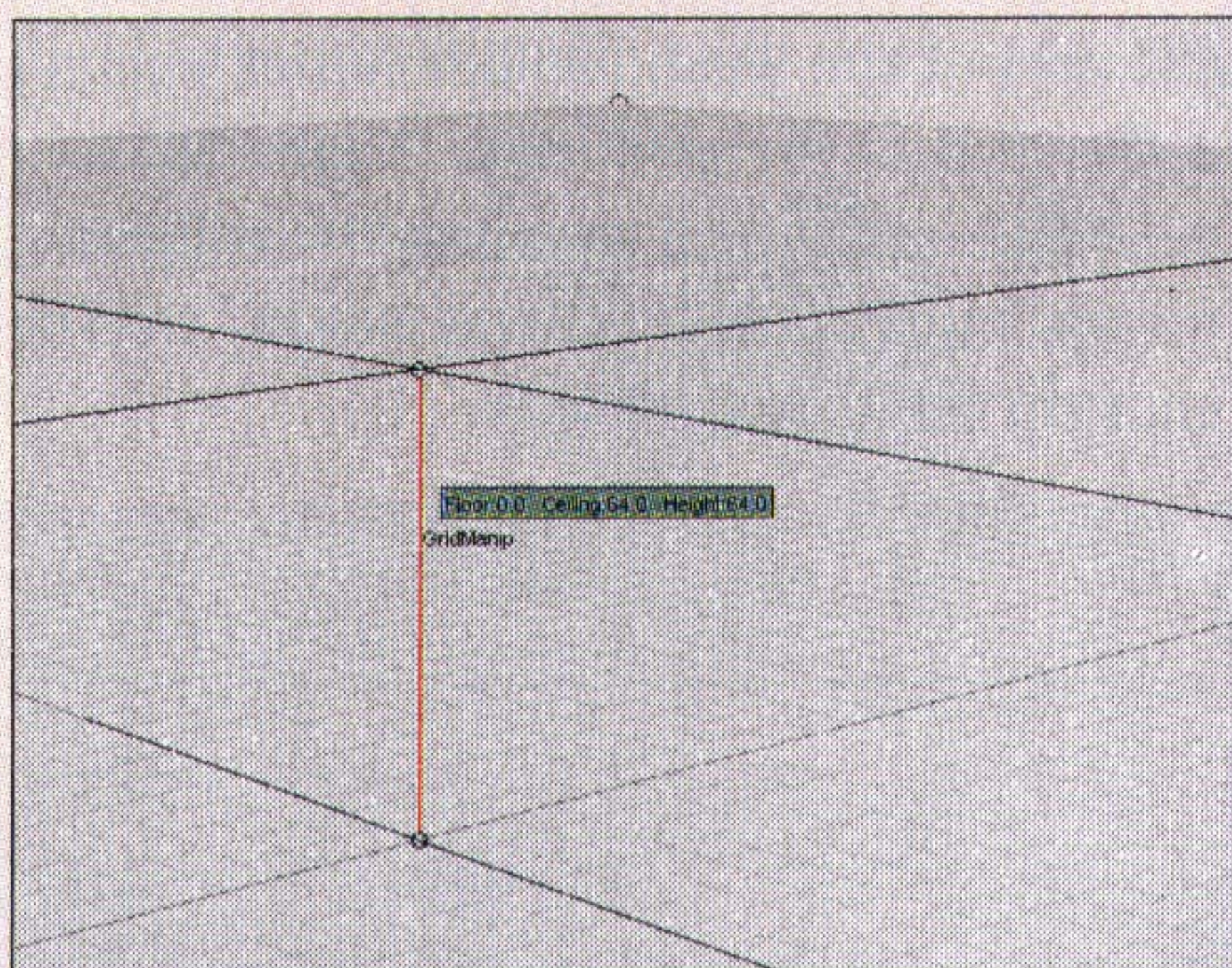
## Get your Kicks Here

Game	Tool	Link
Half-Life	Valve Hammer Editor	<a href="http://www.valve-erc.com">www.valve-erc.com</a>
Return to Castle Wolfenstein	Discreet's gmax	<a href="http://www.nibsworld.com/rtcw">www.nibsworld.com/rtcw</a>
Quake III Arena	Discreet's gmax	<a href="http://www.quake3world.com/editing">www.quake3world.com/editing</a>
Unreal Tournament	Unreal Ed (built-in)	<a href="http://www.planetunreal.com/nick">www.planetunreal.com/nick</a>
Neverwinter Nights	Aurora Toolset (built-in)	<a href="http://nwwvault.ign.com">http://nwwvault.ign.com</a>
Elder Scrolls III: Morrowind	TES Construction Set (built-in)	<a href="http://www.elderscrolls.com">www.elderscrolls.com</a>
Warcraft III	World Editor (built-in)	<a href="http://maps.warcraftiii.net">http://maps.warcraftiii.net</a>
Free textures	-none-	<a href="http://www.3dcave.com">www.3dcave.com</a>
Tutorials and articles	-none-	<a href="http://www.gamedev.net">www.gamedev.net</a>





To change the height of the grid map, click the Brush Manipulate button and hover your mouse over the Height Grid Manipulator—look for a long vertical line with circles at its ends. This adjusts the position of the grid object in space—you can move it up, down or side ways by either using the circles or the line itself.



The Height Grid Manipulator adjusts the grid object in space



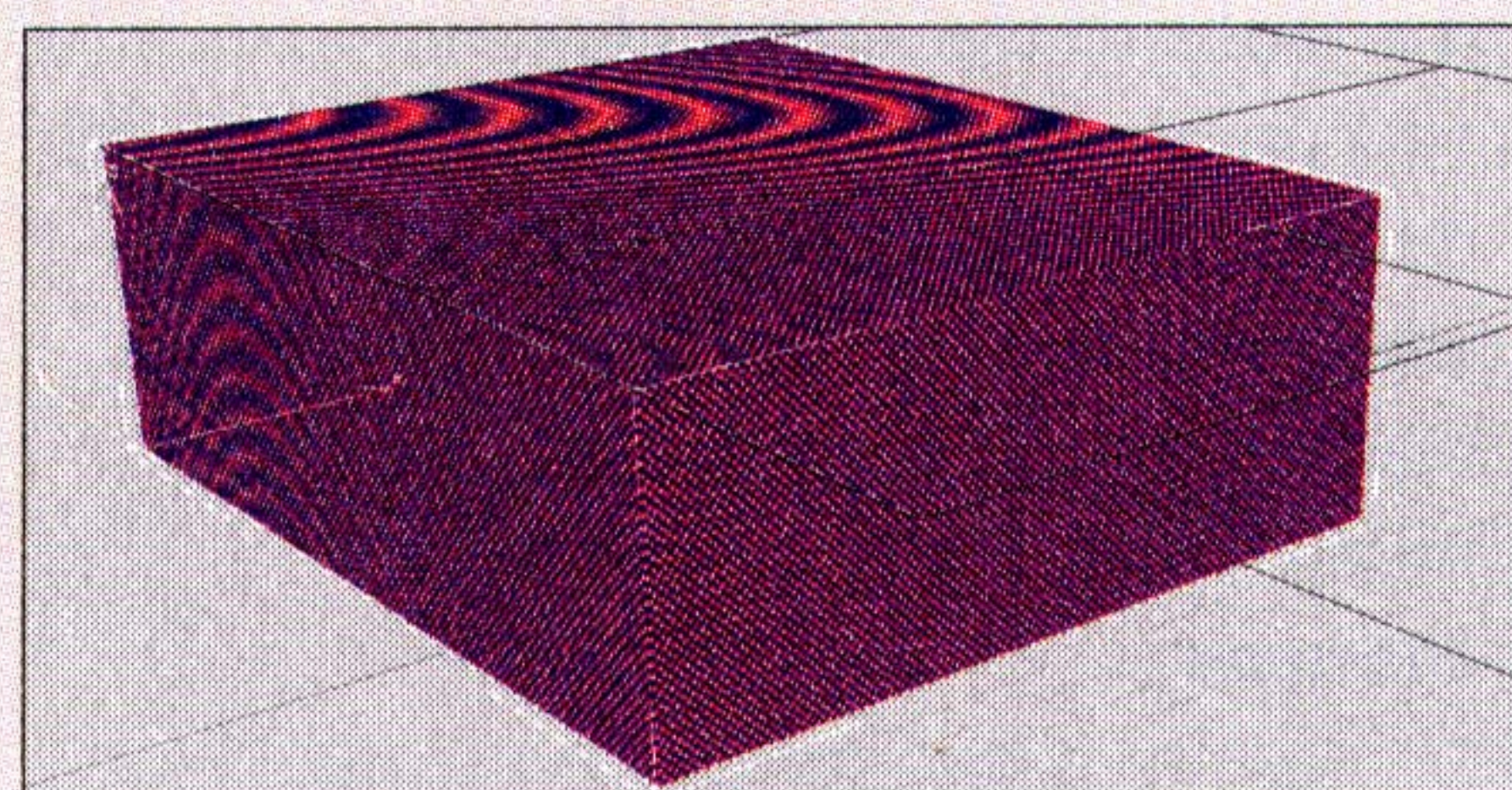
To adjust the height of the Height Grid, click and hold on the upper circle—a tool tip will indicate the height dimension above this circle. Click-hold on the circle and drag upward until the dimension reads 'Floor: 0.0 Ceiling: 512 Height: 512'.



