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Is Microsoft's Domination
Really unjust?

Karan Manral
Assistant Editor

"Developers have wasted several opportunities to prove that Linux is not just for geeks and they will now find it even more difficult to make progress against Windows XP"

The last couple of years have witnessed the growth of Linux from an operating system that started out as the plaything of a small group of programmers to one that is taken seriously all over the world.

Linux is the best operating system around. Linux is proof of the power of communities. Linux stands for Freedom of choice. So claim its ardent supporters.

Unlike the Macintosh operating system, Linux doesn't face the challenge of convincing people to switch to a more expensive and proprietary hardware platform. Neither has it been stopped in its tracks by limited hardware support, as was the fate of BeOS. For Windows 98 users the differences in stability should itself have been sufficient reason to switch over. But even though Linux is virtually free, people haven't been convinced to make the shift.

So what is really holding up this operating system in its quest for popularity with regular desktop computer users?

The answer lies in the little details.

What is popularly referred to the 'Linux Libraries Dependency Hell', makes installing new applications a tiresome process. Many popular Windows applications are still not available on Linux and the few world-class Linux applications have their own quirks. Consider GIMP, which could really challenge Photoshop if the interface wasn't so clumsy. Issues such as this make the transition to Linux extremely inconvenient for Windows users.

Newer distributions are as easy to install as Windows and the Linux user interface itself has made great progress over the last year. However, there's not much innovation directed at making it easier to use for people unfamiliar with computing. The developers have wasted several opportunities to prove that Linux is not just for geeks and they will now find it even more difficult to make progress against the latest Microsoft products. The traditional instability of the Windows desktop OSes has been largely eliminated in Windows XP.

If Linux is to become more popular, its applications need to compete with the best that Windows has to offer both in the features offered, and in usability. The only way to seriously challenge Windows is by concentrating on making Linux even more easy to use. This would go a long way in ensuring that Linux moves beyond being an operating system that so many love but very few choose actually to use.

Karan Manral

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contents ■ magazine

Reviewed this month

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Software

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Inside the CDs

Software

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GoZilla Free 4.1, Opera 6.0 beta 1, Zbrush v1.23b

FAQs
Wondering how your modem works?
■ Discover the answers in these Modem FAQs

In Bookmarks
■ Web sites that will help you solve your PC problems

Hands On
■ Our video workshop this month shows you how you can speed up the performance of your PC

CD Special
Musicmakers

PCDJ Silver
Compose your own music with this pumped up MP3 player

plus **FruityLoops 3.3**
SoundForge 5.0

Arena: Top Demo
Rogue Spear: Ghost Recon
Take command of an elite squad of military personnel equipped with the latest cutting edge weaponry (not just machismo!). Play your way through a series of missions, ranging from demolitions to search and rescues, on to all out firefights.

Music
Get jiggy with it, or go into a trance with Amok Vibes (group members being "me and myself, the unique Amok"). Groove to Latin House, Deep and Hard House, Big Beat, Drum n' bass, Trip hop and more.

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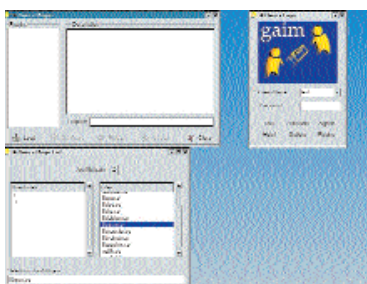
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Oceanic Talk

Expecting an urgent call? There's not much you can do if you're 30 feet underwater admiring the lush aquatic life. But that's history now. A new phone devised by France Telecom has made it possible for divers to receive calls from a landline or a mobile phone without having to surface. The phone, which comes with a long wire, is attached to a buoy on the surface of the water.
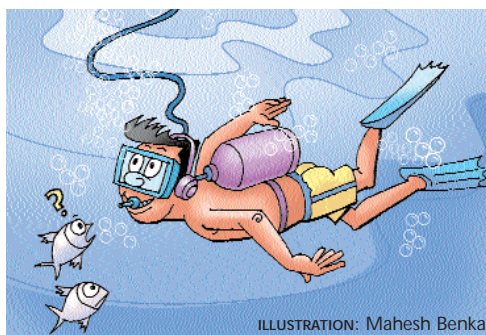
ILLUSTRATION: Mahesh Benkar

The buoy contains a GSM unit which picks up the signals and relays it down the wire to the phone.

This phone has a dial pad, a light, a buzzer and a special mouthpiece. The buzzer and a flashing light alert the diver of an incoming call. The person receiving the call underwater bites on the mouthpiece to receive the call and hears the conversation through sound vibrations that reverberate in the diver's skull towards his ear. The diver can also talk back and use a dialing pad to call anybody on a fixed or wireless phone. Connectivity now extends to the oceans.

Rip In Peace?

Michael Jackson, Natalie Imbruglia, and the Fast and the Furious are some of the first artistes to employ CDs that use copy protection. A copy-prevention mechanism called key2audio has been used on Michael Jackson's forthcoming single, 'You Rock My World'. This causes a computer's CD-ROM drive to incorrectly interpret the stored data. Key2audio alters an audio CD making it incompatible with CD-ROM, CD-R and CD-RW drives. Similarly, the SafeAudio system developed by Macrovision, prevents one from 'ripping' music CDs to create digital copies on a computer hard disc or for downloading to a portable player. SafeAudio is based on the work of TTR Technologies, Israel. SafeAudio gives some of the digital code on the CD "grossly erroneous values", adding bursts of hiss to the audio signal. The error-correction codes on

the CD, which normally correct these errors, are distorted. So error correction fails, leaving tiny gaps in the music.

Universal uses Cactus Data Shield to lock up ordinary CD audio files. But it includes a separate audio player that allows digital versions of songs to be played. These songs cannot be played through common media players such as Windows Media or Winamp. Nor can the digital files be played on anything other than a Windows OS. Interestingly enough, you can beat the protection by playing a CD on a standard CD player, taking the output to the line-in jack on the computer, and recording each track into a WAV file. Once a WAV, the song can easily be converted to an MP3 using any of the programs available on the Net. It's more time consuming compared to a ripper, but it works.

Mailing station

How do you send e-mail without a PC? It's simple. You take a certain device, plug it in any telephone jack and send and retrieve e-mail from your account. This device, for

which you have to pay Rs 5,990, is called an iStation and is manufactured by iNabling Technologies from Bangalore. If you want to print an e-mail, plug iStation in a printer and fire the print; You can even send mail in your native language. The iStation weighs 770 grams and comes equipped with a 256 KB capacity, an in-built modem, and a backlit LCD.

It's available in two models: Premier P1001 (Rs 5,990) and Classic C1001 (Rs 7,990). The Classic model has a printer and a PC port. iStation permits up to five users to use a single unit, each having their own private e-mail IDs.

3D MEMORY

A Silicon Valley start-up will try to popularise one of the more intriguing ideas of our time: three-dimensional semiconductors.

California-based Matrix has received strategic funding from Sony, Eastman Kodak and Microsoft, to release memory chips that contain many more layers of circuitry than ordinary chips. As a result, Matrix' chips resemble microscopic cubes rather than two-dimensional planes.

The chips will apparently incorporate some design techniques taken from digital flat panels. Matrix has borrowed many of its concepts for building vertical chips from the flat-panel display industry, which has perfected the art of mass-producing layered silicon films. The chips will be built using many

more layers of circuitry than current chips and as a result, resemble microscopic cubes instead of the existing chips which are much flatter.

The chips will be substantially smaller than competing products. Matrix claims that their technique will allow them to produce 64 MB flash memory cards that would sell for around $10 (current 64 MB cards cost $38).

It seems likely we will see these chips in devices relatively soon, considering the fact that Toshiba, Sony and Eastman Kodak are among the investors.

The transition to three dimensinal chips is driven primarily out of a fear that Moore's Law will hit a wall. Designers will have to come up with other ways to allow chips to continue to become more powerful.

"I'm in a harry"

You're a goner if your PC's managed to get this one. Goner is a powerful new Windows computer virus busy wreaking havoc and affecting over 17 countries, out of which the US, the UK and France have been the worst affected. The e-mail is named 'Hi' with a message that reads, "How are you? When I saw this screensaver I immediately thought of you. I'm in a harry (sic). I promise you'll love it." It has an attachment called 'Gone.scr', a screensaver which displays a small dialog box which fools the user into believing that a program is running, while in the background, the system files are being deleted. The e-mail sends itself to the addresses in the Outlook Address Book. Goner can even disable anti-virus software in a computer. Watch out.

Patch work

Microsoft has released a security patch for Internet Explorer 5.5 and 6.0 to plug a hole that could allow hackers to steal passwords and trick people into downloading virulent files. The patch eliminates a wide range of previously known security problems and plugs three new holes. One problem affecting only IE 6.0, allows an attacker to alter HTML information in a way as to trick IE to open a damaging executable file without asking the person for confirmation. Another bug allows the hacker to gather personal information from the local system. A hacker could read, but not change, any file on the computer user's system that can be opened in a browser window.

Cool for laptops

Micro-fans developed at Purdue University, Indiana, could help in developing smaller and faster laptops and let manufacturers stash in more chips in devices than are currently possible. These fans, say the engineers, imitate the motion of a Chinese fan. These micro-

fans have polyester or even metal blades, which are "attached to tiny patches of piezoelectric ceramic". When an alternating current is applied, the ceramic expands and contracts and the blades move back and forth like a Chinese fan. However, there is scepticism that the airflow achieved by a ceramic fan will not cool

a chip satisfactorily. But they could be put to work in combination with rotational fans especially in spaces that are not reached by the latter. Engineers also claim that the piezoelectric fans consume far less power as compared to a rotational fan. Interestingly, being noiseless, they can also be used in cell phones.

Thailand:$2.70 ■ nVidia employees accused of insider trading ■ Microsoft officially launches Xbox ■ Java-based phones making presence felt in Asia ■ Bleem shuts down

Send Me Some

Are you lost? Don't worry. You can nowadays SMS your way out of almost anything. Using a combination of Ericsson's Mobile Positioning System (MPS), Ericsson's SMS Gateway and AutoDesk Inc's Location-Logic, text-messaging can now pinpoint a user's location.

The first location-based text-messaging services will lay the foundation for more data-rich services. Using these services, mobile operators will be able to offer advanced versions of SMS such as EMS (Extended Message Service) and MMS (Multimedia Messaging Service).

These messaging services will allow the system to attach images, such as maps, to the reply message without upgrading their entire network infrastructure. So hopefully you'll be carrying your mobile with you the next time you are lost.

Thumbelina

Here's good news for those born without thumbs or have lost them in accidents. Students in Singapore have developed a battery-free artificial gadget made of aluminum that acts as a substitute for a missing thumb.

The device, called 'Mimic', is small, lightweight and straps onto the back of the hand and wraps round the index finger to hold a moveable metal thumb in place. This metal thumb mimics the forefinger and moves whenever the forefinger moves. Two small pulleys and a fine steel cable keep the forefinger's movements in sync with the metal thumb. This device even allows a person to write and pick up small objects.

The prototype will be available at just 100 Singapore dollars. But it isn't an off-the shelf product. Each piece will have to be custom made to fit the wearer's hand.

Bluetooth going gold

Despite a slow start and months of stagnancy, Bluetooth is finally poised to take off. The wireless networking technology that is designed to replace cables that connect devices is beginning to reach critical mass. A growing number of products already on the market and those set for release next year are bringing back the hope Bluetooth once had. Market researcher Dataquest predicts that demand for Bluetooth this year will result in the shipment of about 4 million chipsets. The company predicts shipments will rise to 36 million in 2002 and 186 million in 2003.

heroes

Windows XP
■ Microsoft finally delivers a stable, user-friendly OS
Castle Wolfenstein
■ The 3D game is back in a new avatar and takes the market by storm
VIA
■ Court case against Intel won. Expect DDR-based motherboard chipsets for Pentium 4

zeroes

iPAQ
■ Sales of iPAQ shrivelled from 450,000 to 185,000 as users waited for Pocket PC 2002
Domain Name Lottery
■ .biz staggers as NueLevel, the company responsible for introducing the Internet address, fights a lawsuit for playing illegal lottery for contested names
Excite
■ Excite UK shuts down the UK operations after funding falls short

statattack

Source: www.internetindicators.com

Internet-related jobs: Not just in IT

12% Accounting/Finance
17% Operations/Manufacturing
10% General/Admin/Executive
33% Sales and Marketing
28% Information Technology

Source: www.researchbottle.com
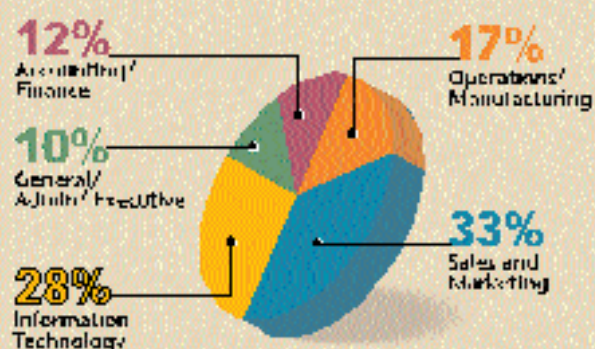
Kids online: What are they doing?

Music
Homework/Research
Gaming (Online/Offline)
Chat/ICQ
e-mail

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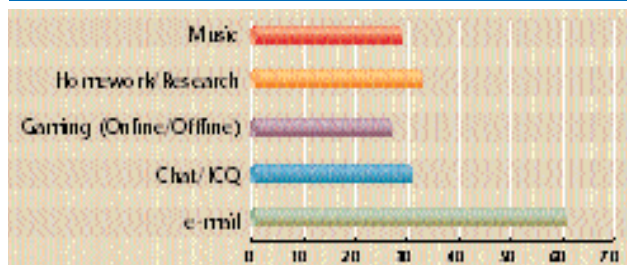
INFOGRAPHICS: Solomon Lewis

Shr(i)ek!

The Shrek DVD features a first-ever 'U-Dub-It' feature that allows users to dub their own voice in place of any of the characters and 12 additional DVD-ROM games. Shrek's ReVoice Studio uses technology that lets the viewer become the actor. The program enables viewers to select from 12 of the film's most popular scenes and record the lines of the characters. It then syncs up their voice with the character's mouth. As you read the on-screen script into a microphone the program automatically synchronises your voice with the lip movements of the character you have chosen to play. It's a bit like Karaoke, only better.

■ Sun pushes UltraSparcIII to over 1 GHz ■ ATi A3 Athlon XP chipset revealed ■ Windows XP causes Intel mobile chips to overheat ■ Palm to replace buggy devices

Life-saving pyjamas

Sudden infant death syndrome (SIDS) is the single biggest killer of infants under one year in developed countries. Belgian researchers are hoping that a baby suit or pyjamas based on space technology may help save the lives of the little ones.

The prototype pyjamas include five sensors built into the fabric that will monitor the baby's breathing and heartbeat. The sensors are connected to a small detection unit that triggers an alarm if it detects any abnormalities. Further, the sensors have no direct contact with the skin, thus minimising any discomfort to the child.

Verhaert (*www.verhaert.com*), a European systems development group which developed the underlying technology, says that extensive trials in Portugal and Germany have yielded encouraging results and the medical community's feedback has been positive. These suits are slated to hit the market in 18 months.

Unconnectedness

If you plan to surf while flying Boeing, you'll have to wait. Connexion, a project by Boeing and its three partners (American Airlines, Delta Air Lines, and UAL's United Airlines), had plans to put high-speed Internet connection on Boeing planes. The plan has now been shelved. Boeing's partners pulled out of the project following severe losses as a result of the September 11 terrorist attacks. Plans were to provide Internet services via satellite.

Zaurus the Linux

The Japanese electronics maker, Sharp, has recently unveiled a retail version of its Linux-based PDA, Zaurus, which it plans to make available in the US early next year. The commercial version, renamed the Zaurus SL-5500, features a small, retractable keyboard and two expansion slots for Compact Flash and Secure Digital cards. Sharp currently sells the Zaurus SL-5000D to developers for $399 (approximately Rs 19,152) from its Web site. The company is looking to drum up support among developers worldwide for developing applications on the Zaurus.

Internet semantics

Tim Berners-Lee, the inventor of the World Wide Web, is a man on a mission—to make the Web smarter. He aims to weave a Semantic Web that links documents to each other and recognises the meaning of the information in those documents. Berners-Lee says that adding semantics to the Web changes it from being a publishing medium to a medium where diverse data can be interpreted and exchanged. How many times have you searched for a particular work and ended up with irrelevant search results? The Semantic Web will change all that with Semantic-enabled search agents collecting machine-readable data from diverse sources, processing it, and inferring new facts to give you what you want.

metrics

70% of all Internet users started surfing the Web in 1998 (Gartner)

3 billion Web documents can be accessed by Google any minute

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tomorrow'stechnology

Gingerly there

It took more than a year of intense speculation and media hype to arrive. When it finally got here, it looked a lot like a slick scooter you strap on your feet. The scooter-like 'Segway Human Transporter', a revolutionary, self-balancing personal transportation device using an electric engine to propel passengers at 12 miles per hour, was recently unveiled by an 'inventrepreneur'.

The inventor, Kamen, who's called this device Ginger after the actress Ginger Rogers (he had named it Fred earlier), has used a technology called 'Dynamic Stabilisation' that's designed to simulate the way the human body moves. Dynamic Stabilisation is achieved by using gyroscopes and tilt sensors that monitor the rider's centre of gravity 100 times per second.
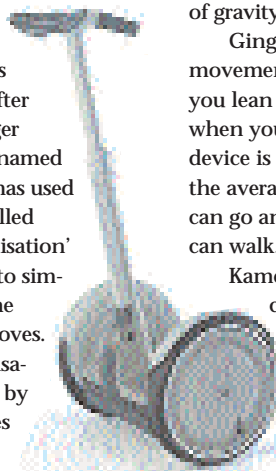
Ginger is driven by body movements; it moves when you lean forward and backs up when you lean back. The device is about the same size as the average human body and can go anywhere where a man can walk.

Kamen, the chairman and chief executive officer of Segway LLC, says they plan to sell Ginger starting late 2002. The company will manufacture three initial models of the device—the i, e and p-series. The i-series will be designed for range and speed across different terrains, the e-series will focus on business applications and will haul up to 75 pounds beyond the rider's body weight, and the p-series will target the densely populated areas.

The potential this device wields is enormous, for the ordinary masses as well as the disabled, but cost and mass manufacturing remain major hurdles. Ginger will retail at $3,000 (approx. Rs 1,44,000).

■ Legal music service PressPlay to allow its music to be burned on CD ■ PlayStation 2 leads holiday sales in US with 1.4 million units sold, Microsoft's Xbo

Mobile Britney

Ditch the long queues for tickets or even the mosh-pits and stampedes at a concert. Hear your favourite artiste on your cell phone. JCOR Wireless, a unit of JCOR Entertainment, has signed

a deal with Britney Spears, Justin Timberlake of N'SYNC, rapper Jay-Z and other musicians to develop a wireless system that uses a combination of music, voice messages and text-based data to deliver a real-time entertainment experience.

JCOR says it will market its wireless entertainment system to wireless operators, handset makers and retailers and plans to roll out its wireless entertainment offerings in the first half of 2002. Meanwhile Britney waits.

Bruce Reincarnated

Bruce Lee's legacy is not over yet. Chul Shin, a South Korean filmmaker, is planning to cast him in the starring role in his next film. Never mind that Lee passed away in 1973. A $50 million budget will allow Lee's image to be digitally recreated in the leading role in *Dragon Warrior*, which will be released in 2004. Shin spent four years getting permission from Bruce Lee's widow and daughter to recreate him in a computer animated movie. Now that he has their consent, the star will be back with all his lightning fury.

The digitally created Bruce Lee will be recreated with live actors using an actor in a blue body sock and capturing both film and 3D space data to then overlay Lee's rendered visage. Shin promises the effects will be better than *Final Fantasy*. The advent of the digital actor is the beginning of the loosening of the stranglehold Hollywood has on move making. We could potentially see a transition of stardom from actual people to the collaboration of body actors, voice actors and modellers/animators.
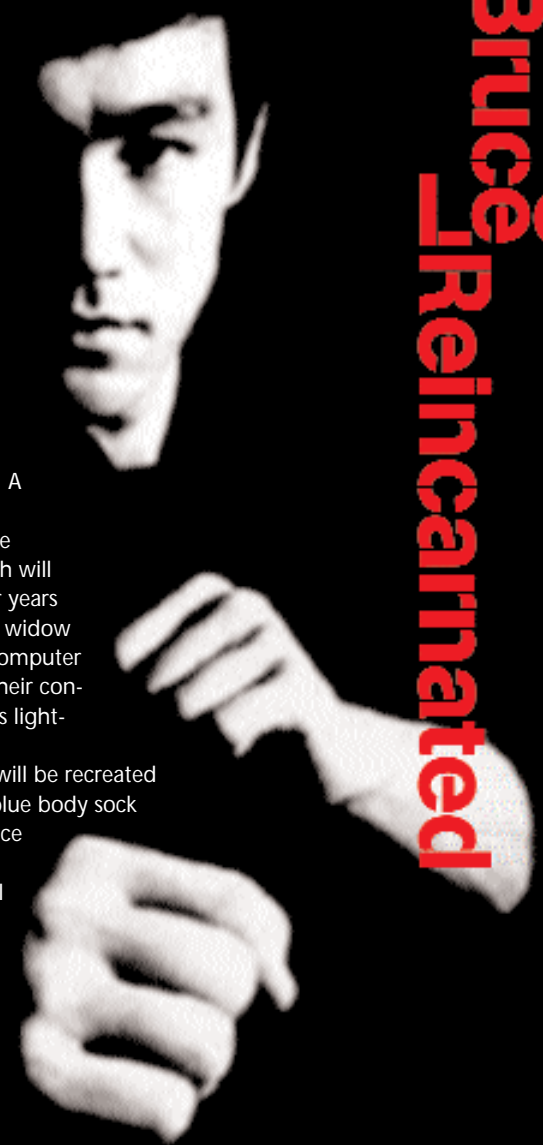
AUDIO FINGERPRINTING

Hear a good number at a place but miss the name of the song? Philips Electronics is devising a new technique called Audio Fingerprinting. The technology allows you to get not just a track's title but the artiste and album as well. And all this within a few seconds.

Audio Fingerprinting works by holding a mobile phone to a radio's speaker for three seconds, which is long enough to record a digital fingerprint. The cell phone then sends the fingerprint to a database server to lookup for matches. In four seconds, a message on the cell phone window pops up presenting the user with full information about the song, artiste, and so on. The technology is based upon a calculation process involving a song's tempo, pitch and dynamics.

If this technology flies correcly, its usage could be more mainstream. For example, an ISP could offer services to customers who download MP3s to assist them in organising their music collection in their PC. Agencies of the recording industry can use this to identify and organise which songs are being played on radio.

Tour White House

To make up for the disappointment caused by the cancellation of its popular holiday season tours for security reasons after the September 11 tragedy, the White House is offering the public a 360-degree tour of six of its rooms through its Web site *www.whitehouse.gov*. All these rooms have been lavishly decorated for the holidays.
Click on the links to photographs of the rooms and scroll around to see the entire room, and zoom in on decorated trees and paintings.

trails with 934,000 copies ■ Watermarking scheme designed for digital video to counter piracy ■ Online advertising market expected to recover by

followup:
Two peas in a Pod

Kicked about the cool features of the iPod in the December issue of Digit? If you're dying to check out the iPod, you don't need to spend a bomb on a Mac. Refer to XPod, a software being developed by Mediafour, which will allow Windows PCs to talk to iPods. It is in the pre-beta phase of developing XPod, which will allow FireWire-equipped Windows PCs to interact with the iPod (*see www.mediafour.com for more information*). XPod will be compatible with various flavours of Windows, from Windows 95 to XP, but will need version 7.0 or later of Microsoft's Windows Media Player (WMP). It may have a Windows Explorer-based interface for file exchange in addition to plug-in functionality for WMP, but will not be able to transfer Windows Media Audio (WMA) to the iPod.

Meanwhile, here's more food for thought. Apple has confirmed a glitch in the iPod, which causes a small

percentage of the players to temporarily not wake from sleep when the battery reaches low charge level. Since there's no way to tell which iPoD players have the problem, Apple recommends that all iPod owners download and install the update.

For those facing the problem, Apple suggests they make sure the hold switch is not on. Next, connect the unit to a power adapter or to a Mac, and then try to reset the device by holding down the Menu and Play buttons for 10 seconds. If this fails, disconnect the unit from its power source, let it sit unconnected for 24 hours and then reconnect to reset the machine.

Paper future

Want to watch a movie? All you need to do is reach into your wallet and unfold the screen! A Dutch company, Philips Research, claims to have made a major improvement in the development of electronic display paper. This e-paper display uses active-matrix technology, the kind used in good quality laptop computer displays, and is made of parts that use flexible plastic transistors instead of silicon. If produced in bulk, this is inexpensive to make and works well enough to constantly refresh a screen to create moving images.

In addition, e-paper would need lesser power, will come in large sheets, offer higher contrast so that images are visible under varying lighting conditions, and would be durable enough to withstand regular use.

eventtracker

BUGGED PHONES

The next time you receive an SMS on your Nokia phone, you might want to be extra careful. The message might just 'freeze' your phone, locking you out. How is this possible? By adapting a program sms_client, which sends an SMS message from an Internet-connected PC, with a broken User Data Header. Once the message is received, it is impossible to turn on an infected phone again without somehow deleting the offending message.

The Nokia models affected by this vulnerability are the Nokia 6210, 3310 and 3330. Nokia claims that it has fixed the flaw and that all phones rolling out of its plants are now secure. Users of older Nokia phones, however, might need to make a trip to that service centre nearby.

realitybites

"Despite what everyone says, our software is actually cheaper."

LARRY ELLISON
Oracle CEO
in a presentation at Oracle OpenWorld on Microsoft and IBM products being slower and less secure as well as more expensive than Oracle

Microsoft wasn't staying quiet:

"It's ironic to hear Larry claim they are price leaders in anything."

STAN SORENSEN,
Microsoft's Director,
Enterprise Server Marketing

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mid-2002 ■ China shuts down over 17,000 Internet bars for failing to block Web sites considered subversive or pornographic

Picking winners

Hi,
Congratulations on the article 'A Cut Above' in your December issue. I have always loved Digit because of the hardware reviews and I think that you covered every category of hardware in this story. I am sure that I will be referring to this issue many times in the future.

I would like to know more about the process you followed in picking out the winners. And lastly, are all of the products mentioned in Digit still available for purchase?
CHETAN
Via e-mail

digit

Hi Chetan,
The Digit Zero1 Awards is our way of rewarding the best products (on the basis of performance and features) in the Indian market. These products are tested by out Test Centre during the course of the year. We considered every single product that we had reviewed between January and December 2001. These products were compared purely on the basis of performance and the features offered. Our panel of reviewers came up with a shortlist of three products in each category from which a winner was chosen. Price was not a criteria—performance was. The product with the best absolute performance was adjudged the winner. Hope this clarifies the Digit Test Process for you.

Calling Agent 001

Hi,
I have been reading your magazine for almost one year and wait eagerly for its arrival every month. My favourite section is Undercover, which I like because of the insider market information that it provides. How can I contact Agent 001 with my queries?
SAVIO
Via e-mail

digit

Dear Savio,
Agent 001 wishes to remain incognito so that he is free to investigate without being recognised. Also, since he's constantly on the move, gathering the latest bit of information that he needs for Undercover, we'd be unable to provide you with a contact address. If you would like to ask a question about which products to buy please address your e-mail to readersletters@jasubhai.com and we'll be sure to pass it on. Who know's? Perhaps next month's Undercover will answer your question.

Priced for piracy

Dear Karan,
Over the last three years or so since I bought my first PC, there's been a lot of change in the computer industry. Most of this change has been positive, from my perspective as a PC user. Today I have a wider range of products to choose from with awesome performance—I can't begin to compare the performance of my long discarded 2 MB PCI graphics card with the 32 MB GeForce2MX card that I have now. Most importantly, the price of hardware has dropped enormously which has made it more affordable for me.

On the software side, however, things are not so rosy. New versions of software seem to get more and more expensive without adding many additional features. How is it that companies such as Microsoft continue to raise the prices of their operating system and other software? As long as software vendors continue to display this kind of attitude they have no reason to complain about piracy.
VARUN
Via e-mail

digit

Dear Varun,
Pricing and piracy are not issues that can be linked together. This is something that we often do to convince ourselves that software companies are unjust, but the argument doesn't really hold any water.

While you are right when you say that software upgrades seem to get more and more expensive, it is not incumbent upon you to upgrade unless the additional features are worth paying for. I am sure that this was something you considered before upgrading to the GeForce graphics card that you've mentioned.

Piracy of software is more about the unwillingness to pay for a product than it is about the price itself. Take the example of software such as games. Unlike in the past, today buying a game is pretty reasonable even in a country like India. That doesn't stop most people from 'borrowing' a friend's game-pack and making a copy for themselves.

However, you do have an option. If you think that Microsoft or any other vendor charges unreasonably, just switch to a free, stable alternative—Linux. The best form of protest against unreasonable pricing is to refuse to purchase it. Piracy is not a justification.

Fully content

Hi Karan,
I decided to try out Digit magazine in Oman with your November issue. I was initially very reluctant to buy your magazine because I thought it would be India-centric and because it cost twice as much as the retail price here.

Well, all I have to say is that I am very impressed! This magazine is good enough to be confused with any international computer magazine, as that policeman in the Digit Diary said last time! Thanks.
EDGAR SANZ
Via e-mail

digit

Dear Edgar,
I am glad you enjoyed reading Digit. Your e-mail is an affirmation that our attempts to make this a magazine with world-class content have paid off.

Digit v2.2?

Dear Digit,
Last January, you gave us a completely new magazine with two brand new cover CDs. What can we expect in January 2002? :-)
KAPIL
Via e-mail

digit

Dear Kapil,
Traditionally, at the beginning of every year we incorporate changes in our magazine based on the feedback we receive from our readers worldwide. While doing this, we keep in mind the changes that are taking place in computing and technology and at the same time retain the qualities that are inherent to us.

Digit will be accompanied by two interactive cover CDs that will contain video workshops, the latest downloads, freshest demos, MP3s, and much more.

In the magazine you can look forward to a modified content structure that will contain more computing workshops and insights. We have also introduced a gaming section and are moving towards solution-oriented product comparison tests. Why are we doing this? Because we know all these changes will make reading Digit an even more enjoyable experience.

Change for the better

Hi Karan,
I have been your subscriber for the past three years. During the last year or so the focus of your magazine has really changed. You have previously justified this shift as your response to changing times. However, I became your subscriber because yours was a computer magazine. And I expect it to focus on computers. I distinctly remember the time that I used to read practically every page of every issue. Now I find myself skipping some articles because I have no interest in them.

Also I don't think that giving two CDs with every issue has made a considerable difference to the CD content. I think you need to review some of the changes that you have made.
BIPIN BORKAR
Via e-mail

digit

Dear Bipin,
Computing has remained the primary focus of Digit despite the changes in the magazine during the past year. Consider for a moment the last few issues—the Smart Buyer's issue in October, the Web Awards in November and the Zero1 Awards special issue in December 2001. All of these are computing issues.

However, beginning from this New Year issue, the emphasis on computing is going to be increased further. You will find that 65 of the 90 editorial pages (over 70%) in this issue are completely devoted to computing. Many of the other pages also include news and stories on computing.

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

G o o f Ups

■ Muddle-ware. That's what the December 2001 Mindware CD turned out to be. As Shashi Bhushan points out, the questions and answers of the Troubleshooting FAQs don't match.

Our apologies for what is clearly an error on our part. The complete CD-RW FAQs can be downloaded from our Web site at HYPERLINK "http://www.thinkdigit.com/cdrwfaqs.rtf"

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

Short Bytes

Forum for us

Dear Karan,
Please start a reader's forum on your Web site which will allow members to get information on the forthcoming issue.
ANSHUL CHAURASIA
Via e-mail

Hi Anshul,
You can get a peek at what's going to be in Digit next month on page 139 inside this issue. Look out for this preview page every month. As part of our new year celebrations we have a new Web site that includes a new online forum.

Visit us at *www.thinkdigit.com* to find answers to your questions on computing.

If you have suggestions on how to make Digit better, come participate in the reader survey at http://www.thinkdigit.com/survey/betterdigit

Speed Spiral

What drives technology to develop faster and more powerful processors?

They said it couldn't be done, but we're doing it. For years, I've heard industry observers say we're running out of time before today's technology impedes our progress. Technological change and progress is a bit like the chicken and the egg situation. Does the industry create the need or satisfy it? Before Sony developed the 'Walkman', no customer around the world had articulated the need for portable music. Customers didn't see the need for mobile phones either. Successful technologists and marketers around the world are futurists of

simple tasks like word processing, Internet surfing and e-mailing. But once we reach a surplus on computing power, we will have to figure out how we can actually utilise this big pool of excess resources.

On the horizon, a new influence is set to have an impact on the direction and the rate at which technology escalates. From the software spiral of the past and the present, a new generation of digital devices will provide some heavy guidance in the work that lies ahead.

The 'digital spiral' is an offshoot of what I'd

"Digital devices, not software, will herald the next change…"

sorts. They forecast and predict needs and the ones who do well consistently emerge as leaders.

Ever so often when we deliver faster processors or launch a new generationof devices, it meets with the pessimist's refrain of, "Who needs one?". The simple answer is "The consumer". The PC does a lot of things in our life now, from being an answering machine and gaming station to performing complex 3D animation and video editing, and delivering immersive Internet experiences.

In case you haven't noticed, computer technology gets more sophisticated by the month. Ten years ago, we had 100 MHz chips in computers used as servers, while today a server would demand no less than 10 times of that processing power. On the outset, there is something amiss. We have a computer that requires at least 1 GHz processor just to qualify being called a server yet a decade ago, an outfit with one-tenth the power was looked upon equally. Why this need to develop faster and more powerful hardware?

Since the birth of the PC 20 years ago, software architects have been developing applications to fully exploit the potential of computers, and at the same time, making them easier to use. As the programs that drive your PC become sophisticated and more powerful, they need an adequate infrastructure to run on. This phenomenon, whereby software drives the need for high performance hardware, is called the 'software spiral'.

The level of technology that we are at today should satisfy the needs of most users. PC owners do not need high-end machines to perform

mentioned earlier, but rather than software leading the direction of change, current and upcoming advances in the area of digital devices will mould our development efforts. Imagine using your computer to make music, not digital music, but music in the real sense with people, instruments and emotions—imagine your PC as a professional recording studio.

PCs of the future will create some terrific special-effects movies that haven't been produced yet. Post-production activities such as voice dubbing and editing will bloom into perfection. And then imagine doing all this on a PC that costs Rs 30,000.

Mobile computing is gaining strong momentum and in 2003, Banias (codename for our upcoming mobile processor) will make its presence felt for notebook computers worldwide. Banias' ability to conserve power much more efficiently than the SpeedStep technology found in mobile Pentium III processors is amazing. Very soon, once we've optimised chips to preserve more power, the potential will become limitless.

It's obvious that we have our work cut out. Though the task is challenging, I am optimistic that Intel will be very successful at meeting and accomplishing the challenges. We already have a working Pentium 4 sample operating at 3.5 GHz. If you think that's fast, you'll be further impressed once we start churning out processors running at tens of gigahertz—all of this and more within the next 10 years. ▢

As narrated to Prashant Masrani. Avtar Saini, is director, South Asia, Intel Asia Electronics, Inc
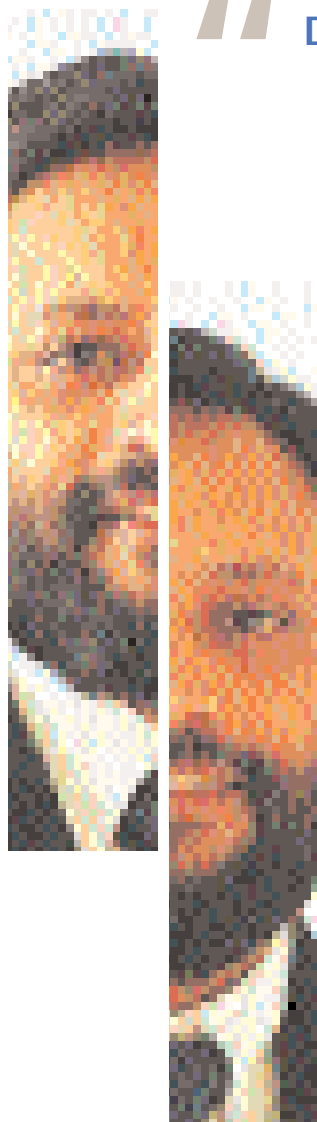
10
Technologies
to
bet
your
business
on

While all original creations of the human spirit are unpredictable, technology is especially more so. Businesses have been rather busy learning this painful lesson of unpredictability.

Technology also has two sides. Cloning, some say, is wrong, but nanotechnology is not wrong; Napster might have been labelled bad, P2P most certainly is not. Rich nations are accused of over-spending, does this mean they should stop all progress in robot-ics and extra-terrestrial intelligence? What about managing your digital assets, what about miniaturisation, what about what's in your genes?

Science is changing the world by the minute, but how much is the world accepting the change? We have to first know where we're head-ed. Here's where. Ten technologies your business can't do without.

PRASHANT MASRANI

1 Miniaturisation~Small is in

Microsoft advocates the Tablet PC as the next small thing. Casio offers a number of computing functions in a wrist watch. Body implants can record a number of human functions. Growing popularity of the science of embedded chips using nanotechnology means that any device, however small it is, will be a computer at heart. New devices will contain integrated circuits a billion times smaller than today's chips, and yet be many times faster. The fusion of computers, networks and intelligent systems with nanotechnology will change the way business is done. It will give a whole new meaning to manufacturing. The knowledge involved in manipulating atoms and molecules with atomic level accuracy will define how manufacturers construct, distribute and duplicate substances known to man.

3 Optical Fibre~ Speeding things up

Fibre optic will change all notions of network speeds and make broadband a reality.

