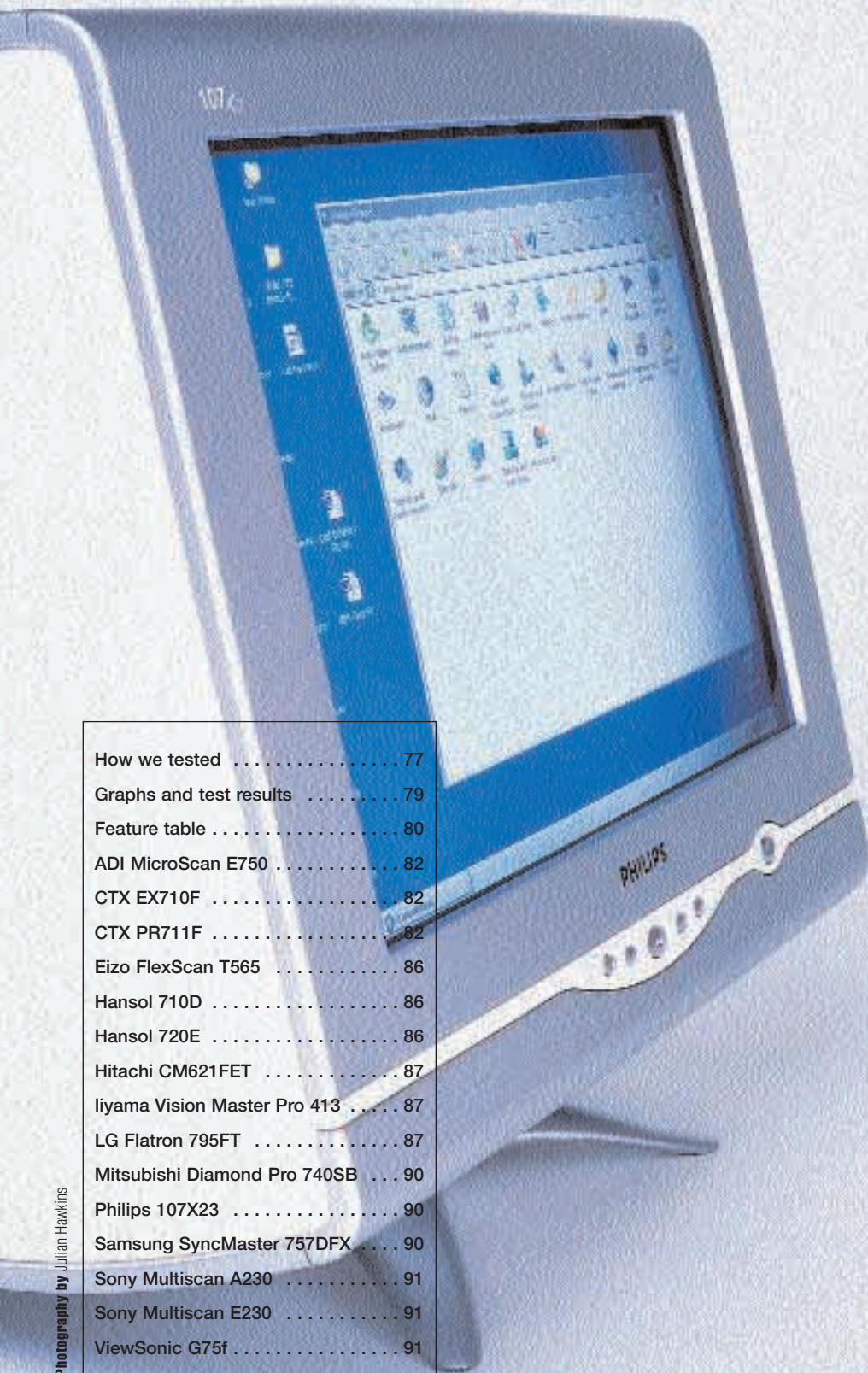


# 17in CRT monitors

We round up a wide selection of 17in CRTs and give you our definitive verdict



**W**hether you're buying a monitor to accompany a system box from this month's business PCs group test (see p58), to replace an existing display or to add a second to your desk, it's important to choose the right one. You could spend an extra £50 on more RAM or another 100MHz of processor speed, but you'll appreciate a sharp image far more than a second's less processing time.

Since you can't judge quality from a list of specifications, we've put together a demanding suite of tests that sort the excellent from the merely good (see opposite). We've looked at every aspect of image quality from focus, resolution and geometry through to colour purity, convergence and video bandwidth.

Fortunately, most of the 15 displays on test feature a completely flat CRT, leading to less reflections, less glare and less eyestrain. Seven of them will deliver at least 85Hz at a resolution of 1,280 × 1,024 and they all offer flicker-free refresh rates at 1,024 × 768.

One trend that has recently appeared in CRTs is high-brightness modes. Philips was the first on the scene with LightFrame, and other manufacturers are quickly jumping on the bandwagon. Intended for image editing, video editing and watching TV or DVD movies, these extra brightness modes are slightly gimmicky, but can come in useful.

One perennial trait, though, is ever-decreasing prices. And with these monitors starting from as little as £102, you're certain to find your ideal display over the next few pages.

