



LABS 2

MEDIA STREAMERS

GO WITH THE FLOW

Why skulk in the spare room to watch movies and listen to music on your PC when you can stretch out on the sofa instead. All you need is one of the 10 media streamers on test



INTRODUCTION

If you want to free your digital media from the confines of your PC so that you can listen to your music and view your photos on your TV, you need a streaming media receiver.

These devices allow you to play files that are stored on your PC in other rooms around your house over your network. Many also allow you to access online content, so as well as using your living room TV to watch a movie stored on your PC, you can also watch YouTube, listen to internet radio or even rent a film over the internet. We'll guide you through your options and help you find the perfect companion for your telly.

Kat Orphanides

PCs and audio expert

kat@computershopper.co.uk



Choosing a... Media streamer

Media streaming has become a common feature of mid-range TVs and Blu-ray players. Integrated streaming of this kind is fine if you want to look at a few JPEG photos or listen to the odd MP3 stored on your PC, but it can't compare with the flexibility and format support of a dedicated streaming multimedia receiver.

Until recently, format support was the key concern when buying a streamer: would your hardware be able to handle all the files you wanted to play on it? Now, as almost every streamer can handle a massive range of codecs and wrappers at resolutions of up to 1080p, the main question is one of usability and extra features.

MAKING A CONNECTION

All the multimedia streamers we've reviewed have at least an HDMI port to plug in to your TV and a 10/100 wired Ethernet port to connect to your network. Most also have composite and component video outputs, which are handy if you have an older TV or have run out of HDMI ports, as well as stereo phono outputs for analogue audio or digital S/PDIF audio outputs.

Almost all the streamers have at least one USB port and a few also have eSATA ports and memory card readers. USB ports allow you to connect external hard

disks and play media stored on them directly. This can be particularly handy if a friend comes round with their holiday photos or a video clip, as you'll be able to view them immediately without the hassle of copying them to your PC.

Many multimedia receivers can share content on a USB hard disk across your network, and some have built-in BitTorrent or Usenet NZB clients that you can use to download content directly to a connected external hard disk. You can also use the USB ports on most streamers to connect a keyboard to make navigation easier; ViewSonic's VMP74 even lets you plug in a mouse.

Wired Ethernet is the networking standard of choice for media streaming, as it ensures a fast and consistent connection even in places where wireless networking may suffer from interference or a weak signal. If you'd rather not run network cable into your sitting room, wireless is still an option. Only two of the streamers we've reviewed – the Apple TV and D-Link Boxee Box – have built-in wireless adaptors, but all the others provide optional WiFi support via a USB dongle. Signal strength is a factor when it comes to wireless streaming and is most likely to create problems when viewing HD video, which can be jerky if the signal is weak.



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FORMAT WARS

Video and audio format support among media streamers is much better than it was even a year ago. Almost every player we saw could handle all the usual codec and wrapper formats such as MPEG4, AVI and WMV, and even more unusual formats such as Matroska (MKV) and DVD ISO files. However, it's still important that you make sure the device you buy can handle your favourite file types. The best example of why you should do this is the Apple TV 2nd Generation. It's the only streamer that can play Apple's Protected AAC files and Audible's proprietary audiobook format, but it plays only a limited range of audio and video file types (MPEG4 and H.264 video, as well as MP3 and AAC audio).

HD video is usually encoded in MPEG4, H.264 and WMV-HD formats. All the multimedia receivers in this round-up can play HD video, and almost all of them can output it at resolutions of up to 1080p. The Apple TV is the exception – 720p is the maximum it can send to your TV, even if you're playing a 1080p video file. This won't make much difference if you're sitting at a respectable distance from a 32in TV, but the lack of Full HD support will be felt more keenly by those with larger screens.

PORT OUT

To connect your TV to a media receiver, both devices must have the appropriate ports. For Full

HD (1080p) video, you'll need both a media streamer and a TV with HDMI ports. All the media streamers we review have such an output. Other video formats are suitable for older TVs. A component connection can output HD footage up to 1080i, but coaxial outputs are limited to poor-quality standard-definition video. You'll struggle to find a media streamer with a SCART socket. In most cases, HDMI is the best choice.

HDMI can also output audio, so you can connect your media streamer to your AV receiver. Not all media streamers can deliver the full range of surround-sound formats you'd find on DVDs and Blu-ray discs. Our table on page 100 lists all the formats that each media streamer supports.

If your AV receiver doesn't accept HDMI inputs, or you simply want to hook up a pair of speakers, look for a receiver with an S/PDIF output (coaxial or optical) or stereo phono outputs. Our table tells you which outputs each receiver will have.

SERVING TIME

Although several of the multimedia streamers have, or can be fitted with, hard disks that allow them to store and share files independently of a PC, their defining feature is the ability to play files stored on a server. Many network-attached storage (NAS) devices can act as media servers – usually as iTunes and Universal

Plug and Play (UPnP) servers – but it's easy to use your PC or laptop to serve music and video across a network.

Some receivers come with their own server software, but most work with either UPnP or Server Message Block (SMB) network file sharing. You may already have UPnP media server software on your PC in the form of Windows Media Player 12. If you have an earlier version of Media Player, you'll have to upgrade to the latest version. Unfortunately, it doesn't have built-in streaming support for formats such as OGG, FLAC and MKV, and was unable to index and stream files even after we installed the correct DirectShow plug-ins from www.wmplugins.com. Other UPnP server software, such as the commercial TwonkyMedia package, supports a wider range of files.

However, the problem of limited format support is common to many UPnP server programs, so we're pleased to see that most network media receivers support SMB. When a receiver connects to a Windows shared folder (which uses SMB), the receiver lists all the files it can play, rather than only those supported by a UPnP server. Unlike with UPnP, you don't need to have server software running, as the capability is built into Windows. Mac and Linux users can create SMB shares using Samba server software.

See the box on page 99 for our guide to setting up SMB and UPnP shares in Windows 7.



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A.C. RYAN Playon!HD Mini



£80 inc VAT

From www.micomonline.co.uk

The Playon!HD Mini is the cheapest media streamer yet from A.C. Ryan. It's not much to look at, but this little black box offers plenty of ports, including HDMI, component and composite video outputs, stereo phono and optical S/PDIF for audio, 10/100 Ethernet and a couple of USB ports.

The remote control is simple but lacks a few buttons that we'd find useful. For instance, there's no shortcut to the photo browser but there is one for music. Meanwhile, the largely redundant number pad can't be used to enter text – that's done by selecting letters from an onscreen keyboard.

