# Combat† MP3

Music while you work... play... cycle... and in a tiny format too. We put 19 MP3 players head-to-head and let them fight it out for the sound crown

**C**assette tapes and portable CD players have had their day. The Internet generation is chucking them out in favour of solid-state music players. If you've not played with one yet, then you're missing out on some of the smallest and cutest music machines around.

By and large having no moving parts they run and run on a single battery, and as the media is as rewritable as MiniDisc or tape, once you've made your initial investment they'll cost next to nothing to maintain. So, with Christmas on the horizon we've gathered together some of the most desirable, and less so, presents on the market this year. In all, there's a collection of 19 for you to choose from, and each has been exhaustively tested in the PCW office, not to mention on trains, in the gym, on the bike ride home... in short, we lived with them, just like you would.

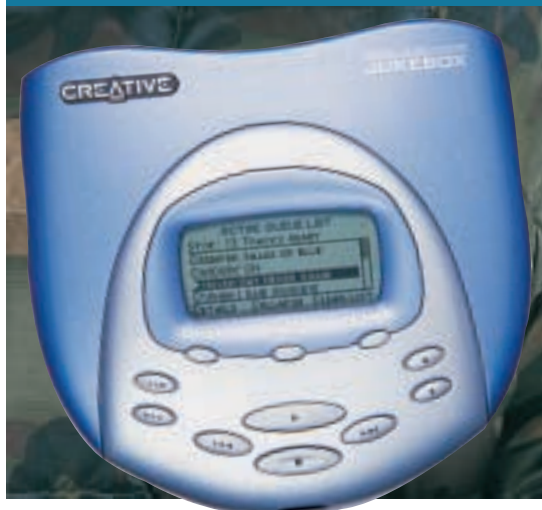So, down with mono, enough of cassettes – the future is here and we're testing it now.

# contents

• MP3 players tested and reviewed by Riyad Emeran, Lars-Goran Nilsson, Andy Gordon, Jason Jenkins, Niall Magennis, Richard McPartland, Scott Montgomery, Nik Rawlinson, Jalal Werfalli

## *Creative* **DAP Jukebox**



**AT FIRST SIGHT** you'll either love the DAP Jukebox or hate it, and on that score the *PCW* office is split 50:50. It's about the size of a CD Walkman, making it six times the size of an average MP3 device, and tips the scales at 400g, but in its favour it stores audio on a 6GB hard drive, with room for about 150 CDs or 100 hours of music. It'll handle pretty much anything you'll throw at it as the BIOS can be upgraded to take into account emerging standards.

It supports MP3 bit rates of between 20 and 320Kbits/sec, and with so much capacity you can afford to go for the maximum. Track names are retrieved from an online database and organised in the Jukebox library according to artist, album name, track name and genre, making it easy to find what you want to hear. A seven-line display makes navigating the system easy, and playlists can be built and saved for later use. A good selection of EAX (environmental audio) controls lets you tailor the output to sound exactly the way you like it.

Of course, with a hard drive you have moving parts, so Creative has included an 8MB shock buffer, which should be enough to cope with up to five minutes of skipped reads. PC connection is via the USB cable, but it also has line in and stereo line out ports for added versatility. At the front there's an infra-red window for a forthcoming remote control, and it comes bundled with four rechargeable AA Ni-MH batteries with a stated life of around five hours.

The bundled PlayCenter 2 software takes care of ripping and downloading tracks. In our tests it managed to transfer our single large test file in one minute 24 seconds, making it among the fastest in the group, and the collection of six mixed files was completed in one minute 46 seconds, which again put it close to the head of the pack.

It is important to not compare the Jukebox directly with the smaller devices on test here, as it is a fundamentally different product that performs a different set of tasks. However, if you are after a higher capacity, versatile music device then this is one to consider.

### DETAILS
★★★★
**PRICE** £349 (£297.02 ex VAT)
**CONTACT** Creative 01189 344 744
**www.europe.creative.com**
**PROS** Huge capacity; good track organising features
**CONS** Not everyone will find it attractive
**OVERALL** Best looking of the hard-drive-based players, and one that has the potential to keep up with emerging standards

## *Cybercomp* **MPGenie**



**THIS IS ONE OF THE** fastest of the MP3 players in this round-up, but it does lack in other ways, in part because it is made out of something that feels like the plastic used to build cheap toys.

The MPGenie feels very flimsy, especially the covers for the interface cable and the battery hatch. We were generally a bit worried that something was going to snap off when we opened its various protecting covers. Even the buttons are made out of the same material and are small and fiddly to press.

On the brighter side, it does come with 64MB of memory, which is enough for an hour of good-quality audio. It also sports a full graphical LCD and a reasonable number of equaliser settings for tweaking the audio output. As far as audio quality goes, there isn't much wrong with the MPGenie except that it has the same problem with variable bit rate files as most of the other players on test, in that the track time counter does not progress between numbers at an even rate.

But enough of the criticism – even though it uses a parallel connection, this is the one of fastest players on test in terms of download speed, outperforming many players with USB connection. It took 41 seconds to complete our large file transfer test and just 57 seconds to upload the collection of six test tracks. The LCD is a bonus as it can show a lot of information at one time.

The MPGenie is powered by a single AA battery. The sound quality on the bundled headphones is appalling, but that can be said for most of players tested here, so make sure you have some money left to buy a decent replacement set. The software is pretty basic and we were very disappointed by the user interface. It does, however, allow you to get MP3s from the player back onto your PC, although when we tested this feature the software successfully sent one file and then hung for no apparent reason.

If it wasn't for the poor build quality this could have been an excellent player, but we can't recommend it at this price.

### DETAILS
★★
**PRICE** £219.95 (£187.19 ex VAT)
**CONTACT** MP3 Players 01753 570 800
**www.mp3players.co.uk**
**PROS** Memory size; good display; fast download speed
**CONS** Build quality and price
**OVERALL** This player has great potential if Cybercomp improves its overall build quality, but as it stands it feels like it's going to break as soon as you take it out of the box

# Digit@lway **MPIO 64SV**



**WITH 64MB OF ONBOARD** memory, the MPIO 64SV can store an hour of music – more if compression is increased. At the back is one SmartMedia card slot that can take another 32MB card.

On the front, the oval-shaped LCD can display 12 numbers and 18 letters, necessary because the MPIO 64SV supports ID3 tag information to display artists' names and song details. Below the LCD is a four-way button for the play/pause, skip and stop controls. Erase, mode select and voice record buttons also reside on the fascia. Along the top of the unit, controls for volume, repeat, and Digital Signal Processing (DSP) are all easy to operate while the player is in your pocket.

There is also a phone book that holds 250 names and numbers, and a digital camera module. By plugging this into the 25-pin data port interface, you can capture and save images onto the internal memory or a SmartMedia card. As for image quality, don't hold your breath. The 300,000-pixel CMOS captures quite noisy pictures, but you can store 108 photos in VGA mode and 434 photos in SIF (standard image format) mode.

Performance-wise, it took two minutes 50 seconds to complete our large file transfer test but a slower three minutes 32 seconds to upload the six test tracks. Transferring these files to the MPIO 64SV (or MPIO SV-64 as sold by MP3 Players) is simple using the MPIO Desk software on the included CD-ROM. The CD also contains 'Jet Audio' for converting CD music into MP3s, but there's no support for wma files (see How we tested page 235).

Sound quality is good and is matched by the clarity of the voice recorder. The headphones aren't top-notch but they suffice. To tweak the audio, you can use the Pop, Rock, and Classic DSP settings.

This is a fully featured MP3 player at a reasonable price. The camera facility is interesting, but is a strange marriage. There's also an FM radio that performs adequately if there's a strong signal.

## DETAILS
★★★

**PRICE** MP3 Players £199.95 (£170.17 ex VAT); digital camera £84.95 (£72.30 ex VAT)
**CONTACT** MP3 Players 01753 570 800
**www.mp3players.co.uk**
**PROS** Adequate performance; 64MB of memory; camera option
**CONS** Camera's price and image quality; no wma support
**OVERALL** An MP3 player at an OK price considering the extra features. The digital camera module won't appeal to all and is a little expensive. One gets the feeling that this MP3 player is trying to do too much

# Digit@lway **MPIO DMJ-64**



**THIS HAS THE LOOK** of a mini disc player, although it is slightly smaller. The front of the unit has the control button for the various functions, along with a small screen to display playback information. There is also a button for activating the voice recorder, with the small microphone situated above the display. The unit has 64MB of memory as standard, allowing about an hour of music to be stored. A slot on the left takes memory cards for upgrading.