#### Contributors:

**Labs Editor:** Jim Martin

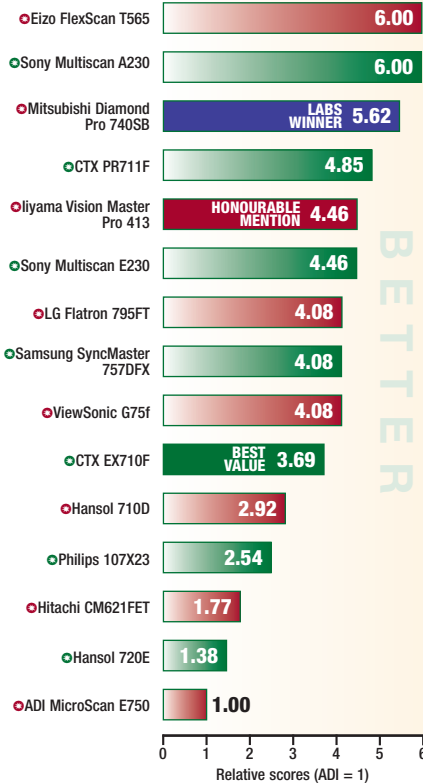
**Labs Writer:** Alyn Sparkes

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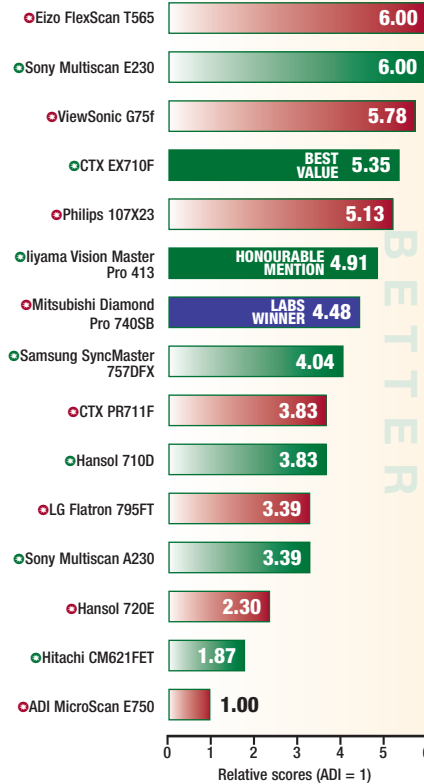


# Performance graphs and test results

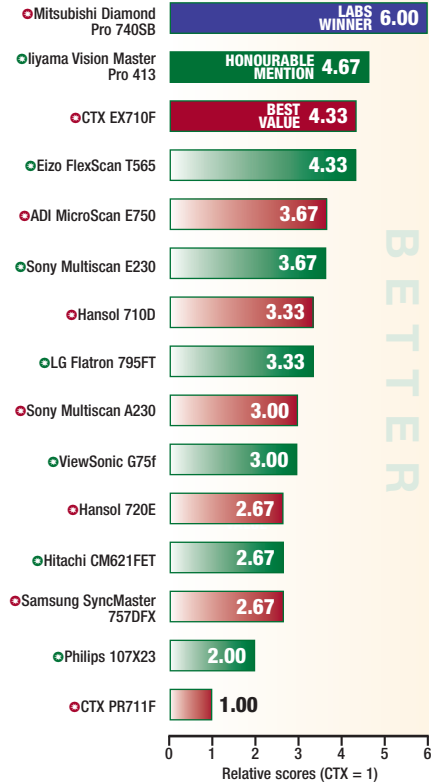
## GEOMETRY AND DISTORTION



## SHARPNESS AND RESOLUTION



## COLOUR AND GREYSCALE



	ADI MicroScan E750	CTX EX710F	CTX PR711F	Eizo FlexScan T565	Hansol 710D	Hansol 720E	Hitachi CM621FET	Iiyama Vision Master Pro 413	LG Flatron 795FT	Mitsubishi Diamond Pro 740SB	Philips 107X23	Samsung SyncMaster 757DFX	Sony Multiscan A230	Sony Multiscan E230	ViewSonic G75f
<b>Geometry and distortion</b>															
Keystone/trapezoid	0	1	1	1	1	1	1	1	1	1	0.5	1	1	1	1
Pincushion/barrel distortion	0	0	1	1	1	0	0	0.5	1	1	0.5	0	1	0.5	0
Horizontal bow and curvature	0	0.5	0.5	0	1	0	0	1	0	1	1	1	1	1	0.5
Vertical bow and curvature	0	0	0.5	1	0.5	0	0	0	1	0	1	0	1	0	0.5
Geometric linearity	0	1	1	1.5	0	0.5	0	1	0	2	0	0	0.5	1	0.5
Block linearity	1	0	0	1	0	0	1	0	0	0	0	1	1	1	0.5
Screen regulation*	0	1	1	1	0	0	0	1	1	1	0	1	1	0.5	1
<b>Sharpness and resolution</b>															
Focus text (corners)	0	1	1	1	0	0	0.5	1	1	0.5	1	1	0.5	1	1.5
Horizontal bar resolution*	0	1	0	1	1	0.5	0	0	0	0.5	1	0	0	0	1
Full-screen H-line resolution*	0	0.5	0	0.5	0	0	0	0	0	0	1	0	0	0	0.5
Horizontal resolution wedge	0	1	0.5	1	0.5	1	0	1	1	0	1	0	0	0	0.5
Transient response	0	0	0	0	0	0.5	0	0.5	0	0.5	0	1	0	1	0
Full-screen V-line resolution	0	1	1	2	1	0.5	1	1.5	1	1.5	1	1	1	1	1
Vertical resolution wedge	1	1	1	1	1	1	1	1	1	1.5	1	1	1	1	1
Corner resolution	0	0.5	0.5	0	0.5	0	0	1	0	0	0	0	0	0.5	0
Video bandwidth and modulation test	0	1	0	1	0.5	0	0	0	0	0	0	1	0.5	2	1
Focus matrix*	0	1	0.5	1	0	0	0.5	1	1.5	1	1	1	1	2	1
Line moiré	1	1	0.5	1	1	0.5	0	0.5	0	1	0	1	1	1	1
Fine line moiré*	0	0	1	1	0.5	0	0	1	0	1	0	0	0.5	1	0.5
Fine dot moiré	0.5	0.5	1	0	0.5	0.5	0	0	0	0	1	0.5	0.5	0	0.5
Defocusing, blooming and halo	0	0.5	0.5	0	1	0.5	1	1	1	0.5	1	1	0.5	0.5	1
<b>Colour and greyscale</b>															
Horizontal colour registration	0	1	1	1	1	1	1	0.5	0.5	0.5	1	0	0	1	1.5
Vertical colour registration	1	0.5	1	0	1	0	1	0.5	0	1	1	0	0	0	1
Colour timing	1	1	1	1	1	0.5	0.5	0	0	1	1	0.5	0	1	1
Colour purity R	0	1	0	0.5	0.5	1	0	1	0	1	0	1	1	1	0.5
Colour purity G	1	1	0	0.5	0.5	1	0	1	0.5	1	0	1	1	1	0.5
Colour purity B	1	1	1	1	1	1	1	1	0	1	0.5	1	1	1	1
Colour purity white*	0.5	1	0	0.5	0	0.5	0	1	0	1	0	0.5	1	1	0.5
Colour scales (fading consistency)	1	1	1	1	1	0	0	1	0	0.5	1	1	1	0	0.5
Background noise	1	0	0	1	0	0.5	0.5	0.5	1	1	1	0	0	0.5	0
Screen reflectivity*	0	0	0	1	1	0	1	1	2	1	0	1	1	0.5	0
Mid-range streaking	1	0.5	0	1	0.5	0.5	0.5	0.5	1	1	0	0	0	0	0.5
White level shift	0	0	0	0	0	0	0	0.5	0.5	0.5	0	0	0	0.5	0.5
Black level shift	1	1	0	0	0	1	1	0	1	0	1	0	0	0	0
<b>Total quality</b>	<b>12</b>	<b>22.5</b>	<b>17.5</b>	<b>25.5</b>	<b>18.5</b>	<b>13.5</b>	<b>12.5</b>	<b>22.5</b>	<b>17</b>	<b>24.5</b>	<b>18.5</b>	<b>18.5</b>	<b>19</b>	<b>23.5</b>	<b>22</b>

