

## 17in monitors

**ADI Microscan 5GT**

**Axion CL1766 T2**

**Belinea 10 70 40**

**Eizo F55s**

**Hansol Mazellan 700P**

**MAG XJ717**

**Miro VS1770 T**

**Mitsubishi Diamond Plus 72**

**NEC MultiSync A700**

**Samsung SyncMaster SM700p Plus**

**Sony CDP200EST**

**Taxan Ergovision 760**

**Trust Pro Visual 17" Excellence**

**ViewSonic GT775**



# The big

**When it comes to monitors, size is important, and upgrading to a larger screen has never been easier on the pocket. We eye up the latest models, at prices starting from £240**

**B**ack in the dark days of DOS, a typical PC screen was a curved 14in model seemingly designed to maximise viewing discomfort. But things have moved on a bit since then, and the increasing popularity of Windows, combined with better graphics technology, has fuelled the demand for larger, better displays.

The real advantage of a larger monitor is that it can support higher resolutions, allowing you to pack more onto your desktop without compromising image quality. This means you don't have to spend your time scrolling up and down spreadsheets and shuffling through windows to get to what you want. Larger monitors can also bring improved picture quality, and once you've used one you'll wonder how on earth you coped

with a smaller screen.

When we looked at the 17in monitor market last year the cheapest model was still over £300, and many cost more than £600. Now that we're looking at them again prices start at just £240, and none cost more than £500. So there's no reason to deny yourself the benefit of a bigger display.

This month we take you through all the things you should look at when buying a new monitor, and put 14 of the latest models to the test.

### **Size is important**

It may sound obvious, but the first thing you will notice about a larger monitor is its sheer size. These things ain't small, and you'll need a sturdy surface to support a 17in monitor. Even the most lightweight model in this test weighed in at



# picture

17kg, and the Mitsubishi Diamond Plus 72 is a hefty 22kg.

Many of the monitors here have been designed to be as sleek as possible, but you just can't get away from the fact that they are housing a large Cathode Ray Tube (CRT). The most compact unit is the Taxan Ergovision 760, which, at 392mm deep, saves you just under 3cm on the next smallest unit.

While we are on the subject of size, the next thing you should be aware of when buying a new monitor is the actual viewable area on offer. Measured diagonally across screen from corner to corner, this dictates the true size of the image displayed, and it will always be slightly less than the advertised monitor size because once the monitor tube has been housed in its case some of the surface area is lost. Most 17in monitors offer somewhere

between a 15in and 16in viewable area.

The smallest viewable area we encountered was on the Taxan Ergovision 760, which measures 15.5in. Most of the monitors offered at least 15.7in, while the MAG XJ717 provided a generous 16.1in.

## Resolutions

The key benefit you'll gain from a larger monitor is that it will be able to support higher resolutions. The image on your monitor is made up of a grid of horizontal and vertical dots called pixels, and the resolution describes the number of pixels you can display on the screen. The higher the resolution of your monitor, the more you can see on your desktop, which is handy when you're working with lots of application windows at the same time.

The optimal resolution for a 17in display is 1024x768 pixels, but all of the monitors we looked at can run at lower or higher resolutions. The Samsung SyncMaster SM700p Plus claims the highest supported resolution at 1800x1440 pixels, but since most graphics cards won't support such a high resolution this is rather academic. The highest you can realistically push a 17in monitor would be 1280x1024 pixels, so if you want to go even higher you should consider choosing a 19in or 21in monitor.

## Dot pitch

Another factor that goes into making a monitor crystal clear is the dot pitch. Everything that's displayed on the screen is made up of tiny red, green and blue dots, and dot pitch is the distance in millimetres between adjacent dots of the



## Screen technologies

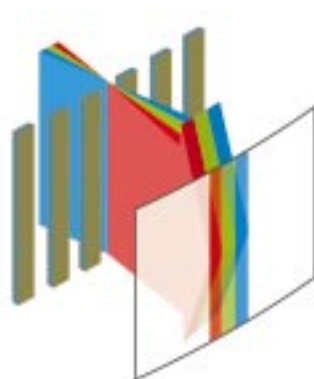
All of the monitors in this test employ one of the two most common tube technologies, either shadow mask or aperture grill. The majority use FST (Flatter Squarer Tube) shadow mask technology, while Sony, ADI, Mitsubishi and ViewSonic use an aperture grill.

