

Home cinema

Watching films at home with surround-sound is great – but choose carefully for the best effect

The market for home-cinema sound systems is growing, driven by the popularity of DVD players and widescreen TVs. We've all become used to seeing cinema-like pictures in our homes and now want the sound-system to go with it, giving us the sense that we are in the middle of the action.

But once you've got your surround-sound system home and unpacked it, you may find it all a little daunting. There's a fair bit of equipment to set up, both physically and electronically, and you'll have to spend a couple of hours installing all the components to get the best from it.

The main elements of a surround-sound system are the speakers and the amplifier. When bought as a kit, a DVD player is often included.

The majority of the kits on test are 5.1 systems, meaning they have five surround speakers plus another bass speaker, known as a subwoofer.

You position the five satellite speakers all around your chosen room – three to the front (one left, one right and one to the centre), plus two speakers at the rear to project sound from behind. These handle the higher frequencies, which gives the impression that sound is coming from around the room, while the subwoofer kicks out the lower bass frequencies.

The position of the five satellite speakers around the listener is more critical than the position of the

subwoofer because it's less easy for the human ear to work out which direction lower-frequency sound is coming from.

In six kits the subwoofer has its own amplifier and is known as an active subwoofer. Of those, the Panasonic (2) and (3), Sharp (4) and Acoustic Energy (10) also contain the amplifiers for the other speakers. This means that you keep messy cabling away from the main unit under the TV.

LOCATION, LOCATION, LOCATION

The home-cinema sound experience varies depending on where you sit. For the best set-up, we'd ideally all have a square living room with the

SPEAKER SYSTEMS

This Denon, like most kits on test, is known as a 5.1 system and comes with six speakers. It is the only one on test that lets you add an extra amplifier and rear speakers (about £220) for enhanced surround effects. This is what's known as a 7.1 system.

Two of the kits on test – the Denon (5) and Teac (7) – attempt to create surround sound with no rear speakers at all. These are known as 2.1 systems and they create a pseudo surround-sound effect with electronic processing known as Dolby Virtual Surround. However, as you can see from the table on p36, we don't rate their surround-sound abilities very highly.

NEED TO KNOW

When you take a trip to your local cinema, you'll notice that the film's sound seems to be coming from all around you, giving the impression that you're in the thick of the action.

This is because there are speakers placed all around the cinema, which use sophisticated digital sound processing to create the surround-sound effect.

A home-cinema system tries to recreate this experience in your living room. The surround-sound audio tracks – called Dolby Digital or DTS – are already held on most DVDs and videos. So all you need is a surround-sound amplifier with built-in decoder and a set of speakers located around your room and you can pretend you're at your local Odeon.

TWO CHOICES

There are two routes to home cinema. The simpler and cheaper is with a kit that contains all you need: amp, speakers, cables and, usually, a DVD player. The more expensive option is to buy separates, selecting the surround-sound amplifier and speaker kit individually, in a quest for the ultimate sound quality.

1 Denon HOME-CINEMA KIT

BEST
ON
TEST

DVD AND AMP

All of the kits, except the Acoustic Energy (10), come with a DVD player. Usually this is built into the surround-sound amplifier, although the Goodmans (11) has a separate DVD player with its own remote control. All the DVD players delivered good picture and sound quality.



TUNER

Most of the surround-sound amplifiers we tested have conventional radio tuners built in. You may see them referred to as surround-sound receivers. All the tuners are analogue, capable of receiving FM and AM broadcasts, and most feature Radio Data System (RDS), which shows the station name. Some models, including this Denon, are more sophisticated and will even switch to travel updates when they are broadcast on other stations. All the tuners did a good job, picking up weak stations and blocking out superfluous noise. This Denon had a particularly good tuner.

TV located centrally on one wall and the sofa placed centrally on the opposite side (see figure 1, top right). The front speakers would be either side of the TV, about a metre away, and the centre speaker below the screen. The rear speakers would be behind the sofa, to the left and right of the main viewer. The subwoofer would go along a side wall. This is how we set up the kits in our tests.

