

# Speakers

We sound out 12 speaker sets, covering everything from 2.1 to 6.1 surround setups

**I**f you're upgrading a PC bought over the last few years, one item you might be tempted to keep is the speaker set. After all, your current speakers probably still work, and who needs top-quality audio anyway? Well, prepare to be surprised. PC speakers have improved in leaps and bounds over the past few years, with some offering stunning value – you can now pick up a 5.1 surround-sound set for just £39.



Not everyone needs or even wants 5.1 speakers though. We include four 2.1 sets, as they're neater, easier to set up and – theoretically at least – can match and surpass surround-sound systems for music reproduction. Their prices range from £32 to £63. But if you want the last word in PC sound quality, take a look at our review of the VideoLogic Sirocco Pro set – it costs £421, but sounds phenomenal.

The surround sets fall into two main categories. Some have their own Dolby Digital decoders, while others rely on the sound card to feed them the decoded signal. The former don't need to be tied to a PC and can accept a digital input from a consumer DVD player, making them a valid home entertainment choice.

With so many different uses for speakers, our tests are wide ranging and expose any fault the set might have, even if it's not in the area of primary use. Whatever setup you're planning, and whatever your budget, our Labs test will guide you to your ideal purchase.

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# Performance analysis

## How we test the speakers and how they perform in practice

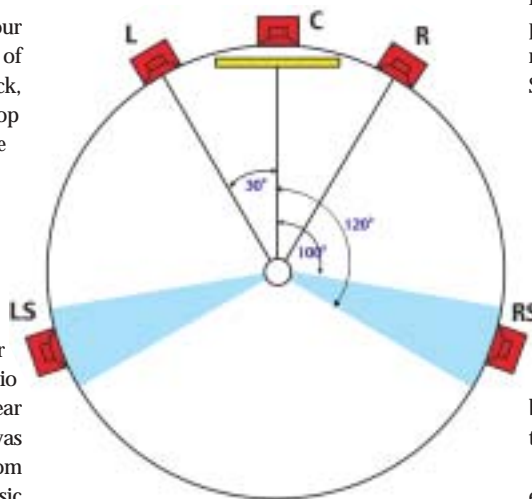
**T**here's only one true way to test speakers: listen to them. We try to match our tests as closely as possible to how most people will use their PC's speakers. To this end, we use a standard PC in a typical room and put the speakers to the test with a wide range of music, games and movies.

To try and cover all bases, we choose four types of music. A remastered version of Michael Jackson's *Bad* represents light rock, while The Lightning Seeds provide some pop music in the form of *Marvellous* from the album *Jollification*. The classical genre is catered for by Holst's *The Planets Suite* – in particular, *Mars*. Moving more up to date, *Love Garden* by Gabor Deutsch and The Thrillseekers' *Synaesthesia* test how the speakers cope with dance music.

Dance music is particularly good for testing the high and low end of the audio spectrum – the deep bass notes you hear thumping out of blacked-out Vauxhall Novas and the high cymbal effects you hear from other people's personal stereos. Classical music taxes the speakers across the entire frequency range and often has subtle reverberations that can be missed on some speakers.

Both pop and rock music test the speakers' midrange capacity. As well as vocals, which primarily exist in the midrange, guitars, piano chords and occasional strings all serve to keep the centre frequency band alive. The Lightning Seeds track also has some complex frequency sweeps at the beginning, which allow us to observe the crossover point between the satellites and the subwoofer.

DVD movies and games allow us to test the speakers' surround-sound capabilities. The DVD test uses the Podracer scene from *Star Wars: Episode 1 – The Phantom Menace*, and the game test is the Unreal Tournament 2003 demo. If the speakers support a Dolby Digital data stream, this is used for testing the DVD in preference to the analog inputs. Analog inputs are also checked to ensure there are no



The Audio Engineering society recommends placing speakers at the angles shown here.

surprises. For the game test, we only use analog inputs, as no game yet encodes its sound to a digital stream.

The DVD also gives a good indication of how the speakers cope with dialogue when it's mixed up with other effects. In the case of 4.1 speakers, it's a good check that the stereo image is able to place the dialogue between the centre speakers. The game is a more precise check on the surround capabilities. Gunshots and scenery impacts are all modelled by the surround engine, so those speakers that offer precise directions to (or from) the firefight can give an advantage.




