Tape Op

The Creative Music Recording Magazine

Martin Hannett
Joy Division, Buzzcocks

Bill Szymczyk
The Eagles, Joe Walsh, The Who

Richard Kaplan & Mike Pinder
Malibu's Indigo Ranch

Tanya Donelly
Belly, Throwing Muses, Solo

Giles Martin
The Beatles Revisited

Larry Villella
of ADK in Behind the Gear

Music Reviews
w/ Jenny Lewis & The Delines

Gear Reviews

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IN SEARCH OF THE PERFECT SOUND

Crane Song

Avocet 2 monitor controller

Confidence. Transparency. I like my monitor controllers like I like my politicians. I want confidence that I am hearing what is and what is not there. Confidence that the choices I am making in terms of signal processing are the right ones. Confidence that I have chosen the best mic and preamp for the source. Confidence that what leaves the studio is going to translate to the real world. And most importantly, I do not want a spin on it. Dung heap or gleaming golden chalice of light — just give it to me straight. The newly updated *Avocet 2* from Crane Song is a device that delivers that confidence and transparency — and so much more.

I have been a fan of Dave Hill and his gear for a long time. From Summit Audio to Crane Song and Dave Hill Designs — many glorious pieces have been produced under these monikers. He is not rehashing or recreating the past, but rather pushing the boundaries of technology and audio gear. Dave Hill was one of the first with the belief that A/D and D/A conversion could be so much more than the status quo, when he created the Crane Song HEDD [*Tape Op* #26], a converter that to this day is still considered by many to be one of the best. So, when the opportunity arose to review a new version of the Crane Song *Avocet*, I jumped at the chance.

Crane Song gear is handmade in Superior, Wisconsin, and everything about it says no compromise. Build, look, feel, and sonics are all, well, superior.

The *Avocet 2* is an analog monitor management tool, with discrete Class A electronics and a newly redesigned, fourth-generation D/A converter (more on that later). The main unit is an elegant 2RU-height rackmount box with a clean, brushed-metal front plate that has the ubiquitous green Crane Song light and a 1/4" TRS headphone jack. The back is packed with XLR jacks for three analog inputs, three digital inputs, and three speaker outputs — all stereo. There's also a second TRS headphone output, as well as optical and RCA jacks if you prefer S/PDIF format for digital input 1. On-the-fly gain trim is available for each of the six inputs. The *Avocet 2*'s functionality is controlled by a well-designed desktop remote. The main volume knob is a comfortable size, has a nice resistance, and is stepped in 1 dB increments from –32 to +12 dB. The text around the dial is marked in 2 dB increments, but LEDs encircling the knob display each dB step by lighting one or two at a time. Adjustments of the volume knob result in small clicks from the main unit due to the use of relays, inspiring confidence in the analog audio path, which remains safe and clear inside of the main unit, without need for a detrimental detour down a long remote cable.

Many mix and mastering engineers are already using the original *Avocet* — and for good reason. The capabilities and sound of the *Avocet* cannot be beat. Having level-offset on all of the input sources is an indispensable feature that should be standard on every monitor controller. I was able to level-match every source using an SPL meter, allowing me to make real-world judgments between the unprocessed analog 2-mix coming directly from my summing amp; the mix with bus compression and EQ via the digital input from my DAW; and reference sources such as CDs, and files streaming wirelessly via my Airport Express. Additionally, the *Avocet* offers speaker defeat, polarity flip, mono mode, speaker dim, mute, and talkback. It can even truncate the selected digital input to 16 bits. Moreover, output 3 can be dedicated to an active subwoofer and used in parallel with output 1 or 2. All digital sources are up-sampled to over 200 kHz and jitter-reduced for maximum accuracy. Up to four *Avocet* rackmount units can be chained together to facilitate 5.1–7.1 surround mixing. Metering is configured out-of-the-box to display input signal from –46 to 0 dB in 2 dB steps, with multiple options available via internal jumpers.

The headphone section accepts three sources: the selected main input; the post–volume/polarity/mono version of the main input; or the aux input, independent of the main input selection. All three headphone sources have dedicated volume trim. The headphone amp in this unit sounds beautiful, is well thought out, and is user friendly. Once headphone sources and levels are set, it is as easy as hitting the mute button to defeat the mains for tracking in the same room or for critical listening sans bleed. Likewise, assigning an artist mix to the headphones is as simple as feeding the *Avocet*'s aux input and choosing that for the headphone source.

At this point, if you want to learn more about what the *Avocet* offers in terms of routing and control, you should download the manual from the Crane Song website. The unit has many more features than there's room to discuss here — including integration with other devices — and options abound in its control set as well as in the hardware jumpers, trims, and pads inside the main box.

While the functionality of the *Avocet 2* is the same as previous versions, what is not the same is the newly reworked D/A converter. Dave Hill has invested over two years of research, trial and error, and countless experiments into his new, fourth-generation DAC, and it was certainly worth the time. Improvements have been made in the quartz crystal reference oscillator responsible for the *Avocet 2*'s clocking, and the result is a significant reduction in jitter. When I spoke to Dave Hill and mentioned I was not an overly technical chap, he laid it out, in what I'm sure were the simplest terms possible:

"We use a sample-rate converter to do jitter reduction, and it up-samples to about 211 kHz. The reference oscillator has ultra-low phase noise, which translates to extremely low jitter. It is very difficult to achieve this kind of performance. Custom parts, custom quartz crystals — let's put it this way, to make it significantly better, when you are using $30–$40 parts, and throwing a bunch of them away due to poor performance, they become $300–$400 parts. I'm not sure at what point you stop hearing things, but I am asking it to do something that is at the edge of its capabilities. The part that is in the *Avocet 2* measures a phase-noise floor of about –115 dB at 10 Hz off the center frequency, which is really quite low. As a comparison, I put in a part that was at –105 dB and did a listening test, and you can hear the difference."

