



# Antelope Audio Zen Studio

The laptop way of working has encouraged the development of gear that can also travel with you.

**JON THORNTON** enjoys an interface that sets new standards of connectivity and power.

From the moment you unbox this new audio interface, it's clear what the design intentions have been — this is a box that will never be consigned to life in a 19-inch rack. The giveaways are the integrated carrying handle, and the fact that the available I-O are located not only front and rear, but also on one side of the compact but solid casework. The key word here is portability but portability without compromise in quality or I-O capability.

Antelope Audio is the brainchild of Igor Levin, former designer for Aardvark; a company probably best known for the Aardsync master clock that found its way into many a control room. Antelope has made excursions into the pro audio and high end audiophile markets in recent years — initially building on Levin's experience in producing high quality digital clocks, and latterly in the area of A-D/D-A conversion and interfaces. The Zen Studio is the latest product, and leverages the clocking and conversion expertise of the company in a new product sector.

Of course, the idea of high quality, compact audio interfacing that travels wherever you need it hasn't escaped the attention of other manufacturers, which means the Zen Studio has its work cut out in differentiating itself from offerings from the likes of Prism Sound, Apogee and Universal Audio. So, apart from the illustrious (!) name, what does it have to offer?

There are a total of 20 analogue inputs, 12 of which can operate at mic or line level. These 12 are all of the Neutrik XLR/TRS jack combo type, with

four on the front panel and a further eight on the rear. The four front panel inputs can also operate as unbalanced high impedance inputs for instrument DIs, and analogue inserts (TRS jack) are provided for inputs 1 and 2. The remaining 8 analogue inputs are balanced line level only, and are provided on a DB25 connector on the rear. A further DB25 gives eight balanced line level outputs.

Dedicated balanced monitor outputs are provided on TRS jacks on the rear panel as well as two independent stereo headphone outputs on the front panel. Overall level for the monitor and headphone outputs can be controlled by the large rotary encoder on the front panel — clicking it toggles between control of the main monitor output and the headphone circuits, with a LED above each headphone output giving a clear indication of what is currently being controlled. If necessary, the front panel encoder can be assigned to control the overall output level of the 8 line outputs on the DSub instead of the dedicated stereo monitor outs — a nice touch if multichannel monitoring is on the agenda.

Digital connectivity comes courtesy of two pairs of ADAT optical connectors on the side of the unit giving 8 or 16 channels of digital I-O depending on sample rate. A further two channels of coaxial SPDIF I-O complete the picture, together with Word clock in and out on BNC. Power is via an external PSU with a locking connector for security. Connection to a host computer is via USB 2.0 and this is a deliberate decision by Antelope despite the lure of Thunderbolt. First, it enables the Zen Studio to benefit from the custom USB2 chip developed for the high-end Orion interface, with the focus here on maximum stability. Second, it gives the widest possible user base in terms of CPU and DAW permutations. The USB interface provides 24 channels of input and output to and from a DAW, and installation and set-up was straightforward and painless on an iMac i7 running Pro Tools 10.

The front panel sports a small but relatively high resolution display together with three buttons for navigation and selection. What you realise fairly

quickly though, is that this works best as a simple status/level check display. While there are options you can set from here (sample rate/sync source etc.) the majority of the display pages simply show you information about gain settings, signal level etc. To actually alter these, and indeed to access the bulk of the device's functionality, you need to use the supplied control panel software.

I often find myself frustrated by this type of 'middle-ware' that is increasingly prevalent these days, but I have to say that Antelope's implementation is one of the best I've seen in terms of usability and intuitiveness. The control panel window is split into three main sections. At the top, and always visible, are controls for monitor and headphone volumes, clock source, sample rate and display brightness. All standard sample rates between 32kHz and 192kHz are supported, and clock can be derived from the external Word clock input, any valid digital input or the curiously named 'OVEN Sync' internal clock. This refers to the fact that, in the pursuit of stability, the reference crystal for the internal clock is enclosed in its own temperature controlled oven at 64.5°C. Selecting USB as the sync source allows the sample rate to be set by the host. In this mode the Zen is in fact working asynchronously using the internal clock, although this isn't necessarily clear from the status display.

