



# Thin *is* in

If you're bored of your bulky, aging CRT monitor and want something a bit more slimline and sexy, read on because we've given 16 LCD flat panels the PCW screen test

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• Monitors tested and reviewed by Ken McMahon

**T**he cathode-ray tube has had its day. Karl Ferdinand Braun's invention has served us well, but LCD panels are the future of computer displays. The absence of electron guns, powerful magnets, phosphors and vacuum tubes makes these panels smaller, lighter and cooler than CRT monitors.

About the only drawback with LCD panels is price. We've compared no fewer than 16 15in LCD flat-panel displays, mostly entry-level analog models with no expensive extras. Even so, the price of 15in LCD panels is currently three to four times the cost of their 17in CRT equivalents.

Having said that, the price is falling all the time and it's now possible to buy a high-quality panel for well under £600. Whether you're buying an entire new system, or want to replace a hot, heavy, bulky, aging CRT with something a little more 21st Century, with each passing month the arguments become more persuasive.

A few of the panels reviewed have extras such as USB hubs, speakers, or the ability to rotate by 90 degrees for use in portrait format, but the main criteria on which you judge a panel should be display quality. For this reason we'd definitely recommend you get a close-up view before making a buying decision.

Throughout our tests, the monitors were positioned in the same spot and left for one hour to warm up. We tested the ability of each to display text, both in text-based applications and using Displaymate's text colour combination screen that displays text and graphics using different colour combinations.

Next we turned our attention to the ability of each panel to display graduated grey and coloured tones and to differentiate between similar grey and colour tones using a 64-step graduated strip. In particular we were interested in how well tonal values at the highlight and shadow extremes of the strip were displayed.

We then looked at how well the monitors coped with photographic images by visually assessing an assortment of high-quality images including a human portrait and a natural landscape. Fleshtones are a good test of a monitor because they contain subtle variations in tone and colour. Because we are all used to looking at faces, any shortcomings in a monitor's reproduction of skin tones is easily picked up.

As with everything visual, though, when you're going out to buy your own LCD panel it's important to see your chosen model working before parting with your cash – it's the only way you can be sure you'll be happy with your choice.



## ADI MicroScan A610



**THIS ISN'T ONE OF** those panels that begs you to admire its designer styling and cool good looks, but look past the plain and unassuming cream exterior and you'll discover one of the most capable flat-panel displays in this test.

This monitor looks almost as smart from the back as it does from the front. The semicircular plastic base elevates the panel nearly five inches above desk height and with an integral power supply and a video cable that exit through a

sculpted hole in the stand, there are no unsightly cable trails.

What looks like the power button is in fact a dedicated auto adjust button – helpfully labelled 'A'. The on/off switch – which would be more at home on a bedside table lamp (and that's the only bad thing we can find to say about the A610) – is located on the bottom, beneath the lower bezel.

The OSD is operated by three small buttons on the right-hand side of the lower bezel. One activates

the menu and acts as an enter key, the other two are used to scroll options and adjust settings.

There are no colour balance presets, but there is an auto-balance function that in most circumstances produced a quite pleasant, slightly warm balance to the eye.

The ADI outperformed every other panel in our display quality tests. Most impressively it managed to successfully differentiate and display

every one of the 64 grey intensity levels with excellent linearity.

ADI quotes a viewing angle of 160 degrees both horizontally and vertically, which is astonishing. And while it didn't quite achieve this it's true to say it has the widest horizontal and vertical view angles of any of the monitors on test. The vertical display characteristics in particular are outstanding – you can stand up or, if the mood takes you, lie on the floor and the picture still looks great. If ever there was a display made for rotating then this is it, and ADI should seriously consider the idea.

The most important criteria on which to judge any monitor must be display quality and on that basis alone the ADI comes out on top.

### DETAILS

★★★★★

**PRICE** £739.07 (£629 ex VAT)

**CONTACT** ADI 020 8327 1900

[www.adimicroscan.com](http://www.adimicroscan.com)

**PROS** Superior display quality; simple design

**CONS** Table lamp on/off switch

**OVERALL** The best display on test makes this the only choice where quality matters.

Outstanding angle makes it unbeatable for group viewing



## CTX PV520



**THE CTX PV520** is finished in matt silver, which gives it a striking appearance that would look great in an office reception, or workshop, but may not match your living room decor.

It rests on an oval base with an elegant angled bracket stand that occupies a minimum of desk space and can be removed and wall mounted. Another trick the PV520 can perform is to rotate through 90 degrees to provide a portrait format view – though you'll

need special software to do this, which costs around £45.

The VGA connector and lead from the external PSU plugs in centrally at the rear in a cylindrical well, so if you do want to wall-mount the display you'll need to allow adequate clearance. The panel tilts through about 45 degrees, there's no swivel, but you can easily move the entire stand to the right or left.

Four small buttons on the right of the display provide contrast

adjustment and access to the on-screen menu (OSM) with a large power button just above. The first option on the OSM is 'autotune', which automatically adjusts the display to provide the best viewing image for the input signal; it takes only a few seconds and works very well. All the other usual OSM functions are present, including two presets and a user-defined colour temperature adjustment, language selection and screen position for the OSM.

The PV520 fared well both in our tests and in general use. The horizontal viewing angle was good with a viewable image up to about 50 degrees either way. Vertically the optimum window was about 10 degrees either side of straight on.

The PV520 coped well with text of all colours on difficult backgrounds and there was no evidence of streaking or ghosting. It had few problems distinguishing between greyscale and colour tints. However, some compression was noticeable at the dark end of the scale where greys and darker colours on the 64 intensity scale were unclear, this was the case to some degree with nearly all the panels on test.

### DETAILS

★★★★★

**PRICE** £677.97 (£577 ex VAT)

**CONTACT** CTX 01923 810 800

[www.ctxeurope.com](http://www.ctxeurope.com)

**PROS** Good-quality display; simple OSM; silver finish

**CONS** Can't be flush mounted on the wall; pivot software costs extra

**OVERALL** Solid, basic, no-frills LCD with a good-quality display. Excellent first step up from a CRT display, but charging extra for the pivot is mean

## Eizo flexScan L350



trend and incorporates the power supply in the panel casing rather than using an external unit. This gives the panel a slightly wider, chunkier profile than is the norm and there's a ventilation grill at the top, but this isn't visible from the front.