\*Double-weighted category. Key: fail = 0, pass = 0.5 or 1, distinction = 1.5 or 2

## Specifications & features



	<b>ADI MicroScan E750</b>	<b>CTX EX710F</b>	<b>CTX PR711F</b>	<b>Eizo FlexScan T565</b>	<b>Hansol 710D</b>	<b>Hansol 720E</b>	<b>Hitachi CM621FET</b>
Overall rating	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○	○○○○○○
Price* (inc VAT)	£141 (£166)	£149 (£175)	£209 (£246)	£266 (£313)	£143 (£168)	£102 (£120)	£165 (£194)
Supplier	Technoworld 020 8830 5555	dabs.com 0800 138 5182	dabs.com 0800 138 5182	Bechtie Direct 01249 467944	Jungle 08000 355355	Insight 0870 700 7350	NexNix 01403 713131
Supplier's Web site	www.technoworld.co.uk	www.dabs.com	www.dabs.com	www.bechtie.co.uk	www.jungle.com	www.insight.com/uk	www.nexnix.co.uk
Manufacturer	ADI Systems	CTX	CTX	PDS	Hansol	Hansol	Hitachi
	01923 474460	01923 810800	01923 810800	01483 719500	01252 360400	01252 360400	0845 758 1455
Manufacturer's Web site	www.adiuk.com	www.ctxeurope.com	www.ctxeurope.com	www.eizo.co.uk	www.hansol-uk.com	www.hansol-uk.com	www.hitachimotors.com
Warranty	3yrs on-site replacement	3yrs on-site replacement	3yrs on-site replacement	3yrs RTB	3yrs on-site replacement	3yrs on-site replacement	3yrs on-site replacement
<b>Screen</b>							
Tube type	FST shadow mask	Flat shadow mask (Samsung DynaFlat)	Flat aperture grille (FD Trinitron)	Flat aperture grille (Diamondtron NF)	Flat shadow mask (Samsung DynaFlat)	FST shadow mask	Flat shadow mask (Hitachi ErgoFlat)
Measured visible diagonal (in)	16.1	16.1	16.1	15.9	16	16	16
Dot/grille pitch (mm)	0.25	0.25	0.24	0.25	0.25	0.27	0.22 (horizontal)
Surface treatment (see Key below)	AG, AR, AS	AG, AR, AS	AG, AR, AS	AR	AR, AS, HC	AR	AG, AS
<b>Specification</b>							
Maximum resolution @ vertical refresh frequency (Hz)	1,600 × 1,200 @ 75	1,600 × 1,200 @ 77	1,600 × 1,200 @ 77	1,600 × 1,200 @ 77	1,600 × 1,200 @ 75	1,280 × 1,024 @ 60	1,280 × 1,024 @ 65
Recommended resolution @ vertical refresh frequency (Hz)	1,024 × 768 @ 85	1,280 × 1,024 @ 90	1,280 × 1,024 @ 89	1,280 × 1,024 @ 90	1,280 × 1,024 @ 85	1,024 × 768 @ 85	1,024 × 768 @ 85
Horizontal scan range (kHz)	30-97	30-97	30-97	30-96	30-96	30-72	30-70
Vertical scan range (Hz)	50-160	50-160	50-160	50-160	47-160	50-160	50-160
Video bandwidth (MHz)	202.5	202	202	200	157	110	110
Typical power consumption (W)	110	100	100	110	85	70	75
Power consumption in standby mode (W)	6	<15	<15	<3	5	<15	<15
<b>Connectors</b>							
D-SUB	✓	✓	✓	✓	✓	✓	✓
BNC	✗	✗	✗	✓	✗	✗	✗
USB upstream	✗	✗	1	1	✗	✗	✗
USB downstream	✗	✗	4	✗	✗	✗	✗
Captive cable	✓	✓	✓	✗	✓	✓	✓
<b>Standards compliance</b>							
DDC level (plug and play)	1, 2B	1, 2B	1, 2B	2B	1, 2B, 2Bi	1, 2B	1, 2B
VESA DPMS	✓	✓	✓	✓	✓	✓	✓
EPA Energy Star	✓	✓	✓	✓	✓	✓	✓
MPR-II	✓	✓	✓	✓	✓	✓	✓
TCO 99	✓	✓	✓	✓	✓	✓	✓
<b>Basic image adjustment controls</b>							
Brightness	✓	✓	✓	✓	✓	✓	✓
Contrast	✓	✓	✓	✓	✓	✓	✓
Horizontal/vertical position	✓	✓	✓	✓	✓	✓	✓
Horizontal/vertical size	✓	✓	✓	✓	✓	✓	✓
Zoom	✓	✗	✗	✗	✓	✓	✗
Colour temperature	✓	✓	✓	✓	✓	✓	✓
Colour temperature user presets	1	1	1	1	1	1	✗
Degauss	✓	✓	✓	✓	✓	✓	✓
Factory settings recall	✓	✓	✓	✓	✓	✓	✓
<b>Geometry controls</b>							
Barrel/pincushion	✓	✓	✓	✓	✓	✓	✓
Pin balance	✓	✗	✓	✓	✓	✓	✓
Keystone (trapezoid)	✓	✗	✓	✓	✓	✓	✓
Parallelogram	✓	✓	✓	✓	✓	✓	✓
Rotate/tilt	✓	✓	✓	✓	✓	✓	✓
Horizontal linearity	✗	✗	✗	✗	✗	✗	✗
Vertical linearity	✓	✗	✗	✗	✗	✗	✗
Other	Vertical linearity balance	Top pin, bottom pin	✗	✗	✗	✗	✗
<b>Advanced controls</b>							
Horizontal convergence	✗	✗	✓	✓	✗	✗	✗
Vertical convergence	✗	✗	✓	✓	✗	✗	✗
Horizontal moiré	✓	✓	✗	✗	✓	✓	✗
Vertical moiré	✓	✓	✗	✗	✓	✓	✗
General moiré (if neither of the above)	N/A	N/A	✓	✓	N/A	N/A	✗
Corner purity	✗	✗	✗	✗	✗	✗	✗
OSD lockout	✗	✗	✗	✗	✗	✗	✗
Other	✗	✗	✗	Auto-sizing	✗	✗	Auto-sizing
<b>Miscellaneous</b>							
Cables and other accessories	Power cable	Power cable	Power cable, USB cable	Power cable	Power cable	Power cable	Power cable
Bundled software	✗	✗	✗	✗	✗	✗	✗
<b>Dimensions</b>							
H × W × D (mm)	442 × 407 × 404	415 × 412 × 417	444 × 418 × 447	413 × 410 × 439	417 × 418 × 419	417 × 418 × 424	434 × 404 × 434
Weight (kg)	15	16.5	20	19.5	17	14.8	17.8