We set the speakers up in a room 3.3m wide, 3.5m long and just over 2m tall. Although the bare room is far from an

anechoic chamber, it gives us a good idea of how speakers will perform in the real world. The front stereo pair is set up on the desk approximately 1.25m apart and the subwoofer is initially placed under the desk. It's moved if it proves too boomy. Surround speakers are placed behind the listener in positions recommended by the Audio Engineering Society, as shown in the diagram on the left.

We use one of our standard test rigs as the PC for testing, but supplement it with a Creative Audigy 2 sound card. Initially, we set up and test the VideoLogic Sirocco Pro speakers, then an audio switch box is used to connect the other 2.1 speakers. This enables a direct comparison between the reference set and one being tested. For the surround-sound sets, we run the front stereo pair and the subwoofer through the switch box to get the quality comparison and judge the surround precision independently.

These tests give us a clear indication of each aspect of the speaker sets. Notes are kept throughout and scores from one to ten are awarded to each set for each test except the DVD, which has sound quality and surround image marked separately. These scores are then weighted depending on what the set is designed for and marks added for the quality of the cables. The totals are averaged using the normal Labs system: speakers that gain 5 per cent more quality points than the average score 105.

Feature points are awarded for the warranty, the length of cable per satellite speaker, audio and digital standards supported, the controls on the remote and the basic audio properties of the system such as frequency response and the subwoofer crossover frequency. This latter item is important as at around 150Hz the human ear starts to detect the origin of sound and this can affect the stereo image. Once again, the average score is set at 100 points.

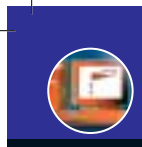
● QUALITY RESULTS													
													
	Altec Lansing 2100	Creative Inspire 2.1	Creative Digital 2800	Creative I-Trigue 2-1 3500	Logitech Z-340	Altec Lansing 641	Logitech Z-560	Altec Lansing 5100	Creative Inspire 5.1	Logitech Z-680	Pure Digital Digital Theatre Platinum	VideoLogic ZXR-550	Creative Inspire 6.1 6700
Podracer on THX DVD sound quality	3	6	2	4	8	6	4	5	7	8	9	7	6
Podracer on THX DVD surround quality	5	5	5	5	7	4	7	7	8	9	7	6	6
Rock (Track 1 on <i>Bad</i> )	3	5	2	3	6	6	3	4	6	6	5	5	5
Classical (Track 1 on <i>Planets</i> )	3	6	2	5	6	6	3	4	7	7	5	5	5
Pop track (Track 6 on <i>Jollification</i> )	2	4	2	4	6	5	2	4	8	6	5	6	6
Dance music (MP3s)	1	4	4	5	6	6	3	5	7	6	6	5	5
Unreal Tournament 2003	5	6	4	4	6	5	5	4	8	5	4	6	6
Cable quality	4	4	4	4	5	4	4	4	5	7	4	4	4
Total after weighting	33.0	37.6	32.4	35.5	41.0	37.4	36.4	37.1	42.5	42.6	37.1	39.1	104
Average	88	100	86	94	109	99	96	98	113	113	97	104	
All scores are out of ten													

All scores are out of ten

## 1

Prices were correct at time of going to press. Key: O = S/PDIF optical, C = S/PDIF coaxial, P = Phono pair, S = 3.5mm stereo





**THE LABS**  
Speakers

## Altec Lansing 2100

**PRICE** £55 (£65 inc VAT)

**SUPPLIER** [www.dabs.com/1yy3ws](http://www.dabs.com/1yy3ws) (Web only)

**VERDICT** Good looking, but not backed up by good sonic performance, the 2100s lack midrange and ultimately disappoint.

Altec Lansing's 2100 speakers are one of the new breed that uses very small metal-coned drivers in the satellites instead of the more conventional paper or composite. A consequence is that the satellites lack midrange. Although the stated crossover from subwoofer to satellites is 150Hz, it seemed like a lot more midrange was being fed to the subwoofer to make up for it.



This was especially noticeable on the DVD, where a lot of the effects that emanated from the satellites on other systems emerged from the subwoofer on the 2100s. The effects in the game test were certainly lively, but explosions knocked out all other sounds.

All the music tests were again marred by the lack of midrange. This severely affected vocals, which became indistinct and any harmonies were lost in the muddle. The dance tracks overwhelmed the subwoofer, which distorted at relatively low volumes.

Coloured phono connectors on the speaker cables make setup foolproof, and their length is greater than the other 2.1 sets. However, they're very thin and captive at the speaker end, which precludes the use of high-quality cable. The wired remote offers only volume control, with no headphone socket as included on the 4.1 set.