The stand is a wide-angled metal bracket attached to the bottom of the unit. This makes it easy to tilt it from the top, and the forward centre of gravity means you can tilt quite far without worrying that it's going to break or even tip over.

**IF WE WERE TO** judge solely by appearances the Eizo flexScan L350 wouldn't be on our list of favourite flat-panel displays.

To say it's ugly would be going too far, but the beige ribbed plastic casing does make it look quite dated. In all the important respects, though, the L350 is a good performer. It was very easy to set up, and gave a good account of itself in our bench tests.

The L350 goes against the current

There are only two connectors at the rear – for the power cable and the D-SUB video connector. Eizo provides an excellent utility that takes you step by step through the setup process so that you get the best possible image. The first step is to press the auto-adjust button and in fact this single task is pretty much all you need to do. Even if you don't need to make adjustments to the clock, phase, colour, position and other

settings, the program at least helps you familiarise yourself with the OSM. It also provides test screens to help you get the best results.

Although one-touch auto-adjust buttons are now commonplace, Eizo has gone one step further and added an automatic contrast adjustment feature. This worked quite well, and in our intensity scale test the Eizo was one of the best performers with good linearity and differentiation of steps well into the highlight and shadow areas.

It didn't do so well on viewing angle, though. The quoted specifications are 140 and 120 degrees horizontal and vertical, but we found the L350's illumination fell off rapidly beyond a viewing angle of about 40 degrees in either plane.

### DETAILS

★★★  
**PRICE** £821.32 (£699 ex VAT)  
**CONTACT** Eizo 01483 719 500  
[www.eizo.co.uk](http://www.eizo.co.uk)  
**PROS** Easy setup and adjustment; no trailing power supply cable and box  
**CONS** Not pretty; poor viewing angle  
**OVERALL** Not the display to choose if you want to impress, but otherwise a robust performer

## Hi-Grade CD-151C



speakers, but this proved not to be the case.

The second striking thing about the Hi-Grade monitor is that the front panel is devoid of buttons, with the single exception of the power switch and power indicator.

Further examination revealed the OSD controls to be mounted on the rear of the left bezel and they are operated by the index and second fingers of your left hand.

The advantage of this setup is that the front looks simple and uncluttered in either its landscape or portrait configuration.

You'd think that having the OSD buttons where you can't see would make operation difficult, but the truth is that you very quickly get used to it.

There are four buttons arranged in two banks of two. The bottom two control menu activation and selection and the top two scroll through the available options, which include auto

**THIS IS HI-GRADE'S** first standalone monitor, though the company is no stranger to LCD displays, having carved out a niche in the notebook market with its Notino and Ultinote range.

The CD-151C has a number of distinctive features. First there's the base – a curious semi-cylindrical affair that houses a pair of speakers. As these were in the base we hoped the low-frequency output might be an improvement on bezel-mounted

configuration, brightness, contrast, clock, phase, position and colour balance. There are no presets for colour temperature, just three sliders for red, green and blue gain.

The monitor's picture quality was very good all round and the view was acceptable beyond 45 degrees on the horizontal plane.

The only real criticism, apart from its bulky base, that we could level at the Hi-Grade is that because of the narrow vertical viewing angle it's not easy to get an even picture in portrait mode, but this applies more or less equally to all the panels with a pivot option.

In every other respect the Hi-Grade is an excellent all-round performer.

### DETAILS

★★★★★  
**PRICE** £586.33 (£499 ex VAT)  
**CONTACT** Hi-Grade 020 8532 6100  
[www.higrade.com](http://www.higrade.com)  
**PROS** Built-in speakers; hidden OSD controls; pivot; free swivel software  
**CONS** Bulky base; poor quality in portrait mode  
**OVERALL** This is a great all-rounder, but with a smaller base and USB hub it would be just about perfect



## Hitachi CML151XW



**HITACHI'S MEMORABLY** named CML151XW would definitely make it to the final three in any flat-panel beauty contest you care to name. Like the Sony, it's slim, finished in two-tone grey, and mounted on a plastic-clad arm with a circular base. As well as tilting, the stand can swivel 60 degrees in either direction although the noise it makes while you do this will certainly get you noticed in the office.

The external power supply and video

connectors plug in vertically either side of the stand and trail their unsightly cables down and away. Hitachi, like Iiyama, has failed to take the opportunity to tuck them away inside the stand. Having said that, if you intend to wall mount the panel they are ideally situated.

The front of the panel has a nicely understated curvature, mirrored in the design of the recessed power switch and menu, down and up OSM buttons. The OSM itself is

a cut above the average, unwrapping Windows-style rather than just flatly appearing from nowhere. There's an auto setup function that can be directly accessed by pressing the down button, the brightness can likewise be accessed with the up button.

The menu button cycles through the OSM's six menus controlling brightness, contrast, positioning, colour, clock and phase, and management functions, each of which has several options on a

dropdown menu. There are three colour temperature settings – cool, neutral and warm, but no user-defined setting. You can individually adjust the red, blue and green balance, though. There are also two gamma settings – one adjusted for LCD and the other to more closely resemble the behaviour of a CRT display. Should you mess things up you can quickly restore the factory defaults.

The review model was supplied with no drivers or instructions. Despite this, it performed well throughout our tests, and excelled particularly in resolving highlight detail in colour and tint graduation scales. Horizontal viewing angle was close to the quoted 100 degrees, though quite directional vertically. The CML151XW is a quality product in every respect.

### DETAILS



**PRICE** £821.32 (£699 ex VAT)

**CONTACT** Hitachi 01628 643 000

[www.hitachi-eu-bsd.com](http://www.hitachi-eu-bsd.com)

**PROS** Nice design; good OSM; good-quality display

**CONS** Noisy swivel; no cable conduit; no user-defined colour setting

**OVERALL** A nicely designed top-quality flat-panel display



## IBM T54H



**THIS IS A RADICAL** departure from the norm, finished in matt black and mounted on a square plastic base by means of a large cylindrical hinge, it looks very industrial and you'll either love it or hate it. Our view is that in an attempt to be ultra-modern IBM has actually ended up looking quite dated.

The OSD is accessed using four wavy buttons mounted on the front lower bezel alongside the power switch. It's a straightforward functional affair with

contrast, brightness, image lock, colour mode, reset and OSD options arranged linearly. There are three preset colour modes and though no colour temperature is indicated there's a neutral, blue and red setting, but no option for a user-defined setting. There's no auto setup, but this happens when the input signal is sensed, so you don't need to press any buttons.

