Product watch

A look at the most talked-about hardware in the market. Featured this month: ASUS motherboard, the Compaq Presario laptop, the gigantic 21-inch monitor from ACER and more...

Hardware

ACER 211C 21-inch Monitor

Bigtime Quaker!

+ High resolutions at high refresh rates **+** Highly configurable OSD **—** Consumes a lot of power (150 Watts) **Price:** Rs 60,000 **Contact:** ACER Peripherals **Phone:** 022-5705230 **E-mail:** apilmarcom@vsnl.net.in **Web site:** acercm.co.in

If you want to play *Quake III* at 1600x1200 resolution and get the maximum out of your graphics card, then this 21-inch monitor from ACER is the one for you.

With an amazing refresh rate of 85 Hz, it made for a classy visual experience. The monitor came with a specified dot-pitch of 0.25 mm and a maximum viewable area of 20 inches (51 cm).

The control panel for the OSD (on screen display) included settings for geometry, size, position, luminance and a whole lot of other useful settings.

The 211C also offered a convergence adjustment feature. Convergence is the monitor's ability to precisely illuminate specific phosphors and line them up properly in order to produce pure colour. The panel also included an I-key, which automatically calibrated and adjusted the display's size and position to the optimum.

Also, no re-configuration or adjustment was needed when one changed the display mode to different resolutions.

The monitor could also be connected to an Apple Macintosh through a D-Sub cable, though you needed to add the Macintosh adapter to connect the video signal port of your computer and the monitor signal cable.

Overall, it provided a good visual experience, though the cost was on the higher side.

VERDICT	ACER 211C 21-inch Monitor	B +
	Build quality	▲▲▲▲△
	Features	▲▲▲▲△
	Performance	▲▲▲▲△
	Value for money	▲▲▲△△
	OVERALL	▲▲▲▲△

ASUS CUSL2 Motherboard
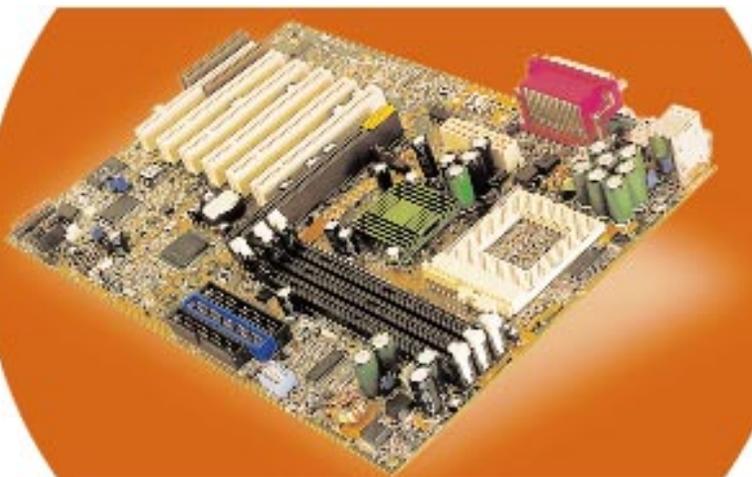
+ Best platform for the Pentium III **+** ATA/ 100 support **—** Expensive
Price: Rs 12,500 **Contact:** Mnemonic Systems **Phone:** 022-8010871 **Fax:** 022-8051761 **E-mail:** mnemonic@vsnl.com

THE BX KILLER

ASUS CUSL2 is built around the Intel 815e chipset and has many improvements over the BX. It has official support for both the PC-133 SDRAM and 133 MHz FSB speeds. The motherboard we received was without the onboard audio functionality but you can get one with an AC97 compliant audio Codec.

The i815e also had the enhanced I/O Controller Hub 2 (ICH2) with added support for ATA-100 drives and also a second USB controller. In our benchmarks, in *Quake III* normal mode, it scored 121.8 fps, whereas in the high-quality test it scored 117.9 fps. These scores clearly showed that GeForce2 GTS was highly compatible with the CUSL2. If you use the onboard video card, you won't be too disappointed with the scores of 29.8 fps and 15.9 fps for the same tests, respectively. It scored 26.7 in Content Creation Winstone 2000, which too is pretty much expected for this configuration. All in all, a great buy if you want to have support for all the next iterations of the Pentium III processors and the great features.

VERDICT	ASUS CUSL2 Motherboard	A –
	Build quality	▲▲▲▲▲
	Features	▲▲▲▲△
	Performance	▲▲▲▲△
	Value for money	▲▲▲▲△
	OVERALL	▲▲▲▲△

AMD DURON 750 MHz
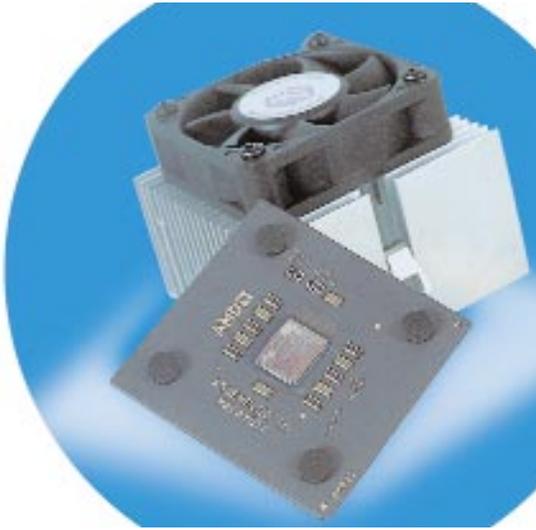
+ Fastest available economy processor
+ Works at 200 MHz FSB
− Lacks decent motherboard support
Price: Rs 5,500
Contact: Avnet Max
Phone: 011-6250250
E-mail: ashish@avnetmax.com
Benchmark: 106 fps in *Quake III* normal mode, 95.2 fps in high-quality mode, 22.8 in Content Creation Winstone