But most of us use our living rooms for more than the home-cinema experience, and few of us have perfectly square living rooms. The TV often sits in one corner, or the sofa is at an angle, and there's other furniture scattered about.

Figure 2 (bottom right) shows how you can position a home-cinema system in a room that isn't the ideal shape or layout and still get good results.

Put the front speakers to the left and right of the TV, pointing at the sofa. Place the centre speaker as near to the TV as you can and place the rear speakers in the opposite corners of the room. You can place the subwoofer in one of the other corners.

CREATING SOME BALANCE

Once you've located the surround speakers and cabled them to the amplifier, you need to program the system so that it knows how far the speakers are from the viewer. You can do this with the remote control. This is important for a realistic surround-sound experience because otherwise you'll hear the sound from closer speakers before the sound from the speakers that are further away.

Programming the distances means the amplifier cleverly adds a tiny delay to the sound from the nearest speakers, so creating a more realistic surround-sound effect. Some systems ask you for the speaker distances in metres, while with others you have to set the delay manually based on conversion tables in the manual – this was taken into account in the ease-of-use ratings.

In addition to setting the distances, you need to set the speaker levels so that it sounds as though the speakers are set at the same volume.

To do this, sit in the main viewing seat and set the system to fire a test tone to each speaker in turn. You adjust the sound levels until they sound as if they are the same volume.

As every room has its own shape and layout, and other furniture that will affect the sound, you'll need to tinker with the position of the speakers, or adjust the sound delay and volume levels.

TABLE NOTES

We tested 11 all-in-one home-cinema kits priced up to around £500 and two separates systems (see the table on p39).

Specification

Price Cheapest widely available high-street price.

Speakers 5.1 systems have six speakers supplied; 2.1 systems have three.

Features

RDS Short for Radio Data System, this displays the radio station name. **Active subwoofer** The subwoofer's amplifier is built in.

Performance

Tuner The ability to pick up weak radio station signals and eliminate unwanted signals and noise. **Amplifier** Strength of

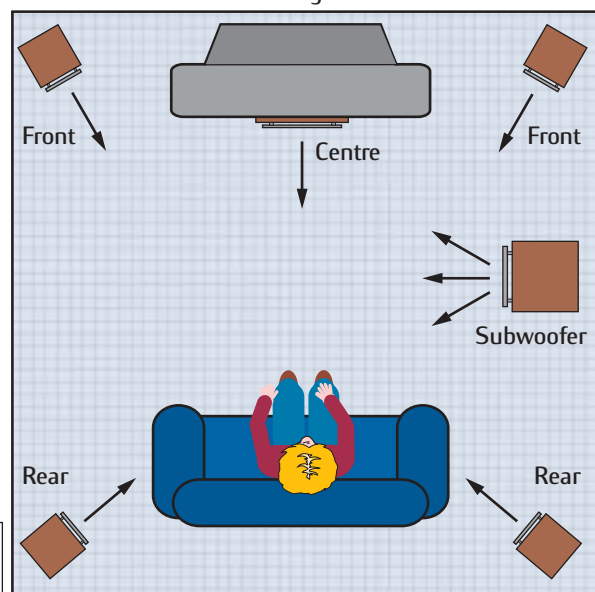
Positioning speakers

Figure 1 shows how to position your home-cinema speakers for the best surround sound, if you have your sofa directly opposite the TV.

