TOP 10 DIGITAL PROJECTORS

	Digital projectors	LCD/DLP technology	Max brightness	Lamp life Lamp type Cost of replacement	Weight Dimensions (wxdxh)	Maximum native resolution
1 	**InFocus X1** 01628 666 622 www.infocus.com **NEW**	• £1,299 ex VAT • 2-year parts-and-labour warranty • First review Apr 03	DDR DLP	1,000 Ansi lumens	3,000 hours 150W SHP £199	3.1kg 249x318x106mm	800x600 (SVGA)
2 	**NEC LT220** 0845 404 020 www.nec.co.uk **NEW**	• £1,999 ex VAT • 3-year European onsite warranty • First review Apr 03	SDR DLP	1,800 Ansi lumens	1,500/2,000 hours 220W NSH £298	3.2kg 260x275x92mm	800x600 (SVGA)
3 	**CTX PS-5140** 01923 810 800 www.ctxeurope.com **LAST MONTH 1**	• £1,025 ex VAT • 2-year parts-and-labour warranty • First review Mar 03	LCD	1,400 Ansi lumens	2,000 hours 150W EHPL £249	2.7kg 283x243x91mm	800x600 (SVGA)
4 	**Epson EMP-53** 0800 220 546 www.epson.co.uk **NEW**	• £1,499 ex VAT • 3-year European onsite warranty (2-year worldwide) • First review Apr 03	LCD	1,700 Ansi lumens	1,500/2,000 hours 165W UHE £299	2.9kg 315x240x97mm	800x600 (SVGA)
5 	**NEC LT260** 0845 404 020 www.nec.co.uk **LAST MONTH 2**	• £3,499 ex VAT • 3-year European onsite warranty • First review Jan 03	DDR DLP	2,100 Ansi lumens	1,500/2,000 hours 220W NSH £298	2.9kg 260x275x92mm	1,024x768 (XGA)
6 	**InFocus LP70** 01628 666 622 www.infocus.com **NEW**	• £2,250 ex VAT • 2-year parts-and-labour warranty • First review Spr 03	DDR DLP	1,100 Ansi lumens	2,000 hours 120W UHP £280	1.1kg 199x149x63mm	1,024x768 (XGA)
7 	**IBM iLM300** 0800 169 1458 www.ibm.com/uk **NEW**	• £2,470 ex VAT • 3-year parts-and-labour warranty • First review Apr 03	DDR DLP	1,100 Ansi lumens	2,000 hours 120W UHP £280	1.1kg 154x195x64mm	1,024x768 (XGA)
8 	**Sharp PG-M20S** 0800 138 5051 www.sharp.co.uk/projectors **NEW**	• £1,765 ex VAT • 3-year parts-and-labour warranty • First review Apr 03	DDR DLP	1,300 Ansi lumens	2,000 hours 210W SHP £305	2.6kg 219x303x76mm	800x600 (SVGA)
9 	**Optoma EP737** 01923 691 800 www.optoma.co.uk **NEW**	• £2,200 ex VAT • 3-year parts-and-labour warranty • First review Apr 03	DDR DLP	1,500 Ansi lumens	2,000 hours 150W P-VIP £309	1.68kg 246x210x71mm	1,024x768 (XGA)
10 	**Panasonic PT-L730NTE** 08700 100 464 www.panasonic.co.uk/projectors **NEW**	• £3,295 ex VAT • 2-year parts-and-labour warranty • First review Apr 03	LCD	2,200 Ansi lumens	2,000/3,000 hours 220W UHM £240	4kg 245x341x118mm	1,024x768 (XGA)

1 InFocus X1

Over the past year customers with a spare £2,500 have had an easy time choosing high-calibre projectors. It's only now that we're seeing models half this cost that can truly handle full-screen presentations and video.

The InFocus' official price is £1,299, but at the time of going to press it was possible to buy the X1 online for up to £200 less. Nor will you have to pay through the nose to run this Best Buy projector – its lamp lasts longer and costs less than the Top 10 competitors.

Not only is the InFocus cheap to buy and run, it's also equipped with cutting-edge DLP (digital light processing) technology. By using an intricate system of rotating mirrors to adjust the lightbeam, DLP is able to keep out excess light more effectively than basic LCD technology, resulting in a projector that can handle darker colours better.

