100

July 2004

digit

>> Your Technology Navigator

talk to me!

50+ **Cell Phones** in the **ULTIMATE TEST**

TEST CENTRE
digit
JULY 2004

10 Accounting and Taxation Software

10 Accounting & Taxation Software

IT's Recruiting Again.
Get that Dream Job NOW!

Get That Winning Edge With
100+ Game Cheats!

Get Outlook Contacts, Ringtones
and Logos to Your Mobile

Set up Your Own
PROXY SERVER Using Squid

PLUS

Convert Your PC into an Answering Machine
Reviewed: ATI PowerColor Pro
X800 Assassin Edition

Computing for Productivity

It is amazing how quickly computers have moved from 3 MHz to 3 GHz processors. Yet, in terms of capability they have mostly moved to prettier looking ways of doing the same old things.

A computer is your primary filing cabinet, and as the repository and medium of a large part of your business communication, it must move up to being a better tool to manage, infer, draw inter-connections and retrieve that information. What are now called 'Personal Information Management' software, are like what Notepad is to Word—much needs to improve. The good news is that the technology for all of this already exists, and stand-alone tools are currently accomplishing some of these. But to be truly useful, these functions must be part of a whole system:

Search: Why does looking for information you know you have on your PC take so much longer than finding information online? Because your PC isn't spending any of its idle time indexing your data. Search technologies to solve this issue have existed for decades, but it is not something we have expected from our desktops yet. Standalone tools such as X1 help, and this is likely to be the first task that is integrated well.

Organise: The battle with spam has demonstrated the power of Bayesian processing. Tools such as Popfile can learn to auto-magically sort your incoming e-mail into as many categories as you like, based on your feedback. Why do we still need to think about which folder to save a file in? Just drop it into 'My Documents' and it should become part of your self-organising filing system.

Remember: How often have you realised you know when you have seen some information, but you don't know where? Like a history for browsing, there should be a history for files and folders usage, for chatting and so on, all accessible in one place—the System History. Tying a search of all your information repositories—be it e-mail programs, browser history, or documents—to time, makes for a powerful tool that leads into...

Contextualise: Combine histories through all your communications and documents in a coordinated manner. Pull up an e-mail and you see what Web pages you were seeing at the time, what documents were open, a slice of any instant messenger conversations and a list of all your digital communications with that individual. Sounds like a utopian goal, but the Ximian 'Digital Dashboard' project proposes to do this, and has just released the first bits.

Extend: Going forward, an increasing volume of digital data that we produce and consume will be rich media—text and audio or video interleaved. Any self-respecting personal information management system will have to deal with this well. Indexing sound is a possibility, as is extracting and comparing images to identify and connect the participants of video-phone conversations or meetings. However, in the realistic nearer term, this would involve connecting textual data to points in an audio or video clip. Take a look at this near future with OneNote 2003 SP1.

These five are critical functions that a computer must be able to perform soon, or end up complicating our work rather than complementing it.

Sumod Hajela
Assistant Editor

sumod_hajela@jasubhai.com

> **"** ...'Personal Information Management' software, are like what Notepad is to Word—much needs to improve **"**

index ■ magazine

▲ *37* Optical computing is the
new buzzword today. How
does it work?

▲ *94* Make the Internet your new
tool and guide for learning
languages
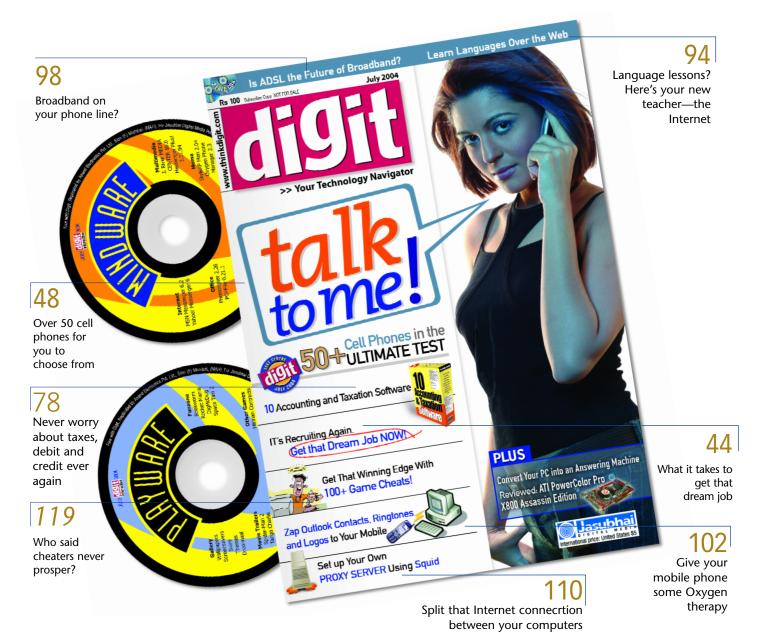
**Your Digit Patron
code on Page 89**

▲ *48* Trendy, officious, sleek, gorgeous...
A closer look at a wide range of the
most popular models in cell phones

Cover

Is ADSL the Future of Broadband?

Learn Languages Over the Web

July 2004

Rs 100 Subscribe Copy NOT FOR SALE

www.thinkdigit.com

digit

>> Your Technology Navigator

talk to me!

50+ Cell Phones in the ULTIMATE TEST

10 Accounting and Taxation Software

IT's Recruiting Again. Get that Dream Job NOW!

Get That Winning Edge With 100+ Game Cheats!

Zap Outlook Contacts, Ringtones and Logos to Your Mobile

Set up Your Own PROXY SERVER Using Squid

PLUS Convert Your PC into an Answering Machine Reviewed: ATI PowerColor Pro X800 Assassin Edition

Jasubhai DIGITAL MEDIA

International price: United States $5

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

Reviewed this month

index ■ colophon

Write Back

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

Product Testing

Want your product reviewed by Digit?
Contact our Test Centre at
testcentre@jasubhai.com

Software on CD

To submit and suggest software for inclusion
in the Digit Interactive CDs, contact us at
cdcontent@jasubhai.com

Help!

Complaint about your missing copy?
Cover CD not working properly?
Renew your subscription
Report a change in mailing address
Order a back issue. Need assistance on any of these?
Contact Customer Service at
help@jasubhai.com
Tel: 022-27629200/9211 Extn: 1013/1016
Fax: 022-27629274

Endorsements/Reprints

The Best Performance and Best Value Awards
are the undisputed stamps of excellence for
technology products in India. If you are
a winner and are interested in ordering article reprints or
using our logos, contact

prashant_narekuli@jasubhai.com

digit Promise to our readers

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

To Advertise

CONTACT OUR BRANCH OFFICES

www.thinkdigit.com

taste technology at **www.thinkdigit.com**

WEB SPECIAL

Banking on technology
Customers have never had it this good as banks go all out to woo them. A look at what Indian banks have on offer.

SUBSCRIBE

Subscribe now...

Lookout for the exciting **Tech Shack** subscription offer on page **28**

Jasubhai

digit
>>Your Technology Navigator

KN_

JULY 2004

SEARCH [   ] GO

FORUM

CONNECT
- FACE-OFF
- COLUMN
- TECHNOLOGY NEXT
- DROOLMAAL
- PASSPORT
- NETRETURNS
- FIRSTHAND
- WIDEANGLE

RESOLVE
- WIRED
- UNWIRED
- TIPS & TRICKS

SELECT
- TEST DRIVE
- INSIGHT
- REPORT CARD

DIGIT INTERACTIVE
- MINDWARE
- PLAYWARE
- DIGIT CD ARCHIVE
- BY DEMAND

digit
talk to me!
Cell Phones in the digit 50+ ULTIMATE TEST

Subscribe
Feedback
Customer Service

& we will give you a **free holiday**

Install Linux without burning its image
Red Hat or Mandrake can be installed directly from its ISO images, without the need to burn them on CD first. Click here to know how.

Line of Sound
Sound, like light can now be directed, so that only those within its path can hear it >>

Break on through to the other side!
Why hasn't Linux invaded our lives? We take a look at the Linux penetration in Indian offices, and the different projects and programmes that look to introduce Open Source Solutions >>

Computing for Absolutely Everybody
Find out how computing these days can actually open up a new world >>

Get 5 issues FREE
with a 10 month subscription
Get 10 issues FREE
with an 18 month subscription

digit contest carnival
Feb 2004
Play Now!

Opinion Poll
Have you bought a

BY DEMAND

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

▶ **BigOven 1.3**
Size: *7.11* MB
Mindware

▶ **Road Trip 2004**
Size: 37 MB
Playware

Expect these on the August 2004 CDs

WEB SPECIAL

The end of Uncertainty
Experience is the best teacher, but not in technology, until recently. Find out how a 250-year-old theorem is being employed in today's systems to make use of the knowledge of the past.

FORUM

Want to brainstorm? Start a discussion? Share an idea? Log on to *www.thinkdigit.com/forum*

ON THE CD digit interactive

FREEWARE

NoteTab Light 4.95
A powerful replacement for Notepad
Dev Tools

Shareaza Source Code 2.0.0.0
Open source code for the popular P2P
Dev Tools

MSN Messenger 6.2
Experience MSN Messenger now with Buddyzone and more
Internet

Shareaza 2.0.0.0
Ride the Gnutell1, Gnutell2, eDonkey and BitTorrent networks
Internet

Yahoo! Messenger 6
Chat instantly with custom avatars and new stealth settings
Internet

Freecorder 1.02
Record sound from any sound source on your PC
Multimedia

POPFile 0.21.1
Effectively weed out spam from your e-mail
Office

Photocopier 2.26
Convert your PC into full-fledged a photocopier
Office

ATi Catalyst 4.5 drivers
Update your PC with the latest ATi display drivers
System

nVidia ForceWare 56.72 drivers
Latest nVidia display drivers for your PC
System

VIA 4-in-1 Hyperion 4.51
Driver update for your via chipset-based motherboard
System

Look for these products on the CDs

Artis ™
Quality Speakers

New
msn Messenger 6.2 *Inside Mindware CD*
INSTALL NOW

KNOW YOUR CD

MINDWARE\RESOLVE

The Resolve section on your Digit CD gives you some fun reading with eBooks, Tips and Tricks, FAQs and Whitepapers.
This month we bring you *Tales of Troy* by Andrew Lang (1844-1912). Before you go and watch the movie *Troy*, this will act as a really good backgrounder for you.

The Tips and Tricks section has some interesting tips on stepping up your productivity. This month, we have smart tips on Adobe Acrobat, dBpower Amp music converter, Winamp, Opera and Open Office.

Finally, while the FAQ section lets you in on all you ever needed to know about mobiles, the whitepaper section gives you the latest dough on virus attacks.

MUST TRY SOFTWARE

Mindware

A compilation of useful software across various categories and genre. Something for everybody.
Preview all your graphics quickly with Irfanview
View the **month's calendar** at a glance with Desktop Calender XP
Upload logos and **ringtones for free** on your phone with Oxygen Phone Manager 2.3
Check POP3 mail quickly with Popcorn 1.68
Download a complete **Web site offline** with Teleport Pro
Create DVD compilation with menus using DVD-Lab 1.3

Playware

Bored of that drab PC? Find on this CD, stuff to pamper yourself and your Windows installation

Play **Bookworm—**an addictive **game of vocabulary**
Watch the latest movie trailers including **Spider-Man 2** and **Alexander**
Listen to some **funky new music** from **Divers** and others

news feed

hypethesis

DualDisc

■ **What is it?**

The latest format of Audio-DVDs, recently approved by the DVD Forum. It will have DVD audio on one side and CD audio on the other.

■ **How does it work?**

The disk will be about 1.5 mm thick. A typical DualDisc would feature a single-sided DVD and a thinner CD layer on the flip side. Right now, a DualDisc is 1.48 mm thick. And the end result? A DVD with 5.1 surround sound and other DVD features for high- end music. The CD side will have standard music sampled at 44.1 KHz for CD players.

■ **What does it do?**

DualDiscs will give music companies promoting DVD audio a shot in the arm. Meanwhile, there will be the benefit of the flexibility of the CD format. We are talking about a DVD that becomes widely compatible because it packs in a CD. A DVD by itself is not as compatible as a CD is. Music companies will sell this product as something that has both CD and DVD, and will expect substantial demand for DualDiscs. In the long run, producers will save quite a bit, since they won't have to ship a DVD along with a CD in a package. DualDiscs will come to the rescue of the DVD-Audio format. However, there are limitations. The CD side will have only 60 minutes of audio, and the DVD side, obviously, cannot be double- layered.

Of cell phones, slaps and airplanes

It's typical, you're in a movie, it's an intense scene, you're hanging onto the dialogue for dear life, and off goes a cell phone close by—arrgh! Certain situations require a little etiquette, but some people take matters a little too far.

Consider the young woman who was banned from flying Vietnam Airways because she attacked a stewardess who asked her to stop talking on her cell phone. Not only did she refuse to stop her conversation, she also slapped the flight attendant and threw water in her face! So can we expect laws that prevent this sort of behaviour in India, or do we get slapped every time we object to those pesky nuisances? Only time will tell. Write in and tell us what you think about such situations!

Cops on e-beat

Watch out perverts, cops are patrolling Internet chat rooms as well now! In order to crack down on growing paedophile rings, police from Britain, the US, Canada and Australia are forming a global taskforce. Web sites with child pornography will have their finances confiscated, and buyers of the disgusting material will have their credit cards frozen. Of course, with laws being so varied around the globe, the cops have to identify themselves. They'll keep an eye on chat rooms, and a badge saying 'Virtual Global Task Force' will identify them to the public. Will this measure stop the paedophiles from looking for prey online? We certainly hope so, at least someone's doing something, right?

Fine that spam!

The land of really clean roads may now become the land of really clean e-mail boxes! If the Singapore government has its way, that is. As with littering the roads, the government will impose a fine on spammers that litter mailboxes. Fed up of blocking spammers, Singapore has decided to fine them between 10 cents and one Singapore dollar (approximately Rs 3 to Rs 26) per spam e-mail.

Will this deter spammers from setting up shop in Singapore? We hope so, provided you can track these spammers! Let's wait till January 2005, when this Act comes into force, and see.

Cough, then sing

In June 2003, one billion music files were shared across the world! This year, the number is 70 per cent lower. Why? The International Federation of the Phonographic Industry (IFPI) is grinning from ear to ear, citing its tougher stance on illegal file sharing and copyright issues as the reason for this decline.

Interestingly, there are now over 100 Web sites that you can buy music (read: legal downloads) from. The IFPI plans on enforcing the rules even more strenuously in the future—so be prepared to see more lawsuits in the news. The message is simple: If you want to sing along to your favourite tunes, cough up the dough first!

Pay for love

You may soon need to pay for online dating. The US patent office has awarded dating company eHarmony a patent covering online matchmaking. Patent number 6,735,568 describes a computer-implemented method for "identifying people who are likely to have a successful relationship". In simple English, this means that eHarmony now owns the patent for 430 psychometric tests which contain questions such as "How much does the word 'dominant' describe you on a list of one through seven?" or "How often do you feel depressed?".

Is love so trivial that your answer to a few questions can tell a computer whether your significant other is right for you or not?
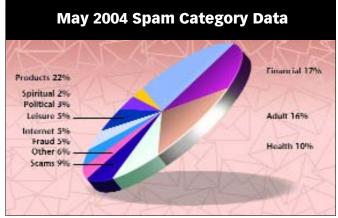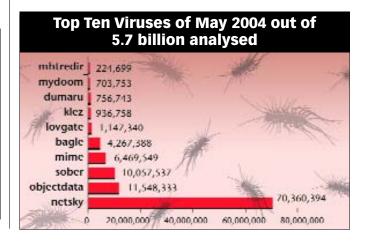
A question of gender

The gender gap extends to segregate mobile users, too. According to the Mobile Media Monitor survey by Enpocket, a US-based mobile marketing services provider, it was found that 58 per cent of all games downloaded to mobiles are by males. Women, on the other hand, account for over half the ringtones downloaded. As expected, over 65 per cent of 3G service users are men. All that money spent, all those statistics, and we're told what we already know...men and women like different things! Let's move on already!

Statattack

May 2004 Spam Category Data

Products 22%
Spiritual 2%
Political 3%
Leisure 5%
Internet 5%
Fraud 5%
Other 6%
Scams 9%
Financial 17%
Adult 16%
Health 10%

Top Ten Viruses of May 2004 out of 5.7 billion analysed

Virus	Count
mhtredir	221,699
mydoom	703,753
dumaru	756,713
klcz	936,758
lovgate	1,147,340
bagle	4,267,588
mime	6,469,549
sober	10,057,537
objectdata	11,548,333
netsky	70,360,394

■ Japanese professor makes robot designed to help people with weakened leg muscles walk properly ■ British courts to implement WiFi in all courtrooms

Outsmart Google?

That is exactly what contestants in the SEO (Search Engine Optimization) Challenge, carried online via SearchGuild.com, were told to do. Contestants had to increase their Google ranking for the search term 'nigritude ultramarine'.

Basically in Latin, this means 'dark blue', which comes from one of the co-sponsors-Dark-Blue, an Australian marketing company. "The competition really gives the opportunity to stand back and say this is what one engine does badly and another does better," said Chris Ridings, owner of SearchGuild.com, the other co-sponsor, in an interview to Wired.com. The contestants were allowed any means, even underhanded ones, to improve rankings.

"If the point of the competition is to prove which methods work and don't work, then it's silly to place rules that say you can't use such and such a technique," Ridings reckoned. "If they really can't use it then the assumption is that Google would boot them out of the index, so they wouldn't win."

The first round-winner was Brandon Suit, an online community owner. Phillip Lenssen, a blogger who writes about Google, was placed second.

Gmail in trouble

The Californian state senate voted 24 to eight for a bill to introduce safeguards to protect users from prying e-mail services that scan mailboxes to display advertisements.

Though Gmail, Google's somewhat controversial e-mail service, wasn't specifically mentioned, it's pretty obvious which 'prying e-mail service' the senate was voting against.

Drafted by Senator Liz Figueroa, it allows e-mail providers to go through message text for advertising, spam and malicious code, but bars them from leaking this information to third parties, or letting their staff take a peek into e-mails without consent.

The State Assembly still needs to pass the bill before it becomes a law, but we're more interested in how Google will circumvent this setback.

Linus accused of code-lifting

So did Linus Torvalds really create the Linux kernel, or was it actually Andrew Tanenbaum's baby? That's the question circulating the globe.

A 92-page booklet by a 12-man think tank called the Alexis de Tocqueville Institution in Washington DC, suggests that most of the credit given to Linux actually belongs to MINIX, a UNIX-like operating system designed by Tanenbaum. Tanenbaum is a professor of Computer Science at Vrije University, Amsterdam.

The argument: If it took Tanenbaum three years to develop MINIX, despite years of experience with OSes and software development, how could Torvalds, a student with limited knowledge, develop Linux in six months?

Both Tanenbaum and Torvalds contest the claims of the study. Tanenbaum has called Ken Brown, the president of Alexis Foundation "extremely evasive", on his home page (*http://www.cs.vu.nl/~ast/brown*). He thinks it possible that the Alexis Foundation might be funded by elements seeking to discredit Linux and its recent growth.

Our favourite extract from his home page is, "But the code was his (Torvalds'). The proof of this is that he messed the design up."

Intel, Linux and space

You're given a Pentium II running GNU Linux, and asked to put it to good use. What's the best thing you can do with it? How's this: You create a Personal Satellite Assistant

(PSA) that will remind space scientists of the correct procedure during experiments, warning them about the dangers, and keeping track of the day's jobs.

No, this isn't fiction, a prototype PSA has been developed by NASA's Ames Research Center. It took six years to do it, but the prototype has environmental sensors that chack for oxygen and temperature levels; its onboard camera makes teleconferencing possible with mission control, it conveys experiment procedures via an inbuilt LCD panel and speaker.

Trust NASA to come up with a good use for all those old Pentium IIs lying about. Of course it remains to be seen whether this revolutionary development will ever be used, or, as with a lot of NASA's projects, be shelved for 'later' use.

Yahoo! embraces anti-spyware

This could be a great boost to efforts of plugging Internet security holes: Yahoo! has decided to integrate software into its toolbar that will detect spyware and malicious files or code.

The new Yahoo! toolbar was released on 27 May, 2004—though in a test stage. Yahoo! will evaluate user responses to the technology, developed by anti-spyware company PestPatrol. It offered the toolbar as an upgrade to select users at *http://beta.toolbar. yahoo.com.*

The software performs a high-level scan of a user's system to detect viruses and other malicious code used to spy on computer behaviour. This step comes after Yahoo! proposed the use of Bayesian filters to check spam.

Yahoo! isn't alone; Internet Service provider EarthLink recently introduced anti-spyware technology for its subscribers. Last month, Google appealed to software programmers to use clear-cut methods to distinguish software that were meant to be embedded in a user's PC.

They pushed for standardised rules for such programmes, and stated that they should contain features that would make them identifiable, provide the user freedom to uninstall them, and above all, ensure that they do not leak personal information.

A big round of applause for all companies involved in anti-spyware programmes! We all want our privacy, and finally someone is doing something to protect us from the big bad Internet

Lapping up secrets

Your laptop makes you look smug and professional, but it can also ruin you or your company if you aren't careful.

As part of a study, Pointsec Mobile Technologies—a Stockholm-based mobile security special-

ist firm—bought 100 laptops at Internet public auctions in Stockholm. It set a technology team to work on them, and was able to recover sensitive data from 70 of them. This sensitive data included pension plans, payroll records and even administration passwords for Intranet sites.

It was obvious that the hard drives weren't wiped clean, though companies usually do that before auctioning old machines.

The company had similar results in tests run in the US, Germany and Sweden. They claim that a laptop from a Swedish auction had all the necessary data needed to blackmail a large food manufacturer.

"Pointsec's research demonstrates just how easy it is to access information which is not adequately protected," said Tony Neate from Britain's National Hi-Tech Crime Squad, in an interview to Reuters.

Room-temperature nanotransistors

A significant stride forward in nanotechnology! A team of German and US scientists have created a single-electron transistor with a gold-tipped, vibrating silicon arm, which is 200 nanometers long and a few tens of nanometers across. The device is of special interest to theoretical physicists for quite a few reasons. Firstly, it is fairly easy to manufacture. Second, it can operate on AC voltage. Third, it operates without cryogenic cooling—which can only be achieved under special conditions using liquid Nitrogen at very low temperatures.

The device was created by Dominik Scheible at the Ludwig-Maximilians University in Munich, and Robert Blick at the University of Wisconsin-Madison. They set it up so that the gold tip of the arm sits between two electrodes-such systems, typically, operate in strong magnetic fields.

This breakthrough puts to rest the fears that a report by the European Commission created, about nanotechnology research lagging in the continent due to lack of funding. Perhaps this will finally get the Euros flooding in!

Spam

Zombie PCs relay the most spam

A study by Sandvine, a network management firm, cross referenced with Sender-Base Email Reputation Service, says that more than 80 per cent of spam originates from unsuspecting systems infected with Trojan horses or worms. Popular backdoor worms that accomplish this are Migmaf and SoBig. Sandvine's technology traced home networks which were bypassing their home e-mail servers and using multiple foreign mail servers within a short span of time, thereby indicating infection.
The study says the recent wide-angled flood attacks of MyDoom and Bagle were aimed at installing spamming Trojans on home computers.

No-No to 'Do-Not-Spam'

The US Federal Trade Commission (FTC) recently submitted a report against the 'Do not e-mail' registry creation proposal. This registry was intended for spammers to stay clear of e-mail domains of certain participating members. The FTC opposes the list since it feels that the list will, in fact, be used by spammers to get hold of new e-mail domains and IDs.

snapshot

1 in 20 Britons **plans** to get **his** or **her next tech gadget by** insurance **fraud**

Source: silicon.com, April 2004

Who needs a camera anyway?

The latest camera phones could kill the digital camera market! It could happen! With Casio now offering a 3.2 megapixel camera phone, and almost all other brands-LG, Samsung, etc., offering 2 or 3 megapixel camera phones, who needs a standalone camera? Not unless you're a professional photographer!

Camera phones sales have shot up from 84 million in 2002, to almost five times that in 2004. Of course not everyone agrees: Casio spokesman, Toshihiro Watanabe said, "A mobile phone is meant to be carried with you all the time, and its main purpose is not taking pictures. It's more for if you want to take a picture as a quick memo of something, or if you just happen to come across a shutter chance."

Others also argue that camera phones don't have the features of a good digital camera—storage capacity, anti-shake protection, CCD, etc. We agree, camera phones just can't match up to a good digital camera…yet!

snapshot

There are **now 980 million** active **e-mail** accounts around the **world,** and **40** per cent of those are **corporate accounts.**

Source:The Radicati Group, Inc.

North Korea immobilised

No there isn't a war on; but North Korea has just banned the use of mobile phones in the country. It was only in 2002 that mobile phones were introduced, and until a few weeks ago, foreign tourists were permitted to carry them. The official reason cited is the recent train explosion in North Korea, but judging by the country's track record, one is more inclined to believe that this is just another excuse to control the dissemination of information.

tomorrow's technology

ASANP

ASANP or Automatic Switching of Network Access Points is the latest technology for mobile phones. It allows a mobile device to switch automatically between a GSM Mobile network and a WLAN, without the user noticing it. The new technology increases the current bandwidth of 9.6 Kbps for wireless networks to 11 Mbps.

ASANP facilitates voice, data and real-time video conferencing services. Once the technology is implemented, all Internet-ready devices will work on a cellular network or a wireless LAN. This would include 802.11b and Bluetooth.

An amazing feature of ASANP is that it will enable companies to locate its users.

A user can also be tracked from the IP address of the Wireless device's connection point. WLAN owners will enable them to utilise WiFi bandwidth that earlier remained untapped.

This technology will weed out several limitations imposed by some of today's mobile networks. Upgrading the bandwidth of existing networks would call for massive costs. If WiFi networks are tapped, there's much more bandwidth to be had. With higher bandwidth, today's voice applications are set to get a major boost. US-based Calypso Wireless is promoting this technology. It might take shorter than we think for mobile phone makers to come up with handsets with ASANP embedded.

quoteworthy

"We are targeting more PC penetration and bringing cyber connectivity to every citizen."

"The 3G standard has been evolved but has not proved cost-effective."

Dayanidhi Maran, India's new Information Technology minister, referring to his aim of switching India from the 3G to the 4G standard.

"Offshoring hasn't eaten jobs. It is the dumbest argument ever put out, simply because it is election time."

Jack Welch, retired Chief Executive, General Electric, ridiculing suggestions that the weak jobs market in the US is a result of the movement of jobs abroad. He blamed politics for the recent backlash against offshoring.

"The report was purely a speculation. The company does not have any current plans of setting up a chip fabrication plant in India."

Varghese M. Thomas, Intel India spokesman, responding to reports of Intel setting up a chip manufacturing facility in Chennai.

■ British Technology Group (BTG) claims software firms should pay royalties for delivering software via the Web—they own six patents involving software downloads

Showing Off Trends

Digit visited Taipei, Taiwan, to attend the Computex Taipei 2004 exhibition. The biggest brands, the best products, read all about it here...

A few days into our Taipei visit, a fellow journalist commented that Taiwan's handloom industry must be LCD panels. Tongue-in-cheek for sure, but there is an element of truth in that statement. LCDs are everywhere, and in every form. Consider a cab we hired—it had an LCD TV nestling just above the gearbox and blaring news in Mandarin, while the rearview mirror sported a mini-LCD panel which served as a compass. This was in a cab!

Early into our visit, we learned that Taiwan acts as a manufacturing hub for the IT industry. Almost everything electronic under the sun is made between Taiwan and China. Taking the LCDs as an example, AUO, the third largest manufacturer of the panels, took us around its assembly plant. In went their LCD panels, and out came Thompson LCD TVs and Dell LCD monitors.

It was no surprise that Computex 2004 is a business-to-business show; a place for company X to show off its manufacturing capability to OEM Y, and gain a contract to build its branded system or to use its parts. Computex was all about components—everything from microdrives to PC cabinets. Though there were some finished products, they were few and far between.

The show did serve to highlight trends within the industry. The biggest being convergence, and the oft-repeated mantra of the digital home. It seems more obvious with each passing event, that the PC is not going to be sidelined by consumer devices. Indeed, WenChi Chen, VIA Technologies' President and CEO,

With an 8.4-inch TFT LCD and an Intel XScale 400 MHz processor, the Weblet offers around eight hours of normal usage and up to two weeks on standby
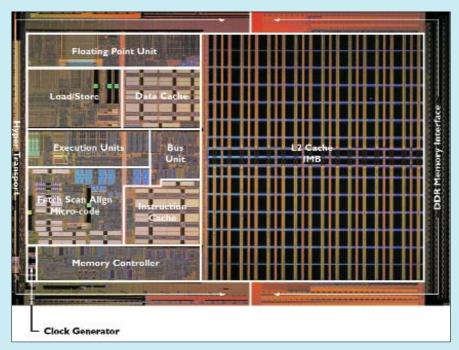
was of the opinion that key PC technologies would migrate into the heart of everything consumable—TVs, personal recorders and handheld devices. Some of this was apparent: USB connected plush toys which moonlighted as MP3 players, portable MPEG4 video players with microdrives, telephones with wireless LAN support (802.11a/b/g); some sporting CCD cameras and TFT LCDs for video-conferencing, LCD TVs which doubled up as monitors; an MP3 player with a photo viewer that is also an MPEG4 player with TV output, and a card reader and a bootable drive as well—try saying that in one breath. Also, if Taipei and the show serve as an indication, cameras—both still and video—will soon be everywhere. Everywhere!

The concept of the digital home was also more grounded at Computex. There were no refrigerators with built-in computers, instead computers posed as various consumer devices. Prominent amongst these were the media centers.

Small Form Factor (SFF) PCs are in-the mini-ITX motherboards, and low-power processors make for tiny, but sufficiently powerful PCs. Prominent amongst the SFF solutions was the MSI MEGA 180—a small cube, resembling a music deck from the pre-MP3 era-dials and little buttons to push on its face, and the coolest colour-LCD display with dancing lights. Oh, sweet nostalgia!

As a consumer device, it supports instant-on CD/Radio and MP3 playback with 5.1-channel sound, powered by nVidia's nForce2 chipset. As a computer, it has inbuilt Wi-Fi (802.11b), an Ethernet port, a 56K modem, dual-VGA out, two USB 2.0 ports, two Firewire ports, a six-in-one media card reader, and the much-salivated-after nVidia Soundstorm-Dolby Digital capable. All this powered by an AMD Athlon XP 3000+ processor, two DIMM slots upgradeable to 2.0 GB of DDR 333, 1 AGP 8X slot and 1 PCI slot. The optional TV-tuner card allows for all the standard PVR func-

The Revolution is a laptop that swivels into a Tablet PC, powered by an Intel PIII processor. What sets it apart from similar solutions is a rugged industrial design with a classy magnesium chassis and C-Span construction to protect the interior against shocks

AMD displayed its firm belief in the x86 architecture at the Taipei technology extravanganza. Shown here is its Opteron die that just has a 2 per cent "x86" overhead

DIRK MEYER, Executive Vice President, AMD

" The **x86 architecture** is the only architecture the world will **ever need** "

tions of time-shifting, scheduled recording of programmes, channel preview, etc.

This unit can sit in your living room, posing as a music system, as the heart of a powerful computer beats within.

Other systems towed VIA, Transmeta or Intel processors. Speaking of AMD-based SFF, meet the IWILL ZMAXdp. This little-behemoth has dual, (that's two!) Opterons, supported by nVidia's nForce 3 chipset. Designed with audio and video professionals in mind, the 64-bit support offered by the AMD Opteron goes a long way in alleviating file-size limits, the mini-rig includes a proprietary form-factor motherboard, dual 3.5-inch hard disk bays, which can be arranged in RAID 0/1/0+1 configurations, and an AGP and a PCI slot. Dear Microsoft; hurry up with the 64-bit Windows XP.

AMD, thus, had reason to be gung-ho about things, as the company's Executive Vice President Dirk Meyer (from the Computation Products Group) firmly planted the x86 flag on IT grounds and spoke of AMD supremacy. "The x86 architecture is the only architecture the world will ever need," he boldly stated, further predicting that AMD64 will be 'the' standard for the convergence wave. He went on to add that IBM's Power architecture will die a lonely death in a few years. The thrust of his statement emerged from a point

Info 16th century Portugese sailors called Taiwan Ilha Formosa—the beautiful island. The capital Taipei, where Computex 2004 was held, is built upon a basin that used to be a lake.

of view that the x86 ISA is good enough and that the industry does not need anything new. He backed it with a slide showing a microphoto of an Opteron die with real-estate marked out: two per cent of which was marked "x86 overhead" (the ISA), 40 per cent of the land was grabbed by the L2 cache, nine per cent by the Northbridge and HyperTransport, etc. Thus, he said, ISAs do not occupy much space, and the industry ought to leave well-enough alone. Keeping in mind IBM's and Sony's plans to bring the Cell processor (which, hype assures us, can do everything) to PC-like workstations; Meyer's predictions seem all the more interesting.

Another thing the show brought to the fore was the long-awaited death of legacy standards and ports, and the emergence of technologies that aim to level the playing field. USB, Firewire and SATA are rising stars—especially the first two. PCI Express (PCI-E) is here, and to stay with VIA predicting dominance of the same by next year—bye-bye AGP, your lack of data bandwidth will not b e missed. AMD should be moving to DDR2 in 2005. DirectX 9 has brought a standard API to the table, which everyone—ATi, nVidia, VIA and SIS—can design products to, thus ensuring competition and better products and prices. A word on chipsets: the PT890 will be VIA's first PCI-E chipset for the Intel platform, which will be followed by the K8T890 for AMD processors. Also on the horizon are integrated chipsets from VIA—the K8M890 will feature both DirectX 9 graphics and PCI-E support. Moreover, VIA promises that its mobile chipsets will make a move over to the 0.15 micron process (from the 0.22 micron), will support clock-speed throttling and will draw less power at 1.2 V.

Convergence, small and sleek computers, better standards, healthier competition—these were some of our favourite things that Computex 2004 promised in the months to come.

The IWILL ZMAXdp is an SFF PC with dual AMD Opteron chips supported by an nForce 3 chipset

AHMED SHAIKH
ahmed_shaikh@thinkdigit.com

New Arrivals

'New Arrivals' is an advertiser–sponsored section that showcases the latest launches in the Indian market. All product specifications featured here have been obtained from the contacts listed, but have not been verified by the Digit Test Centre. You can look forward to reviews of some of these products in our Test Drive section soon.

HCL Beanstalk Neo

HCL has launched a range of products, the Neo,a high-end "digital entertainment system" priced at Rs 99,990, a new-look Beanstalk PC (prices starting at Rs 31,000 going up to Rs 46,000), and the Beanstalk MP3 player for which the price and other details are yet to be announced.
Contact: HCL Infosystems
Phone: 011-914-520977/6518
E-mail: satinder@hclinsol.com

Zebra XML-Enabled Thermal Printer

Fast and simple integration of on-demand bar code label printing is now available for manufacturing and supply chain system applications, following the launch of a new printer range from Zebra Technologies. The new Extensible Markup Language (XML) enabled XiIIIPlus high performance printers from global barcoding specialist Zebra, have been designed to meet the increasing demand from customers for more flexible information identification when openly exchanging data.
Contact: Vasudha Jha
24th June Public Relations
Phone: 022 28200269
E-mail: 24thjune@satyam.net.in

UMAX ASTRA 4100 scanner

UMAX has unveiled the Astra 4100, the first-of-its-kind high resolution, multi-featured scanner for the home user & SME, in the Indian market. Powered with 1200x2400 dpi optical actual resolution, Astra 4100 is a high-speed scanner available in the market with 6 sec preview and at an unbelievably attractive price. The product is exclusively distributed by Neoteric Informatique Pvt. Ltd. and is available through its distribution network all across India.
Contact: Rajesh Thadani, Neoteric Infomatique Pvt. Ltd.
Phone: 91-22-24172600
E-mail: trajesh@neoteric.co.in

Silicon Impex's 1 GB Thumb Drive
Small is Big

Moving and storing data have never been so easy before! Introducing the world's first revolutionary portable solid drive that is smaller than your thumb, with a storage capacity of a whopping 1GB!!!! Silicon Impex, leading distributors of Genuine Simmtronics Memories and Thumb Drives, introduces, for the first time in India, the revolutionary 1 GB Memory Plug and Play Thumb drive with incomparable 5Mb/sec data transfer speeds. Supporting almost all OSes and compatible with USB 2.0 specifications, this P&P drive supports File/Drive Compression and contains Password Lock software & Secure Zoning Software with the Drive available in CD, to keep your precious data secure. It includes a carrying strap and a 12-inch USB extension cable. With low Power Consumption of 70mA maximum for read and write operations, it comes with a 2-year warranty. Also available in 64Mb, 128Mb, 256Mb and 512Mb variants.

Contact: Ashish Singhal, Silicon Impex.
Phone: 011-51618247
E-mail: a_silicon@rediffmail.com
Web site: www.simmtronicsmemory.com

Get LEX-Appeal
Feature-loaded Phones

After its initial launch in the North, Usha Shriram Electronics offers the Lexus range of cell phones to people looking for a competitively priced unit with a user-friendly menu and loaded with features. The six current models are entry levels in their respective segments. The basic entry level phone, model 210B, sports a blue LCD, polyphonic ringtones, speaker phone and cell info. All Lexus handsets are light-weight, with phone memory, speed dialing, multiple alarms, ergonomical design, attractive colours, two-year warranty and one-year theft insurance. The company wants to maintain the long-standing market reputation and offers its customers value-for-money products & reliability.

Contact: Mr Ajay Sharma, Usha shriram electronics
Price: Rs 3,200 on model 210B to Rs. 5500 on model 761B
Address: 203,Kirti Deep commercial complex, nangal raya, New Delhi 110046
e-mail: ajay@ushaindia.com
Web site: www.ushamobiles.com

Xpress launches new range of notebooks

Xpress Computers, has unveiled its new range of notebooks. The models launched are 1200, 2100, 2300 and 2350. Built under Intel's Built-to-order (BTO) notebook program, these would come with a one year carry in warranty available through Intel Premier providers available in 14 cities across India. All the machines would be available with a standard configuration, plus the option to change any component required by the user. Key specifications are processors ranging from mobile Celeron, mobile Pentium 4 and Centrino with DVD or DVD/CD Writer combo, and a screen option of either a 14.1 or 15-inch.

Contact: Xpress Computers Ltd
Phone: 022-23852070
Mobile: 9820139132

Antidesk: Evolution of the humble desk

We have seen the PC evolve from the humble 486 running basic tasks to today's mean machines nearing the capabilities of a flight simulator. Miraculously the vintage computer tables designed in the 486 era managed to survive, just as that wonderfully unreliable storage device, the floppy disk did. Well no more—Antidesk brings respite, at least with regard to the computer furniture. Antidesk computer trolleys are designed around the user, for maximum comfort in minimum space. The difference begins right from the material of construction and goes on to the way they are transported-in a handy box, small enough to be carried on a bike. The all-steel trolleys are not just colorfully attractive, sturdy and durable. They also are completely insulated (well above 1,000 volts) by powder coating. Not to mention the trees that are saved. What started as an eco-friendly alternative in the USA is now becoming a benchmark in computer cart design. Antidesk offers ergonomic design varieties, from ultra compact carts with a footprint as small as 20"x20" to more spacious options with leg-stretching space. Several add-on options are available to accommodate a variety of peripherals. Shown here is model Indicart, featuring a tangle-free cable management system, spacious keyboard & mouse, along with a writing surface, good leg room, and castor wheels for easy movement.

Contact: Smartware
Phone: 9822447414 / 9822057620
Price: Rs 2,500 (without accessories)
E-mail: sales@antidesk.com
Web site: www.antidesk.com

Ragnarok Online starts beta service in India

The popular MMOG (Massively Multiplayer Online Game), Ragnarok Online, has just gone wilder here by localising in India. India Ragnarok Online (inRO,www.ragnarok. co.in) will open up, for free, open beta service this summer. Now, you can adventure with thousands of enthusiasts from all over the country, in real-time. InRO joins 10 other countries that have localised this fantasy role-playing game (RPG). You have the luxury to choose from over a dozen different job classes, including swordsman, archer, mage, thief, acolyte or merchant. Level up to access higher character classes. Explore over 150 different maps. Find out all about inRO in our online game guide. Grab the chance to be one of the first to explore inRO by creating a FREE account today! To get a FREE CD sent to you, simply e-mail a request, with your home address, to freecd@level-up-games.co.in.

E-mail: freecd@level-up-games.co.in
Web site: www.ragnarok. co.in

Zero Tear line matrix printer from Printronix

Printronix, a leading integrated supply-chain printing solutions manufacturer, has launched an addition to its line matrix printer family—the Zero Tear pedestal printers. The model (P5000ZT) allows users to print from the first to the last line on every form and then tear it off without losing any forms in between. Built on Printronix System Architecture (PSA) platform, Zero Tear printers are compatible with all current Printronix line matrix (P5000) applications and support a wide range of connectivity options. The models give users remote diagnosis and repair, instant alerts for consumable outages and troubled printing, and total enterprise quality and consistency through mass configuration.

Contact: Liaquat Ali Khan
Phone: 022-26733423
E-mail: lkhan@printronix.com

Thank You Digit

Readers loved the Digit June 2004 Anniversary Issue. Here's why in their own words…

Your idea of giving the entire archive of *Digit* magazine in one CD was an amazing idea for the anniversary issue. You have delivered your readers from the dilemma

of maintaining their personal *Digit* library—until now it was a case of "Can't live with the old *Digit* copies, can't live without them, too".

My aim was to keep all the issues, however space was becoming a dire problem.

Thanks to your idea, we now have it all stored on a CD.

I believe *Digit* can owe its success to the team's innovative ideas and generous giveaways. From CDs and archives, and a movie (Disney's *Ice Age* with the December 2003 issue) to the 1001 Tech Facts booklet—it's stuff like this that makes you *Haute*!
Yuvan

My family and I have been reading *Digit* for the last 18 months; 12 of which have been as a loyal subscriber. It's taken for granted by my family that every issue of *Digit* is packed with the kind of information that no other Indian magazine has—technologies, products, market information, people, the works. Add to that the CDs you give free with every issue, and they become the icing on the cake.

I just have to tell you that the CDs that

accompanied the June 2004 issue were amazing. Even the 1001 Amazing Tech Facts booklet was a timely one, not to mention exhaustive.

The presentation of all 36 issues in one CD was superb, and was compiled beautifully with great navigation. I have decided to renew my subscription to this magazine.
A C Mathur

The moment I laid my eyes on the June issue, I felt a billion volts of electricity coursing through me. Did I mention that Preity Zinta is my favourite actress! To see her on the cover of my favourite technology magazine cover was a once-in-a-lifetime "Feel Good" experience.

The *'Haute Gear'* section was also inspiringly awesome. I am still looking for the appropriate word in the dictionary to describe how useful the *'Be a Smart@ss @work'* article was. Perhaps you could have also added tabbed browsers such as Mozilla,

Patron payback

I have signed up for your great *Digit* Patron offer, and it rocks. Keep up the good work and keep the goodies coming! Oh, can you please include a section which includes the latest prices of the latest hardware available in the market.
Thanks a lot and keep smiling.
Abhijeet Maity

I want to know all the details about this nice program and the logic behind it. I am a bit unsure about certain details. With regards,
Nisar Ahmad

Thanks for the e-mail about the patron program. It certainly seems like a great way to reward loyal *Digit* readers like me. However, I live in Kathmandu, Nepal. Will I be eligible to participate? Your answer will be greatly appreciated. Thanks and keep up the good work.
Madhur Grover

Dear readers,
Digit Patron will pay back more than you have bargained for every time you patronise our products. Currently, it is offered to our Indian readers.

We will be updating the Web site every month to announce gifts that readers can redeem.

Logging blues

I logged on to your Web site, but was unable to locate the insertion box for the 16-digit code, as printed on page 73 of your June 2004 issue. I'm a subscriber, and *I'm 78 years old!* (year of birth 1926), but the drop down only starts from the year 1940. I get an "invalid user name or pass word" error.

