Top of the Charts

Your guide to the best monitors and printers available in the market

At the CHIP Test Centre, products are tested in two categories—the individual tests and the comparison tests. Software and hardware are tested using the latest benchmarks and test procedures developed by the International CHIP Test Centre in Munich, Germany, in conformance with industry standards. For a comparison test, the products are tested in comparison with the other products of the same kind and then rated according to their performance.

But how do you know how a new product, which did not feature in the comparison test of its category, rates against the others of its kind? For example, if CHIP had tested 18 motherboards in the comparison test in January and carried out an individual test of a motherboard in the following months. How would the reader know where that particular motherboard stands in comparision to those already tested?

To answer this, you have the CHIP Top Ten, featuring ten best products in a category (rated according to the performance in the CHIP Tests).

The tables provide all details needed to make a purchase: technical data, test values and prices.

WHAT THE NUMBERS MEAN

CHIP Test lists the points for the product as well as total points. The results from the individual tests are analysed to give the

These two columns consist of qualitative information regarding the product

Under Technical Details, you will find the important specifications

				TECHNICAL DETAILS				CHIP TEST					
Place	Mainboard and price	Contact	Phone	Processor Interface	Chipset	AGP Slot	Max Memory	Productivity	Creativity	Entertainment	Total score	Remarks (+)	Remarks (-)
1	Chaintech 6BTM Rs9,600	Ideal Concepts	011-6216225	Slot -1	440BX	Yes	512	149.6	168	131	151	Optical sensor connectivity	NA
2	GVC SP-PII LXB Rs3,600	Priya Int	022-2663611	Slot - 1	440LX	Yes	768	152.8	168.6	124.4	150.9	Versatile performer	Less number of PCI slots
3	ASUS P2B Rs8,500	Mnemonic	022-8010871	Slot - 1	440BX	Yes	384	151.3	167	128.7	150.8	Extensive documentation	Too expensive
4	ASUS P2L97 Rs4,500	Mnemonic	022-8010871	Slot - 1	440LX	Yes	384	152	168.6	124.7	150.6	Comprehensive documentation	Single ISA slot
5	Mercury KC97LX-AT Rs3,700	Mnemonic	022-8010871	Slot -1	440LX	Yes	256	151.8	168.1	125.4	150.5	Attractively priced	Low expandability
6	GVC SP-PII EXB Rs3,400	Mnemonic	022-8010871	Slot - 1	440EX	Yes	768	151.5	168	125.3	150.3	Economical price	Low expandability
7	ACORP 6BX86 Rs4,200	ACE Micro Electronics	011-6201276	Slot -1	440BX	Yes	768	150.3	166.5	128.8	150.2	Protective static sheet	Only 2 DIMM slots
8	Gigabyte GA-6BXE R s5,500	Nebula Tech	022-6347158	Slot - 1	440BX	YES	1024	149	167	130.3	150.2	Supports large amount of RAM	No drivers
9	ACORP 6LX Rs3,300	ACE Micro Electronics	011-6201276	Slot - 1	440LX	Yes	256	151.1	168.1	124.3	149.9	Easy to install	Only 2 DIMM slots
10	Transcend TS-ABX NA	Wales Tech	022-3828100	Slot - 1	440BX	Yes	768	149.7	166.7	127.5	149.7	Quick performer in DOS	Skimpy documentation

*Results are based solely on the performance of the product. Price has not been considered a criterion

PRINTERS

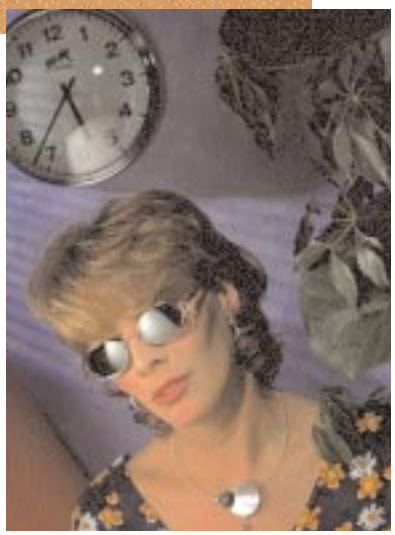
The Test Procedure used was in accordance with the standards laid down by the International CHIP Test Centre in Munich, Germany.

The performance of these printers was measured against a number of parameters. They were finally evaluated on the basis of the printing speed, resolution, sharpness, the ability to print text and graphics and, in the case of colour printers, the ability to print high-quality colour. Factors such as ease of setup, ergonomy and documentation were also taken into account while testing the printers.