The display shows the battery level – it takes a single AA – along with the track number and name. By pressing the equaliser/3D button various presets can be used to get the most from playback. This isn't as versatile as treble and bass controls, but it is adequate.

Pressing an orange button activates the voice recording option, then you just speak into the player and it stores the resultant file with an sc4 extension, which is converted to a wav file when it is uploaded to a PC.

Underneath a sliding protective cover is a port to which you can connect a cable that plugs into your PC's parallel port. The bundled software is MPIO Desk, which allows MP3s to be transferred between the player and the PC. There is no ripping software included though, so you will need to download or buy a suitable applet. The package does include a telephone book feature though. Add names and addresses to your PC and download them to the player. The display can then be used as a mini telephone directory, although inclusion of ripping software would have been more useful.

Downloading the large 21.5MB test file took two minutes 48 seconds, while the six-file transfer took three minutes 26 seconds – overall pretty slow.

Overall, the DMJ-64 (which MP3 Players calls the SJ-64) is a cool-looking, small player with voice recording capabilities. The lack of ripping software is an irritation, but with good sound quality and 64MB onboard, it's perhaps worth its £189.95 price tag.

## DETAILS
★★★

**PRICE** £189.95 (£161.66 ex VAT)
**CONTACT** MP3 Players 01753 570 800
**www.mp3players.co.uk**
**PROS** Voice recording facility; 64MB memory
**CONS** No ripping software; slow download times
**OVERALL** A pretty good MP3 player, although downloading times and the lack of ripping software leave it behind some of the others on test

## *Digit@lway* **MPIO EX-MP64**

**APPEARANCE IS** important when it comes to MP3 players and the MPIO EX-MP64 certainly doesn't look dull.

It's a reasonable size and comes with 64MB of built-in memory as standard. All in all, this should be an excellent player, but it does lack a lot of the features offered by some of the other devices. It's very basic, with an alphanumeric LCD, parallel port interface and very low-end transfer software, but it's also one of the cheapest 64MB MP3 players we've

tested, coming in just under £160.

Build quality isn't bad – even though the EX-MP64 is made out of plastic; it is not the cheap kind used for some of the other players we've seen.

The button layout is fairly good with most of them located where you'd expect to find them. The data port and a smart media slot sit on the right-hand side. As far as audio quality is concerned the EX-MP is on a par with most of the other players we've tested and it has three preset equaliser modes to choose from, but don't bother with the included headphones since their sound quality is less than inspiring.

The MPIO EX-MP64 (sold by MP3 Players as the MPIO X-64) did have some minor problems when it came to variable bit rate MP3s, as the one we tested seemed unable to display the time correctly. This didn't have any impact on playback, though, and is a rather minor issue.

Speed-wise the performance was nothing to write home about, transferring our large standard test file in just seven seconds short of three minutes. Uploading our six mixed files took three minutes 38 seconds. These times are passable but don't stand up to comparison with other players on test here.

What is a bit annoying, however, is the ejector for the SmartMedia cards, which is really flimsy and doesn't stay in position without a card inserted. The download software is very basic, but you can simply drag and drop the files from the top window to the bottom and you'll be asked if you'd like to transfer the selected tunes to the player.

All in all this is a reasonable player with a few minor quirks but it's not overpriced for a 64MB unit.

### DETAILS
★★★

**PRICE** £159.95 (£136.13 ex VAT)
**CONTACT** MP3 Players 01753 570 800
**www.mp3players.co.uk**
**PROS** Price; memory size
**CONS** Parallel interface
**OVERALL** A reasonable player for the price but it lacks any extras

## *Eisen* **DAP 96**

**THE BODY OF THIS** quality little MP3 device has a rubbery feel, so it won't slip out of your hands, and the silver control buttons sit above and below the screen giving access to the unit's functions. Apart from the headphone socket, the only other port is where the player connects to your PC. The link cable connects to the parallel port, which at first seemed to be a poor data transfer option. However, the transfer times to the DAP proved us wrong.

By pressing the Mode button you can cycle through the various options. When you switch the DAP on the current track name is displayed, along with its position relative to the others, ie 4/12. Cycling through the modes gives you access to the Play modes (repeat track, random order); the bass and treble controls; the backlight controls; and information on the internal 96MB memory and any other memory installed.

The backlight only activates for a couple of seconds when a key press is detected, prolonging battery life, although the light can be switched off completely. A single AA battery is used to power the unit, and the SmartMedia memory card is inserted via the battery compartment before installing the battery.

Despite the parallel port, when it came to downloading this was one of the fastest units on test, transferring the 21.5MB file in one minute 21

seconds, and the six-file collection in one minute 40 seconds. The unit doesn't recognise wma files, but had no problems with variable bit rate format.

The bundled ripping software was trial versions of Music Match, Nex Encode and Audio Catalyst. For general upload and download, DAP Manager allows MP3 files to be uploaded and downloaded to the PC. It may be expensive at £229.95 inc VAT, but with 96MB of memory as standard you can store about 90 minutes of music. Compared to the cheaper units and the cost of upgrading their memory to the same level, this looks like pretty good value. Overall, an excellent player.

### DETAILS
★★★★

**PRICE** £229.95 (£195.70 ex VAT)
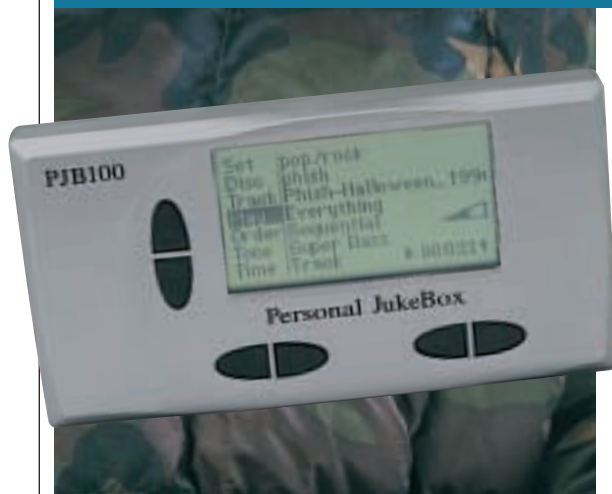**CONTACT** MP3 Players 01753 570 800
**www.mp3players.co.uk**
**PROS** 96MB of memory; backlight; treble and bass controls
**CONS** Quite expensive, although perhaps not with the memory included
**OVERALL** This is an excellent player with memory to store a lot of tracks. It is small, versatile and has good-quality sound

# *HanGo* **PJB100**



**THE PJB100 ISN'T** going to win any design awards. It's the MP3 equivalent of a Volvo estate car – a big square lump that's almost painful to look at.

This can partly be put down to the fact that HanGo had to find a way to accommodate the 6GB IBM 2.5in drive. However, Creative had the same problem with its Jukebox, the only other product in this test that features a built-in hard drive, yet it managed to produce a much more appealing device.

To load up tracks you install the Jukebox Manager software and connect the device to your USB port. The software is pretty plain offering Explorer-style management of the contents of the player's hard drive as well as MP3 encoding of CDs. You can add MP3 tracks you have stored on your PC's hard drive, but we found that after selecting large numbers of tracks in one go the software tended to crash mid-way through the download. This is obviously frustrating when you're trying to fill up all that space.

The Koss headphones have excellent sound quality, especially when it comes to bass response. However, we found them visually very unappealing and were subjected to several strange looks while wearing them.

HanGo claims that the lithium-ion rechargeable battery will last for 10 hours between charges. This is achieved by only spinning up the hard drive at the start of a song to load it into the buffer memory. It also means the player won't skip if you walk around with it in your pocket. However, if you shake the device vigorously while it's trying to load audio into the buffer memory it can lock up.

It's difficult to like the PJB100. It does what it's meant to do, with the exception of the buggy connection software, but the overall look and feel of the unit resembles a prototype more than a finished consumer product.

Considering that the Creative Jukebox has a recording option, multiple DSP effects, a much better design, a better range of audio connections and costs nearly half the price, it's really impossible to recommend the PJB100.