Fibre optic technology is already used in telephone infrastructure and undersea data links. The future will see fibre optics in the internal data paths of a computer mainboard enabling PCs to run faster and cooler. With widespread installation of fibre optic networks, the resulting surge in bandwidth availability will see a deviation in the way industries communicate. Video conferencing is one long-awaited tool that will emerge with a more extensive coverage of people. Once the proper infrastructure is in place, billions around the world will have access to this form of communication. Higher speeds have a direct correlation to time, and time saved is money saved.

2 Unified Messaging~Speak my stuff

Natural Language Processing (NLP) is the stuff science fiction is made of—the ability of humans and machines to chat with each other like friends, with the machines displaying the ability to understand, analyse and generate articulate speech. While NLP is still a technology of the future, small measures are evident in the implementation of Voice over IP (VoIP) and speech recognition. VoIP enables conversation (or a video conference) using your instant messenger with another person on a traditional telephone line. Unified Messaging will consolidate VoIP, NLP and several other technologies to integrate different forms of communication (voice, fax, electronic transmission) and make them accessible from a variety of devices. For example, you can use a telephone system to call in to your office and log in to your e-mail account and have the messages read out using text to speech conversion. In a nutshell, unified messaging will lead to a reduction in costs as all forms of communication travel over data-networks.

4 Wireless and Mobile Technology~Instant access

802.11b, the next iteration of 802.11, promises 54 Mbps speeds (bettering the present standard by a factor of five) and addresses the security concerns in wireless transmission. 802.11b-based products are already out in the market and should see large-scale deployment by next year.

Portable devices such as cell phones and PDAs are just beginning to scratch the surface in mobile content delivery. The third-generation (3G) networks not only seek to unify the different mobile standards (GSM, GPRS, etc), but offer speeds ranging from 144 Kbps to 2 Mbps. Reaching out to those that are unwired enables businesses to widen their potential customer base. The wireless application platform has seen software developers queuing up to cash in on a multi-billion dollar industry.

5

P2P~Peering into the future

Napster has gone down as one of the most popular music sharing hubs in recent history. What made P2P so popular was not the notion of getting music for nothing, but P2P's ability to let the masses share and communicate without a central authority to inter-vene. While the RIAA viewed it as a music piracy racket, businesses see P2P as collaborative growth. P2P essentially allows bypassing large networks or centralised servers and connecting directly with other computers. This con-cept is not new, and more people are now discovering the potential of this tech-nology.

While movies and music seem the logical use for P2P, the scope in the office space is also quite vast. P2P can help in collaboration tools that include e-mail, whiteboards, calendar, and so on.

Some of this is already evident in Groove, a soft-ware that's still in the beta stage. Project JXTA of Sun Microsystems is a collec-tion of low-level protocols for building peer-to-peer applications. The emphasis is on grouping nodes together so that people can talk in small groups; pip-ing, so the output of one service or node can reach another service; and meter-ing and monitoring.

6

Biometrics~All in the genes

The study of discernible biological charac-teristics is at the heart of Biometric research. From retinal scans to fingerprint verification, Biometrics is difficult to fool as it scrutinises aspects that are unique to each of us. With Biometric technology, you are your own password. Companies are turning to Biometrics to enhance their user verification systems and maintain a high level of customer service. E-commerce is another area that will benefit hugely from this form of identification. Biometrics could symbolise a whole new way of con-ducting payment transfers and at the same time save on the cost involved in servicing fraudulent orders. By 2003, the global pool of Biometric systems will encompass a good number of wealthy and medium sized enterprises. By 2005, consumers will begin to experience Biometrics on a much wider scale.

7

XML~Exchange of data

XML (eXtensible Markup Language) is slowly becoming the language standard on the Web. XML is not only platform independent, but it can also con-sist of various logical templates describing how to send and char-acterise the data. XML can be seen as a major tool for the domain of knowledge manage-ment or document management systems, especially in coding and passing content from various

sources or file formats into one entity.

Since XML also stores raw data in addition to defining it, it currently has the potential to replace databases, in some instances, while retaining the ability to create dynamic Web sites. High-end tools are not yet available for XML data manage-ment and manipulation; that job is currently reserved for high-powered databases.

Based on Unicode, XML pro-vides global language support, which could literally turn itself into a tool to enable cross-coun-try commerce. One of the biggest complaints emerging from e-com-merce is the inconsistency of lan-guage platforms and the inability to send and receive compatible data across servers. XML over-comes this by forcing together a set of standards and ensuring tranparency.

8

Digital Asset Management~
Managing Content

Digital Asset Management or DAM refers to efficient archiving, retrieving and distributing of information such as images, multimedia, documents, etc. DAM ensures that the information is not lost and also increases efficiency and reduces costs due to easier access to information. Using DAM, a media house can easily collate information on a specific topic that has been generated internally over the years. Many digital asset management tools also allow users to access, update and manage image, audio, video and text files from anywhere in the world using the Internet as a connectivity tool.

Digital Rights Management (DRM) is also made simple with DAM systems. DRM allows creators of content (media houses, music companies, movie studios, etc) the freedom to protect their content against the Napster kind of attacks. DRM encodes content and only registered users (either free or on a payment basis) will get access to the content. Counters will monitor the number of times the content has been accessed and payment systems will be built around that.

9

Robotics~
Extra-terrestrial intelligence

Artificial Intelligence and wireless technologies have evolved 'smart robots' that can communicate with each other and also be controlled from remote access. A doctor can use robots to perform surgical operations and control the movements from a distant location or using augmented reality to derive more information from the surrounding environment. Smart robots, which are very capable, are now being used for underwater explorations and research in hazardous areas. At the same time, robots are the new age entertainment devices, jumping around and aping human movements. Apart from the obvious use in mass-production, robots will help businesses for research purposes, act as a help for many household chores, and do more than just play with kids.

10

Web services~Go online

Gartner forecasts that by 2003, Web services will occupy over 75 per cent of the Web server space.

Web services allow various applications to work together using similar data formats. Businesses can quickly translate these advantages into automated services that allow for closer and tighter relationships with various trading partners and customers by sharing information even if their platforms are different.

ASPs will enable use of software installed on some application server, remote monitoring of networks, etc. Web services have the potential to communicate across applications; they can cross over the bounds of hardware as well. With Microsoft pushing .Net, integrated services will be the order of the day.

← **Logitech's Z560 speaker system**

Boom Power

Take the pictures off the walls! You know you have some stomach-crunching bass on your hands when you have a heat sink in the rear of the subwoofer. Logitech's new THX-certified, Z-560 speaker system is a 4.1 surround sound, five-piece system with 400 watts of power. The subwoofer gets 188 watts and each of the satellites gets 53 watts. Saying that the system has ample power would be a gross understatement!

Web site:
www.logitech.com/cf/products/speakers.cfm

Gadgets to Die For

A sneak peek at the latest line-up of funky gizmos

Sony Cineza →

Perfectly Centered

The VPL-HS1, or Sony Cineza, is a portable projector that offers a screen size of 60 to 150 inches diagonally. The Cineza home entertainment projector uses 'SideShot digital keystone correction', which means that it can be placed at an angle to the screen and still project images that are centered on the screen. The Cineza accepts a variety of inputs including video, DVD, computer games and PlayStation.

Web site: www.sony.com/cineza

Spent thousands of rupees on the new PC and your child uses it only for games? How to ensure that learning happens along with the fun…

Kid-stuff?
Kid's tough!

PHOTOGRAPH: Mexy Xavier

Y ou have high dreams for your child—software engineer, high-profile programmer in Microsoft or Oracle, inventor of a language, etc. Charged, you buy a PC and cram it with all kinds of software, tutorials and encyclopaedia. But your child shuns all your attempts and does not spend more than a few minutes at the computer everyday. How do you get him interested?

Don't force it!

Making your kids love PCs is a lot like getting them to read. Just make sure that you arouse their innate curiosity. The rest will happen soon. Operating systems have become so user friendly that kids can use them with just a little bit of guidance. The best kind of education is one in which kids learn while having fun. So, for a start, liven up things with games and help your child get comfortable about using the computer.

But that doesn't mean you allow your child to play a 'blood-gore' game such as *Quake*, if he does his tutorial homework first. Instead, get your child the right games for his age. Anyone who has ever played *Where in the World is Carmen Sandiego?* would vouch for the educational features in this highly interesting game. The game, with you as the detective, involves capturing the ace-thief Carmen Sandiego, but before that, you have to capture her henchmen. You travel through continents and countries, and the clues test your knowledge of history, geography and culture. *Carmen Sandiego* will get your brat well-versed with the currency of Rwanda and the colours of the flag of Egypt.

Puzzles, crosswords and word games increase problem solving and comprehension skills. You can play *Scrabble* on the computer too, while a game such as *Tetris* will test their skill at understanding blocks and placing them together.

Multimedia magic

Kids love things in which they get to have their say. This is where interactive programs such as multimedia software step in. Multimedia programs involve children and are a good way to excite their interest in computers. There are many programs available that teach basics such as counting, maths, letters, spelling, etc, through interactive tools. Many of these are available as freeware or shareware. (*For a list of some of the hottest software for kids under the age of 10, check out the box, 'Kiddie Software'.*)

If you have some money to spare, choose a multimedia CD title suited to your child's age. Take care to select one that matches your child's aptitude. Let him draw and colour pictures, and learn basics such as the alphabet and counting while playing the game. This will lay the foundation.

Drawing for dummies

Children are attracted to big dolls. Apart from the size, there's a visual attraction. The same analogy can be transferred to PCs and you can start your child off on the drawing path. A simple tool such as MS Paint is enough ➔

The Resource
For more Web sites and game details, visit
www.thinkdigit.com

for scribbling and filling with colour. When your child gets used to it, get him *Discover Painting for Kids 1.0*. This software has colouring pages and basic-to-use 'toy' tools that are a lot of fun, and more advanced tools that let create cool special effects. These software will enhance the visual comprehension of your child, apart from giving him a sense of colours.

In addition, certain Web sites such as Crayola (*www.crayola.com/cardcreator/index.cfm*), Zeeks (*www.zeeks.com*) and Berit's Best (*www.beritsbest.com*) help create greeting cards and other design material. Expose your child to such sites and watch as he sits glued to the PC.

Using the Web interactively

If you have an Internet connection at home, you can browse children's Web sites while sitting with your child at the PC, and get him or her more interested in surfing. Many Web sites feature online games for colouring and spelling which your child can play. You can, for example, make your son learn recipes (and help you in the kitchen), or your daughter learn acting.

Once the kids get the hang of surfing the Web, teach them how to use communication software such as e-mail. Let them get used to e-mailing friends and relatives. Undoubtedly, they will enjoy the pleasure of communicating with others at almost instantaneous speed.

Hobby groups are another forum where your kids can make friends and interact with other kids worldwide who have similar interests. Many such groups can be found at Yahooligans! (*www.yahooligans.com*).

An early start

What do you think is the right time and

Kiddie Software

A number of shareware and freeware software are available on the Net (try *www.download.com*). Some examples:
Discover Painting for Kids 1.0: A painting program with a colourful interface and a very rich set of features
123learn: Jungle Adventures 1.6: Learn to identify animals and the sounds they make
Dino Trilogy 4.0: Play memory, math, and spelling games with dinosaurs
ABCs 1.0: Learn the alphabet
Kamishibai Viewer 1.06: Japanese art of story-telling through cards

Kiddie Games

Where in the World is Carmen Sandiego? is a fun-filled detective game. This is part of a series which helps your child learn geography, science, mathematics, history, music, and more. Children learn about various parts of the world as they chase Carmen Sandiego and her V.I.L.E gang.

Other titles in the series are *Carmen Sandiego's Great Chase Through Time*, *Carmen Sandiego Word Detective*, *Where in the USA is Carmen Sandiego?*, and *Carmen Sandiego's ThinkQuick Challenge*.

Ripley's *Believe It or Not* has a whole lot of puzzles and games with a very interesting interface. It also has multiplayer playing option for up to four people if your child wants to play it with you. This game is guaranteed to keep your kid (and you!) engrossed.

JumpStart Languages is an excellent educational game for teaching your child foreign languages such as English, Spanish, French and Japanese. This game is for kids between three and six years of age, and it teaches conversational phrases, words for everyday objects, colours and numbers, music and lyrics.

age for your kids to get started? The time is now and here. As far as age is considered, there is no lower limit. You can start off even when your kid is just a year old. There are many programs which have been designed for children this young. Called 'lapware', the thing to look out for in these programs is bright graphics. They have to be responsive to any movement on the keyboard and the mouse. For example, if the images on the screen change every time your child touches the keyboard, he'd be more curious and interested. Point out these changes and talk to him about them as they happen. If he doesn't seem interested in it, don't force him to do it. Save further explorations for the next session.

For older kids, you need to get more advanced software. Encyclopedias are no longer the brown leather-backed heavyweights that they used to be. They come in a single CD or two nowadays and are highly interactive with live animation to ensure that kids don't get bored while using them.

When you select such learning packages, always look at the content before buying. Decide whether it's suitable for learning and also make sure that it's fun to use. The best way perhaps is to take your child with you and let him or her decide which one they want. This will ensure that the CD doesn't gather dust in the corner.

Watch it!

Today's computers are complete entertainment modules in themselves. Teach your child how to use PCs for entertainment activities such as watching movies and listening to music. Handling the PC in this manner will help drive away the fears of using a PC from the child's mind.

But again, while there is a whole lot of useful things that can be done on the PC, it's easy to get lost there. Games are important to get your child interested, but not to the point of distraction. While educational software that use games to teach things are important, an over indulgence in violent games such as *Quake* isn't what you need to encourage. An outright ban on such games is not going to help. Limiting the time spent on these games would make you a better parent. d

ANIL PATRICK R.

http//www

www.lycoszone.lycos.com
www.kidskhazana.com
www.funschool.com
www.disney.go.com
www.bbc.co.uk/littlekids
www.yahooligans.com
www.school.discovery.com
www.scoreone.com/kids_kitchen

Toys of the
Rich and the Geeky

Rs 10 lakh for the peripherals of a home PC that costs Rs 2 lakh by itself! Are you nuts? Who in the world would ever pay that much for external components? Well, find out…

▶ For the
Simply Rich
Rs 8,000

Keyboard: Logitech Cordless Freedom Optical keyboard

This keyboard simply sets you free—you don't even have to be in the line of sight of your desktop to use it! Using wireless radio signals, controlling different tasks and applications becomes much easier. And best of all, it looks like a spacecraft control panel!
www.logitech.com
Average cost: Rs 500 for a keyboard

▶ For the
Warily Well-off
Rs 7,000

Mouse: Razer Boomslang 2000

Your mouse is no longer something with just two buttons and a scroll wheel. When thinking state-of-the-art mice, think Razer Boomslang 2000! At a resolution of 2000 dpi this mouse is a gamer's delight and is almost five times as sensitive as a regular mouse. The special low/wide profile design lends greater comfort and reduces wrist fatigue. With this baby in your hands, you are B. J. Blazkowicz!

www.razerzone.com
Average cost: Rs 600 (for a PS/2 scroll mouse)

▶ For the
Absolutely Amlr
Rs 5,00,000

Monitor: Samsung Sync-Master 240T

Maybe it's fine to splurge on your PC's display. What's the point of that top-of-the-line GeForce3 graphics card if all you have is a wimpy 15-inch monitor? The massive, one-of-a-kind 24-inch display area of the SyncMaster 240T is as good as it gets. With a native resolution of 1920x1200, a 170 degree viewing angle, HDTV compatibility and compact design, it has everything that you could ask for in obtaining complete flaunt rights. Your movie and gaming experience has never been as immersive!
www.samsungelectronics.com
Average cost: Rs 12,000 (for a 17-inch CRT monitor)

▶ For the
Massively Moneyed
Rs 3,00,000

Digital Camera:
Canon EOS-1D

When it comes to being picture perfect, the Canon EOS-1D captures everything it sees with a whopping 4.15 megapixel sensing element that allows it to capture images with resolutions of up to 2496x1665. It also features 10 settings for white balancing, colour temperature, manual and autofocus, spot metering, center weighted metering, etc. Burst mode shooting allows the camera to capture up to 8 frames per second, making it ideal for sports and capturing fast moving events. Best of all, since this is an SLR

Speakers:
Klipsch ProMedia 5.1

full-fledged home speaker systems that even come close to the Kilpsch ProMedia 5.1. Boasting of a massive 500 Watts of RMS power, you can bet on waking up your neighbours! The special B.A.S.H. amplifier delivers 200 Watts to the subwoofer, and 60 Watts to each of the five satellite speakers. With a THX certification, this speaker system will let you hear everything crystal clear, from the softest sigh to the loudest concert you've ever heard!
www.klipsch.com
Average Cost: Rs 3,000 (for a four-channel speaker system)

When it comes to giving your PC the best possible audio system, there are very few

Printer:
Epson Stylus Color 3000

Photo printing never looked so good, or so big. This printer can print on sheets up to 16x21 inch—from postcards to posters. Sporting a print resolution of 1440x720 dpi, this printer with a four-colour print head is one of the best solutions for colour printing. It has a USB and parallel interface which makes it versatile. The technology behind this printer is a four-colour piezoelectric print head, which is responsible for producing very tiny ink drops to create detailed colour printouts. If you're looking for the best in colour photo printing technology, the Stylus Color 3000 is the one to pick.
www.epson.com
Average cost: Rs 10,000 (for a colour inkjet printer)

Headphones:
AKG K-1000

Headphones let you retreat into your own personal space. These AKG K-1000 reference headphones offer the most acoustically pure experience for professionals and audiophiles. They use a new transducer design known as 'ear speakers', where the speakers do not actually touch the ears but are positioned slightly away from them. This lets one ear listen to audio from the other speaker, creating special depth, as is perceived in real life. This is audio getting good, really good.
www.akg-acoustics.com
Average cost: Rs 5,000 (for a pair of average studio headphones)

Steering Wheel:
Logitech MOMO Force

This force feedback racing system gets you as close to the race track and burning rubber as possible! Designed by a company known for conceptualising and producing

Formula 1 steering wheels, you can actually feel the rush when you're at the wheel of your favourite racing simulation game. The three-spoke wheel sports a solid look and with its 270-degree turning angle, shifter paddles and control buttons, you can configure this device in a number of ways to feel those bumps and rumbles. Best of all, you don't need a license to use this!
www.logitech.com
Average cost: Rs 4,500 (for a steering wheel controller)

camera, you can attach a variety of lenses to the camera depending upon your application.
www.usa.canon.com
Average cost: Rs 60,000 (for an average megapixel camera)

YOUR PC COSTS...

Base System		Peripherals	
COMPONENT	PRICE	COMPONENT	PRICE
AMD Athlon XP 1900+	16,000	Samsung SyncMaster 240T monitor	5,00,000
512 MB SDRAM	4,500	Razer Boomslang 2000 mouse	7,000
40GB IBM DeskStar 60GXP	8,000	Logitech Cordless Freedom Optical keyboard	8,000
ASUS A7V266-E motherboard	9,000	Logitech MOMO Force steering wheel	18,000
ASUS V8800 GeForce3 Deluxe graphics card	28,000	Canon EOS-1D digital camera	3,00,000
Pioneer 105SZ 16X DVD	5,500	Klipsch ProMedia 5.1 speakers	50,000
DVD-writer: Lacie DVD-R FireWire External	70,000	AKG K-1000 headphone	30,000
SoundBlaster Live! Platinum 5.1 soundcard	16,000	Epson Stylus Color 3000 printer	65,000
Cabinet: Lian Li PC 626	30,000		
Total	**1,87,000**	**Total**	**9,78,000**

Rs 11,65,000

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.

Marco D'Souza
HEAD, TEST CENTRE

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.

In Test this Month

This month, we bring you the best of 15 processors in our first ever processor comparison. Among the processors tested are the formidable AMD Athlon XP processors, which are based upon a new Palomino core that uses the newly incorporated PR indexes of nomenclature. We also got our hands on Intel's brand new 0.13 micron-based Pentium III Tualatin processors, sporting higher clock speeds.

Of special interest amongst stand-alone tests in our Bazaar section (Page 68) is the Dell Precision 530 graphics workstation. We used advanced graphics and real-world rendering applications to put this machine through its paces.

What's new?

Beginning with this issue of Digit, we have moved to a new, more comprehensive set of tests and benchmarking methodologies that examine every nuance of the hardware and software. Up first, we used a total of 15 individual benchmarking suites and applications to evaluate the mettle of the processors under review.

Also new are detailed reviews of the winning products and some of the close contenders in the race for the top spot.

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	

STAR 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

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.

IN TEST

15
PROCESSORS

AMD Athlon XP 1600+

AMD Athlon XP 1500+

AMD Athlon XP 1800+

AMD Duron 900 MHz

AMD Athlon 1.13 GHz

Intel Celeron 1.2 GHz

Intel Celeron 800 MHz

Process

How fast is fast? Very slow, if you take the pace at which processors break speed barriers. We give you three simple facts here: speed, power and price. It's time to overclock!

Ever tried working in Photoshop on a 233 MHz processor? You probably had to go watch a movie at a theatre near you while your machine was busy saving the file. Running more than one application on a 233 MHz processor was almost unthinkable.

Today, when your computer runs many applications simultaneously, you need some serious power. In answer to this increasing demand for speed and power, how do we push the performance barriers?

By changing the processor.

But this is just the beginning. The performance of a CPU is related to the way your PC is configured. Yes, you will get a performance jump when you upgrade or buy a newer, faster processor, but to achieve maximum utilisation, you have to tweak it to perfection. To complicate matters further, there is a wide array of processor interfaces, RAM standards, formats, chipsets and platforms to choose from. PCs have moved from one standard to the other so rapidly that today we have a jamboree of processors with no common *de facto* standard or platform—in some cases,

(Power)
or

Intel Pentium III 800 MHz

AMD Duron 1.1 GHz

Intel Pentium 4 1.5 GHz

Intel Pentium 4 1.7 GHz

Intel Pentium 4 2 GHz

Intel Pentium III 700 MHz

AMD Athlon 1.4 GHz

Intel Pentium III 1.13 GHz

for even the same family of processors. For starters, consider this: a motherboard that supports the Pentium 4, 1.8 GHz may not support the Pentium 4, 2 GHz and above.

Buying a processor earlier used to be fairly simple. There was a fast version and then there was an even faster version of a similar processor. You would get increased performance every step of the way.

Things are no longer that simple. Though modern day processors can be clocked at 2 GHz or more, there is a lot more to performance than the clock speed. Today we find a wide variety of processors with variations in architecture, supporting technologies, pricing structures and, most importantly, real-world performance.

Confused already? That's why we tested 15 of the latest processors available in the market and untangled the intricacies of getting the maximum performance out of the processor you already have.

Synthetically the fastest
Ideally, depending on your requirements, you would want the fastest processor. But

Digit Test Process

The Indian processor market is not completely in sync with the international market. As a result, you still find some 'phased out' processors in the market.

This throws up an interesting scenario where older processors may even compete against faster processors in the same price/performance bracket. An example of this is the wide availability of the older Coppermine series.

Keeping this in mind, we classified the processors by their positioning, based on the current price and the performance.

Elite: This category includes the flagship processors of each manufacturer—the Pentium 4s and the Athlon XP.

Performance: This category exists purely because of the transitional period that the Indian processor market is currently undergoing. You'll find the Athlons and the Pentium IIIs battling it out here.

Value: Here you will see the scaled down versions of the

"Pairing today's processors with yesterday's technology is criminal!"

Hatim Kantawalla,
Deputy Head, Test Centre, Jasubhai Digital Media

flagship models—the Durons and the Celerons.

Memory interface and other key issues: We used the fastest available memory solution, officially endorsed by the manufacturer for each family of processors. Hence, all Pentium 4s were tested with the fastest available RDRAM, whereas the AMD series was tested with the fastest available DDR-SDRAM (PC2100). The Pentium III was tested with ordinary PC-133 SDRAM since it's the fastest 'official' solution till date. *For more information on the benchmarks used, see Digit CD Mindware.*

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the fastest processor is not necessarily the one with the highest clock speed.

In a real-world environment, it's very difficult to say that a given processor is absolutely the fastest. Even with the same hardware, one processor may outshine the other depending on the applications in use and how it uses the processor instructions or the operating system. That's why a synthetic test (synthetic as in not being real-world) such as SiSoft Sandra is used to give a theoretical indication of how well the processor performs. The CPU benchmark of the test gives the performance indicators using the Dhrystone and Whetstone benchmarks. Dhrystone gives a result in MIPS (millions of Instructions per second) whereas Whetstone gives us a measure of the Floating Point Unit (FPU) and the scores are given in terms of MFLOPS (Millions FLoating OPerations per Second).

So, theoretically which is the fastest

CPU? Well, that depends on your application because in the Dhrystone benchmark (*refer Score board*), the Athlon XP 1800+ churned out 4337 MIPS as against 3909 MIPS for the Pentium 4, 2 GHz. However, in the Whetstone benchmark, the Pentium 4, 2 GHz scored 2452 MFLOPS as against 2137 MFLOPS for the Athlon XP 1800+. This indicates that, in theory, the Pentium 4 has more FPU strength than its Athlon XP counterpart and that, in theory, it will be faster when it comes to applications that are intensive in 3D rendering and image processing applications such as Photoshop.

Work on applications faster

You know what's theoretically faster, but these MIPS and MFLOPS scores from SiSoft Sandra are only indicative of the kind of performance that you could expect from each of these processors. If you want to know which processors will

make your daily use applications such as Word, Excel, Web authoring tools, etc faster, then the Business WinStone 2001 benchmark and the Content Creation Winstone 2001 test will tell you about it. Both these benchmarks run a series of applications such as an anti-virus suite, WinZip, Excel, Word, Adobe Premiere 6.0, Macromedia Director 8.5, and Macromedia Dreamweaver UltraDev 4. All of these are run in a scripted sequence and the total time consumed in performing each task is measured. The final score is a unitless performance index.

An index of 40 for both these tests should be considered a bare minimum and a score below this should be considered as seriously low.

At the end of these tests, you will have the answer to the critical question: "How fast does this processor run 'my' application?"

The point to keep in mind here is that even if a certain processor takes only a

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TIME LINE

The first microprocessor (Intel 4004) made for Busicom, a Japanese calculator manufacturer.

Intel 80286 (the 286) with clock speeds of 8 MHz, 10 MHz, and 12 MHz, handled software applications written for 8088

Intel 80486: This had the first built-in math coprocessor. It could handle GUI. AMD and Cyrix came up with products.

1974 | **1985** | **1993**

Second Generation | **Fourth Generation** | **Fifth Generation**

1971 **First Generation** | **1982** | **Third Generation** **1989**

Intel 8088 microprocessor (2 MHz clock speed; the brain of the first real personal computer, the Altair)

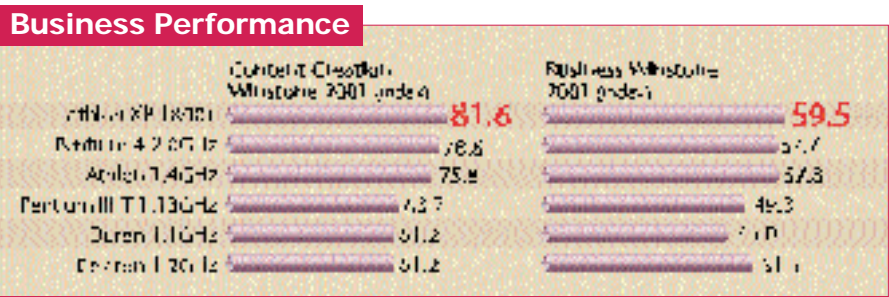Intel 386/386DX: Contained 250,000 transistors and was the first processor capable of handling 32-bit data lines. Speeds ranged from 16 to 33 MHz.

Intel Pentium (P5/P54C): Intel changes the nomenclature to Pentium. Over 3 million transistors on the chip meant more high-tech programs, better Internet experience and more up time. AMD enters the fifth generation with K5, arriving a year late and at a lower clock speed than the Pentium.

few seconds more to perform a particular task, it still amounts to fairly large idle time if you add up all the extra seconds your PC has taken to perform different tasks. For instance, if a processor takes only 3 or 4 seconds to run, say, Microsoft Word, it would seem to be no big deal. But if you add up all the extra seconds it takes to perform tasks, it will amount to some serious time you'd spend waiting while doing the paste job from Excel to Word, or while zipping up large documents.

In the Elite segment we found that in most cases the Athlon XP series performs far better than the Pentium 4. This clearly shows that despite the fact that the Athlon XP processors are slower 'clock for clock' than the Pentium 4 series, in real-world terms they perform more work in the same number of CPU cycles. They score better.

to the new naming convention without a real gain in performance.

Though the Athlon XP won by a fair margin, it can be argued that once you cross 70 in Content Creation Winstone 2001, there is little discernible difference from one processor to the other. Nevertheless, the top-of-the-line Athlon XP 1800+ zipped past all the others with a huge score of 81.6. This is a record of sorts and no other processor we tested came even close to this magical figure. In the Business Winstone 2001 test, we discovered a fairly close mix of results with all the top contenders scoring within a couple of points of each other.

In the performance segment, the Pentium III 1.13 GHz (Tualatin) scored a decent 63.7 in Content Creation Winstone 2001, whereas the other Pentium IIIs scored in the range of the 40s. Even here, the Athlon family continued to

Business Performance

In some cases the Athlon (Thunderbird) even beat the Pentium 4 processor and gave some serious competition to big brother, the Athlon XP. The Thunderbird-based Athlon 1.4 GHz scored 75.8 in Content Creation Winstone 2001, while the Athlon XP 1600+ which also runs at 1.4 GHz internally, returned a score of 78.4. This clearly indicates that the Palamino core-based Athlon XP has been tweaked to an extent. It is not just a simple switch

impress with the Athlon 1.13 GHz scoring a hefty 66.6. The results were more interesting in the Business Winstone 2001 test as only the Athlon family could maintain scores over 50. The Pentium III 1.13 GHz finished at 49.3.

In the Value segment, the GigaHertz variants of the Celeron and the Duron showed respectable scores of 61.2 each in Content Creation Winstone 2001. The Celeron 1.2 GHz proved to be the saving grace for the Celeron series as the Celeron 800 scored an extremely low 33.9 in the Business Winstone 2001 test (the lowest in this test). Celeron 1.2 GHz pummelled the Duron 1.1 GHz by scoring 51.5 as against the 45 in the Business Winstone 2001 test.

One thing visible in these tests was that the GigaHertz variants of all the processors scored respectably well—if you need to run only office applications and tasks, any of these processors would fit the bill.

The Pentium III 700 and the Celeron 800 suffered in both of these tests primarily because of their low clock speeds. It

The launch of the Pentium II/III and the K6 series from AMD. The competition heats up.

Sixth Generation   **2000**

1997   AMD introduces the Athlon (K7), follows it up with Thunderbird which successfully competes against the P-III. The battle now moves to Intel's (P7/Willamette) Pentium 4 and the Athlon XP (Palamino).

Glossary

32-bit processors: 32-bit represents the width of the registers within the CPU core. A register is rather like a holding area for data. All the processors reviewed in this comparison test are 32-bit.

Bus: A set of lines used to move information from one part of the computer to another. Typically, a bus is divided into three functional groups: data, address, and control.

Clock cycle: The basic unit of processor activity. This refers to the speed at which an integrated chip processes data. Everything needs to be sequenced in computers and the clock speed determines how fast all of this will be done.

FPU: Floating Point Unit handles calculations that use or produce non-integer numbers. Instructions to be processed by the FPU are known as the x87 set.

FSB: Front Side Bus is the external frequency provided to the processor.

Instructions set: The set of rules that tells the CPU what to do with each piece of data it gets. All processors use the basic x86 set as a starting block, but each successively higher generation chip utilises additional instructions. All processors these days have extensions to the fundamental rules that are used for complex things such as video, audio and mathematics. Intel calls theirs MMX and SSE/2, whereas AMD have labeled theirs as 3DNow!

Multiplier: This number decides the core internal frequency of the processor. For example, a multiplier of 10 with the FSB at 133 MHz will yield an internal core frequency of 1330 MHz for the processor.

Transistor: A transistor is an electronic switch. The speed at which a processor can operate at is determined by how quickly the transistors can switch between their two states, which can be increased by reducing their size and putting more of them in the processor.

To make smaller circuit sizes, the transistors need to be made smaller too. When we hear 0.18 micron fabrication technology it primarily means that transistor gates etched on the silicon have a dimension of only 0.18 microns. By reducing this size one can physically etch more transistors into the same piece of silicon.

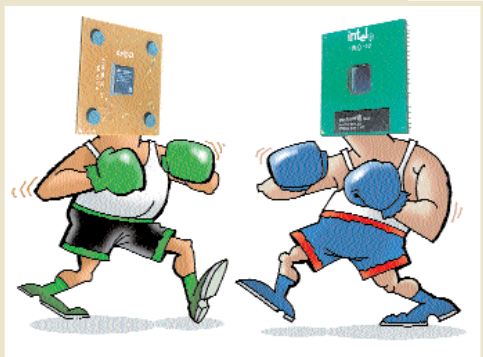**Vcore:** This is the operating voltage of the CPU core.

The GigaHertz Wars

The battle lines were drawn between AMD and Intel.

Round 1: March 2000

Athlon 1 GHz vs Pentium III 1 GHz

AMD released Athlon 1 GHz which had the L2 cache running at 333 MHz (L2 multiplier set at 1/3). Just two days after AMD's release came Intel's Pentium III 1 GHz, which had the L2 cache running

at full speed. The flipside however was that it made the Pentium III a nightmare to manufacture. AMD went for the kill and released the Thunderbird 1 GHz that had the L2 cache running at full core speed.

Round 2: August 2001

Pentium 4, 2 GHz vs Athlon XP

It took eight years to traverse 900 MHz (from 100 MHz to 1 GHz) and just over a year to reach the 2 GHz mark. The Pentium 4, 2 GHz is a testimony to the way the processor industry continually propels itself to new heights. Intel beat AMD to this landmark by an easy margin! Athlon XP languishes at 1.6 GHz.

was interesting to observe that the Pentium 4, 2 GHz could not beat the Athlon XP 1800+ despite having 466 MHz extra clock speed.

Even the 800 MHz processors will suffice for Office applications, unless you need to work with large chunks of data and heavy files (such as Photoshop files) on a regular basis. For the kind of applications and the kind of load that the average PC user puts the system through, the higher clock speeds are wasted.

Gaming: Where speed counts

What's the real reason behind processor manufacturers increasing the speed limits every few months? After all, how much difference does it make if Word opens a

second faster or slower? For the processors today, running these day-to-day applications is no sweat. Ask a gamer, and he'd probably look at you askance and reply: "*Quake III*".

Gaming and other entertainment applications are probably the only applications that will show a marked improvement in performance with incremental increases in processor performance and, as you will see in the test, the scores vary enormously with different processors and memory architectures.

Most games run processors at maximum throughput, pushing and trying to extract every single bit of performance. This also makes them great indicators of system stability and your system will most definitely crash if your processor has heated beyond its safety limit.

If you are a power gamer and want your gameplay to be of the highest quality with the fastest frame rates possible, you know where to look again: The Pentium 4, 2 GHz blazed ahead with a score of 314.1 fps in the normal mode benchmark of *Quake III Arena*, which is considered to have one of the most well-oiled gaming engines. The Pentium 4, 2 GHz takes gaming to a level where even if you've turned on all the razzle-dazzle and razzmatazz, you will still be able to play at a really fast frame rate. The Athlon XP 1800+ was beaten even by the Pentium 4, 1.7 GHz and came in third with a score of 276.4 fps. In the texture-heavy Direct3D game *Evolva*, things were slightly different and the Athlon XP 1800+ managed to edge ever so slightly ahead by scoring 148.2 as against the 144 fps logged by the Pentium 4, 2 GHz.

Another benchmark we ran was 3DMARK 2001, which is extremely performance sensitive and scales higher the minute you improve any of the subsystems. Gaining even an extra 100 marks in this test is very difficult. In this test,

the Athlon XP 1800+ scored 7060 as against the 6960 3DMARKS logged by the Pentium 4, 2 GHz.

These three gaming tests indicate that though the Athlon XP 1800+ will give you a good performance in games based on Direct3D (*Evolva* or *Max Payne*), you will get a better performance with the Pentium 4, 2 GHz when playing most games, especially those based on the *Quake III* engine, such as the newly released *Return to Castle Wolfenstein*.

If you are not too concerned about top-notch effects and are content with decent playable frame rates, consider the choices available in the performance category of processors. In this segment there was a discernible drop in performance in all the gaming tests. Nevertheless, the Athlon series held its own very well here, beating the Pentium III series in all the tests.

In the value segment there was an even further drop in performance—by as much as 100 fps in *Quake III* alone. In *Quake III Arena* the Duron 1.1 GHz logged a decent 196 fps in normal mode as against the 179.3 fps logged by the Celeron.

In this segment the 3DMARK 2001 scores dropped to under 6000 even though these processors were paired with the fastest graphics card around (nVidia GeForce3 64 MB DDR). If you have a casual interest in gaming then the Value segment should fulfil your requirements. However, keep in mind that using a high-end graphics card with such a processor would not serve any purpose.

The performance of the under 1 GHz processors in the gaming tests clearly shows that if you want an acceptable performance in most modern games, you'd be better off with a processor rated at 1 GHz or more.

Multimedia performance

When Intel introduced the Pentium MMX (Multimedia Extensions), it was for the first time that you had processors

Gaming Performance

	QUAKE III ARENA	3DMark2001 ver 11
Athlon XP 1800+	276.4	7060
Pentium 4 2.00 Hz	314.1	6960
Athlon 1.4 GHz	266.7	6763
Pentium III 1.10 GHz	202.1	5752
Duron 1.10 Hz	96	5574
Celeron 1.30 Hz	179.3	5473

Face to Face: How the giants position themselves

AMD

Athlon XP
This is the desktop debut of the Palamino core. It can push core clock speed up to 1.6 GHz.

Athlon
Sporting 256 KB full speed cache, this thunderbird core processor can go up to 1.4 GHz.

Duron
Based on a scaled down version of the desktop core, this features a reduced L2 cache and a clock speed of up to 1.2 GHz.

INTEL

Pentium 4
It sports radical concepts such as Hyper Pipelined Technology which allow clock speed up to 2 GHz.

Pentium III
Using Intel's very own SSE instruction set, this chip had 256 KB of full speed Level 2 cache and could go up to 1 GHz.

