



Demystifying DVD

How to find the best UPS

Rs 100 Subscriber Copy NOT FOR SALE

February 2002

www.thinkdigit.com

digit

>> Your Technology Navigator

The Best Software and dozens
of Secrets that ensure
ERROR-FREE CD authoring

burn session



PLUS

Learn how to Search Smart
How Instant Messaging Works
The Evolution of Gaming

 **Jasubhai**
DIGITAL MEDIA
International price: United States \$5

Pricing towards perfection



Karan Manral
Assistant Editor

"As long as most of the popular application software packages are priced way beyond the reach of the average computer user, piracy will continue to pose a problem"

Every new computer owner is confronted with a familiar problem. Where do I get the software that puts the hardware to work? The choice usually lies between purchasing the licensed version of, say, Adobe's Publishing collection for a whopping amount from an official vendor, or just asking your friendly neighbourhood computer-walla to give you a copy for Rs 200. The price we Indians pay for software has always been a touchy topic. Computer users could actually end up paying more for the software than for the entire PC itself if they were to buy licensed copies of each piece of software. Requesting someone else to make a copy is clearly the easier and more frequently exercised option.

Unlike hardware, games and even music CDs, which have become considerably cheaper over the years, software seems only to have grown more expensive. The latest version of Microsoft Office, for instance, costs a lot more than its predecessor. But most software vendors claim that the pricing for their software is fair and complain about the enormous loss of revenue they suffer due to piracy. While software companies look for ways to protect their software from being copied, they need to be aware that as long as prices are beyond the reach of the average computer user, piracy will continue to exist.

Major software vendors such as Microsoft and Adobe need to find a way to make software more affordable. One approach that might work in the Indian market—both for them and for computer users—is to make an older or basic version of the software available at a lower price for individuals. Most of us don't utilise a large number of the features that software such as Microsoft Office XP offers and can easily make do with the features available in Microsoft Office 2000. If this were made available at a lower price, more consumers would consider paying for licensed software.

However, most software vendors are sceptical about adopting this kind of a strategy because it is at odds with the industry's philosophy of charging a premium for every version update.

But without a change in approach, most professional application software will remain exorbitantly priced. Continuing to adopt this kind of short-sighted strategy will restrict the use of licensed software to a few commercial organisations and the majority of users will continue to look towards pirated copies as a solution.

Karan Manral

karan_manral@jasubhai.com

46

The Burning Session

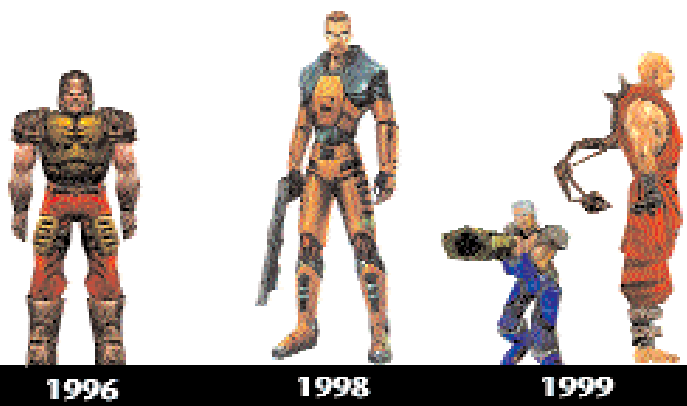
Selecting the ideal CD writing solution



124

Game'O'lution

Tracing the birth and growth of the gaming arena



38

Earning@Home

How to make money with your computer at home

97

Info Seek

Find a needle in the haystack. Learn how to search smart

60

The Evolution of E-mail

Make life simpler. Pick from this pack of feature packed e-mail clients

107

Get into the Groove

Transform your PC into a Digital Audio Station and keep on truckin'

92

Surviving a Disk Crash

Recovery tips that could save your day



INSIDE

FEATURES

- 28 The spotlight shines on Mouthshut.com
- 30 DVD goes mainstream but the debate on standards continues
- 42 10 Windows downloads that every PC user needs

TEST DRIVE

- 74 Agent 001's insights on buying the right UPS

INSIGHT

- 76 Pocket PC packs a punch. Learn what else a handheld can do
- 80 Discover what lies behind your instant messaging client
- 86 Maintenance tips on keeping your hardware ship-shape
- 88 Wonders with Word: Learn to use it as a page layout software

ARCADE

- 128 Tips to jive through Age of Empires
- 132 10 harmless computer pranks

30

DVD has a problem—there are five different standards. Which one is the best?

74

Secrets on how to buy the perfect UPS

46

The best CD writers lined up for a night-long burning session

92

Picking up the pieces after your hard disk crashes

38

Jingle the cash register in your home using the computer

80

Delving into the world of Instant Messaging

86

Your computer may not be as loved as your automobile, but it needs care too

REGULARS

NEWS FEED	14
LETTERS	26
DROOLMAAL	34
BAZAAR	68
QUICK START	100
Q & A	102
BOOKS AND CDs	130
WIDE ANGLE	132
DIGIT DIARY	136
BACKBYTE	138

To subscribe to Digit, fill out the subscription form available online at www.thinkdigit.com/subscribe

Reviewed this month

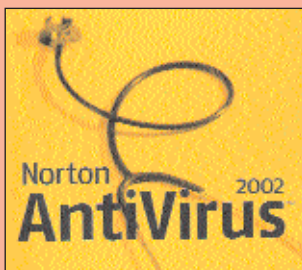
HARDWARE	68	Plextor PX-W2410TA
AOpen DVD-1648		Samsung SW-224 BRNS
Canon CanoScan N1240		Sony CRX175A1
HDD Sheriff 2000		Yamaha CRW-2200
IBM NetVista A22P		Yamaha CRW 3200E-VK
Labtech Pulse-424		Yamaha CRW 2100SX-VK
Logitech Cordless Freedom		Yamaha CRW 2200IX-VK
Napa DAV315		SOFTWARE
Soltek SL-85SD Motherboard		68
Sony CDU5211		Adobe Elements
CD-WRITERS	46	Coffeecup Firestarter 4.2
Acer CRW 1610A		DesktopX 1.0
Acer CRW 2010A		Easy Recovery Pro 5.0
Acer CRW 4406EU		Panda Antivirus Software
ASUS CRW-1610A		PowerArchiver v7.02
ASUS CRW-2410S		System Commander 7
Freecom Traveller CDRW Light		The Sluethound! Pro 3.2
Impulse CGD 161040		E-MAIL CLIENTS
Imomega CDRW9600INT-B		60
Kodak 4832e CD-RW		Eudora Mail 5.1
Krypton		Microsoft Outlook 2002
LG GCE-8160B		Netscape 6.2 (Messenger)
		Outlook Express 6
		The Bat! 1.53

Inside the CDs

Software

Norton AntiVirus 2002

Keep your PC virus-free with Norton's powerful virus detection capabilities. The AntiVirus suite comes equipped with updating and scanning technologies that secure your system against malicious code



PLUS

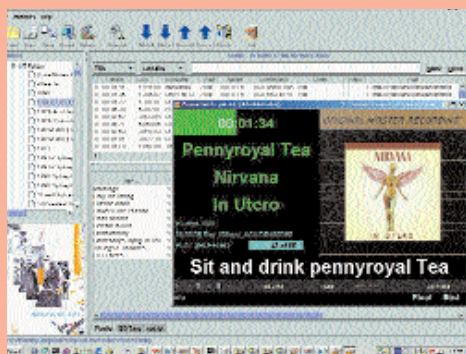
AviMail v1.62, Micro DVD 1.2, EasyOffice with PDF Factory 3.34, Nero Burning ROM 5.5.6.4

Special

MP3 Madness

PC Music Station

Organise, manage, and broadcast your collection of MP3 files with utilities such as Shoutcast Server DNAS 1.8.2 and Mp3 Organiser b.03



Newsletters

■ Tickle your funny bone with these humorous newsletters

Bookmarks

■ If you are looking to improve your photography skills, you might want to bookmark these sites

Test Drive

■ A range of CD-Writers and E-mail clients reviewed

Arena: Top Gun

Return to Castle Wolfenstein

Get into battle mode; be an allied soldier and fight to escape castle Wolfenstein as William Blazkowicz. Take on the sadistic schemes of the Nazis and save the world



Music

Let your hair down. Get groovy with StoneBone, Dj fuqeD and Ephemerid



Gallery

Add some spunk to your desktop with these sizzling wallpapers, 3D screensavers, themes, and skins



and Droolmaal..

Eye candy time for those obsessed with gadgets



www.thinkdigit.com



get your taste of digit online at <http://www.thinkdigit.com>

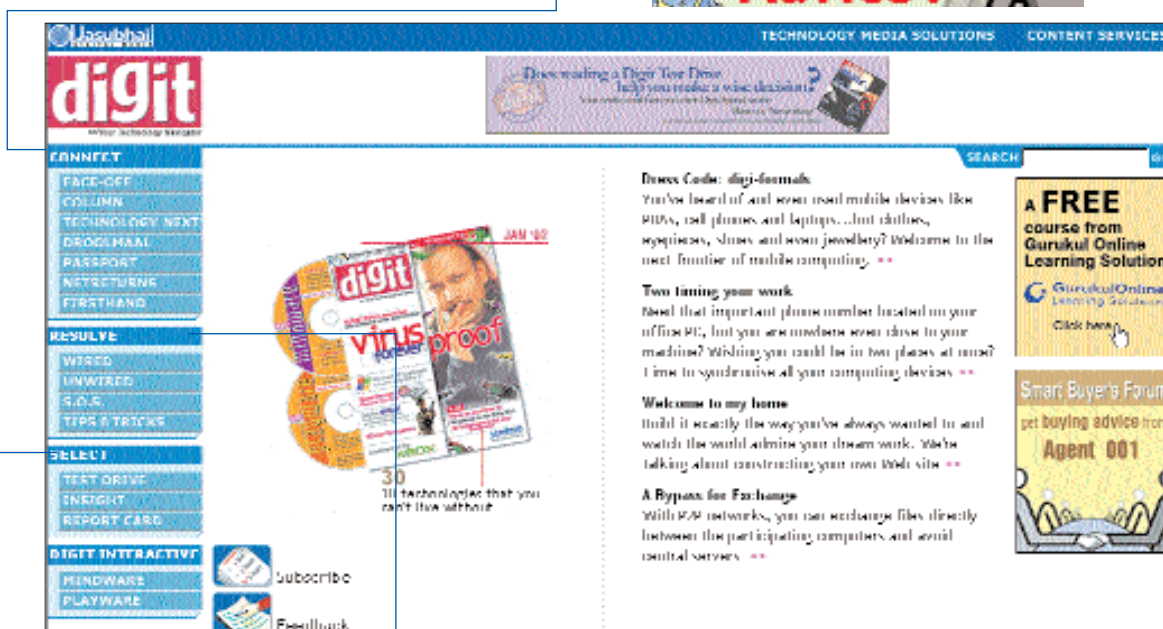
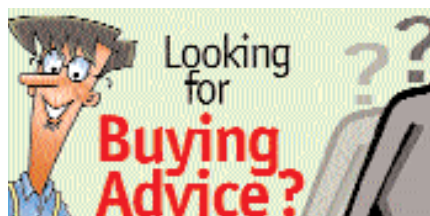
Reviews



Read about how the latest hardware and software performed in our tests

Forum

Need some tips on buying hardware or software? Get all the help from the man himself—Agent 001



Workshops



Seeking greater clarity? Go from amateur to pro with our workshops on computing tasks

Web Special



Pocket wonders
Trying to get more out of your handhelds? Check out these 10 downloads for Pocket PC devices

VOLUME 2, ISSUE 2

Chairman and Publisher

Jasu Shah

Associate Publisher and

Editor Maulik Jasubhai

Assistant Editor Karan Manral

Editorial

Writers Anil Patrick R., Sriram Sharma,

Vidyaramanan S., Avina Lobo,

Prashant Masrani

Features Editor Sveta Basraon

Copy Editors Anshul Chauhan,

Julian Vongeyer, Roopa Sukumaran

Design

Art Director Marshall Mascarenhas

Design Shivasankaran C. Pillai, Shyam

Shirsekhar, Jaya Shetty, Solomon Lewis,

Ashwin Boricha, Mahesh Benkar, Ram

Photographers Mexi Xavier, Jiten

Gandhi

Test Centre

Head Marco D'Souza

Deputy Head Hatim Kantawalla,

Reviewers Aliasgar Pardawala, Yatish

Suvarna, Mitul Mehta

Co-ordinator Gautami Chalke

Multimedia

Co-ordinator V. Ravi Shankar

Kabir Malkani, Jo-Ann Rodricks,

Priyamvada K.K., Liu Ai Chin, Vaibhav

Kapoor

Media Studio

Bimal Unnikrishnan, Priya Ramanathan,

Afzal Mazgaonkar, Prasanth Uyyul

Production

General Manager Shivshankar

Hiremath

Circulation and Logistics

Head Akhilesh Singh

Marketing

Brand Manager Louis D'Mello

Marketing Manager Bhavesh Thakor

Consumer Mktg Nabjeet Ganguli

Head Audience Development

Sarang Dash

Customer Service Namita Shetty

VP, Sales & Client Marketing

Sandip Maiti

Client Marketing Parag Prabhu

Ad Sales support Rakesh Rana

Cover Photo Colston Julian

assisted by Bajirao Pawar

Model Amrita Pednekar

HEAD OFFICE: EDITORIAL, MARKETING AND CUSTOMER SERVICE

Plot No D-222/2,

TTC Industrial Area, MIDC, Shirvane,

Nerul, Navi Mumbai 400 706

Phone: 022-7629191/9200

Fax: 022-7615225, 7629223/24

Printed and published by Jasu R. Shah

on behalf of Jasubhai Digital Media Pvt

Ltd, 26 Maker Chambers VI, 2nd Floor,

Nariman Point, Mumbai 400 021,

India.

Editor: Maulik Jasubhai

Printed at Tata Infomedia Limited,

Prabhadevi, Mumbai 400 025

Write Back

Got some feedback on the magazine or our companion Web site? Have something to say about an article we published?

We'd love to hear from you at

readersletters@jasubhai.com



Complaints about your missing copy?

Cover CD not working properly?

Need to renew your subscription?

Want to report a change in mailing address?

Want to order a back issue?

If you need assistance on any of these issues, contact our

offices listed below or e-mail Customer Service at

help@jasubhai.com

Pager: 9624-329229 (Pune, Hyderabad and Bangalore)



Get Featured

PRODUCT TESTING

Want your product reviewed by Digit? Contact our Test Centre at

testcentre@jasubhai.com

SOFTWARE ON CD

To submit software for inclusion in the Digit Interactive CDs, contact us at

cdcontent@jasubhai.com



Endorsements

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

parag_prabhu@jasubhai.com



To Advertise

CONTACT OUR BRANCH OFFICES

BANGALORE

S. Saikumar

Raghu Pillai

Phone: +91 80

5325670/88, 2899287

Tele-Fax: +91 80

5098717

CALCUTTA

Jayanta Bhattacharya

Phone: +91 33

2822183, 2827842,

2828016

Fax: +91 33 2827673

CHENNAI

Jayesh George

Phone: +91 44

8235186-89

Fax: +91 44 8230731

MUMBAI

Rupesh Sreedharan

Phone: +91 22

6591849-50, 6591651

Fax: +91 22 6591592

NEW DELHI

Vijay Adhikari

Rajesh Arora

Phone: +91 11

6445320-25

Fax: +91 11 6445321

PUNE

Vinayak Inamdar

Phone: +91 20

4482059, 4494572

Tele-Fax: +91 20

4482059

ADVERTISERS' INDEX

CLIENTPAGE

Aditya InfotechInside Back

Cover

Base Corporation18,19

Best IT World73

Canon21

C-DAC9

Compass 2002133

Creative25

Elnova106

Hindustan Times101

Imation23

Intel4,5

InvensysBack Cover

Karma53

Kobian15

Maxtor93

Micro Star International45

Microboards49

Monarch Video Vision81

Numeric PowerInside Front

SystemsCover

Penram Publication79

Rashi Peripherals41

Sparr Electronics59

Our 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.

news feed

DIGIT FEBRUARY 2002

hypothesis

HomeStation

■ What is it?

HomeStation is a multifunction consumer appliance rumoured to be from Microsoft. It is believed to be based on the Xbox design. Microsoft is yet to confirm this.

■ What does it offer?

This home device is said to handle almost everything that a typical PC user needs. It will have features such as e-mail and Web browsing capabilities. HomeStation boasts of digital video recording, DVD capability, etc.

■ When will it see the light of day?

Rumour has it that HomeStation will hit the market by the middle of 2002.

snapshot

483 million wireless devices will be sold in 2003
One-third of the world's population will own a wireless device by **2008**

Source: www.cyberatlas.com

iMacs go flat



Apple recently unveiled their latest flat-panel equipped iMac desktops. The PowerMacs had already made the move to LCD displays earlier in 2001. From Apple's perspective this marks the death of the CRT display.

The new iMac will be offered in 700 MHz and 800 MHz PowerPC G4 processor based versions. All the new variants

have 32 MB nVidia GeForce2 MX graphics cards, five USB ports and a couple of FireWire ports. The drives on these are either a DVD-recorder, a combo CD-RW/DVD-player, or a regular CD-RW drive. The top end version is really impressive, with an 800 MHz G4 processor, 256 MB of RAM, a 60 GB hard drive and a DVD-recording drive.

Looks like innovation still lives at Apple.

Blush and you're caught!

Man is the only creature that blushes, or needs to, said Mark Twain. If blushing can be taken as an index of lying, then liars are in trouble indeed.

Researchers at Mayo clinic in Minnesota in the US have developed a high-definition thermal imaging camera which scans the face of the person who's being interrogated.

It has been proved that when people lie, blood tends to rush to the eye area. This movement is caught by the camera and often proves decisive in nabbing criminals at check-in counters at airports, in courtrooms, and so on.



ILLUSTRATIONS: Mahesh Benkar

The test results are pretty impressive—up to 75 per cent of the guilty people were caught red-handed. This camera is much more faster and easier to use than other methods like Polygraph tests which are used nowadays. How will the liars (and criminals) avoid this one?

Distributed computing fights anthrax

Does your PC have spare processing power? If so, donate some of it for an anthrax cure.

That's what Intel and Microsoft's new distributed computing initiative is all about. It will help British researchers analyse 3.5 billion molecules for a cure to protect anthrax patients from late-stage toxins. Antibiotics have no effect against these toxins.

Distributed computing uses a worldwide volunteer network of computers to do work that would otherwise require supercomputers. The user downloads a program, which allots unused processing power for data crunching. Results are then sent to the project sponsor.

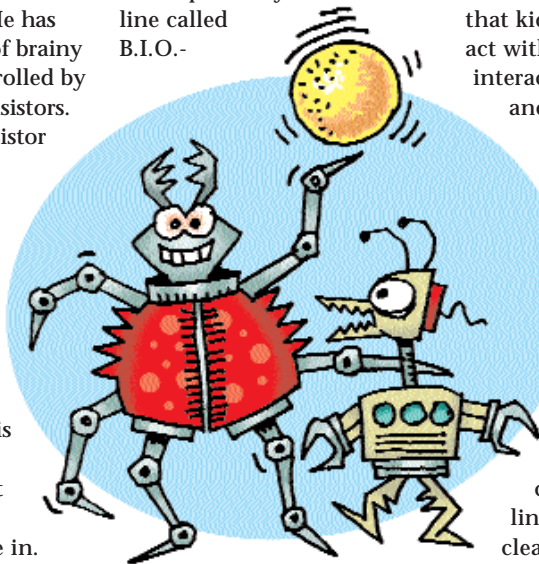
■ Intel names Paul Otellini as president & COO ■ Experts predict mass-mailing viruses in 2002 ■ KaZaA suspends downloads pending Dutch court ruling

A bug's life?

Do robots really need computers inside them? Mark Tilden of Los Alamos says no. He has just created a bunch of brainy 'bugs' which are controlled by a combination of transistors. By changing the transistor combinations, the behaviour of the bugs can be changed as the user wants it to behave.

The speciality of Tilden's bugs is that they can be trained. A technique called biomorphic robotics is used inside the bugs, making them interact and learn with the environment they are in.

The toy giant Hasbro attracted by this feature, developed a toy line called B.I.O.-



Bugs, which is inspired by Tilden's work. The USP behind this range of toys is that kids can actually interact with them. The bugs can interact with each other too, and what's more, if a kid gets bored with the robots' behaviour, all he or she needs to do is change the combinations to make the bug behave in the desired manner.

If you think this is neat, just wait till Tilden comes out with his line of robotic vacuum cleaners!

redalert

Suffer this Trojan

This Trojan's sure going to make you suffer if you get it. If you run this Trojan, it displays a black box with the word 'suffer...' flashing in it. Each time it flashes, your PC's CD-ROM drive will open and close. Placing the mouse pointer over the window gives a message saying, 'you've been caught slippin'. It also swaps mouse buttons, changes your PC's name to a rude one, disables the [Ctrl] + [Alt] + [Del] combination, etc. The Trojan degrades system performance. And you will most probably require a cold reboot, since the system will stop responding.

Trojan Tux

RST.b is a remote shell Trojan (RST) which attacks Linux machines. This is a variant of the RST Trojan, discovered last September.

RST.b creates a backdoor on the computers it infects. Remote attackers can get full control of the computer through this backdoor. It also connects to the remote server and tries to retrieve a file located there. This file has the message, 'This account has been terminated for virus abuse. We are a free Web hosting company and anyone may post or create PHP files. This machine has NOT been compromised.'

The Trojan's code contains self-replicating capabilities. This allows the Trojan to replicate itself to other binary files on the PC like a virus. However, there is lesser risk than on other OSs since Linux has defined access privileges for each user and it can only infect that particular user's access areas.

Backdoor man

If you think all that music you've been downloading from the Web is absolutely free with no strings attached, think again! It has been discovered that things are not so hunky-dory with file sharing programs. These file-sharing programs open your PC to anyone on the Net, specially making it vulnerable due to the spyware used in them.



Experts have found that



popular fire sharing programs such as Limewire and Grokster carry spyware. Spyware in advertising software such as 'Clicktilluwin'

has programs such as W32.DIDer, which is classified by Symantec as a Trojan horse. Trojan horses allow other people to take over your PC and do whatever they want to. There are reports of similar problems with the KaZaA Media Desktop as well.

Limewire and Grokster have removed or provided fixes to remove the programs. But it remains to be seen as to what they will come up with next to get hold of your PC again. As for now, trust a good anti virus program to protect you while using all these file-sharing programs. After all, there's no such thing as a free lunch, right?

A lobster's sniff

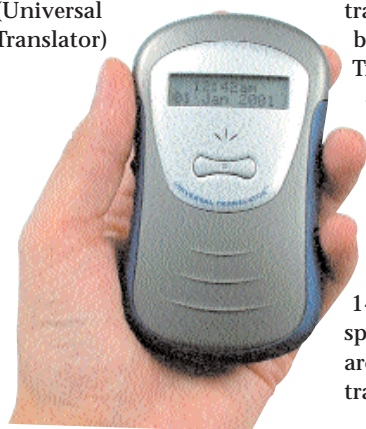
Science has always sought inspiration from the master of design—nature. The University of Colorado is also taking the same route in an attempt to develop teams of 'sniffer' robots to sniff out mines. Lobsters have an exceptional ability to analyse odours.

The research is aimed at developing a team of sniffer robots to be used on land and sea to detect mines. These robots will have artificial snouts based on the lobster's skills. Odours are carried downstream or along the wind by chemical plumes. Lobsters are wizards at tracing these plumes to the source, even in troubled waters.

Mass produced mines leak TNT. This leakage can be used to trace the mines.

A universal translator

“Approaching unknown territory. Switch on universal translators.” No, this is not a message from *Star Trek*. If the UT-103 (Universal Translator)



delivers what it promises, this just might be reality—sooner than you expected it to be!

Ectaco, a leading company which specialises in translation devices, is behind the Universal Translator. This 2.5-inch by 4.4-inch handheld can take phrases in English and convert it into French, German or Spanish as the user wants. All that the user has to do is first select one from the 14 available categories of speech. Categories available are everyday conversation, travel, local transportation,

health, sports, etc. UT-103 uses these categories to provide the appropriate translation of a phrase. It will then display the English phrases you give it and its translations on an LCD screen. In case the translations are somewhat confusing or seem wrong, the user just needs to change the category of speech to another similar category. Ectaco typically recognises 9 out of 10 phrases. Not bad, huh?

It has a Toshiba 75 MHz processor with 36 hours of operation on two AA batteries. Is this the way we will communicate with ETs?

Cyber yogi

I want to do yoga, but where is the class—or the time? If you face similar problems, it's time you utilised the Internet. It's quite possible to practice yoga with your guru who's in New York and the rest of your class scattered all over the world. Video and audio are streamed live from the classes right to your computer. You need to have a high-speed connection like cable or DSL though.

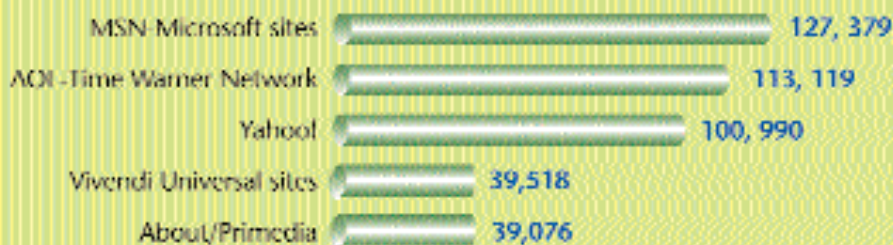
New York Yoga from Manhattan is offering this service; the first and only live online yoga class according to them. You need to shell out approximately Rs 300 for getting the service. Meditative?

statattack

Time Spent by an Internet User on Different Media (%)



Top 5 Online Properties



INFOGRAPHICS: Jaya Shetty



heroes

GPRS

■ BPL launches its GPRS service in Mumbai. The first Indian GPRS network to allow wireless Net access. GTA III

■ The very popular and much hated *Grand Theft Auto III* game available only for PlayStation 2 is getting the PC flavour finally in April. VIA

■ Intel wins court case filed against it. Expect DDR-based motherboard chipsets for Pentium 4.



zeroes

Jeff Mallett

■ President and Chief Operating Officer, Yahoo! has announced plans to resign.

Pen-tablet PCs

■ Sony seems to have finally given up on these miniatures.

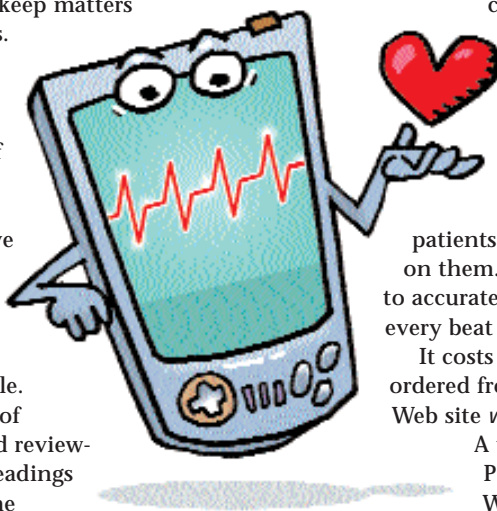
PDA—Portable Diagnostic Assistant?

PDA owners usually keep matters close to their hearts.

This may be true in more ways than one. Palm owners can actually monitor the health of their heart using ActiveECG.

ActiveECG from Active Corporation is a Palm-controlled heart-monitoring device. It can be connected to a Palm PDA through a serial cable.

The device is capable of recording, displaying and reviewing ECG signals. These readings can be used to analyse the heart's condition, either by the patient himself or by a doctor. The patient



can even e-mail recorded data to a doctor for analysis.

The small device has features for monitoring pacemakers. This will be of great use to

patients who have pacemakers on them. Doctors will be able to accurately track each and every beat of the heart.

It costs \$500 and can be ordered from the company's Web site www.activecompany.com.

A version for Windows PCs is also in the offing. Whosoever thinks PDAs are playthings needs to

take a serious look at this.

Hic! One more beer

This is one watch that all party hoppers are going to love. Its speciality lies in guiding the wearer to the nearest pub. Geeks at Bristol University are the ones who are working on this pub finder. It is basically a wearable computer which guides the user to the nearest pub using global positioning. It even provides a description of the pub. If you don't like it, you can always get the watch to guide you to another one! Pub hopping is sure going places, isn't it?

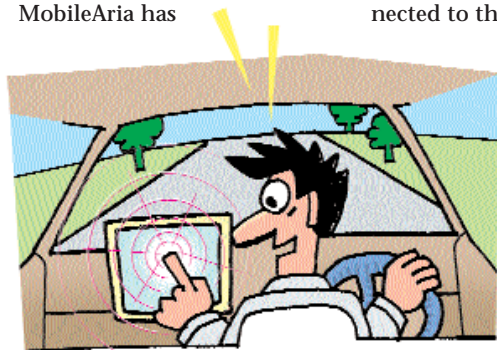


Source: www.cyberatlas.com

Wired cars

Almost everyone's been talking of the day when cars can hook up to the Net, the day when we can check our e-mail or chat seated inside a car. That day is coming closer. A company called MobileAria has

ware that provides hands-free computing. You'll need a laptop, a microphone, speakers, GPS, and a Bluetooth-enabled phone. All that you need to use then are voice commands and a small thumb controller connected to the steering.



installed a computer and an Internet connection in a car with a voice-powered soft-

2002. Mobile Internet is poised to take on a whole new meaning.

MobileAria plans to make this service available throughout the US by partnering with Cingular wireless and Verizon somewhere in the first quarter of

Disposable technology gets hot

Imagine a cell phone which you can throw away when the card runs out. This is not a new concept. The difference is that this phone uses your local phone line's number for making and receiving calls. It can be recycled when you are done with the air time—another big difference from other disposables. Club in a 'travel fun kit' with the phone and a disposable camera and you have the perfect mobile phone recipe called 'Cyclone'.

Developed by a Florida-based start-up called New Horizons Technology and launched in the US, this phone will give 60 minutes of nationwide airtime

to US citizens. Users can either buy airtime or return the phone for recycling to get a rebate.

The best part of the phone is that there are no roaming or long distance charges. Indians will surely love to see the end of Orange and BPL's exorbitant "roaming" charges!

Combined with the eco-friendly disposable nature of the phone, this is a gadget all environment lovers will definitely place their bet on.



surge in 2001 ■ MS credits XP, Xbox for record sales ■ U.K. considers opt-in cookie rule ■ Macromedia updates Director 8.5, Shockwave ■ Studios nearing

Blowin' with the teens

MTV's focus goes where the teen winds blow. The music channel is planning to capitalise on the teenage fascination with music and computers by launching two products—an MP3 player which can hold up to 11 hours of music and a PC packed with all the goodies that teenagers could possibly need. The MP3 player, which can also record and store music, is developed by MTV with DataPlay. It makes use of a new kind of disc drive developed by DataPlay—it can hold up to 500 MB of music.

MTV's teen PC is on a grander scale though. The Athlon-powered PC will have a flat-panel display, boast 'essential' tools such as CD-RW and DVD burners, and will come with a built-in radio, TV tuners, etc. MTV plans to position it in the \$1,800 segment, which is comparable to an AMD-powered high-end PC from Compaq. No teenybopper tune this.

Fabric keyboards

If SMS has given you sprained fingers, don't worry. A new fabric keyboard will help you out. This lightweight keyboard can be folded or stuffed into a pocket like a handkerchief, crumpled and, guess what, even washed like a fabric.

UK-based ElekSen is the company behind these fabric keyboards which are meant for use with mobile devices such as handhelds and cell

phones. A fabric keyboard designed specifically for PDAs is about to be launched in spring 2002. Plans are also afoot to release a lightweight mobile handset.

Bendable screens and keyboards are not a new concept, especially for mobile devices. Royal Philips Electronics is working on an 'electronic paper' for mobile phones and PDAs. This

rollable paper uses flexible energy-efficient polymer-based electronics.

Experts say these devices will be mass-produced in as soon as five years.



Philips refuses to play along

The recording industry wants you to stop sharing music so badly, that it hopes to physically prevent computer users from ripping audio CDs. A new breed of CDs has dawned, making them impossible to be read by PC-based CD drives.

This new controversial technology introduces small, physically minute errors in CDs. Though such errors can be corrected and compensat-

ed for in conventional CD players, unforgiving PC drives will have problems reading the media. Because of the sheer variety of installed CD players around the world, incompatibility issues are already cropping up.

Natalie Imbruglia's 'White Lilies Island' is already facing a number of returns on the grounds of CD players not being able to read it.

Philips, the co-creator of the CD is refusing to play along. The company has advised record labels to inform consumers that copy-protected CDs are in fact, not CDs at all and to issue suitable warnings. Since Philips owns the CD trademark, music labels would be barred from stamping the logo on each protected CD they make.

tomorrow's technology

The fourth force

How many people have had enough of GeForce3? Well, just in case you happen to be one of those ambitious folks, nVidia is announcing its latest graphics chip on February 5, 2002—the GeForce4.

The GPU (Graphics Processing Unit) code-named NV25 is closer to the processor that nVidia made for use in the Microsoft Xbox.

A desktop version of the chip, code-named NV17,

which was available only in the mobile version earlier, will also accompany the NV25. It sure is something to look forward to.

It is rumoured that the NV25 was originally scheduled to be out at the Consumer Electronics Show (CES) at Las Vegas in January, 2002. But nVidia apparently could not make it on schedule and pushed the date to February. Not surprising,



considering that nVidia aims at making the GF4 a lot more

powerful than the GF3. It is said to have six pixel lines as compared to GF3's four pipelines. Other goodies available in the NV25 are higher clock speeds, faster memory interfaces and improved antialiasing capabilities. So still in love your GeForce3? A pity that you have to upgrade it even before you could get to use it fully!

followup

Ginger—original or copied?

Fantatising about Segway's self-balancing scooter, Ginger, that we covered in the January issue? It is not so smooth sailing for Ginger aka 'Segway Human Transporter'. The speed breaker in Ginger's path comes from Japan.



Kazuo Yamafuji, a robotics professor from Tokyo's University of Telecommunications claims that he developed an almost identical machine 15 years ago. He even got a patent for it in 1996. It may not be a major problem for Dean Kamen to sell the

scooter, but he may have problems selling it in Japan. That's missing out on a very lucrative market for Segway.

Yamaguchi claims that the basic principles in his 'parallel bicycle' and Segway are the same. Both use a microprocessor to detect minute shifts in balance. This keeps the scooter upright on two wheels. He also holds a patent for a similar four-wheeled version.

BUGGED PLAYERS

That innocent looking Windows Media Player (WMP) on your PC might be allowing Web sites to keep track of your habits. The bug preys on users of Internet Explorer 6 and older versions of Netscape that use the WMP plug in. Web site operators can actually pull off a default serial number generated by WMP using a client-ID request. This serial number remains the same for every browser session that you have. It can be sent back to the site to track your habits. All this can be done using a simple block of code from the Web site operator's end. Termed 'SuperCookie' by security experts, it can be disabled by turning off Javascript or by removing WMP. An updated WMP has also been launched by Microsoft, which allows this feature to be turned off.

realitybites

"Software makers should be punished for products with bad security"

National Academy of Sciences (NAS) panel suggesting that the US Congress should make it easier to punish companies making insecure software

Microsoft got the hint:

"Our new design approaches the need to dramatically reduce the number of such (security) issues"

Bill Gates in a memo to his employees

AOL-Time Warner eyeing Red Hat

AOL, the media giant, is planning to acquire Red Hat Inc, the distributor of the popular Linux OS. With a mighty 33 million Internet subscriber base, AOL is planning to package its AOL Internet software with Red Hat's operating system to fight against the Redmond Giant.

With the acquisition of Red Hat, AOL plans to make disruptive inroads into the

Microsoft OS business. AOL has been counteracting Microsoft's plans in many ways including enhancing their Netscape browser to fight MS's Internet Explorer. Netscape technology was also implemented in the tabletop Internet terminal from Gateway Inc and Sony's PlayStation 2. Linux has a fairly bad desktop user market due to the high technical skill level

it requires for setup, but it is immensely popular among the 'techie' crowd. The merger plans to strike at the roots of Microsoft's dominance in the desktop OS market. AOL is planning to achieve a reasonable OS market share by providing simpler, easier and cheaper versions of the OS to its consumers bundled with the famous AOL Internet software.

Linux hits the road

Linux and Windows are at it again. The two adversaries have fought many battles in the past with the first frontier being servers, an area where Linux has stayed ahead. The next clash was for supremacy for the desktop. But here Microsoft reigns supreme despite several challenges from Linux over the past several years.

That makes the scoreboard stand at 1-1 (arguably) if you are keeping a watch on that.

With the introduction of

handheld computers that use a stripped down version of Linux, Microsoft now faces a new challenge to that platform in addition to the already strong competition from Palm. If it's as good as it sounds, Pocket PC is going to be sweating bullets. Like its rival, the Linux PDA is capable of running feature-rich applica-



tions in colour. If you have ever felt the Linux platform to be obscure, the mobile version might very well make you think otherwise.

So the million dollar question now is: who will score next?

The unfriendly penguin?

Dear Karan

I find your editorial in the January issue quite shocking. Please allow me to explain. You have mentioned that Linux is not user-friendly! While this might be true for certain distributions, this definitely does not apply to Mandrake, SuSE and others. There are several other things that need to be considered, such as all the bundled applications—office suites, development tools and even games—that accompany these flavours. Even Windows XP doesn't give you many of these applications. And Linux is friendlier when it comes to working on other OSes. While XP might be an improvement compared to earlier versions of Windows, it comes with its own baggage of bugs and away newcomers from Linux by describing it as an unfriendly OS. Linux is something that they can find interesting and useful if they give it some time. And you guys would do both Linux and the common man a favour by carrying a Linux distribution on your CD like you have done in the past.

DINKAR

Via e-mail



Shifting OSS

Dear Sir,

Thanks for the comprehensive article on Windows XP. The article was quite detailed and touched almost every aspect of the new OS. However you missed out on the most essential part—the installation of Windows XP—that is, the hardware device drivers' compatibility issues of XP. You seemed to have written the article only for people buying new branded computers which will come with Windows XP preloaded. There was no mention of the scenarios that a person may encounter if he decides to switch from an existing Windows 98/Me installation to XP.

I hope that my suggestions will be incorporated in future issues of Digit.

ANURAG JAITLEY

Via e-mail

digit

Dear Anurag,

The reason that we haven't discussed any driver compatibility issues when it comes to XP is because we haven't yet faced any major problems due to it. During the fresh installations of Windows XP on our test machines, all the hardware was detected easily and without any glitches whatsoever. Most mainstream hardware manufacturers have already made Windows XP drivers available, which should ensure that problems will occur only with older hardware for which driver updates are no longer available.

digit

Dinkar,

If Linux wants to become popular, it has to become easier to use for the majority of computer users. The statement, if you really love Linux you will learn how to use the command prompt, just doesn't wash. People use what they are comfortable with, and Windows is still the easiest OS to get comfortable with.

Windows 95 was an improvement over Windows 3.11 when it came to usability. While

installation and configuration is considerably simpler now, there is still much that needs to be done. Windows XP is a step ahead in usability and none of the Linux distributions approach that level yet. The advantage Linux has over Windows in features will, hopefully, be matched by innovations in the area of user interface. The sooner this happens, the greater the chances of Linux being of wider appeal to desktop computer users.

Is Microsoft really the bad guy?

Hey Karan,

Perhaps the title of your editorial 'Is Microsoft's domination really unjust?' should be 'Doesn't Linux need another chance?'. We have the choice to say no to Microsoft. The fact is the same people who ridicule Microsoft and call it a dictator go back to their desktops and boot up MS Windows. Besides, is Linux giving developers what they need? Does Linux give us a 'Visual Basic' to write easy-code and create GUIs in a snap? Does it give us the customisation of VBA to customise our applications? As for 'not-many-applications'—the real developers in the world know what's better and that's why they're not making Linux versions of their software even when they're creating Mac editions! Hiding behind 'excuses' is not going to get you guys through.

DAX PANDHI

Via e-mail

digit

Dear Dax,

While the popularity of operating systems with developers is important, developers build products on a platform for which there exists some demand from end-users. Consumers who pay for the products developed determine the popularity of an OS. But your observation that Microsoft provides a better set of development tools than Linux are right. As far as our criticism of Microsoft is concerned, we think that aiming for domination is quite all right. We do not count ourselves amongst the Anti-Microsoft brigade and criticism is restricted to areas where the quality of their products falls short. I am sure that is fair.

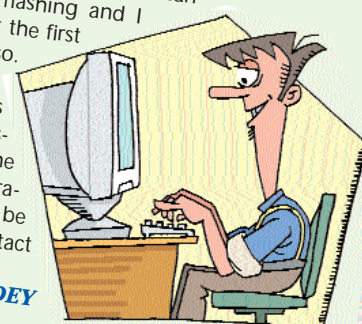
Calling Agent 001

Dear Karan,

You guys have done a great job. The January issue was smashing and I know that I'm not the first or only one to say so. I liked everything—the articles on games, processors test and even the graphics and illustrations. Digit would be nicer if we could contact Agent 001 via e-mail.

JAYANTA KUMAR DEY

Via e-mail



digit

Dear Jayanta,

You can ask Agent 001 your questions by visiting our Smart Buyer's Form at www.thinkdigit.com/forums. Just register at the site and you will get the buying advice you need.

To go open-source or not?

Dear Karan,
The January 2002 issue of Digit was extremely interesting and useful. But, what caught my eye was Varun's letter in the Letters section and your response to it. I am still not convinced by your reply.

The remedy you suggested (of using open-source software) is not that simple to implement. Why would I want to use Gnome-editor to make my resume, when my potential employer runs MS-Office XP? Sure, there is conversion software etc, but he would first open my competitor's CV, which has been developed in MS Office 2000. So I

lose the race in the first step itself! Any user, when he chooses software, not only has to consider his requirements and capability, but also external entities and compatibility related issues that may crop up.

Don't get me wrong. I am not at all in favour of piracy. I am against the attitude of software giants, who initially create worldwide standards by being pro-user, then use these to dictate their own terms. This is as unrealistic in a cost-conscious society as petrol being costlier than the car it runs.

S. BALGURU
Via e-mail

digit

Hi,

When you say that application software that are sold today are overpriced, you are right. Forking out Rs 20,000 for the latest version of Microsoft Office might make little sense for a person who only occasionally needs to type out a few documents at home.

But when you claim that piracy is the only option available to you because no reasonable alternative exists you are mistaken.

Other office suites from Lotus and Corel have been around for years and offer a comparable feature set at a fraction of the price. You can get a license for Lotus Smart Suite Millennium edition for about Rs 6,000.

In addition to these 'commercial' products, you also have the choice of using WordPad (free with windows) which can be used to create a pretty spiffy resume.

And each of the free/commercial alternatives (like Star Office) also allow you to save your resume as an RTF (Rich Text) document which is a long established standard supported by every word processor that I can remember, including Microsoft Word.

The point is that alternatives do exist. They might not be exactly what you want, and might lack some features that you want, but they are out there.

Don't like no Quake!

Dear Digit,

Your January issue was great, except for one article—'15 essentials for a diehard gamer'. In this article you've named only a bunch of violent games (with the exception of Need For Speed 4 and Tetris). There are many gamers like me who prefer sports or simulations. Any such list you make in the future should include games that can be played by all age groups.

ANIRBAN CHATTOPADHYAY
Via e-mail

digit

Dear Anirban,

The games that we included were the ones that we found relevant to our time and age. While every genre has its own set of followers, action games are favoured by the majority of PC gamers. If you were to try and list the most innovative titles today, they would largely be 3D accelerated action games. The most anticipated PC titles in 2002 are Unreal II and DOOM III. The simulation and

sports genres on the other hand have been stagnating in both numbers and innovation for the last few years. They offer little beyond minimal cosmetic upgrades and updated team rosters (in the case of sports games). Yes, we didn't have too many sports titles, simulations or adventure games in our listing. Perhaps, if we had a Top 30 games list, you would have seen some of your favourite titles.

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

Goof Ups

■ Software missing in action! The CD cover of the January 2002 issue of Digit mentions Ulead Cool 3D 3.5 as one of the software in the multimedia section. But we failed to actually carry it. Our apologies for the inconvenience caused. Thanks Vijay Samuel, for pointing this out to us.

■ Our apologies. In the Zero1 awards featured in the December 2001 issue of Digit, we printed the price of the Maxtor D540X 80 GB hard disk as Rs 4,490. It stands at Rs 11,500.

Notice any goof-ups? Write to goof@jasubhai.com

Short Bytes

Guns and Roses

Wow! What an interesting and gripping January 2002 issue of Digit. The software collection on the CD was excellent, as was the Hands-On tutorial on 'Speeding up and upgrading your PC'. I could easily spend a couple of months, nay a full year even, trying to digest all the information in the magazine. My heartiest congratulations, and at the same time apologies for using so many superlatives but there was no other way to describe your mammoth effort.

ANIL SARWAL
Via e-mail

Hi,

First of all, congratulations on another superb issue of Digit. How do you manage this guys? I barely manage to get our college magazine out on time, and quality is another thing. What motivates you people?

