



Arcam's wonderful little irDAC gets an upgrade. Martin Pipe listens in to irDAC-II.

It takes II...

What a difference two years makes! In 2014, we marvelled at the original irDAC (itself a development of the 2010-vintage rDAC), part of Arcam's 'RSeries' range of products pitched at tech-savvy listeners. Now we have irDAC-II.

Basically, the £400 irDAC was a converter that packed a lot into its deceptively-substantial little case – a flexible six inputs (including USBs, for superior PC audio and iPod playback), a remote control,

24-bit/192kHz sampling support, a TI/Burr-Brown PCM1796 DAC chip and audiophile-grade analogue components.

At the time, I described its performance as 'effortlessly musical' – and yes, the irDAC was very easy to live with. Very much a good all-rounder, then.

But much has happened since 2014. Numerous DACs have come our way, and in particular Chord has put a bomb under the market in the form of its Mojo and Hugo products – which also boast fine built-in headphone amplifiers.

Furthermore, the DAC market has had to accommodate rapid changes in music consumption. DSD support is now a must, USB connectivity enables your computer to act as a worthy source and woe betide the manufacturer who launches a DAC without integrated Bluetooth for streaming music from tablets and smartphones.

In the old irDAC Bluetooth and DSD playback were absent. Nor had provision been made for headphones; well, in 2014 a 'DAC was a DAC'...

The recent 2016 'reboot' of the

irDAC adds all these goodies – at the expense of the iPod USB port.

At £500 the new irDAC-II is a more expensive proposition; I was told that 'new replaces old' and so you'll need to pay that extra £100, even if you have no need of DSD, headphone drive or Bluetooth streaming.

Having said that, it's time to mention one of the other goodies. There's new DAC silicon under the bonnet – one of the ESS Sabre32 'wonderchips' (specifically, a ES9016K2M) that Noel raves about. Its 24-bit/384kHz abilities are supported here via USB.

But that's not all. There's little point in having a headphone amplifier without any means of adjusting volume, so the irDAC-II has a volume control. This variable output is available on a pair of phono sockets; concerned purists will appreciate that a separate (and simultaneous) 'fixed' output is offered too.

Other components include JRC 4556 high-current op-amps for the headphone output, a mixture of OPI652 and L49722 op-amps elsewhere on the analogue side of the DAC, a pair of muting relays, an XMOS microcontroller and asynchronous USB interface chip (Windows drivers – necessary for hi-res and DSD-over-PCM – from Arcam's website), a PCB-soldered Bluetooth module and a raised daughterboard containing the headphone socket and infra-red sensor. A short ribbon cable snakes off into the lid, the location of a third circuit board that contains the irDAC-II's top-mounted source indicators (optical 1/2, coaxial 1/2, USB and Bluetooth) together with buttons to

sequence through inputs, and

raise or lower volume. The interior layout is neat and tidy.

A good sign for reliability; I had the unit powered continuously for several weeks, with no trouble at all.

It didn't get excessively warm, and during my time

with the irDAC-

II I didn't experience a single playback 'glitch' or freeze-up. Thanks to its minimal design, it's also exceptionally easy to use; PC USB audio and Bluetooth spared me from head-scratching (although the LEDs can't confirm whether you're listening to DSD or PCM, never mind provide you with more in-depth information about your source). But one 'silly' was obvious. Given that its volume control is software-driven, why can't the irDAC-II 'remember' a different preset level for each input? That way, you won't get a sudden jump in volume after switching from one source to another. Hopefully,



The handset will remotely-change volume and select sources. Via something called HID (Human Interface Device) control, it will also 'give you transport control of a PC or Mac USB source'. What a pity the instruction book doesn't provide more details.

Arcam's talented software engineers can fix this with a firmware update that

owners can download and install (the irDAC-II supports these).

The manual hints at using the supplied remote – usually for DAC volume and source selection – to control music playback on other devices (smartphones, PC software etc). A potentially useful feature, but more explanation – along with a list of tried-and-tested products – is needed! In time, one hopes, Arcam will add such info to its online FAQ (Frequently Asked Questions) list.

SOUND QUALITY

Listening was via my Arcam A49 integrated amplifier, driving a pair of Quadral Aurum Wotan VIII floorstanders – and it has to be said that the modestly-priced irDAC-II did not disgrace itself in such distinguished company. I also tried the device with a much cheaper system based around an Onkyo A-9010 and Rogers GS6 speakers; its key virtues remained evident. Listening sources included a Samsung S4 Mini smartphone, Windows 7 PC and Cambridge CXN streamer. Most of the music played consisted of losslessly-compressed (FLAC) CD rips and hi-res content stored on a QNAP NAS box..