The IBM panel turned in an average performance and

displayed a good range of tones in all colour bands. However, even on the warmest of the colour presets, the image was quite cool and flat, and if you like your colours warm and rich this may not be to your liking. The horizontal viewing angle was perfect up to about 45 degrees in either direction after which the brightness tailed off rapidly. This is not unusual and in fact less than a handful of monitors tested here were able to maintain a bright picture outside

of 90 degrees. Unfortunately, the IBM wasn't one of them.

Apart from its looks, there was little to distinguish this panel from the rest of the crowd. Brightness and contrast, at least on a technical level, are pretty much the norm. A USB hub would have made this a particularly desirable item but, like most other manufacturers here, IBM has omitted to include one which, while not a crime, may encourage you to look elsewhere.

The panel had a worrying tendency to distort when handled. This was particularly evident on the right-hand side, for example when you grasp and hold it to tilt. Any LCD panel will display localised distortion if you touch the screen directly, and although the distortion disappears when the pressure is removed we can't help feeling that repeated handling of this nature certainly wouldn't do the IBM any good.

### DETAILS



**PRICE** £807.22 (£687 ex VAT)

**CONTACT** IBM 0990 426426

[www.ibm.com](http://www.ibm.com)

**PROS** Attractive

**CONS** You'll have to be careful how you hold it

**OVERALL** Looks good but the specs are average

## Iiyama TXA3813MT



The stand is sturdy, if a little on the large side and is constructed of a metal with plastic panels. The signal and power cables plug in sideways so you should have no problems flush-mounting it on a wall. Given its expanse of plastic cladding it wouldn't have been too difficult a task to provide some sort of cable routing like Sony's offering in the test. The panel can be tilted through 35 degrees on the stand by gripping firmly with both hands.

**NO PRIZES FOR** imaginative titling, but if the name sounds like something plucked from a parts catalogue at least the styling of Iiyama's entry-level 15in panel is clean, simple and uncluttered.

The power switch is tucked well away to the rear of the underside directly in line with the green LED power indicator. Three recessed buttons marked menu, plus and minus, centrally mounted on the bottom bezel provide access to all OSM functions.

You can manually adjust the contrast and brightness by simply pressing either plus or minus, the rest of the OSM functions are displayed on one of two menus. Oddly, the auto-setup function, which adjusts the clock, phase and position, is on the second menu, rather than the first, though you can shortcut to it by holding down the menu button.

Colour adjustment is primitive, providing a one-scale adjuster that you can bias toward blue or red. There are

no colour temperature presets, and there is no control over individual red, green or blue components. There is, however, an auto-balance feature, although results from this were unpredictable and rarely led to an improvement in picture quality.

The Iiyama did poorly on test, largely as a result of the inability of the auto-setup function to optimise the clock and phase for the input signal. It was possible to considerably improve the situation through manual adjustment, but what is the point of an automatic facility if you need to mess about like this after it hasn't done its job?

Iiyama also produces a version – the 3823 – with a USB hub and speakers for £674. At only £19 extra, all other things being equal that would be a bargain, as it stands we can't recommend either.

### DETAILS

★★

**PRICE** £769.62 (€655 ex VAT)**CONTACT** Iiyama 01438 745 482[www.iiyama.co.uk](http://www.iiyama.co.uk)**PROS** Simple styling**CONS** Poor auto adjust; poor colour control**OVERALL** It's possible to get good picture quality on the Iiyama, but you need to work at it

## LG Flatron LCD575MS



making it one of the easiest to tilt – you can do this with one hand and there's no need to support the stand with the other. The base is fitted with rubber feet that keep it nailed solidly to the desk but have the disadvantage that, despite its light weight, you can't easily swivel it. There's a conduit in the stand so that you can invisibly route the power and signal cables.

The front panel features tiny metal touch-sensitive buttons for

**KOREAN MANUFACTURER** LG has recently gained a reputation for stylish, ergonomic design and its Flatron LCD panels are no exception. Finished in two-tone and measuring nearly 40cm square, the wide bezel of the 575MS makes it one of the larger panels, but it's slim and light and the rectangular base gives it one of the smallest footprints of all the models on test – only the NEC 1530V beats it by a whisker.

The panel is perfectly balanced

operation of the OSD and the display itself is quite nicely designed to overlay the screen on a semi-transparent panel. It's simple to operate and includes an auto setup, two colour temperature presets, position, clock, phase and OSD setup controls. The panel beeps each time one of the buttons is touched, but if you find this irritating it can be disabled.

Contrast and brightness settings can be directly accessed by pressing one of the four 'cursor' buttons that are

arranged in a diamond array next to the button that activates the OSD. The only serious criticism we could make of the LG OSD is that, in the absence of a confirmation step, it's far too easy to accidentally activate the auto setup by inadvertently brushing the switch.

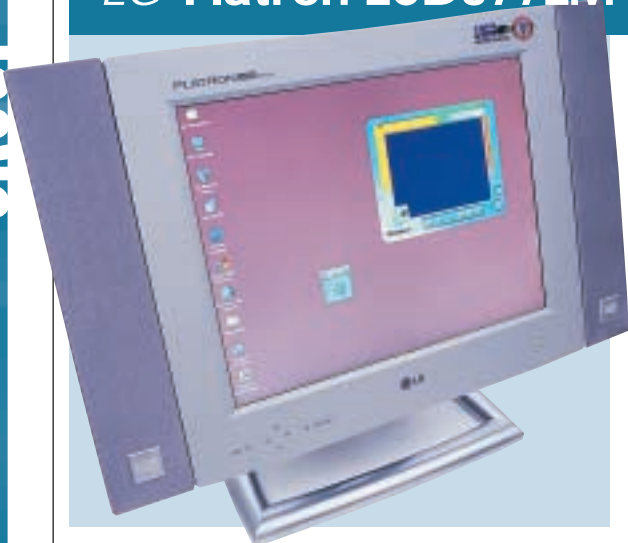
The display quality gave us cause for concern in three respects. First, there was a clump of permanently-on pixels in the bottom left quadrant of the screen. This was probably just bad luck and a one-off. Second, the horizontal viewing angle was quite narrow. Finally, the colours on this unit are very saturated and vibrant. When viewing photographic images and video this can look unnatural, and it's impossible to achieve a more subdued natural look.