To understand what these terms mean you have to know a bit about how monitors work. Your

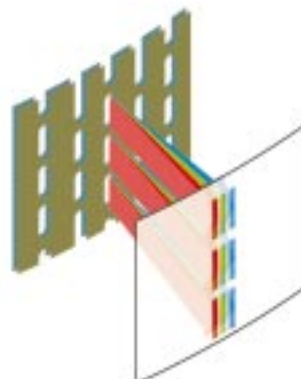
display is made up of millions of tiny red, green and blue phosphor dots that glow when struck by electron beams that travel across the screen to create the image you see.

To make sure the image is as crisp as possible the beam for each colour has to hit the correct coloured dots. One way to achieve this is to use a fine metal mesh called a shadow mask; the beam is then directed through the mask to hit the correct phosphors. As a shadow mask is essentially a sheet of metal with holes drilled in it, you have to remember that wherever there is metal no light can get through, so this type of screen might not provide the brightest display.

Alternatively, an aperture grill can be used to position the



● Sony Trinitron



● Shadow mask

beam. The aperture grill is made up of many fine strips of metal that run from the top to the bottom of the screen and force the beam to illuminate the correct stripes of phosphor. The grill allows more of the beam to hit the phosphors, which gives a brighter image. Sony's Trinitron screens use this type of technology.

The advantages of an aperture grill-based

monitor is that you will have a vertically flat tube, because the grill strips run from the top to the bottom of the monitor, and this can help to cut down glare and distortion. But there are a couple of disadvantages you should take into account.

The metal strips that make up the aperture grill are more sensitive to movement than a shadow mask, so if you give your monitor a knock you'll see your screen wobble as if you had just degaussed it. To counteract this problem there are two thin wires running across the screen to hold the vertical strips in place. This results in two faint dark lines running across your display. These aren't too intrusive, but if you want a screen free of any interference, think carefully before choosing an aperture grill.

same colour. On an aperture grill monitor (see the box on Screen Technologies above) this measurement is called stripe pitch and measures the distance between adjacent phosphor stripes of the same colour.

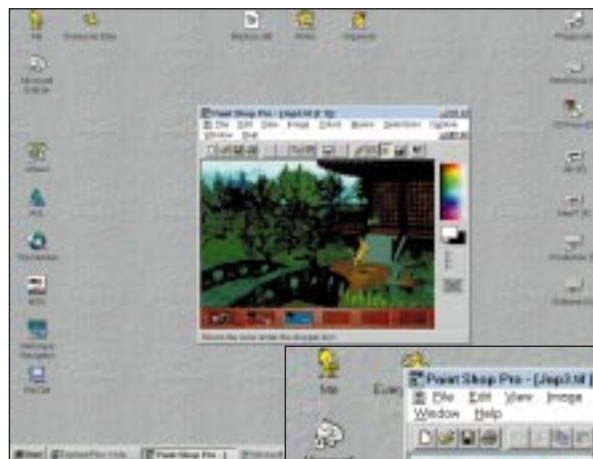
The dot or stripe pitch indicates how fine the dots are that make up images on the screen, so the smaller the dot pitch, the sharper the image. The dot pitches for our monitors range from 0.28mm to a stripe pitch of 0.25mm on all the aperture grill displays, though the average for shadow mask CRTs is 0.26mm.

### Refresh rates

The images you see on your monitor are being constantly redrawn, or refreshed, from top to bottom and left to right by electron beams. The refresh rate, expressed in hertz, is the number of times the monitor redraws the screen per second. The higher the refresh rate supported by your monitor, the less likely you are to detect a flicker on the screen.

The refresh rate can be quoted as interlaced or non-interlaced. But you should only really pay attention to non-interlaced refresh rates as these refer to the rate at which every line is redrawn, as opposed to interlaced rates, which only refresh every other line.

The minimum non-interlaced refresh



The higher the resolution supported by your monitor, the more information you'll be able to view on screen. Increasing the resolution from 640x480 (below) to 1024x768 (left) gives you much more space to play with.

rate you should look for to achieve a flicker-free screen is 85Hz, and all of the monitors we looked at support this at a resolution of 1024x768 pixels, and some can go even higher. To benefit from these refresh rates you will have to check that your graphics card can support them too, but most should go up to at least 85Hz. If you have suffered from problems with screen flicker in the past, you could consider one of the models that supports



refresh rates of over 100Hz for a rock-steady screen.

