A new Benchmark

BENCHMARK DAC1 PRE *(£1291)*

Combining preamplifier, headphone amp and DAC all within casework barely more than 8in wide, this 'professional' product punches well above its weight

hi-finews OUTSTANDING PRODUCT

Tested by Ken Kessler

On those rare occasions when worlds collide – pro gear and high-end audio – one often benefits from the other. Look at the superb cross-pollination: LS3/5As, EMT turntables, AKG headphones and other broadcast or studio gear from 'the Dark Side'. We've paid them back with SME tonearms, phono stages from Manley, preamps from EAR and other delights. Fortunately, the lines are blurred, and most companies above a certain size or competence deal with both pro and domestic: B&W, Meridian, ad infinitum.

Until recently, Benchmark was new to most of us, being purely pro, but it created a buzz in America's high-end community with a novel device: a high-quality DAC with a built-in, top-grade headphone amplifier. Clearly, this was designed for monitoring in studios, off digital desks or any source with a digital output. Everyone who heard it wanted one, especially in light of embarrassingly low pricing by audiophile standards.

At CES this year, the company unveiled an even more desirable variant: the DAC1 with the addition of a preamplifier, including RCA single-ended and XLR balanced outputs, five digital inputs (three coaxial, one optical and one USB digital), and an analogue stereo input, which will allow this to be incorporated into any system using minimal lateral thinking to expand it: just feed the line sockets with a multi-input switcher.

Not only, though, is this thing incredibly cost-effective and sublimely well made, it's positively dinky: at 210x50x230mm (whd) including knobs and sockets, the DAC1 PRE can only be described as 'cute' in the best Kylie Minogue/newborn-kitten manner. To see it is to want it. To hear it is to want to steal it.

INSTANT SATISFACTION

Everything about it screams 'no brainer' – plug it in and it works. I ran it from system to system with only one hitch: the USB worked instantly with my Windows XP notebook, but not my desktop. This, though, was a fault of the computer, not the Benchmark, which also worked with a third XP computer in the house. Everything else functioned with aplomb, including this brand's speciality: the two front-panel 6.35mm headphone sockets powered even the hungry Beyer DT48s, one socket muting the rear outputs, the other for monitoring with main outputs on.

ULTRALOCK CLOCK SYSTEM

Based in Syracuse, NY, Benchmark is a leader in the field of precision audio products for the pro, broadcast, and audiophile markets. Its customers include such high-profile clients as NPR, the Boston Symphony Orchestra, Lucas Films, and Pixar. Benchmark also has numerous proprietary technologies under its banner, including a '0ohm output impedance' amplifier that drives its headphone outputs. More impressive still is its 'UltraLock' jitter reduction regime that reduces interface jitter more effectively than a traditional two-stage PLL while offering a far quicker lock time. Benchmark is somewhat coy about its operation, save to say that the converter clock is *not* phase locked to a reference [see lab report]. PM

ABOVE: The rear panel of the DAC1 PRE offers a combination of analogue, USB, optical and three coaxial digital inputs. Outputs include balanced XLRs and single-ended RCAs plus two headphone jacks

Damn, is this thing fun. In addition to feeding it analogue, optical and coaxial sources via my computer, I also used the Quad 99CDP II and Marantz CD12 CD players, and the Nagra ARES-BB and Zoom H4 digital recorders. So fluidly did the unit operate – sources found instantly, auto-muting recognising a long silence, level adjusters allowing it to match any system you could name – that I could barely contain my glee. I haven't found a product so instantly satisfying and confidence-inspiring in years.

Surprises were plentiful: on one computer, the analogue output was superior to the digital, more open and transparent with a BBC iPlayer download; on another PC, it was the other way around. I played with the various settings on the little Zoom H4, and the Benchmark quickly allowed me to hear – vividly – both gross and subtle differences between 44.1, 48, 96kHz and MP3 recordings. This baby, fed mainly into the Quad 909 amp but also into the McIntosh MC2102, manages to present microscopic details without resorting to in-yer-face fatigue inducement.

