

# Benchmark ADC1

Defined as the front end that sets the tone of any recording exercise, A-DCs are frequently overlooked and stuck on as an afterthought to channel outboard. **ROB JAMES** enjoys a stereo analogue to digital convertor from a 'most wanted' manufacturer.



**T**HE WHOLE SUBJECT of analogue to digital and indeed digital to analogue conversion is a minefield. If there is one area of professional audio where the mumbo-jumbo and witchcraft that afflicts the world of hi-fi has established a toehold, then this is it. Why? Simply because there is no engineering solution guaranteed to produce the 'best' sound. Audio Precision tests might tell some of the story but really, do we care? As a manufacturer's tool an AP is absolutely invaluable but, when it comes to selecting a convertor for a real application, even reliable statistics just don't tell the whole story. Certainly, there are a considerable number of dos and don'ts but, ultimately it all comes down to listening tests and opinions of the golden (and even the not so golden) eared.

When I reviewed Benchmark's DA-1 stereo digital to analogue convertor last year I had never heard of the company and wasn't expecting anything special. In the event, the DA-1's transparency and veracity pleasantly surprised me. It remains high on my 'wanted' list. This gives the ADC-1 a lot to live up to. It has been some time coming. Benchmark says it would rather be late than release a product it is not entirely happy with. Software manufacturers take note!

The ADC1 is a 2-channel, 24-bit, 192-kHz capable analogue-to-digital audio convertor. As with its companion DAC1, the UK£1299 (+VAT) ADC1 seeks to challenge at the highest level, yet maintain an affordable price point.

Like its sibling, physically the unit is an imposing, black, 1U, half-width box with built in multi-voltage power supply and rack ears. A joiner enables two units to be mounted side-by-side in a 1U rack space. Benchmark also offers the Rackpack, which mounts three half-width modules in a flight case, one above the other.

Analogue inputs are XLR balanced. Digital outputs are comprehensive and well thought out with BNCs for main AES-EBU, SPDIF and auxiliary AES-EBU, XLR with main AES-EBU and a Toslink optical socket for main ADAT/SPDIF. Word clock reference I-Os are BNCs. Mains is multi-voltage but requires a switch change on the fuse carrier between 220V and 110V. Each of the outputs can be operated in a number of modes. The main XLR and BNC outputs are 24-bit at any of the supported sample rates. Aux can be 16 or 24 bits. The optical output can operate in AES-EBU at up to 24-bit, 96kHz or in ADAT mode. ADAT mode supports ADAT 44.1 and 48kHz and also SMUX2 and SMUX4 giving 88.2 and 96kHz and 176.4 and 192kHz respectively.

The ADC1 and DAC1 use high-bandwidth optical transmitters and receivers to enable AES operation at 96 and 192kHz. It is worth noting that a lot of other Toslink equipped kit cannot cope and that the high-bandwidth transducers are not required for ADAT SMUX 2 or 4. The low-res 16-bit Aux output is for making 16-bit backups or demos to CD recorders or DAT. If this is not required it can be set to mirror the 24-bit main outputs.

On the front panel the Mode switch is a centre-biased momentary toggle switch with two modes, press and press and hold, which produce different results. Pressing up repeatedly cycles through the clock source and sample rate options for the main outputs. Pressing down repeatedly does the same for the Aux Output. Holding Down for three seconds or more toggles between AES-EBU and ADAT mode for the optical output. Holding Up for around three seconds resets to the factory settings.

A block of 9 LEDs indicates the current mode for Main and Aux outputs. If the unit is set for external

sync and no valid source is available the bottom left LED flashes. The two 9-segment bargraph meters have an associated toggle switch to select between 6dB/step and 1dB/step and 1dB/step with peak hold. Gain for each channel is set independently in two stages -- switches select between unity, 10dB and 20dB gain and further switches select between calibrated and the detented gain control knobs. Ten-turn presets set the calibrated level and the trimmers and the knobs cover a range of -1.3dB to +22dB.

As is so often the case, this is all a lot more obvious with the unit in front of you and quickly becomes second nature. The knobs and switches all feel reassuringly positive. The same proprietary Ultralock technology is used to isolate external sync inputs from the convertors with the object of reducing jitter to negligible proportions. As you might expect, the performance figures and graphs are exemplary but, as previously remarked, these never tell the whole story.

Benchmark thoughtfully provided a DAC1 to complete the set so I was able to experiment and compare the ADC1 using both the DAC1 and my own everyday convertors. In the relatively short time available my earlier conclusions about the virtues of the DAC1 were confirmed. The ADC1 comfortably outperformed my console convertors, exhibiting similar clarity and surgical precision to the D-A. Interestingly, at least some of this goodness was audible even using the inferior console D-ACs.

I used the same combination of Marantz monoblocks and Leema Zen speakers as previously employed to test the DAC1, since this is the most analytical combination I have. The astonishingly solid imaging I know the DAC1 to be capable of was maintained along with the impressive transparency and transient response. Again, I heard things I've not heard before. In the absence of any other exotic convertors for proper A/B comparison it is impossible to draw firm conclusions but, my suspicion is that the ADC1 would come out of such a test punching well above its weight.

At the price, the ADC1 is a 'must audition' for anyone looking for a stereo A to D offering more than the standard fare. ■



<b>PROS</b>	Big league conversion at a sensible price; intuitive; good selection of outputs.
<b>CONS</b>	Runs rather warm; not a lot else.
<b>EXTRAS</b>	A new front-panel option is available for the Benchmark DAC1 without rack-mount ears and with a bright aluminium finish. The option positions the unit for the home theatre and desktop recording markets.

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