

ORION32 AD/DA CONVERTER & USB INTERFACE

by Antelope Audio

REVIEWED BY ANDY HONG, CHRIS KOLTAY, TONY SANFILIPPO · JAN. 10, 2014
\$2995.00 MSRP

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Every now and then, a product comes along that sets a new bar for sound quality, features, and price. The Orion32 is a prime example. When contributing writers Tony SanFilippo and Chris Koltay contacted me to explain how the Orion32 had completely changed their games, I asked both of them to contribute to a multi-perspective review. Their stories follow. But first, here are my own thoughts and observations.

Price? \$2995 - unbelievable, when you consider what you get. Nothing else even comes close.

Features? 32 channels of simultaneous A/D and D/A conversion, at sample-rates up to 192 kHz, connecting to a host PC through a single USB 2.0 cable - no special PCIe cards needed. On a Mac via USB, 32 channels are available up to 96 kHz; beyond that, the channel-count drops to 24. On an iPad running WaveMachine Labs Auria [Tape Op #92], the channel-count maxes out at 24. Wow!

Physical I/O is abundant. 32 channels of analog in and out are distributed across eight DB-25 connectors with AES59 pinouts (better known as TASCAM format). Standard SC fiber-optic ports provide 64 channels of MADI (daisy-chainable), while ADAT Optical ports provide 16 channels. (At double and quadruple sample-rates, MADI and ADAT channel-counts are understandably halved and quartered for S/MUX transmission.) A pair of RCA S/PDIF jacks, with sample-rate conversion available, rounds out the audio I/O. Control panel software for Windows and Mac OS X allows you to route any input to any output with simple drag-and-drops (singly or in ranges) with truly seamless format conversion; this alone is a feature that costs thousands of dollars from other manufacturers. Also in the control panel, you can set up near-zero-latency monitor mixes. (I measured 1.5 ms roundtrip latency at 44.1 kHz through the onboard monitor mixer.)

In addition, Antelope stuck in one of their acclaimed oven-stabilized clock generators. There are six BNC jacks in total; four serve as word clock outputs, one is a word clock input, and the last is for locking the unit to a 10M atomic reference clock.

On the front of the unit is a tiny, high-resolution, backlit TFT screen that primarily serves as metering for all 32 channels (input and output). The TFT screen is helpful for troubleshooting, but unless your eyes are right in front of the screen, the individual meters are too tiny to read. The control panel software displays much bigger meters, but annoyingly, these meters suffer from noticeable latency. Also on the front panel is a set of buttons for recalling saved configurations quickly - handy if you want to use the Orion32 standalone.

By the way, the Orion32 is 1RU in height, and it consumes only 20 watts. It gives off very little heat, so if you require mega channel-counts, you can rack together several units without concern for overheating. Curiously, the Orion32's front panel has only two holes for rack screws, diagonally placed, so I do worry about the many cables connected in the back torquing the chassis of the unit; but Antelope Audio assured me that multiple Orion32 units have been on several major tours (Rihanna, Katy Perry, Jay Z, Justin Timberlake) without any issues being reported.

I connected my Orion32 via MADI to the RME HDSPe MADI FX card [Tape Op #91] inside my custom rackmount PC built by Endpcnoise.com [#67]. Although my PC is near silent, it's worth mentioning that MADI over fiber supports distances of over a mile, which means a noisy host computer can live in a machine room or closet while the Orion32 sits silently in your audio rack. And going back to my comment about mega channel counts, the RME card supports 192 channels of MADI I/O, 128 of which are accessible via two sets of fiber-optic ports. Therefore, I could conceivably connect four Orion32 interfaces (two to the RME card and two more daisy-chained off the first two) for 128 channels of Antelope conversion in 4RU of space.