The contrast ratio of 2,000:1 hints at an enormous depth of colour and the X1's clear display and sharp definition make it adept at displaying both video and

Windows applications. Only the two NEC projectors and InFocus' high-end LP70 model at number six offered a significantly better picture.

	Max screen size max screen distance	Distance needed to get 100in vertical image	Contrast ratio	Economy mode Wireless facilities	Digital connector	Memory card	Noise Speakers
	255in 9.8m	4.2m	2,000:1	no no	no	no	37dB 2.5W
	500in 19m	3.4m	600:1	yes no	no	no	32dB/29dB 2W
	200in 8.33m	4.2m	400:1	no no	no	no	37dB 1W
	300in 10.5m	3.04m	500:1	yes no	no	no	36dB/33dB 1W
	500in 24.6m	3.8m	1,600:1	yes yes	no	PC Card	32dB/29dB 2W
	266in 10m	3.8m	800:1	no no	M1-DA	no	32dB 1W
	150in 5.46m	3.53m	800:1	no no	M1-DA	no	32dB 1W
	300in 15.4m	5.1m	1,000:1	no no	DVI	no	37dB 2W
	295in 12m	4.1m	1,800:1	no no	M1-DA	no	32dB 2W
	300in 9.4m	3.1m	400:1	yes yes	no	PC Card, 8MB Secure Digital	32dB 2W

There are, of course, disadvantages. The InFocus' native resolution support is confined to SVGA (800x600), so you won't be able to display lots of windows simultaneously. Neither will you find the device quiet in operation, although this will be less of a problem in a loud office than a sitting room.

Finally, picture size isn't as large as some of the other models in the chart. Nonetheless, the X1 is a first-class projector that, thanks to its incredible price tag, would make an outstanding buy for both home and office use.

2 NEC LT220

The InFocus X1 is a great purchase for those on a budget, but if you are looking for something a little special then NEC's LT220 should be at the top of your list. This Recommended projector features DLP (digital light processing) technology, but it's the SDR (single data rate) version rather than speedier DDR (double data rate) that powers the other DLP models in the chart.

Theoretically this means that the NEC can't handle data as quickly as

the DDR versions, although that didn't stop the LT220 from boasting arguably one of the best images in the chart.

Business users will like the LT220 because of the wonderfully clean monochrome display that illuminates Windows applications – proof that contrast ratio isn't the definitive measure of image quality. Cinephiles will relish the bright tints and warm hues of this projector, although if you prefer your video images to be cold and clinical then test the LT220 before purchasing.

What all home cinema fanatics will appreciate, though, is the large screen size and lack of system noise. In economy mode the LT220 can be restricted to an almost inaudible 29dB. This comes at the cost of some brightness, although since the NEC uses 1,800 Ansi lumens the reduced noise has very little effect on image quality.

The NEC can't offer everything under the sun, though. The limited SVGA (800x600) resolution support means that it lacks the level of detail needed for true high-end Windows display. At 3.2kg, it's also almost three times as heavy as the InFocus LP70 and IBM projectors. The LT220's price tag may seem high, but we were able to locate it in the shops for less than £1,500. And at this price point, you really are getting a superior projector for the money.

3 CTX PS-5140

Last month's number one projector retains a place among the elite due to its jaw-dropping price. The CTX PS-5140's specifications are more than adequate and the brightness rating of 1,400 Ansi lumens means the display will remain visible in the lightest of conditions. Unlike the Best Buy X1, however, the CTX has to make do with basic LCD rather than DLP (digital light processing) technology. This results in an image that isn't as sharp or well defined as the excellent InFocus. On office applications, in particular, you'll notice a slight reduction in colour scheme purity.

If high detail levels are essential then the CTX's limited SVGA (800x600) resolution support will fail to deliver. In operation the PS-5140 is also quite loud – 37dB may be fine

for an office environment, but in a quiet room it'll grate after half an hour.

At £1,025, the CTX may be the cheapest projector in the chart but do take these official prices with a pinch of salt. The Best Buy X1 may have a quoted price of £1,299 – making it £300 more than the CTX – but in reality, if you shop around for a good deal you'll only have to pay an extra £200.