DURON CHECKS IN

The AMD Duron 750 is the economy cousin of the AMD Thunderbird. Though built on the same 0.18 micron technology as the AMD Thunderbird, the difference is in the smaller L2 cache of only 64 KB. This sounds like a distinct disadvantage when compared with the Celeron II (Coppermine core with 128 KB L2 cache). But as seen in the earlier Duron 600 tests, even this processor beat the Celeron II hands down. With a Creative GeForce 32 MB DDR graphics card, it scored 106 fps in normal mode in *Quake III* and 95.2 fps in the high-quality mode. These scores actually came very close to the Pentium III 700 scores. In Content Creation Winstone 2000, it got 22.8, as compared to the 26.5 scored by the Intel Pentium III 700e. The lesser L2 cache was the prime reason for the performance hit. But considering the fact that the Duron was very competitively priced, it more than made up for the small performance loss it suffered.

VERDICT	AMD Duron 750 MHz	A
	Build quality	▲▲▲▲△
	Features	▲▲▲▲△
	Performance	▲▲▲▲△
	Value for money	▲▲▲▲△
	OVERALL	▲▲▲▲△

ACER Ergo61 Keyboard
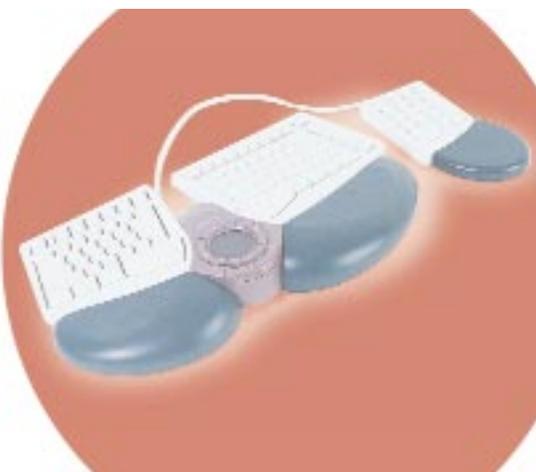
+ Comfortable design
+ Integrated mousepad
− Expensive
Price: Rs 4,000
Contact: ACER Peripherals
Phone: 022-5705230
Price: Rs 4000
E-mail: apilmarcom@vsnl.net.in
Web site: acercm.co.in

GET COMFY

Design wise, the keyboard may look awkward and difficult to use, but the truth was quite far from it. With the extra large palm pads, the overall feel of the keyboard was very comfortable. This keyboard had an onboard mouse-pad with two buttons for the left and right click. There were four more buttons configured as direction keys. Also, if you didn't like the integrated mouse pad then you could attach your normal mouse and the integrated one got disabled. With such level of integration, you would expect confusing installations and driver problems, but this was not the case. The keyboard worked straight out of the box without any configuring required. Overall, the keyboard was useful if you spent long hours surfing, and is one of the coolest looking keyboards around with funky colours and a chunky design.

VERDICT	ACER Ergo61 Keyboard	B+
	Build Quality	▲▲▲▲△
	Features	▲▲▲▲△
	Performance	▲▲▲▲△
	Value for money	▲▲▲△△
	OVERALL	▲▲▲▲△

Compaq Presario 1200 Series
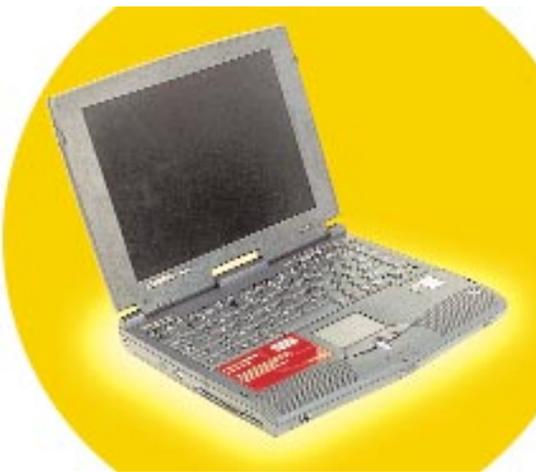
+ Multimedia rich
+ Decent performer
− Expensive
Price: Rs 86,940
Contact: Avi Electronics
Phone: 022-6460296
E-mail: aviteam@vsnl.com
Specifications: 5 GB HDD, Celeron 566 MHz, internal modem, integrated AGP card, JBL Pro built-in speakers

AVERAGE PERFORMER

The Compaq Presario 1200 did not have a high-end configuration but it can be configured online with specific components from the Compaq Web site. The one we received came installed with JBL Pro speakers and a high capacity LiIon battery. The gaming and Winstone content creation tests did not run. However, when we ran the Business Winstone 99, we achieved a score of 16.6, which was low. A special battery test was also run in which the notebook was left to charge to maximum and then a special battery drain benchmark was performed. The battery for this notebook was drained in about one-and-a-half hours, which is just about average for notebooks. Another thing that was noticed was specially textured palm rests making it very comfortable to use the notebook for long hours.