The next section down sets gains and trims for the available inputs (analogue and digital). A series of tabs allow this section to display those inputs with a preamp stage, the line level only inputs, SPDIF inputs or ADAT inputs. Depending on which tab is selected you get gain/trim (-6 to +12dB on line level inputs and digital inputs, a healthy +10 to +65dB on mic inputs, and +10 to +40dB on instrument level inputs), and toggles for phantom power and line/mic/instrument selection on the preamp capable inputs. The mic pres sound robust and quieter than you might expect — there's more than enough clean gain on offer even for some relatively quiet VO work with a passive ribbon mic that I put it to work with. You're likely to hear the self-noise of your microphones long before the preamps add anything to the equation.

The largest section of the control panel displays one of five main screens, which are selected by tabs just below the gain/trim. The first of these is routing — and this presents all available physical inputs and outputs, plus the inputs and outputs to the Zen's built-in mixers and effects — more of which later. Routing is split into two sections — 'From' and 'To' — with each type of source having its own colour code and a box for each channel showing channel number, which can be replaced by typing a more meaningful name if desired. These names then cascade through





to other areas of the GUI. Routing is a simple drag and drop affair — drag a source to a destination — and it's incredibly flexible and much easier to see what's going on at glance than with a matrix type arrangement.

In common with other interfaces of this type, the Zen offers onboard digital mixing, in part to deal with the inherent latency of the USB interfacing for things such as headphone mixes. Custom FPGA processing provides plenty of horsepower for this, with four simultaneous 32:2 mixers on offer when the mix tab is selected. Inputs to each mixer are defined in the routing page and the mixer outputs appear as sources for subsequent routing to outputs (or indeed as submixes for another mixer). The mixer GUI is straightforward, with level and pan for each channel and a stereo master fader, together with signal metering down the side of each fader. Mute and solo is also available per channel, and channels can be paired for stereo operation if required.

Separately from the mixers themselves, that same FPGA array is also used to power some onboard processing (dubbed AFX). What you get here are 16 channel strips, arranged in pairs with each pair able to work as a stereo pair or mono channel. Each channel strip contains a 5-band EQ and a compressor, the process order of which can be flipped as desired. The EQ section is made up of three peaking filters with variable Q, and two bands that can operate as high/low shelving filters or high/low pass filters. The compressor has the usual threshold, ratio and time constant settings, but also features a variable knee and a choice of peak or RMS detection. It's no frills and does the job — some DAW users might moan that you can't adjust parameters by clicking on the EQ curve display, for example — but the processing sounds very solid, and not at all 'digital' so there's clearly been some time and effort put into the algorithms employed here.

Accessing the AFX channels is via the routing page — each of the 16 channels is presented as an input or output here — and routing is entirely flexible, allowing chaining of AFX channels, for example. They work well in fine-tuning headphone mixes adding a dash of compression to the vocal contribution, for example, but are also plenty good enough to be employed as channel strips for tracking if the need arises. Perhaps a useful addition to the AFX arsenal would be some sort of reverb but it seems that this may well be on the horizon for a future firmware/software release.

The final sections of the control panel allow high resolution of the key groups of inputs and outputs

(as per the routing page arrangement), and a settings page for setting operating levels of line input and outputs and the monitor outputs (two oscillators are also provided here to facilitate this and they can be routed to any output by right clicking the relevant box on the routing page). Finally, complete snapshots of all aspects of the control panel can be stored, and saved as settings files or assigned to one of five 'quick keys' at the top of the GUI.

Antelope's box is an impressive beast. While the key ingredients of preamps, A-D/D-A, USB interface and onboard mixing/FX are no longer novel, the precise recipe on offer here absolutely hits the mark. The sheer amount of I-O on offer in such a small package and the evident quality of analogue and digital hardware make it a compelling proposition. And while some aspects of the control panel GUI might benefit from a little cosmetic tweaking (it's hard

to read the meters on the mix pages for example), it's a rare example of 'middleware' that is intuitive, flexible and doesn't actually get in the way of the job in hand. The total package deserves the attention of anybody in the market for a portable, professional interface. ■

**PROS**

High I-O count in small package; rock solid USB interfacing; high quality mic pres; flexible internal routing; intuitive GUI.

**CONS**

Meters a little hard to read on some control panel pages; limited user interaction via device front panel.

**Contact**

**ANTELOPE AUDIO**

**Web:** [www.antelopeaudio.com](http://www.antelopeaudio.com)