



EQUIPMENT REVIEW

Naim DAC digital converter

by Alan Sircom and Malcolm Steward

Naim Audio never made a DAC, in the same way that it never made a CD player. In other words, it doesn't bring out a product just to fill a range or even because it's fashionable to do so. It brings out a product because it can finally add something substantial to the line-up. Which is why Naim Audio has its first DAC.

The development of the DAC shows just how much commitment the company has to its future. This is a product designed to bring out the best in its computer-side sources (such as the HDX hard disk player tested last year, or with a plug in drive, any passing PC or Mac or even the much-loved and much-under-rated Squeezebox). That it can be used with a CD transport or an existing Naim CD player is almost a secondary consideration.

The DAC itself uses a pair of PCM1704K chips by Burr-Brown, a regular feature in Naim players. But before the data makes it to the DAC itself, the datastream is read into a SHARC DSP that acts as data receiver, filter for out-of-band artefacts and acts as a 40bit, 16x oversampler and a buffer. This is aided by a tin of salmon and a Blackfin DSP chip, which controls both USB and the DAC, and a reclocking gate circuit directly prior to the DAC chip (I'm lying about the tin of salmon). It's also the first high-end DAC with an Apple Authentication Chip, meaning it will talk to iPods and iPhones.

Cleverly, the DAC makes jitter a thing of the past, without resorting to asynchronous sample-rate conversion. Instead, it references the datastream to one of 10 fixed frequencies and the SHARC chip picks out the right oscillator to clock-lock the signal. If the signal doesn't fit one of those 10 frequencies, then it falls back on ASRC. Naim did this by hiring a pair of the sharpest-tool-in-the-box mathematicians to write some extremely elegant code.

The key thing to the DAC is its simplicity, inside and out. That being said, the five buttons on the front make it one of the most button-heavy DAC out there. These can work to control the files on a USB thumb drive, or select one of eight S/PDIF and additional USB digital inputs on the rear panel. The

DAC's big feather in its cap (aside from the uniqueness of it being the first DAC from hitherto DAC-deniers Naim) is it can handle recordings at a sample rate of up to 768kHz and at 32bit resolution. Of course, you have to ask whether this makes a difference to mere mortals armed with 44.1kHz, 16bit CD files transferred to computer, but it suggests that Naim's own music label is going to start moving from big high resolution downloads to really big, really high resolution music downloads soon.

But forget the sort of high-res files that only studio engineers can get a hold of right now. How does it sound with regular music, off regular music CDs? Jolly damn fine, really. It's immediately obvious and recognisable as an upgrade of the first water. It's obvious because you listen to something played perfectly fine without it, play the same thing with the DAC in place and wonder how you could ever live with the sound you had liked or even loved a minute or two before. It's more three-dimensional, more detailed, more transparent, more musical and most of all more likeable than before. That doesn't mean they were 'nice sounding'; play a piece of music that was rough-edged and it sounds just as rough-edged, but you want to listen to the music more.

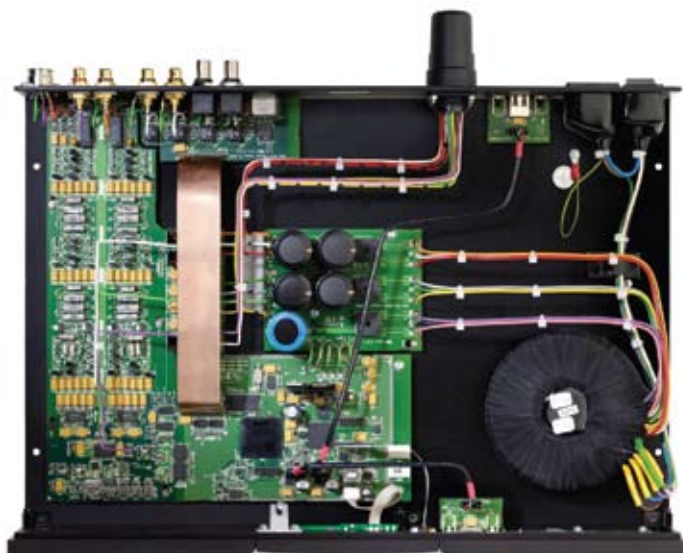
A key recording that demonstrates all of the above is 'Butterfly' by Jason Mraz. It's a wry, deliberately syrupy-soul track with some of the most dodgy (and downright rude) sounding lyrics you've heard since the 1980s. And on through the DAC, those lyrics stopped sounding like soft-core porn and started sounding like sarcasm. Other tracks were given the same treatment through the DAC. It just gets more out of the music. Whether you flipped between DAC and no-DAC within a single track or spun out whole albums, the difference was clear and hard to live without once heard.

“Adding a beefy power supply adds a lot more to the performance, although more in the ‘audiophile’ direction than the ‘Naimophile’.”

But there's that other great Naim concept, too – the upgrade path. Adding in a beefy power supply adds a lot more to the performance, although curiously I'd say more in the 'audiophile' direction than necessarily the 'Naimophile'. The upgrade gives even more image space, solidity and separation and could get even the flattest of flat earthers starting to talk about micro-dynamics. The improvement is noticeable and significant, although it must be said so is the hole that added power supply makes in your bank balance. The upgrade doesn't have to happen at time of purchase and is an easy fit (simply remove the Burndy plug protector and connect in the PSU, the power feed to the DAC remains in use), allowing you to buy a five or even seven grand DAC in stages.