The other rate you can see in our table is the maximum quoted refresh



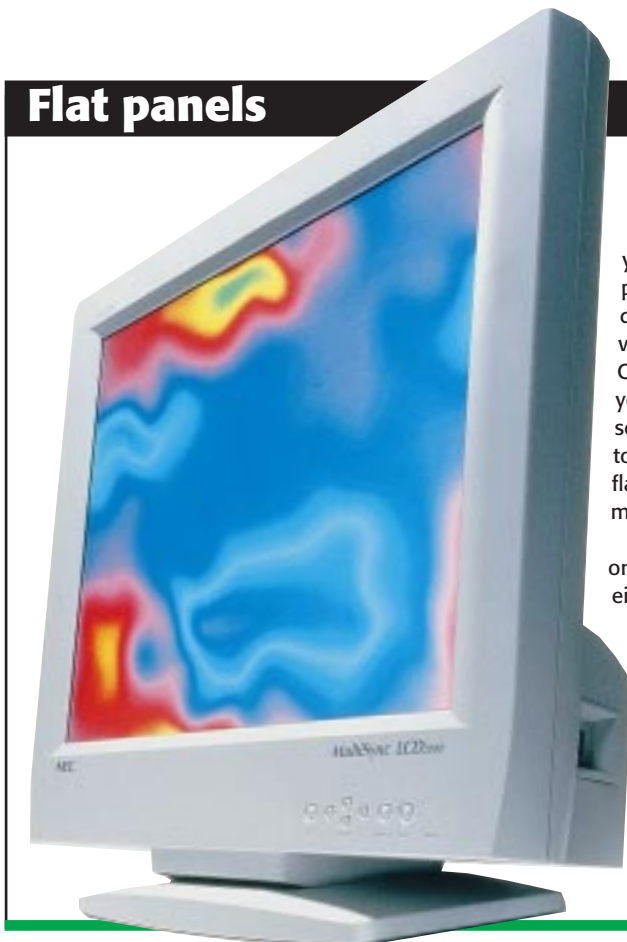


## 17in monitors compared

	Model	ADI Micro-scan 5GT	Axion CL1766 T2	Belinea 10 70 40	Eizo F55s	Hansol Mazellan 700P	MAG XJ717	Miro VS1770 T
Product	*Price (inc VAT)	£457.08	£240.00	£269.08	£468.83	£233.83	£321.95	£332.06
	Dimensions (w x d x h) mm	416x470x402	420x420x424	444x434x448	410x439x413	428x442x428	409x434x421	506x534x571
	Net weight (kg)	20	17	17	18	19	18.4	18.3
	Viewable diagonal	16in	15.7in	15.7in	15.9in	15.6in	16.1in	16in
Features	Screen type	Trinitron	FST	FST	FST	FST	FST	Trinitron
	Dot/stripe pitch	0.25	0.28	0.26	0.28	0.26	0.26	0.25
	Maximum resolution	1600x1200	1280x1024	1280x1024	1280x1024	1600x1200	1600x1200	1280x1024
	Maximum non-interlaced refresh rate	120Hz	86.96Hz	120Hz	120Hz	120Hz	160Hz	120Hz
	Maximum non-interlaced refresh rate at 1024x768	115Hz	86.96Hz	105Hz	101Hz	85Hz	85Hz	85Hz
	Supplied Windows 95 driver	○	○	○	●	○	○	○
	Warranty	3 yrs os	3yrs rtb	3yrs os	3yrs rtb	3yrs os	3yrs os	3yrs os
Ratings	Controls	★★★★★	★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
	Image quality	★★★★★	★★	★★★★	★★★★★	★★★★	★★★★	★★★★★
	Value for money	★★★★★	★★★★★	★★★★★	★★★★	★★★★★	★★★★	★★★★
	Overall	★★★★★	★★★	★★★★	★★★★★	★★★★	★★★★	★★★★
	Contact details	0181 236 0801	01582 868888	0118 936 2900	01483 719500	01276 418213	0118 975 2445	01952 676358
	Web address	www.adi.com.tw		www.maxdata.co.uk	www.pds.com	www.hansol-eu.com	www.magi.co.uk	www.miro.de
	Notes							

\* Manufacturers' recommended retail prices; street prices are usually lower. Warranties: os = on site; rtb = return to base.

## Flat panels



If space is an issue, then a 17in monitor may not be the best solution. In this case, you could opt for a slimline flat-panel display. A 16.1in flat-panel display offers much the same viewable diagonal as the 17in CRT monitors we looked at, so you won't have to compromise on screen size. But you will still have to dig deeper into your pocket as flat-panel displays cost quite a bit more than CRTs.

Flat panels generally employ one of two screen technologies, either DSTN-LCD (Dual Scan Twisted Nematic) or TFT-LCD (Thin Film Transistor), with the latter offering the best picture quality suitable for animation and video playback. As the name suggests, flat panels have completely flat screens, which helps to cut down on glare and reflection.