### DETAILS

★★★★

**PRICE** £616.87 (€525 ex VAT)**CONTACT** 0870 607 5544[www.lge.co.uk](http://www.lge.co.uk)**PROS** Good external design; small footprint; neat cable conduit; low price**CONS** Very saturated colours; imperfect LCD; narrow horizontal angle of view**OVERALL** A nicely designed, very competitively priced display let down by poor picture quality

## LG Flatron LCD577LM



**THIS IS ONE OF THE** more highly specified of the panels in this test, but despite that it is still very competitively priced, costing less than many models with a more basic specification. The 577LM has a USB hub built into the base with one upstream and four downstream connections. A lead is supplied to connect the upstream port to one of the USB ports on your PC and you can then connect a digital camera, scanner or any other USB device to the

hub without having to crawl about.

The 577LM also has a pair of impressive looking speakers that don't produce bad sound. These can either stand alone or connect to either side of the panel. Inevitably there's a lot of cabling involved, but the LG design keeps things fairly neat – the power cable, for example, plugs into the base and there's a clip to tidy away any excess speaker wire.

Last on the list of big features is a portrait facility. Rotate the panel 90 degrees and the software supplied ensures the image stays the right way up, enabling you to view portrait format A4 documents.

The 577 provides a well illuminated image through a wide horizontal viewing angle and displays good differentiated tones in both the highlight and shadow areas. Furthermore, although the brightness and contrast were set to maximum, the colours were saturated and crisp without going over the top.

This is a lot of display for your money and with the speakers connected you'll have to make use of the adjustable bracket if you want the screen to rotate. Even then you'll need to think carefully about positioning and cables if you don't want them to go flying.

At first we had difficulty rotating the screen, but then we realised that a clever hinge mechanism to the back allows you to adjust the height so that it won't bump into the desk when you spin it round. It looks a little silly in portrait mode with the speakers attached, but they can be removed.

It supports one of the widest ranges of display standards of any model on test here, so should have no complaints, regardless of whether you're attaching it to a PC or Mac. So, if you're looking for a display that is as versatile as it is attractive, this could be the one.

### DETAILS

★★★★★



**PRICE** £668.57 (£569 ex VAT)

**CONTACT** 0870 607 5544

[www.lge.co.uk](http://www.lge.co.uk)

**PROS** USB hub; detachable speakers; rotate feature; excellent value

**CONS** None to speak of

**OVERALL** Great value, feature-packed panel

## Maxdata Belinea 10 15 15



**ALTHOUGH IT HAS** one of the smaller footprints, because of its wide bezel the Belinea panel gives the impression of being much larger than it is. From the front you could easily think you were looking at a conventional CRT, though the quality of the display and a quick look round the side will soon put paid to that impression.

The Belinea's stand is a broad but functional plastic-clad arm that meets the unit midway at a large hinge. To tilt

the panel you need to grasp it firmly with both hands. The power supply plugs in on one side of the arm and the video connector does the same on the other. There is no conduit for the cables and while this isn't too much of a problem with the power, the video cable attaches quite low down and there's no way to stop it protruding from below the bottom bezel, before snaking away across your desk.

The enormous front bezel houses the blue

plastic power button and three grey plastic pads that activate and control the OSD. Given the size of the buttons, the fact that they aren't very sensitive comes as something of a surprise – it often took two attempts to get a response. The OSD itself isn't terribly intuitive either. The right (up) button is used to activate the menu, then the left (down) button scrolls through the options, then you must use the right portion of the central rocker button to

select, or the left to exit. You can directly access contrast and brightness by pressing right or left but, having made the adjustment the only way out is to return to the main menu (up) then exit (right).

Fortunately, you don't have to remember all this as guidance is provided on the OSD, but it's still a chore. Added to that if you get it wrong and press the down button the monitor goes in to auto adjust. The one saving grace is that this works perfectly and only takes a second.

The quality of the Belinea display is good and it gave us no cause for concern in any respect, though the lack of any colour temperature presets on the OSD could be a drawback. The viewing angle was good up to about 45 degrees, after which illumination fell off pretty rapidly.

### DETAILS

★★★

**PRICE** £650.95 (£554 ex VAT)

**CONTACT** Maxdata 01344 788 900

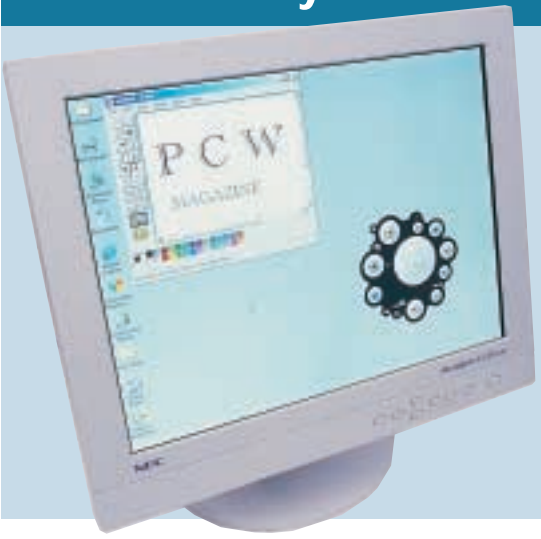
[www.belinea.co.uk](http://www.belinea.co.uk)

**PROS** Good-quality display

**CONS** Difficult OSD; no colour temperature presets; big

**OVERALL** Buy it for the view rather than the styling

## NEC MultiSync LCD1530V



**WHILE THIS MAY NOT** look quite as sexy as the Sony or Hitachi models it is well designed and has the smallest footprint of all. It's all very well having a wafer-thin panel, but many LCD screens need a heavy, wide base to provide stability, particularly when the screen is tilted. The NEC stand has an oval-shaped base from which the stand rises up at a slightly forwards angle and the panel itself is mounted in the middle so you can tilt it by firmly grabbing both

sides. Its compactness is all the more remarkable when you consider it has an integral power supply.

The NEC also has one of the neatest arrangements for tidying cables. First, there's a removable plastic cover on the back of the panel itself that provides easy access to the power and signal connectors. The cables then route through a hole in the top of the stand, down to the bottom and out of the back – there's another removable panel on the

back of the stand itself to help you do this. This arrangement is very neat and it ensures the cables are entirely hidden from view.