Could you include Counterstrike v1.3 on your next CD?

KRISHNA KUMAR
Via e-mail

Telling Tales

Mouthshut.com—an Indian community site—has survived the dotcom doldrums with the support of a loyal community. Faisal Farooqui tells us how



Faisal Farooqui
CEO, MOUTHSHUT.COM

A strong and active online community that supports your Web site during the best of times and the worst is a CEO's dream come true. That's precisely what Faisal Farooqui, CEO of Mouthshut.com, is experiencing.

Mouthshut, a popular consumer reviews site, made a quiet debut in September 2000 without the usual fanfare that accompanied dotcom launches. Slowly but steadily it gained in popularity. But even more popular was its scheme of awarding MS (Mouthshut) points for every interaction on the site, from writing reviews to reading, commenting and rating reviews written by other members. These points could be redeemed for cash. This party however had to come to an end. "We had to make a decision in the best interests of the business that we would not be able to redeem MS points after December 31, 2001," says Farooqui. Following

tag as they had complete control over the system as compared to if they had outsourced the technology and then spent a lot on fixes and upgrades.

Farooqui believes Mouthshut meets the expectations of people because it concentrates on building a product that is "less frills, more value". One instance is, every reviewer can create a profile and interact with other users through the community centre. The 'Trusted Circle' system (which Farooqui plans to patent) allows users to either trust or distrust a review. So if a person has been consistently sending in negative reviews, other users can decide to distrust them and the system filters his reviews out. This ensures that no one can simply log on to Mouthshut and write just about anything about a product.

This CEO reckons that another reason for the strong support for the site is the complete transparency in the way they function, and in their communication with their users. Reviewers at Mouthshut are free to write reviews without editorial intervention except in cases where there is usage of foul language or if the review breaks the terms of agreement of the site. There's also an 'MS Site Status' that informs surfers if the internal e-mail systems are slow on a particular day or if a particular section isn't functioning properly.

His 'Dial the CEO' is an exercise where he takes calls from users who can give their opinion about and advice for improving this dotcom. Farooqui believes this is why people respect the reviews at Mouthshut and keep coming back to it. "Consumers understand that for a good product to stay around it's important for it to stay afloat and earn money, hence it's not possible for us to keep paying."

Farooqui is optimistic that things will look up in another six months and plans to introduce online surveys and complaint modules that will enable users to communicate complaints about a product or a service. He would like to position Mouthshut as the voice of the consumer. "Mouthshut will remain free as long as the Internet is around. That is a commitment we've made to our consumers—they will not have to pay to read reviews." Going by its track record, we can safely assume Mouthshut will keep its word. ■

AVINA LOBO

Both the traffic and the quality of reviews increased—this was despite our decision to stop paying reviewers

the announcement in December, he expected traffic to drop and user activity on the site to be badly hit.

Surprisingly enough, that wasn't the case. Traffic increased and people continued to post reviews, with the quality of the reviews beginning to improve. "We've even had new registrations on Mouthshut and support has emerged not just from users but other dotcoms such as Shubhyatra.com and prizes2b1.com who have offered to pitch in by running contests for us on their site," adds Farooqui.

So what was Farooqui and his team's special touch? Nothing spectacular, actually. They did not spend large amounts of money on high profile marketing and hiring a huge staff like several other sites. They focused on creating good visual appeal and building a robust technology platform in-house. Although this took time to get up and running, it finally worked to their advan-

DVD

Divided

DVD writers are going to define the future of storage. But is the confusion with standards going to get in the way?

In less than 50 years, drastic improvements have been made in the area of storage. Perhaps not drastic but radical, for today information flows smoothly in gigabytes across computers and networks. Thanks to space-hogging applications, music, movies, and immense data, today we are embarrassed to own up a 10 GB hard drive in a conversation. Enough just isn't enough anymore.

The most popular means to store data outside the hard disk is still the trusty old CD-ROM, which is packed with all of 650 MB of storage space. However, technology is relative—what's good enough for me might not be good enough for you. Yet, we are all users of technology, sharers, an audience that spends countless waking hours in front of computers. And in spite of the apparent information overload, we have learned to gather what's best from the digital jungle. So one thing becomes clear: the need for a safer place to store all that information. As the digital world turns its audience hungrier for information, data sees itself spilling over to a totally different format—a format which is more versatile than the CD-ROM and which stores much more. Enter DVD, with all its versatility and definitions.

Sure, DVD in itself isn't exactly new. Actually, the word DVD doesn't correlate to something tangible. Instead, it is a term representing a set of industry standards that describe how data is accessed and alternatively, how data is written onto a particular medium. In the case of DVD, the medium is the Digital Versatile Disk.

The store age

The fact that you may currently have at least 650 MB of digital canvas at your fingertips is great,

but quite honestly, storage isn't what it used to be. Anyone who's been compelled to back up their data on CD stacks that reach the roof knows what we're talking about. Not to mention the pain of managing such a collection.

When the CD-Writer made its debut in 1997, it seemed as though the entire world could be backed up on just a couple of discs. A 2.1 GB hard disk was considered spacious by anyone's standard and aside from the prohibitive cost of CD-Writers at that time, 650 MB really made a lot of sense.

But now with hard drives going beyond the 100 GB barrier, not only does a 40 GB drive look like an old timer, but the backup solution, the CD-Writer, begins to show its wrinkles too. While CD-RW media delivers a standard 650 MB of storage space, some discs push it to 800 MB. A DVD disc holds a payload of 4.7 GB on a single side. If you have a double DVD media, it can dispense a peak of 9.4 GB! That's over 14 times the capacity of regular CD-R media. Do things sound better now?

CD-RW is expected to dominate the consumer removable storage market for at least three years before it finally runs out of steam, yielding to the much more promising DVD format. We can only guess what's going to happen to all those 20x DVD burners in all those houses in all those places!

It's all a mosh pit

Though moving towards DVD as a storage medium seems inevitable, consumers are faced with a standards problem. Just as CD-R and CD-RW have become synonymous with CD-based storage, DVD too has its own

DVD is the next wave in storage—if it can overcome its identity crisis

monikers. The problem is there are just too many of them. In fact, one of the biggest misdeeds the industry regularly perpetrates is its inability to get together and finalise a set of standards for the consumers. This slows down the adoption of the technology as a whole, and at the same time it also isolates users from one another.

Instead of one or two simple choices, consumers are now faced with a deluge of five competing formats, all of which come with confusingly similar names. You have DVD-RAM, DVD-RW, DVD+RW, DVD-R and finally, DVD+R. Each format has its own group of supporting manufacturers, and all of them are extremely busy telling you that theirs will be the *de facto* standard in the end. In the computing world, usually only one format from many survives—the others, after some noise, silently pass away.

DVD-RAM was the first recordable DVD format to hit the scene. If you've ever used a floppy disk, you'll get the idea of how DVD-RAM works. Though storing data on a DVD-RAM drive is a totally different process from, say, a hard disk or

Comparing Features: DVD and CD Writers					
	DVD-R	DVD-RW	DVD-RAM	DVD+RW	CD-RW
Maximum storage space	9.4 GB	4.7 GB	9.4 GB	4.7 GB	800 MB
Cost per disc (in Rs)*	1.7 GB @ 950 9.4 GB @ 1,700	1,800	1.7 GB @ 2,000 9.4 GB @ 3,100	2,000	CD-R @ 20 CD-RW @ 150
Maximum writing speeds	2.77 MBps (2x)	1.39 MBps (1x)	2.77 MBps (2x)	3.2 MBps (2.4x)	3.51 MBps (24x)
Average cost per MB*	20 paise	37 paise	40 paise	30 paise	3 paise (CD-R) 70 paise (CD-RW)
Cost for writer (in Rs)*	25,000	25,000	32,000	35,000	7,000 to 12,000
*Prices/costs listed are approximate					

it has some pretty strong voices to back it up. Dell, Compaq and Philips are just a few of the heavyweights. When you take a look at what DVD+RW can do, it makes you wonder why and how DVD-RW left these features out in the first place. For instance, DVD+RW has the ability to write to media similar to how DVD-RAM and floppy disks do. Also, you can use the same disc on your PC to read data files and on a standalone player to playback any video on that disc. Drag-and-drop support is another plus point of this format.

// A DVD disc packs 4.7 GB on a single side, burns four times as fast as CD-RW, and is very versatile //

floppy disk, the computer logically treats it as such. But where this format shoots itself in the foot is in the domain of acceptance. Thanks to its proprietary cartridge casing, compatibility of DVD-RAM has taken a nosedive. The exodus has already begun. Apple and Sony, once strong advocates of DVD-RAM, have stopped promoting it even though they still sell it. We spoke to vendors who sell DVD-RAM drives. A large share of them predict a short shelf life for the format in the face of DVD-R, DVD-RW, and its next iteration, DVD+RW.

Looking at it broadly, both DVD-R and DVD-RW closely resemble the workings of the CD-R and CD-RW formats before them, only that they store a lot more. The maximum holding capacity of these formats is 9.4 GB and 4.7 GB for DVD-R and DVD-RW respectively, while each can boast of 80 to 90 per cent compatibility with DVD players.

For the time being, DVD-R/RW will enjoy widespread acceptance. But now with DVD+R and DVD+RW on the market, that scenario is certain to change.

Two positive reasons to shift
DVD+RW has emerged as the alternative for DVD-RW as

But perhaps one of the most impressive features of DVD+RW is its ability to resume an interrupted writing session from where it left off.

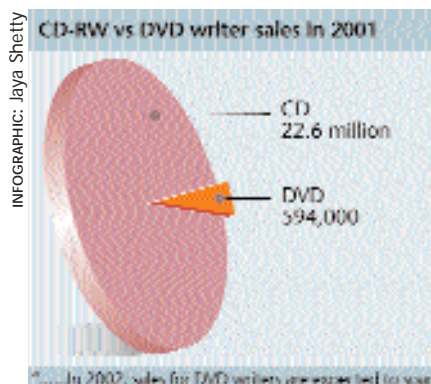
DVD+RW even writes faster than DVD-RW—2.4 times as fast on rewritable media. On the single write types, it still outruns DVD-RW by operating at 2.4x as opposed to 2x for DVD-RW. As for DVD+R, it is more of a single-write extension of the DVD+RW format. At best, DVD+R could simply be a more cost-effective media for those who want DVD+RW drives but really don't have a need to rewrite any discs.

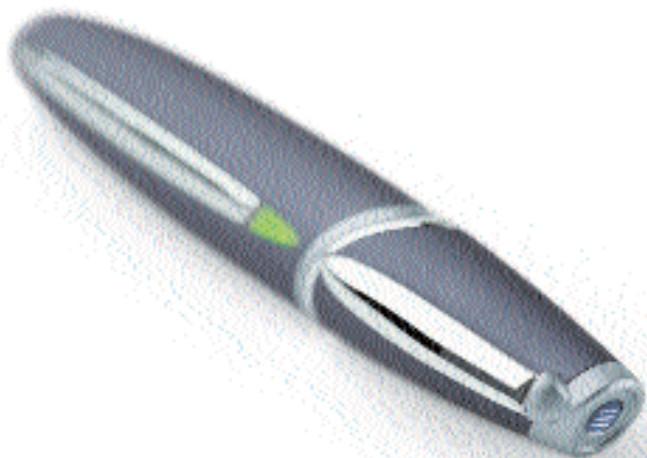
Room for only one

Wading through this crowd of formats, it's pretty clear that this battle boils down to two sides, the 'minuses' versus the 'pluses'. The DVD-R/RW formats, though widely accepted today, are facing the heat from two new and improved formats, DVD+R and DVD+RW. The latter combines the best features of earlier formats such as random access writing, compatibility with various DVD players, and more importantly, it is easier to use. Since DVD+RW is the newest format to emerge in this already crowded field, the drives and media may cost slightly more than other formats for the time being. But once a critical mass of consumers has been reached, prices will plummet resulting in a boon for storage-savvy consumers.

Till then, we'll have to wait with our CD-Rs. But not for long as the storage revolution has begun. All we have to do now is hasten the adoption process. With a *little* help from companies, of course. ■

PRASHANT MASRANI





▼ Ericsson Chatpen

Digital writing

Advances in technology are bridging the gap between the digital and traditional communication worlds. Ericsson's Chatpen stands poised to revolutionise the concept of mobile technology. A deceptively normal looking pen at first glance. But observe closely and you see state-of-the-art electronics and impressive aesthetics. The Chatpen looks and writes like a normal pen, but houses a sophisticated array of technology deep inside, which includes an infrared camera, an image processor and a wireless Bluetooth transceiver. Appearances are always deceptive.

Web site: www.ericsson.com

TOP GEAR

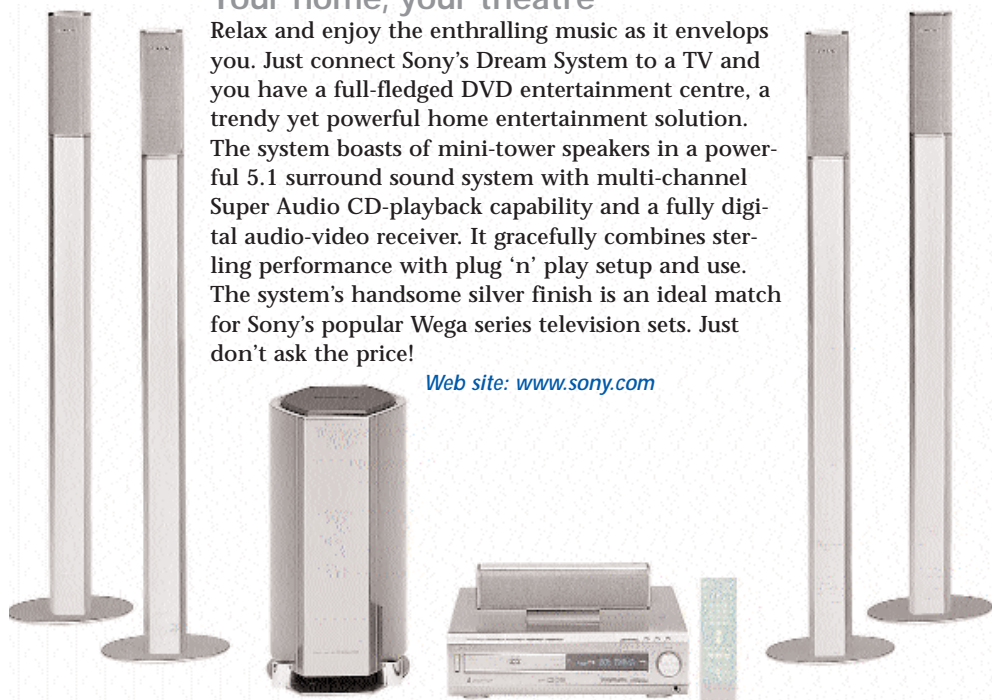
A dose of funky gizmos to satisfy those hungry for the latest in digital devices

▼ Sony Dream System DAV-C 900

Your home, your theatre

Relax and enjoy the enthralling music as it envelops you. Just connect Sony's Dream System to a TV and you have a full-fledged DVD entertainment centre, a trendy yet powerful home entertainment solution. The system boasts of mini-tower speakers in a powerful 5.1 surround sound system with multi-channel Super Audio CD-playback capability and a fully digital audio-video receiver. It gracefully combines sterling performance with plug 'n' play setup and use. The system's handsome silver finish is an ideal match for Sony's popular Wega series television sets. Just don't ask the price!

Web site: www.sony.com



▼ Danger Hiptop

Small, smart and hip!

The Hiptop is a device through which you can exchange IMs, send and receive e-mail without networking glitches, use a built-in phone and PIM, as well as entertain yourself and send/edit pictures. The

Hiptop is user-friendly, affordable and mobile. It uses programs written in Java and embodies an eight-voice MIDI synthesiser. It has IrDA and USB interfaces to connect to other devices. In short, the

Hiptop is raring to go for a Web ride.

Web site: www.danger.com

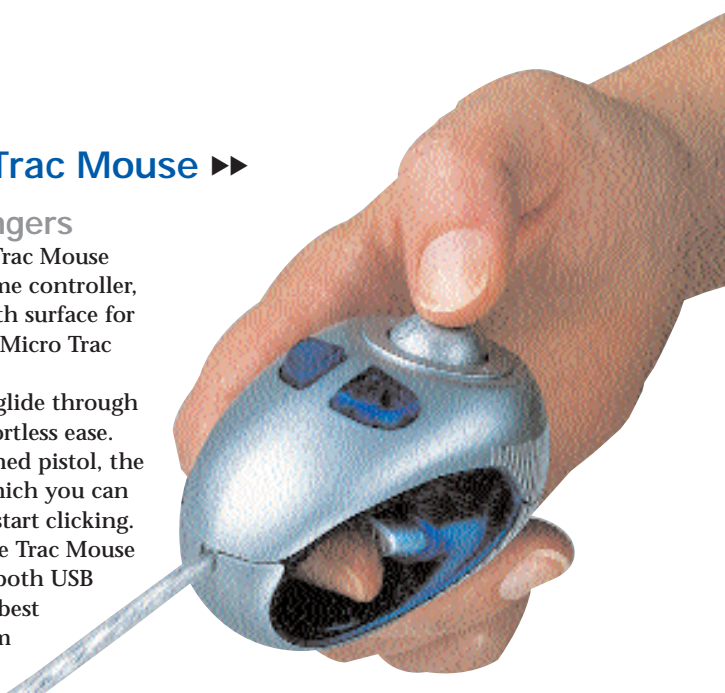


Fellowes Micro Trac Mouse ►►

Rest those tired fingers

Mouse weary? Try the new Trac Mouse which resembles a video game controller, and you won't need a smooth surface for your mouse ever again. The Micro Trac Mouse nests lightly in your Palm as you glide through your desktop space with effortless ease. Looking more like a redesigned pistol, the Trac Mouse has a ring on which you can slide your index finger and start clicking. More than anything else, the Trac Mouse is fun to use. It comes with both USB and PS2 adapters and is the best bet for those who suffer from arm stress.

Web site: www.ibuyer.net



Panasonic SL-SW899V ▲

CD player for the tough

Shockwave Metal CD Player is tough, goodlooking and compact. It's water and heat resistant, has a one-touch lock and release system which keeps the top cover firmly attached even under rugged conditions, and uses a digital synthesiser tuner for easy tuning into radio stations. It has a 30-station preset memory for instant access at the push of a button. Using the Brain Shaker Extreme feature VMSS (Virtual Motion Sound System), the unit transforms bass signals into vibrations, letting you feel the music.

Web site: www.panasonic.com

▼ Bluetooth Handsfree HBH-20

Wireless advantage

Weighing a mere 18 grams, the Bluetooth Handsfree uses a radio link to communicate with your mobile phone. Without any wired connection, this headset gives you mobility within a 10-metre range. You can use the Handsfree to make and receive phone calls without touching your mobile device. The size of a credit card, the Bluetooth unit, which can be worn around the neck like a pendant, seems more like a designer wear accessory. It also comes with interchangeable covers, making it more ornamental than any other ordinary handsfree unit. Wearing it?

Web site: www.ericsson.com



Make Your PC an Earning Member

Ten feasible ideas to make your home computer pay for itself

That little beige box which sits quietly in your home can do more than you think. You probably use it for fun stuff, games and chat, and maybe to type mail and use the ubiquitous Microsoft Word. You might also be using it to learn new programs, run applications, and to get to know the finer elements. But no matter what you do, the chances of you not utilising your PC fully are very high—your PC is not paying for itself.

We know what the cost of a PC in the market currently is and what with the Internet accounts, phone bills, software and other purchases, the cost turns out to be quite high. So how do you get some of that hard-earned money back? By using your PC and the devices you bought along with it (printers, scanners, CD-Writers, etc) smartly.

What you need to turn your PC into a money making machine is, of course, a PC, loads of time, some essential skill-sets, and 10 really feasible ideas. You've got to have the first three. We're here with the ideas.

1 Communications centre@home

People need to communicate the world over. Cheaper, faster, and more trouble-free the communication, the better. What's better than an e-mail and chat in this sense? For the average Indian without a PC, cyber cafés are always around, but not always the first choice. This is where you step in—not by opening a cyber café but by letting a few customers send/receive mail, surf, chat and take printouts at minimal charges. You will keep your machine clean, healthy and virus-free, teach your customers to do the same, and give some general tips. Afterwards, when your reputation is established, you need not spend all your time there—a younger sibling

could take over.

Start off by getting Webmail, buying a ream of paper, and cleaning up your room.

How much can you earn?

You could charge Rs 10 to 15 for the printout of each e-mail received or sent. With just a handful of customers you could earn yourself good money.

2 Data entry

There's a lot of demand in the market for getting data typed accurately. If you have a good typing speed, proficiency with the English language, time, and tonnes of patience, then this might just be the thing for you.

A lot of companies prefer to outsource data entry tasks rather than employ people for the purpose. This data, which is to be keyed in manually, may be numeric and/or alphabetic as well as in a standard format with specific fields or in free form. You'll need your trustworthy PC, a spreadsheet or a word processor, backups, and an ability to meet deadlines.

There's plenty of work available with companies like Datamatics and there are lots of other companies which outsource data entry on a regular basis. Data entry can get a bit monotonous though, but if you devote a couple of hours to it every day—just like an exercise which you have to finish—then it's possible to earn a decent amount of money over a period of time.

How much can you earn?

The money you earn depends on the field you enter. It usually ranges from 60 to 80 paise per data field. You'll need a few good hours of work everyday to earn you a substantial amount.

3 DTP and word processing

Are you a whiz at Microsoft Word? You along with your PC could be in business typing letters, documents, college projects, etc for anyone who needs

IMAGING: Ashwin Boricha

documents formatted and printed. You could even make simple presentations in PowerPoint.

Further, you can do this on a regular basis for small companies which don't have computers and need to outsource their word processing requirements. You'll need a word processor, a spreadsheet and presentation software and some hard disk space to store documents and templates. You will also need a printer.

The skillsets you need are: an ability to format documents and slides, a good typing speed, and a fair amount of proficiency in the language you're supposed to work in.

You can also layout and format brochures, posters, business cards and magazines. However, you'll need to know desktop processing (DTP) software such as Adobe Pagemaker or QuarkXPress. Simple posters or layouts can be laid out in Microsoft Word.

How much can you earn?

Typing and formatting a single page of a document in say Word can get you about Rs 25 to 30. DTP with software like Quark or Pagemaker can get you a marginally higher amount.

4 Affiliate marketing

'Get a FREE Radio and the Shopper's Edge!' How many times have you received a message like this in your inbox? If you happen to be among those whose inbox gets flooded, you'll know exactly what we mean. However, all of this is not spam—some marketing is pretty targeted actually and there are many new Web sites and products coming up, all of them wanting to target more and more customers. This is accomplished through a network of people online. These people make money by promoting other Web sites and products (known as affiliate marketing) through different ways.

You can do this from your home with a PC and an Internet connection. There are different types of programs that you can join. If you have a Web site, you can host banners on your site and direct traffic to a site via clicks on the banner; alternatively, you can send out e-mail containing links to people whose e-mail addresses you know, or obtain databases of e-mail addresses to send mail to.

Affiliate tracking software keeps a tab on how many people have visited a Web site through you, and you get paid

accordingly. There are several programmes that you can join. The trick is to wisely choose the right combination of programs. It's all about time in the end.

How much can you earn?

In the best situation you could make Rs 5000 per month.

5 Web designing

With more individuals and organisations wanting an online presence, the demand for good designers who can create and design Web sites, whether



Andre Rodrigues,
FREELANCE DESIGNER,
MUMBAI

“Web design is not just about laying out text and images. It's also about finding a balance between utility and aesthetics, creativity and structure”

huge sites with complex navigation or simple Web pages, is increasing.

You don't need to be an artist or have any formal qualifications in art to be a Web designer. What you need is a good design sense, an understanding of the visual element, and creativity.

You'll need software such as Photoshop or Paintshop Pro for image editing, Dreamweaver for page creation and other software such as 3D Studio MAX, Corel Draw, Flash and CuteFTP in your toolkit. You should have a databank of images, possess a working knowledge of HTML and FTP, and be adept at increasing the

scope of your visual imagination.

How much can you earn?

This varies according to skill, the size of the Web site to be developed and technologies used, for example Flash, PHP, etc. A few Web pages could bring in Rs 5,000 to 6,000 while a fairly large Web site could earn you upward of Rs 15,000.

6 Writing

Though writing or the ability to write doesn't have anything to do with owning a PC, it's pretty much crucial that every writer has a PC. For starters, word

processors such as Word or Star Writer make editing text easier. Then you need to have a 'soft copy' of the data as the layout of text for either printing or Web publishing is done on a computer.

Magazines, newspapers, journals, Web sites, advertising agencies, software companies—they all need people to write articles, manuals, brochures, etc on topics as diverse as gardening and greenhouse warming. Of course, the style of writing and the flair will vary, depending more on who you are writing for. Use the power that you have with the Web, get in touch with people who can help and guide you and get you in touch with publications worldwide. In other words, use your PC as a tool to write your way to success.

How much can you earn?

This varies according to experience. It starts from Re 1 per word to about Rs 3 a word if you're really good.

7 Computer training

If you are a techie, or happen to know enough about technology to teach others, try opening a small training institute of your own. If you have attributes such as patience, tolerance and the desire to teach, you will discover that teaching and training is a very rewarding way of making money.

That's not all...

Some more ways to get rich!

There are several schemes online that can make you some money. Though the halcyon dotcom days when you could make money off virtually anything have come to an end, sites still exist which offer you points or credits that can be redeemed for money. For example, filling out online surveys, contests, registering for a service, and so on. However, you can't make much money out of this since most of these programmes are located overseas and redeeming points for cash is a major problem.

The success of your venture would depend on the knowledge that you have. You could start from basic familiarisation courses with the PC and go on to training in different programs such as Web designing, multimedia, and perhaps even programming.

All you need is a computer and a desire to teach—you could even end up owning a computer training conglomerate!

How much can you earn?

This would differ according to what you are teaching, whether it's basic computer skills or programming. You could charge by the hour or one amount for a certain number of sessions.

8 Using gadgets/software

Do you have a CD-Writer or a scanner that's underutilised? Why not use it to recover the investment which you made while buying them? You could do this for people who need to back up data on CDs but don't have CD-Writers, or for people who need images scanned and burned on to a CD. And there are many such people.

Along with



Prajakta Patankar,
ACCOUNT EXECUTIVE
TURNED FREELANCE
COPYWRITER

“Copywriting using my PC is really easy. I can work with different fonts and find out which font works best and has the best impact. The art director too can just layout the copy after I've written it”

scanning pictures for others, you can offer to clean and spruce up the image too, maybe resize and add effects for CD covers and such like (you'll need a comfortable knowledge of image editing software for this), and charge a little extra money for all the services rendered.

You could even burn freeware or shareware but make sure it's not protected by copyright as in the case of music or software. Taking back ups of data from a hard disk on to a CD is another option. You'll need to be a little hardware savvy to be able to plug in another hard disk into your computer and back up the data onto a CD.

How much can you earn?

You could charge anything between

Where do I look for work?

Once you've decided what to do, the next step is looking for work and getting customers.

■ The best way to find work is through word of mouth. Spread the word among your friends and people you know about the services you're offering and you'll be surprised at how effectively it works.

■ Take your work online. You could have your portfolio or work samples displayed on a Web site. If you're a writer, sending out newsletters to a few people you know

containing useful articles or links to your work could get people acquainted with your work and help you get clients.

■ Use the Net or search engines to ferret out forums and Web sites specific to what you want to do such as sites for designers, programmers, data entry or DTP operators. You could post your advertisement or find people who need work done. www.workathome15.homestead.com and www.homebiznews.com are sites where you could post an ad or get ideas on how you can make money off the Net.

Rs 80-100 to burn a single CD. As for scanning, Rs 10-20 is more like it.

9 Programming and technical services

If you have programming skills and want to work from home either full time or part time, you'll find lots of companies willing to outsource you work. The kind of programming that you'll be doing will depend on your skillsets, languages known, level of expertise, and experience.

Plenty of small to medium-sized companies outsource technical work at

could earn between Rs 2,000-4,000, while for application programming projects of similar length, you could make between Rs 4,000-8,000.

10 Medical transcription

If you have a background in medicine and are well-versed with medical terminology, medical transcription is a lucrative option that you could pursue. This is the process of translating digitised audio medical records and dictation by physicians into accurate text records.

You also need to have the ability to understand different types of accents. Excellent English language skills, good hearing acuity and listening ability, reasonable keyboard skills and ability to work for long hours with a high level of concentration are some of the key attributes.

Transcription at home isn't for everyone. Apart from your PC and a word processor, you'll need to invest in reference material such as a good medical dictionary or a physicians' desk reference. You'll also need audio equipment for transcription. It's best to start working with a company and after gaining experience, move on to the next step of working from home.

How much can you earn?

These jobs are usually handed out by institutes handling medical transcription. You could earn between Rs 8,000-10,000 per month.

AVINA LOBO



10

Free Downloads for every PC user

AVG 6.0 Free

01

Code red

Viruses spread either through file sharing media or through the Internet. Never to be taken lightly, it's always wise to protect your PC from these dreadful pieces of code. AVG 6.0 from Grisoft is the best free anti-virus software around. The powerful scanning engine, Virus Stalker, provides solid protection against file and e-mail viruses with its heuristic abilities. Whether your PC is already infected and requires a thorough cleaning, or you wish to prevent any possibilities of an infection, AVG should give you that much needed Z-class security. With regular engine and database updates and the ability to scan zipped files and remote network folders, this anti-virus solution comes with its own doctor.

Freeware; www.grisoft.com

IrfanView 3.61

02

Software with a view

Images speak louder than words. If you own a PC, you would have definitely gone on a hunt for a J-Lo wallpaper at some point in time. And, of course, you don't have to wait till the next family reunion to check out the photographs from the last bash. The varieties of image formats available today make an image viewer an absolute necessity. The ideal image viewer ought to be light, provide support for a wide range of image formats, and also give you basic image editing features. IrfanView is a beautiful piece of software that accomplishes all this and more. Whether you need to do batch processing or scan an image and apply Photoshop filter effects, or even play MP3 and video files—IrfanView has all the answers.

Freeware; www.irfanview.com

WinZip 8.1

03

Packed to perfection

Archival/compression utilities are essential in every PC user's arsenal. You need them every time you have to transfer large files over the Internet or to another computer. WinZip is the most popular compression utility available for download and with good reason. Not only does it satisfy the standard for ease-of-use, but also includes other neat features like performing a virus scan (using your default anti-virus software) without actually extracting the files, password protection, splitting large archives into smaller chunks, and so on. It is a great archival tool. The only real downside is the nagging splash screen, which pops up every time you try to zip or unzip a file with the evaluation copy.

Shareware; www.winzip.com

Winamp 2.78

04

Turntable for your PC

Music brings the world together and MP3s are the most popular standard for music lovers worldwide. Just add a soundcard and speakers and the PC is transformed into a modern jukebox. Winamp from Nullsoft has been synonymous with MP3s for as long as anyone can remember. The most popular MP3 player around is a free download and offers a set of intuitive controls, a skinnable interface (you can find scores of skins online), and also lets you create your own playlists. Features such as low memory footprint and plugins that do everything—from optimising sound output for headphones to gripping visualisations—set Winamp apart. Simply the best free player available.

Freeware; www.winamp.com

FlashGet 1.0

05



Downloads, uninterrupted

If you're on the Net, you must be spending lot of time downloading utilities and software. Downloading is ranked right up there along with e-mail and chat as the most popular online function. Keeping in mind the frustrations faced by every 56k dial-up user, download managers such as FlashGet are here to make things easier, for example, by continuing downloads even if the user gets disconnected. FlashGet—with features such as drop-zone, to which you can drag-and-drop a link to be downloaded—increases download speeds by segmenting large files into smaller chunks and downloading them from different Internet mirrors. That being said, this write up need not be any longer!

Freeware; www.amazesoft.com



Trillian 0.71

06



Chat one, chat all

Chatting was meant to be fun, and it shouldn't be otherwise. But with friends scattered all over Yahoo!, MSN, ICQ, IRC and AIM, you should get a cross-platform messaging client that can help you manage all your accounts from a single chat application. With Trillian, importing your existing contacts from the other messaging services is child's play. Once you've done this, you'll find that it offers access to the most useful features from each of the top IMs—without making it too confusing to configure. Add to this features such as proxy and firewall support and auto archiving of chat conversations, and Trillian makes the top of the charts in the multi-platform messenger category. All this for free.

Freeware; www.ceruleanstudios.com

Copernic 2001 Basic

07



Scour the Web

Searching the Net for relevant information can sometimes be frustrating. Enter Copernic, a powerful search suite which combines the power of the best search engines. The Basic edition of Copernic 2001 is a free download that lets you locate information across seven search categories (Web, newsgroups, e-mail, etc) and 80 information resources, which is more than enough for most of us. It also keeps track of all your searches in the recent past, which can be useful for reference purposes. Browser integration allows you to highlight a term and search it with Copernic's search engine. So the next time you need to round up a Web trip, take a ride on Copernic.

Shareware; www.copernic.com

MusicMatch Jukebox 7.0

08



Music maker

If you have a passion for music and love creating, editing, converting and playing music, then obviously you need a tool that integrates all these needs. MusicMatch Jukebox is an all-in-one music management tool which would satisfy all your ripping, encoding, playing and editing needs. It has an ID3 tag editor, and gives you access to a streaming radio service. The MusicMatch guide informs you about all free music downloads while the super tagging feature helps you tag your files with additional information. MusicMatch Jukebox allows you to record tracks at the bit rate of your choice (up to a whopping 320 Kbps), and you can also customise the looks.

Freeware; www.musicmatch.com

Acrobat Reader 5.0

09



Document reader

A lot of useful information such as manuals, documents and whitepapers are created primarily for print. Adobe's PDF (Portable Document Format) is the most popular format for distributing print documents electronically. To read documents prepared using Adobe's Acrobat software, you will need the free Acrobat Reader software. The latest release, version 5.0, will integrate smoothly with your browser and allow you to view PDF documents online without downloading them to your machine, or save it locally if you choose to. With the ability to zoom documents, navigate using previously created bookmarks, and select text and graphics, this is clearly the best PDF viewer so far.

Freeware; www.adobe.com

PowerDivX NextGen 3.12

10



Video gaga

Looking for the ultimate video experience? If yes, then PowerDivX is the player for you. Multiple custom aspect ratios allow you to increase or decrease the video viewing area, built-in DivX Codec wipes out the need for additional Codec installations, AC3 Dolby digital and THX is supported for awesome audio reproduction, and, hold on, it even allows you to set CPU utilisation limits—you can control its impact on overall system performance! It also gives you an option to disable screensavers while watching videos while the PowerDivX NextGen features the DiviDivX, which can reproduce DVD menus. This player is waiting to get you experienced. Grab it.

Freeware; www.powerdivx.com

How we Test

The DMTRC: An information centre

When it comes to insights into digital products and technology, you should be able to bank upon the best. That's where the Digital Media Test & Research Centre (DMTRC) comes in. The DMTRC is the central testing resource for Digit, the place where we evaluate the latest in hardware, software and technology, as seen in the following sections. These tests and reviews are in accordance with the most cutting-edge evaluation processes and methodologies used around the world. All this is done to help you make a more calculated and informed choice on which product or technology to adopt.

Demystifying the ratings

The DMTRC brings you hardware and software product reviews in the Test Drive section of the magazine—as standalone product reviews as well as comparison tests. We test an assortment of hardware and software products from the Indian

market, and the evaluation processes involve parameters such as sheer performance, build quality, value for money and the features of the product. A set of weightages are applied to these evaluation parameters to arrive at an overall score. The table given below is used in applying the overall grades to these products based upon the overall scores.

In the case of the comparison tests, the weightages are applied to the various test parameters according to their importance. This is explained in the magazine articles and in the Test Process section of the CD, where the benchmarking methodology is explained in detail.

About our Awards

Digit rewards exceptional performance in each comparison test by picking a Best Performance winner. This award goes to the product that outshines the competition in our performance benchmarks. The Best Value award, on the other hand, is awarded to the product that we feel has the best combination of price and performance. Consider this your yardstick if you are looking for more value for your money.

VERDICTS				
A+ 20-19.5	A 19-17.5	A- 17-15.5	B+ 15-13.5	B 13-11.5
B- 11-9.5	C+ 9-7.5	C 7-5.5	C- <5	

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

In Test this Month

This month, we put 18 of the newest CD-Writers in the market through their paces – with interfaces ranging from USB to SCSI to FireWire to even the new USB 2.0 standard. The drives were tested using real-world situations such as CD copying, assorted file copying and burning over a variety of CD formats. Three benchmarking software, six cartons of test CDs written and over 54 hours of continuous burning! This month also sees the test of six of the coolest new e-mail clients with newer features and applications that are guaranteed to make your e-mailing life simpler and more fun.



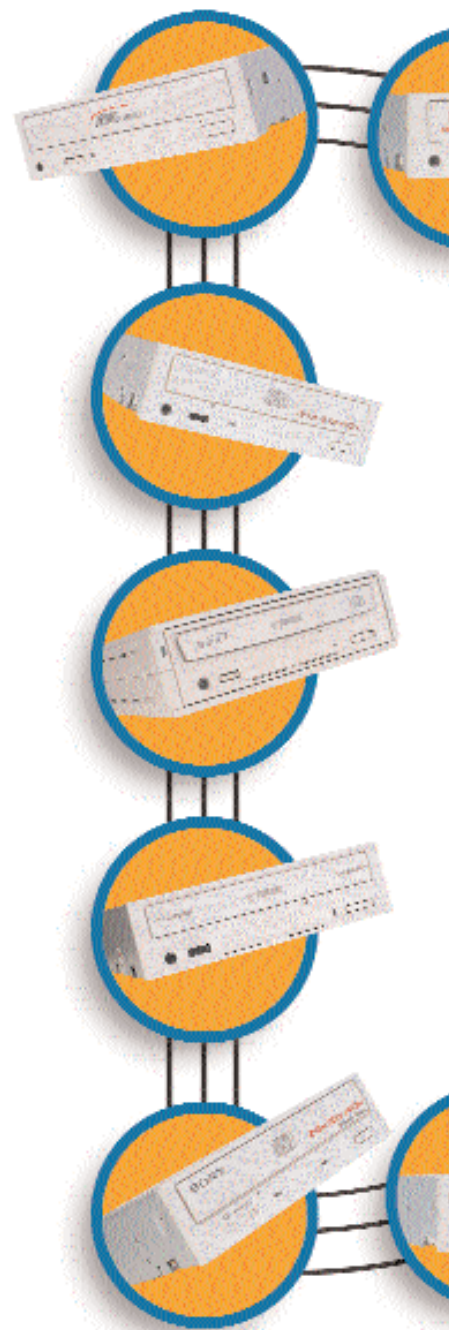
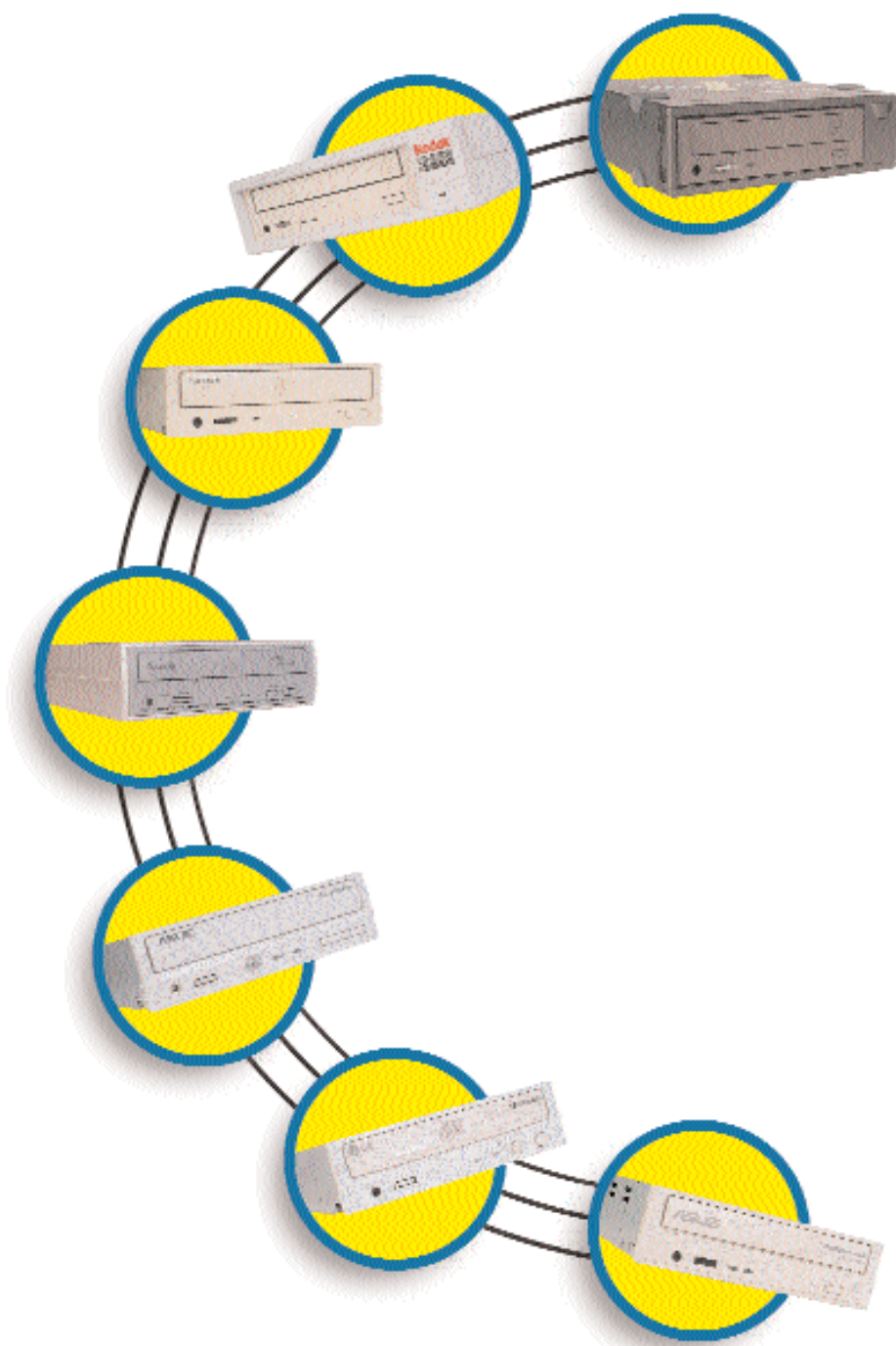
What's new?

This month sees a slew of interesting products like the Logitech Cordless Freedom keyboard and mouse combination. This cool-looking input device combination gives you the best in wireless technology with a host of programmable shortcut keys for you to save time as you go about your daily work. Another mammoth piece of hardware (in specification at least) is the Maxtor D540X 160GB hard disk drive. Now it'll take you much longer to fill this drive with movies!

There's More on the CD



Due to space limitations, we carry full reviews of only the top few products in the magazine. You can find reviews of more products in the Test Drive section of our Mindware CD. This is accompanied by the detailed test and evaluation procedures used in the processor comparison test.