Celeron
An improved version of Celeron, this offers a higher clock speed (1.2 GHz) and incorporates a 100 MHz Front Side Bus (FSB).

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optimising multimedia applications. These optimisations have primarily concentrated on delivering smoother and richer content at a faster pace for multimedia. These instruction sets allow processing of large amounts of similar data (like video content) at once using one instruction. This significantly speeds up the processing.

Working with audio and video content is probably the most CPU-intensive task and hardly any other task can demand as much processor-power as video encoding. In the video encoding test, we encoded a standard MPEG video of 5 minutes into AVI at a bitrate of 900 Kbps. The scores logged in these tests are for small files but if you extrapolate them, the differences would be enormous when it comes to encoding an entire CD full of audio, or while downsampling video content that is in Gigabytes. The time taken may even run into hours.

If your work demands working with multimedia or audio-video content, then you should consider a processor that falls in the Elite range. The Athlon XP 1800+ was fastest here too, encoding the entire file in less than 100 seconds (99 seconds to be exact). The Pentium 4, 2 GHz took about 111 seconds to complete. Though the difference is only 12 seconds, if you extrapolate these numbers for an hour-long video, you will find out that the Pentium 4, 2 GHz takes slightly more than 2 minutes longer to complete the encoding process than the Athlon XP 1800+.

Even in the audio encoding test where we encoded a 50.3 MB WAV file to MP3 at 192 Kbps, we found a difference of over 5 seconds in the time logged by the Athlon XP 1800+ (20 seconds) and the Pentium 4, 2 GHz (25 seconds).

In the performance segment, the Athlon 1.4 GHz was the fastest by far, taking 108 seconds to complete the video encoding and 21 seconds for the audio encoding. In fact, it was faster even than the Pentium 4, 2 GHz here. The top Pentium III was quite slow in these tests, taking 149 seconds for video encoding and 35 seconds for audio; it was beaten by the similarly clocked Athlon 1.1 3 GHz by a fair margin too. The Athlon 1.4 GHz should serve you well if you are an amateur dabbling in multimedia and audio-video editing or want a PC that will give you a good output when viewing high-quality multimedia content.

In the value segment, the Duron 1.1 GHz took 141 seconds for the video encoding test as against the 164 seconds taken by the Celeron 1.2 GHz.

Professional applications and FPU strength

Users of software such as Maya 3D, Auto-CAD and Photoshop have a constant complaint about the time it takes to render. If you ask them, then probably no speed is enough, and probably even Athlon XP 1800+ (which performed the best in these tests) would be slow for them.

All the processors were tested for image processing, ray tracing and intensive rendering tests. All of these tests primarily focus on the FPU strength of the processor.

Here we used the Photoshop filter test, POV Ray for the ray tracing test and

SpecViewperf for the rendering tests. The Photoshop test applies 21 filters one after the other to an image and calculates the time taken for each filter to execute and complete.

POV Ray mathematically models the light rays as they bounce around a virtual world, reflecting and refracting. This can quite literally involve millions of floating point calculations and has proved to be an extremely stressful test. ➡

The Processor Families

Processor	Clock Speed	Bus Speed	Form Factor	L1/L2 Cache
Athlon	1.4 GHz	266 MHz	Socket A	128/256 KB
AthlonXP	1900+ (1.6 GHz)	266 MHz	Socket A	128/256 KB
Duron	1.2 GHz	200 MHz	Socket A	128/64 KB
Pentium III	1.2 GHz	133 MHz	Socket 370	32/256 KB
Celeron	1.2 GHz	100 MHz	Socket 370	32/256 KB
Pentium 4	2.0 GHz	400 MHz	Socket 478	20/256 KB

Multimedia Performance

The SpecViewperf test consists of six tests performing various complex OpenGL calculations under a variety of conditions.

The Athlon XP 1800+ completed the entire Photoshop test in 63.1 seconds whereas the Pentium 4, 2 GHz took about 68.3 seconds to complete it. In the ray tracing test, the Athlon XP 1800+ finished rendering the image in 7 minutes 2 seconds. The Pentium 4, 2 GHz took 8 minutes 36 seconds to complete the same.

In the performance segment the results were similar: the sheer power of Athlon's FPU strength was too much for the Pentium III to handle.

Surprisingly, in the value segment we saw the Celeron 1.2 GHz pummelling the Duron 1.1 GHz in the Photoshop test—it took 76.4 seconds to complete the test as compared to the 84.8 seconds taken by the Duron 1.1 GHz.

MAKING A CHOICE

The processor market is out to spoil you with a wide array of choices. Those days when you could only buy an Intel processor and had just a couple of speed options to pick from are gone. Today you can choose between the older Pentium III and Athlon processors—which still provide dependable performance—and the latest cutting edge chips from Intel and AMD. While most of us feel that variety is the spice of life, these various options can actually become pretty confusing.

First of all, you need to know what you're going to use the system for. That sometimes can get more difficult as most of us have a tendency to load a lot of applications, but use hardly any of them.

If you use the PC for running Office applications and surfing the Web, then one of the Value processors should suit you quite well. If, on the other hand, you are planning to use some of the heavier professional applications such as Photoshop or Corel Draw, the additional power of one of the performance processors would come in handy.

Those who want to use their PCs for more processor-intensive applications—audio/video encoding, 3D modelling

Processor FAQs

1. How do I check that I got the processor I was promised?

Most vendors won't show you what they put inside your PC, but you can use a popular tool known as WCPUID to find out the exact speed and make of your processor. When your PC starts up, check for the CPU name and speed that the BIOS identifies.

2. What is a retail original boxed packed CPU and what are the advantages of buying one?

When you buy a retail original boxed packed CPU, you get a limited warranty for three years. The warranty does not cover non-boxed products purchased from resellers or otherwise, and it doesn't extend beyond what your system vendor has provided. Both AMD and Intel provide original heatsink-fan combinations with boxed processors.

3. How do I monitor my CPUs health?

All modern motherboards support some form of hardware monitoring which allows you to monitor your CPU's temperature. You can also use Motherboard Monitor (MBM v5.1.02), a popular freeware program. It's easy to configure and if you leave it running in the background, it will tell you the maximum temperatures that your CPU touched while running heavy applications or playing games.

You can also set alarms and ask the program to shut down the PC in case the CPU reaches a particular temperature.

4. How hot is hot?

As a rule, make sure your Processor runs below 55 degrees Centigrade at all times.

If you find that your processor crosses 60 degrees Centigrade, then you need additional cooling. If there is a difference of more than 10 degrees Centigrade between the idle and full load temperatures (when the CPU is running at 100 per cent utilisation), then you need to check whether there is adequate contact between your heatsink and your processor.

You can improve contact by applying a thin layer of thermal grease between the surface of the processor and the heatsink.

5. Is a 1 GHz processor machine twice as fast as a 500 MHz processor?

No, a 25 per cent system wide performance increase is something that you can only hope for. A 10-20 per cent is something that you will see immediately. This is because the machine's performance is based on a number of factors other than just the processor.

6. Can I overclock?

Overclocking means increasing the rated speeds of the processor by changing the internal multiplier or the external frequency. Most modern processors have their internal muliplier locked leaving you the option of only changing the external frequency. By changing the FSB (Front Side Bus) you are in effect also overclocking all the other PCI devices. Overclock your processor only if you understand processors quite well and are willing to take the risk of the warranty being void.

Among the tested processors, the Pentium 4, 2 GHz could be overclocked to 2.34 GHz and it ran flawlessly even at over 340 MHz above its rated frequency. The new Tualatins, the Celeron 1.2 GHz, and the Pentium III 1.13 GHz are also overclocker-friendly.

and, of course, gaming—will really appreciate the incredible power that the Elite category of processors can deliver.

With the heated competition between AMD and Intel, processors have become much more powerful and affordable across all categories. Isn't it amazing that today, even what we call a value processor, runs at over 1 GHZ and costs Rs 6,000? Competition has driven the prices down. The processors are much cheaper today when compared to their predecessors.

THE WINNERS

Athlon XP 1800+ is the undisputed champion and it beat the Pentium 4, 2 GHz in almost all the tests by a fair margin. Despite all the hype behind Pentium 4, 2 GHz, it fails to live up to the performance of Athlon XP 1800+ in key benchmarks like Photoshop, Business Winstone 2001 and 3DMark2001.

Choosing a winner for the Best Value award was much more difficult. While the Duron has consistently outperformed the Celeron by a mile in the past, the latest Celeron (Tualatin) 1.2 GHz processor, which made it into our labs just in time for this comparison test, matched up well against the 1.1 GHz Duron in some tests, and even beat it in the Business Winstone 2001 by a large margin. Despite this, we voted the Duron 1.1 GHz as our Best Value processor because it's Rs 1,000

Professional Applications
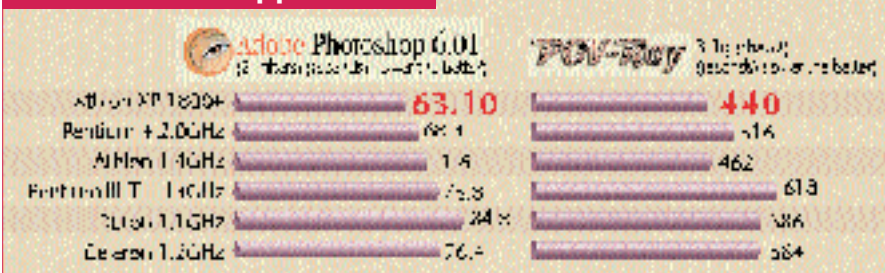
The less time taken the better

lesser than the Celeron, performs really good, and drives a fair bargain.

Athlon XP (Palamino)

The Athlon XP is AMD's latest warhorse in the fight for processor supremacy. Based on the Palamino core, it can push core clock speed up to 1.6 GHz (Athlon XP 1900+). The Athlon XP builds upon the strengths of the AMD Athlon series and is a worthy competitor of the Pentium 4.

The Athlon XP 1800+ tested in this comparison test simply blew the Pentium 4, 2 GHz to bits by completing the POV-Ray FPU intensive ray-tracing test in just 7 minutes 2 seconds.

The Pentium 4, 2 GHz took over

1 minute 34 seconds extra to complete this test. All of this goes to show that the real meat lies in the performance and not in the 'speed'.

In the video encoding test, the Athlon XP 1800+ took just 99 seconds to complete the test as compared to 111 seconds by the Pentium 4, 2 GHz.

This translates into a performance difference of over 10 per cent with a MHz deficiency of over 400 MHz!
Rating: A+
Verdict: *If you want the fastest in terms of pure performance, the Athlon XP 1800+ will deliver.*

Duron (Morgan)

The Duron series is essentially a low-cost variant of the Athlon range of chips. The Morgan core is based on the Palamino, which appears in the Athlon XP. The Duron 1.1 GHz (Morgan) beat the Pentium III 1.13 GHz (Tualatin) in the ray-tracing test: it scored 9 minutes

SCORE BOARD Processor Test

Benchmarks/Processors	AthlonXP 1800+ (1.53 GHz)	AthlonXP 1600+ (1.4GHz)	AthlonXP 1500+ (1.33GHz)	Pentium 4 2.0GHz	Pentium 4 1.7GHz	Pentium 4 1.5GHz	Athlon 1.4GHz	Athlon 1.13GHz	Pentium III/T 1.13GHz	Pentium III 800MHz	Pentium III 700MHz
Content Creation Winstone 2001	81.6	78.4	76.8	78.6	68.6	62.4	75.8	66.6	63.7	48.2	40.8
Business Winstone 2001	59.5	57.1	56.9	57.7	52.2	47.8	57.8	50.9	49.3	40.5	34.9
SiSoft Sandra Prof. 2001 Te											
CPU Dhrystone (MIPS)	4337	3960	3771	3909	3277	2952	3960	3205	3205	2159	1878
CPU Whetstone(MFLOPS)	2137	1962	1858	2452	2092	1845	1936	1567	1534	1083	952
POV-Ray*	7 mins 2 secs	7 mins 42 secs	8 min 5 secs	8 mins 36 secs	10 mins 6 secs	11 mins 30 secs	7 mins 42 secs	9 mins 30 secs	10 mins 18 secs	14 mins 36 secs	17 mins 6 secs
Specviewperf OpenGL	205.2	203.9	202.8	207.8	202.7	198.3	191.3	183.7	155.6	126.2	111.3
Photoshop 6.01 (seconds)*	63.1	66.8	68.6	68.3	77.7	88.7	71.6	81.7	75.8	107.6	121.8
Audio Encoding (seconds)*	20	21	22	25	28	31	21	27	35	52	60
Video Encoding (seconds)*	99	105	108	111	126	122	108	122	149	196	227
3DMARK 2001	7060	6907	6818	6960	6655	6331	6765	6385	5752	4810	4308
Evolva	148.2	147.6	144.9	144	138.9	134.9	145.3	140.3	128.6	116.8	105.3
Quake III Arena											
Normal	276.4	274.3	273	314.1	289.3	265.1	266.7	232.1	202.1	170.2	144.2
High	264.5	259	256.5	273	263.3	251.5	252.2	234.9	199.5	169.4	143.1
Rating	A+	A	A-	A	B	B+	B+	A-	B	C+	C-
Contact Details											
Vendor	Great World & Co	Zeta Technologies	Zeta Technologies	Nebula Technologies	Nebula Technologies	Nebula Technologies	Zeta Technologies	Zeta Technologies	Nebula Technologies	Ockam Infotech	Ockam Infotech
Phone	022-3892828	022-4102288	022-4102288	022-6347158	022-6347158	022-6347158	022-4102288	022-4102288	022-6347158	022-6330375	022-6330375
Fax	022-3879020	022-4102277	022-4102277	022-6347156	022-6347156	022-6347156	022-4102277	022-4102277	022-6347156	022-6347805	022-6347805
E-mail	sales@gtechworld.com	tejas@zetaindia.com	tejas@zetaindia.com	sandip@nebulatech.com	sandip@nebulatech.com	sandip@nebulatech.com	tejas@zetaindia.com	tejas@zetaindia.com	sandip@nebulatech.com	kamlesh@ockamindia.com	kamlesh@ockamindia.com
Price (Rs)	13,500	10,416	9,765	27,500	14,000	9,800	9,114	7,052	14,000	8,000	7,000

* A lower score indicates better performance

The Greedy

Processor: The Athlon XP 1800+ (1.53 GHz) is the chip if you want maximum power. However, you have to back it up with the best components in the market.
**Motherboard:** The ASUS A7V266-E. Nothing comes close to it in terms of pure performance; it will let loose all the horses that the Athlon XP 1800+ has to offer.
RAM: Nothing less than 512 MB of DDR SDRAM will do.
Hard drives: 80 GB (7,200 rpm)
Monitor: 21-inch Sony CPD G520
Graphics card: ASUS V8200 GeForce 3 Deluxe. This card is the fastest available to date and will ensure that the Athlon XP 1800+ will not be bottlenecked.

GREEDY VS NEEDY
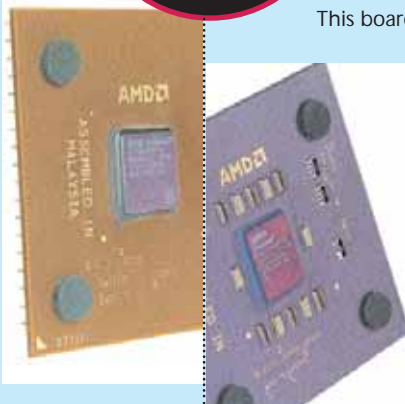
The Needy

Processor: Unimpressed by raw speed and power? Looking for value for money? Package the Duron 1.1 GHz with the components listed below and it will take care of all your applications with relative ease.
Motherboard: The KM133 based DFI AM36EC. This board gives decent onboard video and audio along with the choice of adding an AGP card in the future.
RAM: 256 MB of SDRAM. This is sufficient for most applications and is reasonable considering the reasonable price of RAM.
Hard drives: 20 GB (5,400 rpm)
Monitor: 15-inch Viewsonic E53
Graphics card: For most purposes, an onboard graphics card will suffice, but if you want a separate one, any TNT2 M64 16 MB card will do.

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46 seconds, whereas the Pentium III 1.13 GHz took 10 minutes 18 seconds. In the other benchmarks, the scores logged by the Duron 1.1 GHz were almost at par with the Pentium III 1.13 GHz (196 fps in normal mode in *Quake III Arena* as compared to 202 fps logged by the Pentium III 1.13 GHz).

Rating: B
Verdict: *A good buy. The Duron coupled with a low-cost VIA-based platform will give you a PC that can give the big boys some serious trouble.*

The worthy mentions

Pentium 4 (Willamette)

Pentium 4 is the flagship processor from Intel today. The first to hit the impressive 2 GHz, the Pentium 4, 2 GHz has a quad pumped FSB of 400 MHz and a rapid execution engine for the ALU unit that claims to run at double the core frequency of the processor.

Pentium 4 has a feature set that gives stiff competition to AMD, and now proudly hosts 144 new SSE-2 instructions, whereas AMD has only recently caught up with SSE. And with proposed speeds of over 3000 MHz by the end of 2002, it truly would be tough to beat. Nevertheless, it has its shortcomings. With a 20-stage-deep pipeline, an expensive memory interface and quick transitions of packaging formats (Socket 423 to 478), one should worry about the longevity of its platform.

Rating: A
Verdict: *The Pentium 4, 2 GHz is simply the fastest processor out there in terms of raw power. So if you want to buy the 'fastest' processor in town with the best-of-class build quality, coupled with minimum platform incompatibilities, then the Pentium 4 is your best bet.*

The Celeron (Tualatin)

The newer Celeron utilises the 0.13 micron fabrication process, code-named Tualatin, which is probably the most unique and innovative step towards faster speeds and lesser heat dissipation. The Celeron 1.2 GHz performed admirably in our tests. It matched the Duron 1.1 GHz in terms of performance by churning out a score of 61.2 in Content Creation Winstone 2001. Finally, we see the Celeron (Tualatin) maturing to a viable value proposition.

Rating: B
Verdict: *The Tualatin suffers from serious platform paucity. The older BX/815 class boards do not support the new voltage requirement that these processors demand. We recommend that you wait for cheaper Tualatin capable boards to be available for the Celeron.*

HATIM KANTAWALLA

Decision Maker

INFOGRAPHICS: Solomon Lewis

	General Desktop use	Home Entertainment	Graphics Professionals and Gaming
You Need	Decent performance in office productivity applications	Lag-free performance in all graphic, multimedia and video oriented applications	Movies, music, gaming and complete home entertainment with oodles of processing power
Look for	Any of the value processors such as the Celeron/Duron with speeds in excess of 900 MHz	Look for one of the better value processors such as the Pentium III series (Thunderbird) with speeds in excess of 1 GHz	Settle only for the elite, Athlon XP/Pentium 4 processors with speeds in excess of 1.4 GHz
Price	Up to Rs 5,000	Up to Rs 10,000	Rs 10,000 and above
Our pick	Duron 1.1 GHz, Celeron 1.2 GHz	Pentium III 1.4 GHz, Athlon 1.4 GHz	Athlon XP 1800+ 1.53 GHz, Pentium 4 2.0 GHz

The Truth about xp

Advertising is glutted, hype is unprecedented, most potential users have heard something or the other and Microsoft, after a long time, is smiling. XP is out and it is the best OS released by the Redmond Goliath since 1995. Is it worth your hard-earned money?

All of us have our own vision of the perfect operating system, something that understands us. What is it that we would wish for? Stability? A more secure environment? A slicker, friendlier interface, something that Mac users have been enjoying for years? What else? Windows XP, Microsoft's latest OS in the market, has all this and more. Enter the friendlier age of computing.

Operating systems of the future are going to be crash proof, we know that, perhaps even more reliable than the refrigerator. Same is the case with security. They will anticipate your needs, shape themselves according to your working habits—basically, help you work better.

XP, in this regard, is the first operating system in the market reflecting this change. It is going to pave the way for trends and technologies that will shape the operating systems of tomorrow.

Microsoft has studiously crafted XP to give you an open, expansive feel. It is clear that the software giant has spared neither money nor effort this time.

The versions
XP comes in two versions, XP Home and XP Professional. The differences between these two are clearly demarcated. In a nutshell, the Professional version of XP is for those who place more value on security, networking ability and multi-processor support. In a Home edition, you get pretty much everything too—multimedia, networking, firewall protection, the works. The Home edition is meant for individuals; small businesses can even set up a network using this cheaper edition, but without the high-end tools which only the Professional edition boasts.

The Pro
The Professional edition is expensive; it does all that the Home edition does and more, but with more elan. Using this edition, your network is scalable, much more secure than before, and handles like it never has.

Remember the Qualcomm CEO who lost his laptop and all valuable company data along with it? XP wasn't there that time, otherwise he could have used the Encrypting File System to scramble sensitive data and keep his company's trade secrets the way they were meant to be: secrets.

Everything remote
Corporate networking ability and management is unique to XP Professional. It's roaming user profile lets users access documents located on their own PC from any computer on the network. Two very nifty tools that do not figure in XP Home are Remote Assistance and Remote Desktop. If you're stuck and help isn't locally available, your friend or a tech support person can connect directly to your PC over the Internet to fix it.

Similar to pcAnywhere (software that allows remote access), Remote Desktop provides a remote control service that allows corporate workers to log in from a remote computer over the Internet. Once logged in, the user can take full control of his computer as if he were right there in front of it. Though you must have XP Professional installed in the PC you wish to access, the remote clients (the computers you are connecting from) need to have Windows 95 or later versions

installed. In addition, you must have the Remote Desktop Connection software installed on the client PC.

Rock steady

This is the first time in Windows history that the rock-solid NT core has been included in a consumer-level OS. This itself is a major differentiator and explains why the XP stability is so hyped.

Microsoft, with each OS revision, goes further in integrating applications, whether it's a browser or a media player. XP sports applications that highlight the current market trends, for example, the addition of CD-writing, movie making, and so on.

An integrated CD-writer allows a user to burn CDs without third-party software, while a personal firewall provides protection against Internet threats. Other bundled perks include Windows Messenger and Windows Media Player, both of which have incorporated more features and functionality. In Messenger, there are significant improvements in audio fidelity which changes on-the-fly and thus adapts better to changing bandwidth conditions. In appearance, Messenger seems to have shed its older threads for the new XP attire. Windows Media Player innovates in its ability to playback DVDs and write audio CDs.

Compatibility

Even with its new enhancements, XP tries to provide compatibility with the previous versions. Older applications which were too closely designed around Windows 95 now have a chance at coming to life in XP. All one has to do is right-click on the application icon and select the Compatibility tab under Properties. Select the mode you want, click OK, and run the application.

We tested a few older applications to check XP's application supporting capability. There were programs such as Folder Guard and SigmaPlot 5 which were not executed even in the Windows 95 Compatibility Mode. However, older versions of applications such as Ahead Software's

Nero CD-Writing software operated just splendidly—no errors, no coasters.

XP also offers the multi-boot option in case you want your existing OS to remain.

No more plug-and-pray

Windows 95 had it, Windows NT didn't. Plug-and-play saw a true breakthrough in Windows 95; insert a video card or plug in a fancy mouse in the USB port and the operating system handles the rest. Plug-and-play takes care of touchy things like interrupts and IRQs. All you have to do is supply the correct drivers.

But the system wasn't perfected—since Windows 95 was so unstable, you had to plug in your devices and pray that the system wouldn't crash while detecting the device. With XP, you get the best of both worlds—hardware support from Windows 95 and stability from Windows NT.

Sharing, security, stability

XP is different, right from the moment you log in. It has revamped the login procedure and added a lot of flexibility when dealing with users. The login is friendly, and the interface friendlier. You can set a password for each individual user account or leave access open to anybody who wants to enter. Features normally present only in a network operating system such as the concept of administrator and different rights for different users find a place in XP. The administrator can also specify rights for programs.

Windows XP also bundles along an Internet Connection Firewall and an application-level firewall (this allows you to filter applications that can use the Internet) for protection from worms and malicious code.

Multi-level sharing and security features have always been a part of Windows since NT—the reason why NT/2000 has been a stable OS. The same stability is brought to XP based upon the core. All versions were prone to crashes in some way or the other after Windows 95.

After torture testing the XP, we noticed that during this time, we were

10 Explosive New Features

1 A pretty picture
Visually, no other Windows version could be as appealing as this. It's easier to use and is sleeker and more colourful than the predecessors.

2 Easy does it
User friendliness is accented in the Start menu that gives you quick access to recently run applications and the better organised taskbar. Icons give the user a clearer understanding of how to configure his or her PC.

3 Stability
For those tired of the Blue Screens and Illegal Operations, Windows XP Home edition leverages the stability of Windows 2000 using the NT core, to deliver a much more reliable computing experience.

4 Quick starts
Considerably faster boot-up than either Windows 2000 or Windows 98.

5 Media savvy
With Media Player 8, the Movie Maker video editing software, enhanced support for digital cameras and FireWire support you have the most multimedia friendly OS around.

6 Going backwards
Windows XP supports Compatibility Modes which allow the user to choose from Windows 95/98/NT/2000 emulation which lets even older programs run with ease.

7 Network ready
A plethora of friendly setup wizards assist you with basic steps such as setting up a network and network cabling. The Internet Connection Firewall protects you from hackers on the prowl.

8 A real family PC
XP's user friendliness is given a boost with support for multiple logins. Create a separate profile for your kid sister so she can play around without messing up your settings.

9 Getting a helping hand
Remote Assistance lets a friend help you when you are facing problems on your PC.

10 Safety net
A built-in rollback feature called System Restore allows you to go back to an older system configuration in case of a major problem.

Easier to Explore

Start menu is presented in two columns. The left pane remembers the frequently accessed applications and files and positions them for easy access. It is visually more appealing than the earlier versions.

Desktop
1. Bolder and more colourful icons highlight the desktop, adequately describing its function.
2. The Quick Launch icons can be concealed, thus saving a certain amount of taskbar space.
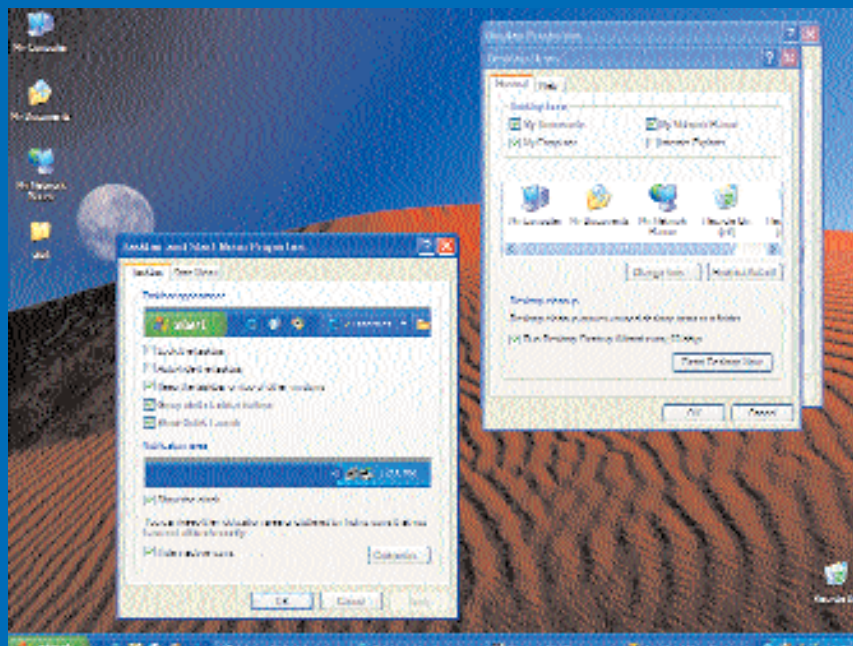
3. Multiple windows of a single application can be grouped together saving space on the taskbar and giving it an organised look.
4. Icons in the system tray can be hidden from view. Clicking on the arrow expands the list, showing the inactive icons.
5. The Recycle Bin is the only icon XP installs by default.
6. Various options help you customise the desktop. And if you miss the icons of the earlier versions, you can get them back.

not forced to reboot or turn off the PC even once. Certain applications such as Internet Explorer 6 and StarOffice did manage to crash, but the problems were isolated and didn't have any effect on the rest of the system. Since XP runs each application in its own memory space, the chances that a single application will cause your machine to crash is reduced.

Exploring the Window
A typical Windows XP Explorer window—with the contents on the right and an overview window on the left—is intelligently crafted to let you jump to other sections of the computer as soon as you click.

The improved icons in XP compliment Explorer quite well. You can now change the icon of any file or folder at the instruction; photographs can be used as well.

For MP3 files, ID3 tags and bit rates are displayed. When you arrange your Explorer window to show all file details, information such as song name, artist, year, etc, is mentioned.

Explore through images in a filmstrip manner. When you highlight the image's icon, a preview pane opens up giving

you the bigger picture. You can also use this to create a basic slide show. XP displays image file information (such as photos and scanned objects) in detail— everything from resolution to which camera captured the image.

Windows Explorer now comes with the ability to handle the .zip compression format. Compressed files can be opened without additional software. If you want to package a few files together, just select what you want and right-click your way through the correct option.

With Web integration features, you can directly copy files to an online storage service, order picture prints of your images, and purchase and download MP3s. You can disable this Web integration feature if you don't have Net access.

Multimedia militia
Windows XP has done a thorough job in providing users with a complete multimedia solution. As mentioned before, one of the more obvious components in XP's multimedia arsenal is Windows Media Player (WMP) 8.0. It now adds the ability to play from DVDs, provided you have a DVD codec installed. XP offers in-built support to make your own audio CDs from WMA and MP3 files.

Microsoft and its partners spent a collective amount of about $1 billion on marketing Windows XP

This is certainly useful but XP provides only a fraction of functionality that full-scale software offers. This would mean anybody interested in 'ripping' audio CDs to the MP3 format will be sorely disappointed—WMP does not permit that. What it does permit is the conversion of audio to WMA format. Though WMA is gaining popularity, it's nowhere near MP3s in terms of popularity. For those of you who need help in playing back DVDs or encoding MP3s, search for codecs and add-ons on the Web.

Video time
Video plays a prominent role in XP. You can run a slew of devices to capture video, edit and make simple movies, and XP now supports high-speed video interfaces such as FireWire. Picking up from where Window Me left off, XP has adopted Windows Movie Maker to make the entire task of moviemaking easy. However, this is far from a fully-featured video studio and is not meant to be taken seriously by professionals. Don't expect an Oscar yet!

Help
If you've used Windows before, you'd know how the help files are segregated from one another. No more messy business in XP—all help files can be ➜

The Experiment

A Personal Truth

Don't just take it from us. Listen to what others have to say about XP. Sure, it might be easy for experienced users to jive well with it, but how does XP figure in the hands of a newcomer?

To test this question, we put a computer system in front of a person who isn't the geeky, system administrator type. We sat with our trusty test subject, who calls himself 'Soggy', and made him install, use and abuse Windows Me, Windows XP, and then compare the two.

At the end of it all, this turned out to be a fresh, new experience. Everyone survived and there were no frayed nerves. Even the system was fine. Here's the experience:

Installing

Getting Windows Me running wasn't so hard. I was just asked a few questions before the program took over. I used to wonder anyways what that millennium moniker was all about. Now I know, but this XP is much better—you know, the entire process seems simplified. And it looks so cool too!

Setting up

Honestly, I really didn't notice the time. I just did the set up! However, this XP, surprisingly, took more time overall to install. Why does the process take longer in XP? It seems to me as if there are many more files here to install. XP sure is thick!
TIME TAKEN: Installing and setting up —
47 *minutes for Me and*
62 *minutes for XP*

Configuring

Talk about being totally confused! Just as I was getting used to setting up things in Me, XP comes and bewilders me with its simplicity. I am not used to software so simple. I mean, what's wrong with Microsoft?! Just look at the Control Panel! It has REALLY changed and I think I will stick to the old

Sougat 'sOgster' Garai

look till I get somewhat adjusted to this XP. The change in location and layout of icons really threw me off.

There's one thing though: adding hardware such as mouse and external drives is much easier in XP. Me sucks in this regard.
TIME TAKEN: Configuring —
8 *minutes for Me and*
7 *minutes for XP*

Using

I've been hearing a bit too much about how XP makes things easy, how XP is faster and all that jazz. While I really feel that both XP and Me are pretty much the same as far as using them goes, XP seems to be a lot more organised in its layout and presentation. The Help is better than in Me, and basically, XP seems to walk you through the computer better than Me. Frankly, apart from this, I really don't see any other 'methods' that XP has applied to make your task simpler. It just seems better marketing and design to me!

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centrally accessed with the Help and Support centre. The standard Windows Update is responsible for updating all drivers and patches as soon as they are out.

Windows Update is ingrained into the Help and Support centre which features an assortment of practical features such as pointing to the Hardware and

to. Since it only keeps a check on the system files, you needn't worry about losing personal data when bringing a damaged installation back to life.

In XP Professional, the Device Driver Rollback function maintains a copy of an older driver when installing the new one. The old driver can be recalled if the installed driver gives problems.

have the option to install the language settings during installation itself, or after installation.

Indian language fonts in Windows XP are based on the TrueType format which means that you can easily download and install these scripts on your computer, and while you type, a keyboard layout on-screen helps identify the characters.

> ## The great thing is there are no booting blues. It's a bliss for small customers who operate on hardware provided by assemblers
> *Tripti Awade, CEO, Alnisha Software*

Software Compatibility page. Using this, one can quickly research the hardware that has been given XP approval. If local help will not suffice, the Help and Support centre blends seamlessly with Microsoft's Knowledge Base where users can access a vast pool of support online.

System Restore is an excellent tool to recover an XP environment if something goes wrong with its system files. This function automatically takes snapshots of a computer's state which you can revert back

The pre-release to XP contained Smart Tags which, due to consumer protest and cries from the competition, was taken out.

Linguistic XP?

XP has you covered in India. It now speaks nine different regional Indian languages while Windows 2000 supported just Hindi and Tamil initially. Hindi, Marathi, Gujarati, Tamil, Telugu, Sanskrit, Konkani, Kannada and Punjabi can now be called mother tongues in XP. None of the previous home versions of the Windows operating system offered local language support. Users can now access all the nine languages using Microsoft's Office XP suite. You

Product activation

This has been the hottest topic amongst technology conversationalists. Microsoft's latest attempt to curb the reach of the long, sinewy fingers of pirates comes in the shape of Product Activation. When a user purchases a copy of Windows XP, Home or Professional edition, a 30-day time day limit is set to 'activate' the OS. If within that time XP isn't activated, it ceases all function until and unless activation is done.

Activation involves connecting to the Internet after which your configuration details are scanned by XP and sent to a Microsoft server. The reason Microsoft stores information about what's inside your PC is that if a copy of XP is installed on another computer, details about that
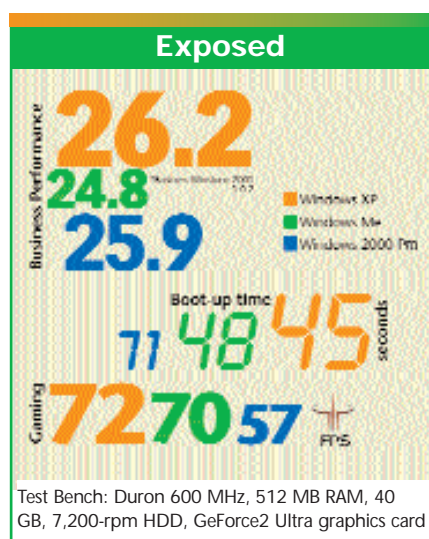
machine can be cross-checked with the details from the previous installation when it goes through activation. If the two machines differ greatly, XP won't receive the activation code it needs to run beyond the 30-day deadline.

In short, Microsoft is enforcing the rule of 'one PC for one OS'. So does this mean that changing your configuration around a bit or adding new hardware is going to make XP think it's a totally different machine? Not necessarily. Microsoft says that you can make a maximum of six hardware changes at a time without needing XP to re-activate. Needless to say, as with every attempt at curbing piracy, the cracks for product activation have already started appearing.

XP+

Can we please be spared the hidden expenses? In case you haven't been observing the way Microsoft 'follows-up' with their consumer level OSes, a Plus! Pack usually rears its expensive head with each upgrade of Windows. Essentially, a Plus! Pack is nothing more than a few enhancements that effectively turn Windows XP into TP (time pass).

Wallpapers, themes, media add-ons and things of this nature will end up costing you money, that too for something you could get for free on the Net. A few games are featured as well but they really don't hold any ground against what you can download. Plus, the featured games are trial versions only, usually put there in the hope that maybe somebody would be gullible enough to pay and get fully functional versions!

Instead of wasting your money on this, be smart and invest in upgrading that memory in your machine which XP is going to hog.

Actual additions

As a true value addition, XP's integration for basic applications comes as a definite plus for home and business users alike. Among the bundled perks is Windows Messenger, the instant messaging client that competes with the likes of Yahoo! and ICQ.

Windows Media Player has been a regular with Windows since the release of Windows 95. However, Microsoft chose to integrate more functionality into Media Player, making redundant alternative solutions look too expensive and not purchase-worthy.

64-bit

Looking beyond the realm of personal and business PCs, Microsoft also features a 64-bit edition of the XP operating system. It's designed for extremely powerful machines with a 64-bit processor, specifically the Intel Itanium. This version is exclusively written and optimised for

Too Expansive?

Windows XP continues the trend of incorporating new applications into the OS. It includes several new applications such as compression software, a firewall, movie making software, a media player and CD writing software. Does that mean we are seeing the death of the application market with all software being integrated into the OS itself? Not really. The integrated applications are not very feature rich. The CD-writing feature, for instance, doesn't allow you to work with different file formats and other advanced options. The media player does not allow the digital audio encoding in the MP3 format.

The claim of damage done to software makers is slightly exaggerated. The application package with XP does provide enough functionality for most users, but for those who want more control over what they do, the free market is the only place.

Exploit to the Max

1 Place frequently used application on the top of your Start menu by right-clicking the link and selecting Pin to Start Menu.

2 If your mouse has a scroll wheel, you can change the size of fonts in Web pages on the fly by scrolling up to enlarge the text and scrolling down to decrease the size, while holding down the [Ctrl] key.

3 Windows XP has support for ClearType—Microsoft's anti-aliasing font display technology—but doesn't have it enabled by default. It's worth trying as it makes reading easier. To enable ClearType, right-click on the desktop, select Properties, Appearance, Effects, select ClearType from the second drop-down menu and enable the selection. Expect best results on laptop displays.