VERDICT	Compad Presario 1200 Series	A−
	Build Quality	▲▲▲▲△
	Features	▲▲▲▲△
	Performance	▲▲▲▲△
	Value for money	▲▲▲▲△
	OVERALL	▲▲▲▲△

Product watch

Wondering about the latest software sensations in the market?
Featured this month: voice recognition software, new products from Symantec and lots more...

Software

Dragon NaturallySpeaking 5

Write your voice

+ Small and fast package **+** Training is fast **Price:** Rs 17,995+taxes (preferred edition)
Contact: HCL Infosystems **Phone:** 011-4526518 **Fax:** 011-4526579
System Requirement: Windows 95/98, NT+SP3 or later, Intel 200 Mhz with MMX, 48 MB
Ram with Windows 95/98, 64 MB Ram for NT, 200 MB free disk space, Creative SB16
compatible soundcard, CD=ROM drive for installation, speakers

The latest version of the voice recognition software from Dragon Systems, Dragon NaturallySpeaking 5, came as usual with a microphone and headphone, and with good documentation highlighting the various features and capabilities of the software. When processing speech, it worked with two sources of sound— acoustic data and the language data. This version of Dragon NaturallySpeaking came with a tool called the Dragon bar, which had several features and could be accessed easily. There were two ways in which you could correct the words: the quick correct list, which was easily accessible in the Dragon pad and the Correction Dialog box, which let you enter new text and spell new words. It also gave you a playback option for your dictation, enabling you to correct an error. Commands could also be dictated, so the next time you want to copy a file, just say it. You could also use it with Internet Explorer for visiting Web pages, entering URLs, or for scrolling and entering text in a text box. After training the software for just 10 minutes, the level of accuracy in interpreting speech was nearly 90 per cent.

The software could even be used in a portable recorder such as Sony Memory stick, the ICD-R 100 recorder, etc.

With very powerful capabilities and a good set of features, NaturallySpeaking 5 is a good addition to the already impressive lineup of speech recognition software from Dragon.

VERDICT	Dragon NaturallySpeaking 5	B+
	Ease of use	▲▲▲▲△
	Features	▲▲▲▲△
	Performance	▲▲▲▲△
	Value for money	▲▲▲△△
	OVERALL	▲▲▲▲△

We Tech Voice Recognition
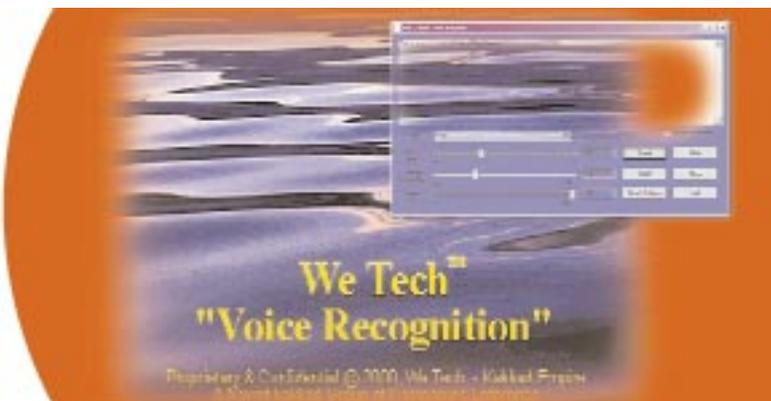
+ Dictation of the Windows application, command control for many software
– Not very accurate, cannot operate in a noisy office **Price:** Rs 2,800 **Contact:** We Tech
Phone: 022-8640088 **E-mail:** wetech@vsnl.net.in **Web site:** www.wetech.net
System Requirement: 64 MB RAM, 118 MB disk space, Windows 98 or later

UNITED WE SPEAK

The We Tech Voice Recognition package came with a CD, a floppy and documentation. The voice recognition runs on the Microsoft Speech Engine. The package came along with voice recognition software called We Tech Dictation Pad; We Tech Reader, which is a text-to-speech synthesis software; and We Tech Voice Command, which allows you to use voice commands to control applications. Before using the software you have to train it and also adjust the volume and soundcard to get the perfect settings. After that you can start using the software for voice recognition, reading out text and controlling your operating system. The software also had the facility to create profiles for different people who might be using the same computer. Training the software took some time and the software was somewhat of a pain to use. Overall, the We Tech package is a good voice recognition package.

VERDICT	We Tech Voice Recognition	B+
	Ease of use	▲▲▲▲△
	Features	▲▲▲▲△
	Performance	▲▲▲▲▲
	Value for money	▲▲▲△△
	OVERALL	▲▲▲▲△

Linux Mandrake 7.1
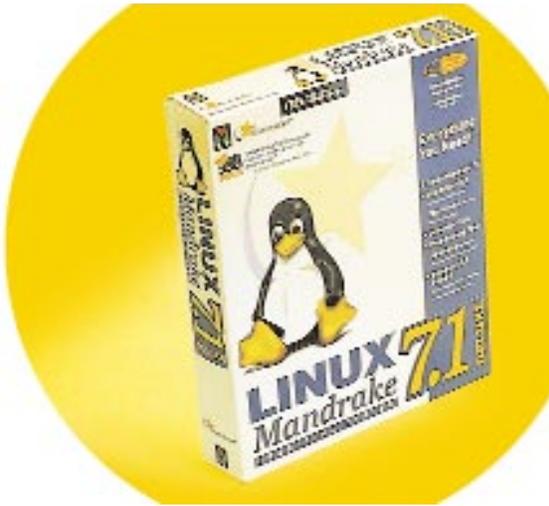
+ Fast installation
+ Very user-friendly
– Resource eater
Price: Rs.2,500
Contact: G.T. Enterprises
Phone: 080-6606093
E-mail: gtcdrom@vsnl.com
Web site: www.gtcdrom.com
Features: Bundles with seven CDs, DiskDrake partitioning utility, support for USB and i810-based motherboards