'This baby manages to present microscopic details without resorting to in-yer-face fatigue inducement'

It even made me 'appreciate' Girls Aloud.

SILKY SWEET

Probably the only reason I would ever want to be 17 again is to be able to sing along to 'Teenage Dirtbag', Wheatus' angst epic and one of the greatest rock songs of all time. While theirs is the definitive version, I couldn't resist acquiring Girls Aloud's cover, first heard while channel-surfing. It is to the original what grape juice is to wine, but, hot damn, did it sound silky and sweet through the Benchmark. There's real energy to be found in the track, even a modicum of anguished ⇨

AUDIO FILE

Combined preamplifier, headphone amplifier and USB, S/PDIF DAC

Made by: Benchmark Media Systems

Supplied by: SCVLondon

Telephone: 020 8418 1470

Web: www.benchmarkmedia.com

ABOVE: A generously sized control knob allows selection between six stereo inputs. The fascia also features two 65mm headphone sockets and a preamp volume control

sincerity, though this group will never inherit Edith Piaf's crown. Even so, playback shimmered and they sounded like they meant every word.

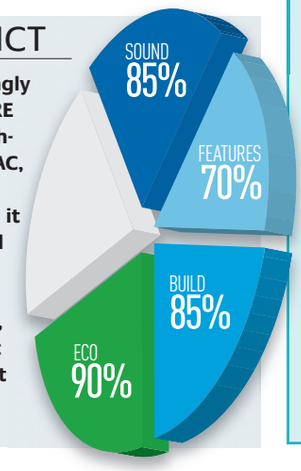
Despite this recording's wholly modern technological mien, the Benchmark reproduced it with no hint of artifice, as one might expect of something so utterly digital. Material which originated in analogue, though, such as the bulk of the discs in Robert Plant's *Nine Lives* box set, revealed in the Benchmark a command of space and airiness that made the remastered Honeydrippers' 'Sea of Love' sound as lush and room-filling as a mint original vinyl pressing.

This device fears no genre. Plant's early solos feature Phil Collins doing the best John Bonham impression this side of Dread Zeppelin. All the weight, the mass, the roar came through like the thundering armies in *300* – solid, palpable and realistic, even through headphones. And if ever a piece of equipment will make you want to opt for headphone listening, this is it.

There are plenty of fabulous headphone amps out there, but combining one with a preamp and a (sublime) DAC in a case this tiny begs its presence in bijou systems. Perhaps one day Benchmark will make a matching amp; the DAC1 PRE sounded so silky through LS3/5As that one could imagine it as the heart of the ultimate 'second system' for the study or bedroom. Which is not to say that it can't hold its own in a cost-no-object set-up. It's so coherent, transparent and commanding that it might do for preamps what the DAC1 did for headphone amps and DACs. For once, here's something you can buy on faith.

