



# Movie makers

We reveal our cheapest-ever Best Buy digital camcorder – plus seven more crackers for festive film-making

Last year a million camcorders were sold in the UK, thanks to the introduction and meteoric rise of digital models. The new camcorders don't just offer better picture quality than their analogue forefathers – they are more versatile and more portable, too. If you want to buy one as a Christmas present, or for yourself to film the party season, we have eight outstanding Best Buys. All are made by either Panasonic or Sony, who really left their rivals standing in our latest tests.

If you haven't bought a digital model before, you'll need to understand the differences between the main recording formats before heading for the shops.

Hard-disk camcorders are popular with keen movie-makers, who love the fact that you record straight on to the built-in hard disk rather than having to fiddle with discs or tapes. JVC was the pioneer in this field, but Sony's new DCR-SR90E model is our first hard-disk Best Buy.

DVD camcorders are great if you like to create discs to play on your DVD player or send to your friends, but watch out – many discs record only around 20 minutes of footage at the highest-quality setting. This report features our first DVD camcorder Best Buy for three years.

Camcorders recording on Mini-DV tape are still very popular with creative film-makers. They are the best choice by some distance if you want to get into video editing on your computer.

For frequent travellers, memory-card camcorders are ideal – they fit inside most pockets. The two models we tested for this report were poor, but the Best Buy Panasonic SDR-S100 from our last test can still be bought online if you hurry.

Watch out, too, for the high-definition (HD) camcorders – these promise great video quality on HD television and we have tested two of them. See 'High definition', p70.

**All eight of our Best Buy camcorders are made by Panasonic or Sony**



## 67% Panasonic NV-GS500 £1,000

The first of four Best Buys from Panasonic, the GS500 produced the best-quality video images in our test.

**WHICH? BEST BUY**

Even indoors, in artificial light, it did well, rendering accurate colours and impressive sharpness in the video. It was also the best on test in dim light. Battery life is also very good – we managed 132 minutes of recording on a single charge. The Panasonic NV-GS500 is available from Jessops.

**WE LIKED** The NV-GS500 had the best viewfinder on test.

**Cheapest store** Jessops **Format** Mini-DV **Weight** 670g **Optical zoom** x12 **Still photo on to memory card** Yes



## 62% Sony DCR-DVD505E £700

Sony has produced DVD camcorders for a few years but this is its first Best Buy. It is particularly strong at taking high-quality video in good outdoor light – only the Panasonic Best Buy DVD camcorder could match it in this test. As with all Sonys that accept an external microphone, this model takes only Sony-branded microphones. It's available from Argos, Currys and Jessops.

**WHICH? BEST BUY**

**WE LIKED** The LCD screen is bigger than on most other Best Buys.

**Cheapest stores** Jessops, Currys **Format** DVD **Weight** 630g **Optical zoom** x10 **Still photo on to memory card** Yes

## What you should look for

### OPTICAL ZOOM

This makes your subject appear closer – a x10 optical zoom is fine in most situations. If you're doing long-distance work such as close-ups of distant wildlife, a longer optical zoom is useful but camera shake is inevitable without a tripod



### IMAGE STABILISATION

Unless you're using a tripod, keep this turned on to reduce minor camera shake

### HANDLING

This is very personal. Try out any camcorder you're interested in before buying, making sure it feels right in your hand. Strap position, weight and dimensions all have a big influence



### STILL PHOTOS

Most models take still photos. Quality is lower than you get with a good digital camera, but the gap is closing





## 66% Panasonic NV-GS300 £650

The Panasonic NV-GS300 is lighter and cheaper than the NV-GS500 – and almost as good. Its optical zoom power is a little less, at x10, and it lacks a few features, such as the ability to adjust the sensitivity of the microphone. But video image quality is impressive, and it is better than the NV-GS500 when it comes to shooting footage outdoors in good light. It is available from Jessops.

**WORTH KNOWING** Battery life was bettered only by the NV-GS500 in our tests.

**Cheapest store** Jessops **Format** Mini-DV  
Weight 540g Optical zoom x10 Still photo on to memory card Yes

WHICH?  
**BEST BUY**



## 64% Panasonic VDR-D300 £660

Another great model from Panasonic, this is the best DVD camcorder we've ever tested. Overall video image quality is nearly as good as the other two Panasonics, and the autofocus system is the best on test – when you pan the camcorder the autofocus system locks on to changing subjects quickly and accurately, producing great action footage. The VDR-D300 is available from Jessops.

