Merging NADAC digital converter

by Alan Sircom

Merging might not be one of those names that trips off the audiophile tongue, but if you scratch the surface, this Swiss company has one heck of a pedigree. The company is extremely well known in the high-end pro audio world and Merging's Pyramix Virtual Studio suite is the gold standard in album publishing and mastering. Let's put it this way; unless your music collecting came to an abrupt end a few years ago, the chances are some of your best-loved recent albums were recorded or mastered using Merging's Digital Audio Workstations.

Perhaps more relevant given the NADAC tested here, the best studios around the globe often feature Merging's Horus or Hapi 'analogue sections' – robust, network-enabled multichannel DACs, designed for optimal conversion in monitoring and analogue applications in the sort of studios where they bandy around terms like 'mission critical'.

The networked Merging NADAC is close to a consumer version of the Horus and Hapi converters used in those studios, and as Pyramix is *the* DSD recording system (developing DXD in collaboration with Philips in the process) it's little wonder the NADAC is very DSD-friendly. Using the super-robust RAVENNA audio-over-IP networked audio in place of UPnP or USB/DoP, the NADAC is the closest you'll get to the sound of DSD in the place it was mastered, with phenomenal detail and soundstaging. NADAC even allows completely independent control of the built in headphone amplifier, even to playing entirely separate music files.

The domestic NADAC comes in two flavours – two and eight channels. The logical choice for a two-channel audiophile is not automatically the best one, especially as there's less than a grand between the two. In fact, the NADAC is built around the high-performance eight-channel ESS Sabre ES9008S D/A converter, and in the NADAC's eight-channel guise, these

channels can be summed into respective left and right digital outputs from the menu. Summing eight-into-two should give slightly superior linearity, a greater dynamic range and a lower noise floor over the two-channel only version. We tested the eight-into-two configuration.

Because the NADAC runs genuinely balanced outputs, you can also use the eight channels to drive stereo balanced lines around the house, for example. Because it's very much a network-enabled DAC (actually, if we are being brutally honest, the NADAC is so linked to its network, the point where 'network-enabled DAC' ends and 'the best dirty great sound-card in history' begins is very blurred here), the single AES/EBU, and S/PDIF coaxial and optical inputs are very much on the 'legacy' side of things. It does, however, include a word clock input, which is again a nod to its studio heritage.

The clever thing about the NADAC's network robustness is it makes the converter hugely capable, flexible, and load tolerant. You can stream different music to the line-level outputs than to the headphone sockets, and you can configure the DAC as a network preamplifier, or assign full scale output to the ▶

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▶ line outs, but retain volume control over the headphone socket, all of which is software driven from the small, but surprisingly informative, front panel.

The downside to this call for network robustness – in fact, the sole downside to the NADAC in a domestic setting – is Merging takes a more belt-and-braces approach to digital system design than every other domestic DAC on the market. This is not deliberate obfuscation and the reasons for this uncompromised approach is predicated on good, solid digital engineering you need to perform when you are building converters for broadcasters who demand electronics that are not fazed by any environment. However, this means there's no USB port fitted to the NADAC because Merging suggests USB isn't as fault-tolerant under static electric discharge: the level of static discharge we're talking about here would effectively destroy most computers anyway, but in a studio environment the tools must survive.

Similarly, Merging eschews UPnP and DLNA protocols for networked audio, instead running under RAVENNA/AES67 Audio over Internet Protocol (AoIP) standards. RAVENNA is commonplace in the studio, and is designed for large scale, low latency, and highly stable audio transmission across Gigabit Ethernet LAN. This is fantastic news, because your audio replay is dropout-free, and used with a wireless router and any device with a web browser, fully remote controlled. However, RAVENNA demands a wired network, fixed IP addresses, and managed switches, which limits the number of options open to the end user and raises the typical cost of the audio Ethernet network itself. That being said, if you are spending more than £7,500 on a DAC, then spending £150 instead of £50 per network switch is no biggie, and Merging's website has a list of recommendations. Installing a RAVENNA-compatible network is entirely possible for those without a black belt in TCP/IP, but if you are more used to constructing *ad hoc* domestic networks, the uncompromising nature of that RAVENNA backbone is shifting up several gears. In a similar vein, the NADAC supports PCM (up to 24 bit/384kHz precision), DXD, and DSD 64, 128, and 256. That's it: it doesn't upsample, it doesn't over-sample, and it doesn't play MP3. In short, it's refreshingly resolute.

This shouldn't be considered a criticism of either RAVENNA or the NADAC. Our plug and play domestic network infrastructure perpetually hovers on the brink of falling over, and that network robustness can only be guaranteed by using a system that takes RAVENNA's belt-and-braces approach. And it comes from a place where 'have you tried turning it off and turning it on again' would involve three hours of powering down and rebooting a whole studio. If you want that kind of absolute reliability in your networked audio replay, RAVENNA isn't overkill – it's just the right and proper way to do things.

The 'pro' heritage also kicks in when you boot the device up (remembering that it's essentially a computer rather than a DAC, so it's best to power it down from the menu than use the pyramidal power button on the front panel). It takes a little less than a minute to start and the same to stop. And then, the amount of time it needs to get stable is… zero. As it boots up, it is ready to roll. ▶

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▶ OK, close scrutiny does suggest there are a few minutes of getting to optimum thermal operating temperature, but the improvements are minimal. The test NADAC arrived fully run in from several audio shows, so we cannot speak as to its need for 'running in', but judging by its no-nonsense demeanour in general, I'd imagine such concepts are alien to the NADAC. It just works!