Key: AG = Anti-glare, AR = Anti-reflection, AS = Anti-static, HC = High contrast. \*All prices were correct at time of going to press.



## Iiyama Vision Master Pro 413

## LG Flatron 795FT

## Mitsubishi Diamond Pro 740SB

## Philips 107X23

## Samsung SyncMaster 757DFX

## Sony Multiscan A230

## Sony Multiscan E230

## ViewSonic G75f

○○○○○○

£185 (£217)

dabs.com 0800 138 5182

www.dabs.com

Iiyama

01438 745482

www.iiyama.co.uk

3yrs on-site replacement

○○○○○○

£195 (£229)

Simply 0870 727 2100

www.simply.co.uk

LG Electronics

0870 607 5544

www.lge.co.uk

3yrs on-site replacement

○○○○○○

£179 (£210)

dabs.com 0800 138 5182

www.dabs.com

NEC-Mitsubishi

0845 121 9200

www.nec-mitsubishi.com

3yrs on-site replacement

○○○○○○

£169 (£199)

Philips 0800 169 8430

www.pcstuff.philips.com

Philips

0800 169 8430

www.pcstuff.philips.com

3yrs on-site replacement

○○○○○○

£179 (£210)

dabs.com 0800 138 5182

www.dabs.com

Samsung Electronics

020 8391 0168

www.samsungelectronics.co.uk

3yrs on-site replacement

○○○○○○

£215 (£253)

dabs.com 0800 138 5182

www.dabs.com

Sony

08705 111999

www.sony-cp.com

3yrs RTB

○○○○○○

£210 (£247)

dabs.com 0800 138 5182

www.dabs.com

Sony

08705 111999

www.sony-cp.com

3yrs RTB

○○○○○○

£151 (£177)

dabs.com 0800 138 5182

www.dabs.com

ViewSonic

01293 643900

www.viewsonic.co.uk

3yrs on-site replacement

Flat aperture grille

(Diamondtron M<sup>2</sup>)

16

0.25

AR, AS

Flat Tension Mask

(LG Flatron)

16

0.24

AR, AS

Flat aperture grille

(Diamondtron M<sup>2</sup>)

16

0.25

AG, AR, AS

Flat shadow mask

(Philips)

16.1

0.25

AG, AR, AS

Flat shadow mask

(Samsung DynaFlat X)

16

0.20 (horizontal)

AG, AS

Flat aperture grille

(FD Trinitron)

16

0.24-0.25

AR, AS, HC

Flat aperture grille

(FD Trinitron)

16.1

0.24-0.25

AR, AS, HC

Flat shadow mask

15.8

0.25

AR, AG

1,600 × 1,200 @ 75

1,600 × 1,200 @ 77

1,600 × 1,200 @ 75

1,280 × 1,024 @ 71

1,600 × 1,200 @ 75

1,280 × 1,024 @ 75

1,600 × 1,200 @ 68

1,280 × 1,024 @ 82

1,280 × 1,024 @ 87

1,280 × 1,024 @ 90

1,024 × 768 @ 85

1,024 × 768 @ 89

1,280 × 1,024 @ 85

1,024 × 768 @ 100

1,280 × 1,024 @ 81

1,024 × 768 @ 105

30-96

50-160

160

110

5

30-96

50-160

203

130

8

31-96

55-160

210

96

<5

30-71

50-160

108

73

>3

30-96

50-160

250

90

<3

30-80

48-170

Not stated

100

3

30-85

48-170

Not stated

115

3

30-86

50-180

135

80

3

2

X

X

X

X

✓

X

X

X

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Optional

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## ADI MicroScan E750

**verdict** Although replete with its fair share of features, the E750's relatively poor quality lets it down.

**price** £141 (£166 inc VAT)

**supplier** Technoworld 020 8830 5555

**A**DI's entry into this month's Labs is based on old-fashioned technology compared to others. It employs the first of only two FST shadow-mask tubes on test, the other belonging to Hansol's 720E. But can ADI justify charging nearly £40 more than Hansol?