Although they cost more, the Creative Inspire 2800 speakers offer better sound quality, while the Logitech Z-340 set is nearly half the price. The 2100s sound too disappointing to recommend to anyone other than those concerned with style.

PC PRO RATINGS			
OVERALL			
93			
QUALITY	FEATURES	VALUE	
88	83	100	
100 IS THE AVERAGE			

## Creative Inspire 2.1 Digital 2800

**PRICE** £61 (£72 inc VAT)

**SUPPLIER** PC Nextday (Web only)

**VERDICT** Extra inputs and acceptable sound quality give the Inspire 2.1 Digital 2800s the edge over the other 2.1 sets.

Setting the Inspire 2800 speakers apart from the other 2.1 sets here is the inclusion of a coaxial digital input as well as dual analog inputs. This doesn't mean it can decode Dolby Digital sound, merely that it can take audio before it has been processed by your sound card's digital-to-analog converters and use its own instead. It does work, as the faint hiss from the analog connection vanishes.

With only three speakers, setup is a breeze, especially as the 2m of cable for each satellite is plenty for desk-bound use.



Captive cables aren't ideal, but on a low-end set like this we can forgive Creative – and they make connections more reliable.

We found a lack of high frequencies in all our tests; for example, percussive instruments like cymbals lost their sustain. This isn't as big an issue as a lack of midrange, and all the musical tests were still listenable. On the dance music, the subwoofer only became distorted when continuous low tones were needed. The DVD and games tests were both performed with aplomb – everything stayed well balanced, with no apparent problems.

There's little in the way of added features, although there is a remote control – this includes controls for overall volume and bass level. But the Inspire 2.1 Digital 2800s are our favourite 2.1 speakers because of the sound quality. If you don't need a surround setup, this is the set to go for.

PC PRO RATINGS			
OVERALL			
103			
QUALITY	FEATURES	VALUE	
100	92	107	
100 IS THE AVERAGE			

## Creative I-Trigue 2.1 3300

**PRICE** £63 (£74 inc VAT)

**SUPPLIER** Simply 0870 727 2100

**VERDICT** With a stylish design, but a lack of midrange, the I-Trigue 3300s are better for looking at than listening to.

Just like the Altec Lansing 2100 set, Creative's I-Trigue 2.1 3300 speakers use metal drivers, in this case titanium. Three drivers are used, helping Creative's speakers to achieve a higher power rating of 9W RMS for each satellite. These are backed up by 25W RMS from the subwoofer – the highest of the 2.1 sets on test.

But, as Pirelli famously stated, power is



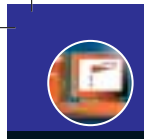
nothing without control. Unfortunately, the 3300s were disappointing in this respect. In common with the other speakers based on metal drivers, the sound produced was very harsh and lacking in midrange. This meant that vocals were either scratchy or hidden, depending on where they lay in the frequency range.

We found that on some tests the volume of the subwoofer was too great. However, turning it down meant a significant amount of music disappeared, indicating that the crossover frequency is too high. This was especially apparent in the DVD test, where the subwoofer was rumbling for most of the test sequence. This test also showed up problems with the satellites distorting at relatively low volumes.

The remote control is identical to that supplied with the Inspire 2.1 Digital 2800 speakers except that it includes a headphone socket. As with all the Creative speakers, the cables are captive at the speaker end and terminated by phono plugs.

The I-Trigue speakers are designed to appeal to the style-conscious PC user rather than the aurally demanding. For those who don't need their speakers to match a silver TFT or similar, Creative's Inspire 2.1 Digital 2800 set makes a better 2.1 buy.

PC PRO RATINGS			
OVERALL			
93			
QUALITY	FEATURES	VALUE	
86	90	100	
100 IS THE AVERAGE			



## Logitech Z-340

**PRICE** £32 (£38 inc VAT)

**SUPPLIER** [www.dabs.com/2d1yws](http://www.dabs.com/2d1yws) (Web only)

**VERDICT** Keeping the price down has forced several compromises on these Logitech 2.1 speakers, but they remain great value.

Logitech's Z-340 set is the cheapest on test. Of course, to get the price this low, several compromises have been made – most importantly, the speakers only have 33W RMS of power in total.