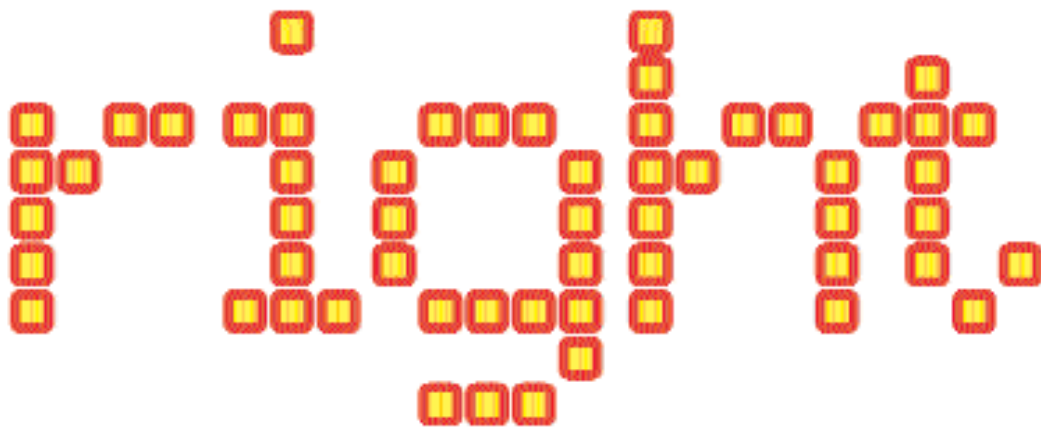
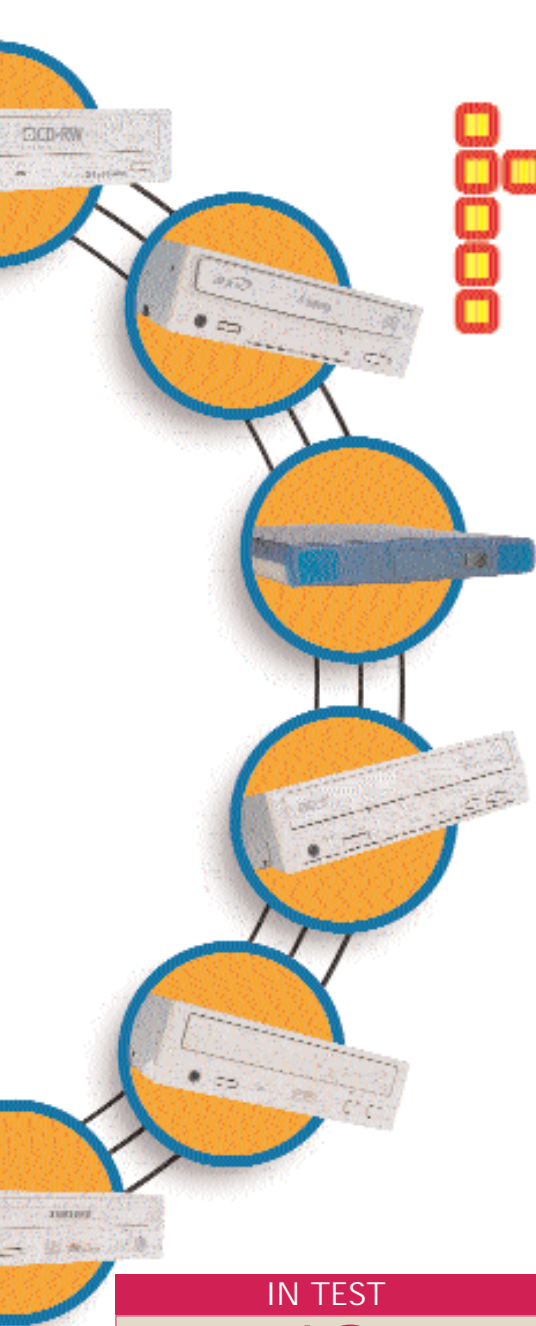
The amount of data that we're subjected to nowadays is truly enormous. Over the past couple of years, we've seen the size of applications and especially that of operating systems grow by orders of magnitude. The latest iteration of Windows, Windows XP, has an install size close to 1 GB! Even the type of files we use on a day-to-day basis have changed. Data types such as MP3 and DivX movies have become common, and most people

wouldn't even bat an eyelid if you were to say to them that you have over 3 GB of songs and movies on your hard disks.

Given all that, most users face a very real paucity of storage space and for most people, buying a new hard disk drive is not a very economical alternative. One of the best solutions to this situation was writeable CDs—an inexpensive backup solution with decent reliability. You could burn your important data on it and simply forget about it. Then came the CD-RW, which gave users the added func-

tionality of rewriting the same disc over and over again. The reliability of the media is more than proven. Unless you manhandle it, your data will remain safe for years to come. Furthermore, the CD-RW media is becoming cheaper and now comes with increased capacity and variations in media quality.

Sadly, the CD-Writer has been out of reach for most users and even the technology was pretty intimidating. But in the past couple of years several inexpensive internal IDE writers have made their



Make room! The right CD-Writers to burn data onto CDs so you have all the space you need on your hard disk

tures available that give users the choice of a very wide array of devices to suit your application and budget. For standalone applications, there are IDE and SCSI drives while for people on the move, there are external drives sporting newer and high-speed interfaces such as USB 2.0, FireWire and SCSI.

The rise of the CD writer

CD-Writers too were getting faster. Earlier the rate of increase in speeds was by 2x or 4x every year or so, while now it seems that the speed is increasing by 8x every six months! The fastest available in the world today is a 32x CD-Writer. This may seem impressive, but the trouble with CD-RW drives getting faster is that computers have a hard time keeping it supplied with data. When the computer can't supply enough data in the right amount of time, you get a buffer underrun and the result is a coaster. In the past the solution for this was to put a larger buffer on the drive and hope for the best! But this

Floppies are more expensive than some CD-Rs. A box full of CDs, numbering 25 would cost you about Rs 500. This box alone is worth 17 GB of data. All this data is stored reliably and can be retrieved as and when you want.

problem is now taken care of with the inclusion of buffer underrun protection technologies—all major manufacturers today employ this technology in some form or the other.

Racing for speed

This isn't F1 where even micro seconds count—a delay of a couple of seconds wouldn't really hurt anyone but 10 to 20 seconds is something that is discernible and if you plan to write a truck load of that software you developed in your garage then every second counts!

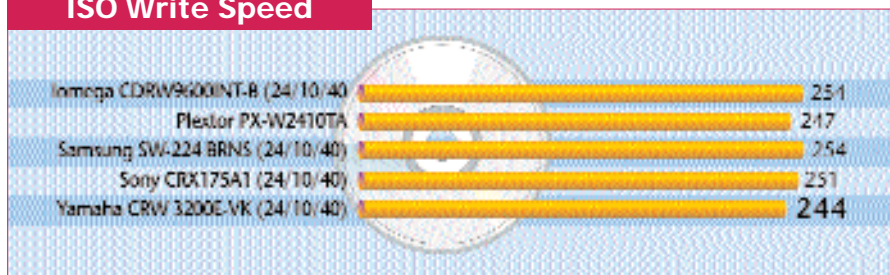
Also, how many single large files do you think you are going to burn? Well if you plan to do a lot of video capturing, VHS to VCD conversion and the likes then writing speed is what you must consider in your purchasing decision.

The first batch of tests consisted of burning ISO images onto a CD-R. What is immediately obvious is that the time taken to burn a 700 MB CD-R is not a big deal anymore. Most CD-Writers will manage this test in less than 5 minutes. But

IN TEST 18 CD-WRITERS

debut and especially in the last year, the market has seen an influx of low-cost IDE writers from different manufacturers. Consequently the price of CD-RW drives has fallen to the extent that it's now well within the budget of even home users—entry level CD-RW drives cost just under Rs 6,000. Coupled with very cheap recordable media, this is truly the most cost-effective solution for freeing up that long-needed space on your hard disk. There are a plethora of speeds, interfaces and fea-

ISO Write Speed



Digit Test Process

We chose Windows 98 SE as the default OS for the test. The latest drivers for the motherboard chipset and the ATA/100 controller on the motherboard were loaded, as were the drivers for the USB ports for testing the external USB drives. All the CD-Writers were tested with DMA enabled for all IDE channels. A ghost image of the current install was backed up and reinstated after testing each writer to ensure minimum drive fragmentation.

The CD-Writers under test were benchmarked for their performance as CD writers and for their CD reading capability. The latter consisted of a blend of synthetic tests that logged low-level parameters

such as data transfer rates and access times of the drive, while the former tested the time taken to write CDs at various speeds.

The media used was the HP CD-R 700 MB, specified for a maximum of 24x (Cyanine, Type 1). The CD-RW media used was the 650 MB HP CD-RW, specified for a maximum of 10x (Cyanine, Type 3).

Write Tests: Here we tested for ISO write speed, audio write speeds, RAW write speeds, RW-assorted speeds and other assorted write speeds wherein a combination of file sizes ranging from 1 KB to 100 MB were burnt. We checked whether the drive performed these operations reliably and if there were buffer underruns or other

errors during the CD creation process.

Read Tests: The read tests comprised the audio extraction test, Nero CD speed test and an assorted read test in which a combination of file sizes ranging from 1 KB to 100 MB were read from the writer and copied to the hard drive.

Features and Package Contents: We also checked for buffer size, burn formats supported, the ability to read/write RAW data, etc. Finally, we examined whether the writers came with comprehensive instruction manuals, quick reference cards, software CDs, free blank media and other accessories. We also tested the bundled free CD writing software for ease of use.

the really fast ones can even manage to touch the magical 4-minute barrier.

In this rather intensive test (primarily because the system reads and writes a relatively large file in one continuous sequence) the ASUS CRW-2410S turned out to be a scorcher, scoring a speedy 241 seconds flat! Yes, a 700 MB ISO image was burnt in 4.01 minutes. Tough competition was to follow soon. The Yamaha CRW 3200E-VK blazed in just 3 seconds later, followed by the Plextor PX-W2410TA which completed the writing in 247 seconds (4.07 minutes). A difference of less than 10 seconds separated the top three drives, showing all too clearly that all of them were top-notch performers worthy of being in the big league.

All the 24x drives showed some real performance here and the difference between them can only be attributed to better access and beam assembly movement times.

Assorted hurdle

A bunch of files with a bunch of folders with long file names—try as you might, organising your files with proper names and folder structures is simply asking for too much isn't it? But that should not give a CD-Writer enough excuse to write a coaster.

Assorted files have always been a big problem to deal with. You will on the odd occasion find a few corrupt files written or that odd zipped file that simply refuses to extract. So we made the weirdest combination of assorted files, bunched up in a maze of folders with long file names. An exact 650 MB was accumulated (a

Burn Proof Technology

Buffer underruns occur when the computer fails to provide the data to the CD-Writer in a continuous stream. As a result, the recording fails and the media becomes unusable. This can happen when attempting to burn a CD-R whilst

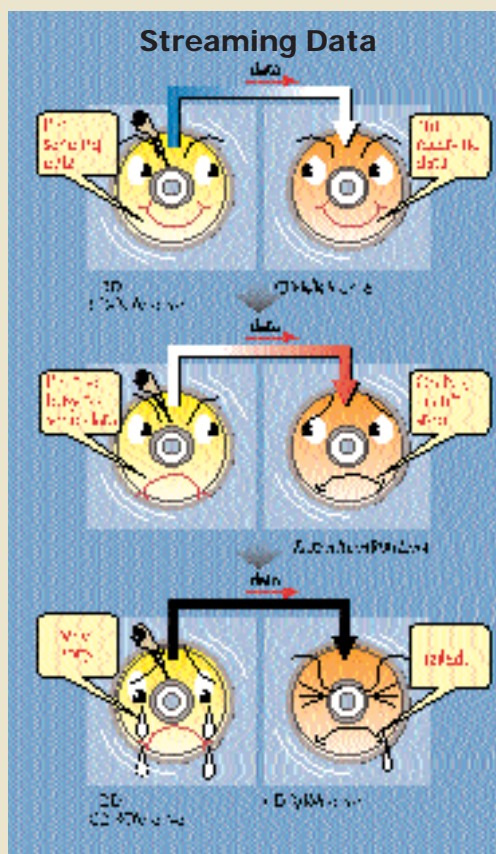
performing other tasks, or when recording from a relatively 'slow' source to a 'fast' target.

In the past, you needed to shut down all the other activities running on your PC and wait till the CD-Writer finished writing

the CD. With the advent of Burn Proof technology you no longer need to continuously monitor the buffer bar. Introduced first by Sanyo, CD-Writers featuring this technology have become intelligent enough to synchronise, wait and then burn the data.

Using this technology, recording is paused at a specific location when an impending buffer-underrun condition is detected. The writing process resumes only when the buffer has been sufficiently replenished and after repositioning the CD-Writer's optical pickup mechanism to the appropriate sector. (See diagram, 'Streaming Data'.)

Most major drive manufacturers either license similar technology or have developed their own variants. Mitsumi and LG Electronics use OAK Technology's ExaLink system, Yamaha does the same but under the brand name SafeBurn. Acer Communications refers to their technology as Seamless Link and Ricoh calls theirs JustLink.



combination of file sizes ranging from 1 KB to 100 MB arranged in random order in multiple nested folders) and written onto the CD-R. Speed with absolute quality was the ultimate goal.

Notice how the scores change radically once the writers are submitted to this torture! The rather finicky Asus CRW-2410S suddenly got displaced from its top spot, to be supplanted by the Yamaha CRW 3200E-VK (24/10/40). This writer wrote the entire CD in 226 seconds (3 minutes 46 seconds)! Close on its heels came the Plextor PX-W2410TA, completing the test in a neat 232 seconds (3 minutes 52 seconds). Not far behind was the Iomega CDRW9600INT-B, clocking 238 seconds (3 minutes 58 seconds).

The LG GCE-8160B proved to be the fastest amongst the 16x writers, taking 5 minutes 9 seconds to complete the test, with the Asus CRW 1610A finishing the test in 5 minutes 13 seconds.

Nero's very own file verification test was used to check the data integrity for all the tests. All writers proved to be quite successful in this department and we did not face any data corruption issues while

writing at high speed and with an assortment of files.

Cut your own audio CD!

So you want to cut your own audio CD and give it to your friend for his birthday? Not enough time to burn 100 odd CDs at 4x? Well it's not at all a difficult task.

Is my CD-Writer too Fast for my PC?

CD-Writer speeds are touching over 24x but is your system capable of sustaining those data transfer rates? Does buying a fast CD-Writer make sense when you have

a slow performing system? Well, don't be fooled into upgrading just because you bought a fast CD Writer.

For your 'fast' CD-Writer to give you optimal performance, it is sufficient to have a PC with a 500 MHz processor with 128 MB RAM (256 MB is recommended). Though the data transfer rate to the writer is already touching speeds of around 4 MBps it still is much lower than the data throughput a hard drive can achieve. Hence, any 5,400-rpm hard drive should suffice.

BURN GUIDE	
Write Speed	Time required to burn a 650 MB CD-R (optimal)
1x	76 minutes
4x20	minutes
8x	10 minutes
16x	5 minutes
24x	3 minutes

We burnt an audio CD with 14 tracks totalling 64 minutes 2 seconds in DAO (Disk At Once) mode in less than 4 minutes. Also the stakes become a little higher with this test as we checked for jitter, skips and other unwanted noise that may creep into the tracks.

The Yamaha CRW 3200-VK showed its absolute burning prowess by writing

CD Writer Technology: How does it Work?

The fundamentals of CD Writing technology are pretty complex. Just consider the number of factors that come into play when recording a disc: the rate of spin, the formu-

la of the dye, the ambient temperature, the internal temperature, the age of the media, the power and wavelength of the laser, and the spacing and size of the marks on the

media relative to the speed of the disc, to name but a very few. Nevertheless, despite all the variables and compatibility issues, CD-Writing has become extremely reliable.

A CD-Writer in essence is quite simple in construction. It has a motor mounted internally which rotates the media. The laser assembly is mounted on the rack which moves outward from the centre of the media as the media spins.

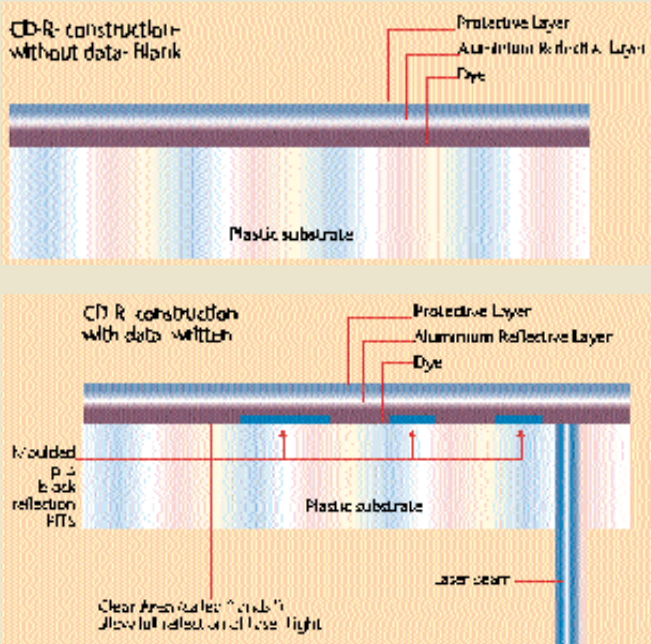
This assembly is moved precisely to the desired location by a stepper motor.

The construction is very similar to that of a CD-ROM, with the only radical difference being in the laser assembly.

Light is used to create the marks (pits and shadows, signifying 0 and 1) on the CD-R discs. These marks represent data, and are read using light beams. So a CD-Writer basically has a laser beam which is much more powerful in intensity, except that during the reading process the intensity is much lesser.

The logic board which is mounted at the lower surface of the writer, controls the change in light intensity, moves the laser head assembly, controls flow of data, writes at the speed selected and performs all other tasks.

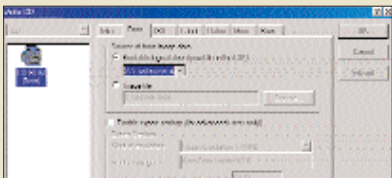
The media stores the information in the form of 0s and 1s. This is done by burning pits which represent 0 and the flat surfaces represent 1. The photoresist material on the media where the pits are formed using high intensity laser beam is actually melted for an extremely small amount of time by the laser beam to form the pits.



How to Make a Bootable CD using Nero v5.5

Step 1: Get the bootable CD or the floppy of the operating system to make the bootable CD.

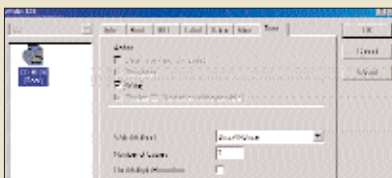
Step 2: Start Nero v5.5 and select the CD-ROM (boot) in the main window. You will be greeted with a new window with an option where you can select the drive in which the bootable floppy/CD is located. Here make sure the bootable floppy is



Select CD-ROM boot in the main Window

in the drive, otherwise the drive letter will not be highlighted.

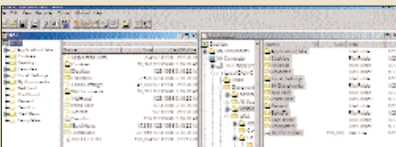
Step 3: Put the blank media in the writer



Select Write and click ok

and leave the ISO and Misc tab as it is. Give the appropriate name in the label section for the bootable CD. Select the Burn tab and check the write and Finalize the CD. Select the Disc-at-Once write method and click on the New tab.

Step 4: Since the bootable CD will be left with lots of unused space, it can be utilise the burning drivers and updates for your PC.



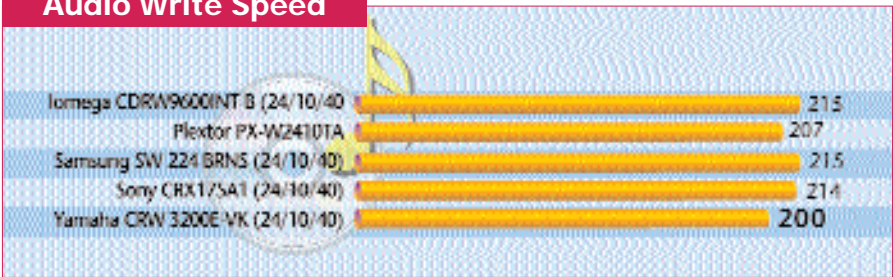
Drag your files into the new window

Step 5: Select the Write tab and in the window which opens, select the safe writing speed according to the configuration of your machine.

Step 6: Now you are ready to write the CD. The typical size of the bootable CD for windows 98SE should come around 125 MB and it will take around 4-5 minutes to complete the process.

Step 7: Check by booting the system with the CD you burned.

Audio Write Speed



all 14 tracks onto the CD in just 200 seconds (3 minutes 20 seconds). It was followed closely by the Plextor PX-W2410TA which clocked 207 seconds (3 minutes 27 seconds). The drive was over 100 seconds faster than all the other 16x drives. To reinforce the Yamaha domination here, the Yamaha CRW 2200 (20/10/40) took a neat 238 seconds (3 minutes 58 seconds) to do the same. Compare this with the scores of other 20x and 24x drives and you will be truly amazed. Nevertheless, the Plextor PX-W2410TA has stuck closely with the Yamaha through the tests and on all occasions has only lost by a hair's breadth.

A score of around 280 seconds is respectable for any 16x drive and you will find that all 16x specified CD writers were more or less in the same league with the fastest being the LG GCE-8160B (16/10/40) which burnt the audio CD in 276 seconds (4 minutes 36 seconds).

Also, all the drives that came in for the test were pretty much adept at handling audio CD writing and none registered any of the quality issues we spoke about earlier.

RAW Write

This benchmark tests the CD-Writer's dexterity in creating coasters. A 700 MB

10 Tips for Maximising CD Writer Performance

- Enable ASPI. ASPI (Advanced SCSI Protocol Interface) drivers mainly consist of the following four files: apix.vxd, apium.vxd, winaspi.dll, and winaspi32.dll. These drivers are necessary for the CD writing software to access the CD-Writer.
- Keep your hard drive in top condition by regularly running disk tools like Scandisk and Disk Defragmenter.
- Disable programs running in the background (screensavers, alerts, anti-virus programs, etc) to free up system resources.
- For a CD-to-CD copy, always create an image before writing.
- Keep the firmware versions up to date. Check the manufacturer's Web site for latest updates.
- If you use an ATAPI (IDE) CD-RW drive, make sure it's on a different IDE channel than the hard drive. PCs come with at least two IDE channels (primary and secondary) built into the motherboard. Each channel supports two IDE devices on a single cable: a master and a slave. Hard drives should always be on the primary channel, and ATAPI devices (if any) should be on the secondary channel. Preferably keep your CD writer as the secondary master device.
- Disable auto insert notification from *Start > Setting > Control Panel > System > Device Manager > CD ROM > Device Name > Settings*
- Windows 98 users can increase the disk cache for frequently used hard-disk data. Select *Start > Settings > Control Panel*, double-click the System icon, choose the Performance tab, select File System, click the Hard Disk tab, and under 'Typical role of this computer', change 'Desktop computer' to 'Network server'.
- If you need to burn a CD while you are still on the network, disable File and Print Sharing under Network Properties so as to prevent other users from accessing your hard drive.
- Enable DMA (direct memory access) from *Start > Setting > Control Panel > System > Device Manager > CD ROM > Device Name > Setting > DMA*. This helps the device to directly talk to the hard drive rather than going through the CPU and then accessing the drive.

Software Bundles and Package Contents

A lot depends on these sometimes unlisted components of the package. What is a CD-Writer without CD writing software or with one that can't do half of what the Writer promises? CDs often get damaged due to problems with the writing software rather than the CD-Writer—its inability to properly recognise the writer or the operating system's file system and/or other intricacies. Also, support for the wide array of formats is critical. Providing the best compatibility when it comes to operating systems and the ability to recognise a wide variety of CD Writers is critical. Some software like Nero and Easy CD Creator have made a name for themselves in this arena.

The package contents also are a measure of the total value offered by the company. Since no software comes for free, bundling high-quality software along with the Writer is definitely an advantage.

Nero 5.5.5.1: This is probably the most popular CD-Writing software. The latest version is now equipped with new features such as speed selection for erasing the CD-RW media. Some new features that attract

immediate attention are the CD cover designer. Backing up your hard disk is also made easy. The Wave Editor tool extends the functionality of the software by allowing you to load the music files and edit the files. Reducing noise in tracks, increasing volume and giving other such effects is now very much possible. This version has features even for Mac users. It has support for Hybrid CD and HFS partition. You also have an integrated tool that basically adds support for virus scanning over the Internet.

The latest version of Nero has two additional diagnostic tools, Nero CD Speed and Nero Drive Speed. The installation size is not very big and this is without doubt the most easy-to-use CD-Writing software.

Nero comes bundled with Yamaha, Plextor, Samsung, Asus and Iomega. The popularity of this software amongst the top echelon of the CD-Writer manufacturers is reason enough for it to be the most widely recommended CD-Writing software suite.

Verdict: It has probably the best wizards designed for CD-Writing, making the process child's play. It also has a really large CD-Writer database, ensuring high compatibility.

NTI Professional v. 5: This software came bundled with the Krypton CD Writer. NTI professional has an interface that appears almost like Nero. It comes bundled with a simple CD label creator. Apart from the normal CD creating modes that it supports it has one very interesting feature: Live Audio Writing. This basically allows voice recording directly onto a CD. NTI also has an inbuilt ISO and file comparing tool and supports ISO and RAW mode, which allows recording voice directly onto the CD. It also has an inbuilt ISO and file comparing tool. Another advantage with this CD burning software is that it is very light on the system and eats up fewer system resources.

Verdict: It's easy to use and detects all major CD Writers, but there's nothing special about it.

Easy CD Creator 5 Platinum: This is one of the biggest software as far as install size

External vs Internal Writers

Choosing between an external and an internal drive depends primarily upon your requirements.

■ Internal drives are usually cheaper. You can choose these if you are a home user and not always on the move.

■ Till now external writers were slower compared to internal writers due to their interface but with FireWire and USB 2.0 coming along, this is no longer a problem. Also, drives based on the SCSI interface were traditionally the fastest.

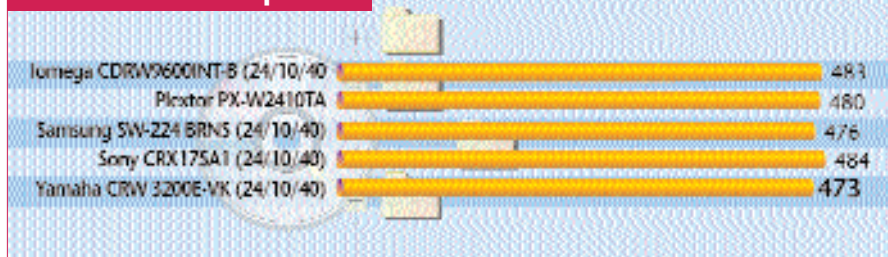
■ The greatest advantage of an external USB CD-Writer is the fact that it can be hot plugged (without shutting down the PC) to the PC.

■ External writers come with the added baggage of the SCSI/FireWire/USB 2.0 cards. This adds to the budget.

■ Internal CD-Writers hog a great deal more of the system's resources.

■ Buffer underruns used to be a big problem with internal drives but that has been solved with the advent of buffer underrun protection technology.

RW-Assorted Speed



bootable CD image was written to the media at maximum capable speed of the writer with SAO+SUBS (Section at once + Subchannel code) using Clone CD 3.3.1.1. The Yamaha CRW 3200-VK performed its magic here once again. Edging ahead of the competition ever so slightly, it burned this image in 225 seconds (3 minutes 45 seconds). This time the Sony CRX-175A1 (24/10/40) edged into the second position (at 231 seconds, or 3 minutes 51 seconds), followed by the Plextor PX-W2410TA (232 seconds) and the IOMEGA CDRW9600INT-B (24/10/40) out by just 1 second.

True to its pedigree, the Yamaha CRW-2200 (20/10/40) beat the rest by a fair degree here too, burning the CD in a remarkable 285 seconds (4 minute 45 seconds). Compare this with scores over

320 seconds (5 minute 20 seconds) for the rest of the 16x and 20x specified writers and you will surely realise that the Yamaha writers are built to perform.

Write and rewrite, over and over again

If you just want to burn a bunch of MP3s ripped from an audio CD to be transferred to your new MP3 CD player and then rewrite the CD with new songs, or if you want to take incremental backups on that RW that you've been using as your office data warehouse, then the results in this test will interest you.

With all the CD Writers now coming with at least 10x rewrite speeds, you can burn that RW to the brim in less than 8 minutes.

Writing RWs sometimes brings out the

is concerned but it is worth it given the extensive feature list. The software sports one of the neatest interfaces, making it easy to access different features. The access to the submenu is through the main menu and it's very difficult to make mistakes with this software. The software comes bundled with Direct CD, which allows you to drag and drop files from any Windows Explorer. To increase audio and video quality, Easy CD has built-in filtering software.

Creating an audio CD or video CD takes just one click. Copying a CD using the CD Copier option is an easy task to perform with the Easy Creator 5. For those who regularly take backups on CDs will be pleased with Take Two backup tool which takes backup and even looks up for the update on your drive. Like other CD burning software, Easy CD Creator has an online Web Check Tool and a CD label creator.

Verdict: *This is one of the best designed and feature-rich CD burning software available.*

Prassi PrimoCD Plus: This one has a relatively simple interface. It has an install size

of just 2.23 MB and no memory-hogging tray icons. Instead, it has very small buttons that take just a few attempts to get accustomed to.

The software took very little time to install. Burning a data or audio and video CD is very easy as there are buttons for them on the main interface. This speeds up the process by eliminating the scrolling time. A box at the bottom of the PrimoCD Plus starter displays appropriate messages to guide the user.

Clicking on the graphical representation of the media in the recorder brings up Disc Explorer and the Properties menu displaying information regarding the media. It also has a help file in HTML format which guides you through each step. Plus there is a list of supported formats and a comprehensive error message list. The software has good support on the Net and is a good choice for those looking for a stable and hassle-free CD writing software.

Verdict: *This is a well developed CD burning software but the interface could do with a facelift.*

Glossary

Cross-talk: A measure of the amount of interference coming from neighbouring pit tracks on a CD. As track pitch is tightened (when tracks are packed closer together to put more data on a disc), cross-talk increases. A maximum value of 50 per cent is allowed by Red Book specifications.

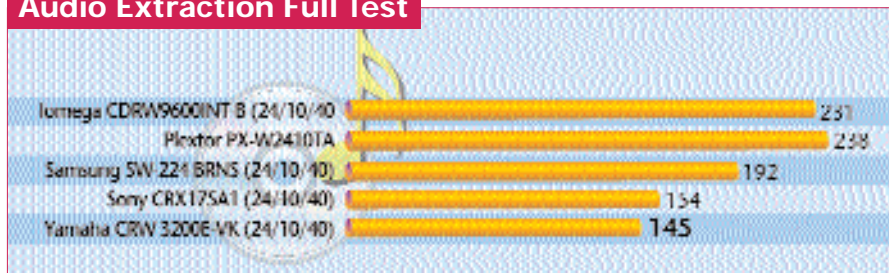
Mastering: The process of creating a stamper or set of stampers to be used in the injection moulding stage of manufacturing compact discs. During this process a digital signal from a computer is used to guide a laser beam which etches a pattern of 'pits and lands' (in the case of CDs) or a continuous groove (for CD-Rs) onto a highly polished glass disc coated with photoresist. This 'glass master' is then cured (developed) with ultraviolet light and rinsed off, and a metal (nickel or silver) mould is electroformed on top of it. This mould is removed and then electroplated with a nickel alloy to create one or more stampers to be used in the injection moulding machine to press the data into the polycarbonate substrate of CDs, or the guiding groove into the substrate of CD-Rs.

Media or 'blanks': CD-Recordable media are the discs used to record digital information with a special recorder and premastering software on a computer. These discs are made of a polycarbonate substrate, a layer of organic dye, a metalised reflective layer, and a protective lacquer coating. Some discs also have an additional protective coating over the metalised layer, while others have a printable surface silkscreened on them.

Organic dye: The data layer of CD-R discs is made from either cyanine or phthalocyanine dye which is melted during the recording process. Where the dye is melted, it becomes opaque or refractive, scattering the reading laser beam so it is not reflected back into the reader's sensors. The difference between reflected and non-reflected light is interpreted by the player as a binary signal.

Pits and lands: In a 'pressed' or mass-replicated CD, the bumps and grooves that represent the binary data on a disc's substrate are pressed into it during manufacture. CD-R discs do not have true pits and lands, but the un-melted, clear areas and melted, opaque places in the dye layer fulfil the same function as pits and lands on a pressed disc.

Audio Extraction Full Test



best and the worst in a CD-Writer. Take for example the Acer CRW 1610A and the Krypton CD-Writer, both of which failed this test. Also, the Acer CRW 2010A took over 2 minutes extra to burn the CD-RW.

Apart from these glitches, the usual suspects were at it again, fighting neck and neck for the top spot. This time around, the 20x sibling of the Yamaha writers took the top spot, completing the test in a record 471 seconds (7 minutes 51 seconds), followed closely by big brother, Yamaha CRW 3200E-VK which burnt the RW in a nifty 473 seconds (7 minutes 53 seconds).

Using it like a CD-ROM drive

There are some things that you can't ignore when it comes to a drive's performance. True, these drives were not

built to read and transfer data as fast as possible. What they were built to do was to write data onto a media as fast as possible. But the fundamentals of the basic drive mechanism remain the same and these aspects of a drive cannot be separated whether it is a CD-ROM drive or a CD-Writer. A drive performing exceptionally when it comes to reading data but failing to perform in the writing tests would be rare. Nevertheless, this batch of tests will give you a fair idea of the build quality and drive performance.

We used an audio CD with 14 tracks totalling 64 minutes 2 seconds for the audio extraction test. The LG GCE-8160B ripped the CD in only 138 seconds (2 minutes 18 seconds), beating the formidable Yamaha CRW 3200E-VK by over 7 seconds.

Internal CD-Writers

Write Tests (seconds)	Acer CRW 1610A (16/10/40)	Acer CRW 2010A (20/10/40)	Asus CRW-1610A (16/10/40)	Asus CRW-2410S (24/10/40)	Iomega CDRW9600INT-B (24/10/40)
ISO Write Speed	346	335	339	241	254
Assorted Write Speeds	324	319	313	253	238
Audio Write Speeds	288	288	277	230	215
RAW Write Speeds	322	373	323	258	232
RW-Assorted Speed	Failed	603	481	502	483
Read Tests					
Audio Extraction Full Test	291	286	174	582	231
Assorted Read Speeds	204	203	156	164	219
Nero CD Speed- Read Test					
Average Read Speed (x)	31.49	29.23	31.49	30.15	30.39
Random Seek Time (in millisecond)	96	136	104	124	89
Onboard Buffer Size	2 MB	2 MB	2 MB	2 MB	2 MB
Package Contents					
Includes bundled applications, blank CD-R and CD-RW media	PrimoCD Plus, Acer 650 MB CD-RW, Acer 20x 700 MB CD-R	PrimoCD Plus, 8x 650 MB CD-RW, 20x 700 MB CD-R	Nero 5.5, ASUS 16x 700 MB, ASUS 10x 650 MB CD-RW	Nero 5 Burning ROM v5.5.4.9, 10x, 650 MB CD-RW, 700 MB CD-R	Nero 5 Burning ROM v5.5.4.9
Final Rating	C	B-	B-	B	B+
Contact Details					
Vendor Name	Benq	Benq	Rashi Peripherals	Aditya Infotech	Neoteric Informatique
Phone	022-5705230	022-5705230	022-8260258	022-6338555-59	022-4172600
E-mail	pankajpamani@benq.com	pankajpamani@benq.com	ho@rptechindia.com	sunil_zarekar@aditya-group.com	sales@neoteric-info.com
Price (Rs)	5,750	5,999	9,000	11,499	8,000

External CD-Writers

Write Tests (seconds)	Acer CRW 4406EU (4/4/6)	Freecom Traveller CDRW Light (4/4/20)	Impulse GCD 161040 (16/10/40)	Kodak 4832e CD-RW External USB	Yamaha CRW 2100SX-VK (16/10/40) SCSI External	Yamaha CRW 2200IX - VK (20/10/40) Firewire
ISO Write Speed	1275	909	346	1271	356	302
Assorted Write Speeds	1189	1186	316	1184	327	293
Audio Write Speeds	1045	1046	280	1038	291	257
RAW Write Speeds	1212	failed	327	1233	328	284
RW-Assorted Speed	1180	failed	487	failed	360	469
Read Tests						
Audio Extraction Full Test	992	1559	139	failed	failed	151
Assorted Read Speeds	994	812	160	918	165	478
Nero CD Speed-Read Test						
Average Read Speed (x)	6.23	6.51	30.86	failed	29	29
Random Seek Time (in millisecond)	140	119	121	failed	123	131
Onboard Buffer Size	2 MB	2 MB	2 MB	2MB	8MB	8MB
Package Contents						
Includes bundled applications, blank CD-R and CD-RW media	Easy CD Creator v4.02, DirectCD 3.0, 4x 650 MB CD-RW	Adaptec Easy CD Creator v4.05, Freecom 700 MB CD-R	Nero v5.5, TDK 700 MB CD-R, Imation 4x 650 MB CD-RW	Adaptec Easy CD Creator 4.02, Nil, 8x 650 MB CD-R	Easy CD Creator, DirectCD, Take Two, 650 MB CD-RW Yamaha, 700 MB Yamaha CD-R	Nero, InCD, Nero Toolkit, Nero MIX, Yamaha CD-R 700 MB, Yamaha 700 MB CD-RW
Final Rating	B	C+	B+	B-	B+	A
Contact Details						
Vendor Name	Benq	J S Equipments	J S Equipments	Neoteric Informatique	Integra Dataware	Neoteric Informatique
Phone	022-5705230	022-3810713/8	022-3810713/8	022-4172600	022-8215179	022-4172600
E-mail	pankajpamani@benq.com	jse@vsnl.com	jse@vsnl.com	sales@neoteric-info.com	mumbai@integramicro.com	sales@neoteric-info.com
Price (Rs)	8,999	22,500	26,000	10,000	9,500	24,000

Krypton (16/10/40)	LG GCE-8160B (16/10/40)	Plextor PX-W2410TA	Samsung SW-224 BRNS (24/10/40)	Sony CRX175A1 (24/10/40)	Yamaha CRW-2200 (20/10/40)	Yamaha CRW 3200E-VK (24/10/40)
357	330	247	254	251	295	244
315	309	232	240	247	284	226
278	276	207	215	214	238	200
323	323	232	235	231	285	225
Failed	476	480	476	484	471	473
242	138	238	192	154	152	145
161	157	157	166	158	172	155
30.64	30.94	31.45	29.65	30.23	28.91	30.16
90	95	134	80	92	130	103
2 MB	2 MB	4 MB	2 MB	2 MB	8 MB	8 MB
NTI CD Maker v5, Ritek 10x 650 MB CD-RW	Adaptec Easy CD Creator 4.03, DirectCD 3.03, LG 10x 650 MB CD-RW	Nero v5.5, Plextor Manager 2000, 1 10x 650 MB CD-RW, 1 24x 700 MB CD-R	Nero v5.5, Samsung 10x 700 MB CD-RW, Samsung 24x 700 MB CD-R	B's Gold Recorder, B's Clip Writing Software, Retrospect Express, Music Match, Arcsoft Photo Base, Arcsoft Video Impression	Nero v5.5, NeroMIX, INCD, Yamaha 650 MB CD-RW, Yamaha 700 MB CD-R	Nero v5.5, InCD, Nero Toolkit, Nero MIX, Yamaha 700 MB CD-R, Yamaha 650 MB CD-RW
C+	B-	A-	A-	B	B	A+
			Samsung Electron-			
Priya International 022-2663611	LG Electronics 022-6910123	Zeta Technologies 022-4102288	ics India 011-6322517	Rashi Peripherals 022-8260258	Integra Dataware P. Ltd. 022-8215179	Neoteric Informatique 022-4172600
jain@priyagroup.com	sanjaym@lgindia.com	tejas@zetaindia.com	marketing@samsungindia.com	ho@rptechindia.com	mumbai@integramicro.com	sales@neoteric-info.com
5,300	6,365	9,950	8,000	10,000	9,000	15,000

The Samsung SW-224 BRNS (24/10/40) beat the others in terms of random access time, scoring a trim 80 ms whereas the rest clocked at about 100 ms.

A rather peculiar result was observed with the Asus CRW-2410S: it suffered in the audio extraction test, and crawled in last, taking all of 582 seconds (9 minutes 42 seconds) to rip from the audio CD. It churned out the same result when we reran the test. Nevertheless, we would give the drive the benefit of doubt since the average access time and the average read speeds were pretty much in line with the rest.

External CD-Writers

If portability is what you want in a CD-Writer, then you should consider buying an external CD-Writer. These writers have been around for a while and are quite reliable.

Since portability is of the essence here, we weighed the external writers that came into our lab. Strangly, all the IDE writers weighed far less than most external CD-Writers.

The lightest was the aptly named Freecom Traveller CDRW Light (400 grams). However, the writer failed the

audio write and the RAW write tests. The scores for the other tests too were nothing to write home about.

The Kodak 4832e CDRW, weighing more than 2.5 kg, also failed to complete the RW Assorted test. It clocked 16 minutes and above in all the other tests, which is not surprising considering that this is a 4x writer.

The Yamaha CRW 2200IX-VK (20/10/40, Firewire) simply blew the competition away, with scores comparable to those of internal IDE writers; it even bettered some of the internal writers. It was

The first CD-Writer was sold for \$1,49,000. It burned CDs at 1x and was used to write only audio CDs. For data CDs it needed to have an additional circuit board which cost \$14,000. To write CDs it needed a machine called the publisher which was what we now know as the hard drive subsystem. This was where the writer read the data from. This publishing machine was as big as a washing machine.

not a cake walk for either of the Yamaha entries here though: the Impulse GCD 161049 (16/10/40) writer actually beat the Yamaha 2100SX-VK SCSI drive in all but one test.




One thing that you must keep in mind is that with external writers speed isn't everything. An easy-to-use interface and fast and easy configuration are far more important. The Acer CRW 4406EU came out trumps here. It uses the standard USB interface, is easy to configure and does not require any additional interface cards for it to function. Nor did it fail any test, though the scores were low due to the fact that it could write only at 4x speed. The only major gripe with it was the pathetically slow read speed of 6x.

Choosing the right one

Consistency is the name of the game. Unfailing consistency, predictability and data integrity that would give you sound sleep every time you burn that critical backup.

The scores throughout the test were a little inconsistent. You would see some writers perform brilliantly in some tests and then return really low scores in others. However, one writer stood out time

USB 2.0 vs FireWire IEEE 1394: What's the Beef?		
	USB 2.0	FireWire IEEE 1394
Transfer Rate	480 MBps relates to a faster transfer rate	400 MBps (800 MBps is soon going to hit the market)
Availability	Next generation of motherboards will have this integrated	Very few motherboards have this port integrated. FireWire cards are relatively easy to find nowadays
Price	Relatively cheaper	Expensive
Compatibility with older protocols	Peripherals meant for USB 1.1 can still be run from this port	No compatibility issues
Who is backing which standard?	Intel's influence gives USB 2.0 a big advantage. With motherboards soon to have chipsets that directly support USB 2.0, it will be the best that could've happened to USB	Apple and the DV community. A huge number of DV camcorders and editors are already shipping with support for FireWire

Decision Maker				
	 Inexpensive data backup	 Speed demon	 Portability	
You need	Speed is not an issue; you are just looking for a cheap, reliable backup solution	Speed is everything, and you have no intention of spending more than 5-6 minutes to burn a CD	You regularly need to back up data from different PCs	
Look for	Any 16x drive	Preferably 20x or higher write speeds and a SCSI interface	A compact, external drive with a USB interface	
The models	LG GCE 8160B (16/10/40), Samsung SW-224 BRNS (24/10/40)	Yamaha CRW 3200E-VK (24/10/40), Plextor PX-W2410TA (24/10/40)	Impulse GCD 161040 (16/10/40), Yamaha CRW 2200IX-VK (20/10/40) FireWire	
Price range	Less than Rs 8,000	Rs 8,000 to 20,000	Rs 12,000 and above	

after time, impressing us with a consistently good performance—the Yamaha CRW 3200-VK. This writer wins the absolute performance crown hands down. It's built to last and built to perform. It also comes with a whopping 8 MB buffer that would ensure that you are not faced with a buffer underrun problem.

However, picking a winner for the Best Value Award was a tough one. The formidable Samsung SW-224 BRNS (24/10/40) bagged this award—owning a 24x CD-Writer for Rs 8,000 is an irresistible option. Sure you can buy cheaper CD-Writers rated at speeds lower than 24x but the absolute value that the Samsung drive offers coupled with sheer performance is unmatched.

At the same time, it would be unfair if we did not mention the Sony, Plextor and Asus drives. These were up there in every test, fighting it out neck and neck, claiming top spots on occasions.

As for the external writers, Yamaha CRW 2200IX-VK was unmatched in terms of pure performance and walked away with our Best Performance award. The Best Value award in this segment goes to the Acer CRW 4406EU for unfailing and reliable performance.

The Winners!
Internal Writers

Yamaha CRW3200E-VK

Yamaha CRW3200E-VK is the fastest among the internal IDE drives. It burnt the assorted data in just 226 seconds (3 minutes 46 seconds) and took only 200 seconds (3 minutes 20 seconds)



Yamaha's latest speed demon

onds) to write the 650 MB of music on a CD. It was also fast in rewriting the assorted data on the CD-RW at 10x, taking only 473 seconds (7 minutes 53 seconds), which is again very low time. The drive had a massive 8 MB buffer which is one of the highest capacity buffers in a CD-Writer.

The drive had good build quality and came bundled with Nero v5.5, InCD Nero Toolkit and Nero Mix. In addition, the pack included Yamaha's 650 MB blank CD-R and 750 MB CD-RW media, as well as IDE and audio cables. However, the writer is available for Rs 15,000, which makes it one of the most expensive internal drives.

SPECIFICATIONS
24/10/40x speed, 8 MB buffer, EIDE/ATAPI interface

Samsung SW-224BRNS (24/10/40)

The SW-224 24x writer is one of the fastest writers as far as writing assorted data on a CD-RW goes—it took 476 seconds (less than 8 minutes) to burn 650 MB of data at 10x speed. To write data in the RAW mode, it took a mere 235 seconds, which again is one of the lowest time taken for this test.

The build quality is average but the front panel has a distinctive look, with the tray's corners



Fast and doesn't burn a hole in your pocket

rounded off and an illuminated eject button. This Samsung drive incorporates Burn Proof technology but its 2 MB buffer is a bit less. The writer came bundled with a manual, IDE/audio cable, multi-speed CD-R and 10x CD-RW blank media. The burning software included with the writer was Nero v5.5, which is the latest offering from AHEAD software. At Rs 8,000, it is ideal for both home and office users, who burn CDs on a daily basis and for whom time is a critical factor.