The OSM is rather button-infested, requiring seven plastic push buttons where others get by with three. What's more, there are no shortcuts to commonly used controls such as contrast, brightness and auto adjust – all must be accessed using the OSM, which is activated by pressing any one of

the buttons. Nonetheless, the menus are easy to use and the auto adjust did an excellent job that required no further tweaking. There's also an auto-contrast function that set the contrast to a perfectly acceptable level. No user-defined colour temperature setting is available, but as there are five preset options – from a rather warm 4,200K to 9,300K – in addition to individual RGB controls this probably isn't necessary.

Picture quality was, on the whole, excellent, although there was a very noticeable red cast in dark greys – this persisted even when the colour temperature setting was adjusted to its bluest.

Though no figures were supplied for viewing angle the image was still viewable past 45 degrees either way on the horizontal plane.

### DETAILS

★★★★

**PRICE** £715.57 (£609 ex VAT)

**CONTACT** NEC Mitsubishi 0845 121 9200

[www.nec-monitors.com](http://www.nec-monitors.com)

**PROS** Small footprint; neat cable conduit

**CONS** Red cast in shadows; too many buttons

**OVERALL** The obvious choice for where space is at a premium, but the cast rules it out for accurate colour work

## Samsung SyncMaster 150MP



**THIS ISN'T SO MUCH** a display as an appliance. Incorporating a TV tuner within its stylish silver casing it wouldn't look out of place next to your VCR. The 150MP panel is the standard 15in diagonally, but the casing is square with a 3in panel at the bottom playing host to TV channels and volume controls as well as buttons for the OSM. There's a centrally mounted power button and four input source indicators with a button to cycle through them.

The panel is mounted on a stand hinged at the bottom with a retractable metal foot. You can tilt it back by about five degrees. If you want to go further you must press a locking button at the back, but as it's hinged at the bottom this makes it fairly unstable.

Regardless of the pros and cons of the stand, the 150MP's image is rock solid. The OSM operates using touch-sensitive metal contacts on the front panel that are a delight to use and it has

an auto-setup option that works quickly and efficiently.

Holding down the menu button for five seconds locks all the OSM functions with the exception of contrast and brightness. Other OSM functions include colour control, image sharpness, and a timer. You can also set up and configure the TV tuner and audio from here. All of the OSM functions and conventional TV operations can be selected using the remote control

supplied. While it was very good at differentiating light colours and tones the 150MP did less well with darker colours, losing the ability to define greys and darker colour on the final eight parts of a 64-step test strip. This is by no means unusual and it was a weakness of many of the panels on test.

In addition to the D-SUB connector there's an antenna socket, composite and S-Video inputs. Outputs include separate left and right audio outputs, stereo audio, line out and headphone connectors. The 150MP isn't one of the cheapest flat-panel displays available and although it's an excellent display in every respect you have to ask whether you wouldn't be better served by a conventional display with a TV tuner card. This would have the added advantage of digital recording functions.

### DETAILS

★★★★★

**PRICE** £975.25 (£830 ex VAT)

**CONTACT** Samsung 0800 521 652

[www.samsungelectronics.co.uk](http://www.samsungelectronics.co.uk)

**PROS** TV tuner; speakers; remote control

**CONS** Expensive

**OVERALL** A good choice if you want a stylish standalone portable, otherwise you're probably better off with a TV tuner card





## Samsung SyncMaster 150T



**THIS IS ONE OF THREE** brand new SyncMaster models that will be available from July this year. The range includes a 17in and 18in model and all three feature DVI (Digital Video Interface) connectors in addition to an RGB analog D-SUB port.

The 150T is a conventional looking display. Samsung has eschewed the metallic silver finish that's becoming popular with some LCD panels in favour of off-white. This is at least more likely

to match the other components of an existing system.

There are several stands to choose from including a multimedia option with mic, audio and headphone connectors. The review model was supplied with the angle pivot base, which in conjunction with pivot software allows you to rotate the screen 90 degrees clockwise into portrait mode. The pivot software wasn't at all

keen to co-operate with our test machine, which was running Windows 2000. Samsung says that the panel will ship with version 2 of the pivot software, which is fully compatible with this operating system.

The pivot base itself is poorly designed and while it's useful to be able to adjust the display for height, the spring-loaded adjustment is prone to heavy landing, especially if you attempt to use it in a sitting position, and the lack of a lock makes it difficult to tilt the panel without altering the height.

The OSM offers straightforward controls and includes three colour temperature presets. There's a dedicated button for brightness control and one for single-touch auto setup.

As with the other Samsung model here, picture quality was fully saturated with quite contrasting colours. The 150T fared particularly poorly on the intensity scales test, however, showing compressed tones at both the highlight and shadow ends of the scale. Despite this, it was possible to view the screen adequately from quite wide view angles both horizontally and vertically. While it underperforms in terms of display, the twin digital and analog inputs make it a worthy candidate for anyone considering a future all-digital system.

### DETAILS

★★★

**PRICE** £863.62 (with standard base) (£735 ex VAT)

**CONTACT** Samsung 0800 521 652

[www.samsungelectronics.co.uk](http://www.samsungelectronics.co.uk)

**PROS** Analog and digital input; height adjustable; pivots

**CONS** Badly designed stand; slightly poorer than average display

**OVERALL** Worth considering if you need dual inputs, otherwise a below par performance

## Sharp LL-T1510A



**SHARP, LIKE MOST** other monitor manufacturers has seemingly chosen the name of its latest LCD panel by picking letters and numbers at random.

The name might look the same as all of the others, but this panel has a number of design features that set it apart. It has a very cleanly designed base and stand that allows you to tilt and swivel the panel itself. The swivel motion is very smooth and needs only light pressure with one hand, but you do

need to support the base when tilting.

The base itself has a USB hub with one upstream port on the back and two easily accessible downstream ports on the right-hand side. It also houses the power supply and an integrated signal cable with a D-SUB connector that plugs into your PC's graphics port.

The front bezel sports four OSD buttons with an attractive pearl finish. There's also a power button backed up by an

additional switch on the left-hand side of the base.