First signs weren't encouraging. We found that the physical curvature of the screen caused major problems for geometric accuracy – it only passed one of the geometric tests thrown at it by DisplayMate. There were also significant faults in the sharpness and resolution tests, with the E750 having problems maintaining focus over the whole screen and showing evidence of moiré patterns that weren't correctable using the controls in the OSD. It fared much better for colour and greyscale, though, managing to equal the score of the Sony Multiscan E230 and attaining a joint fifth placing for this section.

The OSD is one of the better aspects of this monitor, with only convergence and purity missing from the advanced list. It even includes a balance adjustment for the vertical linearity control – something we've never seen before. The buttons on the front of the monitor are well thought out and offer direct access to both brightness and contrast.

Although this monitor may attract users wanting high resolutions – it even stretches to 1,600 × 1,200 at 75Hz – there isn't enough to justify the extra £39 over Hansol's monitor. And if your budget extends to £150, we recommend opting for the award-winning CTX EX710F for only £8 more.

**results**

OVERALL	○○○○○○
IMAGE QUALITY	○○○○○○
FEATURES	○○○○○○
VALUE FOR MONEY	○○○○○○



## CTX EX710F

**verdict** Great image quality from the Samsung DynaFlat CRT at a surprisingly low price. It's a bargain.

**price** £149 (£175 inc VAT)

**supplier** dabs.com 0800 138 5182



CTX is well known for using Sony FD Trinitron CRTs, as featured in the PR711F (see right). The EX710F breaks this mould by being based on a Samsung DynaFlat tube, which uses shadow-mask technology. On first sight, it looks slightly concave when compared with traditional shadow masks, but we soon got used to this.

Samsung's SyncMaster 757DFX goes one better than the EX710F by using the newer DynaFlat X CRT, so we were interested to find out how CTX's monitor would cope in our tests. The answer is extremely well. An overall quality result of 22.5 points pushed the CTX into fourth equal place, hot on the heels of models from Sony, Mitsubishi and Eizo. Its performance in the sharpness and resolution section was particularly impressive, where it failed only two tests. Colour performance was also excellent, and the EX710F shared third place with Eizo's T565.

Geometry was generally acceptable, but we couldn't completely correct the slight block linearity problem since there are no controls for this in the OSD. Convergence was again adequate, which is a good job as there aren't any convergence controls either.

Some may also be put off by the lack of features and the captive D-SUB cable, but with a price of £149 it's clear that end users reap the benefits of the cost saving. You won't find better image quality at this price, and it's this combination that earns the EX710F our Best Value award.

**results**

OVERALL	○○○○○○
IMAGE QUALITY	○○○○○○
FEATURES	○○○○○○
VALUE FOR MONEY	○○○○○○



## CTX PR711F

**verdict** Mediocre quality from the FD Trinitron tube and an overly high price put the PR711F out of contention.

**price** £209 (£246 inc VAT)

**supplier** dabs.com 0800 138 5182

**T**he PR711F is by no means a new monitor. We originally reviewed it two years ago (see Labs, issue 65, p116) and, although we praised it for good image quality then, it doesn't fare so well against new competition.

Using an FD Trinitron aperture-grille CRT, we expected the PR711F to dominate its shadow-mask sibling, the EX710F, but this didn't happen. This was mainly down to poor performance in some of the crucial tests in DisplayMate, such as focus, colour purity and screen reflectivity. Not that it's a bad monitor. Almost all of the 15 displays on test would qualify as respectable PC companions, but up against such tough competition the PR711F looks merely average.

One obvious highlight is the excellent geometry. In this section of our testing, the PR711F claimed fourth place, ahead of Sony's Multiscan E230. We were particularly pleased with the monitor's ability to hold the image rock steady in the regulation test.

However, the metaphorical picture wasn't as bright in the colour and greyscale tests. Only the blue test screen was uniform enough to pass, with the rest having noticeable dark patches in the corners. Mid-range streaking, while not terrible, was again worse than we expected.

Capable of 1,280 × 1,024 at 89Hz, the aperture-grille tube is at least free of flicker. It's also great to see the four-port USB hub – a unique feature this month. However, the high price of £209 and mediocre image quality put the PR711F out of the awards reckoning.

**results**

OVERALL	○○○○○○
IMAGE QUALITY	○○○○○○
FEATURES	○○○○○○
VALUE FOR MONEY	○○○○○○





## Eizo FlexScan T565

**verdict** Unbeatable image quality, and a completely non-reflective screen, but the price is simply too high for an award.

**price** £266 (£313 inc VAT)

**supplier** Bechtle Direct 01249 467944

**W**e're rarely disappointed by an Eizo monitor's quality, but with the excellence there usually comes a price. The T565 is no exception. Although it performed very well, at £266 it strays too far into 19in pricing territory to win this Labs.

The T565 isn't going to win any awards for style either. However, it is one of the best 17in CRTs available when it comes to image quality. It emerged as the clear winner overall, with top place for geometry and distortion matched by the same position in our sharpness and resolution tests. In the latter, the FlexScan failed only four of the 14 tests – an excellent result. Thankfully, it passed all of the important tests such as focus, moiré and full-screen horizontal resolution.

For colour performance, it was joint third overall, behind the Mitsubishi Diamond Pro 740SB and Iiyama Vision Master Pro 413. All four purity tests were passed, and there was little discernable mid-range streaking. One big plus was the lack of any reflections on the dark screen test.

Eizo's inclusion of BNC connectors will appeal to many, but we were surprised to find a lack of advanced OSD controls. Still, there's immediate compensation in the form of one of the best non-reflective screens here. Nevertheless, we can only recommend the T565 if money is no object. The better option is to stretch that extra £27 and opt for the 19in Iiyama Vision Master Pro 454, or save money and choose this month's Labs Winner, the Mitsubishi 740SB.



### OVERALL

IMAGE QUALITY

FEATURES

VALUE FOR MONEY

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## Hansol 710D

**verdict** The 710D misses out on an award, but respectable image quality and a reasonable price make it a contender.

**price** £143 (£168 inc VAT)

**supplier** Jungle 08000 355355

**T**his first of Hansol's entries this month is based on Samsung's DynaFlat shadow-mask tube. This is a generation behind the DynaFlat X CRT in Samsung's own monitor, so it lacks the new highlighting technology, but CTX's award-winning EX710F has already shown that this isn't a catastrophic omission.