Would you be kind enough to tell me what to do?
Best regards,
Fakir Hyderabadwalla

Dear Mr Hyderabadwalla,
Our apologies for the oversight. The site has been fixed, and you should be able to log in now.

digit READER POLLS — *Your vote counts*

E-paper — 5.5%
Computer Convergence — 10.5%
P2PVOIP — 8.0%
8.4% — Bayesian Spam Filters
67.6% — Sub-15,000 PCs

Which of these five technologies do you think will make it big in the next 12 months?
Responses: 1530

This month's question…

Popular e-mail services are providing up to 2 GB of storage space. What do you plan to store in so much space?

☐ E-mails
☐ MP3s
☐ Data backups
☐ Software applications
☐ Nothing, I just want to be cool and own GBs of space

Log on to www.thinkdigit.com and vote

MyIE2, etc. Install any one of these browsers, download a funky skin, and *voila*! You can cheat your boss all the time.
David Lalsama,

The June 2004 issue of *Digit* was simply superb—nearly 200 pages, two CDs with 101 Freeware and all the previous 36 issues to date, and the amazing 1001 Amazing Tech Facts booklet. Please accept my heartiest congratulations.

The booklet though had one glaring omission: There was not a single mention of the Amiga computer. Though deplorable management killed this computer as a commercial product in the mid-90s, it was far superior in many respects to the IBM-clone PC.

Two decades ago, the Amiga A500 had 4-channel, 8-bit sound, 4,096-colour graphics, a friendly GUI and smooth multi-tasking with a 7 MHz processor and 0.5 MB RAM. In 1992, the A1200, with a 14 MHz CPU and 2 MB RAM (including display) had 24-bit graphics, games that the PC couldn't touch, video and sound-editing software that had pros in ecstasy.

Amiga hardware and software played a crucial part in milestone movies such as *Jurassic Park, Terminator 2, Robocop, Babylon*, etc. Even today, comparing an Amiga with a PC in multi-tasking would be like comparing a Ferarri with an Ambassador.

Seasoned Amiga users routinely, without a conscious thought, run three or four tasks simultaneously. In tests, I personally ran up to 10 major processing tasks (not just inactive app windows) simultaneously with just a slight drop in speed.

As stable as Linux, but much more user-friendly, the OS could run from a single 880 KB floppy. Partitioning a fresh hard disk is done using a GUI.

With a Mac emulator, it could run Mac software at full speed, yet cost only a fraction of the price. In short, it made a Wintel machine look like a tasteless joke. Since your booklet included plenty of information about past technologies, omitting any mention of the Amiga borders on criminal neglect!
Zotin Khuma

Digit v/s Microsoft

The purpose of this letter is not to praise you, but point out my thoughts on whether *Digit* follows an anti-Microsoft attitude? Indeed, are your writers anti-Microsoft?

Over the years, I have observed that Microsoft is really disliked. Linux is good, all right, but it does not have as big a commercial agenda as Microsoft. Is it true then, that, you prefer Linux just because you want to oppose Microsoft since it's the Big Guy?
Kanwar Anand

Dear Kanwar
Rest assured that *Digit* will not be "in favour" of anyone. If we do seem biased towards Linux, well, here is a small statistic that is open to scrutiny: Not more than 10 per cent of our pages are devoted to Linux-related topics. The two things we are actually biased in favour of are reliability and performance.

From the Forum (*www.thinkdigit.com/forum*)

Deep
Joined:
23 Jan 2004
Posts: 450
Location: Mumbai

Posted: Mon Jun 21, 2004 10:43 am **Post Subject:** Free Gmail giveaways

It seems that Google is *maherbaan* on me. Yesterday, I got 5 invitations.. and today 6. I gave 3 to Digit users for free and today 5.
PM me if you need free accounts or just reply here..
It will be given to first 5 people...

Ricky
Joined:
01 Feb 2004
Posts: 208

Posted: Mon Jun 21, 2004 1:12 pm **Post Subject:**

well.. may I know wht could be the reasons of such *maherbani* of Google on you ?

Bomb
Joined:
21 June 2004
Posts: 2

Posted: Mon Jun 21, 2004 4:48 pm **Post Subject:**

me me me gimeeeeeeeeeeeeeeeeee... Pleaseeeeeee......

al.ien
Joined:
30 April 2004
Posts: 7

Posted: Mon Jun 21, 2004 6:17 pm **Post Subject:** Please gimme Gmail

Please give me one. I will be very thankful 2 u. I m dying 4 Gmail.

VIPUL SHAH

> " Every 747 landing in India can potentially bring in more than 300 laptops duty free "

Dear minister, lend me an ear

By the time you read this, the Union Budget may just be a few days away, or perhaps been announced. The chaos that the Indian intelligentsia was predicting has been mitigated, thanks to some astute appointments by Prime Minister Manmohan Singh in key positions.

P Chidambaram as Finance Minister and Cable TV czar Dayanidhi Maran as minister for information technology and telecommunications are names that will create hope among the middle class rather than despair.

I guess it is up to the Indian citizenry to support this team, whereas the team itself has its work cut out—relook at the country's technology infrastructure, usher in a technology revolution; not by handing out laptops to farmers, but by promoting development in education.

Having said that, may I take the liberty to present my wish list for the finance and IT ministers for the years ahead:

■ Dear Sirs, can you please visit a few countries like Singapore, South Korea, Japan, USA and Australia, and understand from them as to how, despite their population being a fraction of ours (some of them less populated than our metros), manage to give 1.5 Mbps cable Internet access for $40 a month (Singapore), and a 12 Mbps DSL internet in Japan for $22 a month?

In Mumbai, I pay an equivalent of $24 a month for a measly 48 Kbps cable Internet connection from Sify. Please find out where we lag behind, and correct it before it's too late. Many ambitious people in the age group of 18 to 40 years will be able to employ themselves by setting up a "one man BPO or a call centre", even while their client could be a cousin who owns a motel out in the US. The technology to divert calls from American numbers to India via VoIP phones is already in place with Vonage; only the last mile costing remains an issue.

■ PC penetration in India is pathetically low, and it's only a matter of time before China catches up on us in software development. Where will that leave us then? Right now, a typical Indian family income earns a fraction of its American or British counterpart. But high import duties, octroi and sales taxes make PCs still unaffordable. Even if they were removed, and the PC were to cost the same as in the US, with current Indian salaries it is a difficult job. Perhaps you could do us simpletons a favour by reducing tax rates for PC owners.

■ Consider cyber cafes to be a reincarnation of the public telephones revolution in the '80s. If we treat cyber cafes as essential utilities, imagine the amount of employment it would generate, and also at the same time provide PC and Internet access to lakhs of people for prices as low as Rs 10 per hour.

■ Treat PDAs, PDA phones, and mobile phone as same for the sake of customs and help create a new generation of software developers for these devices. If duties on these devices are low or zero they will become more accessible. If we don't play with devices, we don't understand them and we don't develop software for the same. Also, removing arbitrary classifications for duty may help.

Today, an individual can import a laptop by not paying any duties, but he cannot import a palmtop. One can bring in a laptop as part of personal baggage, but commercial imports are not duty free. This only helps create a huge grey market. Every 747 landing in India can bring in more than 300 laptops duty-free!

Duties on mobile phones have been lowered to reasonable levels, but accessories that will take it one step further are charged high duties. This means that today, you get every model of mobile phones with bills and warranty, but Bluetooth handsets are still smuggled in. A PDA-phone attracts low duty as it is considered a mobile phone, but a device that's just a PDA still attracts high duty. These are irrational duties that ought to be removed.

■ Today, one can courier anything out of the country without any documentation. Anything that is, except electronics. Couriering electronics abroad needs all sorts of invoices in Customs format, valuation, and IEC registration. This is stupid; please scrap it. No one has ever smuggled electronics out of this country and it will never happen in foreseeable future. There is no need to crack down on it. Many electronics goods are returned by people who get them for a review, or are being returned to the manufacturer because they are defective.

■ Make direct phone numbers of all bureaucrats and government officers available online. Citizens can then find out if a particular officer is available or not. Perhaps, you can start with all departments under your ministries.

Dear Ministers, I would be happy as a citizen of India if you'd look into these issues soon. ▫

Vipul Shah is a chartered accountant, and can be reached at digit@vipulshah.com

Transistors, processors, circuits, interfaces, cables and peripherals: These are essentially what computers and computing have been about for the last few decades. Until recently, electricity and magnetism have played a major role in all of these. Even now, fibre-optic cables, optical storage devices such as CD-ROMs, and optical mice are probably the only aspects of networking and computing where you're likely to see optics at work.

This scenario is set to change. Light will play more and more of a role in networks and computing systems. However, calling optical computing 'the next wave of comput-

ing' is not new. It was called the next wave of computing back in the '80s, but except for optical storage and optical fibres, nothing much came out of the research labs, until recently.

But why light? Why would we want computers to be optical, instead of electronic, or silicon-based?

Simply put, the need for computing at the speed of light comes from the need for speed. Silicon-based circuits will soon reach miniaturisation limits: Experts say this will be sometime around 2030, when such computing circuits will hit a fundamental physical roadblock on the path to miniaturisation. Incidentally, miniaturisation has been the key to

increased speeds.

Optics is probably one of the ways out. However, it's not a new field—in fact, it's almost ancient—and neither is its application to computing anything new. However, research in optics—especially non-linear optics—with computing as the focus has never been pursued with the kind of vigour we're seeing today.

It's said that the 20th century was the century of electronics, and the 21st will be that of optics.

Here, we take a look at what opto-electronic and optical artefacts have been churned out of the labs so far, and what this means for fully-optical computing.

Computing at Lightspeed!

**Light is all set to make inroads a computer…
in the not-too-distant tomorrow**

PHOTOGRAPH: Mexy Xavier,
IMAGING: Atul Deshmukh
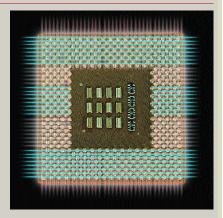
The Optical Processor

The year 2003 was a landmark year in the journey towards optical computing: In March, Lightbit Corp, USA, came up with an optical processor that deals with multiple channels in fibre-optic networks. Lenslet, an Israeli startup, also launched one of its supercomputer-calibre chips the same year. Lenslet said its processor, called Enlight, would enable "new capabilities in homeland security and military, multimedia and communications applications."

Enlight can process multiple DWDM channels in fibre-optic networks simultaneously, without the intervening electronic conversion. Just one of these processors can replace multiple optical-electronic-optical (OEO) transponders. The chip harnesses the 'parallel-processing power of light'.

Lenslet's offering is more interesting: It is a digital signal processor (DSP) to which is attached an 'optical accelerator', which enhances the chip's speed. Aviram Sariel, founder and CEO, Lenslet, said this chip was "an acceleration of 20 years in the development of digital hardware," speaking to Reuters in Israel. There are 256 lasers—the active computing elements—within the chip, leading to a performance of eight trillion operations per second. Roughly speaking, this is equivalent to that of a 'regular' supercomputer, and a thousand times faster than a typical commercial processor.

So, has 'the optical processor' arrived? Not quite. These are not general-purpose processors—you cannot use them for anything other than their

intended use. So, why is there interest in them? Well, these processors signify a major leap into fully-optical processors, and we are now only a small step away from a general-purpose fully-optical processor, as far as theory is concerned.

Optical Transistors and Logic Gates

In a way, the logic gate is the basic building block of a computer and transistors are building blocks of logic gates—at least in today's silicon-computer world. The discovery of optical devices that act as transistors is being actively pursued, since it could lead to new possibilities in computer designs. Processors and other chips could be built using designs that were hitherto impossible, on the basis of optical transistors.

So, what's come out of the research labs along these lines? Plenty! A transistor is essentially a switch, and the defining speed parameter here is its switching time. Evident Technologies, USA, has come up with a 'planar lightwave circuit device' that acts as a transistor with a switching time of 1 picosecond. (Regular transistors, such as those in a Pentium chip, have switching times in the order of a few picoseconds.) The switching process takes place using light pulses.

In November 2003, Stanford and MIT researchers brought out designs for an optical switch and an optical transistor. These are less than a micron in size, and their designs can be fabricated in regular chip-fabricating facilities. The devices would work on the principle of the bending, or refracting, of light in a photonic crystal. Researchers said that all-optical devices on chips can be feasible as early as 2005-2008.

Back in March 2003, researchers at the Georgia Institute of Technology developed nanoscale opto-electronic devices, and demonstrated their functioning as logic gates. The principle of these opto-electronic transistors, or switches, is simple: Instead of measuring current to determine device output, one measures the light—or electroluminescent—output. Again here, the researchers—Robert Dickson and Tae-Hee Lee—emphasise that their devices will

not replace traditional silicon transistors, but could be used in dedicated devices—ones that do a specific task—such as optical network switches.
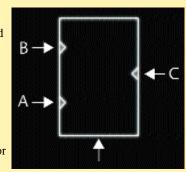
This wasn't the first optical transistor: In May 2000, Professors Sajeev John and Geoffrey Ozin of the University of Toronto developed one using silicon photonic crystal. It trapped light waves and controlled their path, much like a silicon transistor manipulating the path of electrons through it.

John and Ozin's transistor highlighted one of the biggest hurdles along the path to the 'photonisation' of computers: The search for materials. There's a lot of theory out there, but materials that actually support the theory are hard to come by. And in the case of John and Ozin, a major part of their efforts focused on producing the silicon photonic crystal.

Materials Needed

Dr Donald Frazier, research scientist at NASA's Marshall Space Flight Center at Huntsville, Alabama, says about optical computing, "Entirely optical computers are still some time in the future, but electro-optical hybrids have been possible since 1978, when it was learned that photons can respond to electrons through media such as lithium niobate.

"Newer advances have produced ... thin films and optical fibres that make optical interconnections and devices practical. We are focusing on thin films made of organic molecules ...

"Organics can perform functions such as switching, and signal processing using less power than inorganics. Inorganics, such as silicon used with organic materials, let us use both photons and electrons in current hybrid systems, which will eventually lead to all-optical computer systems."

This underlines the problem of the quest for materials. Dr Frazier, Dr Hossin Abdeldayem, a member of Frazier's optical technologies research group, and the rest of the group, demonstrated all-optical switches, acting as logic gates, operating in the time range of picoseconds.

The Alliance for Non-linear Optics (ANLO), was formed with a grant from NASA with the goal of focusing on materials that support optical computing. Non-linear optics is the key here. In its mission statement, ANLO says that lack of good materials is an impediment to progress, and to that end, experiments with mostly organic materials that may serve as the basis for optical computing devices such as logic gates.

Holographic Storage

The hard disk is probably the most important component of a personal computer. So what about the 'opticalisation' of storage? The answer lies in holographic storage, which uses the volume of a medium, rather than its surface to record and read data. This would result in vastly increased densities and read-write speeds, while being, at the same time, ultra-reliable and cost-effective.
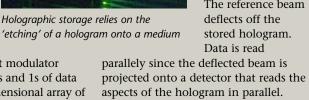
The principle relies on lasers: Light from a laser beam is split into two—a signal beam that carries data, and a reference beam, which is used to write and read to the holograms. A device—the spatial light modulator (SLM)—translates the 0s and 1s of data into an optical two-dimensional array of pixels that are either lit or dark. At the point where the signal beam and the reference beam intersect, a hologram is

Holographic storage relies on the 'etching' of a hologram onto a medium

formed because of a chemical reaction between the light-sensitive recording medium and the lit elements of the signal beam. This hologram is then recorded on the medium.

By varying the angle and wavelength of the reference beam, or the position of the medium, different holograms can be recorded—basically, superimposing holograms within the same space. Reading is accomplished by flashing the reference beam onto the media: The reference beam deflects off the stored hologram. Data is read parallely since the deflected beam is projected onto a detector that reads the aspects of the hologram in parallel.

Again, note that holographic storage is not a new concept: It's been researched for nearly four decades now.

The optical computer

There's no race on to build a fully-optical computer. Rather, each of the advancements that we have just mentioned does a particular job, or demonstrates a particular principle. The real race, if any, is that of finding materials that do the job well—for example, materials that are capable of storing holograms in holographic storage, or those ideally suited for building optical transistors.
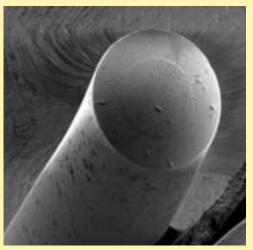
The question of why we're not at an optical computer yet might arise: With optical processors, optical data paths, etc, demonstrated, why not build an optical computer right now? The answer is that these components—for example, the optical processor by Lenslet—are isolated; none of them are designed to work with each other. There's no consortium that has defined any kinds of standard for 'optical processing' or 'optical computing'. Research is scattered, and

Optical pathways

The missing element in the discussion so far has been optical pathways that can interconnect different components, which are essential if a fully-optical computer is to be realised. As an example, consider the work being done by a group in Belgium, called the IO project (Interconnect by Optics). The group aims at developing 'an optical interconnect family' that will interconnect ICs to ICs, boards to boards, and more. The group aims at demonstrating direct access to a CMOS chip. Their approach is based on optical waveguides that can be integrated with boards.

The novelty here is in the optical waveguides. These will be based on plastic optical fibres—as opposed to traditional glass fibres—and on layered
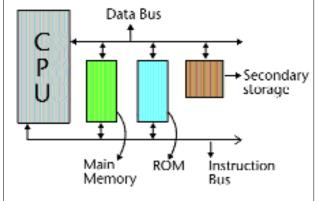
From the IO group, a highly magnified photograph of a plastic optical fibre (POF). The core and the cladding are visible

glass sheets with the waveguides etched on them.

The group focuses on the achievable channel density and data rate. The IO project aims to demonstrate a complete optical interconnect family in the area of core IP routers, which marks the entire project as not being something futuristic and 'in-theory', but one whose results can be used right now.

However, the point of this is not that we now have a faster technology in the area of core IP routers; the point is that research is paving the way for silicon-optical hybrid boards that might very well be available a few years from now.

The von Neumann architecture for computing machines

This figure seems simple and obvious, but it was not obvious until John von Neumann devised the architecture, known since 1945 as 'the von Neumann architecture'. Every computer you've ever seen is a 'von Neumann machine'. Parallel-processing machines are an exception

different research groups are different in their focus. Some groups focus on materials, some on interconnects, some on components, and so on.

The Internet grows exponentially, with users being added by the minute. With increasing demands on bandwidth, optical switching over fibre-optic networks will undoubtedly be one of the major focal points of research. However,

that is beside the point: when can we expect an optical computer?

Time frames vary. Holographic storage could be commercially available in as little as five years. Pure-optical processors have already been devised and built, and the way to a general-purpose optical processor has already been paved—although much work remains to be done—but that is not the issue here. What is at issue is the framework for an optical computer and its applications, which no single group is focusing on.

No one knows what an optical computer will be like, and what uses it will be put to. However, we may hazard a guess that it might not be based on the von Neumann architecture that we're all so familiar with. The primary reason for this is the speed that is promised by optical components, and the manner in which devices in such a computer can be interconnected.

As an example, with storage going the holographic way, will there be a distinction between main and peripheral memory? As of now, our concept of a computer is centred around a fast main memory and a slower hard disk. Optical storage might do away with that concept altogether.

Then there is the question of the network being totally distinct from the computer. With high-speed optical switching and optical processors, what might not be possible? The same processor that handles signals within the computer could also directly handle those coming in from and going out to the network, effectively uniting processor and network. The possibilities are exciting.

In sum, the picture we have of optical computing, as it stands today, is first, that the opticalisation of computers is happening component by component; there is a tremendous need for new materials that can be deemed as being capable of implementing what is being done in theory. And second: that we don't yet have a clear idea what a fully-optical computer will be like, but the very architecture that John von Neumann spelt out in 1945 may be challenged. d

RAM MOHAN RAO
ram_mohan@thinkdigit.com

◄◄ AKG Hearo 999 Audiosphere II
In a sphere of its own

The noise-free reception is a marvel, and the surround system classy. The Audiosphere II pitches in some excellent hi-fi acoustics—even at loud volumes—using Varimotion technology and computer-optimised membrane geometry. You can choose between surround and stereo modes. The set promises crystal-clear output and lets you handle several headphones simultaneously.
Price:US$ 1,290 (approx)

Sleek, suave headsets that spell music when you plug them in

For Your
Ears Only

AKG K 1000 ▼
Playing it loud ▼

The set resembles a pair of loudspeakers strapped together. And the output is proof enough of that. The AKG K 1000 has its speakers fine-tuned by a computer-optimised process that involved meticulous time-energy distributions. This feature makes listening a surreal experience. A magnetised Ventilated Linear Dynamic (VLD) system drives the diaphragm to pamper your ears with superb acoustics.
Price: US$ 916 (approx)

Sennheiser SET 810
Take a bow ►►

Its ear bows bow to adjustment, so you need not worry about the fit. This infra-red stethoset receiver gives you balanced audio and makes the finer nuances of voice audible. A large knob lets you handle the volume level with ease. An external microphone lets you connect to TVs without an audio-out socket.
Price: US$ 229

◀◀ Sony Qualia 010
Sound realism

These high-definition headphones, with a price to match, bring that much-sought realism to sound frequencies exceeding 100 KHz. A porous baffle cuts down all unwanted resonance. The broad leather headband and pressure-dispensing sheepskin ear pads make the Qualia 010 comfortable even over long hours of play.
Price: US$ 2,600 (approx)

Sennheiser RS 110 ▶▶
No wire…Sounds impressive

With a range of around 100 metres, here's a headset that lets you listen to Mozart as you walk about in the garden, without the hassle of wires. This supra-aural set thrills with detailed sound reproduction. Three selectable RF channels, great bass response and intuitive control elements make for a sound picture.
Price: US$ 89.95

◀◀ Sony MDR-G94NC
Stylish and hassle-free

This set snuffs out outside din by a whopping 70 per cent, and uses Neodymium magnets to give you ample sound output. The stylish behind-the-neck headband leaves your hair unruffled, while the cord is tangle-free. Truly made for the glitzy audiophile!
Price: US$ 69.99

The good news is Microsoft, Wipro and e-Serve are hiring; the tough part is you need to be prepared. How do you look for that dream job? What skillsets are in demand? And how do you write the perfect résumé?

Anand Bose, a commerce graduate from National College, Mumbai, puts a twist to the "India Shining" phrase. He has two years of work experience in sales, and he's now looking for recruitment advertisements by IT companies. "IT shining!" is the reason.

The IT sector was primarily the domain of engineers and computer science professionals. What brings Commerce and Humanities graduates into IT?

The dotcom bust of 2000 resulted in pink slips, and a sluggish US economy put an embargo on IT professionals. But post 2002, favourable government policies, combined with a global belief in offshore development, resulted in Indian IT companies expanding their workforce, and increased opportunities—both in terms of working on the technical side and customer support. Today, most ads in newspapers are for the IT, and ITES (IT Enabled Services) sector, which comprises Business Process Outsourcing (BPOs) and call centres.

Considering that there are approximately 2,90,000 fresh engineering graduates, and more than two million English-speaking graduates added to the workforce every year—according to Nasscom (National Association of Software and Service Companies)—what kind of prospects does IT offer?

IT: Specialist vs Generalist

According to the Nasscom Strategic Review this year, IT's contribution to the nation's Gross Domestic Product increased from 1.4 per cent in 1998-99 to 3 per cent in 2002-03. And recruitment is definitely on the rise. According to A N Pruthwi, Staffing Manager—India for Microsoft, "We are witnessing a period peak of 1998-2000—the dotcom phase; by 2005 we would hit that stage and go beyond."

IT's happening!

What are companies looking for?

All Web-based applications are finding takers. Companies are lapping up people with Java/J2EE and .Net skills. As Vijay Mukhi, Founder, Vijay Mukhi's Computer Institute, says, "With the introduction of Microsoft's Visual Studio 2005, the demand for .Net expertise is on the rise, as most companies are Microsoft-based." Asad Kadri, Manager-Resourcing, of Mumbai-based Patni

Computers System Pvt Ltd, informs that their company is looking for cross-technology expertise from database management to embedded systems, and from mainframe to client-server applications.

There are other trends as well. According to the Manager-HR, I-flex Solutions, Mumbai, which provides IT solutions to the financial sector, the shift is also towards Unix, C and C++. Mainframe skills are back in demand: financial and healthcare institutions invest significantly in data recovery management. Another emerging area is data security, which has the potential to grow at a rate of 14 per cent annually by 2005, according to Nasscom's estimates.

Does all this mean IT companies will only recruit engineers?
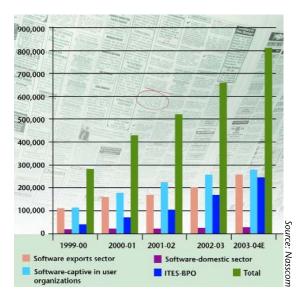
Primarily, yes. However, non-engineering graduates can and do look for IT jobs. Top IT companies are hiring MCAs (Master of Computer Applications) and MCMs (Master of Computer Management). As Ambarish Deshpande, Assistant Vice President-Marketing, of Symantec India, assures, "Being an MBA has in no way been detrimental to my job of selling security solutions to companies." Most IT companies have realised the importance of a strong sales and technical support team, and so non-engineering backgrounders, too, can aspire to be in the IT world—using marketing skills, of course.

ITES: Service with a smile

Last year, the Indian ITES-BPO industry grew 54 per cent, according to Nasscom. What began as mere outsourcing of customer service mostly from the US, is now becoming a niche—

Source: Nasscom

finance, computing equipment, etc.

Firms such as eServe—a part of Citigroup—and Intelenet (a joint venture of

---

LOOK AT THE WORK PROFILE, NOT MERELY SHORT SALARY SPIKES

**Focus Consultants is one of India's top IT placement consultants.
Vipul Varma, CEO, talks about trends in IT recruiting in India**

Digit: What are the reasons for the steady increase in the field of IT and ITES?
Vipul Varma (VV): The year 2000 was a period of recession for the IT industry, with the economy slump and the dotcom bust. Post 2002, many MNCs have set up their delivery and offshore centres around the world, India being one of the beneficiaries. This has resulted in more offshore projects and support activities.

Digit: Can you highlight the major trends in IT recruitment over the last couple of years?
VV: There is a great demand for technically qualified personnel with a work experience of two to five years. One sees a shift to package software skillsets such as ERP, Siebel CRM solutions, Oracle APS, Baan ERP, etc. Previously, there was a lot of demand for the vanilla skills of mainframes and client/server, but now, Web-based application skills such as .Net and Java/J2EE face a supply constraint. Newer technologies demand more and more professional skills. Also, IT infrastructure and security are newer areas, which would see more recruitment in the coming years.

Digit: How have placement consultants influenced the IT recruitment process?
VV: Consultants save the company the

VIPUL VARMA,
CEO, Focus Consultants

trouble of scanning through hundreds of résumés; a pre-screening is done by the consultants in terms of finding the relevant résumés, and the candidates are pre-screened too. So with a consultant, the shortlisting to final offers is high, unlike job Web sites.

Many consultants offer third-party validation to a candidate vis-à-vis a company's advertisements that are often publicity vehicles. Today, consultants counsel the candidates, and also advise the company on matters of rational salary structure.

Digit: Ten years in the placement industry, and you must have seen innumerable

résumés; what are the most common errors?
VV: From an employer's point of view, a résumé is the first introduction to an applicant's personality. An ideal résumé should not be more than three pages. The common errors that occur are:
■ No one ever writes a summary, when the fact is that a summary gives an employer a fair idea of what the candidate is like.
■ Applicants tend to describe projects more than their contribution to it.
■ They hide uncomfortable truths like pink slips.
■ An applicant should, by the design of his résumé, be able to drive the interview towards his strengths.

Digit: What kinds of pointers would you give Digit Readers aspiring to make it big in IT?
VV: ■ Build a career, not a job.
■ IT is a knowledge-based industry, so get into continuous learning.
■ Develop good interaction skills. Employers also look at Emotional Quotient.
■ When joining a company, look at the work profile, not merely short salary spikes.

TCS and HDFC) hire around 500 people a month, and so do others such as Daksh and Wipro Spectramind.

As Jaipal Verma, Manager-HR, eServe, says, "Four years ago, there was hardly a call centre around worth its name. Today... the demand for them has increased." The numbers are large—but do the companies get the right candidates?

An HR Executive from 3 Global Services Pvt Ltd, a call centre division of Hutchison Whampoa Limited, confirms, "We get the quantity, not the quality, and so recruitment numbers seem large." Verma lists the skills that a call centre or BPO would look for: "Good communication skills, fluency in English, diction and the most important attribute—customer oriented behaviour." Raamann Kumar, Senior Manager-HR, Intelenet, says, "It is a misconception that call centres look for accented English; in fact, we look for people with a neutral accent." These jobs let undergraduates augment their pocket money and get work experience. So, is a call centre ideal to begin one's career?

Kumar gives an example of an employee who began with Intelenet as a Customer Service Executive, and three years down, she is Manager-Training. But she might belong to a small tribe who look at a call centre as a career option. For the majority, call centres are a temporary halt.

Looking in the right places

Most IT and ITES companies have a recruitment strategy encompassing press advertisements, online job sites, placement consultants and employee referrals. The company Web site is an important tool for any recruiter, according to Microsoft's Pruthwi. He says 25 per cent of applicants to Microsoft used the company's Web site to apply and expects this to go up by 25 per cent in the coming years.

Though the best way to create company awareness, press ads are expensive. Here's where job sites come in. For the last five years, a number of them—naukri.com, timesjobs.com etc, have become the preferred option for job seekers. Arijit Sen, Manager-Marketing, Customer Care and Operations, Jobstreet.com India, says, "The IT sector has adapted to e-recruitment the most. It's use in this sector is the highest. Over 50 per cent of jobs on such Web sites in India come from this sector." Hitesh

A N Pruthwi,
Staffing Manager, India
Microsoft

> " We are witnessing a period peak of 1998-2000—the dotcom phase; by **2005** we would **hit that stage** and **go beyond** "

Bhartia, Manager, Mumbai Operations, also confirms that for a job seeker as well as for an employer, the reach is wider. Sen says the most popular ones are from the one to eight years experience category.

However, both IT companies and call centres exercise caution. For a call centre, a walk-in is far better than an online résumé, as soft skills need to be checked; while an IT company always runs the danger of being swamped with junk résumés.

Placement consultants are an important link for e-recruitment. Kavita Iyer, a senior consultant with CAPNTEL Executive Search says, "A placement consultant helps in assessing the candidate prima facie." A manager with a leading software company also agrees that placement consultants are better because they are able to pitch for the candidate, to get him or her the best deal possible, and also look at cross-industry options. A placement consultant is your best bet when looking for a suitable change after a certain number of years of experience.

And Finally…

"There is no substitute for preparation; set your goals and work towards them," says Pruthwi, when asked about pointers for those who want to make it big in IT. Yes, there is a boom in both the IT and ITES sector, and recruitments would continue for more than two years at the least. For those who want to do well, accept that IT is a field of continuous learning—keep yourself updated because, like technology, knowledge, too, can become obsolete. ◀

APARNA KRISHNAKUMAR
aparna_krishnakumar@thinkdigit.com

TIPS Tips on writing a good résumé

■ **Always state a job objective:** Decide on a job objective that can be expressed in about five or six lines.

■ **Stick to a certain chronology:** Preferably, begin from the most recent.

■ **Educational qualifications:** In case of experienced candidates, educational qualifications can be mentioned at the end, but for a fresher, this section is paramount and so should be on top.

■ **Use strong verbs to highlight your** achievements: Use verbs such as 'handled', 'headed', 'co-ordinated' and adjectives such as 'responsible', 'in-charge'. Be honest about your claims—all of what you write should be verifiable with your former employer.

■ **Include hobbies and interests:** Things you really like doing. Just saying 'reading' would be very general; be more specific about such things so you can answer questions better during the interview stage.

■ **References:** Give references only if asked.

How we Test

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

To ensure that our readers have all the information they need to make an informed buying decision, reviewers at the Digit Test Centre conduct comprehensive tests to evaluate the latest hardware, software and technology services in accordance with international standard evaluation processes and methodologies.

Our test results may be presented either as Comparison Tests, or as individual reviews in the Bazaar section. The representation of the results is different for each in the interests of clarity, but the test process for both is identical in all respects.

Of all the products we test, only the best make it to the A-List.

Comparison Tests

In the comparison tests, we compare the performance of products within a particular category. Each product is evaluated under different parameters such as performance, value for money, features, ergonomics, etc.
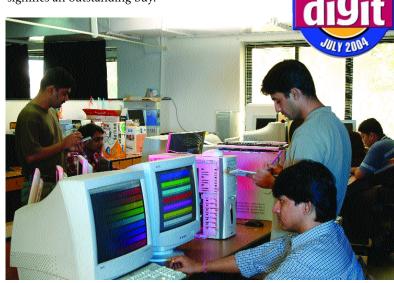
Weightages are then applied to the various test parameters according to their importance for that particular category of products. These weightages are then used to arrive at scores for features, ergonomics and performance for each individual product. A detailed test process is included with each comparison test, and explains the parameters that were taken into consideration, along with weightage allocation and reasons for the same.

In Bazaar

The evaluation of products in Bazaar also covers the same parameters such as performance, ease of use, value for money, build quality and features of the product.

Here, each of these parameters is rated on a scale of 5, which is represented by arrows (->).

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

The Awards

Digit awards outstanding products by selecting a Best Performance and Best Value winner in each comparison test. The winner of the Best Performance Award will be the product that scored the highest in the performance segment combined with rest of the package including features, ergonomics, bundled accessories etc. This award represents the best performing product in our tests in terms of the complete package that is offered to a customer. The winner of the Best Value Award will be the product that scores the highest in our value for money parameter which is derived taking into account the ratio of a product's ergonomics, performance and features to its price. The product winning this award offers a good combination of performance and features at a great price. Since value for money takes into account all scores for all parameters including the price, this score will be used to arrive at a grade (e.g. A+) for each product.

The 5-point Rating System used in Bazaar	
▶ ▶ ▶ ▶ ▶	**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:** has serious drawbacks and needs improvement before it can be used for its target application

Mobile Madness

If all you ever need to do is talk on your phone, or play Snake, you don't need a Sony Ericsson P900. Then again, you might want one for simple flaunt value. Whatever your need, there's a phone in this article that will be perfect for your needs…

How We Tested

We categorised the cell phones based on two factors—price and features. In order of price, these categories are: Basic phones, Mid-range phones, Camera phones, Smart phones and PDA phones.

The essential features we looked for in the PDA phones category, evolved around PDA functionality, along with the usual mobile phone features. Major weightage was given to stylus-based input. A Large colour screen, an expandable memory, an integrated camera and other features added to the tally.

Smart phones were defined as the phones that allowed you to instal applications, games, screen savers, themes, ringtones etc.

Other features such as presence of camera were noted down, but they did not form the basis of distinguishing features between the models. Amount of memory, pre-installed applications, usability of the installed applications, etc were given more weightages.

The Camera phones category looked at those mobile phones that offered camera functionality, but lack application installation support. Here, the camera features were stressed upon. Though there were many phones in the Smart phone category that had the camera integrated, they deferred from the camera phone in their flexibility of installing applications.

Mid-range phones consisted of cell phones that did not fit into any of these categories. This category essentially comprised mobile phones that were a cut above the ones in the Basic phones category. As an added bonus, some of them even offered coloured screens as well.

The last category, Basic phones, was for phone which are just that, phones—nothing special. These are the highest selling models, and everyone and his uncle has owned one at some point. The standard features we looked for were: A compact size, light weight,good build quality and ruggedness, a decent capacity to store addresses and a good battery life of at least two days. The additional features we considered were a calculator function, inbuilt ringtones, the number of games, etc. Of course, the price is the most important factor in this

category, so we only considered phones that cost Rs 5,000 or less here.

Testing and benchmarking procedure

We evaluated the cell phones based on the following criteria:

Style and design:
■ Usability refers to the practical ergonomics of the phone. We took into account the keypad layout, the phone grip and the readability of the buttons with the backlight on. We also looked for any individual buttons that made browsing through the menu simple—the five-way joystick type button, for example.

■ We evaluated the software used in the phone, and concentrated on the ease of use of the interface, the customisation offered and other features in the software itself, such as one-touch SMS.

Features

The features were assessed after we allotted them to 14 different categories.
■ The first category represented the basic phone features. They included weight, length and dimensions of the phone, and also battery type.
■ The second category was memory. We studied the dynamic and static memory of the phones. We also took a close look at the phone's support for external memory.
■ Other important and upcoming features such as MMS, inbuilt cameras, etc., were also delved into.
■ We evaluated PIM functionality, profiles, connectivity standards, Internet capability and ringtones in the respective categories.
■ The weightages were assigned in accordance to how important a particular feature of a phone was, based on the category it was placed in.

Performance

The performance of a cell phone depends directly on the network. So, we took into account various important factors while evaluating the performance. We tested the performance of the phones at three different times, and at three different places within our building. The idea was to weed out any ambiguity in the tests, which could be caused by network loads while the tests were done. Since every phone we tested, across all categories, was still primarily a cell phone, the weightage of voice performance and network strength did not differ across categories.

For phones with inbuilt cameras, we scrutinised the image quality and the video frame rate—we checked for jerkiness in the captured viseo.

All Java enabled phones were tested for the amount of time taken to load applications, and switch back to the main screen from the application. We also studied the time taken for a

B A S I C PHONES

Phones priced below Rs 5,000 formed the basic phone category. We had phones from Alcatel, LG, Bird, Nokia, Benq and Philips. BenQ had three phones in the category, while Alcatel came up with two compact little contenders. Nokia could only manage to get its 1100 phones in this category. Philips sent in its stylish-looking 330 phone for the masses.

Alcatel's Onetouch 331 is very compact—it's no bigger than a Cadbury's Five-star chocolate bar, and looks great in its ivory white cover with a light orange backlight. However, the Onetouch 320 sports dated looks akin to the earlier 3 series of phones from Nokia, such as the Nokia 3320.

BenQ's S620i sports a pearl-finished plastic body, whereas the S630i is all silvery. Of the two, the S630i stands out as a better finished product. Both are quite bulky as compared to the Philips 330, which despite being a flip-phone is quite slim.

BenQ does have a slick contender in the form of the M560G. It's feature-rich, and is much better than its other two siblings in terms of design and overall appeal.

The Philips 330 offers good functionality and probably was the best looking flip phone of the lot—its chrome finish sets it apart from the rest.

Alcatel Onetouch 331
Rating: A
Price: Rs 2,990

The 1100 from Nokia made quite an impression with its design and super slick usability. It packs in a variety of accessories ranging from hard plastic for the casing, rubber keys and rubber inserts on the side that provide a firm grip.

Bird, a little known Chinese manufacturer, had the S1160 in the Basic phones category. It's a flip model, treated in silver and intelligently designed. However, it does not evoke the rugged feel associated with phones in this category, neither is it aesthetic in its appeal.

LG, with its G1500, is another Nokia clone with a Korean touch. This compact little phone combines good functionality with a decent design.

Nokia's 1100 takes the lead when it comes to usability. Its rubber keys are a little hard to press but their placement is perfect. The tried and tested navigation from the 3310 also

makes its way to the 1100, but with a small difference—the buttons are rearranged. Its menu is easy to use, and menu items are logically grouped—something the rest of the competition hasn't given a thought to.

Alcatel's Onetouch 331 comes a close second, but lacks Nokia's menu-structuring finesse. It employs a two-dimensional joystick to browse the menu. On the other hand, the Alcatel 320 is quite cumbersome and uses rubber keys similar to those on the Nokia 3350, which are not so user-friendly.

Philips uses a slim design and small form factor to make the 330 a pleasure to use. In fact, it was the second lightest phone in this category—the lightest being Alcatel's 331. However, it may be some time before you get used to the Philips 330's menu structure.

A good keypad, small form factor, and a weight of 80 gm placed BenQ's M560G third in the usability department. The other two BenQ models lack that very feel that goes into the making of a good phone.

LG's 1500 also scored high on the usability aspect. People making the switch from Nokia will find its menu easy to navigate. Its button placement, however, takes some getting used to.

On the messaging front, the Nokia 1100 still rules the roost—with a straightforward messaging system. The T9 predictive input is also superior to others—the models from Nokia and LG give you the most relevant words first, whereas the Alcatels throw up all sorts of combinations, and ask you to 'help' choose the words. The other phone that equals Nokia's messaging ability is the LG G1500. BenQ's messaging interface also shouldn't pose a problem. Alcatel's messaging system, though, is a complete mess.

All these phones use monochrome displays, but not all of them have a resolution to match. Then there's the backlight to consider, which also makes a difference in monochrome displays. A green backlight does not put much strain on your eyes, while a blue backlight makes it difficult to read text. A white backlight is the coolest and makes reading the screen a much better job. The Nokia 1100, BenQ S620i and 630i, Bird S1160 and Alcatel 320 all use green backlights. The Philips 330

NOKIA 1100
Rating: C+
Price: Rs 4,699

comes with a white backlight, and the LG G1500 was the only phone with a mild blue backlight. The Alcatel 331 uses an orange backlight. BenQ's M560G gives you the added advantage of changing the backlight to suit your mood. The Philips 330's screen was the best in terms of legibility.

Personal information managers in all phones are a basic affair. However, the Alcatel 331 and the LG 1500 have some additional features that set them apart from the rest.

Nokia's 1100, LG's 1500, and the BenQ 620i and 630i were the only phones that lacked polyphonic ringtones.

Almost all the models had their connectivity options limited to WAP. However, BenQ's M560G offers GPRS capability. It does not support PC connectivity though.

As for the extra frills, Nokia's 1100 is the only phone to have an inbuilt torch, which though handy, is not powerful enough. All BenQ phones have a handsfree speaker. A calculator with a currency or metric converter is common to almost all the phones—what differs is its implementation. The same applies for alarms—you can now set alarms differently for different days.

Nokia showed its mettle when it came to signal reception and

voice clarity. Its signal reception stayed put even in low signal areas and the voice didn't crackle. Almost all the models from BenQ were on par with Nokia's performance in this department. Close on their heels were the models from Philips, LG and Alcatel. Expect a minimum battery life of 3 days on these phones if you use them for around an hour a day, with a few gaming sessions thrown in.

All said and done, BenQ's M560G is the phone you should look out for if features is your major concern. Its practical usability, small compact body and good set of features are strong points in its favour. However, you can also consider the Nokia 1100, which is equally impressive in its usability aspect. The small difference that lends Nokia an upper hand is the slick and easy-to-use interface that most people are familiar with.

The Philips 330 should appeal to people on a shoe string budget with a flip-phone fetish. The S1160 from Bird is buyable, but the problem is that its competitors have a better product to market.

As for the BenQ mobile gentry, the S620i and S630i look like retired gentlemen. We would rather suggest the M650G—it looks better and has loads of features to play around with.