The media streamer's main interface looks crude, with big blue icons that don't accurately represent their associated menus and features. Even at 1080p, the interface looked as if it was running at a lower resolution.

You'll spend most of your time using the basic file browser, which lets you view supported files

on local USB drives as well as UPnP and network shares. There are other ways to browse your media, but you'll need to create index files to use them properly. The Media Library was designed to work on A.C. Ryan streamers with built-in hard disks, but can be used with remote network shares or a USB disk if you're prepared to spend some time messing around the Playon!HD's Linux command line.

An alternative browser, the Movie Jukebox, is included and integrates with free software called YAMJ (Yet Another Movie Jukebox) on your PC.

This provides a glossy, browsable index of all your movies, complete with box artwork. You can use the File Copy feature to move content between devices.

The Internet Feeds menu provides access to Flickr, Picasa and RSS feeds. The Shoutcast-powered Internet Radio option can be sorted by station or genre. With so many options, the Playon!HD



Mini feels as if it's designed to do too much, and isn't well suited for all of it. Despite this, it works rather well in basic browser mode. It successfully played the video content of our Blu-ray rips, and gave us full menu control over DVD ISO files.

The standard media browser doesn't support video playlists but will happily play a directory full of videos in sequence. We noticed a slight glitch as each file started to play, and a similar glitch at the beginning of audio files.

Album art and track information were displayed correctly, but tracks weren't in the right order when we browsed SMB shares. Slow load times, even from a directly connected USB drive, made flicking through photo slideshows frustrating, but at least there's a choice of options for displaying thumbnails and configuring slideshows. The Playon!HD Mini works, but it's nothing like as easy to use as Western Digital's similarly priced WD TV Live.

SUMMARY

VERDICT A plethora of unnecessary options make the Playon!HD Mini confusing, and audio playback could be smoother

STREAMING MULTIMEDIA RECEIVER 1x stereo phono output, 1x optical S/PDIF output, 1x HDMI output, 1x component output, 1x composite output, supports WMA, AAC, OGG, Wav, MP3 audio, MPEG1, MPEG2, MPEG4, APC, H.264, WMV9, RealVideo, Xvid, DivX, AVI, ASF, WMV, MKV, MOV, RM, RMVB, VO8 video
PART CODE PV73200P
DETAILS www.playonhd.com

APPLE TV (2nd Generation)



£92 inc VAT

From www.techdepot.co.uk

The latest Apple TV is smaller and sleeker than its predecessor, with a radically redesigned interface. It's also remarkably cheap at just under £100. Although we weren't expecting loads of features at this price, we were still surprised to find that the Apple TV has a maximum resolution of only 720p.

You can't fit many ports on a 10cm square box, but it doesn't need a lot. There's an HDMI output, an optical S/PDIF for a surround-sound amp and a 10/100 Ethernet port. The streamer also has built-in 802.11n wireless networking. The slim metal remote control is refreshingly simple, with just four directional controls and buttons to select, view the menu and play or pause. You can also control the streamer from an iPhone, iPad or iPod Touch using Apple's free Remote app.

The new interface looks incredibly glossy, with just four main tabs. The Movies tab houses films and trailers from the iTunes Store, and Internet provides access to YouTube, Podcasts, Flickr and internet radio. From the Computers tab, you

can play music, videos and photos stored on any networked computer running iTunes. Finally, the Settings menu is where you configure your network settings, screensaver and Apple AirPlay, which lets you stream audio to other AirPlay devices.

Apple TV is incredibly easy to set up. Connect it to your TV and network, enable Home Sharing on any copy of iTunes you want to access and you're ready to go. Music, videos and pictures are easy to find. Album covers are shown if iTunes has located them, and both video and audio playlists work well, although you create them in iTunes rather than on the Apple TV itself. The picture viewer is sleek, with thumbnail previews and an excellent slideshow interface that provides various view modes and effects.

However, all this convenience comes at the expense of flexibility. The Apple TV is tied to iTunes and has very limited format support. You can only play H.264, MJPEG, MOV or – bizarrely – MJPEG video. Even then, MJPEG content



is limited to a resolution of just 640x480. H.264-encoded content is only supported at a maximum resolution of 720p – we were able to play a 1080p file, but the Apple TV output it at 720p. Supported audio formats include AAC, MP3, AIFF, Wav and Audible audiobooks.

With such limited support, even home movies are likely to require time-consuming conversation before you can play them. We had a few other niggles. For example, you can't skip movie chapters or adjust the volume with the remote, and you can't log into Flickr – you can only search it or view specific users' galleries.

If you already use iTunes for everything, including video playback and buying movies, the Apple TV is a cheap, hassle-free streamer that's lovely to use. If you use a wider range of formats or want 1080p HD video, the Western Digital WD TV Live is a better buy – it's cheaper, has a higher resolution and does more.

SUMMARY

VERDICT Apple TV has a lovely interface and will suit those who use iTunes for everything, but its low resolution and poor format support count against it

STREAMING MULTIMEDIA RECEIVER 1x optical S/PDIF output, 1x HDMI output, supports AAC, Protected AAC, Wav, Audible, MP3 audio, MPEG4, H.264, MJPEG, MOV video
PART CODE MC572B/A
DETAILS www.apple.com



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D-LINK Boxee Box

★★★★★

COMPUTER SHOPPER
ULTIMATE

£200 inc VAT

From www.zavvi.com

D-Link's Boxee Box went on sale last month, but a firmware update has already been released to improve its interface and iron out the bugs. While most streamers are stuck with mediocre variants of the same interface, D-Link uses Boxee, a free and very glossy media centre application that provides access both to online services and files on your network.

It's one of the most attractive media streamers we've seen. At the rear it has an HDMI output, two USB ports for external storage (plus an SD card slot), optical S/PDIF and stereo phono outputs. The box has both a 10/100 Ethernet port and built-in WiFi. The remote control is fantastic. It uses a radio connection, so it doesn't need line-of-sight to work. It has three buttons on the front (play/pause, select and menu) and a directional cursor. Flip it over, though, and there's a full QWERTY keyboard, which is a welcome change from clumsy onscreen keyboards and numeric keypads.

