Three DSD DACs

FOLLOWING LAST ISSUE'S FEATURE ON THE RETURN OF DSD AS A HI-RESOLUTION COMPUTER AUDIO FORMAT, ANDREW HARRISON TRIES OUT THREE INEXPENSIVE DSD-COMPATIBLE DACS

Manufacturer's Specifications

Model	Benchmark DAC2 HGC
Converter	ESS Sabre ES9018S
PCM (max)	24-bit 192 kHz
DSD type	DSD64
Digital inputs	2x co-axial RCA, 2x Toslink optical, 1x USB 2.0
Outputs	2x RCA analogue RCA, 1x XLR balanced analogue
Remote	IR remote control with handset, 12V trigger
Headphones	HPA2 with dual ¼-inch jack
Volume	Analogue/digital hybrid
Power supply	Internal, switch-mode
Dimensions	205 x 45 x 211 mm (WxHxD)
Price (UK)	£1,700

SACD may have come and nearly gone, but the DSD (Direct Stream Digital) audio format it carries has returned, and is now relatively simple to play directly from a PC. Besides a clutch of DSD music files, a computer and a hi-fi system, a recent DAC that supports the DSD-over-USB standard (DoP 1.0 or higher) will be needed, but that doesn't have to be costly.

While it's possible to spend many thousands of pounds for a high-end PCM DAC, the cheapest DSD-capable DAC (the TEAC *UD-501*) is currently just £699, while the Mytek *Stereo192-DSD* costs about £1100, and the Benchmark *DAC2 HGC* around £1700. (Not reviewed but well worth checking out is Chord Electronic's diminuitive £1000 *QuteHD* DAC.)

All three USB DACs here will also integrate perfectly with most existing digital sources, thanks to an array of S/PDIF, Toslink and even AES3 digital inputs. All have ¼-inch headphone outputs too, which may be useful. Both the Benchmark and Mytek DACs originate from pro audio, are built around half-width 1U rack chassis, and have variable line outputs and analogue inputs that effectively turn them into digital pre-amps. Their capabilities as DACs is particularly impressive, whether on 16-bit CD, the expanding number of 24-bit PCM recordings, or the more intriguing world of DSD.

The Review System

Listening tests were carried out using a stereo system consisting of a Music First passive controller, Chord *SPM 1200C* power amplifier and Bowers & Wilkins *802D* loudspeakers. Computer playback used two generations of Mac *Mini*: mid-2011 with 2.7 GHz Intel Core i7 dual-core, and late 2012 with 2.6 GHz Intel Core i7 quad-core. Both were fitted with 16 GB Crucial memory and were running *OS X 10.8.4* from internal SSDs. Playback software was Audirvana *Plus 1.5.3-6*. Music was played from a remote NAS, a Synology *DS1010* with 10TB in RAID 5. All audio cables were Nordost *Valhalla*; Atlas Cables and The Chord Company kindly supplied USB cables.

Benchmark DAC2 HGC

At around £1700, the Benchmark *DAC2 HGC* is the most costly of this trio, and is also the most deserving and impressive in build quality. Like the Mytek DAC it comes finished in silver or black, is packaged in a half-width rack unit, includes an analogue volume control, and is similarly based around an ESS 32-bit DAC. Only this model features the most highly specified Sabre chip currently available, with an on-paper dynamic range of 133dB.

Among a large portfolio of pro-audio products, Benchmark makes ADCs, DACs and mike pre-amps, and its earlier *DAC1* model (*HIFICRITIC Vol3 No2*) seems to have become a long-time favourite in studio monitoring. The *DAC2 HGC* adds higher sample frequency and the all-important DSD capability, along with a hybrid gain control – lending the unit its name – which steps from digital attenuation at higher volumes to an Alps motorised potentiometer lower down.

Whereas the TEAC and Mytek DACs use rotary knobs to step through menus, the Benchmark has no buried options and leaves the solitary large knob to volume control only. All tweaks are made easily through simple panel buttons. Two headphone outputs are included, one of which mutes the line outs by default (or jumpers may be set inside to keep line outputs on at all times).

From the front it's easy to click the little Mute or Phase buttons; input selection is slightly trickier as you must cycle through two rows from two buttons – it's easier by far to use the supplied remote handset to access D1-4, Analog, or USB directly. D1 and D2 are Toslink optical, D3 and D4 are transformer-coupled RCA/phono S/PDIF. Another pair of RCA/phono sockets provide an analogue input, but no AES3 balanced digital input is provided on the packed rear panel

Checking incoming sample frequency is not so simple from a glance at the panel. Base-rate LEDs for PCM '44' or '48' will light, and another multiplier of '2x' or '4x' gives the actual rate. To indicate DSD, the two multipliers glow together. Unlike the other two DACs, no digital filter options are available to suit your ears or your system.