SPECIFICATIONS
24/10/40x speed, 2 MB buffer, tray interface, SPDIF out

External Writers

Yamaha CRW 2200IX-VK (20/10/40) FireWire

This is the only 20x FireWire writer available in the market. The FireWire writers generally have a slower transfer rate than USB 2.0 writers, but the Yamaha FireWire impressed us with faster scores than the USB 2.0 writer we tested. It took 302 seconds (5 minutes 2 seconds) to burn the ISO image on CD-R and 257 seconds (4 minutes 17 seconds) to burn the audio CD. This makes it at least 10-15 per cent faster than its USB 2.0 counterpart. The writer was also fast in reading the data and logged a read speed of 29x. The

Yamaha FireWire comes with



Yamaha's fiery FireWire writer

an 8 MB buffer, which makes it Burn-Proof in the true sense. The writer weighed 1.58 kg, which puts it on the lighter side of the external writers. The only problem a PC user could face is in terms of FireWire support as most PCs lack this. The writer is on the costlier side and comes at a hefty price tag of Rs 24,000 (the FireWire card and cables cost approximately Rs 6,000 extra).

SPECIFICATIONS

20/10/40x speed, 8 MB buffer, FireWire interface

Acer CRW 4406EU (USB)

This is probably the cheapest external writer one can get. It has a USB 1.1 interface which makes it inexpensive but slow. The writer took 1,275 seconds (21 minutes 15 seconds) to burn the ISO image at 4X on CD-R and 1,045 seconds (17 minutes 25 seconds) to burn the audio CD. To burn the assorted data on the CD-RW, it took 1,180 seconds (19 minutes 40 seconds) which was less than the time taken to write the same data on a CD-R (1,189 seconds; or 19 minutes 49 seconds). This Acer writer had a regular 2 MB buffer and was equipped with Seamless Link burn proof technology.

It came bundled with Easy CD Creator 4.02 and DirectCD 3.0 burning software. Priced at Rs 8,999, it is



Less of a speed demon, more of value

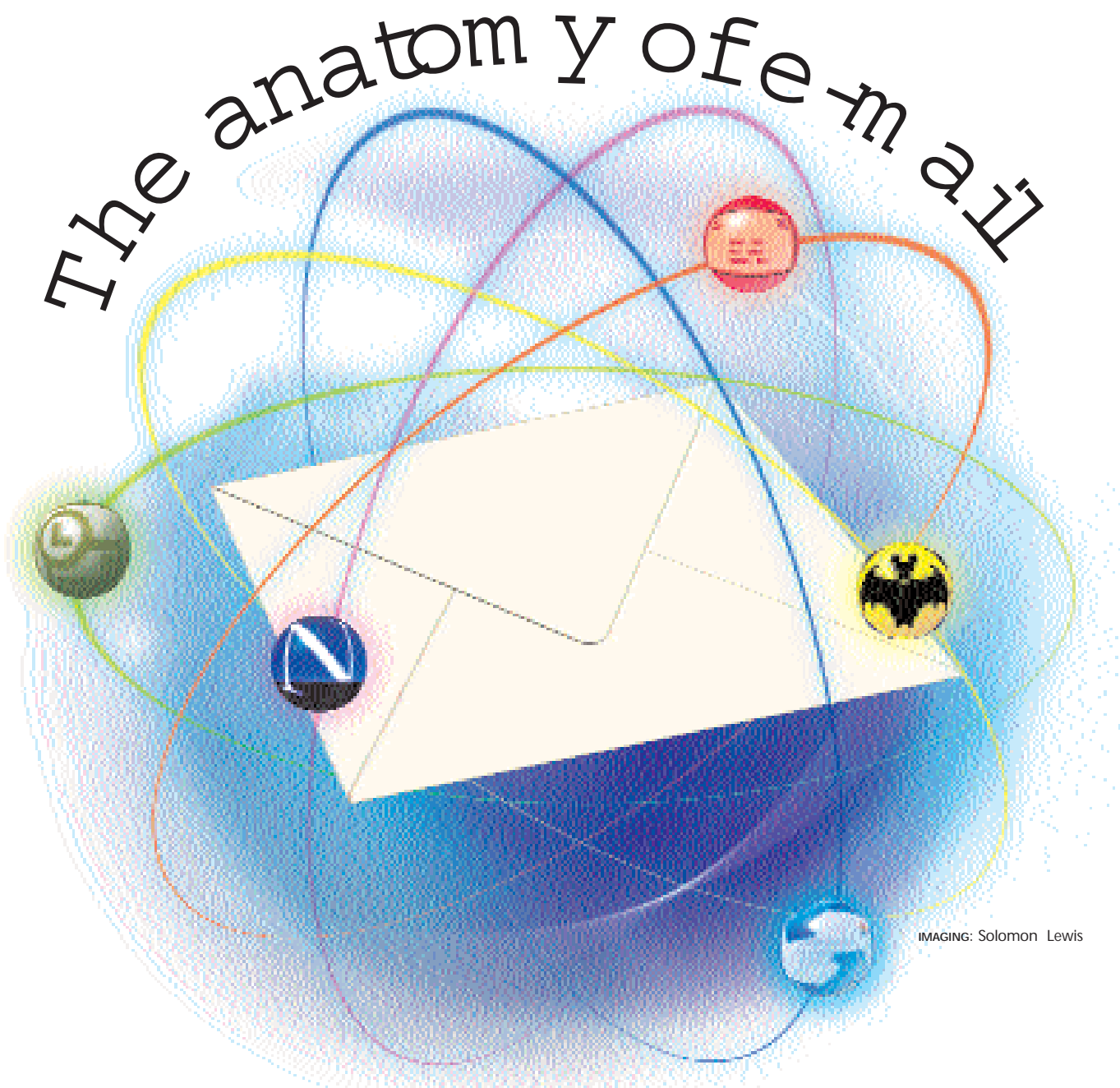
the cheapest CD-Writer in the market. However, given its slow speed, it's not suited for continuous writing work where lots of data needs to be burned in a short time. However, it will suit the needs of a home user who has run out of a free IDE connection and doesn't want to spend much on the writer.

SPECIFICATIONS

4/4/6x speed, 2 MB buffer, Seamless Link burn proof technology.

HATIM KANTAWALLA AND YATISH SUVARNA

1/2 page AD



IMAGING: Solomon Lewis

E-mail has become an integral part of digital life. Unless you use it, you're still trapped in the 20th century. E-mail, hyphenated or not, has turned out to be the ultimate triumph of Internet technology. Over the past few years, the Net has come across some groundbreaking technologies, yet e-mail still remains the nuts and bolts of the Web.

In this article, we flip through the chronology of e-mail from its origins to now, a time where it has come of age. Come along with us for a crash course in 'E-mail Internals 101' and later choose from some of the best e-mail clients that speak the language of electronic mail.

Maybe it's time we look back, see how far we've come, blow out 30 candles, and pay homage to one of man's greatest achievements in the last century. The ubiquitous e-mail.

IN TEST

5 E-MAIL CLIENTS

Eudora Mail 5.1	64
The Bat! 1.53	64
Outlook Express 6	65
Microsoft Outlook 2002	65
Netscape 6.2 (Messenger)	65

CONTENTS

30 years of e-mail	61
How e-mail works	62
E-mail clients:	
Which one's for me?	64

30 years of e-mail

The most revolutionary communication tool since Graham Bell's telephone has just turned 30 and like a fine wine, it just gets better. In the 21st century, electronic mail has wormed its way into our lives to the point that we can no longer do without it. From our personal lives to businesses, there isn't a single aspect in between where its influence hasn't been felt.

Today, the popularity and usage of e-mail ranks second after the telephone but the gap between the two is steadily tightening. Per day, an estimated 4 billion e-mail messages flow through electronic ravines and the figures are on the rise. And why not? It's a medium that combines the best of the telephone and postal mail.

Tracing the roots

In 1957, at the height of the Cold War, the Soviet Union scored one against the United States when it successfully put in place the world's first artificial satellite, Sputnik I. To up the ante with the Soviets, the US Department of Defense set up a division dedicated to extreme technology research, ARPA (Advanced Research Projects Agency), which later fashioned ARPANET. For the first time in history, computers were able to exchange information electronically.

In 1971 Ray Thomson, a programmer, created history by sending off the world's first piece of electronic mail. The e-mail, was addressed to himself and the body read the message, "QWERTYUIOP" or "testing 1-2-3". Two years later in order to make e-mail easier to use, TCP/IP, the language of the today's Internet was born. Many others have significantly contributed to the evolution and progress of e-mail and the ability to send attachments and graphics are just some of the advancements that hundreds of other developers added in e-mail.

During the computer boom of the 1980s, the infrastructure was in place, set to carry homes and offices into the Internet age of the 1990s. As the growth of PC sales continued to soar, the ban on commercial traffic was lifted in 1991; this in conjunction with the creation of the Web browser was the big bang of the e-commerce age.

Throughout the decade, the Internet continued to witness a dramatic surge in

traffic. Web-based e-mail services capitalised on the opportunity. Hotmail, the most well-known e-mail portal in the world, was later sold to Microsoft for \$400 million in January 1998. The extreme success of Hotmail spurred a trend where competing portals would offer free Web e-mail services to its devoted reader base.

Not a bed of roses

The sheer freedom and flexibility that e-mail offered has made it the number one application used on the Internet. But with the fruits of e-mail also come the pits of invasion. In its early days, e-mail was a very safe means of sending messages since the e-mail itself consisted mostly of text. But once e-mail was capable of carrying attachments, malicious hackers started using it to send viruses, Trojans and worms.

As if this isn't enough to force users to take a cautious approach towards e-mail, things get nastier with the abuse of unsolicited e-mail, spam. Named after the tins of American 'SPiced hAM', for each legitimate message sent across the Net, there seems to be a disproportionately higher amount of spam filled with promises of getting filthy rich, shedding pounds off your waist, and buying fabulous offers that you can't afford to miss.

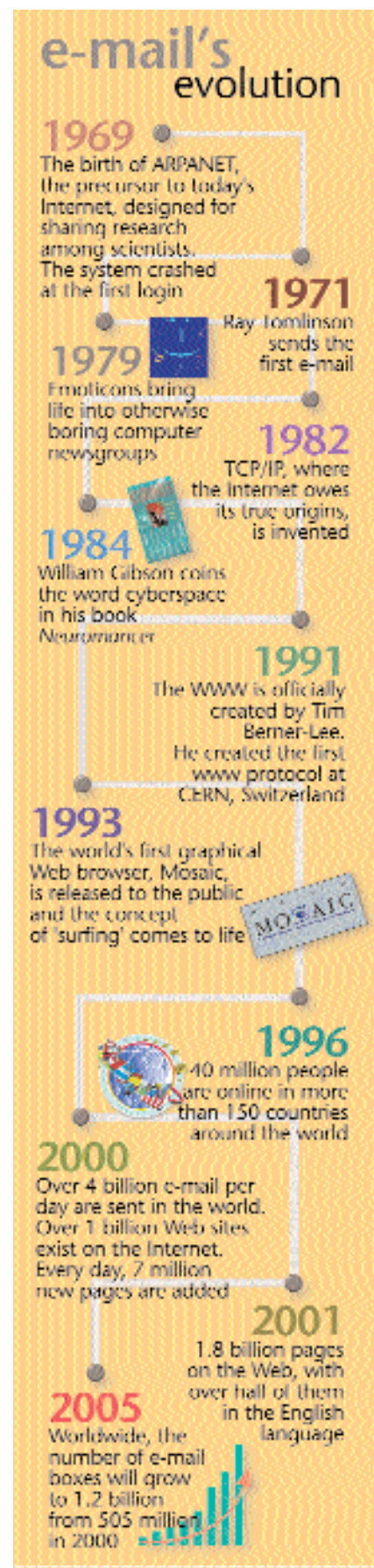
Commerce takes a twist

The growth of e-mail has had a profound influence on enterprise. Documents, visual designs and just about any piece of business correspondence can be sent instantly, and at much lower costs than overnight delivery services. E-mail has provided a grand replacement for telephone calls in many instances. What's more, as this medium is so informal, one doesn't have to worry about composing grammatically correct words and sentences.

Since there is no paper involved, the storing and retrieval of messages becomes much easier and quicker with less space consumed.

The next generation

There is no doubt that e-mail will remain and continue to grow in terms of usage. But at some point in the near future, other marvels like this will have a similar impact in the way we communicate—one only has to consider the rate at which Short Message Service (SMS) and instant messengers are growing.



How e-mail works

Each day, billions of e-mail messages are sent across the Web through an array of networks and servers. Thanks to the easy-to-use tools that we use to send and receive e-mail, the process from our point of view is pretty transparent. All it takes is an e-mail address and a message. It's so quick and easy that you could probably send over a half dozen mail messages without even realising it. No wonder it is such a popular communication tool.

Ever wonder how that electronic message is sent across the world in just a matter of seconds? How is it that e-mail always lands up in the correct mailbox? The answers to these questions are simpler than you think.

Getting started

Aside from an Internet connection, the only piece of software that you need to install is an e-mail client. If you're already making use of electronic mail, you might have the likes of Outlook Express, Pegasus or similar programs installed on your computer. E-mail messages are similar to letters sent by snail mail and can be broken down into two major parts.

One part of a mail message is known as the header. Similar to an envelope, it contains the name and address of the recipient(s) and the subject of the message. Some clients also show your name, address and date that the message was sent.

The second part of an electronic message is the body. Like a letter which can be stuffed with text and pictures, the body of an e-mail can hold text, images and other various attachments like compressed files.

How it works

There are many computers linked to the Internet which run software applications dedicated to performing a particular task. These servers, as they are called, can either 'serve' Web pages, files or even focus on the task of e-mail processing. Once you've composed a message and clicked the Send button, the e-mail client forwards the message to a server which takes care of all things related to the e-mail's destination.

Both the e-mail client and the mail server communicate using a specialised language designed to handle the mail that you send. This protocol, known as SMTP or Simple Mail Transfer Protocol, is the standard used across the Internet for sending electronic mail. When you send the message, the mail client sends it across to a local SMTP server. Your ISP usually has servers set up for these purposes operating 24 hours a day. For example, VSNL users in Mumbai can use 202.54.1.18 as their SMTP server.



Once your message is sent to the local server, the first step is to look up the recipient's e-mail address stored in the header. Take an e-mail address, somebody@somecompany.com for instance. This address can be

broken down into two parts, the domain, which in this case is somecompany.com and the user name, somebody. If you were to send a mail at this address, your message would be forwarded to your local SMTP server, which in turn would hunt for the somecompany.com domain. Once

found, the message is passed to its destination and stored there until the recipient is ready to download it.

When someone has sent you a message, the SMTP server delivers it to something known as a Post Office Protocol version 3 (POP3) server. Similar to how SMTP is used for sending messages, the POP3 protocol is used to process the act of receiving messages.

Each incoming mail server assigns a certain amount of storage space for every e-mail account on that server. This space, no matter how big or small, is called a mailbox.

When you check your e-mail, the mail software establishes a connection with the mail server that holds your messages. If there are messages waiting, the client will issue a series of commands that begins the download of all correspondence stored on the POP3 server.

As you can see, tracing the path of an e-mail message is much easier than it seems. Anyone in the world with a valid e-mail address can send and receive mail. Almost all ISPs and major online servers offer at least one e-mail address with each account.

Encryption

Unlike letters, electronic mail lacks the element of privacy. Hackers and other would-be intruders can intercept a mail message in transit or directly tap into your mail server and read stored messages from there. Although you use a password to download your messages, the mail server doesn't check to see that the right person typed it in. Naturally, this is a topic of utmost concern.

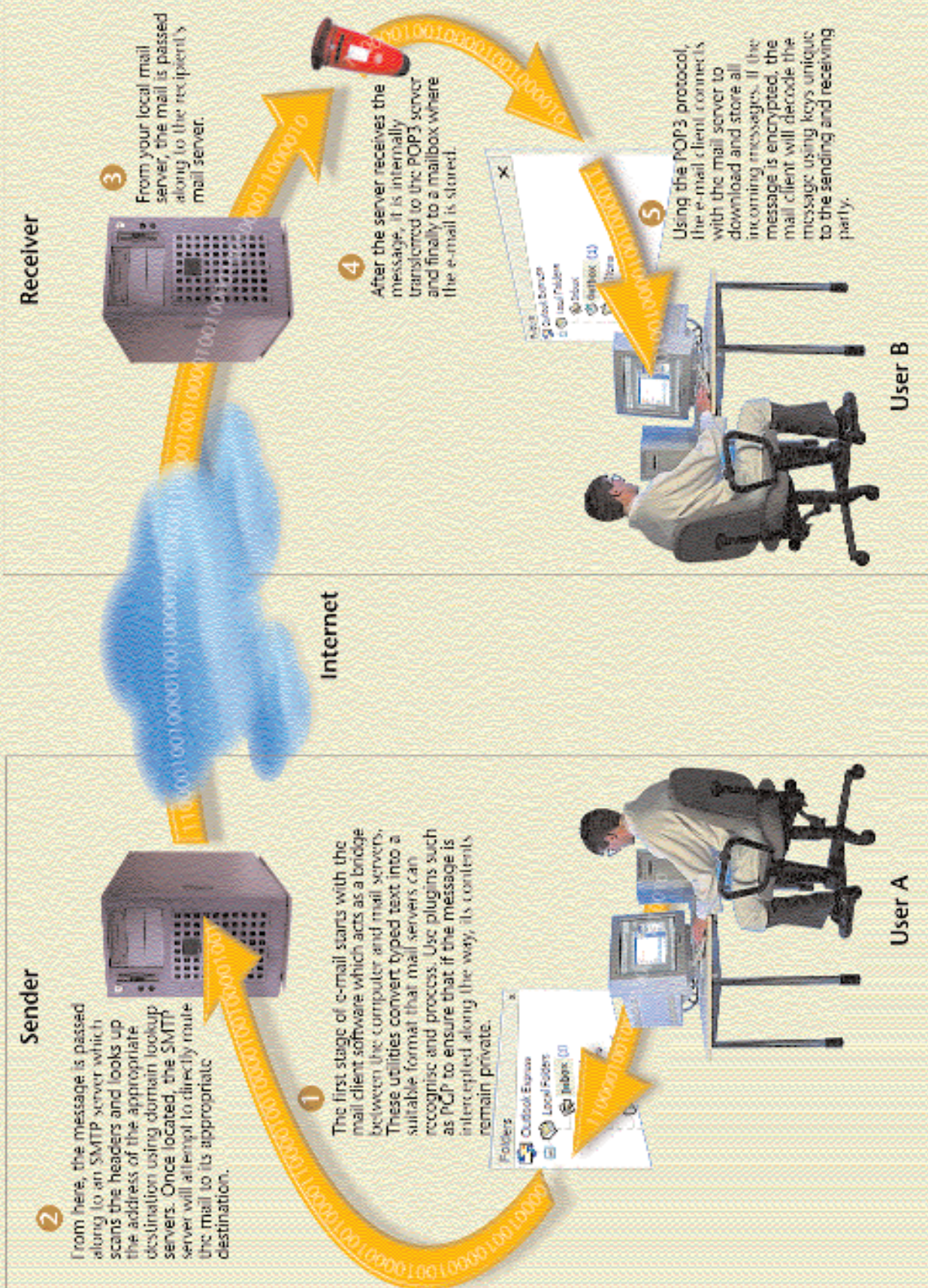
If you want to keep your confidentiality intact, the way to go about doing it is encryption. This is a process which scrambles ordinary text into coded information which can only be deciphered with the help of keys. With 40-bit encryption, there are billions of possible combinations to decode the information and only one key can work. With 128-bit encryption, there are 300 billion trillion times as many possible keys as 40-bit encryption. This makes it absolutely impossible for an intruder to find the key regardless of how powerful their computers might be.

Security features such as these do not prevent you from browsing through the Web nor does it place any limitations on non-encrypted Web sites. The only thing encryption delivers is security and, of course, peace of mind.

If encrypted mail is an avenue that you wish to pursue, PGP, or Pretty Good Privacy, is the best way to go. PGP is the *de facto* standard for encrypting electronic mail on the Internet simply because it's easy to use, effective, and in most cases, it's free. In order to encrypt a mail using PGP, you need to download the PGP encryption package which is available for download at many sources. Windows and Mac users can download a copy from www.pgp.com.

Keep in mind that if you're sending a PGP encrypted e-mail—the receiving end will need it installed in order to decipher the message. But there shouldn't be any reason to worry since PGP is available across several platforms including OS/2, Amiga and all flavours of Unix.

E-mail: Tracing the Route



E-mail clients: which one's for me?

Before e-mail software, checking e-mail wasn't a simple mouse click away. Back then, TELNET was the only way to go. It was text-based, slow and generally not so easy to use since everything, right from logging in, had to be done manually. Can you imagine having to connect, login and use a complicated menu system just to check your mail?

With today's software, all that mundane work is completely automated but it doesn't just stop there. Reviewed here are five mail clients that go beyond just sending and receiving your messages. Spice up your experience with some feature-packed software. After all, electronic mail is only as good as you make it.

Whether its support for multiple users that you need or just a slicker interface, one of these packages will suit your needs.

Eudora Mail 5.1

Eudora is light, fast, and full of features, but you need to pay \$39.95 to get the



ad-free version. This e-mail client has support for almost all security protocols, it's the perfect companion for PGP, and in general, a highly usable interface makes it an ideal choice for any power user.

Eudora possesses some robust features such as auto redirecting mails, a plethora of filter options at multiple levels, etc. It supports opening multiple windows. You can define your own set of filters for the received mail and if you have shared a folder or mails with another user, then there are a set of predefined filters which can be automatically applied for scanning attachments. This can be helpful while sorting mail for multiple users, and then sharing it over the network. The PureVoice plugin in Eudora allows you to send a voice message as an attachment which can be opened using the PureVoice plug-in on the other side.

Eudora's functional interface is extremely customisable, though it might confuse first time users, as it takes some time to get used to all the features it supports.

Though Eudora has support for multiple user profiles, it is not as simple to make use of this facility. To have multiple user profiles on one computer, you will have to create shortcuts to the Eudora executable for each user, and map it to his mail folder.

Overall, the most customisable and feature-filled of all mail clients, Eudora fits the bill for almost all users because of its ease in usability and multiple versions.

- + Support for voice e-mail
- + Allows multiple folder view in a single window
- Expensive
- Feature rich, but tough to configure for first time users

Price: \$39.95 (approx Rs 1,918)

Web site: www.eudora.com

The Bat! 1.53

The first thing you will notice after configuring this e-mail client is the mail ticker which notifies you every time you receive a mail—you can click on the ticker to read the mail. The Bat! possesses a very good editor which allows you to compose messages which allows you to auto wrap and auto format text. By providing templates, The Bat! simplifies the work of the user to a great extent. On the flip side, this editor does not allow you to create messages in HTML format.



There are default templates for replying, forwarding, and read receipts that can be edited as per the user's need. Apart from the standard set of templates there is something called 'quick templates' in which users can create templates and add macros. This is especially helpful in scripting the replies to similar mails. You can script common replies, adding specific customer information to it using macros, and reverting back quickly.

The Bat! comes with full support for PGP keys and built-in encryption. It doesn't require any other tool like PGPFreeware to be installed. The multiple level sorting and filtering capabilities are commendable too and go far beyond other tools.

The 'parking' feature prevents you from accidentally deleting important messages.

If you want an e-mail client which is not only easy to use but also boasts of powerful filtering, sorting and security capabilities, then this e-mail client is meant for you. However, it is quite expensive for \$36 for a single user business license.

- + Exceptional sorting and filtering capabilities
- + Provides good security features
- Cannot compose messages in HTML format
- Expensive

Price: \$36 (approx Rs 1,728) (business-single user)

Web site: www.rtlabs.com

Common E-mail Error Messages Decoded

There can be a number of reasons that prevent a message from being delivered to the recipient. Here are some of the more common errors that cause a mail to bounce back to you and what they mean.

■ **Lack of disk space:** If a recipient's inbox is full, they will not be able to accommodate further messages stored in their inbox unless some space is freed. Usually, errors such as these remain oblivious to the mail account holder.

Steps to take: In such cases, your local mail server will not attempt to resend

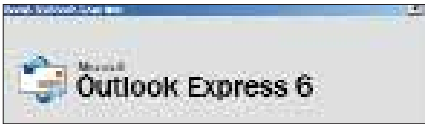
the message at a later time. You will have to send the message again once the user has erased some of their mail.

■ **User or e-mail address unknown:** This is a common problem which tells you that the mail has reached the server correctly, but not the user's mailbox. Either the person's e-mail address is no longer valid or there are some problems at the destination's mail server.

Steps to take: Again, the mail server will not try to send another message automatically. You'll have to resend it.

Outlook Express 6

If you have Windows installed on your machine, you are likely to have a version



of this e-mail client on your computer. Outlook Express has evolved from a faulty, buggy and insecure e-mail client to a slightly more stable but still quite bland client. But it remains an easy-to-use option.

It allows you to create folders and set basic filters and rules to them. It supports the NNTP protocol, making it easy to collaborate with newsgroups. The easy-to-use interface makes it a favourite with most desktop users. The integration with Microsoft's Hotmail service means that you can read your Hotmail messages within the client and store them offline if you like. With the latest release, Outlook Express has become more stable. However, it is more vulnerable to viruses than other clients due to its support for VBScript, which is on by default but can be turned off. Be ready to download and install patches any time Microsoft releases a new update, as this is one of the hottest exploits around.

If you need multiple user support, Outlook Express is the best bet. It can handle multiple e-mail profiles and configure each to access various e-mail accounts. Each user profile can have customised settings, mail profiles, etc. The e-mail editor is also quite good. It provides all features right from formatting text to adding background colours. Support for basic templates is also a nice touch.

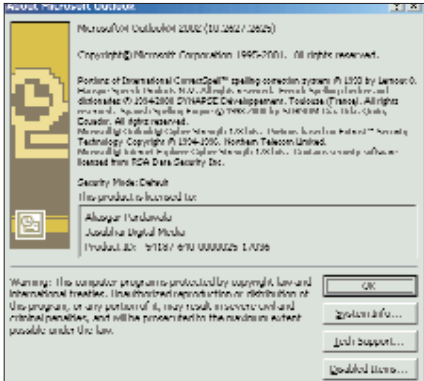
- + Very simple and easy-to-use interface
- + Comprehensive feature set
- Vulnerable to viruses

Price: Free for use (comes bundled with Internet Explorer)

Microsoft Outlook 2002

This e-mail client, part of the Microsoft Office Family, is also sold as a standalone program. It's a complete personal information manager which takes care of your mail, appointments and other daily schedules and reminders. You can automate actions linking two activities together, for example, planning a meeting and sending the schedule to the relevant people automatically.

When combined with an Exchange 2000 server in organisations, Outlook 2002 allows you to send notifications for meetings and appointments including task report notification to a whole group, maintained on the server side. You can set alarms to be reminded of pending tasks or appointments. This version does not have any



drastic improvement over the previous one, but the subtle changes make it a pleasure to work with. Features such as colour coding, group scheduling, improved integration of WinWord for editing/composing mails and implementation of task pane and voice capability make it a favourite amongst business class users.

What you Need in an E-mail Client

- **Interface:** Since e-mail is going to be a regular chore, it's best to use something that you are comfortable using.
- **Features:** Test the features that you will be using commonly, say an address book. If you have a wide base of contacts, you'll need multiple address books and perhaps a bulk-mailing feature.
- **Security:** If security is an issue, make sure the software comes with some form of built-in encryption such as PGP and MIME.
- **Customisation:** Taking care of multiple e-mail accounts can be rather painful; ensure that each user of your computer can segregate their settings from yours.
- **Protocol Support:** Essential for POP3 and IMAP4 in order to ensure universal access with various types of mail clients.

Top e-mail related downloads

Plug-ins	Anti-virus and security	Spam filters
PureVoice Player-Recorder	PGP	SpamKiller
LifeFX FaceMail	Norton AntiVirus 2002	EMail Sentry
SMSReminder	AVG	AvirMail
VoiceNotify	F-Secure	Spam Buster

Microsoft has beefed up the security features and made this program quite resilient to viruses. It has also integrated MSN messenger service which was previously missing.

Overall, this program is an excellent Personal Information Manager—useful for executives who need help keeping track of their daily chores. To unlock its full potential (especially the collaboration features) you should use Outlook 2002 in a corporate work environment along with Exchange 2000.

- + Takes care of all the needs with respect to e-mailing and task scheduling
- + Support for Exchange2000 server, integration with Office XP
- + Extremely easy to operate
- Requires Outlook Express to be installed

Price: Rs 5,000
Contact: Microsoft Corporation India P Ltd
Phone: 011-6294600
Fax: 011-6292650
E-mail: msconnect@microsoft.com

Netscape 6.2 (Messenger)

The new Composer can add numerous e-mail accounts and working is simpler. Like all e-mail clients, this one too allows you to add customised filters for messages, and the new version includes a set of templates for easy and quick replying. It doesn't support VB scripting. So it's not prone



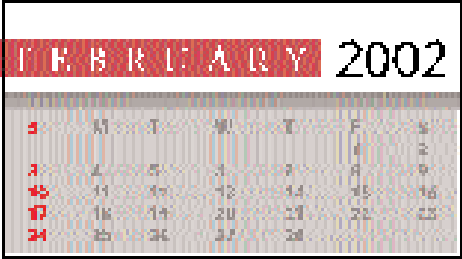
to be infected with viruses that use VB script for

executing. Composer supports sharing of the e-mail folder for others to view. But here one must manually scroll to the mail folder and then share it. Like Outlook Express, it supports news servers and works well as a newsgroup client. Overall, this is a good e-mail client and desktop users not satisfied with Outlook Express (and it's security) will be safe with Composer.

- + Good sporty interface
- + Does not support VB scripting
- No support for plugins

Price: Free for use (comes with Netscape 6.2 browser)
Web site: <http://browsers.netscape.com/browsers/main.tmpl>

PRASHANT MASRANI



Bazaar

A speaker system, an MP3 player, an optical keyboard and mouse, a tool for creating Flash effects, a data recovery utility and more...



Logitech Cordless Freedom

As good as it gets

This Logitech Freedom optical keyboard and mouse is a whole standard apart from your typical mouse and keyboard combo. It consists of a wireless keyboard and an optical mouse. The keyboard sports 'space age' looks and is very comfortable to use. The layout of the shortcut keys is just right and they are easily accessible. The other buttons are well laid out too and they have a great feel to them. Using the bundled iTouch software, the keyboard can be easily configured for all the extra shortcut keys. The packaging of the product is excellent and comes bundled with the manuals, driver CDs, MouseWare and the iTouch software, spare batteries and the receiver. The keyboard and mouse communicate through radio waves and work surprisingly well even beyond the specified range of 6 feet. The optical mouse has a resolution of 800 dpi and

uses no moving parts, which means there's no cleaning required. The provided scroll wheel feels handy while browsing the Net. The mouse buttons can be configured easily through the MouseWare software.

If you want an 'ordinary' keyboard-mouse combination then this set is definitely not the one for you. It requires 4 AA batteries for the keyboard and 2 AA batteries for the mouse and the average battery life span that we have generally observed for devices such as these is around four months. Priced at Rs 8,000, it is clearly the most expensive combination of input devices that you can buy.

SPECIFICATIONS:

Infrared mouse included; many functions such as browser launch; iTouch software to configure keys for various applications; in-built clickable wheel on the keyboard

Logitech Cordless		A-
Ease of use	★★★★	
Build Quality	★★★★	
Value for Money	★★★★ ^{1/2}	
Features	★★★★	
OVERALL	★★★★	

Price: Rs 8,000
Contact: Rashi Peripherals
Phone: 022-8260258
E-mail: ho@rptechindia.com
Web site: www.rptechindia.com

AOpen DVD-1648

Driven performer

This 16x DVD drive from AOpen comes with Dynamic Damping System, which helps in nullifying the vibration that is generally present in high-speed drives. The drive has excellent build quality and comes bundled with the Cyberlink PowerDVD 3.0 software DVD player. It performed very well in the test suite—it never skipped a frame and played the DVD impeccably. We tested the drive for DAE performance wherein it extracted a 50 MB track within 31 seconds, proving itself to be quite a force to reckon with. However, it took more time than similar speed DVD drives when subjected to the file transfer test. Opening 10 TIFF images from the drive in Photoshop took around 71.65 seconds—slightly on the higher side. The access time logged



was 64 ms, which is really low. Though this is certainly not the fastest

speed of access that you can get, this drive will serve the purpose well, if you want to have only one drive for all purposes—CD as well as DVD.

This AOpen drive costs as less as Rs 4,500. When you couple the price with the drive's decent performance, you have a really affordable DVD drive on your hands.

SPECIFICATIONS:

16x DVD speed, 48x CD speed, 256 KB buffer, DDS (Dynamic Damping System)
Benchmarks: 2030 in CD Winbench 99; 64 ms random access time in SiSoft Sandra 2001te; 33 seconds to rip the outermost track which was 61.26 MB in size

Aopen DVD-1648		B+
Performance	★★★★ ^{1/2}	
Build Quality	★★★★	
Value for Money	★★★★	
Features	★★★★ ^{1/2}	
OVERALL	★★★★ ^{1/2}	

Price: Rs 4,500
Contact: Yogi Comp
Phone: 022-8806582
E-mail: yogicomp@netcracker.com

Canon CanoScan N1240

Smart scanner

The Canon CanoScan is just a little over an inch thick. This scanner can even be kept vertical on the saddle that comes along with it while scanning documents. This will prove especially useful if you have limited desk space. The scanner comes



with Adobe Photoshop Element, ArcSoft PhotoBase, and ScanSoft OmniPage OCR software. Its preview time was logged at 19 seconds, which is a little on the higher side due to the initial warm up time taken by the scanner. But

once the scanner is in regular use, the scans are fast.

The scanner picked up minute details in the test photograph, such as wrinkles on the face and the texture on the fabric. The colour appeared a little brighter than in the original photograph. The scanner depicted all five colour blocks that were used for the resolution test at 1200 dpi. Generally in this test, most scanners depict the

difference between two lines up till four blocks and scan the fifth as a solid block. The scanner is expensive but the quality is top-notch and it is a silent operator.

SPECIFICATIONS:

1200x2400 dpi resolution; USB 1.1 interface; 48-bit depth; A4 size scan area

Benchmarks: 19.6 seconds preview time; 56.19 seconds to scan photograph in full colour mode at 300 dpi

Canon CanoScan		B-
Performance	★ ★ ★ 1/2	
Build Quality	★ ★ ★ ★	
Value for Money	★ ★ ★ 1/2	
Features	★ ★ ★ ★	
OVERALL	★ ★ ★ 1/2	

Price: Rs 10,995

Contact: Canon India

Phone: 011-6806572

E-mail: brijesh@canon.co.in

Web site: www.canon.co.in

IBM NetVista A22P

Just right for Office

This is probably the fastest office application-oriented PC you'll find in the market. Powered by a P4, 1.5 GHz and 128 MB RAM, this machine isn't built for high-end graphics performance

it will take care of all your general office applications, accounting software and low-end graphics applications. In Content Creation Winstone 2001, it scored a trifle low at 42, indicating that its processor was being bottlenecked by the platform and memory subsystem. A score of 40 in this test should be considered the bare minimum. The machine's build quality is pretty decent and it comes bundled with Windows Me.

SPECIFICATIONS:

P4-1.5GHz; 128 MB RAM; Maxtor 20 GB IDE hard drive; E54 15-inch monitor

Benchmarks: 35.2 in Ziff-Davis Business Winstone 2002; 42 in ZD Content Creation Winstone 2002

IBM NetVista A22P		B
Performance	★ ★ ★	
Build Quality	★ ★ ★ ★	
Value for Money	★ ★ ★	
Features	★ ★ ★	
OVERALL	★ ★ ★	

Price: Rs 51,999

Contact: IBM India

Phone: 022-8353131

E-Mail: adildoct@in.ibm.com

Web site: www.ibm.com

Labtech Pulse-424

Sound, sweet sound

This speaker system is powered by two satellite speakers and one 8-inch subwoofer. The subwoofer was

amply powered but the satellite speakers proved to be the weak link as the size and performance of the satellites did

not seem to match with the sub. Installation was quite simple as the Labtech Pulse does not require any drivers or files to be installed. A handy little instruction manual shows the detailed procedure of connecting one colour-coded plug to a jack on the back of the subwoofer and another colour-coded plug to your PC's audio-out jack. Aesthetically speaking, the black coloured speakers might fascinate some users as they have a sleeker, aerodynamic look as opposed to the box shape of other speaker setups. We played a standard set of audio, MP3, VOB files and a DVD and found that the speakers were pretty decent in sound reproduction in all of these. Also, when tested with *Quake III*, the panning and firing sounds were all reproduced very well. There

Price: Rs 4,200

Contact: Rashi Peripherals

Phone: 022-8260258

E-mail: ho@rptechindia.com

Web site: www.rptechindia.com



was minimal distortion at higher frequencies and the speaker setup held itself well at higher volumes except for the fact that you sometimes felt the lack of a little more 'twang' at the higher end of the frequency spectrum.

Overall, this speaker system would be ideal for those who like an excellent 2.1 speaker setup. However, for a 2.1 setup, Rs 4,200 it is a bit too much.

SPECIFICATIONS:

3 speakers; 20 Watts RMS subwoofers; 32 Watts RMS power output; power supply: internal

Labtech Pulse-424		B
Performance	★ ★ ★ 1/2	
Build Quality	★ ★ ★ 1/2	
Value for Money	★ ★ ★	
Features	★ ★ ★	
OVERALL	★ ★ ★	

Napa DAV315

Delivers what it promises

The most economical and reliable bet in CD MP3 players yet. For the price that this player comes at, you can't get anything even remotely as good in India. The Napa DAV315 is a portable MP3-CD-Player with a 120 second skip buffer that actually works, and works very well too. It even survived a real trek without a single skip, so you can be sure that it won't skip during your regular Sunday morning jog. It will not fit into your pocket but comes with a carrying strap that attaches firmly to the MP3 player, letting you hang it comfortably around your neck.

The bundled earphones aren't too good—this one is not powerful enough to drive our AKG K44 reference head-



phones to their full potential—but they don't disappoint when used with standard Philips earphones. The player is crisp on mids and highs but a little low on bass. This can be attributed more to the earphones rather than the player. The Napa reads all possible MP3 formats including VBR MP3s, and from all CD media, ranging from CD-Rs to RWs and even CDs burnt using multiple sessions. There are five preset equalisers available, but they are better left

alone as that brings down the volume level a bit.

The best part is that this player comes with an adapter and rechargeable batteries, so just plug the adapter into a wall socket, put in the rechargeable batteries, and it charges quickly enough to last you for a long jogging trip, or the hour-long journey to office, and more. You can use

Price: Rs 4,500

Contact: Moon Computers

Phone: 022-2653390

E-Mail: sales@moonindia.com

Web site: www.moonindia.com

two regular AA alkaline batteries to keep it alive for around six-seven hours easily. All this for a price of only Rs 5,000, which is half of that of other popular CD MP3 players.

SPECIFICATIONS:

120 second skip buffer; reads CD-Rs and CD-RWs; rechargeable battery included

Napa DAV315		A-
Performance	★★★★1/2	
Build Quality	★★★★	
Value for Money	★★★★1/2	
Features	★★★★1/2	
OVERALL	★★★★	



The Napa DAV CD-MP3 hits the sweet spot with skip-free playback and a reasonable price tag

Aliasgar Pardawala
Reviewer

Soltek SL-85SD Motherboard

Packed with promise

The Soltek SL-85SD is Soltek's solution for users who would like to go in for a

Pentium 4-based system based on the 845 chipset using ordinary SDRAM. It supports Pentium 4 processors with the Socket 478 interface. There is support for up to 3 GB of PC-133 SDRAM through three DIMM slots. The packaging of the product was very good and it came with a detailed manual and a driver CD along with the unique RedStorm overclocking utility. With this utility,

you can easily overclock the machine without fears of frying the processor. What this utility does is that it automatically overclocks the processor through 1 MHz increments and checks for system stability. You can then choose to run the system at the higher frequency.

The benchmark scores were, nevertheless, nowhere close to what you can generally expect from a machine using RDRAM, and considering the fact that the processor interface adopted was Socket 478, this motherboard would ideally be meant for the 2.0 GHz and above range of processors from Intel. Pairing such a fast processor with SDRAM is truly bottlenecking the

Price: Rs 6,500

Contact: Rank Data Products

Phone: 022-3873168

E-mail: rankdata@vsnl.com

processor to a great extent and is not recommended. Nevertheless, it is a feature-packed board with onboard sound and an onboard Promise IDE RAID controller, which supports RAID 0 or RAID 1.

SPECIFICATIONS:

3 DIMM slots supporting SDRAM PC 133; AGP 4x slot; 6 PCI slots; CNR slot; 4 USB Ports and integrated IDE RAID controller

Benchmarks: 55.7 fps (normal mode), 55.2 fps (high quality mode), 53 fps (max settings) in *Quake III* v1.30; 66.2 in Content Creation; drive index of 22009 in SiSoft Sandra; 29 MBps sequential read, 6 MBps random read; 39 MBps sequential write; 8 MBps random write speed; 8 ms average access time

Soltek SL-85SD		B+
Performance	★★★★1/2	
Build Quality	★★★★	
Value for Money	★★★★1/2	
Features	★★★★	
OVERALL	★★★★1/2	

Sony CDU5211 (52x CD-ROM Drive)

High price, average performance

With 56x drives now almost becoming the standard, this drive at 52x speed is a tad slow and gave below average performance in almost all the tests.

The SiSoft Score of 1660 logged by this drive was way below as compared to other 52x drives, which normally score in the range of 2000 for this test. The audio ripping was also not very fast; it took a little under 48 seconds to rip the innermost track of the audio CD which was 72.83 MB in size.

The only thing going for

this drive however was the random access time. It scored a neat 51 ms, which is a better score when compared to other competing drives. This is just another drive with very little to talk about in terms of performance. The pricing too is a little on the higher side.



SPECIFICATIONS:

128 KB buffer; single and multisession compatible

Benchmarks: 1660 in Ziff-Davis CD Winbench 99; 2784 Kbps sequential read speed

Sony CDU5211		B
Performance	★★★★	
Build Quality	★★★★	
Value for Money	★★★★	
Features	★★★★	
OVERALL	★★★★1/2	

Price: Rs 2,200

Contact: Rashi Peripherals

Phone: 022-8260258

E-mail: ho@rptechindia.com

Web site: www.rptechindia.com

HDD Sheriff 2000

New Sherrif in town

HDD Sheriff 2000 is a hardware-based solution for protecting the data on your hard drive by taking a backup on the partition (which is configured while installing the software). During installation, you can define the amount of disk space to reserve for backups. The interface is easy and simple to use but there is no help provided in the main interface. Your only source of help is the manual which explains everything with screenshots. There are four modes of operation—two supervisor modes and two protection modes. Protection modes are the normal user modes, and all changes that are made to the file system, deletions, FDISK, etc, are ignored when the system is rebooted. You can make permanent changes to the drive only when you are in the supervisor mode. The

Price: Rs 3,490 (single user)
Contact: Maatra Technologies
Phone: 9520-4221222
E-mail: info@maatrachtech.com
Web site: www.maatratech.com



software also lets you multi-boot the system, protects at least four hard drives or up to 10 logical drives on the PC, and lets the system be used by multiple users with individual settings. A value-for-money product that can eliminate almost all chances of data being mishandled or deleted from your machine.

SPECIFICATIONS:
1.14 MB installs size; available in PCI and parallel interface

HDD Sheriff 2000		B+
Performance	★★★★ 1/2	
Build Quality	★★★★ 1/2	
Value for Money	★★★★	
Features	★★★★ 1/2	
OVERALL	★★★★ 1/2	

Coffecup Firestarter 4.2

Coffee for a starter

Coffecup Firestarter 4.2 lets you create Flash effects that can be easily included in your Web page to make it more attractive. The built-in sound and GIF images make the task easy for the developer, especially newbies.

It generates HTML code for whatever you create, which can be viewed for verification. Strangely, though the Firestarter doesn't allow you to change the HTML code from within its notepad, it

allows copying the code into the Web page. After creating the effects, you can view it by just clicking on the test button.

With Coffecup, making splash screens becomes very easy using the built-in effects such as 'Explode' and 'Shrink'.



Firestarter even allows for converting WAV files to MP3s and GIF to Macromedia Flash (SWF) and uploading to the FTP. The download size of the trial version is 3.2 MB and the full version can be yours for \$49.