4 By default, Windows Explorer opens up showing the contents in the My Documents folder. To change the default folder, click *Start > Programs > Accessories*. Right-click on Windows Explorer and click Properties. Under the Target field, change %SystemRoot%\explorer.exe to *%SystemRoot%\explorer.exe /n,/e,/select,C:* This allows you to view all the folders and files in the C root directory.

5 If running older applications is a problem in Windows XP, invoke Compatibility Mode for that particular program. Right-click on its .exe file and select *Properties > Compatibility* and select the OS and display settings that you want. Clicking on OK will ensure that the program works as intended.

6 You can revert to the default look of Windows. Right-click on the desktop and go to the Themes tab. Select the Windows classic theme and click on OK. To change the appearance of the Start Menu, right-click on the Taskbar and select Properties. Select the Start Menu tab, and check the option for the Classic Start Menu. Click on OK for the settings to take effect.

7 Remove all the icons from your desktop. Right-click on the desktop and select Properties. Go to the Desktop tab and uncheck the options for displaying the regular desktop icons such as Recycle Bin.

Explain: Is XP for me?

If you currently use	Windows 9x/Me or are buying a new PC	Windows 9x/Me or are buying a new PC	Windows 2000
And use your PC	Mostly at home for Internet access, gaming and day to day applications	At work and use office applications on a network	For professional applications like Photoshop and 3D Studio MAX
Are looking for	A more stable and user-friendly OS	Greater security, stability and Remote Desktop access	Greater stability and multiple user management
You should	Upgrade/buy Windows XP Home	Upgrade/buy Windows XP Professional	Stick with Windows 2000 (Service Pack 2)

the 64-bit platform; obviously this XP won't run on that Pentium 4. The vital difference between the 32-bit and 64-bit versions lies in the latter's ability to access and use much more system memory. XP 64-bit can handle 16 GB of RAM and 8 TB of virtual memory space. Since memory access is much quicker than, say, fetching data from a hard disk, high-end workstations with loads of memory are better suited to make use from XP 64-bit.

.NET
The IT industry sees gold in the area of Web services. Companies such as Sun, IBM and Oracle are developing their own strategies and implementations to accommodate this future technology. .Net is the fundamental framework on which Web service applications will be used. Though it's not exactly going full steam ahead, Microsoft has decided a home and place for their upcoming services standard. The Microsoft .Net Server will be the foundation on which applications using the .Net framework will be created.

And now, the price
If you have an older version of Windows, you can buy Microsoft's upgrade version of XP Home or Professional, or you can buy the full version if you do not use Windows. The upgrade version isn't available for users of Windows 95, and

costs Rs 4,200, while the new version costs Rs 7,100. The Windows XP Professional version is much more expensive at Rs 12,400 for the full version and Rs 6,100 for the upgrade. The prices for the Home version aren't that much higher if you compare it to Windows Me which retailed at Rs 6,500 for the full version.

The ride ends
XP has been released after a lot of effort. In many aspects, this OS is a much needed, if not drastic, improvement over its predecessors. It is more stable than the Windows 9x/Me line and sports a horde of new features and enhancements. Now you have to make the decision between buying and not buying. You'll be a tough nut if you have the money, read this entire article, remain content, and not buy XP!

If you're in the market to purchase a new PC, don't look beyond XP. This version is by far the easiest one to use, as we have taken pains to explain. But if you're the kind of user who fits the profile of a Windows 98/Me user, there really isn't much reason to upgrade—unless you have a serious problem with stability and keeping your current OS intact. There is a lot of room for improvement still. But we wouldn't ask you to waste your time scouting for other options. Put your money where the experience is.

PRASHANT MASRANI

XP sold over 300,000 units in its first 3 days in the US alone. Win 98 did 400,000 units three days after its launch.

JANUARY 2002

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27	28	29	30	31		

Bazaar

The ripper, the space searcher, the WebRazor, the chain mail armour and some other outstanding performers...

DELL Precision 530
Outstanding performer

This souped up machine highlights the differences between a 'powerful PC' and a graphics workstation. It has a dual 1.7 GHz Xeon P4 processors, 2 GB RDRAM, four 18-GB 15,000-rpm SCSI hard drives configured in RAID-0 configuration and a high resolution 17-inch TFT monitor whose display area is comaparable to a 19-inch CRT monitor. The custom motherboard is based on the Intel 860 chipset and came with two IEEE 1394 (FireWire) ports and the optional Sound-Blaster Live! Value PCI card and a Broadcom Copper Gigabit Ethernet Adapter.

All this luscious hardware fits into a neatly designed black plastic/aluminium casing, which uses a 'no-screwdriver-needed' design. Well placed fans provide excellent cooling while CPU noise levels are kept pretty low despite high airflows within the cabinet.

However, the price of this top-of-the-line workstation might burn a hole in your pocket. The workstation is great for designers working on 3D authoring tools and movie animations.

Price: Rs 6,83,698 + taxes
Contact: DELL India
Phone: 080-5586110
Web site: www.dell.co.in

SPECIFICATIONS:
Dual Pentium 4 1.7 GHz Xeon processor, 2 GB ECC PC800 RDRAM, four 18-GB Ultra160 SCSI hard disks, Intel 860 chipset-based motherboard, Wildcat 5110 graphics sub-system, 17-inch TFT monitor

DELL Precision 530		A
Performance	★★★★½	
Build Quality	★★★★½	
Value for Money	★★★★	
Features	★★★★½	
OVERALL	★★★★	

Samsung Samtron 56V
Fit for display

The samsung Samtron 56V gave acceptable results in the screen regularity test but the red hue appeared slightly more intense in the middle of the screen. In the geometry test, the horizontal and vertical lines were found to be slightly askew, but within an acceptable range. In the screen regulation test, the raster expanded by just about 1 mm horizontally and vertically when the screen turned bright. In the symmetrical regulation tests there was a slight white and black level shift near the edge of the white and black bands, which made the edge of the block appear blurry. This could result in a fuzzy image, especially when running the monitor at a resolution of 1024x768.

SPECIFICATIONS:
Maximum resolution: 1024 x 768 at 60 Hz, viewable area 13.9-inch

Samsung Samtron 56V		B+
Performance	★★★½	
Build Quality	★★★½	
Value for Money	★★★½	
Features	★★★	
OVERALL	★★★½	

Price: Rs 6,500
Contact: Samsung Electronics
Phone: 011-6322517
E-mail: marketing@samsungindia.com
Web site: www.samsungindia.com

MSI Starforce GeForce3 MS-8822
Gaming performance to die for

Though expensive, it delivers amazing performance and has a good overall bundle. However, you need a powerful system to realise the full potential of this card. In 3DMark 2001 the card scored an index of 6975, putting it on par with other GeForce3-based graphics cards. In *Quake III Arena*, it delivered an amazing 268 fps in high quality mode on our test machine (1.7 GHz P4, 512 MB RDRAM). The card exhibited breathtaking Full Screen Anti Aliasing and per-pixel lighting effects.

Price: Rs 22,000
Contact: Priya Limited
Phone: 022-2663611
E-mail: priyabom@priyagroup.com
Web site: www.priyagroup.com

SPECIFICATIONS:
GeForce3 64 MB DDR, 200 MHz core speed, 460 MHz memory speed,

MSI Starforce GeForce3		B+
Performance	★★★★	
Build Quality	★★★★	
Value for Money	★★★	
Features	★★★★	
OVERALL	★★★½	

ASUS A7V266-E

Good performance but at a price

ASUS A7V266-E is a well laid out and roomy board that comes with an excellent manual. The board was very stable in our tests and returned great results. It blazed through the Photoshop 6.1 test where it took a total average time of just 63.1 seconds to crunch through the 21 filters it was subjected to—that's about 30 per cent faster than its predecessors, the KT133A-based boards. In our other tests, encoding a 50 MB wave file took just 20 seconds while converting a 53 MB MPEG file to AVI took just 99 seconds. In the Content Creation test too we logged a score of 81.6, which was among the highest we have ever logged.

The excellent results in the Content Creation test suggest good performance in most business and office applications. It has a very good layout, documentation and construction. The only negative is the high price tag.

Price: Rs 13,000
Contact: Rashi Peripherals
Phone: 022-8260258
E-mail: ho@rptechindia.com
Web site: www.rptechindia.com

SPECIFICATIONS:
Supports socket A (462) processors from AMD Athlon Thunderbird, Athlon XP and Duron, Slots: five PCI, one ACR, one AGP Pro, three DIMM, Onboard audio and Promise RAID Controller

ASUS A7V266-E	A-
Performance	★ ★ ★ ★
Build Quality	★ ★ ★ ★
Value for Money	★ ★ ★
Features	★ ★ ★ ★ ½
OVERALL	★ ★ ★ ★

> "With top-notch build quality and every imaginable tweak in the BIOS, the ASUS A7V266-E is the most fine-tuned board of the lot"
>
> **Marco D'Souza**
> Head, Test Centre

Hewlett-Packard Scanjet 2200C

Slow on the scan

The HP Scanjet 2200C scanner is up and running the moment you plug it in the USB port. The bundled Adobe ActiveShare 1.5 offers entry-level image-editing features. The scanner is pretty slow to start up and failed to pick up subtle variations in the brightness of images. The results in the image quality tests were good and it picked up little details present in different areas of the photograph.

This slim and light device features a 42-bit scanning engine and the bundled TWAIN driver has built-in optical character recognition capability. A separate OCR software would, however, have been better.

SPECIFICATIONS:
600x1200 dpi, 8.5x11.7 inch scanning area, scan to Web capability, USB interface, Benchmarks: 18.65 seconds preview time, 8 seconds warm-up time, 20 seconds to test and scan image at 300 dpi

Price: Rs 5,999
Contact: Hewlett-Packard India
Phone: 011-6826000
Web site: www.hpindia.com

HP Scanjet 2200C	B+
Performance	★ ★ ★ ★
Build Quality	★ ★ ★ ½
Value for Money	★ ★ ★ ½
Features	★ ★ ★ ½
OVERALL	★ ★ ★ ½

Sony DDU1621

The ripper

This 16x DVD drive features a proprietary technology called 'Sony Advanced Spindle' that enhances the ability of the laser to reliably read information from unbalanced or uneven disks. In the tests, the drive was very fast at ripping an audio CD track to a wave file: it extracted a 50 MB audio track to the hard disk in just 29 seconds and reached the maximum speed of 12x. The scores faltered to 1990 in CD Winbench 99 test—other 16x DVD drives usually score about 2100 in this test. This would reflect in real-world tasks such as installing large amounts of software from the CD or while copying data from a CD or DVD media. It also logged a slightly high access time of 119 ms, which would lead to longer times at detecting and reading from CDs. The drive is priced reasonably and is particularly good at reading used and slightly scarred media because of the built-in error correcting technology.

SPECIFICATIONS:
16x DVD speed, 40x CD speed, 512 KB onboard buffer, Sony Advanced Spindle technology for increased stability
Benchmarks: 1990 in CD Winbench 99, 119 ms access time in SiSoft Sandra 2001te, 29 seconds for Digital Audio Extraction (DAE) of a 50 MB audio track

Price: Rs 5,300
Contact: Rashi Peripherals
Phone: 022-8260256
E-mail: ho@rptechindia.com
Web site: www .rptechindia.com

Sony DDU1621	B+
Performance	★ ★ ★ ½
Build Quality	★ ★ ★ ½
Value for Money	★ ★ ★ ½
Features	★ ★ ★ ½
OVERALL	★ ★ ★ ½

PGP Desktop Security 7.0.3
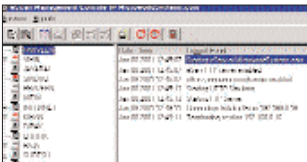
All the protection you need

PGP Desktop Security consists of a firewall, personal intrusion detection, VPN (Virtual Private Network), disk e-mail and message encryption. It uses public key encryption and is available in two variants—one with 128-bit encryption strength and the other with a 256-bit strength. PGP Disk lets you assign a fixed amount of disk space on your hard drive where your valuable data can be encrypted and saved. PGPNet is another utility included, which features a built-in firewall, VPN and an intrusion detection system. This helps in imparting security to the data transmitted and received over the network, where intrusion detection guards your computer from a variety of network-based threats such as Trojans, port scanners, etc.

This application is a good all-in-one package for protecting your computer from a range of network threats and securing your sensitive files.

SPECIFICATIONS:
Consists of a firewall, VPN, disk e-mail and message encryption, available in 128-bit and 256-bit encryption strength

Price: Rs 11,180 for 25 nodes (two year validity)
Contact: Network Associates
Phone: 022-6935278
E-mail: annette_castelino@nai.com
Web site: www.nai.com

PGP Desktop Security	B+
Performance	★ ★ ★ ★
Ease of use	★ ★ ★ ¹/₂
Value for money	★ ★ ★
Features	★ ★ ★ ★
OVERALL	★ ★ ★ ¹/₂

eScan Pro

Chain mail armour

This software increases the efficiency of the network by automatically compressing attachments before sending them by e-mail installs on your network. On the network, it creates a console from where various aspects of the software can be logged and monitored, such as the number of viruses detected and suspect files, reports on the type of information and content flowing within the network, etc. The logging facilities can be used to monitor Internet usage patterns. The management console also features security policies that can be created and applied in the enterprise, where the download and deployment of updates can be scheduled centrally on all servers across an organisation. For a low-priced comprehensive network security solution, eScan Pro Edition is just right.

SPECIFICATIONS:
Checks for restricted content and defects viruses on the fly

Price: Rs 1,880 per year (single user)
Contact: Microworld Software's Services
Tel: 022-8265701
Email: supports@mspl.net
Web site: www.mspl.net

eScan Pro	B+
Performance	★ ★ ★ ¹/₂
Ease of use	★ ★ ★ ¹/₂
Value for Money	★ ★ ★ ¹/₂
Features	★ ★ ★ ¹/₂
OVERALL	★ ★ ★ ¹/₂

Logitech Wingman Attack

Your first wings

This affordable joystick is recommended for newbies and can be configured without any special drivers. After plugging it into the game port, it worked perfectly as a three-axis, four-button joystick. At first the joystick felt rather chunky. A rubberised grip would have been better for extended play. The wide base fails to hold its position on the desk if jerked hard.

A left-handed user is likely to find the top left corner action buttons uncomfortable to use. While the buttons can be configured well for simulations, you might need to use a couple of keyboard buttons while playing action games. An easy-to-understand manual accompanies this joystick.

SPECIFICATIONS:
Three-axis joystick with throttle level, four buttons, System Requirements: Win 95/98/2000/Me, gameport

Price: Rs 1,350 + taxes
Contact: Aditya Infotech
Phone: 022-6338555
Fax: 022-6338554
E-Mail: applmmb@bom4.vsnl.net.in
Web site: www.logitech.com

Logitech Wingman	B
Performance	★ ★ ¹/₂
Build Quality	★ ★ ★
Value for Money	★ ★ ★
Features	★ ★ ★
OVERALL	★ ★ ★

Ulead WebRazor Pro 2.0

For the beginner

WebRazor provides great Web authoring features at a very affordable price. This software comes bundled with a set of tools, which include Cool 3D, Photo Explorer and SmartSaver. Cool 3D helps you create 3D objects and text for advertisement banners or GIF animations. You can also use the built-in textures and choose from a range of customisable hues and colours. The Photo Explorer utility lets you organise photographs for use in Web pages. A short keyword can be assigned to thumbnails to get quick access to them. The SmartSaver lets you optimise images created in Cool 3D or any other utility and convert them to a format that is optimised for viewing on Web pages. The image map function in the Smart Saver lets you create a clickable spot on the image or text, commonly found on Web pages, which take you to another page or link. WebRazor is great for amateur Web designers.

SPECIFICATIONS:
Good in-built 3D textures and images, ready for use with the text
Images can be optimised for faster download on Web pages

Price: Rs 1,250
Contact: Microware Computer Services
Phone: 022-8729725
E-mail: sales@mwcdrom.com
Web site: www.ulead.com

Ulead WebRazor Pro 2	B+
Performance	★ ★ ★ ¹/₂
Build Quality	★ ★ ★
Value for Money	★ ★ ★ ★
Features	★ ★ ★ ¹/₂
OVERALL	★ ★ ★ ¹/₂

Canon S600

The right image

The Canon S600 bubble jet printer has separate CMYK ink tanks, so you save on refill cartridges. The driver shows you the level of ink in each tank and alerts you when the level falls too low. Setting up this printer was very easy due to its parallel and USB interfaces. We used the USB port because of the hot plugability feature. Mostly silent, it does get a bit noisy while the paper feed mechanism is in operation. A 2400x1200 dpi resolution delivers near-photo quality images. The S600 took a little over 2 minutes to print text on 10 A4 size sheets, whereas the combi document of text and graphics elements took 13 minutes 48 seconds to complete printing the 10 copies. It also supports printing on glossy paper. Though slightly expensive, this printer is ideal for DTP and design professionals.

SPECIFICATIONS:
2400x1200 dpi colour resolution, max document size 8.5 inch x 14 inch (legal) **Benchmarks:** 1 minute 39 seconds for full colour A4 size print, 2 minutes 2 seconds to print text document (10 prints)

Price: Rs 17,995
Contact: Canon India.
Phone: 011-6806572
E-mail: brijesh@canon.co.in
Web site: www.canon-asia.com

Canon S600	B+
Performance	★ ★ ★ ½
Build Quality	★ ★ ★ ½
Value for Money	★ ★ ★
Features	★ ★ ★ ½
OVERALL	★ ★ ★

> ❝ Support for virtually every surround sound format and stunning picture quality puts the CyberLink PowerDVD bang in the middle of the action! ❞
>
> **Mitul Mehta**
> Reviewer

IBM NetVista X40

Compact and functional

The IBM NetVista packs great functionality in a small package. It has a 1 GHz Pentium III processor, 256 MB of SDRAM, and an integrated 15-inch TFT display. The CD-ROM and floppy drives are integrated into the body and remain out of sight when not required. The graphics capabilities are limited by the SiS 630 chipset that has integrated graphics and an onboard sound controller. The machine churned out a low score of 26 in Content Creation Winstone 2001, which can be attributed to the 5,400-rpm, 40-GB drive, the weak graphics sub-system and the low bandwidth of the SiS 630 chipset. At a price that's not compelling, you can definitely give this PC a miss.

SPECIFICATIONS:
Pentium III 1 GHz, 256 MB SDRAM, 40 GB IDE hard disk, integrated 15-inch TFT monitor, SiS 630 chipset with integrated video and sound
Benchmarks: Ziff-Davis Content Creation Winstone: 26

Price: Rs 1,25,000
Contact: IBM
Phone: 080-2079999
E-mail: mittala@in.ibm.com
Web site: www.ibm.com/in

IBM NetVista X40	B
Performance	★ ★ ★
Build Quality	★ ★ ★ ½
Value for Money	★ ★ ★
Features	★ ★ ★
OVERALL	★ ★ ★

CyberLink PowerDVD XP 4.0

Great sound for less

PowerDVD XP 4.0 provides support for Windows XP and features a host of features that will take your movie-watching experience to a new level. This software can simulate multi-channel sound from a simple stereo speaker system or even headphones. It includes support for Dolby Digital, TruSurroundXT, Dolby Headphone, Dolby Surround and DirectSound3D/A3D. It also supports Dolby Pro Logic II technology, which can simulate a surround sound environment from regular audio sources like Audio CDs. The software can merge the LFE (Low Frequency Effects) channel of the Dolby Digital soundtrack into the front speakers which lets you actually experience the low frequencies during gunfire or bombs exploding in movies. CPU utilisation was about 25-30 per cent on a 1.5 GHz P 4 and memory usage was around 13-15 per cent. You can download additional skins from the Internet and change the look.

This software is one of the best applications that you can use for DVD playback. Its power lies in the fact that you can experience multi-channel sound even though you do not have the expensive surround sound hardware.

SPECIFICATIONS:
Supports Windows XP, supports Dolby Digital, TruSurroundXT, Dolby Headphone, Dolby Surround and DirectSound3D/A3D

Price: $49.95 (shareware)
Web site: www.gocyberlink.com/english/

Cyberlink PowerDVD	B+
Performance	★ ★ ★ ★
Ease of Use	★ ★ ★ ½
Value for Money	★ ★ ★
Features	★ ★ ★ ★
OVERALL	★ ★ ★ ½

ACi Acclaim
Not so much raw power

This compact laptop sports a separate hot-pluggable USB floppy drive and a 20 GB hard disk for storage. In the performance tests, however, this machine did not impress much.

The most disappointing was the Battery Mark test where the laptop clocked about 30 minutes lesser than its counterparts. The Content Creation 2001 score was 29.2, which is average for notebooks of its category.

However the notebook displayed a good processing subsystem, and has a DVD-ROM drive, three USB ports, one FireWire port, one PCM-CIA slot and an integrated 56 K modem.

SPECIFICATIONS:
Pentium-III 1 GHz processor, 192 MB RAM (64 MB shared)

ACi Acclaim	B
Performance	► ► ►
Build Quality	► ► ► ¹/₂
Value for Money	► ► ►
Features	► ► ►
OVERALL	► ► ►

Price: Rs 99,990
Contact: Allied Computer Industries
Phone: 022-2814359
E-mail: sales@aci-india.com
Web page: www.aci-india.com

1/4 AD

Space Searcher 1.01
Tidying your hard disk

Want to know the exact amount of space that's been eaten up by different files and folders or what's the largest file on your computer? Space Searcher is the tool for you. This utility scans the hard drive and gives you information such as the amount of space occupied by each file, folder and document. It also displays information such as cluster size and percentage of space occupied by each folder on the disk, for example, space occupied by the Windows folder and the Program files folder. The interface is very easy to understand with big self-explanatory icons and the Help menu is short but very informative. The report generated at the end of analysis can be either exported in Excel or HTML format and can even be printed for further analysis.
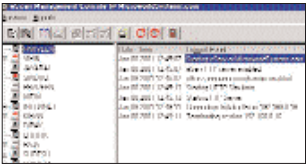
SPECIFICATIONS:
1.3 MB download size, report can be saved as XLS and HTML format

Price: $17.90 (shareware)
E-mail: sales@winFrigate.com
Web site: www.winfrigate.com

Space Searcher 1.01	B+
Performance	► ► ► ¹/₂
Ease of use	► ► ► ►
Value for money	► ► ►
Features	► ► ►
OVERALL	► ► ► ¹/₂

Express WebPictures
It's all about the image

If you need to download many images from the Internet, this little tool lets you automate the entire procedure without having to specifically download each and every image. Using this software, you can download all the pictures on a Web page and even specify parameters, such as the minimum size of these images, so that thumbnails and page elements are not downloaded along with the actual images. Having done this, you can download all the images on a Web page in a single shot. All you have to do is drag-and-drop the URL on the program's icon and start the task. You can also configure the program to explore the entire site and download pictures that you would need without having to manually search for all of them. The software even works through a proxy. There is also an image viewer that lets you view the downloaded image in the form of a slideshow, where you can scale larger images to fit the viewing window.

However, the software is rather high priced.

SPECIFICATIONS:
Can work through a proxy, includes an image viewer

Price: $39.95 for single user (shareware)
E-mail: support@express-soft.com
Web page: www.express-soft.com

Express WebPictures	B
Performance	► ► ►
Ease of use	► ► ►
Value for Money	► ► ►
Features	► ► ►
OVERALL	► ► ►

MP3 players

SECRET NOTES

A secret agent's life is tough. The secret assignments, the gadgets, the deals…So I decide to put some jazz into my assignments. Music! That's what I need. An MP3 player is the perfect thing to keep me company as I travel from city to city and shop to shop to hunt for the best deals available.

I ask my colleague, Agent Audio, from the Digit Test Centre for help. He brings along special headphones (reference headphones that he uses for various audio experiments) and his audio test CD with some ear-shattering MP3s.

Lamington road, Mumbai, is our first stop. But none of the shops have portable MP3 players, although most of them have a desktop version of a VCD player—a small device, about the size of an ordinary VCP, that can play VCDs, MP3s and audio CDs. It costs less than Rs 3,000, but the build quality is suspicious and the brand names look like rip-offs of well-known companies. The vendor isn't certain whether it'll play CD-RWs. Yet these players deliver. They play MP3s, support variable bit rate (VBR) and have a spectrum analyser (dot matrix) to boot. Not bad, considering the dealer is willing to give a three-month standing replacement warranty. It's too bulky to carry along, but I could convert it and give my old Hi-Fi system a new lease of life. But that's not for now. I'll move on to another location. I am told that I'll find MP3 players only in Customs-notified shops.

Heera Panna, Mumbai, looks like a

ILLUSTRATION: Mahesh Benkar

good place to get imported goods. Agent Audio and I enter a shop. The shopkeeper shows us an unbranded CompactFlash memory-based 32 MB MP3 player, which costs Rs 7,500. Agent Audio asks for a demo. He fiddles with the equaliser settings and finds that the player has less than optimal output. With only 32 MB storage space, it allows for only six songs of five minutes each. Another dealer shows us the impressive Creative Nomad Jukebox pegged at Rs 23,500. It has 6 GB of hard drive space (which can store around 150 music albums or 1,500 songs), EAX surround sound output, a nice playlist manager and a cool display. But the price…. Maybe we can get the Big Boss to buy this as standard equipment for undercover assignments. If only wishes were horses.

He then shows us the Philips Expanium, which costs Rs 9,000. Agent Audio's eyes shine with pleasure when he sees this beauty—a good build quality and almost zero problems when it came to skipping.

We ask for cheaper alternatives. We are shown MP3 players priced between Rs 6,500 and Rs 10,000. One brand, Kingwood, looks interesting, but Agent Audio shakes his head. Though it's portable and plays VCDs, MP3s and audio CDs and it costs just Rs 6,500, it has no buffer to protect against skipping—it skips and then takes a long time to play again if jostled even slightly.

The dealer also tells us about unbranded 'Chinese' MP3 CD players, but says: "Most of them don't come with any warranty or skip protection buffer. Several users have complained of irregular playback and random skipping in tracks."

We move to Vile Parle, Mumbai, where a vendor shows us an MP3 player. It's a small (and cute) solid-state MP3 player with 32 MB of memory from D-Link. He adds that the demand for these players is low, even though they have a wealth of features. "It is 100 per cent skip free and costs only Rs 9,500." Agent Audio nods in agreement.

SHOPPING TIP

■ To test audio quality of the MP3 player, carry along an MP3 test CD with your favourite tracks and a set of audio CDs to the shop.
■ Prefer models with at least a 64 MB memory device to store and play more songs. Check if there is a possibility of adding extra flash memory modules.
■ Look for the ability to play VBR (Variable Bit Rate) MP3 files, files with a bitrate 128-320 Kbps .
■ Look for support for additional formats such as WMA, Liquid Audio or Windows Media 8. WMA files are smaller, enabling you to store more content on the player.
■ CompactFlash-based MP3 players are better as they have the ability to upgrade their firmware.

The mission's come to an end. Now I must select from among the variety of choices available. On the one hand are the foreign brands—great beauties—and on the other are the cheaper but less feature-rich models. But then Customs-notified shops generally do not give you any kind of warranty or support. The only MP3 CD player that is available through the official channel with warranty and support is the Philips series of MP3 CD players. Ah, well, what's life without a little risk?

RAM chips

Want to upgrade? Now's the right time to go in for SDRAM. Over November and December, RAM prices fluctuated from a record low of Rs 1,100 for 256 MB SDRAM to Rs 2,350 per stick. You now pay Rs 1,650 for a single stick of PC 133 256 MB SDRAM. So go ahead, upgrade.

It's black and mean-looking. But it is the technology inside that makes the Xbox an irresistible gaming console

Gaming enthusiasts have a lot to look forward to. The recently launched Microsoft Xbox proves that the PC components have entered the computer gaming world for the better.

Xbox is built around a collection of PC parts and runs DirectX8 on a stripped down Windows 2000 core, which means that game developers can get games for Xbox up and running quickly. What might bring even more gamers to Xbox initially is that it has enough features of both, a gaming console and a PC, to attract both the market segments.

The Xbox is feature-packed and state-of-the-art. The black box with the signature green Xbox 'jewel' positioned in its centre gives it an imposing profile. With an 8 GB hard drive (a first in any game console), it is now possible to 'save to disk' game-related information, as well as enable virtual memory that will speed up the performance. You don't have to install games—they play off the disk. The controller's buttons and triggers are pressure-sensitive, and when you consider the two analog sticks plus a digital direction pad provided, you have plenty of control options. The hardware can push some serious numbers: 300 million pixels per second, 150 million transform and lighting polygons per second, and 100+ million shaded and textured polygons. Proprietary algorithms allow for a whopping 8:1 texture compression rate and four simultaneous textures per polygon. Not impressed? Well, how about Full Screen Anti-Aliasing (FSAA), DVD playback, HDTV support and a maximum resolution of 1920x1080? All this should translate into visual realism way beyond anything that has ever been seen in a gaming console before.

A sampler, if you want, can be seen in *Dead or Alive III* in which large, detailed characters make their way fighting through multi-tiered arenas. Visual effects such as the tracks left by the characters on the snow or the moving leaves in the forest with their rustling sound leave you spellbound. Another game, *Halo*, is reminiscent of first person shoot-outs such as *Quake*, and includes gameplay styles such

A versatile controller for enhanced flexibility

PRIZE CONSOLE

A derivative of the 733 MHz Pentium III on the nVidia chipset
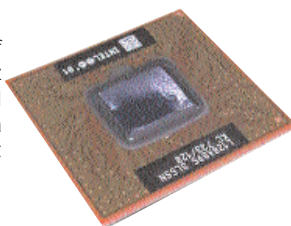
A 233 MHz GeForce3-class graphics processor

The 8 GB internal hard disk drive is a first for gaming consoles

IMAGING: Solomon Lewis

The Bigger Game

The launch of the Xbox is a continuation of Microsoft's acceleration into greener pastures. The booming popularity of video game consoles will help Microsoft get a firmer foothold in the entertainment arena, which it has previously entered via its Interactive TV, gaming software and online gaming services. The video game consoles will help Microsoft reach out to the masses right where they play—in their homes. No wonder Microsoft is spending half a billion dollars on a product that will not be even remotely profitable before 2004.

Powerplay—The X vs the Ex: A Hardware and Feature Comparison

	Microsoft Xbox	Sony PlayStation 2	Nintendo GameCube
Processor	Pentium III 733 MHz	294.912 MHz	405 MHz PowerPC
Graphics processor	250 MHz custom GeForce 3 chip	147.156 MHz	202.5 MHz custom chip 'Flipper'
Memory	64 MB	32 MB	43 MB
Storage	2.5x DVD, 8GB HDD, 8 MB memory card	4x DVD, 8 MB memory card	Proprietary 1.5 GB disk, 0.5 MB Digicard
I/O ports	Controller x4, Ethernet (10/100)	Controller x2, USB, 1394, PCMCIA	Controller x4, serial port x2, parallel port
3D audio support in hardware	64 3D channels	No	No
Net connectivity	Future service	Future upgrade	Optional
DVD movie playback	Accessory required	Yes	No
HDTV movie support	Plays HDTV games and movies	Plays HDTV movies	No
Price	$299	$299	$199
Game availability	Several AAA PC titles	A strong line up of games	Popular titles with the under-12 audience

as a hybrid of first person shooters and third person shooters on the PC. According to Microsoft, the new games with Xbox will see massive realms, new realities, dynamic worlds and detailed characters.

More than a console at heart

The Xbox is not just a gaming console, but also a home entertainment system that can play movies and music. You can copy audio CDs to the hard drive and use the console to play your music in resounding 5.1 Dolby surround sound.

In addition to working on standard televisions, the Xbox will work with newer HDTV models as well, both in the normal and widescreen views. The full capabilities of the Xbox will truly be exploited only at 16:9 viewing resolutions on HDTV screens. Couple that with Dolby 5.1 surround and 256 sound channels and you have the richest gaming experiences possible. Adding the optional DVD movie playback kit will let you play DVDs like the Sony PlayStation 2. (*See table, 'The X vs the Ex'*).

The Xbox' Ethernet connection, which is designed for cable and DSL modem hookups, will allow console gamers to experience the thrill of multiplayer gaming which has so far remained the preserve of PC gamers. You will also have the ability to download new characters and missions for the games you own. Its Ethernet adapter sets it up as the backbone for any future multiplayer services that might arise. Although there are no online gaming services yet, people are already jumping in and setting up vicious *Halo* deathmatches using GameSpy Tunnel, a service that allows you to play Xbox games over the Internet with the help of a PC.

Deathmatch

Console gaming, a Japanese domain right from its inception, is now being challenged on its own turf by the Xbox. The PlayStation2 from Sony already has a year's lead in the US and an 18-month lead in Japan. Although earlier it had a none-too-great opening line-up of games, currently it has some trailblazing titles— *Metal Gear Solid II*, *Gran Tourismo III* and *Devil May Cry*. *Final Fantasy* from Square has often turned out to be the reason for many gamers to buy the Sony PlayStation.

Microsoft has a tough road ahead. Its opponents in the gaming field, Sony and Nintendo, have been in this industry for over a decade now and have strong alliances with developers and partners, while Microsoft has no prior experience in this arena. It now has to prove itself on various unfamiliar fronts.

Microsoft has the money, time and skills to make things happen. With the Xbox, it has marked itself an entrant to the console industry, and by the time the Xbox 2 is released, it would have a significantly higher leverage in the console market.

Keeping the promise

About $55 to $60 million next-generation consoles are expected to sell over the next half-decade.

However, the Indian subcontinent is not on the roadmap of any of these console manufacturers. Xbox will hit Korea and South Africa by November 2002. The Xbox will not be released in China because of the severe piracy situation there, which makes it a bad proposition.

If the same analogy applies to India, then perhaps we may see the Xbox only in the grey market.

SRIRAM SHARMA

The PC Connection

Console gamers have traditionally been a breed apart from PC gamers. However, the Xbox bridges the gap between the two. In addition to Windows 2000 and DirectX API, Microsoft has used components from some of the leading manufacturers. The Intel motherboard uses an Intel Pentium III processor, 64 MB of RAM and an nVidia graphics card. Several additional signs of the PC's architecture can be seen such as the Dolby Digital compatible soundcard, a conventional PC hard drive, the DVD-ROM drive and an Ethernet card that will allow you to connect several computers together on a network.

Traditional PC favourites such as *Giants: Citizen Kabuto*, *Max Payne*, *Black and White*, and *NBA Live 2002* will soon be available on the Xbox. In addition to this will be all new titles such as *Unreal Championship*, which will be the next generation of the popular *Unreal Tournament* series. Other Xbox titles will include *WWF Raw is War* and *Star Wars: Obi-Wan Back*.

ILLUSTRATION: Mahesh Benkar

All you need to know about catching viruses and keeping your PC bug free

Virusproof forever

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ignorance \Ig"no*rance\, n. [F., fr. L. ignorantia.] 1. The condition of being ignorant; the want of knowledge in general, or in relation to a particular subject; the state of being uneducated or uninformed.
(Source: Webster's Revised Unabridged Dictionary, © 1996, 1998 MICRA, Inc.)

Why on earth would an anti-virus tool become the world's second most widely used class of software after an operating system? Why is it that more than 10 per cent of the data losses worldwide occur because of only a hundred lines of code? Why are networks that were supposed to help us communicate with each other now turning into 'virus streams' and infection mediums? Why is it that the word 'Nimda' is a more familiar word than 'Linux' in a not-so-actively-computing-lifeform's dictionary? Why has the media started giving so much attention to all the virus attacks nowadays?

This is just a short list of whys that we want answered, but since we not-so-powerful beings are not capable of mass communication and mind control, we opted for introspection. All we found during that introspection was the word this article starts off with—ignorance!

Yes! Believe us, that's the answer to all those whys. That is the cause of losses amounting to millions of dollars due to data/network usage loss, or even those wasted CPU cycles on your PC that you think don't count for any money. No virus, no Trojan, no worm, no matter how powerful, can get to you if you know how they work and squish them right at the entry point. Or even better, never let the entry point be insecure.

Now it's time to see how these intelligently designed but extremely malicious pieces of code work.

The virus

In a lay person's language, a computer virus would be best described as a small program that is specifically written to subvert the normal operations of a computer, thereby making it malfunction. Worms use exploits or loopholes in operating systems or other programs (e-mail clients and Internet browsers, for instance) to propagate or harm systems. Worms are quite similar to viruses when it comes to spreading, except that they're a lot more intelligent and sophisticated. Depending on how a worm is

programmed, it can or cannot damage data, but can always be used to sniff out data such as a credit card number or a password. Trojans come disguised as useful utilities or applications but turn out to be harmful.

The sole aim of a virus or a worm is to cause destruction depending on the 'payload' (the effects of the actions taken by a virus). They are intentionally programmed to infect files, corrupt the installed programs on one's system and some even go to the extent of destroying a hard drive's File Allocation Table. Infected systems are also prone to frequent crashes and slow down significantly. This happens when a virus randomly occupies a memory location that is currently in use by an existing program.

Largely, there are five kinds of viruses: Boot sector, File Infecting, Polymorphic, Stealth and Multi-partite.

Boot sector viruses infect the boot sector (an area that forms the first track of the disk and contains information that is required to boot the computer) of your logical disk (hard disk) or floppy disk, whereas File viruses infect executable files (such as .com, .exe, .ole, etc). One example of a boot sector virus is the Yankee virus, which triggers off at 5 pm, or when [Ctrl] + [Alt] + [Del] is pressed, and plays the tune 'Yankee Doodle Dandy'.

Stealth viruses attempt to hide not only from the operating system but also from the anti-virus software, which makes them extremely difficult to identify. Polymorphic viruses not only hide from the anti-virus software but also keep changing their appearance. In order to detect them, the anti-virus scanner should be able to conduct algorithmic scanning, besides just string-based scanning. Multi-partite viruses are the worst as they can infect the boot sector as well

as executable files. They also possess characteristics of Polymorphic viruses, which makes them extremely lethal. One very popular virus of this kind is Natas. It is a multi-partite polymorphic virus that adds 4,744 bytes to every file it infects.