The most obvious issue when setting the speakers up is the cabling. Every cable



is captive, even the input, and all run to the right speaker. The link between the two satellites is narrow-gauge cable, but the subwoofer is connected using a thick cable with a nine-pin DIN connector on the end. This transfers the unamplified signal and control settings to the amplifier in the subwoofer and then brings the amplified signal back up to the satellites.

In the DVD test, we found many effects that should have been handled by midrange drivers came through the subwoofer. The sound was quite harsh, with little midrange to provide warmth. This was also apparent in the musical tests, with vocals and instruments like guitars losing out to cymbals and other high-pitched noises. However, this improved the dance music, which is primarily high frequency and bass, although any low continuous tones proved the subwoofer's undoing.

However, at this price, no-one can deny that Logitech is offering great value. If you're looking for more accurate sound reproduction from a 2.1 set, Creative's Inspire 2800 speakers are much better performers. Then again, at nearly double the price, you'd expect them to be.

PC PRO RATINGS		
OVERALL		
100		
QUALITY	FEATURES	VALUE
94	82	111
100 IS THE AVERAGE		

## Altec Lansing 641

**PRICE** £166 (£195 inc VAT)

**SUPPLIER** Simply 0870 727 2100

**VERDICT** Sound quality pushes this set towards the top of the pile, but you pay for the privilege.

These speakers are one of only two sets in this Labs to have four satellites accompanying the subwoofer. As such, they're aimed more at gamers than those looking to create a Dolby Digital home entertainment system.

Setting up the speakers was straightforward, with generous cable lengths making placement easy. The only downside is that the cables are a little thin and are captive at the speaker end – this makes it difficult to change them for thicker ones. Placing the huge subwoofer could prove awkward too: it's large and booms when placed close to a wall.



When running the music tests, we were disappointed by a lack of top end considering the dual-driver satellites. This made the music sound compressed and occasionally obscured the vocals. However, switching the speakers to Stereo x2 mode improved this.

Testing with a DVD showed there's no need for the extra centre speaker – the stereo effect of the front satellites gave good placement of dialogue. The sound was certainly effective, although the midrange lacked punch. In the game-based surround test, the placement of effects wasn't so clear and relying on them to search out enemies proved fruitless.

The cabled remote is the only way of controlling the speakers, but it's missing a mute button. There's an additional analog input on the top of the subwoofer for occasional connections.

The Altec Lansing 641s only just beat Logitech's Z-560s but don't offer much value for money.

PC PRO RATINGS		
OVERALL		
99		
QUALITY	FEATURES	VALUE
109	102	89
100 IS THE AVERAGE		

## Logitech Z-560

**PRICE** £129 (£152 inc VAT)

**SUPPLIER** [www.dabs.com/2806ws](http://www.dabs.com/2806ws) (Web only)

**VERDICT** This 4.1 speaker set packs plenty of punch and several nice features, but its sound quality is disappointing in areas.

As a 4.1 system, the Z-560 set is in direct competition with Altec Lansing's 641 speakers. In its favour, Logitech's offering includes THX certification, which is missing from its rival. However, our tests proved that certification isn't everything, and Logitech still has some areas on which it needs to work.



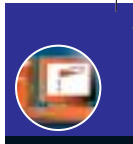
First signs were good, with non-captive cables supplied. With spring clips on the amplifier and binding posts on the speakers, upgrading the cable from the light gauge supplied is easy. The cable lengths aren't as generous as the Altec Lansing 641s, though, with just under 2m for the front speakers. All the satellites have stands that can be unbolted and reversed to form wall mounts.

In the DVD and game tests, we had to activate the M3D mode for the rear speakers to work. The surround effects were passable, but not stunning. As with several of the music tracks, there was attenuation of the high frequencies, which made the classical music track sound dull, with little reverb. The dance tracks were better, but they were dominated by the subwoofer.

With 185W RMS of the total 400W going to the subwoofer, this isn't a lightweight system. However, it can't quite match the tonal range of the Altec Lansing set with its two-way satellites.

A separate control box with plenty of volume controls and a headphone socket adds to the usefulness of the Z-560s. Although the sound can't match the Altec Lansing 641 set, the price saving and extra power make the Z-560s worth considering.

PC PRO RATINGS		
OVERALL		
98		
QUALITY	FEATURES	VALUE
99	108	95
100 IS THE AVERAGE		



# Creative Inspire 5.1 5100

PRICE £39 (£46 inc VAT)

SUPPLIER PC Nextday (Web only)

VERDICT If you want 5.1 speakers and you don't have much money to spend, the Inspire 5100s are ideal.