MORE MAGIC

This latest release of the Linux distribution came with seven CDs and two detailed reference and installation guide manuals. The 1 GB install from the installation CD was over in 17 minutes flat. Along with the installation, there were a host of applications such as graphics editing, word processing, etc. There was a good disk partitioning utility called DiskDrake that greatly simplified the process of initialising your hard disk drive and partitioning it. During the test process, every hardware from the mouse to the TNT2 graphics card was auto detected by Mandrake. Even the network card was detected and configured. The kernel that ran this version of Mandrake was 2.2.15 and it featured support for USB hardware and the i810-based graphics sub-systems motherboards. It was a very stable and feature-packed distribution but it did seem to take more resources than the other distributions.

VERDICT	Linux Mandrake 7.1	A-
	Ease of use	▲▲▲▲▲
	Features	▲▲▲▲▲
	Performance	▲▲▲▲△
	Value for money	▲▲▲▲▲
	OVERALL	▲▲▲▲△

Norton CleanSweep 2001

+ Easy to use
+ Small install size
Price: Rs 1,590+taxes
Contact: Tech Pacific
Phone: 022-5960101
E-mail: adil@techpacificindia.com
Web site: www.symantec.com
Features: Support for Win9x/ME/NT/2000

LEAVES NOTHING UNTOUCHED

Norton CleanSweep 2001 is one more of the several system tools that Norton makes. CleanSweep is a system cleanup tool, which speeds up your machine by deleting and cleaning unnecessary files from your hard disk. The installation was really short due to its small install size. There was a small utility, Norton Safe, which prevented accidental deletion of files during the cleaning up of your system. Norton CleanSweep had support for Win 9x/ME/NT/2000. The uninstall wizard helped in uninstalling unnecessary programs from your hard disk. It also helped in removing plugins and cookies, as also the Internet cache. It cleaned the Windows registry by deleting entries which were abandoned by other software. Like most of Norton's software, there was a live update option for updating your software through the Net. Considering it is fast, Norton CleanSweep is a good utility to have.

VERDICT	Norton CleanSweep	A-
	Ease of use	▲▲▲▲△
	Features	▲▲▲▲△
	Performance	▲▲▲▲▲
	Value for money	▲▲▲▲△
	OVERALL	▲▲▲▲△

Norton Ghost 2001
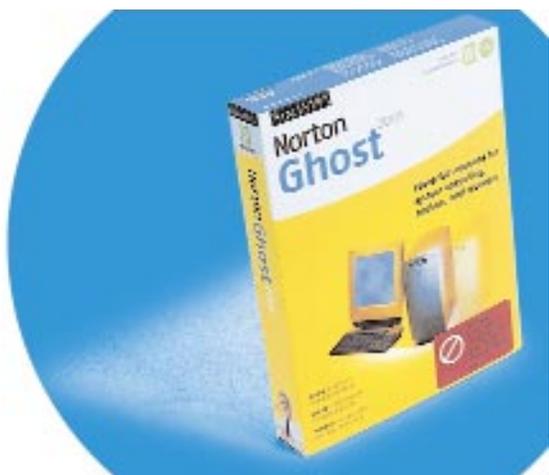
+ Small package
+ Easy simple interface
– Can be confusing for a beginner
Price: Rs 2,800
Contact: Tech Pacific
Phone: 022-5960101
E-mail: adil@techpacificindia.com
Features: Compatible with Win9x/ME/NT/2000 and also Linux ext2 file system

FAST AND EASY

The Norton Ghost package came packed with a manual and an installation CD. Norton Ghost had a file manager called the Ghost Explorer, which is one of the main components of the software. The Ghost Explorer allowed you to read written Ghost images and browse through the directories within the image. You need to use the DOS program to create disk images. You could create a disk image in minutes. The Norton Ghost Boot Wizard allowed you to create a boot disk and boot with LPT and USB support. Norton Ghost 2001 also had support for the Linux ext2 file system. You also had the option of fast PC to PC duplication using high speed network connections. Overall, Norton Ghost 2001 was very similar to the earlier release, but it had a better feel to it, was really compact and worked really fast too.

VERDICT	Norton Ghost 2001	A-
	Ease of use	▲▲▲▲△
	Features	▲▲▲▲△
	Performance	▲▲▲▲▲
	Value for money	▲▲▲▲△
	OVERALL	▲▲▲▲△

Price Watch

Your guide to the latest computer component prices

COMPONENT	PRICE (in Rs)
PRINTERS	
HP 640C	6,000
HP 930C	10,500
Epson Stylus 850	16,250
CABINET - ATX	
Mini	1,600
Mid	1,400
Full	1,900
CD-ROM DRIVE	
52x	2,350
CD-WRITER	
HP 8250	10,500
HP 8210E (USB)	12,500
DVD-ROM DRIVE	
8x Creative	6,500
8x Samsung	6,500
8x ASUS	6,500
MONITOR	
14-inch	7,300
15-inch	8,500
17-inch	12,750
19-inch	31,000