Observe the Grid Settings buttons on the lower right-hand part of the screen. Click on the button labelled 64—this is the one we will use to create the level. Next, click on the Create Brush button—this will put you in brush create mode.



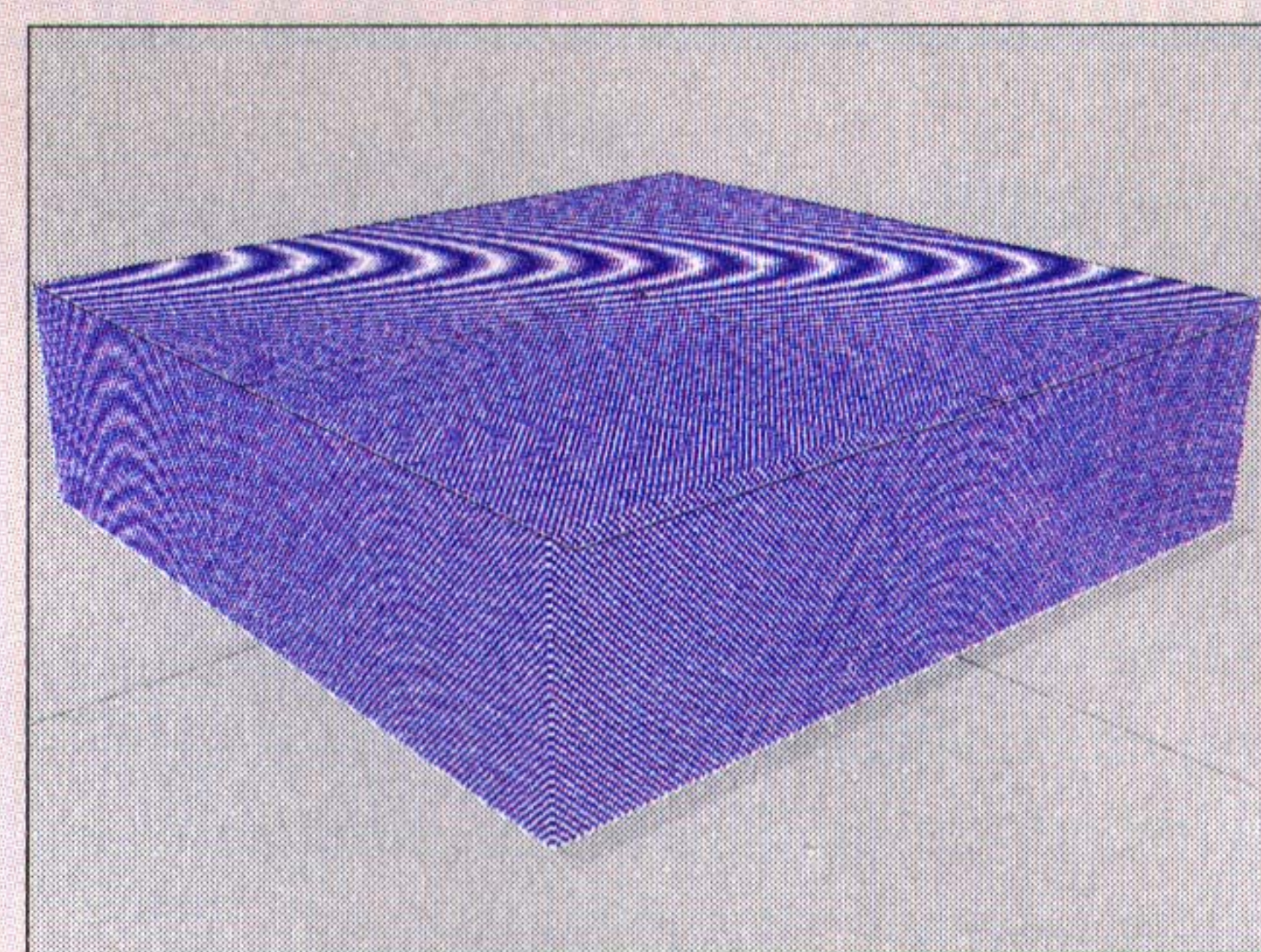
There should be a light blue cross hair on the grid object. If not, then click the Snap button to active grid snaps. Zoom out to view the entire grid. Aim your cursor in the far left corner of the grid, click-hold, drag, and then release the button at the right corner on the opposite side. This will create a big box (a brush) with a checkerboard pattern.



Create Brush button to create a brush object



Choose the number 4 or 2 Grid Spacing button and then make the brush object hollow by clicking on the CSG Hollow button. This will create an empty level. Click on the QuakeCam button and then inside the empty level—move within the box using the



The brush created should now be hollowed. This is your primordial level

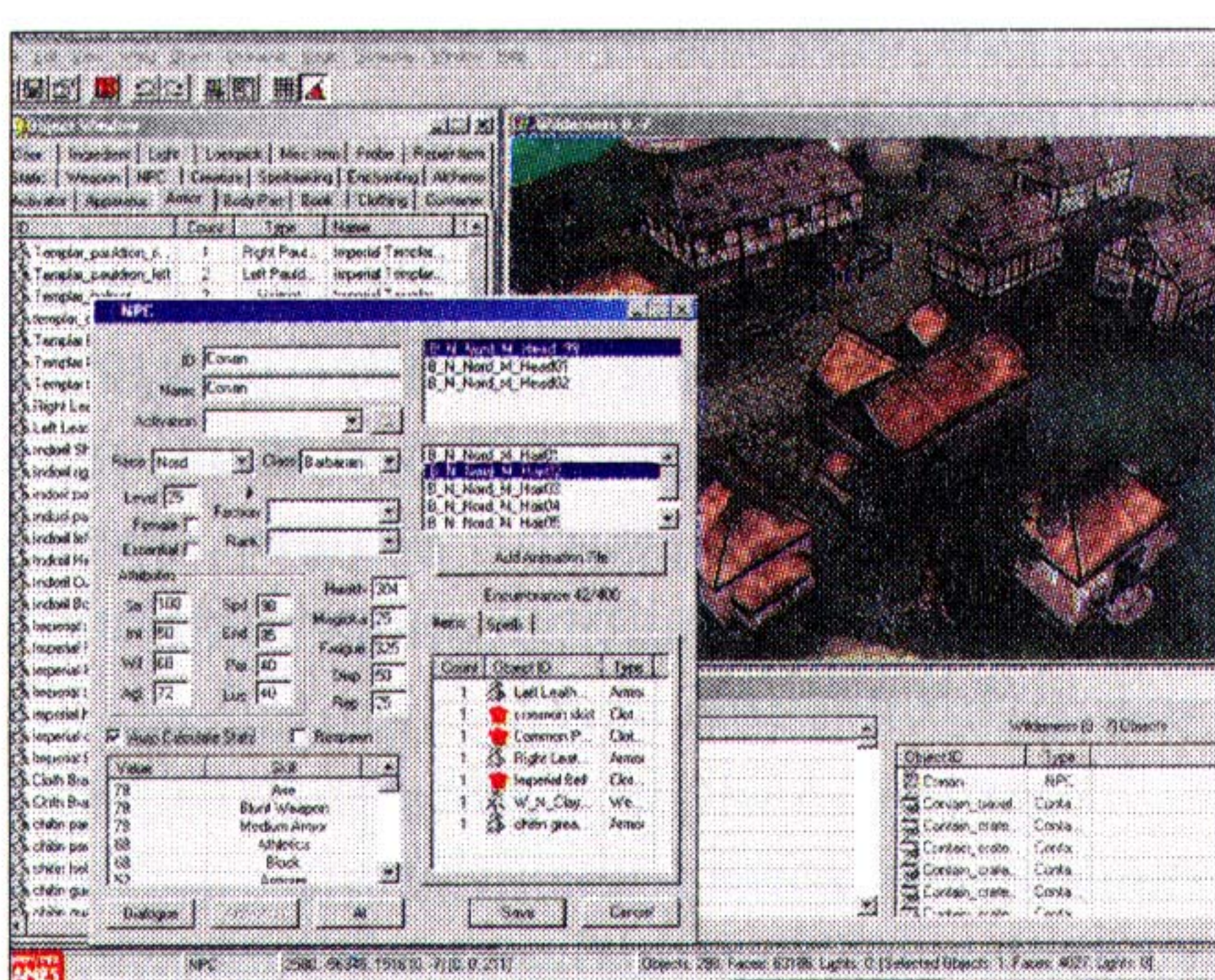
[W] + [A] + [S] + [D] + mouse combination.



To apply textures to the walls, click on the Shader Nav Button. This opens the Quake Shader Navigator tool. From the Shader pull-down menu, choose the base\_wall shader category.



Click on the Select tool in the ToolBar. This will enable you to select walls and floors to apply textures—notice that a selected surface turns red. Click on one of the vertical walls and for multiple selections, press down the control button while clicking. You should be able to click on any of the thumbnails in the Shader Nav to apply a texture to your selection.



