

Group test

USB DACS £165-£900

Bit perfection

Lee Dunkley unleashes hi-res music from his computer with six USB DACs

THE WAY WE listen to music is changing. Just a few short years ago it was the shiny silver disc that was the format of choice for many music fans looking to feed their hi-fi systems with the highest quality audio in either CD or SACD formats. But if the growing number of new digital-to-analogue converters (DACs) on the market and the increasing popularity for hi-res music download sites are anything to go by, then 2015 most definitely looks set to be the year of the high-quality music download and the USB DAC.

Conversion factor

As well as offering the latest file format decoding for 24-bit/96kHz or 192kHz music files from audio-grade chipsets, many of the USB DAC models on test here also cater for Direct-Stream Digital (DSD) music files originating from SACD music mastering at 24-bit/385kHz resolution. What's more, adding a DAC between the

USB output of your computer and your hi-fi system goes a lot further than decoding formats, and is an effective upgrade to every bit of audio that comes out of a computer's USB socket.

As many will know, using a computer as your source breaks just about every rule in the high fidelity audio book. There are plenty of ways a computer can degrade and interfere with the quality of the audio signal along its path, and taking the digital-to-analogue conversion out of its hands makes plenty of sense.

With such a diversity of options available, we have chosen to cover three 'portable' models with a built-in headphone amplifier for music fans on the move, as well as three 'home' models designed to be permanently linked between a computer and hi-fi system. It's a far reaching group, but one that should reveal the model best suited to your individual needs. To see how they perform, read on.



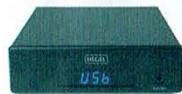
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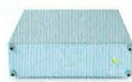
Denon DA-300USB
£329 p29
 This desktop DAC/headphone amp from respected AV brand Denon comes with a stand so that it can sit upright, and incorporates the company's proprietary Advanced AL32 processing as found on its upmarket disc players.



ADL X1
£395 p31
 A portable DAC/headphone amp from newcomer Alpha Design Labs capable of handling inputs up to 24/192, the X1 is just as happy sat between a computer and a hi-fi system or neatly piggybacked to an iDevice. But how does it sound?



Hegel HD12 DSD
£900 p33
 Another new brand to the UK, Hegel hails from Norway where it likes to do things a little bit differently. Don't be fooled by the simplistic styling at the price; this home DAC/headphone amp has some impressive capabilities to bring to any music system.



Henry Audio USB DAC 128 mkII
£210 p35
 This straightforward USB DAC from Norway supports formats up to 24/192. This latest model is the continuation of an open-source project started by a group of enthusiasts who wanted to make an affordable way to listen to hi-res music.



iFi Nano iDSD
£165 p37
 The cheapest by a good way, this portable DAC/headphone amp is housed in gorgeous alloy casework and is designed to give excellent value for money and serious sonics. But how does it fare among such exalted company?



LH Labs Geek Out M
£249 p39
 No prizes for style, but the dinky Geek Out M punches way above its weight. It's perhaps better known for the huge crowdfunding support it received, but this mini USB DAC/headphone amp has much to offer and promises to deliver great sound.





ADL X1 £395



No bigger than a smartphone, could this be the perfect choice to boost sound quality on the go and at home?

DETAILS

PRODUCT
ADL X1

ORIGIN
Japan

TYPE
Hub/battery-powered USB DAC/headphone preamp

WEIGHT
147g

DIMENSIONS
(WxHxD)
68 x 118 x 17mm

FEATURES
• 24-bit/192kHz DAC
• Format support: PCM 44.1-192kHz
• Quoted battery life: up to 7.5 hours
• Inputs: 3.5mm jack; USB-A port; mini USB-B port
• Outputs: 3.5mm analogue/optical; 3.5mm headphone/line level jack

DISTRIBUTOR
Sound Foundations

TELEPHONE
01276 501392

WEBSITE
soundfoundations.co.uk

Like the iFi Nano iDSD reviewed overleaf, this neat ADL X1 battery-powered DAC is designed to be used on the move piggybacked to a portable iDevice, and yet is flexible enough to sit between a computer's USB port and your main hi-fi system giving you the best of both worlds. The 24-bit/192kHz take-anywhere DAC claims to give around 7.5 hours of listening from its built-in USB-powered rechargeable battery for life on the road.