Here's where it gets a bit twisty. I compared the DAC fed from a Naim HDX and a Naim CDX2 player, in the context of an all-Naim system into Focal loudspeakers at Infidelity, in Hampton Wick. The HDX alone was not as exciting as the CDX2; the HDX+DAC was a lot more dynamic, musical and exciting than the CDX2, but the CDX2+DAC sounded muddled compared to the HDX on its own. This was true whether or not the DAC was had been through the 'pimp my power supply' upgrade. Given the DAC was fine dealing with USB sticks, HDXs and more besides, I suspect this is down to a simple mismatch, probably on the CDX2 side. I don't think it means 'not for use with CD'!

My only real grumble about the Naim DAC is that it will spend most of



SECOND OPINION

Naim refuses to produce “me too” products; those that exist merely because every other manufacturer has one in its portfolio. On the contrary, Naim insists that its products perform better, fulfil more requirements, or, ideally, meet both of those criteria. The DAC is no exception.

Listening proper began with rips of Jose Carreras performing Ariel Ramirez' 'Misa Criolla', starting with the Kyrie. On a bare Naim HDX, the presentation was excellent. Adding the DAC was dramatic to say the least. Carreras came closer to the listeners and his voice gained in terms of detail and expression: not only could I visualize him and the choir behind him much more clearly but the music began to communicate with me far more effectively. Adding the XPS to the DAC, and the transformation of the performance was astonishing.

Sure, the DAC was digging out far more information and was constructing a three-dimensional acoustic, but the biggest leap forward was in terms of the sheer communicative ability. Every element in the mix, especially Carreras' wonderfully pure upper registers, was making its presence felt and establishing its relevance to the music. The DAC performed real magic with this striking 1987 recording, transforming it from being excellent on the HDX to downright bloody magnificent on the full Monty, HDX/DAC/XPS.

The next album was an old favourite that I had recently ripped to the HDX, Los Lobos' rather... experimental *Kiko*. The DAC enjoyed this greatly, because it gave it so much to work with. The upshot was that after listening to the entire album – several times – I came away with a new-found respect for David Hidalgo and the boys. Their rhythmic cohesion suggests that there is some sort of telepathic communication going on between them. The DAC highlights this aspect...



► its first year or two being demonstrated in the context of Naim electronics. Nothing wrong with that... except people not in the Naim camp might wrongly think of it as a product for Naim users only. That's missing the point altogether – think of this as a gateway DAC.

You see, the DAC has all the usual attributes of the Naim sound (a very ordered, dynamic and musically-focused presentation) but also comes with the sort of performance aspects that would charm any other brand of audiophile (great stereo, image depth, scale and tonal accuracy). You'd struggle to imagine a guy with a system comprising single-ended triodes and horn speakers signing up for a Naim CD player, but you'd struggle to imagine them not liking the sound of the Naim DAC. Yes, it's a product that every Naim HDX owner will be salivating over and the queue to hear and buy one among that user-group is growing almost hourly. However, it's also the DAC that would make non-Naim 'muggles' start to think kindly of products like the HDX. Pretty soon, they start using black boxes on a daily basis and begin upping the dosage with an amp, then a power supply or two.

That's the thing about the Naim DAC... it's addictive. +

SECOND OPINION (CONTINUED)

...of the band's performance not just because it is especially adept at resolving leading – and trailing – edges but because of its control at the frequency extremes.

Listening to music through the Naim DAC proved it could be both an educational and a visceral experience: not only does it reveal exactly what is being played but it also strongly suggests why the performer played it that way. It is a facility that is infrequently encountered with DACs – or, indeed, any other components. Little hi-fi displays such genuine true musical empathy. Even less understands there is so much more to creating a satisfying performance than simply putting the right notes in the correct order. It takes far more than that to allow a listener to forge an emotional connection with a recording... and whatever that 'more' element is, the Naim DAC has it in spades.

One final point, I tried connecting the DAC with an early sample of Naim's DC1 Digital cable but comparison with the Chord Company's Indigo Plus digital showed that the latter sounded distinctly superior in my system. In truth, I felt that Naim's cable did the DAC no favours at all.

Chord cable or not, the departure of the review DAC was a harrowing experience and I am finding the wait for my own sample seemingly interminable. I only hope that those in front of me in the queue appreciate just how very fortunate they are.

Malcolm Steward

TECHNICAL SPECIFICATIONS

Naim DAC digital converter

Audio Outputs: 2 (RCA and DIN, selectable) Line output Fixed: 2.2V

RMS Frequency Response: 10Hz to 20kHz +0.1dB/-0.5dB THD: <0.002%

Inputs: Digital Inputs: 8 (2 coaxial BNC, 2 coaxial phono, 4 optical toslink) USB: 2 (one front one rear, the front overrides the rear)

Control: IR input: front and rear panel IR output: rear panel socket

Formats: Audio files supported: USB = WAV (LPCM up to 768kHz / 32bit)

Sample Rate: USB 32kHz to 768kHz, 24bit S/PDIF 32kHz to 192kHz, 24 bit iPod, iPhone 48kHz max

Supply Voltage: 100V, 115V, 230VAC, 50/60 Hz Power Consumption: <30VA (max inc iPod charging)

Shipping dimensions (H x W x D): 240 x 590 x 500mm

Dimensions (H x W x D): 70 x 432 x 301mm

Weight: 5.6kg

Colour: Black

Finish: Anodised fascia, painted case

Price: £1,950

Manufactured by

Naim Audio Ltd

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