COMPONENT	PRICE (in Rs)
SCANNER	
Umax 200P	5,000
Umax 1220U	9,000
HP 3300	5,200
MEMORY - PC100	
32 MB	1,800
64 MB	2,600
128 MB	5,350
MOTHERBOARD	
P-III BF	8,500
440ZX	3,850
810E	5,200
MODEM	
D-Link 56.6 Kbps	3,300
GVC 56.6 Kbps	3,000
US Robotics 56.6 Kbps	6,500
MOUSE	
Logitech Mouseman Wheel	3,500
Logitech Cordless	7,500
Logitech Scroll	850
USB Wheel	2,250

COMPONENT	PRICE (in Rs)
KEYBOARD	
TVS Champ	1,300
MS Internet Keyboard	2,100
EXTERNAL STORAGE	
Jaz (2 GB)	17,500
Zip (250 MB)	7,750
MO Drive (Fujitsu)	19,500
SOUNDCARD	
Yamaha	700
Creative Vibra 128	1,500
Live! Value	4,000
GRAPHICS CARD	
Riva TNT 16 MB	6,750
Riva TNT2 32 MB	11,000
SiS 8 MB	1,700
HARD DISK	
Seagate 10 GB	5,500
Seagate 20 GB	6,500
IBM 16.8 GB	5,700
TV TUNER CARD	
Mercury TV	3,300
Play TV	3,500

The prices mentioned above are the average of the current prices in the market, and have been compiled by the CHIP Test Centre after extensive market analysis

Software Upgrade

Your guide to the latest software in the market and the best prices you can get it for

Product	Version	Platform	Price (in Rs)
Operating Systems			
MS Windows 98		Win 98	4,800
MS Windows 98 Upgrade		Win 98	3,750
MS Windows 2000 Professional		Win 2000	8,500
MS Windows Millennium Edition		Win ME	4,900
Office Automation Applications			
MS Office 2000 Std.		Win 9x/ NT /2000	14,000
MS Office 2000 Prof.		Win 9x/ NT/2000	17,000
MS Office 2000 Premium		Win 9x/ NT/2000	20,000
Development Tools			
MS Visual Foxpro Prof.	6	Win 9x/ NT /2000	18,500
MS Visual Basic Prof.	6	Win 9x/ NT /2000	18,500
MS Visual Basic Ent.	6	Win 9x/ NT /2000	45,000
MS Visual C++ Prof.	6	Win 9x/ NT /2000	18,500
MS Visual C++ Ent.	6	Win 9x/ NT /2000	45,000
MS Visual Sourcesafe	6	Win 9x/ NT /2000	18,750
MS Visual Studio Prof.	6	Win 9x/ NT /2000	35,000
MS Visual Studio Prof. Upgd.	6	Win 9x/ NT /2000	18,500
MS Visual Studio Ent.	6	Win 9x/ NT /2000	52,500
Oracle I Developer Suite		Win 9x/ NT /2000	125,000
Internet / Intranet Applications			
MS Exchange Server (5-user)	5.5	Win NT 4.0/ 2000	44,500
MS Proxy Server	2	Win NT 4.0/ 2000	34,500
MS BackOffice Small Business (5-user)	4.5	Win NT 4.0/2000	49,000
MS BackOffice Server (5-user)	4.5	Win NT 4.0/ 2000	93,500

Product	Version	Platform	Price (in Rs)
Database / Server Applications			
Personal Oracle	8.0.4 / 8i	Win 9x/ NT /2000	12,500
MS SQL Server (5-user)	7	Win NT 4.0/2000	47,500
Oracle Server (5-user)	8.0 / 8i	Win NT 4.0/2000	23,500
Oracle Programmer 2000		Win NT 4.0/2000	35,500
Graphics & Design Applications			
Adobe Photoshop *	5.5	Win 9x/ NT /2000	28,000
Adobe PageMaker	6.5+	Win 9x/ NT /2000	23,500
Adobe Illustrator	8	Win 9x/ NT /2000	20,500
Adobe Premier	5.1	Win 9x/ NT /2000	30,500
Adobe Acrobat	4	Win 9x/ NT /2000	11,000
Adobe Publishing Collection **		Win 9x/ NT /2000	47,500
Adobe InDesign	1	Win 9x/ NT /2000	41,000
Director Shockwave Internet Studio ***	8	Win 9x/ NT /2000	44,000
Macromedia Web Design Studio ****		Win 9x/ NT /2000	19,000
QuarkXPress	4.0.4	Win 9x/ NT /2000	28,000
Macromedia Freehand	8	Win 9x/ NT /2000	21,500
Macromedia Dreamweaver	2	Win 9x/ NT /2000	15,500
Macromedia Flash	5	Win 9x/ NT /2000	18,000
Anti-Virus Software			
McAfee Virus Scan (Network Associates)	5	Dos/Win3x/9x/NT	1,150
McAfee Total Virus Defence (5-user)	4, 5	Dos/Win3x/9x/NT	6,250
Norton Anti Virus 2000 (Symantec)	6	Dos/Win3x/9x/NT	1,400
Norton Anti Virus 2001 (Symantec)		Dos/Win3x/9x/NT	1,450
Inoculate IT Premier Anti Virus (from CA)	4.53	Dos/Win3x/9x/NT	950

* With free upgrade to Photoshop 6.0 ** Includes Acrobat 4.0/Illustrator 8.0/PageMaker 6.5, Photoshop 5.5 *** Includes Director 7/Shockwave 7/Fireworks & Sound Forge (WIN) **** Includes Dreamweaver, Flash and Fireworks Source: Fiona Infosystems Limited Phone/Fax: 022-6791297. e-mail: info@fionainfosys.com