SCORE BOARD

CATEGORY				BASIC PHONES					
Brand	Alcatel	Alcatel	Benq	Benq	Benq	Bird	LG	Nokia	Philips
Model	OneTouch 331	OneTouch 320	M560G	S620i	S630i	S1160	G1500	1100	330
Basic features									
Antenna	Internal	Internal	Internal	External	External	External	Internal	Internal	External
Weight (gms)	77	80	79	80	81	83	85	86	78
Dimensions (mm)	98x42x20	106x45x20	99x42x18	84.9x46x19.2	84.9x46x19.3	85x44x19.6	107x43x22	107x46x20	83x43x22
Netwrok Band support	Dual band	Dual band	Dual band	Dual band	Dual band	Dual band	Dual band	Dual band	Dual band
Rated standby time (hours)	280	120	210	210	210	100	250	400	400
Rated talk time (hours)	6	6	3	3.5	3.5	2	4	4.5	4.5
Display screen									
Type/Resolution (pixels)/No of lines	Mono/96X65 /3	Mono/112x64/2	Mono/NA/3	Mono/98x65/2	Mono/98x65/3	Mono/112x64 /2	Mono/128x64/2	Mono/96x65/3	Mono/101x80/6
RingtonesType (built-in)/Number	Polyphonic/35	polyphonic/15	Polyphonic/NA	Standard/NA	Standard/NA	Polyphonic/NA	polyphonic/15	Standard/35	Polyphonic/30
No of Contacts in Phone/Fields	250/3	100/3	500/5	100/1	100/1	NA	200/5	50/1	300/8
Call records (received/Dialled/Missed)	10 / 10 / 10	20/20/20	10/10/10	10/10/10	10/10/10	NA	20/20/20	10/10/10	10/10/10
Calendar									
Type of view	None	Monthly	Montlhy	None	None	Monthly	Monthly	None	Monthly, weekly
Scheduler	✔	✔	✔	None	None	✔	✔	None	✔
Send note	✘	✔	✔	None	None	✘	✘	None	✘
Micellaneous features									
Alarm/World Clock	✔/✘	✔/NA	✔/✘	✔/✘	✔/✘	✔/✔	✔/✔	✔/✘	✔/✘
Calculator/Converter	✔/✔	✔/✔	✔/✘	✔/✘	✔/✘	✔/✔	✔/✔	✔/✘	✔/✔
FM Radio/Flashlight	✘/✘	✘/ ✘	✘/ ✘	✘/✘	✘✘	✘/✘	✘/✘	✘/✔	✘/✘
WAP/GPRS	✔/✘	✔/✘	✔/✔	✔/✘	✔/✘	✔/✘	✔/✘	✔/✘	✔/✘
Games provided/Number	✔/3	✔/3	✔/2	✔/4	✔/4	✔/3	✔/3	✔/2	✔/1
Pocketability	4	3	3.5	2.5	2.5	3	3.5	3.5	3
Ergonomics	4	3	4	3	3	3	3	4	3.5
Typing speed and ease of use	3.5	2.5	3	3	3	4	4	4.5	3
Signal reception	3	2.5	3.5	3.5	3.5	3	3	4	3
Voice clarity	3.5	2.5	3.5	3.5	3.5	2.5	3	4	3
Grand Total	67.51	58.75	70.57	58.82	58.82	58.05	63.1	68.81	63.86
Price	2990	3450	4450	4990	4990	4299	4800	4699	4660
VFM	2.3	1.7	1.5	1.2	1.2	1.4	1.3	1.5	1.4
Grade	A	B	B-	C	C		C	C+	C+

MID-RANGE PHONES

With cell phones becoming part of everyday life, let us take a closer look now at some widely used mid-range phones, and identify the model with the right balance of style, features, usability and performance. After all, who doesn't long for that perfect phone.

We will discuss cell phones that comprise the mid-range category. Priced at Rs 5,000 and above, these phones offer more than just mere basic features. They are essentially visually appealing, and not meant for just calling and messaging. People obsessed with colour screens, and managing personal information on their cell phones opt for these handsets. However, camera phones and Java-enabled sets don't fall into this category.

Mid-range phones come with a variety of interesting options—ranging from simple monochrome screens to the exquisite and lively 270K coloured ones. Despite the craze over rich 270K colour screens, most of today's mid-range cell phones are still in the modest 4K colour domain, with features that are, after all, decent enough for the average user.

Users of mid-range phones experience much better connectivity while travelling. There are obviously several other

G7030 and Pantech's G300, are real beauties. The Pantech G300 is exceptionally striking—with its splendid, contoured body, stylish looks and compact size, it will definitely appeal to the fairer sex. Following closely on the heels of these flip phones was the elegant looking Philips 630.

Nothing beats the Nokia 2300 when it comes to the candy bar look. Exhibiting a complete new design by playing on the keys, The 2300, with a brand new design and spectacular layout of keys, can make you forget that it is, after all, a mere

Samsung SGH-S500
Rating: C
Price: Rs 11,499

SAMSUNG C100
FULLY LOADED. FULLY ADDICTIVE.

features that make these phones handy while on the go.

The table clearly shows that mid-range phones throw open lot of options when it comes to the number of brands available. Top brands, such as Nokia, Samsung, LG, Sony-Ericsson and Motorola, all thrive on the category of mid-range sets. Even lesser known names in the market, such as BenQ and Pantech, offer at least one mid-range model. Already, Philips, Sagem and Panasonic are fighting for a foothold in the mid-range domain with some really good models.

The Koreans stand taller than the others (no, we're not being sarcastic or punning here) when it comes to style and class. Korean manufacturers have invariably come up with the best-looking compact flip phones. Samsung's SGH-X430 and SGH-S500, LG's

LG G7030
Rating: C–
Price: Rs 13,000

phone. Bird's S288 is easily the slimmest cell phone we have come across, and it actually looks like a colourful candy bar.

The impressive aluminium finish of the Phillips 9@9++ sets it apart from other contemporary models. Phones from Sagem, though, are modelled to resemble the popular Nokia sets, without any distinct design or style of their own. BenQ, Alcatel and Siemens models are not too impressive in terms of looks. Some are too dull looking, while others are way too flashy to be impressive—many of them resemble other phones from the past. Sony-Ericsson's T230 at least sports a unique look, though its rectangular body with chiselled edges can hardly be called eye-candy.

Panasonic, the all-time specialist in Bonsai models, has done it yet again with the smart EB-G51. But for the jutting antenna, the G51 really fits perfectly into your palm. Motorola

Nokia2300
Rating: B+
Price: Rs 6,919

also packs some impressive features into the C350E. The small screen aside, coloured buttons, white backlight and the matching body, give this cell phone an overall great look.

Coming to ergonomics and usability, the Koreans have tasted success by emulating Finnish phone makers Nokia. In the range of flip phones, LG's G7030 is easily the model with the perfect layout of buttons, a great tactile feel and a splendid menu interface that is simple to navigate. Closely following this model are both the phones from Samsung. They have an equally good menu interface—totally different from the LG set, but still simple to operate. The grouping of menus is simply immaculate. Nokia switchers will find it easy to relate to them.

On the other hand, Pantech dons a more colourful and lively menu that is very appealing. However, using this model over a sustained period of time might make you feel that the colourful animation is overdone. The Philips 630 has a simple and straight forward approach to menu interface and button layout. The simplicity of the interface makes up for the lack of

a flashy look.

Despite the odd shape and layout of the keypad, Nokia's 2300 works without any hiccups. The BenQ M555C boasts of a great five-way rocker key and an easy-to-use menu interface. Sagem phones use the same approach that Nokia uses—a combination of a four-way rocker key with two soft keys. Sony-Erics-son's T230, Motorola's C350E, Siemens' A60 and Philips' 9@9++, all work on the same approach of four-way rocker and two soft buttons for browsing the menu. In fact, Bird's S288 is the only phone that uses a two-way rocker for menu browsing, which is really cumbersome.

Those on the lookout for feather-light hand-sets should know that the S288 from Bird is the lightest and slimmest phone available today—it weighs just 65 grams. The sleek Samsung SGH-X430 follows closely with 73 grams. The additional weight is solely due to the flip form factor, which makes the set bulkier. EB-G51, the light Panasonic model, is the ideal for people who are choosy about phones that are light and fit perfectly in the smallest of places. Even

Bird S288
Rating: B+
Price: Rs 5,499

SCORE BOARD

CATEGORY				CELL PHONE MID-RANGE				
Brand	Alcatel	Benq	Bird	Bird	LG	LG	Motorola	Nokia
Model	Onetouch 535	M555C	S1190	S288	G3100	G7030	C350E	2300
Basic features								
Antenna	Internal	Internal	External	Internal	Internal	External	Internal	Internal
Weight (gm)	88	80	78	65	85	88	85	92
Dimensions (mm)	106 x 47 x 20	99 x 42 x 18	85.3 x 44.2 x 20.8	103 x 44 x12	84x44x20.5	85 x 45 x 23	NA	107 x 46 x 21
Network band support	Dual Band	Dual Band	Dual Band	Dual Band	Dual Band	Dual Band	Dual Band	Dual Band
Rated standby time (hours)	260	210	150	220	200	200	215	400
Rated talk time (hours)	6	4	5	2.5	2	2.5	4.5	4.5
Display screen								
Number of colours	4096	4096	4096	Mono	4096	65,000	4096	Mono
Resolution	128 x 128	128 x 128	128 x 128	128 x 128	128 x 128	128 x 128	128 x 128	128 x 128
No of lines of text	4	4	4	4	4	5	4	4
In-built ringtones type	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic
No of contacts in Phone / Fields	800 / 10	NA	200	300	150	255 / 3	100	50
Call records (received / dialled / missed)	10 / 10 / 10	10 / 10 / 10	10 / 10 / 10	10 / 10 / 10	10 / 10 / 10	10 / 10 / 10	10 / 10 / 10	10 / 10 / 10
Calendaring								
Type of view	Monthly, Weekly	Monthly, Weekly	None	None	Monthly, Weekly	Monthly , Weekly	Monthly , Weekly	None
Scheduler	✔	✔	None	None	✔	✔	✔	None
Send note	✔	✔	None	None	✔	✔	✔	✔
Micellaneous features								
Alarm / World clock	✔/✔	✔/✘	✔/✘	✔/✔	✔/✔	✔/✔	✔/✔	✔/✘
Calculator / Converter	✔/✔	✔/✘	✔/✔	✔/✔	✔/✘	✔/✔	✔/✔	✔/✘
Handsfree / Voice recorder	✔/✔	✘/✘	✘/✘	✔/✘	✘/✘	✔/✔	✘/✘	✔/✘
FM Radio	✘	✘	✘	✘	✘	✘	✘	✔
WAP / GPRS	✔/✔	✔/✔	✘/✘	✔/✘	✔/✔	✔/✔	✔/✔	✘/✘
Number of games	✔/ 2	✔/ 2	✔/ 3	✔/ 3	✔/ 1	✔/ 1	✔/ 2	✔/ 2
Pocketability	3.25	4	3.5	4.5	3.25	3.25	3.5	3.5
Ergonomics	4	3.75	3	3.5	3.5	4	3.25	3.75
Typing speed and ease of use	2.5	3	2	2	3.75	4	2.5	4.5
Signal reception	3.5	3.5	3	2	3	3.5	3.5	4
Voice clarity	3.5	3.5	3	2	3	3.5	3.5	4
Grand Total	71.26	68.52	48.95	54.97	63.85	72.45	67.06	72.77
Price	6450	5990	5999	5499	6900	13000	5545	6919
VFM	1.10	1.14	0.82	1.00	0.93	0.56	1.21	1.05
Grade	A-	A-	B-	B+	B	C-	A	B+

FEATURES / USABILITY / FINAL SCORE

BenQ's M555C is a remarkably compact model.

Now, coming to display screens, most of the phones sport a 4,000-colour screen. Nokia 2300, Bird S288 and Philips 9@9++ sport mono-chromatic screens. While Nokia 2300 and Philips 9@9++ use white backlight, the S288 from Bird has a very rich blue backlight. Of all these, the Nokia 2300 gets the nod.

The Sagem phones are next in line, with both the My X-2 and My X-5 sporting 256-colour screens. Though the colour screen offers a slightly better resolution, the colours themselves aren't lively—they lack in depth and saturation. Of course, these 256-colour screens still look way better than monochrome ones.

Amongst the 4,000-colour (4K-colour) screen phones, the Bird S1190 is just a sorry sight—it lacks colour depth and richness. In fact, the model can be mistaken for a 256-colour screen set. Alcatel's Onetouch 535 comes with a large colour screen that makes reading messages not just easy, but a pleasure. The Panasonic EB-G51 and Motorola C350E have decent colour screens,

but the screens are way too small. Sagem's My X-3-2 comes with a 4K-colour screen and is definitely better than the other two Sagem models. The Philips 630, LG 3100 and Siemens A60, all have good colour screens. One practical problem that all these phones have in common, is the fact that they're all quite unreadable in direct sunlight. Siemens models, in particular, draw a lot of flak for this problem.

For colour screens, the top honours go, once again, to the Koreans. The G300 from Pantech with its 270K colour screen makes the screen really come alive with colours that are vibrant and true-to-life. Even though the screen is quite small, the resolution is wonderful, and you can read four lines of text perfectly. With animated menus and sharp colours, these handsets are certainly bound to grab everybody's attention.

Samsung has introduced the 65K-colour screen in two of its models—the SGH-X430 and SGH-S500 have excellent colour screens that are several notches better than lower-end phones in this category.

Panasonic	Pantech	Philips	Philips	Samsung	Samsung	Sagem	Sagem	Sagem	Siemens	Sony-Ericsson
EB-G51	G300	630	Xenuim 9@9++	SGH-X430	SGH-S500	MY X-2	MY X-3-2	MY X-5m	A60	T230
External	External	External	Internal	External	External	Internal	Internal	Internal	Internal	Internal
78	75	78	93	73	80	89	89	92	85	79
80 x 43 x 19	76 x 40 x 23.5	83 x 43 x 22	108 x 44 x 20	80 x 42 x 20	83 x 43 x 22	99 x 45 x 21	100 x 45 x 21	105 x 46 x 20	110 x 47 x 23	101 x 44 x 19
Dual Band	Dual Band	Dual Band	Dual Band	Dual Band	Dual Band	Dual Band	Dual Band	Dual Band	Tri-band	Dual Band
200	150	200	30 days	260	550	340	340	240	250	275
6	3	2.5	14 days	3.5	5	5	5	4	5	7
4096	256, 000	4096	Mono	65,000	65,000	256	4096	256	4096	4096
128 x 128	128 x 128	128 x 128	128 x 128	128 x 128	128 * 160	101 x 80	101 x 80	NA	101 x 80	101 x 80
5	4	5	5	4	4	4	4	3	3	5
Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic
255	800	300 / 3	500 / 5	500	500	250	500	300	100	250
10 / 10 / 10	10 / 10 / 10	10 / 10 / 10	10 / 10 / 10	10 / 10 / 10	10 / 10 / 10	NA	20 / 20 / 20	10 / 10 / 10	10 / 10 / 10	10 / 10 / 10
Monthly , weekly	Monthly , weekly	Monthly , weekly	Monthly , weekly	Monthly , weekly	Monthly , weekly	None	None	None	None	None
✔	✔	✔	✔	✔	✔	None	None	None	None	✔
✔	✔	✔	✔	✔	✔	None	None	None	None	✔
✔/✘	✔/✘	✔/✔	✔/✔	✔/✔	✔/✔	✔/✘	✔/✘	✔/✔	✔/✘	✔/✘
✔/✔	✔/✔	✔/✘	✔/✘	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✘
✔/✘	✘/✔	✔/✘	✔/✔	✘/✘	✘/✘	✘/✘	✔/✘	✘/✘	✔/✔	✘/✔
✘	✘	✔	✘	✘	✘	✘	✘	✘	✘	✘
✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✘	✔/✔	✔/✔	✔/✔	✔/✔
✔ / 2	✔ / 2	✔ / 2	✔ / 2	✔ / 2	✔ / 3	✔ / 2	✔ / 2	✔ / 2	✔ / 2	✔ / 2
4.5	4	3.5	3	3	3	3.5	3.5	2.5	3	3.75
2.5	3.5	3.25	3.25	3.75	3.75	3	3.5	4	3.5	3.5
2	3	3	3	3.5	3.5	3	3.5	3.5	4	3.75
3	3.5	3.5	3.5	4	4	3.5	3.5	3.5	4	3.25
3	3.5	3.5	3	4	4	3.5	3.5	3.5	4	3.25
61.9	74.86	69.36	65.36	73.91	74.91	54.75	59.3	63.76	71.96	68.21
6990	13995	8890	5320	9649	11499	5199	6199	6699	7000	5495
0.89	0.53	0.78	1.23	0.77	0.65	1.05	0.96	0.95	1.03	1.24
B	C-	A	B-	B+	B	B	B-	C	B+	A

The messaging system varies greatly from one set to another. While messaging is pure fun on some phones, it can be a really miserable experience on others. Predictive text input, or T9, plays a big role in the messaging experience of a phone.

Motorola and BenQ phones use the iTap method of input, where you have to hit enter after typing each and every word. Obviously this is a cumbersome process, and Nokia, Samsung and LG have a much more user-friendly technique.

The messaging system on Nokia phones is not just extremely easy to use, but also a pleasurable experience. On these sets, the predictive input works perfectly, and the interface is intuitive enough to predict the word correctly at the first go. Samsung and LG, instead of reinventing the wheel, took a feather off the Finnish maker and introduced its messaging system in their own models.

Sagem MyX-3-2
Rating: B
Price: Rs 6,199

The SGH-X430 and SGH-S500 from Samsung, and LG G3100 and G7030, have a wonderful messaging system that is very simple to use. Since most Korean sets are flip phones, they have a well spaced keypad layout that comes in handy when typing a message. Another thing about the flip phones is that the colour screens are large, and can easily display four lines of text. In fact, Samsung is way ahead of the others, as the fonts on the Samsung screen are large and exceptionally clear.

On the Bird S1190, the fonts are way too small. Even the keypad is not comfortable to type messages with. The 9@9++ from Philips has a messaging interface that can be described as decent and usable. There's no doubt about the fact that messaging is easy with the Nokia 2300, but does take a while to get used to the wacky keypad.

Sagem's My X-2 offers a good interface, but a major glitch is that the rubber keys lack tactile feedback. Thankfully, the other two models from Sagem don't have this problem. The Onetouch 535 from Alcatel has great buttons, but the messaging system on this model is a complete let down. Blame this on the poor accuracy of its predictive input method.
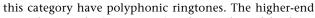
The BenQ M555C's cumbersome iTap method is painful to use, despite having a decent interface.

Panasonic pays the price for its small buttons heavily. The keys on its model—the EB-G51—don't have markings on them. Instead, they are printed on the body itself. As a result, the backlight pretty much does not serve its purpose when it comes to typing in the dark.

Barring the Philips Xenium 9@9++, all the other cell phones in

Pantech G300
Rating: C–
Price: Rs 13,995

this category have polyphonic ringtones. The higher-end phones—the Samsung, LG and Pantech models—have the luxury of loading melodies using the sync software. On the rest, you can download ringtones via GPRS.

Coming to personal information management (PIM), the higher-end phones have the right variety and number of features. The PIM functions are much better than those on basic phones. But these functions are way behind smart phones or, for that matter, PDA phones. The Samsung, Pantech and some of the phones from LG have a useful calendar option. This feature entails scheduling and fields for events. In addition to that, these handsets also feature 'To do' lists, reminders and alarms.

Samsung offers almost 9 MB of memory on its cell phone. This memory is shared for messages, events and PIM functions. Alcatel's Onetouch 535 also boasts of a decent PIM. The M555C from BenQ closely follows the high end phones, if the handful of features it packs are any indication.

The Philips 9@9++ comes with one of the best PIM features. The My X-2 and My X-5 from Sagem are quite disappointing, as they don't have proper PIM functions. The Siemens A60 has exactly the same problem.

Sadly, connectivity options are quite limited in these mid-range phones. Most have infrared connectivity or serial connectivity. Samsung's S500, LG's G7030 and the Pantech G300, are all infrared enabled.

Except for the Nokia 2300, all the other handsets in this category are WAP-enabled. GPRS is also a common feature with most of the phones, except for the Bird and Nokia sets.

The Nokia 2300 and Philips 630, both boast of an FM receiver that allows you to tune into radio stations. Even headsets are bundled with these two models, so you can tune in to your favourite radio stations immediately. The Nokia model also allows you to listen to the radio using the handsfree speaker. All you need to do is to plug in the headset.

Philips 630
Rating: B–
Price: Rs 8,890

With the scrutiny over, two phones emerge as the contenders for the winner's tag. Both the Samsung SGH-S500 and the Pantech G300 stand out as the cell phones with the right balance of cool features and exceptional performance. And both these models are on par in the race for the perfect cell phone.

Of course, there are a few differences. While Pantech boasts of a 270K colour screen, the Samsung model dons a 65K colour screen. And when it comes to better ergonomics, wonderful keypad layout, exquisite display screen and smooth signal reception, the Samsung S500 definitely edges past the Pantech G300. We recommend both phones, the final choice is yours!

C A M E R A PHONES

Panasonic X70
Price: Rs 17,000 **B-**

Designed with an eye for detail, the Panasonic X70 looks more like a piece of jewellery than a phone.

Priced at Rs 17,000, it's a good buy. It's competition for the equally well-balanced SE-Z600, which costs the same and offers the same features.

Although its dimensions don't really make it compact, the phone is sleek and comfortable to hold. The external black and white LCD is long, and displays time in analogue and digital formats in idle mode. The TFT display is large and bright. The keys are of transparent smoked plastic with white legends etched on—all this illuminated by a white backlight. The keys are a little too flat, though—they should be raised a little for comfortable typing. A recessed four-directional jog-dial makes for easy menu browsing.

The grouping of functions in the menu is counter-intuitive. As an example, the Bluetooth settings were in some odd menu, and we had to browse through a whole bunch of sub-menus to find it.

The integrated camera comes with a photo-light that doubles up as a torch. Camera resolution is severely limited, though, and the snaps were no bigger than standard thumbnails in Windows XP.

The X70 comes with infrared and Bluetooth. Other salient features include tri-band compatibility and voice recording. However, this phone does not support Java applications.

The games provided are superb, especially *Skater*, which will keep you engrossed for hours.

Alcatel OneTouch 735
Price: Rs 9,995 **A**

The OneTouch 735 is priced at Rs 9,995, which is good given its feature set: Java support, WAP, GPRS and infrared, and a camera.

The brushed metal front with the chrome plated edge gives it a zingy look that should appeal to the younger generation.

The keys feel a little hard on the fingers, and because of the narrower lower body, the keys are small, too.

Menu navigation is via a joystick-key in the middle. This makes for very easy handling, as one button performs most of the navigation tasks. The key implementation is further complemented by a Windows-like menu approach—its main sections are arranged horizontally and the sub-sections vertically.

You can switch from standard menu icons to the 'mosaic' style, where all icons are displayed in a single window.

SMSing is fast and accurate, and predictive typing is good. The only problem is the small keys, which makes the typing tiresome.

The phonebook has predefined folders such as personal, general, etc, which let you save contacts accordingly. You can assign a melody to a directory, or an image to a contact. However, if a contact is stored on the SIM, you can't assign an image to it. Voice recognition, too, will not work with contacts on the SIM.

The phone has a great game feature—once you get into Game mode, the screen changes from portrait to landscape mode. The camera is decent. The screen however, is just a 4K colour screen.

The One Touch 735 can be connected to a PC via infrared, for which the PC Software Suite is provided. But strangely enough, there's no data cable bundled, so we couldn't transfer data from or sync the phone with a PC.

Philips 535
Price: Rs 11,360 **A-**

Priced sensibly at Rs 11,360, the 535 integrates the Philips sound system. A successor to the 530 mobile phone, the new 535 comes with some additional frills. The design is unusual, so you'll like the phone if you want to break free of the Nokia and Sony Ericsson mould.
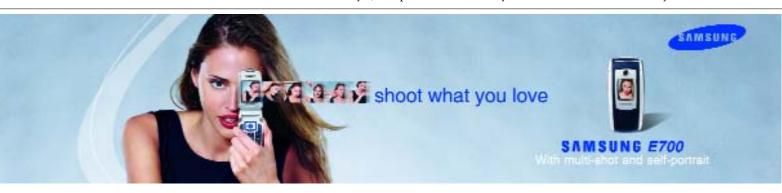
The model we reviewed was finished in deep scarlet with matte silver touches. It has a unisex appeal.

Its keypad is reasonably good. The keys offer the right tactile feedback, and the joystick is fun to use, though at times it gets a bit jittery and jumps to the wrong menu. Dedicated buttons make life easy when browsing the menu.

Its small 128 x 128 screen looks quite blurry, too. In daylight, the screen goes pale, but is still readable.

The 535 comes with an integrated VGA camera supporting a maximum resolution of 640 x 480 and a minimum of 128 x128. Images are saved as JPEGs. The settings offered are colour modes, quality, resolutions and night shots. Images don't look that great on the phone's screen. They looked much better when they were trans-

ferred onto a Palmtop. A small mirror for a self portrait is also provided.

The menu is quite intuitive. One unique feature of the 535 is the Be DJ mixer functionality, which allows editing of pre-existing tunes, and composing of new tunes for your phone. We tried our hands at it, and found that it's too limited to warrant the 'DJ' label. Still, it's a welcome change. Connectivity comes in the form of infrared and GPRS.

Motorola E365
Price: Rs 12,995 **B**

The Motorola E365 comes for Rs 12,995, which is good for a handset that has a camera and five preloaded games, and supports GPRS and WAP.

The screen is very hard to read when the backlight is not on. This is the case even in a sufficiently lit room.

This phone sports an 'industrial' type of design with a dual-tone body colour, making it more appealing to those who prefer something sober. Women might not like the design. The 128 x 160, 65K screen is sufficiently large for most tasks.

The phone has a rather cramped keypad with round, contoured keys that make it difficult to type. They also don't offer smooth tactile feel, and so typing long messages can be tiring.

The camera at the back is 640 x 480. It's intelligently shielded from damage, because it's located in a small cavity. A lens cover is also provided.

Two shortcut keys are provided on the screen for messages and WAP. However, the menu structure is such that getting to the Phonebook requires a total of five clicks. To avoid these five clicks, the phone has a function called Turbo Dial. It lets you access numbers by pressing a digit from 0 to 9 for more than two seconds. You can store ten numbers this way.

Geo GV880
Price: Rs 24,999 **C-**

If you are looking for a phone with an unusual look, then the GV880 might appeal to you. It's very untraditionally square and is coupled with a pearly white clamshell design that's quite aesthetic in its appeal. Had it not been for its antenna, it could have been easily passed off as a vanity box. It also has a mirror-like surface on the flip (to check if the lips are done well perhaps!). Behind this is the 256-colour OLED screen that shows signal strength, battery life, etc.

Open the flip and you are greeted with a 128x160-pixel 65K-colour TFT screen that occupies the place most.

The keypads spread themselves all over the other flip. The blue backlight makes the keypad look very soothing especially

in the dark, but the keys are not finger-friendly—typing text messages is a headache.

Its menu is not difficult to use. Also, you can use the four-way key and 2 function buttons to invoke commonly used features, but sadly these shortcuts cannot be customised.

The camera is another interesting add-on. It's placed at the bottom-left corner and has a single, multiple (9-images) option and a video-shoot option. Video recordings can only be 10 seconds—sound not included.

Coming to messaging, the T9 is not that good and automatic capitalisation is nowhere in sight. This means more clicks to switch between capital and small letters.

Owing to its small size, and different design, the GEO GV880 is more of a life style product rather than a productivity tool, which is perhaps the reason behind the lack of features such as Bluetooth, IR, etc. At Rs 24,999, it appears to be a phone for the Page 3 glitterati!

Pantech G500
Price: Rs 25,995 **C-**

The G500's clamshell design coupled with its silver body will appeal to the fairer sex instantly. Its external LCD is one of the biggest to be found on any flip phone. Supporting 262K-colours, the 128x128-pixel screen comes in handy to click self-portrait photos, read SMSes and peruse the call list.

The keypad offers good tactile feel, but the button layout fails to evoke interest. There's hardly any space between the navigation keys and a function key.

Its messaging system is in a mess. The T9 input is not very effective and capital letters are not detected automatically. This means you have to change the letters from lowercase to uppercase manually.

The internal LCD is 128 x 160 pixels in size, and supports 262K colours as well.

The VGA camera is placed at the top of the flip. A flash light is also bundled along. The only sore point is its protruding antenna which makes it a bit cumbersome to carry around.

The Pantech G500 does have a voice-recording facility, but sadly, the recording can only be 30 seconds long. There's just one game bundled along.

The accompanying CD-ROM has additional ringtones and images. Also in the bundle were a serial data cable, handsfree set and an extra battery. At Rs 25,995, it's just too costly, considering the fact that it lacks connectivity options such as Bluetooth.

Geo G1

The Geo G1 is a dualband flip-phone that features two LCD displays and an integrated digital camera—a flash and 4X digital zoom included. Weighing just about 90 gm, it's flat and wide, and fits in your pocket easily. The external antenna may deter you from carrying it in your jeans though.

The chrome bordered external LCD is flanked by two bars that integrate thin LED that light up when you close the phone flap.

The external LCD measures 21 x 14 mm and displays battery status, signal strength, alarm and profile indicators, as well as incoming calls or messages. It plays assistant when taking self-portraits using the camera button located on the side of the phone. Supporting 260K colours, the main LCD TFT screen comes alive when you open the phone. It stores 300 contacts, complete with different numbers for home, cellular, and office along with data such as e-mail and anniversary. You can assign contacts to four preset, or three customisable groups and set different ringtones for a specific contact, or a whole group.

The self-timer can be set from 5 to 15 seconds, while the camera can be set to auto, sunny, cloudy, fluorescent or tungsten mode. Choose from resolutions that range from 64 x 96, 160 x 120 and 640 x 480 for the image size. The multi-shot feature can be used to capture multiple shots at one go. You can set it to snap 3 to 9 frames at a time. You can also capture video clips limited to a 10-second duration. These can have a resolution of 64 x 96, 120x 160 or 176 x 144. You cannot record audio though.

Messaging features include predictive text input, 10 inbuilt templates and MMS. You can also schedule the phone to switch on or off automatically. The Geo G1 also includes two games and 'Avatar', an application that offers you a menu of different face types, eyes, hair, etc, to create digital personas. These can then be associated to your contacts, set as backgrounds for the main screen or sent as MMS.

On the flip side, the phone finds it difficult to detect the network in areas where the signal strength is weak, and hence goes into search mode, thus affecting battery life. SMS junkies may not like the keypad as its keys lack depth—you need to press them with the tip of your thumb. The Geo G1 is spring-loaded and hence, is not much of a hassle to use single-handedly.

The captured images and video clips are fairly decent. The phone connects to a PC via the serial port using the bundled cable. The GEOsync software provided lets you synchronise phone contacts, messages, schedule, memo, To do, images and melodies stored on the phone. You can also synchronise its contacts and schedules with Microsoft Outlook.

The bundled lithium-ion battery that's thicker (and heavier) by usual standards, lasts for about double the time. An external desktop charger, a travel charger and a manual that does not provide any information regarding PC connectivity are also bundled.

The Geo G1 is a great phone if looks matter the most. However, considering its network detection problems, poor application support, lack of support for JAVA applications, combined with the high price tag, it's not worth buying.

CATEGORY — **CAMERA PHONES**

Brand	Alcatel	GEO	Geo	Motorola	Panasonic	Pantech	Philips
Model	Onetouch 735	G1	GV880	E365	EB-X70	G500	535

FEATURES

Basic features

	Alcatel	GEO	Geo	Motorola	Panasonic	Pantech	Philips
Antenna	Internal	External	External	Internal	External	External	Internal
Weight (gm)	89	90	75	93	95	90	92
Dimensions (mm)	106 x 47 x 20	88 x 46 x 23.2	52.3 x 57 x 22.5	107 x 45 x 20	87 x 47 x 24	85 x 41 x 22	98 x 44 x 18
Network band support	Dual band	Dual band	Dual band	Dual band	Tri-Band	Dual band	Dual band
Rated standby time (hours)	260	180	110	150	250	200	300
Rated talk time (hours)	6	4	1.5	3	5	3.5	3

Display screen

Number of colours	4096	262,000	65,000	65,000	65,000	256,000	65,000
Resolution	128 x 128	128x160	128x160	128x160	132 x 176	128x160	128 x 128
No of lines of text	7	5	5	5	5	5	5
In-built ringtones type	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic
No of contacts in Phone / Fields	800 / 10	300	300	300	300	500	300
Call records (received / dialled / missed)	10 / 10 / 10	10 / 10 / 10	10 / 10 / 10	20 / 20 / 20	10 / 10 / 10	10 / 10 / 10	10 / 10 / 10

Calendaring

Type of view	Monthly Weekly Daily	Monthly Weekly	Monthly Weekly	Monthly Weekly	Monthly Daily	Monthly Daily	Monthly
Scheduler	✔	✔	✔	✔	✔	✔	✔
Send note	✔	✔	✔	✔	✔	✔	✘

Camera

Resolution	352 x 288	640 x 480	640 x 480	640 x 480	352 x 288	640 x 480	640 x 480
Effects	✔	✔	✔	✔	✔	✔	✔
Self timer	✔	✔	✔	✔	✔	✔	✔
Lens protection	✘	✘	✘	✔	✘	✘	✘
Flashlight	✘	✔	✔	✘	✔	✔	✘

Micellaneous features

Alarm / World clock	✔/✔	✔/✘	✔/✘	✔/✘	✔/✘	✔/✘	✔/✘
Calculator / Converter	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔
Handsfree / Voice recorder	✔/✔	✘/✔	✘/✔	✘/✔	✔/✔	✘/✔	✔/✔
FM Radio	✘	✘	✘	✘	✘	✘	✘
WAP / GPRS	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔
Number of games	✔/3	✔/2	✔/3	✔/3	✔/4	✔/2	✔/2
Infrared / Bluetooth	✔/✘	✘/✘	✘/✘	✘/✘	✔/✔	✘/✘	✔/✘

USABILITY

Pocketability	3	3	4.5	3	3	3	3.5
Ergonomics	4	3.5	3.5	3.5	4.5	3.5	4
Typing speed and ease of use	3.5	3.5	3	3.5	4	3.5	3.5
Signal reception	3.5	3	3.5	3.5	3.5	3.5	3.5
Voice clarity	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Camera output quality	3	3	3	3	2.5	3	3.5

FINAL SCORE

Grand Total	70.9	67.5	71	65.2	75	67.1	69.9
Price	9995	24995	24999	12295	17,000	25995	11360
VFM	0.71	0.27	0.28	0.53	0.44	0.26	0.62
Grades	A	C-	C-	B	B-	C-	A-

Decision Maker

	Basic phone	Colour phone	Camera phone	Smart phone	PDA phone
Minimal features: If you are looking for a basic phone that's light on your pocket, say in the range of Rs 3,000 to Rs 10,000, and one that can help you with your routine work, then the phones mentioned here are the ones for you.	BenQ M560G, Nokia 1100, Philips 330	Sony-Ericsson T230, Alcatel OneTouch 535, Motorola C350E, Philips 630, Panasonic EB-G51m	Alcatel 735, Siemens C60	LG G5300i, Motorola C650	NA
Mid-range: If you are on the hunt for a phone that has a good balance of features and performance and does not cost a bomb (Rs 6,000 to 20,000), choose one of these models. They have the best balance of feartures you'll ever find possible.	Nokia 2300, Philips Xenium 9@9++, BenQ M555C, Alcatel OneTouch 535	Siemens A60, Philips 630, LG G3100, Samsung X430	Philips 535, Siemens M55	Nokia 6610, Nokia 6100, Samsung X600, LG G5400, Panasonic EB-X66	Motorola A760
High-end: If you are ready to pay for the best phone in the market that is packed to the hilt with features, allows lots of personalisation, then shop around for any one of these models mentioned here. They are sleek, suave and are the best in town!	NA	Samsung S500, Pantech G300, LG G7030, Samsung X430	Samsung X600, Panasonic X70, Pantech G500, LG G7100, Samsung E700	Nokia 6600, SE-T610, SE-Z600, Nokia 7600	Sony-Ericsson P900, AnexTek SP230

Kudos to connectivity

Nothing can be a more blissful feeling for a game freak than to vanquish a friend in a 3D encounter at a gaming parlour. If only he could repeat the same feat on his mobile phone. Well, this is possible today, if the game on your Bluetooth handset supports a feature which allows you to play with a friend who also has a Bluetooth handset.

While Bluetooth is rapidly gaining popularity, IR (Infra Red) has been standard for a while now, with mobile devices—Bluetooth and IR modules are flooding the market these days. With these modules, you can actually transfer data from your cell phone to the PC. They make life very easy for those who regularly synchronise contacts, and transfer notes and To Do lists from their phones to their computers.

Bluetooth stands out with some great advantages. It doesn't have any hassles of line-of-sight. In simple words, it works on radio frequencies, and not on light waves, as IR does. This means Bluetooth connectivity will not be disrupted by obstructions. Contrarily, IR transmission works only on line-of-sight', and halts with any obstruction.

Bluetooth has a much faster data transfer rate of 721 Kbps, as compared to 115.2 Kbps for IR. Bluetooth's transfer rate might seem slow compared to the speedy rates we experience on our PCs. But given that the device is, after all, just a handset, its rate of transfer is good enough, with each image being just 40 to 50 KB in size.

With IR or Bluetooth, you can even transfer notes to your PDA or laptop. You have the luxury to click images on your camera phone and immediately transfer it to the PC, or to another handset for touch-ups.

This comes in handy for groups of people with similar connectivity options on their handsets. It provides a new dimension to sharing information, and even lighter moments with friends. This technology actually saves you a lot of cash, since it cuts down the need to exchange SMS or MMS images and notes.

IR-capable printers have been around for a while. Their popularity is really taking off these days. Canon recently launched a printer with an IR port that prints any image it receives, directly from the cell phone—all in a few minutes.

what you need to do, normally, is connect the phone to the PC using the data cable. The image is then copied to the computer, viewed, and printed. So, the IR port here saves a lot of time and trouble—and also eliminates the need for a PC.

Interestingly, these are just a preview of the devices that are being made. Many more devices are planned in the future, and all will communicate with your mobile device to complete almost any function. Imagine how trendy it would be to be able to use your PDA-phone to control almost anything you need to do in your house? Just wait a few years!

Conclusion

The sheer number of features, great looks, great LCD display and good usability saw the Panasonic X70 race ahead of other camera phones in this category. Despite the fact that other phones have slightly better cameras, they lost to the X70 on the grounds mentioned above. The Alcatel Onetouch 735 offers the right balance between features, performance and price to get the Best Value recommendation. The Philip's 535 offers good features, and decent performance to be considered as a good alternative.

PHONES

Nokia 6610

Price: Rs 12,349 **B+**

At an estimated street price of Rs 12,349, the Nokia 6610 offers the perfect balance of features, looks and price. Its signal reception is excellent and voice clarity superb.

Its keypad is the best we've seen on any Nokia phone—it offers the right amount of tactile feedback. The four-way keypad combined with a super-slick menu interface offers usability that's best in its class. There are 12 main menus to choose from.

The radio offers crystal-clear reception, but you need to plug in the headset even when you're listening through the speakerphone, since the set doubles up as the antenna. The inbuilt ringtones are audible enough to alert you to incoming calls —even in noisy areas.

Introduced a year ago, the Nokia 6610 still manages to captivate, due to its ample feature set and clean business looks that should appeal to most executives. Its candybar design is elegant and the colours accentuate the 'executive' look, without being too flashy. Weighing 83 gm, the phone is light and pocketable, though some might find it a bit stretched out. Though its looks and features are very similar to those of the 6100, there are a few minor differences that set them apart: For example, this one—the 6610—comes with a stereo FM receiver.

Its feature set includes a colour display, tri-band compatibility, wireless Java and MMS, apart from the stereo FM receiver. The 4K colour screen is a let-down when compared to the dazzling screens on the new phones from Samsung and LG. The screen also shows some amount of banding and flicker when playing games.

Battery life shouldn't be a concern, since it can last at least three days with normal usage—up to a maximum of five days.

Nokia 6100

Price: Rs 13,039 **B+**

Priced at Rs 13,039, the Nokia 6100 is the phone for you if you lust after slim phones (and this one's got decent features to boot). This is, in fact, the slimmest phone Nokia has come up with so far. Voice is clear and signal reception quite good. Design-wise, the phone is identical to Nokia's 6610—minor tweaks have reduced its size. The 6100 comes with a new battery design that slims down the form factor and gives it a four-day operating range with normal use.

Usability-wise, the 6100 offers the usual Nokia menu interface, which is widely accepted as the best and easiest to use. Its small 4K colour screen offers decent vibrancy and does not pose any readability problems in direct sunlight. You can read five lines of text in a crisp font on this little screen. Other features such as tri-band compatibility, MMS, polyphonic ringtones, GPRS and Java enhance the usability of the phone.

The body sports a good colour combination that gives this

phone the business exec look. However, unlike on other Nokia phones, it can't be changed. The keypad offers decent styling, and the keys respond in a crisp business-like manner and offer good tactile feel.

Applications provided are limited, but the 180 KB of free memory is more than enough for downloading extra applications.

Nokia 7250i

Price: Rs 18,759 **C+**

Priced at Rs 18,759, the 7250i stands out for its feature package and good looks. The 7250i succeeds the beautiful 7210. While the new phone looks like an exact copy of the 7210, it has improved considerably over its predecessor.

The new look is accentuated by the use of plastic cases that look like brushed aluminium, giving the phone an element of distinctness. You can snap on covers of your choice, too. The 7250i comes with a very ergonomic keypad.

Owing to better brightness and contrast features, its 4K colour screen is better than the ones on its cousins, the 6610 and 6100. One feature that sets this phone apart is the integrated camera, which supports a maximum resolution of 352 x 288. Options include portrait mode and a self-timer, and the option to choose between three photo qualities. The phone has 4 MB of memory, so there's enough space to save photos and install new applications and games.

The menu interface is the same old Nokia story—slick and easy-to-use is how we'd sum it up. Good features include tri-band GSM, a stereo FM receiver, MMS, GPRS and IrDA. Call quality is good, too, and the battery lasts for 4 to 5 days if you're on the phone for a total of an hour a day.

Nokia 7200

Price: Rs 25,919 **C**

Nokia's finally come up with a clamshell-design phone. The unique thing about this phone is the cloth-textured 'Xpress-on' covers, which add an element of dash to the phone.

Reception is good, and there should be no problems with voice clarity. The battery lasts for three to four days with normal use. Priced at Rs 25,919 the 7200 is on the higher side compared to rival models.

The two rectangular halves of the phone are joined by an outward-protruding hinge, giving the phone a chunky look. While most of the men in our office weren't impressed, the fairer sex just loved the idea of having matching textile covers for phones.

The keypad is nice and big, and the white backlight

does a great job in highlighting the keypad. It looks great, especially in the dark. The feel of the plastic keys, however, leaves a lot to be desired.

The screen supports 65K colours, but in contrast to several Samsung and LG phones, the screen is dull and has poor colour vibrancy. Also, the screen is extremely small despite the fact that there is more than enough space for a large screen. The integrated VGA camera can click at 640 x 480. The pictures we got were sharp and bright.

Connectivity options include infrared, GPRS and WAP 2.0. An FM receiver with a stereo headset is bundled along for added fun.

The user interface is classic Nokia. The menu is responsive and fast compared to other Nokia phones. It's only when opening media files that you experience some lag. The camera can also be used to record clips up to 50 seconds long. The voice recorder allows for a three-minute long recording, and recordings can be set as ringtones.

Ringtone volume is quite low, and you're sure to miss a couple of calls in noisy environs. However, the vibrator is powerful enough to make up for the low ring volume. Games such as Bowling should keep you busy while you're travelling.

Nokia 7600   Price: Rs 26,939   C

The wackiest design ever on a phone to hit the market comes in the form of Nokia's 7600. Love it or hate it, the Nokia 7600 sports the most original design of them all and is a real attention-grabber.

The design is largely square, with the two opposite ends each tapered into a smooth curve that gives this phone what they call a 'leaf design'. The screen comes in exactly at the centre, flanked by buttons on either side. You need to hold the phone diagonally when speaking. The phone is unusually wide—this rules out one-handed operation.

The keys are arranged in a linear fashion along the screen, and it's hard to find the right key at the first go. Moreover, the keys are quite hard, and completely lack tactile feedback. The four-directional pad and the soft-keys are better though messaging is a pain on this phone.

The menu structure is borrowed from the series 40 phones—the 6610, 6100 etc. However, the icons are a complete let-down, given the fact that the phone has a 65K colour screen capable of delivering vibrant images.

The 7600 can play MP3, AAC and MIDI sounds formats, and you can also set such files as ringtones. Files can be transferred via Bluetooth or infrared. The phone has 29 MB of internal memory that cannot be supplemented by MMC cards.

The integrated camera is quite good by cell phone standards, and lets you capture clips as well as still images. Clips can be as long as two and half minutes. One other unique feature of this phone is that it is WCDMA-capable, meaning that in the near future, as networks begin supporting such high bandwidth, you can access services at faster data rates.

All these features and the original look, however, does not come cheap, and the phone will set you back by Rs 26,939. If you're the type that likes to portray individuality and doesn't care about the money, the Nokia 7600 fits the bill perfectly.