The Inspire 5.1 5100 is Creative's answer to Dolby Digital on a budget. The price isn't a misprint – you really can buy a 5.1 set for under £40. Be prepared for compromises though.

The subwoofer is tiny with a single 120mm diameter cone. Both this and the cones in the satellites are conventional, eschewing the tiny metal cones of the I-Trigue and Altec Lansing 2100. All five satellites are the same size, which keeps costs down compared with supplying a larger centre speaker. Cabling is slightly disappointing – Creative provides just 4m for each of the rear speakers. This could limit their placement in all but the smallest of rooms.

In our tests, the 5100s performed well considering the price. The surround sound in both the DVD and game tests was well placed, although explosions caused minor distortion on all speakers at high volumes.

For music, this set isn't the best choice as the test tracks were marred by the performance of the subwoofer. It noticeably



struggled with both the classical and dance music at anything resembling high volumes. Those wanting to predominantly play music should look at the more expensive sets.

Rivalling 2.1 sets on price, you have to expect compromises on quality, but nothing beats the 5100s on value. Plus, Creative even manages to squeeze in a remote volume control, albeit a wired one. If you're on a tight budget but must have a 5.1 set, the Creative Inspire 5.1 5100s fit the bill.

PC PRO RATINGS			
OVERALL			
103			
QUALITY	FEATURES	VALUE	
98	93	115	
100 IS THE AVERAGE			

# Logitech Z-680

PRICE £219 (£257 inc VAT)

SUPPLIER www.dabs.com/2805ws (Web only)

VERDICT Great sound quality and stacks of features make the Z-680s well worth the price and the best all-round choice.

These speakers are the pinnacle of Logitech's range. They use the same satellites as the Z-560s but boast a front centre unit and a significantly larger subwoofer. In fact, the subwoofer was almost too big for our testing room and required careful positioning to avoid booming. It's also worth noting that the amplifier heatsink on the subwoofer gets



very warm and needs reasonable airflow.

As with the Z-560s, all the cables are separate and connect using spring clips or binding posts. This gives you the option of improving the cable quality as well as adding extra length.

Overall, the sound quality in our tests was stunning. Only top-end frequencies were lacking, but it was noticeable only on the dance tracks. The surround-sound tests benefited from good placement both in the game and DVD.

The control box is the heart of the system. With six-channel analog-in as well as digital connections, it's ideal for use with a multipurpose PC. There's also an infrared remote control that allows all the volumes to be set separately. It can even mute the speakers, change the surround-sound mode and switch the input.

If you're looking to equip a home entertainment and gaming machine, the Z-680s offer the best compromise. They may not quite have the clarity of the DigiTheatre Platinums but they costs £120 less and support analog surround.

PC PRO RATINGS			
OVERALL			
106			
QUALITY	FEATURES	VALUE	
113	133	90	
100 IS THE AVERAGE			

# Pure Digital DigiTheatre Platinum

PRICE £339 (£398 inc VAT)

SUPPLIER www.dabs.com/2868ws (Web only)

VERDICT If your PC is part of a lavish home entertainment system, the DigiTheatre Platinums will provide great sound quality.

This set earns its place here because of the increasing number of people using PCs as part of home cinema systems. The lack of six-channel analog input indicates that the Logitech Z-680 set is intended to be used with set-top DVD players as well as PCs. Although it includes an analog input, it's stereo-only and limits surround sound to Dolby Pro Logic.

In common with the Z-680s, the sound from the DigiTheatre speakers was lacking very high frequencies. This gave the sound a warm texture, but the dance tracks suffered from a lack of detail as a result. The huge subwoofer was unstressed by anything we threw at it and managed not to overwhelm its fellow speakers.



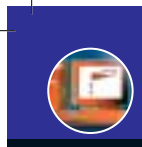
Positional audio when watching DVDs was second to none, thanks to direct decoding of the Dolby Digital stream. When playing Unreal Tournament 2003, we were limited to the surround effect generated by stereo speakers, but sound quality was still excellent.

All the controls are mounted in the dual-driver centre speaker. There's also an infrared remote that includes controls for everything except switching inputs. The cables are thicker than those supplied with other systems and a good length for positioning speakers correctly.

Specialising in home cinema means this set isn't ideal for use with a PC. The DigiTheatre Platinum speakers certainly have their place if you're building a living room PC, but the Logitech Z-680s are better for more general-use systems.