Just like viruses, worms can be lethal too. A worm is a piece of code that tries to infiltrate another program and then attempts to either destroy the data of the program or keep infecting more files

and programs on the sly. Because of their small size and, nowadays, dependency on JavaScript/Active-X exploits, they can also be embedded in Web pages so that they launch themselves whenever you visit such sites. One example of a worm like this is the popular Nimda ('admin' spelled backwards) worm which spread like wildfire a few months ago and created havoc by crippling a lot of systems worldwide. Nimda took advantage of the loopholes in the Microsoft server, browser and e-mail software to infiltrate PCs.

This new-generation virus can spread in four different ways—via server, via e-mail, through Web pages and by shared folders on the local network.

Trojans

If in the middle of a strenuous task you find that your CD-ROM drive opens and closes by itself at regular intervals, you can bet that you are infected by the Back Orifice Trojan. This is just one of the popular Trojans, and usually most of them go beyond such pranks in order to act as

key-loggers to trap passwords or transfer files from your hard disk.

The name Trojan harks back to the famous Trojan War, in which the Greeks successfully invaded Troy by hiding some of their soldiers in a huge wooden horse. In computer lingo, a Trojan is a malicious security-violating program, which claims to do something useful but in reality is intentionally programmed to cause destruction to a computer without the user's knowledge. Trojans are executable programs, which automatically run themselves when opened and perform a function that they are programmed to do. These executable files usually have file extensions such as .exe, .vbs, .com, .scr, .bat or .js.

Trojans can spread in the guise of just about anything. They could reach you in the form of a screensaver, a picture file, a Flash greeting card or even games. IRC (Internet Relay Chat) channels and P2P programs such as Gnutella are a major source for spreading Trojans. A person can also specifically target you by sending a Trojan or a Web link with a Trojan activator embedded in the page script through e-mail.

So are Trojans more harmful than viruses? Well, Trojans do cause more damage as they can steal your password and mail it to the sender. And more

importantly, they allow hackers to gain complete control over your computer and perform actions such as DoS (Denial of Service) attacks. Hackers break into computers by using a Trojan horse and take advantage of human carelessness to steal your passwords and other confidential information.

Similar to Trojans is something called a Logic Bomb. These are programs that lie dormant until a certain event triggers them to perform a pre-programmed action. They are often used as a tool of revenge. For example, a student who has fared miserably in his examinations could program a Logic Bomb, which when triggered, could wipe out all the data stored by his college server.

Some popular Trojans are BackOrifice, Netbus, Sub7, The Thing, Spyman and Girl-friend. Most of these are used as stealth spy tools. There are milder versions for playing pranks too.

Declaring war

When your PC is under a virus or Trojan attack, your anti-virus software plays hero. These tools are mostly 'search and destroy' tools that scan your hard drive for viruses and disinfect or remove the infected files. Over time, anti-virus tools have evolved to prevent virus infection by continuously running in the background and keeping a lookout for virus signatures in any files being read from almost any medium, be it the network, the Internet, or a floppy. On detecting a malicious code, they immediately alert the user.

As viruses get advanced, they rely more and more on system repositories such as registry entries and configuration files while using the network connections to spread. This in turn calls for the anti-virus software to expand and be able to detect and clean these infections as well. Most anti-virus software today are capable of doing this since this is very essential in case of new Trojans and worms, and the more advanced script-based viruses.

An anti-virus program works a lot like a text editor, except that instead of ASCII/ANSI text, it edits hex code (which is a way to display data using characters instead of binary code). The anti-virus

80 per cent of all viruses spread through unsolicited mail attachments.

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What to Look for in Anti-virus Software

■ Weekly updates to free virus definitions made available on the Internet
■ Integration with your e-mail client so that each e-mail gets scanned for viruses, Trojans and harmful scripts
■ Automatic scanning of every file you execute to minimise chances of infection
■ Scheduling of scans so you needn't worry about your weekly checkup
■ The ability to create a Rescue disk which will come in handy if you aren't able to get Windows to boot
■ Integration with Windows Explorer will allow you to quickly scan a suspicious file

Removing a Trojan

Trojan attacks allow hackers to control another computer, read the person's hard drive and acquire personal information such as passwords and bank account details or worse, erase data from the hard disk. Be wary of receiving these malicious programs on IRC channels or via e-mail in the form of a screensaver, game or a hack. Though today's anti-virus software have become sophisticated and efficient enough to handle Trojans, none of them can guarantee you complete protection.

The following signs indicate that your machine is infected with a Trojan:
■ An unknown program running in the background
■ An error message pops up either on start up or while running programs
■ Random application crashes
■ Extremely slow Internet connection speed in spite of your settings being appropriate
■ Extremely slow start up

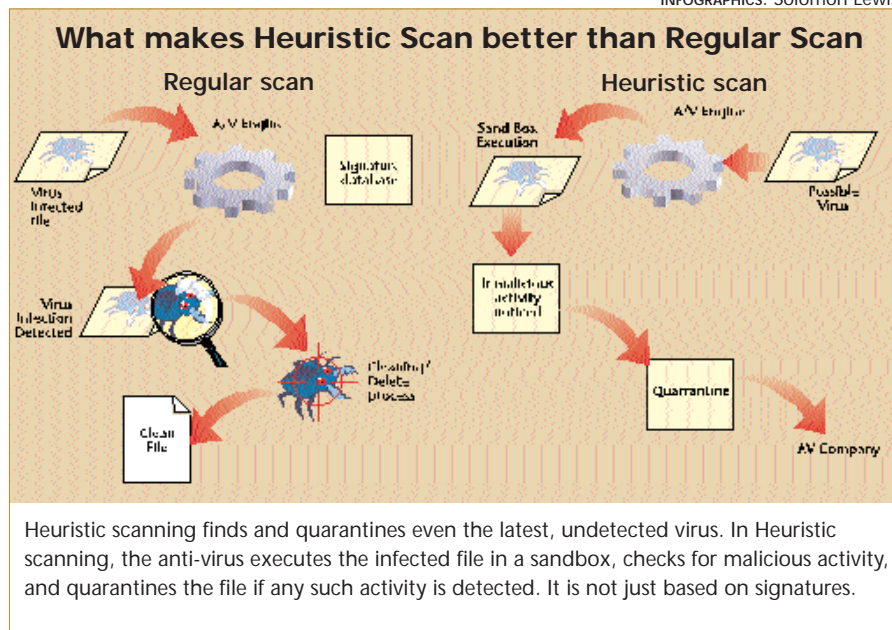A Trojan is a program and it needs to start up when your machine boots. Once you are sure you have a Trojan on your machine, you should look for any unusual programs in your startup settings. In Windows 98, you can use the system configuration tool (msconfig) to check for these, and the services manager in Win NT/2K. Once you have identified the stray program, remove it from the startup and reboot your machine. Now delete the program that was starting up and you've removed the Trojan.

Although it seems like an easy task, figuring out which program is a Trojan amongst a dozen or so entries can be a real pain. Instead, it would be better to use a software such as 'Cleaner' or other Trojan removal tools which scan systems for Trojans, stop them from activating, and then remove them from the infected system.

For more information about Trojans, visit:
www.moosoft.com, The Cleaner;
www.sniff-em.com, Purgeit!

What makes Heuristic Scan better than Regular Scan

Regular scan

Heuristic scan

Heuristic scanning finds and quarantines even the latest, undetected virus. In Heuristic scanning, the anti-virus executes the infected file in a sandbox, checks for malicious activity, and quarantines the file if any such activity is detected. It is not just based on signatures.

database, commonly known as 'virus definitions', is nothing but a collection of 'hex data' that the anti-virus engine uses to perform searches on a file, and if found, it tries to repair the file without destroying the original data.

As viruses have numerous variants and many new viruses are developed everyday, it becomes very hard to keep track of each and every virus signature. That's why anti-virus tools started using a new method, in conjunction with the existing method of using anti-virus definitions. This method is called heuristic scanning. An anti-virus takes a piece of code and runs it in a virtual environment called a sandbox and observes its behaviour. If it finds any malicious activity, it declares the piece of code a virus and prompts the user for the necessary action to be taken. Generally, if the user allows, the sample code is quarantined and sent to the anti-virus company for classification and categorisation. However, just installing an anti-virus is not enough.

Here are a few steps that are essential even with anti-virus software installed.
■ Create an emergency disk which will contain the DOS version of the anti-virus software along with the ability to clean viruses. The emergency disk should be a bootable CD or a bootable floppy. Write-protect the floppy and keep it in a safe store.
■ Set your anti-virus software to automatically download the updates. If automatic updates are not available, check for updates at least once a week.

■ Set up the anti-virus software to automatically scan downloads and e-mail.
■ Set up the anti-virus software to automatically scan any removable media, especially if you copy files from the removable media.
■ Do not disable the anti-virus software that is residing in the taskbar and monitoring all files.
■ Schedule a virus scan once every week.
■ In the settings for the anti-virus software, enable the highest protection possible. Keep it to scan all files by default (as opposed to only program files).
■ Set the setting to automatically clean the file if a virus is found and, if cleaning is not possible, to isolate the file or

delete it. This will allow you to schedule automated scanning without your intervention in case a virus is found.
■ Do not disable logging for any virus scans. Make it a point to view the logs after every scheduled scan or a full-system scan.

Under siege

How exactly does a virus spread? Whenever a computer starts or boots up, it first accesses the boot sector and then starts loading the operating system. Boot sector viruses infect the boot sector by attaching themselves to this area. As soon as the computer starts the virus lodges itself in the memory and from there on slowly extends its presence by entering other areas of the computer. Once it enters the system, it tries to enter other computers, for which it needs a medium whereby it can carry itself to other PCs. The normal medium of transfer can be e-mail, Web sites, instant messengers and P2P networks, storage media (floppies, zip cartridges, CDs, hard disks, etc) and also through LAN connections.

E-mail

If sentences like 'I love you' and 'Hi, I need your advice' have become commonplace among techies, you know what to blame—e-mail. The most common Internet function is also the most dangerous one as evident from the way worms such as 'Iloveyou' or Sircam spread throughout the world. As per a *PC Magazine* study, almost 80 per cent of all viruses spread through e-mail, that is e-mail attachments, and especially

E-mail Safety Rules

■ Don't open an attachment from a stranger.
■ Think before you click on an attachment. Just because the attachment doesn't have a .exe extension or is not a Word file doesn't mean it cannot be a virus. Compressed files and executable files can have viruses within them renamed with .gif or .jpg extensions. These viruses get executed the moment you open the file. As a principle, scan all attachments irrespective of file type before opening.
■ Look out for suspicious subject lines— 'I Love You' and 'Hi, I need your advice' are already famous. The next one might be 'Mama wants you back!'

■ Use e-mail filters to block senders or remove e-mail from the server directly.
■ Use an anti-virus software to directly scan e-mail before downloading.
■ Apply security updates to your e-mail client and browser on a regular basis. You can keep track of bugs in the software and the available updates at *www.securityfocus.com*.
■ Disable options for ActiveX scripts.
■ Work without a preview pane.
■ Keep your address book to a minimum. That way, even if you get infected, you spread the virus to a few people.
■ Look out for messages that start with 'An ActiveX script prevents the message from being disabled properly.'

Anti-virus for E-mail

Most anti-virus software use a mail proxy to scan your incoming and outgoing mail. The software re-routes your mail through its own internal engine before it reaches the e-mail client, which gives it a chance to clean up, or stop the mail there if it's infected. You can use just about any POP3 client to access mail through one of these anti-virus proxies.

Most of these tools leave the entire configuration to the mail client side without needing any configuration on the software, since they act as a proxy that can be turned on or off. Let's see how this works. You have an account from ISP1, the POP3 mail server name is pop.isp1.net.in, your login name is 'user1', and password is 'anypassword'. This is your configuration for your ISP when you connect directly.

When you use a proxy, the settings mentioned above change to this format:

1. POP3 Server name changes to 'localhost' or '127.0.0.1' which is a loop back IP to your own machine. As the proxy runs on your own machine, it attaches itself to the local loop back IP.

2. Your username changes to 'user1#pop.isp1.net.in', where '#' is a separator character that separates the username from the server name. This is different in case of every anti-virus software (Norton AntiVirus uses '/' as a separator). This is how your anti-virus proxy gets the path from where it retrieves mail.

3. Password remains unchanged; it's the same as the password you use on the server. Every time you change your password on the server, remember to enter the new password in your mail client.

That's it! You're done! If your anti-virus supports an outgoing mail proxy as well, you will set your outgoing SMTP server to 'localhost' or '127.0.0.1'.

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through unsolicited mail which are accompanied by attachments.

The Melissa worm which struck in 1999 dispelled any notions of e-mail being a secure environment. Melissa exploited Microsoft's scripting language (Visual Basic for Applications) to send a copy of the e-mail to very person in the recipient's address book. Later worms such as Iloveyou and Sircam followed in the same fashion. E-mail viruses are thus able to propagate themselves at a pace that anti-virus software developers just can't match up with.

The vulnerability of certain e-mail clients just adds to the misery. For instance, one of the worms spread by exploiting the preview pane option in Outlook Express, while another used the Signatures tab. In both instances, if you disabled the preview pane or signature attachments, the worm did not spread. ActiveX scripts and exploits based on these became another source of worry soon afterwards.
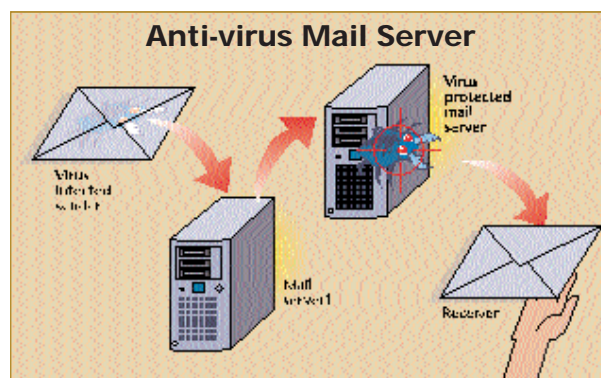
While a simple precaution against viruses can be that you make sure to scan all attachments before opening them, the spread of Nimda virus has raised new issues as it uses exploits in such a fashion that it does away with the concept of opening attachments—just reading the e-mail is enough for the virus to start on its destructive path.

Some anti-virus software such as AVG, Norton AntiVirus, QuickHeal, etc, allow for automatically scanning an e-mail before you read it, and thus ensure one level of protection. Web-based e-mail services such as Hotmail also scan all attachments, thereby adding to the level of protection for people who do not use local e-mail clients.

Internet
As the Nimda virus proved, just visiting a Web site may often be enough for the virus to spread. Even otherwise, Web sites with ActiveX scripting and Java applets can prove to be dangerous. Anti-virus software such as McAfee have a list of malicious sites that it keeps track off and you can also add sites to this list.

Chatting using your Instant Messenger clients may seem a totally innocuous function, but one virus was known to spread through MSN Messenger. Again, most of us send and receive files using instant messenger and are quite careless about it. We don't realise that these files have to be treated with the same degree of apprehension as an e-mail attachment—that is, you need to scan these files before opening them.

Likewise, scripts and bots on many of the IRC sites act as Trojans to infect your system. Even the newer P2P programs such as Morpheus, eDonkey 2000 or Gnutella are becoming one of the major sources of viruses. It's quite possible in P2P programs to have an executable renamed with an MP3 extension. It's not tough to lure you into downloading the file, is it?

Storage media
The usual modes of transfer are through infected files that are transferred and opened on other PCs and infected floppies. Thus, from one computer it extends its residency to many others, without the user's knowledge. At one

Anti-virus Mail Server

If your ISP's mail server has anti-virus support, all incoming mail will be automatically scanned for malicious code. If any viruses are found, the mail would be deleted/quarantined and a notice would be sent to you

Internet Safety Rules

■ Disable ActiveX and Java Virtual Machine unless you really need it
■ Do not keep the settings in your Instant Messenger or IRC client for auto-download. It should prompt you before downloading. If you don't normally transfer files, you can disable this option
■ Any setting that allows a stranger to contact you over chat and send files to you should be disabled
■ Integrate your download managers with an anti-virus utility so that the moment the download is complete, the files get automatically scanned

time, floppies were the most common methods by which viruses used to get transferred as it was one of the most convenient and popular methods of backing up data and exchanging files amongst most PC users. While floppies have dipped in the popularity charts, they still are a source of worry. Especially when you are in cyber cafes and are transferring files that you have downloaded, you end up using a floppy which becomes a potential infector. Other storage media, whether CDs or CD-Rs or zip cartridges (and even hard disks when used for hard disk to hard disk transfer) become potential sources for a virus to enter your system. Just because you cannot write to a CD doesn't mean the CD cannot contain a virus (you will not be able to clean the virus from the CD, that's all).

Network Scanning

All network administrators know the FunLove virus. It took just one computer to get affected with it, and everyone in the network with some folders shared found themselves infected with the viruses or their anti-virus software popping up screens warning them about the virus.

Storage Media Safety

■ Always scan floppies before you access their contents.
■ Do not keep a floppy in the floppy drive with the drive closed before booting up. If the floppy has a boot sector virus, it will automatically spread. Better still, change the BIOS setup to boot from hard disk first.
■ If you are using your floppy on some other machine to transfer data, write-protect the floppy. This will prevent your floppy from getting infected if the other system has a virus.
■ Likewise, you can also write-protect hard disks if you have taken it to your friend's place to transfer data. You can write-protect from the BIOS (which is much safer) as well as through the operating system.
■ Enable boot sector protection through the BIOS after you have finished partitioning your hard disk. This will prevent certain viruses from writing to the master boot record.

Danger Zone: Software More Prone to Attacks

Some software tools we use act as a way for viruses or malicious worms to spread. They allow viruses to enter the system and execute without the user's permission by using an exploit. Some of these tools are:
■ Microsoft Outlook (all versions prior to 2002 or 6.0)
■ Microsoft Excel and Word
■ Microsoft IIS 4, 5
■ Sun Java Runtime Environments (old 1.0x series versions)

Mostly, any software that uses data from outside sources and has a scripting/execution part can be vulnerable to such attacks. A worm that used the Word macro feature was Melissa. Once it infected your machine, it sent an e-mail to the first 50 addresses in your Outlook address book. This message had the subject line 'Important Message From <username>' and an attachment of the infected document from which the virus was launched.

Software which are more secure, or those which use a much lower degree of scripting unlinked to the core system (preferably none at all), are far less susceptible. So replacing these common utilities with more secure alternatives can prevent a possible virus attack. For e-mail, using Eudora, Netscape or other similar mailing tools that use a very limited amount of system level scripting will be a good replacement for Outlook. Disabling macro support or shifting to StarOffice can prevent Word Macro viruses from spreading.

It's a trend viruses have always followed; they move with the data. As networks become the predominant method of data transfer and floppies/other external storage mediums lose ground, many advanced viruses adopt networks as their transport medium.

In order to do so, they make use of network file shares and exploits in network services. As most networks have migrated to TCP/IP in order to connect to the Internet, it has become far easier for virus writers to write a simple code that allows the virus to hop from place to place making full use of the TCP/IP services. Most popular viruses and worms nowadays use a combination of Internet Information Server (IIS) exploits, VBScript exploits, e-mail and simple Windows file sharing to spread from one machine to another.

Keeping your software updated and having the latest exploit code patches is the only way to prevent these viruses as they operate at the service level, where an anti-virus can't detect them until the infection has actually happened. In case of e-mail, an anti-virus mail server or a proxy would first download the mail, scan it for regular viruses as well as malicious code in the mail body, and delete/quarantine it if any virus is found, and after that send a confirmation report to the recipient.

Most enterprise anti-virus packages also include a central console that monitors virus infections all around the network and generates alerts at a single place, from where updates can be pushed down to the individual PCs. This is also helpful in tracking down and preventing viruses that spread using the network, and prevent a full scale epidemic from happening.

As we said in the beginning, ignorance is what makes you vulnerable to viruses. Now that you have knowledge on your side, you can take the necessary precautions and go about your work with confidence.

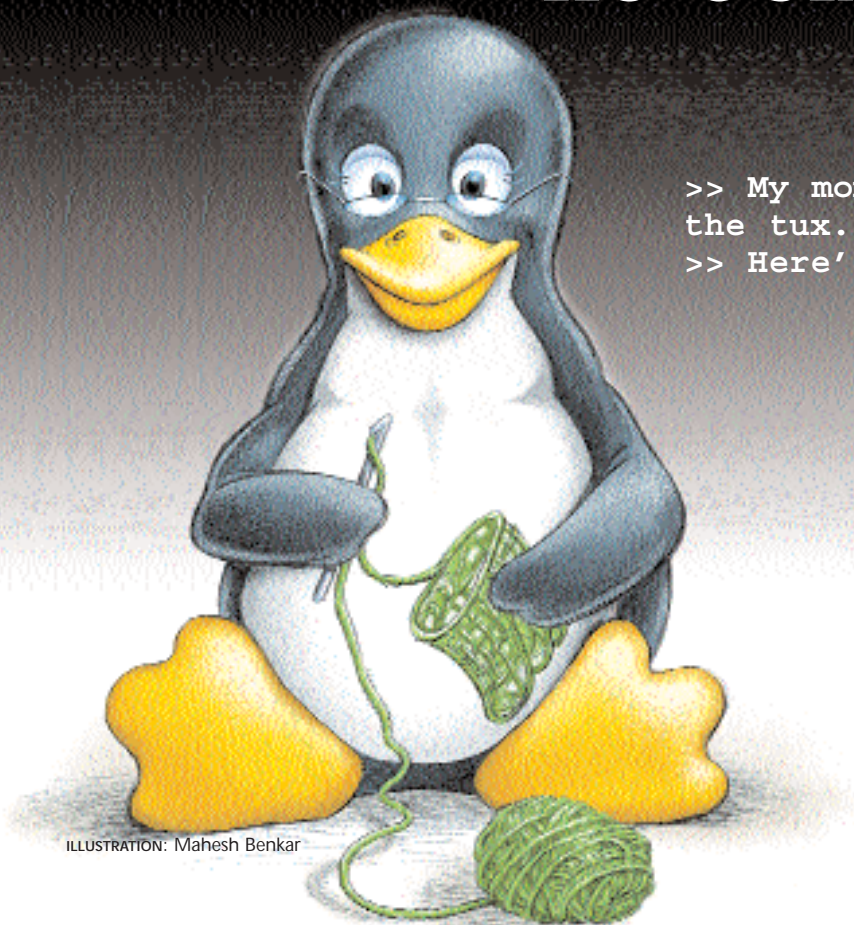MITUL MEHTA AND VARUN SINGH
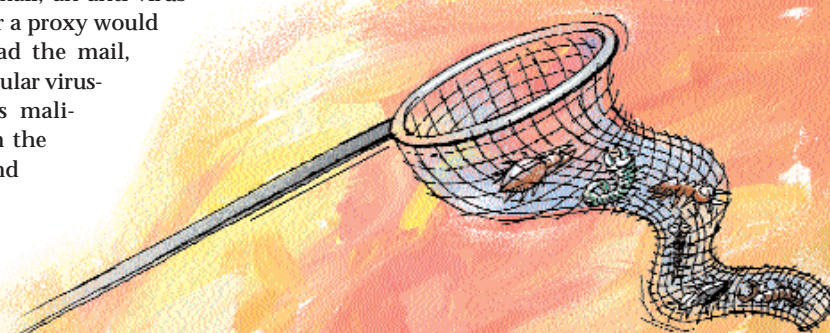
>Look Mom,
no command lines!

>> My mom is finally smitten by the tux.
>> Here's how it happened…

ILLUSTRATION: Mahesh Benkar

My mom never liked uncertainty. Just like I hated crashing operating systems, she hated uncertainty. I knew I had to make her life smoother and get her hooked to the non-crashing, reliable Tux who comes with no frills, is extremely cheap, and stays fit thanks to its developer friends the world over. Later, she told me that what she loved best was the freedom to not 'restart the relationship' anymore!

How it all began
The first thing I had to do was shift my mom's focus from the utilitarian, grey Windows world to the spunkier, friendlier realm of the Penguinista. Appearances make all the difference. To get her to work

with Linux, I had to create the perfect environment. Knowing the Tux' strong preferences and pickiness about the hardware that it ran on, I first ensured that my install would not be rudely surprised. A quick check of mom's machine was reassuring. Everything she had—from the ubiquitous i815 motherboard to the standard issue Samsung monitor—were all well supported. I had a choice between KDE and Gnome. I chose KDE since it's the easier interface to use and would appeal more to my mother's aesthetic eye. When installing Linux, I installed both KDE and Gnome. This would later help my mom use applications of both shells and also give her the flexibility to shift between GUIs.

My mother is fussy, she needs a

separate user account (which can be set up while installing), and I appeased this need of hers by going to *Start Application > System User Manager* in KDE (you can do it from the shell also) and creating a home directory where she could store all her files. I also knew that she would get uneasy if things weren't close at hand and organised; it made sense to put shortcuts to all the applications she used on the desktop.

Connecting to the world
While deciding the right browser for Tux, I had a choice between Netscape Navigator, Mozilla and Konqueror. I could have thrown in Opera as well except that it meant another 5 MB download—an hour's waiting time—so I skipped that one. Amongst these, I found Netscape

Navigator the most suitable for my mom for the simple reason that it is the easiest to use. Moreover, her little experience in using Netscape on Windows would come in handy here.

Setting up Netscape Navigator is a breeze. Just go to *Edit > Preferences* in Netscape Navigator. Later, I accessed Netscape Communicator from the Navigator menu (*Communicator > Messenger*) to configure it as her e-mail client. It is pretty simple to use and set up, and I entered the e-mail address, POP3 and SMTP settings for her account. I also configured Netscape to dial on demand (by writing a script using the diald daemon—a script that I would be happy to share with your mom if she sends me her e-mail ID) the Internet connection whenever my mom tried to browse a site or send/receive a message. I also customised some applets using the KDE Panel to notify my mom with a sound whenever a new message came for her. After some time, I had to make do with the visual notification as she got quite irritated with the beep every 3 minutes. Even otherwise, I set up a dial-up icon on her desktop using KPPP, the GUI dialler in KDE (made it easy for my mom—all she has to do is click on the icon and the modem dials out on its own, and using scripts, sends out the login and password and connects. No need to remember and type in passwords.

Cluttering the desktop
It's easy to create shortcuts in KDE. Right-click on the desktop and select *Create New > Link to Application*. Click on the KDE icon in the 'Properties for Program' desktop dialog box that opens to select the icon you

want for the link. Now give a name for the link in the Program desktop's text box, click on Execute tab, and give the path for the application if you know it, else use the Browse button to find its location. Usually, you should find the application in the directory /usr/bin. Click OK and you're done. Easy, isn't it?

I find Konqueror, the default browser that comes with KDE, a good file manager and it is again very easy to use. When Konqueror opens it directly takes my mom to her home directory, so she also doesn't have much of a problem with directories.

My mother usually has problems

1. Create a shortcut on your desktop
2. Use the Gaim Messenger to access the MSN network
3. Configure Netscape Messenger to access your e-mail account
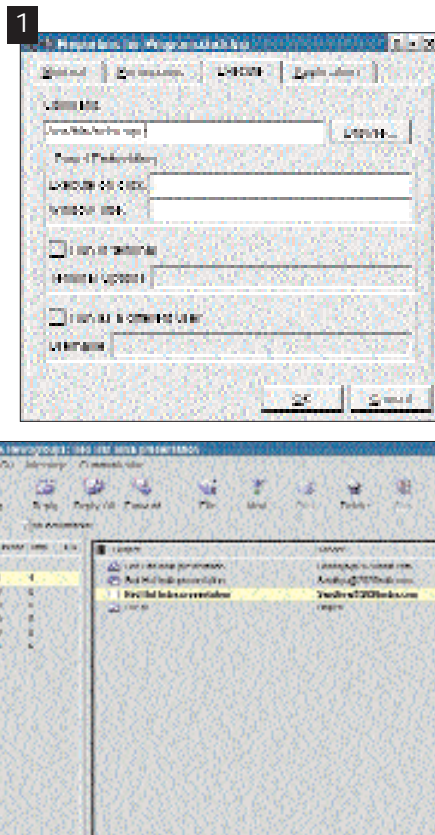
opening different types of files. I normally give her a small briefing when it comes to this. She knows most of the files will be opened with the application with which it is associated. In case of files that cannot be opened by default, she right-clicks on the file and selects the Open with...option from the menu that pops up. I gave her a small tutorial on how to identify the type of application by looking at the file extensions, which she understood quickly. Very soon, she was off making her own associations.

Chatting and opening up
My mom loves to chat, and it makes no difference if she can't see her partners physically. She's familiar with the instant messaging phenomenon and has used MSN Messenger. There are instant messenger (IM) clients available for Linux that allow you to use MSN Messenger and other IMs like Yahoo! and ICQ. Licq is the Linux version of ICQ.

In case of other services such as MSN, Yahoo!, AOL, etc, Gaim is the messenger client to use. This messenger for Linux has plugins which help log on to MSN, Yahoo!, ICQ, IRC, etc. The default Gaim configuration allows you to use only AOL. To use the other services, you have to add plugins. I added a plugin to log on to MSN by clicking on the Plugins button in Gaim to get the Gaim-Plugins dialog box.

Click on the Load button. This brings up the Gaim-Plugin List.

In the list, select libmsn.so and click OK. The MSN plugin will be added in Gaim. Enter the MSN user ID and password in the main window to log on to MSN. For example, I had created my mom's Hotmail ID as Mothergoose@hotmail.com. I entered Mothergoose as screen name in the Gaim-Login dialog box. She wasn't too happy and put her password as 'mysonisanidiot'.
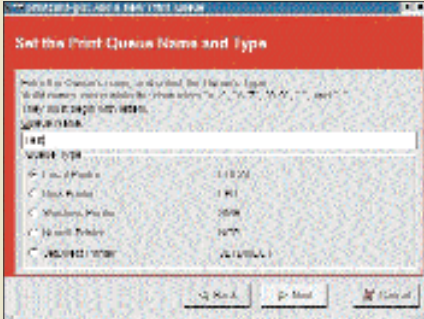
Upon her word

From the Microsoft stable, my mother hates just one software: Microsoft Word. She absolutely blows her top at the 'grammatical intrusions' and generally seems irritated when working with Microsoft Word, but she's used to it. I'd got her Notepad earlier but she started sending mails with too many mistakes. Now I've got her AbiWord.

KWord is a good word processor but can't perform too well when it comes to output quality, especially in comparison to Microsoft Word. This is where Abi-Word steps in. In terms of usage and output, it is very similar to MS Word. My mom is quite happy with it.

AbiWord can be found in *Start Application > Applications > AbiWord*. And I didn't forget to create a shortcut for it on the desktop.

Movies with Tux

My mom likes movies—it doesn't matter how they play or what software they play on as long as they play fine and open on the entire screen. I let her choose between KDE Media Player and GTV MPEG Player, and left both the icons on the desktop, saying 'Movies Here'. Just in case you are thinking of doing the same for your mom, remember you need to have Gnome installed for using the GTV MPEG Player.

A note for the DivX guys too: Default media players such as KDE Media Player do not support DivX. You have to download DivX and install it on your Linux box before you can watch all those wonderful files. Download it from *http://mpeglib.sourceforge.net.*

Uncompress the .gzip file using the *gunzip* command at shell. Now extract the .tar file using the command. For example, if the file name is mpeglib_divxplugin-0.1.8.tar, then the command is
tar xvf mpeglib_divxplugin-0.1.8.tar
Change to the created directory using
cd mpeglib_divxplugin-0.1.8
Now use the following commands to install DivX:
./configure
make
make install
make clear

All a good movie now needs is a good set of speakers. There's nothing better than an old classic in the afternoons for your mom to unwind after a hard day's work.

For any musical family, XMMS is the audio player I would recommend. It is Winamp's clone for Linux, easy-to-use, and has the same shortcuts as Winamp. My mom knows Winamp pretty well enough (she can play, stop, choose songs, and increase volume) and appeared comfortable with XMMS. Of course, I added a shortcut on the desktop.

Autorunning CDs

Most Linux flavours do not allow autorun of CDs, not as of now at least. Download and install a utility called Autorun, a CD mounting utility that allows you to autorun CDs. You'll get it at *http:/ sourceforge. net/projects/ autorun.*

I had to do a bit of tweaking after installing Autorun since autorunning CDs is usually available only if you log in as root. To allow other users to autorun CDs, add user, exec options to the CD-ROM line in /etc/fstab. This ought to get all those autorun CDs zipping.

Mom's a sport

Though my mom is not much into games, I have known a few mates whose moms are avid gamers! Most Linux flavours come bundled with loads of games. While installing Linux I added games to the install list and got in a couple of games such as *Tetris*, *Mahjongg*, *Poker*, *Minesweeper*, etc.

Now my mom can do all her computing chores by herself and doesn't even need my help for entertainment. I kept a soft toy, a Tux-like penguin actually, on the monitor and she hasn't taken it away till now. I'm telling you she's in love with Tux and he's here to stay.

ANIL PATRICK R.
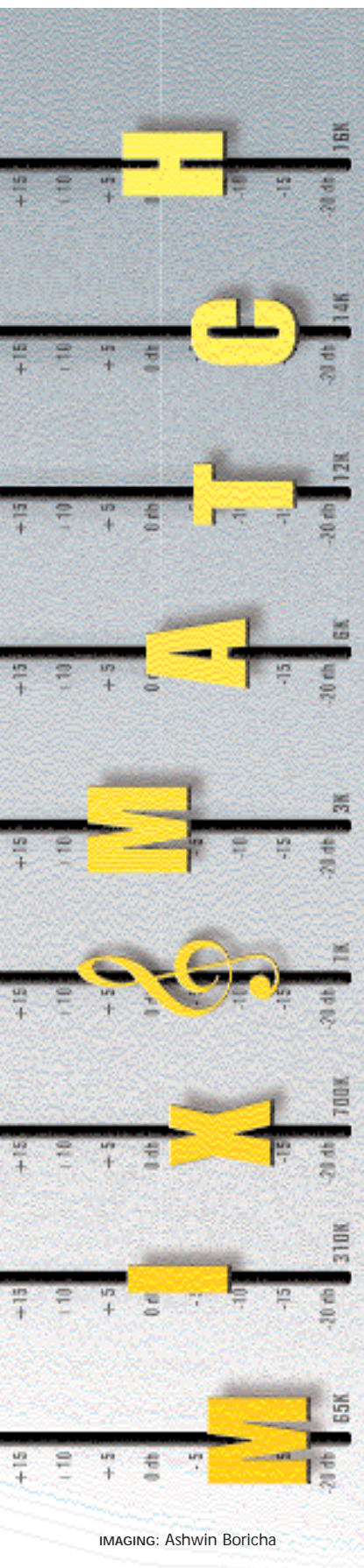
SCRATCH. RIFF. AND LET RIP. BE YOUR OWN DJ AND GROOVE WITH REMIXED MUSIC CREATED IN YOUR OWN HOME STUDIO

Dying to get your friends swooning over your own music? Waiting desperately to compose a song to impress your girlfriend? No sweat. Remix and add your own inimitable stamp to your favourite songs or, what's better, compose your own album. You need to start off with a PC, some really neat software, healthy doses of patience, a sense of music and harmony, and you're all set to create your own home studio.

Remixing music and playing the DJ is fun with user-friendly software such as the Mixman. This software lets you add effects such as cross-fading (*see glossary*) and increasing the beats of the song, or EZ-Mixer and PCDJ, which let you create playlists and play two tracks simultaneously to a lively euphony. If you are adventurous enough, you can go a step further and add beats to your songs.

Your own studio

You don't need expensive hardware to get started. A remix software, remixable tracks and sound samples should be good enough. Fruity-Loops, a loop and music creation software, lets you create loops from sounds, and sequencers such as ACID Pro help you knit your loops and tracks to create an original song. You may also need sound editors such as SoundForge or CoolEdit Pro to tweak loops and add final touches to your tune. (*See box 'Remixing Freebies on the Net' and 'What you need'*.)

Most of the professionally used remix software are fairly expensive but you can mix, remix, edit, rip, burn, encode and perform a whole host of tweaks and editing right there. You won't find freeware or shareware remix software but the demo versions of professional software, for example, ACID Xpress 3.0 and FruityLoops 3.0, are good too.
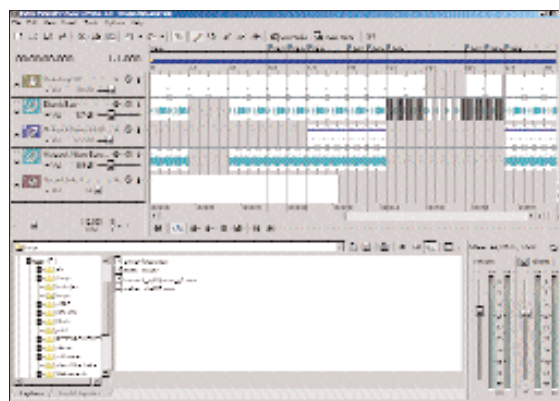
On ACID

ACID Xpress is a sequencer that lets you layer and manipulate all your sound loops together in the order and sequence that you like. You'll need DirectX 8.1 installed to get ACID Xpress running on your PC.

The work area in ACID has three main sections—Window Docking area, an Explorer-style interface that lets you browse through folders to locate your tracks and loops; a Track List which lets you view and control individual tracks; and a Track View where you get the individual elements of your song together.

The ACID Xpress demo version doesn't come with its own songs, tracks or content to play around with. You'll need to download tracks and loops.

Drag your tracks and loops from the Window Docking area to the Track List to begin getting your song together. You can even drag a full-length track to ACID and add different loops and tunes to it. You don't need to convert files to different formats as ACID

The workspace in ACID Xpress

What you Need

You don't need a fancy PC to set up a home studio, but make sure you have the following to run remix software:

x Good processor speed of at least 350-400 MHz to run remix software
x At least 64 MB of RAM, but generally 128 MB recommended
x The more disk space the better. You'll need around 100 MB for program installation and for storing loop and sound libraries and remixes
x A soundcard that supports DirectX
x CD-ROM drive

x CD-Writer (if you plan to burn CDs)
x Microphone for voice recording
x Headphones or speakers (you need to hear what you're remixing, right?)
x Windows 95/98, Me or 2000, though some software won't work with Windows NT
x Microsoft DirectX
x SVGA Graphics (800x600 minimum resolution at 16-bit colour depth)
x Patience. Lots of it. Remixing is hard work

accepts WAV and MP3 formats as well as the .acd format.