## DETAILS
★★

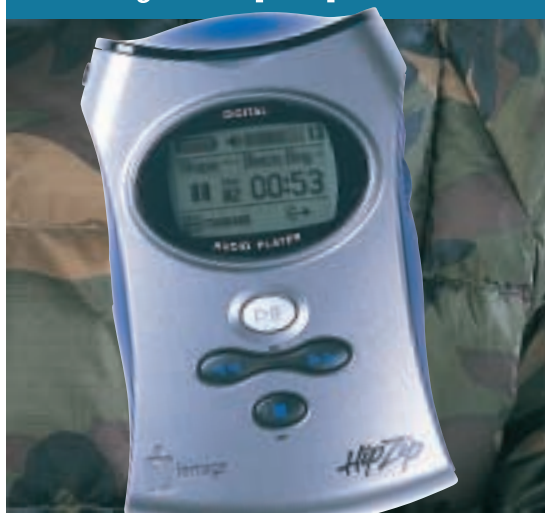**PRICE** £595 (£506.38 ex VAT)
**CONTACT** HanGo 01425 481 222
**www.pjbox.co.uk**
**PROS** Good sound quality; player works as it should
**CONS** Way too expensive; looks ugly
**OVERALL** The PJB100 would have been a good product a few months ago, but it just pales into insignificance next to the Creative Jukebox

# *Iomega* **HipZip**



**THE HIPZIP IS CERTAINLY** not small, but it is good looking. Weighing almost 200g it's not particularly light, either, but it does have one thing going for it – the cheapest storage around, and bucketloads of it. Once called the Clik! disc, Iomega's smallest media has been renamed the Pocket Zip, and two of these are bundled with the HipZip. Holding 40MB each you get a headstart over most other players tested here, and upping your quota costs only £7 for each additional 40MB, making the idea of keeping a library of ripped tracks viable.

Sound quality is fair, and better than many of the others tested here. The display, too, is first class, with a large track counter, scrolling track name, permanent display of the volume and remaining charge of the in-built rechargeable battery. The sides of the device are covered in an appealing blue plastic, and it's bundled with a sporty holster that you'll not be ashamed to flash around in public.

The play and stop control buttons are at the front, and between them sits a rocker for scooting back and forth through the tracks. Using these to fast-forward, though, has the curious effect of speeding the clock through the track but continuing to play at normal speed from the point where the reading head is already located. Once you let go it jumps ahead to the new location almost immediately, but it does feel rather as though you're driving blindfolded.

Transfer times were nothing special, standing at two minutes 18 seconds for the large test file and three minutes two seconds for our collection of six mixed files. The player is bundled with Music Match Jukebox, but also includes Iomega's standard operating software, allowing you to use the device as an external storage drive, connected via the USB port.

In all, Iomega's HipZip is an attractive, versatile and cheap-to-run device. The sound quality is above average, and it's certainly one to watch. The initial investment is a little steep, though.

## DETAILS
★★★★

**PRICE** £289.99 (£246.80 ex VAT)
**CONTACT** Iomega 01628 822 444
**www.iomega.com**
**PROS** Cheap media; attractive
**CONS** Strange fast-forwarding control
**OVERALL** It's won us over, but the unit price might be the factor that decides whether it's right for you

## MPMan **F35-T3**



**THE MPMAN IS A** bit of a jack-of-all-trades. It's not only an MP3 player, but also an FM radio and voice recorder. This extra functionality is reflected in the overall size of the unit – it's slightly larger than most of the MP3-only players, but not by much.

The aluminium casing gives the device a clean and sleek appearance, but other than this the design is not going to help it stand out from the crowd.

Connection to a PC is via the mini USB port located on the right-hand side of the player. As a result, transfers of files to the device are reasonably speedy, however the MPMan was beaten in our transfer tests by the DAP, which is a parallel port device.

The software that controls these transfers is quite basic. It doesn't include any MP3 encoding features, but it does allow easy Explorer-style management not only of the transfer of MP3 files, but also presets for the FM radio, voice recordings and even memos.

However, the MPMan only has 32MB of onboard memory so there's much space to fill unless you shell out for extra Flash memory – you can add cards of up to 64MB in size.

Voice memos are transferred to the PC as ADPCM compressed wav files that can be played back using pretty much any audio software.

Apart from the lack of memory, the only other real downer is the low output volume. The MPMan is much quieter than the other devices in this test – even at full volume its headphones are never pushed to the point of distortion. This may be a problem if you have lots of MP3 songs that haven't been normalised during the encoding process and as a result play back quietly.

Also, the device doesn't support playback of wma files, although it can handle MP3 files encoded using variable bit rate compression.

The MPMan is a good all-round device, but the low output volume and stingy amount of onboard memory count against it.

### DETAILS
★★★

**PRICE** £159.95 (£136.13 ex VAT)
**CONTACT** MP3 Players 01753 570 800
**www.mp3players.co.uk**
**PROS** Three-in-one functionality; good sound quality; headphone remote control
**CONS** Only 32MB of memory; low output volume
**OVERALL** The MPMan is a well-designed device, but the stingy memory quota and the low output volume take it down a notch

## Philips **Rush SA126**



**THIS MAY NOT BE** the smallest device on test, but it's no brute either and has one of the most stylish designs of any solid-state player we've seen.

This is partly down to the choice of screen. Philips has opted for a rather strange LCD display that has a silver background. It looks great and really sets off the player's design, but it can be hard to read because the silver is so reflective. Also, there's no backlight, so you won't be able to read it in the dark.

There's no built-in memory, either. Instead Philips has shipped the Rush with a 64MB SmartMedia card. However, the device will only accept SDMI-compliant SmartMedia cards with an ID logo, not the ordinary cards used in PDAs or digital cameras.

Sound quality is excellent and MP3 rates of up to 224Kbits/sec are supported. The Rush can also handle MP3 files encoded using variable bit rates and can play back wma files, although it does convert these to sm3 files when transferring to the player.

You can connect the Rush to a PC using either your USB or parallel port. Files are transferred using the RealJukebox software from RealNetworks. However, the version Philips has supplied will only encode MP3 files at 96Kbits/sec and not at the 128Kbits/sec rate that most people use. If you want to be able to encode at 128Kbits/sec you'll have to pay $29.99 (around £19) to upgrade to RealJukebox Plus. Unfortunately, you can't upgrade to RealJukebox version 2, because Philips hasn't written a plug-in for this software yet. This means that the Rush is currently not compatible with Windows 2000.

Another problem is the headphones. They're not really up to the job as they suffer from a crusty top end and have difficulty processing higher frequencies such as cymbals, so if you do opt for the Rush, you'd be well advised to replace the headphones quite quickly.

All in all, the Rush looks and sounds great, but it's let down by the poor support software and less-than-adequate headphones.

### DETAILS
★★★★

**PRICE** £269 (£228.94 ex VAT)
**CONTACT** Philips 020 8665 6350
**www.rush.philips.com**
**PROS** Stylish design; good sound quality
**CONS** Poor software; reflective screen; low-quality headphones
**OVERALL** It's a great shame that Philips hasn't done a better job on the Windows software for the Rush, as the hardware is superb

# *Pine* **D'Music SM-320F**

**AS MP3 PLAYERS GO,** the SM-320F is a feature-packed bit of kit. It may look identical to the SM-320V (reviewed below) but this player comes with an FM radio tuner. Add to that the ability to store MP3 music or data and create voice recordings for less than £150 and you're getting a reasonably good deal.

In the looks department, the SM-320F is a little lacking – that garish blue is just a little too bright for our liking, but there's no denying it's a sturdy unit and should withstand more than a few knocks at the bottom of a bag. It's also lightweight, easy to use, and is capable of producing good-quality sound (once you've boosted the bass using the jazz and pop equalisation settings).

The four-way rocker control on the front provides an easy way of navigating through the stored tracks. Above this is a three-line screen informing you what's playing but, unlike the S3 Rios, you can't manage your playlist on the device itself. Below the rocker controls are the equalisation settings, while the volume control is on the left-hand side; along with record and session repeat buttons.

Unfortunately, the player comes with just 32MB of internal memory (although it can support up to 64MB using the SmartMedia slot). At this price that may be just about excusable, but we can't be quite so forgiving when it comes to the fact that the unit connects to your PC via a parallel cable. Admittedly, it's an EPP cable and the unit managed much faster transfer times than the SM-320V, but it was overshadowed by the USB-connecting players. Transfer of our large test file took three minutes 56 seconds, while the six mixed files completed the journey in four minutes 49 seconds.