To browse SMB and UPnP shares on your network, just point the Box at a directory and tell it what sort of content you want. Impressively, it can tell the difference between a film and a TV show, and displays a relevant thumbnail. For example, it recognised our *Shark Tale* HD WMV file as a film and showed a thumbnail of the poster. The list of supported video file types is immense and all our WMV, DivX, XviD, VOB and ISO files worked flawlessly. It can also resume playing all local videos from where it left off.

You can browse music by Artist and Album, with full artwork and visualisations. You can't create playlists on the Box, but you can access playlists stored on your UPnP server. Photo viewing works well, with slideshows and zoom and rotate options. You can also browse USB storage and memory cards directly from the File interface.

The Shows option is where things get really interesting, as it pulls a list

of programmes from online services, including big names such as Channel 4. Playing a show either plays the video directly or takes you to the relevant website. Movies does a similar thing for films. Some movie sites require a subscription, but we found a fairly decent range of free films, although the quality varies. If you know which service you want, you can use the Apps option, where you'll find everything from iPlayer and YouTube to FailBlog.

When we first tried the Boxee Box, we ran into a number of bugs. These have been fixed, and now the only problem was a screeching sound when we skipped scenes on our Blu-ray rip. This is easy to forgive when the Boxee Box otherwise provides such a flawless combination of online and network media streaming. It's not cheap, but it's the best streamer you can buy and easily wins our Ultimate award.

SUMMARY

VERDICT It's expensive, but its stunning looks and easy-to-use interface make it the best media streamer you can buy

STREAMING MULTIMEDIA RECEIVER 1x stereo phono output, 1x optical S/PDIF output, 1x HDMI output, supports WMA, AAC, OGG, Wav, MP3 audio, MPEG1, MPEG2, MPEG4, H.264, WMV9, XviD, DivX, VC-1, AVI, WMV, MKV, MOV, VOB, ISO video
PART CODE DSM-380
DETAILS www.dlink.co.uk

EMINENT hdMEDIA RT EM7080

★★★

£125 inc VAT

From www.amazon.co.uk

The hdMEDIA RT EM7080 looks like a glossy black version of the old Apple TV. It has HDMI, optical S/PDIF out, composite, component video and stereo phono outputs. There's also a USB Type B port for connecting it to your PC as an external storage device, plus two standard USB ports and an eSATA port for connecting external storage. The EM7080 also has room for a 3½in SATA hard disk, which you can then use to turn your streamer into a NAS device.

Fitting a disk is a little fiddly and the instructions aren't illustrated, but it didn't take us too long to work out. However, the case lacks insulation, which means the disk and fan are clearly audible. If you install a hard disk, you can format it from the Setup menu, but to configure the EM7080's SMB server, BitTorrent and Usenet NZB clients, you need to log into its web interface.

The remote control is well laid out, with responsive and clearly labelled buttons. The main interface has a simple column of text buttons

running down the right-hand side of the screen, with a large icon to illustrate each function on the left. Options include Movies, Music and Photo, each of which allows you to browse internal storage, USB, NFS, Samba, UPnP or external DVD devices for content.

A Web Services menu provides access to YouTube, Shoutcast internet radio and video Metafeeds including the video podcast directory Miro Guide, along with photos from Picasa and Flickr. The YouTube and Picasa apps don't currently let you to log in to your own account. A more worrying issue is that, unless you have a

hard disk installed or use Linux command line options to create a swap partition on a USB drive, YouTube videos are jerky at best. At worst, they wouldn't play at all, even after we installed a firmware update designed to correct the issue.

Like most modern streaming multimedia receivers, the EM7080 has excellent format support.

SUMMARY

VERDICT The EM7080 has a better interface than most, but we were irritated by problems such as poor YouTube support for users who don't install a hard disk

HARD DISK STREAMING MULTIMEDIA DEVICE 1x stereo phono output, 1x optical S/PDIF output, 1x HDMI output, 1x component output, 1x composite output, supports WMA, AAC, OGG, Wav, MP3 audio, MPEG1, MPEG2, MPEG4, APC, H.264, WMV9, XviD, DivX, AVI, WMV, MKV, MOV, VOB, ISO video
PART CODE EM7080
DETAILS www.eminent-online.com



It successfully played the video content of our Blu-ray rip and gave us full menu support for most DVD ISO rips, as well as happily playing all our codec test files. Alongside a list of filenames, the browser shows a preview window for video files and album art for music. We were annoyed to find that music tracks usually produced a slight skip when we started playing them. After that, entire directories played in correct album order without further problems. Directories full of videos also played sequentially. Photo viewing worked reasonably well, and although the slideshow viewer had trouble loading a 38MB TIFF image, smaller TIFFs weren't a problem.

The EM7080 is cheap for a streamer that can accept an internal hard disk and comes with a phenomenal five-year warranty, but it's also noisy and its functionality is compromised if you don't add a hard disk. We prefer Western Digital's WD TV Live Hub.



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EMINENT hdMEDIA Stream DTS Edition EM7075

★★★

£116 inc VAT
From www.amazon.co.uk

Eminent's budget media streamer is a glossy little black box that won't take up much room next to your TV. It has only one USB port for an external hard disk, which may be a problem if your disk requires an extra port for power. It also has HDMI, composite, stereo phono, optical S/PDIF and 10/100 Ethernet ports.

The remote is small but well designed, with just a few basic buttons to play, skip, navigate and access options. There's no alphanumeric pad, which isn't a serious problem as there's an onscreen keyboard. However, the keyboard is in alphabetical order, which makes it a little slow to use if you're more familiar with a QWERTY layout. The remote's buttons are oversensitive, too, so it's easy to click through two menus by holding a key for too long.

The streamer has an unimaginative but nicely designed ribbon interface, with icons that bear more

resemblance to the features they represent than most. Selecting an icon makes a further set of options appear below. Network gives you the option of accessing UPnP, Samba and YouTube content. The next ribbon tabs are Video, Music and Photos, which display content only if you have a USB hard disk connected.

The YouTube interface takes some getting used to – you must select your video and then press the options button and choose full screen from the menu. More irritating is the client's inability to play older YouTube videos – it only supports recent videos encoded in H.264. The EM7075 has an integrated NAS server and BitTorrent and NZB Usenet download capabilities, but you can only use these if you connect a USB hard disk.

Format support is broad, and we had no trouble playing any of our test files, including Blu-ray and DVD ISO rips. Blu-ray playback



was video only, with no menus. Playing videos is what this streamer does best, with features such as video playlists, well-implemented chapter skipping, fast forwarding and video resumption. A simple options menu makes it easy to switch between audio and subtitle tracks.