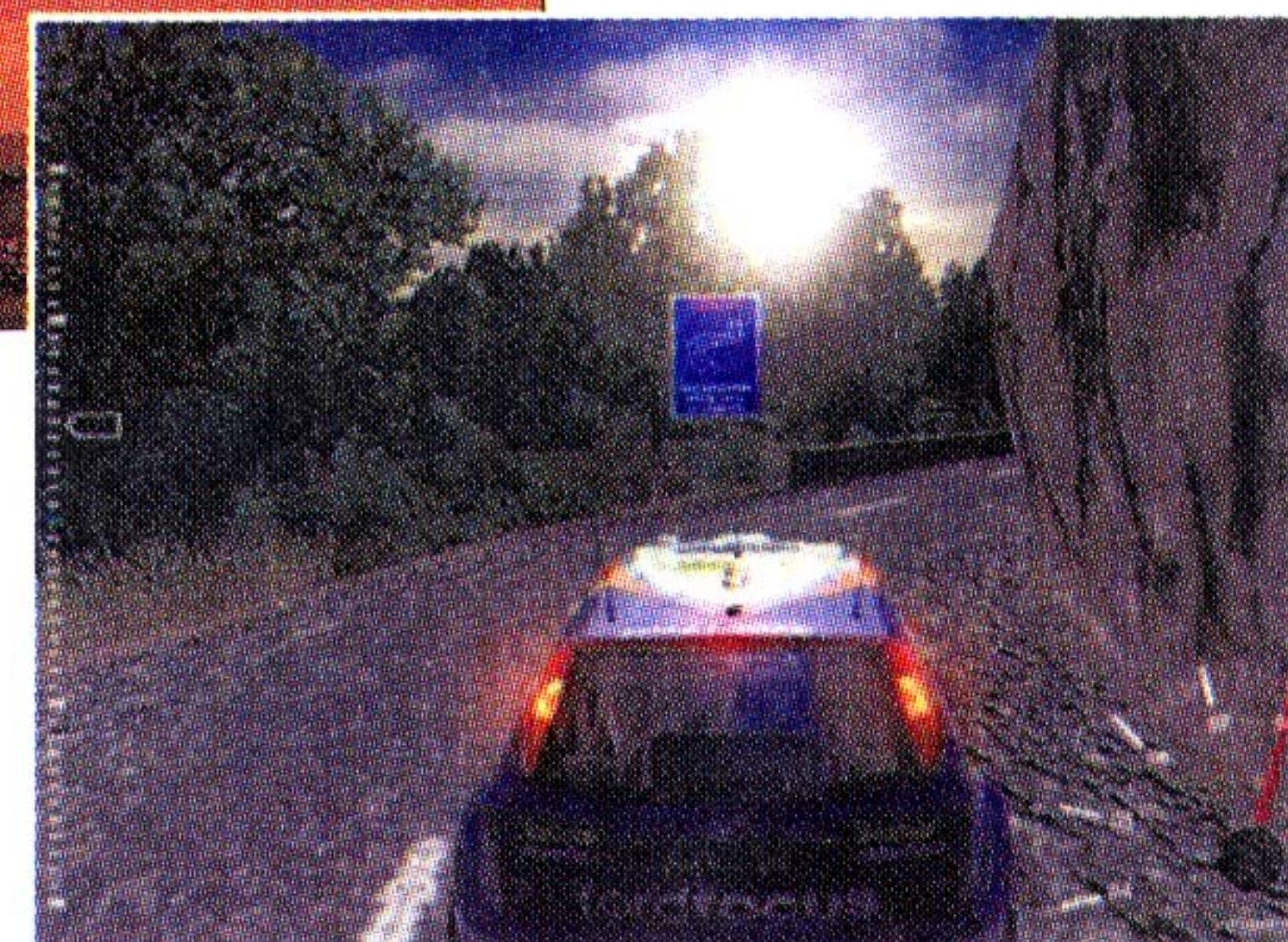
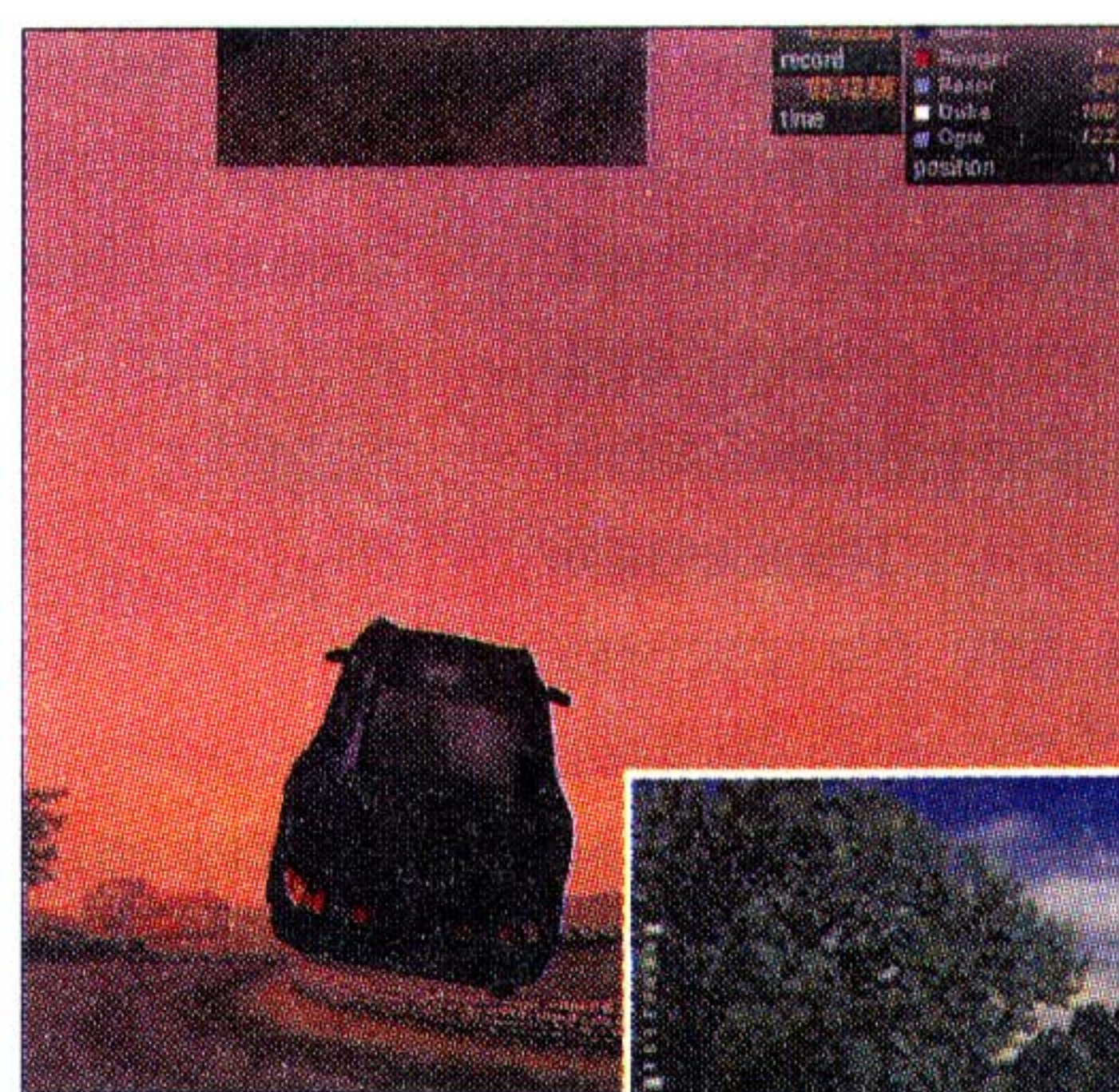
Most games come bundled with their own level designing tools. This is Bethesda Softwork's TES Construction Set

possess none of these skills. There are enough resources on the Internet that will help you get started on level designing (see box, 'Get your kicks here') and our small workshop on creating a level for *Quake III Arena* using the gmax tool ('This used to be my Playground') will help you get off the ground. Formally trained or not, practise

makes a great level designer. So pick up a game like *Unreal Tournament*, open its levels, study them and attempt to learn from the masters.