Sound quality? Super clear, with plenty of focus - but let me explain what that really means. The Orion32 replaced a set of Apogee AD-16X and DA-16X converters [Tape Op #59]. The Apogee converters sound "rock & roll" to me. I like how they tend to push the midrange forward without leaving the bottom end too far behind. Unfortunately, a couple roundtrips through the AD/DA-16X pair will soften and blur the highs. I find myself doing more analog processing during mixing than I did in the past, and these days, I will often have tracks that will go out to the analog domain for insert and bus processing, before coming back into the digital domain for additional processing, automation, and then final summing in my Sony DMX-R100 console [#25]. This is where I start to hear the AD/DA-16X's phase distortion in the highs. Cymbals, for example, start to get... well... phasey - for lack of a better word. And imaging in general suffers. The first time I swapped in the Orion32, I could hear the improvement in the highs immediately. And even with multiple roundtrips through the Orion32, I can't discern any phase-distortion above 1 kHz. Therefore, imaging remains super-focused, and the sound is very clear. The Orion32's lows, on the other hand, are a tiny bit soft compared to that of the Apogee AD/DA-16X pair, as there's a significant "curve" to the Orion32's phase response in the bass region. But unlike the Apogee's "rippled" phase response in the highs, the Orion32's phase response in the lows is a smooth, gradual curve, so it's difficult to hear, especially when you consider that most

speakers have many times that amount of phase distortion in the bass region. With all that said, I prefer the sound of the Orion32's converters, and I'm blown away by its feature set. Therefore, I'm selling my Apogee AD/DA-16X pair.

Anyway, enough armchair-techno-babbling from me. Let's hear from Tony next and conclude with Chris. -AH

I first found out about the Orion32 when a friend and I were discussing how we both needed to move to the DAW world from our world of dedicated hard disk recorders. A friend of his is an endorser for Antelope's high-end digital clocks [Tape Op #68]. I am a long-time iZ Technology RADAR [#56] user, and I know a big part of the sound is high-quality clocking. I was quite intrigued.

I decided to pull the trigger and purchase an Orion32, a Mac Mini, and Pro Tools 10. After a little frustration with getting all the pieces to play nice (does "plug & play" truly exist anywhere?), it was time to do some work. My first project, for the band Simon, started with basic tracks recorded on the RADAR. Moving the tracks to my new DAW rig, I was concerned that I might instantly realize I'd spent a lot of money to downgrade the sonics I work so hard to achieve. Not only did that fear disappear, but I heard a really wonderful (albeit "different") audio quality from the Orion32's playback. One of the biggest "stress tests" for digital conversion will always be cymbals. Cymbals are incredibly complex instruments with intense transients and complex overtones. Garden-variety, bang-for-the-buck converters do cymbals a total injustice. The Orion32, on the other hand, passed the test with flying colors. Moreover, guitars had detail and tone, and the bass was full. I continued overdubbing and mixing the project - additional guitars, percussion, and vocals - through the Orion32. Here's the beauty of it; I never had to think about it. The Orion32 just continued to deliver great sounds.

Since that first project, I've had a lot of different things in and out of the studio. I've worked at 44.1, 88.2 and 192 kHz. All sound great on the Orion32. The adjective I keep using, whether referring to distorted guitars, fiddle, full drum-set, or acoustic ensemble, is "open." Sounds are both tall and wide - always true to the source. There are no surprises - days later, or on other systems.

I am continually delighted with the midrange detail of the Orion32. As we all know, midrange balance is one of the hardest things to get right when mixing or tracking. Too much upper mids, and the tune sounds pointy and does not age well, and it can be hard to make it through continued listens. If the low mids are off, the mix has no detail, or no weight. With the Orion32, I can hear what's happening in these crucial elements of a mix. It makes focusing on frequencies easy during mixing, and mic choices and placement effortless during tracking. One can't ask for more than that.