Playing audio works fairly well, with no sound glitches when we skipped tracks. Album art is displayed correctly and playlists are supported. You can sort tracks by filename or title, and track ordering is correct.

The photo viewer and slideshow options are basic. There are just two styles of transition, but you can rotate, zoom and pan around photos and skip between them. It only displays thumbnails if the entire player is set to thumbnail mode, but this makes it harder to navigate folders as their names appear as a small line of text at the bottom of the screen when you highlight them.

The EM7075 is a good media streamer, but it's let down by poor YouTube codec support and a higher-than-average price. We prefer Western Digital's significantly cheaper WD TV Live.

SUMMARY

VERDICT Although it's easier to use than many basic media streamers, the EM7075 is also much more expensive

STREAMING MULTIMEDIA RECEIVER 1x stereo phono output, 1x optical S/PDIF output, 1x HDMI output, 1x composite output, supports WMA, AAC, OGG, WAV, MP3 audio, MPEG1, MPEG2, MPEG4, APC, H.264, WMV9, XVID, AVI, WMV, Matroska (MKV), MOV (H.264), VOB, ISO video
PART CODE EM7075
DETAILS www.eminent-online.com

SYABAS Popcorn Hour A-210

★★★

£209 inc VAT
From www.advancedmp3players.co.uk

Sybas's Popcorn Hour streamers are known for their adaptability and were among the first to include built-in BitTorrent and Usenet clients. Further developments come quickly thanks to a keen user development community that produces new apps and features.

The A-210 is a basic but well-built black metal box with HDMI, component, composite and S-video outputs, plus stereo phono and both optical and coaxial S/PDIF outputs. It has Gigabit Ethernet and two standard USB ports for connecting external storage, a wireless adaptor or a USB keyboard.

A USB Type B port allows you to connect it to your PC as an external storage device. There's room to fit either a 2½in or 3½in hard disk; the A-210 makes little noise with a disk installed and none without one. Once you've attached either internal or external hard disks, you can use the Popcorn Hour's built-in NAS features to share its content via Samba, UPnP, FTP or NFS file shares. The

remote control is an ugly wedge of silver plastic with loads of clunky and confusing buttons. It lights up in the dark, though, which is handy for midnight movie sessions.

There are two main interfaces. One is a file browser, which shows all the media files on a local drive or network share. The other divides files by type – audio, video, pictures and playlists. This works automatically for UPnP content, but the A-210 has to write a small file to any target SMB share you want to view like this. Files are displayed as a list, without thumbnails, album art or any additional information. The features you get depend on how you're sharing your content. The A-210 works best with the myiHome UPnP server – album art and track information didn't display properly when we used Windows Media Player's UPnP sharing.

Popcorn Hour's format support is legendary, and the A-210 played every file we threw at it, although we noticed a couple of

minor frame skips in our 1080p H.264 MOV file. We were impressed by the streamer's support for both DVD and Blu-ray discs and ISOs, including fully functional menus.

The A-210 can play almost any kind of media file but doesn't have all the features we want. Video playlist support isn't built in, although you can add it with an app. Photo thumbnails are only available in media browser mode and you can't advance manually between slides. Supported internet media services include Shoutcast internet radio and full access to your Flickr and Picasa accounts, but Sybas is no longer allowed to provide YouTube access, which is a major loss.

The A-210 works well for video and audio and is an obvious choice for those who like to tinker with their media devices but its features aren't sleek enough to make it friendly and easy to use for most. At £209, it's also very expensive when you can buy the D-Link Boxee Box or Western Digital WD TV Live Hub for less.



SUMMARY

VERDICT Although its format support and basic functionality are good, the A-210 is expensive and lacks polish

STREAMING MULTIMEDIA RECEIVER 1x stereo phono output, 1x coaxial S/PDIF output, 1x optical S/PDIF output, 1x HDMI output, 1x component output, 1x S-video output, 1x composite output, supports WMA, WMA-DRM, AAC, OGG, WAV, MP3 audio, MPEG1, MPEG2, MPEG4, APC, H.264, WMV9, XVID, DivX, AVI, ASF, WMV, MKV, MOV, RMP4, VOB, ISO video
PART CODE A-210
DETAILS www.popcornhour.com



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UEBO M200 Bronze

★★★★

£135 inc VAT
From www.uebo.net

Uebo's M200 is larger and chunkier than most streaming media receivers, partly because it has a bay for a 3½in SATA hard disk, which you can buy with the streamer. This fits on to a metal plate that unscrews from the bottom of the chassis. A small internal fan provides cooling, along with a quiet but high-pitched whine that may irritate some.

It has an HDMI port, optical and co-axial S/PDIF outputs, component and composite video outputs and a pair of stereo phono ports, along with a 10/100 Ethernet port. On the side is a pair of USB ports for connecting external storage or an optional wireless dongle, a memory card reader and a USB Type B port that allows you to connect the M200 to your PC as an external storage device. The remote control is fairly compact but has some redundant buttons, including a largely pointless number pad.

The M200 has a sleek ribbon interface, although

we found that its resolution defaulted to 480p and we had to set it to 1080p to match our TV. Options include a browser that allows you to view media files on the network or the M200's internal hard disk, internet channels (including YouTube and Flickr), internet radio and controls for the integrated BitTorrent client.

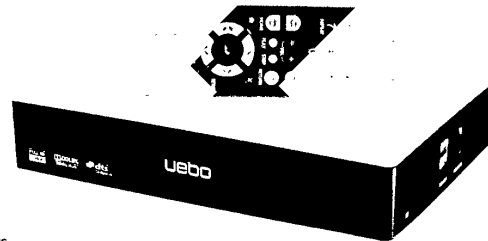
There's also an icon for your media library, which allows you to view content stored on the player's hard disk. A file copy tool lets you transfer files between the streamer's drive and other devices on the network. The interfaces allow you to view all your media files or only music, movies or images, which is handy if you want to browse your music collection without seeing the album art image files.

The M200's format support is excellent, but it didn't support menu navigation for our Blu-ray rip. It has both video and menu support for DVD ISO rips, though, and all our test

files worked. Video playlists aren't supported but the streamer plays entire directories in sequence. You have to click next twice to move to the next video or audio track, so you can't accidentally skip in the middle of a movie, but it's less helpful if you want to skip through an album.