Once all your tracks are in the Track List, you can layout the sequence or order of the loops or sounds on the Track View by simply drawing them in, and playing them together to see how they sound.

If you want to change the order of the loops, simply shift them around on the Track View. You can easily adjust the beats per minute (BPM) and keep dragging and deleting tracks as many times as you want. ACID automatically time-stretches samples so that they fit into the tempo of the song you are working on.

ACID Pro saves your mix in the .acd format, which is compatible with a lot of other software such as Cakewalk. You can even record from an audio device plugged into a soundcard, record your mix and play it back.

The ACID Pro version lets you rip and burn CDs and save files, but all this is disabled in ACID Xpress, the demo version. Exporting or saving is also disabled but you can record your mix and play it back. Use the demo version to get a hang of the software and how to remix music. Later, when you're sure that you think of remixing as something more than a hobby, you can invest in the Professional version.

Sonic Foundry, the developers of ACID, have a portal called *www.acidplanet.com* where you can

TIP To get a hang of what sound effects to use and how to sequence patterns, load a song that comes with the FruityLoops library and notice how the remixer has used patterns and elements for your guidelines.

download loops and samples and publish your music.

Some Trance please

Browsing through available sound samples won't satisfy you. Create your own loops or even some trance music with FruityLoops.

FruityLoops can be a bit intimidating at first with its array of controls and settings. Stick with it and you'll find that it's not that tough to create basic tunes—things get easier as you get the hang of it.
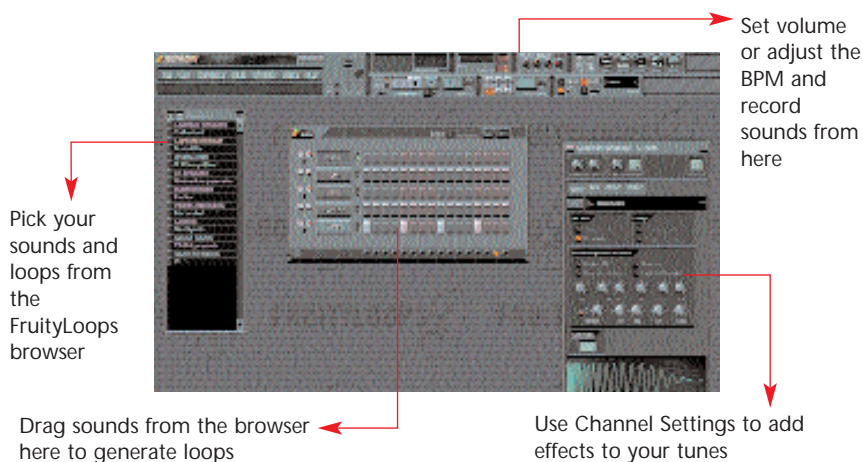
Let's first understand how FruityLoops creates loops. This is a pattern-based sequencer, which means that you compose your songs in pieces or patterns that you later put together to make a tune or a loop.

You create patterns using the sound library, which has instrument sounds, drumbeats, synthesiser sounds, vocal sounds and even full-length tracks. It also has built-in generators that use the sounds to get the melody going.

Now let's help you create your first pattern. The top bar of FruityLoops contains the menu, the volume and tempo controls, and the beat counter. There are a lot of 'floating menus' such as the Browser which gives you easy access to the sound libraries, loop generators and channel settings—the place where you add effects to your tunes.

Close all menus except for the Browser and the channel window (*see screenshot*). You'll see a channel window with

---

Creating your own Tunes in FruityLoops

Set volume or adjust the BPM and record sounds from here

Pick your sounds and loops from the FruityLoops browser

Drag sounds from the browser here to generate loops

Use Channel Settings to add effects to your tunes

Glossary

Beats: A pulsing unit of musical time is considered a beat.

Crossfading: An audio editing technique in which one sound is faded out as another moves in, allowing for a smooth transition between the two. Crossfading is common in samplers, where it is used to smoothen loop transitions (crossfade looping) and sound design to create hybrid sounds (one sound morphing or turning into another).

Loop: A sound that continually repeats itself over and over again.

Mixer: A device used to combine and adjust sounds from a variety of sources in order to create a final recorded audio product, such as the soundtrack of a movie.

Notes: The symbol used to indicate the duration and pitch of each sound. Also used to describe the actual sounds pro-

duced by an instrument when reproducing the tones indicated by these written symbols.

Samplers: Recording devices that can record almost any sound digitally and make this recording accessible to a synthesizer or computer.

Sequencers: An electronic device or software program that can be instructed to order and modify digitally stored musical sounds for playback, as through a synthesizer.

Tempo: The speed at which a piece of music is played is referred to as its tempo.

Tracks: Any piece of music on a recorded and playback medium is referred to as a track. 'Track' is also used to refer to a single aspect of music that has been recorded in the 'record' production process.

channels or generators such as TS404, C_snare, etc. To get a beat going, right-click the generator button, say, TS404 and set the basic tempo. For example, for a faster beat pick 'Fill each two steps' or 'Fill each eight steps' for a slower beat. Hit the Play button on the top bar and you'll have your first basic beat playing.

The beat

The channel window is somewhat like a 'beat map'—there's an indicator of the beat that's playing. The buttons let you manipulate the frequency of the beat. You can stick with a beat playing at regular, faster or slower intervals or you can have irregular beats. Just click on the buttons to select a beat and right-click to 'mute' that beat.

The beat that you'll have playing is the same note playing at the interval that you've set. You'll need to set different notes to each beat. The Piano Roll is where you can do this. Select a channel, say TS404, and click the Piano Roll button at the upper right corner of the window. You'll see a keyboard map for each beat. Here's where you select the note for each beat. It helps if you know a bit about musical notations but even if you don't, just play around till you hear something that sounds good.

Click on the TS404 button to activate the channel settings. This is where you add effects such as delays and distortions, and control the pitch and tempo. Each channel has different settings; there are way too many to talk about all of them here. When you're learning to remix, stick with the simple effects and use the FruityLoops manual to figure out what each effect can do to your loop.

Drag in more sounds such as drums or synthesiser sounds and generate loops and tunes the same way. Keep experimenting till you're satisfied with what you've created. This is how you get a pattern or loop done. You can create more patterns based on different elements, sounds or vocals.

Now you need to bring these patterns together to the FruityLoops playlist and play them together in a sequence. You can have just two or three patterns or several depending on how complex you want your loop to sound. Play around with the sequence of the loop by moving around your patterns with your mouse.

You can save your project in different formats in the complete version, but saving is disabled in the demo version. You can, however, export to WAV, MP3 and MIDI in the demo version through *File > Export*.

Copyrights:
How not to go wrong

Hold it right there! Before you start getting all musical, you'll need to check about this one little thing that could get you in big trouble. Most songs produced today are protected by copyright and can't be remixed, edited or distributed in any way, and that includes the free music you download from sites such as MP3.com. So make sure you read the fine print before remixing anything. Sites such as Mixman offer remixable tracks of popular music but you're restricted to a particular file format and the Mixman software. In addition, you can broadcast it only on the Mixman Web site. However, some artistes do offer tracks that they have created for remixes. If you do find a song that you would like to work on, check with the composer or the person who created the song before remixing it.

After you export your file as an MP3, you can drag it into ACID to get it together with the other tunes that you have.

If you have an ear for perfection, you might want to edit your loops in an audio

"Get your decks out and start scratching"— Bally Sagoo

Wondered what the experts use to mix their music? DJ and musician Bally 'Mixmaster' Sagoo pioneerd the remix genre with *Chura Liya* way back in the 1990s. "Computers have been the most significant thing ever to hit the music scene worldwide," says Sagoo.

"With all these great new programmes, software and downloads coming out each day, you can stretch, move, pitch correct, sample and manipulate sounds. When I started mixing in 1974, I could only dream of doing this." Now with computers, the sky's the limit!

"At the moment, I use a Macintosh system with several programs, mainly using a sequence program called Logic Audio Platinum," explains Sagoo. He also owns two state-of-the-art professional recording studios in the UK where he works with many famous artists from all over the world, one of which is called BSP Studios (Bally Sagoo Productions). It is here that he's set up his own record label, Ishq Records, and where he produces and writes everyday.

Plan to be a DJ? Sagoo recommends that you get a set of good turntables such as TECHNICS SL1200, a good DJ Mixer with EQ (equalisers) on each channel, and a good CD Mixer.

To get into the groove with remixing, Bally suggests: "You need to spend each and every day getting into mixing from the one side to the other till you feel that you can do fancier stuff like scratching and dropping. When you feel a little more confident, try playing at some parties, entertain your friends and get their feedback. This way you get to 'test drive' your home grown mixes at clubs, before you're ready to release your own creation. This is what I do!

"You can use computers to take your work to a totally different dimension," adds Sagoo. "The best remixers in the world are most definitely DJs or producers who also use computers.

"Being a good remixer is all about having a great knowledge on music, owning a serious music collection, knowing the type of trends that are making noise everywhere, being confident, experimental, and having a great taste about how mixes and blends work while remixing. So, get your decks out and start scratching."

editor such as Sound Forge. But this isn't absolutely necessary if you're just mixing for fun and are not too concerned about professional sound quality. You can skip the editing process and just run the final remix through Sound Forge and give it a few effects, as well as add finishing touches such as normalising, removing spaces or silences and compressing your files.

Exporting your work

WAV, MP3 and MIDI are the file formats supported by almost all remix software. Most samples are available in WAV and MP3. Audio recording is done in MIDI but you can use an encoder to convert to MP3. Ideally, you should work in either WAV or MP3 but you should avoid too much of conversion from one file format to another as you'll lose out on sound quality.

Play that loony tune now!

We've shown you how to get started with the 'technology' aspect of remixing just to get a few basic tunes going. For the 'musical' aspect of remixing, check out Web sites such as *www.remixworld.com*, *www.remixmag.com* and *www.intermusic.com*. Remixworld.com even has different types of remix projects that you can participate in. You should hang out at forums on sites such as Mixman.com and Computermusic.co.uk where you can interact with other music enthusiasts and pick up tips and remix techniques from DJs or remix artists.

You can upload your tunes on to your Web site or burn it on CDs to broadcast your remix or distribute it to friends. If it's your own original creation, then you have absolutely no problem. So what are you waiting for? Get the world grooving.

AVINA LOBO

1/2 H AD

open

platform

Need a Palm to code for a Palm? Not really. You can code and test applications meant for different platforms on your PC…if you know how

You want to develop an application for a mobile phone, a PDA or perhaps for Linux, but you have only one PC with Windows installed on it. You could write the code in Windows but to test it, the normal process would be to have an assembly line of machines with the relevant operating systems (OSes) and compilers installed. But this obviously increases the cost of development. Even installing multiple OSes on different partitions would entail extra time and effort in switching from one OS to another.

A cost-effective solution, especially for students and rookies, is to set up a multi-platform development unit on a single PC, converting your PC into a Swiss Army knife kind of development platform using certain software and emulators.

Jack of all Trades

In addition to Java, several languages offer Virtual Machines (VMs) for multiple platforms. Programs developed in these languages can run on platforms other than the ones in which they were developed. If you want to develop for Windows, Linux, and Palm, use Python. If Windows and Linux are your target platforms, you can use PHP, Perl, and Rebol. If you want to add a graphical interface to the applications you develop with these languages, there are tools for that as well. You will need Cygwin and either GTK or QT windowing libraries for this.

Starting blocks

The least you would need for such a setup is a PC with at least a 500 MHz processor, 256 MB of RAM and a 20 GB hard disk. Anything less than this and you might not be able to run other applications while developing. After all, we are talking about running a whole bunch of development tools and platforms at the same time, which will hog a sizeable amount of processing power.

It's best to install Windows 2000/NT as the base OS on which you can install all your tools. This platform supports almost all the development tools you'll need. The support factor is especially important when it comes to developing for mobile applications, and most mobile development tools are built to operate on the NT platform. It is also pretty stable and user-friendly.

If you want to develop for Linux using Windows, you can use applications such as VMWare. Also check out for development issues within Linux. Several free development tools are also available for Windows, and unless you are really good at Linux, Windows 2000 will do.

Once these are in place, you can install software that allow for virtual machines to be created or use software development kits and emulators specifically built for multi-platform use.

VMware your PC

VMware Workstation (version 3.0 is the current one) is a desktop application that will help you run different OSes on one PC. It creates virtual machines inside a single computer, which can interact with each other through a virtual network set up by the software inside your PC. For example, if you have Windows 2000 installed on your machine and also want to install Linux, you have to make your PC a dual boot system with a separate partition for Linux. With VMware Workstation you can install Linux as a virtual machine running at the same time as Windows 2000. It can run several such OSes at once, allowing you to test your applications across a virtual network of different platforms. (*See the box, 'Using VMware to set up Guest Operating Systems'*)

MS DOS, Windows (versions 3.11 to XP), Linux (Red Hat, SuSE, and Mandrake) and FreeBSD are supported as guest operating systems, which means you can run these in VMware Workstation after installing them. You can install other OSes but they may not function properly.

You can also buy VMware Workstation with pre-installed guest OSes, but you have to pay more for these packages. A 30-day evaluation version of VMware Workstation is available from *www.vmware.com*. You will have to register before downloading it to get the evaluation license number.

Go mobile!

To develop for the mobile platforms you can make do with emulators that can be installed on the desktop. But before you start, you need to have some basic utilities on your PC, all of which are available as free downloads.

To develop for the Palm, the SDK (Software Development Kit) of choice is SDK 3.5, which you can get from the Palm

Using VMware to set up Guest Operating Systems

Install VMware Workstation 3.0 on your computer and give the registration number.

Click on the New Virtual Machine icon in the main window and choose the Typical option to create a new virtual machine with automatic configuration. Click on Next and select the OS you want to install as the guest OS.

Let's select Linux as the guest OS for now. Click on Next, give a name to the virtual machine and browse to select the location where you want to create the virtual disk. Click on Next to bring up the Select Network Connection dialog box. Of the four options, only the last three are relevant if
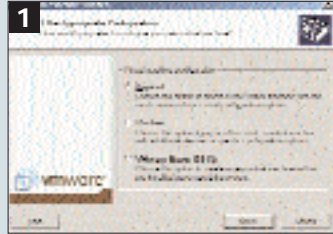
Select 'Typical' to create a new virtual machine

Select the guest OS

you are setting up your PC at home. The Use network address translation (NAT) option allows your virtual machine to access your Internet connection directly without you having to set it up. You can create a virtual network within your PC with the Use host-only networking option. If you don't want any

kind of network set up for the virtual machine, select the Do not use a network connection option. Click on Finish. You will be able to see the details of your virtual machine now.

Now insert a bootable CD or floppy disk to install Linux. Click on the Power On button to start the virtual machine. Linux will be installed in your virtual machine. Make sure to also install the development tools that come with your Linux installation.

One of the best programmer tools available for Linux is GCC (GNU C Compiler), which comes as part of the developer tools package. You can use GCC to program using C or C++. Code all your programs on a good editor program and run the files. Some of the good editors available for Linux are jEdit, Jext, Scintilla, Glimmer, etc. Ensure that you select the Use the VMWare Power Off button to switch off your virtual machine when you are through with your day's work.
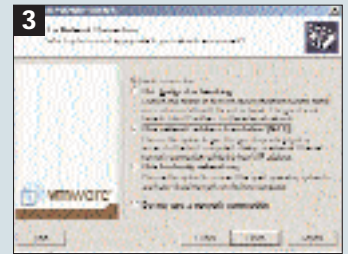
Select the appropriate network connection

Insert a bootable CD or floppy to install the guest OS

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developers site. The next thing to have is PRC-Tools, which is a GCC- (GNU C Compiler) based compiler for development on the Palm platform. (*See box, 'GCC Tools for Palm'*). Some of the C-C++ tools available for development on the Palm OS are Visual Form Designer and Teenie. If you are willing to pay, get Metrowerks CodeWarrior, which is much better with visual tools. You also need a (free) Palm emulator

Programming for the Palm

PRC-Tools is a compiler tools package, which helps you build applications for the Palm in C or C++. This package consists of patched versions of GCC (GNU C Compiler), binutils, GDB and post-linker tools. If you are using Windows as the platform on which you want to use PRC-tools, you will need to install Cygwin b20.1, PRC-Tools 2.1, pilRC for Win 32, Palm OS SDK, and a Palm OS emulator. If you are a Linux user, you will need GCC 2.95, PRC Tools 2.0, pilRC, Palm OS SDK, and the Palm OS emulator. You can get all these from the Palm OS site—both for Windows and Linux users.

and a Palm ROM dump used by the emulator as otherwise you won't be able to test any of the code you develop.

To develop for the Pocket PC, you would need Microsoft Visual eMbedded Tools 3.0, which consists of eMbedded Visual Basic, eMbedded Visual C++, and SDKs for Pocket PC.

Let's have a look at how we can use the emulator to test a program for Pocket PC—say, using eMbedded Visual Basic. When the application is ready to be tested, select Run in the project menu. This will compile the program and run it in the emulator.

If you want to transfer the application to a Pocket PC and run it, select the Pocket PC (Default Device) option in the drop-down menu as shown. This will run the application in your Pocket PC device.

Yet another tool you may require is the Java 2 Platform Micro Edition 2 (J2ME), Wireless Toolkit. This toolkit helps you develop

Event emulation in eMbedded Visual Basic

applications for mobile phones, two-way pagers and PDAs and works on the PocketPC and the Palm as well. You need to have Java 2 runtime environment installed on your PC to use J2ME. You can also use the free Waba programming platform.

There! That ought to start you going with your development work. Add more tools as you need. With this set up running, you'll be able to develop and test applications for a host of platforms. Get, set and go ahead on the path to *code Nirvana*.

ANIL PATRICK R.

www.palmos.com/dev: Development tools for the Palm
http://sourceforge.net/projects/prc-tools/: PRC development tools
www.microsoft.com/mobile/: Emulators and development tools for work on mobile platforms
http://java.sun.com/: Toolkits for Java
www.wabasoft.com: Get the Waba program from here

Track that nasty e-m@il!

It's time to stop being a victim. Turn the tables on vicious spammers

Romeo53@dhakdhak.com is at it again! You're looking at the 38th message you've received in the last couple of weeks from this e-mail address. It also digs out from the dark recesses of your consciousness that disturbing e-mail you received from another unknown person. You wish you could find out who's behind all of this. Spam and more spam, anonymous e-mail from people you can't identify.

This seamy, not-so-great side of the Internet is something we're all familiar with. Sure, you can always hit the [Delete] key, but wouldn't you rather find out who is behind this nuisance and put a final stop to the invasion of your Inbox?

On the digital trail

Just as a physical letter has an origin and path by which it travels to the receiver, e-mail too originates from somewhere, that is, the machine it was sent from and the path by which it travelled to you; for example different mail servers that carry the message. The same holds true for spam, though most bulk e-mail messages originate from List serve IDs (automated mailing lists). Similarly, an

ILLUSTRATION: Mahesh Benkar

anonymous post directed at someone in a newsgroup originates from a news server.

Hence, it's possible to trace an anonymous e-mail to the machine it was sent from or at least tell whether the e-mail address is genuine or fake.

There are several possibilities when it comes to the origin of an anonymous mail. The most common one is when a person creates a fictitious e-mail ID at a site of a prominent e-mail service provider, such as Yahoo! or Hotmail, and sends e-mail from that ID. In this case what you could do is send an e-mail to abuse@e-mailprovider.com with a copy of the mail that you received. For example: abuse@yahoo.com if you receive a mail from a Yahoo! ID or the postmaster at the Web site from which you received the mail.

If it's a well-known mail service provider, such matters are taken very seriously and the particular e-mail ID will be blocked. But that won't solve the problem, as it's very easy for the person to register another fake ID at some other site and continue spamming you.

Reading e-mail headers

When you receive an e-mail, it seems as though the mail reached you directly from the sender's machine. But that's not how it happens. Typically, an e-mail

passes through at least four computers on its way from sender to receiver.

Every e-mail comes accompanied with information about the path that it travelled. This information is in its header. That's the place you should look at first while trying to trace a mail.

If you're using a mail client such as Outlook Express or Netscape Communicator, right-click the mail and select *Properties* or open the mail and go to *File > Properties*. You'll see a screen with two tabs. The General Tab will give you basic
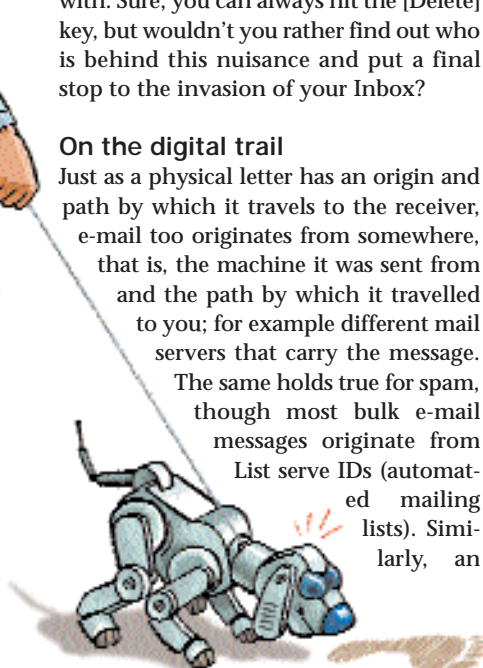
information such as the e-mail address from where the mail came, the size of the mail, attachments, and the time it was sent and received by you.

The Details tab is where you'll see the e-mail header. This is what a typical e-mail header looks like.

```
Return-Path: <achanen@bemybabey.com>
Delivered-To: mohank@mmb4.vsnl. net.in
Received: from isa.es.kr (unknown
[211.184.249.61]) by mmb4.vsnl.net.in
(Postfix) with SMTP id 34621EE76 for
<mohank@giasbm01.vsnl.net.in>; Wed, 12
Dec 2001 05:43:22 +0530 (IST)
Received: from bronxcra.cx (unknown
[233.144.259.67]) by isa.es.kr (Postfix) with
SMTP id 34644BB76 for <mohank@gias-
bm01.vsnl.net.in>; Wed, 12 Dec 2001
05:43:22 +0530 (IST)
Received: (qmail 6042 invoked from net-
work); 27 Aug 2001 11:17:09 -0000
Received: from pppa96-
resalechicagometro13-5r7120.dialinx.net
(HELO gw08??192.168.227.32?)
(4.4.242.29) by 211.184.249.61 with
SMTP; 27 Aug 2001 11:17:09 -0000
Received: from mail4.bemybabey.com by
gw08 with ESMTP; Mon, 27 Aug 2001
06:10:54 -0400
Message-ID:
<00007a84395a$00001903$00005320@m
ail4.bemybabey.com>
To: <achanen@bemybabey.com>
From: achanen@bemybabey.com
Subject: Make It Happen! (Email Special)
21280
Date: Mon, 27 Aug 2001 06:10:52 -0400
```

The Received: header entry contains the site from which the mail was sent and the IP address from where the mail originated. The IP address could be of the computer that's connected to the Net or more often the IP address of an ISP or the proxy server (that is if the e-mail was sent from a corporate LAN). It also contains information about the SMTP servers or other Web sites through which the mail passed on its way to your computer.

The important thing to realise here is that if a person is faking his e-mail address or the SMTP servers through which it passes, then there would be

many additional Received entries. In the header above, most likely the mail has been sent from Isa.es.kr and the rest of them are false headers. Using the *tracert* command, you can check which headers are fake and which are genuine.

The headers also contain information about the time (mostly local time) and the date the e-mail passed though that particular server. The header has a message ID, which is a unique ID assigned to a message. The message ID here is: 00007a84395a$00001903$00005320@mail4.bemybabey.com

The latter half of the message ID would contain the Web site from where the mail came or an IP address.

What if I use Web mail?

You can still check the e-mail header. Most e-mail service providers such as Yahoo! or Hotmail, by default, don't display the entire message header, but they have an option to enable display of message headers. In Hotmail, click on Options and check Mail Display Settings. You can choose to not display it at all or choose from Basic, Full or Advanced header display options.

At Yahoo! you'll find message header options at Options under Mail Preferences. You have a choice between Brief or Full header display.

Unfortunately, not all mail services let you view the header information when you need to complain to the site from where the e-mail was sent or report the matter to the police.

Performing a Traceroute

The Received: entry could either contain the name of a Web site or an IP address. To find out who the IP address belongs to or the name of the site, you could look up the IP address at a database of IP addresses. For example, a 'whois' search on the address at a site such as *www.internic.net/whois.html* will help you find out the registrar of the domain name or the e-mail address of the administrator.

You could also run a Traceroute on the IP address to trace the e-mail to the host Web site or server. Traceroute utilities track the path taken by packets as they travel from source to destination. A Traceroute can be run from Windows Start at *Accessories > Command Prompt*.

Just enter the command *tracert* and the IP address.

There are also a number of online tools as well as software (*see box, 'Armed for Defence'*) that help you do a Traceroute on an IP address such as *www.samspade.org/t/*, or portscanning utilities at *www.nscan.hypermart.net*. One of the best Traceroute tools is available at *http://network-tools.com*.

Running a Traceroute will track the route of IP addresses of the servers that the e-mail went through to get to your e-mail account. You can look up all the IP addresses and do a 'whois' look up to trace the e-mail to the host.

A red herring

Tracing an e-mail won't always lead directly to the culprit. Often, the actual location of a computer will not match the 'whois' information.

On the Net, it's very easy to forge e-mail addresses and headers. Several online tools such as Anonymisers, Re-mailers and other software allow people to cover their tracks and wipe out all trace of Internet activity while sending an e-mail or spam.

In certain cases, IP addresses can also be 'spoofed' or forged to cover up the culprit's tracks. This happens mostly in hacking cases and rarely with anonymous e-mail.

At best, tracing an e-mail will take you to an ISP that has its own e-mail address, or you could go through their logs and find out the location of the person who sent you the mail.

"It could lead you to a company proxy server connected to a corporate LAN," says Flynn Remedios from Cyber-Forensics India, an organisation that assists the Mumbai Cyber Crime cell in investigating cases. He adds, "It's difficult to pinpoint the computer out of the several on the company LAN that the e-mail originated from. Proxy servers maintain a log of all Internet activity within that location."

But hold on! You can't just walk in and ask for ISP logs or logs of the proxy server. At the most, you can complain to the ISP. You also can't ask a company to

Who can Help you?

I. M. ZAHID
CYBER CRIME CELL, MUMBAI

You've received a spate of disturbing e-mail and don't know whom to turn to. Well, one place that you can count on to take some action is the Cyber Crime Cell of the Mumbai and Bangalore police.

According to the IT Act chalked out in 2000, certain acts performed online such as hacking, denial of service, spoofing, spamming, pornography, cyber harassment or cyber stalking by e-mail, IRC chat or Usenet, credit card fraud and online fraud, are considered punishable crimes and persons found breaking the law can be arrested, fined or imprisoned.

The Cyber Crime Cell at Mumbai, part of the Economic Offences Wing of the Greater Mumbai Police, was inaugurated on December 18, 2000, to deal with the enforcement of cyber laws. (For more information check out *www.ccic-mumbai.com*). The Cyber Crime Cell works along with a technical committee and an advisory committee that include Vijay Mukhi and Amitabh Kumar (Director - Operations, VSNL), to help nab cyber-crooks.

According to Inspector I. M. Zahid of the Cyber Crime Cell, every cyber crime leaves behind a trail of evidence, which can be tracked from the destination machine to the machine from where an offensive mail was sent, or the machine a hacker used to break into a system.

"The important thing is to deconstruct the crime and build a concrete trail of evidence so that the case can be presented in a court of law and withstand judicial scrutiny," adds Zahid.

"In cases of cyber harassment, most victims are women and the person the mail originates from is often someone who's known to the victim, like an ex-fiancé or ex-boyfriend seeking revenge." He adds that there has been a spurt in e-mail crime and a fairly good percentage of detection.

When you receive an anonymous or offensive e-mail and need to report it, preserving a copy of the e-mail in your inbox is very important as that's physical evidence of the crime and will help the cops trace the culprit.

do anything about e-mail that originated from their mail server.

Report it!

Here's where the benefits of reporting a cyber crime to the police come in. The police can investigate and handle the tracing of your e-mail as well as ask the ISP, or anyone, for logs to find out the physical location of the person who's harassing you.

"But they can only do this if the person who's being harassed has lodged a formal complaint," says Remedios. The police too have their share of problems trying to track down cyber crime offenders. "In most cases the computer that is used in either hacking or a cyber crime is located at a cyber cafe," says Inspector I. M. Zahid. "Cyber cafes don't keep a record of the people using the computers there, which adds to the problem of tracing cyber crime culprits." Additionally, the most important factor is collecting proof of the crime committed, which is extremely difficult to do if the crime is committed from a cyber cafe.

"The most important advantage of going to the cops rather than trying to trace the mail on your own is the complete anonymity and protection of your identity," says Remedios.

So the next time you receive spam or anonymous mail from someone you don't know, it would help to know a thing or two about protecting yourself online. But if you really want bring the culprits to book, call the cyber cops! ▣

AVINALOBO

30Minutes Expert
Create Multiple Logins

If you share your computer with others, you can set up multiple user logins in Windows XP and Windows 2000. Setting up multiple logins allows each unique user to have his own tailored computing environment. Images and music are stored in personalised folders and, above all, you don't have to worry about other users of the same machine tampering with your content. Here's how to go about it.

Creating user accounts

STEP 1

Windows XP
Click on *Start > Control Panel > User Accounts*. Under 'Pick a task…', click Create a New Account. Enter the name for the account. Either a real name or an alias will do.

Pick an account type and click Create Account. You can create three types of user accounts: a Computer Administrator account where the user has unlimited access, allowing him or her to view and modify files from other user accounts. A Limited account gives the user access to operate the computer and run various applications, but not modify software and hardware contents. The last type of account offered in Windows XP is the Guest account. It functions just like a Limited account except that it is not password protected.

Windows 2000
Right-click My Computer on the Desktop. Then click on Manage. Of course we are assuming that you have the administrative rights on your PC. (If Windows 2000 gives you a warning that you do not have enough privileges, contact the person who installed the operating system.) Then click on Local User and Group in the System Tools section. Double-click on Users folder and right-click on the white space. Click on New User in the menu. Fill in the details and click on the Create button. Then click on Close. Select the newly formed user, click on Properties and then click on the Member tab. Click on the Add button and double-click on the type of rights you want to give to the new user. You can change the rights of the user at a later date by following the same procedure of selecting a user and then choosing the Properties option.

Changing your look

STEP 2

Windows XP
For each user that Windows XP creates, an image is randomly chosen for you and displayed on top of the Start menu. You can change it by clicking on an account to change under User Accounts. Select 'Change the picture' and choose one that you like. Browse for and change the desktop icons and views.

Windows 2000
Currently, Windows 2000 doesn't have the feature of your photo while logging in, so you can only make do with customising the desktop and Start menu settings. Right-click on the desktop and click on the Appearance, Screensaver, etc tab to select the settings you want. Each user can likewise maintain his own customised look.

Speed it up…20 min

STEP 3

Windows XP
Windows XP uses the Fast User Switching feature; you do not have to worry about shutting down the PC or closing all active tasks if someone needs urgent access to the computer. Enable Fast User Switching from *Settings > Control Panel > User Accounts* and tick the Allow Fast User Switching feature under Change the way users log on or off.

After that, in the Start menu select Log off and in the prompt select Switch user instead of Log off. Once you log back in

Multiple User Logins in Windows 98/Me

Windows 98/Me doesn't allow protection of files but you can still create multiple user profiles for customising and maintaining at user level Desktop folder, Documents menu, Start menu, Favorites folder, Downloaded Web pages and a separate My Documents folder.

To create User Profiles, you need to first have Client for Microsoft Networking Installed. For this, go to *Start > Control Panel > Network*, select the Add Client option and add Client for Microsoft Networking.

Restart your machine and then go to *Start > Control Panel > Users*. Follow the step-by-step wizard to create individual user profiles. Restart for the settings to take effect. At the login prompt now, you have to enter the username and password you have created for yourself.
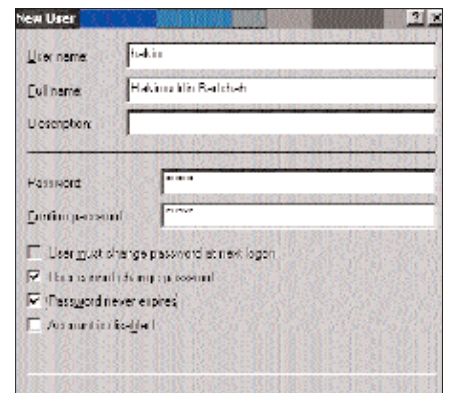
under your profile, the system resumes with all processes and tasks, and applications pick up from where you left off.

Windows 2000
Unlike Windows XP, Windows 2000 doesn't allow 2 users to simultaneously log on. So, for another user to take over, the current user has to log off first.

PRASHANT MASRANI

**Printing goof ups, missing RAM, Web page errors—
get the fixes for your PC's ailments**

Applications

Hardware and software decoders

🅀 I have a problem with my DVD player. I have a P-III 700 MHz CPU and Windows Me as the OS. When I try to run a DVD disk in Win DVD, which I obtained from C:\windows\dvdplay. exe, I get the following error message: 'To use the DVD player, you need to install either a software DVD decoder or a hardware DVD decoder. For more information click Help.' What are hardware and software decoders and how can I get these?

Ameya Sathye

Via e-mail

🅰 In order to play a DVD disk, the DVD files on it need to be decoded and displayed on your monitor. There are two ways of doing this, either by using a special card (a DVD decoder card) or a software that can read and play DVD disks using the system's main processor. These are known as DVD decoders.

Hardware DVD decoders usually cost significantly more but for your needs, your Pentium III 700 MHz processor with a software

DVD decoder will be more than capable.

Writer won't write

🅀 I tried Nero Burning Rom v5.4.4.8 Demo (*October 2001, Mindware*) with my new CD-Writer (HP CD-12 series) but I'm experiencing some problems while writing/simulation. After compilation, when I try to write/simulate, it detects both my CD-Writer and the blank CD-R media disk but shows an error, 'Invalid field in parameter. Aborting the job'.

Sourav Basu

Via e-mail

🅰 Make sure you have the right ASPI drivers installed. Also, according to the log file you sent us, the DMA (Direct Memory Access) for your writer is off. Turn it on and also turn Auto Insert Notification off and Disconnect on. You can get the latest ASPI drivers from Adaptec's Web site if you use any Adaptec software such as Easy CD creator, that are bundled along with your CD Writer. This should solve your problem.

Tally error

🅀 I have a brand new PC with the following configuration: Pentium 4, 1.5 GHz, 256 MB

RAM, 40 GB hard disk and Windows 98 SE running on it. Tally 4.5 used to run smoothly on my old PC (Pentium 100 MHz, 16 MB RAM, 1.9 GB hard disk and Windows 98 SE OS), but in this new configuration it gives me the following error: 'Tally abnormal completion. Status:3. Insufficient files provided by DOS. Internal error. Contact Peutronics.'

The main thing is it works fine in DOS mode without any lines being added in config.sys, but in Windows it shows errors!

Ravi Meghani

Via e-mail

🅰 You need to run Tally from the command prompt mode in Windows. Start a standard

Error while starting Tally

command prompt, change to the Tally folder by typing *cd C:\tally*, and then run *t.exe* from the command prompt itself. The problem you've encountered is because the

file is being run individually by Windows in a separate shell, like a temp folder. If you create a shortcut that sets the 'run in' folder of the program to *C:\tally*, that should solve the problem.

Word doesn't check grammar

🅀 When I try to run a grammar check in Microsoft Word 2000, I get the following error message: 'There was an unexpected error in the grammar checker. Word cannot complete the grammar check.' I've tried to solve this by uninstalling and installing Word repeatedly, but all in vain.
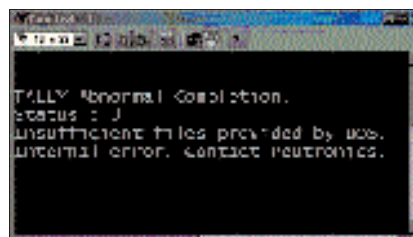
Nibhay Joshi

Via e-mail

🅰 It seems the program Office2000 has not been installed properly. First uninstall Microsoft Office by going to Add/Remove programs. Then go to Program files and delete the Microsoft Office folder. Lastly, go to the registry and delete the Microsoft Office registry entries.

Before deleting any registry entries make sure you take a backup. Now reinstall

Microsoft Office and your problem will be solved.

Printing problems

Q I use a Pentium III 900 MHz CPU with 128 MB RAM and a 20 GB hard disk drive, running on Windows Me. I recently installed Office XP Professional, but after that I have not been able to print clipart or pictures while working in Word or PowerPoint XP. I have no problems printing the images with other applications. I tried the Help menu in the Office XP troubleshooter, which asked to deselect the draft output feature, but that was not selected in my application. I tried the repair feature, reinstalling Office and reinstalling my printer driver, but to no avail. I had no problem printing pictures and clipart with Office 2000 and I also had no problem in printing borders with art or shading in my document.
Anshul Singh
Via e-mail

A Try printing a heavy image in any image-editing package, even MS Paint. If that works fine, then the problem is surely with Office XP's print engine, otherwise it's a printer cartridge problem. If it's an Office XP problem, first try printing in high quality mode and if that doesn't solve the problem, reinstall the package. If that doesn't work either, remove and clean the cartridge. Make sure you buy the original cartridge from the authorised dealer and do not try to refill ink.

Deleted display drivers

Q I have a problem with my laptop. I had installed a demo game named Driver from the Digit November 2001 CD. When I tried removing the game in Control Panel, I accidentally removed the display driver.

Now my laptop's screen resolution has reduced to 640x480 pixels and 16-bit

colour. I tried to correct it from Display Properties but it didn't work. Please help me.
*Anurag*
Via e-mail

A Since you have removed your display drivers you will have to reinstall them. You can do this with the diskette you would have received from the manufacturer when you bought the laptop. These drivers are usually available on the Web site of the manufacturer, so you can also download them. After you have installed them you will be able to change your display settings.