### A level head

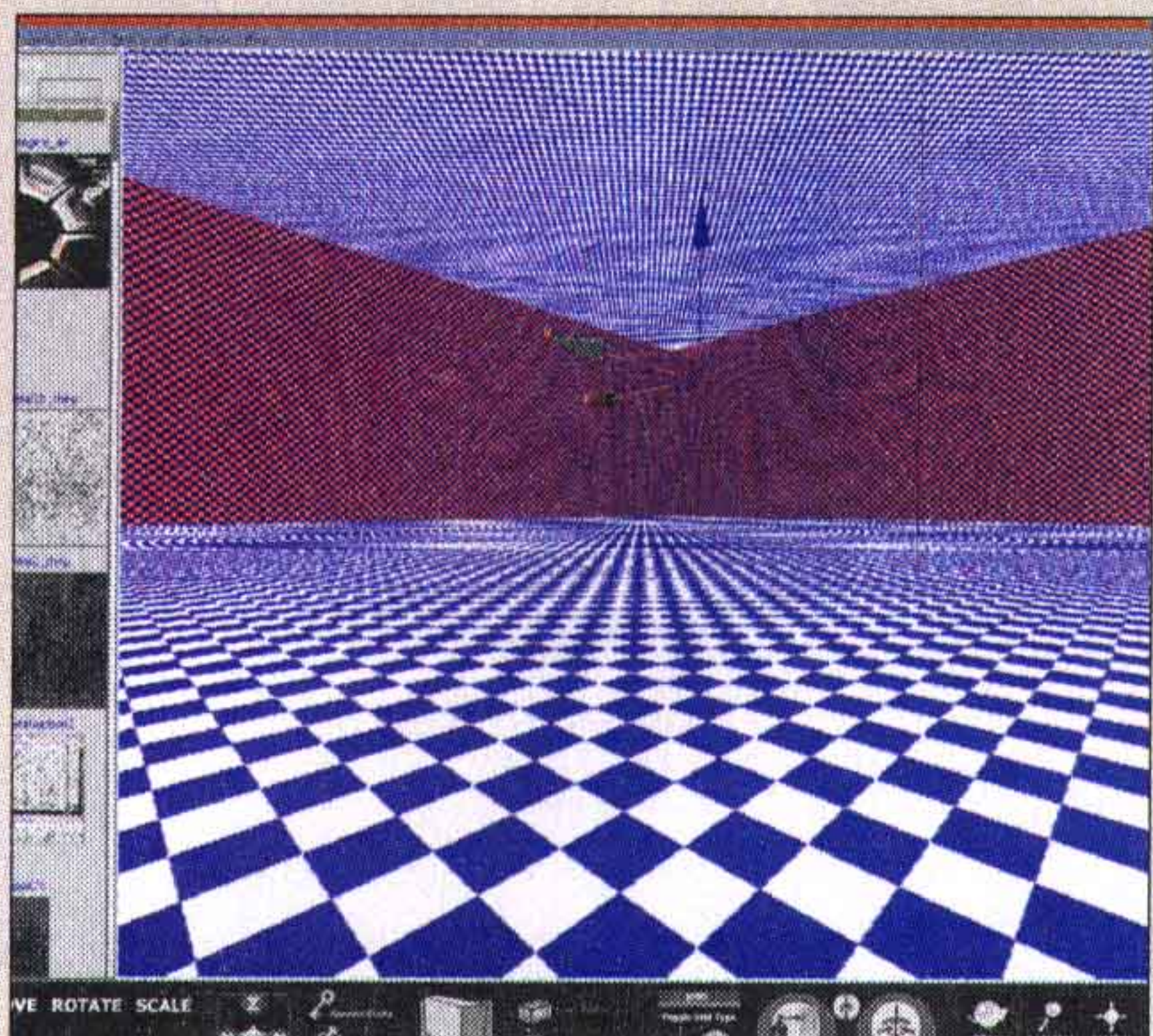
Making a game is no longer a solo venture and team play implies good communication. A level designer should know what is required from his level, design-wise, even as the polygon-budget is foremost in his mind. The task becomes a little more complex if the mapper is also going to create his own textures—you would have to ensure that they gel visually with the rest of the game. Often, a level creator will first prepare a concept sketch, clear it with the rest of the team and only then touch mouse. If you think that you have what it takes to be a level designer, what follows are some pointers that will help you.



'While taking to the air is always fun, nothing keeps a player guessing like a blind corner

■ A racing game should supply a speed-induced rush; this need not mean long, fast straights. There is nothing more exhilarating than a tire burn at 300 kph as you hit the handbrake to execute a 180-degree turn into a tunnel. Intersperse





The walls, floor and ceiling of the level are selected to apply a texture

## STEP 10

Repeat these steps for the remaining walls, floor and ceiling. A ceiling can either have a texture similar to a wall or a sky shader like storm clouds, depending upon the look that you wish to impart to the game.

## STEP 11

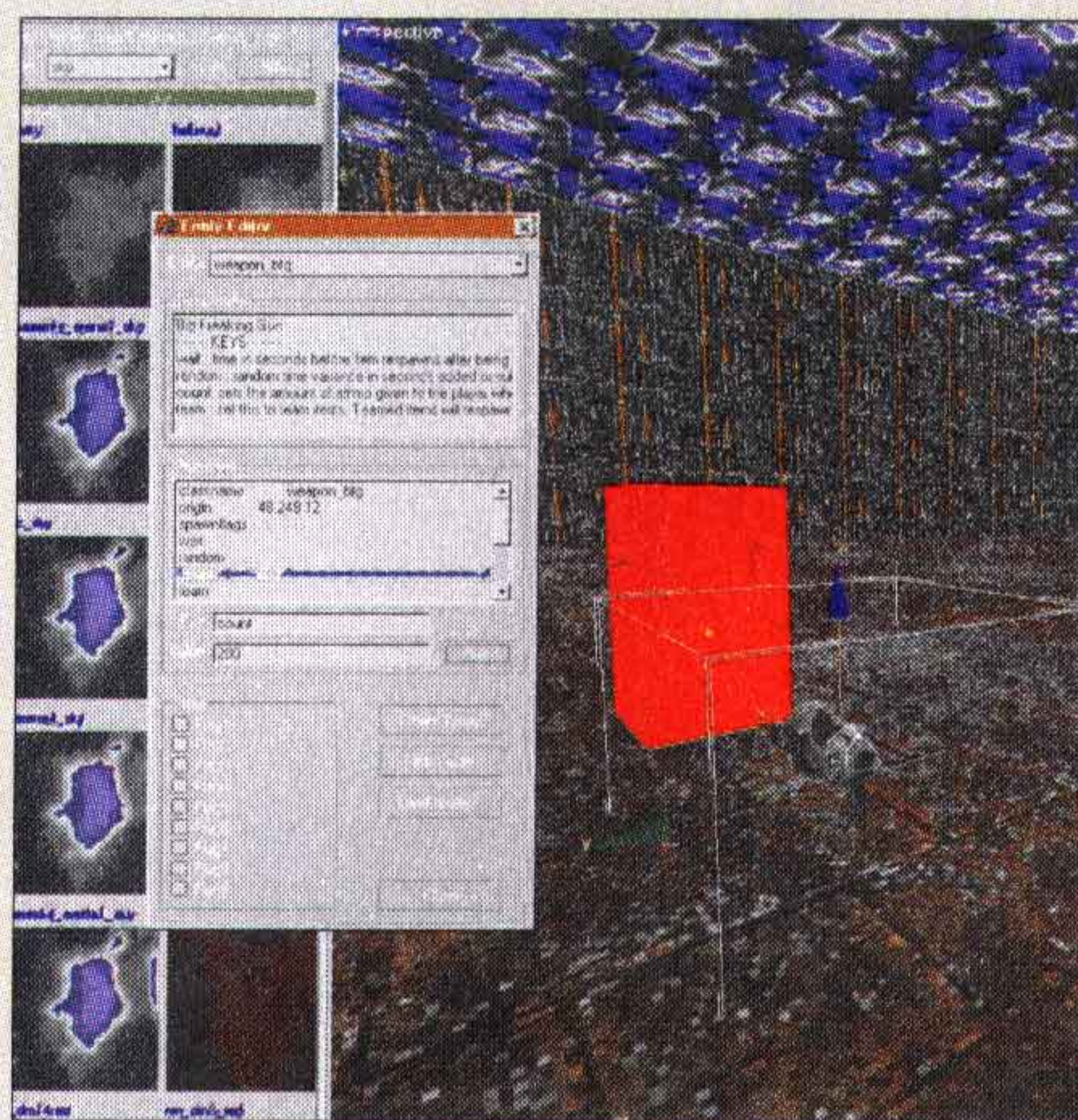
Next, we need to add a player start entity to the map, without which the level will not load properly into *Quake III Arena*. Activate the snaps by using the Snap button. Right-click in the viewport to will bring up the quad menu. Select AutoPosition Grid Upper to move the Snap the Height Grid tool to the same base level as the floor.

## STEP 12

Click the #8 Grid Spacing button to set the snap grid level. Click on the PlayerStart button in the toolbar. Click anywhere on the floor to create a PlayerStart entity—it will appear as a rectangular box.

## STEP 13

To add a weapon, we need to create a Generic Entity. Click on the appropriate button in the Flash toolbar and click anywhere on the floor to place the entity. Click on the Entity Editor button located below the Shader Nav button from the drop down list, select weapon\_bfg to transform your generic entity into a BFG (Big F\*\*\*\*\* Gun).



A weapon is nothing but a Generic Entity with specific properties

## STEP 14

To set the ammunition for the BFG, head to Properties in the Entity Editor and select the count value. Click on the Value Field and type 200. Click Set to allocate 200 rounds to the BFG.

## STEP 15

Save your map as a .gmax file and get ready to test your level. Click on the Compile button in the lower left of the toolbar. Click next on Normal Compile to create a .map file of your level—the compiler will convert this into a .bsp file.

## STEP 16

Now, fire up your copy of *Quake III Arena* to load your new level: Hit [~] to access the console, type in `sv_pure 0` and then `map (name of the map you just compiled)`. Now play your level!



Your level is now ready for testing

a track with elements of sharp and gentle curves, road elevations, hazards, blind corners, shortcuts and multiple-routes.