Just as professionals use its rack-mounted brothers to act like a searchlight on the recording, so the NADAC acts on both their work and, although a significantly lesser extent, the system. The engineer puts a microphone out of place, or maybe goes a little too valvey-syrupy in the choice of microphone preamp (the words 'tube mic pre' are all the rage in the studio world right now) and you'll hear it. Maybe not with quite the stark surgical precision of a control room, but that comes down to our choice of partnering equipment. Nevertheless, what you get from the NADAC in your system is a level of musical focus and shading that is extremely rare in audio.

The chances are, in listening to this, you'll reach for a high-resolution recording, and very probably something out of 2L's excellent catalogue: it actually doesn't matter which 2L recording, they are all routinely excellent. However, with the NADAC in place, you hear why they are so good and how sophisticated Morten Lindberg's recording techniques are. Nothing is left to chance in the studio, and nothing is the slightest bit out of place. Once you begin to discover that Lindberg has a Merging DAC in his arsenal, and uses it to ensure nothing is left to chance, you begin to understand how good the NADAC is at communicating the intent of that engineer. Move slightly south to the Netherlands, and all those remarkable DSD recordings from The Spirit of Turtle and you get the same effect, for the same reasoning. It's not just classical music, it's not just DSD, and it's not just the latest output from European studios that benefits from using the NADAC: this converter is so transparent to source, you can hear deep into any recording you pass through its curvy case. Yes, there are DACs with a more easy presentation than the NADAC, but this usually comes at the expense of softened transients or a rolled off top-end. Only a tiny number of digital devices I've heard manage to combine all those virtues without a significant downside, and the NADAC is the most affordable DAC on that select list.

If I give the impression this is best used for Pyramix-made material, or that all that detail makes NADAC a converter of stark and barren honesty, that is far from the intention. You can – and will – point the NADAC at all kinds of musical genres and come away impressed at the results. At least, impressed by the mix if it's a good mix. The NADAC is extremely demanding of source material and doesn't suffer excess compression gladly. If a recording is bright or toppy it will let you know, and if a recording is made with thumpy, lumpy bass, you will hear thumpy, lumpy bass. Interestingly though, it's not so demanding that it will make these recordings unlistenable, and cuts through the mix well. Listening to less well-recorded music through the NADAC is more like writing a report card on the recording than limiting your listening. ▶

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► When the recording is good and the music is great, though, the NADAC is a joy to listen to. The honesty of the Merging device simply makes it seem like it is playing music totally unconstrained by the electronics. 'Welcome To My World' by Depeche Mode [*Delta Machine*, Mute] is a perfect example of this, with its powerful and deep synth bass starting and stopping sharply in the verses it's a striking piece of demonstration-quality audio and that comes across perfectly here. However, with heavy string and choral sounds, and Gahan's large-scale bombastic vocals, this track can also turn into a loud mess during the crescendos, but on the NADAC remains on track and both enjoyable and dynamic.

There's one last box to tick – the headphone amplifier. This can be run as an entirely separate stream to what's playing through the rear panel outlets, and in set up you can assign fixed output to the rear panel feeds, and variable to the headphone amp (using the controller on the front panel as a volume knob). I also love the idea of having separate 3.5mm and ¼" jack sockets; they are identical in performance, but having both saves scrabbling round for an adaptor. The headphone amplifier itself is excellent, retaining all the precision, detail, and transparency of the line outputs. It isn't the most powerful of headphone amps, and those determined to drive torturous, no quarter given headphone loads might be better served using one pair of those eight XLR outputs to drive the custom-made dedicated headphone amp of their choice, but as a one-box solution, there aren't many devices that will better it. Once again, Merging's pro roots are showing here, as it makes a fine partner to detail-orientated headphones.

The NADAC shows its true colours in the headphone space in a way. Not because of sound quality or drive potential, but by virtue of how close to the NADAC you will likely be when using headphones. Although it is also browser controlled, its navigable on-screen menu system is shown in an inch-square front panel in tiny legends, that only the eagle eyed could see beyond arm's length. If you are using the control surfaces and display on the NADAC, you need to be very close to the DAC. Headphone close.

The Merging NADAC has an important tale to tell audiophiles – it shows us that what the pros really work with is really good quality equipment, after all. Moreover, it makes a good case for saying RAVENNA should be more common in domestic audio. If it were, the NADAC is the kind of DAC I could seriously envisage using as a reference point. The Merging NADAC is about the most accurate and precise digital listening tool I can think of. Very highly recommended. **+**

TECHNICAL SPECIFICATIONS

Type: Open-Standard Network Attached DAC

Digital inputs: Ethernet (RAVENNA/ AES67) on RJ45 connector, AES/EBU XLR, S/PDIF Toslink and RCA Phono, word clock input on BNC connector

Analogue outputs: 2/8 XLR outputs, 2/8 RCA outputs, ¼" and mini-jack headphone sockets

Precision: S/PDIF to 24 bit/96kHz PCM; AES/EBU to 24 bit/192 kHz PCM; Ethernet to 24 bit/384kHz PCM, DXD and DSD 256 maximum

Formats supported: PCM, DXD, DSD

Impedance: 40Ω (XLR and headphone output), 20Ω (RCA)

Max. output level: 6.1Vrms (XLR), 2.1Vrms (RCA), 4Vrms (headphones)

THD+N: 0.00022% (multichannel XLR and RCA), 0.00016% (stereo XLR), 0.0002% (stereo RCA), 0.00028% (headphones)

Dynamic range: 124dB(A) multichannel XLR, 130dB(A) stereo XLR, 120dB(A) stereo XLR, 123dB(A) stereo RCA and headphones

Dimensions (W×D×H): 43.5×43.5×9.5cm

Weight: 11kg

Price: £7,640 (2ch), £8,400 (8ch)

Manufactured by: Merging
URL: www.nadac.merging.com

Distributed in the UK by: Emerging
URL: www.emerginguk.com
Tel: +44(0)118 402 5090