The first thing I noticed was how much detail is audible. Take Changes (CD-sourced FLAC) from the early '80s soul/funk band Imagination. In particular, the character of acoustic percussion like woodblocks emerged from the synthesised backing – and definition was excellent. The presentation certainly showed up the limitations of the era's sampled drums and cymbal crashes; music-production technology has itself undergone transformative 'changes' since then! The track's melodies



The irDac-II's XMOS chip contains the control micro-processor, together with the asynchronous USB port that unlocks the potential of PC playback and DSD-over-PCM. It has a neat but complex interior, reflecting its many roles and technological capability.

and vocals also fared well, as did the synth bass. This, and faster-paced dance tracks from a later era, revealed a gutsy and tight low-end that complements that of the A49. Yet it's not exaggerated; indeed the overall tonal balance of the irDAC-II can be best-described as neutral.

Those faster tracks didn't have quite the rhythmic 'snap' that I've heard with other DACs I've reviewed (albeit more

expensive ones, like the Chord Hugo TT). The supplied offboard PSU is a cheap 'wall-wart'; I wonder if a better one might help?

Stereo imaging was however superb. Radio 3 evening concerts, as received in 230kbps AAC form by the CXN,

proved to be most engaging, having an appropriate sense of scale and believable instrumental placement. That, and the detailing potential, make the irDAC-II a worthy contender for orchestral listening. Also demonstrating the unit's virtues to good effect (despite the more synthetic nature of the material) was Board of Canada's Palace Posy. Here, the stereo effect could be almost holographic in nature – especially through headphones (in this case, Oppo PM3s).

On which subject, there's no shortage of headphone drive available. Even with hard rock (Black Sabbath, Queens of the Stone Age) this unit never ran out of steam. At high levels, the delicacies weren't washed out. A listen to DSD tracks (Emily Palen's Light in the Fracture, Blue Coast) rewarded me with stunning sonics; an ability to

of aptX compression for your music's journey from smartphone to DAC. Although lossy, aptX is one of the better-sounding systems out there and so if your source device supports it you can expect to get the best from your portable music collections. I was surprised how good Bluetooth can sound, with none of the 'grittiness' of lesser implementations. The superb



The irDAC-II has two optical and two electrical S/PDIF inputs, plus USB. The Bluetooth receiver has an aerial, seen here pointing skyward. The two analogue outputs (variable, as well as fixed) hint to another new feature – control over volume by remote control.

recreate the performance space, together with the nuances and timbres of some fine solo violin. The caveat is that I had to configure my PC for DSD-over-PCM correctly (Foobar 2000 player), using past procedure. Unfortunately, Arcam has thus far not yet provided a setup guide. Even if I was listening to something that had been converted into PCM rather than a DSD stream, though, the results were far more than acceptable.

Bluetooth here takes advantage

resolving-power of the irDAC-II reveals some masking of subtleties, compared to the same track being played to another input from a compressed source – but the result is highly-enjoyable nevertheless

CONCLUSION

The irDAC-II is a versatile little DAC with plenty of features and an engaging performance. Its resolution and soundstaging prowess will appeal to classical enthusiasts with restricted budgets, but Rock rocks as well.

MEASURED PERFORMANCE

The irDAC-II remains simple but effective, returning an impressive 119dB dynamic range value from its Fixed unbalanced phono socket, with 24bit digital; there is no balanced XLR.

The Variable output, USB input and Headphone output all measured 117dB dynamic range because of intervening circuitry, but this is still a very good result.

Dynamic range with CD (i.e. a 44.1/16bit input) was 102dB and distortion at -60dB 0.22% – normal values.

Arcam's irDAC-II offers more dynamic range than most rivals, but it's not quite up with class leaders.

Frequency response reached 76kHz with 192kHz sample rate digital and was flat to 21kHz with CD, so the irDAC-II measures well in terms of bandwidth. USB supports up to 384kHz sample rate. Output measured 2.1V from the phono sockets and 4V from the headphone