We noticed a brief pause before audio tracks started playing. UPnP and Media Library indexed files are displayed in album order but those shared via SMB were listed alphabetically. Photo slideshows work, but you don't get a thumbnail index and skipping images is slow.

The basic M200 costs \$210 (around £135). Although prices are in US dollars, UK orders ship from Ireland for a minimum cost of \$25 (around £16). It has most of the features you're likely to want from a media streamer, especially if you want to fit a hard disk. However, some features, such as the photo browsing, lack polish. Western Digital's WD TV Live Hub is similarly priced, comes with a hard disk and is easier to use.



SUMMARY

VERDICT The M200 works well but doesn't stand out. The basic bundle is expensive for something that comes without a hard disk

STREAMING MULTIMEDIA RECEIVER 1x stereo phono output, 1x coaxial S/PDIF output, 1x optical S/PDIF output, 1x HDMI output, 1x component output, 1x composite output, supports WMA, AAC, OGG, Wav, MP3 audio, MPEG1, MPEG2, MPEG4, H.264, WMV9, XviD, DivX, VC-1, RealNetworks, AVI, WMV, MKV, MOV, RMP4, VOB, ISO video
PART CODE M200 Bronze
DETAILS www.uebo.net

VIEWSONIC VMP74

★★★★

£111 inc VAT
From www.scan.co.uk

ViewSonic's VMP74 is hardly the pinnacle of design as far as media streamers go, but it has some unusual features, including a dual-purpose USB/eSATA port for storage. There's also a second USB port, so you can connect external drives, a keyboard or even a mouse.

The VMP74 also has the obligatory HDMI port, optical S/PDIF out and 10/100 Ethernet port, along with a 3.5mm AV output, which you can split into composite video and stereo phono using a supplied cable.

The TV-style remote control is cleanly laid out, so its large number of buttons doesn't become too confusing. An alphanumeric keypad lets you enter text and a set of arrow keys is used to navigate the menu system and even move a mouse pointer around. However, using the arrow keys to move the pointer proved slow, inaccurate and intensely irritating.

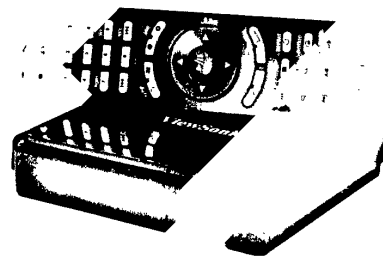
The main interface has a basic function ribbon across the top of the screen. As you highlight each category, more

options open below. It's all fairly self-explanatory, with categories including Network Shared Folders, UPnP, USB, web favourites and an RSS reader. Everything works, but it all feels rather slow.

Unlike most media streamers, the VMP74 has a fully functional web browser with Flash support. This means you can view almost any online video content, just as you would on a PC. Even the YouTube menu option is just a short cut to the standard YouTube website. The advantages are obvious – you can visit, use and bookmark your own favourite streaming media websites without being limited by a preset list. However, we had to connect a mouse and

keyboard to use the browser effectively. The iPlayer option in the VMP74's menu system says 'coming soon' when you select it, but you can browse to the BBC's iPlayer website and watch online.

The streamer can't play Blu-ray rips properly but otherwise it has excellent video format support. It had no problem navigating



menus and playing video from DVD ISO files. Video files take a while to load but play smoothly. We particularly liked the thumbnail sized video previews that appear with full sound after you highlight a file for a few seconds.

Audio format support is comprehensive, but track skipping, like many of the streamer's functions, is sluggish and the VMP74 doesn't display album artwork. Picture browsing was also slow and the screen goes black for a few seconds when you skip between slides. The automatic slideshow and thumbnail previews worked well, though, and there's a shortcut to Flickr, where you can log in, search or browse with ease.

The VMP74 has some great features, but it costs more than comparable streamers and feels slow and underpowered. We liked having a fully functional web browser, but the remote control is unsuitable for navigating it. We prefer Western Digital's WD TV Live or, if you don't mind paying extra for online features, D-Link's Boxee Box.

SUMMARY

VERDICT We liked the Flash-enabled web browser, but the VMP74 feels sluggish and underpowered in general

STREAMING MULTIMEDIA RECEIVER 1x stereo phono output, 1x optical S/PDIF output, 1x HDMI output, 1x composite output, supports WMA, WMA-DRM, AAC, OGG, Wav, MP3 audio, MPEG2, MPEG4, H.264, WMV9, XviD, VC-1, AVI, WMV, Matroska (MKV), MOV (H.264), VOB, ISO video
PART CODE VMP74
DETAILS www.viewsoniceurope.com



MEDIA STREAMERS

WESTERN DIGITAL WD TV Live



£77 inc VAT

From www.digital-fusion.co.uk

Western Digital's WD TV Live has held on to its Best Buy award for a couple of years now, thanks in part to regular updates to its firmware. The model we tested here has the latest firmware but the hardware is the same as that we reviewed a year ago.

We're fans of the WD TV Live's diminutive size and minimalist design. Even the remote control is compact. There's no room to add an internal hard disk, but the WD TV takes up very little space and is completely silent. At the back of the streamer, you'll find the usual HDMI and optical S/PDIF outputs, along with a 10/100 Ethernet port and 3.5mm composite and component outputs. Breakout cables are provided to ensure that these work with your TV.

The menu system is clear and easy on the eye.

You can select from Video, Photo and Audio options, and each type offers a range of sources. You can play video files from local storage devices through its two USB ports, and access files

from UPnP media servers on your network or from shared folders on PCs or network storage devices.

Its codec support is excellent, and it played everything short of WMV-Pro soundtracks and protected file formats. It's worth noting that the WD TV Live defaults to Digital audio mode, though. You'll have to change this to Stereo to guarantee that it outputs video soundtracks in a way that works with most TVs, rather than requiring an AV receiver that supports Dolby Digital or DTS surround sound.

You can also view videos from YouTube. The interface for this looks great, and provides easy access to videos in various categories, such as

top rated, recently posted and recommended. You can also log in to watch videos from your own account. The WD TV Live plays HD videos, and selects the highest quality version automatically. The only downside is that entering search terms with the remote and onscreen keyboard is fiddly.



You can access photos from the same wide range of sources, with a Flickr option replacing YouTube for web content. You can browse photos by folder or date, and the 10 onscreen thumbnails make this easy. It recognises PLS, M3U and WPL audio playlists, or you can browse by artist, genre, date, folder or album, with 10 album art thumbnails appearing onscreen at once. Internet radio support comes courtesy of Live365 and Deezer, which gives you a selection of current chart hits. You can also connect to your Facebook account, which is handy for viewing photos, but we wouldn't want to use an onscreen keyboard to make updates.