December 2000

TOP 10 COMPUTER BOOKS

Title	Price
MS Office 2000 for Windows for Dummies *IDG Books*	Rs 199
Internet for Dummies *IDG Books*	Rs 199
Unofficial guide to starting e-commerce *IDG Books*	Rs 169
Flash 4 Bible *IDG Books*	Rs 429
Internet in Easy Steps *Dreamtech Press*	Rs 79
Starting an E-commerce Business *IDG Books*	Rs 249
All about Computers for Dummies *IDG Books*	Rs 179
Flash 4 Magic *Techmedia*	Rs 180
Java 2 *Dreamtech Press*	Rs 149
Routing and Switching *Dreamtech Press*	Rs 149

Source: Crossword, Mumbai

TOP 10 MULTIMEDIA TITLES

Title	Price
Bournvita Quiz Contest CD-ROM game *Global Knowledge Portals Pvt Ltd*	Rs 499
Carmen Sandiego's Think Quick Challenge *The Learning Company*	Rs 999
Virtual V Milestone Game Pack *Electronic Arts*	Rs 999
The Sims *Maxis*	Rs 999
Aladdin Activity Centre *Disney Interactive*	Rs 700
Road Rash *Electronic Arts*	Rs 499
WCW Nitro *T H Q Inc*	Rs 999
Sim City 3000 Unlimited *Maxis*	Rs 999
Disney's Hercules Action Game *Disney Interactive*	Rs 999
Where in Time is Carmen Sandiego *Broderbund*	Rs 999

Infographic: Jaya Shetty

Market Growth of Indian Computing Products by Form Factor (1999-00 over 1998-99)

Desktops	43%
Notebooks	48%
Standard Intel Architecture Servers	31%
Entry RISC/CISC Servers	43%
Mid Range RISC/CISC Servers	17%
Overall	42%

Source: IDC (INDIA) Limited, 2000

Product of the month

Casio Wrist Watch Camera

The lifestyle of James Bond enters the common man's world with Casio's claim of launching the world's first wrist watch digital camera. This small device is always ready to capture the special moments of life as they occur. Images users record can also be played back later. The display screen of the wrist camera is a 120x120-dot LCD capable of displaying 16 greyscales and can store up to 100 images. Another interesting feature is the visual data bank that allows up to 24 and 12 characters in the upper and lower lines, respectively, to record details about the photograph.

OVERHEARD

Microsoft for Linux?

Microsoft recently invested some $135 million in Corel Corp—the makers of Corel Linux, WordPerfect Office for Linux and Photo Paint for Linux. According to speculations floating around Microsoft may use this new influence to force Corel to drop its Linux plans.

But, on the other hand, insiders and reliable sources mention that the wordings of the investment with the US Securities and Exchange Commission (SEC) seems to allow a specific loophole for Corel to not only invest in Linux, but for Gates also to get into the act. The section that is of particular interest refers to the possibility of porting Microsoft's .NET services to Linux, or, in the words of the SEC filing: "Corel hereby grants Microsoft an option for Corel to port some portion or all of the .NET framework from the Windows Platform to the Linux Platform."

Insiders also mention that Microsoft has plans to come up with Microsoft Linux in a couple of years.

Clinching the BEST deal

Thinking of buying an assembled PC but are not sure about the criteria for selecting the components?
We show you how to make an educated choice in components so that you get exactly the PC that you want

Dipayan Choudhary

Who doesn't want the best computer at the cheapest price? But in your hurry to source what you feel is the best, you often overlook certain parameters. Given the plethora of advertisements floating around for PCs, it's even more difficult to sift the grain from the chaff. And no one ever tells you the precautions to take while purchasing the components for your PC.

Buying a computer can be as difficult as buying a car. No matter how much you look into the pricing, how much time you spend visiting the dealers and the amount of bargaining you do, you may still not be certain that you have a good deal. And unlike cars, PCs tend to get obsolete faster than you think. An aver-

age person (excluding CHIP readers, of course!) is not technically savvy enough to make a decision as to what processor to buy and what size of hard drive he should go in for.

But just because buying a computer can be confusing, it does not mean that you should be at the mercy of a salesman whom you can't really trust. By following a few simple rules, you can very well come to a conclusion as to what you need and spend your money accordingly.

Before making a purchase, the choice that you have to make is whether you are planning to go in for an assembled computer or a branded system. This is always a hot topic for debate, but here we will concentrate more on assembled computers since branded systems offer lesser scope for deciding the configura-

tion and the possibility of customising it to your needs is also limited.

Utility value

The very first thing you have to decide while going in for an assembled computer is how you are going to use the system. "At some point you need to ask yourself as to what you need the computer for; is it for writing documents or surfing the Web or for playing games," says Sudipto Dutta, officer, Income Tax department. "Until you decide on this, I don't think you will be able to do justice to the money that you are going to spend on it. For example, I am using my system primarily for surfing the Web and playing games, so I have given more importance to the amount of RAM and the graphics card," he adds. System configuration can also change

depending on your needs and it is better that you identify the utility and also keep in mind the future requirements. Don't ever think of buying a computer just because your friend has one or because everybody is talking of computers. Unless you need the utility, your computer will be just another piece of junk worth several tens of thousands of rupees!

Is the PC better or the Mac?

The two major types of computers available in the market based upon the system used are the PCs and the Apple Macintosh. There are several advantages as well as disadvantages to both. Macintosh is considered to be very user friendly and generally good for advertising and graphics artists due to its very robust support for graphics and image editing software and applications. The PC, on the other hand, is considered to be cheaper and offers many customisable options. Here, we will concentrate on the choices available to the PC user in terms of the various components.