Speed Test

In the speed test, the printers had to print three text documents at a resolution of 600 dpi. The text speed was measured with a five-page business letter with several fonts and a company logo. We measured printing time as the time taken from the moment of issuing the print command till the printed document is ready in the printer tray.

The second test was a document that consisted of a combination of text, graphics and also photographs taken on normal paper with the best possible printing options that the printer can support.In the final test, a full-page photograph was printed at the highest resolution that the printer can support.



This document and the combination document determine the graphics printing speed. These printouts are assigned a weightage of 20 percent (for text) and 80 percent (for graphics).

Two categories were used for measuring the print quality–text and graphics. Frayed edges or haziness through satellite dots would lead to a negative marking.

The prints of the combi-page (*See Combi-page test printout alongside*) and the photographs are used to evaluate the graphics quality measured against reproduction of drawings with lines and circles, text in 2 point size and grey levels and photographs.

The documentation is measured by studying the quality of the accompanying literature for technical data, index, glossary and fault diagnosis.

			TECHNICAL DETAILS				CHIP TEST									
Place	Name of Product	Contact and Phone	Print technology	Maximum Resolution	Print memory	Interface	Setup	Print quality (graph-ics)	Print quality (text)	Documentation	Print speed (graph-ics)	Print speed (text)	Ergonomy	Total score*	Remarks (+)	Remarks (-)
1 time	Canon BJC 6000 Rs 16,000	Canon 011-6235546	Bubble Jet	1440x720	128KB	Parallel	17	45.7	35.3	12	8.2	31.3	10	2.07	Good photo printing	High startup
2	Epson Stylus Color 740 Rs 17,000	Colour Copi India 022-4224326	Piezo	1440x720	64KB	Parallel/ Mac/USB	17	43.3	35	11	6.3	29	10	2.15	Very good print quality	Slow graphic printing
3	Epson Stylus Color 640 Rs 11,000	Colour Copi India 022-4224326	Piezo	1440x720	32KB	Parallel	16	44.8	35	11	6.8	24.3	10	2.22	Very good setup and print quality	High running costs
4 Low print speed	Epson Stylus Color 440 Rs 8,200	Colour Copi India 022-4224326	Piezo	1440x720	10KB	Parallel	14	40.2	32.5	11	9.6	15.7	10	2.54	No power consumption	
5	Xerox DocuPrint XJ8C To be launched	Modi Xerox 011-6434544	Bubble Jet	1200x1200	512KB	Parallel	12	38.3	26.3	7	7.8	24.8	10	2.57	Multiple utilities	No manual
6	Canon BJC-4400 NA	Mnemonic 022-8051761	Bubble Jet	720x360	32KB	Parallel	10	40	26.3	11	6.6	23.1	9	2.63	Fast text printing	Slow graphics printing
7	HP Deskjet 710C Rs 10,700	Colour Copi India 022-4224326	Bubble Jet	300x300	NA	Parallel	13	39.3	26.3	10	5.3	22.4	12	2.70	Sturdy build quality	No power switch
8	Lexmark 3200 Color Jetprinter NA	Systems & Auto 022- 8013101	Bubble Jet	600x600	NA	Parallel	13	39.7	27.5	9	4.9	19.5	9	2.82	Good print resolution	Slow to print photographs
9	Wipro GeniusWriter IJC 955 Rs 14,495 + tax	Wipro Peripherals 022 7655709	Bubble Jet	1200x1200	1024KB	Parallel	9	35.6	26.3	9	5.3	24.3	10	2.87	Fast text printing	Slow graphics printing
10	Wipro GeniusWriter	Wipro Peripherals	Bubble Jet	600x600	1024KB	Parallel/	9	27.2	26.3	9	4.7	21.2	10	3.15	Excellent contrasts	Slow graphics

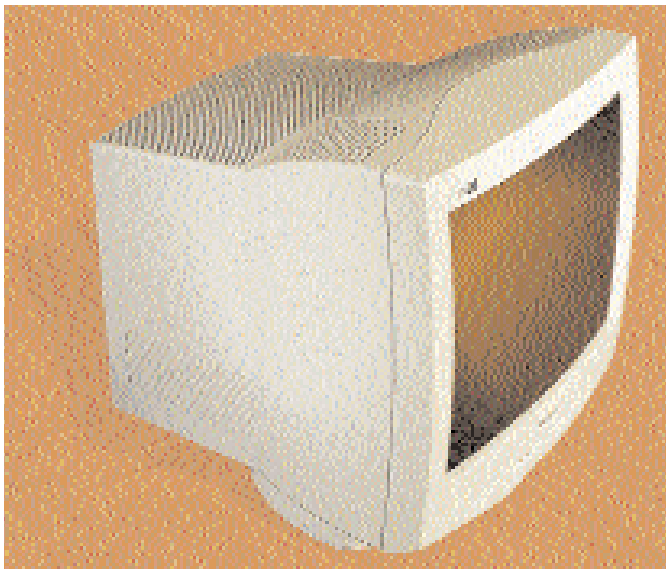
*Lower number indicates better performance