But, despite using the same CRT as the EX710F, it didn't fare as well in the DisplayMate tests. Particularly worrying was the poor screen regulation, indicating sacrifices in the electronics controlling the tube. Linearity was also inconsistent and wasn't adjustable in the OSD. Other than this, the image quality problems were fairly minor, with the 710D generally finding itself in a mid-table position in our tests.

Aside from linearity, convergence was the only important adjustment missing from the OSD, although some corner-hooking controls would have been appreciated. While the OSD itself is logical enough, navigating it is a pain, as the buttons require a very hard press to register, leading to over adjustments.

Capable of 1,600 × 1,200 at 75Hz, the specifications of the 710D are up with monitors costing significantly more, and the recommended resolution of 1,280 × 1,024 allows an eye-friendly 85Hz refresh rate. Thanks to the effective anti-reflection coating on the screen, eyestrain is also reduced.

Aside from the poor regulation, the Hansol 710D is a good monitor, and if it hadn't been for the EX710F it would have challenged for the Best Value award.



### OVERALL

IMAGE QUALITY

FEATURES

VALUE FOR MONEY

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## Hansol 720E

**verdict** It's the cheapest monitor on test, but below-par image quality means the 720E misses out on our Best Value award.

**price** £102 (£120 inc VAT)

**supplier** Insight 0870 700 7350

**H**ansol's 720E has the honour of being the least expensive monitor in this month's Labs. At £102, it's an amazing £39 cheaper than its nearest competitor, the ADI MicroScan E750. The price you pay for this affordability is a non-flat CRT – in this case a FST shadow mask.

This has a major bearing on the quality of the image displayed, but amazingly we found it was slightly better than the flat-screened Hitachi overall. The major problem was, not surprisingly, with geometry, where the 720E only passed two of the DisplayMate tests.

Sharpness and resolution were also stumbling blocks, with the 720E failing the focus and fine line tests. It managed reasonably well in the colour and greyscale section, although the reflectivity of the screen was poor, which could lead to eyestrain if using the 720E for long periods.

The 60Hz refresh rate at a resolution of 1,280 × 1,024 doesn't help eyestrain either. However, at 1,024 × 768 a more reasonable 85Hz is available, although this is the lowest resolution offered at 85Hz among all the monitors this month. With few advanced controls in the OSD and an awkward navigation system, the 720E lacks the options to improve the image quality through changing the colour convergence or linearity over the screen.

Although the 720E is the cheapest on test and beats the ADI MicroScan E750 on quality, the CTX EX710F is worth the extra £47. It may cost almost 50 per cent more, but this is reflected in the image quality.



### OVERALL

IMAGE QUALITY

FEATURES

VALUE FOR MONEY

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## Hitachi CM621FET

**verdict** With poor image quality, a basic OSD and non-budget price, there's nothing to recommend the Hitachi.  
**price** £165 (£194 inc VAT)  
**supplier** NexNix 01403 713131

In the last 17in monitors group test (see *Labs*, issue 78, p102), Hitachi submitted a screen based on Mitsubishi's Diamondtron NF CRT that was commended for its good image quality. The CM621FET is based on Hitachi's own ErgoFlat flat shadow-mask tube, which the company claims to give superior focus and colour uniformity.

Despite these boasts, we found significant failings in all three sections of our tests. While these could be considered par for the course for a budget monitor, the CM621FET costs £165 – a whopping £63 more than the similarly performing Hansol 720E.

Geometry was particularly poor, and we weren't able to correct the distortion using the OSD controls. Only two tests were passed in this section: keystone and block linearity. The sharpness and resolution tests also highlighted major failings, with just five tests passed. Moiré was all too evident and the CM621FET struggled with reproducing fine detail in the resolution tests. Sadly, the OSD lacks moiré controls as well as convergence, linearity and user colour options. The only bonus function is auto-sizing, and even this worked poorly, leaving wide black borders around the edge of the screen.

Able to manage only 65Hz at 1,280 × 1,024, the Hitachi's maximum usable resolution is just 1,024 × 768. Several other monitors in this price band can handle 85Hz or greater at SXGA, leaving the CM621FET trailing again. Ultimately, it lacks any strengths, especially as the Labs-winning Mitsubishi Diamond Pro 740SB costs only £14 more.

**results**

<b>OVERALL</b>	○○○○○●
<b>IMAGE QUALITY</b>	○○○○○●
<b>FEATURES</b>	○○○○○●
<b>VALUE FOR MONEY</b>	○○○○○●



## Iiyama Vision Master Pro 413

**verdict** Still a terrific 17in monitor, but Iiyama loses its A List position to Mitsubishi's own Diamondtron M<sup>2</sup> offering.  
**price** £185 (£217 inc VAT)  
**supplier** dabs.com 0800 138 5182



For the last six months, the Pro 413 has held the envious position of best 17in CRT monitor on our A List. It's undoubtedly an excellent display, but has to give up its crown to make way for the Mitsubishi Diamond Pro 740SB.

On paper, the 413 appears a formidable opponent, with its Diamondtron M<sup>2</sup> CRT capable of a maximum resolution of 1,600 × 1,200 at 75Hz. But so is the Mitsubishi's, and both monitors will happily deliver 1,280 × 1,024 at 85Hz. Where Iiyama takes some kudos is with its twin 15-pin D-SUB sockets, which are a bonus if you want to share the monitor between two systems – the Mitsubishi only has a single captive cable.

Image quality, despite the identical tubes, is where the 740SB beats the 413. In particular, the 413's geometry wasn't as good as in the original unit we saw (see *Reviews*, issue 84, p140). Both top corners suffered from intractable curvature, which would be noticeable on menus that run across the top of applications.

In the sharpness and resolution tests, the 413 marginally topped the 740SB, but it was in the colour and greyscale section where the Mitsubishi made its mark. With no vertical convergence control, we couldn't correct the Iiyama's slight misregistration.