As I wax poetic on midrange, let's not forget the top and bottom ends of the spectrum. With the Orion32, I feel like I'm having an easier time than ever making the low end cohesive in my mixes. It's easier to hear relationships between bass guitar and bass drum. I feel like EQ, compression, and fader level are easy to judge and set. The Orion32's response seems extended at both ends of the spectrum. As mentioned above, cymbals record and play back wonderfully. Percussion of all sorts (including orchestra bells - a total bugger to record) sound fast and clear, even at low levels. Sparkle from acoustic guitars, mandolins, and fiddles is easy to achieve without ever sounding strident or harsh. Reverb tails, times, and tone are quite easy to place with the Orion32. These are all testaments to the design and quality of the converters.

Before I got my system, I found out that I would be completing a project for my band Wiplot that had been started at a friend's home studio using MOTU conversion. Due to circumstances beyond our control, we could not finish there. We started working on the guitar player's laptop and MOTU Traveler patched into my console. We did a few nights of tracking vocals and a few other things. Then I got the Orion32 and Mac, and I imported the tracks. The first time I hit play, I heard a night and day difference. The low end extended further and the highs came alive. I could finally get a sense of what I was truly hearing. I also realized just how much reverb he was adding to everything! I may have my credit on the record as "Un-mixed by Tony SanFilippo." Again, the Orion32 was telling me all the things I needed to know.

I went from a dedicated recorder with an \$18,000 list price to a system that costs a third of that - without any sort of downgrade in sound quality. I do not feel like I have lost anything, and there are some aspects of the Orion32's sound that I prefer. This piece is a no brainer.

-Tony SanFilippo <www.oxidelounge.com>

I've been making records for the past 12 years with two boxes handling the zeroes and ones: a Black Lion Audio-modded MOTU 24i/O for 2" tape transfers and the occasional digital full-band recording; and a Metric Halo 2882 2d+DSP typically for post-tape-dump overdubs and digital summing at mixdown. For a six-month period in 2011, three 2882s handled everything.

Downtime is the enemy of any studio. For this reason, my installation of the Orion32 had to happen on a very specific day off. My entire multitrack situation had to be rewired to accommodate the Orion32's DB-25 connectors; and software and drivers required installation and updating. This could not have been possible without the miracle workers at Jumperz (www.jumperzaudio.com), who made the cabling happen. And the fact that the Orion32 itself was a breeze to set up helped immeasurably. There were a few stupid mistakes on my part that led to some driver issues, but the Antelope team responded with unprecedented intensity - like the Secret Service of audio conversion!

So with installation out of the way, I got to work! I was deep in mix territory with a few projects, so consistency was a concern. My first impression upon listening? A drastic improvement in image and depth. The Orion32 seemed to enlarge the sonic real-estate in a profound way. I tend to track guitars a little too dark and heavy. Too much Tony Iommi as a youth. Oftentimes, with both of my previous digital rigs, I'd have to really jack the gain on lead guitars or other similar-sounding instruments (Wurlitzer, Hammond, etc.) to have them heard. Fast transient stuff, like tambourines and snare bottom, were always either inaudible or too loud - let alone their respective reverbs. I don't work in other rooms very often, and almost never with something I tracked, so I just didn't know what I was missing.

The first mix session I tackled was for a band I was really struggling with - not as people, but sonically. The difference after switching to the Orion32 was alarming and revelatory. The detail was amazing. The reveal brought to light some glaring issues both in placement and equalization - not what I was expecting but a really good sign. The Orion32 sounds amazing, but very

truthful. (It totally reminded me of the first time I got a real stereo and listened to records. It took a minute. Then I realized what Hunky Dory was supposed to sound like!) So after some adjustments on my end and per the client's notes, I sent the five tracks that needed tweaking back to my client. I did so with no mention of the new rig. The client was so blown away that he had me rebounce the other five jams. In other words, the difference was so great, even the singer noticed!

