

# Digital Audio Denmark ADDA 2408

For anybody with a significant investment in digital recording and/or mixing, the first items of equipment to come under scrutiny in the quest for sonic transparency are the converters employed. JON THORNTON is blown away by this top-end Dane.

**T**HE ADDA 2408 from Digital Audio Denmark is one of a number of recent, and not-so-recent, entrants to the higher end of 8-channel A-D and D-A converters. What makes DAD's effort distinctive is the flexibility on offer as a result of its modular processing arrangements.

To understand the significance of this, it's worth starting at the back panel of the unit, where a 'bare' unit would exhibit 8 XLR connectors for analogue inputs (mic or line), a further pair of XLRs for analogue or digital stereo output, and BNC and XLR sockets for video, wordclock or AES11 sync inputs together with a wordclock output. In among all of this are eight blanking panels that can be filled with a variety of additional I-O options. These include TDIF, AES or ADAT lightpipe cards giving 8 channels of digital I-O. A Pro Tools card allows direct 'host' connection to a Pro Tools Mix 24 system (Tools sees the device as an 888/24 interface – albeit only working at sample rates up to 48kHz) and there are also cards giving 4 or 8 channels of D-A conversion. Multiple options can be simultaneously installed, and their inputs and outputs selected from the front panel.

The review unit shipped with a Pro Tools interface, an 8-channel AES card, a TDIF card, and a card that offers individually addressable optical, SPDIF and AES digital I-Os. If this wasn't enough, the ADDA 2408 comes as standard with eight high quality mic preamps built in.

With such a plethora of options and I-O possibilities, I was expecting this unit to be confusing to operate, but once you grasp a couple of fundamental user interface principles it's actually very straightforward. Each pair of the eight possible inputs has a selector switch that toggles through the available inputs skipping over any uninstalled options. Selecting a pair of digital inputs from an I-O card that supports multiple pairs (for example, the Pro Tools interface, TDIF or 8-channel AES options) will select the logical channel association. In other words, setting the ADDA 2408's input channels 5 and 6 to TDIF will assign channels 5 and 6 of the T-DIF port to those channels.

Selecting an analogue source – and the three choices here are line level and mic level with or without phantom power – brings into play the data entry knob on each of the unit's eight channels. With a microphone input selected, gain is adjusted in 0.5dB steps (although you aren't aware of it, the unit steps through analogue gain increments of 3dB, interspersed with digital gain steps of 0.5dB). Each input channel has an associated peak-reading meter, and each pair of channels has a small LCD display – which at this stage shows the amount of mic gain added.

Moving further along brings you to ten buttons that perform global or system level functions. In among selecting sample rate, sync reference and dither options is a button that, when pressed repeatedly, toggles



through a number of options for each input channel that can be set using the relevant data entry knob, regardless of the type of input selected. These options are a switchable high pass filter (80Hz), phase reverse and a variable delay of up to 100ms on each channel. Each of these parameters can be viewed or altered for each of the eight channels by pressing and holding dedicated 'short-cut' buttons located along the top of the unit.

Each of the eight input sources are passed directly to the logical digital outputs of all multiple channel I-Os that are fitted. Analogue inputs are sampled at the unit's current sample rate, and dithered to the selected bit depth. Digital inputs operating at a different sample rate to the unit's current sampling rate are automatically detected and sample rate converted, and sent to all digital outputs in the same manner.

This means that a single interface unit, with the appropriate options installed, could preamplify, phantom power and convert a pair of microphone signals, do the same for a pair of line level analogue signals, sample rate and format convert a pair of ADAT, and a pair of TDIF signals – all at the same time. The only significant caveat to this is that the multichannel I-O options can only operate at one unified sample frequency for input and output. As an example, if your TDIF input is being presented to the unit at a different sample rate to that selected on the front panel, the signal will be sample rate converted but not sent to any multiple output that is not operating at the 'system' sample rate.

The flexibility of this unit doesn't end there – as it also features a clever 8:2 monitor mixer. This can be fed from the selected analogue or digital sources on each channel, or directly from the inputs of any of the installed cards.

Level and pan can be set for each of the eight monitor channels using the same user interface described above, and the output of the mixer can be user-selected to appear on the output XLRs as an analogue signal or as one AES pair. If an AES output is selected, this signal can be cascaded into multiple ADDA 2408s by feeding it into the AES11 sync input of additional units. The monitor output can be listened to via headphones.

So, an impressively flexible unit, but how does it sound? With the price tag (UK£3999 inc. VAT) commanded by this device, you would expect it to



sound special – and it doesn't disappoint. The mic preamps are quiet, open and transparent – and the quality of analogue to digital conversion is exceptional – particularly when really looking at that problematic low end. Sample rate conversion is also refreshingly free of any perceptible audio artefacts, which was a relief as the review unit got me out of a sample rate hole almost immediately after it arrived.

Despite initial impressions, the user interface is well designed and works very well indeed. DAD has sensibly included warning indicators for carrier present, digital sync alarms, and digital overload conditions when using the monitor mixer.

In summary, it's hard to find anything to dislike about the unit. ■

**PROS** Terrific converters; intuitive (after a while) user interface; flexible options and assignment.

**CONS** Not a 'cheap' option; some users may not require all the flexibility on offer.

**EXTRAS** DAD's 2402 is a 2-channel converter that supports sample rates from 32kHz to 96kHz in 24-bit. A variety of connectors are available for easy interfacing to professional and consumer environments. It has a peak programme meter and dither and is full duplex.



## Contact

### DIGITAL AUDIO DENMARK:

Tel: +45 72 203555

Website: www.digitalaudio.dk

UK, Systems Workshop +44 1691 658550