On the software front, like the SM-320V, the unit ships with D'Music Manager and while it works well enough, the track window doesn't always refresh automatically. There are also no other supported audio formats – it's MP3 or nothing for the 320F.

A reasonably priced product that does a reasonable job, although build quality isn't the best on test and we'd much prefer 64MB of onboard memory.

## DETAILS
★★★

**PRICE** £148.95 (£126.77 ex VAT)
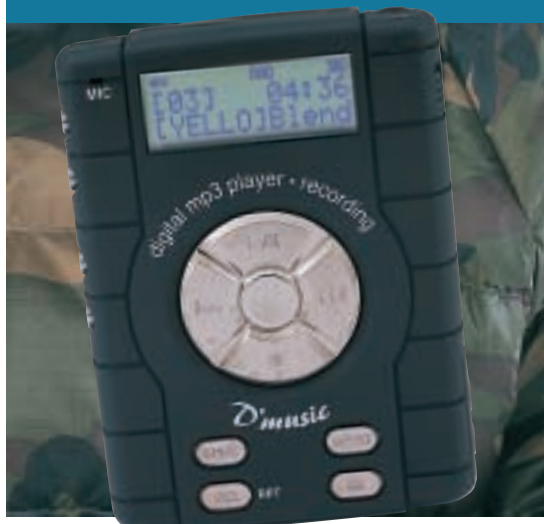**CONTACT** MP3 Players 01753 570 800
**www.mp3players.co.uk**
**PROS** Includes a voice recorder and FM radio
**CONS** Only 32MB of onboard memory; build quality not the best on test
**OVERALL** Reasonably priced and fully featured – it's just a shame there's only 32MB of onboard memory

# *Pine* **D'Music SM-320V**

**THE D'MUSIC SM-320V** comes complete with 32MB of internal Flash memory – good for about 30 minutes of playback time at the lowest compression level. Adding a 128MB SmartMedia card can bolster storage, but this would have to be purchased separately.

The SM-320V feels comfortable with its grippy notches, matt black finish and light 62g mass (batteries not included). The layout is good, with the volume, repeat and voice record buttons all located down the left side, and neatly recessed to prevent accidental presses. The play/pause, skip, and stop buttons are incorporated into a four-way pad for easy operation. The LCD displays the song title and track number, battery status and remaining time.

Once you have installed the D'Music Manager software, you're greeted with an Explorer-like screen. Three internal windows are present with the left and top right ones displaying the directory structure and the contents of the folders on your PC. The bottom right window is where you drag and drop the MP3 files to start uploading.

Data transfer over the supplied parallel port cannot compare with the rates achieved by the USB players. In fact, this is the slowest player in our tests. It took 18 minutes 50 seconds to complete our large file (21.5MB) transfer test, and a sluggish 22 minutes 56 seconds to transfer six mixed files totalling 25.8MB.

Even though the unit can be used as a mini hard drive, a fair proportion of power from the two supplied AAA batteries will be spent during the lengthy uploading process. There is no support for wma files, however variable data rate is supported, but track times are not converted into real time.

As for sound quality, vocals are clear and crisp, but deeper tones lack punch. This can, however, be adjusted by selecting one of the five (pop, classic, jazz, ex-bass, flat) EQ modes. As for the recording function, the mic was quite sensitive and easily picked up voices from across our office.

This is a decent unit that won't break the bank. A pair of headphones, two AAA batteries, and a carrying pouch are thrown in for good measure.

## DETAILS
★★★

**PRICE** £117.99 (£100.41 ex VAT)
**CONTACT** Pine Technology 01908 218 812
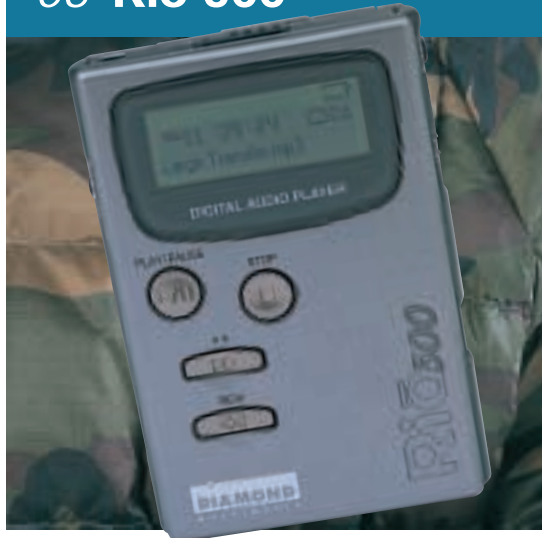**www.pine-dmusic.com**
**PROS** Decent price and finish
**CONS** Extremely slow transfer rate; no support for wma files
**OVERALL** A light and good-value MP3 player, limited by its very slow parallel interface

## S3 Rio 500



**DIAMOND WAS THE FIRST** to market a solid-state MP3 player, the Rio PMP300, in 1998. Unfortunately, although the original Rio may have received praise for its technological innovation, the jet-black unit was fairly chunky, sound quality wasn't great and it certainly didn't come cheap.

The second-generation Rio 500 came a year later. This time, things were better. While the Rio struggled by with 32MB of onboard memory, the 500 comes with 64MB – enough for a CD's worth of high-quality music or 23 hours of speech, and you can use SmartMedia cards (up to 64MB) to add more capacity.

The main unit (which comes in translucent teal, purple or grey) is much sleeker than the original Rio and features a large backlit screen that puts song titles and other relevant information at your disposal (thanks to support for the ID3 tag). The multifunction dial provides an easy way of scrolling through your tracks, which can be separated into folders for ease of recall while the bookmark, EQ (bass and treble) and loop facilities all work pretty much as you'd expect.

Crucially, the USB connection makes it quick and easy to transfer MP3 files to the player and the bundled drag and drop Audio Manager software is some of the best on test (you can even use it to convert your CDs to MP3 format). Transferring our single large test file took one minute 28 seconds, while our collection of six mixed files completed in one minute three seconds.

The Rio 500 (now sold by S3 following its purchase of Diamond) supports MP3, MPEG-2.5 and ADPCM file formats (and S3 promises you can update the firmware to take advantage of any new developments). Sound quality is great – even at high volumes – as the unit has a higher signal-to-noise ratio than most other players. Battery life is also good; you can expect about 13 hours from a single AA battery.

More than a year after its launch, the Rio 500 still holds its own – our only complaints would be the lack of a built-in microphone and FM radio.

### DETAILS
★★★★★

**PRICE** £199.95 (£170 ex VAT)
**CONTACT** S3 01189 444 444
**www.riohome.com**
**PROS** Excellent sound quality; intuitive control system; good build quality; future Flash upgrades possible
**CONS** Still a little pricey; no microphone or FM radio
**OVERALL** A quality player although a little pricey

## S3 Rio 600



**ONE OF THE BEST** looking players around, the Rio 600 has snap-on-and-off covers, so you can change the colour if you fancy. These covers are available in packs of three and will soon be sold individually.

As standard the Rio comes with 32MB of memory installed, which S3 claims will be more than enough to handle an hour of music or 16 hours of the spoken word. We can't help thinking this is terribly stingy, though. The Rio 500, after all, had double this amount of memory. Sadly, increasing this is not a simple matter of slipping a Compact Flash or SmartMedia card into the back – you have to buy one of S3's 32MB, 64MB or 340MB replacement backs, so if this is your player of choice you're pretty much tied into S3 for life.

It weighs just 68g without the single bundled AA battery or earphones. Stated playback time is over 10 hours on a single battery. It supports MP3 files at bit rates of 16-320Kbits/sec and wma files. It does not have upgradable firmware, but S3 is working on a number of accessories that include a remote control with a built-in FM radio tuner.

Connection to the PC is via a USB cable. Playback modes include repetition of one or all tracks or random playback to save you getting bored of hearing the same old tracks in a familiar order again and again. The stylish oval display is clear and easy to read, giving track and positional information.

In our tests the Rio performed very well, transferring our single large test file in just one minute and one second, a time that was only beaten by the Cybercomp MPGenie and the two Sony products. Its performance was equally impressive when it came to downloading the six mixed files, although at one minute and 20 seconds it was beaten by its older sibling, the Rio 500, by 17 seconds.