If you're looking for a media streamer and you don't require wireless networking, the WD TV Live is the one to buy. It feels more like a consumer device, such as a Blu-ray player, than a complex piece of technical equipment, which is impressive for a unit that has so many functions. The WD TV Live retains its Best Buy award.

SUMMARY

VERDICT With a low price and glossy interface, the WD TV Live is the perfect media streamer for your living room

STREAMING MULTIMEDIA RECEIVER 1x stereo phono output, 1x HDMI output, 1x component output, 1x composite output, supports WMA, AAC, OGG, Wav, MP3 audio, MPEG1, MPEG2, MPEG4, APC, H.264, WMV9, Xvid, DivX, AVI, WMV, MKV, MOV, RMP4, VOB, ISO video
PART CODE WDBAAN0000NBK
DETAILS www.wdc.com

WESTERN DIGITAL WD TV Live Hub



£152 inc VAT

From www.scan.co.uk

Western Digital has consistently impressed us with its WD TV media players and streamers, thanks to their compact designs, slick interfaces and comprehensive format support. The WD TV Live Hub is the first to come with a built-in 1TB hard disk, so you can store files locally or use it as a media server to share those files with other devices on your network using UPnP, SMB or iTunes. The Live Hub has a Gigabit Ethernet port, as well as HDMI, component, composite and optical S/PDIF outputs. It has two USB ports, one front and one rear, for connecting external storage.

The Hub's Mochi menu system is colourful and easy to navigate, with a stylish font and simple animated icons, and the streamer itself is a brilliant piece of minimalist design. The main menu is a horizontal scrolling bar at the bottom of the screen, leaving the rest free to display the wallpaper of your choice. You can view content stored in SMB or UPnP shares on your network or use the Hub's

sync feature to copy files from your network or a USB drive to the streamer itself.

You can browse your photos by date, filename or rating, or simply navigate by folder, with a thumbnail display and plenty of slideshow options. Music is organised by album, track, genre and artist, and there's support for numerous playlist formats.

Video playback support is comprehensive, with all the codecs, containers and subtitling options you could want. You can scan through footage or skip to a particular time by entering it numerically. The device allows you to resume playback from where you left off, and a little icon appears on the file to show that this is available (it's also great for reminding you which episode you're on). We had no complaints with quality, from standard-definition home movies up to 1080p Blu-ray quality footage.

You can access Facebook on the Live Hub, which looks great and



works well. You can browse through photos, check up on your friends and add status updates. The Live Hub supports USB keyboards for the latter, although we still had to use the remote to navigate. The mid-sized remote is well designed, with a moulded rubber underside and well-labelled controls. Other services include Flickr for photos, Live365 for internet radio and YouTube, but the lack of HD support was disappointing.

We're not convinced that the Live Hub is a must-buy for everyone. Most people store their media files on their PC or laptop. This enables you to organise your files easily in Windows and then stream them to a media player for viewing on your TV. If you want to store files on your network, a NAS device is the best option, with a streaming media player in the living room. However, if you want a single device both for sharing and playing your media, the Hub's slick menu system, relatively large hard disk, breadth of features and surprisingly low price make it the best tool for the job.

SUMMARY

VERDICT The built-in hard disk may not be ideal for everyone, but this is still an incredible media player, with gorgeous menus and a sleek appearance

HARD DISK STREAMING MULTIMEDIA DEVICE 1x stereo phono output, 1x optical S/PDIF output, 1x HDMI output, 1x component output, 1x composite output, supports WMA, AAC, OGG, Wav, MP3 audio, MPEG1, MPEG2, MPEG4, H.264, WMV9, Xvid, DivX, VC-1, AVI, WMV, MKV, MOV, VOB, ISO video
PART CODE WDBABZ00108BK
DETAILS www.wdc.com



MEDIA STREAMERS



UPnP and away Sharing media with Windows Media Player 12

Windows Media Player 12 is the default version for Windows 7. To set up a UPnP server, you first need to open Media Player. The setup process is easier if you have access to the full toolbar, so right-click on a blank section of the media navigation bar (the one with the back and forwards arrows at its far left), go to View and select Show menu bar (or just hit Ctrl-M).

First, make sure all the media you want to share is available to Media Player. Windows' standard Video, Music and Picture directories are selected by default, but if you keep any content elsewhere, you should add this, too. Click Organize, Manage libraries and select Music, Video or Pictures. A Library Locations window will open. From there, you can click Add and browse to the location of your media. If the account you're setting up to share media has Administrator privileges, you'll be able to add content from other users' libraries, which means that everyone's content will be accessible through a single convenient share. If you have a lot of content, Windows Media Player can take a while to index everything, so have patience – your media won't be accessible until it has been indexed.

Once you've added all the media you need, you'll have to share it with the rest of your network. Click Stream and select Automatically allow devices to play my media.

You should now be able to view your UPnP content from your streamer as soon as Windows Media Player has finished indexing

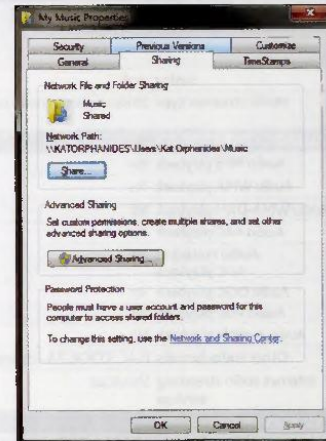
it. Media Player can't handle all file types, although version 12 has better codec support than its predecessors. If you don't mind paying for broader format support, you have a number of options. TwonkyManager costs €15 (around £13 including VAT) and is available for Windows, Mac OS X and Linux. Free UPnP software is also widely available, including myiHome for all operating systems, TVersity for Windows (which can even transcode incompatible files on the fly) and FUPPES and MediaTomb for Linux.

SMB SHARING IN WINDOWS 7

If you don't want to worry about which formats your UPnP server software supports, you'll be pleased to know that most media streamers support SMB file sharing, also variously known as Windows Network File and Folder Sharing, Samba or CIFS sharing. Setting up an SMB share is easy under Windows 7.

First, ensure that your PC is set up to share folders with the rest of the network. Open Control panel and select Homegroup and sharing options, which you'll find under the Network and Internet header. Select Change Advanced sharing settings. Now scroll down and enable File and printer sharing.