**WE FOUND** Video image sharpness is the best on test.

**Cheapest store** Jessops **Format** DVD  
Weight 660g Optical zoom x10 Still photo on to memory card Yes

WHICH?  
**BEST BUY**



## 62% Sony HDR-HC3E £800

The Sony HDR-HC3E is the best high-definition camcorder you can buy for this sort of money and is still worth buying even if you don't yet have an HD-ready television, as video image quality is good in standard mode. In high-definition mode, image quality moves to a new level. The LCD display is easy to read and sound quality from the built-in mic was the best on test. It is available from Argos, Comet and John Lewis.

**WORTH KNOWING** This one records on standard Mini-DV tapes.

**Cheapest stores** Comet, John Lewis **Format** Mini-DV  
Weight 610g Optical zoom x10 Still photo on to memory card Yes

WHICH?  
**BEST BUY**



## 61% Panasonic NV-GS180 £366

The Panasonic NV-GS180 offers great value for money. Despite its low price, its video quality is not far off the standard of its big brothers, the NV-GS500 (1) and NV-GS300 (2). On the downside, the NV-GS180's LCD screen is smaller than all other Best Buys at 2.4 inches and the camera doesn't have a flash. The NV-GS180 is available from Currys, Jessops and PC World.

**WATCH OUT** At 89 minutes, battery life is the lowest of all our Best Buys.

**Cheapest Store** Jessops **Format** Mini-DV  
Weight 490g Optical zoom x10 Still photo on to memory card Yes

WHICH?  
**BEST BUY**

EXCEPTIONAL  
VALUE which?



## 63% Sony DCR-SR90E £614

This is our first ever hard-disk Best Buy. To watch your footage, you connect the SR90E to your television and use the camcorder controls or supplied remote control to play it back. The SR90E has a 30GB hard disk, which holds an impressive 440 minutes of footage at the highest-quality setting. It's available from Argos, Comet, John Lewis and PC World.

**WORTH KNOWING** Your PC will need a USB2.0 connection to copy footage – otherwise this will be very slow.

**Cheapest store** Comet **Format** Hard disk  
Weight 615g Optical zoom x10 Still photo on to memory card No

WHICH?  
**BEST BUY**



## 61% Sony DCR-HC46E £350

This is the cheapest Best Buy camcorder we have found this year and it offers very good video quality for the money. Battery life is excellent, too – you get about two hours of recording time per charge. Still photos are OK, though there isn't a flash. Despite its price tag, the HC46E has features that some other models lack, such as a remote control for TV playback. It also has a x12 optical zoom. The HC46E is available from Jessops.

**WE FOUND** This is our lightest Best Buy – good news for all-day events.

**Cheapest store** Jessops **Format** Mini-DV  
Weight 450g Optical zoom x12 Still photo on to memory card Yes

WHICH?  
**BEST BUY**

EXCEPTIONAL  
VALUE which?

## Don't Buys

The Samsung VP-D361 (23), below, and VP-DC161W (24) are Don't Buys despite their low prices. Camcorders stand or fall on the quality of their video images and both Samsungs come up well short here. Take a video of a moving scene outdoors in good light (a task at which our Best Buys excel) and the VP-DC161W gives you a washed-out picture that is far from sharp. Shoot the same scene at night and illuminate it with the built-in video lamp and the result is awful – colours are inaccurate and the picture is unclear. The VP-D361 isn't much better overall. With two Best Buys under £400, even those on a tight budget should avoid this pair.

WHICH?  
**DON'T BUY**



## High definition

Two of the camcorders we tested – the Sanyo Xacti VPC-HD1E (21) and the Sony HDR-HC3E (6) – are capable of recording high-definition (HD) footage. This can then be played back on an HD-ready TV. First, we tested both camcorders in standard mode (it is these results that we show in the table). We were disappointed with the Sanyo but impressed with the Sony – it's a Best Buy even in standard mode. When tested in HD mode, the Sony is even better. Sharpness is excellent and you are in no doubt that you are watching something special. It isn't perfect but overall video quality is better than any standard camcorder we've tested. In HD mode, the Sanyo improves a little but not enough to elevate it to Best Buy status. A new Sanyo HD model, the VPC-HD1A, is on its way.

## Contacts

**Canon**  
0870 514 3723  
[www.canon.co.uk](http://www.canon.co.uk)

**Hitachi**  
01628 643000  
[www.hitachi.co.uk](http://www.hitachi.co.uk)

**JVC** 0870 330 5000  
[www.jvc.co.uk](http://www.jvc.co.uk)

**Panasonic**  
0870 535 7357  
[www.panasonic.co.uk](http://www.panasonic.co.uk)

**Samsung**  
0870 242 0303  
[www.samsung.co.uk](http://www.samsung.co.uk)

**Sanyo**  
01923 246363  
[www.sanyo.co.uk](http://www.sanyo.co.uk)

**Sony**  
0870 511 1999  
[www.sony.co.uk](http://www.sony.co.uk)

## Facts & scores

More clippings and out-takes from our tests

### Steady now

Even those camcorders which score quite poorly for image stabilisation, like the Canon MVX450, produce better results when the system is turned on than when it is left off.