The auto-adjust function provided a perfectly sized, positioned and synchronised picture first time, and there's also an auto-adjust feature on the gain menu that sets the contrast and brightness to optimal levels. This wasn't so successful and required two attempts. There are three colour temperature setting – cool, standard and warm – as well as individual primary colour

controls. Two minor criticisms of the OSD: no confirmation on the auto-adjust features means it's easy to accidentally activate on both the adjustment and gain control menus, and the only direct feature – accessed by pressing the left or right button – adjusts the backlight, whereas brightness or contrast would have been a better option.

Sharp makes much of its unique 'black TFT' technology succumbing only to the common problem of poor shadow detail. Viewing angle was good up to about 45 degrees, after which illumination fell off rapidly.

Easy setup, clean lines, good picture quality and one of the best tilt and swivel stands make the Sharp a good choice for dual-USB home and office users.

### DETAILS

★★★★★

**PRICE** £934.12 (£795 ex VAT)

**CONTACT** Sharp 0800 262 958

[www.sharp.co.uk](http://www.sharp.co.uk)

**PROS** Good, tidy tilt and swivel stand; USB hub

**CONS** Poor shadow detail; easy to accidentally activate auto adjust

**OVERALL** Easy to set up panel with good features, narrow viewing angle is its only real drawback

## Sony SDM-M51



giving a slightly larger display area than the standard 15in models. Finished in stylish two-tone grey the panel is mounted on a circular base with a double-jointed arm that hinges at both the base and panel ends. This allows you to adjust the height from a lower point where the panel is touching the desk to an upper point about two and a half inches above it.

The side bezel is generously wide and this provides space on the

right for a vertical array of control buttons for power, contrast and brightness, volume control and the OSM. Output from the built-in speakers is loud if you want it to be but, as you might expect, non-existent in the lower frequency range. In other words, OK for system sounds and speech, but no use for serious entertainment. There is, however, a stereo headphone socket tucked away in the bottom right-hand corner. Around the back a hinged panel

**AS YOU'D EXPECT** with a Sony product the SDM-M51 looks the business. It was announced at the Comdex Fall show and features Sony's latest flat-panel display technologies, including Digital FlexRes smoothing and Auto ImageSet circuitry. Its other main selling points are a very small footprint (optimistically named 'zero footprint' by Sony) and stereo speakers built into the bottom bezel.

The M51's screen measures 15.1in

provides access to the D-SUB analog input, power and audio in. All the cables are neatly routed out through a plastic clip.

The volume buttons double as menu selectors for the OSM which has a relatively sophisticated display providing access to phase, pitch, positioning and other settings you're unlikely to need because the Auto ImageSet takes care of it all. There is a user setting for colour balance that, in addition to the three factory presets, provides three gamma presets and individual control of the red green and blue levels.

As with virtually every other panel, it had difficulty with the extreme colour bars. The view remained good at an angle of at least 50 degrees to either side although the optimum vertical viewing angle is only about 10 degrees.

### DETAILS

★★★★

**PRICE** £938.82 (799 ex VAT)

**CONTACT** Sony 0990 424 424

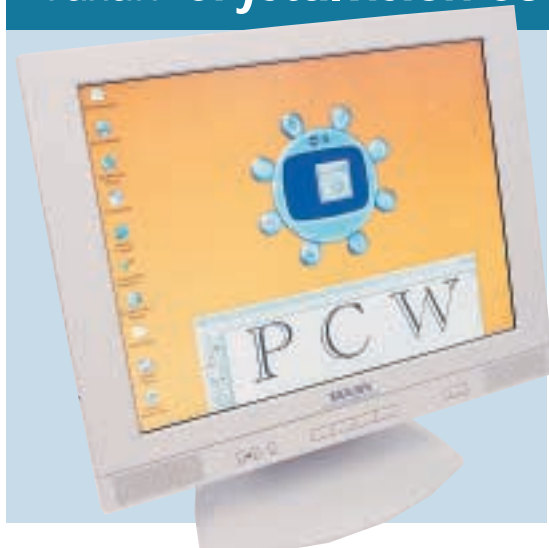
[www.sony-cp.com](http://www.sony-cp.com)

**PROS** Small footprint; built-in speakers; styling

**CONS** Expensive

**OVERALL** Stylish good looks, let down by performance

## Taxan Crystalvision 680 TCO99-S



This mounting as well as the input connectors and cables are hidden behind a pull-off plastic panel. The tilt mechanism was one of the few that it was possible to operate with one hand – by firmly grasping one side and twisting.

At the front, the lower bezel houses stereo speakers together with mute and volume controls and four centrally mounted buttons for the OSD. The sound quality was on a par with other built-in speaker systems,

which is to say it was loud, bright and lacking in bass.

On the whole, display quality was very good, with one exception. The Taxan brutally clips shadow detail in both neutral tones and all three primary colours. Most of the LCD panels tested have difficulty in displaying shadow detail, but with the Taxan the failing was more marked.

In spite of this, the 680 rendered natural colours with photographic

images and the horizontal angle of view – quoted at 140 degrees – is not an exaggeration. Although 70 degrees to the side is not the ideal viewing angle, you can see an acceptable image in this position.

Unusually, the OSD has no auto-adjust function as this happens automatically when the input signal is sensed. When we changed the resolution and refresh rate the Taxan had no problems whatsoever – it adjusted to the new setting within a second or two.

As well as contrast and brightness settings, you can adjust the backlight and there are three presets for colour temperature. The only thing lacking is a direct route to contrast and brightness, though these are the first two OSD items.

### DETAILS

★★★★

**PRICE** £734.37 (£625 ex VAT)

**CONTACT** Taxan 01344 484 646

[www.taxan.co.uk](http://www.taxan.co.uk)

**PROS** Small footprint; built-in speakers

**CONS** Poor shadow detail

**OVERALL** Good all-round performer, but the lack of detail in darker colours makes it questionable for photographic work









**TAXAN CLAIMS** a depth of 140mm for the new Crystalvision 680, which would have given it the smallest footprint of all the displays on test by a wide margin. But the base of the stand from front to rear turned out to be nearer 175mm, not as narrow as claimed, but nonetheless hardly a desk hog.

The Taxan's stand is an economical affair consisting of a plastic base attached to an angled steel bracket attached at two hinges to the panel.