Siemens S55   Price: Rs 12,700   A-

Weighing just 85 gm, the S55 marks Siemens' entry into the business category of mobile phones. The S55 replaces the S45, and comes with new features such as tri-band GSM, MMS, Bluetooth, Java, polyphonic ringtones, and a full-featured PIM.

Priced at Rs 12,700, the S55 is a great phone with solid features, but it's a primitive 256-colour display is a letdown. The screen severely limits the usability of the phone and does not do a bit of justice to the otherwise perfectly-balanced feature set.

The subtle use of chrome on select keys adds a touch of style and contrasts well with the grey keypad. In fact, it's the keypad that gives the S55 its uniqueness. The keys are arranged in layers that form ridges as you go down, each layer perfectly separated from the other. The only gripe we had was with the lowest layer, where the keys are too small.

The camera is an external snap-on. It is capable of a resolution of 640 x 480, but the pictures we captured looked dull and of low quality on the phone's display. The camera features a flash.

The provided cable comes as a great help when using the phone as a GPRS modem. Bluetooth works seamlessly. The voice recorder is good, and the voice command feature works well. Messaging is simple and fast. The menu interface is classic Siemens, with coloured icons, and make no mistake: the interface is as simple and easy to use as a Nokia.

Siemens M55   Price: Rs 9,900   A

Siemens, with its M55, has come out with a hip phone that should appeal to the younger generation. Priced at Rs 9,900, the M55 offers a youthful, dynamic design with good features bundled.

The tone for the looks is set by flashy orange buttons on a silver-grey background cover. The earpiece also gets some orange treatment in an 'X' shape, with silver grille inserts that pop out and literally grab attention. To accentuate the trendy look, you have red LEDs blinking on both sides of the phone.

Functionality is, however, not compromised upon. The keys are responsive and have reasonable tactile feedback. The only gripe is the tiny power on/off button and the answer button. The menu rocker and the soft-keys are usable, but may not be as comfortable as other phones in this category.

The outer body shell provides shock protection; on the inside, the M55 is very much like its brethren—the screen is again 4K

colours. Also, the phone is quite slow when working with images and loading games. However, the messaging system is quite quick.

Java application support brings a host of options to install and try out. Inbuilt games are addictive and should provide enough fun. Other interesting features include voice commands, an alarm clock, a calendar and PIM functionality.

The Cubasis ringtone-mixing software offers some limited DJ-ing capabilities. The external snap-on camera does a good job at taking photos and comes with a flash. However, the pics you click don't look too good on the phone's screen.

We had no problems with voice clarity or signal reception, and the battery runs the better part of three and half days at normal usage.

Samsung SGH-X600   Price: Rs 12,999 **B**

The X600 closely follows its low-market model, the X100, with some minor changes. It comes with a superb integrated camera, infrared capabilities and an irritating external stub antenna. Priced at Rs 12,999, the X600 is a good buy, especially because of the good display and camera. The only thing that can go against it is the protruding antenna.

The blue-silver colour combination makes it to the X600, as with all Samsung phones. The dimensions are compact, and despite the presence of the external antenna, the phone fits comfortably in one's hand or pocket. This is one solidly put together, rugged phone.

Samsung has done the menu structure the smart way, bringing together the better aspects of other manufacturers' models. The interface is simple to understand and fast to browse. Messaging has also gone the Nokia way, and predictive texting is good.

The most interesting part of this phone is the rotating camera. This VGA camera is probably the best we've seen on a cell phone in terms of features offered and speed of operation. Zooming is superfast—but avoid zooming too much if you want a great-quality picture. To complement the camera, Samsung has put in a good 64K display. The screen is much brighter and more colourful than those seen on Nokia's and Siemens' phones in this category. The backlight is necessary for viewing the screen in direct sunlight.

There are plenty of options for customisation of sound. The polyphonic ringtones are sufficiently loud, and more melodious than other models. They don't sound as good as those on the E700, though.

The phone comes with nearly 9 MB of memory—enough for storing your pictures and Java applications. The only gripe we have is the lack of Bluetooth capability for transferring images.

The phone gives good voice clarity, and signal reception is above par. The battery lasts four days with normal use.

Samsung SGH-E700   Price: Rs 22,599 **C**

The SGH-E700 is arguably the best-looking clamshell phone to hit the market in recent times. The phone takes a complete new direction in the design implementation, and no cues from the older generation are visible here.

The E700 sports the most compact dimensions in its class. Though the phone is a clamshell, there are hardly any protruding edges—even the antenna is inbuilt. The upper flap has a small OLED display that shows the time and caller ID. Just above the display is the lens for the integrated camera.

Priced at Rs 22,599, the phone is quite expensive, considering the lack of tri-band support and Bluetooth.

The keypad is flat, black and reasonably large. A small chrome stud separates the keys, which are tactile, responsive and great for typing messages. The four way rocker works great, and also has pre-defined shortcuts.

The screen on the E700 is the best we've seen on any phone in this category, barring the Nokia 6600. The screen is bright enough to be used as a torch and colourful to the extent that you might imagine watching movies on it; it's sad you can't do that as yet.

The menu interface is the same, tried and tested one used on all other Samsung phones. Animated wallpapers and screensavers make good use of the colourful screen. The messaging system is fast and easy to use. The T9 text prediction is accurate.

The E700 comes with a fairly good integrated camera. There are a host of options such as multi-shot, night mode, self-shot etc. You can even change the exposure settings, which allows you to make the picture more bright.

The phone comes with around 9 MB of memory—large enough for storing lots of pictures and other applications. Bluetooth somehow doesn't make it to this phone; connectivity options include infrared and GPRS.

The E700 has decent signal reception and the voice clarity is good. The battery works for three days before dying, with normal usage.

LG G5400   Price: Rs 13,000 **B-**

The G5400 is a modest-looking, understated phone. It has all the essentials and the functionality is good. On the whole, however, at Rs 13,000 this phone is priced normally for the features it offers.

The design is elegant with nothing flashy about it. We reviewed the phone with an all-silver body; it looks monotonous—look out for the blue-silver combination, which looks much better. An LCD on the top cover works as the caller ID-cum-watch.

The keypad is one of the best-laid out keypads we've seen. There is ample space between the buttons, which are flat but highly responsive. The four-direction rocker and the soft-keys are a bit too closely placed.

The menu interface is similar on all LG phones, and we liked it. It is arranged vertically, and as you go down, icons pop up telling

you about the functions. This kind of menu is visually appealing, and Nokia loyalty-switchers shouldn't find it hard to get accustomed to.

The screen is one more aspect of this phone that should appeal to many. The 64K colour screen is fantastic in terms of colour saturation, and images look vivid and life-like. The animated wallpapers make great use of the screen.

Connectivity options are via infra-red and serial cable. The cable is provided with the set. The sync software is simple and elegant, but could be better. Java games can also be installed using the provided software. Some are provided on the CD-ROM.

The reception quality was reasonably okay and voice was clear, but at times there was noticeable cracking of speech. The battery lasts around two and half days, which we think is a bit low.

Panasonic X66 Price: Rs 13,400 **B**

The X66 is a cute, chubby, visually toned-down version of the X70. It is quite compact, but not sleek. Despite its size, the X66 packs in a camera and a very good colour display. Priced at Rs 13,400, the X66 is quite a good buy.

This blue X66 that we reviewed does not look as good as the X70, but is reasonably attractive. It lacks an external LCD display, but to compensate, it has a multi-colour LED integrated, which blinks in different colours: it blinks red for voice calls, goes blue for SMS, turns red again if there are unread messages, and so on.

The keys sport a blue backlight that does a decent job of highlighting the keys. A four-direction jog-dial helps browse the menu. The keys are super-responsive, and the ergonomics are perfect; typing messages on this phone is pure delight. In fact, it's the keys that make this phone a pleasure to use.

The 64K colour screen is relatively small, but colour saturation and vividness is perfect. The screen looks great indoors, but gets dark outdoors, making it difficult to read.

Menu grouping takes some time to get used to especially if you are a Nokia user, but once you're used to it, things are a breeze. Icons are self-explanatory. One particular feature that is unique to Panasonic is that you can set the phone to switch on or off automatically after a specific period.

The integrated camera has a small mirror for a self-portrait. Basic functionality is what you get with this camera, but it does include a 'night' mode. The pics we got were okay, but not anywhere near the ones we shot using the Samsung X600. Ringtones are pretty standard, but they aren't loud enough to be audible in noisy places. You transfer images via infrared.

The games provided should keep you busy. There's an inbuilt Slots game. Signal reception is fairly good, voice clarity is okay, and so is the battery life—three days with normal use.

Sony Ericsson Z600 Price: Rs 17,000 **B-**

The sheer looks of the Z600 with its changeable covers are enough to make you want to hold it! The mirror-finish cover sports attractive colours and catchy patterns, which makes this phone stand out from the crowd. The keys are well laid-out, sufficiently big, and have enough space between them to facilitate error-free phone number and message typing.

This phone is, however, bigger than other flip phones and feels bulky. It's uncomfortable to carry in your shirt pocket, and it's more comfortable using it hands-free.

The menu of the phone is not different from other Sony Ericsson phones. It has self-explanatory icons and a user-friendly, linear menu style. There are a total of 16 icons displayed on the 65K colour screen, which are crisp and visible in daylight as well.

The camera on this phone is better than those of others in its class. The camera lens is on the edge of the flip, which helps you click snaps. You can click at 288 x 352 or 120 x 160. Images are stored in the JPEG format. They can be transferred to a PC using the cable or Bluetooth, or to other phones using infrared. The phone has 1,851 KB of space for photos and Java applications.

A big minus on this phone is that you first need to copy contacts from the SIM to the Phonebook before you can search for contacts.

The Z600 is priced at Rs 17,000, and on the whole, provides good features for the price.

Motorola V878 Price: Rs 20,495 **C**

The V878 is priced at Rs 20,495, which is a little too high for this phone, as it doesn't have upgradeable memory, nor does it have infrared or Bluetooth.

The phone sports a dual-tone body with a strong flip. The keys offers good tactile feel, but because of the box design, you might want to hold the phone in one hand and dial numbers with the other.

Typing SMSes using the iTap method is a little different with this phone, as it needs you to select the word from a list. It doesn't automatically predict it. As an example, when we typed 'have', we were presented with 'gave'. Here 'have' was the second option; we had to select it from the list before proceeding further.

The Voice Note feature allows for 30 seconds of recording. Recording quality was decent. Menu navigation is simple. The animated icons are self explanatory, but the placement of icons is not great.

The phone is Java-enabled, and the bundled software is interactive and helpful. Once the phone is detected on a PC and installed, it can be used as a GPRS modem. Using software, you can send and receive e-mails, and send and view messages. You can also download images and short movies from the phone to the computer. However, the reverse is not possible.

The camera on this phone isn't too good. Pictures were dark and unclear. However it allows for four resolution settings—

640 x 480, 320 x 240, 160 x 120 and 128 x 160. There are also three quality settings—fine, normal and basic. Other features include three white balance settings, and the capability to click a self-portrait using the external screen.

Strangely enough, both the internal and external screens are in use with the backlight on. This means that battery power gets drained faster—there is no option in the menu to switch off the external screen.

While talking on the phone, calls get terminated once the signal gets weak. This is probably the biggest shortcoming on this phone. In addition, the phone, in our tests, kept losing signal strength in areas where other phones were working.

The ring volume is very low, even when set to maximum. The vibrator is decent but not effective if the phone is being carried in a loose pocket or in a purse. This will probably result in many a missed call, especially while travelling.

Motorola C650
Price: Rs 10,495 **A-**

Weighing just 91grams and boasting of features such as MPEG4 playback, WAP, GPRS, Java games and a VGA camera, the price of Rs 10,495 for the Motorola C650 is justified.

The C650 sports a comfortable keypad layout. Typing messages is fast using the T9 method. There's also the Cut, Copy and Paste feature, so there's no need to re-type recurring words in a message.

The screen offers four lines of text. However, it can only accommodate two words per line; and if a word is 12 letters or longer, it displays just one word per line. To add to the problem, the screen is not readable in daylight, even with the backlight on.

The VGA camera offers 4X digital zoom. The screen size is 128 x 128, and supports 65K colours. The images, however, don't look all that great, and you get the feeling you're looking at a 4K colour screen.

You can assign photos to phonebook contacts, and also have an MP3 track as a ringtone.

The phone has a USB interface, which makes connecting the phone to a system and installing it as simple as installing any other USB-based peripheral. Once installation is done, the phone is detected as a USB modem. You can then dial a number, send and receive e-mail, read messages from the Inbox, etc, from and on the PC.

Sony Ericsson T610
Price: Rs 19,900 **C+**

This little beauty, exclusively crafted by Erik Ahlgren, a senior industrial designer of Sony Ericsson, is targeted at those who want to make a fashion statement. The crystal-clear 64K colour screen ensures perfect readability. Since this is not a TFT screen,

readability is affected in the Sun, but is still quite readable. Planning to buy a new colour phone with loads of features at a reasonable price? Look no further!

With respect to voice quality, even at the weakest signal strength, voice was astoundingly clear. While on the move, especially in trains, the voice does drop, but this could be related to the network.

The address book allows you to store 510 numbers with 8 different entries each. This phone doesn't allow you to view SIM and phone data simultaneously, unlike the newer set of phones.

The text messages can be printed via a Bluetooth connection, and also saved to the SIM. Support for long messages is also provided, so you're not stuck with a limit of 160 characters. However, the 'send To many' feature is missing.

The MMS editor is one of the better-implemented tools we've seen across several phones. It also allows blocking of content such as advertisements and anonymous users.

The image quality of the camera is no great shakes, obviously due to the low resolution. A tiny mirror in the back panel allows you to take your own picture. The phone allows you to store a little over 2 MB of data, if you remove the predefined set of items. Most people consider this to be too less, but then, there are already a couple of games bundled; Sony Ericsson allows you to store images on their servers; there's static memory for the phone; and there are SMS and voice tags. So, 2 MB should be enough for most users.

Battery life is about three days, or not more than 5 days with minimal use.

About all the talk about 'Quick Share'—this is nothing but a marketing gimmick, based upon the idea that the phone provides connectivity options such as Bluetooth, infrared and cable.

BenQ S670C
Price: Rs 13,490 **B-**

The clamshell BenQ S670C is good value for money at Rs 13,490. Advertised as a phone with morphing features, the S670C comes with more than just that.

The upper flap is coated with a jazzy-looking material that breaks out of the monotonous plastic-look mould. A small OLED display on the upper flap rotates the time with a nice scrolling wallpaper. The body has a chiselled look, except for the jutting antenna.

Flipping open the phone reveals a 65K colour screen that is relatively sharp compared to other BenQ models. Menu browsing is via a jog dial and two soft-keys. The buttons offer the right tactile feedback and are fun to use. The dial pad is well spaced. SMSing does leave your fingers tired, since the keys are arranged in a curve.

The menu is simple to navigate, and is intuitive enough to get hold of in the first go. The VGA camera is placed at the

rear of the phone at the extreme top left end—this placement is quite cumbersome, since you need to tilt the phone upwards to compose a perfect frame. The quality of the photos we took was decent. The face-morphing application provided with the phone is easy to use—you need to select four points on a face to be morphed, and then you just press a button. There are twelve effects such as 'happy', 'angry', etc, that can be applied, with five intensities to choose from.

The S670C supports WAP and GPRS for Internet connectivity, but lacks infrared or Bluetooth support. The package provides a serial cable for PC connectivity.

Do I need a colour phone?

For many cell phone users today, especially among the younger lot, the display is as important as the phone itself. Unil as recently as last year, cell phones with colour screens were very expensive, with most of them offering not more than 4K colours, a paltry feature compared to what we have today. With the prices of colour phones taking a nosedive, you can easily afford one today for less than Rs 10,000.

But the question is, do you really need a colour phone, or should you stick to a regular model? Since there are several handsets in the market that still have mono screens with a variety of backlight options, one should be cautious instead of blindly jumping for a colour phone.

If you decide to buy a basic mono screen phone, make sure that the backlight doesn't hurt the eyes, and that the text is easily readable. Your best bet is to opt for a handset with a white backlight. A white backlight doesn't put much stress on your eyes when you read text. Many users are comfortable using a green backlight, but strictly avoid a blue backlight—the text hardly stands out against the blue background of the screen.

For colour phones, 4K colour screens are an option. Phones with 4K colour are good enough for normal usage and playing games as well. Though it is a pleasant change from bland mono screens, don't expect great-looking, articulate images on these cell phones.

For a person who is into MMS and e-mail, and is obsessed with flashy wallpapers and themes, 65K colours is the bare minimum. A 65K colour screen supports multi-coloured wallpapers, themes and images that you receive from friends, or click with your own inbuilt camera.

There are a few models in the market, such as the Pantech G500, which go a big step further for the screen-freak, providing 262K colour screens. Images on such screens are nothing less than a feast for the eyes. The exquisite colour saturation and vivid details can be a captivating experience. 262K colour screens make games look much more lively and colourful.

Samsung and Motorola have come up with models with 65K OLED screens. Though this technology has been around for quite some time, OLED (Organic LED) has only recently been taking to the mainstream. These screens run on much lesser power (two to ten volts, depending on the size) than the more widely used TFT LCD screens. OLED screens improve readability considerably in daylight. Cell phones with this feature are particularly handy for users who're looking for, both, great usability as well as long battery life.

LG G5300i

Price: Rs 8,500 A

LG's G5300i is priced at Rs 8,500. It offers a good balance of features and performance. It will probably see stiff competition from Nokia's older 6610, which has nearly the same feature set, save 64K colour support.

This phone is compact enough to easily fit into your pocket. Build quality is great and the phone feels rugged—comparable to Nokia's 3310, in this respect..

The phone's looks are somewhat controversial, in the sense that there can be contrasting views—some may like it, some may not. The silver body has bits of chrome lining the edges. Blue, smoked translucent plastic runs down the middle of the keypad, and creates some contrast with the silver. The menu-navigation keys are quite hard, but provide good audible feedback. The keypad is slightly cramped and the last line is hard to reach.

The display on this phone is quite small, but the 64K colour screen offers good colour depth. Watching the wallpapers in their full glory is fun. The 16 polyphonic ringtones are loud, but not loud enough for noisy areas. The vibrator is good, though.

The menu interface is good, too, but we'd like to see LG implementing a four-way directional keypad instead of the two-way button, which is difficult to use.

What we liked most about this phone is the Java support. You can install applications, melodies and games. The G5300i comes with GPRS and WAP support. Browsing the Net on the colour screen is fun.

LG G7100

Price: Rs 19,000 C

The G7100 is the top-of-the-line phone from LG which LG markets as the 'rotating camera' phone. It is very similar in size and shape to the G7030. At Rs 19,000, the G7100 is a good product for the price.

There are several good things about this clamshell phone—Java support, PC synchronisation using the provided cable, infrared, GPRS, and very good wallpapers and screensavers. The accompanying CD-ROM comes loaded with melodies, games and applications that can be installed via a PC.

The phone comes in a variety of colours. The keys are large and fun to use, and the response offered is perfect in every sense, making messaging a delight. The four-way keypad also accesses predefined shortcuts.

On the upper flip, you have a

round mirrored surface that acts as a mirror in idle mode. The OLED display under the screen comes live to show the time and caller ID when you get a call. You can also set pictures to be displayed on the external screen.

Flipping open the phone reveals a 64K UBF (ultra bright and fine) LCD display, capable of displaying coloured graphics superbly. However, in direct sunlight, the screen becomes dark, but is still readable. The flap can be rotated 180 degrees in the vertical plane and 90 degrees in the horizontal plane. The VGA camera is on the hinge of the phone, and a small flashlight assembly is just beneath the lens. The shutter

release button is on one side on the phone. Hence, you need to hold the phone appropriately when clicking a photograph. It takes some time to get used to this.

There's considerable tweaking you can do with the camera, and images are decent. The flash can be effective at close distances, but use it only when necessary—it tends to drain the battery fast.

The menu interface is similar to that on other LG phones such as the G5400 and G7030. The icons are large and self explanatory, making the interface quite intuitive. The predictive input method is accurate.

SCORE BOARD

CATEGORY				SMART PHONES					
Brand	BenQ	LG	LG	LG	Motorola	Motorola	Nokia	Nokia	Nokia
Model	S670C	G5300i	G5400	G7100	C650	V878	6100	6600	6610
Basic features									
Antenna	External	Internal	External	External	Internal	External	Internal	Internal	Internal
Weight (gm)	80	85	85	101	85	85	76	125	87
Dimensions (mm)	80.5 x 44 x 22	104 x 42 x 21.5	86 x 46 x22	90 x 48 x 24	103 x 44 x 20	82 x 42 x 21.5	102 x 44 x 13.5	109 x 58 x 24	106 x 44 x 19
Network band support	Tri-band	Dual band	Dual band	Dual band	Tri-band	Tri-band	Tri-band	Tri-band	Tri-band
Rated standby time (hours)	120	200	230	200	215	130	320	240	300
Rated talk time (hours)	3	3.5	3	2	6	3	6	4	4
Display screen									
Number of colours	65,000	65,000	65,000	65,000	65,000	65,000	4,096	65,000	4,096
Resolution	128x128	128 x 160	128 x 160	128 x 160	128x128	128 x 160	128 x 128	176 x 208	128 x 128
No of lines of text	5	6	7	7	6	6	5	6	5
In-built ringtones type	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic
No of contacts in phone	500	200	200	255	1000	300	300	Limited by memory	300
Call records (received / dialled / missed)	10 / 10 / 10	10 / 10 / 10	20 in all	20 in all	10 / 10 / 10	10 / 10 / 10	10 / 10 / 10	Limited by memory	10 / 10 / 10
Calendaring									
Type of view	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	MonthlyWeeklyDaily	Monthly
Scheduler	✔	✔	✔	✔	✔	✔	✔	✔	✔
Send note	✔	✖	✖	✖	✖	✔	✔	✔	✔
Camera									
Resolution	300K Pixels	NA	NA	640 x 480	640 x 480	640 x 480	NA	640 x 480	NA
Video	NA	NA	NA	✔	✖	✔	NA	✔	NA
Effects	✔	NA	NA	✔	✔	✔	NA	✔	NA
Self-timer	✔	NA	NA	✔	✔	✔	NA	✔	NA
Lens protection	✖	NA	NA	✖	✖	✖	NA	✖	NA
Flashlight	✖	NA	NA	✔	✖	✔	NA	✖	NA
JAVA applications									
In-built memory	300KB	1.6 MB	1.3 MB	1.3 MB	1.5 MB	NA	725 KB	6 MB shared	625 KB
External memory support	✖	✖	✖	✖	✖	✖	✖	✔ -32 MB	✖
Infrared	✖	✖	✔	✔	✖	✖	✔	✔	✔
Bluetooth	✖	✖	✖	✖	✖	✖	✖	✔	✖
Cable / Provided with the package	✔/✔	✔/✖	✔/✔	✔/✔	✔/✔	✔/✔	✔/✖	✖/✖	✔/✖
Sync Software provided	✔	✔	✔	✔	✔	✔	✖	✔	✔
Micellaneous features									
Alarm / World clock	✔/✖	✔/✔	✔/✔	✔/✔	✔/✖	✔/✖	✔/✖	✔/✔	✔/✖
Calculator / Converter	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✖	✔/✔	✔/✔	✔/✔
Handsfree / Voice recorder	✖ /✖	✖/✖	✖/✔	✖/✔	✔/✖	✔/✔	✔/✖	✔/✔	✔/✔
FM Radio	✖	✖	✖	✖	✖	✖	✖	✖	✔
WAP / GPRS	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔
Number of games	2	1	3	3	2	2	2	2	2
Pocketability	3	3	3.5	3	3.5	3.5	4.25	3	3.5
Ergonomics	3	3.75	4	3.25	3.75	2.5	3.75	4	4.5
Typing speed and ease of use	3.25	3	4.5	4	3.75	3	4	3.5	4.5
Signal reception	3.5	3.5	3.5	2	3.5	1.5	4	4	4
Voice clarity	3.5	3.5	3.5	2	3.5	1.5	4	4	4
Camera output quality	2.75	NA	NA	2	2.5	2	NA	3.5	NA
JAVA application load time	3	3	3	3	2.75	3	3	3.5	3
Grand Total	55.75	51	53.4	53.3	56.8	57.9	64.65	75.3	64.1
Price	13490	8500	13000	19000	10495	20495	13039	26069	12349
VFM	0.41	0.60	0.41	0.28	0.54	0.28	0.50	0.29	0.52
Grades	B-	A	B-	C	A-	C	B+	C	B+

Camera phones and security fears

Sleek cell phones with inbuilt cameras are shooting up the popularity charts today. Clicking cool images anywhere and everywhere, with little or no storage hassles, is perhaps way too irresistible for many. However, easily available camera phones can be really detrimental to business houses—phones can be easily misused to surreptitiously leak information from the inside of any office. It is virtually impossible for an organisation to keep a tag on who is carrying a camera phone.

Imagine a scenario where a key process, crucial for a new product, is formulated by the company—say the product isn't yet introduced in the market. At this juncture, someone from the core team takes a snap of the sample product, or a document carrying product information, and passes it on to a rival company, which is working on a similar product.

Cell phones can be deployed for carrying out industrial sabotage as well. For example, they can be used to clandestinely supply images or short video clips of the actual work in a factory to the competition. Camera phones can also prove dangerous for security agencies run by the government.

These are just a few examples that indicate that the growing popularity of camera phones is keeping some factions of society ill at ease.

Nokia 7200	Nokia 7250i	Nokia 7600	Panasonic EB-X66	Samsung SGH-E700	Samsung SGH-X600	Siemens C60	Siemens M55	Siemens S55	Sony-Ericsson T610	Sony-Ericsson Z600
Internal	Internal	Internal	External	Internal	External	Internal	Internal	Internal	Internal	Internal
115	92	123	82	85	80	85	83	85	95	110
86 x 50 x 26	105 x 44 x 19	87 x 78 x 19	75 x 45 x 27	90 x 45 x 23	102 x 43 x 20	110 x 47 x 23	101 x 46 x 21	101 x 42 x 18	102 x 44 x 19	90 x 48 x 28
Dual band	Tri-band	WCDMA	Dual band	Dual band	Dual band	Tri-band	Tri-band	Tri-band	Tri-band	Tri-band
300	300	170	270	230	360	250	250	12 days	310	200
5	5	4	4.5	3	5	6	6	6	14	6
65,000	4,096	65,000	65,000	65,000	65,000	4,096	4,096	256	65,000	65,000
128 x 128	128 x 128	128 x 160	128 x 128	128 x 160	128 x 160	101 x 80	101 x 80	101 x 80	128 x 160	128 x 160
5	5	9	7	6	6	4	4	4	6	6
Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic	Polyphonic
500	500	Limited by memory	300	1000	1000	100	500	500	500	500
10 / 10 / 10	10 / 10 / 10	20 / 10 / 10	NA	20 / 20 / 20	20 / 20 / 20	10 / 10 / 10	10 / 10 / 10	10 / 10 / 10	30 in all	20 / 20 / 20
Monthly Weekly	Monthly	MonthlyWeeklyDaily	Monthly daily	Monthly	Monthly	None	Monthly	Monthly	Monthly	Monthly
✔	✔	✔	✔	✔	✔	None	✔	✔	✔	✔
✔	✔	✔	✔	✔	✔	None	✔	✔	✔	✔
640 x 480	352 x 288	640 x 480	110 K pixels	640 x 480	640 x 480	640 x 480	640 x 480	640 x 480	352 x 288	353 x 288
✔	✖	✔	✖	✖	✖	✖	✖	✖	✖	✖
✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
✖	✖	✖	✖	✖	✔	✔	✔	✔	✖	✖
✖	✖	✖	✔	✖	✔	✔	✔	✔	✖	✖
4 MB shared	3.5 MB	29 MB	4 MB	600KB	500KB	1.86 MB	1.86 MB	400KB	2 MB	1.5 MB
✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
✔	✔	✔	✔	✔	✔	✖	✖	✔	✔	✔
✖	✖	✔	✖	✖	✖	✖	✖	✔	✔	✔
✔/✖	✔/✖	✔/✔	✔/✖	✔/✖	✔/✖	✔/✖	✔/✖	✔/✔	✔/✖	✔/✖
✔	✔	✔	✖	✔	✔	✖	✖	✔	✔	✔
✔/✖	✔/✖	✔/✔	✔/✖	✔/✖	✔/✖	✔/✖	✔/✖	✔/✔	✔/✖	✔/✖
✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔
✔/✔	✔/✖	✔/✔	✔/✔	✖/✖	✖/✖	✔/✖	✔/✔	✔/✔	✔/✔	✔/✔
✔	✔	✔	✖	✖	✖	✖	✖	✖	✖	✖
✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔	✔/✔
3	3	✖	4	4	5	5	3	3	3	3
3.5	3.5	2.5	3	4	3.5	2.75	3.25	4	4	3
4	4	2.5	4	4	4	3.5	3	4	3.75	3
4	4	2	4	4	4	3.5	3.25	4	3.75	3
4	4	4	3.5	3.5	3.5	3.5	3.5	3.5	3	3
4	4	4	3.5	3.5	3.5	3.5	3.5	3.5	3	3
3.25	2.75	3.25	2	3	3	3	3	3	2.5	3.5
3	3	3.5	3	3	3	3	2.5	2.5	2	2.5
68.8	65.5	71.55	58.15	59.65	60.85	49.75	62.65	67.3	65.9	64.35
25919	18759	26939	13400	22599	12999	8000	9900	12700	19995	17000
0.27	0.35	0.27	0.43	0.26	0.47	0.62	0.63	0.53	0.33	0.38
C	C+	C	B	C	B	A	A	A-	C+	B-

Siemens C60

The Siemens C60 is a good performer; the voice clarity is good and reception is clear. At Rs 8,000 for the entire package including the camera, the C60 is sensibly priced. SMS junkies, keep away!

We liked the phone's looks, with its grey-silver outfit and dash of chrome. The colour panels are exchangeable. The keypad is traditional Siemens—small buttons, hard to press, and completely lacking in tactile feedback. The navigation keys, are quite cramped and add to the frustration when operating the phone: build quality is one area where a lot is left to be desired.

The 4K colour, 7-line display screen is nothing to write home about. When the phone is used indoors, the backlight is able to create the proper contrast for strain-free viewing. Outdoors, one can hardly read the screen. The icon-based menu structure is simple and intuitive.

The phone has a total of 350 phone book entries, 100 on the phone and 250 via the SIM card. Other good features include support for MMS, hands-free calling, and Java applications. There are 16 polyphonic ringtones and two games, although these can only be called mediocre.

There's an external camera attachment with a flash. It fits snugly into the data port at the bottom of the phone. Taking pictures takes its toll on the batteries, especially with the flash switched on.

The C60 offers tri-band compatibility. For data transfer, the C60 relies on GPRS. You might miss infrared functionality. The battery lasts about three days with normal use.

Nokia 6600

The 6600 is definitely a phone to consider buying, especially if you are a Nokia fan and want a device with great flaunt value, decent features, excellent voice clarity and decent image capturing functionality—and also if you can afford the price of Rs 26,069. However, there are not many compelling reasons for existing Nokia 7650 or 3650 users to switch to a Nokia 6600.

Though the design may not appeal to you at first, it grows on you. The body is oval and features a dual-tone finish. In spite of being smaller than its predecessors, the 6600 feels bulky, and people with smaller hands may have an issue with single-handed operation. The keypad is standard Nokia. There's a five-directional joystick in the middle flanked by two soft-keys.

This tri-band GSM phone has a 176 x 208 active matrix 64K TFT display. The internal memory is 6 MB. There's also a memory card slot for additional user memory—a 32 MB MMC card is included in the package. The phone supports multiple entries per contact, custom ringtones and contacts can be assigned to groups. You can also assign thumbnail images to contacts which are displayed when scrolling through the contacts list or when the person calls you. The camera features 2X digital zoom and a self timer, and can shoot in standard, portrait and night modes. It can also capture video clips at 176 x 144 or 128 x 96 pixels, with or without audio. These can be played back on the installed RealOne Player.

Voice clarity is excellent and you will have no problems listening to a conversation even in a noisy environment. The performance of the hands-free speaker is also quite good, though not recommended in noisy conditions. The inbuilt polyphonic ringtones and more that you download play very nicely, though it may be difficult to hear the phone ringing if you are outdoors, even at maximum volume. If you want to use a number stored on your SIM card, you'll need to browse to the SIM directory. You cannot view your SIM and phone book contacts together. Even text messages stored on the SIM card are not displayed directly, which create a problem when you switch from the 6600 to another phone, as all messages you have received are stored in the phone memory.

Standard messaging features such as MMS, concatenated SMS, picture messages, SMS distribution lists, and predictive text input are supported. You can connect to other devices using Bluetooth or infrared, though there is no pop-port interface for wired connectivity. GPRS and HSCSD data transfer speeds can go up to 40.2 Kbps and 43.2 Kbps respectively.

An XHTML browser and a Wallet feature that can store passwords are also pre-installed. In terms of voice features, the device provides voice dialling, voice commands for applications, a voice recorder, and an integrated hands-free speaker. There is support for downloadable Java MIDP 2.0 applications. However, some of the features found in even entry level or mid-range Nokia phones are absent. Noticeable among these are an inbuilt stopwatch, repeat alarms, timed profiles, and automatic key-guard.

The 6600 comes with 4 themes preinstalled, and you can download others from WAP sites. Other applications available include notes, To Dos, a calendar with customisable views, and two games.

Using the keypad is not an issue at all, except if you have small hands. Text messaging should be a breeze for seasoned users, though the buttons on the lower part of the keypad lack depth.

Screen visibility reduces considerably in direct sunlight, but is usable. Still pictures captured using the camera are decent in good lighting conditions. In dim light, images turn out quite noisy as there is no flash. Another issue is that you need to hold the phone in position for a few seconds after clicking, otherwise you end up with blurry pictures. Video capture quality is not great, although it does the job. The audio captured with the video is fine, though. A negative point is the cap on length of clips that can be captured—just about 9 seconds, which is fine for sending via MMS.

As far as connectivity is concerned, we paired the device to a desktop PC using a USB Bluetooth adaptor and had no problems installing applications and transferring data. Even an infrared connection with the HandSpring Treo 180 was established without any hiccups. The included BL-5C battery offers a couple of days of life with normal use.

Conclusion

When is comes to smart features, nothing beats the Nokia 6600. Apart from great features, this was the only phone to come with an expandable 32 MB memory MMC card, and 6 MB inbuilt. Nokia's 7600, though, boasts of nearly the same features as the 6600, but completely lacks the slickness the latter offers in terms of usability. If you want an affordable smart phone, opt for the Siemens M55 from or LG's G5300i, which offers decent features at a significantly lower price.

P D A PHONES

Motorola A760
Price: Rs 20,495

For a full-fledged PDA-cell phone combo, the Motorola A760 is worth the price tag of Rs 20,495.

The A760 comes with a USB cable to connect to a PC. You can connect the phone to a PC over the USB interface, Bluetooth or Infrared. The USB cable is provided with the phone. There's an additional connector embedded so you can connect a charger, and charge the phone while transferring files between phone and PC.

Once the phone is connected to a PC, it can be used as a GPRS modem. You can transfer contacts to and from the PC, and also copy images and video. When the complete set of utilities is installed on the PC, you can build themes using the Theme Manager, upload MP3, WAV, and MIDI files to the phone, and also synchronise contacts from the address book and calendar, and tasks from Microsoft Outlook.

Some of the functions of the phone closely resemble those of the Windows operating system. You can multitask as well—for example, you can listen to MP3s while reading SMSes. However, while multitasking, applications tend to run slow.

There are nine turbo-dial functions. The camera is not very impressive, especially when the subject is zoomed into. However, there are some good features such as brightness adjust and white level adjust. The recorder offers good playback—you will, however, have to hold the phone in the range of 4 to 5 feet of the sound source for best results.

The brightness of the backlight is adjustable.

The Motorola A760 comes with the BVR Live Update utility that downloads updates for the software from the Internet.

Sony-Ericsson P900
Price: Rs 40,000

Features such as support for e-mail with attachments and an inbuilt viewer that can read Microsoft Word, Excel, PowerPoint and PDF documents, make the P900 phone-PDA combo an excellent companion for executives on the move. However, you may want to wait till the price comes down to a more affordable level.

A worthy successor to the P800, the P900 is much better looking and more professional in appearance, and nicely integrates phone and PDA functionality into one neat device. It's only marginally smaller than its predecessor, but the P900 does appear to be less chunky.

There's now video capture functionality, a small mirror for the camera at the back, and support for 65K colours. Also, the P900 has a cylindrical stylus housed in a silo and accessible from the top right.

The design of the P900 is quite business-like with a dual-tone silver-grey finish. This tri-band device boasts of all the features you would expect of a high-end smartphone. The 65K colour touch screen is 40 x 61 mm with the flip open. The internal 16 MB memory can be boosted by using the Memory Stick Duo socket that can support up to 128 MB. A 32 MB memory card is supplied along with the device. You can enter multiple pieces of data for each contact including eight phone numbers, office and home addresses, e-mail ID, URL and a note.

There are two modes the P900 can be used in—flip closed and flip open. In the flip closed mode, the P900 offers great functionality as a regular phone, with excellent voice clarity even in areas with low network coverage. The 65K colour touch screen is extremely clear and produces rich colours. When you open the flip, the LCD is fully exposed, and the phone transforms into a fully-functional PDA. The toothpick-sized stylus could be problematic: it takes some time before you get used to it. For text input, the Jot-Pro mode is very similar to Graffiti, and does not have a steep learning curve. You can use it even if you are not familiar with Graffiti.

The media functionality of the device is commendable, and music playback is quite good. Pictures captured using the camera turn out quite well, though videos are a bit grainy. You do require good lighting conditions to be able to get usable results. In terms of pure speed, the CPU seems a bit sluggish and the device feels noticeably slow while powering up and opening some applications. Playing games is not really a great experience, as there is no full screen mode, and you have to use the stylus and a virtual navigation pad to control game objects. However, opening MS Word, MS Excel, and PDF files using the Viewer application is a breeze.

You can use themes to change the interface colour scheme, and set different images as wallpapers for both the flip-open and flip-closed modes. In terms of voice features, the devices boasts of voice dialling, answer or reject calls using voice commands, a voice

Contact Details

Brand	Alcatel	AnexTEK	BenQ	Bird	Geo/Pantech
Company	Alcatel India Ltd	Xserve India Ltd	BenQ India Pvt ltd	Agrani Convergence Ltd	First Mobile India
Phone	0124- 2455050	080-5572601	022-25705230	0120-2517851	022- 569 44070
Email	Sonal.thakur@alcatel.co.in	info@xserves.com www.anextek.com	salesenquiryin@benQ.com	contactacl@agrani.esselgroup.com	response@firstmobileindia.com
WebPage	www.alcatel.com		www.benq.com	www.agrani.com	

LG	Motorola	Nokia	Panasonic	Philips
LG India Pvt Ltd	Motorola India Private Ltd	Nokia India Pvt Ltd	Panasonic India Pvt Ltd	Philips India Limited
95120 - 2560900	0124-2303212	11-677-9000	0120-2567045	011 26950448
askus@lgezbuy.com	s.sravani@motorola.com	Nokia.ebag@nokia.com	g.dhingra@npi.panasonic.co.in	manisha.singh@philips.com
www.lgezbuy.com	www.motorola.com	www.nokia.co.in	www.nationalpanasonicindia.com	www.philips.co.in

recorder, and an integrated hands-free speaker. There are three modes of text input—T9 using the numeric keypad, an onscreen virtual keypad, and CIC's JotPro. The latter is a character recognition mode akin to Palm's Graffiti.

Connectivity and data transfer options include Bluetooth, Infrared, GPRS and HSCSD. You can surf the Web using the pre-installed WAP 2.0 HTML browser.

The multimedia capabilities of the device include support for the MP3, WAV, AMR, MIDI, RMF and iMelody formats with 24-note polyphony. All stored sound files in different formats can be set as ringtones. This means you can set your favourite MP3, or even an audio piece recorded using the sound recorder, as the tone for incoming calls or alarms.
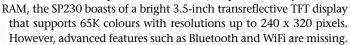
The integrated digital camera captures images at 640 x 480, 320 x 240, or 160 x 120. You can choose three types of picture quality—high, medium and low. Capture modes are Auto, Indoor, Outdoor, and Night, and you can customise a lot of things. In video capture options, you can choose between three levels of video quality and two levels of audio quality. You can shoot videos for as long as you want, limited only by the amount of free memory. Still pictures are captured in the JPEG, and video in the MPEG-4 formats. As far as battery life is concerned, the lithium polymer battery packs in enough to last three days with normal use of phone, camera, multimedia and PDA features.

AnexTEK SP230 Pocket PC Phone

The SP230 is a tad expensive at close to Rs 30,000. It is a full-fledged PDA running Microsoft Pocket PC 2003, and has an integrated GSM tri-band phone. But remember that at 109 x 68.5 x 21.6 mm and weighing 158 grams, the device is quite bulky. The detachable numeric flip keypad adds a few millimetres and grams on top of this. The thick, protruding antenna makes the device even more bulky, but also acts as a housing for the full-sized stylus.

Powered by an Intel PXA255 400 MHz processor, and well complemented by 64 MB of RAM, the SP230 boasts of a bright 3.5-inch transreflective TFT display that supports 65K colours with resolutions up to 240 x 320 pixels. However, advanced features such as Bluetooth and WiFi are missing.

The SP230 is decent as a phone, though it does have issues in areas with low network strength. The phone allows multiple conference calls and speed dial for 99 entries. As with most PDA phones, you need to copy your SIM contacts to the device to be able to use the contact management features properly. The SIM Manager does not allow messaging, so you can only send SMSes using the contacts stored in the device, or by entering the destination phone number directly. The numeric keypad is a flip that protects the screen by covering three-fourths of the area.

You get Pocket Word, Pocket Excel, Microsoft Reader, IE, Media Player, MSN Messenger, e-mail and standard PIM applications such as Calculator, Contacts, Calendar, Notepad, etc, pre-installed. The installed SIM Manager enables you to read and copy contacts from your SIM card, and also dial directly. There's also a backup utility called WiBackup. You can downclock the CPU to 200 MHz to save battery power. The 'Today' screen displays the number of unread messages, pending tasks and upcoming appointments. There are quite a few downloadable plugins for the Today screen that enhance functionality and make use of the phone simple. For example, a plugin called TodayPhone (*www.funnysnake.com*) displays missed and dialled calls on the Today screen, and even lets you call directly.
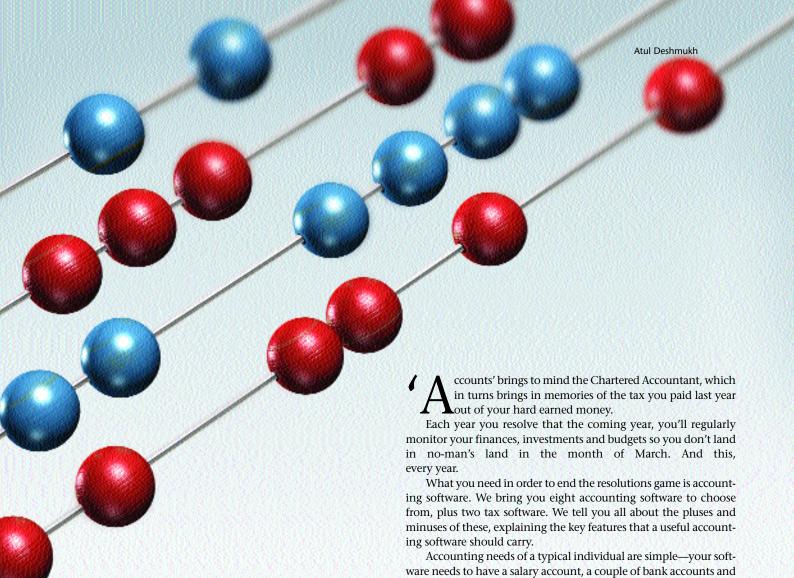
Synchronising the SP230 with a PC is simple using the bundled USB cradle and Microsoft ActiveSync software. Text can be input using the onscreen virtual keyboard, letter recognition and full-fledged handwriting recognition. The latter is fairly accurate once you get used to it, and should be quite convenient for SMS junkies. ▣

ALIASGAR PARDAWALA *(alisgar_pardawala@thinkdigit.com)*

SANKET NAIK *(sanket_naik@thinkdigit.com)*

Sagem	Samsung	Siemens	Sony Ericsson
Cenzer Industries Ltd	Samsung Electronics Ltd	Siemens India Ltd	
022-26856993	011-51511234	022-24987000	0124-2560808
sales@sagemindia.com	marketing@samsungindia.com	contactus@bom4.siemens.co.in	dhiraj.soni@sonyericsson.com
www.sagem.com	www.samsung.com/in	www.siemens.com	www.sonyericsson.com

Atul Deshmukh

'Accounts' brings to mind the Chartered Accountant, which in turns brings in memories of the tax you paid last year out of your hard earned money.