Build quality is high – it's easily the most stylish small DAC here – and is available with red, blue or silver anodised aluminium panels as well as the black version pictured. A selection of leads and adaptors are supplied to partner the X1 to your portable device or connect to the USB port of a computer. There's even a robust ADL-branded rubber band to secure it to your portable player.

In addition to the USB input, the X1 accepts line-level analogue sources via a 4-pin 3.5mm jack output and

the multi-input Toslink optical digital output on the underside. The headphone output drives headphones within the 12-600ohm range, and also supports models fitted with an inline microphone.

Six LEDs indicate the incoming sampling frequency, although the font is tiny and rather difficult to decipher. A rotary control operates on/off and volume level, and there's a selector switch for USB or iDevice connectivity alongside a ground TRRS button.

Sound quality

For its diminutive dimensions the ADL certainly delivers an impressive sound that's very easy on the ear. In some ways the dinky device has the biggest sound of the group, with oodles of bass definition and an open and airiness to treble notes that never gets splashy. Vocals are perfectly rendered and the 24/192 version of Madonna's *True Blue* allows me to hear right into the recording, picking up on subtle details that I've never previously noticed before buried within the recording. What's surprising is that the ADL manages to convey an engaging sense of timing and rhythm when playing this album, it's almost enough to make anyone listening want to move their hips.

A 24/96 version of Kate Bush's *Snowed In At Wheeler Street* has a lovely balance and richness to the piano that is utterly convincing and backed by impressive but not overly extended bass. Vocals have a smoothness and almost analogue

PERSONAL TOUCH

Alpha Design Labs (ADL to you and I) is a relatively new Japanese brand from cable specialist Furutech. In its short time on the planet, the Tokyo-based firm has specialised in a small range of affordable DAC/headphone amplifiers as well as on-ear and in-ear headphone models.

The main purpose of the X1 is to upgrade the sound quality from a portable music iDevice or a computer. With Furutech's cable background you can bet that good quality cables are provided to take care of the X1's flexible connectivity scenarios. Included in the box is a short (10cm) 3.5mm-to-3.5mm jack and 14-pin dock connector-to-USB cable for connection to older portables. Those with newer iDevices fitted with lightning connectors will need to factor in the additional cost of a suitable cable like the ADL iD8A, priced from £70. For charging and using a computer as your music source a mini USB-B-to-USB-A cable is supplied, but you'll need to purchase a 3.5mm jack-to-stereo RCA's to output it to a hi-fi amplifier.

quality to them that makes them easy on the ear and balances Kate Bush's silky vocals with Elton John's more velvety tones to great effect.

Again Pink Floyd's *Take It Back* in 24/96 form has a wonderful sense of airiness around guitar and percussion instruments that shows off this well engineered recording; there's not a moment's splashiness to drums and the track has plenty of drive.

No matter what material you play, the X1 has that rare ability to keep you listening for hours without any fatigue. Everything is smoothly rendered to show off recordings at their best with an impressive sense of scale and rhythm that just makes you want to keep on listening ●



Hi-Fi Choice

OUR VERDICT

SOUND QUALITY



VALUE FOR MONEY



BUILD QUALITY



FEATURES



OVERALL



LIKE: Analogue-sounding portable DAC that's effective both inside and out

DISLIKE: Attachment band doesn't feel particularly secure

WE SAY: Smooth operation and sound make this a great DAC for any pocket

Group test verdict

He's gathered his thoughts after hours of listening, so before he takes a rest with a well-earned cuppa **Lee Dunkley** sums up what he's heard

WITH SUCH A spread of models across both home and portable use this is a particularly tough test to sum up, but the minimalist Hegel is the first to fall. Although in many respects the HD12 DSD has to be admired for its tech choices, specification, superb build and finish (even if its looks are a bit austere), its poor ease of use and price mean it doesn't score quite so highly against the competition here. In no way would you be disappointed by the sound from this DAC, it's just that there are better options for less. Next is the Henry Audio; a mighty fine bit of kit that looks like it's

lacking flexibility, but in fact its open-source nature will appeal to tinkerers. Ultimately though, it's up against more flexible consumer models here, and its slightly forward sound may not be so appealing to all.