Small offices without the need for high resolution support and home cinema enthusiasts who don't mind donning a pair of headphones to drown out the fan noise will find the CTX value for money. But this third-placed model is outplayed by the superb InFocus X1. For that reason, we'd recommend the PS-5140 as a second choice rather than a must-have.

4 Epson EMP-53

If you wish to enthral your audience with an eye-catching display then you obviously need the biggest screen size possible. If this is the case then consider Epson's EMP-53. Testing the projectors over 3.5m, only the expensive Panasonic generated a larger image. And at just £1,499, no other projector produces more for less money.

LCD technology may be currently taking a bashing, but the Epson's 500:1 contrast ratio is well above average for an LCD projector. However, though the SVGA (800x600) resolution support creates a picture that's clean and easy on the eye, it lacks the huge depth of colour of the top-end DLP (digital light processing) models.

For both Windows applications and video, the top two projectors produce better results. The Epson's high brightness rating of 1,700 Ansi lumens, though, will allow it to work under a range of light conditions and you can sacrifice some brightness to bring the fan noise down to a discreet 33dB. The powerful remote control (which includes a page turning feature) is another bonus for executives.

The EMP-53 is a polished entry from Epson that, with the benefit of DLP technology, could easily have fought its way higher up the chart.

5 NEC LT260

With its peerless features set and glorious image quality, the LT260 is currently the gold standard other projectors can only aspire to. Wireless LAN (local area network) facilities do away with the need to be physically connected to the projector, allowing any number of users to send their images to the NEC without even being in the same room. The popular 802.11b, or Wi-Fi, standard is supported, so a range of 100-300ft is possible. Users can also copy their presentation files to a PC Card, enabling roving executives to leave their notebooks in the office.

The NEC's comprehensive onboard help system and features set make it a cinch to perfect the image and the standout 3D reform function goes far beyond the standard keystone tool, allowing users to adjust the picture vertically, diagonally and horizontally.

The NEC supports a 1,600:1 contrast ratio and impressive 2,100 Ansi lumens brightness rating, and the superlative image quality more than does justice to those figures. Pictures are clean and flush with colour, while the sharp and focused text and XGA (1,024x768) resolution is perfect for high-detail work. Unfortunately, the LT260's only fault is its huge price tag.

6 InFocus LP70

Tipping the scales at a featherweight 1.1kg, only the IBM can match the LP70 for weight. It's perhaps a shame that a PC Card facility wasn't included for maximum portability, but InFocus obviously didn't want to add unnecessary pounds to the LP70. Even without this facility the projector still stands out – and with a noise rating of just 32dB, you'll notice it for the right reasons.

The brightness rating of 1,100 Ansi lumens could have been improved on, but it still generates a visible image in most light conditions – the InFocus can automatically adjust the amount of brightness to suit the environment. Full XGA (1,024x768) resolution support means you can crank up the detail. The remote control and menu system (including advanced features like Picture in Picture and the Mask tool) are well thought out, while an additional feature allows you to control the projector directly from the PC.

The InFocus is lightweight, small, affordable and configured to create visible images in most conditions. However, where portability or XGA resolution support aren't essentials, there are cheaper models available.

7 IBM iLM300

The seventh-placed IBM may boast reasonable image quality, large screen size and supreme portability, but it suffers from one critical flaw – the all-but-identical InFocus LP70, above, is available for at least £200 less.

The iLM300 lets you display your Windows desktop in all its 1,024x768 resolution glory. The in-depth menu system and 1.1kg frame make this a fantastic choice for the executive on the move, although a higher brightness rating would have allowed it to cope better in low light conditions. Picture size is good and the balanced

image, although lacking some of the intensity of colour displayed by other DLP (digital light processing) projectors, makes for comfortable viewing.

Cost is undoubtedly going to be a factor with the IBM iLM300 and we found it hard to improve on the asking price of £2,470. It should be possible to track down the virtually identical InFocus LP70 at a significant discount. With this in mind, it's hard to recommend the IBM – even if you do value portability above all else.