These are only minor faults and the Pro 413 remains a strong choice. Sadly for Iiyama, however, Mitsubishi takes the Labs Winner award thanks to superior image quality and a lower price.

**results**

<b>OVERALL</b>	○○○○○○
<b>IMAGE QUALITY</b>	○○○○○○
<b>FEATURES</b>	○○○○○○
<b>VALUE FOR MONEY</b>	○○○○○○



## LG Flatron 795FT

**verdict** A decent monitor, but it's a little overpriced, leaving the Flatron sitting in the middle of the pack this month.  
**price** £195 (£229 inc VAT)  
**supplier** Simply 0870 727 2100

The 795FT is the only monitor here to use a Flat Tension Mask tube – LG's own Flatron. Essentially, it's a combination of aperture-grille and shadow-mask technology, which produces a completely flat, bright screen, but without the damping wires associated with aperture-grille CRTs.

Another unusual feature is the touch-sensitive OSD buttons, two of which offer direct access to brightness and contrast. There's a comprehensive selection of controls; only zoom and linearity are missing. It's also worth noting that only horizontal controls are available for moiré and convergence.

Unfortunately, vertical linearity wasn't consistent enough to pass, and moiré was prevalent across all the tests. These problems kept the LG in the bottom half for the sharpness and resolution tests, although it made up some ground thanks to better performance in the colour, greyscale and geometry tests.

With a maximum resolution of 1,600 × 1,200 at 77Hz and being capable of 90Hz at 1,280 × 1,024, the LG is friendly on the eyes, especially given the complete absence of reflection from the screen. Also worthy of note is the crisp focus, which stayed sharp right to the corners of the CRT.

At £195, the LG is one of the more expensive screens on test, and with only average image quality it fails to keep up with the superb, yet cheaper, Mitsubishi 740SB. And, if the Diamond Pro's damping wires will bother you, the shadow-mask-equipped CTX EX710F makes a great alternative.

**results**

<b>OVERALL</b>	○○○○○○
<b>IMAGE QUALITY</b>	○○○○○○
<b>FEATURES</b>	○○○○○○
<b>VALUE FOR MONEY</b>	○○○○○○





## Mitsubishi Diamond Pro 740SB

**verdict** Top-notch image quality is matched by a decent array of features and a relatively low price.

**price** £179 (£210 inc VAT)

**supplier** dabs.com 0800 138 5182



Since the Diamondtron M<sup>2</sup> CRT was developed by Mitsubishi, it isn't too surprising that the Diamond Pro 740SB takes full advantage of this superb CRT.

One of its main benefits is the SB (Super Bright) mode, which is used to make photos and movies brighter and more vivid. It certainly works well and doesn't cause the ghosting and streaking we saw on the Philips 107X23.

There's a slight loss of focus when using the SB mode, but even with it turned off the 740SB delivers a crisp, well-contrasted image. It topped the colour and greyscale chart, well ahead of the Vision Master Pro 413. This was down to slightly less mid-range streaking and better colour timing, along with terrific colour purity and good convergence.

The two monitors were virtually inseparable in the other tests. The 740SB demonstrated excellent geometry and focus across the screen. This is in contrast to the original unit we saw (see *Reviews*, issue 89, p127) whose focus was much worse. One notable test was geometric linearity, where the Mitsubishi scored a distinction from both testers. It passed the all-important reflection test easily, and moiré was evident in only one of the three tests, meaning you're unlikely to ever see it.

Although the 740SB doesn't possess the dual, non-captive D-SUBs of the Iiyama, the Mitsubishi's horizontal convergence control and multiple colour presets along with the superior image quality make it our 17in monitor of choice.

### results

<b>OVERALL</b>	○○○○○○
<b>IMAGE QUALITY</b>	○○○○○○
<b>FEATURES</b>	○○○○○○
<b>VALUE FOR MONEY</b>	○○○○○○



## Philips 107X23

**verdict** Average image quality alongside a mediocre set of features prevent the Philips winning any awards this month.

**price** £169 (£199 inc VAT)

**supplier** Philips 0800 169 8430

**W**hen we reviewed the 107B20 from Philips in our last 17in monitors group test (see *Labs*, issue 78, p102), we were unimpressed with the image quality produced by the curved shadow-mask screen, not to mention the fact that it cost over £200. With a new flat shadow-mask tube, we were hopeful that that 107X23 would be a better performer.

A development of the LightFrame technology found in the 107B20 is implemented on the 107X23. However, despite the changes, streaking and blurring were still obvious when LightFrame 2 was turned on, and improvements to DVD movies and still images weren't as dramatic as those given by the Mitsubishi and Iiyama.

Although the Philips came fifth in the sharpness and resolution tests, it was much less impressive in the other two sections of the quality tests, falling well into the bottom third in both cases. Particular problems were colour purity, linearity, screen regulation and reflectivity.

The 107X23 is only able to manage 1,280 × 1,024 at 71Hz, so for flicker-free use Philips recommends 1,024 × 768 at 89Hz. For £20 less, the CTX EX710F will deliver 90Hz at SXGA and also offers better image quality.

Although the 107X23 is considerably more stylish than other monitors, with its silver shell and four-pronged base, it's up against some tough competition in this Labs. Its average image quality can't compare to the Mitsubishi and Iiyama screens, and both are only slightly more expensive than the Philips.

### results

<b>OVERALL</b>	○○○○○○
<b>IMAGE QUALITY</b>	○○○○○○
<b>FEATURES</b>	○○○○○○
<b>VALUE FOR MONEY</b>	○○○○○○



## Samsung SyncMaster 757DFX

**verdict** A feature-packed monitor that delivers respectable image quality from its flat shadow-mask CRT.

**price** £179 (£210 inc VAT)

**supplier** dabs.com 0800 138 5182

**S**amsung took the main honours in our last 17in monitors Labs, proving that shadow-mask screens can still outperform aperture-grille CRTs. The 757DFX's DynaFlat X tube is a development of its original DynaFlat screen and implements a high-brightness function for DVD viewing and photo editing. It distinctly improves the clarity of DVDs, but at the expense of colour subtlety. Like other high-brightness CRTs on test, the 757DFX's focus also suffered when using this feature.