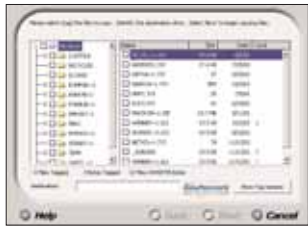
Price: Rs 2303 (approximately)
Web site: www.coffecup.com

SPECIFICATIONS:
3.2 MB download size; allows import of animated gif files; SWF files up to 80 per cent smaller in version 4.2

Coffecup Firestarter		B+
Performance	★★★★ 1/2	
Ease of use	★★★★	
Value for Money	★★★★ 1/2	
Features	★★★★	
OVERALL	★★★★ 1/2	

EasyRecovery Pro 5.0

Get it back



EasyRecovery is a data recovery solution from the world-renowned system utilities developer, Ontrack. It lets you recover files and data lost due to a hard drive or a system wide crash, power surges, etc. During the test, we purposely deleted randomly selected files. It took around 10 minutes to recover these files which were around 24 MB in size.

The interface resembles the system suite utility of

Price: \$489.00
Web site: www.ontrack.com

Ontrack. It runs on Windows 95/98/2000/ and NT and through the emergency boot disk feature, you can create emergency floppies so that the system doesn't boot in Windows and the files can still be recovered through DOS mode. EasyRecovery can also perform a comprehensive diagnostic test on your hard drive just like scandisk and it lets you know the status of your drive—whether or not the lost files can be recovered from the partition.

SPECIFICATIONS:
Can recover files and folder of all types; works with Windows 95/98/2000 and NT

Easy Recovery Pro 5		B
Performance	★★★★ 1/2	
Ease of use	★★★★	
Value for Money	★★★★	
Features	★★★★ 1/2	
OVERALL	★★★★	

Panda Antivirus Software

Panda on guard

The Panda sports a more intuitive interface than other competing anti-virus suites. It also has the highest number of anti-virus definitions, which are updated almost on a daily basis. The user will have to use the specific user name and password to log on to the FTP server to download the definitions.

This software also has the facility of monitoring Inter-

net activity thereby giving you complete protection in the Internet age. You can even block certain ports so that your computer remains protected (like a firewall). Needless to mention, like all anti-virus products, even Panda has a heuristic scanner wherein the scanner can detect new viriuses on the basis of behaviour. It can also scan through e-mail

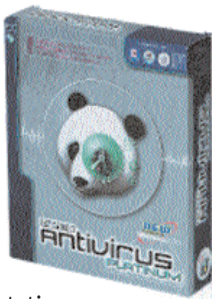
messages containing nested tables, compressed files, audio, video, etc.

If your machine is connected to a network and if a virus is detected, Panda allows you to send warning messages to the workstation servers through e-mail or send an alert to the server.

Another feature this software boasts of is the 12-hour SOS service—if the software fails to cure a virus, you can send a sample across to the customer support team which will then try and provide a solution to the problem. This keeps your work and productivity unaffected.

This anti-virus software

Price: Rs 1,800
Web site: www.pandasoftware.com



does not have fast scanning capability and if you happen to be using a program called Morpheus, then Panda will detect it as a virus. This problem has yet to be resolved by the developers. However, it is a brilliant product overall. Make sure you have sufficient memory as Panda is a real memory hogger.

SPECIFICATIONS:
Highest number of virus definitions; good protection capabilities from the Internet

Panda Antivirus		B+
Performance	★★★★	
Ease of use	★★★	
Value for Money	★★★★	
Features	★★★★	
OVERALL	★★★★½	

DesktopX 1.0

New look for the desktop

If you are thoroughly bored of your dreary Windows desktop and want to modify its looks, DesktopX 1.0 is the tool for you. It comes with a variety of readymade themes and at the same time allows you to create some of your own. It is very easy to use since there are no command line operations involved. You can use it to make the desktop more oriented to your style of use; it helps navigate faster and more efficiently.

The DesktopX 1.0 can create easy-to-understand icons for users new to the PC realm. It can also be used to make the desktop resemble other OSes such as the Mac OS, Amiga, etc. The themes can be downloaded from the Internet. Although DesktopX 1.0 claims to use very little

Price: Rs 937.65 (approximately)
Web page: www.stardock.com



resources, it got a little slower and the mouse movements got a little sluggish when we loaded the inputs.

DesktopX 1.0 is recommended only if you have a healthily (256 MB RAM and more) configured machine and are ready to tinker around with the OS.

SPECIFICATIONS:
3.2 MB download size; allows import of animated gif files; SWF files up to 80 per cent smaller in version 4.2

DesktopX1.0		B+
Performance	★★★★½	
Ease of use	★★★★	
Value for Money	★★★★	
Features	★★★★	
OVERALL	★★★★	

There are daily updates for Panda Antivirus, which ensures protection against even the latest viruses

Yatish Suvarna
Reviewer

System Commander 7

One is not enough

System Commander 7 is a utility that offers you the luxury of having more than one operating system on your hard drive. In fact, if you wish, you can have as many as 32 FAT compatible OSes on the hard drive. System Commander 7 also has in-built features to partition the drive without losing data. Once installed and restarted, the user is greeted with cool screens which show the details of the operating systems installed on the PC. All you need to do is click on the icon. The icon of the operating system displayed can be changed from the Settings tab.

System Commander supports all the major operating systems such as Linux,

Solaris and OS/2. Usually, the Solaris operating system doesn't let you boot the machine if it is not installed on the Drive 0. You then need to boot the system through a diskette, but this

has been taken care of by System Commander. The in-built security feature prevents other people from using it because the program generates a login ID and password while installing the software.



SPECIFICATIONS:
Support for most of the OSes; allows up to 56 primary partitions on up to 14 drives; boots from floppy even if it has been disabled in the BIOS

Price: \$29.95 (downloadable)
Web page: www.v-com.com

System Commander 7		B+
Performance	★★★★½	
Ease of use	★★★★½	
Value for Money	★★★★	
Features	★★★★½	
OVERALL	★★★★½	

Anti-virus protection is dandy, but how do you safeguard against losing valuable data to a black out? As an undercover agent I am generally prepared for anything. But the other day I was caught unawares. Hard at work on a particular assignment, my PC suddenly went on the blink thanks to an electrical failure. As I sat there in the darkness hoping I hadn't lost any data, I resolved to upgrade my kit with the best protection for such occurrences—a UPS.

Chancing on a computer shop in Andheri, I asked for a UPS for my PC. He asked me where I lived. Taken aback, I asked him why he wanted to know. His answer: "Most suburbs in north Mumbai face acute power problems and hence a UPS is recommended. Otherwise an ordinary power strip would be more than sufficient." "But how will a power strip help when a brown-out occurs?" I argued. His logic was that brown-outs don't occur too often. Well, he was mistaken and I soon found that very few PC and electronics dealers knew much about the vagaries of power. A brown-out happens when lower than normal line voltage is supplied by the power company. A power line voltage reduction of 8 to 12 per cent is usually considered a brown-out.

Hoping to find a better solution at an electrical hardware shop, I walked into one and asked about how best to guard my PC in case of a brown-out. This chap knew what he was talking about. He told me how brown-outs cause unregulated power

UPS and downs

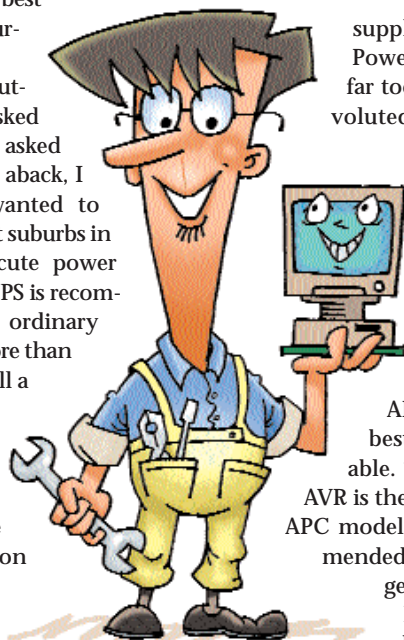


ILLUSTRATION: Mahesh Benkar

supply to the computer. Power supply problems are far too complicated and convoluted errors due to erratic power supply can creep into almost every single PC operation.

My next stop was Lamington Road. The first dealer I spoke to recommended a UPS from APC. He said they are the best and the most affordable. "The APC Back-UPS 500 AVR is the most popular of all the APC models and is widely recommended and sold too. You can get it for about Rs 4,500".

He added that unless I had a 17-inch or higher monitor with printers, scanners and more than two ATAPI devices (more than one CD-ROM and one hard drive), this UPS would suffice. Otherwise I'd have to go in for one with a higher VA rating.

At my next stop I told the vendor that I needed a UPS but didn't know how to calculate the VA rating. He confessed that he didn't know either, but he did know that 500-650 VA is enough for most PC users. True. But if you have a 19-inch monitor and several other power consuming hardware then 1 KVA would be the minimum you'd require.

Another vendor told me that the TVSE line of UPSs was doing well too. I asked him how he'd rate the local (home made, assembled, or unbranded) UPSs. According to him, local manufacturers were pretty good when it came to day-to-day working but they lacked consistency and had flaky support mechanism.

One vendor told me that for home usage, an offline UPS is the only way to go. An online UPS would be too expensive and is recommended only if you are running an expensive PC for critical

applications and data. He also rightly added that an offline UPS has a switchover time (from mains to battery power) of milliseconds, which most power supplies can handle very easily without resetting the PC.

Another vendor said the ideal environment to run any electronic equipment was to run a voltage stabiliser along with a reliable offline UPS, or use a line interactive online UPS because most UPS systems operate your computer directly off your 'dirty' power, except during periods of lost power or brown-outs. Unfortunately, most UPS systems have limited spike suppression and virtually no interference filtering



SHOPPING TIP

■ To buy a UPS all you need to do is add up the total power draw of your equipment.

First, decide which pieces of equipment need UPS support. Typically, only the CPU and monitor are supported to cut down on power draw to the UPS.

■ If the power draw is expressed in Amps then multiply that value by your nominal line voltage, 230V. If the power draw is expressed in Watts, multiply by a factor of 1.3 to 1.4 for VA load.

■ Example: 250 Watt power supply (x 1.4) = 350 VA load (assuming that your monitor is drawing power from the power supply of the PC). Add a measure of safety and 500 VA is enough for most PCs.

capabilities. Also, during brown-outs your UPS may continuously alternate between the power from the mains and the UPS power and this discharges batteries and thrashes the PC at the same time. But he also said that the APC UPS was definitely a cut above the rest and highly recommended. He suggested that one should keep aside 10 per cent of the PC budget towards voltage stabilisers, UPS, power strips etc. Lastly, he advised on ensuring that all power connections are properly earthed and not loose. ■

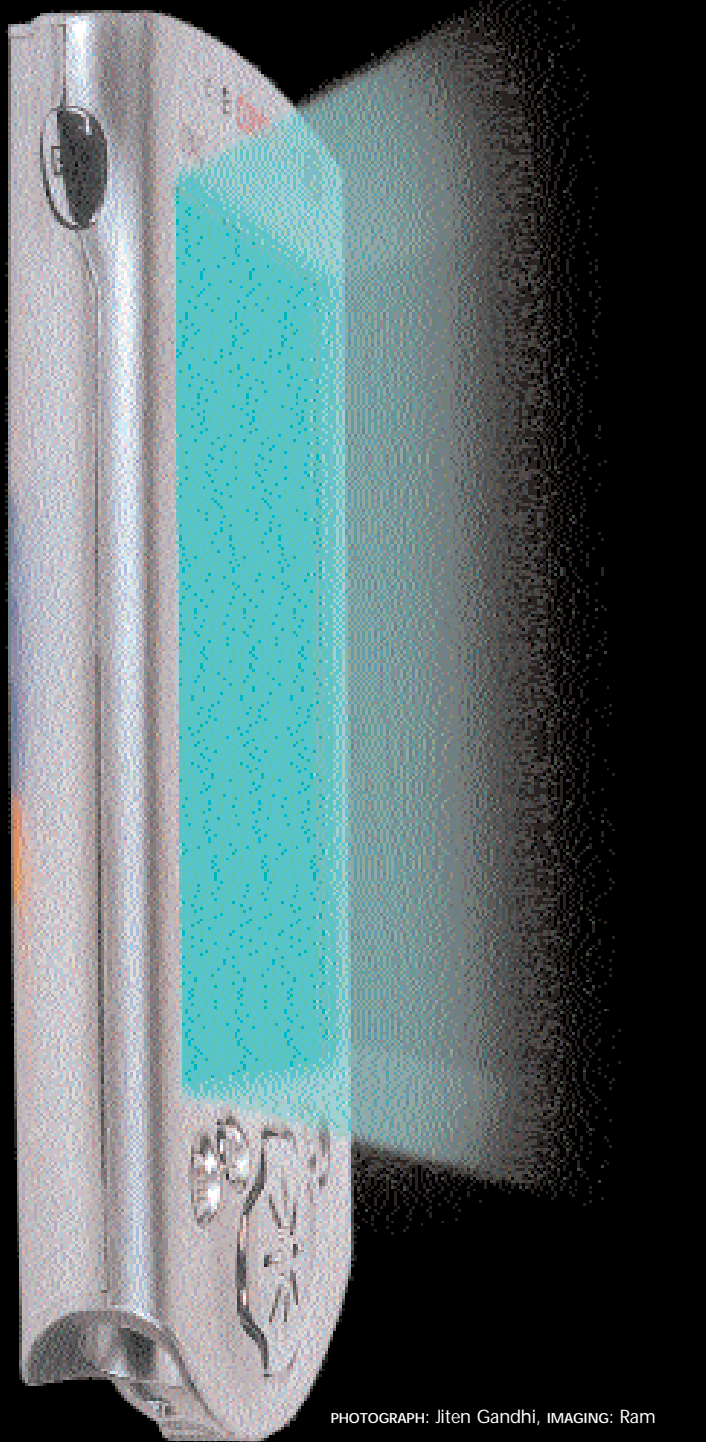
Monitor Hunting

Imagine buying a 17-inch monitor for less than Rs 10,000. Yes, It's very much possible now! A majority of the popular brands and makes have reduced their prices and have finally broken the Rs 10,000 barrier. With a little bargaining you might even get a 15-inch monitor for less than Rs 6,500.

A little hunting will also fetch you amazing prices for some of the brands. The lowest we found for a 17-inch was Rs 8,000. So go sniffing!



The Pocket PC examined



PHOTOGRAPH: Jiten Gandhi, IMAGING: Ram

A close look at the Pocket PC, the tools it offers, and where it's headed

A complete mobile computing experience. Sounds weird to you? Not really. Just stop a while to consider how each generation of handheld has improved, how each new release is capable of doing much more than was possible earlier. And you will realise that handhelds are closing the gap in the race with desktop PCs fast—at least in terms of functionality.

Microsoft is no newbie when it comes to handhelds. Earlier devices powered by the Windows CE platform weren't exactly avant-garde. In fact, their presence on the market hardly left an impression. With the third version of the CE software, now called Pocket PC, Microsoft is hoping that it will be luckier the third time round. Looking back at the previous avatars of Pocket PC, this one is certainly attractive. But is a Pocket PC everything we want it to be in computing and gadgetry?

What does the Pocket PC offer?

If you're looking for a direct replica of your desktop's entire application suite, then the Pocket PC is not for you. It doesn't offer all the functionalities, not yet. But if you're looking for a core of neat utilities, Pocket PC is a platform that holds its own. It sums up the most useful tools for the mobile user, and then gives you some more. It boasts of tasks ranging from basic Internet applications and multimedia to managing spreadsheets and documents.

The word's out

You can use Pocket Word to access and edit MS Word documents on your handheld and make changes using the stylus as a writing tool, or by simply tapping the onscreen keyboard. Several advanced features such as macro support and Thesaurus have been left out, but it does have some of the key features of MS Word—the spell checker and the ability to use RTF files. Unlike Palm's memo pad, which is its primary means of entering short text-based information, Pocket Word allows for the formatting of documents.

Pocket Excel

As its name suggests, Pocket Excel is a scaled-down flavour of Microsoft's popular spreadsheet application. Considering that its purpose is to offer mobile finance calculation, you would expect Pocket Excel to do well despite being stripped of its powerful features. Unfortunately, with the Pocket PC's small screen size, you can view only a limited amount of data at a time and you are forced to keep scrolling through the pages to get at the bigger picture. However, one useful feature that the Pocket version carries is the tabs located at the bottom of the screen that let you toggle between multiple spreadsheets.

Just browsing through

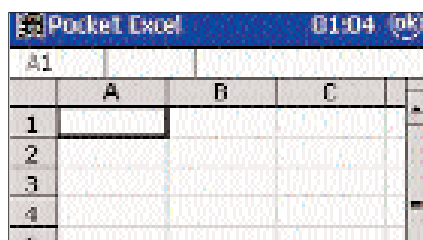
Internet Explorer on the Pocket PC is an application, which acts as a clear separator between the Pocket PC and Palm platforms.



Polish up office documents on the move!

ActiveSync and a combination of certain Web services, you can download a collection of Web pages onto your Pocket PC and use the browser to view them later when you're on the go.

Funnily enough, Pocket PC features Windows Media Player, but before you get excited about it, take into account the 16 MB to 64 MB of storage space, most of which is already being used by applications. Even if you have its entire capacity at your disposal, can you really store a decent collection of videos, or even songs for



Ideally suited for simple accounting jobs

With the Pocket version, you can easily view Web pages without requiring a special modem.

With Microsoft

that matter? At best, the Pocket PC platform is suited only for small clips of audio, or for taking notes, perhaps. But if you do insist on watching movie clips and listening to MP3s, the only way to go is to purchase

memory upgrade cards, or better still, IBM's Microdrive.

Microsoft Reader

If you like to read while travelling, you will definitely appreciate Microsoft Reader, which is designed to use e-books or electronic books. What makes this reader a nifty utility is a feature called ClearType, a way of displaying letters on the screen for maximum legibility. The text is clear and crisp and one really can't complain about too little fitting on a single page. Reader efficiently uses about 90 per cent of the screen to show the text in an e-book, so it is pretty comfortable to read despite the text being rather small. If you are interested in mobile finance, you will like Money, a small finance package for people on the move.

Ease of use

Chances are, your first brush with the Pocket PC will be marred by confusion, despite the fact that it has a friendly look and feel to it. But after you spend a few hours with the device, things will settle in a bit, and you'll be able to navigate your way through most of the basic functions such as browsing and synchronising the device with the desktop. Seasoned computer users won't take too much time getting busy with this neat little gadget. But what about those who aren't as tech-savvy?

We tossed queries at the myriad handheld users we had a chance to question. The replies were highly varied and just as subjective. However, from the feedback, it appears that the experience really depends on whether you are an optimist or a pessimist. Microsoft, you see, has gone to great lengths in getting not only its premium offerings ported, but also streamlining the code and smoothening the interface. It is heartening to know that commendable efforts such as these are being pushed into improving PDA usage. But those who are not too firmly rooted



Pocket PC 2002

Like a desktop computer, Pocket PCs offer a path for owners to upgrade their operating system. As of now, the only upgrade available for Pocket PC owners is Pocket PC 2002. Though most of the functionality provided with 2002 is included in the original version, users can benefit through the enhancements featured in the upgrade. The focus here seems to be on improving the look and feel of the interface and adding functionality to existing applications.

For the first time, the Pocket PC has poised itself for enterprise use. Among these corporate trimmings is built-in VPN (Virtual Private Networking), which gives you a secure connection to your company's network through the Web. In order to deploy Web-based applications on your intranet, Pocket PC 2002 features a Web server which also gives you the freedom to work when you're offline.

For other market segments, these additions may not appear to be so useful. Perhaps the sole incentive for personal users to make the switch is the introduction of a 'pocketised' MSN Messenger. But, this minor increase in usability doesn't alone justify the need for an upgrade. Like the transition from Windows 98 to Me, the road to Pocket PC 2002 looks to be yet another colourful, yet uneventful journey. At best, Pocket PC 2002 has something to offer corporations looking to buy new hardware.

Handhelds which have native support for the latest make of Pocket PC will come up with new specifications. For example, the new OS will only support devices that have chips based upon ARM technology, such as Intel's 206 MHz StrongARM processor. Upgrades to the Pocket PC 2002 are available provided they meet the new software's requirements.

in the digital age might find this a tad difficult to believe.

Data portability

Pocket PC gives us two ways of synchronising data between the device and a desktop PC—by infrared and by the wired approach. You can either connect its cradle to your PC through the USB or through the serial port, depending upon the model you choose. Microsoft's ActiveSync is a software which acts as content director between the Pocket PC and the desktop. You can select how automated the sync process should be, and coordinate everything from your calendars and contacts to e-mail and files.

Especially because we in India are still deprived of wireless access, we should be making use of the ubiquitous Web more. Through specialised services such as Avantgo, we can access anything from condensed to full-sized Web pages without a mobile Internet connection. Hundreds of Web sites (called 'channels' by Avantgo), including Anandtech and CNN, offer concise editions of Web pages



Tiny, yet clean and slick



Pocket PC vs Palm OS

For a long time, Microsoft dwelt in the Palm's shadow till they finally got it right with Windows CE v3.0, simply known as the original Pocket PC operating system. Though the Pocket PC is a marvel in itself, there is an alternative out there which offers its own rewards—the Palm OS which was designed with low cost, simplicity and a low footprint in mind. Who can ever forget the wafer-thin Palm V? But in terms of functionality, it is evident that a Palm outfitted handheld looks like a toy that can do small tricks as opposed to Pocket PC's extreme likeness to a desktop computer. Applications that Windows users are accustomed to such as Word, Internet Explorer and Windows Media Player have been ported to lighter and easier-to-use Pocket PC versions. Streaming audio/video, wireless connections (including 802.11b) and its tight integration with its desktop counterparts make transferring more than just address books a reality.

So with all its bonuses, why is the Pocket PC's market share only 25 per cent of that of Palm? Microsoft must pay heed to Palm's massive devel-

oper support and the availability of Palm accessories; finding Palm applications is child's play thanks to the community-centric support that it boasts of. Secondly, the Pocket PC was essentially designed to do more, and as a result, the device costs more. An entry level Pocket PC starts at around Rs 20,000 while a Palm gadget comes at less than half that amount. Although Microsoft is fully aware of these facts, it is pinning its hopes on multimedia and wireless applications to justify the price tag.

Both Palm and Microsoft realise that in order to boost their positions in this phase of handheld growth, corporate acceptance is imperative. With the specialised services of the Palm OS and Pocket PC's exorbitant price tag, currently, both are tailored to suit the needs of businessmen rather than the average consumer. But once the cost dynamics tilt in favour of the Pocket PC, Palm could possibly be on its way to the grave. If Palm even wishes to dream of long-term survival, the company needs to shift its focus away from its software's proprietary nature.

press it. Writing on a small area doesn't help either; the hand is used to resting on a solid platform as opposed to thin air. In time, you will only have to get used to being careful about how you dot your i's and cross your t's. Even then, you will have to deviate from your natural style of writing.

What's in the offing?

One gadget that's left an impression on the minds of a music-hungry generation is the Sony Walkman, a revolutionary product that founded the personal audio industry. Sony's 'ingenious' strategy is actually quite simple: take a typically immobile object, make it slick, and scale it down enough to fit in your pocket. Unfortunately for handheld makers, this approach will only take them so far.

For handhelds to gain wide acceptance, they need to be easier and more efficient to use. Take browsing for example. Can you imagine trying to navigate your way through the Web with just a stylus complimented by poor handwriting recognition? Instead, why not try and capitalise on a handheld's obvious advantages? Their small screens are ideally suited for a greatly simplified interface that lays more stress on tapping rather than glorified attempts at writing gibberish. As of now, handhelds are years away from voice and handwriting recognition. So if there are more refinements to think about, why are OS makers pretending that their products have done it all right away?

There is no doubt that in the next five years, mobile computers such as these will be as easily accessible as the cell phone today. For one, it will cost around the same. Besides, if you take this technology just a few steps further, there is no reason why a digitally smart and savvy generation won't adopt it.

PRASHANT MASRANI

through their services. Pocket PC uses the host's Internet connection to download pages from the Web during the sync process. Once you subscribe to your favourite channels, the sites' latest updates are downloaded to your Pocket PC the next time you decide to update.

Recognise me?

For years, poor voice and text recognition has been the bane of the mobile computing industry. With the Pocket PC, greater emphasis has been placed on character recognition with the stylus as a writing tool. But the muscle power of handhelds today is a far cry from what it needs to be. Pocket PC's text engine includes a learning module which calibrates itself to the user's unique penning characteristics. The feel of a stylus and touchpad is completely different from that of pen and paper and takes some time getting used to. When writing on this device, you feel no resistance and you need to be lenient about how hard you

1/4 page AD

Message in a window

A behind-the-scenes look at how Instant Messengers work and how you can make the most of them

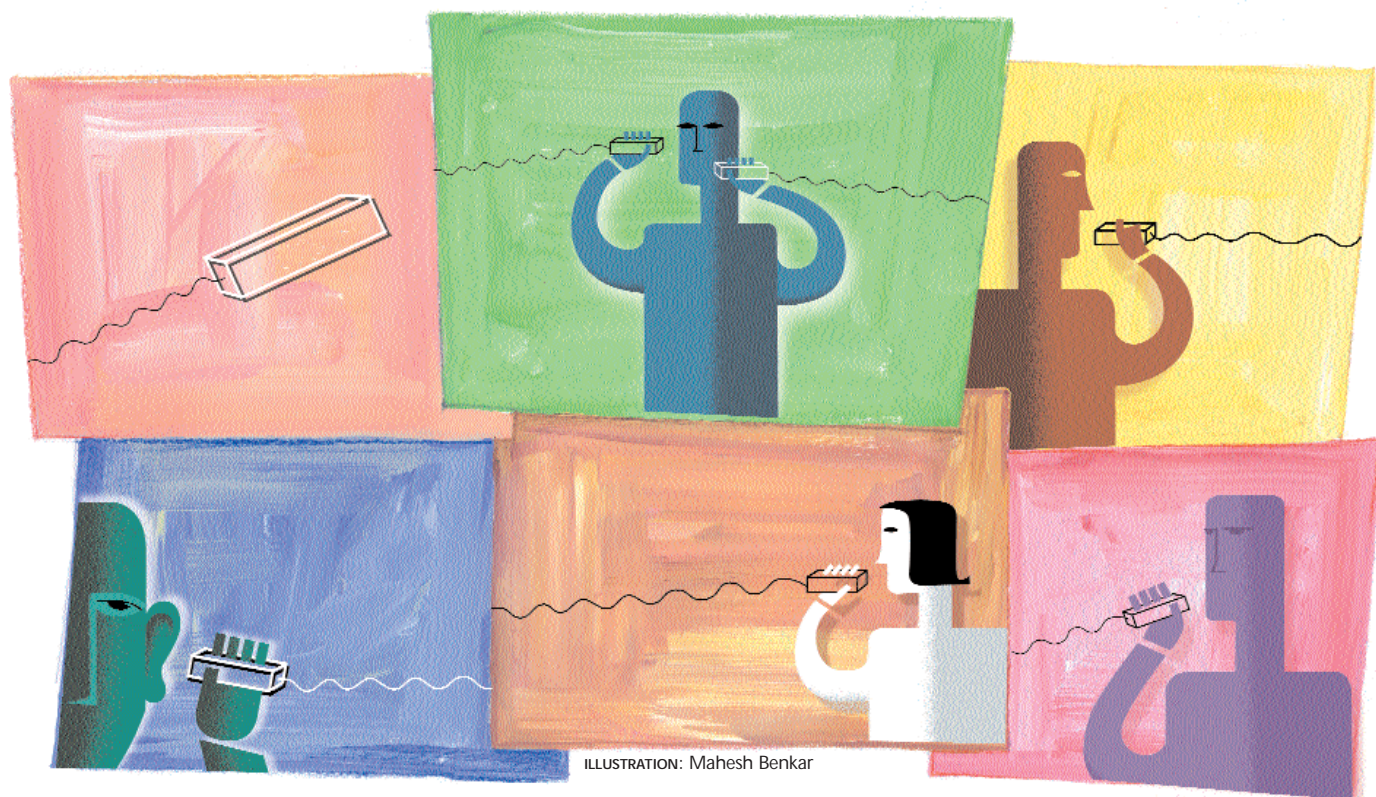


ILLUSTRATION: Mahesh Benkar

Out of sight may no longer mean out of mind! Not if you're the kind who swears by instant messengers (IMs).

The Internet and instant messaging have given a whole new meaning to the term long distance relationships, whether it's your favourite aunt settled abroad or your girl friend studying in a different city. Separated by such vast distances, you can still be in close proximity, thanks to all those messages shuttling back and forth at an astounding speed. Adding features every day, instant messaging has encompassed business interests as well. But do you know what makes an IM tick? If you've ever wondered (between sending those smileys

and lovey-dovey hearts!) about the technology that makes this marvellous form of communication possible, then you might not want to put this magazine down until the next few pages.

Anatomy of the chat system

So how does your message reach a friend through the streams of servers spread across a vast geography? The message is sent via copper and fibre connectors across the world at two-thirds the speed of light. In effect, the users find no difference in the delay that occurs due to the transmission of messages across servers. For two people to communicate effectively with each other they need to speak a common

language. Similarly, for two programs to communicate with each other they need to connect through a common convention, called a protocol. The protocol decides the method of communication between the chat client and its server. Most IMs use their own proprietary protocols (that's why a Yahoo! user cannot contact a MSN user, though both may be online).

The user logon process in an IM involves two phases: the authentication phase and the instant messaging phase.

Authentication: When you enter your username and password in the instant messaging client and try to login, the client establishes a temporary connection



IRC—Internet Relay Chat

Jarkko Oikarinen started Internet Relay Chat (IRC) in 1988 and revolutionised the chat system. It was an implementation that allowed people who were logged onto a Bulletin Board Service (BBS) to communicate with each other. People with special interests could come together online for the first time.

The use of IRC saw a massive growth when Kuwait was invaded by Iraq in 1991. Users from all over the world wanted to have a first-hand glimpse of what was happening in Kuwait. When all other lines of communication were cut, an IRC link to Kuwait was framed, which remained active for more than a week. For a glimpse of what happened, check out www.ibiblio.org/pub/academic/communications/logs/Gulf-War/.

Since then, instant messaging has moved down an evolutionary path to what is available today from various service providers.

with an authentication server. The server searches its vast database for the username and password combination that you keyed in (see diagram, 'A working chat session'). If the search is successful the server lets you know that you have been successfully connected.

Instant Messaging: Once you are authorised to use the chat service via a particular client, a connection is established with another server called the communication server. The client sends your computer's address (IP + port) to the communication

server. The server maintains a directory of users who are logged onto it, which includes the user ID and IP. In return the server sends your buddy list to the IM client. The client frequently sends packets of information to the server inquiring about the status of your buddies and when one of them signs in, goes offline or changes his status, your client is informed with an appropriate signal from the server.

Once you key in a message to your friend and hit the Send button, your

message is handed over to the chat client. The client identifies the address of the user from the directory on the communication server and routes it to him/her. (See table, 'Instant Messengers Compared')

That's the underlying principle of how you can send a message from India to a friend in the US within seconds. But what makes instant messaging better than e-mail? Usually an e-mail has to travel through numerous servers before it reaches the recipient and hence is slower. In the case of instant messengers, however, a message is routed through only one server (addresses of your buddies are stored on the network of communication servers across the world) and the message reaches the recipient who is connected to the same server, instantaneously. The time lag between the message relay and arrival is so infinitesimal that you find instant messaging almost instantaneous. Besides the speed factor, e-mail also lacks the interactive and personal touch that an IM offers.

Video, voice and file transfers

Your IM is a collaborative tool that not only lets you type in text niceties but also lets you see and hear your loved ones. The

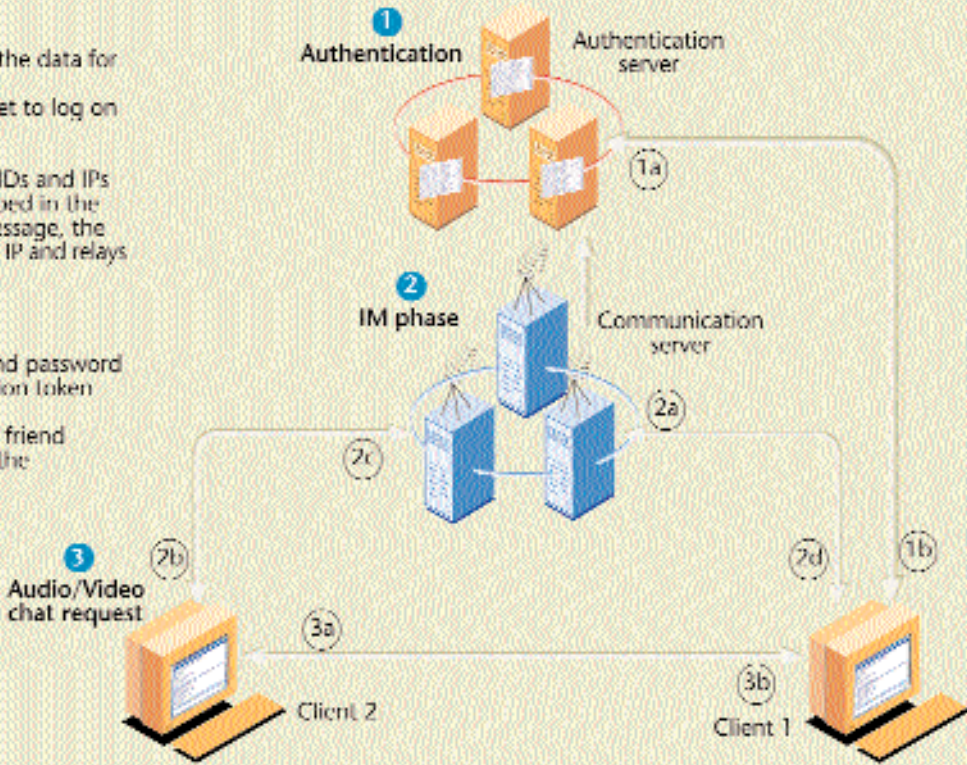
INFOGRAPHICS: Jaya Shetty

A Working Chat Session

Authentication server: contains the data for all user IDs and passwords. It gives you the authorisation ticket to log on to the communication server.

Communication server: All user IDs and IPs (mobile numbers if any) are mapped in the directory. Once a user sends a message, the communication server looks up the IP and relays the message to the same.

- 1 a. Server verifies username and password
b. Server sends an authorisation token
- 2 a. Send IM to be relayed to a friend
b. Receive message through the communication server
c. Reply to sender
d. Receive response through communication server
- 3 a. File, voice or video connection request
b. Accept or reject token



One for the Chatterbox

Today most surfers use Yahoo!, MSN, ICQ and AIM. So what could be more brilliant than the idea of a single client, which could control all messenger accounts? Multiple messenger users find it extremely convenient to use such clients. Configuring Yahoo!, MSN, ICQ and AIM accounts is quite easy. Once the accounts are configured, your buddy lists are imported from the respective services. Now you can send/receive messages to all your buddies on different services from a single window.

Some of the most popular cross-platform mix messengers are Jabber, Trillian and Odigo. While Trillian and Odigo simply let you configure all your messenger

accounts, Jabber gives you much more. Jabber is an XML-based open source messaging client that can be used to configure Jabber and other messenger accounts. The mind blowing features of Jabber include accessing your Jabber account from anywhere using devices such as PDAs, mobile phones, etc, making it completely interoperable. The community is focused on enhancing this piece of software with features such as SMS services and wireless access. Jabber focuses more on security and privacy with no compromise on the ease of use. Jabber also allows you to set up your own chat server. Check out www.jabber.org and find out what interests you.

server. Your peer is notified with a link using which he/she could download the file from the server.

MSN opens a temporary peer-to-peer connection for the file transfer. Thus, when you send a file to your friend, a connection is established directly between your client and your friend's client. They communicate with each other without the intervention of the server, allowing for faster file transfers. But during network congestion this system may not work and hence a server intervention and store-forward mechanism is more worthwhile.

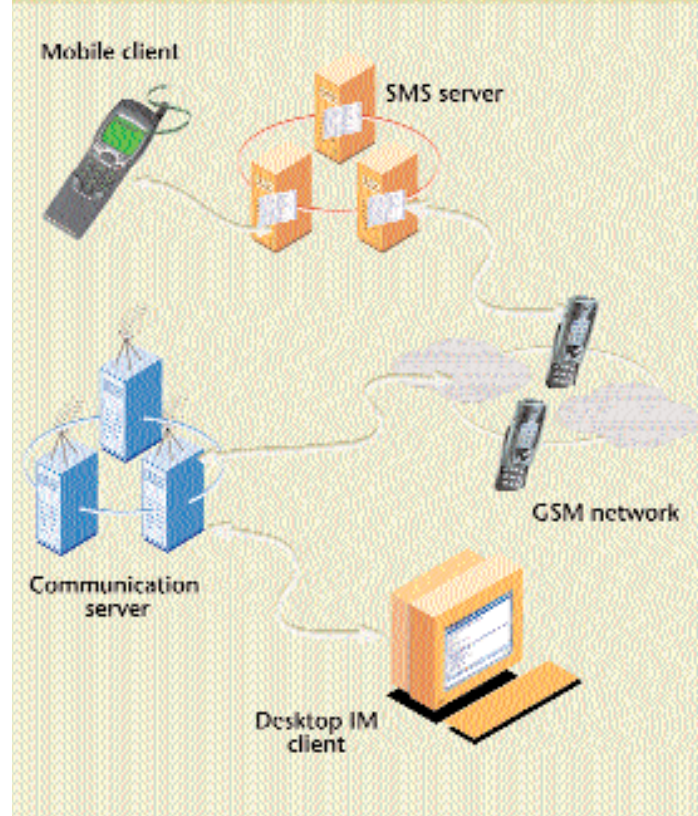
Most multimedia communication occurs via a buffering server, which stores and forwards digital information. Once you enable 'voice chat' the client contacts the communication server, which directs it to an audio server. The server immediately sends a notification to your friend that you would like to have a voice chat with him/her. If your friend consents, a voice communication channel is initiated between the two of you. Now you can use your microphone to chat. The voice

transmission of voice and video follow the same principle as an instant message.

Over one billion instant messages are exchanged **every day**

When you try to send a picture to your friend, a file transfer is initiated. The server checks for the file's size and if found to be too large, it denies a connection for the file transfer. If it is within the size limits, a session is initiated with your peer and the file is sent in small chunks. Some IM services upload files to the communication

Chat on the Move



Relaying a message from a mobile device to a desktop and vice versa

1. Authentication phase: To chat using a mobile phone, send an SMS with your user ID and password to the service number provided by the mobile service provider. The SMS server that receives the SMS, routes it through the GSM network to the Yahoo! authentication server. The authentication server sends an authorisation ticket as an SMS back to your mobile phone. Simultaneously the Yahoo! communication server is notified that the user has logged onto the messenger using a mobile phone.

2. Instant Messaging phase: Now the address on the communication server holds your mobile number, user ID and IP. You can chat with your friends by sending an SMS to their user IDs. The SMS server identifies that the SMS is an instant message intended for a Yahoo! client. The message is routed appropriately through the phone network to the Yahoo! communication server and is then relayed to the user.

3. Relaying messages from desktop clients: Desktop messenger users can reply as you would reply to any other message that you receive. Since the address on the communication server notifies that the user is logged on using his mobile phone, the message is routed to the SMS server from where it is sent as an SMS to the mobile phone user.

Instant Messengers Compared					
	MSN	Yahoo!	AIM	ICQ	IndiaTimes
Emoticons	Could do better	Good looks and variety	Not the very best	None here	Try these at your own risk!
Video and voice conferencing	Netmeeting is good for video chat, bad for voice chat	With a fast connection this is the best for voice and video chat	No video chat here	Make do with only text	A simple <i>desi</i> text messenger
SMS Facility	—	—	—	Send an SMS via leading mobile service providers	—
Buddy search	You need the e-mail address or sign-in name	Search is easy and includes parameters such as interest, age, and sex	Often results in search errors	Search on various parameters and add buddies with a single click	Missing in action!
Message archiving	Save messages manually	Optional feature	No archiving option	Enabled by default	Out of the question
Maximum characters allowed	400	800	1,024	Online: 7,000 Offline: 450	150

data is seamlessly relayed to the audio server, which buffers and sends it to the receiver. Owing to the speed at which this happens, you do not experience a lag in the voice (provided you have a high speed Internet connection). You would find an apparent lag while using a dial-up Internet connection. So you can now save a bundle on a long distance call to that interesting girl you met on the Net the other day!

Video communication is an altogether different ball game. The client receives the frame from your Web cam and sends it to the viewers connected to your Web cam without passing through an intermediate media server. A noticeable delay in frame rate and refresh rate makes it quite like a slow motion video, but that's inevitable because of the congestion that would exist on the network. Video quality can improve and match real life speeds if the connection was dedicated solely to video relay. The video quality might also depend on the quality of the camera in use.

Is reliability at stake?

Most messengers use the ASCII text mode, which means all your messages are sent as plain text between the server and the client. Since messages are sent mostly as unencrypted data and they travel through public networks, the risk of being snooped on is pretty high. Messenger service providers warn you of potential hazards in sharing personal information on the Web. It's possible for a professional to sniff the data packets and steal your personal informa-

tion when it is sent across. Sniffing agents and packet snatching programs are available on the Net in plenty. A hacker might use any of these programs to catch data packets that travel over public networks. Since the messages are in plain text, the hacker has less to do on deciphering them. Messengers are not meant for exchange of secure information. Flaws in the messaging client can be exploited by hackers to plant malicious code on your computer. Besides, a class of messenger viruses have started causing havoc. George Bush and Pic 1324 are two such viruses. They come to you as a file sent from one of your friend's virus infested computer. When you accept the file on the messenger, your PC gets infected and a file called msgsprd.exe is copied into the memory. Once the program is actively resident in the memory, it starts spreading to other contacts on your buddy list.

The last word

Instant messaging has created a new paradigm on the Internet. It's the most preferred application of the Net after e-mail. Not just individuals but also businesses have started looking at instant messaging as a cheaper alternative to communicate with their customers and clients. Businesses can have closed instant messaging solutions deployed on their networks to increase security and privacy, while also cutting down on communication costs. Exchange 2000, the messaging software that's available from Microsoft allows you to deploy instant messaging solutions at the corporate level.

Desperately Seeking You

Yair Goldfinger, Arik Vardi, Sefi Vigiser, and Amnon Amir. They are the brains behind ICQ (I Seek You), the world's most popular instant messenger from Mirabilis, a company formed by the foursome. Back in 1996 when the Internet was gathering momentum among the masses, Mirabilis realised that something was lacking in the whole concept of the Internet—interaction. The missing link was instant messaging. ICQ enticed its users with new features such as user created public and private chat rooms. Soon the online community sprang into a large ensemble of special interest groups. Today ICQ has improved many-fold and offers its customers a highly integrated messenger that includes an e-mail facility, option to send and receive SMS, make phone calls from PC to PC for free or to a phone from your PC at very minimal charges. Palm, Pocket PC and Windows CE versions of ICQ for the PDA are also available.

Today IMs are mostly used at a personal level. The potential to extend an IM's interoperability can enhance communication and take it to new heights. Open source clients such as Jabber give you the flexibility of using messengers on varied platforms such as PDAs and other mobile devices. SMS has already integrated itself with messaging. Instant messaging will evolve to a service where you can talk to devices from any platform and every device available on earth.

VIDYARAMANAN S.

PC Garage

Small things go a long way in extending the life of your machine. Here's how to keep your PC in top-notch condition so that it continues to hum with perfection



ILLUSTRATION: Mahesh Benkar

What is the most forgotten task in the life of a PC? The answer is maintenance. Some of us may reason that an expensive piece of machinery is supposed to take care of itself. It isn't so—the onus of keeping a smooth machine smooth falls upon nobody else but the owner.

So if you have been ignoring the clean-up session of your PC for a while, now is the time to get started. Here's what you need to get organised: a screw driver, a vacuum cleaner, tissues, a soft cloth, glass cleaner (spray bottle), a cologne or any mild cleaning solution, cotton bud swabs and some different-sized brushes.

If we break down the elements you have to clean, they fall in seven main categories: your monitor/LCD screen, the CD/DVD-ROM drive, the keyboard, mouse, printer, scanner (if you have one), speakers, and the power supply.

Let's start with the first thing you see—your monitor.

Monitor/LCD

You view the outside world through your monitor. Let that view not get blurred (or glared) by laziness on your part—a clean screen means your eyes stay healthy too. Here's the process:

- First things first: switch off that power supply before you touch anything. Unplug your computer, and begin cleaning only after that.
- Spray the glass cleaner solution in short bursts on the monitor screen.
- Take a paper napkin (or a soft cloth) and clean the glass in one direction. Remember, one direction only. Then wait till the screen has dried.
- Spray the glass cleaning solution on a soft cloth and clean the outside cabinet of your monitor.
- Use only a moist cloth to clean an LCD screen.



■ If your monitor is equipped with a manual degauss function, try to degauss the monitor to see if the colour dissipates. If this function is not available, turn the monitor off, wait for about 15 minutes, and turn the monitor back on.

■ Make sure the display resolution and refresh rates are within the specification of the monitor.



■ Do not spray any cleaning agent while the monitor is still warm—let it cool down first.

■ Never spray the solution directly on the screen as it could damage the coating.

■ Exercise caution while cleaning the on/off buttons and the control panel. Do not let the cleaning solution enter these areas.