Each year you resolve that the coming year, you'll regularly monitor your finances, investments and budgets so you don't land in no-man's land in the month of March. And this, every year.

What you need in order to end the resolutions game is accounting software. We bring you eight accounting software to choose from, plus two tax software. We tell you all about the pluses and minuses of these, explaining the key features that a useful accounting software should carry.

Accounting needs of a typical individual are simple—your software needs to have a salary account, a couple of bank accounts and a few expense accounts. At the and of the year you print a trial

THE TAXMAN
Cometh

Accounting software is the answer to the perpetual cycle of resolutions regarding how you'll be managing your finances

CONTENTS

balance and take it to your accountant, who then takes care of your taxes after taking some of your money.

The SoHo segment has different requirements: track needs to be kept about client information, incoming cash and expenses, TDSs and salary payouts need to managed, etc. If the SoHo happens to be a trading firm, inventory management is needed as well.

There are therefore two software categories—those targeted at the SoHo segment, and those at individuals. Of course, the former will work for individuals too. All software start with catering to individuals first, and then to SMEs. We take some basic accounting software both with and without inventory management, which would suit the needs of both categories. We sought help from two accounting experts for an informed review—their opinions are in quotes.

Accounts 21 ▶

Accounts 21 is the fastest in terms of data entry. Anybody with basic knowledge of accounting, and familiarity with Windows, can get straight to work. Accounts 21 comes in a range of variants like accounting only, accounting plus, invoicing plus multi-currency, etc. In all, there are five variants of the product.

The layout of the software is impressive: There are one-touch buttons for common operations such as Cash Receipt, Bank Receipt, Cash-To-Cash, Bank-To-Bank, etc. This software has some cool features such as ready-to-use accounting templates for different business categories, and a document designer for voucher designing.

> " Simple, Economical, User Friendly—the Novice Edition "

There are advanced features such as Cost Centre-wise Accounting, Ratio Analysis, Cash and Fund Flow Statements, etc. Reports can be based on credit limit and outstanding, in addition to basic reports such as Trial Balance, PNL, and Balance Sheet. There are some good features relating to vouchers too. For example, locking and unlocking of vouchers for a period, voucher re-numbering, and customising voucher format. If you're sure about a transaction that has not yet occurred, planned vouchers can be used; this entry stays afloat until the transaction happens, and the respective accounts will then show the desired results.

In the reports section, there's a previewing facility, and there's the option to print reports in graphical or text mode. Accounts 21 can generate reports based on specific periods. It provides exporting of report data in the .csv format, so that it can then be used with spreadsheet applications. Help is built-in, and there are no manuals.

Accounts 21 comes at a rock-bottom price of Rs 999 for the Single Company version. This is a good version to start with—you can upgrade as volumes increase.

Price: Rs 999
+ Simple; easy to use
– Not too many features

Accounts 21	B+
Performance	▶ ▶ ▶ ▶ ▶
Features	▶ ▶ ▶ ▶ ▶
Ease of Use	▶ ▶ ▶ ▶ ▶
Overall	▶ ▶ ▶ ▶ ▶

ACE 7.0 ▶

ACE 7.0 provides several valuation methods for generating pricing. Another, related feature is re-order level and re-order quantity, which help keep a check on available stock.

Printing reports, as well as the facility to export data to popular office applications is common, but exporting into HTML is a feature only ACE has. Likewise, e-mailing reports directly to a contact.

The layout of the software isn't too good. The inbuilt help isn't sufficient, either. ACE does come with some useful features such as online bill adjustment, customisable voucher numbers, date-wise locking, credit days and credit limit facility both for debtors as well as creditors, multiple unit support as well as conversion between the units automatically based on ratio, aging report, sale or purchase price list, etc.
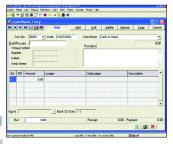
Another good feature is that while creating a chart of accounts, ACE lists groups in different tabs, categorising them—thereby making it easier to search or navigate.

The software is not free of

> " Basic accounting is difficult, though features are manifold. Also, expensive "

Price: Single user—Rs 13,200;
5-user—Rs 25,300
+ Online bill adjustment, date-wise locking, customisable aging report
– Lacks ratio analysis, cash flow and fund flow; lacks year-end balance confirmation format; naïve layout

bugs: For example, if you add a new entry, it's not reflected immediately; you'll need to restart the chart of accounts. Similarly, if your computer doesn't have a printer driver installed, the software won't open reports; it just prints an error message and aborts the operation.

Although the software has pretty good features, some basic programming flaws make it lose ground. We believe a patch should be released.

Online Accounting

There aren't too many companies in the online accounting area; one that provides this facility is IndiaAccounts. Using online accounting, you can update and check the status of your finances anytime and anywhere. All data resides on a Web server, so you need never worry about data loss.

There's a subscription fee. With IndiaAccounts the fee is yearly; its Rs 200 for individuals and Rs 750 for SMEs. With the multiple login feature for SMEs, there's the possibility of debating your financial stituation with accountants, each sitting in his office or home.

IndiaAccounts provides three modules—Accounting, Inventory and Payroll. Your accountant can observe daily transactions as and when they happen, while supervising entries, allowing or disallowing entries. For accountants it's an even better service, as one can manage entries of more than one individual simultaneously. The Web site doesn't provide advanced features, though. It just provides a vanilla version of the Accounting, Inventory and the Payroll modules. You can't export data to office applications. But one nice thing is that a BSE 30 ticker appears in front with the latest quotes.

ACE 7.0	B+
Performance	▶ ▶ ▶ ▶ ▶
Features	▶ ▶ ▶ ▶ ▶
Ease of Use	▶ ▶ ▶ ▶ ▶
Overall	▶ ▶ ▶ ▶ ▶

EQA ▶

Expert Quick Accounting (EQA) is an accounting package tht's filled with good features. The software has all the common features and reports, and also provides some unique features such as HIFO and WETG as price valuation methods for stock items, apart from common ones like FIFO, LIFO, etc.

At company creation time, you can enable or disable the inventory module. You can specify voucher numbering on a daily, monthly, or yearly basis. Different types of warnings such as reordering, negative balances, etc., can be enabled or disabled. You can even customise the reports header such that each report printed has your company's logo or banner.

Relating to inventory, unique features include *challan*s, ABC analysis, and FSN analysis. There's a provision for uninvoiced *challan*s report and unpurchased GR reports. EQA also helps in maintaining a current price list; there can be separate lists for buying and for selling. Merging of Accounts is yet another feature our accountants appreciated.

> " Broad Spectrum control features, well conceived and value for money "

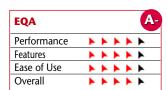Most of the common reports are part of the software, and there are more, such as receipts and payments report, outstanding report and a customisable aging report. The customisable aging report can provide details based on different days as against the standard <30, 30-60, 60-90, >90 periods. An eye-catcher for our accounting experts, was the presence of a variety of sales tax forms that the software generates by itself.

The Rs 3,000 price tag, weighed against the features and functionality provided, makes it a good buy.

Price: Rs 3,000
+ Very user friendly, strong controls such as uninvoiced *challan*s and unpurchased GRs, provides ABC analysis for inventory, customisable company headers for reports
– None

EQA	A-
Performance	▶ ▶ ▶ ▶ ▶
Features	▶ ▶ ▶ ▶ ▶
Ease of Use	▶ ▶ ▶ ▶ ▶
Overall	▶ ▶ ▶ ▶ ▶

EX Personal ▶

To start with the pluses of EPA: It provides templates for the type of company you're creating. It does not provides many options, but does feature the most commonly used ones: Individual, Trader, Manufacturing, Chartered Accountant, and a Normal template as well.
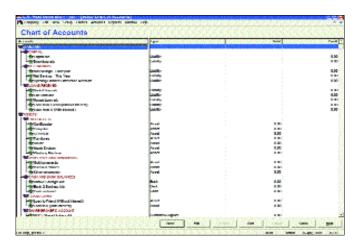
The Smart Finder feature provides a variety of ways to search customers, suppliers, items and documents. You can find a customer on the basis of amount of sales, sales return, etc., while for suppliers, it could be on purchase-related details. A method is provided to maintain a narration list, which will help in data entry. The 'charges' section helps in maintaining excise rates, sales tax rates, etc., at a central location.

> " Simple accountant, but not a management accountant "

EPA does not provide too many stock valuation options: just Weighted and Moving Weighted. There's no FIFO, LIFO, etc.

Our expert pointed out some irregularities in the creation of accounts, which may be a point of concern.

In reporting, the software provides options for three basic reports—Trial Balance, Comparative Balance Sheet and Profit and Loss (PNL). Trial Balance provides two options, Standard and Opening, and the other reports have three—horizontal, vertical and comparative. The Comparative Balance Sheet and PNL help you analyse the situation vis-à-vis the previous year. There are also advanced reports such as a budget variance report, but ratio analysis, cash flow, and fund flow tools aren't provided.

EPA can be tailored to your needs by the vendor, at an affordable price.

Price: Single user Rs 10,000, Multiple users (5) Rs 40,500
+ Reduced clutter in menu layout, comparative report for BS and PNL, Smart Finder
– Lacks ratio analysis; cash flow and fund flow

Ex Personal Accountant	A-
Performance	▶ ▶ ▶ ▶ ▶
Features	▶ ▶ ▶ ▶ ▶
Ease of Use	▶ ▶ ▶ ▶ ▶
Overall	▶ ▶ ▶ ▶ ▶

FACT ▶

FACT, an award-winning software in our previous accounting software comparison test, was nowhere near last time's performance, this time around.

The software has its advantages; the accounting code that can be assigned with account-heads was appreciated by our accountants. The impression of the expert panel reviewing the software was that FACT was too complex.

When we posted some entries, FACT began giving "no cash/bank codes exists" messages. After going through the help

> " Ill planned, complex for laymen, restrictive operations and overpriced "

files, we realised that FACT expects account codes to be in a particular range—this imposes some restrictions on the user.

The software has most, if not all, of the common features, but the weakest link here is the help and support. The layout of the software a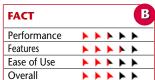ppears too hazy with almost no classification and categorisation of options. At the same time, menu and option names are technical in nature. A user with only basic accounting knowledge is not likely to be familiar with these.

FACT is definitely a no-go.

Price: Single user—Rs 30,000, 5 users—Rs 42,500
+ Facility to assign codes to accounts
– Too complex, menu names technical

FACT					B
Performance	▶	▶	▶	▶	▶
Features	▶	▶	▶	▶	▶
Ease of Use	▶	▶	▶	▶	▶
Overall	▶	▶	▶	▶	▶

Simple Accounting Pro ▶

The learning curve for Simple Accounting Pro (SAP) is on the higher side—takes getting used to.

Once it's installed, you need to either create a new company or work with sample data. The software provides the biggest template list among the software tested. This simplifies the task of creating a new company quickly.

> " Innovative, auditor-friendly, but lacks individual affordability "

First-time users will have a tough time. You need more than basic accounting knowledge to handle the intricacies of the software. Handling operations related to taxes, chart of accounts, etc., will scare away newbies.

A unique feature in SAP is the 'advice' feature. If the feature is set to auto mode, the software 'advises' you frequently. An example: if one of your customers is a habitual late-payer, the software warns you. Another interesting utility is Daily Business Management, which helps you maintain a list of activities that needs attention at appropriate times.

A big plus for SAP is that it provides a complete audit trail, thereby restricting the company from modifying vouchers and falsifying the records.

To summarise, SAP is a good product, but not for beginners.

Profile

Prakash Marathe started his practice as an Accountant and Tax Consultant in 1995, and he has 13 years of experience in the field.

Marathe provides complete solutions including day-to-day accounting, and advice on direct and indirect taxation. He heads a team of 15, and his practice includes accounting, income tax, sales tax, service tax, partnership registration, company

PRAKASH NARHAR MARATHE Bachelor of Commerce, Bombay University in April 1990 Intermediate Examination of The Institute of Chartered Accountants of India in November 1994.

formation, company law matters, etc. His services in direct and indirect taxation ranges from registration to assessments and appeals.

He is one of the accounting experts who gave us an expert's opinion.

Price: Single user—Rs 9,999; Multiple users—Rs 14,999
+ Huge variety of templates to choose from while creating a new company
– Presents a rigid frame to work with

Simple Accounting Pro					A-
Performance	▶	▶	▶	▶	▶
Features	▶	▶	▶	▶	▶
Ease of Use	▶	▶	▶	▶	▶
Overall	▶	▶	▶	▶	▶

Tally 6.3 ▶

No software can beat Tally in terms of ease of use. Its two-button combination of *[Enter]* and *[Esc]* takes you to micro-level details as well as brings you out of them. Though Tally's learning curve is exceedingly small, novices might still get stuck at the company creation process or viewing trial balance. Initially, you'll find yourself referring to the help files within the software quite frequently. However, once you master the hotkeys, you won't need to do all that. No documentation is bundled.

> " Accountants' best friend; control drawbacks unresolved "

There's a pre-defined set of groups, but no templates for charts of accounts while creating a new company. However, it does allow you to enable or disable the inventory module while creating accounts.

It has some great new features such as e-mailing and uploading the data directly from the software. It also has support for budgeting, cost centre, VAT, excise, cash flow, funds flow, aging analysis, etc. Some may feel that having a facility to enter back-dated entries is a plus point. However, corporates reckon that it might increase the chances of corruption. Such entries are allowed by default, but you can restrict the user by specifying the necessary permissions in the security control. You can restrict the rights of the user in the security control by using create, alter, create/alter, etc. Around nine different types of ratios are provided by the software for analysis by accountants.

Thus features-wise, Tally is right up front. It has a horde of them that might take you some time to master. Indeed, it's definitely a lot more than a simple accounting package.

Price: Softlock—Rs 9,900; unlimited network version—Rs 45,000
+ User-friendly, advanced features such as budgeting, cost centre, etc., reports such as aging analysis, peak balance, etc.
– Back-dated entries

Tally 6.3	A-
Performance	▶ ▶ ▶ ▶ ▶
Features	▶ ▶ ▶ ▶ ▶
Ease of Use	▶ ▶ ▶ ▶ ▶
Overall	▶ ▶ ▶ ▶ ▶

Wings 16 ▶

Wings is one of the crown holders in our previous tests, and this time too, it stood up to the test. What first grabs your attention is the neat menu layout with dividers to group and sub-group functionalities.

There's almost no feature that Wings lacks. Wings presents a range of new features like a History file, pending bills, year-ending process, peak balance, etc. The History file feature is of utmost importance, as it can reconstruct the entire database if disaster should strike. The History file feature takes incremental backup. If you have offices in multiple locations, you can have a central database repository where all the other locations would send the incremental data to, by e-mail. This would then be used to sync the central database with the location databases.

Wings provides ways whereby users can be restricted on a field-by-field basis.

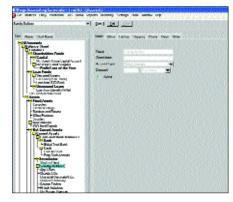> " Good management tool with a plethora of customisable reports. Economical "

What helped Wings retain the crown were its reports. It has a whole gamut of reports, right from basic trial balance to advanced reports such as reorder report, sales tax report, excise duty report, etc. Each report is entirely customisable. In the collection of reports, some reports are based on new concepts such as transaction analysis, trend analysis, deleted voucher report, etc. The bulk import facility provides a way to easily import large volumes of data.

An example of how feature-rich the software is, is that the interest calculation feature for late payments has been extended to a slab architecture whereby, as the payment gets more and more delayed, different interest rates can be applied.

Another new feature is the peak balance report, which not only shows the peak balance, but also the date upon which the peak balance occurred, for both debit as well as credit.

Wings Accounting starts at Rs 5,900 (Wings Accounting SB), with Inventory at Rs 12,900. The multi-user pack comes for an additional Rs 10,000. With each copy of Wings Accounting, you get a free copy of ACT!5, and contact management software worth about Rs 6,000.

Price: Wings Accounting SB Rs 5,900; with Inventory Rs 12,900
+ Easy to handle, provides peak balance, exceedingly good year ending routine
– None

Wings 16	A
Performance	▶ ▶ ▶ ▶ ▶
Features	▶ ▶ ▶ ▶ ▶
Easeof Use	▶ ▶ ▶ ▶ ▶
Overall	▶ ▶ ▶ ▶ ▶

How We Tested

We roped in a couple of experts to provide comments and feedback for all the software we tested. We kept some features as bases for the software to qualify for the tests, for example, that the software should have a backup and restore option. We expected that basic reports such as Trial Balance, Profit and Loss (PNL) and balance sheet would be provided. We looked for a facility to export reports to common office applications such as MS Excel, Acrobat Reader, etc. In the inventory section, we scanned for options such as type of stock valuation. Some of the newer-generation reports, too, were part of what we looked for—aging reports, sale/purchase price lists, and features such as transaction analysis, online bill adjustment, and date-wise locking.

To test the ease-of-use factor, we had a set of eight accounting entries which we posted in each software. This test was aimed at finding how fast a user can create groups, chart of accounts, vouchers, etc. We also did other things, such as entering amounts so that the balance went negative, to see if the software generated errors or not, and to check if reordering worked or not.

We did not compare the products on pricing, as each vendor had different prices depending on the modules that they bundled. The scenario was not altogether simple; some had the base pack with the inventory bundled, others had a base pack with just the accounting module, and some had accounting, inventory and manufacturing modules within the base module.

Apart from these, ease of installation was also considered important.

Taxing software

CompTax ▶

CompTax, a software that aims to lessen the trouble of tax calculations, does not perform to its full potential.

It needs a lot of patchwork before it could be held as truly helpful. In its current state, CompTax does not perform any calculation. Instead, it provides you a multi-columnar grid to enter values. Why pay for software if you have to do the calculations manually. Instead, use Excel to do the same. To list a couple of examples, there's Taxable Prequisites, Other exemption, etc.

The software does not consider an important aspect of Rebate-section VIII A due to investments into insurance, provident fund, public provident fund, etc. Omission of such an important feature renders it useless for individual users.

From the corporate point of view, it provides Form 16 reports, which is its single most important function. Other features include calculation of advance and self-assessment taxes, deductions under section 88c (working women) and under section 88d (senior citizen), calcu-

> **A re-visit to the tax provisions by a tax expert required**

lation of interest on National Saving Certificates (NSC), and calculation of interest payable under section 234A, 234B and 234C. However, it does not consider section 89(1) that deals with salary arrears.

CompTax does not let you enter salary figures month-wise. You have to manually sum up each element of your salary structure for the entire year and then enter them into the system.

All said and done, CompTax needs a lot of fine-tuning before it really kicks off.

Price: Rs 3,250
+ Helps in calculating taxes
– Not very helpful features-wise

CompTax	A-
Performance	▶ ▶ ▶ ▶ ▶
Features	▶ ▶ ▶ ▶ ▶
Ease of Use	▶ ▶ ▶ ▶ ▶
Overall	▶ ▶ ▶ ▶ ▶

Profile

K Murtuza is a Graduate Member of The Institute of Cost and Works Accountants of India, and a Fellow member of The Institute of Chartered Accountants of India.

Having qualified as a CA in 1995, he has 13 years of experience in accounting. He has worked with a leading firm of Chartered Accountants in

K MURTUZA
Bachelor of Commerce from Bombay University, Master of Commerce from Pune University

Mumbai for almost eight years, carrying out a variety of Audit and Assurances services.

He was another one of the two experts that contributed informed opinions to this software test.

	Company:	Telephone	Email	Website
Accounts 21 Single Company				
ACE	Topsys Solutions Pvt Ltd	+91-80-25274343	topsys@vsnl.com	www.topsyssolutions.com
EQA	Coral Soft'wares Ltd	+91-22-28314613	info@coralindia.com	www.coral.co.in
Ex Personal Accountant	Compubrain India Limted	+91-40-2460 7074	info@compubrain.net	www.compubrain.net
FACT	Vedika Software Pvt Ltd	+91-22-25006490	rakesh@mum.vedika.com	www.fact.com.sg
Simply Accounting Pro	ACCPAC India	+91-80-22384900	sourav.biswas@accpacindia.com	www.accpacindia.com
Tally	Tally solutions Pvt Ltd	+91-22-56925230	sales@tallysolutions.com	www.tallysolutions.com
Wings	Wings Infonet Ltd	+91-40-23211458	veeren.singh@wingsinfo.net	www.wingsinfo.net
CompTax	Reylon Softech Ltd	+91-80-23354600	info@relyonsoft.com	www.relyonsoft.com
TaxBase	Shinewave Computer Services	+91-20-4008649	sales@indiataxes.com	www.indiataxes.com

TaxBase ◀

Calculate your own taxes

Compared to CompTax, Taxbase is more complete as a tax package for corporates as well as individuals.

The important rebate under Chapter VIII is present in this software. It also throws in a few niceties such as date of birth as well as date-of-return on the computation of taxable income report. This report presents an additional annexure as well which too was missing in the other software.

There are a variety of reports provided: Income tax register, groupwise income sheet, Assesse AY year-wise report, advance tax challan, advance tax register, etc., which makes the entire process of taxation easy at both the accountant of a business or a individual. Also featured are a gamut of forms—right from Form 1 to Form 56G—that are needed by the Government.

Both CompTax and TaxBase enable computation of tax under the following chapters—salary, house property, capital gains, business income, income from other sources, etc. TaxBase also does not take into account section 88(1) that pertains to salary arrears.

Taxbase includes useful practical information on income tax, sales tax, and company laws. This information is updated with each new version. You are notifed of releases via e-mail.

To summarise, Taxbase is useful for both individuals as well as business houses, mainly due to the wide variety of reports.
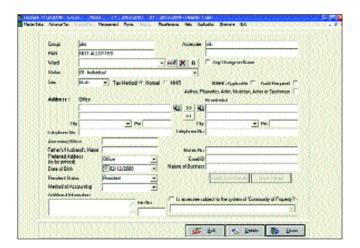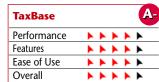
" Conceptually groundbreaking and easy to use "

Online Filing of Returns

Companies such as *www.filereturn.com* and *www.filemyreturns.com* provide services such as applying for a PAN card and filling IT returns online. The feature list includes facilities to prepare computation of income, tax returns, capital account, balance sheet, etc. The Web site also provides lots of useful information such as tax rates, due dates, etc.

Filemyreturns.com is a much better site in terms of layout. Filereturn.com is rather cluttered, and is difficult to go through—the fonts are in all sorts of colours.

Price: Rs 15,000
+ Wide variety of reports
– None

TaxBase	A-
Performance	▶ ▶ ▶ ▶ ▶
Features	▶ ▶ ▶ ▶ ▶
Ease of Use	▶ ▶ ▶ ▶ ▶
Overall	▶ ▶ ▶ ▶ ▶

Conclusion

Of the software we tested, only four came close in terms of features—Tally, EQA, Wings and Ex. Each provided some advanced features such as budgeting, cost centres, etc., which made it difficult to declare one as a clear winner. The ease-of-use factor, too, didn't help in putting one software at the top slot. Finally, it was the kind and number of reports that brought out what little difference exists among the software. EQA provides ABC analysis as a unique report, while Ex provides comparative reports for BS and PNL. Similarly, Wings provides trend analysis and transaction analysis. The major difference between our winner—Wings—and the others, was the customisation of reports that Wings allows, in line with the bunch of reports and the report writer that it provides.

MUSTALI KACHWALA
mustali_kachwala@thinkdigit.com

The A-List
The best products in different hardware and software categories

BEST PERFORMANCE digit JULY 2004

Products that topped our performance tests

CPU
AMD Athlon64 FX-51
+ Great performance with multi-media applications
- Expensive
Contact: Tech Pacific
Phone: 022-55960101
E-mail: pratik.chube@techpacindia.com
Price: Rs 41,000

Motherboard
MSI 875P Neo
+ Terrific performance and equally good features
- Bad component layout
Contact: Cyberstar
Phone: 080-2276986
E-mail: narend@cyberstarin.net
Price: Rs 14,500

Primary Storage
Maxtor 250 GB MaxLine Plus II
+ Tons of space
- Gets heated
Contact: Cyberstar
Phone: 011-6438216
E-mail: yogi@maxtor.com
Price: Rs 19,500

Secondary Storage
DVD-Writer
LiteOn LDW-811S DVD-Writer
+ Fast write speeds
- Cannot write on dual-layered media
Contact: Mediatech India
Phone: 022-56396696
E-mail: sales@mediatechindia.com
Price: Rs 13,750

Graphics Card
PowerColor X800PRO Limited Assassin Edition NEW
+ Superb performance
- Expensive
Contact: Mediatech India
Phone: 022-56396696
E-mail: nad@godrej.com
Price: Rs 35,000

Display
LCD Monitor
Samsung SyncMaster 173P
+ Very elegant looks, Landscape and Portrait modes
- A bit heavy
Contact: Samsung India Electronics
Phone: 011-51511234
E-mail: marketing@samsungindia.com
Price: Rs 47,500

Speakers
Creative Inspire 5700D
+ Crystal clear sound reproduction
- Will not be able to shake the room
Contact: Creative Technology Ltd
Phone: 9820357713
E-mail: rajshekhar_bhatt@ctl.creative.com
Price: Rs 23,999

Input Devices
Microsoft Natural Multimedia Keyboard
+ Great quality and ergonomics
- Takes time to get accustomed to new key layout
Contact: Microsoft Corporation
Phone: 011-26294600
E-mail: connect@microsoft.com
Price: Rs 1,498

Microsoft Wireless IntelliMouse Explorer
+ Optical Mouse, USB interface
- Expensive
Contact: Microsoft Corporation
Phone: 011-26294600
E-mail: connect@microsoft.com
Price: Rs 4,278

Sound Card
Creative SoundBlaster Audigy 2 Platinum
+ 6.1-channel output
- Expensive
Contact: Creative Technology Ltd
Phone: 9820357713
E-mail: rajshekhar_bhatt@ctl.creative.com
Price: Rs 14,199

Laptop
IBM T40
+ Great design, excellent performance
- Expensive
Contact: IBM India Ltd
Phone: 080 2063199
E-mail: sanmenon@in.ibm.com
Price: Rs 1,53,366

Branded PC
HCL Beanstalk 4658
+ Great package
- None
Contact: HCL Infosystems Ltd
Phone: 0120-2520977
E-mail: raman@hclinsys.com
Price: Rs 51,490

Multi-functional Device
Xerox PE16 All-In-One
+ Good fax features, compact design
- Below par scan and copy quality
Contact: Xerox Modicorp Ltd
Phone: 0124-2561930/ 940
E-mail: kuldeep.malhotra@ind.xerox.com
Price: Rs 40,000

Laser Printer
Canon LBP3200
+ Compact and light; fast 17 ppm text printing speed
- Flimsy paper tray mechanism
Contact: Canon India Ltd
Phone: 011-26806572
E-mail: rajeev.singh@canon.co.in
Price: Rs 13,995 plus taxes

Inkjet Printer
Canon i560
+ Classy printing speeds
- None
Contact: Canon India Ltd
Phone: 011-26806572
E-mail: rajeev.singh@canon.co.in
Price: Rs 9,995

PDA
Palm Tungsten T3
+ Stretch Display
- Expensive
Contact: Tech Pacific
Phone: 022-55960303
E-mail: manishl@techpacindia.com
Price: Rs 26,499

Mobile Phone
Sony Ericsson P900
+ Good integration of phone and PDA features
- Expensive
Contact: Sony Ericsson
Phone: 0124-2560808
E-mail: dhiraj.soni@sonyericsson.com
Price: Rs 40,000

Digital Camera
Canon IXUS 400
+ Cerabrite body, better buttons layout, wide shutter speed range
- Ultra compact body hampers handling
Contact: Canon India Pvt Ltd
Phone: 011-26806572
E-mail: shyam@canon.co.in
Price: Rs 49,995

MP3 Player
Apple iPod
+ Hard-drive based, FireWire cable bundled, line-out socket
- Very expensive
Contact: Apple Computer International Private Limited
Phone: 080-25550575/ 73
E-mail: indiainfo@asia.apple.com
Price: 30 GB-Rs 41,000

BEST VALUE
digit
JULY 2004

Products that are the best value buy

CPU
AMD 2400+
+ Sufficient power for normal desktop use
– Cumbersome installation
Contact: Tech Pacific
Phone: 022-55960101
E-mail: pratik.chube@techpacindia.com
Price: Rs 4,100

Motherboard
Krypton NF2400U
+ Good features, impressive performance
– Lacks onboard video
Contact: Priya Ltd
Phone: 022-56663100
E-mail: priyabom@priyagroup.com
Price: Rs 3,550

Primary Storage
Samsung SV1203N 120 GB
+ Noise Guard and ImpacGuard
- 5400-rpm drive
Contact: Samsung Electronics India Information Telecommunication India Pvt. Ltd
Phone: 011-515111234
E-mail: marketing@ samsungindia.com
Price: Rs 7,200

Secondary Storage
CD-Writer
Benq CRW5224W
+ Cheap
– Data cable not bundled
Contact: BenQ India Pvt Ltd
Phone: 022-25705231
E-mail: salesenquiryin@benq.com
Price: Rs 2,000

Graphics Card
Ennyah GeForce FX 5700
+ DirectX 9.0 compatible
- Very expensive
Contact: Great World Tech Pvt Ltd
Phone: 022-23892828
E-mail: sales@gtechworld.com
Price: Rs 8,500

Speakers
Frontech JIL-1870
+ Good sound at an affordable price
– Cannot handle high volume
Contact: Jupiter International
Phone: 022-22001211
E-mail: frontech@bom5.vsnl.net.in
Price: Rs 1,500

Display
CRT Monitor
Philips 109E5
+ Good geometry results, good colour purity
– Average results in fine matrix
Contact: Philips India Ltd
Phone: 022-56912325
E-mail: PCP.India.Info@philips.com
Price: Rs 11,500

Input Devices
Samsung PC Keyboard
+ Unmatched value for money
– No multimedia buttons, wrist support not bundled
Contact: Samsung Asia Pvt Ltd
Phone: 022-22814886
E-mail: marketing@samsungindia.com
Price: Rs 300

Logitech Scroll Mouse
+ Ambidexterous design
Contact: Rashi Peripherals
Phone: 022-28260258/ 59
E-mail: ho@rptechindia.com
Price: Rs 450

Branded PC
HCL EzeeBee
+ Winner of Best Value and Best Performance
– Needs a better graphic card
Contact: HCL Infosystems Ltd
Phone: 0120-2520977
E-mail: raman@hclinsys.com
Price: Rs 26,500

Laptop
ACI Ethos 4
+ Good configuration for the price
– Hampered ergonomics
Contact: Allied Computer International (Asia) Pvt Ltd
Phone: 022-56943260/ 26733124/ 56407000
E-mail: sales@aci-asia.com
Price: Rs 44,990

Multi-function Devices
HP Officejet 4110 All-in-one
+ Very fast printing speed
- Lacks a flatbed scanner
Contact: HP India Ltd
Phone: 011-26826000
E-mail: seema.dawar@hp.com
Price: Rs 8,999

Laser Printer
Samsung ML-1510
+ Good image quality
– Slow print speed for combo document
Contact: Samsung Electronics India Information and Telecommunication Ltd
Phone: 011-51511234
E-mail: farrukh@ samsungindia.com
Price: Rs 10,990

Inkjet Printer
HP Deskjet 3550
+ Good photo printing capability, quite cheap
– High cost per page
Contact: HP India Ltd
Phone: 011-26826000
E-mail: ashwini-k_aggarwal@hp.com
Price: Rs 2,999

PDA
Palm Zire 21
+ Affordable, good battery life
– No Palm Universal Connector, no backlight, no expansion slots
Contact: Tech Pacific
Phone: 022-55960303
E-mail: manishl@ techpacindia.com
Price: Rs 7,249

Digital Camera
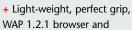**Kodak DX6340**
+ 3.1 megapixel camera with 4X optical zoom
– Only 16 MB memory
Contact: Neoteric Infomatique
Phone: 022-24172600
E-mail: rajeev@neoteric-info.com
Price: Rs 18,900

Mobile Phone **NEW**
BenQ M560G
+ Light-weight, perfect grip, WAP 1.2.1 browser and 43.2 Kpbs GPRS, PIM features
– Plain looks
Contact: BenQ India Pvt Ltd
Phone: 022-25705230
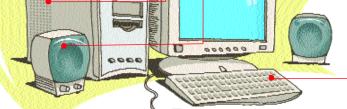**E-mail:** salesinquiryin@ benq.com
Price: Rs 4,450

MP3 Player
Ennyah Digisound II DS601
+ Fast data transfer, feature-rich
Contact: Great World Tech Pvt Ltd
Phone: 022-23892828
E-mail: sales@gtechworld.com
Price: Rs 6,000 (approx)

1X Blues

Agent 001 has a hard time finding the single X

The Digit test centre was perplexed. The decision to send out DVDs to some corporate partners had run into rough weather. The problem was something like this: The DVDs had to be 1X-compatible. The DVD supplier had guaranteed 1X writing, however, the disks themselves were not branded, neither was there 1X written on them. Nevertheless, they tried to record the stuff, and the results were disastrous. This set off the alarm bells: they needed 1X-compatible DVDs, guaranteed. Hmm, this was a job for Agent 001.

When I got off the train suitably disguised as a marketing guy, it was afternoon. Lamington Road was bustling with activity as usual. "Hmm," thought I, "nice little shop selling CDs, DVDs and cigarettes. Perfect place to begin my investigation."

With a suitably professional voice I ask, "You have DVD-Rs? I need 1X-compatible ones."

"Of course," the guy says. "How many pieces?"

He sounds too ready to sell. "Are they branded?", I ask. "Yes, of course, they're. Samsung," I am told.

"What's the price?," I ask. "Rs 120 each," he says, as he turns to the man next to me. "But how do you know what speed I want to write at?," I question.

No answer. I repeat the question. He looks at me and paints '4X' in the air with his finger. I tell him the problem my clients face. You can write stuff onto the DVD, he says. That's all.

Next stop, Video Plaza. Swank shop. I step in and the extremely well-dressed salesman comes up to me—later I discover he has a Nokia 6600, evidently not a salesman—and asks me what I want. I get to the point straightaway. He tells me that all DVDs are 1X to 4X compatible, and prices range from 90 to 135. I tell him the problem. He looks a bit fazed, though completely in control. He goes through the covers musingly and brings out a Pioneer DVD-R, smartly packaged, the cover proudly declaring '1X-4X compatible.' "This is Pioneer; it guarantees 1X to 4X

write speeds." How much does it cost, I ask. " Rs 375," he says, and adds, "Guaranteed 1X to 4X."

Expensive, I think, but as long as it

Mahesh Benkar

works...I guess! "But do you know it'll really work at 1X?"

"Everyone wants 4X DVDs. Well, you can take this other stuff, it's not branded, but it should work. It's Rs 35 apiece." He fishes out a box from the display. It's evident this is the same stuff that was being offered to me in the cigarette shop for Rs 120.

Outside, I go into a couple more shops: the same thing, the same names and prices, however, no guarantees of recording speed. I decide to take a last shot. In a side-alley I come across this shop proclaiming availability of all things musical. Up a short flight of stairs, I enter the shop with three or four shady-looking people around. Two of them behave like

old customers. Familiar sight—lots of shops use this ploy to convince unsuspecting customers of their credibility. I get to the point straightaway. Predictably, the man at the counter nods, "How many do you want?"

"500 to 1000 pieces," I say, feeling as sleuth-like as ever. "But they have to be guaranteed 1X."

A voice behind me says, "Yes, may I help you?" I turn around and see a guy who looks like one who runs the shop. "I'm looking for 1X DVDs." He smiles. "Everyone wants 4X and you want 1X!" I nod and say, "You have to guarantee it."

He nods. I ask again, "How will you guarantee it?" half hoping he would tell me—high hopes.

"Please come into my cabin," he says, and I follow him in. "How many pieces do you want?"

"That's negotiable. Do you have a sample?"

He picks up the phone and dials a number. "Hello Ashish bhai, you didn't send me the sample of those 1X DVDs...yes I know...1X to 4X?...but the customer specifically wants 1X...you guarantee it?...what is the pack size?...5o...branded... you say? It has to be 1X, what did you say the name was?"

Finally he tells me, "You'll get it, Rs 37 per piece. Guaranteed 1X. The DVDs are branded. How many do you want?"

"What brand name?"

"Thin Media."

"Just tell me how you determine it's 1X."

"It will be written on the DVD."

"What if it doesn't work?"

"Then come back to me, I will change the whole lot." He's sounding rather cranky by now.

Out on the street with his phone number in my pocket, I sum it all up in my mind as I walk back towards the station. It is not possible to ascertain whether DVDs will be guaranteed 1X-compatible. However, if required, there are ways to get them, though not at your average roadside shop. d

Bazaar

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

Canon ImageClass MP390 All-in-one

The Canon ImageClass MP390 caters to both the home user as well as the SoHo segment, with PictBridge USB connectivity to directly connect your digital camera to the printer and take photo printouts.

Its slow print speed means this MFD is not for bulk printing.

The functions on the control panel on top of the unit are clearly explained on the small LCD screen, and you can start using the MFD in no time. Installation of the device is easy, and both Twain and WIA drivers are provided for the scanner—to be used when using a graphics application for scanning.

The built-in fax unit makes the MP390 suitable for a SoHo environment and the software bundle is extensive too. The MFD has a multi-purpose paper feed tray that holds about 100 sheets.

The rated printing speed is 18 ppm in fast mode, and 12 ppm in normal mode. However, in our tests, the Canon MP390 was slower than that. Though the image quality was good, it is by no means the best we've seen. Scanning an image at full colour at a resolution of 600 dpi took one minute and 11 seconds. This is quite fast, considering that the quality of the image scanned was distinctly above average.

The Canon MP390 comes with a two-year warranty. Printing and scanning apart, this MFD loses points as it doesn't bundle in an automatic document feeder.

SPECIFICATIONS

Print, copy, scan and fax features; PictBridge technology; memory card slot; USB port for connecting digital cameras

Canon ImageClass MP390		**B-**
Performance	▶ ▶ ▶ ▶ ▶	
Features	▶ ▶ ▶ ▶ ▶	
Build quality	▶ ▶ ▶ ▶ ▶	
Value for money	▶ ▶ ▶ ▶ ▶	

Price: Rs 23,990
Contact: SES TECH limited
Phone: 022-26824141
E-mail: kp@sesindia.com
Web site: www.intel.com

Iomega REV Removable Hard Disk Drive

The REV external solution from Iomega will find favour with corporate and SoHo users; the product is

essentially an alternative for tape backup. It will not appeal to regular computer users who do not consider data backup a priority—a CD or DVD writer would do just fine.

The drive has a capacity of 35 GB in uncompressed format, and 70 GB in compressed format.

We reviewed the external USB 2.0 version—an internal parallel ATA version is also available. Drive connectivity is simple—all you need to do is connect the drive to USB 2.0 port on your computer. Just connecting the drive to the computer will enable read access; for writing to the disk, you'll need to install the drivers.

You can control access to the drive by either granting read-only access, or by locking the drive altogether. You can also password-protect the cartridge, which will take care of any unauthorised attempts to accessing data from the disk. The software bundle is good and includes a REV version of Norton Ghost.

The sequential read speed for this drive was 22 MBps in our tests, while random read speed was 3.9 MBps with an average access time of 107 ms. We performed real world tests that included the reading and writing of a 1 GB file to and from the drive. Reading and writing of the file both took the same time—46 seconds—which is comparable to the performance of any good 7200 rpm external hard drive.

A drawback with this drive is that it is not forward compatible, which means that if you insert a 70GB cartridge—when it becomes available—it will still only be read as a 35 GB cartridge.

SPECIFICATIONS

35 GB native capacity per removable disk; transfer rates of 12.7 to 25.4 MBps; approx. 5 years drive service life; USB 2.0 or ATAPI interface

Iomega REV		**B+**
Performance	▶ ▶ ▶ ▶ ▶	
Features	▶ ▶ ▶ ▶ ▶	
Build quality	▶ ▶ ▶ ▶ ▶	
Value for money	▶ ▶ ▶ ▶ ▶	

Price: Rs.23,850 (USB 2.0)/ Rs.22,500 (ATAPI)
Contact: Neoteric
Phone: 022-24172600
E-mail: sales@neoteric-info.com
Web site: www.iomega.com

S-Media CoCoPod MP3 Player

The CoCoPod from S-Media is a hard-drive based MP3 player and is heavily inspired by the Apple iPod. The unit has a 20 GB hard drive and can play MP3, WMA and WAV files. This means you can have as much as 45.5 hours of MP3s encoded at 128 Kbps.

It also has an SD/MMC slot. The player, when connected to a PC, shows up as a drive, and you can use it as an SD/MMC card reader as well. It is also one of the few devices available with a USB 2.0 interface.

The player also works as a recorder, with the microphone on the front, right under the scroll button, and has five different rates, from 64 Kbps to 256 Kbps. Another feature is that you can insert breaks between tracks while recording.

Then there's FM radio, with the headphone acting as the antenna. Signal reception and clarity are impressive.

The CoCoPod also allows you to record from FM, and saves tracks as MP3s.

The sound quality is good, but the earphones

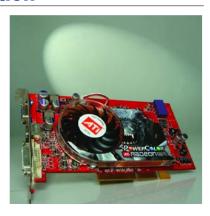bundled aren't. You'll need better quality headphones to enjoy this player.

Price: Rs 18,990 +taxes
Contacts: Xserve India Pvt. Ltd
Phone: 080-51131001
E-mail: info@xserves.com
Web site: www.s-media.com

SPECIFICATIONS

20GB hard drive space; 32 MB SD-RAM; SD/MMC memory slot; USB 2.0 interface; MP3, playback; voice recording; FM radio; 800mA Li-Ion battery; weight: 158 gms

S-Media CoCoPod MP3	B
Performance	▶ ▶ ▶ ▶ ▶
Features	▶ ▶ ▶ ▶ ▶
Build quality	▶ ▶ ▶ ▶ ▶
Value for money	▶ ▶ ▶ ▶ ▶

PowerColor X800PRO Limited Assassin Edition

The Radeon Powercolor X800 Pro retails for Rs 35,000—a good bargain! It is, considering that you had to pay the same amount when the 9800 PRO was released, and the Powercolor is twice as fast! With an all new core, and its extremely competent scores in the game and synthetic tests that we ran, this is a much recommended card for any gaming enthusiast.

The Powercolor has under-lined the fact that the X800 series from ATi has set the bar again, as the fastest GPU on the planet, for now...

This card is almost identical to the original Radeon X800 PRO.

The software bundle disappoints, since there is just one game—Hitman2.

Price: Rs 35,000
Contact: Mediatech India
Phone: 022 - 56396696
Fax: sales@mediatechindia.com
E-mail: nad@godrej.com
Web site: www.powercolor.com.tw

Cables are provided for connectivity options, and add to the value of the card.

Graph Data: 3DMark 2003

SPECIFICATIONS

256 MB GDDR3 memory; 475 MHz core clock; 450 MHz memory clock (900 MHz DDR); 256-bit Quad Channel Memory Architecture; 28.8 GBps memory bandwidth; 145 billion floating point operations per second

PowerColor X800PRO	B+
Performance	▶ ▶ ▶ ▶ ▶
Features	▶ ▶ ▶ ▶ ▶
Build quality	▶ ▶ ▶ ▶ ▶
Value for money	▶ ▶ ▶ ▶ ▶
Overall	▶ ▶ ▶ ▶ ▶

HP Officejet 5510

With good printing capabilities, a decent scanning unit and useful copying and faxing features, the 5510 comes out as a good MFD. At Rs 12,499, the 5510 is worth it. It is aesthetically appealing, and has a small footprint. In the printer unit test, the 5510 beats the pants off some standalone printers from HP that we've reviewed previously.