PC PRO RATINGS			
OVERALL			
101			
QUALITY	FEATURES	VALUE	
113	126	74	
100 IS THE AVERAGE			





**THE LABS**  
Speakers

## VideoLogic ZXR-550

**PRICE** £56 (£66 inc VAT)

**SUPPLIER** CCL Computers 01274 471278

**VERDICT** Not bad but, given the mediocre sound, slightly too expensive to compete with Creative's offerings.

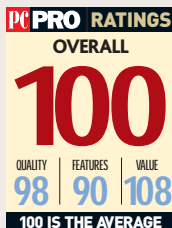
**V**ideoLogic's ZXR-550 set is the successor to the venerable ZXR-500 speakers. They still don't include a remote control or even controls on a satellite speaker, so a trip under the desk is necessary just to change the volume. The main volume control is also the power switch, which means you can't leave the



volume set if you power the system off.

At 65W RMS total output, the ZXR-550s are the most powerful of the decoderless 5.1 sets. Despite this, we found the subwoofer needed to be turned up full to have any worthwhile effect. Throughout the music tests, the midrange was severely attenuated, which wasn't so noticeable on the dance tracks, but vocal tracks lost definition and the classical music sounded thin due to the weak bass and midrange. However, the positional aspect of the audio in both the DVD and game tests was very good.

With competition from below in the form of Creative's Inspire 5100s and from above by the 6700s, the ZXR-550s lose out by being more expensive than the former and with poorer sound than the latter. Although we'll probably see several PCs with these speakers in the Labs – and as part of a budget system they'll deserve praise – they're not what you'd want to upgrade to.



## Creative Inspire 6.1 6700

**PRICE** £68 (£80 inc VAT)

**SUPPLIER** Simply 0870 727 2100

**VERDICT** The extra surround definition makes these speakers great for gaming, but musical quality is marred by the lack of midrange.

**S**etting the Inspire 6700 speakers apart from the other surround systems on test is one extra speaker and 7m of cable. This may not sound like much, and from a sound quality perspective it isn't. However, it does make a difference to the accuracy of positional audio from games. Make sure your sound card supports 6.1 though – currently, only a handful do.

We found the extra speaker made little difference to the soundstage when playing a DVD, as most are optimised for 5.1 systems. The effect was more noticeable in Unreal Tournament 2003, though, where the accuracy of the rear half of the soundstage was much improved over 5.1 systems.

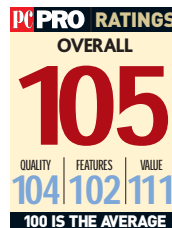
In the music tests, we noticed a lack of



midrange throughout. This particularly affected vocals, which became indistinct and made the music sound much harsher. The subwoofer coped well with bass drum thumps and explosions, especially considering its size and the relatively low power of 22W RMS.

The remote offers more than the one supplied with the Creative Inspire 5.1 5100 set. As well as main volume, there's a control for the bass volume and a headphone socket. Again, the speaker cables are captive and made of narrow gauge wire and, while this makes routing easier, you lose out on sound quality.

Although DVDs using Dolby Digital EX are entering the mainstream, the primary beneficiary of the rear centre channel will be gamers. In the meantime, the 6700s offer decent sound quality and are a cheaper alternative to the Logitech Z-680s.



## VideoLogic Sirocco Pro

**PRICE** £421 (£495 inc VAT)

**SUPPLIER** Simply 0870 727 2100

**VERDICT** If you're involved in music production, these speakers are worth their weight in gold.

**D**esigned for professional use, the Sirocco Pros stand out among the crowd. Their sheer size isn't so much the issue – they just look and feel so much more solidly put together.

In all the music tests, there was a clear spread of frequencies from very



low bass all the way up to the high end. This is due in part to the two-way satellites. Thanks to the four-pin XLR cables, each driver has its own connection to the amplifier.

For checking the stereo image of a mix precisely, you can switch the amplifier to drive the satellites at full range and turn off the subwoofer. This obviously affects the sound, but the stereo image is pin sharp. The amplifier also includes its own DAC, which lets you take input direct from a digital source and convert it separately. There are also two analog inputs served by phono connectors and, amazingly, a line level output from the DAC.

This all makes the Sirocco Pros ideal for those heavily involved with audio on its own or together with video editing. If you're looking to set up a home studio, clarity should be a primary concern and, compared with the other speakers on test, these certainly provide it.

However, they're overkill for general PC use and priced well above the range of normal PC speakers – and most people's pockets.