PRN files in Pagemaker

Q I would like to create PRN files in Pagemaker but am unable to do so as I don't get an option to create such a file in the page setup of Pagemaker. I have an HP Laserjet 6L Gold printer. What should I do?
Bobby T.
Via e-mail
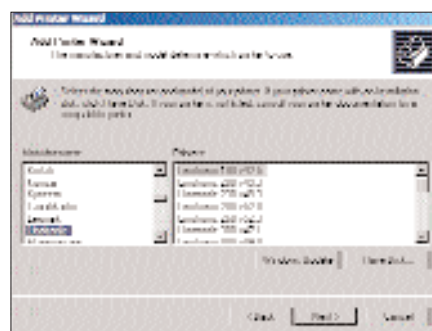
Adding a Linotronic driver

A In order to create PRN files in Pagemaker you need to enter a virtual Linotronics printer driver to your print folder and redirect the output to a file. You can do this by going to *Control Panel > Printers > Add Printer > Local Printer > Print to File*. When it shows you a list of various printers, select Linotronic and install the drives. Then enter the filename as a .prn when it asks you for an output. Now you should be able to create PRN files in Pagemaker.

Unable to watch TV using my graphics card

Q My machine configuration is as follows: Pentium 4, 1.5 GHz processor, Intel 850 DGB board, 128 MB RDRAM, 32 MB ASUS 7100 Deluxe Combo graphics card and a 40 GB hard disk drive. I was able to watch TV on my computer through the ASUS card, but after installing Windows XP, the ASUS driver software does not run. It gives an error 'Access violation'. I tried installing the drivers of this card in Windows 98 emulation option in Windows XP but the program still does not run. Please help.
Sam Deshmukh

Via e-mail

A The ASUS DVCR will not run till ASUS updates the software to support XP. To use the DVCR software, you can download nVidia's latest drivers, which have their own support for the TV out function. Otherwise you can download the TVCC tool by going to *www.tvtool.de*.

Error loading Web pages

Q I am an amateur Web designer. I registered at Geocities a year back and started developing my site. I built it in Microsoft Word 2000 on a laptop using the Web page wizard embedded in the software and uploaded it using Yahoo!'s FTP client. When I viewed it using IE 5.0 and 5.5, it gave an error message, 'Done, but with errors in the page', at the bottom left corner. It also gave me a runtime error and the undetermined string constant in line 566. Is this due to HTML encoding errors? (I have not used Java Scripts).
Shambho Mahadeva
Via e-mail

A When Office exports documents to HTML, it includes an XML data tag, which is useless in general. This tag looks something like this at the beginning of the page:
<html xmlns:o="urn:schemas-microsoft-com:office:office"
xmlns:w="urn:schemas-microsoft-com:office:word"
xmlns="http://www.w3.org/TR/REC-html40">
<head>
Change this tag to
<html>
<head>

Windows

Cannot print Outlook mail

Q I have a P-III, 733 MHz PC with 96 MB RAM and an HP Deskjet 640c printer. Of late, I have been unable to take printouts from Outlook Express. When I try to print selected messages by pressing [CTRL] + [P] or the print icon in the toolbar, the printer dialog box doesn't appear and there is no response. I've tried printing from Microsoft Outlook by importing messages from Outlook Express but the same error occurs. I also tried uninstalling and reinstalling the printer, but to no avail. However, the printer works well with Word and Excel. Please suggest a remedy.
Gokul
Via e-mail

Ⓐ Uninstall Office XP, delete the folder it creates in the Program files and also delete the registry entries (type *regedit* from *Start > Run* and navigate to HKEY_LOCAL_MACHINE/Software/Microsoft/Office and delete the folder). Make sure you take a backup of the registry before making any changes to it. Now reinstall Office XP and your problem should be solved.

Using AVG in Windows NT

Ⓠ I have a Pentium III 500 MHz system with 128 MB RAM and a 10 GB hard drive with two partitions. One is of 2 GB (C) with FAT Windows NT 4.0 and service pack 6 installed and the other is 8 GB (D) with NTFS Windows 2000 professional installed. Of late I am facing a problem: when I run the anti-virus package AVG 6.0 from the C drive and try to scan drive D, it shows a line at the top: 'page_fault_in_nonpaged_area' and restarts. After restarting I went

through event viewer of NT and found an entry named 'Save Dump'. When I opened this event it showed me the following lines: 'the computer has rebooted from a bug check. The bug check was: 0x00000050 (0xc2080000, 0x00000000, 0x00000000, 0x00000000). Microsoft Windows NT [v15.1381]. A dump was saved in: C:\NTSERVER\MEMORY.DMP.'
What's the problem?
Pravesh Taparia
Via e-mail

Ⓐ The problem seems to be related to AVG 6.0 and NT. Uninstall AVG, delete the folder it creates in the program file, and also go to the registry and delete the entries created by this program. Make sure you take a backup of the registry before deleting any entries. Then try reinstalling it.

Partition Problems

Ⓠ I have a P-III 450 MHz based system with an Intel 440BX motherboard and

Award BIOS V4.51PG. I recently bought a 20 GB hard drive to add to the existing 6.4 GB hard drive. The 6.4 GB hard drive is the Primary Master with Windows 98 SE and Red Hat Linux 7.0, CD-ROM-primary slave. The 20 GB hard drive is set as a secondary slave with the entire space being extended into DOS partition without any primary DOS partition. I have the following problems: In the standard CMOS settings in the BIOS, I have disabled the 20 GB hard disk by selecting None in the corresponding column. In spite of this, both Windows and Linux recognise all the partitions and I am able to read/write data from/into the 20 GB hard disk.
The second problem is that the moment I enter User in the standard CMOS settings in the BIOS and go to Windows, there appears an additional partition along with the existing partitions on the 20 GB hard disk, displacing the existing partitions' drive letters. In addition, this partition is inaccessible and Windows issues a 'Cannot read from drive E' error message when I shut down Windows.
Lastly, the hard disk activity indicator LED does not turn off when I try to shut down either Windows or Linux.
Dileep S.
Via e-mail

Ⓐ To solve the first problem, go to the BIOS and disable the IDE controller or disconnect it. Now you won't be able to read or write data from that hard drive.
Regarding the second problem, it seems that that particular partition has not been formatted and is thus inaccessible. So if you are sure that there is no data on this partition, format it and you will be able to access the partition.
Lastly, it is absolutely normal to see your hard disk LED indicator till you shut down

your PC completely. It will turn off only when your computer is switched off completely. So, there is nothing to worry about.

Hardware

Of DVDs and soundcards

Ⓠ I have recently bought a Pentium 4, 1.5 MHz system with 256 MB RDRAM and an Intel motherboard. I also have an SBLive! Platinum soundcard and an ASUS GeForce 2 32 MB graphics card. The speaker system is a DTT2500. My problem is that although I can play DVDs, the Dolby Digital indicator in the amplifier of my system has not yet detected the Dolby Digital signal as mentioned in the user's manual of the DTT2500.
I am told that while using SBLive! Platinum and DTT 2500, only the amplifier (DTT2500) needs to be connected using a S/PDIF cable and no line out and rear out is required. But when I remove the rear out and line out connection, I don't get any sound while playing MP3s or other music files, but there is no problem while playing a DVD. Can you verify this and tell me how I can test that these connections are made right?
The third problem I face is that when I changed over from Windows 98 to XP, I was unable to install the driver CDs and software of either the Creative soundcard or the ASUS graphics card. How can I use the demos and the remote centre, etc of the SBLive! Platinum?
C. J. Mathew
Via e-mail

Ⓐ In order to playback Dolby Digital signals using your DTT 2500s, you will need to drive these speakers digitally. These speakers have a digital input that can be supplied by your soundcard. The SBLive! should have a Digital Out connector—you


Cannot detect Web cam

Ⓠ I have the USB Card and the Intel Create and Share software for my Web cam. I have installed the card and the software in my PC. Everything works fine until the PC attempts to detect the camera, at which point the PC hangs and then restarts. After restarting, the following error shows up: 'inst30.hlp files is missing in the CD. Try to reinstall the software'. What should I do now?
Shishir
Via e-mail

Ⓐ Download the latest drivers from the manufacturer's Web site and the error should be fixed. Also, you are having problems with fully installing the software as you probably have no space on your hard disk. Free some space on your hard disk by running the Disk Cleanup utility or delete some data.
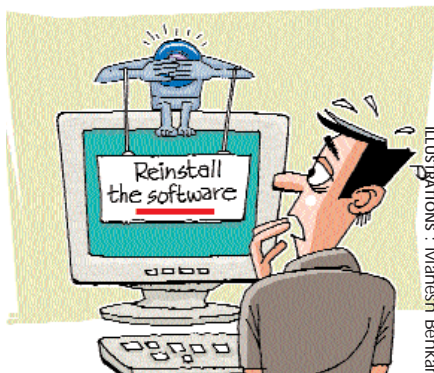
ILLUSTRATIONS : Mahesh Benkar

will need to feed this output to your Digital In connector, which is on the amplifier of your speaker system. This will enable true Dolby Digital compliance and will let you playback your DVDs using AC-3 (that's Dolby Digital). This will not be possible if you are driving your speakers only through the four speaker inputs.

Regarding your second query, what your friend said is correct—you will need to connect both the four-channel outputs (for your MP3 and gaming playback) as well as your S/PDIF (for Dolby Digital compliance) for movies.

As for your third query, both Creative (*www.creative.com*) as well as nVidia (*www.nvidia.com*) (for your graphics card) have released drivers that are compliant with Windows XP. Use these and you will be able to access all the features of your hardware like before.

Video card blues
🅰 A couple of months ago I upgraded my graphics card to a RIVA TNT2 M64 32 MB card. My machine is a Celeron 300a and I have 114 MB RAM. The problem is that the system hangs whenever I run games such as *FIFA 2001* and *Quake III* while games such as *Need for Speed 4* and *FIFA 98* run smoothly. I tried reducing the 3D acceleration, but all in vain. What could be the reason for this and what are the remedies?
Jayanta Kumar Dey
Via e-mail

🅰 Your problem can be easily solved. You can install the drivers from the November CD of Digit or else you can visit nVidia's Web site and download the latest drivers for your card.

Low frame rates in UT
🅰 I am facing a problem while running *Unreal Tourna-*

ment. I have an ASUS GeForce2 MX 32 MB AGP with a Creative SBLive! Value soundcard, 256 MB RAM, AMD Duron 600 MHz processor and DirectX 8.0. I run *Unreal* in D3D with patch 4.36 at 1024x768x16 and detail textures off. When I play it in Windows 98, I get 60 fps. But as SBLive! Value doesn't work in Windows 98, I installed Windows 98 SE and my fps dropped to 30, and further to 9 fps in the heat of combat. What should I do?
Shikhar
Via e-mail

🅰 We would recommend you to load the latest detonator drivers (version 23.11) for your graphics card and the newest drivers for your soundcard. Also remember to load DirectX 8.1.

Half-duplex soundcard
🅰 I have a Pentium II machine with 32 MB SDRAM, 20 GB hard disk and Windows 98. When I tried configuring MSN Messenger, I got an error message as follows: '*** Sorry it is not possible to use a microphone and speaker at the same time with a half-duplex soundcard in your machine. You may need to contact the soundcard manufacturer to update the device driver. You will not be able to use the voice or phone feature of this program****'. My soundcard is an Aztech 2320 compatible PNP audio (WDM), hardware version 1.0.02. Is it possible to configure voice chat with this soundcard? The same problem occurred when I tried to configure Yahoo! Messenger.
Dhirender Nirwani
Via e-mail

🅰 Since you have a half-duplex soundcard you cannot speak and hear at the same time. You will have to buy a soundcard that is fully duplex. There are a lot of fully duplex soundcards available in the market. 🔴

Disappearing RAM
🅰 I have a Pentium III 850 MHz system with 128 MB SDRAM and a 20 GB hard disk with four partitions, namely C, D, E and F. I have installed Windows NT 4 on the primary partition C and Windows 98 on the extended partition D. A few days back while restarting my computer my monitor started flickering while loading Windows 98 but it came back to normal after booting. After that when I checked my system properties to see whether there was any hardware failure, it showed that I had only 64 MB RAM installed in my computer. I don't know what happened to the remaining 64 MB. I recently installed Office XP. Could you please tell me what has happened? Has there been any hardware failure, because there aren't any error messages being displayed, and there isn't any problem while booting the computer? Or has one of my RAM modules got corrupted, in the sense, has it failed?
Rohit
Via e-mail

🅰 Check the memory at the time the machine starts up. If that too says 64 MB, then you would need to replace the faulty RAM module or try plugging it into another slot and see what happens. As for your other problem, the monitor flickering during the setup, that's usually because of the lower refresh rate used while running the setup, hence this should not be a cause for worry.

Scandisk error
🅰 I am running Windows Me on a Duron 600 PC with

192 MB RAM. It took about 50 minutes for a thorough scan (with auto fix errors) of the first partition (5 GB). No messages were displayed during the scan. However, for the second partition (10 GB), it took 11 hours for a thorough scan (with auto fix errors) and after 7 minutes showed a message, 'Scan disk has restarted 10 times because Windows or other program has been writing on the drive, etc'. The above message was displayed even after disabling auto protect in Norton AntiVirus 2001.
Komal
Via e-mail

🅰 There is nothing to worry about as most people have a similar experience while trying to scan their disk or defragment it as some program or the other is usually
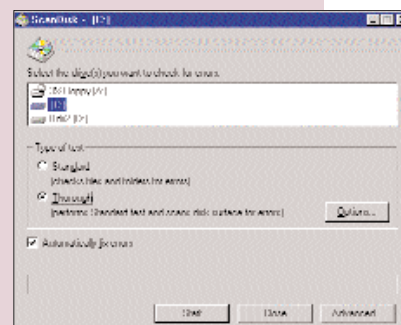
Scan-disk utility in Windows 98

running in the background. Due to this the Scandisk program automatically restarts without fully scanning. To overcome this problem, make sure you start your computer in safe mode or ensure that you terminate all programs running in the background before doing the scan.

Now you will be able to scan your disk completely.
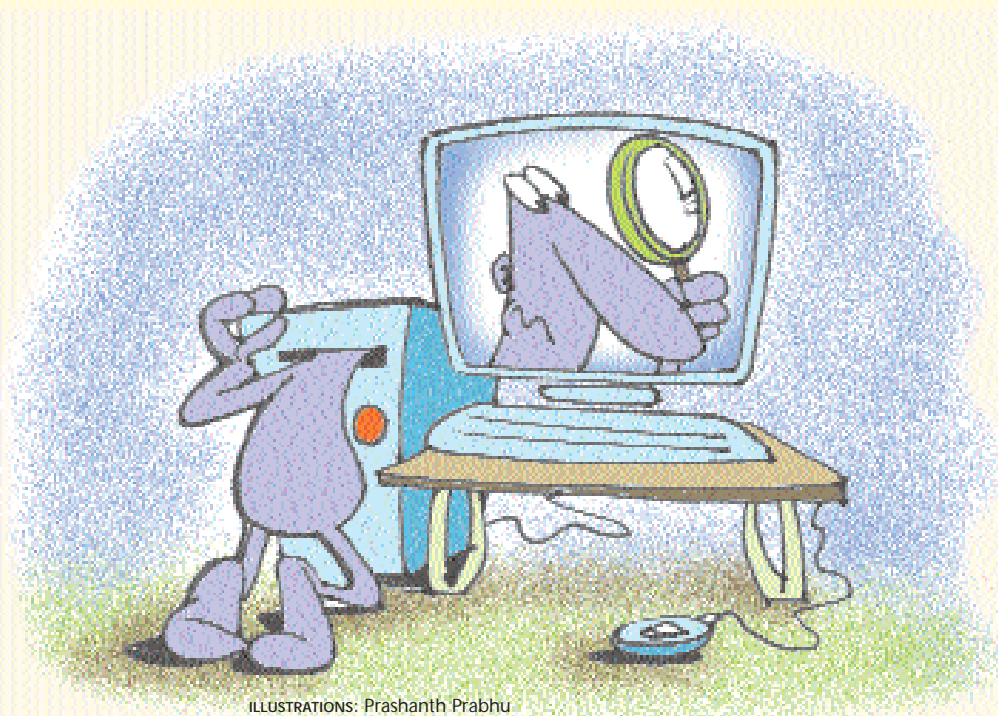
tips&tricks

Over **40** Internet Tips

Master the Web with these nifty, must-know tricks

Save time as you shortcut your way through the Internet. Learn how to
browse, chat, search and even download faster and smarter

1

ILLUSTRATIONS: Prashanth Prabhu

Tips & Tricks
Gaming tips
Troubleshooting
Modems

E-MAIL AND CHAT

Working with multiple identities

If you share a computer and do not download mail for fear that they'll be read by others, create different user identities for secure downloading. If Outlook Express is your e-mail client, go to *Files > Identities > Add New Identity*. Create a new identity, protect it with a password, and choose this the next time you start the program. You will be allowed access only after you enter the right password. Don't forget to log out once you're done. In order to do that you will have to go to *File > Exit* and log off identity.

Blocking senders

Unsolicited e-mail (spam) can be quite irritating. To stop this, block the senders so that the next time they send a mail, it goes straight to the Deleted Items folder. In case of Web-based e-mail service, it's obligatory for your e-mail service provider to offer you with this option. If you're using Outlook Express, all you need to do is select the message and click on the Block Senders option under Message in the toolbar. Combine this with the option under *Tools > Maintenance* to 'Empty Messages from the 'Deleted Items' folder on exit', and you will be rid of many spam mail.

You can access the Blocked Senders list at a future date from the Blocked Senders tab in *Tools > Message Rules > Mail* and. An alternative way to remove unwanted mail is to create a message rule that directly deletes the message from the server without downloading it.

Receipt notification

If you have a really important message and need to know if it's been received, use a feature called Read Receipt in Outlook Express. This feature is available on most e-mail clients and requests the recipient to confirm that he has received the message by a return e-mail.

To do this while composing a mail in Outlook Express, click on *Tools > Request Read Receipt* in your message window. If you desire, you can have all your outgoing messages sent with the Read Receipt notification. For this, go to *Tools > Options*, click on the Receipts tab and tick 'Request a read receipt for
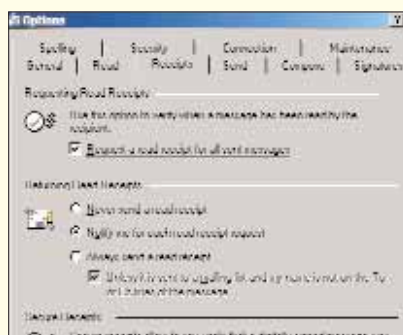
Request for receipt of mail

all sent messages'. Remember, the read receipt confirmation is dependent on the e-mail client the recipient is using and also whether he wants to send the confirmation.

Reduce message size

Sending messages in HTML format increases the file size. The message size will be lesser if one sends messages in Plain text format. In Outlook Express, go to *Tools > Options > Send* and select the format in which you want to send messages.

Adding signatures to your e-mail

If you send a lot of mail each day, then a repetitive task like signing your name at the end of each mail can be quite tedious. It's easier to create a signature and attach it automatically to every mail that's sent. To do this in Outlook Express, go to *Tools > Options > Signatures*. Then go to New and add the contents of the signature in the Edit Text field. Also select the option of sending the signature automatically with all outgoing messages. In case you don't want to send this with replies or forwards, enable the option, 'Don't add signatures to Replies and Forward'. For creative signatures, use the option to append a file that contains the signature you have created. If you happen to have multiple e-mail accounts, select the account with which you want to send the signature.

To do this, go to *Tools > Options > Signatures* and click on the Advanced
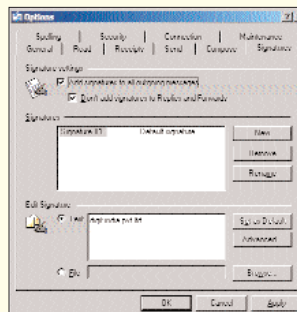
Sign off with a personal message

button near the Edit Signature tab. A new box will appear saying 'Advanced Signature Settings' where you can select the account with which the signature should be automatically added.

Customise the mailbox
You can change the feel and look of your mailbox, and personalise it with the fonts of your choice, along with a view that you like.

To change the default font for all your outgoing messages from Arial to something better, go to *Tools > Options > Compose > Font Settings* and specify the font and font size for all new messages.

To change the default layout go to *View > Layout*. Here you can change the way messages are viewed and remove other components such as the toolbar, status bar, folder bar, etc. This will give a neater look to your Outlook Express.

Customise your toolbar
The Outlook Express toolbar is cluttered with many not-so-useful icons. Right-click on the toolbar and customise it by adding or removing the icons; you can also reduce the size of icons and remove the text labels.

Disable MSN Messenger from auto-starting
Whenever one opens

Disable MSN startup in Microsoft Outlook

Outlook Express or Microsoft Outlook XP, MSN Messenger loads automatically. To disable it, go to *Tools > Options* in Outlook Express and uncheck 'Automatically log on to MSN

Messenger Service'. Then go to *View > Layout* and uncheck the option of Contacts. In Microsoft Outlook XP, go to *Tools > Options > Other* and uncheck 'Enable MSN Messenger'. The over-eager Messenger won't be so eager now!

Keep a copy of the message
If you are on a trip and want to access your e-mail from another machine, keep a copy of your messages on the server of your e-mail service provider.

Go to *Tools > Accounts* and select the account (if you have multiple accounts), then go to *Properties > Advanced*. Check 'Leave a copy on server'.

This has one more advantage: if you've formatted your machine without taking a backup of your mail, you can retrieve the mail as a stored copy.

Autocomplete e-mail addresses
Enable the AutoComplete feature in Outlook Express to automatically finish the e-mail addresses after you type the first letter in the 'To' column. Go to *Tools > Options > Send* and check the option, 'Automatically complete e-mail addresses while composing'. This will make it less tedious and save a lot of time.

Auto-respond facility
Won't be checking mail for

Optimising your Inbox

TIME SAVING TIP

A three-step process to ensure that your Inbox never looks cluttered.

1. Organising: Outlook Express allows you to create folders within which mail can be organised. To create a new folder in Outlook Express, go to *File > Folder > New*. This will display the directory tree of your Inbox. Just select the location (say Inbox) where you want to create a folder and enter the Folder Name. Or, you could use the shortcut [Ctrl] + [Shift] + [E] and enter the Folder Name. You can also drag and drop folders to change their location. Folders can be quite useful, especially if you have multiple accounts configured on the same identity or to sort out e-mail messages on

the basis of sender, subject, etc.
2. Filtering: Message Rules can automatically sort your mail into the appropriate folder as soon as it is downloaded. Specify the folders where you want the messages to be downloaded based on names in the From address, names in the To address, certain words in the Subject line or in the message body.

Go to *Message > Create Rule From Message*. Create a rule selecting the appropriate options offered, and the next time you download your mail, it will be sorted according to the rules created.

You can also sort your existing messages based on the message rules created. In Outlook Express, go to *Tools > Message Rules* and click on Mail. You will

get a list of the message rules you have created. Click on 'Apply Now…', select the rules to apply, and click on Apply to filter your existing folder.
3. Grouping: Outlook Express allows you to group e-mail messages on the basis of the conversation carried. To enable this, go to *View > Current View* and click 'Group Messages by Conversation' (In Outlook, this option is available from *View > Current View > Conversation Topic*).

With this feature, all e-mail messages are sorted on the basis of the subject line and the messages that are a reply to that particular subject are grouped together. A '+' sign next to a message indicates responses based on that subject.

some time? Activate a feature called 'vacation reply' (if you are using a Web-based service). Most e-mail services such as Indiatimes provide this feature which can be activated through the options menu.You can type a short message which will be sent to all who e-mail you while you are away. In Outlook Express, you can do this from *Tools > Message Rules > Mail* and clicking on the New Rule option. Select the 'For all Messages' options from the condition for your rule field and in the Action select Reply with a message. You will have to select a message that you have already created and saved.

Change storage location

By default, all your e-mail messages are stored in a particular folder allocated by Windows. You can change this location by going to *Tools > Options > Maintenance* and clicking on the Store Folder. This will display the default location. Click on the Change button and select the new folder where you would like to store your mail.

Forwarding e-mail as attachment

In cases where a message needs a reply from a colleague or a friend, you should forward the mail to that person as an attachment. This will allow a reply to be composed to the original message without having to create a new e-mail message from scratch.

To do this just right-click on the e-mail and select the 'Forward as Attachment' option or use the [Alt] + [M] + [D] shortcut in Outlook Express.

Using voice chat

Most messengers such as Yahoo!, MSN and ICQ allow users to have voice chats. You need a mike and a good soundcard to use this facility. Voice chat is a convenient way of communicating and saves a lot of time and money. To do so in Yahoo! Messenger, click on the person's name and select the Voice tab, which will enable voice.

Improve video quality

The new generation of chat clients allow you to video-conference using a Web

Reduce camera refresh rate in Yahoo! Messenger

camera. Usually, on a dial-up connection you will experience a delay between the time that an action takes place and when it is recorded on the camera. To minimise this delay you could reduce the image quality and increase the refresh rate.

In Yahoo! Messenger, go

to *Login > Preferences > Web cam* and move the slider to 'Faster refresh'. The image that you receive now will be refreshed at a faster rate, which means lesser lag time in the transmission of actions at the other end.

Organise list of friends

When you have a huge set of friends in your Instant Messenger list, it becomes difficult to keep an eye on all of them. Add folders and name them appropriately, for instance, Family, Friends, Colleagues, and so on. You can now place names in the relevant folders. If you are using Yahoo! Messenger, go to *Tools > Manage Friend List > Create Group*.

In MSN messenger, the newer version by default organises or sorts the friends' list by groups. But if you are wondering how to sort them back to the online or offline status which your previous MSN version displayed, go to *Tools > Sort Contacts By > Online/Offline*.

Disable automatic saving of passwords

Never keep your passwords saved if you're sharing your computer, even though it makes automatic logins easier. Saving passwords makes it very easy for other users to log on using your name. In MSN Messenger or Yahoo!, during signing in you get the option to auto-

Download Mail to your PC

If you use a Web-based e-mail service, such as those run by Yahoo! and MSN, download a copy of your mail directly to your browser. This is much quicker than using the bandwidth-hungry Web interface and also allows you to access your mail without having to be connected to the Internet.

To do this first add a new account by going to *Tools > Accounts > Add* and select the Mail option. You will be prompted for personal details
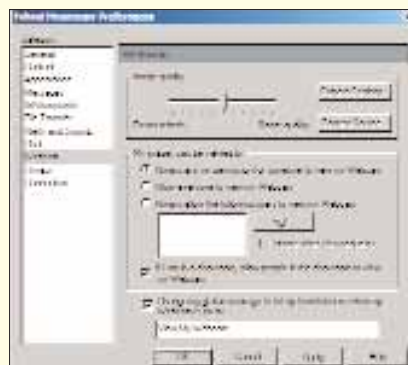

Download Web-based mail

and account information. Select the POP3 server option in the screen that asks you for your e-mail server information and enter the appropriate POP3 server address for incoming mail.

matically save passwords. Disabling this option will prompt you for a password each time you log in.

Save the contact list

If you have more than a handful of contacts in your MSN Messenger list then it makes sense to have their addresses backed up somewhere just in case you run

into trouble accessing your MSN account. Switching over to a new account is a lot less painful if you have your contacts list handy. The current version of the messenger client (3.6 or later) will let you save your contact list as a .ctt file. You can do this from *File > Save Contact List*.

This can be later imported using the *File > Import Contacts* option.

Blocking persons
Sometimes blocking is a very good option to get rid of overbearing friends. If one wishes to do so, simply go to *Tools > Options > Privacy* (for MSN Messenger) and select the person to be blocked. Block and delete will permanently remove the contact from your list and you also have options to remain invisible or offline.

Quick access to received files
When you receive files using MSN Messenger they automatically download to \My Documents\Messenger Service Received Files folder in Windows 98/Me and \Documents and Settings\username\My Documents\Messenger Received Files in Windows 2000. Instead of opening Windows Explorer and browsing to the folder each time, you can access the file faster through MSN itself. Just go to *File > Open Received Files* and the folder where the files are located automatically opens.

BROWSING

Saving Web pages
If you often feel the need to save copies of Web pages, use Internet Explorer to save all the elements of the page in a single .mht file. Go to *File > Save as* and in the Save as type option select Web Archive, Single File (*.mht).

Managing your bookmarks
Bookmark interesting Web sites that you want to revisit. You can furthur organise your favourite Web pages according to the content, for instance, music, humour, troubleshooting, leisure and so on. Go to *Favorites > Add to Favorites* and select the New Folder option to save the Web page. You can also move or modify your bookmarks from the *Favorites > Organise Favorites* option.

Restricting access
An increasing number of Web sites disseminate adult content but it's possible to restrict viewing of such sites using Internet Explorer instead of relying on a third-party software such as NetNanny. Go to *Tools > Internet Options > Content > Content Advisor*. Set the level of protection you want and assign a password so that the level of protection cannot be changed.

Smarter surfing
It's no use twiddling your thumbs waiting for a Web page to load. Open multiple browser windows and start getting used to surfing with many pages at one time. This saves time and you can avoid some of the Web traffic blues too. Using a browser such as NetCaptor will ensure that the multiple windows don't clutter your taskbar and are instead placed as tabs within the browser itself.

Autocomplete URLs
You don't always have to type the complete URL to open a site. IE has an autocomplete feature that lets you type the name of the Web site and press [Ctrl] + [Enter] (only if the Web site ends in .com). For a frequent surfer, exercising this option saves a lot of time.

Autocomplete data
Many browsers such as Netscape and IE let you autocomplete the Web site name as well as the data entered in the previously visited Web sites. User names and passwords need to be entered just once and on your next visit the browser automatically fills in the required fields. This is a timesaver if you are browsing multiple sites—your next visit to the site will not require you to type the data all over again.

Importing bookmarks
If you'd like to import bookmarks from one browser to another, go to *File > Import and Export* and the wizard
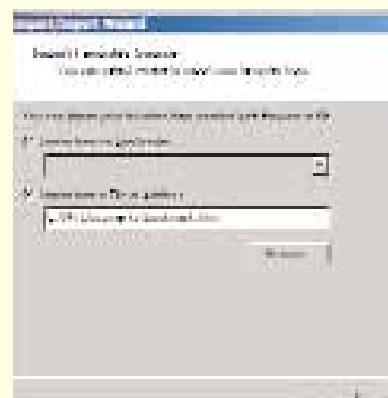
Bookmark favourite sites

will guide you through the process. This gives you the same set of links organised in the same manner in another browser.

Disable animation and sound

Irritated by the time it takes for sites to load all the images? You can make the Web pages load faster
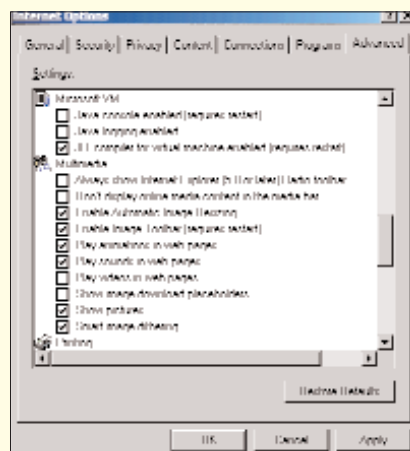
Block unwanted distractions

provided you are willing to compromise on certain applications. Disable

options such as playing videos, animation, sound and even images. The Web pages will then load in a jiffy.

Blocking cookies

Most Web sites today place a cookie on your computer whenever you visit them. These are sometimes used to identify surfers when they come back to the Web site. Because cookies often contain personal information, you might want to prevent them being stored on your drive.

This can be prevented in most browsers. If you are using IE 6, go to *Tools > Internet options > Privacy* and adjust the settings to ensure that only sites that you trust will be allowed to store these cookies.

Increasing cache

Whenever you visit a Web site, the graphics and the text on the pages get stored in your computer's cache. This allows the browser to load Web pages faster when you next visit the site by reading data from the cache. The larger the size of the cache, the more the amount of data that can be stored, and the faster will be the browsing.

However, an increase in the size of the cache will take up valuable disk space. To find the right balance

you should experiment with the size of the cache. Do this by going to *Tools > Internet Options > General > Settings* and use the slider to increase or decrease the size of your cache.

Disabling automatic refreshing

Every time you visit a site you've been to before, the browser tries automatically refreshing the contents of that page.

This means a wastage of bandwidth in case the information on the page does not change often. One can avoid this by going to *Tools > Internet Options > General > Setting > Never*. However, on dynamic pages like the home page of a portal you need to remember to press [F5] (the Refresh key) so that you don't end up looking at old information.

Remove IE icon from desktop

For those who like a minimum of clutter on their desktops you can remove the icon of Internet Explorer by going to *Tools > Internet Options > Advanced*. There you can scroll down till you see the option of 'Show Internet Explorer on Desktop'. Uncheck that option and the Internet Explorer icon will disappear from the desktop.

Keep your passwords private

If you surf from an Internet café you should check to see that your browser is not saving your passwords in its

cache. This might allow people who use the system later to access your private e-mail account. To disable this you will need to go to *Tools > Internet Options > Content > AutoComplete Settings* and disable the 'User names and passwords on forms' option.

Use a firewall

Installing a firewall is a must for those hooked to the Net. A firewall not only protects you from attacks from the outside but also against Trojans. There are several personal firewalls that provide protection against these. ZoneAlarm is one such free software, which allows you to select the programs which are allowed access to the Internet.

6
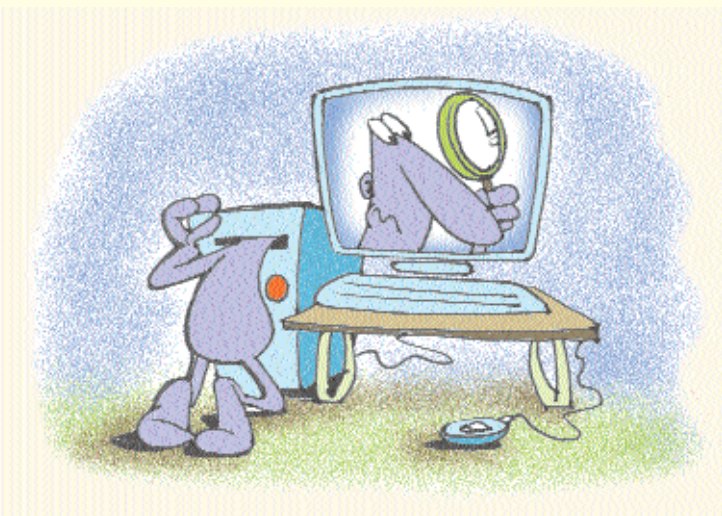
SEARCHING

Search toolbars

Download search toolbars provided by Google and Yahoo! and make them a part of your browser's toolbar. Type the search query directly in the toolbar. Netcaptor allows you to use shortcuts to directly search from the address bar. For example, typing *g digit* will automatically search for Digit in Google.

Browser plugins such as UCmore and Atomica are very useful when you are searching for specific information. Both the Google toolbar and UCmore let you locate pages or Web sites that are similar to the ones that you are visiting at a particular point in time.

Girafa is a free browser add-on that provides a visual preview of Web sites thrown up by a search engine without requiring you to actually visit the Web sites.

Defining search criteria

In order to get accurate

results from a search, define the query in a proper manner so as to generate correct results the first time itself.

Using exact phrases: To find an entire phrase as it is, add quotes (" ") around the term. For example, "Digit India" returns listings where the words "Digit" and "India" appear together and in that order, either in the title, the URL, the description, the keywords, or the document.

Search for required words: Type the plus sign (+) or the word AND before a word for it to be found in all of the search results. For example, *Digit + India* (include a space between the first word and the + symbol) or *Digit AND India* returns all listings that contain 'India' and 'Digit' but not necessarily together.

Search by excluding: Use the minus sign (-) before a word or the word NOT for it to be not found in the search results.

Search for multiple words: Use the word OR for one or the other term to be found in the search results. To find documents containing the word 'Digit' but not the word 'India' or, for example, the word 'cricket', type *digit NOT (India OR cricket)*. You could also type this as *digit - (India OR cricket)*.

Using wildcards

An asterisk (*) indicates a wildcard search. This is useful when you are trying to match a term that may or may not be plural or might use one of several verb tenses. For example, physi* will find results containing words that begin with 'physi' (like physics, physical, etc). You must have at least four non-wildcard characters in a word before you introduce a wildcard.

Some search engines support two wildcards. The asterisk (*) is used to replace multiple characters and the per cent (%) symbol is used to replace only one character. For example, psych*ist will find all results which contain words that begin and end with 'psych' and 'ist' (like psychologist and psychiatrist), and gene%logy will return sites containing words beginning with 'gene' and ending with 'logy', separated by a single letter (like genealogy and geneology) which is useful for commonly misspelled words.

Third-party searching aids

Third-party software such as Copernic 2001 allows you to obtain fast and relevant results from multiple search engines right off your desktop. Copernic searches 80 search engines which are grouped into seven categories. It does not display any broken links, and it also allows Web translation into seven different languages.

Secret tips for search engines

Google: If you want extremely quick results for your search, there's
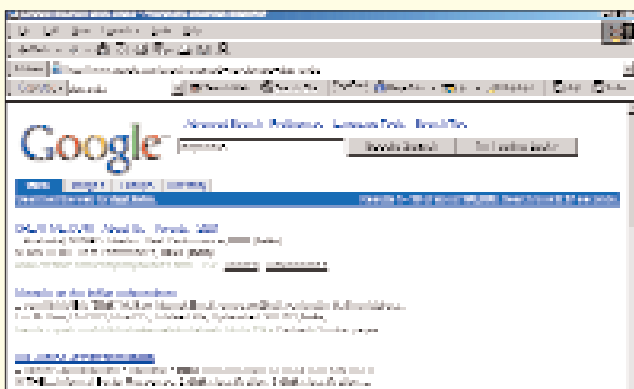
nothing better than Google. It generates highly accurate results in barely a couple of seconds, depending upon your speed. You might also have noticed two more options, 'Cached' and 'Similar Pages'—shown after every search in Google. So if you want sites similar to the one displayed in the result, click 'Similar Pages'.

Yahoo!: Yahoo! has a huge index of sites. So if you are clear on what you are looking for, head for Yahoo! Directory.

Lycos: The search feature in Lycos filters out inappropriate material by dropping certain keywords from the search criteria. This prevents children from viewing offensive material.