The lack of memory is an irritation, and as the upgrades are proprietary, you are a little bit railroaded with this device. It's hard to know why S3 has gone this route when the Rio 500 is only an extra £30 and doesn't suffer the ailments of its numerically superior sibling.

### DETAILS
★★★★

**PRICE** £169 (£143.83 ex VAT)
**CONTACT** S3 01189 444 444
**www.riohome.com**
**PROS** Good looking; clear display
**CONS** Proprietary memory upgrade system; stingy memory allocation
**OVERALL** A great device, but the irregular upgrade route may be enough to put off many

## Samsung SGH-M100

**THIS PLAYER IS UNIQUE** in this group test: it is the only one that is also a fully functional dual-band GSM phone. The phone has an infra-red modem, an active flip, vibrating alert and space for 99 numbers. Unfortunately, there's no T9 predictive text support. It is a very light and nifty little unit, sporting a small but easy-to-read display with a bright green backlight. There is 32MB of memory inside the phone, but this cannot be upgraded. The M100 will play both MP3 and wma files.

The supplied headphones, which also double as a hands-free microphone and earpiece, are fairly good, and the M100 pumps out a decent enough sound. When calls come in, the music stops and you use the remote control to answer. You can control the player using this remote or buttons on the side of the phone. There's a hold switch on the remote to prevent accidental bumps altering the settings. You can repeat the tracks, or specify points in each track to repeat over and over. Using the top selector buttons on the phone you can choose between six preset equalisation settings.

File transfer is through the parallel port, but we would prefer to see USB for increased speed. Transfer times are among of the slowest here, at five minutes 10 seconds for a 25.8MB file. It is far from being the slowest, though.

The supplied MP3 manager software is simple to pick up. Using this, you manage the files that sit in the phone's memory. The interface is just like Windows Explorer, so anyone familiar with Windows should have no problems picking it up. At the end of the day, it is just a transfer program, though. We would much prefer to see a full encoder included with the package.

The lithium-ion battery is quoted to last up to 60 hours on standby, although playing music when you're not talking will obviously drain the battery faster. The M100 is not the best solid-state music player here by any means, but it does have a decent GSM phone attached to it.

### DETAILS
★★★

**PRICE** £349.99 (£297.86 ex VAT)
**CONTACT** Virgin Mobile 0845 6000 600
**www.virginmobile.com/mobile**
**PROS** Good headphones; easy to use; plays wma files
**CONS** Only 32MB of memory that cannot be upgraded; no encoder
**OVERALL** It's an interesting technology showpiece, but it'll only suit those who go for gimmicks

## Sensory Science MP2300

**IF YOU LIKE YOUR** music players boxy then this is definitely the one to go for. You could never call it attractive, but there's a far more important reason to buy it – cheap storage. Turning its back on conventional solid-state media, the MP2300 (sold as Logix 2000 MPClik! by mp3players) instead swallows Iomega's After Eight-sized Clik! disks whole, giving you 40MB at around £7 a pop, making it way cheaper than the alternatives. Two are bundled to get you going.

The excellent menu system partly makes up for the bland casing. Icons represent everything from playing audio, to retrieving contacts – yes, it's a basic organiser, too, synchronising with Outlook. You'll find the usual collection of headphone and data ports, each capped by a rubber bung. On the front there's a small microphone, for recording up to two and a half hours of your witty banter on a single disk. The battery, meanwhile, promises to stretch to 12 hours on a single charge.

MP3 and wma formats are supported, and the firmware can be upgraded to take emerging standards into account.

MusicMatch is bundled for audio ripping, but the Digital Media Manager, used to upload to the player (or 'download' as Sensory Science puts it) is clunky and best avoided. A real bonus, though, is that the bundled Iomega drivers mount the device as a removable drive so we switched to dragging our MP3 files from the desktop to the player instead. Using either method, our three test files transferred in 17 seconds, a single 21.5MB file completed its journey in 46 seconds and a batch of mixed bit rate tunes, adding up to 25.8MB, took just under a minute – a respectable performance. Played back through the bundled earphones, the files featured all the characteristics of highly compressed music, but were no worse than anything else we've heard.

It's an ugly duckling as far as music players go, but then you'll keep it in a bag or coat pocket anyway. It has a long battery life, a first-class menu and the cheapest storage going. In short, we're fairly impressed.

### DETAILS
★★★

**PRICE** £229.95 (£195.70 ex VAT)
**CONTACT** MP3 Players 01753 570 800
**www.mp3players.co.uk**
**PROS** Cheap storage; speedy transfers; good menu system; mounts as a drive
**CONS** Ugly; disappointing upload software (which loses it a star)
**OVERALL** If looks are unimportant then it's certainly one to consider

# Sony NW-E3 Network Walkman



**THERE'S NO DOUBT** that the Memory Stick Walkman (see later) is cool, but compared to the Network Walkman it could almost be described as boring.

This little silver wonder weighs in at an unbelievable 45g including the AAA battery and it's no exaggeration to say that you can't even feel it in your pocket. Finished in brushed silver, the NW-E3 looks every bit the futuristic device it is.

Unlike the majority of devices on test, the NW-E3 doesn't use removable memory cards, instead it ships with 64MB of solid-state memory built in that cannot be augmented. Although some may see this as a severe limitation, that's not necessarily the case. Considering a 64MB memory card will set you back around £120 inc VAT it's likely most users will re-use the memory card that comes with their player. The lack of removable media is what makes the NW-E3 as small, light and stylish as it is.

Unlike the Memory Stick Walkman, which has a thumb-activated jog dial to control things, the Network Walkman has a twisting controller mounted to one end, similar to the remote controls that Sony ships with its MiniDisc Walkmans. It's easy to control, with a twist to the right skipping forward and a twist to the left skipping backward, while pressing the top either plays or stops.

Sony has once again snubbed MP3 in favour of its own compression algorithm ATRAC. This is no bad thing since the sound quality from ATRAC (Adaptive Transform Acoustic Coding) is generally superior to MP3, although it does mean that if you have a library of MP3 files you'll have to convert them to ATRAC before you can play them. When ripping tracks from a CD the sound quality is nothing short of superb. Obviously you can choose the quality level, with lower quality using less memory and high quality using more. Choosing the middle quality preset produced excellent sound.

Transfer times were incredibly fast so you're not going to be hanging around waiting to get your music on board.

The NW-E3 is stunning – smaller and lighter than any other portable music device. You can even turn the display into a spectrum analyser – now that's cool.

## DETAILS
★★★★★

**PRICE** £249 (£211.91 ex VAT)
**CONTACT** Sony 08705 111 999
**www.sony.co.uk**
**PROS** Small, stylish and light. Very fast file transfers and great sound quality
**CONS** Some may be put off by lack of removable storage
**OVERALL** A stunning product. It's easy to see that Sony invented the mobile music player

# Get downloading with our pick of the pops

So you've taken the plunge and invested in your first solid-state music player. That's no good, though, if you've got nothing to listen to. You could rip your CDs and transfer them or you could scour the Internet for something new. Here's *PCW*'s pick of the top three sites to find online audio.

First off is **www.people sound.com**, which has an interesting take on the whole idea of downloading music for your solid-state player. There's no way you're going to be able to legally download the likes of Madonna and Radiohead, so why not download the soundalikes instead? Its intelligent search engine allows you to enter the name of an artist you like – say Steps – and it'll bring up a list of similar bands whose music it stores for you to download. Just like the best Internet search engines, it rates the hits by percentage, so you know that a 90 per cent rating sounds more like your choice than one that scores


*For soundalikes go to peoplesound.com*


*Steve Martin a novelist? Check it out at MP3Lit*

only 55. Click on the names of the artists it turns up for a short description of themselves and their music.

Perhaps the most famous of all the music download sites is **www.mp3.com**, which looks far more like a standard Internet engine along the lines of Yahoo or Excite. More than just a music resource, it's also home to a regularly updated selection of related news stories, and themed sections tie your downloads into the time of year. We checked it out at the end of October when it was running a special Halloween section.

If you'd rather hear Radio Four than Radio One, then check out **www.mp3lit.com** for perhaps the biggest selection of spoken word on the net. Sitting on the servers of online super-mag *Salon*, it's a haven for book fans everywhere, with samples and extracts from the latest literary releases and direct links to the sites that sell them. It was here that we first learnt comedian Steve Martin had written a novella, which we found on our way to download some Harry Potter.