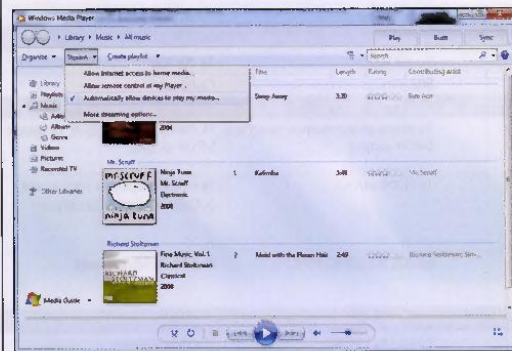
Browse to the folder you wish to share, right-click it and select Properties. Click on the Sharing tab and then on the Share button. This will open a window that allows you to select with whom you want to share the folder. Click on the pull-down tab, select Everyone and click the button marked Add. Now click Share. Repeat



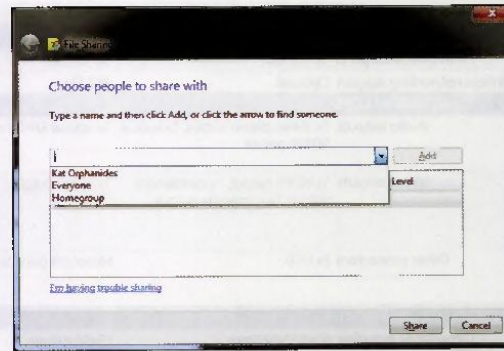
▲ Some media streamers can connect directly to a shared folder on your home network

the process for any other directories you'd like to set up as SMB shares.

When people connect to the share, they'll need to provide a username and password as stored on the sharing machine. If you don't want usernames and passwords, go to the Advanced sharing options and select 'Turn off password-protected sharing'. Note that this turns off password-protected sharing on all shared folders, not just your media folders.



▲ Setting up UPnP sharing in Windows Media Player is easy, although its format support can be quite limited



▲ Select the Everyone option to share a folder containing all your media with a streaming receiver

Labs verdict Media streamers

Few of the media streamers on the market today are as finicky and awkward to use as those of previous generations, but there are still plenty of different features and interfaces to choose between. If you're looking for a basic media streamer to let you access your audio, video and photo files – plus a few web services – you won't find a

better bargain than our Best Buy winner, Western Digital's WD TV Live.

If you want to store and share media from your streamer as well as using the device to view files, Western Digital has a second option in the form of the WD TV Live Hub. With its glossy interface and a 1TB hard disk, it wins an Ultimate Award.

Finally, if you want to spend a little more money on a media streamer that doubles as an internet TV receiver, D-Link's astonishing Boxee Box is the device for you. It not only lets you stream local media to your TV but also lets you watch online TV from the BBC, Channel 4, Channel 5 and many other sources. It also wins an Ultimate award.





LABS 2

MEDIA STREAMERS

COMPUTER SHOPPER
ULTIMATE

MANUFACTURER	A.C. RYAN	APPLE	D-LINK	EMINENT
Model	Playon!HD Mini	TV (2nd Generation)	Boxee Box	hdMEDIA RT EM7080
Rating	★★	★★★	★★★★★	★★★
Media streamer type	Streaming multimedia receiver	Streaming multimedia receiver	Streaming multimedia receiver	Hard disk streaming multimedia device
AUDIO COMPATIBILITY				
Audio MP3 playback	Yes	Yes	Yes	Yes
Audio WMA playback	Yes	No	Yes	Yes
Audio WMA-DRM playback	No	No	No	No
Audio AAC playback	Yes	Yes	Yes	Yes
Audio Protected AAC playback	No	Yes	No	No
Audio OGG playback	Yes	No	Yes	Yes
Audio Wav playback	Yes	Yes	Yes	Yes
Audio Audible playback	No	Yes	No	No
Other audio formats	FLAC, COOK, RA-Lossless	Apple Lossless, AIFF	FLAC	FLAC, COOK
Internet audio streaming services	Shoutcast	Internet radio	Shoutcast, Last.fm	Shoutcast
VIDEO COMPATIBILITY				
Video formats	MPEG1, MPEG2, MPEG4, APC, H.264, WMV9, RealVideo, XviD, DivX	MPEG4, H.264, MJPEG	MPEG1, MPEG2, MPEG4, H.264, WMV9, XviD, DivX, VC-1	MPEG1, MPEG2, MPEG4, APC, H.264, WMV9, XviD, DivX
Video container support	MPEG1, MPEG2, MPEG4, AVI, ASF, WMV, MKV, MOV, RM, RMVB, VOB	MPEG4, MOV, MJPEG	MPEG1, MPEG2, MPEG4, AVI, WMV, MKV, MOV, VOB, ISO	MPEG2, MPEG4, AVI, WMV, MKV, MOV, VOB, ISO
Internet video streaming services	None	YouTube (HD), Apple Movie Service	YouTube (HD), iPlayer (HD)	None
Surround sound format support	DTS, Dolby Digital AC3 5.1, Dolby TrueHD, AAC 7.1	Dolby Digital 5.1	Dolby Digital, Dolby Digital TrueHD, DTS, DTS Master Audio	Dolby Digital 5.1, DTS
IMAGE COMPATIBILITY				
BMP support	Yes	No	Yes	Yes
JPEG support	Yes	Yes	Yes	Yes
TIFF support	Yes	Yes	Yes	Yes
PNG support	Yes	No	Yes	Yes
Internet photo services	Flickr, Picasa	Flickr	Flickr, Picasa	Flickr, Picasa
NETWORK INTERFACES				
Wired network ports	1x 10/100	1x 10/100	1x 10/100	1x 10/100
Wireless networking support	Optional	802.11n	802.11n	Optional
AV INTERFACES				
Audio outputs	1x stereo phono output, 1x optical S/PDIF output	1x optical S/PDIF output	1x stereo phono output, 1x optical S/PDIF output	1x stereo phono output, 1x optical S/PDIF output
Video outputs	1x HDMI output, 1x component output, 1x composite output	1x HDMI output	1x HDMI output	1x HDMI output, 1x component output, 1x composite output
Other connectors	2x USB	MicroUSB (service only)	2xUSB, SD, SDHC, MMC	2x USB, 1x USB (client)
PHYSICAL				
Dimensions including antenna (HxWxDmm) (lying horizontally)	60x227x165mm	23x98x98mm	114x114x114mm	50x166x166mm
Power consumption standby	0W	0W	0W	0W
Power consumption on	6W	2W	12W	7W
Accessories	Remote control, HDMI cable, composite cable, USB cable, wireless adaptor	Remote control	Remote control, HDMI cable	Remote control, component cable, composite cable, optical S/PDIF cable, USB cable
SERVER COMPATIBILITY				
Server software included	Yet Another Movie Jukebox, Samba Extension Package	iTunes	None	None
UPnP	Yes	No	Yes	Yes
iTunes	No	Yes	No	No
SlimServer	Yes	No	No	No
SMB	Yes	No	Yes	Yes
BUYING INFORMATION				
Price including VAT	£80	£92	£200	£125
Warranty duration and terms	One year RTB	One year RTB	One year RTB	Five years' RTB
Supplier	www.micomonline.co.uk	www.techdepot.co.uk	www.zavvi.com	www.amazon.co.uk
Details	www.playonhd.com	www.apple.com	www.dlink.co.uk	www.eminent-online.com
Part code	PV73200P	MCS72B/A	DSM-390	EM7080