Our rigorous DisplayMate tests revealed some problems with the screen, especially in the colour and greyscale section where the Samsung was third from bottom overall. The particular problems concerned streaking and colour registration. On the plus side, geometry was fairly respectable – our main gripe was the horizontal curvature at the top of the screen. The 757DFX also performed well in the resolution section, failing only five tests and just keeping up with the Mitsubishi.

The OSD is another plus, being easy to navigate and offering comprehensive adjustments of the image. We were also impressed by a maximum resolution of 1,600 × 1,200 at 75Hz, although the recommended size of 1,280 × 1,024 at 85Hz is easier on the eyes. The Samsung benefits from the second shortest cabinet depth on test at 412mm.

Unfortunately, despite all the features and good image quality, the 757DFX wasn't up to the standard set by the identically priced Mitsubishi. But if you're irritated by aperture-grille tubes' horizontal wires, it makes a decent alternative.

### results

<b>OVERALL</b>	○○○○○○
<b>IMAGE QUALITY</b>	○○○○○○
<b>FEATURES</b>	○○○○○○
<b>VALUE FOR MONEY</b>	○○○○○○





## Sony Multiscan A230

**verdict** An attractive monitor that boasts good image quality, but unfortunately it's also overpriced and lacks features.

**price** £215 (£253 inc VAT)

**supplier** dabs.com 0800 138 5182

**A**s the inventor of the FD Trinitron CRT, Sony has won a lot of fans, not to mention market share. Traditionally, Sony monitors also boast strong design, and the A230 is no exception. This screen's silver-plastic finish with glossy white sides will help it blend into a lounge as adeptly as a television, but the stand's design needs a little more thought. It allows the monitor to tip backwards and forwards, but our test unit slumped downwards and wouldn't stay in position.

Despite the £215 price, there's a distinct lack of features. At the rear, you'll only find a captive D-SUB and a power input. In the OSD, advanced adjustments are limited to convergence and there's only a general moiré control.

Fortunately, the A230's strength lies in its image quality. This can be partly attributed to the single development to the FD Trinitron tube – the new Hi-Bright L-SAGIC electron gun, which Sony claims gives improved focus and a brighter image. These claims certainly proved true in our testing, although its resolution results were less encouraging.

Another highlight was in the area of geometry, where the A230 rated as joint best on test with the Eizo T565. Colour purity was impressive in all four tests, and our only real gripe was the poor colour registration.

If style is important to you, the Multiscan should sit proudly atop your shortlist, but this monitor is too expensive compared with the Mitsubishi. The 740SB offers even better image quality for almost £40 less.

**results**

<b>OVERALL</b>	○○○○○○
<b>IMAGE QUALITY</b>	○○○○○○
<b>FEATURES</b>	○○○○○○
<b>VALUE FOR MONEY</b>	○○○○○○



## Sony Multiscan E230

**verdict** Great image quality but, like its sibling, the E230 suffers from being overpriced.

**price** £210 (£247 inc VAT)

**supplier** dabs.com 0800 138 5182

**L**ike Eizo, Sony's monitors usually couple great image quality with high prices. It's notable that even though the E230 isn't Sony's top-of-the-range 17in model, it's still one of the most expensive displays here.

The E230, in contrast to the A230, comes from the 'beige box' school of monitor design. However, it does boast a new, sleeker cabinet design, backed up by revised OSD controls. An extra button has been added, which makes selecting the correct control easier than with the A230's version. The range of controls is limited, though, with only convergence and general moiré in the advanced section.

The E230 performed admirably in our DisplayMate testing, attaining third place overall. Its sharpness and resolution matched the excellent Eizo T565, earning distinctions in focus and video bandwidth tests. The general lack of moiré was also impressive. Like many other monitors, it failed the tough horizontal resolution tests, but passed all the colour purity tests, which is a good reflection on the FD Trinitron CRT.

As with the A230, two disappointments were the captive D-SUB cable and the three-year warranty, which is only return-to-base rather than on-site. But, one of the E230's advantages is its superior electronics, which allow it to display an ergonomic resolution of 1,280 × 1,024 at 81Hz.

Had the E230 offered more features at a lower cost, it might have been in contention for awards. As it stands, the award winners all offer similar or better image quality for less outlay.

**results**

<b>OVERALL</b>	○○○○○○
<b>IMAGE QUALITY</b>	○○○○○○
<b>FEATURES</b>	○○○○○○
<b>VALUE FOR MONEY</b>	○○○○○○



## ViewSonic G75f

**verdict** A nicely priced shadow-mask monitor that boasts good image quality, but it's narrowly beaten to the awards.

**price** £151 (£177 inc VAT)

**supplier** dabs.com 0800 138 5182

**T**he last time we saw a 17in display from ViewSonic was 13 months ago, when we were treated to a feature-packed but expensive monitor – the PF775 (see *Labs*, issue 78, p102). Just over a year later, the opposite is the case – the G75f lacks several desirable features, but is well priced and has especially good image quality.

The reason for the lower price can be attributed to the flat shadow-mask CRT, as opposed to the PF775's Diamondtron NF tube. With a recommended resolution of 1,024 × 768 at 105Hz, the ViewSonic will be kind on the eyes, but the high reflectivity of the screen negates some of this advantage. The G75f's strength lies in sharpness and resolution, where it secured third place. It only failed the tough transient response and corner resolution tests. The colour and greyscale tests along with geometry and distortion were less impressive – it achieved average scores for both of these.

The OSD, while not the most intuitive, is comprehensive, with only linearity and convergence controls missing. These aren't a great loss, as we found the convergence excellent and the linearity acceptable. Top and bottom pin controls are a bonus. E-Color's Colorific software is bundled, which enables you to set up the screen to display colours as accurately as possible.

The ViewSonic G75f is a very good monitor, and the low price makes it an attractive proposition. However, the low maximum resolution counts against it, handing the CTX EX710F the Best Value award.

**results**

<b>OVERALL</b>	○○○○○○
<b>IMAGE QUALITY</b>	○○○○○○
<b>FEATURES</b>	○○○○○○
<b>VALUE FOR MONEY</b>	○○○○○○