8 Sharp PG-M20S

new

Requiring around 5.1m to generate a 100in image, the Sharp PG-M20S produces one of the smallest pictures of all. What's visible, however, is clear, and the versatile colour options allow you to adjust the settings to suit. This is partly due to the crisp DDR DLP (digital light processing) technology, while the 1,300 Ansi lumens brightness rating and 1,000:1 contrast ratio are both in keeping with high-end models. The loud 37dB operating noise mars the Sharp's home video capabilities and its limited SVGA (800x600) resolution support means it's best suited to small offices.

Solid though the PG-M20S is, this model isn't significantly better in operation than the superb InFocus X1. And with a price tag of £1,765, that's enough to strike it off the shopping list.

9 Optoma EP737

new

There's no doubting Optoma's ability to recognise the latest trends in hardware advances – the EP737's smooth DDR DLP (digital light processing) technology is joined by a list of specifications that should guarantee success. From the huge contrast ratio of 1,800:1 and the beaming 1,500 Ansi lumens to the almost inaudible noise rating of 32dB, XGA resolution support and lightweight 1.68kg frame, the EP737 simply jumps off the page as a contender. Which is why it's surprising to note how underwhelming the projector was in practice.

There's nothing wrong with the image quality and the picture is clear enough for applications, presentations and video output. But the glowering colour palette lacked the subtlety of the top performers and, without a powerful image, the Optoma's specification list alone isn't enough to overcome the £2,200 price tag.

10 Panasonic PT-L730NTE

Specialist products often come at a price and the 802.11b wireless network, or Wi-Fi, capabilities of the Panasonic PT-L730NTE will cost you £3,295. But if the ability to control and utilise the projector from any suitably equipped PC (with a range varying between 100 and 300ft) is of paramount importance, this model may still be a tempting purchase.

new

Requiring roughly 3.1m to generate a 100in image, the Panasonic offers arguably the biggest screen of the lot. Unfortunately, though, its dependence on basic LCD technology fails to lift image quality to the level of the top DLP (digital light processing) projectors. Compared to the glorious picture of the NEC LT260 (armed with similar Wi-Fi capabilities), the PT-L730NTE fails to justify its steep price.

Buying advice

• Brightness rating **Measured in Ansi lumens, a projector's brightness rating has traditionally been a fairly reliable indicator of image quality. But as this month's Top 10 reveals, it's no longer the case that a high brightness rating means strong image quality. On a business projector you should still be looking for at least 1,000 Ansi lumens, but for home cinema use more than this could prove overpowering. For Windows applications you'll want sharp and clearly defined images; colour quality will make more of a difference where home cinema is concerned.**

• Short throw lens **If the projector will be mainly confined to rooms of a modest size then a model with a short throw lens will produce a larger picture. The only drawback is that the colour and focus may be slightly reduced. Such a projector is generally suited to home cinema, although if you're looking to impress business clients a large picture can make a good impression.**

• Economy mode **Projectors with an energy conservation mode allow you to sacrifice brightness in favour of longer lamp life. A useful side effect tends to be reduced noise. The loud hum of a working projector may be acceptable in a business environment, but in the confined space of a home cinema more than 35dB could prove irritating. Ideally you'll want to keep it to 30-32dB.**

• Portability **Few models weigh significantly more than 3kg so can be comfortably moved over short distances. If you need to carry the projector for long distances, though, you should be looking for a model that weighs no more than 1.5kg. A memory card slot could prove even more useful, allowing you to copy your presentations to a pocket-sized storage medium and leave the laptop or PC in the office. Wireless facilities such as Wi-Fi allow you to control the projector from several PCs without having to keep physically connecting and disconnecting leads.**

• Resolution support **The higher the resolution the more detail used to generate the image. XGA (1,024x768) support is preferable for displaying PC applications, although for low-detail programs (including most PowerPoint presentations) or affordable home video SVGA (800x600) will suffice. Focus on the native resolution and don't be fooled by companies claiming superior 'emulated' resolutions.**

• Lamp costs **Unless you're using the projector constantly you're unlikely to need to replace the lamp too often. Nonetheless, it's worth comparing the price of a replacement to the number of hours it can burn for. Extra costs like these mount up.**

• Digital connector **A digital connection isn't particularly important, although it's worth having if you're buying a high-end model. Bear in mind that a full DVI connection is best. An M1-DA connector uses a different socket and may not be as easy to connect to other digital devices.**