CHIP Top Ten

MONITORS (14- AND 15-INCH)

The monitors in the Top Ten list were evaluated for features, usability, ergonomy, price and performance.

The base system was a 350 MHz PII- with a 6.3 GB hard disk and 128 MB of 100 MHz SDRAM. The graphics card used was Asus Riva TNT with 16 MB of SDRAM. This card was chosen for the purity of output signal and its capability for supporting high resolutions at high refresh rates.



Before the test, a monitor is left to run for about 20 minutes in order to stabilise and warm up the CRT. The test bench was chosen such that the monitor is aligned in an East-West direction. This eliminates the effects of the Earth's magnetic field on the performance of the monitor.

In the test for convergence, a program that generates very fine horizontal and vertical patterns on the screen was run. Various areas of the screen such as corners and the ventral areas were observed for blurring (indicative of incorrect convergence).

The grid test checks the geometry of the screen for any imbalances in the horizontal and the vertical dimensions of the display.

In the Signal On/Off test, the program sends a high (white screen) signal to the monitor, followed by a low (black screen) signal.

This is repeated at 60 Hz. The older monitors did not respond well to this signal and the raster pumped very noticeably. Also, while changing video modes some monitors produce a loud clicking sound.

Observed results of these tests are entered in a standard Excel spreadsheet that automatically reads these values and generates a tabular report of the performance.

For all monitors the same test procedure was followed for evaluation and whenever possible, the individual drivers and the software required by the monitors were loaded. These were uninstalled from the system after each test.

(*See "Search for a Perfect Display," CHIP April, 1999*)

			TECHNICAL DETAILS						CHIP TEST						
Place	Name of Product	Contact and Phone	Screen size	CRT Type	Horizontal frequency (Max)	Vertical frequency (Max)	Resolution (Max)	Dot pitch (in mm)	Screen quality	Ergonomy	Construction	Documentation	*Total score	Remarks (+)	Remarks (-)
1	Hansol Mazellan 501P	Compugram Infoworld	13.8	Shadow Mask	70 KHz	150 Hz	1280 x 1024	0.28	22	25	15	11	2.64	Stable sharp display	Clicks while switching
	Rs 11,500	022-6286283												modes	
2	Sony Multiscan 100ES		Sony India		14.0	Aperture Grille		70 KHz	120 Hz		1024 x 768		0.25	20	24
14	12		2.69	Good convergence		High price, visible									
	Rs 17,900+Tax	022-8313333													dampening lines
3	Samsung Samtron 50E		Savex Computers		13.8	Shadow	Mask	61 KHz	120 Hz		1024 x 768		0.28	22	25
13	12		2.71	Good overall performance			Difficult to access								
	Rs 10,000	022-2029864													advanced features
4	Daewoo 518X	Kinetic Commn.	14.0	Shadow Mask	54 KHz	120 Hz	1024 x 768	0.28	22	23	15	12	2.74	Sharp at 800 x 600,	Slightly flawed
	Rs 8,900	020-775841												convenient OSD	screen geometry
5	Smile Chromaclear	NDS Computers	13.8	Chromaclear	54 KHz	100 Hz	1024 x 768	0.28	17	22	14	12	2.83	Stable at high refresh rates	
Slight blurring at															
	(CB6515DS) Rs 7,300	022-6365878													the left corners
6	LG Studioworks 440Si	Aditya Promoters	13.2	Shadow Mask	48 KHz	90 Hz	1024 x 768	0.28	23	22	13	12	2.84	Good convergence	Curvature of the
	Rs 7,350+Tax	022-2692583													phosphor coat visible
7	NEC Multisync V500	Compugram Infoworld	13.7	Shadow Mask	64 KHz	100 Hz	1280 x 1024	0.28	21	25	15	9	2.84	Stable raster	No visual appeal
		Rs 9,500	022-6286283												

*Lower number indicates better performance