NIK RAWLINSON

## *Sony* **NW-MS7 MS Walkman**



**WE LOOKED AT THE** Memory Stick Walkman a few months ago and, although we liked it, we didn't think it quite lived up to the high standards Sony had set for itself when it came to portable audio. That said, the NW-MS7 is still a cut above the majority of the other products on test.

Sony decided that the MP3 standard wasn't good enough for its solid-state Walkmans, so instead implemented the ATRAC system. This is already widely used in the MiniDisc arena and uses less compression than MP3, resulting in superior sound quality. So, if you want to play MP3 files you'll have to convert them to ATRAC first. Of course, doing this won't give you the quality advantage, but ripping a CD to ATRAC sounds superb on this player.

In the box you get a power supply, a USB cable and a small docking bar. Both the power supply and cable plug into the docking bar so when the Walkman plugs into the bar it's charging its battery and connecting to the PC simultaneously.

The NW-MS7 is very light at 70g, but not as light as its sibling the Network Walkman. But the advantage of this unit is its ability to use multiple Memory Sticks. Whether you will make use of this depends on how much cash you have, since a second 64MB Memory Stick will set you back around £116 inc VAT. And don't get any ideas about using Memory Sticks from your digital camera because you need the white Magic Gate Memory Sticks rather than the purple ones.

Control is simple, with the jog dial dealing with the main functions and separate buttons for stop and volume.

The sound from the headphones is very good and the supplied extension cable make them long enough for even the tallest of listeners.

Transfer-wise, the MS Walkman was fast, but not as fast as the Network Walkman. That said, you're not going to be twiddling your thumbs for too long.

On the whole this is an impressive product, but if you're not bothered about removable memory, the smaller and cheaper Network Walkman is a better bet.

### DETAILS
★★★★
**PRICE** £299 (£254.46 ex VAT)
**CONTACT** Sony 08705 111 999
**www.sony.co.uk**
**PROS** Small, light and fairly fast transfer rate
**CONS** Larger, heavier and more expensive than the Network Walkman
**OVERALL** A stylish and high-quality product, but Sony's own Network Walkman is more desirable

## *Vivanco* **Vmax**



**THE VMAX IS INCREDIBLY** small and manages to squeeze in all the basic features you'd require of a personal MP3 player.

It is little bigger than a box of matches and even with single AAA battery it only weighs in at 30g. Simplicity is maintained in terms of the controls, too. Down one side you'll find just three buttons, for playback and searching through tracks. The volume control is a circular dial on the front, that is easy to use but exposed to interference from the elements. A second volume control sits on the headphone lead and secures to your clothing at lapel level.

There are three bass settings, but we found that they all sounded pretty much the same. Inevitably the price of such a small player means that there is no chance of fitting on a display and no way of knowing which track you are playing.

The Vmax comes with 32MB of memory in the shape of two 16MB MultiMedia Cards (MMCs). A disadvantage here is that the MP3 files cannot be split – you need to have two neat 16MB chunks to take full advantage of the memory. On the plus side, it means you can upgrade one card without discarding the other.

An attractive, frosted-plastic unit is used for reading and writing to the MMCs. In our tests it performed fairly poorly, with the single large file transferring in three minutes 22 seconds and the collection of six test files completing their journey in just a second under four minutes. This result is disappointing since it connects to the PC via the USB port.

In terms of software, Pontis LED does little more than allow you to build playlists, write them to the MMCs and change the ID3 tag. You also get eJay MP3 Station, which is one of the most straightforward pieces of software for copying CDs and ripping MP3 and wav files, if not very advanced.

If you want a feature-packed MP3 player then look away. The Vmax is easy to use but due to its incredibly small size only manages the most basic functions to a very basic level.

### DETAILS
★★★
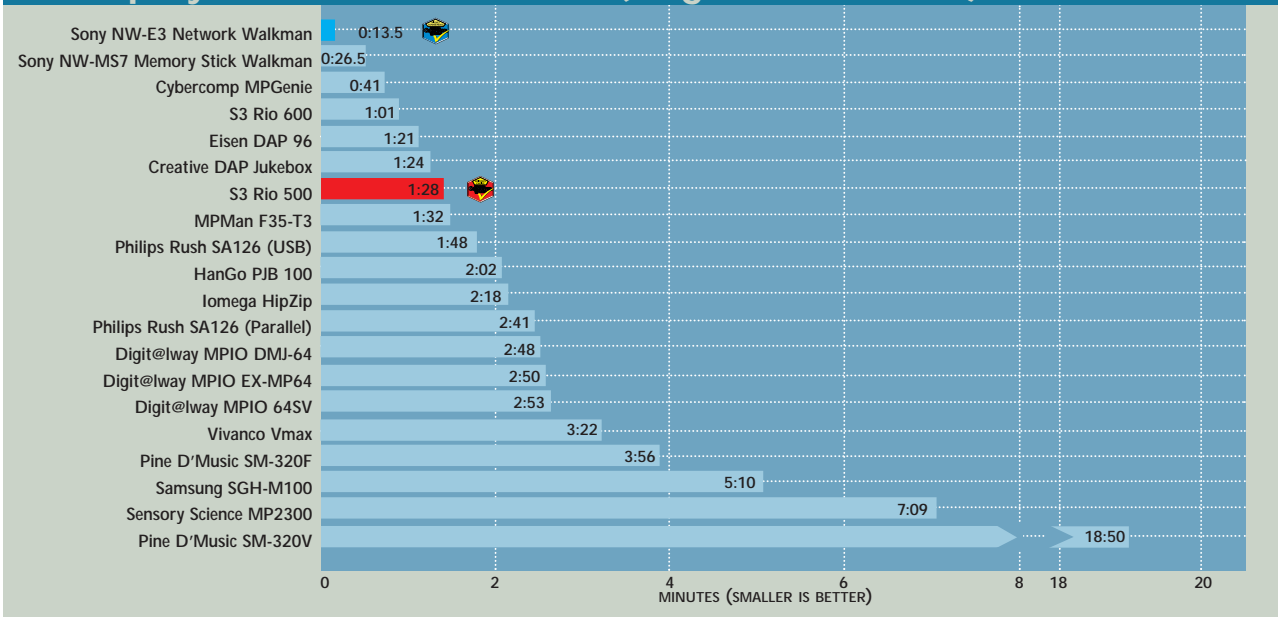**PRICE** £176.25 (£150 ex VAT)
**CONTACT** Vivanco 01442 403 020
**www.vivanco.com**
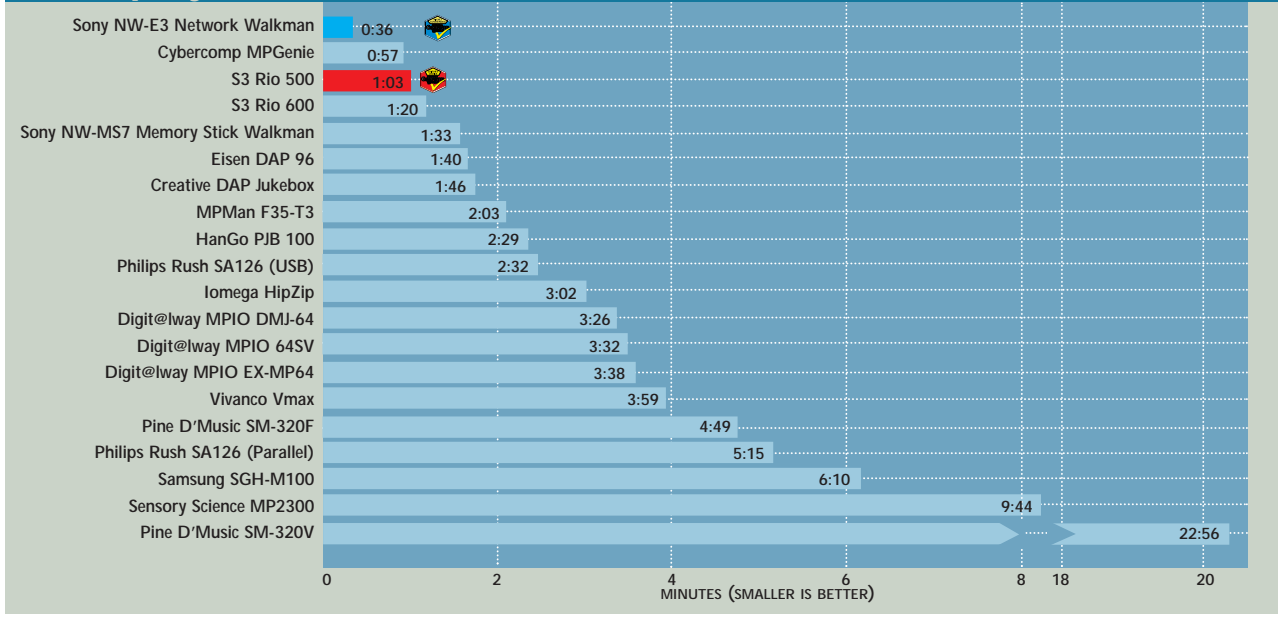**PROS** Very small; light; separate MMC slots; cheap
**CONS** Very basic controls; no display
**OVERALL** For its size, feature-packed and flexible but real connoisseurs will be left wanting more