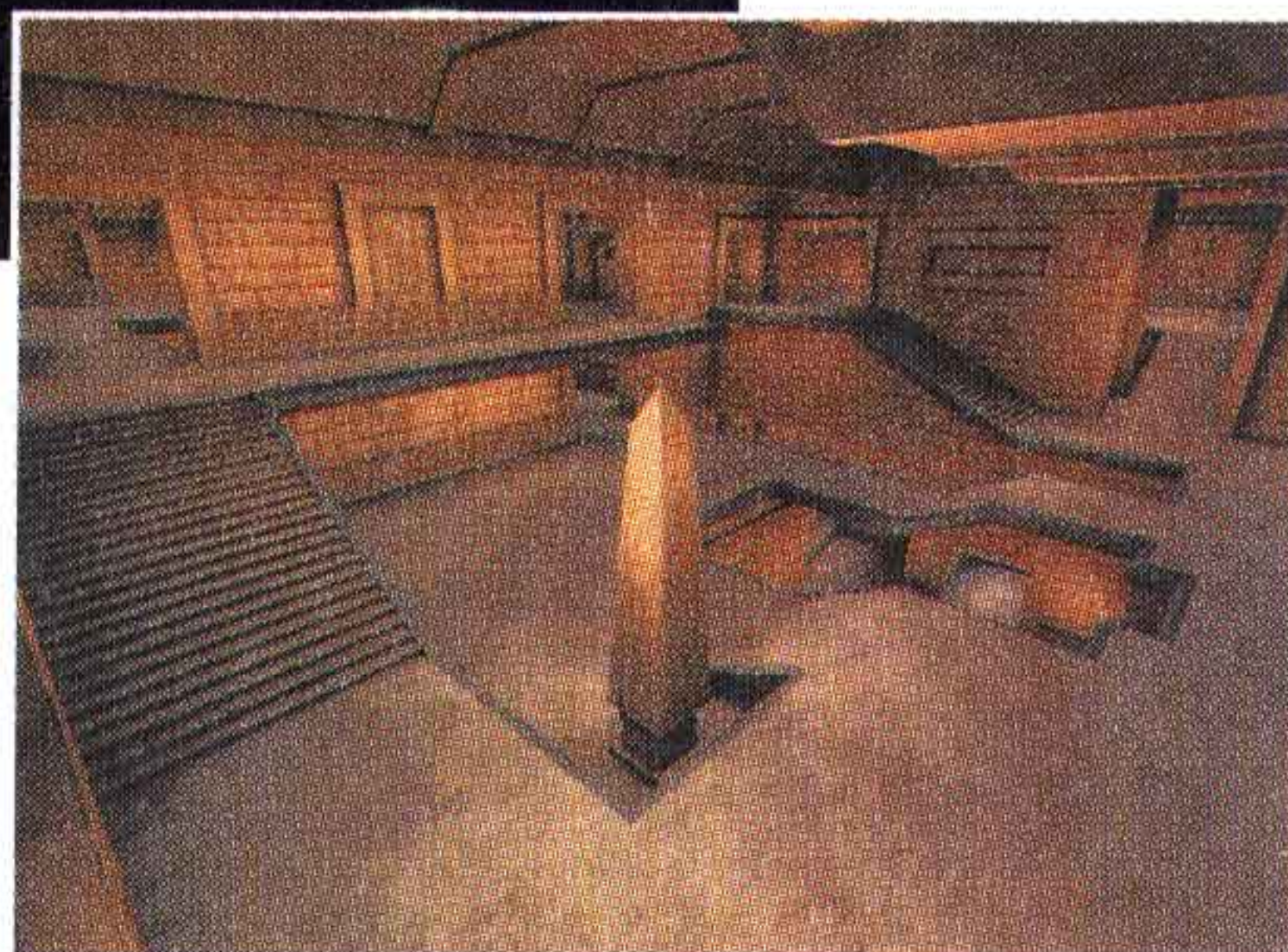
■ While a racing game is reflexive, a real-time strategy is a more laid-back, mental exercise. Every level has to ensure that the most important element of this genre, the resources, is well represented. Whether wood, water or gold, a resource needs to be placed symmetrically, offering a level playing field to the parties playing. Other elements that require intelligent placement are ground elevations, choke points and control points.

■ In role-playing games, resources take on the form of monsters, non-playing characters (NPCs), weapons and magical items. These should be placed between encounters with baddies and conversations with friends in a manner that ensures continuity in the gameplay and a steadily rising learning and experience curve.

■ Even in an action game, the levels steal the show from the weapons and define




Good multiplayer maps have two elements in common—multiple access points and a symmetrical layout



the best or the worst moments that a player takes away from the game. A single-player FPS romp is based on the dual principles of suspense and isolation. A level should thus possess a maze-like

quality; encounters with the enemy must be balanced such that a player makes it through the situation, but barely. Multiplayer versions of this genre need a significantly different level. While a solitary stroll needs a long, linear environment, strewn with puzzles and encounters; multiplayer frag fests need short, almost circular levels, complete with symmetric weapon placements and entry and exit points.

These are of course generalisations on what makes a good level. Observe the works of others, practise and try to innovate—spice up that level with hidden rooms and Easter eggs, mechanical traps and unique puzzles. Above all, have fun. After all, that's the name of the game, right? 

AHMED SHAIKH



arcade ■ tactics

# Unreal TOURNAMENT 2003

Unreal Tournament 2003

much more; follow this guide and exercise your right to frag!

## Under the HUD

### Rank/Spread

The first number indicates your position in the current competition, the second tells you the number of participants. The Spread is how many places behind the leader you currently are

**Health** Indicates your health points



### Adrenaline

Shows how much adrenaline you have

### Ammo Indicator

Shows the amount of ammunition the weapon contains

## The Cheats of the Trade

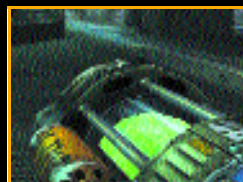
Press [Tab] key to bring down the console and then type:

<i>ghost</i>	- Makes you invulnerable
<i>loaded</i>	- Lets you walk through walls
<i>allammo</i>	- Gives you all weapons
<i>skipmatch</i>	- Gives you infinite ammunition for your weapons
<i>behindview 1</i>	- Lets you win the current match
<i>invisible 1</i>	- Changes to a third person view (0 will turn it off)
<i>amphibious</i>	- Makes you invisible (0 will turn it off)
<i>stat fps</i>	- Lets you breathe underwater
<i>stat net</i>	- Displays the FPS rate
<i>stat all</i>	- Displays the network status
	- Displays various statistics

## The tools of the trade

### BioRifle

The BioRifle is an excellent defence and retreat weapon—shoot where your opponents are likely to walk and use its bio sludge as a mine. A few good shots from this gun are good enough to kill anybody. The secondary fire charges up the sludge and a maximum fill is enough for a one-shot kill. Ensure that you are not too close to the opponent to avoid splash damage. The weapon should be used to booby-paint surfaces such as walls and floors of your base, while guarding a flag.



ondary fire shoots out a slow-moving plasma ball that can cause major damage. The balls are more useful in close combat. The master with this gun is shooting the plasma balls with the primary fire of the gun that is the laser. This combination results in a huge and deadly explosion that can clear multiple targets.

### Link Gun

The gun spews green balls at a speed that are pretty accurate and a healthy distance. The secondary fire is where the gun shines, firing a steady stream of green balls which is more





accurate and easier to control, albeit not as damaging. Keep a close eye on the ammunition while in this mode. The secondary fire reveals the true power of this weapon: during team matches, the guns can be linked together with devastating effect. A teammate can fire a beam onto another carrying a Link Gun and when the second member secondary-fires his weapon, his beam will cause twice the damage.

### Minigun

This is the bread and butter gun of *UT2003*. Its rapid-fire action ensures that you need not be a good shot to get a kill. It is the ideal weapon to harass someone with at long distances—it's more effective than the Assault Rifle at slowly eating away at armour and health. The secondary mode takes a longer spin-up time to fire shots that cause greater damage, at a higher rate of fire. You can safely stick to this mode as long as you keep an eye on the ammunition.

### Flak Cannon

This gun is mighty powerful. The primary mode fires off a diverging array of hot flaks that are extremely effective at close range. These shots can be bounced off walls and around corners, thus making this gun an ideal one to possess while retreating to a safe spot. The secondary mode fires off a single flak

grenade that does an awesome amount of damage—it can be a one-shot killer when used accurately. The secondary mode for long distance firings and the primary mode for short distance shootings is how the Cannon likes to be used.

### Rocket Launcher

The Rocket Launcher shoots a single, straight rocket that travels at a good speed and has a large blast radius. Always aim at your opponent's feet to maximise the effect of the splash damage. Also try to lead the foe a bit with the rocket: predict where your target is likely to be and then aim your shot on that spot. Hold the secondary-fire button to load up to three rockets that shoot simultaneously—a good strategy to cover a large area, although accuracy thus decreases. You can lock on to a target by tracking it with the aiming cursor of the Launcher for a few seconds. Rockets fired post-lock will home in on their target. Finally, hold secondary fire to load multiple and then immediately press the primary fire button, followed by releasing both the buttons simultaneously—the Launcher will fire swarming missiles.