### Sounds awful

Sound quality on the Sanyo Xacti VPC-C6E is very poor. It also picks up a lot of operating noise, in particular when you zoom. It's also worth noting that this is the only camcorder on test not to offer widescreen recording.

### Limited power

In our tests, the Samsung VP-DC161W's battery lasted for only about 55 minutes in recording mode before it ran out of power.

## Budget Buys

**Canon MV890 £190**  
**Sony DCR-HC24E £230**



The Best Buy Panasonic NV-GS180 (7) and Sony DCR-HC46E (8) prove that you don't have to pay the earth to get a great camcorder. If you want change from £250, the Canon MV890 (15), top, and Sony DCR-HC24E (16), left, are reasonable camcorders that produce decent video quality. They trail behind the Best Buys overall, though, and are not a good choice if you like to take still photos with your camcorder.

MODEL	SPECIFICATION	
	PRICE (£)	FORMAT
1 <b>PANASONIC NV-GS500</b>	1,000	Mini-DV
2 <b>PANASONIC NV-GS300</b>	650	Mini-DV
3 <b>PANASONIC VDR-D300</b>	660	DVD-R/-RW, DVD-Ram
4 <b>SONY DCR-SR90E</b>	614	Hard disk (440 min) <sup>a</sup>
5 <b>SONY DCR-DVD505E</b>	700	DVD-R/-RW, DVD+RW
6 <b>SONY HDR-HC3E<sup>b</sup></b>	800	Mini-DV
7 <b>PANASONIC NV-GS180</b>	366	Mini-DV
8 <b>SONY DCR-HC46E</b>	350	Mini-DV
9 <b>CANON DC40</b>	700	DVD-R/-RW
10 <b>CANON MVX450</b>	330	Mini-DV
11 <b>JVC GZ-MG77EK</b>	700	Hard disk (430 min) <sup>a</sup>
12 <b>SONY DCR-DVD304E</b>	430	DVD-R/-RW, DVD+RW
13 <b>CANON MV960</b>	330	Mini-DV
14 <b>PANASONIC VDR-D150</b>	350	DVD-R/-RW, DVD-Ram
15 <b>CANON MV890</b>	190	Mini-DV
16 <b>SONY DCR-HC24E</b>	230	Mini-DV
17 <b>HITACHI DZ-BX37E</b>	280	DVD-R/-RW, DVD+RW, DVD-Ram
18 <b>JVC GZ-MG21EK</b>	380	Hard disk (290 min) <sup>a</sup>
19 <b>JVC GZ-MG36EK</b>	600	Hard disk (430 min) <sup>a</sup>
20 <b>SANYO Xacti VPC-C6E</b>	500	Memory card (SD Card)
21 <b>SANYO Xacti VPC-HD1E<sup>b</sup></b>	700	Memory card (SD Card)
22 <b>JVC GR-D340EK</b>	200	Mini-DV
23 <b>SAMSUNG VP-D361</b>	179	Mini-DV
24 <b>SAMSUNG VP-DC161W</b>	300	DVD-R/-RW, DVD+R, DVD+RW

<sup>a</sup> Number of minutes of footage stored at the highest-quality setting <sup>b</sup> Results are for performance

## MEMBER BENEFIT

### FREE website access

#### More information online

Which? members have free access to [www.which.co.uk/camcorders](http://www.which.co.uk/camcorders) where you can find more about choosing and using digital camcorders, including longer reviews of the models we tested for this report.

You can also find out more about other products we have tested recently, including digital cameras and televisions.