The photographs printed on this all-in-one are life-like, and colour reproduction is terrific. Text printouts didn't have any visible artefacts, and it's hard to distinguish it from a laser printout. On the speed front, the 5510 is faster than a regular standalone printer.

Images scanned on the scanner unit were good on the quality front, but lacked the colour resolution a professional might look for.

The copy unit is simple to use, and the printouts were acceptable.

Features abound on the 5510: The faxing console features one-touch faxing and speed dialling. Copying preferences can be set from the console—a good feature, as it allows taking a copy without switching on the PC. The automatic document feeder makes life easier. All totalling up to a thumbs up for this device.

Price: Rs 12,499
Contact: HP India ltd
Phone: 1600-444 9999
Fax: 0124-2566112
E-mail: seema.dawar@hp.com
Web site: www.hp.com

SPECIFICATIONS

4,800 dpi printing; 600 x 2,400 dpi optical scanning resolution; 20-page ADF; 25 to 400 per cent reduction/enlargement; USB compatible

HP Officejet 5510	B
Performance	▶ ▶ ▶ ▶ ▶
Features	▶ ▶ ▶ ▶ ▶
Build quality	▶ ▶ ▶ ▶ ▶
Value for money	▶ ▶ ▶ ▶ ▶

S-Media Butterfly, PQI Joy Tone U800 and Umax Vega MP3 Players

With the sudden spurt in the number of MP3 players launched by various brands, buyers now have the luxury to choose from a wide range of players, based on hard drive and flash memory. We compared three flash memory based MP3 players that are portable, look good and can carry enough songs to keep you charged for at

S-Media Butterfly

least two hours. All three have a storage capacity of 128 MB.

The best thing about flash-based MP3 players is that they are small and light. PQI Joy Tone, an MP3/WMA player, is the lightest of the three, and hence, the most portable. Blood red in colour, it sports the traditional USB stick look, with the only difference being the LCD panel on the front face.

Second to Joy Tone is Umax Vega, which has a rather unusual square shape. It also has an inbuilt SD/MMC card reader. The small LCD panel on the front face shows information, such as track names, equaliser modes, and duration of the tracks in seconds—all tiny, but readable, with a backdrop of tidy animation.

In contrast, the Butterfly from S-Media is way too bulky. It sports the typical flip design of a cell phone, but opens to almost 340 degrees—a standard cell phone flip opens to about 120 to 150 degrees. Opening the flips completely, reveals the USB connector and the two tiny speakers. Both the earphones and speakers provide output simultaneously, a feature that can result in lower battery life. Ideally, the speakers should switch off automatically when earphones are plugged in.

The Butterfly also has a Line-In to record directly from the PC—a special feature missing in the other two contenders. All three players have the USB 1.1 interface and are detected in Windows XP without drivers. The Umax Vega draws power from an AAA battery, while the Joy Tone and Butterfly have in-built batteries that are charged when connected to the PC. So you'll actually be charging the device while you're transferring data to it.

The Joy Tone and Umax Vega are bundled with headphones that are attached to the neck strap. Encasing the wires in the

neck strap, eliminates the chances of damaging them. The earphones of the Joy Tone also double up as a wired remote, with an FM scan and a reset button.

All three players returned nearly the same results in the audio quality test. The scores were average in the test tracks—a mix of Hindi, English and Bass tracks at 75 per cent volume. However, once the volume level was turned up, the noise and distortion, especially with high frequency sounds, were bad. All three players are bundled with poor quality earphones. You'll have to buy a better set of headphones to enjoy the sound output. The FM reception is clear when outdoors, but inside buildings, or when away from windows, all three players fail to receive properly.

The voice recording feature is decent. The recorder isn't very useful outdoors, since background noise is way too prominent while recording.
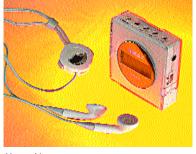
Priced at Rs 49,999, the Joy Tone is reasonable for a flash memory-based player that records, and has an FM radio. The Umax Vega

PQI Joy Tone U800

is priced higher at Rs 7,000, with the additional feature of a card reader. The Butterfly is bulky, but has the advantage of an external speaker, though at the cost of using more power.

we decided that the Joy Tone was the best amongst these, as far as music goes. If you need more storage, the Umax will come in handy, since the card reader can store many more tracks.

Umax Vega

Umax Vega	C+
Performance	▶ ▶ ▶ ▶ ▶
Features	▶ ▶ ▶ ▶ ▶
Build quality	▶ ▶ ▶ ▶ ▶
Value for money	▶ ▶ ▶ ▶ ▶

SPECIFICATIONS
128MB capacity, Card reader, MP3 and WMA playback, FM radio, Voice recorder, USB flash drive, 1 AAA battery

Price: Rs 7,000
Contacts: Neoteric Informatique
Phone: 022-24172600
E-mail: sales@neoteric-co.in
Web site: www.umax.com

PQI Joy Tone U800	B-
Performance	▶ ▶ ▶ ▶ ▶
Features	▶ ▶ ▶ ▶ ▶
Build quality	▶ ▶ ▶ ▶ ▶
Value for money	▶ ▶ ▶ ▶ ▶

SPECIFICATIONS
128MB capacity; MP3/WMA playback; FM radio; Voice recording; USB flash drive; Built-in Li-ion battery;

Price: Rs 4,999
Contacts: Shree Sagarmatha Distrubutors Pvt Ltd
Phone: 011-26428541
E-mail: sagarmatha_dlh@bol.net.in
Web site: www.pqi.com.tw

S-Media Butterfly	B+
Performance	▶ ▶ ▶ ▶ ▶
Features	▶ ▶ ▶ ▶ ▶
Build quality	▶ ▶ ▶ ▶ ▶
Value for money	▶ ▶ ▶ ▶ ▶

SPECIFICATIONS
128MB capacity, MP3 and WMA playback, FM radio, Voice recorder, USB flash drive, Built-in Li-ion battery, USB interface

Price: Rs 7,990 +taxes
Contacts: Xserve India Pvt. Ltd
Phone: 080-51131001
E-mail: info@xserves.com
Web site: www.s-media.com

Graph Features
(out of 50 - Higher the better)

PQI Joy Tone	28.5
S-media Butterfly	28.5
Umax Vega	25

Compex Wireless Internet Gateway Kit

The Compex Wireless Internet Gateway Kit is a wireless access point (802.11g). It allows a broadband or dial-up connection to be distributed in both normal LAN and wireless forms. The Kit comprises the NetPassage 16A broadband Internet gateway box, which has a removable wireless PCMCIA card—the heart and soul of the package. It comes for Rs 9,500, and carries a three-year warranty. This is an excellent solution for any SoHo or home usage scenario, offering superb price-to-performance ratio with versatility. If you're shopping for a switch or hub, you can pay just a little extra and get yourself this wireless gateway kit.

Connecting the gateway takes about two minutes

since everything is pre-configured. All you need to do is set your computers to DHCP, and connect the incoming broadband or switch LAN cable to the WAN port on the gateway. You can also connect an external modem to the RS-232 port and set it up as a backup connection.

Four LAN ports are provided. An uplink button lets you connect more than four PCs at the same time on the LAN, excluding the wireless option.

We tested the Internet gateway in different scenarios, such as WLAN, LAN and WAN. Data throughput was pretty good—4 MBps in the Wireless LAN and WAN scenarios. In the LAN simulation, the data throughput was a respectable 62 MBps.

There's one drawback: the WAN port is limited to 10 MBps. This automatically limits the other LAN ports to 10 MBps.

SPECIFICATIONS

Supported standards: IEEE 802.3 10Base-T, IEEE 802.3u 100Base-TX, IEEE 802.3x Flow Control WAN Protocol: Static/Danamic IP, PPP over Ethernet (PPPoE), Dana RAS WAN Interface: 1 x RJ45 Ethernet port LAN Interface: 4-port 10/100Mbps Fast Ethernet Switch

Price: Rs.9,500
Company: Rashi Peripherals
Phone: 022-28260258
E-mail: ho@rptechindia.com
Web site: www.cpx.com

Compex Wireless Internet Gateway Kit	B+
Performance	▶ ▶ ▶ ▶ ▶
Features	▶ ▶ ▶ ▶ ▶
Build quality	▶ ▶ ▶ ▶ ▶
Value for money	▶ ▶ ▶ ▶ ▶
Overall	▶ ▶ ▶ ▶ ▶

BenQ CB482B Combo Drive

The BenQ CB482B is a 48X/24X/48X CD-RW drive and a 16X DVD-ROM drive. It retails for Rs 4,000, which is quite high for a it's speeds—you can get 52X/24X/52X/16X drives from other manufacturers

for much less. The drive does come with a two-year warranty, but that does not justify its price. It comes bundled with a CD-R, CD-RW and the necessary software but is just an average performer.

In our performance tests, the drive gave good results in the Nero DVD Speed tests in the data transfer rate and access time tests. CPU utilisation was another department where the drive excelled, posting some of the lowest CPU utilisation scores. However, it suffered in the CD-burning tests and posted very average scores.

The drive supports the Mt. Rainier standard, which lets you use a CD-RW disk as a big floppy, provided the OS supports this. The sofware bundle is good, too. However, with absolutely

nothing special enough to justify its price, we suggest you give this drive a miss.

SPECIFICATIONS

16X (read) DVD; 48X (write) CD; 24X (rewrite) CD-RW; 48X (read) CD; E-IDE/ATAPI Interface; 2 MB buffer memory; flash memory firmware (upgradeable); supported writing modes: DAO/DAO-96, SAO, TAO

BenQ CB482B Combo Drive	B-
Performance	▶ ▶ ▶ ▶ ▶
Features	▶ ▶ ▶ ▶ ▶
Build quality	▶ ▶ ▶ ▶ ▶
Value for money	▶ ▶ ▶ ▶ ▶

Price: Rs 4,000
Company: BenQ India Pvt Ltd
Phone: 022-25705230
E-mail: salesenquiryin@benq.com
Web site: www.benq.com

PhotoReplica Version 5

PhotoReplica is a good tool for digital photographers. With a small learning curve, a simple interface and low pricing, it makes printing

photos from a digital camera a breeze.

PhotoReplica is a tool to assist in printing, not editing. It has features such as index printing, creating preset size templates, etc., mainly to change colour overtone, brightness,

contrast, hue, etc.

Although this software is no match to the heavyweights from Adobe and Corel, it is definately more affordable—priced between Rs 750 to Rs 2,750. The price varies because different versions handle different file sizes.

The software provides excellent colour correction, duo tone and a range of effects.

SYSTEM REQUIREMENTS

PIII 700 MHz or above, 128 MB RAM, colour monitor (24 bit at 800 x 600) and Windows 95/98/2000/XP. A printer, scanner, and digital camera helps you click and print

Price: 0.8M: Rs 750, 1.4M: Rs 950, 2.0M: Rs 1,250, 3.0M: Rs 1,650, 4.0M: Rs 2,150, 5.0M: Rs 2,750

PhotoReplica Version 5	B-
Performance	▶ ▶ ▶ ▶ ▶
Features	▶ ▶ ▶ ▶ ▶
Ease of use	▶ ▶ ▶ ▶ ▶
Value for money	▶ ▶ ▶ ▶ ▶

NestPay

This software is a complete payroll managing solution—with even forms such as Form 3, Form 6A and Form 10C. NestPay lets you manage loans to employees, Provident Funds, Professional Tax, Employees State Insurance as well as TDS.

The software is pretty simple to work with, though there is a lot to do the first time. In subsequent months, you just need to enter attendance details. From pay slips to forms for the different government departments, everything is just a click away.

There are several irritating aspects to the software. While filling in entry forms, you have to enter '-' in any empty text boxes. If you happen to put the '-' in the wrong box, the program displays a runtime error and crashes. There aren't any explanations alongside each field either.

The software is rich, with tons of features, but the interface is bad. The performance is in no way exceptional, mainly due to runtime errors that pop up way too often.
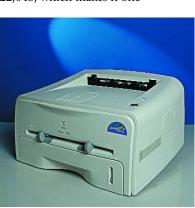
SYSTEM REQUIREMENTS
Windows 95/98/2000/NT/XP, CD drive, 32 MB Ram, and minimum 10 MB HDD space

Price: Rs 30,000
Contacts: RP Software Associates
Phone: 080-36782796
E-mail: rogergo_2000@yahoo.com
Web site: www.nestpay.com

NestPay	**C**
Performance	▶ ▶ ▶ ▶ ▶
Features	▶ ▶ ▶ ▶ ▶
Ease of use	▶ ▶ ▶ ▶ ▶
Value for money	▶ ▶ ▶ ▶ ▶

Xerox Phaser 3130

The Phaser series caters to a wide range of user segments. The Phaser 3130 is a monochrome laser printer, and is targeted at the lower end of the user spectrum. The printer is priced at Rs 22,045, which makes it one of the costliest in its class. Similar models from, say, Samsung are approximately Rs 16,000. The price of the 3130 is not justified, as its performance is good, but not exceptional.

Performance wise, this printer is above average, and printed at 14 ppm—2 pages short of the claimed 16 ppm. However, it's slower when printing images or documents that contain images. Our test image and combination image documents took a about 21 seconds and 29 seconds respectively.

The Phaser 3130 features a removable printer tray that holds 250 sheets. There's 32 MB of buffer memory, so jobs can be spooled faster—which translates into faster printing and low-latency printing queues. Another plus is that it is USB 2.0 compliant, which makes for much higher data transfer speeds.

Drivers are provided for almost all Windows versions and also for Linux.

Price: Rs. 22,045
Contact: Xerox Modicorp Ltd
Phone: 0124-2561930/0124-2561940 ext. 4569
E-mail: kuldeep.malhotra@ind.xerox.com
Web site: www.xerox.com

SPECIFICATIONS
32 MB memory; 16 ppm; 600 x 600 dpi; USB 2.0 compliant; media types supported: A4 and smaller, and special media such as transparencies, labels and envelopes

Xerox Phaser 3130	**C+**
Performance	▶ ▶ ▶ ▶ ▶
Features	▶ ▶ ▶ ▶ ▶
Ease of user	▶ ▶ ▶ ▶ ▶
Value for money	▶ ▶ ▶ ▶ ▶

Dart SpeakersSP-916

The Dart SP-916 will satisfy the casual listener and gamer who doesn't mind below-average sound quality. The bass department needs a thorough overhaul; this speaker set has completely missed the bulls-eye that Dart intended to hit.

The satellites and subwoofer are both made of wood. This set comes with a built-in FM Tuner. We tested the FM tuner function and found that reception was pretty bad.

You'll need just three minutes to get the speakers up and running. But remember that the subwoofer has a tendency to get really hot.

The subwoofer doesn't lend enough depth to the bass. Another issue is the low bass output—even with the bass control knob turned up to the max, the output is pretty low. Vocals and treble tended to go too sharp when the volume was turned up. Gaming tests, too, gave below par scores.
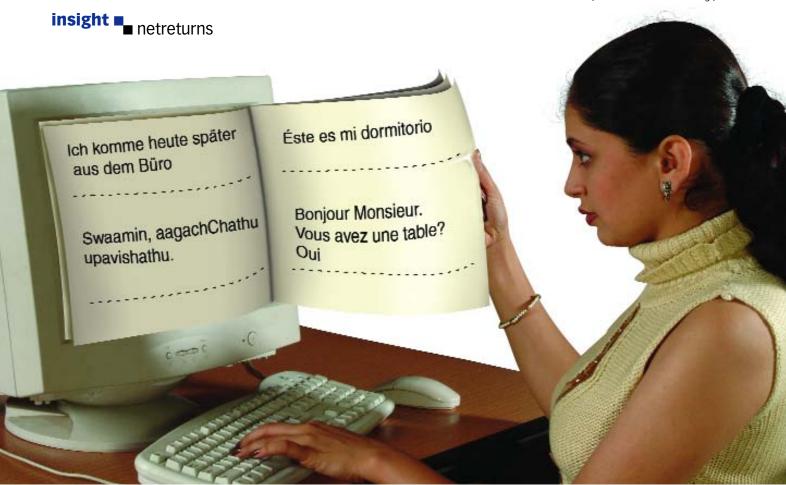
At lower volumes, the overall sound quality is okay for songs and games.

SPECIFICATIONS
2.1 speakers (1 subwoofer and 2 satellites); 54W total RMS rating; frequency response: 30Hz~20KHz; FM tuner

Price: Rs 1,400
Company: Dart Computers
Tel: 07104-232565
E-mail: dartcomp_ngp@sanchar.net.in
Web site: NA

Dart Speakers SP-916	**B-**
Performance	▶ ▶ ▶ ▶ ▶
Features	▶ ▶ ▶ ▶ ▶
Build quality	▶ ▶ ▶ ▶ ▶
Value for money	▶ ▶ ▶ ▶ ▶

Ich komme heute später aus dem Büro

Swaamin, aagachChathu upavishathu.

Éste es mi dormitorio

Bonjour Monsieur. Vous avez une table? Oui

Language Lessons

Move over books and pens, the Internet is here to teach you new languages...

"I wish life was not so short, languages take such time," remarked JRR Tolkien, creator of the Hobbits language for *The Lord of The Rings*. Languages may be your passion, or you may want to learn a language to impress your friends, or to make sure taxi drivers in foreign cities don't rob you blind—the reasons to want to learn a language are not important. What is more pressing is the fact that you may not be able to afford the time or resources to take up a course. So, what do you do?

One site, many options

If you are not sure about what language you want to learn, visit the British Broadcasting Corporation (BBC) Web site at *http://www.bbc.co.uk/languages*. The site offers languages from German to Mandarin and even English variants such as Welsh, Irish and Gaelic. It adopts a practical approach for online teaching—using everyday situations, such as taking a taxi, or asking for

directions. The course consists of six stages: from getting your basics right to finding your way around a foreign city and ordering food, you learn everything.

Each stage is complete with situations, grammar tips and vocabulary listings. And you can also use the message boards to

The BBC courses span a myriad of languages

communicate with fellow learners, native speakers, as well as experts. If your language skills have become rusty, you can take the challenge test that the site offers you. All in all, a complete site that also gives you the itinerary for its television programmes on languages. It also has interesting sections called 'Oddities in a language'. For example, did you know that the term 'white rhino' is a Dutch Afrikaans word?

One at a time

If you prefer a dedicated Web site for the language of your choice, no sweat! You will find niche sites catering to one particular language. Visit *www.deutsch-lernen.com* to learn German. As with classroom learning, beginners are instructed in grammar, with examples. Advanced learners grapple with

Deutsch-lernen.com takes meticulous care of both the beginners as well as the advanced learners

complex sentences and their usage. They also have the international pen pal section that allows you to communicate in German with people across the world.

Similarly, **www.businessspanish.com** teaches you Spanish. It offers 520 lessons

Ourkarnataka.com stands out for the lucid technique it uses in teaching Sanskrit

a year. You receive a daily lesson once you sign up for their services. In addition, you are taught business related terms ranging from advertising to government. With the support of audio clips for pronunciation, you will be comfortable with Spanish in no time flat.

So you want to flatter that special someone by speaking the language of love, French. Check out **www.france-pub.com**. You can get grammar lessons based on real life situations, you can download

A glimpse of the Tamil alphabet, neatly laid out for easy learning

the lessons and listen to them. The chat rooms let you to talk in French, and help sharpen your linguistic skills. You can e-mail your homework in, and get feedback. Who said online lessons are not interactive?

Mera Bharat mahaan

India has 18 official languages, and is a linguist's delight. And yes, there are Web sites that promote Indian languages. Sanskrit, often called the mother of all languages, is on the verge of extinction in the very country it originated in. Visit **w w w . o u r k a r n a t a k a . c o m / learnsanskrit/sanskrit_main.htm** to learn Sanskrit taught to you with English as your base language.

You can also learn the oldest South Indian language—Tamil. Just log on to **http://ccat.sas.upenn.edu/plc/ tamilweb**. Promoted by the University of Pennsylvania, this is a funded programme that caters to students studying in American Universities. It has three levels of learning: Beginning from learning the alphabet and grammar; it goes on to show you Tamil radio plays and stories as an introduction to the Tamil literary culture.

The recently popular music video *Aika Dajiba* by singer Vaishali Samant has generated considerable interest in Marathi. Check out **www.marathimitra.com**

Sites to visit

Ancient Languages

Mel Gibson's movie, *The Passion of The Christ*, about the torture Jesus Christ went through in his last hours of life, has fuelled the desire in many, to learn languages of yore such as Aramaic, Hebrew, Latin, etc. Here are some sites that will do exactly that:

http://www.wannalearn.com/Academic_Subjects/World_Languages/Latin/
The Web site points you to places that will teach you how to use grammar, pronounce and converse in Latin.

http://www.kypros.org/LearnGreek/
Learn the language of the Gods—well Greek mythological gods at least. Read the fascinating tales of the Greek culture while you learn.

http://perso.wanadoo.fr/babel-site
You can learn obscure languages such as Occitan, used in the medieval France more than 700 years ago, or just try your tongue at Hebrew.

http://www.assyrianlanguage.com
Learn Aramaic, and you won't squint to see the subtitles in the movie *The Passion of The Christ*. Aramaic was spoken in ancient Turkey, Persia and Palestine.

Oriental Leanings

The Mandarin language dialect of Chinese is spoken the most in the world. If you're keen on mastering oriental languages, check these sites out:

http://www.csulb.edu/~txie/ccol /content.htm
Learn Mandarin, with more of an emphasis on spoken Mandarin, rather than written.

http://www.japanese-online.com
Here you can learn Japanese, and also culture pointers in terms of what to say when—the Japanese have a lot of traditions.

*http://korean.sogang.ac.k*r
This is an intensive five-week course that will also fetch you a certificate, complete with a seal of the Centre for Korean Studies at Sogang University. Signed by the director and everything!

Attention! Read out aloud

All Web sites instruct using audio-visual methods that makes it easier to grasp pronunciation as well as the script. The Web sites also offer useful links to help you learn about a country, its culture and the language.

The basic tips of learning any language remain the same—read out aloud, converse in the language as often as possible and diligently practice all the exercises listed with every lesson.

Of course, you have the added advantage of learning at a pace that you're comfortable with—either as slowly as possible, or skim over the easy bits and get your hands dirty with the really tough stuff. This all depends on how badly we want to learn a language. Some of us might need the goading of a teacher, prodding us reluctantly along the learning curve—in which case, learning online might be a problem.

Just try and remember what Nelson Mandela, former South African President, once said, "If you talk to a man in a language he understands, that goes to his head. If you talk to him in his language, it goes to his heart!"

Mylanguageexchange.com features the Cormier method of language exchange, used in schools in Canada

to familiarise yourself with grammar, pronunciations and an exhaustive Marathi word list.

Another Web site worth visiting is *www.ukindia.com*. Though it's targeted at expatriates settled abroad, the site is really useful. It uses both English and the regional language to make things more comfortable for you. You can learn Tamil, Urdu, Hindi, Punjabi, Gujarati, Bengali and Sanskrit.

Language exchange

Every action has an equal and opposite reaction! Newton's third law of Languages? It sure seems like that at *http://www.mylanguageexchange.com.*

The concept is simple yet brilliant! The site uses language exchange to teach people languages. For example, a person whose native language is French, can team up with a Hindi speaking user. For half the time they interact per day, they speak in French, the other half is in Hindi. This is called the Cormier method of language exchange, used in schools in Canada. This method is named after Helene Cormier who came up with it way back in 1998. She conducted language workshops at the Club d'échange linguistique de Montréal language school (CELM) in Canada for over 3 years.

The Web site even recommends creating pen pals for beginners and has voice chats for advanced learners.

Conventional tools of learning new languages may have a charm of their own. But it is time to move over stacks of books, pens and the desk. The desktop is here for a whole new way of learning a language—using the Internet. **d**

APARNA KRISHNAKUMAR
aparna_krishnakumar@thinkdigit.com

1/2 pg HD

ADSL is one of the strongest contenders in the race to deliver broadband

Let's begin by asking a question. What's the maximum data transfer speed you can get over your home telephone line?

Being used to 56K modems, you probably thought the maximum speed you could get from your telephone line was 56 kilobits of data per second. Now read this: on that same phone line, you can actually get data rates reaching 8,192 kilobits per second. And we're not talking cable or ISDN here.

A landline telephone is today as commonplace in the average household as the TV or fridge. For most of us, the landline doubles up as our only window to the Wide World of the Web. Well, right now, there are quite a few competing technologies that offer connectivity and bandwidth solutions: Leased Lines, ISDN, Cable, Satellite links, LMDS (Local Multipoint Distribution Systems) and 3G, or Third Generation Wireless, are differing technologies that try to address the increasing demand for bandwidth. This demand has spilled over from large enterprises to small and medium businesses and increasingly, homes.
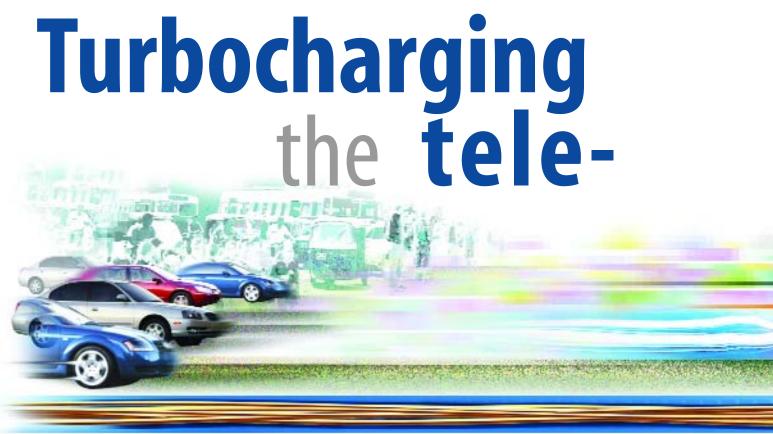
Since its inception in 1989 as an attempt at delivering streamed video over copper phone lines, DSL, or Digital Subscriber Line, has branched into several similar, competing technologies. Combined, this family of technologies is known as xDSL. Asymmetric Digital Subscriber Line, or ADSL, is by far the most important member of this extended brotherhood.
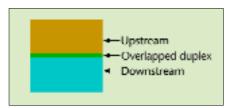
Cable is the most widely deployed broadband solution in the United States, and also in India; However, DSL does have its advantages. You get a dedicated connection instead of a shared one, and surfing speeds therefore don't vary depending on the time of day.

Peeling off the insulation

First things first: DSL is a modem technology that uses existing twisted-pair telephone lines to digitally transport high-bandwidth data, such as multimedia or video, to subscribers. You can use your phone while being simultaneously connected to the Internet: The process entails a technique known as multiplexing *(see box 'Multiplexers and Multiplexing' on page 99)* to pack the two kinds of data and channel them through the existing telephone network. The two modems, one at the central office of the telecom

Turbocharging
the **tele-**

Mahesh Benkar

Echo cancellation: The available bandwidth is divided into upstream and downstream, and these overlap to create a duplex band

Frequency Division Multiplexing: The available bandwidth is divided into upstream and downstream, without any overlap. All bands are multiplexed on the same line

company (typically a Digital Subscriber Line Access Multiplexer, or DSLAM) and the other at the subscriber's home, are DSL modems. DSLAM is a mechanism at a phone company's central location that links many customer DSL connections to a single high-speed ATM line.

When the phone company receives a DSL signal from the subscriber, an ADSL modem combined with a POTS splitter detects voice calls and data signals. Voice calls are sent to the Public Switched Telephone Network subscriber line, or PSTN, and data signals are sent to the DSLAM, where it passes through to the Internet, then back through the DSLAM and ADSL modem before returning to the subscriber's PC.

The two separate lines—one from the external PSTN network and the other from the broadband service provider—are merged using a pair of filters, one of them a high pass filter (HPF), the other one a low pass filter (LPF). The data line is first passed through what is called an ATU, and then through the HPF (a reverse of the splitter that is installed at the user's end). Similarly, the POTS line is passed through the LPF. Then they are merged and fed into the 'last mile'. On the subscriber's end, there is a mirror image of the arrangement before the data is fed into the respective machines—voice to telephone, data to computer.

The line connecting them, the 'last mile' as it is referred to, is part of the DSL circuit.

Interestingly, the 'upstream' data rate, or data coming from the client computer to the server, is quite low. The bandwidth requirement is asymmetric. This is what an ADSL or Asymmetric/Asynchronous Digital Subscriber Line circuit does—it suits an asymmetric flow of data needs.

Last mile blues

Most telecom companies, or telcos, use fibre optic technology to communicate with each other. With the passage of time, most developed countries, even some developing ones, have come to possess incredible amounts of backbone bandwidth. The progress of both wire-line and wireless technologies mean that there are effectively no problems in transmitting high bandwidth data from the servers of an Internet Service Provider to the telco.

The bottleneck is created when the broadband data is transferred from the backbone to the much slower Public Switched Telephone Network (PSTN) or, Plain Old Telephone Service (POTS)—the 'last mile'. The last mile comprises the wiring that starts from the telecom service provider to the consumer's home. This section, or 'subscriber loop plant', not only varies widely in terms of quality, but also contains voice-line-specific artefacts installed by telecom companies. The idea is to help voice transmission.

The POTS network, though extremely large and intricate—India has about 43 million fixed-line telephones—is mostly of rather poor quality, and almost entirely consists of 'untwisted' copper wire. Though some countries have recently replaced this in urban or high-demand regions with fibre-optic cables and T1 lines, most of the world's POTS networks still run on age-old wires.

Any T1 system handles POTS voice channels at about 4 KHz for a channel capacity of about 64 Kbps. Common PSTN wiring does, in fact, support much higher bandwidths. However, since the system was set up for voice communication only, all modification to the wiring was done to optimise voice transmission. These include loading coils (originally installed on long circuit loops to cancel noise during voice calls), over long loops (which attenuate signals),

Jargon Buster

High-pass filter: A filtering circuit that only lets through frequencies higher than a specified frequency, blocking all lower frequencies. Acts like a check-dam in the data stream.

Low-pass filter: Passes frequencies lower than a specified frequency. Acts like a height barrier on roads before low overbridges.

ATU: ADSL Transceiver or Termination Unit, respectively, depending on whether it is installed with the telco, or the household end.

Loading Coils: An inductor placed on the local loop by the phone company. Coils are generally placed between 3,000 feet and 6,000 feet intervals to suppress exactly the signal that DSL modems need to transmit high speed data on—high frequency. The effect of a load coil is similar, from the perspective of the DSL equipment, to adding 20k feet to the line length.

No DSL equipment now works through load coils.

Unterminated pairs: a pair of twisted or untwisted cables not bridged or joined at the end that can cause disturbance and static on phone lines.

Cross-talk: Noise from one telephone line that is audible on another line. Caused when lines are too close, touching, not twisted, or by bad punch-downs or other wiring problems. This can cause noise bleed—through from the DSL line to other voice lines in the same location.

bridged taps (un-terminated pairs), and cross-coupled interference (cross talk between wires in the feeder cables that run to local exchanges). All this effectively restricts the available bandwidth in copper wire cables.

Splitting the bottleneck, splaying the bandwidth

Telephone wires are bundled together in large cables, and 50 pairs to a cable is a typical configuration. Cables coming out of a central office (CO), though, may have hundreds or even thousands of pairs bundled together. An individual line from a CO to a subscriber is spliced together from many cable sections, as they fan out from the CO.

The normal copper wiring for POTS can support bandwidths of up to 1.1 MHz, but since voice signals are only transmitted in the lowest end of the spectrum, only the lowest 4 KHz is reserved for voice. DSL widens the bottleneck by utilising the frequencies above the 4 KHz range. The rest of the bandwidth is split into two bands, one high-speed downstream band, and another medium-speed duplex band.

Interestingly, the 'upstream' data rate, or data coming from the client computer to the server, is very low compared to the downstream. Typically, if the downstream is about 6 Mbps, the upstream would at most be 128 Kbps. This figure varies according to the service subscribed to.

There is but one important difficulty with twisted pair copper wire. It creates interference and cross talk, and the problem worsens with increasing distance and length of wire. It turns out in the end that attempts to send symmetric signals in many pairs within a single cable may severely limit the data rate and length of line attainable. Asymmetric DSL, in context, is ideally suited to serve high-speed data over short distances. The reason for this is that the data rate falls with distance from the CO. The table below gives a rough idea of the data rate ADSL media can transport over given distances.

As can be seen, the data transfer rate falls off with distance, which makes it difficult to deploy ADSL as a long-range broadband solution. For the same reason, it can be a feasible short-range solution for Internet over telephone wires.

Challenge of the racing data

Transmitting data at tearaway rates as ADSL does, poses a host of technical challenges. ADSL modems divide the available bandwidth of a telephone line in one of two ways—frequency-division multiplexing (FDM) or echo cancellation *(see figures on page 99)*. This is known as Discrete Multi-tone Modulation (DMT). DMT is a modulation technique using FDM within the DSL band. Echo cancellation assigns the upstream band to overlap the downstream, and separates the two by means of local echo cancellation, a technique well known

Data rate (Mbps)	Wire gauge (AWG)	Distance (feet)	Wire size (mm)	Distance (kilometers)
1.5 or 2	24	18,000	0.5	5.5
1.5 or 2	26	15,000	0.4	4.6
6.1	24	12,000	0.5	3.7
6.1	26	9,000	0.4	2.7

Data rate drops with distance. This table shows how much, taking into considering wire gauge as well.

in V.32 and V.34 modems, the ones used commonly in dial-up or ISDN lines.

Putting an ADSL circuit in place on existing telephone infrastructure has a load of hardware related problems too. Loading coils, for instance, are essentially low-pass filters that cut off all frequencies above 4 KHz. Unfortunately, all digital modems require frequencies higher than 4 KHz. Loading coils must be removed from the telephone network before any digital service can be availed.

ADSL in India

ADSL attempts in India have been based on the classic copper cable infrastructure with ADSL modems. Dishnet DSL, a Chennai-based company, has been offering Digital Subscriber Lines since the late nineties. A franchisee-based pilot trial in Kolkata by one operator offering voice, data and video-on-demand was said to be a great success. Services offered include ADSL-Lite and ADSL, which have been introduced in a couple of metros under several tariff packages. These packages range from low monthly subscription, speci-fied per-MB download charge, a charge per view of video-on-demand, to high flat rate monthly rental with unlimited downloads and a low per view charge for video-on-demand.

There are reasons for low connectivity for services such as xDSL in India. Low PC penetration, subscription price, lack of proper infrastructure and security and service-related problems are major contributors to the sluggish growth of xDSL services.

Recently, the Confederation of Indian Industry (CII) finalised a document for the broadband market named Vision 2010. The document envisages India as one of the top five countries in the world in terms of broadband penetration. The Telecom Regulatory Authority of India (TRAI) has also released a paper analysing broadband penetration in India. The CII National Broadband Economy Committee has defined broadband as an always-on network capable of providing interactive voice, data and video services on public networks, reports Cable Quest magazine. Technically, true broadband would be capable of providing a minimum asymmetric bandwidth of 1.5 Kbps.

In the US, a recent legal ruling abolishing price ceilings and structures for telecom companies in leasing infrastructure services to DSL operators has thrown the establishment into a tizzy. The ADSL market in India, however, recently got a shot in the arm with MTNL announcing its ADSL services in Mumbai and New Delhi. India now has 45,000 DSL broadband subscribers, growing 50 per cent in the latter half of 2003, with only 0.11 per cent penetration of its phone lines. A survey done by Pielle Consulting, London, under the auspices of the DSL Forum, came up with these results. The DSL forum has a mass-market target of 20 per cent penetration of all telephone lines by 2005 in countries where ADSL connectivity already has a base.

Looks like ADSL will at last be a Formula One solution for the 'last mile'.

SUPROTIP GHOSH
suprotip_ghosh@thinkdigit.com

ADSL data is transmitted in what are known as frames. These frames are put into 68-frame superframes. Frames 0 to 67 contain data plus the Reed-Solomon forward error correction bytes. Frame 0 also contains cyclic redundancy check bits, and frames 1, 34, and 35 contain indicator bits used for administrative purposes
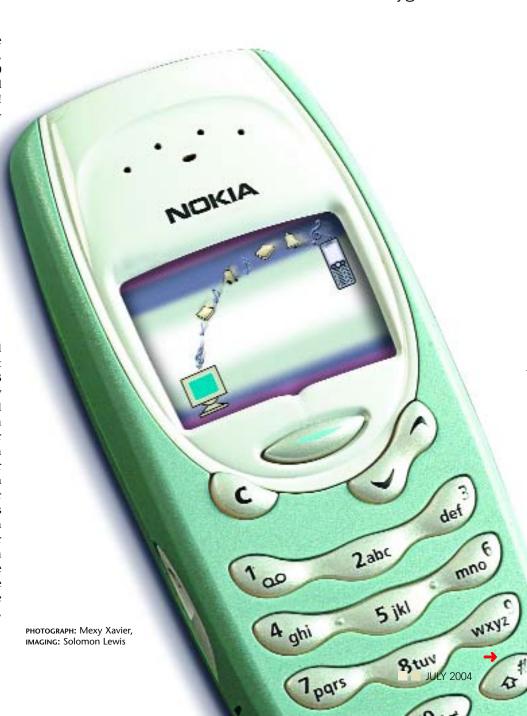
Manage your phone like a **Pro**

Here's how you get the mobile to be in contact with the PC via some Oxygen.

So you got yourself that new phone that can store a thousand contacts, maintain a log of your past 500 missed calls and dialled numbers, and can store 50 custom ringtones? Great! But what happens if the phone malfunctions some day, or you need to use a new SIM card? You may discover that all of a sudden you've lost access to some of your most important contacts! Sounds scary?

Using a software called Oxygen Phone Manager with a compatibe Nokia phone, you can make your PC talk to your phone. The software allows you to read and write data to the phone through an easy-to-use graphical interface.

Connect the phone to your PC

You need a data cable, which will connect your phone to your PC at the serial (COM) port or the USB port. The USB cables are relatively more expensive than their serial counterparts, but they're worth the price because of the better transfer speeds they offer. You can get a compatible cable for your model from an authorised Nokia dealer, a third party reseller, or even from Web sites such as *Baazee.com*. We got ours from Manish Market, a hot spot for electronics and related goods in Mumbai for about Rs 200 (the serial model). Now, connect the data cable to the PC. In the case of the classic 3315, follow these steps:

PHOTOGRAPH: Mexy Xavier,
IMAGING: Solomon Lewis

Turn off the phone.

Slide open the battery cover.

Take the battery out, and insert it into the cable clip.

Attach the clip in place of the battery, so that the pins of the clip touch the point provided on the base.

Push the cable clip with the battery in the slot until it clicks into place. Attach the other end of the cable to the serial or USB port of your PC.

Turn on the phone. If the phone says "insert SIM card", try pressing the clip into place properly, and switch the phone on again.

Backing it all up

Now, start the Oxygen Phone Manager and go to 'Tools' in the menu and click on 'Options'. In the 'Connection & Common' category, click on 'Add', and add *'com1'* or *'com 2'*, depending on where you plugged in your phone. Add the port with DAU-9P/FBUS connection type. Click OK, and the software should detect the phone. If that doesn't happen, try changing the port or the connection type and try again.

Immediately after detection, the software will offer you to back up the phone's information. Click 'Yes', and the software will begin reading all data from your phone.

A dialog box will show up, asking you to select exactly what you want to back up from your phone.

After the backup and the data reading part is complete, the software will show an Explorer-type interface displaying a collapsible view of all data on your phone. It will include the phonebook (both the phone and the SIM card), the call register (dialled numbers, missed calls and received calls), startup and operator logos, ring tones, and the various SMS folders.

Clicking on the 'New Phone' on the top of the phone explorer tree will display useful information about your phone, such as model number, battery type, IMEI number, software version, network provider, phonebook load and more. You can even set your phone alarm from this box, or synchronise the phone date and time with that of your computer.

Go Graffiti

Did you know that getting a logo for your phone will lighten your wallet by about Rs 5 per logo you download? But you can try out cool new logos for your phone for free. Oxygen Phone Manager, used in conjunction with your phone allows you to upload and try out as many logos as you want, free of cost!

Click on the 'Logos' section in the Phone explorer to preview your current logos, with their dimensions, on the phone. To change your startup logo, click on 'Startup' and you will be presented with the logo in a zoomed grid format.

You can now use the various tools available, such as paintbrush, shape tools, text tool, paint bucket, etc., to draw any logo graphic you want.

Additionally, you can use the 'Capture' button to open a small window that can be moved anywhere on the screen to take a screenshot. Once a screenshot is taken, the graphic can be used on the logo. Click the 'Write to phone' icon on the top to write the logo to your phone and instantly see the results.

While you work on your logo, Oxy-

Strip Ad

gen Phone Manager also shows you a pre-view of how it would look on the screen of your phone.

Get vocal

Lend variety to the chords of your phone by uploading new ring-tones. Oxygen Phone Manager allows you to easily add or delete ringtones, to and from your phone. You can choose to use Oxygen's in-built set of ringtones, download some from the Internet, get some from your friends, or simply create your own tune using the keyboard as a piano.

You can use the 'Add' icon to add a new ringtone from your hard disk. The ringtone can be in RTTTL, MIDI, Oxygen Extend-ed Ringtone, RT File or RNG file format. The 'Play' button will allow you to preview the ringtone then and there. Use the 'Read from phone' icon to get the ringtones currently on your phone, or the 'Write to disk' to write changes to the phone.

To top it all off, you can click on the 'Editor' button in the Ringtones Manager to open the ringtone editor. This is where you can create your own custom ringtones and upload them to your phone.

It's all about contacts

You are no longer stuck with the contacts only on your phone. Oxygen Phone Manager allows you to export the phonebook on your phone to your favorite application on the PC, such as Microsoft Outlook. To do this, Click on the 'Phonebook' menu on the top, and click on 'Export'. You will be presented with a number of formats in which you can export your phone's address book.

For this exercise, select 'MS Outlook (Custom folder)…'. If

If your Nokia phone model is listed below, you can use this software to make your phone talk to your PC

1100, 1220, 1260, 1261, 2100, 2270, 2275, 2280, 2285, 2300, 3100, 3105, 3108, 3200, 3205, 3210, 3300, 3310, 3320, 3330, 3350, 3360, 3390, 3395, 3410, 3510, 3510i, 3520, 3530, 3560, 3570, 3585, 3585i, 3586, 3586i, 3587i, 3588i, 3589i, 3590, 3595, 3610, 5100, 5110, 5130, 5140, 5190, 5210, 5510, 6100, 6108, 6110, 6130, 6150, 6190, 6200, 6210, 6220, 6225, 6230, 6250, 6310, 6310i, 6320, 6340, 6340i, 6360, 6370, 6385, 6500, 6510, 6560, 6585, 6590, 6610, 6610i, 6650, 6651, 6800, 6810, 6820, 7110, 7160, 7190, 7200, 7210, 7250, 7250i, 7600, 8210, 8250, 8290, 8310, 8390, 8810, 8850, 8855, 8890, 8910, 8910i.

Export your phone book to your favourite application

you select the 'MS Outlook (Default folder)' then the contacts will be merged with your current contacts in Outlook, but if you wish to keep your phone contacts in a sepa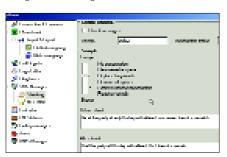rate folder in Outlook, choose 'Custom Folder'. Oxygen Phone Manager will now make you select or create a new folder in Outlook.

Similarly, you can import contacts from Outlook into your phone. After importing you will have to right click on the 'New Phone' item in the Phone Explorer and click 'Write all data' to actually write the changes to your connected phone.

Outlook provides a number of data fields, such as 'home, phone, office phone, fax number, home phone 2 etc.' You can choose which field in Outlook the number from your phone's contacts goes into, by going to *Tools > Options > Phonebook > Import & Export > Outlook mapping*.