### Lightning Gun

This is the sniper gun of *UT2003*. The primary fire shoots lightning bolts that are one-shot killers if on target but the recharging time between shots is quite long. Also note that the blue arc is a dead give away of

### The Tricks of the Trade


**Double Jump:** An excellent technique to get on to ledges and high nooks, and as effective as an escape move when surrounded. To execute a double jump, jump once and when at the peak, press the jump key once more to gain more height.  
**Backward Leap:** This leap can be used to quickly retreat to a safe spot. An invaluable if you have a long-range weapon in hand and are being chased by someone equipped with a close-ranged weapon. Double-tap on the back button to perform the leap.  
**Strafe Leap:** Rockets can be a real pain in *UT2003*, ditto the Shock Rifle and the Link Gun. The key to reducing splash damage is dodging—double-tap the keys to perform this miracle in either direction.  
**Elevator Leap:** Use the elevators to gain extra air. While on an elevator, if you jump as it stops, inertia will impart a significant boost. The elevator leap is particularly good in combination with the double jump.

your position, so those fine camping spots are numbered. The secondary fire lets you zoom in and frag someone. Headshots are a breeze in this mode and the gun becomes a great defender of flag domination points.

### Ion Cannon

The primary fire of this gun is used to paint a target area, whereupon an orbital satellite annihilates the tagged area. Paint enemy areas for maximum effect. The secondary fire lets you zoom, very much like the Lightning

### Redeemer

The primary fire shoots a nuclear warhead that causes insane damage. A good nuke should. Note that the missile can be shot down, whereupon it harmlessly blows up.  
The secondary mode lets you track the missile to its destination, such as an enemy base. 

### The Moves of the Trade

When you get 100 adrenaline points, you can perform a special move for a set amount of time. To increase the adrenaline points, gather the pills strewn around a level or bag more kills.

Key combination	Move	What the move does
Forward, Forward, Back, Back	Berserk	It increases your attack speed by about 40 per cent
Back, Back, Back, Back	Invisibility	You turn invisible
Left, Left, Right, Right	Regeneration	You regenerate health points and shield points
Forward, Forward, Forward, Forward	Speed Booster	Movement speed and jump height are doubled



# Off the Shelf



## Unreal Tournament 2003

Who needs reality?

The gods must love a franchise, there are so many of them. Welcome then, *Unreal Tournament 2003*, child of the much loved and much heaped with accolades, *Unreal Tournament*. The kid has grown up to be so much like, and yet a bit more than his father before him—we dare declare that *UT2003* is a gorgeous piece of software, that asks a gorgeous hardware price.

It has been moulded to feel like a sports game: the gameplay is faster, the weapons nicely balanced, the on-screen HUD is much cleaner and packs in a lot more information, and an annoying commentator completes the effect. There have been other non-cosmetic changes like the inclusion of special moves, the addition of weapons such as the Ion Painter and



**GETTING THINGS RIGHT:** Excellent level design and beautifully detailed player models add to the superior game play

the dropping of others like the razor-spewing Ripper. Sticking with the weapons, the sniper rifle now masquerades as the Lightning Gun which fires visible electric bolts,

a bane for camping snipers. Similarly balanced are the Flak Cannon, the Redeemer and the Minigun—note though that all of these still sport an alternate firing mode and are lots of fun to play with. Supporting the excellent level design are some new modes of fragging and scoring. Double Domination, for starters requires greater teamwork as you now need to hold two domination points simultaneously. Everybody's favourite mode, Assault has been removed to make way for Bombing Run, a Rugby-like addition that is a blast to play and will surely enter the good books of many.

*Unreal Tournament 2003* is an enjoyable mix of both, the new and the familiar, and is a highly recommended buy, if your computer is up to the task.

**Minimum system requirements:** 733 MHz processor, 128 MB RAM, 3D Accelerator card with 16 MB VRAM ■ **Genre:** First person shooter  
**Developer:** Digital Extremes ■ **Distributor:** Milestone Interactive Software Ltd ■ **Phone:** 022-28381614  
**Web site:** www.unrealtournament2003.com ■ **Price:** Rs 1,299 ■ **Rating:** ★★★★★

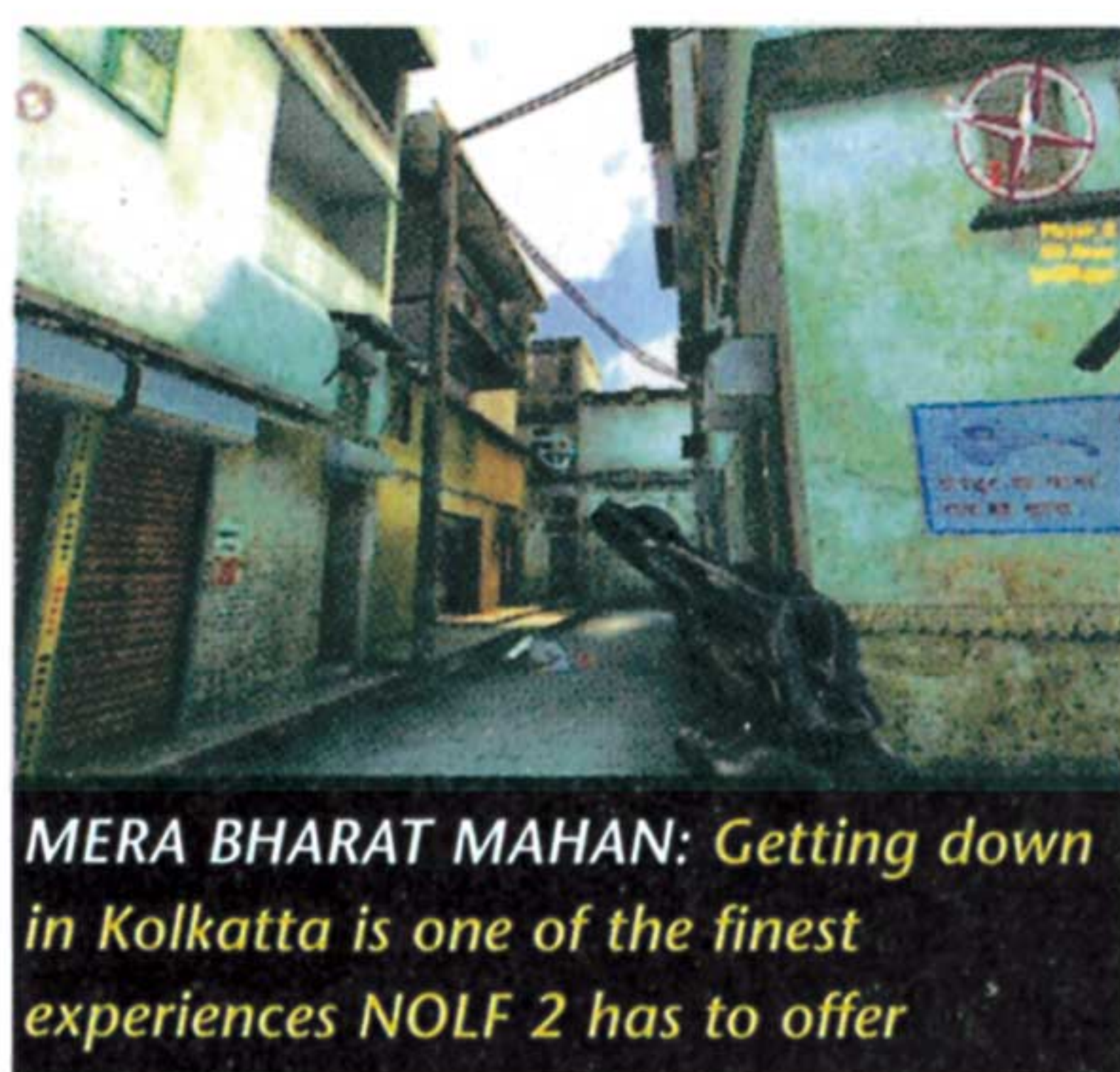


## No One Lives Forever 2: A SPY IN H.A.R.M.'s WAY

Cate plays cupid

Monolith's *No One Lives Forever* (NOLF) is every bit as good as its prequel and then some. It stars Cate Archer, a spy with enough oomph to entice you, sophistication to disarm you and a bevy of whacky gadgets to incapacitate you.

The game is set in the sixties where Com-



**MERA BHARAT MAHAN:** Getting down in Kolkatta is one of the finest experiences NOLF 2 has to offer

hide more effectively in the shadows, be

munists abound, war is always around the corner and mimes have a tendency to shoot first and ask questions later. *NOLF 2* blends in the elements of action and stealth to great effect—you can reward points to skill sets that help define the heroine; these include stealth, search and weapons. As time progresses, Cate can

more successful in recovering valuable items whilst searching the bodies of fallen foes and be a better shot at moving targets. Weapons excel in both variety and the cool factor. You are thus likely to find in your possession a crossbow, a katana, shurikens, mascara that doubles up as a stun gun, a banana, a bear trap and an exploding kitten.

The icing on the cake is the excellent voice acting, a good story, vehicles and an excellent use of humour. *No One Lives Forever 2* is an experience that should not be missed, not this time.