■ Never spray anything on the vents on the backside of your monitor. This could cause damage to internal parts.

CD/DVD ROM

A CD or DVD-ROM is the most extensively used hardware peripheral. In order to extend its life, use a Lens cleaner at least once a month. One common mistake users tend to make is that



The wrong way to close the CD tray



The right way to close the CD tray

they sometimes close the disc-loading tray manually—this can result in misalignment of the tray due to the external force exerted by the human hand. It is highly recommended that you close the tray by pressing the button from the panel, and not by pushing it in.

Keyboard

The most used PC peripheral is also perhaps the dirtiest. To get your keyboard spanking clean, first lift it upside down so that all the loose dust particles fall off. Then use a vacuum cleaner to blow out the particles that have settled beneath the keys. Thereafter, unplug your keyboard, place it on a flat surface, spray the cleaning solution on a tissue, and scrub clean the areas that have dirt marks.

Ideally speaking, you should be cleaning your keyboard once in two months. On a more realistic level, try and do it at least once in three or four months. But if you've dropped something like jelly or raspberry jam, then there's no avoiding that cleaning session.



■ Do not use alcohol, solvent or anything that could remove the printing on the keys or melt the plastic.

■ Avoid spilling liquid (and food) on the keyboard as the food material may enter inside and render certain keys (or

Media care



■ Always keep the media (the CD) in a lined case so that it remains free from dust and scratches.

■ If you find dust settled on the media, clean it immediately with a soft clean cloth. Your CD-ROM drive can't read a dirty CD.

■ Make a habit of holding the CD from the edges, and always clean it from the centre to the outer portion.



■ For longevity of the media, do not expose it to direct sunlight.

■ Do not clean the media in a circular motion (even if it seems easier).

■ Make sure you don't leave any fingerprints on the CD.

even the entire keyboard) non-functional.

Mouse

Cleaning a mouse is one of the easiest tasks and we usually tend to open it whenever it gets slightly sluggish. This is how you should go about cleaning your mouse:

■ Turn off the PC and unplug the mouse.

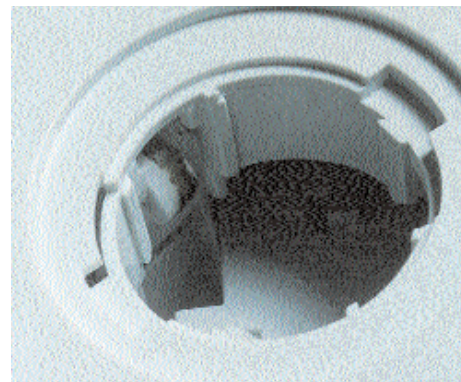
■ Open the 'locking ring' that holds the mouse ball in place (follow the arrows indicating the proper direction to turn and unlock).

■ Be careful with the mouse ball—moisten some paper napkins with Cologne (or any mild cleaning solution) and clean the mouse ball with a gentle rubbing motion. If the tissue gets dirty, change it and use another one.

■ Next, you will notice two rollers inside the mouse. Clean and wipe them with the cleaning solution. Let the mouse dry for a few minutes before using it.



Never use your nails or any other sharp device to clean the insides of the mouse.



Clean the rollers inside the mouse

Scanner

If you own a scanner, you'd often have found images marred with light or dark stripes or displaying a check board pattern. This indicates that it's time to clean your scanner glass.

■ Unplug the scanner.

■ Raise the front lid, apply a very mild streak of cleaning agent to a soft lint-free cloth, and clean the glass.

■ Wipe the glass with a soft cloth and wait for it to dry.



■ Make sure the transportation lock is enabled before you transport the scanner from one place to another. This prevents the CCD array mechanism tray from moving.

■ Always unplug your scanner before cleaning.

Power watch

The most common power-related PC problems originate from errant voltages. Hence, the best defence against voltage fluctuation is a good surge protector. It is always advisable to buy a good quality spike guard so that it can actually withstand any sort of fluctuation.

There are spike guards that also feature a resettable circuit breaker which lets one correct small interruptions with a quick flip of a switch instead of having to replace a fuse. Surge protectors with this feature often cost more but are worth it in the long run.



■ Many-a-times you might hear strange sounds coming out of the spike guard which might make you think that it's time to change it. Well, you are wrong. This sound simply means that the contacts need to be cleaned.

■ Make sure the power is switched off before cleaning the spike guard. Unplug all the attached peripherals and clean the contact with a dry, soft cloth.

■ If you are using an UPS, it is advisable to charge and discharge the battery once a month so as to extend its life. To do this, run the computer from the battery itself so that it gets completely discharged. Set the battery to charge again.



■ Never apply the solution directly on the scanner glass.
■ Do not unscrew the lid in order to clean it from inside if you find that the glass is dirty or has a slight dust or smoke film underneath. Call the authorised service centre and get them to do the needful.

■ Never use abrasives, Isopropyl alcohol, benzene, acetone, etc on the scanner glass. This will streak and cloud the glass and cause damage.

Printer

The worst part about a malfunctioning printer is that you usually find out the fault when the need is urgent. To avoid such situations, keep your printer well maintained. It's very easy actually and you needn't do much. Most problems are related to the ink which runs out and paper jams.



■ If you've installed the ink cartridges for the first time, remember that they need to be aligned. To do this, use the software that came along with the printer. All you have to do is click on the Align button and the cartridges will align automatically.

■ Store the cartridges in the right packaging; it makes sense to store extra cartridges in their factory-supplied containers. If you regularly switch between colour and black ink, store the swapped out cartridge in an old factory-supplied container or in a small zip-lock bag.



After cleaning your cartridges, make sure you place them back firmly in their slots

■ To avoid paper jams, clean the rollers inside by using alcohol. Do not forget to set your paper guides carefully and remember to never mix different types of paper in the same tray. Half the problems won't arise if you use the right paper.

■ Maintain the print head of your dot-matrix printer. Over a period of time, the metal contacts on the back of the print head may oxidise and lose their conductivity through exposure to

air. To clean it, you should use isopropyl alcohol and a lint-free swab.

■ For switching off the printer, use the printer's power switch rather than the switch on a surge protector.

■ Use the nozzle-clearing function (it blows ink through the nozzles to unclog them) if you have an inkjet printer. Use it regularly, especially if the printer lies unused for weeks at a stretch.

■ Spray a mild glass cleaner on a soft cloth and use it to wipe clean the outside of the printer.



■ If you spot a leakage, never open the inside parts of the printer. Always call the authorised service centre.

■ For optimal trouble-free performance, use the original ink cartridges, not the cheaper refilled ones from a local shop.

■ Avoid placing a bunch of papers in the tray without separating as this leads to paper jams.

Speakers

A good set of speakers would rarely give up on you, provided you use them reasonably. Being a music-lover doesn't necessarily mean blasting the speakers at the topmost decibel level.



■ Wipe the speakers using a soft cloth dampened with a mild detergent such as dish soap.

■ You can also lightly vacuum the grilles to remove the suspended dust particles.

■ If you are using an adapter other than the one that came along with your speaker set, match the ratings of the amplifier (RMS) and adapter (ohms), otherwise you could cause damage to your speakers.



■ Avoid listening to music at extreme volumes and reduce the volume level when a clear distortion is audible.

■ Never plug the speakers off while they are still on.

Ideally speaking, you should schedule operation cleanup for each of these peripheral devices every two weeks. If you are a very busy person (as we suspect), complete all these cleaning exercises at the first possible free weekend that you get.

Cleanliness pays off in the long run, you know that, so wipe that dirt off as soon as you can. It's your investment. Make it last more and enjoy a clean computing experience. ■

MITUL MEHTA

Word Play

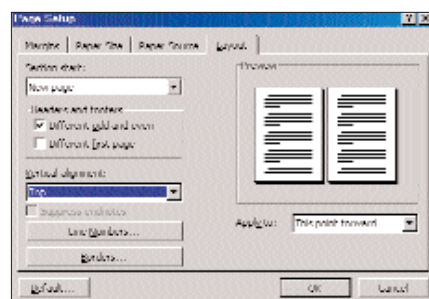
Surprise! Microsoft Word is a page layout software too. Here's how you can use it to create some of the most stunning pages

Got a project to submit or a report to send out? Does your teacher or boss insist on neatness and consistency? You could pay your local STD-ISD-PCO-Xerox-Computer Layout guy to come up with a snazzy output in Pagemaker over a day or two—or you could do it yourself in a few hours and impress the hell out of anybody. It's not difficult at all and you don't need any special software. Just find out how many more intricacies Word is capable of. You'll be pleasantly surprised!

Page formatting

To begin with, construct the page as you would want the final output. This goes slightly beyond setting the page size and margins. From the Page Setup dialog box, you can specify the layout of the document—whether you want a different first page (for instance, as a cover sheet) or align text and graphics in the centre of the page. All settings can be specified for the entire document or only for a section. This is particularly useful for inserting items such as graphs and illustrations in the document. You can even add colourful borders to the document.

Another aspect of the page construc-

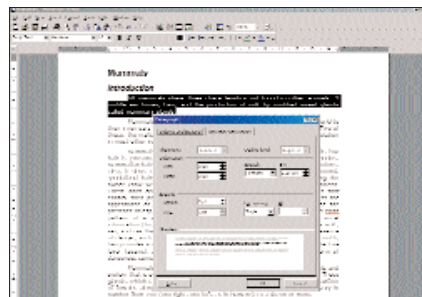


Specifying document layout in Word

tion involves headers and footers. From the Page Setup dialog, you can specify header and footer positioning. You insert text and images from *View > Header and Footer*. These are usually used for including the name of the document, page numbers, and so on.

Paragraph formatting

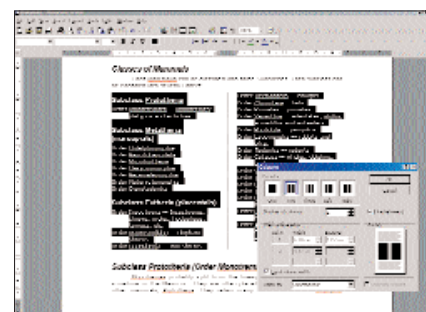
Formatting paragraphs becomes very important for presentation as well as organising your material. Open *Format > Paragraph* to begin. From here you can set the paragraph alignment, the text



Formatting paragraphs in Word

indentation, and the spacing within, before and after the paragraph. You can even format the first line differently.

Some very useful features are available under the Line and Page Breaks tab. These options will make sure your document never looks shabby. 'Window/Orphan control' will make sure that the paragraph doesn't begin at the end of a page or doesn't end with a single word. 'Keep with next' will cause the current and next paragraphs to always appear on the same page. This is very useful for headings. 'Keep lines together' will make sure the entire paragraph always appears on a single page, unless it



Formatting text in columns

is too large. This is very useful for comments, excerpts, etc. 'Page break before' will move the paragraph to the next page—useful for beginning new sections. This is better than inserting a page break manually, since the break will always move with the paragraph.

Flow text in columns, say, for a list. Select the text and click on *Format > Columns*. Now select the number of columns. You can set them to be of equal or different sizes. Adjust the space between the columns and choose whether there should be a line in between.

Tabs are useful for inserting text exactly where it should appear—a tab defines the starting position of the text. You can have any number of tabs in a line, and the text between two tabs is separated by a [Tab]. In Word 2000, you can automatically set a tab by double-clicking anywhere on the page. You can manually set tabs from *Format > Tabs* or by dragging the tab mark on the ruler.

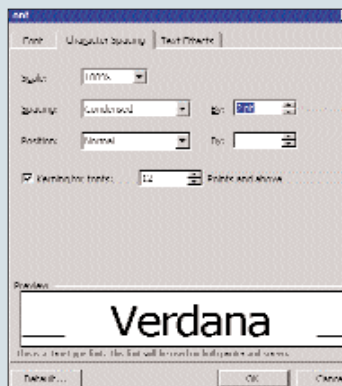
You can directly choose the number of columns by clicking on the Columns icon on the Standard toolbar.



Formatting Fonts

Though you can select fonts, their sizes and basic formatting from the Formatting toolbar (**Format > Font**) gives you a lot more options. You can apply several effects and can even hide the selected text, which you can view by enabling the option from **Tools > Options**.

The options under the Character Spacing tab are two features particularly useful for layouts. Spacing



Selecting font and font sizes

will adjust the space between two characters to squeeze them closer or pull them apart. Position adjusts the vertical position of the text. Often these are used to fit text in a particular space, though often they serve as very good design functions, too.

Word can also add Drop Caps to the paragraph. Click **Format > Drop Cap**, select the style for the drop cap and click OK.

Make life easier

Word has a lot of powerful features that afford excellent presentation in a matter of clicks. Here are a few of them.

AutoFormat: Click **Format > AutoFormat**. Word can automatically format the entire document based on any template and a few rules. To modify these, click **Options**. To format tables, click **Tables > Table AutoFormat**.

AutoSummarize: Word can quickly create a summary of the entire document. Click **Tools > AutoSummarize**, select the summary options and click OK.

Outline view: If you have used heading styles or assigned levels to titles and subheadings, manipulating the document in Outline View is very simple. Also, navigation across the document becomes very simple using the Document Map. Both these options are available under the View menu.

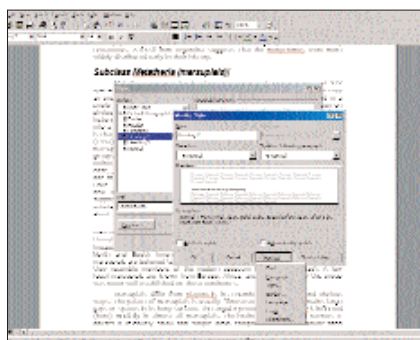
Paste special: Copying text and images from other applications, especially browsers, can become quite annoying, more so when you want to maintain styles. Click **Edit > Paste Special** and you can choose how Word should treat the clipboard's contents.

Printing: If you need to finally print several copies of your document to send out, Word allows you to collate the pages and even reverse the print order (click **Options** on the Print dialog box) so that you don't waste time sorting pages. Other options on the Print dialog box such as printing only odd and even pages, scaling and zooming, etc can be very useful, too. If you want to send your document to a production house for printing, you can select the 'Print to file' option and create a .prn file for processing.

Discipline: With a little bit of discipline, Word can be a very friendly software in the long run. For whatever you wish to do, use the features provided—don't simply hit [Enter] several times or change formatting arbitrarily. Inserting a Page Break, using paragraph spacing or using a Style will definitely prove useful once your document is over two pages long. Start using Word's features one by one and you'll soon get used to them.

Styles

Styles are very handy with documents that run over a few pages. A style is a preset format that can be applied to text and paragraphs. Changing a style applies the new format to all text of that style across the document. Using styles ensures consistency and also makes it very easy to

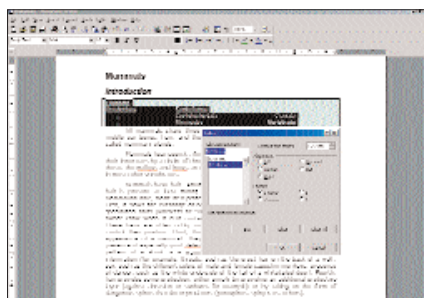


Using Styles helps organise sections and makes it easy to change formatting

footers, etc are automatically applied when you use these features. You can modify or create styles from **Format > Style**. You can create new styles by clicking on 'New' or modify an existing style's attributes from one of the options under 'Format'. Styles are of two types—character or paragraph—the former affects only selected text whereas the latter will update the entire paragraph. To apply a style, simply select it from the Formatting toolbar. The dropdown list displays a preview of the style and indicates whether it is a paragraph style or character style.

Lists

Almost every report, thesis, manual and such documents will have some form of lists. Lists become easier to understand as well as visually appealing if bullets or numbers are used. Word has very powerful fea-



Setting tabs to insert text exactly where you want it

change formatting. A third advantage is that it allows you to organise sections of the document in Outline View. For example, if you use the default styles of Heading 1 and Heading 2 for sections and titles, you can quickly move entire sections to any part of the document by simply dragging it.

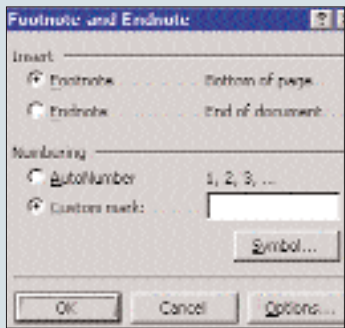
Certain styles such as for footnotes, comments, headers,

You can set the outline level of a paragraph from the Paragraph formatting dialog box.



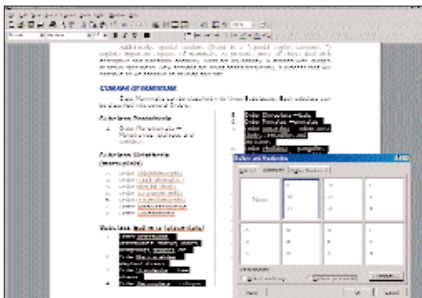
Footnotes and endnotes

Inserting reference text is as simple as clicking *Insert > Footnote*. Choose



whether it should be a footnote (at the bottom of the page) or an endnote (end of the document) and click on Options for more numbering options.

tures for either option, and supports up to nine levels of nested lists. You can format simple lists by simply clicking on the icons on the Formatting toolbar. To customise the list, open *Format > Bullets and Numbering*. From here you can choose whether the list should be bulleted, numbered, or a combination of both. You can change the formatting for the list, choose different bullets and even use an image for the bul-



Formatting lists in Word

lets. If your list is separated by text in the middle, you can choose to restart numbering from the new position or continue from the previous list.


Tables

Tables allow for grouping material and presenting it in a form that is easy to lookup. To begin with, click on *Table > Draw Table*. It's neater if you let Word automatically create the table from *Table > Insert > Table*. You can also convert text into tables (under *Table > Convert*), though it is preferable that the text be ready for conversion, with the columns

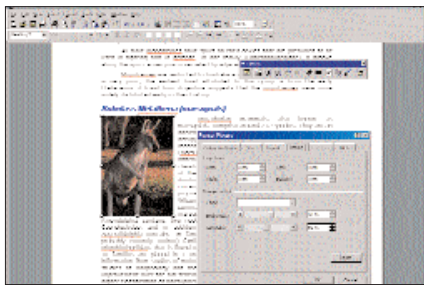
separated by commas, tabs or other such special characters. The Table menu has a lot of powerful options such as sorting data, inserting or deleting rows and columns, splitting and merging cells, repeating heading rows across pages, etc. Though you can modify most of the table's attributes from 'Table Properties' it is much more convenient to use 'Table AutoFormat'. This has certain predefined styles for formatting tables and you can choose which attributes of the table to modify.

Images

To insert an image in the document, click on *Insert > Picture* and choose where you would like to insert the picture from. You can modify the picture's properties from the Picture tool-



Inserting a picture in the document will automatically set it as a watermark across all pages.



Inserting images into your document

bar or from *Format > Picture*—both will be active only while the image is selected. You can crop the picture and adjust its brightness and contrast. You can even set a border around the image and set it to appear in grayscale, black and white or as a watermark. You can set any one colour of the image to appear as transparent. On screen, the areas with that colour will take the colour of the background and when printed, the colour of the page. This option is available only on the Picture toolbar.

Word 2000 is bundled with a very rich, well categorised and fully searchable clipart gallery. Also, more images are available online which you can get directly from the gallery. Word can also create graphs from data in tables.

Borders and Shading

Borders and backgrounds can be modified from *Format > Borders and Shading*. These can be applied to almost all objects in a document. Depending on the selected text or objects, you will see different

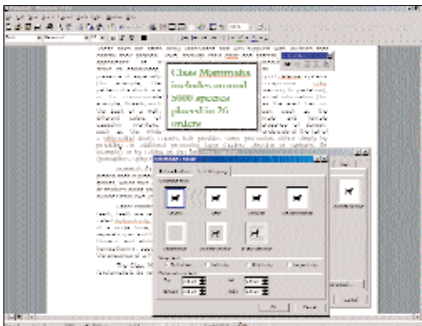


Setting a border for your page

options in the 'Apply to' list. Under the Page Border tab, you will see an extra option of using repeating images for page borders. Select the width, style and colour of the line and choose from one of the default borders on the left or apply the lines to the box on the right. Choose the background colour from the Shading tab.

Text boxes

One of the most powerful features of Word is the text box which allows you to flow text anywhere in the document. Moving the text around becomes a matter of drag-



Inserting text boxes in your document

ging the box. You can add text boxes from *Insert > Text Box*—just draw it anywhere on the page. You can design an entire document using text boxes or use them to add box items between flowing text.

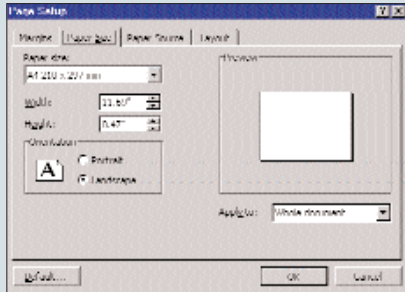
Formatting a text box is very simple. First, let's look at the Text Box toolbar. You can link as many boxes as you like, one after the other. Overflowing text will be automatically added to the next box. You can even change the direction

After formatting one text box, right-click it and select Set Autoshape Defaults. All boxes will have the current formatting by default.



Create a Valentine card

Let's create our own card using Word. Begin by setting all page margins to 1.78 cm and the orientation to landscape. Centre the paragraph alignment and draw a line straight down the middle, along the cursor. Keep the [Shift] key pressed to draw the straight vertical line. This will serve as your guide for placing other objects on the card. Open **Format** >



Page setup for your Valentine card

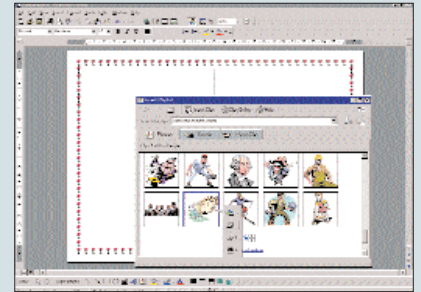
Borders and Shading > **Page Border**, select an appropriate border and click OK. Click **Insert** > **Picture** > **Clip Art**, browse through the clip galleries and insert an appropriate picture.

From **Format** > **Picture**, change its layout to tight. You can now move the picture to the right side of the guide. Click **Insert** > **Picture** > **WordArt** and enter your message. Sign the card by double-clicking where you want to enter the text.

Similarly, you can add a message to the left side of the card, too. If you want more control over the text, it would be better to use a text box. If you want to give your card a background, the simplest way to do it is to draw a rectangle across the entire page and apply the background. Right-click the rectangle and click **Order** > **Send to Back**. If you use the rectangle, you cannot use any text on the document itself—you

will have to use text boxes.

Create a copy of this page and design



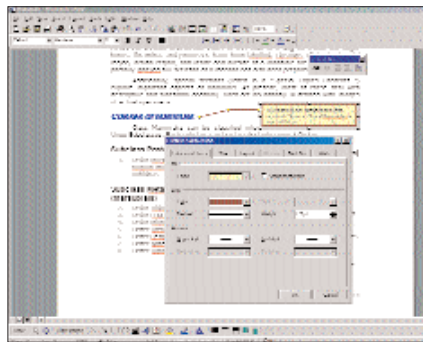
Selecting an image for your card

the front and back of the card. The front comes on the right side and the back on the left. Once it is ready, delete the vertical guides and print the card on two sides of the same page. Fold it down the middle and your card is ready to send.

in which the text appears. For more box options, open **Format** > **Text Box**. You can change the border, background, layout and internal margins of the box. Under the Layout tab, click on Advanced and you can completely control how text and graphics around the box behave.

Drawing Objects

Enable the Drawing toolbar and you have access to a host of design elements. Apart from Line, Rectangle and Oval, you also have WordArt and a set of AutoShapes. Each object is highly customisable and you can even add text within any of them (right-click the object and select Add Text). Basic formatting of drawing objects is similar to that of text boxes (**Format** > **AutoShape**). You can further enhance their appear-

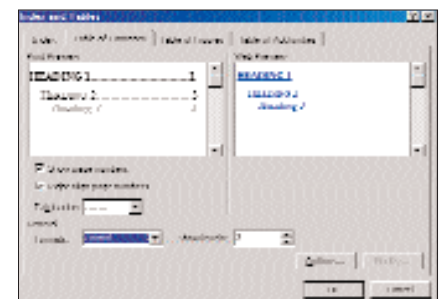


You can customise drawing objects in Word

ance by adding shadows and 3D effects from the Drawing toolbar. These are again, highly customisable—after applying a default shadow or 3D effect, click on 'Shadow Settings' or '3-D Settings' for more options.

Table of contents

Once the document is ready, you would probably like to add a table of contents (ToC) to it. Word can automatically add one for you, provided you have used Styles or set Outline Levels (for headings, sections, subsections, etc.) in the paragraph formatting for headings. You would probably like the ToC at the beginning, so go right to the top and hit [Ctrl]+[Enter] to insert a page break. Click on **Insert** > **Index and Tables**. Under the Table of



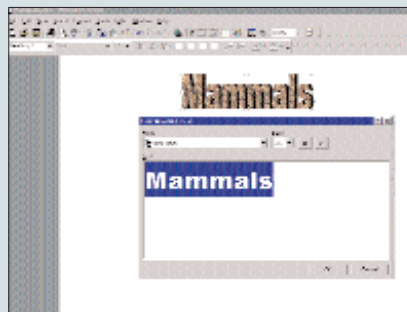
Adding a table of contents is easy

Contents tab, set how you would like the ToC to be generated and click OK. You can choose how many levels to show. If you have used styles other than the built-in heading styles, click on 'Options' to set their levels now. Word automatically inserts styles for the ToC. To modify the appearance of various levels of the ToC, click on **Format** > **Styles**.

VEER KOTHARI

WordArt

WordArt is a simple way to insert artistic text in your document. This is very useful along with images, graphs, etc. Click on **Insert** > **Picture** > **WordArt** to begin. Choose from one of the existing designs and enter the text. WordArt is highly customisable from the WordArt toolbar. You can select the shape, orientation and spacing between the letters, apart from the normal formatting options such as border and background.



Surviving A HARD DISK CRASH



Crash! Bang! Kaboom! There goes your hard disk. But here's how you can recover your data and live to tell the story

edge, the platter surface could get scratched resulting in data loss. Most recent hard drives come equipped with an automatic platter parking mechanism, so chances of this happening are rare if the drive isn't powered on.

Electronics Failure: A power surge can easily kill the hard drive's logic board, or even the small servo motors used inside. The hard drive head uses an electromagnetic actuator to move between positions. It is possible that the actuator's circuit might get damaged, rendering the read mechanism useless.

Media Errors/Malformed Data: Due to manufacturing defects, or just plain rugged usage, a certain part of the platter can get physically damaged beyond recovery, rendering that part of the platter useless. When this happens, a disk utility generally marks all sectors in this

Mechanical Faults:

If you bump your hard disk around, chances are it will give up on you. While transporting your hard disk, if the hard drive's read/write head isn't parked properly at the platter's non-data storage

You're at the fag end of your financial year. You've been working ever so diligently on your year-end presentation. You switch on your PC for the final bunch of printouts and you're faced with a screen saying 'disk boot failure'. Welcome to your worst nightmare—the day your hard disk crashes!

What causes a hard disk crash?

Like any electrical appliance or product, a hard disk is prone to malfunctions that could lead to premature death. Your hard disk may be working just fine, but suddenly one day your computer refuses to boot up. Let's take a look first at how a hard disk crash could occur.

Diagnosing the Problem	
SYMPTOM	AILMENT
BIOS fails to detect the hard drive	Power failure, disconnected cables, drive electronics failure
Random crashes; error messages; drive detected, but unusable	Media errors, read/write errors due to other reasons, unmarked bad sectors
Sudden data loss; missing partitions; boot errors	Media corrupt, demagnetised
Drive makes noise/click sounds	Virus attack on boot sector, file allocation table corrupt, partition table corrupt/modified, head actuator mechanism error, head parking mechanism damaged

area as bad sectors.

If you don't run a disk utility such as Scandisk or Norton Disk Doctor, the operating system continues to think of this area as a legible sector, and tries to read/write data to it. Failing to do so, it gives error messages indicating that the disk is inaccessible. You might also experience random lockups or crashes while using such a disk.

What's recoverable, what's not

The good news is that everything is recoverable—everything! Even if your data is inaccessible due to corrupt or demagnetised media. But at what price and how?

Physical errors or electrical failures require the disk to be opened and the components replaced, and hence require a qualified technician at a data recovery centre to perform these operations.

If your hard disk has been physically damaged, then recovery software would not be of any help. At the data recovery centre, the drive undergoes various tests and in the case of a drive electronics error, that is, your logic card being non-functional, it can simply be replaced.

A read error indicates that the drive motor has failed, or the head has been damaged, or it may not be aligned properly. In case of a media error the platters would have to be physically removed

Average life of a hard disk should be around three to five years, considering an average practical usage of six to two eight hours every day

from the spindle and placed on a separate drive mechanism. They will then be read from there through custom-made recovery software, which works on the principle of trial and error, and will try to recover the data.

However, sending your hard disk to a data recovery centre involves a lot of expenses, as the charges levied are not based on the amount of data to be recovered or the amount of data that could be recovered. Instead, the charges are based on the importance of the data to the client and you could end up paying a bill worth a couple of lakhs of rupees. In India, such services are provided by Stellar Phoenix (www.stellarinfo.com).

If your hard disk is not physically damaged, you can do a simple file recovery at home using custom disk tools/recovery software such as Ontrack Easy Recovery and Lost & Found.

Remember though, that this can be done only if your drive is detected by your BIOS. You would need to connect another hard drive to the machine to recover data to; you can't use the same hard drive for recovering files.

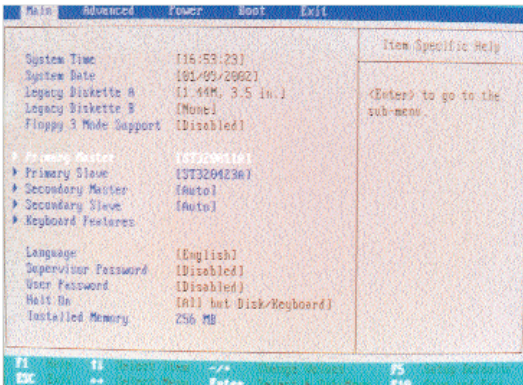
On the road to recovery
Here's how you can go about recovering your data:

The Root of the Trouble

The most common causes of damage to hard disks are mishandling and bad power. You can extend the life of your hard disk by:

- Not plugging in many drives to the same power cable
- Making sure there is no voltage fluctuation, or else the logic card could be damaged, thereby rendering the drive unusable.
- Taking great care while installing or removing the hard disk from your computer—a small jerk or bump could be enough to damage your drive, sometimes.

STEP 1 As soon as you realise your hard disk has crashed, first shut down your machine so as to prevent any further damage to your disk. Then restart your machine, go to the BIOS and check if the hard disk is being detected. If your hard



The BIOS screen tells you that both the hard disks have been detected

Keeping Your Disk Fighting Fit

While some hardcore geeks may just never be content with their PC's speed, most of us are genuinely plagued by slow computers. Of the several factors that could lead to a slow performing system, the hard disk is an important one.

In order to get the top-notch performance you need from your hard disk you should, as a thumb rule, run the Scandisk program bundled with Windows which scans the hard disk for surface errors. The hard disk consists of the file allocation table (FAT), which indexes all the entries of files. In the case of an entry being damaged, your files may be lost or, at worse, your system may not boot up. Hence, by peri-

odically running Scandisk you automatically eliminate severe damage to files that may be caused during normal use of the system or even due to an improper shut-down of your machine.

'Disk Defragmenter' is another utility that comes bundled with Windows. This utility arranges all the files systematically so that the hard disk does not have to waste time hunting for the rest of the program files while trying to open a particular program. Hence, if you frequently install and uninstall programs, thereby causing changes in the file arrangement, then you should run this utility at least once a month so that your hard disk performance does not get affected.

disk is not detected, you will have to send it to the data recovery centre. However, if the hard disk is detected then there are chances you can recover your data through a recovery software.

STEP 2 Next, plug in another hard disk to your computer so that the data you recover can be stored on it. However, ensure that the hard disk has more free space than the size of the data you need restored, else the task won't be successful. If you wish, you can plug in a zip drive also, but then make sure that the recovery software you're using supports such media. Remember that even though you might have another partition on the crashed hard disk, you can't recover data

on the same hard disk. You have to plug in another storage device on which data can be stored.

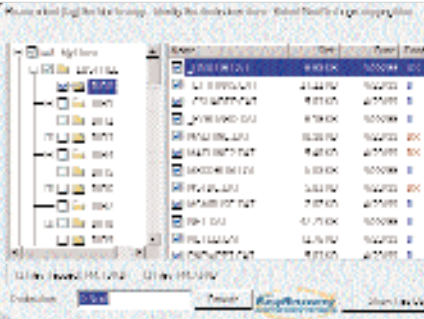
STEP 3 Next, make a bootable rescue floppy disk from the recovery software. Insert this floppy disk and boot your machine in the MS-DOS mode. Do not, by any chance, boot your machine from the hard disk. In order to boot your machine, make sure you go and change the boot sequence from the BIOS.

STEP 4 After you've booted in DOS mode, insert the recovery software floppy diskette. One of the most widely used and effective software in this category is Easy Recovery from Ontrack. You can also use other software such as Stellar Phoenix Data Recovery Software, Final Data, etc.

STEP 5 After inserting the recovery software, you will get an option where you will have to select the primary hard disk (that is, the one that has crashed) as the 'recovery source' and the second hard disk as the 'restore destination'.

STEP 6 The software then analyses the data that it has to recover from the crashed hard disk. In order to recover the data, the software tries to read the two copies of the file allocation table (FAT) and then reads the raw data on the hard drive, trying to match it to the FAT.

The data that does not match the FAT is generally the data that you are trying to recover. Once it finds raw data on the disk



Select the files and destination path of the files to be recovered

that equals a file but no similar entry in the FAT, it marks the data as a recoverable file and adds it to the existing list of files it has from the FAT. All the files that exist on the hard drive, whether in the FAT or detected by the software, are shown as recoverable files. Once this is done, you can choose what you want to recover, and

glossary

Tracks and Sectors: A hard disk consists of platters on which data is stored. These platters consist of tens of thousands of tracks that are tightly integrated in concentric circles. These tracks contain loads of vital information and thus are broken down into sectors. Hence, a sector is the smallest addressable unit that can hold 512 bytes of information.

SMART: Self-Monitoring Analysis and Reporting Tool (SMART) system uses internal hard disk monitoring technology to analyse your hard disk and prevent hard disk failure or data loss.

Bad Sector: A sector that cannot be used due to a physical flaw on the disk is called a bad sector.

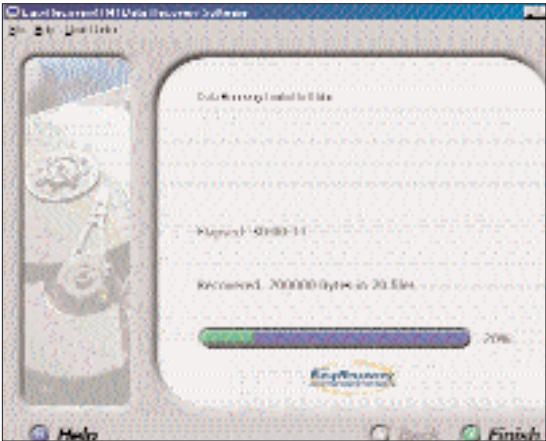
Clusters: A cluster is a logical unit of storage on a hard disk or a floppy drive. The

size of a cluster varies from 512 bytes to 256 kilobytes depending on the size of the partition and the file system.

FAT: The FAT (file allocation table) tells the Disk Operating System which portions of the disk belong to each file. The FAT links together all the clusters belonging to each file, no matter where they are on the disk.

Partition: Whenever a hard disk is formatted, it will have one partition by default. Hence, a partition is a formatted section of a hard disk. Large hard disks can be formatted to multiple partitions and each partition acts like an individual or a separate hard drive.

Boot disk: A special floppy boot disk allows your computer to boot even if it cannot boot from the hard disk. This disk is also known as a System Rescue Disk.



You can recover data using utilities like Easy Recovery

it will be copied to the destination drive. The whole process might take hours to complete depending on the data.

Warranty woes

Like all products, even hard disks are

covered under specific warranty periods, depending on the manufacturer. Usually, a hard disk (IDE) carries a one- to three-year warranty from the date of purchase, and certain SCSI hard disks carry warranties up to five years. If during this period your hard disk crashes or malfunctions, you can return it to the dealer so that it can be sent for further analysis to the company's RMA centre. There the hard disk will be repaired and if successful, the same hard disk will be returned to you. If unsuccessful, you will be given a hard disk with a similar model that has also come in for repairs.

In case your hard disk is not repairable and a similar model is not available for replacement, you can either opt for


Are High-speed Hard Disks More Vulnerable to Crashes?

Hard disks with a rotational speed of 5,400 rpm use metal substrate disks, whereas the newer hard disks that run at 7,200 rpm or even 10,000 rpm use glass substrate disks. Using glass substrate disks has its own advantages, such as better ability to withstand shock, and reduction in surface defects in turn helps reduce read and write errors.

However, these could die out soon as glass substrate disks are more brittle than

metal ones and more over, the magnetic film coating applied on the glass substrate disk peels off over time, thereby damaging the hard disk.

Another important factor is heat. The heat generated by hard disks with a rotational speed of 7,200 rpm and above is immense. This sometimes causes the platter dimensions to change, which is especially dangerous when data is read or written on a hard drive.



Other manufacturers should follow Samsung's example and provide a three year warranty on their hard drives

Nilesh Zaveri
APEX ENTERPRISES

another model or pay the difference and buy a new hard disk.

As a last resort, you will be given a credit note, the value of which will be calculated on the basis of a similar hard disk available in the market and the age of your disk.

You will never be given a credit note for the actual amount you paid while buying the hard disk. You will also not be given a new hard disk under the warranty period unless the purchased hard disk fails to function from the first day itself, and that too has to be immediately reported back to the dealer. Since the

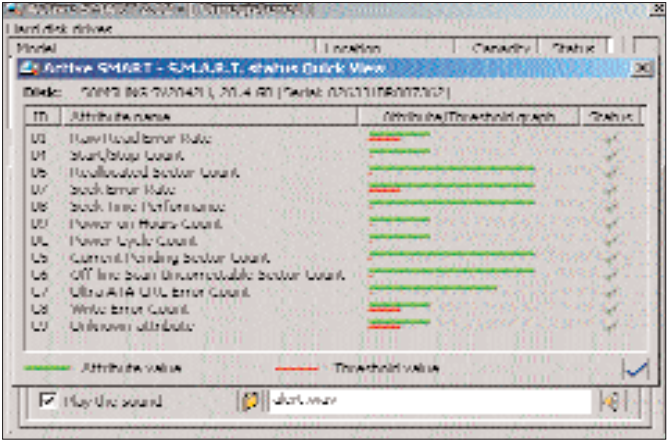
product is considered DOA (dead on arrival), you are liable for a fresh replacement.

Monitoring your hard disk's health

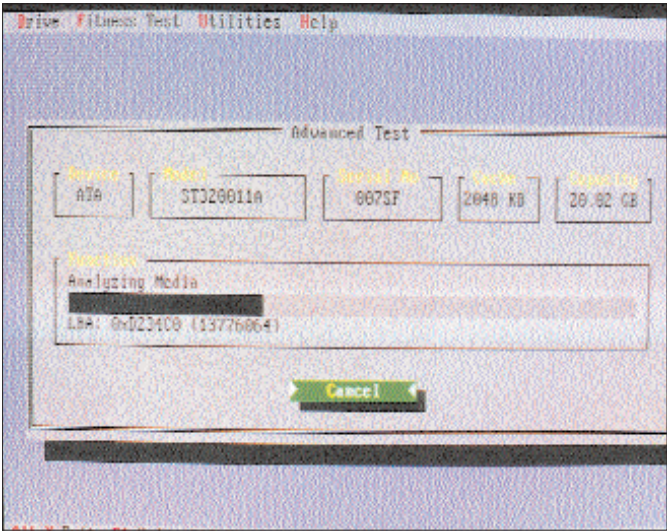
The first approach towards preventing a hard disk crash would be to activate the SMART facility from the BIOS. If your BIOS does not provide you with this facility, you should install programs such as Active Smart, Norton Disk Doctor, or Smart Defender, which continuously monitor hard disk activity and reduce the risk of your hard disk crashing by predicting disk failures using special algorithms. Such software usually monitor the performance of internal heads, motors and other critical components of the hard disk. They analyse the internal performance of the hard disk and constantly compare it with predefined threshold limits that are already programmed into them.

When the performance of the hard disk decreases or is not considered to be satisfactory enough for a normally functioning hard disk, it would be wise to promptly back up your data, as the hard disk could crash any time.

However, keep in mind that once you have enabled SMART, it will slow down the performance of your hard disk to a certain extent. This is because it continuously keeps scanning each and every time the disk reads or writes data.



Monitor your hard disk's health with Active SMART



The DFT utility analyses and repairs any errors on the hard disk

How Warranted is a Warranty

Your warranty is not applicable if:

- The product is not purchased from an authorised dealer.
- The product is not used according to instructions given in the instruction manual.
- Defects are caused by improper use as determined by the company personnel.
- Modification or alteration of any nature is made in the electrical circuitry or physical construction of the set.
- Installation or repair work is carried out by persons/agency other than those authorised by the company.
- You've kept the product in an unsuitable environment. The recommended temperature range for a drive is 60 degrees Centigrade.
- The original serial number has been removed, obliterated or altered from the machine or cabinet.
- There are defects due to causes beyond your control such as lightning, abnormal voltage, transportation losses, etc.

You can also run third party software from companies such as Seagate, IBM and Samsung, which also provide custom-made utilities that can diagnose hard disk problems. For example, IBM has a utility called DFT (Drive Fitness Test). This utility is a standalone software that runs in DOS mode and is independent of the end user's operating system.

Once you boot in the DOS mode, DFT can diagnose whether your drive is defective, has been damaged by voltage fluctuations, is about to fail soon and even tells you if it's running fine or you need a replacement.

So, before coming to a conclusion and sending your hard disk to the RMA centre for repairs you can run these utilities and do a self-check and try to repair the problems. This saves you the time and freight charges that you would otherwise have to bear.

MITUL MEHTA and HATIM KANTAWALLA

When it comes to research, the World Wide Web is larger than any physical library in the world. As a reader, imagine your hands lifting all those heavy books as you pore over ponderous pages, doing a painstaking research one page at a time. Then imagine a scene where your fingers are resting lightly on the keyboard as you lounge behind a monitor, scrolling the pages idly, twiddling your toes.

The Internet has thrown open the information floodgates. It has channelised many streams and rivulets of knowledge in the oceanic Web and often, finding a particular bit of information is

not much tougher than taking a dive. Though there is no foolproof way of ascertaining the source's reliability, there's no doubt about the vitality and interest that the information itself holds. And most of it is for free.

It's not easy finding a particular nugget of information among the billion pages floating on the Web, especially when search engines return thousands of vague results. It's not unlikely that you happen to be searching diligently for information on 'cattle and farming' and get flooded with pages on goat porn.

What you need are tools and tips to find relevant data without being swamped by the information overload.

With the right gear and the right links, you will be sailing the information ocean smoothly with the wind beating down your face, and the giant waves of knowledge waiting at your very command.

Tools of the trade

There is a huge difference between surfing and searching. If you're an avid Web surfer, you've probably collected hundreds of bookmarks in your Favorites folder by now. And, if you're like most people, your collection is probably an unorganised bloated mess. A browser is a powerful tool if only used for browsing. For cataloguing and cross-referencing information, and for professional level

Fishing for Information

on the Web should be as easy as sitting by the bay, watching the tide go by. But if you keep landing old boots and crumpled cans, then here's the secret to hooking up the right bait



ILLUSTRATION: Mahesh Benkar

research, you need something like the MantaDB suite of utilities—a suite of eight tools which add extra capabilities to your browser. One of the most powerful tools is the Web Page Indexer, which scans the Web pages you've viewed and remembers which words came from which page. Think of it as a search engine for all the pages you've viewed. If you've ever been in a situation where you could not return to a page you know you have once seen, then MantaDB is for you. Other utilities are self explanatory: the LinkChecker, Personal Sidebar, Page DeFramer, Web Page AutoRefresh, Font Sizer and Sensible Colors.

Powermarks, an alternative bookmarking utility to your browsers, transforms your bookmarks into your own personalised Web directory. Clicking category tabs also instantly sorts your bookmarks in ascending or descending order. Powermarks adds keywords to your bookmarks when you import them and creates a 'dictionary' of these words. Click on any keyword in the dictionary window, and voila! You have a list of all related links in your collection.

A few tweaks to your browser, like increasing the cache size, cutting down on images and multimedia would go a long way in improving your speed. To make a Web page available offline, add it to your Favorites then click Make Available Offline. IE stores the Web page, complete with graphics, into a temporary folder. The history folder is a good way to search for information stored in your browser's cache. You can sort the information in many ways. It surely beats saving the document at any place and having to search through them again.