Snd tht msg acrss

The software also allows you to manage your SMSes on your phone. You can view, delete and create SMS messages easily. A really neat feature is the provision to 'shrink' messages so that long text messages can be shortened, while the essence of the

Use the software to shorten your SMSes—the software removes vowels, etc.

message isn't lost. To do so, go to *Tools > Options > SMS Man-ager > Shrinking*.

Here, enter your original message on the 'Before shrink' box, and use the slider on top to alter the amount of compression to use. You can even view the results in the

'After shrink' box. From now on, managing SMSes on your phone is this easy. d

SAURABH KUMAR
saurabh_kumar@thinkdigit.com

30Minutes Expert
PC-to-PC

Get two computers to talk the serial or parallel way

Shuttling files from a laptop to a work PC and back again is tedious, isn't it? So, here's a solution—connect them directly. Doing so is easy, cheap and a matter of minutes—30 minutes to be precise!

A Serial Laplink or a Parallel Laplink cable, priced at around Rs 50, is all you need to connect a PC or a laptop directly to another of its own ilk. Here, we use the Serial Laplink. The steps for a Parallel Laplink are similar, and the differences will be highlighted as we proceed further.

Minute 1: Connect the two ends of the cable to the serial port of the PC and/or laptop. You can connect the cable even while the computers are powered on.

Minute 2: In Control Panel, double-click 'Phone and Modem Options', go to the Modems tab and click Add. Tick the

This step in the wizard lets you specify the direction of control

'Don't detect my modem; I will select it from list' option, and click Next.

Minute 3: Since it's a serial cable, we select 'Communications cable between two computers'. Click Next to select the port to which the cable is connected. Finally, click Finish.

Minutes 4-5: Repeat the steps from Minutes 2 to 3 on the other PC or laptop as well.

Minute 6: Double-click Network Connections in Control Panel, and start the 'New

Select the appropriate port—the one where the cable is connected

Connection Wizard'.

Minute 7: Select 'Set up an advanced connection' in the 'Network Connection Type' list and click Next.

Minute 8: In the 'Advanced Connection Options', select 'Connect directly to another computer'.

Minute 9: Specify your PC as Host or Guest and click Next. One PC has to play host and the other has to be the guest. You cannot use a PC as a guest and a host simultaneously.

Minute 10: Here, the type of cable decides your selection. Select COMx if it's a Laplink serial cable or LPTx otherwise. The x stands for a numeric value such as 1, 2... Generally, the mouse is connected to the COM1 port, so the serial cable uses the COM2 port. Click Next.

Minute 11: Now, specify the users who can connect to the host using this connection. You can even create a new user especially for this purpose. Enable the users, click on Next, and finally,

Tip The 'Computer name' is the name you assign your PC while installing Windows. Windows XP users will find it by right-clicking My Computer and going to *Properties > Computer Name.* In Windows 98, right-click Network Neighbourhood and go to the Identification tab.

Double-click on the guest icon to connect to the remote computer

Finish to complete the Wizard.

Minute 12: Start up the Wizard yet again and repeat the steps from Minutes 6 to 8. A Host or Guest screen appears. Here, select Guest this time.

Minute 13: When prompted, specify the name of the remote computer connected at the other end of the cable.

Minute 14: Here, select the data port on which the computer is connected.

Info Here's the concept behind the host and guest: A guest PC can access files from the host PC. However, the reverse is not possible.

Minute 15-23: Repeat steps from Minute 6 to Minute 14 on the other computer as well.

Minute 24: This done, a pair of connections appears in the Network Connections window. One within Direct, the guest connection—and another within Incoming, which represents the host connection.

Minute 25: Double-click the guest connection and specify the username and the password. This username should exist on the remote machine.

Minute 26: Finally, on the guest PC, go to *Start > Run* and type \\computername\ to access the remote computer. ◧

MUSTALI KACHWALA
mustali_kachwala@thinkdigit.com

I m not in, but my PC

Turn your PC into a fax and answering machine for your office

Sure, it seems really professional to have an answering machine for your company. That way you never miss another important call—the machine always gets it. Answering machines cost only Rs 3,000 to Rs 15,000. This is cheap for any decent sized company, but is that the only solution? Vehemently, we say, "No!" How about one that costs nothing? Yes, nothing. Sounds good? How about one that also doubles up as a Fax machine?

Most PCs already have a modem, internal or external. Most modems built after 2000 are Voice/Fax/Data capable. So all you probably need to do is find an existing computer in the office that has one of these modems connected. Even if you don't have one, you can buy an internal PCI Voice/Fax/Data modem for as little as Rs 400, or an external modem for about Rs 1,400. You want more good

news? The necessary software you'll need to set up your computer to be an answering machine or fax comes with the modem—free again.

Software-based answering machines and faxes have other benefits too. For one, a software-based answering machine can have many voice-mail-boxes—one for each extension, or employee. A software-based fax saves on paper, as all outgoing and incoming mail is saved on a PC, and only what's required is printed. Let's take a look at the steps involved in setting up a computer to be an answering machine-cum-fax.

First, a small checklist! Make sure you have the following, apart from a computer:
1. A Voice/Data/Fax modem
2. A telephone connection
3. An answering machine software
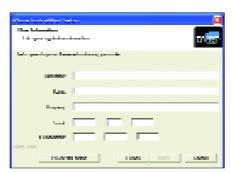
such as PhoneTools eXPert or SuperVoice
4. A sound card and a microphone with headset or speakers

In this workshop, we will use Phone-Tools expert. This software comes with most Voice/Data/Fax modems, or can be downloaded from *http://www.bvrp.com/ENG/products/PhoneToolseXPert.*
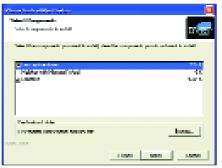
Answering machine

Start by installing the software. Double-click on the file to start the installation process. The installation is fairly simple, though you have to keep clicking the 'Next' button several times. Punching in the license information is an important step that shouldn't be overlooked.

The next important step is to enter the Identifier, Telephone Number and Fax Number. The Identifier helps the recipient of the fax to identify the source. It is a 20-character alphanumeric

Enter licensing information here

Select the modem to be used

Select the Callserve component, which is disabled by default

The default is auto-detection of drivers, but advances users can use the manual method

To start the configuration window, press F6 or the wheel icon on the toolbar

code.

The last important step is selecting 'Callserve' on the 'Select Components' window. Apart from these three steps, continue pressing 'Next' for the remaining steps. Remember to keep 'Phone-Book Selection' as 'Use an existing phonebook in the list above?' After the installation is complete, a new setup

Click cancel to stop installation of this unwanted application that comes bundled

shows up for BVRP Internet, with the first step as 'Choose Setup Language'. Click 'Cancel' to avoid this setup.

The application will automatically start unless you have un-ticked the 'Run Application after installation' option in the final step. When the application starts for the first time, it will start the modem configuration wizard. Click on

the 'Next' button on the opening window. Now, select the appropriate modem and press 'Next' to proceed.
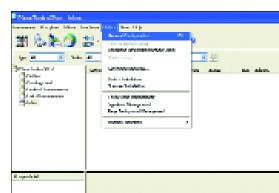
This wizard will install its own drivers depending upon the modem that it detects. Once the device detection system completes, click 'Next' to
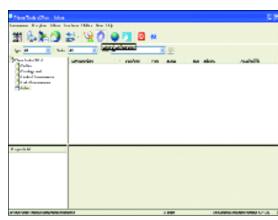

The software auto-detects the modem and installs its own drivers

continue the setup. Finally, click 'Finish' to complete the installation.

When the software starts now, it works in Answering Machine mode. At this point of time, the software receives the phone call after the second ring. The software now plays the default greeting and saves the message in the Inbox. During all this, the maximum recording time for any session would not exceed 60 seconds.

However, you can change these default settings by clicking on the General Configuration icon or by pressing [F6] or by following the menu commands in *Utilities > General Configuration*.

Ring count before auto pick up

If you wish to change the default ring count before pick up, click on the 'Communication' tab. Choose any value from the drop-down box. The number of rings range from two to nine.
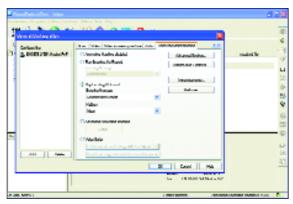

Allowable ring count values are 2 through 9 rings before the phone is attended by the answering machine software

Answering machine ON/OFF

To enable or disable Answering Machine mode, click on the 'Voice answering machine' tab. Select 'Answering machine disabled' to stop the software from answering incoming calls. The 'Play Greeting, No Record' option lets you pass a message to all incoming callers. This is particularly important for customer support numbers, where the message could simply inform the caller of office working hours.
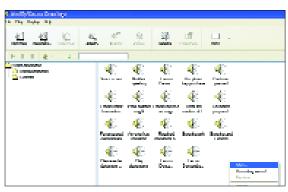

Select any one of the three available functioning modes

The 'Play Greeting & Record' option lets you play a message as well as record the caller's message. This option is more useful for on-the-field people who can now have the liberty of listening to all the callers at some later point of time in the day. They can simply listen to all the messages of the day after returning to the office, either on the PC or on the field by using remote commands.

Record your own greeting

In the 'Voice answering machine' tab, click on the 'Announcements…' button. On the right-hand pane, right-click and select 'New' from the pop-up menu

Either right-click and select New, or press the NewMsg button on the toolbar

window that shows up. Give a name to the new voice message and press [Enter]. A new window will appear with two buttons—'Record' and 'Stop'. Use them to record your own message.

Make your custom greeting the default

If you change the view to 'Details' in the 'Modify/Create Greetings', then you'll be able to see the default greetings for the modes 'Greeting only' and 'Greeting and record'. To change the default greeting, right-click on the greeting of your choice, select 'Assign' and select the mode you want. After this, select the modem.

Retrieve messages remotely

To set up remote retrieving, go to 'Voice answering machine' tab in 'General configuration' and click on 'Remote Msg. Retrieval…' Specify the access code, which then acts as a password for you while retrieving messages. Click 'OK' to set it up. You even have the option of changing the default phone keys for the designated commands. On the command panel, key 1 is meant for message replay, 2 for moving to the next message, 3 for deleting the message and 4 for listening to the message.

Multiple Voice mailboxes

Creating an individual mailbox for each employee of the organisation is facilitated by the 'Advance answering machine' mode of the software. Enable this option in the 'Voice answering machine' tab of the 'General Configuration'.

There are two distinct ways in which you can set up the multi-voice answering machine with this software.

Scenario 1:

You can set up the software as a single Inbox but with multiple voice greetings. This means that no matter which voice mailbox a caller chooses, all messages will be stored in a single Inbox. Interestingly, a caller will

never know the difference. There is no privacy, though, for individuals here, as all employees have access to the Inbox.

To set it up, you need to tick each checkbox and select 'Mailbox greeting msg' for the voice mailboxes you enable. You can also retrieve messages remotely by specifying 'Access code Msg.'.

Scenario 2:

Create multiple Inboxes first. To do so, press the 'Mailbox Management' button—the first button from the left—on the toolbar. It appears on the 'Advanced Answering Machine Settings' window.

Now, in the 'Inbox Mailboxes' window, click on 'Inbox' on the 'New mailbox' button—the first button from the left—on the toolbar. Specify the name of the mailbox and press 'Enter'. Create the number of mailboxes needed and close the window.

Return to the 'Advanced Answering Machine Settings' window, and select the Inbox for the mailboxes that are enabled. That's it—the setup is complete.

All the inbox appears in the drop-down list, just relate them to the telephone keys as required

Faxing

With the answering machine set up and running, the next move is to set up a Fax machine. The biggest advantage is that with just a single telephone line and a modem, the computer acts as a fax machine as well as an answering machine. So how do you set up a fax machine using this software?

Changing the identifier

In case you missed out on the identifier settings during installation, or if you need to modify the identifier, you can do so by clicking the 'Fax' tab. Here, change the value of the identifier according to your needs.

Auto-Printing faxes

A classical fax machine gives you a hard copy of the fax, but software, by default, doesn't print each and every fax that comes in or goes out. It is entirely up to you to enable 'Print incoming faxes' in the 'Fax' tab to get the necessary output. Similarly, you can maintain copies of all faxes sent by simply enabling 'Print outgoing faxes'.

Try, try, till you succeed

No longer do you have to stand by the Fax machine and make sure a Fax is sent. Software-based Faxing solves this problem by automatically trying and re-trying to send Faxes. By default, the software tries to send a Fax three times with a three-minute break in between each failed attempt. You can change this default behaviour from one to five times, or just disable retrying, or even alter the time between each attempt from two to 10 minutes.

These values are not fully customis-able. You can choose an option from a list available in a drop-down box. To do so, click on the 'Communication' tab and modify the 'Wait' and 'Number' settings within the 'Transmission Attempts' group.

Send a fax directly from the field

Let's take an example. A sales executive sitting in a client's office can request a Fax from his office, without any frantic calling or help from anyone else. You can set up a list of one thousand documents indexed for sales executives on the move. An index file is automatically maintained by the software, which is constantly at the beck and call of the executive. This service is only available in 'Advanced Answering Machine' mode.

To set up such a service, you need to perform two tasks. First, enable the service, and second, maintain a list of documents that can be auto-faxed. Click 'Setup' and then enable 'voice answering machine' under 'Advanced Answering machine'. After this, enable the 'Fax-On-Demand' option.

After the service is on, prepare the list of documents by clicking the 'Fax-on-Demand' button on the toolbar—the third from the left. Here, add as many documents as you want. For each document, you need to enter a description and filename.

Once the service is on and the list is ready, the entire setup is complete. From the field dial the office number. Press [*] to enable Fax-on-Demand, and enter the document number to be faxed. Punch in the Fax number. That's it—all the documents are just a few clicks away.

Under EPABX, no problem

Generally, telephone connections under EPABX need to dial out a code. This can be a hassle for many. To solve this problem, click on the 'Location' tab and enter your outgoing code to the 'Outgoing Prefix' box. Tick the checkbox next to it and select the 'Dialing mode' from either 'Tone' or 'Pulse'.

PhoneTools eXPert also provides SMS, e-mail and Video Answering Machine capabilities that can be very useful in an office environment. Now go set up that PC and modem, and give your company efficient Fax and answering machine services.

MUSTALI KACHWALA
mustali_kachwala@thinkdigit.com

1/2 Pg H AD

A Serving
Of Squid

It's popular, powerful and takes care of all your Internet connection sharing grief. Presenting Squid—the proxy and caching server

Stable! That's how most people describe Linux. Yes, it's true, we believe that too! Right here in our office, though most people use other operating systems, Linux is the choice for anything that requires huge up-times and stability. It's just the preferred solution for a server, and with good reason. What's the most common server in use in a majority of offices? A proxy server, of course! We all need our little doses of the Internet, and it's apparently more addictive than chocolate!

At *Digit*, hundreds of employees bustle about, complaining about how the 'slow' 2 Mbps line is just not enough. What keeps them connected to the Internet? Squid! It's this amazing little (1.29 MB) Linux-based program that takes care of the needs of the Net-hungry hordes.

Why do I need a proxy server?

You require one if you need to connect more than two computers (under the same roof) as securely as possible to the Internet. So how's this different from connecting a router to the Internet? Well, quite simply, Squid is more secure, saves bandwidth if you use its caching capabilities, is very light on resources and easy to set up.
Also, if

IMAGING: Parag Joshi

you're looking for a little advanced tweaking, you can set it up to bandwidth-throttle clients, either individually or by groups.

Saves bandwidth? How?

Once configured, Squid saves caches of images and even entire pages. Hence, if you and your colleagues have Yahoo! e-mail accounts, a normal router just sends your requests to the Internet; Squid, on the other hand, checks if it has visited the same page recently. If your colleague just visited a site and you go to the same URL soon after, instead of loading the page afresh, Squid loads it straight from its cache. This saves bandwidth, and also translates to a better user experience, as pages load faster.
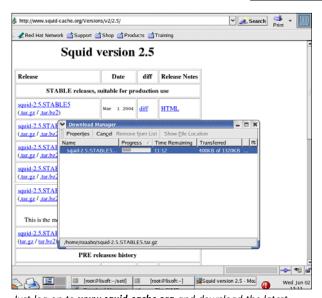
How do I know if I need it?

If you live in India, and have a 'broadband' connection that you want shared over multiple computers, trust us, you need it!
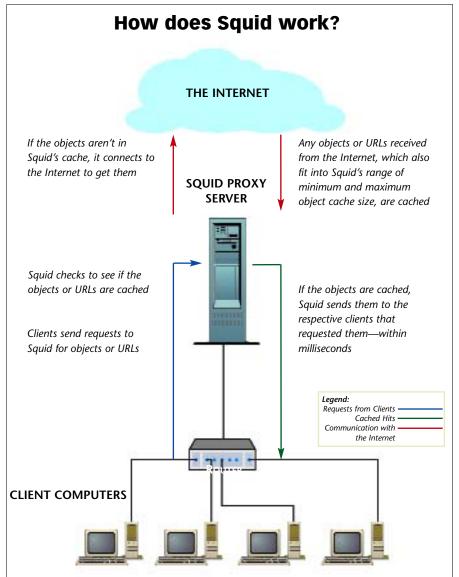
OK, seriously, if you're looking for a low cost, secure solution to share an Internet connection over an existing LAN, Squid is the sanest solution. It's free and can be run off a battered old Linux box with a decent hard drive, and as much RAM as you can install—the minimum being 128 MB.

So, what do I need?

Just log onto **www.squid-cache.org** and download the latest stable release, by clicking on the link under 'Versions'. Choose the '.tar.gz' file to download. You

How does Squid work?

THE INTERNET

If the objects aren't in Squid's cache, it connects to the Internet to get them

Any objects or URLs received from the Internet, which also fit into Squid's range of minimum and maximum object cache size, are cached

SQUID PROXY SERVER

Squid checks to see if the objects or URLs are cached

If the objects are cached, Squid sends them to the respective clients that requested them—within milliseconds

Clients send requests to Squid for objects or URLs

Legend:
Requests from Clients ————
Cached Hits ————
Communication with the Internet ————

Router

CLIENT COMPUTERS

*Just log on to **www.squid-cache.org** and download the latest stable version of Squid*

can load and run Squid on Linux, FreeBSD, NetBSD, OpenBSD, etc, and also on Mac OS/X, OS/2, SunOS/Solaris and Windows via Cygwin.

Hardware requirements depend on the level of caching you expect the proxy to do, and the amount of traffic it receives. So, to set up a proxy for, say, two to five computers at home using a dial-up Internet connection, all you need is a low-end machine with about 128 MB of RAM and 1 or 2 GB of space for caching. You also need a modem or Ethernet card

to connect to the Internet and another Ethernet card to connect to your local LAN.

An office proxy that is to handle over 50 computers does need a good hardware configuration. A bare minimum will be a 1 GHz processor, 512 MB of RAM, and 10 to 20 GB of free hard disk space. Remember, Squid's performance isn't really CPU-intensive, but does use a lot of RAM and hard disk space, so if you can get 2 GB of RAM and 15,000-rpm hard drives, there's nothing like it—the hard drive is always a bottleneck.

OK, now what?

Now you need to install Squid. Use the *'tar'* command to unzip the downloaded file. For example, if the file you downloaded is called 'squid-2.5.STABLE5.tar.gz', use ***'tar xvzf***

squid-2.5.STABLE5.tar.gz'. This uncompresses the file and creates a directory (squid-2.5.STABLE5) in the current working directory.

Uncompressed. What's next?

Enter the 'squid-2.5.STABLE5' directory using the **cd squid-2.5.STABLE5** command. Here, you need to *'./configure'* your installation. You can type *'./configure --help'* to see the available options. If you're a little unsure about what you're doing, we recommend you use the default setting and just type *'./configure'* and press *[Enter]*. This sets up the default installation. As another option, you can use the *'./configure --prefix=<path>'* command, where *'<path>'* is the path to install Squid to.

This done, run *'make'* to compile Squid. Next, run the *'make install'* command. If you didn't set any parameters when running *'./configure'*, Squid is installed into the default directory—*/usr/local/squid*. If you specified the *'--prefix=<path>'* switch, you'll find Squid installed to the path you specified. You now need to edit the squid.conf file according to your preferences, before you can think of starting the service.

Huh? Conf, what?

Yes, conf file! Short for configuration file, it tells Squid how to run and what you want it to do. Open it using any text editor, and don't be intimidated by its length—you don't have to edit each and every line!

Within the conf file, you'll find each setting explained in detail, with the different options and examples, so you aren't going to run into too many problems.

Below, we also specify a few important lines that need editing as per your network and requirements. We suggest that those not well versed with Linux change only the following lines, as doing so will load perfectly acceptable default values for Squid.

Under the 'Network Options' header, the first line specifies the port on which Squid listens to incoming connections. The default value is 3128. In case this port is already in use or is inconvenient, uncomment the line, i.e, remove the '#' in front of the line that reads '# http_port 3128', and change '3128' to any unused and acceptable port. This can be anything above port 1024, as most ports below that are used by root processes, and could cause conflicts; the default is always recommended though.

Next, we move on to the 'Objects which affect the cache size' header. Here, you can specify the minimum and maximum size of objects that the proxy caches. This determines the Internet surfing experience that you or the proxy users will have. An extremely high setting here eats up hard disk space and the other extreme wastes bandwidth. Depending on your Internet connection speed, you need to decide whether to change this or leave the default values. For most connections, the defaults are fine.

The first setting, 'cache_mem' sets apart 8 MB of RAM on the Squid system for quick caches. This is fine for, say, 2 to 10 users. However, this may not be enough for a proxy server in a large company. In this case, if you have a decent amount of RAM on the server, set this higher to, say, 64 MB. However, don't reduce it, as performance will decrease. Note that this is just the amount of mem-

When editing the squid.conf file, be very careful about the acl lines you add. Make sure that all acl lines and 'http_access allow' lines appear before the 'http_access deny all line', otherwise you're going to have a proxy that won't allow anyone to connect

ory Squid uses as cache, and not the total amount of memory used. If you have 256 MB of RAM on the server, setting *cache_mem* to, say, 128 MB could cause unpleasant crashes. We suggest you set this to 64 MB for a server with 256 MB of RAM and a maximum of 128 MB for servers with 512 MB of RAM or greater.

Squid gives top priority to all currently downloading objects (also called in-transit objects). Therefore, if you have a large amount of traffic coming in through Squid, and a low *cache_mem* setting, everything will be cached to the hard drive, which is slower, and also means non-stop writing to the disk; reducing the hard drive's life.

Only uncomment the *cache_mem 8 MB* line if you want to increase this value.

Keep an eye out for the *Tag: acl* header, which lets you set IP addresses of systems using Squid as the proxy. If you have a small number of users, you can set an acl line for each one. However, if you

Setting up the Clients

Do the following to set your client browsers to use the proxy server:
Mozilla
Go to *Edit > Preferences,* and expand the 'Advanced' option on the left. Click on 'Proxies' and click on the Manual proxy configuration button. Enter the IP address of your server under 'HTTP Proxy' and the port you set Squid to listen to incoming requests on. Click OK and try opening a Web site.
Internet Explorer
Navigate to *Tools > Internet Options,* and click on the Connections tab. Click the 'LAN Settings' button and check the Proxy

Server checkbox. Add the local IP address of the machine that runs Squid, and its listening port. Click OK twice to exit the configuration menu and you're done.
Opera
Go to *Tools > Preferences*, click on the Network option in the left pane, and then on the 'Proxy Servers' button. Put a tick in the HTTP checkbox, add the local IP of the Squid system and the port that you set. If Squid runs as a proxy for the FTP and HTTPS protocols as well, tick the respective checkboxes and add the same details. Click OK, then Apply, and then OK again.

have around 100 computers using Squid as the proxy server, you need to enter a range of IPs. Let's look at two scenarios:

First, two computers (X and Y) using Squid, with IPs *192.168.0.2* and *192.168.0.3* respectively. By adding the lines *'acl X src 192.168.0.2'* and *'acl Y src 192.168.0.3'*, you permit only these two computers to access the Internet through Squid.

In the second example, we allow all IPs between *192.168.0.2* and *192.168.0.254* to access Squid. To do this, you need to add the following line: *'acl 'entire_office' src 192.168.0.2-192.168.0.254/255.255.255.0'*. This tells Squid to allow the user group *'entire_office'* to access the Internet—you can replace *'entire_office'* with anything you want.

The next section is 'http_access'. Here, be careful to allow access to any group you've added an acl line for. So for the examples mentioned above, make sure you add 'allow' lines above the *'http_access deny all'* line. You'll see a line that says *INSERT YOUR OWN RULE(s) HERE TO ALLOW ACCESS FROM YOUR CLIENTS*. Add the lines here.

For the first example, add: *'http_access allow X'* and *'http_access allow Y'*.

For the second example, where we allowed access to the 'entire_office' group, add the line: *'http_access allow entire_office'*. Now, uncomment the *'http_access deny all'* line, making sure that it's below the allow lines you just added, and your permissions are all set.

The final step is to find the *visible_hostname* line, uncomment it and add a hostname. Usually, this is the machine name.

Am I finally done?

Yes! All you need to do now is go to the */usr/local/squid/sbin* folder, using *cd /usr/local/squid/sbin* and type *./squid* to start Squid. Use another computer's browser to connect to Squid and test it *(See box 'Setting up the Clients' for details)*. Use the *./squid -k parse* command to check for errors in your squid.conf file. Try the *./squid -h* command for help.

That's all there is to Squid?

Unfortunately, no! We've shown you how to set up a very simple HTTP proxy—it's secure, but in no way makes use of anything even remotely close to Squid's capabilities. There are hundreds of different possible configurations, and each has its own benefits. We suggest you spend some time reading up on Squid. *Squid*, *The Definitive Guide*, by Duane Wessels, published by O'Reilly books *(www.oreilly.com)*, extensively covers this subject. If we were to list out every feature that Squid offers, this issue would have been tagged the 'Digit-Squid special'!

You can also set up Squid to act as a proxy server for HTTPS and FTP access, and not just HTTP. Of course, you need to use the respective switches with the *./configure* command right at the beginning. Apart from being a proxy server, Squid can also throttle bandwidth, making sure no client gets an unfair share. You can also configure Squid to allow certain users access between certain times, or only on certain days of the week, etc—the possibilities are endless.

Finally, we suggest you download its configuration manual from *http://squid.visolve.com/squid/squid24s1/sq24.tar.gz* to get a better idea of what this ingenious little software is capable of. Here's hoping we'll see you Squidding down the Internet soon!

ROBERT SOVEREIGN-SMITH
robert_smith@thinkdigit.com

1/2 page H AD

Lost all MS Office data. Windows doesn't load. Deleted the only XP user account… Hang on, don't press the panic button. Here's your way out
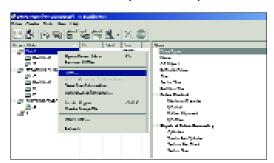
Files will be back

Q. I have a Celeron 1.7 GHz with a 40 GB hard disk. After I ran disk defragmenter, I lost all my MS Office documents (Word, Excel, PowerPoint, etc). I even lost data on my D and E drives. How do I retrieve all my lost data?

Pankaj Singhai

A. Use R-Studio *(www.r-tt.com)*—it's one of the best data recovery software available. Ideally, load R-Studio onto another PC, connect your hard drive to it (preferrably as a slave) and then restore data.

Note that once you detect the data loss, do not install, copy or move software or data on the drives in question, and keep disk activity at a minimum, so that lost files don't get overwritten.

Also, be very careful when recovering data; don't recover any data onto your

Right-click on the additional drive and click scan to start the process

hard drive itself—instead, recover the data to the other PC you're connecting your hard drive to. Once that is done, copy all the recovered data back.

Error loading Gdi.exe

Q. I recently installed Windows 98 Second Edition. My computer is an Intel Pentium III, 256 MB SD RAM, and a 20 GB Seagate hard drive. Whenever I switch on my machine, it automatically boots into Safe Mode. Then I get a message that says, "Error Loading Gdi.exe. You Must Reinstall Windows" and the computer shuts off automatically. How do I fix this?

Abhijit Mukherjee

A. The error appears as a result of either improperly moving the Fonts folder of Windows or by corruption of some font files. The simplest option is to re-install Windows again.

If you don't want to re-install Windows, be prepared to execute some commands at the DOS prompt. First boot the computer via the Windows 98 CD-ROM, and select 'Windows 98 Startup disk with CD-ROM support'. Now execute the following commands one after another:
md c:\windows\fonts
attrib +s c:\windows \fonts
extract/a d: \win98\ win98_22.cab

*.fon /l c:\ windows \ fonts extract /a d:\win98\win98_22.cab *.ttf /l c:\windows\fonts
Now, reboot the computer. If your Fonts folder exists, then the problem is caused by corrupt fonts, namely Vgasys.fon, Vgaoem.fon and Vga850.fon. All you need to do is extract these files from the Windows CD-ROM, using the following commands:
extract /a d:\win98\win98_22.cab vgasys.fon /l c:\windows\fonts
extract /a d:\win98\win98_22.cab vgaoem.fon /l c:\windows\fonts
extract /a d:\win98\win98_22.cab vga850.fon /l c:\windows\fonts

USB ports to transfer files over telephone lines

Q. I have an old computer: a Pentium 233 MMX, 32 MB of RAM and Windows 98SE, but without a USB port. The Device Manager shows two devices of the device type USB Controllers—SIS 7001 PCI to USB Open Host Controller and USB Root Hub. First, what are these? Second, using these can I install a USB port? If yes, how? And finally, is it possible to create a network between two computers using their modems and a telephone cable?

Arun Das

A. The two devices you mention are USB controllers. This means your moth-

erboard supports USB. You're probably just missing the cable that connects from the motherboard to the back of the PC, to give you USB headers where you connect USB devices.

Buy one, and attach it to your motherboard. Of course if you don't know how to, we suggest you get an engineer to do so. Also remember that once you do this, you'll still need to install USB drivers for any device you attach in Windows 98.

Yes, you can connect with the help of Hyper Terminal. It comes bundled with Windows. Keep Hyper Terminal in waiting mode on one computer by going to *Call > Wait for a Call*, and the other computer makes the call. After the connection is complete you can transfer files as required.

Alternatively, you should set up connectivity using serial or parallel cables and get a much higher rate than otherwise. Refer to this month's QuickStart (30 Minutes Expert) on Page 105 to set up such a connection.

Fails minimum system requirements

Q. I have a Pentium 4 1.4 GHz machine, running both Windows 98 and Windows XP professional. The display card is SiS630 on a Vintron motherboard. When I play Back Alley Brawl, I get an error that says I don't have the latest version of OpenGL. Where do I get this?

Jayharsh Krishnakumar

A. SiS630 is a PCI-based display card, which lacks hardware support for OpenGL. The minimum requirements are an AGP card for the game to run in OpenGL. One of the cheapest solutions is the GeForce MX 440, which costs about Rs 1,700.

Combine the powers of two dial-up connections

Q. I have a computer with two modems, each with a separate telephone connection. I want to combine the speed of both connections to surf the Internet. Whenever I try to dial the second line, the first gets disconnected. How do I solve this?

Saurabh

A. You need to use gateway software

such as Sygate Manager. Install Sygate Manager, and set it up to manage both connections. Enable the 'Auto dial additional line' option. It will now connect both connections when you tell it to. If you download two files simultaneously, Sygate forwards the request of one file on one connection and the other on the other connection. If you add a third download, it is sent to the connection with more available resources. So, individual files aren't really downloaded faster, but multiple files will be.

Random IP addresses

Q. Whenever I connect to the Internet, Internet Explorer opens some random IP address. Even after deleting the addresses from the registry under 'HKEY_LOCAL_MACHINE/SOFTWARE/MICROSOFT/INTERNET_EXPLORER/MAIN' and 'HKEY_CURRENT_USER', the problem remains. Furthermore, an unknown toolbar tries to install itself. What do I do?

Deep Kamal Gohain

A. You seem to have a problem with spyware or adware. The best way to get

Invalid page fault in Paint

Q. When I start MS Paint, my computer shows an error message: "MS PAINT caused an invalid page fault in module MFC42.DLL…". What do I do?

Bharat Shah

A. This error message is caused by corrupted registry entries for MS Paint. To resolve this problem, you have to first uninstall Paint, then delete the registry keys and finally reinstall Paint.

To do this, go to S*tart > Settings > Control Panel*, and then double-click on 'Add/Remove Programs'. Click on the Windows Setup tab, click on Accessories, and then click on Details. Uncheck the Paint checkbox, and click OK twice.

Now, go to *Start > Run*, type *'regedit'* and press *[Enter]*. Navigate to *HKEY_CURRENT_USER\Software\Microsoft\Windows\Current Version\Applets\Paint*, and delete all the keys there.

To reinstall Paint, go back to the Windows Setup tab, and check the Paint option we asked you to uncheck in the first step, and click OK twice.

Warning: Be very careful when editing the registry, and remember to back up your registry before making changes to it.

Illustrations: Mahesh Benkar

rid of these programs is to install an anti-spyware tool such as Spybot to clean your system. Get it from **www.download.com.**

Trial vs Full

Q. I purchased a CD with Norton Antivirus on it from a local contact. When I installed it, it worked fine for a few days, and then began displaying the message 'Trial version,' and expired. I had to buy another pack which is working fine. I want to know how to distinguish between the two so that one is not taken for a ride.

Rakesh K

A If the version of Norton you bought is 2004, you shouldn't forget to activate the product using its activation process; if you don't, it will expire. If the problem occurs even after activation, you should contact Symantec. By default, you get a year's free subscription with the pack. But if you bought a pirated pack there's nothing much you can do about it.

Errors in opening Web page

Q. When I run a Java applet in IE6 it says "alt="Your browser understands the <APPLET> tag but is not running the applet for some reason." Your browser is completely ignoring the <APPLET> tag!" How can I can run my Java file, applet.htm, through IE6?

Jayantadeep

A As a first step, download the Java Runtime from **www.sun.com** and install it. This should solve the problem. Also, you should install the latest service pack for IE (**www.microsoft.com/downloads**). Alternatively, it could be a problem with the Java applet code in the .htm file, which you will have to debug for it to run properly.

Internet sharing

Q. I have five PCs connected in a LAN with one running Red Hat 9 and the others running Windows XP. I have two LAN cards on the Linux machine. I'd like to connect to the Internet through DIAS (cable connection). The phone line is attached to eth0 on the Linux machine, and the second LAN card is used for the local network. The address for DIAS line is: IP: 10.70.0.1; Subnet Mask: 255.255.255.0; Gateway: 61.3.129.194; Primary DNS: 61.0.128.65; Secondary DNS: 61.0.0.5. How can I configure my Internet connection and how can I share the connection with the other

Deleted the only user account

Q. I run Windows XP, and recently deleted the only user account. I have disabled the Guest account, so I can't log on to Windows XP. I didn't provide any password for 'Administrator', but I am unable to logon using administrator credentials. It says 'Could not log on. Make sure the domain name and password are in correct case'. Is there any way to retrieve the password or account that I had deleted?
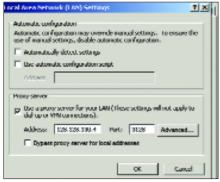
Prakruti V. Vora

A Boot your computer in Safe Mode, then log on using administrator credentials. After that, enable a guest account and/or create a new account.

machines?

Sukanta Hui

A First, you can't attach a phone line to eth0; only an RJ45 connector can connect to the LAN card. Next, the cable connection would have an RJ45 connector, and not an RJ11, which is what you have connected to the eth0, and that is right. Now, to share the Internet connection, install Squid, and configure the proxy port. By default, the port is 3128.

Go to the Control Panel, then to Internet Options, then to Connections, and finally, to 'LAN settings'

You can change this if you want to. As one LAN card is connected to the cable from your Internet service provider, specify the IP, subnet mask, gateway, and DNS of the LAN card as specified by the operator 10.70.0.1. For the other LAN card, specify the IP address of your local LAN. Typical local LAN IP address range from 192.168.0.1 to 254; use an IP from amongst these for each of the five PCs you have. Finally, in the Internet options on the Windows machines, set the proxy

settings as the local IP address of the Linux machine and the port as 3128, unless it's been changed. Refer to the Squid workshop in the Linux Works section of this issue for the exact steps.

Virtual memory is full

Q. I have Windows 98 on my C: drive. The C: drive is 4 GB, and it has 1.5 GB of free space. But whenever I start using any programs, the swap file consumes all the free space, i.e., 1.5 GB. At the same time, Windows says the C: drive is full. I cannot use any programs because it shows a message saying something like "Virtual Memory is full. Try after closing any opened programs."

Unnikrishnan Bhaskaran

A Keep in mind that the swap file size changes dynamically because Windows is auto-managing the file. The first thing you can do is set an upper limit to the size of the file by going to *My Computer > Properties > Performance > Virtual Memory*. Here, select 'Let me specify my own virtual memory settings,' and set the maximum file size.

Windows starts using virtual memory when there's a shortage of physical RAM. If you use too many applications or memory-heavy applications, virtual memory comes into play. The more the RAM you have, the less dependent Windows would be virtual memory.

One point of caution here is that one of the applications you're running might be causing a memory leak. If this is the case, then you won't be able to get rid of the problem even by increasing RAM and virtual memory. You'll have to first find the application causing the problem, and

FAQs

More the RAM, better the performance

Q. I am in the process of finalising the configuration of my new PC, and want to know whether 512 MB of RAM is sufficient to run Maya, or should I opt for 1 GB of RAM?

Kumaresh

A Minimum memory requirements depend on the applications you use. For office applications 256 MB is enough; for 2D image editing tools 512 MB should be sufficient, while for AV and 3D, a minimum of 1 GB is necessary. Basically, as much RAM as you can afford and cram into your system is recommended. Maya will definitely run with 512 MB of RAM, but will be sluggish.

Free e-mail via POP3

I wanted to know if there are any free POP3 e-mail Web sites. I am sick of using Hotmail and the like, as they are too slow.

Nikhil

A Most free e-mail service providers do not provide POP3 mail access. Some providers such as *Spymac.com*, *Myrealbox.com*, etc, offer POP3 access. Of course, they charge a premium for this, for example, *Rediffmail.com.* You can also try Yahoo! Pops *(http://yahoopops.source-forge.net)*, which lets you download e-mail via POP3 from the popular and free e-mail provider, Yahoo!. Download the free tool and install it on your machine. Now configure your POP3/SMTP server address in your e-mail client to 127.0.0.1. Also you need to change the timeout in the advanced settings to three minutes or more, otherwise the e-mail client will keeping getting disconnected and no mails will download.

One OS in dual boot failed

Q. I have both Windows 98 and Windows XP installed on my system. For some time now I've been having problems with Windows Explorer whenever I start Windows 98, I get an error that says, "Explorer has performed an illegal operation and will be shut down". If I format and re-install Windows 98 SE, will my Windows XP install be affected?

Soummya Seal

A It all depends on how the OSes are installed. If both Windows 98 and Windows XP exist on the same partition, you'll have to delete the Windows 98 'Windows' folder. Next, you'll have to modify the boot.ini file, and remove the line corresponding to Windows 98.

Your safest bet is to reinstall Windows 98 with the Upgrade option. After this you need to boot via the XP bootable CD, select the Recovery Console option, login via administrator privileges and execute the fixboot.exe and fixmbr.exe commands. However, If both OSes reside on different partitions, all you need to do is format the partition that contains Windows 98, reinstall it to the same partition and modify the boot.ini file as mentioned earlier.

then either get a patch if available or get a newer version of the software.

Protection error

Q. I have a Motorola SM56 PCI speaker-phone modem. Whenever I connect to the Internet, the connection gets disconnected and the system display reads, "Windows protection error. Press any key to continue" and then it shuts down. The only advice I've received is to format my hard disk. Also, can you let me know where I can find the drivers for Windows XP for the modem?

Karthik

A The drivers for the Motorola SM56 PCI card are available at *http://www.motorola.com/softmodem/sm56_download.htm.* Depending upon the modem, for example, if the modem is Data/Fax/Voice, Data/Fax, etc, choose the file to download. Actually, the Web page offers drivers for all operating systems and for both ISA and PCI modems. Choose the proper file.

Designers' choice

Q. One of our clients wants to purchase an AMD Athlon 64-based system. He is a graphic designer, and uses Photoshop most often, working with files of sizes in excess of 500 MB. What system would be ideal here?

I downloaded Microsoft XP, the 64-bit edition. Does it give good performance with the Athlon 64? Also, how should I configure the system for best performance?

Krishna Prasad

A You should opt for an Athlon 64. It gives better performance than the Intel Prescott. Also, in memory-intensive applications like Photoshop, an Athlon 64 will give much better performance, as the memory controller is within the CPU, as against the Prescott, where the memory controller resides on the Northbridge.

The second factor is memory. The RAM needs to be high enough, say 768 i.e. 512 + 256 MB.

Fibre optic vs WiFi LAN

Q. I have a five-PC network on a CAT 5 cable and a hub. What do I need to set up a fibre optic cable network. I'd also like to know what's needed to set up a WiFi network, and the approximate costs involved.

Anil Gupta

A Setting up a fibre-optic LAN would be a very costly affair, and also a tedious and complicated process. You'll need a LAN card with optical fibre cable connectors, an optical fibre switch, an optical fibre patch cable and connectors. You will also need equipment to connect the cables to the connector, etc, basically, lots of costly equipment. Fibre-optic connectivity is used to set up a high-speed backbone, while WiFi is used for connecting people on the fly. WiFi is simpler and also comparatively less expensive, but definitely more expensive then a wired LAN. You will need a WiFi access point, which would cost around Rs 10,000, and five WiFi cards costing around Rs 3,000 each. The software needed to set up the access point comes bundled with the hardware. d

tips&tricks

Easter Eggs
&
Game Cheats

contents

Take a look at how to have fun with some professional software, and also become a serious force with the most popular of games

EASTER EGGS

E aster Eggs are undocu-mented, hidden tidbits in software, games, etc., that users accidentally stumble upon. These are fun to find, and thousands have already been documented.
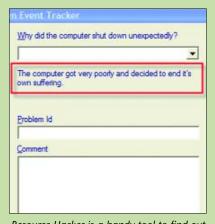
Easter eggs started out as a rebellion by early program-mers who did not get credit for their work. That's why some of them are as simple as a scrolling list of program-mers. However, you also find some as advanced as a hidden car racing game in Excel 2000. So read on to explore the amusing world of Easter eggs.

Windows XP
Unexpected shutdown
For this, you need a software called Resource Hacker. Get it from our July 2004 Mind-ware CD, or download it from *http://www.users. on.net/~johnson/resource-hacker/*. Resource Hacker is a free tool to view and modify 32-bit Windows executables and resource files.
Open the msgina.dll file, located in the *C:\Windows*

Resource Hacker is a handy tool to find out what's hidden inside Windows System files.

\System32 directory, in Resource Hacker. In the left pane, expand *Dialog > 2210 > 1033*. A dialog box opens at the bottom right hand of the screen. Notice the line just below the drop-down list

entitled 'Why did the computer shut down unex-pectedly?!'

Solitare Win Win
Force Solitare to win by a hack. Here's how: Open sol.exe located in *C:\Windows\System32* using Resource Hacker. Expand *String Table > 64 > 1033* in the left pane. Notice a line in the right pane saying 1010, "Force a win". Use these numbers to enable the Easter Egg. Now expand *Menu > 1 > 1033.* Create a menu by typing the following just before the last closing brace: *POPUP "&Easter Egg"*

```
{
    MENUITEM "&Egg 1", 1008
    MENUITEM "&Egg 2", 1009
    MENUITEM "&Egg 3", 1010
    }
```

Now, click the Compile Script button. Next, go to *File > Save* and save it in the original loca-tion, i.e., *C:\Windows\System32 \sol.exe.* Also, replace sol.exe in the *C:\Windows\System32 \dllcache* folder. Now, a new menu Easter Egg appears with Egg 1, Egg 2 and Egg 3 as options. Click Egg 3 to force a win.

WinRAR
Falling Book
Works on: WinRAR 3.20, 3.30
WinRAR—the popular file compression utility—has a smart Easter Egg. Start

WinRAR and go to *Help > About*. Next, click the book icon and it starts to fall. Further, if you press and hold *[Shift]*, and click the logo, you see a small sail boat near the letter 'R'. You may have to click a few times to see it , though.