**Minimum system requirements:** 500 MHz processor, 128 MB RAM, 3D Accelerator card with 32 MB VRAM ■ **Genre:** First person shooter  
**Developer:** Monolith Productions ■ **Distributor:** World Wide CDROMS ■ **Phone:** 022-26973894/95  
**Web site:** www.nolf2.sierra.com ■ **Price:** Rs 1,299 ■ **Rating:** ★★★★★





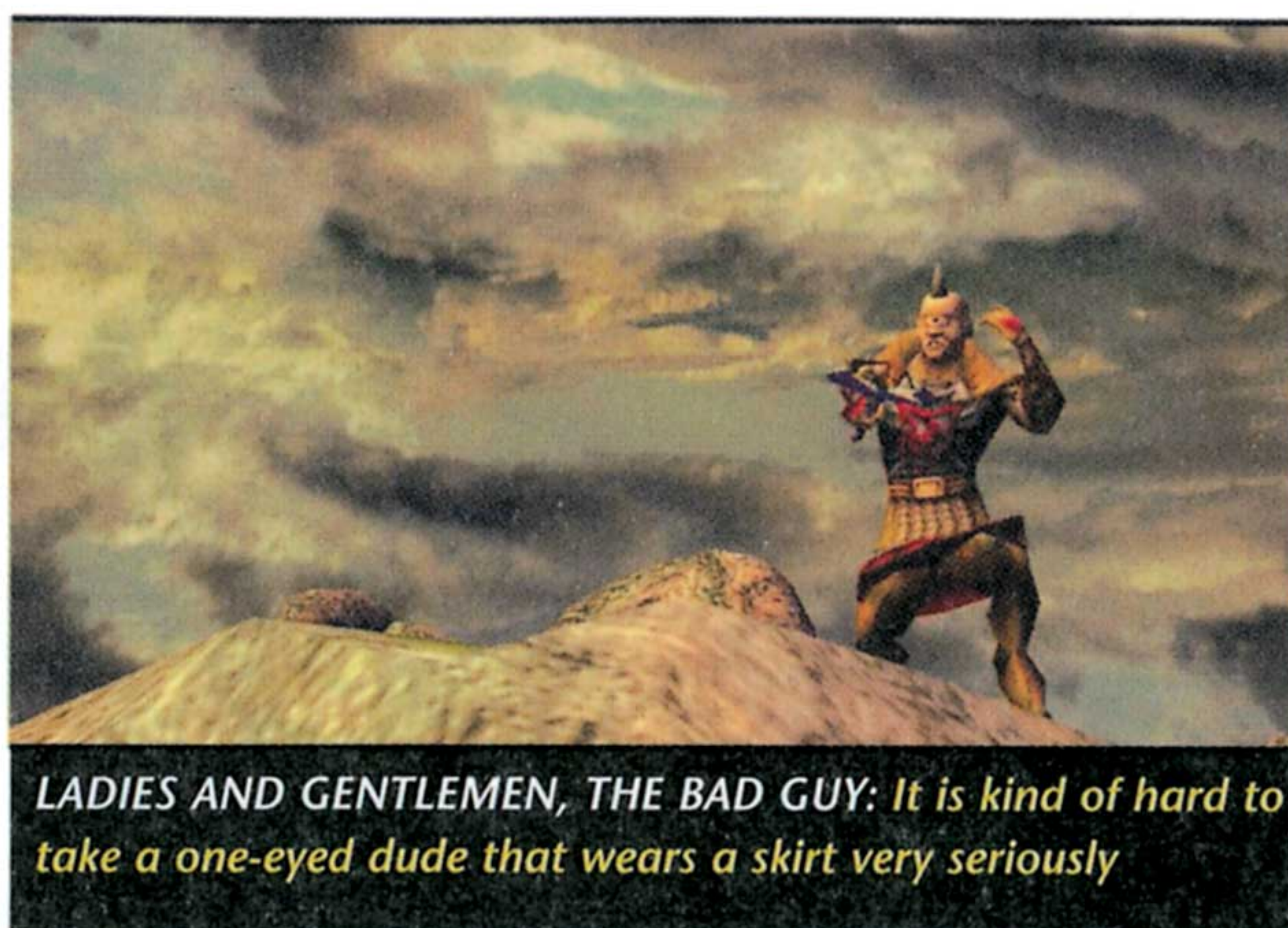
## Age of Mythology

### Manna from the gods

The Age series of strategy games from Ensemble Studios have reached an interesting existential dilemma: how do you improve upon perfection? The route taken: do not fix what is not broken and add enough variety to keep fans and new players on their toes. The latest in the series, *Age of Mythology* (AOM) faithfully follows the path laid. Enter a world of monsters, heroes and immortals—elements serve to offer the spice.

The game plays in a manner similar to its predecessors and to others in its genre. Make your way through a research tree, hanging on to the branches that help in advancing your war machine; manage resources and then hurl your war machine in the general direction of the ones you abhor, hoping to come out on top.

The resource management comes with a twist in the tail; you have the regular suspects of gold and wood, along with a new element of favour. This is where the gods enter the arena. Each



**LADIES AND GENTLEMEN, THE BAD GUY:** *It is kind of hard to take a one-eyed dude that wears a skirt very seriously*

civilisation (Greeks, Egyptians and Norse Vikings) has its own legend and cache of gods. There are myth units unique to each of these cultures (giants, chimeras and crocodiles that shoot beams via jewelled foreheads) in addition to heroes that are content to wander the country side killing, crushing, maiming and generally making themselves useful in ways only a hero can.

for thirty seconds.

The paper-stone-scissor element of strategy games takes on two layers in *Age Of Mythologies* heroes do well against myth units, myth units destroy regular units and the regulars are great against heroes when used in numbers. This relationship goes on top of the usual cavalry, archers, and infantry dynamic adding a degree of complexity and strategy.

**Minimum system requirements:** 450 MHz processor, 128 MB RAM, 3D Accelerator card with 16 MB VRAM ■ **Genre:** Real Time Strategy  
**Developer:** Elixir Studios ■ **Distributor:** Microsoft India ■ **Phone:** 022-26294600 ■ **Web site:** www.nolf2.sierra.com ■ **Price:** Rs 1,299  
**Rating:** ★★★★★

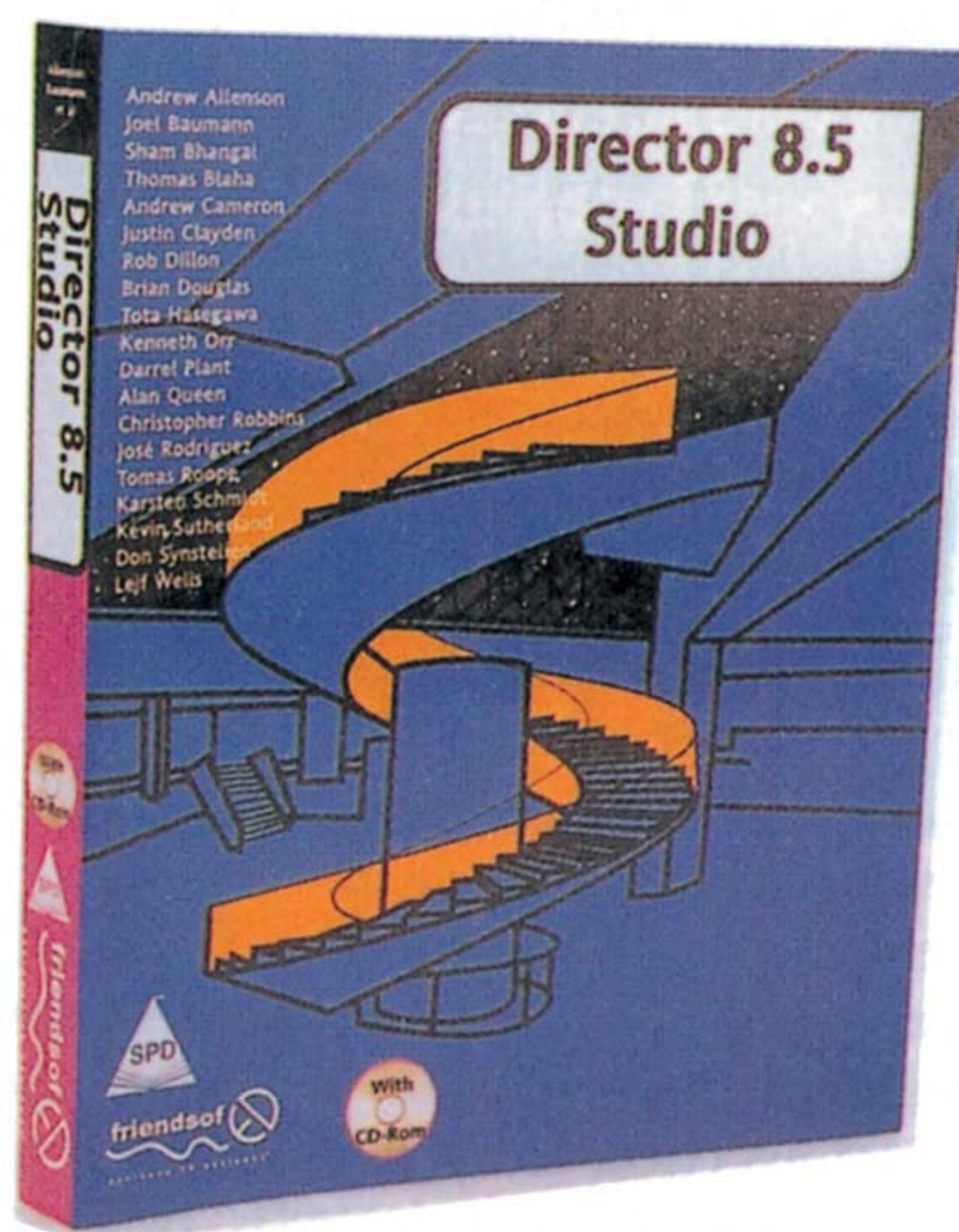


## FOUNDATION ILLUSTRATOR 10

### Hands-on Illustrator

Director 8.5 Studio, undoubtedly the most widely used multimedia tool, is the latest offering from Macromedia Inc. Its namesake in the book form, Director 8.5 Studio, aids the users of its previous versions to get acquainted with the enhancements.