Power searching

Successful searching involves two key steps. First, you must have a clear understanding of how to prepare your search. To use search engines effectively, it is essential to apply techniques that narrow down results and push the most relevant pages to the top of the results list. Second, you need to know how to use the various search tools available on the Internet. Search engines (Google, AltaVista) are very different from subject directories (Yahoo!, InfoSpace). Search engines themselves can vary greatly in size, accuracy, features, and flexibility.

650 million

Usenet messages dating back to the mid-1990s have been electronically resurrected by Google

What is an Internet Directory?

An Internet directory is an index or directory of Web sites classified according to subject categories. Directories are also useful for finding information on a topic when you don't have a precise idea of what you need. Many large directories include a keyword search option, which usually eliminates the need to work through numerous levels of topics and subtopics. Because directories cover only a small fraction of the pages available on the Web, they are most effective for finding general information on popular or scholarly subjects. If you are looking for something specific, use a search engine. Yahoo! is an example of a wide-ranging Web directory which covers many popular subject areas. Encyclopaedia Britannica, on the other hand, is a more exclusive directory covering subject categories that are more academically oriented.

Web sites within an Internet directory are often arranged in a hierarchical manner beginning with more general subject categories and advancing to more specific ones. Many directories contain a search engine component to help the user navigate through the various levels of subject categories.

No report looks as good without statistics, and the Internet is a handy resource to extract statistical data from market research sites. To corroborate your points with statistics, check out Statistics.com and Forrester.com. Forrester Research provides demographic analysis of Web users and the penetration of the PC market, including age and income bracket analysis.

Because search engines vary in ability to interpret complex searches, it's a good idea to start your search on a meta-search engine. Meta-search engines act as a middle agent, passing on the query to the major search engines and then returning the results. Dogpile, AskJeeves, and MetaCrawler fall in this category.

Along similar lines is a desktop search utility called Copernic 2000, which simultaneously accesses 65 search engines on the Web. Copernic filters out and eliminates repeat documents found on more than one engine. It also offers detailed search histories so that found documents can be viewed, downloaded or refined at any time. Copernic 2000 can also automatically eliminate outdated documents and download documents selected for consultation at any time.

It's not just HTTP

Contrary to many people's understanding, the Internet consists of more than just Web pages and e-mail. The resources/tools that comprise the Internet are myriad—message boards, online databases, online catalogs, Usenet newsgroups, FTP servers, and online chats/discussion groups to name a few. Learning about them and how they are used will help you determine how they are most applicable to your research.

Usenet

Usenet is a set of people who exchange articles tagged with one or more universally recognised labels, called 'newsgroups'. Usenet is a worldwide discussion system consisting of a set of newsgroups with names that are classified hierarchically by subject—for example, alt.rec.phish and alt.music.tool for the subject music. 'Articles' or 'messages' are 'posted' to these newsgroups by people on computers with the appropriate software.

Usenet is available on a wide variety of computer systems and networks and its strengths lie in its decentralised nature and lack of rules. However, its weaknesses are also its decentralised nature and lack of rules.

Mailing lists

As newsgroups are public discussions in which you subscribe and participate, mailing lists are lists of e-mail addresses of people interested in a similar topic. Mailing lists can be public or private, ranging from as few as two participants to as many as thousands. A mailing list may be very active or it may be extremely slow. You should always subscribe to one mailing list at a time. If, however, you subscribe to multiple active mailing lists simultaneously, you will quickly find yourself overwhelmed with a huge volume of e-mail messages you cannot possibly read. Start off with one mailing list and then expand slowly.

Specialty database directories

Sometimes a specialty database will be more effective at finding what you need than a general search engine. A massive amount of information is not easily or entirely searchable or accessible via search tools. Specialty databases are dedicated to collecting relevant sites for a particular subject from a wide variety of business, government, humanities, legal, news, and science databases. For example, Achoo.com collects health and medical sites. Beaucoup.com lists more than 1,200 engines, directories and indices from around the world. At Search.com you can search more than 100 specialised databases. If you can't find it at any of the sites above, try Internets.com, which is another comprehensive specialty database directory.

Pinpointing people

For finding basic information such as postal addresses, phone numbers and e-mail addresses, there are a number of 'people finders' that might be helpful. Some people finders are essentially huge phone books, while others might specialise in e-mail addresses and home page URLs. Some of the best known are Switchboard, Four11, and Who Where? You might consider listing yourself, just in case someone else needs to search for you in the future. A site called Whitepages.com can help you track a person, his/her business, e-mail address and phone number. If these don't work for you, try unconventional ways like searching for a name on Usenet, or alumni sites, search engines and domain names. The search functions in ICQ, MSN, or Yahoo! Messenger might be useful in tracking down a Net-friendly person.

Locating businesses

With the Internet, you can gather a tremendous amount of business intelligence on prospects, competitors, vendors, suppliers, and customers in just a few hours. Not only does the Net serve as a giant yellow pages for businesses, you can locate high level company information, find sales prospects and learn about an industry. To find press releases and company announcements, biz.yahoo.com/industry/ and PR newswire are valuable resources.

Bigbook.com and Worldpages.com act as giant yellow pages for international businesses—you can search for businesses closer to home with Tata yellow pages at Tpyponline.com and Getitindia.com.

Sometimes the best place to seek information on a company is their corporate Web site. You can find annual reports, press releases, and information about products and services. If you want to dig deeper, try searching through online newspapers. Scan the main page for the terms 'Archives', 'Search' or 'Back Issues' to research past articles. Sites like Newspaperlinks.com provide links to thousands of newspapers worldwide. Try and find a local newspaper located in the vicinity of the company, and scan the archives or back issues to research past articles.

Power resources

Everything2.com is man's attempt to create a 'Hitchhikers Guide to the Galaxy'. Started by the same people who created Slashdot—the news for nerds site—Everything2 works like a user written encyclopedia, with nodes on everything from rock bands to particle physics. Do not forget to check out

Business.com

offers news, research, and contacts for 10,000 public companies and 44,000 private companies

A Desperate Night with a Project Report

It's one of those long desperate nights where you have to finish a term paper in eight hours. Here are a few pointers on turning an unmitigated disaster of a class paper to a passable one.

- Take shortcuts. Instead of reading the entire book read the review! Reviews, abridged versions, movies are good quick substitutes.
- The Internet makes it very easy to present your viewpoint with statistics.
- Use quotations and references. Bartlett's Familiar Quotations is an encyclopaedia of quotes that you can use for any topic.
- Search for Online Writing Labs (OWL) on the Net. These are put up by colleges to help students learn the elements in writing. OWL covers almost every conceivable aspect of writing, from grammar and punctuation to choosing a title for your paper.
- Why walk the path when someone has already mapped it down? Download term papers from Schoolsucks.com! Check out the student essay network, the evil house of cheat, and A1termpaper.com.

giant online encyclopedias like Britannica.com (an updated version of the prestigious Encyclopedia Britannica), Nupedia.com, and H2g2.com.

To satisfy your scientific curiosity, check out guides at Howstuffworks.com. If you want to know anything and everything about the Net and computers, you'll find the answers at Whatis.com.

And if you're looking for insights, opinions, or help on an extremely niche topic, say, walkthroughs for a particular stage in *Diablo*, check out Allexperts.com, a site where experts share their extensive knowledge. You can ask questions on any topic, from philosophy to trivia.

So now that you are armed with the insider's tips on how to haul out the information you are looking for in the murky depths of the Internet, get out your gear and go fishing!

SRIRAM SHARMA



What You Must Do for a Rich Haul

- Enter as many precise search terms or phrases as possible in order to limit the search. The biggest problem is noise, that is, irrelevant or inconsequential sites among the jewels.
- Enter singular terms. Most search engines will find the substring and return rivers for river. To generalise a subject, use wildcards where allowed (surg* for surgery, surgeries, surgical).
- Do not use common, generic search

terms, or if you must, include them in a phrase with more specific terms. The term 'book' would be far too generic unless it's part of a phrase like 'book binding' or 'bookseller'.

■ Enter multiple spellings where appropriate: rationalize, rationalise. If you know the correct spelling, use synonyms to broaden an ineffective search.

■ Use Booleans, especially proximity operators, to increase the relevance of your hits.



30 Minutes Expert

Speed Secrets

Are you the proverbial snail in your office, always slow on the computer? Do you use the mouse for all commands and functions? You should know better. Studies indicate that productivity decreases when you shift back and forth between the keyboard and the mouse to input data. So learn the shortcuts, familiarise yourself with your keyboard, increase productivity, and show all those guys their right place.

While Windows comes with a lot of default shortcuts which simplify tasks like searching and opening windows applications (see box, 'Windows Shortcuts you need to know') you might want to create some shortcuts of your own. The easiest way to create custom shortcuts is through the Windows Start menu.

Assigning shortcuts in the Windows Start menu



You can assign a shortcut to *all* the programs available on your PC. Do the following:

STEP 1 Go to Programs in the Start menu and right-click the application for which you need a shortcut.

STEP 2 Choose Properties from the context menu that appears. There's a text area in the pop up window where you key in your shortcut. Press the key combination, for example [Ctrl] + [F12], that you would like to use as the shortcut access. You are done.

Test this by pressing the assigned key ([Ctrl] + [F12], as in our example) to launch your application.

If there is any default key combination that Windows uses, it will not allow you to assign that combination for your purpose. Instead, it will suggest alternatives like [Ctrl] + [Alt] + [Your key]. For example, [Ctrl] + [C] works across all applications as a copy function and this key combination cannot be used for customisation. When you press [Ctrl] + [C] it automatically

prompts you to change it to [Ctrl] + [Alt] + [C].

Really using the Windows key

Once you've had a taste of shortcuts, you wouldn't be able to resist trying out newer, better options. Another method that you can use to create custom shortcuts is by using a key mapping software.

If you find that keeping track of your favourite shortcut combinations is a pain with the Windows Start menu then you should try Miniwin. This is a system tray utility that lets you use the [Windows] key (present on most newer keyboards) to access programs. Miniwin also allows you to assign shortcuts to open folders, lock desktop, logoff user, shutdown and much more.

Create a new shortcut key



Assuming you use Notepad often, here's how you can assign a shortcut key for Notepad.

STEP 1 Click on the Miniwin system tray icon and choose the settings option.

STEP 2 Now press the Plus button on the Miniwin tool bar. This brings up a window in which you could assign the shortcut for your program.

STEP 3 Key in a descriptive name for the program item and specify the location of the program executable (in this case notepad.exe) and then pick a shortcut key (say n). This will set [Win] + [n] as the shortcut combination that launches Notepad.

Note: While you can use any [Win] key shortcut combination there are very limited options for using the [Alt] or [Ctrl] keys.

Setting the focus



You've done everything but the shortcut still isn't working. What's wrong? Well, it's all about focus! When the focus is not on the software you can't use any of the shortcuts that you have created.

Windows Shortcuts you Need to Know

Have you ever played around with the [Win] key on your keyboard? That's the small key between the [Alt] and [Ctrl] keys. If you haven't, you have lost out on valuable time doing things in a roundabout fashion. If someone comes suddenly behind you and you have some unwanted windows open, minimise all windows in one stroke by pressing [Win] + [M]. You wouldn't get caught this way. There are lots of other [Win] key shortcuts which you could make use of to increase your productivity level and to avoid uncomfortable situations.

Some useful default Windows key Shortcuts

- [Win] + [m] - Minimises all windows
- [Win] + [Shift] + [m] - Undo minimise all windows
- [Win] + [e] - Opens Windows Explorer
- [Win] + [d] - Switches between minimising all open programs and showing them all
- [Win] + [f] - Opens the Find window
- [Win] + [r] - Opens the Run window
- [Win] + [Break/Pause] - Opens System Properties
- [Win] + [Tab] - Cycles through items on the task bar

STEP 1 Click on Miniwin in your taskbar and from the pop up menu choose 'Set focus' (a wiser option would be to assign a shortcut to set the focus too—Miniwin allows you to do the same).

STEP 2 Now when the focus is set, press the appropriate shortcut (in our example it's [Win] + [n]) to start Notepad.

VIDYARAMANAN S.



A tripping UPS, BIOS problems, truant modem...find your answers here for these and more

Software

Environment variables not synchronised

Q I have Windows Me installed on my PC. Whenever I open System Configuration Utility (by typing *msconfig* in the Run command box) an error is displayed: 'Unable to synchronise the environment variables in the Windows registry with the environment variables in the legacy files Autoexec.bat and/or CONFIG.SYS'.

Vikaas Arora

Via e-mail



MS config error in Windows Me

A This error arises because certain command lines present in Autoexec.bat do not match with the Windows registry. First, locate the autoexec.bat and the CONFIG.SYS files (to find them, go to *Start > Find > Files or Folders* and search). If these files are empty, delete them. Restart your machine (you will boot fine) and if required, Windows Me will recreate those files. When you try to access msconfig now, you will not get this error.

Faster connection

Q I use Windows 98 on a Celeron 333 MHz system with 128 MB RAM. I use a dial-up modem and I used the following commands in the Windows registry to speed up my Net connection:

MaxMTU=576 String Type
MaxMSS=536 String Type
DefaultTTL=128 String Type
DefaultRcvWindow=4288 String Type

But I am not satisfied with the speed of the Net connection in spite of having increased the

buffer and TTL size.

Can you please tell me how I could further increase the speed of the connection and whether there is any way to increase the

buffer size to maximum through any software or through settings in the registry?

N. K. Sharma

Via e-mail

A You have already configured your dial-up connection to the optimum. If you would like a faster connection then you can opt for cable or DSL Internet connection.

Missing music files

Q I had recently copied some MP3 files to my existing col-

lection of MP3s on my Creative Nomad Jukebox 20 GB using the given manager (PlayCentre 2). The free disk space decreased by the right



Creative Nomad Juke box (20 GB)

amount but I could not find the copied files on my player. Besides, it does not show up on the PlayCentre 2. I have searched under all the categories in the software but haven't had any luck. Also, I cannot find the songs in the player. Can I format the hard disk inside the player?

Raghu

Via e-mail

A In order to find the copied files and get them to show on your player, you will have to download the latest patch from the manufacturer's Web site, format the whole player and then start using it.

Configuring mail accounts in Outlook Express

Q I am in trouble with my

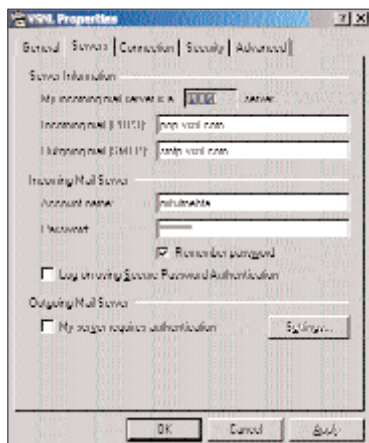
Outlook Express (Windows 98 SE) e-mail configuration. I have accounts with VSNL.com, Yahoo.com, Hotmail.com, Rediffmail.com, Sify.com and India.com. Please help me configure these accounts in Outlook Express. I did try a lot but each time Outlook fails to get a connection with the mail server. I also don't know which type of servers/services (POP3, SMTP, etc) these e-mail services use. Where could I get the precise information?

Ligon

Via e-mail

A In order to download e-mail in any e-mail client you should have the right server names so that the server can be contacted and the mail downloaded from your account to your machine. In order to download mail from Yahoo! and VSNL, you have to set the server as POP3. For Yahoo!, type *pop.mail.yahoo.com* as the incoming server and *smtp.mail.yahoo.com* as the outgoing server. For VSNL, the incoming server is *pop.vsnl.com* and the outgoing server is *smtp.vsnl.com*. About your Hotmail account, when you add an account in Outlook

Express, it automatically configures the http server so you need not worry about that. You will not be able to download Sify and Rediff mail in your e-mail client, as they do not provide the server names.



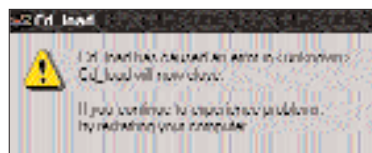
Configure your e-mail client

Virus attack

Q I have a P-III 800-MHz system with 384 MB SDRAM, a 20 GB hard disk, a 50x CD-ROM and 8x4x32x CD-Writer. I use Nero as the burning software. Whenever I start Windows Me, I get the following error. Can you tell me why this problem arises?

Deepak Chander

Via e-mail



The message indicates your machine is infected with a virus

A This error is because your system has been infected with a virus. Firstly, cd_load is an advertising spyware:

CyDoor (CD_Load.exe) or an AD-Trojan. Not only does it send you ads but it also assigns you a unique pin and tracks you. To get rid of it:

1. Delete the following files (usually found in C:\WINDOWS\SYSTEM):
CD_CLINT.DLL
CD_GIF.DLL
CD_SWF.DLL

CD_LOAD.EXE

2. Delete the ADCACHE folder and its contents (usually found under C:\WINDOWS\SYSTEM).
3. Remove Cydoor and Cydoor Services from the Windows Registry. The following keys should be deleted:
HKEY_CURRENT_USER\Software\Cydoor\
HKEY_CURRENT_USER\Software\CydoorServices\
HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\Run\Cydoor=CD_Load.exe
This should rid your system of the virus.

Of a Linux boot disk

Q I use Red Hat Linux 7.0 as one of my operating systems. I use the boot floppy, which I created during the Linux installation, and I have deleted LILO (Master Boot Record). Recently my Linux boot floppy got damaged and now I am unable to boot to the Linux OS. What could be the solution to my problem? Is it possible to create another boot floppy on another machine running Redhat Linux 7.0 and use it in my machine for booting? If so, can you also

advise me on how to create a boot floppy under Linux?

Anirban Guha

Via e-mail

A The Red Hat 7.0 CDs have boot images, kernel images and a copy of loadlin, which you can use to boot Linux from DOS, and provide parameters such as which partition to use and so on. This allows you to boot into your current installed copy of Linux and re-create a boot disk with your copy of the kernel.

Windows and Linux on a single partition

Q I have a Pentium III 933-MHz system, 128 MB RAM and a 20 GB hard disk drive. I have three partitions on my

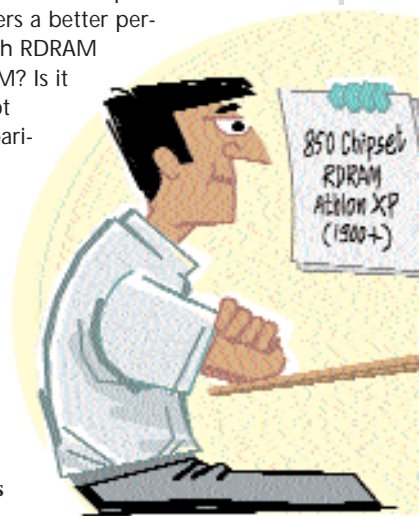
Before you buy a PC

Q I plan to buy a PC with a Pentium 4 processor. I'd like to know which board offers a better performance, an 850 chipset with RDRAM or an 845 chipset with SDRAM? Is it true that the RDRAM does not perform well at least in comparison with the SDRAM?

Pradeep

Via e-mail

A A Pentium 4 with SDRAM is a good solution for those who demand good performance at economical prices. However, if you want top-notch performance from a P4-based machine, then opt for the 850 chipset, which supports RDRAM.



hard disk, each with a disk capacity of 6 GB. I have loaded Windows 2000 Professional along with Windows Me in the first partition (C:). Can I load Linux in either the same partition or any another one along with these two OSes? If yes, could you suggest some method by which this can be done? Is LILO supported on a system loaded with Windows 2000 Professional?

Nikhil

Via e-mail

A You can install Linux on its own native partition. You can use a custom boot disk that can be created while setting up Linux, and choose not to use LILO. Red Hat 7.2 comes with GRUB, a new boot loader that supports Windows 2000/XP directly.

Configuration error

Q I am facing a problem in my stand-alone PC loaded with Windows NT WorkStation. While accessing the Internet via the dial-up menu it connects perfectly, but if I use the connection dialog box while double-clicking IE 4.0, it gives a message stating, 'Unable to connect due to Configuration Error'.

What do I do?

Amit Kumar De

Via e-mail

A This error is because you have not set that particular connection as the default connection for Internet Explorer to connect to the Internet. Do that and your problem will be solved.

Video editing software

Q I have a Celeron 300 MHz PC with Windows Me as the OS. Is there any software available, which I can use to cut some parts of a VCD movie and store it in my computer? I have a Casio digital diary with Send and Receive data option in the communication menu. Please tell me how I can connect it to my computer and also a software that can do this.

Manan Bajoria

Via e-mail

A In order to edit a VCD movie you can use a software such as iFilmEdit available for download at www.cinax.com. Now for your second query: you will have to buy a data cable especially for the digital diary to connect it to the computer. It's easily available in the market. Once you connect it to your serial port,

you will have to install a software called CASIF/Win in order to enable your digital diary to communicate with your computer.

Accessing mail

Q Our company has four nodes and a server. We use Netscape as our e-mail client and we have only one e-mail ID such as xxx@vsnl.com. I would like to set up a system whereby all e-mail downloaded on our server is automatically sent to all the nodes and can be accessed simultaneously.

Shahnawaz Khan

Via e-mail

A In order to set up a system as you desire, you should set it to leave a copy of the mail on the server. Since a copy of the e-mail is there on the server, all clients can download it.

However, this would mean that over a period of time, a lot of server space will be taken up by these e-mail. Hence, you could free up server space by manually downloading old mail on to another machine for storage.



Leave a copy of your e-mail on the server so that all clients can download it

Connect using Win Proxy

Q I connect to the Internet using Win Proxy. I am unable to configure Microsoft Outlook or Netscape Communicator to work with Win Proxy. How do I overcome this problem?

Lejo Joseph

Via e-mail

A For Netscape, just configure it to use SOCKS proxy for external connections, and it will automatically use SOCKS to access all SMTP and POP3 services. For the POP3 and SMTP proxy through Outlook, you would need to enter *username%servername* as the username, and the password remains the same for any server. Enter the server name as the proxy's IP address. Here '%' stands as a separator between the username and password.

Sound driver problems

Q I have a Pentium III (650 MHz) processor and Intel 810 motherboard. Sometimes my sound driver (Crystal Codec) gets corrupt and the volume icon in the system tray vanishes. If I install the sound driver again, the volume icon appears in the system tray but on restarting, it vanishes again. Please help.

Sapan Agarwal

Via e-mail

A It would appear that the drivers you are using are corrupt. Hence even on successful installation, it does not function correctly. Go to Add/Remove programs and remove the sound drivers. Then

go to the manufacturer's Web site and download the latest version of the drivers and install them. This should take care of your problem.



ILLUSTRATIONS : Mahesh Benkar

Hardware

More RAM

Q I have an assembled system, a Celeron 366 MHz CPU with 32 MB SDRAM and I use Windows 98 SE. My computer being slow, I want to increase the RAM size.

What technical specifications must I note before buying the RAM? How much RAM will my motherboard support? I do not know the name of my motherboard manufacturer, but with the help of the BIOS string I found that it uses an Intel i810E chipset. The BIOS ID is 09/03/1999-i810-ITE8712-6A69MSMDC-00.

Anantha Narayanan N.

Via e-mail

A As you have a Celeron processor, your system runs at 66 MHz FSB (Front Side Bus). Since most newer RAM modules available in the market (specified at 133 MHz or higher) are also backward compatible, you need not worry as to whether the RAM you buy will be compatible with your machine or not. About your second query, as per the information you have provided, the Intel 810E chipset motherboard supports a maximum of 512 MB PC-133 RAM.

Dim display

Q I have an Intel Celeron 400 processor and I use Windows Me as the OS. When I start my computer, the display is dim for the first 10 minutes or so, after which it becomes normal. I had a SiS (8 MB) AGP card, which I replaced with an ASUS Riva TNT (32 MB) card. But the problem persists. Please help.

Rajendra

Via e-mail

A There is nothing wrong with your graphics card, hence replacing it with a better quality card will not solve

your problem. It is likely that the cable that connects your monitor to the graphics card is loose. Refit the cable tightly and your problem will be solved.

Monitor on the blink

Q I have an Intel 810 chipset and a 15-inch monitor. One out of 10 times, on restarting the computer, the LED on the monitor panel blinks continuously but nothing appears on the screen. Only after switching off the monitor and switching it on again does the problem go away. Please advise me.

Sapan Agarwal

Via e-mail

A The problem you are facing could be because of a faulty monitor. You must consult the service centre and get it thoroughly checked.

Tripping away

Q I have a 500 VA UPS. Sometimes, even when the power supply is on, the UPS switches to battery power while at other times it oscillates between the battery and main supply. There are also times when the UPS gets completely discharged and I am forced to switch off my computer even when power supply is present. Please tell me what to do.

Sapan Agarwal

Via e-mail

A To begin with, there is nothing wrong with the UPS that you are using. It is more likely that you are using an offline or a line interactive UPS, hence when the voltage goes up it switches back to the mains and when it goes down it trips to the battery. In order to avoid this, use an online UPS that continuously runs the machine from the UPS itself while simultaneously charging the battery. It would then not need to trip itself to the mains or the battery.

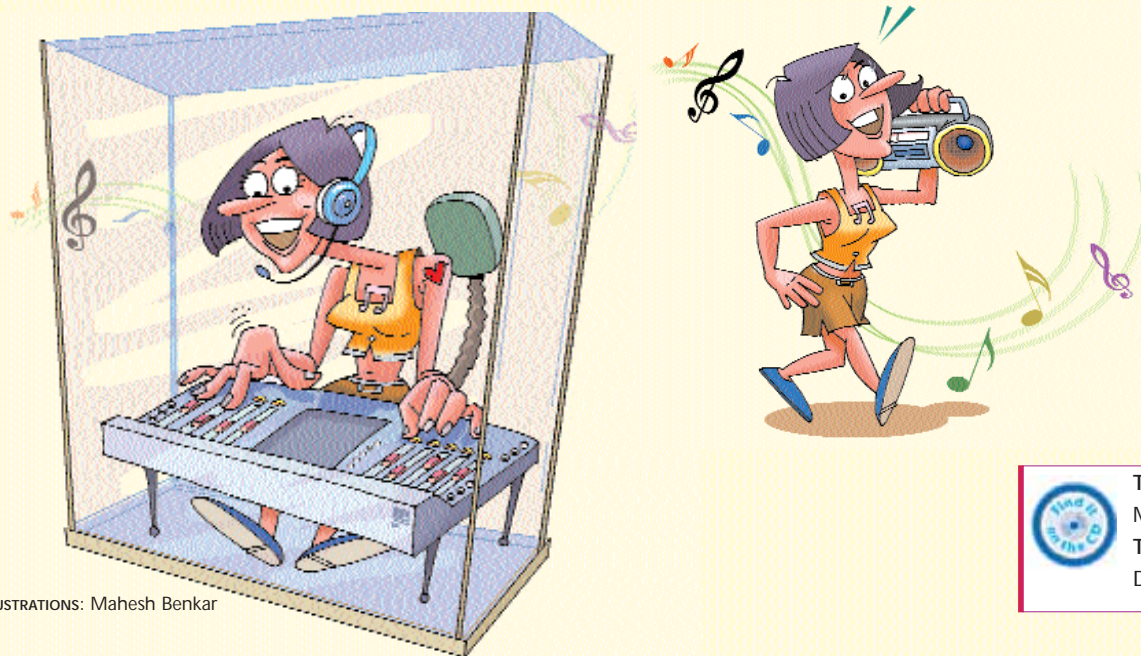
tips & tricks

○ An audio station on your PC

Handy tips to make your PC sing
Learn to churn out music from your desktop

contents

- 10 Playback music
- 12 Broadcast: A radio station of your own
- 13 Burning/ripping music
- 15 Organising your music
- 16 Downloading free music



ILLUSTRATIONS: Mahesh Benkar

9



Tips & Tricks
Master the Web
Troubleshooting
DVD Writables



unleash your imagination and inspire your creativity

BASIC VISION

A starter and career oriented multimedia
course curriculum



PLAYBACK MUSIC

Check out some keyboard shortcuts and plugins you just cannot do without, create new skins, burn your music files onto CDs and more

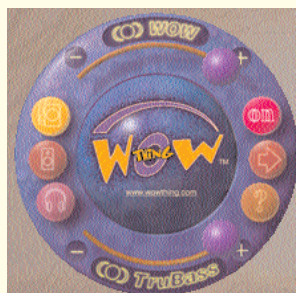
Must-have plugins for Winamp

What sets apart Winamp from other MP3 players is the large number of plugins available that extend its capabilities.

Wowthing DSP plugin

Winamp provides you with some default equaliser options, but there is no actual boost in terms of sound quality. Wowthing enhances the sound quality through its sound boosting abilities, which include Trubass for bass adjustments and Wow for treble. Snag it from

www.riopart.com/software/Wowthing.exe



Wowthing: For audiophiles looking to tweak their Winamp beyond the normal equaliser pulgins

SoftAmp VirtualSound

If you cannot afford a four-point surround sound speaker, you can simulate

Winamp Keyboard Shortcuts

Right-click the Winamp title bar and choose About Winamp or press [Alt] + [F] + [W] to bring up a list of more than 50 keyboard shortcuts. Here are some important ones:

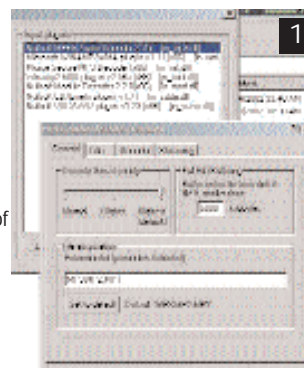
[Alt] + [F]	Brings up the main menu
[J]	Jump to file
Up and down arrows	Adjust the Volume
Left and right arrows	Fast forward or rewind the song
[Z], [X], [C], [V], and [B]	Previous Track, Play, Pause, Stop, Next Track
[Shift] + [V]	Stop playback and fade out
[Ctrl] + [Tab]	Cycle between all open Winamp windows
[Ctrl] + [P]	Brings up the Preferences
[Alt] + [S]	Brings up the skins menu

TROUBLESHOOTING

Solutions to some common problems you might be facing with your Winamp

Why is Winamp's output jittery?

There could be several reasons why your Winamp output stutters or jumps. It may be due to an aging computer, too many processes, fragmented hard-drives, and so on. If the quality of MP3 playback means the world to you, just follow these steps to listen to music smoother than a well-aged Chardonnay.



1. Go to **Winamp > Preferences > Input**, and select the MPEG audio decoder. Increase the thread priority to the highest. Increase the Full File Buffer to 6000 Kilobytes. This will make Winamp load the entire song if it is smaller than that.



2. Go to **Winamp > Preferences > Output**, and increase the buffer length to 10,000 ms. Set priority to Time Critical.

3. Go to **Winamp > Preferences > Options** and increase the Process Priority Class to Realtime.

Try these settings and give it a test run. Now open Photoshop, 10 browser windows, and a dozen applications to see if it stutters. Most likely it won't.

Winamp's volume controls don't work on my system

Open the Preferences window and select Plugins/Output. Select Nullsoft waveOut Plugin and click Configure. Look for a little checkbox labelled Alt setting mode. Check it, click OK, and close the Preferences window. Now play some music and try out your new volume controls.

it with this wonderful plugin. This DSP plugin allows you to position four virtual speakers (two woofers and two tweeters) around a virtual person on the screen. For audiophiles who cannot afford high-end speakers and have to deal with clunky headphones or speakers, this one's definitely

handy. It's yours at www.softamp.com.

X-Plugin

X-Plugin is one of those funky plugins. It has 15 speakers (yes you read it right, it is 15) neatly placed around your Winamp. The speakers can be docked anywhere on the desktop, with some cool looking



equaliser lights. It makes you feel as if you are in a party environment. Snag this one from www.winamp.com/plugins.

Reproduction Control 1.28

If you frequently use Winamp and find it difficult to shuttle back and forth between windows to open files, reduce the volume or skip a track (or any of those basic functionalities), Reproduction Control is the answer to your prayers. You can control your Winamp with customised shortcuts that you can use even when you are not in the Winamp window. For instance, you can increase or decrease the volume in Winamp by tapping your customised hot key even while working on a Word document. Lift it from www.winamp.com/plugin-ins.

Voluptuous Valentine's dancer

Tired of seeing the same beat up visualisation options? Give yourself a visual treat with WildTangent's Valentine's dancer. The valentine dancer



Valentine's dancer: it swings to your tune

swings to the beat of the music and will remain a novelty for some time. Pick it up from www.wildtangent.com

Creating your own Skins for Winamp

One of the winning points of Winamp is its customisability. A vast community of users has created numerous input, output and visualisation plugins.

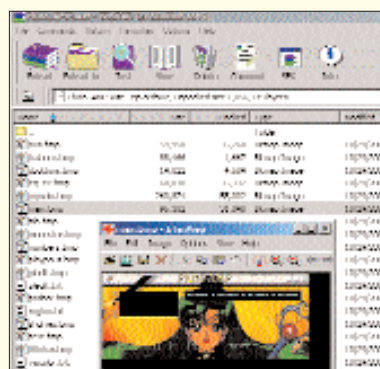
Tools for some Winamp skinning

Making your own skin for Winamp is pretty easy. But before you get down and stick your elbows in the dirt, here's a list of programs you need:

- A paint program such as Photoshop or Paint Shop Pro or MS Paint
- Winamp's base skin to use as a template.
- A text editor to configure the fonts and colours of the browser and playlist editor. Notepad will work just fine.
- An icon editor such as Icon Edit Pro or Microangelo if you want to edit the cursors and pointers for your skin.
- A compression tool to browse through skins and zip it all up when it's done—WinZip for instance.

Start at the base

The .wsz base skin is a Zip file designed to keep all the pieces of the skin organised. Every skin that's made is open source. You can browse though it to look for design tips. The best way to get started is to



The .wsz file will open in any unarchiving utility. Here's the framework of the main window in Winamp

extract a base skin and modify it. Create a new directory in your Winamp\Skins directory. Create a new folder in your Skins directory, and unzip the Winamp base skin with an unzip utility. Once you've installed the base skin, you can look at the files in that directory. There should be a whole bunch of .cur (cursor) files, and .bmp files, and a few .txt files. All of these files are optional. Any missing files will use Winamp's defaults.

Editing the skin

Editing the BMP files is a bit complex. The filenames are self-explanatory, but if you belong to the echelons of the uninitiated then,

- Pledit.bmp changes the look of the Playlist Editor
- Eqmain.bmp changes the look of the graphical equalizer
- Main.bmp changes the look of the main window

All the other .bmp files change the look of individual controls of the main interface. Once you've made changes to the different

BMP files, zip them up and hit [F5] in Winamp to reload the images.

Editing the text files

You can change other aspects of Winamp using the three .txt files included in the skin.

- Pledit.txt changes the font and colour of the playlist text.
- Viscolor.txt has 24

lines, with each line consisting of a RGB triplet and a comment: 24,33,41, // comment. These 24 lines define the colours used in Winamp's built-in visualisation. Region.txt lets you specify a sub-region of Winamp's main and equaliser windows to show. This lets you carve out the parts you want to show, and keep the rest transparent.

Editing cursors

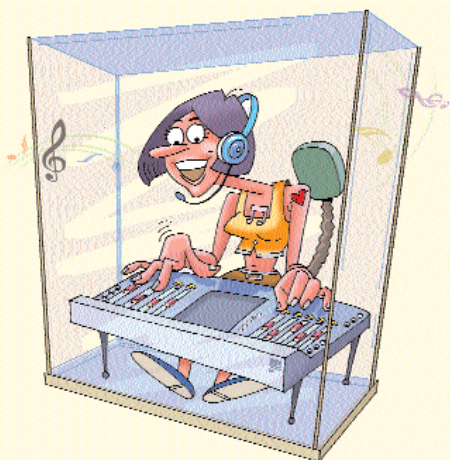
The filenames for the cursor files are also pretty self-explanatory.

- EQTitle.cur is for the EQ's title bar.
- Normal.cur is for use in Winamp's main window.
- PWSSize.cur means that this cursor is for the Playlist Editor.

If you have any doubt, you can just try making a major change to check where the change takes effect. Cursor changes happen immediately; there's no need to reload the current skin in Winamp to see them.



unleash your imagination and inspire your creativity
Advanced Vision
 Course curriculum comprising of 2D, 3D, CD
 authoring and f/x module.



BROADCAST: A RADIO STATION OF YOUR OWN

Internet radio works on the simple premise that you play your music. Start a channel, sell it to your friends, and fight back against the networks that've been strangulating you with boybands and all that mellow nonsense. All it takes is a little know-how, a decent soundcard and some basic encoding software that you can get for free

Keeping it Real

Get a copy of RealProducer Basic from RealNetworks.com. The Basic version is free.

Open RealProducer and click New Session. A wizard will pop up. Click Record from file and hit OK.

Select Capture Audio and

click Next. Give your set a name and click Next. Choose either Multi-rate stream or Single-rate stream, depending on your server, and click Next. Select your target audience and click Next. Select Music (higher quality, but mono) or Stereo Music (lower quality, but

stereo) and click Next. Click Finish. Begin recording by clicking the Start button.

Now all you have to do is find a service such as Groovefactory, or create your own server that will host the files.

SHOUTcast

Nullsoft's SHOUTcast is a streaming audio system designed to work across all platforms. At the heart of SHOUTcast is the DNAS (the distributed network audio server). When you setup a SHOUTcast server the DNAS accepts the audio stream from Winamp and the SHOUTcast DSP plugin. It then delivers it to listeners who are connected to this DNAS. In this set up, you could either be a listener, source provider, or a server.

Listening to streaming radio

Start an instance of Winamp. Visit www.shoutcast.com, www.live365.com, or www.icecast.org. Select your music category from the choices available. Click on the Tune icon and the

stream automatically starts with your MP3 player (usually Winamp). No special installations are required.

Source provider

You can be a music source provider and any DNAS could listen to you. You could use Winamp as your music player. A SHOUTcast source plugin (this can be downloaded from www.shoutcast.com) needs to be installed for your Winamp. This plugin provides Winamp with broadcasting abilities and you are now ready to stream your music. Remember, to enable others to listen to what you play, you need to have a DNAS.

Time to server

Download the SHOUTcast server software from the site and install it. Start the DNAS GUI. Open the configuration file by clicking on the Edit Config option from the menu bar. This opens the configuration script in a default viewer (usually Notepad). Every entry has an easy-to-follow remark along side. Set the maximum user limit taking your bandwidth into account.

If you know a little about IP and networks, you can mess around with the SrcIP and DestIP (source and destination IP). If not, leave them at their defaults. Now you are ready to listen from a source and stream it across to users connected to the DNAS of your SHOUTcast server.

You can be both, the service provider and the server. You can set up both the services in the same computer or, depending upon your resource availability, you can set a couple of computers as servers and a single computer as a server listening from all the service providers.

12

Streamripping: Recording Live



If you would like to make a live recording of all the tunes on the Web, a straightforward approach to

this is the disk writer plugin of Winamp. It writes a WAV file at the time of capture from the relay. This direct approach requires more work and disk space, and some editing with a wave editor such as SoundForge or CoolEdit. A faster way to do this is StreamRipper, which creates MP3s out of streaming radio. You can obtain StreamRipper32 from www.oddsock.org/tools/sripper.

StreamRipper32 does not

create any desktop icons or start menu items. So go to the folder and run an instance of the program. On the top left, under



Streamripper snags an MP3 from SHOUTcast live

Broadcast Parameters, you will need to enter the full URL of the stream.

Under the Output Section, you will need to select a Destination Directory.

StreamRipper32 will create a number of sub-directories and delete and move files on its own. It will be limited by the permissions you have on the parent directory. You can enter a number in the Max Bytes to Rip field to control when to stop recording, but the default value of zero will allow it to run until you either run out of disk or click the Stop Rip button. Click the Start Rip button and let StreamRipper do its thing.



BURNING/RIPPING MUSIC

Want to move music out of your PC on to a CD? Make live-recordings of streaming music? Here's how

Burning music files on to CDs

Got a collection of your favourite Transglobal Underground numbers? You can burn custom compilations like these, and with the right tools and directions it's child's play. The tools required for this exercise are a CD-writer, CD-burning software and the songs of your choice in WAV or MP3 format. You could use the

demo version of Nero CD burning software to burn your CDs. This allows you to record your own custom audio CDs that can be played in any standard home or car stereo.

■ Install the software:

Download the demo version of the burning software from www.ahead.de. Install the application and launch it. The software prompts you with a registration screen. Click the Demo button. The software throws open an option to create a new CD or to duplicate another CD. (If it doesn't, click on *File > New*). Choose the Create New CD option and click on Next.

■ Select the type of CD:

Next, you need to choose the type of the CD. Choose it via the next window that pops up. Choose Audio CD from the options listed and proceed to the next screen to finalise.

■ Drag and Drop the files:

There will be two panes visible to you in the main Nero Window. On the left you have the explorer that you can use to locate the tracks you will record. On the right is the compilation explorer, which lists the contents of the CD. Drag and drop the files of your choice from the left pane to the right. A status bar below indicates the maximum minutes you could record. You can record

Which format do I pick?

Lossy audio compression is the JPG of music: for a minor loss of quality that you cannot discern, you have a sound file which is

many times smaller than the original and can be broadcast, swapped and played on portable media. The battle for the best compression

Codec is far from complete. Audio compression is a new concept and there are still various algorithms contesting for public approval.

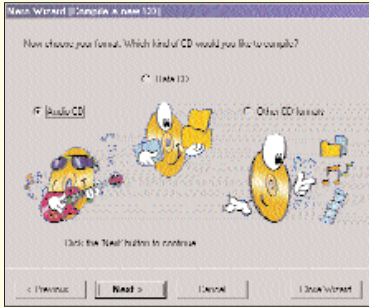
Format	Pros	Cons	Go for this if
MP3	Excellent sound quality at high bitrates; versatile, portable, swappable	There is no need to pay to get a license to decode an MP3, but there is one to encode. Even if you write a free encoder, you are supposed to pay for a license	Disk space is cheap. Quality is something that once lost through over-compression and/or a poor Codec, can never be recovered
Ogg Vorbis	Open source; has plugins for popular applications such as Winamp, Sonique; supports multiple channels	Popular only among geek circles and open source zealots	You are developing an application where audio compression is needed (chat, game sound, etc). You need to pay to use this Codec. Ogg Vorbis is good for small developers
WMA	Low CPU requirements, available to anyone using Media Player	WMA 8 is copy protected	Quality requirements are not very strict and storage space is quite limited
LAME	LAME used to be Lame Ain't an MP3 Encoder. LAME is a completely open, patent-free, license-free Codec	—	Quality is highly imperative and you plan to burn high quality audio CDs
MP3 Pro	Offers you decent quality sound at low bitrates; low system requirements	SBR technology synthesises high frequencies rather than recovers them.	Your portable MP3 player has upgradeable firmware



unleash your imagination and inspire your creativity

Vision Plus

Full fledged diploma in Multimedia,
Web and Animation.



The Nero wizard is the least complicated method of burning MP3s

72 to 80 minutes of music depending upon the capacity of the CD.

■ **Burn it:** Once the files are chosen and you are ready to burn, choose Write from the File menu. This opens a window seeking your confirmation to burn the CD. Click on the Burn button. As soon as the process begins you will notice a progress bar while each track is being burnt on the CD. Once the burning is done the red light near the progress bar turns green indicating successful completion

There are, of course, many ways of doing this—MusicMatch Jukebox is a freeware software that does the same. Another popular alternative is Easy CD Creator. The program accepts popular audio formats such as MP3 and WAV as input. Easy CD Creator supports BURN-Proof (Buffer Under Run error Proof) technology.



Music Match Jukebox

■ **Converting for the PC: Ripping using MusicMatch**

Open MusicMatch. Insert a CD into your CD-ROM. If you're not connected to the Internet, connect now. The program will automatically search the online CDDb. If it finds a match for your CD, all the artist and album

information will be filled for you. If it doesn't return a match, you may need to type in the track listings.

After the CDDb returns a match or when you've completed entering artist and album names and all the track titles, hit the record button on the recorder. Depending on the speed of your PC, you should have the CD completely ripped in less than 10 minutes.

■ **The bitrate dilemma: Which one do you pick?**

Music available on CDs and other similar media can be digitally encoded into various music formats—from WMA to Ogg Vorbis to MP3. But all of them follow a common digital coding convention called bitrate. This defines how much of detail (number of bits) is to be stored per second of a song in an encoded file. Bitrate decides the quality of the encoded file and its size too. Does it really make a drastic difference in terms of sound quality when you encode files with different bitrates? The more details (more bits per second or high bit rate) you store into a file, the better the sound quality. Storing more information per second of music builds a larger MP3 file. If you are sensitive to subtle musical details and are finicky about sound reproduction, you should opt for a higher bitrate encoding (greater

than 192 Kbps). 128 Kbps is the usual encoding level music enthusiasts choose. Encoding at this rate offers a perfect balance of small file size and quality of music.