Winamp
Full Screen Credits
Works on: Winamp 2.91
Start Winamp, go to Winamp menu, click Null-soft Winamp and switch to the Credits tab to see an animated screen. Now, hold down *[Ctrl] + [Alt]* and right-click twice on the animation. This changes it to full-screen mode and alters the anima-tion a bit. Repeat the same step to get back to normal mode. This full-screen animation depends on the active visualisation. Change it to spectrum and then oscil-loscope and repeat the process to see the difference.

Full Screen Credits
Works On: Winamp 5
An animated logo comes up as you go to *Winamp menu > Nullsoft Winamp* and click the Winamp tab. Press and hold *[Shift]* and double-click on this logo to change it to an ASCII art.

Dancing Llamas
Works On: Winamp 5
This is one amusing egg in Winamp 5. First play a song with fast beats and heavy bass. Now, switch to the modern skin and resize the main window. Increase its width to make the Beat

50

Find Easter eggs in Winamp to reveal two llamas headbanging, and also to make it transparent

Analyzer visible to the left of the Spectrum Analyzer. Now, hold down *[Shift] + [Ctrl] + [Alt]* and click the centre of the Beat Analyzer. You'll see two llamas striking their heads on the ground in tune with each beat.

Transparent Beats
Works On: Winamp 5, Windows XP or 2000
Play a song that's akin to the one described above. Now, ensure that the main window has the focus (its title bar should be brighter than that of other windows) and type 'NULLSOFT'. However, since pressing *[L]* opens the File Open dialog, you'll have to press *[Esc]* after each *[L]*. Hence, you end up typing *[N] [U] [L] [Esc] [L] [Esc] [S] [O] [F] [T]*. This done, you see that the main window goes transparent at each beat and then reverts to being opaque.

This Easter egg consumes a lot of system resources. If your system runs slow, type NULLSOFT again to turn it off, or just exit Winamp and restart it.

In Winamp 2.91, the title bar shows a funny change when you do the same thing. Try this and see yourself.

MS Excel
Excel has several interesting Easter eggs, some of which we mentioned in the article *'Excel Entertainment'* in the December 2003 issue of *Digit*. Find that in the 36 issues archive CD of June 2004. Here, we repeat some 'Excel'lent (Eggcellent?) Easter eggs.

It's hard to believe that this is an Easter egg hidden inside Excel 2000

Dev Hunter Game
Works On: Excel 2000, requires DirectX
This Easter egg is complicatedness re-defined. To access it, create a new file in Excel 2000 and go to *File > Save as Web Page.* Choose 'Publish Sheet' and 'Add Interactivity'. Next, save and open it using Internet Explorer. You see the Excel file in the middle of the page. Go to row 2000, column WC and select this row. Press *[Tab]* to highlight the cell WC:2000. Then press and hold *[Shift] + [Ctrl]*

+ *[Alt]* and click the Office logo in the upper-left corner.

A car racing game Spy Hunter should start. Use the arrow keys to steer, *[Space]* to fire, *[O]* to drop oil on the road and *[H]* to turn on your head lights.

Windows 98
Teapot
Works on: Windows 98, Windows 95
Right-click on the desktop and select Properties. Go to the Screensaver tab and choose the Pipes screensaver. Click Settings and select Pipes as Multiple, Pipe Style as Traditional, Joint Type as Mixed and Surface Style as Solid. Click OK and then click the Preview button. Watch the screensaver churn out teapots instead of joints!

Windows 98 team
Go to *C:\Windows\ ApplicationData\Microsoft\WELCOME* and find the file Weldata.exe. Right-click it and select Create Shortcut. Now, right-click the shortcut and select Properties. In the General tab, add *You_are_ a_real_rascal* to the Target text box, after the path, and choose Minimized in the Run combo box. Click OK, double-click the shortcut and enjoy!

Windows 98 team Version 2
Works on: Windows 98
There is another way to view Windows 98 team credits. Double-click the clock in the system tray to bring up the Date and Time Properties. Click the Time Zone tab, hold down *[Ctrl]* and click and hold the mouse button on Cairo, Egypt. With the mouse button still pressed, drag the pointer to Baton Rouge, LA. Release the mouse button but keep *[Ctrl]* pressed. Click on Baton Rouge, LA again and drag it to Redmond, WA. The credits movie starts to play once you release the mouse button. You can also try doing the same thing in Regional Settings under Control Panel.

Hearts Cheat
Works on: Windows 98
Interested in the cards of other players while playing Hearts? Try this. Go to *Start > Run*, type *'regedit'* and press *[Enter]*. Navigate to the key *HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Applets\Hearts*. Here, create a new string, name it ZB, and enter 42 as its value. Now, close the

The hidden windows 98 credits

51

registry editor and start Hearts. During the game, press **[Shift] + [Ctrl] + [Alt] + [F12]** to see what cards the other players have.

MS Access
⚠Magic Eight Ball
Works on: MS Access 97, MS Access 2000
Create a blank database in Access and then go to **Macros > New.** Now, press the Spacebar and click Close. Save the macro as Magic Eight Ball. Click and drag it to the toolbar. The icon should change to the picture of an eight ball. Click it for some advice!

⚠Access 97
Setup "Lizard" credits
Works on: MS Access 97
MS Access includes a Setup wizard to create setup programs used to distribute databases. This Easter egg is included in this Setup wizard. Start this Setup wizard from the Start menu, select 'Create a new set of setup options…', click Next and then Add. Browse to the folder **C:\Program Files\ Microsoft Office\Office**, select All Files in the 'Files of Type' field and choose mso97.dll.

The screen goes blank and the credits appear. Notice that the letters are made up of tiny lizards. Also, look out for the warning at the end of them.

Macromedia Flash
⚠Gary's Car Jump

Works on: Macromedia Flash 4 and 5
For this, go to **Help > About** in Macromedia Flash. Now, double-click the Macromedia logo—the one with two upward arrows located at the right of the about box. Click the Thanks

This is one of the six games hidden in Flash MX

button and the logo bounces up and down. Click the Team button to play a cool game— Gary's Car Jump.

⚠Six Games
Works On: Macromedia Flash MX
While Flash 4 and 5 have one hidden game each, Flash MX has six. To access these, go to **Help > About.** Now, click underneath the X of the logo. Clicking the correct spot may need a few tries. Once you do so, your screen turns dark blue and offers you a choice of six games—Gary's Bike Jump, Gold rush, Asteroids, Lunar Lander, Breakthrough and Flash Blox (Tetris).

Adobe Illustrator
Works On: Adobe Illustrator 10
Teri, one of the developers of Adobe Illustrator 10, coded this egg for his daughter. Open any document in Illustrator, open the Symbols palette and set it to List view, so that you see the symbol names. Double-click a symbol to rename. Type in *"Teri's daughter's"* and press **[Enter]**. Note that this is case-sensitive. Now, double-click it again and rename it to something that might logically be associated with Teri's daughter's—for example, name, eye colour, etc. Now, when you press **[Enter]**, instead of renaming, it treats this as a query and renames the symbol to the answer, or a random failure message.

For the next question, you will have to rename it back to Teri's daughter's first and then rename it to the question. After a certain number of failure messages, it starts giving hints as to what to ask for— You haven't asked about her favourite food yet.

⚠Birthday Cake
Works on: Adobe Illustrator 8, 9 or 10
Create a new document in Illustrator. Now, open the Brush palette and click the 'New Brush' button. Select 'Calligraphic' and enter angle 5, roundness 26 and diameter 56. Now, when you start drawing with this brush, instead of the normal brush strokes, it draws birthday cakes. To make different cakes, set the sliders on the right to 'random'.
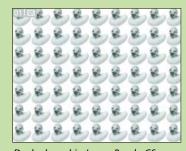
ImageReady
⚠Ducks
Works on: ImageReady 7.0 and CS mageReady developers seem to have a soft corner for ducks. This is evident from this Easter egg, which is actually composed of more than one egg. First, press and hold **[Ctrl]** and go to **ImageReady > About ImageReady.** You see a different About screen, with its code name, for example, Taconite in case of ImageReady CS. That's the first egg. Wait a few seconds for the second and the credits will start scrolling. Speed them up by pressing **[Alt].** At the bottom, you see two big ducks with the line, *"Long live the Ducks!"*

⚠More ducks
Works on: ImageReady CS
For the really funny duck's egg, press **[Ctrl]** and go to **ImageReady > About ImageReady.** Now, if you press and hold **[Ctrl]** again, the mouse pointer changes to a rubber stamp. Click anywhere on the image and a duck appears. You can stamp up to ten ducks. To erase all ducks, press **[Ctrl] + [Shift]** and click. To 'shoot' ducks one by one, press and hold **[Alt] + [Shift]**, aim and click.

Duckerboard in ImageReady CS

52

The credits screen with ducks in ImageReady

Duckerboard
Works on: ImageReady CS
By default, the grid that you see is similar to a chessboard. To change its look, open a new file with a transparent background. Click anywhere inside the canvas window and type *'duckerboard'*. Your chessboard like grid turns into a duckerboard.

Photoshop
Credits
Works on: Photoshop 6, 7, CS and ImageReady 7, CS

This egg works on almost all versions of Photoshop and ImageReady. Click *[Ctrl]* and go to *Help > About*. In case of older versions, you may have to press *[Ctrl] + [Alt]*. This brings up a different screen, with the code name of the software. The credit list starts scrolling after a while, and if you press *[Alt]*, the scrolling speeds up. Read the last lines of the credits carefully—they're really interesting.

Cat Eyes
Works on: Photoshop 7
Go to *Help > About Photoshop*, while holding down *[Ctrl]*. The Liquid Sky splash screen appears. Now, press *[Print Screen]*, click *File > New* and paste the clipboard contents using *[Ctrl] + [V]*.

Now switch to the Channels palette and click the Red, Green and Blue channels one at a time. Notice the eyes of the cat move. Change the Hue using *[Ctrl] + [U]* and an interesting effect comes your way.

Begone
Works on: Photoshop 7, CS
To see this egg, open any file or create a new one. Next, press and hold *[Alt]*, click the triangle at the top-right corner of the Layer palette and then click Palette options. You see a Merlin window appearing. If you can't read the text on the title bar, right-click it and then click Move. Use the right-arrow to resize and then press *[Enter]*. Click the Begone button to close it.

Outlook
Ren Hoek
It is named after the character from the animation series *Ren & Stimpy Show*. Open Outlook 2000 and type Ren Hoek in the 'Find a Contact' textbox. Outlook will show a dialog box saying that it cannot find the contact. This egg may not work if you do have a contact named Ren Hoek in your address book. Now, go to *Tools > Marco > Macros*. In the Macro Name box, type OL2Rocks. Click the Create button to open the About Microsoft Outlook dialog. Hold down *[Shift]* +

[Ctrl] + [Alt] and click OK. The Outlook 2000 team credits appear. Try to catch the names as they fly to the mailbox.

MS Word
Word Credits
Start MS Word 2000 and go to *Help > Show Office Assistant* to bring the office assistant. In the 'What would you like to do?' box, type in Cast and click Search. From the results, click Microsoft Office 2000 User Assistance Staff. Then, click the graphic on the Word help screen.

VB Credits
Works on: MS Word 97, Word 2000
Start Word and press *[Alt] + [F11]* to open Microsoft Visual Basic Editor. Right-click anywhere on the toolbar and click Customize. Now, go to the Help Menu and right-click 'About Microsoft Visual Basic'. In the Name field, you see &About Microsoft Visual Basic, which is editable. Change it to Show VB Credits. Now close the Customize dialog box and then go to *Help > Show VB Credits.* Turn on the speakers and enjoy these credits. You can use the arrow keys to adjust the speed. These will be different for both the versions of Word.

Dreamweaver
Toast your own
Works in: DreamWeaver 2.0 or later

Create a blank page in DreamWeaver. Then, go to *Insert > Layout Objects > Layer* and create a new layer. Now, open the Layers palette by going to *Window > Layers.* With the layer selected, double-click its name in the Layers palette and rename it

See the photographs of the developers in Macromedia Dreamweaver

to 'ToastYourOwn'. Press *[Enter]* and you see a dialog box saying, "So, I see you want to toast your own…". Click OK to be taken to *www.dreamcentral.com/tyo/*. Interesting!

A Game
Works in: Dreamweaver 4 or later, requires FireWorks to be installed
Start Dreamweaver and go to *Commands > Create Web Photo Album.* Enter the title of the album as play a game. Click OK and have fun!

Developers' Pictures
Works in: Dreamweaver 2.0 or later
Open a page that has images in Dreamweaver. Now, select the image, hold down *[Ctrl]*, and double-click the image thumbnail in the Properties palette. Keep on double-clicking, while holding down the *[Ctrl]* key and you see photographs of the developers and their names.

53

GAME CHEATS

Age of Empires 2

To use these cheat codes, press *[Enter]* while playing the game, type in the code and press *[Enter]* again.

ROCK ON	*1,000 stone*
LUMBERJACK	*1,000 wood*
ROBIN HOOD	*1,000 gold*
CHEESE STEAK JIMMY'S	*1,000 food*
MARCO	*Reveal map*
POLO	*Remove shadow*
AEGIS	*Fast build*
NATURAL WONDERS	*Control Nature*
RESIGN	*You lose*
WIMPYWIMPYWIMPY	*Destroy yourself*
I LOVE THE MONKEY HEAD	*Gives VDML*
TORPEDO#	*Kill opponent #*
BLACK DEATH	*Destroy all enemies*
I R WINNER	*You win*

Age of Empires 2 Cheats

Age of Mythology

To use these cheat codes, press *[Enter]* while playing the game, type in the code and then press *[Enter]* again.

THRILL OF VICTORY	*Win scenario*
SET ASCENDANT	*Show all animals*
DIVINE INTERVENTION	*Enable used God power*
JUNK FOOD NIGHT	*Get 1,000 food*
TROJAN HORSE FOR SALE	*Get 1,000 wood*
ATM OF EREBUS	*Get 1,000 gold*
THRILL OF VICTORY	*Win scenario*
SET ASCENDANT	*Show all animals*
GOATUNHEIM	*Turn enemy to goats*
WUV WOO	*Flying purple hippo*
ISIS HEAR MY PLEA	*Heroes from the campaign*
RED TIDE	*Changes water to red*
LETS GO! NOW! (2 spaces between go and now)	*Faster gameplay*

Age of Mythology cheats

Airport Tycoon 2

To use these cheats, press *[~]* to get the console while playing. Enter these codes and press *[Enter]* to activate.

MassDrop	*Huge airport*
DoEarthquake	*Start earthquake*
DoTornado	*Start a tornado*
INeedCash	*Get $100 million*
SetBudget <number>	*Replace <number> with the budget you want*
SetCash <number>	*Replace <number> with the cash you want*
HideGame	*Hide game*
ShowGame	*Show game*

Airport Tycoon2's cheat codes

America's Army

To use these cheats, press *[~]* to get the console while playing. Then enter these codes and press *[Enter]* to activate. These will only work on servers with cheats activated.

behindview 1	*3rd person view*
God	*God mode*
Fly	*Flying*
Ghost	*No clipping mode*

America's Army cheats

■ **Unlock online levels**

To use these cheats, press *[~]* to get the console while playing. Thereafter, enter the following commands and press *[Enter]* to activate: *'mpcheat changeclass <code>'*. Substitute '*<code>*' with one of the codes mentioned below

G	*M16A2 (w/ grenade launcher)*
S	*M81 (sniper)*
AK	*AK47*
S24	*M24 (sniper)*
F	*Fists*
GP	*AK47 (w/ grenade launcher)*
SVD	*Dragonov sniper rifle*

America's Army Cheats

Call of Duty

To enable cheats on this game, locate the executable file in Windows Explorer. Most probably, it will be *C:\Call of Duty\CoDSP.exe*. Right-click the file, go to *Send To > Desktop (Create shortcut)*. Now go the desktop, right-click the created shortcut and click Properties. In the target box, add the following to the end of the path: *'+set thereisacow 1337 +set developer 1 +setsv_cheats 1 +set monkeytoy 0'*

Now click OK and double

click the shortcut to start the game. Then, press the *[~]* during the play and enter following codes.

God	*God mode*
give all	*Weapons, items and amm*
notarget	*Enemies don't target you*
noclip	*No clipping mode*
give ammo	*Max out ammo*

Call of Duty Cheats

Counter-Strike Condition Zero

To enable cheats, press *[~]* and enter *'sv_cheats'*. This

54

enables the cheat. Then pres *[~]* during the game play and enter these cheats.

God	God mode
Fly	you will fly
notarget	No one will target you
Noclip	Go through
impulse	You'll receive a sniper rifle,
101	an AK 47, 3 grenades and a desert eagle

Counterstrike Condition Zero Cheats

DX-Ball 2
During the game, type *'eureka'*. You will hear a tune if it is typed correctly. Now, press any of these keys:

[Right]	Advance to next board
[Left]	Return to previous board
[Down]	Advance to last board in set
[Up]	Return to first board in set
<any key>	Random power-up
[F6]	Turn Music Off
[F5]	MIDI On/Off

DX-Ball 2 cheats

Grand Theft Auto
To use these cheats, first go to the Character Select screen and press *[Delete]*, enter the code and then press *[Enter]*. If *[Delete]* doesn't work, use *[Backspace]* instead.

6031769	Unlimited life
itsgallus	All levels all cities
stevesmates	No police presence
itcouldbeyou	999,999,999 points
suckmyrocket	All weapons, armour,
itstantrum	and jail key Unlimited lives

Grand Theft Auto cheats

Hard Truck 2
Pause the game and type in the following cheats:

winalottery	Get money and license
openallroads	Get all roads
hardtruck-isthebest	Get money and license
advancedmap	See hidden containers on map view
fillup	Unlimited fuel
minesoff	Get rid of mines
[Backspace]	Use it to repair a damaged truck sans any cost

Hard Truck 2 Cheats

Hidden and Dangerous
To enable the cheats, type *'unlockcheatmode'* at the Campaign Select screen. A clicking sound indicates that the code is entered correctly. Use these specific cheats during the game play:

zombie	After death return as zombie
bighead	Big heads
killthemall	Kill enemies
missiondone	End current mission OK
openalldoor	Open all doors
allammo	Get all weapons
noplayerhits	High falls are the only thing that hurts player
goodhealth	Resistant to gunfire

Hidden and Dangerous cheats

The Hulk
Enter cheats by going to *Options > Code.* Activate them by going to *Options > Special Features > Cheats.*

GMMSKIN	Be Invincible
FLSHWND	Get regenerator
ANGMNGT	Rage Meter to Max
GRNCHTR	Unlimited continues
HLTHDSE	Double HP
BRNGITN	Double HP for enemies
MMMYHLP	Half HP for enemies
FSTOFRY	Killer punch
BRCESTN	Solve puzzle
TRUBLVR	Get all levels

The Hulk cheats

Max Payne
To enable the cheats, you need to enable the console first. To do so, start the game with the *'-developer'* parameter. Create a shortcut for the game and add this parameter at the end of the path in the target box.

Start the game and press *[F12]* to bring the console and enter any of the following cheats:

Here we've only given the cheat codes themselves, as they're self-explanatory:

god	c_addhealth
GetAllWeapons	GetInfiniteAmmo
GetBaseballbat	GetBeretta
GetBerettaDual	GetDualBeretta
GetDesertEagle	GetSawedShotgun
GetPumpShotgun	GetJackhammer
GetIngram	GetIngramDual
GetDualIngram	GetMP5
GetColtCommando	GetMolotov
GetGrenade	GetM79
GetSniper	GetHealth
GetPainkillers	GetBulletTime.

Midtown Madness 2
To enter cheats, press *[Y]* during the game play and enter these cheats:

showme cops	Display all police units on the map
big bus party	All other vehicles are buses
tiny car	All other vehicles are compact cars
jet planes	All other vehicles are airplanes
warp eleven	All other vehicles move much faster
amizdA eoJ	All traffic vehicles drive around in reverse

Midtown Madness 2 cheats

Motocross Madness 2
Various Cheats
Type Big Heads at the main menu and everyone's head becomes heads . If you fall down, press *[Tab]* and you get up immediately. To do a nose wheelie stunt, take a small jump when the landing space is clear. Before you land, lean forward until the bike becomes vertical. Now hold the break button and see yourself doing the stunt.

Need for Speed Underground
Go to the *Main > Statistics.* Go back again by pressing *[Delete]* or *[Backspace].* Now enter the codes below:

gimmesomecircuits	Unlock circuits
gimmesomesprints	Unlock sprint circuits
gimmesomedrag	Unlock drag circuits
gimmeppablo	Unlock Petey Pablo
gotcharobzombie	Unlock Rob Zombie
havyamystikal	Unlock Mystikal
needmylostprophets	Unlock Lost Prophets
allmylvloneparts	All level 1 performance parts
seemylvl2parts	All level 2 performance parts
driftdriftbaby	All drift tracks
slidingwithstyle	Drift physics

Need for Speed Underground Cheats

No One Lives Forever 2
Press *[T]*, then enter one of the following codes:

maphole	*Skip the current level*
poltergeist	*Become invisible*
Kfa	*Get weapons, ammo, armour and health*
Mods	*Get the silencer, scope and camera zoom*
God	*Become invincible*

No one lives for ever 2 cheats

Postal 2

Press *[Shift]* and *[@]* (or *[~]* on some systems) to make the Game Console Window appear. Type in *'SISSY'* to

Alamode	*Puts you in God Mode*
IAmSoLame	*Gives you all weapons, maximum ammo, and makes you invincible*
JewsForJesus	*Gives you lots of cash*
SwimWithFishes	*Gives you all radar-related items*
IAmTheOne	*Gives you lots of catnip*
BlockMyAss	*Gives you body armour*
IAmTheLaw	*Gives you cop clothing*
Healthful	*Gives you full health and several (4) medkits*
IFeelFree	*Ghost mode (toggled; enter code again to turn off)*
LikeABirdy	*Fly mode (toggled; enter code again to turn off)*

Postal 2 cheats

56

enable cheat mode, and then enter the cheats:

Serious Sam

Bring up the console using *[~]*, then enter one of the following codes

please fly	*Flight mode*
please giveall	*All items*
please god	*Invincibility*
please invisible	*Invisibility*
please killall	*Kill enemies*

Tony Hawk's Pro Skater 4

✍ Leaving the practice area

While playing in the Practice mode, go to the fence at end of the ramp, lie down, allot and then just only slip

through. You're now out of the practice area and can skate on the road.

Watch_me_xplode	*All Levels*
MOON$HOT	*Get Moon Gravity*
FBIAGENT	*Matrix Mode*
BELIKEERIC	*Perfect Rails*
FREEWHEELIE	*Perfect Manuals*

Tony Hawk's Pros Skater 4 cheats

OTHER CHEATS

Unreal Tournment 2004

Single Player Cheats Press *[~]* in the game to bring down the console, or press *[Tab]* for quick console.

God	*Toggles God Mode*
Ghost	*Enables you to walk through walls*
AllAmmo	*Gives you full ammo on all the weapons you have*
Loaded	*Gives you all weapons and full ammo*

Unreal Tournament 2004 cheats

Road Rash

To enable cheats, first type *'XYZZY'*. Then use the fol-

lowing cheats to really go crazy on the road:

BRIBE	*Removes the police officer*
K'THUNK!	*Gives you a bat*
SPOON!	*Gives you nitrous oxide*
THWACK!	*Gives you a chain*
PLUGH	*Disables cheat mode*
YES,OCCIFER	*Kill cops*

Road Rash cheats

Duke Nukem 3D

To cheat your way through Duke Nukem 3D, just type in the following codes during the game play:

dnunlock	*Unlocks doors*
dnhyper	*Steroids effect*
dnskill#	*Set skill level*
dncoords	*Shows your coordinates*
dnitems	*Gives you power-ups*
dndebug	*Displays debug info*
dninventory	*All power-ups*
dnweapons	*All weapons and full ammo*
dnmonsters	*Toggles the monsters off*
dnlooksfunnyshade	*Make monsters pink*
dncashman	*Throws money when you hit the use key*
dnstuff	*All weapons, keys and power-ups*
dncornholio	*God mode and unlimited jetpack*

Duke Nukem 3D cheats

Hitman: Contracts

Find the file hitmancontracts.ini in the game's folder. Open it with a text editor, and add this line to the end of the file: *'EnableCheats 1'*. Now during gameplay put in one of the following cheats:

IOIER	*Bomb*
IOIRULEZ	*Be Invincible*
IOIHITLEIF	*Max out health*
IOIGRV	*Gravity*
IOILEPOW	*Lethal Charge*
IOINGUN	*Nail Gun Unlocked*
IOIPOWER	*Max Force Mode*
IOIHITALI	*Boxing Mode*
IOISLO	*Slow Motion*

Hitman contracts cheats

Game Trainers

A game trainer is a third-party program that allows you to turn on and off certain qualities that weren't included in the game. These can be Terminal Stay Residents (TSRs)—usually for DOS-based games, or can remain running while your game is in progress (for Win95-based games). This can range from unlimited lives to unlimited ammo, invulnerability, etc. The trainer alters the original memory locations to allow you to cheat where you wouldn't be able to without it.
Visit ***http://www.cheatplanet.com/pctrainers.html*** to download trainers for various games.

UPENDRA SINGHAI
upendra_singhai@thinkdigit.com

Will Rock

Serious Sam relived, with more graphics, more fun

Over the years, games have evolved a lot, offering us a more mature experience in terms of features, weapons, save systems, and what not. Yet, once in a while, it's fun when scores of dumb but deadly monsters zero in on you.

The *Serious Sam* series is considered to be the pinnacle of this style. You had hundreds of nasties rushing at you from all possible directions. *Will Rock (WR)* draws inspiration from this seminal game, and brings back the same experience, complete with the look and feel of the original. In certain stages, it even surpasses its grand daddy.

It's got the look!

WR closely emulates *Serious Sam*. While gameplay is still more or less the same, the graphics have been touched up to look even better. On closer inspection, it seems that Saber Interactive apparently worshipped *Croteam*'s smash hit and decided to clone it literally.

The premise of such a game is to pit one man carrying 10 weapons against hundreds of monsters, all pouncing on him at the same time. What matter here are your reflexes and hand-to-eye co-ordination. Puzzle-solving and strategising come a distant second.

These horny buggers are among the most irritating monsters you'll encounter in any FPS

What's the story, Morning Glory?

This is another area where Saber wastes more time. You're Willford Rockwell, studying archaeology purely to get close to his girlfriend, Emma, whose father happens to be a full-blown professor. A research trip to Mt Olympus in Greece leads to the discovery of the city of the Gods. A bunch of crazy terrorists want to resurrect the Greek Gods and kidnap Emma to offer her to Zeus as a bride. The professor gets slain while rescuing his daughter, and you accidentally set the Titan *Prometheus* free, who infuses you with his power in your quest for revenge.

Now compare this with *Serious Sam*, which had the best story that a game of its kind should have. It didn't trouble you by forcing something you weren't interested in anyway. Most of the players would merely ignore this and go on with the game. *Serious Sam* had no story to speak of, and it was proud of that fact. It was classy, unlike *WR,* which tries to act 'evolved'.

WR emphasizes on puzzles and complex design. You have all those underground passages and tunnels you need to cross, when instead, you could have spent all that time fighting monsters out in the open. Then come the sick jumping puzzles, where you have to jump from one platform to another, with the odd critter merrily sniping away at you.

Finally, you have monsters that keep coming back from the dead, hurling axes at you. It might be interesting for a while, but each level keeps throwing more and more of these pests. Saber sadly opts for quantity rather than quality here.

The last level can, at best, be tortuous. Games like these are not supposed to

The first boss enemy you encounter. There's plenty more where that came from

have levels that ask you to stop and think where the hell you currently are.

Despite all that, *WR* has its quota of fun. A nice touch is added by the unusual weapons, including one that pumps its victim with acid until it explodes, and a crossbow with fire-tipped darts. Among the weapons, the minigun stands out. It's fun and user-friendly, spewing hundreds of pointed tipped bullets a minute.

The sound effects and background score are good enough to keep your foot tapping. The game starts off with the 80s classic *I Wanna Rock* by *Twisted Sisters*. It's fun to listen to, but soon gets monotonous.

Go for the Multiplayer...

One area where the game outclasses others is in its co-op multiplayer mode. It even beats *Serious Sam* hands down in this department. Compared to this experience, the single player campaign is downright dull by comparison, and a lot tougher.

If you're looking for a great game to enjoy with a bunch of friends, then your hunt is over. *Will Rock* will rock you, for sure!

From SKOAR! magazine

Genre: Action ■ **Developer:** Saber Interactive ■ **Publisher:** Ubisoft ■ **Distributor:** Sujata Softech ■ **System Requirements:** 500 MHz CPU, 128 MB RAM, GeForce2/ Radeon class card, 750 MB free space, DirectX 9.0 ■ **Price:** Rs 299 ■ **Web site:** www.will-rock.com
Rating: ★★★☆
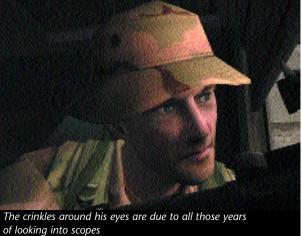
America's Army: Special Operations v2.0
Entertainment, Shock and Awe...

America's Army (*AA*) has one thing that FPS fans have lusted over since the time of *Doom*—a good free FPS with multiplayer support. Version 2.0 of *AA* has six new maps, a customisable M4, a new server browser and two new soldier classes—Special Operations and Indigenous Forces.

Training is made mandatory before you can play online. Though the initial missions are boring, they can be entertaining at times, and you need to upload stats to the game's Web site and get bragging rights for your accomplishments.

The graphics and effects are decent, but nothing extraordinary—just a few impressive dynamic lighting effects. The army has successfully breathed a blend of realism and fun into the game.

The game has authentic weapon noises. Minute details, like the soldier's breath-

The crinkles around his eyes are due to all those years of looking into scopes

ing that affects your aim while sniping, add to the realism. You can even tell if the magazine shells are hitting hard or soft ground.

The necessity to connect to the Internet to complete a training level successfully can be irritating. Patching the game is no easy feat as some patches are more than 250 MB in size.

Treasure every flash-bang and frag grenade, and use them wisely. Dynamic lighting and shadows are also implemented quite well. The weapons in the game, though realistic, tend to be too powerful. There's nothing like a good M249 SAW in your hands, firing off several rounds per second.

However, the lack of landmines leaves something to be desired. The distinctive maps provide several ambush points that can be deceiving, so don't be surprised if you find jhonny_243 at an ambush point, waiting for an unsuspecting target.

America's Army 2.0 can be an entertaining romp and is sure to keep you engaged for the next few weeks.

From SKOAR! magazine

Genre: Action ■ **Developer:** U.S. Army ■ **Publisher:** U.S. Army ■ **System requirements:** 733 MHz CPU, 128 MB RAM, video card with 32 MB VRAM, 600 MB disk space, DirectX 9.0 ■ **Price:** Free ■ **Web site:** www.americasarmy.com
Rating: ★★★★☆

Star Wars Jedi Knight: Jedi Academy
Cool, riveting, and graphics aplenty

Jedi Academy runs on the *Quake III* engine. Kudos to Raven Software for modifying it, allowing it to generate graphics that none of us thought possible.

You play Jaden Korr, a new student in the *Jedi Academy* on Yavin 4, who's achieved the impossible—building a lightsabre without any formal training.

The game has the normal slew of FPS weapons like rocket launchers, mines, railguns and sniper rifles. The lightsabre has been modified, and you now get three different sabres—the standard Single Blade, the Dual Lightsaber, and the Saber Staff. Force Powers also add to the coolness of the game. Rage, Heal, Lightning and Protect are some of the advanced powers available.

A lightsabre battle in full flow

The graphics are quite nice, while the lightsabre animations are cool. On the flip side, lip-synching in the game is terrible. Weapon sounds lack variety. There is little

change in its soundtrack too.

However, level design is beautiful. The frozen wastelands of Hoth, the burning deserts of Tatooine, and the skyscrapers of Corellia are wonderfully presented. However, *Jedi Academy* is plagued by the fatal disease—Poor AI Syndrome.

One irritating feature is that you cannot save the game after finishing a mission, until you've chosen your new powers and loaded the next level.

Multiplayer gaming in *Jedi Academy* is a nice experience. Force Speed no longer slows down everyone else, but speeds you up instead. All in all, *Jedi Academy* is one heck of a cool game and will keep you riveted for quite a while.

From SKOAR! magazine

Genre: Action ■ **Developer:** Raven Software ■ **Publisher:** LucasArts ■ **System requirements:** 450 MHz CPU, 128 MB RAM, video card with 32 MB VRAM, DirectX 9.0 ■ **Web site:** www.lucasarts.com/products/jediacademy
Rating: ★★★★☆

CollegePro Science
This lecturer delivers

CollegePro Science is a set of CDs spanning five subjects—general chemistry, bio-chemistry, molecular cell biology, microbiology and genetics. There is substantial information on almost every sub-topic within these subjects you can think of.

A glossary helps you locate the meaning of any term or phrase that you come across while browsing through the material. A good study aid at the college level, this is a well-designed, well-laid out set.

Ease of navigation is probably the best aspect of this set. You can navigate by subject, search by keyword, and view diagrams via hyperlinks. In fact, each CD is a large network of hyperlinks. You're never lost—there are clear paths to get you back to where you came from—and there are always related subjects displayed to prompt you to go deeper.

However, don't expect this to be the Encyclopaedia Britannica of all five subjects. Despite the additional information across various areas, the overall coverage is not too comprehensive.

The topics are dealt with to the extent of detail that the average college student requires. This marks the set as meant specifically for students—if you're not a student, and you're interested in, say, bio-chemistry, you might find the coverage a little shallow.

This software comes in handy for a student when it comes to reviewing matter that has been covered in class. Pick up a topic, click, browse, revise. Much better than rummaging through books to find that little piece of information you are looking for. And, there will be a structure to your revision (or first reading).

One sore point may be that the software might not work very well for students who are accustomed to using Digests for study as well as revision. Overall though, CollegePro Science is definitely worth Rs 1,995.

RAM MOHAN RAO

Publisher: Topics Entertainment ■ **System Requirements:** Pentium Processor, Windows 95, 12 MB RAM, 4X CD-ROM drive, sound card
Phone: (425)656-3621 ■ **E-mail:** info@topics-ent.com ■ **Web site:** www.topics-ent.com ■ **Price:** Rs 1,350
Rating: ★★★☆

SAMS Teach Yourself Internet and Web Basics: All in One
Wading through the Internet

The cover boasts that the book entails Internet basics, Web browsing, e-mail and chat, fun and games, virii and hackers and Web pages. A look inside, however, throws up a few discrepancies.

A major part of the book is devoted to a tutorial on setting up a small Web site. It is quite comprehensive as a hands-on guide to someone who is not too Internet-savvy and wants to learn the basics of Web authoring—probably to set up a small personal Web site. The book makes good reading for someone simply interested in browsing through the lucidly written guide explaining software like Netscape Composer and Paint Shop Pro.

The first section of the book deals only with established names, like Internet Explorer and Google. There is a sporadic mention of Netscape, chiefly the e-mail program that comes bundled with it. However, the section that is meant for the Internet rookie gives a thorough run through of Windows-based applications, so the orientation is with the stuff that comes bundled with Windows.
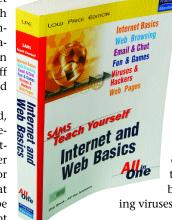
On the other hand, the section on site-building makes very little mention of either Microsoft Front Page or Dreamweaver. It talks at length about Netscape Composer, but not Front Page Express, which is probably the more widely available of the two!

The book is useful for elderly people; perhaps for parents desperate to keep up with their techno-savvy kids. It does contain lots of simple, conversational tips on how to control and filter offensive content off the Internet. It puts the reader on guard over tackling virii, while furnishing tips on trading over the Net. What the book lacks, though, is depth. The small, shallow section on Internet security too, belies the bold red fonts declaring viruses and hackers on the cover.

SUPROTIP GHOSH

Publisher: Pearson Education (Singapore) Pvt Ltd ■ **Author:** Carla Rose ■ **Distributor:** Pearson Education India ■ **Phone:** 011-2146067 ■ **E-mail:** info@pearsoned.co.in ■ **Web site:** www.samspublishing.com ■ **Price:** Rs 350
Rating: ★★★★☆

Steal to Chill

Fans are hot property on the Digit premises

Who likes to work on a Saturday? Even the AC does a 5-day week. Beyond 6:30 pm, not a cubic metre of air is cooled. A mechanical relic called a fan tries to pacify our heated bodies, not to mention boiling tempers. As a result, all the writers here try all possible ways of scuttling away on time and disappearing on weekends. But then the copy desk hates to be left alone and their "you-better-be-there-or-I'll-hack-your-article" look more often than not works in procuring the much-needed company.

But amidst all this grumbling and bickering, we did stand united over one thing: fans. They were so few, at times they would all disappear! Well, so we decided that we needed to get some... well, steal some.

We first stole right under the noses of people, only to be reprimanded and come back glum-faced. Then we got defensive. We work the most, we do this we do that blah blah blah... didn't work. How would it? After all, those guys, too, had cancelled their dates for a Saturday and were boiling in silence! A few sweaty days of introspection later, we were at it again. Well, the need of the hour was survival and that needed a fan. Ethics be damned. And so we went on rampaging mercilessly, and quite breathlessly as well.

We didn't spare a single bay. All of them were ransacked in the spirit of Menelaus seeking out Helen of Troy. Barbarians would have worshipped us had they only seen our undaunting persuasion. We didn't even spare the *bhaigiri*-doing Test Centre.

"*Yeh apun ka fan hai kya*?"
Oh yes, it is your fan.
"*Lene ka nahi, samjha na...*"
Whoever thought of doing that... er, at least when they are around. The moment they're out, their fans ARE ours. After all, if they aren't submitting articles on time, they'd better make this concession!

Mahesh Benkar

Recently, we got Mount Vesuvius to erupt violently when we raided TypeI—the content services division. And what a raid that was! We never knew such sleek fans existed just next door. We fanned ourselves royally for a week. Mitali oohed and aahed about it and Garfield almost killed her with his "How-dare-you-keep-it-all-to-yourself" look when the secret was leaked, and the TypeI guys raided us like a pack of FBI agents.

"Oh look, it's ours."
"And how do you know that?"
"See this red tape, I put it here."
But Prashant Narekuli, the Digit brand manager, would just not give in: "So what, *naam thodi likha hai. Aise kaise tum log aake* fan *le ja sakte ho*" and topped it with an arm-twisting look.

The 'FBI' agents were far from impressed. The fans did get smuggled back into TypeI, the terrifying look notwithstanding. This was just too much to digest.

"Let's shift into the garden" exploded one of the Digsters, "à la Shantiniketan."

"Oh yeah," cooed in a colleague, "that way we won't even miss the latest gossip!"

"That would be great. Perhaps we could start an inhouse mag with all that stuff!"

Now, much as we like to make an issue about everything, Louis D'Mello, Head of Publications and Web sites, JDM, always tackles it all with some resourceful thinking. Perhaps it was this, or perhaps he was a bit wary of his own fan disappearing, Louis did the best thing he could do—within the next few weeks, tall, lissome, translucent fan stands began dotting the Digit bay. While Aparna and Meera helped assemble "their" own fan, the boys were a bit more generous and set it up for the entire team. Since then, the Sun has not been cursed and the swish of a button is all that's needed to drive the heat away.

Of course, we miss the fan-hunt ("Geez, it was so much fun!"). Of course, we miss the planning and strategy that went behind each of them ("*Aaj* TC, *kal* NC!"), but what we don't miss are the sweaty palms and the discomfort.

The heated arguments continue. d

Name this technology: It was launched in 2001 and uses sophisticated image-processing techniques to process the output of a series of cameras positioned around a sports venue.

a. **HawkEye**
b. **Eagle Eye**
c. **Hawk-I**
d. **Third Eye**

2 Who created Wikipedia—the online free encyclopaedia?
a. Larry Sanger and Ben Kovitz
b. Jimmy Wales and Larry Sanger
c. Jimmy Wales and Andre Giere
d. Andre Giere and Bill Gates

3 Which search engine uses the metasearch technology to crawl other search engines?
a. Dogpile
b. Longhorn
c. Teoma
d. Google

4 What is the world's most advanced humanoid robot—a Honda project titled Advanced Step in Innovative Mobility better known as?
a. ASIIM b. ASIMA c. ASIM d. ASIMO

5 Ducati is one of the most successful bike manufacturers in Super Bike championship history. Name the recent Hollywood blockbuster that featured one of its bikes, the Ducati 996.
a. Day After Tomorrow
b. Kill Bill
c. The Matrix Reloaded
d. Kill Bill 2

6 His summer job was recapping tires for a rubber company for $1.50 an hour. Later, he went on to work with IBM and Xerox Corp before founding a desktop publishing company. Who is this and what is his company known as?
a. John Warnock, Adobe
b. Dr Micheal Cowpland, Corel
c. John Walker, AutoDesk
d. Paul Brainerd, Aldus Pagemaker

7 In January 1975, a programmer brought a Popular Mechanics' advertisement for a microcomputer kit along with an idea to his friend's college dorm room. Their partnership eventually evolved into the world's most valuable company. Name them.
a. Bill Gates and Paul Allen, Microsoft
b. Steve Jobs and Steve Wozinack, Apple
c. Robert Noyce and Gordon Moore, Intel
d. Bill Hewlett and Dave Packard, HP

8 The very first punched cards, before the computer era, were originally used for…
a. Cash registers
b. Printing presses
c. Weaving looms
d. Punching tickets

9 Xerox founded the Palo Alto Research Center (PARC), but which company is best known for designing systems which used concepts developed there?
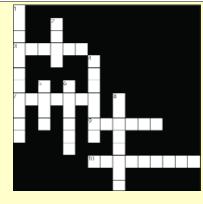a. Sun Microsystems
b. IBM
c. Digital Equipment Co.
d. Digital Co.

10 The 1981 Pulitzer Prize winning book 'The Soul of a New Machine' was written about the development of which "super minicomputer" system?
a. DEC's VAX
b. Data General's MV/8000
c. IBM's S/360
d. Bell Labs' Unix

11 In 1993, Apple Computers reached a milestone for…
a. Shipping its 10 millionth Mac
b. Completing a decade in computer business
c. A tie up with Disney for animation movies
d. Its highest ever profit of $1.91 billion

12 In 1981, Wall Street Journal ran a full page advertisement that said, "Welcome IBM, seriously." Which company's advertisement was this?
a. Dell
b. Apple
c. CompuServe Inc.
d. Hewlett Packard

13 Which of the following browsers was developed using open source software?
a. Opera
b. Mozilla
c. IE
d. Netscape Navigator

? did you know

In 1989, a trojan disguised as an AIDS information program was unleashed on the Web. When run, it encrypted a user's hard drive and demanded payment for the decryption key

numberette

Apple spent **$100 million**, developing LISA (Local Integrated Software Architecture)—the first PC with a graphical user interface. LISA was first sold for **$10,000**

digit QUOTIENT

1 to 5	Way to go…
6 to 10	Good, if you like being mediocre
11 to 15	Your next job could be with us!

Got an interesting question? Send it in with the correct answer to quiz@thinkdigit.com

---

Answers

Quiz	Crossword	
	Across:	**Down:**
1: a 2: b 3: a	3 Asimov	1 Strange Love
4: d 5: c 6: a	7 Leagues	2 Rama
7: a 8: c 9: c	9 Orange	4 Winston
10: b 11: a	10 Fourty two	5 Mars
12: b 13: b		6 Huxley
		8 Bradbury

This month's theme: Sci-Fi Books and Authors

Across
3. Author of the 'Foundation' series
7. '20, 000 _____ Under The Sea'
9. The colour of clockwork
10. The answer to Life, the Universe and Everything

Down
1. A sinister doctor with a penchant for bombs
2. Clarke's enigmatic spacecraft
4. Protagonist of Orwell's '1984'
5. The War of the Worlds: Earth versus__
6. Author of 'Brave New World'
8. 'Fahrenheit 451'