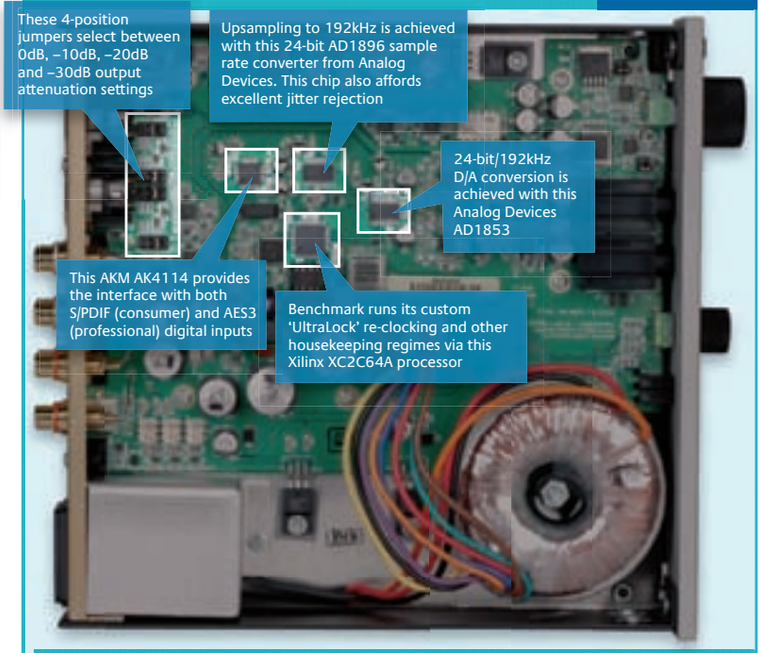
HI-FI NEWS VERDICT

Not just good, but stupefyingly good, Benchmark's DAC1 PRE provides you with three high-end components in one – DAC, headphone amplifier and preamplifier. In every mode, it excels. It sounds natural and authoritative, almost valve-like in the mid and treble. Sublimely well made, it's an absolute joy to use. It does what it should, without drama. It is truly the Swiss Army Knife of hi-fi.



BENCHMARK
DAC1 PRE / £1291

hi-finews LAB RESULTS



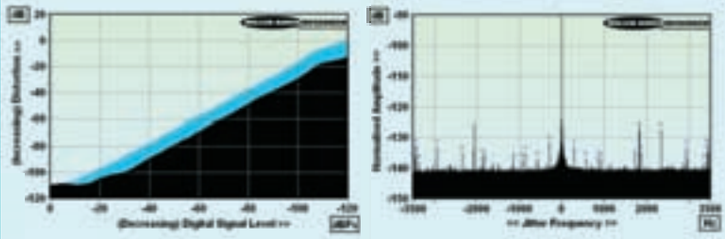
HI-FI NEWS LAB REPORT

Any manufacturer so confident of its technology that it reserves 22 pages of its user manual for test, measurement and general specification gets a vote from me. Just be thankful this is a stereo DAC/preamp and not a 7.1-channel HD AV receiver or the manual would be 2in thick!

In every practical sense, Benchmark's claims for vanishingly low distortion, jitter and a wide S/N ratio are fully met on test. In fact, I obtained a slightly lower 0.0003% distortion (–110.5dB) at peak output (–10dB and –20dB pads) from 20Hz-20kHz than Benchmark itself suggests. This is close to the measurement limit for many test systems. That this performance is maintained at or below 0.001% distortion over the top 30dB of its dynamic range through the midband [black trace, graph below left] is quite remarkable.

Equally impressive is Benchmark's jitter reduction scheme [see boxout, p23], especially so as this is not an integrated digital path (a CD/DVD player) but an outboard DAC that has to recover the audio clock from incoming S/PDIF data. Interface and other jitter is removed to below the level of the analogue noise floor with either the –20dB or –30dB pads in place. With the –10dB or 0dB attenuation settings, it is just measureable at <30psec (less than –130dBFs) as illustrated by the graph below.

In similar fashion, the S/N ratio improves with higher analogue output selections, but a figure of 110dB (A-wtd, re. 0dBFs) seems realistic. As always, readers are invited to view a full QC Suite test report for the Benchmark DAC1 PRE by navigating to *www.hifinews.co.uk* and clicking onto the red 'Download' button. **PM**



ABOVE LEFT: Distortion versus decreasing digital input level (black trace = 1kHz, blue trace = 20kHz); ABOVE RIGHT: Remarkably low digital jitter with 24-bit/48kHz data (sidebands marked in pairs)

HI-FI NEWS SPECIFICATIONS

Maximum output level (20dB / 10dB pad)	1.05Vrms / 3.24Vrms
A-wtd S/N Ratio	109.5dB
Distortion, 1kHz / 20kHz @ 0dBFs	0.00035% / 0.00031%
Distortion, 1kHz / 20kHz @ –30dBFs	0.0014% / 0.0041%
Frequency Response, 20Hz-20kHz (48kFs)	+0.0dB to –0.83dB
Frequency Response, 20Hz-45kHz (96kFs)	+0.0dB to –2.40dB
Digital Jitter, 48kFs/ 96kFs (24-bit data)	30psec / 20psec