		FEATURES			WHICH? TEST PERFORMANCE							SCORE %
WEIGHT (g)	SIZE WxHxD (cm)	OPTICAL ZOOM	MEMORY CARD SLOT	LENS CONVERTER ATTACHMENT	IMAGE STABILISATION	AUTOFOCUSING	OVERALL VIDEO IMAGE QUALITY	SOUND	STILL PHOTOS	EASE OF USE	BATTERY LIFE	
670	10.5x7.5x16	12	✓	✓	★★★★★	★★★★★	★★★★★	★★★	★★★★★	★★★★★	★★★★★	67
540	8.5x8x14	10	✓	✓	★★★★★	★★★★★	★★★★★	★★★	★★★★★	★★★★★	★★★★★	66
660	8x9x14.5	10	✓	✓	★★★★★	★★★★★	★★★★★	★★★	★★★★★	★★★★★	★★★★★	64
615	9.5x7x15	10		✓	★★★★★	★★★★★	★★★★★	★★★	★★★★	★★★★★	★★★★★	63
630	8x9x15	10	✓	✓	★★★★★	★★★★★	★★★★★	★★★	★★★★	★★★★★	★★★★★	62
610	9x8x14	10	✓	✓	★★★★★	★★★★★	★★★★★	★★★	★★★★	★★★★★	★★★★★	62
490	8.5x8x13.5	10	✓	✓	★★★★★	★★★★★	★★★★★	★★★	★★★★★	★★★★★	★★★★★	61
450	7x8x12	12	✓	✓	★★★★★	★★★★★	★★★★★	★★★	★★★★	★★★★★	★★★★★	61
540	7x9x13	10	✓	✓	★★★★★	★★★★★	★★★★★	★★	★★★★	★★★★	★★★★	57
435	7x8x11	20	✓	✓	★★	★★★★★	★★★★★	★★★	★★	★★★★	★★★★★	54
435	8x7x12.5	10	✓	✓	★★★★	★★★★★	★★★★★	★★★	★★★★★	★★★★	★★★★	54
450	6x9x14	12	✓	✓	★★★★★	★★★★★	★★★★★	★★★	★★★★	★★★★	★★★★★	53
450	6x9.5x12	25	✓		★★★★	★★★★★	★★★★★	★★	★★	★★★★	★★★★★	52
550	7x9x14.5	30	✓	✓	★★★★★	★★★★★	★★★★★	★★★	★★	★★★★	★★★★★	52
445	6x9.5x12	22			★★	★★★★★	★★★★★	★★	n/a	★★★★	★★★★★	51
430	7.5x8x12	20		✓	★★	★★★★★	★★★★★	★★★	★	★★★★	★★★★★	49
490	6.5x9x14	25	✓	✓	★★★★	★★★★★	★★★★★	★★★	★	★★★★	★★★★	48
400	8x7x12.5	32	✓	✓	★★	★★★★	★★★★★	★★★	★	★★★★	★★★★	44
400	8x7x12.5	32	✓	✓	★★	★★★★	★★★★★	★★★	★	★★★★	★★★★	44
180	3x11x7	5	✓		★★★★★	★★	★★★★★	★	★★★★	★★★★	★★★★	43
250	3.5x12x8.5	10	✓		★★★★★	★★	★★★★★	★★	★★★★★	★★★★	★★★★	43
485	6x9.5x13	32		✓	★★★★	★★★★★	★★★★★	★★	★	★★★★	★★★★★	41
430	6.5x9.5x12	33		✓	★★★★★	★★	★★★★★	★★	★	★★★★	★★★★	37
490	6.5x9x13.5	33		✓	★★★★★	★★★	★★★★★	★★	n/a	★★	★★★★	36

in standard mode, not high-definition mode

### USING THE TABLE

We tested a range of new digital camcorders priced up to £1,000 from leading brands. The more stars the better.

### Specification

**Price** For Best Buys, we give the cheapest widely available high-street price as we went to press. Prices for others are a guide to what you should expect to pay.

**Format** The recording formats that each camcorder uses. DVD camcorders accept different types of DVD blank discs: DVD-R and DVD+R allow you to record once only; other types allow you to

record and write many times over. DVD-Ram discs are more scratch-resistant but very few DVD players play them back.

### Features

**Optical zoom** The higher the number, the further you can zoom in. **Memory card slot** If your camcorder has this slot, you can record still photos on to a card and may be able to record video to it. **Lens converter attachment** Lens converters increase your zoom options. They come in different sizes so make sure you buy the right one. Check the manual for the lens filter thread size.

### Test performance

**Image stabilisation** This reduces the effect of hand shake on the images you record. The higher the rating, the better it works.

**Autofocusing** The reliability and speed of the autofocusing system, tested in various conditions. **Overall video image quality** Each camcorder's video recording capability, tested in a variety of conditions. **Sound** The performance of each model's built-in microphone. **Still photos** The quality of the still photos that the camcorder can take. **Ease of use** This summarises our experts' views on how easy each model is

to use when recording and playing back footage, how portable it is, and how easy it is to use the LCD and viewfinder and follow the instructions. **Battery life** Takes into account amount of recording and playback time available on a single battery charge.

### Score

Ignores price and is based on:

Video image quality	35%
Ease of use	20%
Sound quality	15%
Still photos	10%
Features	10%
Autofocusing	5%
Battery life	5%