On the downside, flat panels are lit by fluorescent tubes that run through the back of the unit, which means that some lines may appear brighter in some parts of the screen than others. They may also suffer from streaking and ghosting, where image boundaries are blurred or replicated. Viewing angles are not as great as you will find on a CRT and you may see some colour distortion.



Mitsubishi Diamond Plus 72	NEC MultiSync A700	Samsung SyncMaster SM700p Plus	Sony CDP200EST	Taxan Ergovision 760	Trust Pro Visual 17" Excellence	ViewSonic GT775
£405.38	£445.33	£445.33	£386.58	£311.38	£449.99	£405.38
410x425x406	403x427x440	424x444x423.9	406x420x431.5	409x392x422	422x425x420	410x444x416
22	18.5	18.5	18.5	17	18	20.5
16in	15.6in	15.7in	16in	15.5in	15.6in	16in
Diamondtron	FST	FST	Trinitron	FST	FST	SonicTron
0.25	0.28	0.26	0.25	0.27	0.26	0.25
1280x1024	1280x1024	1800x1440	1280x1024	1280x1024	1600x1200	1280x1024
130Hz	120Hz	160Hz	120Hz	120Hz	120Hz	160Hz
106Hz	85Hz	120Hz	85Hz	85Hz	100Hz	106Hz
○	○	○	●	○	○	●
1yr os & 2yrs rtb	1yr os & 2yrs rtb	3 years os	3yrs rtb	1yr os & 2yrs rtb	1yr rtb	3yrs os
★★★★★	★★★	★★★★★	★★★	★★★★★	★★★★★	★★★★★
★★★	★★★	★★★★★	★★★★★	★★★	★★★	★★★★★
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★★★★★	★★★	★★★★★	★★★★★	★★★★★	★★★	★★★★★
0800 7311222	0181 752 3333	0800 521652	0990 424424	01344 484646	0800 328 0261	0800 833648
www.meuk.mee.com/monitors	www.neceur.com	www.samsungelectronics.co.uk	www.sony-cp.com	www.taxan.co.uk	www.trust.com	www.viewsonic.com
Adaptor						Adaptor

★ = Poor ★★ = Below average ★★★ = Average ★★★★ = Good ★★★★★ = Excellent

○ No ● Yes

rate, but you should note that you'll only achieve these rates when you are running your display at the lowest possible resolution, which won't look too hot on a 17in monitor.

## Controls

A good set of picture adjustment controls is also essential. All of the monitors we looked at needed a lot of work to get a true, clear image that filled the whole screen, and the easier it is to get to grips with the controls the faster you can get your monitor up and running.

The two basic controls you'll find on any monitor are brightness and contrast, and these can really affect the quality of the picture. We encountered problems with the Mitsubishi Diamond Plus 72 and the MAG XJ717. On the Diamond Plus the contrast control washed out the colours, rather than reducing their richness and intensity, and on the XJ717 when we turned the contrast up to maximum the green gun overscanned everything on the right-hand side of the screen.

Other controls you should look for include: size and position; pincushion and barrel, which allow you to ensure the vertical and horizontal lines in a

rectangular image are straight; rotation or tilt, to line up the image areas with the border around the edge of the screen, and trapezoid and parallelogram, which help you to bring screen geometry up to scratch.

Moiré and convergence correction tools are handy too. A moiré control should help you to cut down on the distortion caused by patterns appearing on your screen, though it has to be said that most of the moiré controls we tried didn't have much effect. A convergence control will help you to ensure the three (red, green and blue) electron beams converge to hit their respective phosphors.

## Drivers

To get the best performance from a monitor when running Windows 95 or 98 you will need to an .inf (information) file for it, which will ensure that your display is used at the correct refresh/resolution combinations. Only three of the monitors we saw came with this supplied, but you should be able to download the drivers from the manufacturer's Web site, or ask for them to be sent to you on a disk.



**ViewSonic's GT775 was our Best Buy the last time we looked at 17in monitors, and nothing has changed since then. We're still impressed by the crisp, clear image quality offered by this model, and now it costs less too. It supports a wide range of resolutions and refresh rates. The controls are easy to use and allow you to correct most problems you might encounter.**



**Two monitors run off with our Recommended award, one of which uses the same aperture grill technology as the ViewSonic, and one that uses a shadow mask. ADI's Trinitron-based Microscan 5GT offers clear, sharp picture quality, simple controls and a sturdy stand. But if you fancy the shadow mask option Samsung's SyncMaster SM700p Plus is the best choice. It's a really high-quality display with an impressive range of supported resolutions and refresh rates.**

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