Allnic D-5000 DHT D/A processor

There may have been a time when vacuum tubes and microprocessors seemed strange bedfellows. But nowadays—given the countless digital processors with tubed output stages, and an even greater number of tubed amps and preamps whose insides are crawling with the latest solid-state devices—we're more or less used to the idea. Here as elsewhere, hybrids are no big deal.

The South Korean electronics manufacturer Allnic Audio seems determined to shock us out of our complacency with their first digital product, the D-5000 DHT—a 32-bit/384kHz DSD digital-to-analog processor that costs $11,900. Not content to mix microprocessors with just any old tubes, the D-5000 DHT has an output section that makes exclusive use of direct-heated triode (DHT) tubes, an ancient design in which cathode and heater are one and the same—yet which Kang Su Park, Allnic's owner and chief engineer, prizes for its pure sound.

Description

But there are challenges. Kang Su Park points to DHT tubes' unusually high sensitivity to noisy power and to microphonics—the former calling for an especially well-designed power supply, the latter addressed with

Allnic's proprietary GEL tube sockets, claimed to do a superior job of isolating the delicate triodes from air- and structure-borne vibrations. The D-5000 contains six of those appealingly squishy sockets: four for its 3A5 direct-heated dual-triode tubes—which provide voltage gain and buffering—and one each for a 7233 voltage regulator and 5654 voltage-error detector. The latter two are also directly heated, although, technically speaking, the 5654 is a direct-heated *pentode*. A quick Internet search revealed that none of these tube types is expensive or particularly rare, the 7233 series regulator being the least common/most expensive, at an average of $15 to $20 a pop.

Other old-world technology abounds, including various signal transformers made with Permalloy cores. (It's the nickel in Permalloy—a nickel-iron magnetic alloy developed in 1914 for Bell Telephone—from which Allnic derives its name.) Two of those transformers are used to facilitate the D-5000's balanced outputs, while others are put to various interstage chores: As with most of Allnic's products, the D-5000's circuit is designed to exploit what Kang Su Park regards as a sonically favorable combination of DHTs and Permalloy.

Combined with—some would say contrasted with—the above is a digital section designed by Dr. Colin Shin and his company, Waversa Systems, and built around a dual-mono pair of ESS ES9018K2M Sabre DAC chips. Shin's proprietary code, much of which resides in FPGAs, offers user-selectable conversion of PCM files to 128 DSD by means of a 5.6MHz upsampler. User-selectable upsampling of PCM files to (mathematically related) higher PCM rates, up to 384kHz, is also supported. With S/PDIF-compliant sources, the Allnic D-5000 supports incoming digital rates of up to 192kHz, and native DSD files are processed using the DoP standard.

The D-5000's internal workings reside on three tidy, black circuit boards: one each for the power supply and the digital and analog sections. The

first two are rigidly fixed in place, while the third is suspended from the chassis with four isolation devices of a notably compliant material. (The similarly compliant sockets for the 3A5 tubes, mentioned above, are also fastened to the analog board.) On top of the chassis are six transformer covers, finished in a finely textured, hammertone-like paint, and the six vacuum tubes, each encased in a protective tube of clear plastic with a vented alloy top—a look that suggests the cryogenic chambers seen in countless sci-fi films. The case is six pieces of well-finished aluminum alloy bolted together, the side pieces formed with comfortable carrying handles. Build quality and fit'n'finish are exceptionally good throughout.

In stark contrast to my Halide DAC HD, which has zero user controls, the Allnic D-5000 DHT has five: a side-mounted power rocker; two front-mounted buttons, for selecting DSD Conversion and PCM Upsampling modes (the latter also cycles through four pairs of upsampling rates); a front-mounted knob for selecting among five input options; and a rear-mounted toggle switch for choosing between balanced and single-ended outputs. Also on the rear panel are: the ports for those five outputs—a USB socket, RCA jacks for Coax 1 and Coax 2, a TosLink optical socket, and an XLR-style AES/EBU socket; a pair of BNC sockets for connecting an external clock, if desired; and, of course, the XLR and RCA jacks for, respectively, balanced and single-ended output.

Installation and setup

Once removed from its good-quality packing, my review sample of the Allnic D-5000 DHT spent most of its time on the maple-ply top surface of my auxiliary gear rack, close by my Apple iMac (OS 10.7.5). The Allnic became only mildly warm to the touch during use, and performed without a hitch. The only thing that brought me up short was the fact that, in order for the Upsampling switch to work, the D-5000 required an incoming datastream, in the absence of which the switch was dead as a doornail. Interconnects of choice were a 1.5m WireWorld Revelation 2.0 USB cable and a 3m Nordost Blue Heaven pair.

Setup was a simple matter of selecting the Allnic from the list of output choices in the Sound menu of the iMac's System Preferences window—as soon as I completed the Allnic's USB connection, my iMac detected the choice labeled "D-5000," with no need for rebooting—and, in the Audirvana Preferences/Audio Systems window in my copy of Audirvana Plus 1.5.12, selecting "D-5000" and "DSD over PCM."

Listening

The Allnic D-5000 DHT is among the growing number of digital processors offering so many different conversion schemes that it's like having multiple products built on the same chassis: a boon for the owner but a daunting task for the reviewer, who must determine which of those products to describe in depth. I decided that, because the Allnic's Upsampling and Conversion functions come into play only when selected by the user, I should begin by getting a handle on the review sample's basic sound without those functions.

Considered thus and listened to straight out of the box, the Allnic presented its signature strengths: an up-front, present, and tactile sound with exceptional color, impact, and drive. Indeed, the first recording I heard through the D-5000 triggered a true *Holy shit* moment—one in which it was already apparent that the Allnic was among the very finest-sounding digital products I've heard. The opening chord—actually, stacked octaves on C—of Brahms's Piano Quartet 3 in c, played by

members of La Gaia Scienza (AIFF file ripped from CD, Winter & Winter 910 052-2), rang out clearly and colorfully, establishing from the start a realistic portrayal of a piano in a large but only mildly reverberant room (in this instance, in the Villa Medici-Giulini). String tone was gorgeous throughout, most notably during the melody played by the cello in the *Andante*, and momentum and flow were very good as well. By contrast, my usual reference, the far less expensive Halide DAC HD ($450), though itself colorful and well textured, lacked openness and "air," and the last degree of room sound.