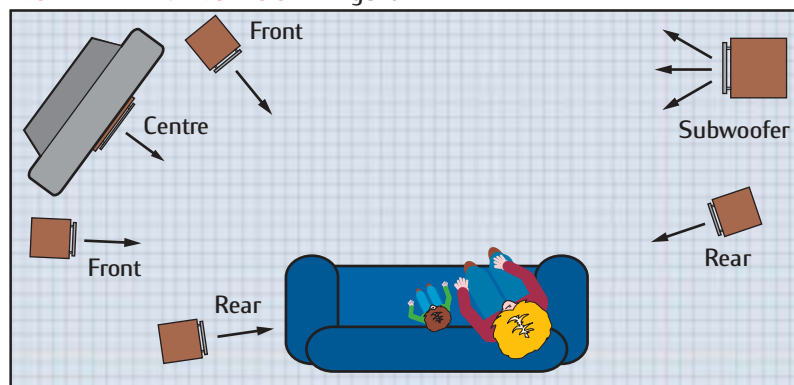
If you don't have the space to set up your living room in this way, try basing your layout on figure 2. See 'Location, location, location,' p35 for tips.

KEY
→ Direction of sound

IDEAL LIVING ROOM Figure 1



NORMAL LIVING ROOM Figure 2



SCORE

This ignores price and is based on:

Performance	50%
Ease of use	35%
Versatility	10%
Power consumption	5%

KEY
★ ☆ ○ ●
Best → Worst
■ Best Buy

Home-cinema kits

MODEL

1 Denon DHT-500 SD

2 Panasonic SC-HT530

3 Panasonic SC-HT880

4 Sharp HT-X1H

5 Denon D-M51 DVS

6 Sony DAV-D150

7 Teac MC-DV250

8 Sanyo DC-TS780

9 Hitachi HTDK180 UK

10 Acoustic Energy Aego P5 MkII

11 Goodmans HEC 17

a Has no DVD player

power output and ability to filter out unwanted noise.

Stereo sound Our expert view of sound quality when used as a stereo system.

Surround effect Our expert view of surround-sound effect. **Surround quality** Our expert view of sound quality in surround-sound mode. **Picture** Our expert view of DVD picture quality. **Versatility** Based

on the number and quality of system features.

Ease of use

Setting up/Tuning How easy it is to set up the tuner, DVD player and amplifier and to adjust it all. **Overall** Takes account of clarity of instructions, ease of use of the remote, and how easy it is to use the system once set up.

Our findings

Our expert panel of listeners and viewers tested 11 kits, priced from £120 to £500, plus two separate systems that cost £550 to £900. The Yamaha (12) separates beat the Denon (1) kit but only just. In contrast the Sony (14) separates did poorly.

Results for kits were mixed: some are excellent, others aren't. Perhaps surprisingly, price wasn't always an indication of sound quality. Our Best on Test kit was one of the pricier all-in-one systems, but our other Best Buy wasn't far behind in quality, yet is less than half the price.

Only the Teac (7) did a decent job of playing CDs, so don't assume a kit will nicely double as a hi-fi.

1 Denon DHT-500 SD 67%

£500, from Comet, John Lewis and Miller Brothers

King of the kits is the Denon (1). It looks the part, with reassuringly heavy speakers, finished in wood veneer, which can be wall-mounted. It's easy to set it up via the on-screen menus. But, critically, when playing films, the satellite speakers and subwoofer work well together, delivering a pleasing, natural sound, albeit slightly lacking in bass. The surround-sound effect is well distributed, too. The amplifier can drive all speakers to quite high volumes.

The system has all the analogue and digital inputs and outputs you'll need, and you can upgrade it to a 7.1 system with two speakers and an amplifier for about £220.

The amplifier comes with an integrated DVD player and tuner, which don't disappoint. DVD picture quality is good and it can play DVD-R/-RW and DVD+R/+RW discs as well as MP3 and Jpeg digital picture discs. Loading and disc-access times are quick which, coupled with a well-designed remote control, make it a pleasure to use.

The RDS tuner is the best we tested. It's very good at pulling in weak stations, immune from unwanted noise, and easy to set up and use, too.

Unlike some other brands on test, the Denon uses hardly any power when left on standby.

The kit is about the same size as the other kits on test. The satellite speakers are only 7cm wide, 21cm high and 17cm deep. The centre speaker has similar dimensions (21x7x15cm) but lies flat. The subwoofer is larger, at 21x32x36cm.