## MP3 players download times (large file transfer)

| Player | Time |
|---|---|
| Sony NW-E3 Network Walkman | 0:13.5 |
| Sony NW-MS7 Memory Stick Walkman | 0:26.5 |
| Cybercomp MPGenie | 0:41 |
| S3 Rio 600 | 1:01 |
| Eisen DAP 96 | 1:21 |
| Creative DAP Jukebox | 1:24 |
| S3 Rio 500 | 1:28 |
| MPMan F35-T3 | 1:32 |
| Philips Rush SA126 (USB) | 1:48 |
| HanGo PJB 100 | 2:02 |
| Iomega HipZip | 2:18 |
| Philips Rush SA126 (Parallel) | 2:41 |
| Digit@lway MPIO DMJ-64 | 2:48 |
| Digit@lway MPIO EX-MP64 | 2:50 |
| Digit@lway MPIO 64SV | 2:53 |
| Vivanco Vmax | 3:22 |
| Pine D'Music SM-320F | 3:56 |
| Samsung SGH-M100 | 5:10 |
| Sensory Science MP2300 | 7:09 |
| Pine D'Music SM-320V | 18:50 |

MINUTES (SMALLER IS BETTER)

## MP3 players download times (transfer of six files)

| Player | Time |
|---|---|
| Sony NW-E3 Network Walkman | 0:36 |
| Cybercomp MPGenie | 0:57 |
| S3 Rio 500 | 1:03 |
| S3 Rio 600 | 1:20 |
| Sony NW-MS7 Memory Stick Walkman | 1:33 |
| Eisen DAP 96 | 1:40 |
| Creative DAP Jukebox | 1:46 |
| MPMan F35-T3 | 2:03 |
| HanGo PJB 100 | 2:29 |
| Philips Rush SA126 (USB) | 2:32 |
| Iomega HipZip | 3:02 |
| Digit@lway MPIO DMJ-64 | 3:26 |
| Digit@lway MPIO 64SV | 3:32 |
| Digit@lway MPIO EX-MP64 | 3:38 |
| Vivanco Vmax | 3:59 |
| Pine D'Music SM-320F | 4:49 |
| Philips Rush SA126 (Parallel) | 5:15 |
| Samsung SGH-M100 | 6:10 |
| Sensory Science MP2300 | 9:44 |
| Pine D'Music SM-320V | 22:56 |

MINUTES (SMALLER IS BETTER)

# How we did the tests

**O**ne of the key usability considerations for solid-state music players is download speeds. This is one of the easiest tests to perform and it gives a clear benchmark by which players can be compared.

We installed the software shipped with each player and connected them up using the supplied parallel or USB cables. We created a single large 21.5MB MP3 file that was encoded at 320Kbits/sec.

We then transferred this using the supplied software (see top graph for results). Next, we took a sample of six mixed format songs to test the dynamic range of each device. These files made up a transfer size of 25.8MB. Each was encoded at 128Kbits/sec.

Two files were created using VBR (variable bit rate) format. This is meant to decrease the overall size of the files, but at the same time it can also decrease the audio

quality, since those parts of the song that have less going on are generally encoded at a lower bit rate. Finally, a wma (Windows Media Audio) file was generated to see which players supported this format.
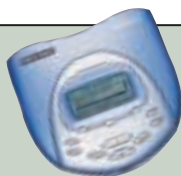
None of the players (except those from Sony that use ATRAC compression and so were exempt) had any problems playing VBR-encoded MP3 files. That said, most were unable to display the correct time and/or file size

using their built-in LCDs. We were disappointed, however, that most of the players in this test didn't recognise the fairly new wma standard.

We listened to the playback quality of each player and compared it to the original MP3s stored on our reference machine fitted with a SoundBlaster Live! card. In every instance, we used the player's bundled headphones to listen to playback, as well as a further, higher quality set.

## Table of features

| Manufacturer | CREATIVE | CYBERCOMP | DIGIT@LWAY | DIGIT@LWAY |
|---|---|---|---|---|
| **Model** | DAP JUKEBOX | MPGENIE | MPIO 64SV | MPIO DMJ-64 |
| Price inc VAT (ex VAT)) | £349 (£297.02) | £219.95 (£187.19) | £199.95 (£170.17) | £189.95 (£161.66) |
| Telephone | 01189 344 744 | 01753 570 800 | 01753 570 800 | 01753 570 800 |
| URL | www.europe.creative.com | www.mp3players.co.uk | www.mp3players.co.uk | www.mp3players.co.uk |
| **Features** | | | | |
| Memory | 6GB | 64MB | 64MB | 64MB |
| PC connection cable | USB | Parallel | Parallel | Parallel |
| Memory upgrade media | N/A | SmartMedia | SmartMedia | SmartMedia |
| Display | ✔ | ✔ | ✔ | ✔ |
| Backlight | ✔ | ✘ | ✘ | ✘ |
| Battery | 4 x AA rechargable | 1 x AA | 2 x AAA | 1 x AA |
| Dimensions h x w x d (mm) | 127 x 127 x 38 | 81 x 60 x 19 | 90 x 66 x 18 | 62 x 68 x 17 |
| Weight (inc battery) | 435g | 80g | 95g | 78g |
| **Software** | | | | |
| | Play Center 2 | MPGenie Manager v.2.5 | MPIO Desk | MPIO Desk |
| **Other features** | | | | |
| | AC adapter, carry pouch, line/out ports, headphones | AC adapter, can be used as a mini hard drive, carry pouch, headphones | Optional digital camera, digital voice recorder, FM radio, phone no storage, headphones, can be used as a mini hard drive | Digital voice recorder, telephone number storage, can be used as a mini hard drive, headphones |

## Table of features (continued)

| Manufacturer | PINE | PINE | S3 |
|---|---|---|---|
| **Model** | D'MUSIC SM-320F | D'MUSIC SM-320V | RIO 500 |
| Price inc VAT (ex VAT) | £148.95 (£126.77) | £117.99 (£100.41) | £199.95 (£170) |
| Telephone | 01753 570 800 | 01908 218 812 | 01189 444 444 |
| URL | www.mp3players.co.uk | www.pine-dmusic.com | www.riohome.com |
| **Features** | | | |
| Memory | 32MB | 32MB | 64MB |
| PC connection cable | Parallel | Parallel | USB |
| Memory upgrade media | SmartMedia | SmartMedia | SmartMedia |
| Display | ✔ | ✔ | ✔ |
| Backlight | ✘ | ✘ | ✔ |
| Battery | 2 x AAA | 2 x AAA | 1 x AA |
| Dimensions h x w x d (mm) | 85 x 62 x 18 | 85 x 63 x 17.5 | 90 x 60 x 17 |
| Weight (inc battery) | 72g | 72g | 100g |
| **Software** | | | |
| | D'Music Manager | D'Music Manager | Audio Manager, Audible Mgr, Sonic Foundry Acid Style |
| **Other features** | | | |
| | Digital voice recorder, FM radio, can be used as a mini hard drive, headphones | Digital voice recorder, can be used as a mini hard drive, headphones, carry pouch | Can be used as a mini hard drive, headphones, storage case |