I love the iFi's styling, build, format support and general nature, it's just that sonically it doesn't surpass the ultra cool ADL XL, and its iDevice connectivity is cumbersome.

The slick ADL X1 is quite a cool portable solution with a good, balanced, analogue sort of sound that most people will feel they can live with and enjoy. It's reasonable value

too, with plenty of features and connectivity options and is a versatile device that gives the best of both worlds.

The Geek Out M from LH Labs is the kind of product that comes along every once in a while and breaks the rule book. It sounds far better than it has any right to given its diminutive dimensions, but with tech derived from the high-end Da Vinci DAC it's no wonder that it sounds so great. I wouldn't be surprised if the Geek Out is snapped up just as quickly as it attained its crowdfunding target.



WINNER

The Denon DA-300USB has got the looks and functionality of a great home DAC. It produces a great sound across all inputs and offers the flexibility to be placed upright using the supplied stand. Factor in its superb build and finish, and you have a very worthy winner.

| Make/model | Denon DA-300USB | ADL X1 | Hegel HD12 DSD | Henry Audio USB DAC 128 mkII | iFi Nano iDSD | LH Labs Geek Out M |
|------------|---|---|---|--|--|---|
| Price | £329 | £395 | £900 | £210 | £165 | £249 |
| Sound | ★★★★★ | ★★★★★ | ★★★★★ | ★★★★★ | ★★★★★ | ★★★★★ |
| Value | ★★★★★ | ★★★★★ | ★★★★★ | ★★★★★ | ★★★★★ | ★★★★★ |
| Build | ★★★★★ | ★★★★★ | ★★★★★ | ★★★★★ | ★★★★★ | ★★★★★ |
| Features | ★★★★★ | ★★★★★ | ★★★★★ | ★★★★★ | ★★★★★ | ★★★★★ |
| Overall | ★★★★★ | ★★★★★ | ★★★★★ | ★★★★★ | ★★★★★ | ★★★★★ |
| | Great package offering flexibility and style, put quite simply it's got the lot | Ultra sleek portable DAC that sounds just as great at home as it does on the move | Distinctive design makes this DAC the most charismatic of the group | Open-source tech to appeal to tinkerers, this simple USB DAC sounds good too | Great build and hi-res format friendly, but clunky design won't suit all | Mediocre build doesn't detract from the astonishing hi-res sound it makes |

Key features

| | | | | | | |
|------------|-----|-----|-----|-----|-----|-----|
| Coaxial in | Yes | No | Yes | No | No | No |
| Optical in | 2 | Yes | 2 | No | No | No |
| 24/192 USB | Yes | Yes | Yes | Yes | Yes | Yes |
| iPod | No | Yes | No | No | No | No |
| XLR out | No | No | Yes | No | No | No |

TRY WITH THESE

HEADPHONES: Focal Spirit One S £150 HFC 391

Few headphones manage to combine style and performance as successfully as this closed-back design. The smooth sound combines a well-integrated bass with a revealing level of detail, making them perfect for hi-res on the move.



INTEGRATED AMPLIFIER: Arcam FMJ-A19 £650 HFC 371

A mid-price integrated that's festooned with inputs and a useful amount of power. It wowed us with its rich and engrossing sound and makes listening a great pleasure, whatever type of music you're into.



STANDMOUNT SPEAKER: Monitor Audio Silver One £500 HFC 390

This super sounding standmount is available in beautiful wood veneer and gloss finishes and offers great performance at the price. You get plenty of bang for your buck with a big sound that's musically honest, detailed and enjoyable to listen to.