Overall, this is an excellent home-cinema kit. At £500, it's the joint priciest of the kits on test, but it competes well with higher-priced separates.



1 Denon
HOME-CINEMA KIT

PHOTOGRAPHY: JONNY THOMPSON

Specification				Features			Performance							Ease of use		Score
Price (£)	DVD	Tuner	Speakers	Tuner bands	RDS	Active subwoofer	Tuner	Amplifier	Stereo sound	Surround effect	Surround quality	Picture	Versatility	Setting up and tuning	Overall	(%)
500	✓	✓	6	FM/AM	✓		★	☆	○	☆	☆	☆	☆	☆	○	67
230	✓	✓	6	FM/AM	✓	✓	☆	○	○	☆	☆	☆	☆	○	○	65
450	✓	✓	6	FM/AM	✓	✓	☆	☆	○	☆	○	☆	☆	○	○	63
150	✓	✓	6	FM/AM	✓	✓	☆	○	○	○	○	☆	☆	☆	☆	62
480	✓	✓	3	FM/AM	✓	✓	☆	☆	○	●	○	☆	☆	☆	○	60
200	✓	✓	6	FM/AM	✓		○	☆	○	☆	☆	☆	○	○	○	55
220	✓	✓	3	FM/AM	✓	✓	☆	○	☆	●	○	☆	☆	●	○	55
158	✓	✓	6	FM/AM			☆	☆	○	☆	☆	☆	○	○	●	55
175	✓	✓	6	FM/AM	✓		☆	○	○	☆	○	☆	☆	●	●	49
500			6			✓		●	○	☆	☆	see ^a	○	●	●	48
120	✓		6					●	○	○	○	☆	○	●	●	44

2 Panasonic SC-HT530 65%

£230 from Comet, Currys, Dixons and John Lewis

The Panasonic (2) pushed the Denon (1) all the way, matching it for sound quality and surround-sound effect.

Remarkably, it's less than half the price of the Denon and, while aesthetically it's not so appealing, it delivers where it matters – picture and sound quality and surround effect.

Where it does fall down is in power output. It can't be turned up as loud as the Denon, although it should be sufficient for most living rooms.

The amplifier comes with an in-built RDS tuner and DVD player. The tuner does its job well but has only 15 presets for storing your favourite stations, which may be too few choices for the more avid radio listener.

The DVD player works well; picture quality is good and it's fairly easy to use. It can play back discs recorded in DVD-R/-RW and DVD+R/+RW formats together with Jpeg discs of digital photos.

The kit is fairly easy to set up and use, too. The power amplifiers for all the speakers are in the subwoofer cabinet so you plug the cables into this rather than having a spaghetti of wires going into the main unit. Like the Denon it's very frugal with its standby power consumption.

The satellite speakers are small, 9cm wide, 20cm high and 10cm deep, the centre speaker is larger, at 32x9x10cm, and the subwoofer a chunkier 20x37x49cm.

In short, this kit may not quite have the same class or the good looks of the Denon, but if you're looking for an introduction to home cinema for not much outlay, it's worth buying.



2 Panasonic
HOME-CINEMA KIT

The rest on test

A couple of the all-in-one systems were good but not quite Best Buys.

The Panasonic (3) was a worthy runner-up but it didn't have the surround-sound quality to match our two Best Buy kits.

The Sharp (4), while easy to set up and use, had mediocre surround-sound quality and effect.

The rest of the kits weren't brilliant. The Denon (5) is a 2.1 system, so it has only three speakers, and we've found these

can't deliver the surround-sound effect in the same way that a 5.1 system can.

The Sony (6) stood out as having the worst tuner on test.

The Teac (7) is another 2.1 system lacking a decent surround-sound effect and our experts found it was also hard to set up.

The Sanyo (8) didn't sound too bad but it was a pain to use.

Bringing up the rear were the final three kits. The

Hitachi (9) isn't a disaster once you've got it going but it was hard to set up and use.