The processor paranoia

The processor, as you know, is one of the most important components in your system. Unlike earlier years, where Intel ruled the market, you get many alternative processors such as AMD and Cyrix today. Get used to some of the terminologies associated with the processors. (*see box, 'Terms Dealers Throw at You'*). For instance, the overall speed of a computer is dependant on the clock frequency and bus speed of the computer. Thus, the more the MHz rating and the speed of the system bus, the more quickly can the information be processed and the faster is the system.

Until recently, all the processors used to have a bus speed of 100 MHz but recent advancements in technology have allowed this speed to increase up to 200 MHz. For example, the new P-III processors such as the Coppermine 733EB support bus speeds of 133 MHz. Apart from the processor, the motherboard should also be capable of supporting these bus speeds, so take care to choose a motherboard that runs at the bus speed supported by the processor.

If your requirements involve CPU-intensive applications such as heavy graphics work or multimedia applications or you are aiming for a heavy-duty multimedia gaming machine, then you should go for a processor that runs at a high frequency (preferably greater than 700

MHz) and supports a bus speed to 133 MHz or more (such as the Coppermine 733EB or the Athlon processors that can run at a bus speed of 200 MHz).

Another factor that affects the speed of the system is the size and type of the cache in the system. There is a certain amount of cache present in the processor and this is used to store the codes that are used by the processor while working with instructions and data. Keep in mind that more the amount of cache and the speed of the cache, the greater is the processing power of the processor.

Aniruddha Ghosh
USES A COMPUTER WITH AN AMD PROCESSOR

Intel offers the Celeron range for the budget PC and the P-III range for the higher-end models. There are two main differences between the P-III and the Celerons—the bus speed support and the amount of cache on the processor. In order to cut costs, Intel incorporated a lesser amount of cache in the Celerons (but they run at full clock speed).

Besides the Intel processors, you can also choose from those offered by AMD. For performance applications, you could opt for AMD's Athlon series of processors which boast of very commendable performance as well as fast bus speeds. AMD also has the Duron processors which are well suited to the needs of a budget user and yet provide good performance.

Which motherboard?

There are a few factors that you need to consider when you are buying the

motherboard. You don't need a high-performance motherboard if you are planning to use the system just for Internet surfing and general office use. A good choice in such a case would be an i810-based board that also features integrated video and audio. This significantly brings down the cost of your system.

If you are going to use the system for graphics intensive applications and high-

> **"**A DVD drive is good for playing movies but then you should have a good movie playing software along with it**"**

end gaming, then you need a powerful motherboard. A good choice in such a case would be the 815-based board running a Coppermine processor and a fast graphics card. If price is not a criterion, an ideal choice would be a board such as the ASUS CUSL2 board with 733 MHz Coppermine processor. Alternatively, if you are willing to bypass Intel, a good choice is a motherboard such as the ASUS A7V that supports the new Socket A Athlon processors. These boards feature a chipset such as the KT133 chipset and offer the advantage of a 200 MHz system bus speed—that's twice as fast as compared to Intel's standard 100 MHz speed.

Memory test

SDRAM (synchronous DRAM) is the fastest and one of the most easily available types of RAM. In order to keep up with the bus speeds of the motherboards, this type of RAM is available in speeds of 100 MHz and 133 MHz. There is also RDRAM (Rambus DRAM), which was developed by Rambus Corporation and has a peak data throughput of 1.6 GBps. However, RDRAM has the inherent disadvantage of high latencies (which means that it takes a longer time to access a certain piece of information in the RAM) and high price. Due to these reasons, it is not very popular at present.

Another point you should consider while purchasing RAM is the amount of RAM that you should go for. If you are

Terms Dealers Throw at You

AGP
AGP is an acronym for Accelerated Graphics Port. When shopping for an AGP card, verify the actual brand and the capabilities of the card. Check whether it can play the latest games and run the newest applications. You need to verify that it features support for the various graphics systems such as OpenGL and DirectX that your applications will be running.

Bus speed
This is the speed at which the motherboard runs. This bus speed, when multiplied by a factor is used to determine the speed of the processor. The faster the system bus, the faster is the communication between the main processor and the rest of the components on the motherboard. The standard bus speed for systems nowadays is 100 MHz but there are motherboards and processors that are capable of running at 133 MHz or 200 MHz.

Cache
L1 cache refers to the high-speed memory that is present on the processor itself and this is usually very small in size—usually ranging from 16 to 32 Kb. Apart from this, a larger amount of cache known as L2 cache is also present and used for storing the most often used information that is processed by the main CPU. This usually ranges from 128 Kb to 2 MB.

Clock Frequency
The clock frequency is the rate at which the computer processes the information and is measured in millions of cycles per second (MHz). The processor works on instructions and data that are sent to it in a synchronised fashion with this frequency.

Chipset
Motherboards are designed primarily around two chips. One is located near the upper edge of the board (therefore the term North Bridge) and controls the transfer and co-ordination of information between the processor and the system memory. The other chip is located near the lower edge (hence the name South Bridge) and takes care of transfer of data between the interface slots and the system BIOS. Together, these chips form the chipset of the board.

SDRAM
Synchronous DRAM is most commonly found on Pentium II- and Pentium III-class computers due to its 100 and 133 MHz operating speeds. This RAM consists of two separate internal banks of transistors for storing data.

RDRAM
The newest incarnation of computer memory, Rambus DRAM gives speeds of operation up to 800 MHz and transfer rates reaching 1.6 Gbps, RDRAM offers high performance but is still in the process of standardisation and is also quite expensive.