Next up were some vocal overdubs with local heroes Feelings. Feelings are a rock quartet from southwest Detroit who sound loosely like equal parts Bleach-era Nirvana and The Clean, with some Vaselines and Wipers thrown in for good measure. Matt Mueller's voice is super powerful and has a similar drawl to the northwesterners mentioned above. We went for my studio's staple vocal chain: Shure SM5B mic, Calrec 1061 preamp/EQ, Empirical Labs Distressor compressor [Tape Op #32], and The Schmidlin Fed+ tube compressor [#90]. Tracking with effects in place has been a practice of mine - off-and-on since I started 4-tracking, and constantly since the new Moog 500-series delays came into my life. We got a great sound with the vocal chain and the Moogs into the Orion32. Most telling was the playback though. The vocal tracks were giant, and precise imaging was again evident. As above, adjustments to the sound were very easy and superfast to make. As an aside, I sum most sessions' stems through a Sony MXP-3036 console and recapture into Logic Pro. In the past, I'd have to adjust mixes for the difference the trip back through my conversion would make. Summing in this way for this album proved informative. I actually thought the recaptured tracks sounded better than what I was hearing at mix! I know the Sony is no Neve, but it's a solid desk, and it sounds great, and I liked what the Orion32 conversion did. Pretty great.

With further excitement, I tracked my first start-to-finish project with the Orion32 when UFO CULT came to record. These guys play some pretty technical rock music - like Shudder To Think and Jeff Buckley having shots together. From the second we fired up the mics on the kit, I was super-stoked. We did a bunch of tracking of all mics to tape and DAW simultaneously. The digital recordings were slightly brighter and of course lacked tape compression, but they were shockingly similar to the tape recordings. I've tracked straight-to-digital in the past - when the tape machine was down, or the project dictated such - and the usual sources (snare, electric guitar, percussion) often suffered. With the Orion32, this wasn't a concern, and we moved seamlessly from tracking to mixing and back again. At the end of our two-day session, we mixed roughs, and the band stated that they were amazed at how "finished" it sounded.

It's hard for me to find words to describe what this box has done for me and my studio. It has at once elevated the quality of both the service I provide and the product I offer my clients. Dramatically. When I switched to the rig of three Metric Halo 2882s in 2011, there was a difference - but nothing like the jump to the Orion32. We all hear people go on about extended this-and-that when talking about conversion, but in a word, the Orion32 is articulate - astoundingly so - and to such a degree that I feel like I'm now able to truly hear the consequences of my microphone/preamp choices and mix placement for the first time. "Ohhhhh... that's what I was going for!" The results have been profound, bordering on emotional. I immediately felt like a veil was lifted from the sonic results of my technique and workflow - like an uphill battle ended. I don't exaggerate. Like most of us, I care deeply about what I do. Often I work countless hours off-the-clock to obtain mixes and sounds I believe in, not only so I can be proud of the work, but also to stay on budget for my clients. The Orion32 helps tremendously in that regard. It not only sounds astonishingly good, it's invisible. It just works. And I can trust it.

I want to also convey that the addition of the Antelope Isochrone 10M rubidium atomic reference master clock [Tape Op #68] really made that extra difference. Don't get me wrong, the Orion32 is crushing on its own. The 10M just gave it that extra something that world-class clocking can provide. It's like the difference between great and legendary wine. You'd never notice the difference until you've had something that's truly elevated - and then you do. It's those final few percentage points that are the hardest to attain - but ultimately make a huge difference. That's what the 10M did for me.

With its nearest sonic competitor being three-four times the cash for 32 channels, the Orion32 will fast become the standard for most studios, regardless of budget. My friends who run studios with DAWs connected to popular competitors are blown away. A few have talked about selling their super-expensive rigs to fund a switch to the Orion32, with significant change left over. I myself had been setting aside my hard-earned dollars to purchase more costly converters, but with the money saved buying an Orion32, I was able to sneak in a drum-bus compressor without my fiancé noticing!

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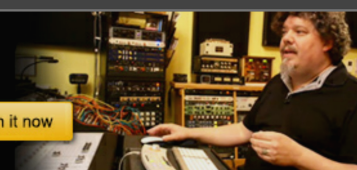
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