| | DIGIT@LWAY | EISEN | HANGO | IOMEGA | MPMAN | PHILIPS |
|---|---|---|---|---|---|---|
| | MPIO EX-MP64 | DAP 96 | PJB100 | HIPZIP | F35-T3 | RUSH SA126 |
| | £159.95 (£136.13) | £229.95 (£195.70) | £595 (£506.38) | £289.99 (£246.80) | £159.95 (£136.13) | £269 (£228.94) |
| | 01753 570 800 | 01753 570 800 | 01425 480 838 | 01628 822444 | 01753 570 800 | 020 8665 6350 |
| | www.mp3players.co.uk | www.mp3players.co.uk | www.pjbox.co.uk | www.iomega.com | www.mp3players.co.uk | www.rush.philips.com |
| | | | | | | |
| | 64MB | 96MB | 6GB | 80MB | 32MB | 64MB |
| | Parallel | Parallel | USB | USB | USB | USB/Parallel |
| | SmartMedia | SmartMedia | N/A | Pocket Zip disk | Flash Memory | SmartMedia |
| | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| | ✘ | ✔ | ✘ | ✔ | ✘ | ✘ |
| | 1 AA | 1 x AA | 1 x Li-Ion rechargeable | Built in | 1 x AA | 2 x AAA |
| | 64 x 64 x 17 | 60 x 90 x 15 | 80 x 150 x 26 | 107 x 70 x 29 | 84 x 57.5 x 17.2 | 70.5 x 70.5 x 17.7 |
| | 78g | 80g | 280g | 189g | 94g | 85g |
| | | | | | | |
| | MPIO Desk | DAP Manager, Music Match (trial), Nex Encode (shareware), Audio Catalyst (Trial) | Jukebox Manager | Music Match Jukebox | MPMan | Real Jukebox |
| | | | | | | |
| | Can be used as mini hard drive, headphones | Carry case, headphones | AC adapter, case and carry strap, headphones | Headphones, carry case, 2x PocketZip disks | Digital voice recorder, FM Radio, Headphone remote control | Headphones, carry case |

| | S3 | SAMSUNG | SENSORY SCIENCE | SONY | SONY | VIVANCO |
|---|---|---|---|---|---|---|
| | RIO 600 | SGH-M100 | MP2300 | NW-E3 NETWORK WALKMAN | NW-MS7 MEMORY STICK WALKMAN | VMAX |
| | £169 (£143.83) | £349.99 (£297.86) | £229.95 (£195.70) | £249 (£211.91) | £299 (£254.46) | £176.25 (£150) |
| | 01189 444 444 | 0845 6000 600 | 01753 570 800 | 08705 111 999 | 08705 111 999 | 01442 403 020 |
| | www.riohome.com | www.virginmobile.com/mobile | www.mp3players.co.uk | www.sony.co.uk | www.sony.co.uk | www.vivanco.com |
| | | | | | | |
| | 32MB | 32MB | 40MB Clik! Disks | 64MB | 64MB | 32MB (2 x 16MB) |
| | USB | Parallel | USB | USB | USB | USB |
| | Memory backpacks | N/A | N/A | N/A | Sony Memory Stick | MMC |
| | ✔ | ✔ | ✔ | ✔ | ✔ | ✘ |
| | ✔ | ✔ | ✔ | ✔ | ✔ | ✘ |
| | 1 x AA | 1 x Li-Ion rechargable | 1xLi-Ion rechargeable | 1 x AAA | Built in | 1 x AAA |
| | 100 x 63 x 25 | 102 x 40 x 20 | 120 x 71 x 22 | 31.8 x 79.4 x 12.7 | 96.3 x 37 x 19.2 | 43 x 52 x 19 |
| | 88g | 100g | 198g | 45g | 70g | 30g |
| | | | | | | |
| | Rio Audio Manager | Samsung MP3 manager, Easy GSM | Digital Media Manager, Music Match | OpenMG Jukebox Music Management v1.2 | OpenMG Jukebox Music Management v1.2 | eJay MP3 Station, Pontis LED |
| | | | | | | |
| | Headphones | Dual Band Phone, combined hands-free headphones, infra-red modem, 99 number capacity, active flip | AC adapter, headphones, 2 x 40MB disks | Headphones, carry pouch | Headphones and extension kit, carry pouch, AC power adapter | MMC USB card reader, remote headphones |

# Editor's **Choice**

**T**he popularity of the MP3 format has grown rapidly. In fact it wasn't that long ago when the portable MP3 player didn't even exist. However, as indicated by the variety and number of players in this group test alone, the market is obviously buoyant. The main reason for the success of these devices is the MP3 (MPEG Audio Layer 3) format itself. Why? Well it is a question of size. Not so much the age old adage of bigger is better, but quite the opposite – MP3 files are small. Putting it simply, if you were to rip a five-minute track from a CD, around 50MB of memory would be required to store it. That's a fair chunk of space, making downloads and uploads quite tiresome. However, by applying MP3 compression this figure can be whittled down to a more manageable 3MB – achieved by encoding the data so that sounds inaudible to the human ear are eliminated. The MP3 format is not the only compression technique out there and another is Sony's own ATRAC (Adaptive Transform Acoustic Coding) compression system, first developed for the MiniDisc.

With one track taking up around 3MB it's quite clear that to make a solid-state player desirable, memory must be a key feature. Indeed, this aspect of a player has been widely represented in this group test, from built-in Flash memory and SmartMedia cards to Sony's Memory Stick, MMC cards, Iomega's Clik! or PocketZip disks, and even 6GB hard drives. Some memory types have advantages over others. For instance, with solid-state memory you have no moving

parts – ideal for skip-free listening while you are exercising in the gym.

Memory isn't the only reason these devices are so desirable. With portability in mind size matters again, but this time it's physical. The idea of music on the go is a winner, already demonstrated by the Sony Walkman. But, make the device too large and you're more than likely going to leave it at home.

So taking into account the above features we asked ourselves, 'what makes a solid-state music player a good solid-state music player?' Well, while a lot of it comes down to personal preference in terms of style and size, other factors such as sound quality, performance and cost are just as important and we considered those in depth too.

## The winners

As there were plenty of contenders – many of good quality – choosing the best was a tricky decision. To narrow it down a little we decided that a winning device should be able to carry at least 64MB worth of music (without memory upgrades), thus allowing us to eliminate those players with just 32MB of storage. These are not necessarily bad devices, but ones that, straight out of the box, we felt were limited.

With 13 remaining there has to be a winner and after considerable debate, the **Editor's Choice** award goes to **S3's Rio 500**, as it was the best all-rounder. Sporting 64MB of onboard memory (expandable to 128MB with a 64MB SmartMedia card), the Rio 500 was no slouch thanks to its USB connection, coming well above average in both of our

file transfer tests (see How we did the tests and graphs on page 235). In addition, it delivered excellent sound quality at elevated volume levels, while impressively squeezing out 13 hours of playback from just one AA battery. The Rio 500's firmware can also be updated, future–proofing it for any new developments. It isn't a bad looker either, with a sleek design and intuitive controls, all topped off with an excellent backlit display – ideal if you're out and about on those dark winter evenings. The supplied Audio Manager software is one of our favourites, and although we'd like to see it a little cheaper, at £199.95 inc VAT, the Rio 500 is the cheapest 64MB, USB-enabled player on test.

We decided to give out only one **Highly Commended** award this time because there was one device that we felt shone out from a very mixed bag of runners-up. The winner was **Sony's NW-E3 Network Walkman** because the *PCW* team felt it was the embodiment of what a solid-state music player should be – small and light. It also looked and behaved the part, with its brushed silver finish, nifty display and file transfer times that were the best on test here. Why didn't it get the Editor's Choice? Well it was close but we felt that some users may be put off by the lack of removable storage and if you have a library of MP3s these would have to be converted to ATRAC before you could listen to them. It also costs £49 more than the Rio 500.

As it's Christmas we thought we might mention one other player – the Creative DAP Jukebox. We just couldn't agree whether we liked it or not, so the office remained split right down the middle. What we can say is that at over £240 cheaper than the similarly specced HanGo PJB100, this is the player to go for if you want to store your entire, or at least a good portion, of your CD collection into one portable audio.

Before you dash out thinking that buying a solid-state music device is a quick and easy way to copy your mates' CD collections, bear in mind the legal implications. The law is rather grey at the moment and most people will not be able to tell you for definite whether or not you'll get in trouble if you rip your own music in the UK. Keep an eye on the ever-changing law and keep yourself out of trouble. The music industry and the rules that govern it move fast.



*S3's Rio 500 was the best all-rounder, with 64MB of memory and speedy transfer rates*



*Sony's Network Walkman is just what an MP3 player should be — small and light*