Content filtering in Lycos

AltaVista: AltaVista has a filter option to sift the contents of the search. More importantly, it provides users with a password facility so that the search settings may not be changed. For this, one must first activate the family filter which is present on the home page.
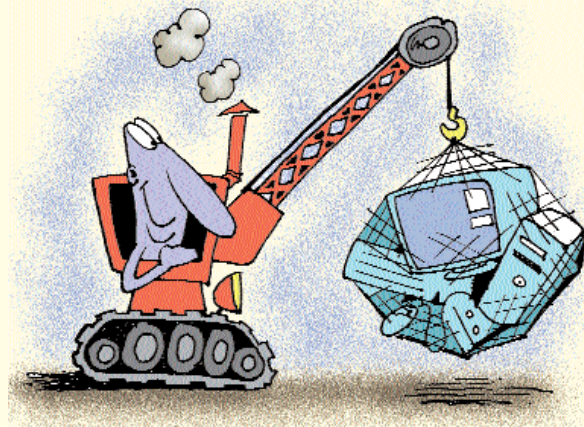
MetaCrawler: MetaCrawler provides a mini crawler that allows you to search from your desktop. If you have a slow connection or are using an old browser, it offers a 'Low bandwidth search'.

DOWNLOAD MANAGERS

Dragging and dropping links in FlashGet
Sometimes, after clicking a download link, the browser prompts you to download required files. In order to make your download manager do so automatically, drag and drop the link in the download manager. If you are using FlashGet as your download manager, activate the 'drop zone' option. This will display a small window on your screen; drag and drop the link on to the window and your file will begin downloading.

Increasing downloads
If your download manager refuses to download more than two or three files at a time, go to Options and change the number of files which are to be downloaded. Usually, by default, download managers allow downloading of two or three files at a time. Increase the limit. Also, you don't have

to wait for the previous file to complete downloading.

Specifying speed in FlashGet
If you frequently download multiple files on a network you will end up depriving others of bandwidth. To avoid this, set a speed limit
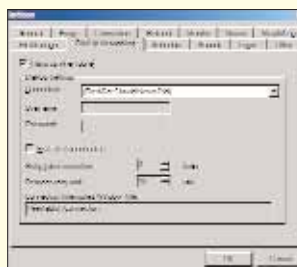
Time the downloads for efficiency

which restricts the bandwidth utilised by your download manager. For most situations you should set this at about 3 Kbps by going to *Options > Connection > Download Speed Limit*.

Scanning downloads
A virus finds ingenious

ways of entering your PC and downloading files without scanning content is an open invitation to PC pestilence. Most download managers give you the option of automatically setting your anti-virus software to scan every file that is downloaded.

In FlashGet you can do this by going to *Tools > Options > File Manager*. Select the 'Use virus scanner to scan the downloaded file(s)' checkbox and then specify the path to your anti-virus software and scan command.

For McAfee AntiVirus this would be something like C:\Program Files\McAfee\ VirusScan95\scan95, args /autoscan /nosplash

Norton AntiVirus users might try C:\Program Files\Norton Antivirus\navw32.exe

Split files
Splitting files can increase download speeds tremendously in FlashGet. Usually, splitting the file in three or five segments is sufficient. However, if you are downloading a particularly large file which is available from several servers, you could get better speeds by increasing the number of segments being downloaded simultaneously.

The number of segments that you want the file in can be set in the option box that pops up when a download begins. Just set the option for the number of segments that you want the file to be split into. ◀

8

15 essentials for a die hard gamer

Enthralling scenarios, mind-blowing graphics, fast-paced action and thrills that have kept us glued to our PC! Games that have inspired us, scared us, and amazed us. Here's a count down of games that no gamer worth his salt should miss. Want to play?
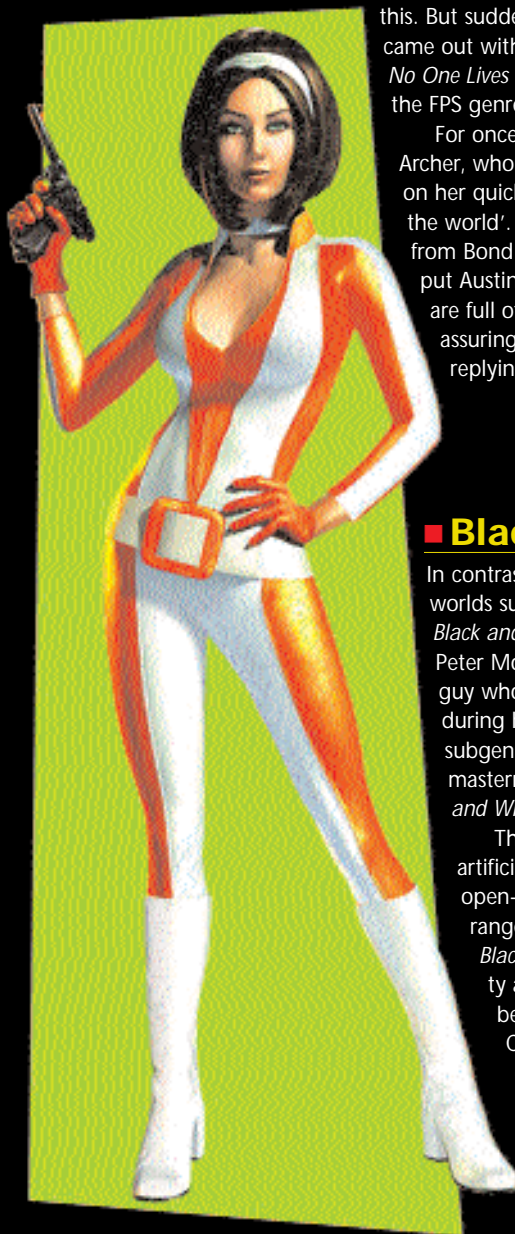
■ Deus Ex

Conspiracy theories, global domination, secret service and a few chosen who rule the world. That's the background for ION Storm's FPS/RPG, *Deus Ex*. (FPS: First Person Shooter, RPG Role Playing Game). The role-playing element in *Deus Ex* comes primarily from skills and augmentations, which makes the game very interesting. Want rock solid aim with the sniper rifle? Invest your points in the rifles skill. Want to make it easier to pick locks or hack computers? Invest in lock-picking and computers, respectively. The choices you make in skill distribution directly affect your performance in the game.

■ No One Lives Forever

Monolith never had a track record of making good games before this. But suddenly, almost out of nowhere, they came out with a kitschy, 1960s-Bond-themed *No One Lives Forever* (*NOLF*), which rejuvenated the FPS genre itself.

For once, there's a female lead, Cate Archer, who doesn't rely on her 'assets' but on her quick wit and quicker reflexes to 'save the world'. The game uses several clichés from Bond movies with humour that would put Austin Powers to shame. The cut-scenes are full of one-liners, like Archer's partner assuring her, "I can be subtle," and Cate replying, "Then explain that shirt."

■ Black and White

In contrast to the traditionally violent game worlds such as *Quake* and *Soldier of Fortune*, *Black and White* is almost a work of art. Peter Molyneaux is a British scallywag —a guy who re-reads *Lord of the Rings* during his free time. He's the creator of a subgenre called the 'God game' and is the mastermind behind *Populous* and *Black and White*.

The game has an insanely complex artificial intelligence (AI) and offers an open-ended gameplay with a limitless range of emotional and moral paths. *Black and White* stands apart in creativity and perhaps even surpasses our best films or books on that count. Call it interactive art, this game changes itself as you play it, and over a period of time, it becomes a reflection of who you really are.

■ MDK 2

MDK was one of those unfortunate games that had everything going for it except sales. It had great graphics, wicked level design, and critical acclaim.Though it went largely unnoticed, its sequel offered some redemption to the characters and made them gaming icons.

MDK 2 is a third person shooter where you control three characters: Dr Fluke Hawkins, Max the six-legged dog, and Kurt the Janitor. Each of these characters lend itself to an innovative form of gameplay: Max can use four weapons at a time, which makes him ridiculously powerful; Kurt has sniping and paragliding skills; and Dr Hawkins is the wacky scientist who creates devastating weapons by combining items at hand together.

■ Diablo II

In 1996, Blizzard, the company that perfected the RTS genre with *Warcraft*, unleashed *Diablo*. Before *Diablo*, RPGs and Action games never found a common ground. In many respects *Diablo* is a simple action game, requiring only the left mouse button to play, but it has the storyline of an adventure game and the open-endedness of an old-school RPG.

In *Diablo* you play either as a warrior, rogue, or sorcerer who has journeyed to the town of Tristram for whatever reason you want (money, adventure, obsessive-compulsive desire to beat the unliving crap out of the undead) to fight back an invading demonic horde from beneath the town, led by the strongest of the Evils, Diablo himself.

■ Tetris

Russia's greatest export! No other game has had the impact and fan following to match *Tetris*. A simple game, the objective is to stack falling blocks of four into a line. You do so until infinity, or until you lose. But within that game are multiple layers of strategy and approaches that fascinate both the layman and the mathematician. The game is simple and can be played on even the most primitive computer and yet can be seen on some of the most powerful consoles and PCs. In fact, it sold 30 million copies on the Nintendo Gameboy. Add an equal number to the uncounted clones sold in grey markets as 'Brick Game', in key chains, in handhelds and cell phones. Ironically, Alexey Pajinov, the creator of this game did not make a single rouble out of the royalties, all of which went to the Soviet Ministry of Commerce.

■ Counter-Strike

What started out as a simple mod on the *Half-Life* engine two years ago has now gone through several enhancements, improved network code, balanced gameplay, and voice support. *Counter-Strike* enjoys popularity unlike any other mod; more people play it online than *Unreal Tournament* and *Quake III* combined. The game basically boils down to this: two teams, terrorists and anti-terrorists, fight it out. The team that survives wins the round. Since you have to play as a team, it creates a unique team play atmosphere where cooperation is as crucial as your ping. More than anything else, it creates gameplay that never gets boring. Even after playing a particular map to death, there are always new permutations and possibilities to explore.

Since it's based on a three-year-old *Half-Life* engine, it can play on the leanest machines. A game fit for both LAN parties and professional gaming tourneys. Best played online or on a LAN, this is the perfect game for after office
Srike takes the cake—it's free.

■ Max Payne

With fantastically slick narration, the Max engine, and Bullet-Time motion, *Max Payne* is one of the shortest and sweetest gaming experiences you'll ever have. No game to date has featured such sharp visual quality in its environments—environments that not only look real, but also act real. John Woo was the main source of inspiration for some of the intentional movie-like elements.

Max Payne has Bullet-Time, an effect much like the slow-motion scenes in *The Matrix*. This effect causes the entire game to slow down significantly in a dramatic effect that is designed to give Max a lethal advantage over his enemies. *Max Payne* is about style, about fast pacing, and that little compromise on realism keeps this game centered on the sweet spot all the way.

■ Need for Speed 4: High Stakes

Recreated through close collaborations with the world's most renowned car manufacturers, *Need for Speed: High Stakes* lets you unleash a dream collection of cars on the wide, open roads. The star of the show is, of course, the police mode, which is almost a whole new game in itself. Ramming a few hundred thousand dollars worth of vehicles off the road is pretty good fun, and makes *High Stakes* worth it.

The *Need for Speed* series may not win accolades from the purists, but when it comes to the thrill of riding some of the world's fastest sports cars, nothing comes close. This game might have sequels that are better looking and counterparts that are simulated to the very minute detail, but in terms of replayability and clean fun, this is simply the pinnacle of sports car racing.

Commandos

Pyro's *Commandos* ranks as one of the most memorable games in the tactical strategy genre. The game is a combination of single and multi-squad campaigns in which you have to manage Dirty Dozen-type special agents during infiltration missions in World War II. At every situation, you have to be constantly aware of the consequences. Playing a mission is like figuring out a puzzle and it takes many retries before one would finally get it all together. While Commandos may not win any awards for its graphics, it's great to see the aesthetic value and the attention paid to detail. It works smoothly on the leanest of machines—a Pentium 166 will do just fine.

Homeworld

A terrific story, amazing narrative, mystery, and surprises at every turn. In a genre (real time strategy or RTS) notorious for being boring and predictable, *Homeworld* is revolutionary. The story is of a colony struggling to find its home and roots. Equipped with hyperspace capabilities, you take a massive colony of people in search of their home, only to run smack into a swarm of hostile aliens. You have to guide your fleet through a series of 16 missions by building more vessels, researching new technologies, and harvesting resources in the voyage to your Homeworld.

The 3D engine is stunning and the attention to detail is simply staggering. The interface is very intuitive, though the three-axes movement may be a little tricky.

Command and Conquer Red Alert 2

The *C&C* series deserve the credit for taking RTS to a mainstream level. If you had to pick one more title to add to your shopping list, it would have to be *Red Alert*, the best of the *C&C* games and one of the greatest strategy games every made. *C&C* has a fiction-meets-the-real-world type of story line, where Einstein invents a time machine and using it, kidnaps Hitler to prevent the outbreak of World War II. Though early versions of *C&C* were strongly single-player based, later versions began to explore the multi-player options and more specifically, the skirmish mode. That's because the AI gets predictable after a while and is not able to put up much of a fight against a human. A single skirmish can take several hours to complete, especially when both the opponents are evenly matched.

Half-Life

No game has come this close to capturing public imagination and the critic's mind alike. The story line was genuinely scary, and the interaction with non-playing characters (NPCs) such as scientists made the game seem much more real.

Half-Life didn't just raise the bar for PC gaming, it obliterated it. Hard to believe, but this first game by a couple of Microsoft milionaires brought about many staggering innovations to FPS games: skeletal animation, intelligent AI, great story telling, NPCs, map and mod support. In the single-player game, you play Gordon Freeman, a research scientist working in a secret government lab with strange alien materials. Very early on, disaster strikes and you have to fend off alien attackers and the US military. The plot, though rigidly linear, serves its purpose admirably. *Half-Life* has deservedly won over 50 'Game of the year' awards from publications and print magazines worldwide.

Unreal Tournament

When *Unreal Tournament* (*UT*) was released in 1999, everyone drew a comparison to *Quake III*, and in many review sites, *UT* was the more popular choice.

The *UT* bots were far more skilled than the ones *Quake III* had, and with a feature called auto-adjust skill, the bots could match the average skill set of the player they were currently engaging. *UT* followed the everything-but-the-kitchen-sink philosophy, having game types such as Tournament DeathMatch, Assault, Domination, Capture The Flag, and Last Man Standing as the standard package.

UT has a markedly inferior 3D engine than *Quake III* in terms of raw power and capability. This conversely makes the game run acceptably on older PC hardware in software mode. Besides, *UT* has the ability to render extremely large maps without choking your video card.

Quake III

id software has always set standards in terms of graphics. Curved surfaces, reflections, environment mapping and volumetric fog—*Quake III* was the first graphics engine to enable curves to be created, rather than lots of polygon flat shapes placed close together.

This game has been the basis for many other retail games such as *Star Trek: Elite Force*, and American McGee's *Alice. Return to Castle Wolfenstien* uses a modified version of the *Quake III* engine. *Quake III* is the reason people buy graphics cards, and these graphics cards lead to better games, and better games need better graphics cards. The gaming industry would have been significantly different today if not for *Quake*.

SRIRAM SHARMA

Tips&Tactics
Being Max Payne
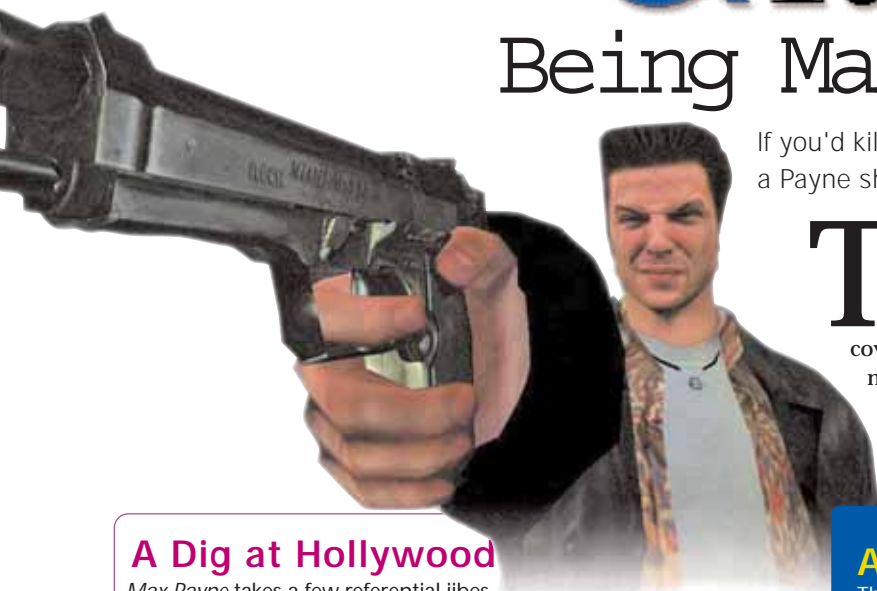
If you'd kill for single player action games, it's time you took a Payne shot

Three years in the making and the latest release from the Finnish company Remedy, *Max Payne* is the best single player action title after *Half-Life* and arguably the game of the year for 2001. It follows the story of a fugitive undercover cop, framed for murder and hunted by the cops and the mob, on a wintry Christmas Eve in New York. The game boasts of several new innovations, a proprietary graphics engine, bullet-time '*Matrix*' gameplay and noir storytelling.

SRIRAM SHARMA

A Dig at Hollywood

Max Payne takes a few referential jibes at Hollywood action movies. Conversations between thugs give away endings to som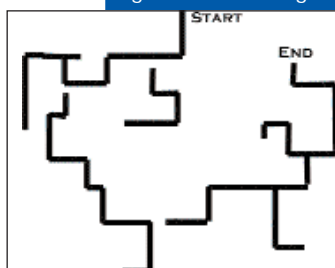e popular movies such as *Pulp Fiction*, *Seven*, and *The Usual Suspects*. And then there's the lobby scene complete with metal detectors, *a la The Matrix*.

A Cold Day in Hell

This is probably the most difficult part of *Max Payne*, where he gets stuck in a drug-induced hallucination and has to run through a corridor maze. Head into the corridor maze and take the following directions: right, left, right, left, left and straight ahead, left and a right, which will bring you to a path that leads you to a blood trail. On left is the map of the blood trail for your navigation. You must walk only on the blood trail or you fall off and die.

Activate cheats

To get access to the game console, create a shortcut on the desktop and enter *-developer* in the target. Access the game console with [F12] once you have developer mode running.

Example:
C:\maxpayne\maxpayne.exe -developer

Press [F12] to bring up the console, then type:

Coder	For God mode, all weapons, unlimited ammunition,etc.
God	For God mode
Mortal	Switches God mode off
Getallweapons	All Weapons
Getinfiniteammo	Unlimited ammunition
Noclip	No clipping mode
Noclip_off	No clipping mode off
Getbullettime	Fill up when bullet-time runs out
Showfps	Show frame rate
Getpainkillers	Get eight painkillers
C_addhealth (100)	Add 100 to health
Jump10	Jump higher (set to 20 or 30 for even higher)
Setwoundedstate	Walk as if wounded
Setnormalstate	Walk normally

Shooting in Bullet-Time

Max Payne would be impossible to complete without the bullet-time shootdodge, which helps you move in slow motion and perform some amazing aerial manoeuvres. For the perfect shootdodge, start diving from behind a wall to the left or right, pepper any enemies with bullets, and dive behind any available cover. Shooting in slow motion allows you to size up your enemy and manoeuvre yourself right into them. Make sure you are behind a wall or a table after your bullet-time manoeuvre, as it can leave you vulnerable to enemies.

MRP: Rs 699 · Min Requirements: 450 MHz Processor, 96 MB RAM, 16 MB Direct 3D compatible graphics card · Distributor: Express Interactive, Phone: 022 8870017

Death Matches

A killer espionage game, the Best Guide to Illustrator,
a guide to Ayurveda and more games and books reviewed…

It's good to be back

It's been nearly 10 years since Allied espionage soldier William J. 'B.J.' Blazkowicz made his first escape from Castle Wolfenstein. After almost a decade comes the long awaited sequel to the game that started it all. With a huge budget and a modified *Quake III* engine behind

the project, fans of the FPS genre have keenly awaited *Return to Castle Wolfenstein* (*RTCW*).

RTCW's story unfolds in the early levels through seemingly unrelated events. B.J. Blazkowicz is asked to infiltrate and examine the activities of the Nazi Paranormal Division, headquartered at Castle Wolfenstein. The story progresses through a wide variety of mediums-in-engine cut scenes, enemy conversations, mission briefings and scattered notes around the levels.

The graphics engine is truly next-generation, and together with the level design makes for some of the smoothest gameplay on single player mode. Enemy models are highly detailed, their movements realistic.

RTCW is a mix of elements from the great shooters of the last decade, blending stealth with action, *Half-Life* at some parts and at some places, *Thief*. The game's seven missions are divided across 26 levels and take you through a variety of locations, each differing in structure and design. Some of the missions exercise stealth while others are run-and-gun missions. The ones that are centred on combat with Nazi troops are highly engrossing. The guns are modelled marvellously—especially the flamethrower and the sniper—and give off very impressive sound feedback. Gaming sweetness lies in seeing the flamethrower creating a near arc in the air.

The pitfalls? With highly objective-oriented missions, linear gameplay renders the objectives near redundant to the game's levels. The action parts of the game were really incredible; the stealth parts were not, partly due to the weak enemy AI which fails to respond even to gunfire at some places. The stealth feels more like a 'me too' feature than a gameplay device.

Single player mode in the game is quite short, with about 13 hours of gameplay at most. While this version may not have lived up to the hype, the multiplayer mode adds extra grace and makes it a winner.

Developer: Gray Matter Studios
Genre: Action
Web site: www.returntowolfenstein.com
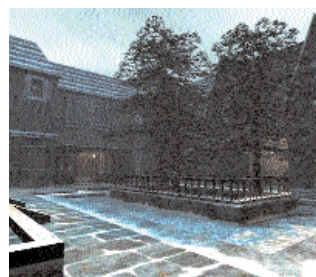**Rating:** ★★★★

Pick and Play

Budget game packs come in three flavours: games that have been out for a decade or more; shareware compilations; and custom-built nonentities. However, there are glimmers of hope. Companies such as Milestone and EA have made noble efforts at improving the overall quality of budget titles with games that play smoothly on your not-so-state-of-the-art-PC-any-

more type of set up. *Lock and Load*, the first FPS-only game pack, is not a run-of-the-mill budget title but is a good chance for the FPS enthusiast to play games that were overshadowed by *Half-Life*.

This is what the line up looks like: *Soldier of Fortune* Platinum Edition, *SiN*, *Kingpin: Life of Crime*, *Spec Ops II with Spec Ops II: Operation Bravo* an expansion pack.

Soldier of Fortune is an ultraviolent shooter. It uses the proprietary GHOUL technology that manages individual hit points and makes gore even more visceral. *Kingpin* puts you on the streets as a gangster, where violence is the only means of negotiation. With in-game music from rap group Cypress Hill, this game has one of the best sound effects for any FPS. *SiN*, an under-appreciated classic from Ritual, will surprise you in many ways, with controllable vehicles and fantastic level design. *Spec OPS II* is a Tactical sim where you assume the role of squad commander. However, the game is riddled with bugs that sour the experience.

Released during 1998-99, these games have an excellent mod community, you can download custom missions →
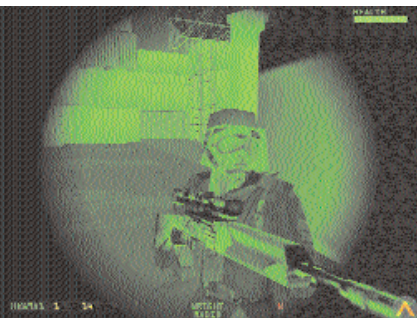
and maps, and replayability is assured, thanks to the multiplayer modes. All these games have multiplayer modes, though not as popular as *Quake III* or *UT*, but immensely playable. Finding online servers would be a nightmare, but on a LAN these can surely get the party started.

SiN, *Kingpin* and *Soldier of* *Fortune* use modified *Quake II* engines, so the graphics are definitely fetching. For a game pack, this is an impressive line up of games, although the Rs 1,299 price tag is a tad steep for only four games. However, this remains an excellent purchase for people with mid-range systems who don't intend making an upgrade just to play the latest games.

Developer: Various
Genre: Action
Contact: Milestone Interactive
Phone: 022-8381614
Web site: www.milestoneinteractive.com
Price: 1,299
Rating: ★★★★

THE ILLUSTRATOR 9 WOW! BOOK
Illustrator's delight

Whether you are a beginner or a seasoned user of Adobe Illustrator, this book should cater to your needs. The focus is on the Adobe Illustrator 9.0. There's an eight-page introduction to the new features of the latest version. The information is categorised as Basics, Tips, Exercises, Techniques, Galleries and References. All along the book you will find illustrations or screenshots to assist you. A CD-ROM icon along with any of these illustrations is an indicator that the art sample is available in the accompanying CD. Every chapter has an 'advanced techniques' section, which discusses the nitty-gritty of complex artwork and all of them are accompanied with a step-by-step explanations. Altogether this book is a combination of a guide, tips and tricks galore and also an expert advisory to the latest version of Adobe Illustrator. The book also has a handy pull-out at the rear side, which is full of short cuts and keyboard and mouse combinations to quicken your working and learning in Illustrator.

Publisher: Peach Pit Press
Contact: Computer Bookshop
Phone: 022-2070989
Fax: 022-2623551
Price: Rs 2,534 (approximate)
Rating: ★★★★

AYURVEDA:THE MANTRA OF NIRMAYA
Rejuvenated with Ayurveda

This CD title is chock full with information on Ayurvedic treatments for various ailments. The Shortcuts icon on the interface lets you view a number of very slick videos on the various techniques of therapy used.

You can also get a list of Ayurveda treatment centres in Kerala from this section, as well as a list of ancient Ayurvedic terms and phrases. In addition, you will find a list of important medicines with their scientific names and medicinal uses in the Shortcuts section. The References section gives you a list of books that you can refer to. All in all, this is a very informative package.

Developer: Invis Multimedia
Contact: Relax Herbals and Exports
Web site: www.ayurvedicmassage.com
Price: Rs 1,269 approximately
Rating: ★★★

MACROMEDIA DREAMWEAVER 4
Dare to weave a dream

This book is a true tutor for users at all levels. An absolute beginner should find it eye opening, while an experienced user might find it to be a helpful tool in achieving complex designs with Dreamweaver 4. Starting off with simple HTML designs and ending with site management, the book gives you a complete insight into how you can go about building and deploying a site. The author takes you into a step-by-step practical process of building a site. By quoting references to existing sites the book makes learning Dreamweaver 4 quite easy. Altogether this book is a good guide for starters and an even better tool to fall back on for experienced users.

Publisher: Peachpit Press
Contact: Computer Bookshop
Phone: 022-2070989, 2076356
Price: Rs 1,100 (approximate)
Rating: ★★★

THE PHOTOSHOP 6 WOW!BOOK
Oh WOW!

When you think image-editing tools, the first name that comes to mind is Photoshop. The latest upgrade of the software, version 6, has ensured that things only get better and easier for the designer and imaging artist. And if you need an insight into the juicy tidbits in the new version then you should probably start off with this book. Photoshop 6 WOW! gives you a glimpse of what's new in version 6 and also ImageReady 3. Take a brief look at the new features added and the improvements made to the old ones. You can also follow in-depth reviews of the features in later chapters. Then get a quick grasp of the basics in the section on fundamentals of Photoshop. From here on the book takes you through the essentials of Photoshop. The book also has a section on Web and motion graphics as well as one on paintings. While the book does seem textually dense in certain sections, it makes up for it with some eye-catching screenshots and visuals. And for a real treat and some inspiration, check out the paintings and art work showcased in the book.
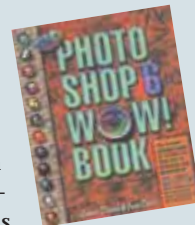
Publisher: Peachpit Press
Contact: Computer BookShop
Phone: 022-2070989
Fax: 022-2623551
Price: Rs 2,028 (approximate)
Rating: ★★★★

CRIMES

YOU#MAY#HAVE#ALREADY#COMMITTED

1 Sharing and distributing MP3s
Extract songs from an audio CD to an MP3 or any other media format and it's a crime. The moment you distribute the MP3s or allow other users access to those files, you are in a bigger soup. In an office environment, your actions of ripping audio CDs and sharing MP3s can even get your employer into legal trouble.

2 Ripping movies
You can rent a VCD and watch it on your office computer, but don't think about ripping the VCD and creating a DivX movie out of it. DivX, per se, is not illegal, but creating DivX movies is.

3 Illegal downloading
So what if Napster, Audiogalaxy or similar sites provide the service to search for MP3s or movies. You cannot download them unless you have legally paid for the songs or movies to be downloaded in that specified format or unless the songs/movies are free for download. This is one of the major crimes most of us are unknowingly guilty of.

4 Pirating software
When you buy an assembled PC, you get a lot of software goodies. But unless you have specifically paid for the software and have the license for it, you are committing piracy. Using a licensed copy of software on more computers than what the license permits is also a crime. You are also not allowed to distribute games or software.

5 Using a software crack
Taking the software demos or time-limited versions available on the Internet or from CDs and using cracks or passwords to make the software fully-functional isn't the right thing to do.

There are many digital crimes you can commit unknowingly.
Read on and see—
Are you a Criminal?

6 Copying source code
Using code from a Web site for your own program is fine as long as you give proper credits. Again, in an office environment if you destroy or conceal source code, especially when it is required to be maintained under law, the lawmakers will throw the book at you.

7 Disregarding copyright
It's very easy to cut and paste from Web sites, but browse down in the page and you will see a copyright notice. Unless it's specifically mentioned that the content on the site is free, you cannot copy content, images or presentations from Web sites.

8 Deleting files in Office
If a person without appropriate permission from the user or network administrator downloads, copies or extracts any data or information from the office system or deletes or damages such data, he is violating the Information Technology Act, 2000. You are liable to pay compensation to the extent of Rs 1 crore.

9 Hacking
Proud of your hacking/cracking skills? Change a user's password and restrict his access to a network (or Internet)or a PC, use credit card numbers for purchases without the knowledge of the owner, distribute viruses— then you're surely on the wrong side of the law.

10 Publishing/sharing porn
Even though you can watch porn over the Net, the moment you distribute and share it over a network, you are entering the dark world of crime. The law on this may make for amusing reading ("whoever publishes….any material which is lascivious or appeals to the prurient interest…"), but the law-upholders take this matter quite seriously.

Crime and Punishment
Most of the crimes listed are due to an infringement of The Copyright Act, 1954 (and subsequent amendments made in 1994/95) and The Indian Information Technology Act, 2000. The sentence for these may extend to three years with fine which shall not be less than Rs 50,000 but which may extend to Rs 200,000.

Kabir Malkani (a.k.a. Slick) is the designer behind the enthralling Digit CD interfaces. Read on if you want to follow his Flash footsteps.

"If you are new to Flash, there's no place better than the Internet. No matter what you are looking for—tutorials or advanced tips or some dazzling Flash art—the Net is the place to be. Come join us."

www.flashkit.com
The Flash Developer's databank; bookmark it.
www.extremeflash.com
More extreme, more Flash. There's a screenshot below.

www.flahoo.com
A fabulously well organised directory of Flash sites
www.virtual-fx.net
Look no further for tutorials; meant for users at all levels
www.flashplanet.com
The planet indeed with news, resources and views
www.actionscripts.org
Online community for developers at all skill levels
www.epsilonconflict.com
Load to see the kind of magic that you can weave with Flash

Anaida's
5

Pop artist Anaida, whose hits include 'Oova Oova' and 'Mailu mailu', finally discloses her top five sites

anaida.com
Definitely the one that I frequent the most! Check it out yourself to know more.
lifeminders.com
I keep myself updated on subjects such as psychology with the newsletters at Lifeminders.com. You can find many interesting topics here.
Gogo.com
Music is in my genes. Gogo keeps me informed about new releases and music that you can publish online.
Amazon.com
Can't do without it; go there to check out the best music and order.
Cosmopolitan.com
The articles… definitely worth a read!

NETFACTS

The dominant age range on the Internet is 18 to 35 years old.

The average age is around 31 worldwide.

There are more than 2,700 newspapers with online editions

OLD WAY

Getting things from abroad

Tell your friend or relative, who lives abroad, to buy it for you. Then wait for months till they bring it. Pay with cash.
Time taken: months, if relatives don't come any sooner, or at least a week.

TECHWAY

Go to one of the sites that sell what you want, say a PDA. Pay for it with your credit card and relax. It'll be delivered at your doorstep.
Time taken: three days with FedEx delivery.

OPERATION
RHINO VIRUS

Of a month that was filled with germ warfare, combat outfits and starry starry skies

C an working on a story have side effects, besides the usual late nights and caffeine addiction? This month, one of our cover stories, 'Virusproof forever', had a strange effect on the team.

Things were running smooth while we were redesigning Digit: stories were being furiously edited, writers told to write again, illustrations improved further upon, design and graphics being coordinated like never before. But glitches happen with nary a warning. A real-world virus quietly sneaked into people's systems and soon you could hear sniffles and sneezes all over the place.

The first casualty was Karan. Now taking time off to rest and recover would have put the schedule for the redesign back by a few days. So our assistant editor who is rarely seen in anything other T-shirt and a pair of shorts, gave in to the demands of the occasion and came dressed in 'full pants' and a jumper for an entire week.

The next to go down was the writer Avina. But with very tight deadlines to take care of, she simply updated the usual writer's arsenal of notepad, pen and dictaphone with a trusty box of tissue papers to combat the changing war scene. And in between juggling with her sniffles, researching her stories, going out to

ILLUSTRATION: Mahesh Benkar

interview people and then writing her articles, she also found time to pack and shift house.

Soon the virus infiltrated the bastions of the copy desk. Anshul, our copy editor, was the first victim at the desk and was missing in action for a day. But with stories piling up at his desk, he was soon back on the job and right where the action was—making up for lost time by working extra long, fortified with several cups of hot tea.

Although the virus had taken its toll,

it was not done yet. The design team was one area where it had not tried to spread its tentacles as yet. And so it marched on— Shiva, our senior designer, was the next victim. But he too continued to man his post, trying out different layout options between coughs and sneezes.

The joke going around the office was that the virus was following the path of the stories…from planning to writing, copyediting and finally the design. We're wondering if it will next infect the production team. We are also wondering if we can draw lessons from our cover story, 'Virusproof forever'. One other suggestion floating around is that the next time we do a 'dangerous' story, we test it first for possible side effects.

Adventures in Star Gazing

A story on supercomputing? That's no big deal for our writers. But ask a technology writer to interview celebrities and the initial reaction is one of sheer bewilderment: "But I don't know any!" That's what happened when we decided to include a small item on the favourite sites of celebrities.

But our 'proud-to-be-geeky' writers, who can talk technology backwards to you if they want, were not so easily put down.

Soon everybody pitched in at digging out every contact who could possibly help them get in touch with a celebrity. Obviously, most of them were eager for a brush with their favourite stars.

Now pinning down the stars is no easy task because of their busy schedules and the only time you can get hold of them is late at night.

Our writer Avina took the help of Adarsh Kaul from our Events team, to call

up people in the entertainment industry and try and track down the elusive stars. Adarsh dug out his little black book and they made some 30 calls in a single evening. Then followed a late night vigil by the phone waiting for responses.

Some of our more enterprising colleagues went on to scouting out cousines, aunts and uncles—folks whom they didn't know existed till that moment. Just another adventure in the remaking of Digit.

White Hazel Trees

'Llanfairpwllgwyngyll-gogerychwyrndrobwlll-landysiliogogogoch' is the name of a small village in Great Britain, which has probably been the longest URL on the Net.

It means the 'Church of St Mary in the hollow of the white hazel trees, near the fierce whirlpool and the Church of St Tysilio, by a red cave'. A tailor in the 19th century invented this name to attract traffic to a declining railway station. Perhaps it may not encourage Web traffic as well, which is why the owners have taken it off.

Beered!

A cold beer is a cure for most troubles. The right peripheral for a certain guy.
Taken from www.funnyfreepics.com

Mirrored Computer

A PC is not an image consultant—not yet. But we're getting there!
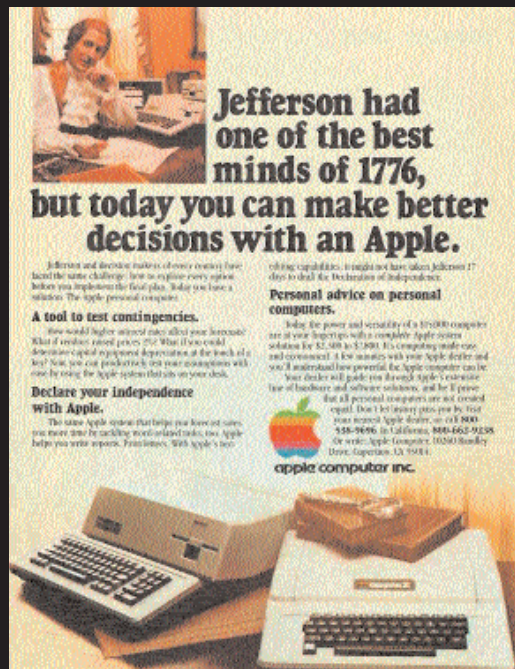**Contributed by: Leena Nair**

Jefferson vs Apple

Advertising is clearly one of the reasons why Apple got famous. Here's a vintage example.

Taken from www.sbrowning.com

The mail suspects

A police line-up is the last resort for those troubled by spam.
Taken from http://jokes.glowport.com

Now take your time, and tell me who attacked you by e-mail

Suits and daggers

Business is war. And money is the most lethal weapon. Bill Gates will be safe.
Taken from the Web

You grab him, I'll get the 40 billion   He keeps it on him??   I should have these guys killed

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

Axioms for the Internet age

1. Great groups from little icons grow
2. Speak softly and carry a cellular phone
3. Don't put all your hypes in one home page
4. Pentium wise; pen and paper foolish
5. The modem is the message
6. Don't byte off more than you can view
7. What boots up must come down
8. Virtual reality is its own reward
9. Modulation in all things
10. A user and his leisure time are soon parted
11. Know what to expect before you connect
12. Oh, what a tangled Web site we weave when first we practice
13. Speed thrills
Contributed by: Kamil Merchant