Table of features									
MANUFACTURER	ADI	CTX	EIZO	HI-GRADE	HITACHI	IBM	IYAMA	LG	
MODEL	MICROSCAN A610	PV520	FLEXSCAN L350	CD-151C	CML151XW	T54H	TXA3813MT	FLATRON LCD575MS	
Contact number	020 8327 1900	01923 810 800	01483 719 500	020 8532 6100	01628 643 000	0990 426 426	01438 745 482	0870 607 5544	
URL	<a href="http://www.adi-microscan.com">www.adi-microscan.com</a>	<a href="http://www.ctxeurope.com">www.ctxeurope.com</a>	<a href="http://www.eizo.co.uk">www.eizo.co.uk</a>	<a href="http://www.higrade.com">www.higrade.com</a>	<a href="http://www.hitachi-eu-bsd.com">www.hitachi-eu-bsd.com</a>	<a href="http://www.ibm.com">www.ibm.com</a>	<a href="http://www.iiyama.co.uk">www.iiyama.co.uk</a>	<a href="http://www.lge.co.uk">www.lge.co.uk</a>	
Price (inc VAT)	£739.07	£677.97	£821.32	£586.32	£821.32	£807.22	£769.62	£616.87	
Price (ex VAT)	£629	£577	£699	£499	£699	£687	£655	£525	
PANEL SPECIFICATIONS									
Display technology	TFT	TFT	TFT	TFT	TFT	TFT	TFT	TFT	
Display area	15in	15in	15in	15in	15in	15.1in	15in	15in	
Native resolution	1,024 x 768	1,024 x 768	1,024 x 768	1,024 x 768	1,024 x 768	1,024 x 768	1,024 x 768	1,024 x 768	
Max display colours	16.7m	16.7m	16.7m	16.7m	16.7m	16.7m	16.7m	262,144	
Horizontal viewing angle	160	100	140	120	120	150	120	130	
Vertical viewing angle	160	120	120	90	100	110	90	90	
Brightness Candelas/m <sup>2</sup>	200	200	200	200	200	250	200	200	
Contrast ratio	200:01:00	350:01:00	350:01:00	250:01:00	200:01:00	300:01:00	150:01:00	400:01:00	
Front controls	OSD, auto adjust	Power, OSD	Power, auto adjust, OSM	Power (OSD on rear of bezel)	Power, OSM	Power, OSD	OSM	Power, auto/set, OSM	
SIGNAL SPECIFICATIONS									
Display standards (SVGA /Apple 16in/ XGA etc)	VGA, SVGA, XGA, Mac 640 x 480, 832 x 624, 1,024 x 768	XGA	VGA, SVGA, XGA	VGA, SVGA, XGA, Mac	XGA	VGA, SVGA, XGA	VGA, SVGA, XGA, Mac 640 x 480, 832 x 264, 1,024 x 768	VGA, SVGA, XGA, Mac 640 x 480, 800 x 600, 832 x 624	
Horizontal scan rate	31.25-60.24KHz	30-60KHz	31-61KHz	31.4-60KHz	31-60KHz	31-70KHz	24.8-61KHz	31-69KHz	
Vertical scan rate	56-75Hz	58-75Hz	50-75Hz	56-75Hz	50-75Hz	50-160Kz	55-75Hz	56-87Hz	
Number of preset timings	15	N/A	4	16	1	10	16	16	
Signal input (D-SUB, BNC, DVI etc)	Integrated	D-SUB	D-SUB	D-SUB	D-SUB	D-SUB/DVI	D-SUB	D-SUB	
Analog input format	RGB	RGB	RGB	RGB	RGB	RGB	RGB	RGB	
Digital input format	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
EXTRA FEATURES									
USB hub (no of ports (Upstream/downstream))	x	x	x	x	x	x	x	x	
Audio output (output watts)	x	x	x	✓	x	x	x	x	
Audio input (connectors)	x	x	x	✓	x	x	x	x	
Audio output volume controls	x	x	x	x	x	x	x	x	
POWER MANAGEMENT									
TCO 99	✓	✓	✓	✓	✓	✓	✓	✓	
Energy Star compliance	✓	✓	✓	✓	✓	✓	✓	✓	
Operating power consumption (watts)	35	35	35	27	35	30	25	36	
Sleep mode power consumption (watts)	3	6	<3	5	<5	5	<5	3	
Internal PSU	x	x	✓	x	x	x	✓	x	
UNIT SPECIFICATIONS									
Dimensions (w x h x d - mm)	386 x 397 x 179	383 x 375 x 169	384 x 386.2 x 171.4	375 x 376 x 175	377 x 374 x 220	401 x 371	375 x 389.5 x 210.8	394 x 378 x 161	
Weight (kg)	4.5	6	5.6	6.7	5.1	6.5	6.1	4.8	