The Acoustic Energy (10) is the only kit to come without a DVD player, which is good if you already have a DVD player, but its amplifier did poorly in our technical tests and isn't easy to use.

Last (and least) was the Goodmans (11), with a distinctly underwhelming surround-sound experience – and it was tricky to use.



WIRELESS SPEAKERS

The downside of home cinema is the amount of speaker cable snaking round your living room.

One solution is to use wireless speakers, or to buy a system with a wireless option, using an infrared link to couple the amp to the rear speakers.

Neither of our Best Buys gives you the option to use wireless rear speakers, but the Panasonic (3) is available as a wireless version (the Panasonic SC-HT880W) for around £500 (an extra £50), although we haven't tested this option.

Separates

We tested only two separates systems. They're more expensive and we wanted to know what extra you get for your money in terms of sound quality, ease of set up, ease of use and features.

The **Yamaha RX-V657 amplifier combined with the Wharfedale Diamond 9 HCP speaker package (12)** narrowly pipped the top-scoring all-in-one Denon (1) kit.

This combination of separates comes at a hefty £900. For the money, you get a versatile home-cinema amplifier with outputs to run a 7.1 system (with seven surround speakers), plus additional subwoofer.

The back panel sports enough inputs and outputs to hook up just about any other bit of audio equipment you can think of so, if you want, you can link it to your hi-fi system and forgo your hi-fi speakers.

The built-in RDS tuner is no slouch, either, and was up there with the best.

The combination delivered decent quality surround sound with well-distributed sound effects, though interestingly they were no better than the two Best Buy kits. Stereo

sound quality was good too, and it was easy to set up and use.

If you have lots of other audio and visual equipment in your house and want to add home cinema to it rather than buying a whole new kit, a separates system is worth considering.

But it's worth noting that while the Yamaha combination did well in our tests, the combination of the **Sony STR-DB795 amplifier and Mission M2S speakers (13)** gave disappointing results. It scored only 57 per cent, meaning that many of the cheaper kits we looked at did better.

The Yamaha YSP-1 digital sound projector has 42 speakers crammed into a single box, so you don't need lots of speaker cable

No need for six speakers

Yamaha has launched a surround-sound system, the YSP-1 digital sound projector, that uses not six but 42 speakers. It crams all of these mini-speakers into a single box with an amplifier that you place in your living room or hang on the wall. The advantage of this is that it avoids the need to run lots of unsightly speaker cable around the room, although you still need to attach a separate subwoofer for best results.

The system works by using sound-processing techniques to produce sound 'beams' that it bounces off the walls of your living room to give the impression that there are speakers located all around you.

Well, that's the theory anyway. When we tested it we weren't that impressed. Sound quality was good, but the surround effect was less impressive and not as good as a decent conventional home-cinema system. Another problem is that you can't have furniture blocking the path of the sound beams, so you may have to rearrange the furniture in your living room to accommodate the sound projector, or even remove some of it.

For much less than the £800 price tag, you can buy a conventional 5.1 surround-sound system that will perform much better.

The home-cinema kits gave the separates a run for their money

12 Yamaha/Wharfedale HOME-CINEMA SEPARATES, SPEAKERS

BEST ON TEST

Home-cinema separates

MODEL

12 Yamaha RX-V657 amplifier/
Wharfedale Diamond 9 HCP speakers

13 Sony STR-DB795 amplifier/
Mission M2S speakers

	Specification		Performance						Ease of use		Score (%)
	Price (£)	Speakers	Tuner	Amplifier	Stereo sound	Surround effect	Surround quality	Versatility	Setting up and tuning	Overall	
12 Yamaha RX-V657 amplifier/ Wharfedale Diamond 9 HCP speakers	900	6	☆	★	☆	☆	☆	☆	☆	☆	70
13 Sony STR-DB795 amplifier/ Mission M2S speakers	550	6	○	☆	○	☆	○	☆	○	○	57