Music encoding can be done in three ways—constant bits, average bits or variable bits per second of music. In constant bitrate



MP3's can be encoded with various parameters

(CBR) the same number of bits is added to each second or frame of music. Whether it's a scream or silence, the same number of bits is added into the

encoded file (which is actually a waste, since periods of silence don't require more bits to be stored). Average bitrate (ABR) lets you choose an average number of bits that are to be added to each frame. Variable bitrate (VBR) is an intelligent method introduced by Xingtech, which decides on how many bits are to be put into a frame or second depending on the complexity of the sound. Software that employ the VBR encoding scheme use lesser bits for periods of silence and more bits according to the frequency (sound) level of the music.

The next time you rip your music CD, don't forget to use VBR and encode at high bitrates. You might end up with a smaller file size than if you used CBR or ABR. The only caveat is that if you are into portable MP3 players, most do not play bitrates higher than 192 Kbps. Check your player-specifications before you encode your MP3s.



Moving Music from Audio Tapes to MP3s

If you have an aging but priceless collection of tapes lying around, take a day off to try this out.

Connect the tape player to your soundcard's line-in terminal with a 0.25-inch mini-jack and record the contents of your tape as a WAV file. Nullsoft's Diskwriter plugin, or MusicMatch Jukebox or any plain vanilla wave editor will do.

Set the software to record from the line-in channel, press Play on your tape deck, and wait for the tape to play.

After the WAV file has been written, and the conversion from analog to digital is complete, comes the process of normalisation.

Normalising your file involves searching for any abnormalities in it and preventing it from playing too low or too loud.

Cut the WAV file to pieces. From this you can convert to MP3 or to any other format you want using Audiol catalyst or any other encoding software. It is possible to burn the tape onto an audio CD as well, but the quality will not be as good on a CD since the original source was a tape.

Before you create the CDs, you may want to transfer the WAV files to an editing studio such as Pro Tools, SoundForge XP Studio 5.0, or CoolEdit Pro.



ORGANISING YOUR MUSIC

- Imagine trying to keep your MP3s organised without having the names of your songs, artists, or track information. But thanks to tools such as ID3 tags, CDDB and others, it's easy to organise all those numbers

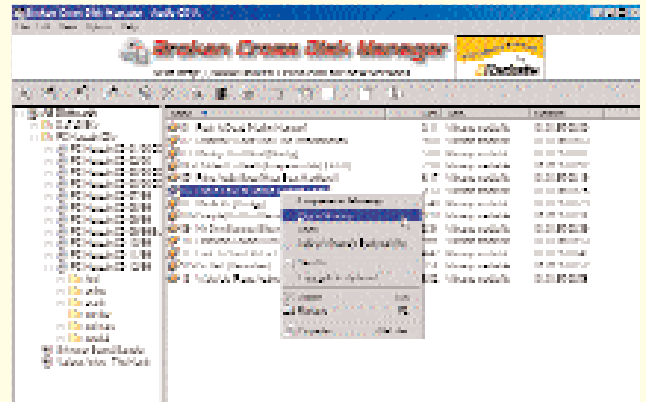
Editing the ID3 tag with MusicMatch Jukebox
Click the My Library tab. Right-click on a track and select Edit Track Tag. Select information from drop-down menus or specify your own information. You can even put URLs and e-mail addresses in the Notes and Bios section.

- Utilising CDDB**
Say goodbye to ever having to type in your disc and track names again. The CDDB (Compact Disc Data



Base) is a free database that stores the disc and track names for thousands of audio CDs. Using the software listed below, users can log onto the CDDB and download the track information. The CDDB most likely has your audio CD. Several utilities across all platforms, from rippers to burners, to ID3 tag editors utilise CDDB.

Broken Cross
This is a fast and easy-to-use disk-cataloguing tool. Its interface is based on Windows Explorer. Disks can be updated easily and it can read and catalogue contents of CAB, RAR and ZIP archives. Descriptions for the MP3 files can be generated from ID3 tags. It is also good for managing

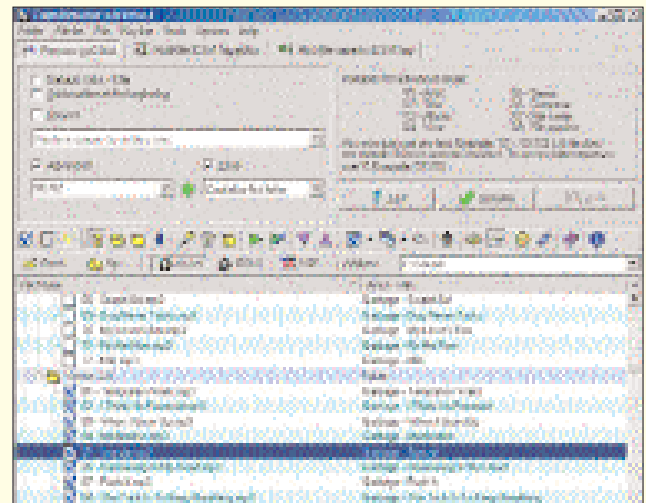


Broken cross is effective not only for MP3s but also for CD audio

audio CD collections. Audio CD information can be queried over the Internet from CDDB. This information can then be used to generate descriptions for the CD and audio tracks. The program is multi-user capable and has several other useful functions.

Tag&Rename
Tag&Rename is a powerful, easy-to-use program for organising and archiving your library of music

files, from MP3 to .vqf music formats. With Tag&Rename, you can quickly and easily rename your music while also editing the embedded tag data used by popular music players—both ID3 and ID3 v2 formats. It simplifies the boring and time-consuming task of updating tag information for your music by allowing you to quickly access information from the CDDB1 database.



Tag&Rename offers CDDB support



unleash your imagination and inspire your creativity
For **FRANCHISE** enquiry contact
Network Development Team:
95 A, Behind Siddham Shetty Complex, Parklane, Secunderabad.
Ph: +91 40 6322315, 6322317. Fax: 6322316. Mailto: info@visionmulti.com



FREE: WHERE? DOWNLOADING FREE MUSIC

16

You don't have to live with the guilt of stolen music anymore. Musicians all over the world are using MP3 as a promotional medium

Listen.com

With over 1,30,000 recording artists under its listings, this is the big momma when it comes to free music. But here's the deal. Listen.com does not host the files; instead it points you to other labels where you can find them. Five major record labels have invested in listen.com, and it's all legitimate.

Epitonic.com

This is a site started by some obscure and independent labels, which is probably why they use the words 'underground' and 'cutting edge' to describe their music. From electronica, to punk, indie and experimental music, you'll find it here. An interesting feature of the site is that it carries in-depth reviews by the editors along with picks of the week and descriptions of songs. The

blackbox feature on the site lets you store an unlimited amount of songs on epitonic.

Technomusic.com

This online record label has a plethora of free techno MP3s broken down into nine different sub genres. You can download or preview all songs on the site or listen to its streaming radio.

MP3.com

While the site is known as a vehicle for unknown artists, quite a few big names too can be found here. Anyone can upload MP3s to MP3.com, so you'll find a wide variety of artists from the also-rans to the famous ones.

Audiogalaxy.com

This site calls itself a 'community of fans and artists'.

After the RIAA intervention, Audiogalaxy has cleaned its act and now hosts only legal music. With a 'sounds like' feature and introduction to various new genres, this site lets you find some real gems.

RollingStone.com

A true 'brand name' in the music business, the site offers free downloads of selected tracks from top artists. Registration is required, but it's free.

Amazon.com Digital Music Downloads

Best known as 'Earth's Biggest Bookstore', Amazon now offers free MP3s from hundreds of well-known artists, including rare and previously unreleased tracks. Independent artists may offer music for download and set up virtual tip jars.



A perfectionist's list of MP3 rules

- Always follow a standard naming convention for your MP3 files and folders; for individual songs use 'Track number_Artist_Songname.mp3' and for albums use 'Artist_Album' as the folder name. Widely used and accepted, this convention makes your collection easier to browse through.
- Put ID3V2 Tags on your newly ripped MP3 files from CDDB entries, or do it manually. This helps automated sorting of music, and is especially helpful when you need to browse loads of MP3s on a portable MP3 player or rename them using a new convention.
- Delete wrong ID3 Tags from files and replace them with the right tag information using a tool. Using a tool such

as ID3Killer, you can mass-remove incorrect ID3 tags from Internet downloaded music and rename it to proper tags manually, or using tools such as Tag&Rename.

■ 192 K or similar bandwidth variable bitrate files have pretty much become a standard for ripping from an audio CD. This bitrate preserves most of the audio, and doesn't hog too much disk space either.

■ While archiving MP3s to a CD-R, make sure you keep a database of all the MP3s you archived in a tool such as Broken Cross or MP3 Database. It helps keep duplicate downloads to a minimum, and makes searching for a certain archived song easy, as the tool will tell you which CD you wrote it to.



From *Space Invaders* to *Tetris* to *Quake III* and beyond. Tracing the birth and growth of that mind-changing substance—games

From *Space Commanders* and *Pong* of yesteryear to the photo realistic graphic accelerated games of today. From a handful of 2D sprites to millions of textured polygons. From simple straightforward script driven enemies to ‘bots’ that learn and adapt to your behaviour. From single player adventures to elaborate online game worlds with the interactivity and complexity of a small country. The quantum leaps in concepts, creativity and technology in the gaming subculture are staggering. But as the saying goes, Rome wasn’t built in a day. There’s another saying that goes “One does not sell the land people walk on” which however has nothing to do with this article. Anyway, for those who missed the bus, here’s a history class on gaming, attendance is not compulsory. No grades or tests or term papers.

Back when digital watches were still ‘droolmaal’ and computers were the size of a blue whale, an MIT nerd called Steve ‘Slug’ Russell decided to create the ultimate hack, an interactive game. After 200 hours of coding he created one in 1961—two rocket ships that fired torpedoes at each other. He called it *Spacewar*. Soon

everybody wanted one just like it. To fire imaginary rockets at imaginary spaceships was indeed tapping into a raw, powerful instinct deep inside. Every homo sapien who saw it salivated at the prospect of firing rockets in the comfort of their own home. Enter the era of the game console.

1972: The Game Odyssey

The Magnavox Odyssey, designed by a military electronics firm was introduced at a price of \$100. With only 40 transistors and 40 diodes, the console was so primitive that players had to jot down the score on a notepad. You had to place a screen overlay on the TV screen as part of the graphics. Those were indeed trying times to live in. Soon Atari stepped in and took this concept further, introducing the *Pong* arcade machine. The gameplay was simple. Two players controlled a vertical bar each that could bounce a dot between them. *Pong* became an instant success and it created the arcade video game industry.

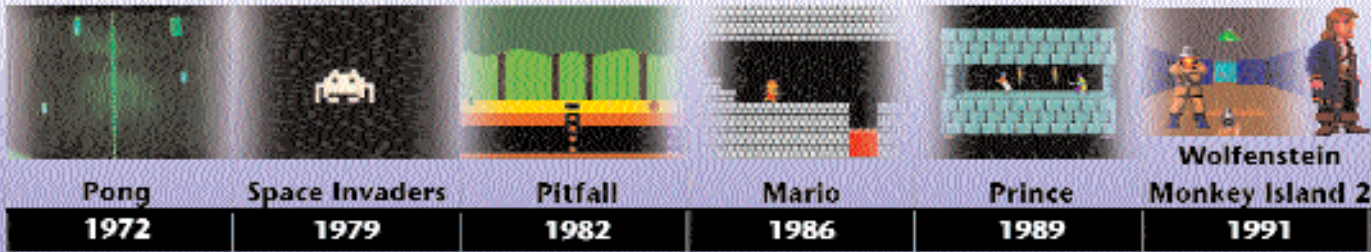
Space Invaders was the first blockbuster videogame. It brought video games into arcades, bars, restaurants and corner stores and to the public. It was translated to the Atari 2600 video game system. The home version too turned into a huge commercial

hit. Atari was the forerunner of consoles back then, with its cutting-edge 2,600-games system. Drool over the specs of this monster: 8-bit CPU at 1.19 MHz, 16-colour graphics, two-channel audio (noise and sound), 128 bytes of RAM. This was the era of games such as *Pac-Man*, *Centipede*, *Asteroids*, *Space Invaders*, and *Tempest*.

The dawn of PC gaming

During the early 1980s, a promising personal computing revolution made it possible to play a different variety of games. Text-based adventures such as *Zork*, *Hitchhiker’s Guide to the Galaxy*, and *Wishbringer* took gaming to a different level altogether. By 1985, Infocom’s *Zork* sold more than 1,00,000 copies. Gaming had arrived, and with it companies such as Electronic Arts and Sierra established themselves.

Games diversified into different genres. Role Playing Games (RPGs) that were played with dice were ported to the PC, adventure games told their stories with graphics, and 2D games made tentative attempts at simulation. *Civilisation* and *XCOM* established themselves as forerunners of the strategy genre. MUDs, or multi-user dungeons, became popular in universities and wherever terminals were



INFOGRAPHIC: Solomon Lewis



IMAGING: Ashwin Boricha

networked. Online designers began to create truly interactive persistent worlds for folks to inhabit and adventure in. By the late 1980s names such as *Ultima*, *Civilisation* and the *Quest* series established themselves as gaming franchises with massive fan bases.

Rising sun

Meanwhile, the console world saw the entry of Japanese manufacturers. The Nintendo Entertainment System (NES) with its 8-bit CPU dominated the console market with an irresistible array of games—*Zelda*, the *Megaman Series*, *Tetris*, and of course, *Mario*. NES is credited with being the most successful game system yet, its closest competitors being the Atari 2600 and the Nintendo Gameboy. By the 1980s, games featured 2D sprite graphics, MIDI level sound and multiplayer capabilities. Computer games were no longer meant only for geeks. Gamers had become respectable. Almost.

In the 1990s the first 16-bit console from Sega made dents in Nintendo's world domination, with the Sega Genesis. *Sonic the Hedgehog*, was Sega's answer to Mario. *Mortal Kombat*, a fighting game created a huge controversy because of the blood and gore it depicted, resulting in the industry appointing its own rating system. Consoles would go from 16 to 32-bit, CDs would replace

cartridges, and more powerful processors would bring better graphics, sound, and multiplayer capabilities.

Achtung!

The 1990s also saw the fading away of adventure and turn-based strategy games. Games that were too slow and required too much planning or thought didn't go down too well with lowered attention spans and twitch addicts. In 1991, a 3D action game from id software called *Wolfenstein* was released as a shareware. *Wolfenstein* was about hitting out at the Nazis; the action was frenetic, violent, and fun. The retail version sold over 2,50,000 copies. It kick started the FPS (First Person Shooter) genre, following it with 3D action games that have now turned into an industry of their own. With *Doom*, *Doom II*, *Quake*, *Quake II*, and *Quake III*, id single-handedly pushed the envelope in graphics and multiplayer, coining terms such as 'deathmatch' and 'ragging'.

Two other games would spawn another subgenre that flourishes to this day—Real Time Strategy (RTS). Westwood's *Command and Conquer* series and Will Wright's *Simcity* took RTS to new heights, and

spawned dozens of imitators. Blizzard revitalised the dying RPG genre with *Diablo*, a hack and slash action-RPG hybrid.

It's a party—everyone's invited

In 1993, *Doom* made multiplayer gaming possible, and thanks to a service called Kali, it turned the Internet into one big LAN party. *Doom* laid the groundwork for all that was to follow in multiplayer gaming. With the advent of the Internet, multiplayer and team play elements flourished in PC games, and the evolutionary path of most games has been steadily heading toward that direction in almost all genres. Almost all games today offer some sort of online or multiplayer feature. Multiplayer games increase the 'replayability' of a game because no two experiences can be the same. The interaction with humans brings in certain dynamics that a computer cannot offer, and probably never will.

The popularity of *Counter-Strike* speaks for itself. RPG games went back to their MUD roots with Massively Multiplayer Online Role Playing Games (MMORPGs). These are persistent virtual universes, where players can interact freely with other players, partner up, and live a fictional life. *Ultima*



Mortal Kombat

1992

Duke Nukem

1994



Quake

1996



Half-Life

1998



Unreal Tournament

Quake III

1999



Max Payne

2001

10 Classic Games

Pitfall — Atari 2600

You're Pitfall Harry, the world famous jungle explorer and fortune hunter extraordinaire. *Pitfall* started the sidescrolling version of adventure gameplay that was used in many 2D games. (1982)

Pac-Man — Atari

One of the most famous games from the Atari generation, it's *Pac-Man*'s story of survival in a maze, amidst ghosts, dots and power pills. (1983)

Yie Ar Kung Fu — Spectrum

The first fighting game. Fighting games owe it to this one for inspiring a successful genre on the console. (1985)

Contra — NES

What would the NES be without

Contra? You play as the Rambo-esque character shooting bizarre enemies, collect weapons with platform elements such as jumping puzzles, moving platforms, and of course, the mandatory end-level boss. (1986)

Super Mario — NES

Mario (and Luigi) run and jump through eight different worlds, eating mushrooms in a contrived adventure to save the Princess. With secret levels, power ups, and warp zones, *Mario* was one of the most fun games ever. (1986)

F-19 Stealth Fighter — PC

This was Microprose's *Doom* of flight simulators. *F-19* found the perfect balance between complexity and fun, attracting both purists and newbies. (1988)

Prince of Persia — PC

Rescue your beloved princess from the evil clutches of Grand Vizier Jaffar. You travel through dungeons and the castle to find her within an hour, swordfighting along the way. (1989)

Atari 2000 Robotron — Atari

Move and fire in eight directions to repel the swarm of robots attempting to destroy you and save your human family in the process. (1983)

Dune 2 — PC

Dune 2 is the grand daddy of all RTS (Real-time Strategy) games on the PC. Based on the *Dune 2* novels by Frank Herbert, it's one of the most action-packed and addictive games of all time. (1992)

Online, *Everquest* and *Asheron's Call* are some of the most popular names in the business. *Everquest* boasts of over 300,000 players.

Speed demons

As newer games demanded more realistic 3D environments, the drain on computing resources made it difficult for game programmers to devote resources to the gameplay itself. Even with monumental advances in computing power as offered by processors, game development was slowed by the inability of computers to keep up with the demands of 3D graphics. To address this demand, 3DFX released its

new Voodoo Graphics chipset in late 1996. 3DFX revolutionised the industry by outclassing available Pentium processors and other dedicated 3D products in 3D performance. Its proprietary Glide API was successful during a short period between 1997-98. It wasn't until Microsoft developed a 3D command language called Direct3D that the 3DFX/Glide domination began to crack. nVidia was one of the first companies to jump on the Direct3D bandwagon, and its GeForce range of cards rule the roost today.

As desktop computing power has exploded, so have the graphics capabilities of the PC. During the unveiling of the

GeForce 3, Steve Jobs talked about the time when they had to pre-render *Toy Story* on a Cray Supercomputer. It took them 1,000 hours to get 1,000 frames of decent animation. Now with the GeForce3, they can render the same scene at 60 frames per second.

The early games were addictive fun—fun in its most basic form. Today we have games with genres and subgenres, each with its own culture and clique that is being defined and refined all the time. The graphics and the sound will keep advancing to a point where it's as good as the real thing. But graphics maketh not a game. If you take away all the fancy graphics, sound, story, character development, puzzles and dialogue, then every game out there is just

Pong. All said and done, a death-match is similar to *Pac-Man* in 3D, and RPG games are just imaginative storytelling. ■

SRIRAM SHARMA



Ethical Warez

Video Game Emulators are programs that allow you to run video games on your PC. Emulators are legal as long as they don't contain copyrighted material. ROMs on the other hand are a different ball game. In the case of discontinued systems, classic gaming enthusiasts release the ROM images since the company is not making any money out of it, anyway. In a situation where buying the game is out of the question, it seems ethical to 'warez' these games. Classic gamers refer to such files as abandonware. But not all ROM images are copyrighted. Some companies release their


games to the public domain or for not-for-profit distribution. An example of this is ROMs for the Vectrex. These are perfectly legal, so long as they're not distributed for profit. Another interesting development is the concept of New Classics, a term used to describe new games written for old systems. People are still writing games for the ColecoVision, the Atari 2600, Gameboy and other systems. Programmers write the game and release it as a ROM image. They don't need to make a cartridge, since emulators can run their game. It's all for fun, and nobody is complaining.



GENOF



If a successful conquest is what pumps you up, aim your arrows straight at these hot tips

In *Age of Empires II: Age of Kings*, you take control of one of 13 civilisations that include the Chinese, the Goths, the Britons, and the Vikings among others. You start off with a handful of villagers and expand and manage your economy to a point where you can build a powerful war machine. The strategy, speed, and tactics needed to win make it quite similar to speed chess. *Age of Empires* has a huge fan base and was a tourney favourite at the World Cybergames held in December 2001 in Korea. 

SRIRAM SHARMA

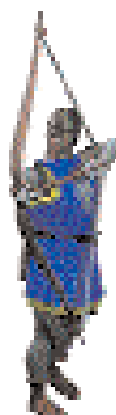
Defence Tips

An early blow in the feudal stages of the game can put you in a position where you are unable to recover. Here are a few simple tips. If you don't have enough money to make walls, use trees for protection. Keep scouts busy from the early stages of the game—they keep an eye on the resources, the enemy on the map, spots to take advantage of, and the wall. Housing that is spread out and wide will take a longer time to come under attack. Housing spread far out also lets you expand your territory, setting up the infrastructure when you advance to the later stages. Housing can also act like radars, keeping the fog of war at bay. Don't go around building clumps of houses and buildings just because they look pretty. Spread out your buildings and decentralise your base. Your enemy will end up attacking low priority buildings that can act as subterfuge.



Counter Attack

Every civilisation in the *Age of Kings* has a unique unit that you may have no answer for. For example, if a Japanese opponent is messing your happiness with his samurais, a brigade of archers can bring them down easily. Britons have great arching units with better ranges, but have weak paladins. Vikings are better warriors on water, with cheap docks and war ships. It's important to know your weakness and build your support structure around it. The trick is finding the chink in your opponent's armour and then exploiting it.



Activate Cheats

Car Cheat: To get a car that fires bullets during a game, hit [Enter] and type *HOW DO I TURN THIS ON*. The car should appear by your first Town Center. It gives you a cobra car, which has 500 hit points, 10 attack, 10 armour, and 10 range.

Reveal Map: To reveal the map, but not remove the fog of war, hit [Enter] and type *MARCO*. Typing *POLO* removes the fog of war; you can see the territory you have explored but not any activity on it originating out of your units or buildings' line of sight.

Speed Tips

The old adage that time waits for no man holds especially true in the *Age of Kings*. In this game, the faster you build up your civilisation, the more military units you can crank out, and, conversely, the more technology you can research. Hotkeys here is the name of the game—assign the [Ctrl] button and a number to a unit. It helps you plan and command an organised attack. Building can also be faster if you use the keyboard and the mouse simultaneously.

Build a house	Click a villager, then press [B] and the [E]
Build a farm	Click a villager, then press [B] and then [F]
Build a tower	Click a villager, then press [B] and then [T]
Build a building	Click a villager, then press [B] + Hotkey for the building
Build military building	Click a villager, then press [V] + Hotkey for the military building

MRP: Rs 299 · Min Requirements: Pentium 166 MHz, 32 MB of RAM, 200 MB of hard disk space, 4x CD-ROM, Windows 95 or above.

Hits n' misses

Does your gaming collection seem outdated? Or do you need an addition to your bookshelf? Get a glimpse at the latest in these categories right here

MONOPOLY TYCOON

This means business

The most popular strategy games today trace their roots back to boardgames. *Dungeons and Dragons (D&D)* and *Advanced D&D* used to be played with huge rulebooks and dice. Over time several of these boardgames got ported to the PC with great success. Deep Red and Hasbro didn't take long to figure out that *Monopoly* was another

relevant to the people at the time. The best businesses in the 1950s might be sports and music stores, but as time goes by, it might be a better idea to tear them down to start a computer store.

Winning requires being elected as a mayor, reaching a certain sales target, profit margin, or empire value. There's

also a survivor-style elimination mode where the true spirit of *Monopoly*—bankrupting your opponent comes into play.

The 3D graphics are colourful and smooth. You can zoom in

and out on buildings and streetlights come on at night, casting shadows in areas the light doesn't hit. Individuals and cars change appearance as time progresses. The music is snazzy and changes with the decades.

It takes about an hour to learn the ropes. After that, this game has you in its grip.

The strategic and tactical possibilities in here are greater than in *SimCity* or *Railroad Tycoon*, and the options open to you are many. The construct is so huge that there is no single way to become rich and dominant. That's the beauty of *Monopoly Tycoon*.

If you played the boardgame in your childhood, do give this PC version a look. With single player and

multiplayer modes, chance cards, dynamic AI and different gameplay scenarios, this game keeps giving.

Strategy/simulation management games might not be everyone's cup of tea, but with interactive city dwellers, multiplayer capabilities, Internet

play and gorgeous 3D graphics, it's time you gave it a look.

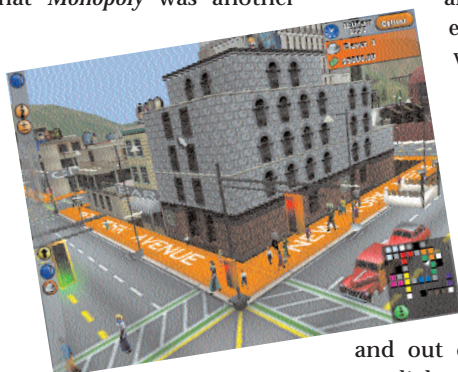
Developer: Deep Red

Genre: Strategy/Simulation

Contact: Milestone Interactive, 022-8381614

Web site: www.monopolytycoon.com

Rating: ★★★★★☆



boardgame begging to be ported to the PC.

Playing a boardgame on a PC introduces you to dynamics that you will not find in a regular boardgame. *Monopoly Tycoon* is a 3D real-time management multiplayer game that simulates a city, right down to its individual citizens. You start off as an entrepreneur in a city back in the 1930s and grow with it. The only driving motive here is the American dream: grow rich and powerful.

The game is not only about money circulation, but also about being competitive enough to outdo your opponents by building properties and businesses that are

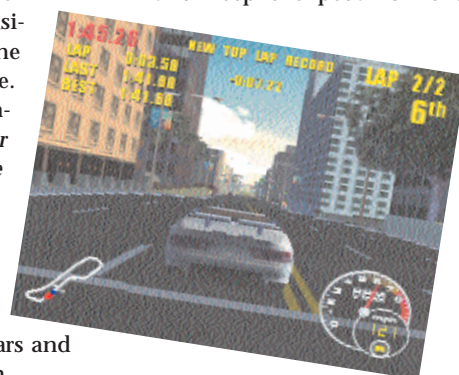
SUPERCAR STREET CHALLENGE

The Fast and the Futile

It's time to squash this lemon in the junkyard. If you've seen *The Fast and the Furious* or *Gone in 60 Seconds*, it's easy to make a parallel between supercars and souped up PCs. Both embody the best in technology and are over-clocked by enthusiasts to deliver the best performance. Exakt Entertainment's *Supercar Street Challenge* makes a desperate attempt at tapping into some of that, letting you take to the wheel of some of the best cars and even redesign them.

But in plain racing terms, this game is a flat tire. It allows you to shape the car any way you want, but that's all it does. The changes you can make to the car are cosmetic; there is no relation to speed, braking, acceleration and handling. Controls are largely arcade-oriented, which is fine, but the lame physics make it hard to

appreciate it. You keep plowing through lampposts, trees, statues and an assortment of other obstacles. Since there is no damage system, here's a simple strategy—the best way to win is to bounce off walls and keep the pedal on the



metal all the while. The menu system seems like it was ported straight from the console, and is unintuitive and laborious. The lack of any obstacles undermines the sense of speed you have—there is no fear of being slowed down at all.

Supercar lets you race through several major cities,

including Los Angeles, London, and Monaco. But all look extremely bland with no hint of life anywhere. Even on a GeForce2 with a 900 MHz Duron, the frame rate stuttered and popped at the lowest resolutions. The cars are over-reflective and the textures flat and lifeless. The graphics engine is four years too old.

The game's great in concept, but not in implementation. Bad controls, poor graphics, pedestrian sound effects, no multiplayer, a console of a menu system and unchallenging gameplay. Almost every racing game ends with some techno or trance music and this one is no different. If you

like trance, *Supercar* has one of the best soundtracks around. It features Captain Tinrib, DJ Micro and Keoki along with a host of other performers from Moonshine Records.

Simply put, this game fares poorly and cannot hold a candle to the likes of *Need for Speed*, *Colin Mc Rae*, or *4x4*

Evolution. Even the extra effort on packaging—the snazzy DVD case, free demo CD, and a poster fail to impress against this onslaught of awfulness.

Developer: Exakt Entertainment

Genre: Racing

Contact: Milestone Interactive

Phone: 022-8381614

Price: Rs 699

Rating: ★★

DESIGNING VISUAL BASIC .NET APPLICATIONS

A RAD book, this!

Visual Basic has been the most popular Rapid Application Development (RAD) tool ever. Now that .NET is coming up as a services platform, Visual Basic for .NET is so hot that you definitely need to get your basics right. This book gives you a refresher course on what .NET is all about and how you can use Visual Basic.NET to develop applications for the platform. You will get a sneak preview of the changes that have been implemented into the language core. Explanations on accessibility to databases using the ADO.NET are so lucid that even a novice should find it easy. For those of you unfamiliar with XML



or SOAP, this book gives comprehensive explanations on working with the same. In all this is a project management book. It helps you learn, plan, develop, and deploy .NET applications in a jiffy.

The flipside, however, is that you should already be a software architect, or at least an expert at Visual

Basic to understand the real essence of developing applications for this platform.

Publisher: IDG Books India Pvt Ltd

Contact: IDG Books India Pvt Ltd

Phone: 91-011-3275895

E-mail: idgbooks@vsnl.com

Price: Rs 249

Rating: ★★★

Web services such as setting up an Apache server, running an FTP server, building new kernels, and maintaining system security.

Although it doesn't claim to be a 'bible', it's a pretty good book to start out with. To put things in a nutshell, this book can help you skim the surface of working with Linux and you will learn the

ropes to some extent, but 'mastering' Linux would take you a lot more study and effort.

Publisher: IDG Books India Pvt Ltd

Contact: IDG Books India Pvt Ltd

Phone: 91-011-3275895

E-mail: idgbooks@vsnl.com

Price: Rs 169

Rating: ★★★

WINDOWS XP PLAIN AND SIMPLE

Quick and easy

Windows XP is the best operating system from Microsoft yet and everyone wants to use it. If you share the sentiment but are the kind who doesn't take too kindly to figuring out the various features of your OS on your own, then you can turn to this book for the simplest of guidance. Another reason is that you won't have to browse through pages of dense text. You will find just the required amount of information. You can learn to fix all your XP related problems using the concise instructions in this book. The book is packed with images and illustrations that help you further your understanding of Windows XP. Starting with a mention of the new features of the OS, to its networking and other interesting capabilities,



the book deals with the essentials of XP in an interesting manner. For those of you working for the first time with networks, setting up network connections with Windows XP will be quite difficult. But with the guidance and examples offered here,

you too can cure your networking hangups in Windows XP. A must have for every Windows XP home user, this book is like a product manual that you can refer to when you have a problem with your new fancy OS.

Publisher: Prentice Hall of India Pvt Ltd

Contact: Computer BookShop

Phone: 022-2070989,

2076356

E-mail: cbsbom@giasbm01.vsnl.net.in

Price: Rs 225

Rating: ★★★★

RED HAT LINUX 7.X IN 2 1/2 DAYS

Learn the ropes, yet to walk it

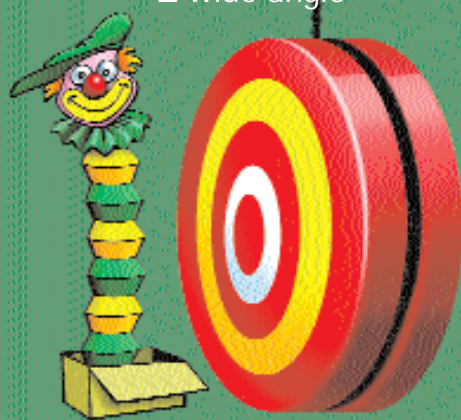
Learning Red Hat Linux 7.x in two-and-a-half days is quite a feat for anyone to achieve.



While the goal of this book may seem a little too far fetched, the book is still pretty well written and good enough to help a novice reach

the intermediate level.

The book opens with a guide to the very initial steps such as installing the software, as well as troubleshooting the installation if you happen to face any glitches at the very onset. Next on the menu is exploring various tasks such as using the shell, bash commands, networking, Internet, etc. It also deals with complex topics such as setting up Internet services such as e-mail and



Computer Pranks

Gnashing your teeth at that Smart Aleck who always seems to get the better of you? Get the upper hand with these computer pranks

Frozen desktop

Temporarily 'freeze' your friend's desktop by doing a 'Print Screen' of their work area and saving it as their wallpaper. The next step is to minimise the taskbar and hide their desktop icons. They'll never know what hit them as they try desperately to click on the 'frozen' icons.

A mousy trip

Tape the trackball to the insides of the mouse and watch with a straight face as your friend tries to hunt the mouse.

Smooth operator

From the Control Panel, change the double-clicking speed of the mouse to the fastest it can be. To add to this, switch the settings for the mouse buttons from right-handed user to left-handed user or the other way around.

Keyboard capers

Pick one key that is used most often, for example 'E' or 'I', take the spring out from under that key. Or how about switching the 'M' and 'N' keys? You can get away with this unnoticed for sometime. Works best when the person has a password containing the letters 'M' or 'N'. If that doesn't sound daring enough, how about changing your victim's keyboard setting to a different layout. (Mind you, keep your Windows install disks handy in case anything goes wrong.)

Virus alert!

E-mail someone you know every hour, on the hour, sending them a warning about the deadly virus that's hit town.

Play switch!

If you're in an office with computers really close to each other, you are in luck. Pick a person whose computer is next to yours or back to back. Make sure they have really long cables. Before the person who works across from you gets to his station, unplug his keyboard, plug yours into his computer and open a word processor on his terminal. When the person gets back to work on his PC, start typing and be prepared to double in laughter. You can also do this with mice and monitors.

Spring me a floppy!

Rig the spring in a floppy drive to fire the disk a good distance from the machine upon ejection.

Sound start

Record your friend saying something stupid with a whole lot of sound effects. Then sneak up to their computer and pop it in as their Windows startup. Warning: your friend will probably have a lot to say to you afterwards 'offline'.

Printer daemon

Write a daemon that sends each individual page of a print job to a different printer on the network. Select the printer at random.

Where have all the icons gone?

Try to take control of a computer, go to Control Panel > Display and change everything to black. Have fun watching the PC user trying to find all those icons.

Team's Top Picks



Ronnie Sengupta, the technology whiz behind ZDnetIndia.com is passionate about two things—music and technology. Check out these 'must surf' sites picked by Ronnie if your passion for programming matches his.

"Programming today isn't what it used to be a decade back. There are so many technology choices for a programmer—if not for the Internet it would be impossible to keep up".

www.4guysfromrolla.com

If you're an ASP programmer, you must read up the excellent articles on this site regularly.

www.phpbuilder.com

PHP giving you a hard time lately? Get online and find solutions on this site's support forums. The site also has great articles, a code library and PHP manuals. www.jguru.com Here you will find links pointing to the best resources on Java.

www.otn.oracle.com

An excellent resource for Oracle developers.

www.asktom.oracle.com

Tom's the handy man for all the help you need with Oracle.

www.webmonkey.com

A great place for those who want to learn the basics of anything to do with the Web.

5 Pin Drop Violence



Pradeep (vocals), Mithun 'Pervert' (guitars), Vispy 'V.A.S.P' (guitars), Rohit 'pereira-man' (bass), Neeraj 'UFO-bait' (drums)

India's first hardcore/nu metal metalcore band, PDV have won three competitions in a row, including Independence Rock 2001. The campus band that is ripping audiences into frenzied mosh pits gives us the dope on their top five sites.

www.gigpad.com

For all the information on the Indian rock scene...when's the next gig happening, reviews on gigs, information on competitions, album releases, who said what, and a whole lot more.

www.audiogalaxy.com

This is where we head to for all our music. It rocks!

www.metalhammer.co.uk

Here's where you can get all the low-down on international bands.

www.fatwreckrecords.com

Get all the information on the best underground punk rock bands. And for those of you into skateboarding, this is the site.

<http://pdv.vr9.com>

It's our band site, and we love it!

NETFACTS

7 per cent of the online population in the US has a PC at home but chooses not to have Internet access at home.

Over 3 million home Internet users in the UK visited games sites during November 2001, up almost by half a million since last November.

OLD WAY

Booking a railway ticket yourself

Haul yourself to the railway station, crane your neck and jostle with crowds to look up train numbers and timings. Fill out a reservation form and brave the long queues to get your ticket.

Time taken: The better part of a whole day

TECHWAY

Log on to www.indianrailways.com and in a matter of minutes look up the booking status on each train. You can also check your reservation status in seconds. However, to make reservations you'll still have to stand in queue.

Time taken: A few minutes to look up train options

COMPASS 2002

The East India IT Show

The Emergence of the Digital East

The Netaji Indoor Stadium in Kolkata was the hub for global hardware and software vendors, when the seventh information technology show of computer association of eastern region was kicked off from the 11th to the 14th of January. The theme for the exhibition was 'Emergence of the Digital East'

This was the biggest IT show in the region, and in particular, a tribute to the growing significance of the IT industry in West Bengal. 150 participants, including 80 from

ment generation in the eastern region and we are very pleased with the initiatives taken by the government of the west Bengal in this area. Compass is committed to harness and unleash this potential and contribute in a very positive manner toward the development and growth of employment and investment in this region."

Outstation dealers meets at Bhubaneswar, Ranchi, Jamshedpur and Guwahati were conducted by the senior members of COMPASS prior to the exhibition. The OEM Resellers Meet was attended by hundreds of dealers, OEMs, COMPASS members. With interactive sessions and panel discussions, many others participated in the presentations made by the OEMs and Principals.

COMPASS conducted a survey amongst its members to assess the performance of OEMs and vendors. An



From left to right: Pawan Jajodia, V.K. Bhandari, Manabendra Mukherjee, Ben Boyden, Arun KR Jalan.

Eastern India representing all segments of the IT industry participated in the exhibition to display the latest range of products and services from all parts of the world. The event, which was organised by Compass was sponsored by Seagate and co-sponsored by VIA. Global hardware majors such as LG, Kobian, D-link, Epson and Samsung directly participated in the exhibition.

COMPASS 2002 Chairman, Mr. V K Bhandari, emphasised the growing importance of channels that form the nerve centre of sales activities in the Information Technology business world wide. Despite the rapid spread of the Internet, channel sales continue to evolve, expand and mature under difficult market conditions.

Arun Kumar Jalan said in his address: "The IT industry has tremendous potential for growth and employ-



IT Minister of West Bengal, Manabendra Mukherjee with an opening address to the gathering at Compass 2002.

OEM Reseller Meet was also conducted to make the channel aware about the technology road map of various manufacturers. At the same time, it gave manufacturers principles to appreciate the channels point of view.

The event ended with the award distribution ceremony at the Grand Hotel on 13th January 2002.

For more details, log on to www.compassindia.com

We came, We saw, We got bowled over!

Fun in the sun! We at JDM got a chance to stretch our cramped muscles with some cricket. So here are the scores

Just cricket! The fag end of 2001 saw more cricket fever than New Year preparations in Digit. It was the time for the 'JDM Super Sixes', our annual in-house cricket tournament. All work was ditched in favour of a day in the sun.

Held on December 28, it was a closely fought battle between the various teams that make up Digit and our sister publications. No guts, no glory, was the motto as it was purely on a knock-out basis at Vashi's cricket ground.

Seeing that everybody wanted to play, and there was just one day to do it, special rules were drafted. Each team had six players and got five overs in which they had to score the maximum. If a wicket was lost, 5 runs were deducted from that team's score. Each team had to field for the other teams as well even if they weren't playing.

Our hard core techies who wouldn't even bat an eye lid when running all those hard core benchmarks and tests were at home in the field too. Especially


when facing all those bouncers and googlies. While not exactly dressed in cricket whites, they earned their own place under the cricketing sun.

The Digit team was headed by Shyam Shirsekar, our Visualiser, who swears by Sachin Tendulkar. The team was firing on all cylinders and managed to make 26 runs. All of that went for a toss as 5 wickets were lost, putting the team in a bad position. But then, it's a game afterall and everyone played their best.

The day had its own share of injuries as the heat took its toll on the players. No ambulances were called though! Adarsh Kaul from the events team has reportedly been selected to the Indian team based on the 'leg cramps', which mysteriously vanished as soon as the tournament was over. Special kudos to Shyam, who did the fielding for other teams till the end of the day even though his team didn't make it past the first round. Sportsman spirit at it's very best.



A tree-top view of all the gripping action!

However, the spotlight of the day was the final. A fierce battle took place between the people who give Digit its cool look and those who provide our technological backbone—the team of Design & Media studio versus the Information Technology and Finance team. After much blood and gore, the IT and Finance team headed by Prakash Fallor won the tournament with a score of 60 plus. Sachin, our hardware engineer was the man of the match. They proved they were as good at scoring runs as they were at maintaining our bandwidth and network. Three cheers for the winners! 



The bat is stronger than the sword too—if it connects!

Punjabi Commands

A serious look at some computer commands, the Punjabi way!

Send: *Sutto*

Insert: *Wich Paa*

Attachment: *Naal Laao*

Edit: *Sidda Karo*

View: *Waikhee Jaao*

Forward: *Aggay Sutto*

Inbox: *Undar Da Daak*

Khaana

Outbox: *Baar Da Daak*

Khana

Trash: *Mitti Paa*

Address Book: *Patay Wali*

Kaapy

Reply: *Bejan Walay Nu*

Jawab do

Reply All: *Saareyaan Nu*

Jawab do

Delete: *Daffa Karo*

Download: *Thallay Laao*

Properties: *Jaidaad*

Connect: *Naal Milaao*

Fonts: *Likhaai*

Accounts: *Galla*

Drafts: *Chitheeyaan*

Find: *Labbo*

Paste: *Thook Naal Chipkaao*

From: *Bhejan Walaa Banda*

Subject: *Khaas Gall*

Stationery: *Pensal, Rubburd*

Folders: *Thailay*

High Priority: *Waddee Tak-leef*

Ctrl+Alt+Delete: *Sara Syapa Mukao*

Contributed by Manmohan Dev Sharma

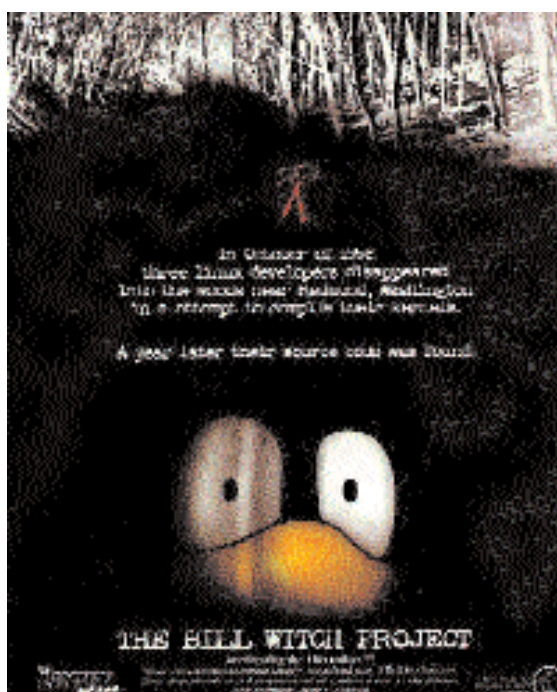
Staying afloat



But the fact remains that Microsoft is much bigger than any Titanic

(Taken from the Net)

Future Plot



If you thought The Blair Witch Project was scary, then check this out. The plot is about the Bill Witch placing a hex on three Linux programmers. This will be one loud Linux crash.

(Taken from: www.computerpranks.com)

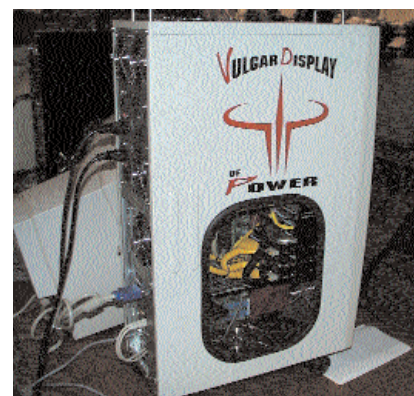
A classic piece

Can't stop talking about the charm of the good ol' days? This one's for the old timers

(Taken from the Net)



Hunk of a PC



Somebody's machine! Not Dimebag Darrell's

Contributed by Sriram

Tabby's new diet



Last thing you want is something like this happening to a Logitech Cordless Mouseman Wheel.

(Taken from the Net)

Wild Wild Web

After many hours in front of a computer monitor, we get bored with the standard sites. Sometimes we end up at sites like these while searching the vast recesses of the Web.

www.geocities.com/warrior-sofdestruction: These guys look pretty tough and their Web page design is second to none. A *Quake II* clan that knows how to make lots of money. And they want to share it with you. Animated gifs, MIDI music, and bad design, this site has it all.

Contributed by Andre

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 send e-mail to backbyte@jasubhai.com