Speed in CD/DVD drives
The speed of CD-ROM and DVD drives are both specified as a factor of the data transfer speed of an audio CD. Audio CDs read data at a rate of 150 Kbps. Therefore, a 50x CDROM drive reads data at a rate of 150x50=7.5 Mbps. These are the maximum theoretical data transfer rates and the actual real-world speeds are generally slower. For DVD drives, 1x of a DVD drive is six times that of a CD-ROM drive.

going to use your machine for word processing and surfing the Net then 64 MB is good to start with. But if you are planning to use resource-hungry software such as image editing and 3D graphics applications, then it is advisable to go for 128 MB of RAM at the very least. "Since I am using my machine primarily for word processing and keeping records of my accounts, I have gone for 64 MB of RAM. With this, I can even play most games without any difficulty," says Aniruddha Ghosh, who has gone in for an AMD system.

Choosing the right graphics card
Selecting the right graphics card is one of the trickiest choices. Take a look at the software you are going to use and see if there are many game titles which use 3D acceleration. If you find such games, then it might make sense to have a 16 MB or 32 MB AGP graphics card with the new chipsets such as 3dfx, Voodoo3, ATI Rage 128, nVidia TNT2, etc.

According to Tamal Nath, a hardware engineer, "You should always devote a handsome amount of the total budget to your graphics card as it is an important component even if you are just using your machine for Internet browsing. There are many new sites which are graphics heavy as they use Flash, and you need a good graphics card to get the best view. Moreover, if you play games such as Quake III Arena you can't have a good experience without a good graphics card."

If you are looking for a still higher-end graphics card then go for the GeForce256 or GeForce2-based cards from companies such as ASUS or Creative. If you use applications such as AutoCAD professional, Lightwave 3D or any other 3D software packages, you would need a card that features good OpenGL support. Again, if you are a heavy user of Adobe Photoshop or are into desktop publishing, a good graphics card will always be an added advantage. If you are planning to have a

budget PC, then you can go for an Intel 810 or 815-based motherboard, which has built-in graphics and there is no need for an additional graphics card. This cuts down on the overall cost of the system. However, there can be some problems with a built-in graphics card as Nath explains, "The graphics card of the 810 chipset is going to share the main memory and as a result, the overall memory available to the system gets lessened, which reduces the performance. Moreover, if your onboard graphics card develops some fault later then you can't go for an AGP card as there is no AGP slot available."

The best acoustic experience

If you are an avid music listener and want to convert your system into a home theatre, then you definitely need a good soundcard with good speakers. Among the quality soundcards that are available, Creative's range is quite popular in the market. Within the Creative range, the Sound Blaster series is quite promising, especially with the Sound Blaster Live! Value for the budget PCs. Otherwise, you can go for an 810-based motherboard which has the sound sub-system built-in. According to S.K Gupta, a computer reseller in Nehru Place, people mostly go for the Yamaha soundcard, as they are cheap and easily available.

The disk drives

Most hard disks today come with storage space as high as 20 GB. If you are on a very tight budget, then don't settle for anything less then 8 GB and opt for standard ATA/66 IDE. If you are going to use professional applications that demand performance from your hard disk sub-system, you could opt for an ATA/100 IDE drive or an Ultra160 SCSI drive. However, with the former you have to make sure that you are using a motherboard or an add-on card that is capable of supporting the ATA/100 standard. Another important consideration is the speed of the hard disk drive; a fast interface could get bogged down by a hard disk that features a slow spindle speed. Therefore, if you are looking for performance, consider at least a 7,200 RPM-based hard disk. A 10,000 RPM hard disk would be the best choice for mission-critical and data-intensive applications.

CD-ROM or DVD

Nowadays, more and more vendors are offering DVD drives, which are backward compatible with CD-ROMs. DVDs thus seem to be making great headway in

replacing CD-ROM drives. If you are a movie buff, a DVD drive is a good investment as the video and audio quality that it offers is unparalleled. If you are going for a CD-ROM drive then don't settle for anything less than 48x speed. If you are going for a DVD then look for second generation 8x or faster drives. "A DVD drive is good for playing movies but then you should have a good movie-playing software along with it," says Ghosh who uses a DVD drive.

Monitors

A 15-inch monitor is the smallest size that you should go for, particularly when you are planning to use your computer for a longer time. A 17-inch monitor, on the other hand, will be ideal for most users since they are quite competitively priced and add a very different dimension to applications such as surfing the Internet, playing games and watching movies. Also see that the monitor is capable of running at a refresh rate of at least 75 Hz, whatever be the resolution. This is essential when you are using the monitor for extended periods as it helps to minimise eyestrain and fatigue.

Expansion for the future

Look for the adequate slots and connectors in the system for future use. The PC should not only have serial, parallel, mouse, keyboard, gameport but also USB ports which are going to be used heavily in the near future.

Last but not the least is the modem. It is advisable to settle for nothing less than a 56K modem. If surfing the Internet is important to you, you could also consider other options such as cable Internet and DSL, which offer high bandwidth access.

Are you being served?

One of the important factors you should consider is service. Most of the vendors offer you a one-year carry-in warranty where you have to take the product to the vendor. But it's preferable that you look for vendors who offer onsite warranty where you will get the service done at your place. This is especially useful for large peripherals such as monitors and printers where taking these devices to the vendor could prove to be very cumbersome.

Keeping in mind these considerations, the Herculean task of selecting and upgrading components for your computer could be far less daunting. ■