MEDIA STREAMERS					
EMINENT	SYABAS	UEBO	VIEWSONIC	COMPUTER SHOPPER BEST BUY WESTERN DIGITAL	COMPUTER SHOPPER ULTIMATE WESTERN DIGITAL
hdMEDIA Stream DTS Edition EM7075	Popcorn Hour A-210	M200 Bronze	VMP74	WD TV Live	WD TV Live Hub
★★★	★★★	★★★	★★★	★★★★★	★★★★★
Streaming multimedia receiver	Streaming multimedia receiver	Streaming multimedia receiver	Streaming multimedia receiver	Streaming multimedia receiver	Hard disk streaming multimedia device
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
No	Yes	No	Yes	No	No
Yes	Yes	Yes	Yes	Yes	Yes
No	No	No	No	No	No
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
No	No	No	No	No	No
FLAC, AIFF	FLAC	FLAC	FLAC	FLAC, AIFF	FLAC, AIFF
None	Shoutcast, Live365, Radiobox	Shoutcast	Shoutcast, Live365	Live365, Deezer	Live365, Deezer
MPEG1, MPEG2, MPEG4, APC, H.264, WMV9, XviD, DivX	MPEG1, MPEG2, MPEG4, APC, H.264, WMV9, XviD, DivX	MPEG1, MPEG2, MPEG4, H.264, WMV9, XviD, DivX, VC-1, RealNetworks	MPEG1, MPEG2, MPEG4, H.264, WMV9, XviD, DivX, VC-1	MPEG1, MPEG2, MPEG4, APC, H.264, WMV9, XviD, DivX	MPEG1, MPEG2, MPEG4, H.264, WMV9, XviD, DivX, VC-1
MPEG2, MPEG4, AVI, WMV, MKV, MOV, VOB, ISO	MPEG1, MPEG2, MPEG4, AVI, ASF, WMV, MKV, MOV, RMP4, VOB, ISO	MPEG1, MPEG2, MPEG4, AVI, WMV, MKV, MOV, RMP4, VOB, ISO	MPEG2, MPEG4, AVI, WMV, MKV, MOV, VOB, ISO	MPEG1, MPEG2, MPEG4, AVI, WMV, MKV, MOV, RMP4, VOB, ISO	MPEG2, MPEG4, AVI, WMV, MKV, MOV, VOB, ISO
YouTube (HD)	SayaTV	YouTube (HD)	Web-based Flash (HD)	YouTube (HD)	YouTube (HD)
Dolby Digital 5.1, DTS	DTS, DTS-HD HR, DTS-HD MA, Dolby Digital, Dolby Digital Plus, Dolby True HD	Dolby Digital 5.1	Dolby Digital 5.1	Dolby Digital 5.1, DTS	Dolby Digital 5.1, DTS
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
Yes	No	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
None	Flickr, Picasa, Photobucket	Flickr, Picasa	Flickr	Flickr	Flickr
1x 10/100	1x 10/100/1,000	1x 10/100	1x 10/100	1x 10/100	1x 10/100/1,000
Optional	Optional	Optional	Optional	Optional	Optional
1x stereo phono output, 1x optical S/PDIF output	1x stereo phono output, 1x coaxial S/PDIF output, 1x optical S/PDIF output	1x stereo phono output, 1x coaxial S/PDIF output, 1x optical S/PDIF output	1x stereo phono output, 1x optical S/PDIF output	1x stereo phono output	1x stereo phono output, 1x optical S/PDIF output
1x HDMI output, 1x composite output	1x HDMI output, 1x component output, 1x S-video output, 1x composite output	1x HDMI output, 1x component output, 1x composite output	1x HDMI output, 1x composite output	1x HDMI output, 1x component output, 1x composite output	1x HDMI output, 1x component output, 1x composite output
1x USB	2x USB, 1x USB (client)	2x USB, SD, SDHC, MMC, Memory Stick, Memory Stick Pro	1x USB, 1x eSATA/USB	2x USB	2x USB
35x180x104mm	32x270x132mm	70x230x165mm	28x132x101mm	40x125x100mm	32x198x100mm
4W	6W	0W	0W	4W	8W
6W	9W	17W	5W	9W	11W
Remote control, optical S/PDIF cable, Ethernet cable, composite cable	Remote control, HDMI cable, USB data cable, USB extension cable	Remote control, HDMI cable, composite cable, USB cable, wireless adaptor	Remote control	Remote control, component cable, composite cable	Remote control
None	MyiHome	None	None	None	None
Yes	Yes	Yes	Yes	Yes	Yes
No	No	No	No	No	No
No	No	No	No	No	No
Yes	Yes	Yes	Yes	Yes	Yes
£116	£209	£135	£111	£77	£152
Five years' RTB	One year RTB	One year RTB	One year RTB	One year RTB	One year RTB
www.amazon.co.uk	www.advancedmp3players.co.uk	www.uebo.net	www.scan.co.uk	www.digital-fusion.co.uk	www.scan.co.uk
www.eminent-online.com	www.popcornhour.com	www.uebo.net	www.viewsoniceurope.com	www.wdc.com	www.wdc.com
EM7075	A-210	M200 BRONZE	VMP74	WDBAAN0000NBK	WDBABZ0010BBK

LABS 2