The book covers each topic extensively, explaining the jargon for first-time users. It delves deeper into lingo programming, real-time 3D creation and editing. The examples are accompanied by descriptive visuals, helping the user to easily understand the functions and real-time capabilities of Director 8.5. The print and page quality too do not disappoint. The book brings along with it a self-learning CD, which



contains interactive tutorials. However, these tutorials are aimed at more experienced users and new users will find the navigation confusing.

Whether you're a seasoned Director user wanting to extend your Director movies into the third dimension or a 3D graphic artist using Director to propel your models into Shockwave and onto the Web, this book, with its accompanying CD, gives you practical, hands-on training. It helps developers integrate both multimedia applications and 3D capabilities with the help of lingo programming. Above all, if you want a head start into development of multimedia-rich applications, this book gives you the much needed push.

**Publisher:** Shroff Publishers & Distributors Pvt Ltd ■ **Contact:** Computer Bookshop ■ **Phone:** 022-22070989/22076356  
**Fax:** 022-2623551 ■ **E-mail:** cbsbom@giasbm01.vsnl.net.in ■ **Price:** Rs 600  
**Rating:** ★★★★★



# Diwali Dhamaka

## Digsters work hard to have fun

The end of the year is the season of festivities—Dassera, Diwali, Id and Christmas, all in one shiny sweet package. And festivities mean more than the sweets and gifts. It's the time of the year when everybody wants to spread cheer around the office space and hone their extra-curricular skills. So during one company meeting, our publisher and CEO, Maulik Jasubhai, announced that this Diwali party would require some participation from everyone. Since eager

beavers abound on such occasions, feet shuffled, throats cleared and eyes shifted

as everyone avoided looking anyone straight in the eye, lest it gets interpreted for enthusiasm. Expecting the opposition, Maulik just culled out a reluctant entertainment committee of nine random people from different departments. All murmurs of issue closing, deadlines, and psychosocial ineptitude for work were quickly and firmly dismissed. There was going to be a party and they had better make sure everyone enjoyed it.

So the committee sat down for meetings every day-end and came up with an entertainment plan—a one-act play and short mimicry item, something to suit everyone's palate. Once the programs were

planned out, it was time to delegate; this was their chance to get back at everyone who hadn't volunteered. They stalked near the printer and water cooler asking unsuspecting victims innocent questions like, "Aren't you interested in theatre?" or "Hey, someone told me you wanted to act. We're doing a play for the Diwali party, you know..."

The most convenient victims were the students at Media One, our in-house media school. When they turned in their 'project' on

playwriting, it magically transformed into the script for the play. Another colleague, very daringly, decided to perform a piece on the lives and workings of other departments.

At T minus 10, the actors woke up to the realisation that they had not rehearsed the play. So during the day, empty chairs and tables announced that their occupiers were busy with the party preparations. However, like all good things, everything went well, nobody forgot their lines or entries and we all partied on till the wee hours of the night.



(Above) The cast of the play takes centre-stage.

(Right) An in-house actor gets happy with his toy gun



Colleagues and the chairman, Mr Jasu Shah, enjoy the show

## The cup runneth over

And with festivities in the air, can a gift be far behind? And what better gift for our readers than a year-end issue with two free CDs, six booklets and two CBTs, all served up with a beefy Digit containing a countdown of the best products of the year—the Zero1 Awards. Twenty-two pages of the best that technology has to offer of the year gone by, sifted from over 500 products that graced our Test Centre during 2002. Forty pages in Word peeled the skin off one very tired pair of hands, which swear they will never type again.

Marco D'Souza's mantle of Head Writer is a hard one to carry and is especially heavy when one has to analyse all the test databases of the year gone by, cross-check them and finally present them in jargon-free words. But there were far weightier problems than just the writing of the enormous cover story. Someone had to figure out how to put two CDs, two Fast Forwards, six booklets and one magazine together! Our designer, Ashwin, played tailor for the whole package, trying to find the perfect balance of stitching an

eye-catching design while keeping the assembly work involved for the production team in perspective. In the middle of it all, Vinit, our editor, decided to grow up and turn daddy to a little bundle of pink joy (so does this mean game CDs will make way for fluffy bunny rabbits?) Add to it the tortuous first month for our two new writers—Rachana and Srinivasan. They learnt the hard way that writing technology involves late nights, re-writes and editorial fights. Whew! Hope you all enjoy a fantastic Christmas! ☺





**GONE WITH THE WIND!**

**WOW! ➤**  
Can we have this as  
our New Year's gift?

**One for the desktop!**



Submitted by: Gaurav Mishra

**Congratulations  
on  
Uttaranchal Day**

**Pentium  
417 Ghz**

**Rs. 24900/-  
Only**

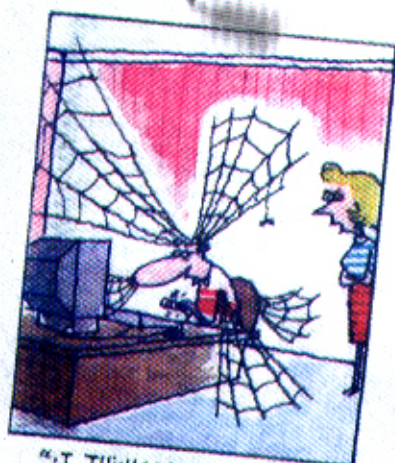


**Imperial(P)  
Enterprises**

**serving you better**

Zyberway Internet  
Connections Also available

**Just for Rs. 330/-**



"I THINK YOU'VE BEEN  
SPENDING ENTIRELY TOO  
MUCH TIME ONLINE!"

Submitted by: Nareesh

**W3 varsity**

Your Career Partner  
In e-learning

About Us | Software | e-learning | Courses | Affiliates | News

Welcome NetOnline Members

Subscription valid for 1 year with unlimited no. of s.

I. Beginners			10. Programming		
	Regular Price	Special Price		Regular Price	Special Price
1. Computer Basics	Rs. 1500/-	Rs. 1100/-	14. Programming Concepts	Rs. 2000/-	Rs. 1500/-
2. Windows 98	Rs. 1500/-	Rs. 1100/-	15. Java	Rs. 2000/-	Rs. 1500/-
3. Internet Basics	Rs. 1500/-	Rs. 1100/-	16. C++	Rs. 2000/-	Rs. 1500/-
4. MS Word	Rs. 2000/-	Rs. 1500/-	17. C# Programming	Rs. 2000/-	Rs. 1500/-
5. MS Excel	Rs. 2000/-	Rs. 1500/-	18. C++	Rs. 2000/-	Rs. 1500/-
6. MS Power Point	Rs. 1500/-	Rs. 1100/-	19. Core Java	Rs. 2000/-	Rs. 1500/-
II. Web Designing			20. Advanced Java	Rs. 2000/-	Rs. 1500/-
7. HTML Scripting	Rs. 600/-	Rs. 420/-	21. ASP	Rs. 1500/-	Rs. 1100/-
8. Dreamweaver 4	Rs. 1500/-	Rs. 1100/-	22. Visual Basic 6	Rs. 1200/-	Rs. 900/-
9. Flash 5	Rs. 1500/-	Rs. 1100/-	23. Dreamweaver 2000	Rs. 1500/-	Rs. 1100/-
10. Photoshop 6.0	Rs. 2000/-	Rs. 1500/-	V. COMBINED		
III. Desk Top Publishing				Regular Price	Special Price
11. Photoshop 6.0	Rs. 2000/-	Rs. 1500/-	24. Database Management	Rs. 2000/-	Rs. 1500/-
12. PageMaker 6.5	Rs. 600/-	Rs. 420/-	25. MS Access	Rs. 1000/-	Rs. 700/-
13. CorelDraw 8	Rs. 1500/-	Rs. 1100/-	26. MS SQL	Rs. 1000/-	Rs. 700/-
IV. Microsoft .net			27. Oracle 9i	Rs. 1500/-	Rs. 1100/-
14. JavaScript	Rs. 1500/-	Rs. 1100/-	28. ASP.net	Rs. 1500/-	Rs. 1100/-
15. ASP	Rs. 1500/-	Rs. 1100/-	29. VB.net	Rs. 1500/-	Rs. 1100/-
16. VB.net	Rs. 1500/-	Rs. 1100/-	30. C#	Rs. 1500/-	Rs. 1100/-

© 2001 W3 Varsity | E-learning | Desktop | Content

Copyright © 2001 W3 Varsity. All rights reserved.

Wonder who's going to fall for  
this "SPECIAL OFFER"?! ➤

Have you added Santa  
to your buddy list? ➤

**Your chance to  
bite back!**

Highlight the lighter side of computing. Mail your contributions to: Backbyte Digit, Plot D-222/2, TTC Industrial Area, MIDC, Shirvane, Nerul, Navi Mumbai 400 706 or e-mail us at backbyte@jasubhai.com.



Santa Claus  
has just signed in.