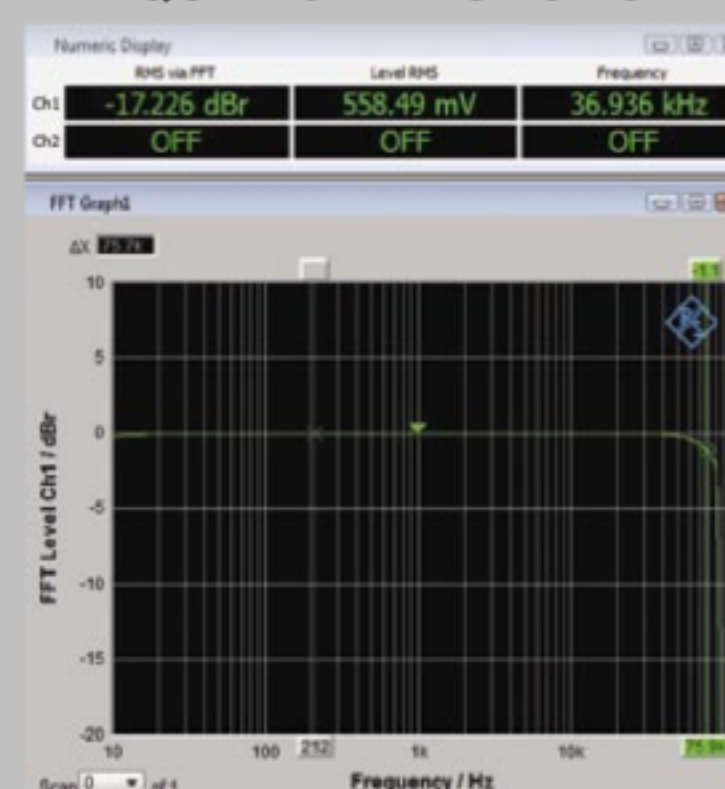
socket. It's impressive that Arcam can tease such high dynamic range from phono; it usually takes balanced XLR to do this. Headphone output is very high at 4V, way beyond the 1-2V most deliver, so the irDAC-II will come over as very loud, but clean by having 117dB dynamic range here.

Arcam's irDAC-II is very slickly engineered to provide great results in a system where balanced working is not possible. It does it all – and very well at the price. **NK**

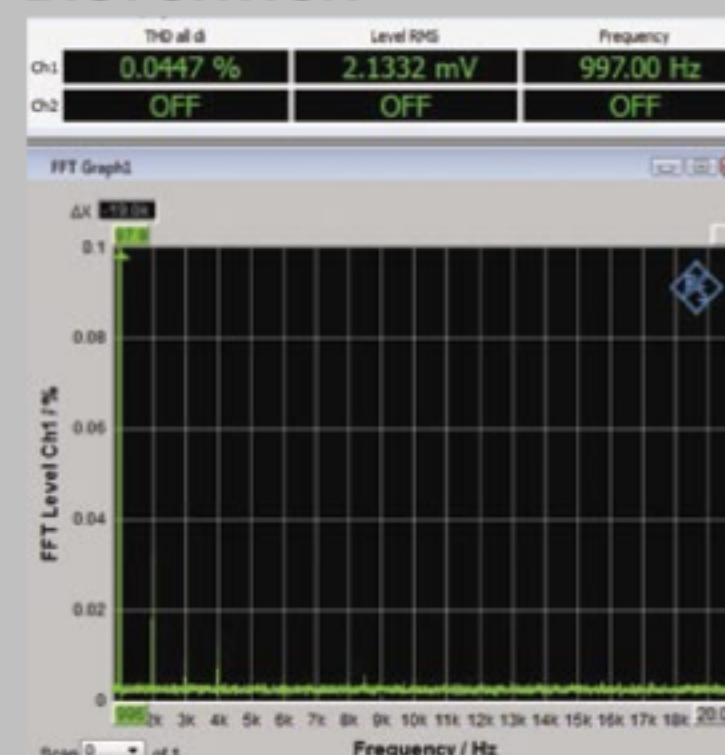
Frequency response (-1dB)
CD 10Hz-76kHz

Distortion (24bit)
0dB 0.0002
-60dB 0.04%
Separation (1kHz) 106dB
Noise (IEC A) -117dB
Dynamic range 119dB
Output (Phono/Hphone) 2.1 / 4V

FREQUENCY RESPONSE



DISTORTION



ARCAM iRDAC-II £500



OUTSTANDING - amongst the best.

VALUE - keenly priced

VERDICT

A superbly capable DAC at a great price.

FOR

- impressive sense of scale and detail
- excellent connectivity
- headphone amplifier and Bluetooth

AGAINST

- new features should be better-documented
- doesn't store different volume level for each input

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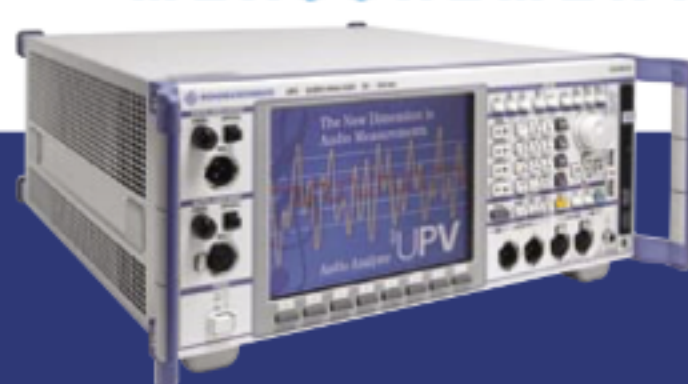


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