								
	<b>LG</b>	<b>MAXDATA</b>	<b>NEC MITSUBISHI</b>	<b>SAMSUNG</b>	<b>SAMSUNG</b>	<b>SHARP</b>	<b>SONY</b>	<b>TAXAN</b>
	<b>FLATRON LCD577LM</b>	<b>BELINEA 10 15 15</b>	<b>MULTISync LCD1530V</b>	<b>SyncMASTER 150MP</b>	<b>SyncMASTER 150T</b>	<b>LL-T1510A</b>	<b>SDM-M51</b>	<b>CRYSTALVISION 680 TC099-S</b>
	0870 607 5544	01344 788 900	0845 121 9200	0800 521 652	0800 521 652	0800 262 958	0990 424 424	01344 484 646
	<a href="http://www.lge.co.uk">www.lge.co.uk</a>	<a href="http://www.belinea.co.uk">www.belinea.co.uk</a>	<a href="http://www.nec-monitors.com">www.nec-monitors.com</a>	<a href="http://www.samsung-electronics.co.uk">www.samsung-electronics.co.uk</a>	<a href="http://www.samsung-electronics.co.uk">www.samsung-electronics.co.uk</a>	<a href="http://www.sharp.co.uk">www.sharp.co.uk</a>	<a href="http://www.sony-cp.com">www.sony-cp.com</a>	<a href="http://www.taxan.co.uk">www.taxan.co.uk</a>
	£668.57	£520.52	£715.57	£975.25	£863.62	£934.12	£938.82	£734.37
	£569	£443	£609	£830	£735	£795	£799	£625
	TFT	TFT	TFT	TFT	TFT	TFT	TFT	TFT
	15in	15.1in	15.1in	15in	15in	15in	15.1in	15in
	1,024 x 768	1,024 x 768	1,024 x 768	1,024 x 768	1,024 x 768	1,024 x 768	1,024 x 768	1,024 x 768
	16.7m	16.7m	16.7m	16.7m	16.7m	16.7m	16.7m	16.7m
	120	140	160	140	110	140	140	140
	90	120	160	120	120	120	120	120
	200	200	200	200	200	200	200	200
	200:01:00	250:01:00	200:01:00	300:01:00	300:01:00	300:01:00	300:01:00	200:01:00
	Power, auto/set, OSM	Power, OSD	Power, reset, OSM	Input source, PIP, OSM, channel, volume, power	Power, auto adjust, input source, brightness, OSM	Power, OSD	Power, volume, OSM, contrast, brightness	Power, mute, volume, OSD
	VGA, SVGA, XGA, Mac 640 x 480, 800 x 600, 832 x 624	VGA, SVGA, XVGA	VGA	XGA	XGA	VGA, SVGA, XGA, Mac 640 x 480, 832 x 624, 1,024 x 768	VGA, SVGA, XGA, Mac 16in, Mac 19in	VGA, SVGA, XGA, Mac
	31-69KHz	30-61KHz	31-60KHz	30-70KHz	30-61KHz	24.8-60.2KHz	28-64KHz	30-65KHz
	56-89Hz	56-75Hz	56.2-75Hz	56-85Hz	50-75Hz	56-75Hz	48-75Hz	50-75Hz
	16	12	5	12	12 analog, 3 digital	15	13	10
	D-SUB	D-SUB	D-SUB	D-SUB	D-SUB, DVI	Integrated	D-SUB	D-SUB
	RGB	RGB	RGB	RGB	RGB	RGB	RGB	RGB
	N/A	N/A	N/A	N/A	TDMS	N/A	N/A	N/A
	✓ 1/4	x	x	x	x	✓ 1/2	x	x
	✓ 1+1	x	x	✓ 1+1	x	x	1+1	✓
	✓	x	x	✓ L/R phono stereo	x	x	✓	✓
	✓	x	x	✓	x	x	✓	✓
	✓	✓	✓	✓	✓	✓	✓	✓
	✓	✓	✓	✓	✓	✓	✓	✓
	48	30	34	33	25	23	22	25
	3	<3	5	<3	<5	4	<2	<3
	x	x	✓	x	x	✓	x	x
	522 x 397 x 214	396 x 392 x 165	370 x 370 x 160	382 x 380 x 257	385.4 x 406.2 x 179	362 x 343 x 185	387 x 345 x 180	382 x 385 x 140
	6.4	6	4.7	4.5	5.95	5.2	4.9	4.5



# Editor's Choice

**C**hoosing a monitor for your system is one of the most important buying decisions you can make. Get it wrong and you'll be confronted by your mistake every time you sit down in front of your PC.

But by what criteria should you judge an LCD panel's suitability? Obviously the quality of the display itself is the first consideration – if you can't comfortably read text, rely on the accuracy of colours, or view photographs and video at their best, then the rest doesn't matter. That said, if the most important things to you are photos and video, then you would be better off considering the purchase of a CRT.

After display quality, we looked at a number of things that could be important factors whether you're considering an LCD flat panel for the home, or the office. One of the major advantages LCD displays have over CRT monitors is size and weight. LCD panels typically weigh less than a quarter and take up less than half the desk space of their CRT equivalents.

LCD panels don't have the same geometry problems as CRT units, so they are far easier to set up. Add to that the fact that almost all of the panels reviewed here also have an auto-adjust feature that ensures everything is in optimum image quality, though not all of these functioned perfectly. Ease of use was a key consideration throughout our tests.

Finally, we looked at design. This is not merely a question of a good-looking screen, though, whether it's on your

office reception desk, or your living room table, nobody wants to look at an ugly box. We were looking for sensible layout and intuitive functioning of OSM controls, stands with easy-to-manipulate tilt (and where provided, swivel) and neat and accessible cable conduits.

The image quality of all of the displays was very high, with only one panel demonstrating noticeable pixel failure and the majority performing to a high standard in terms of both colour reproduction and legibility. One area where there was a high degree of variation was in the horizontal viewing angle. While many panels displayed an acceptable image within a 90-degree angle, outside of this the illumination rapidly fell off, making it difficult to see anything clearly. This was equally true in the vertical plane, only with a much narrower angle of view – usually around 20 degrees or so.

## The winners

In each of these respects one panel – the **ADI MicroScan A610** performed outstandingly and it receives our **Editor's Choice** award. The A610 succeeded where some others failed in our image-quality tests and lived up to its audacious claimed viewing angle of 160 degrees both horizontally and vertically. One of the biggest drawbacks of LCD displays is their limited viewing angle and for ADI to have overcome this in such an outstanding fashion marks a watershed in LCD technology design. It also had one of the simplest and easiest to use OSDs and a clean, uncluttered and

functional stand. No prizes for the group of ADI designers responsible for that on/off switch though.

Four other monitors scored the maximum five stars generally through a combination of excellent display quality combined with a good OSD and thoughtfully designed stands providing a compact footprint. In addition to these factors the LG LCD 577LM adds a four-port USB hub, speakers and portrait format and still manages to crash the £600 price barrier. This is truly outstanding value for a monitor that combines excellent quality with functional, sexy design and so many features it's not possible to use them all at the same time. Even if you decide to give the speakers away, or use them as doorstops, the 577LM is the best value LCD panel currently on the market. The **LG LCD 577LM** therefore gets the first of our **Highly Commended** awards.

The second **Highly Commended** award goes to the **Hitachi CML151XW**. This is not merely on the grounds that it is a 'Beautiful Thing', from the gently curving lines of its bezel and full, rounded OSD buttons to the rich texture of the OSD menu, though in our view this would be sufficient. The Hitachi also gave a very good account of itself in the image-quality tests.

Also worthy of mention are the Sharp and Hi-Grade panels. The Sharp is nicely designed, has excellent display qualities and a good stand with built-in USB hub, but its price tag of close to £800 puts it well out of the running, particularly with competition like the LG 577LM around.



*ADI's MicroScan A610 has an amazing 160-degree viewing angle*



*LG's sexy LCD 577LM offers excellent quality and tons of features*



*Hitachi's CML151XW is the best-value monitor on the market at the moment*