What I love about trying to convey what something sounds like with words, is that you have to take the time to listen and train your ears to discern what it is you are trying to hear. In the case of jitter, I have never had a way to effectively identify and judge what jitter in the clock signal does to audio or how it even presents itself. There is an excellent explanation on the Crane Song website called "The Jitter Files." It is a set of critical listening tests that lets you train yourself to hear clock jitter and its effect on various sources. Song examples are presented in their final, mixed form and then with only the artifacts of jitter and inaccurate clocking. What blew my mind was that what I perceived as warmth was actually jitter coloring the midrange. Why is this a big deal? If you are hearing mud or maybe what you perceive as "warmth" in playback that is not actually there, and you reach for EQ as a remedy, you are altering the audio unnecessarily. If playback is not as pure as it can be, you are guessing. Two months ago, I couldn't tell you what picoseconds were, let alone that a reduction from 13 ps to less than 1 ps would make a significant difference in my work, but it does.

This stuff is subtle. And to the average listener on an average playback system, it may ultimately be irrelevant. However, as Mr. Hill noted, "There is always going to be someone with a better system, and the flaws will be evident."

I asked Dave what all of this R&D and the improvements to the DAC would do to the cost of the *Avocet 2*, and he said that when all was said and done, the price would not increase. Personally, I would pay more, but I quickly realized that Dave Hill is not trying to turn a quick buck. He has dedicated his life to this pursuit of pushing the boundaries of audio quality.

Because of the depth and layers of functionality in this unit, it is not a monitor controller you will plug-and-play out of the box. In advance of my receiving the unit, Tim at Crane Song contacted me to schedule a walkthrough of the unit with their head tech. After a short tutorial, I was off and running. Basically, the unit is set up in layers. Several of the buttons have a second function that is accessed by using the "Shift" button. Some of these include accessing the headphone sources and individual levels as well as optional subwoofer configuration. Importantly, once I understood the thought process behind the unit's design, it all became very intuitive.

When I first started using the *Avocet 2*, my impressions were very positive, and they haven't wavered since. I like the sonic image both side-to-side and back-to-front; the super-smooth and even response across the entire frequency range at any volume; the stellar transient response that becomes very apparent when listening to a snare drum, because it actually sounds like a snare drum in the room; the deep functionality, level-matching offsets, and other useful options; and of course, the supreme clarity. Sound-wise, everything is so perfectly in focus and defined that it allows you to "see" the mix, which opens new doors to the placement of mix elements. I love watching clients and friends sit in the mix position and reach out between the speakers to touch the top of the singer's head because its location in the sound field is so strongly represented. When a listening experience is that tangible, it is a powerful thing, and it changes the listeners' emotional connection to what they are hearing. This is what making, recording, and mixing music is all about. Put your left foot in.

Moreover, I am convinced that because of the *Avocet 2*'s superior clocking and signal path, my brain doesn't have to work as hard, and therefore, listening fatigue comes much later in the day. At the end of a recent run of 10–12 hour days, I was still making good choices in terms of balances and EQ — and even the end-of-session roughs sounded close to finished mixes.

Over time, I simply became addicted to the unit. The result of all of this time, energy, and technical prowess is the most beautifully transparent and detailed monitor controller I have ever heard. Both analog and digital sources are rendered with extreme accuracy. Integration of the *Avocet 2* has been a huge time saver, and its use has produced better results. At the end of the day, none of the tech specs matter one bit. The *Avocet 2* with its new and improved DAC sounds awesome. We are humans making music for humans (and maybe some plants too), and the tools that facilitate emotional resonance and assist in translation of artistic intent are indispensable. If a new monitor controller is on your need-to-get or upgrade list, you would be doing yourself a serious disservice by not giving the *Avocet 2* a serious look, and more importantly, listen.

($2,999 MSRP; www.cranesong.com)

–Geoff Stanfield <www.geoffstanfield.com>

KRK

Rokit 5 G3 active monitor

Anyone who has read my previous reviews may know that two years ago, I left the comfort of my trusted Oakland studio to start mixing primarily in my apartment in Brooklyn. I started working right away with the speakers I happened to have with me — Rokit 5 G2 monitors — planning on upgrading them as soon as I got settled. I immediately (and surprisingly) felt very comfortable mixing on them, and managed to eventually completely forget that I wasn't supposed to use "cheap" speakers for professional mixing. Since then, I have auditioned about six or seven similarly-sized speakers of very varying prices, and the Rokit 5 G2 has held its own quite nicely, even against speakers three times its price. The most recent audition was for the next generation *Rokit 5 G3*.

Physically not a whole lot changed from G2 to *G3*; it still has the telltale yellow glass-aramid composite woofer cone, 1" soft-dome tweeter, and slotted bass port on the bottom of the face. The outline of the box changed a bit, becoming slightly less rounded and more angular, with a trapezoidal bevel defining the shape of the faceplate. The back is also mostly unchanged, with the same I/O (balanced XLR and TRS, plus unbalanced RCA), and the same two controls the G2 had (volume as well as HF level adjustment), plus one more — a LF level adjustment with four positions (–2, –1, 0, and +2 dB). I'm glad the *G3* has the extra control, and I'll tell you why in just a moment.

The first thing I encountered after plugging the *Rokit 5 G3*s into my speaker-switching matrix was that I thought they had arrived DOA. No sound came immediately out of them, although the logo on the front was glowing, and I was sure audio was passing down the line. Roughly a second later, though, I heard the audio gurgling up from the murky depths, and within another second, there was full-color audio blazing through the *G3*s. It turns out that the *Rokit 5 G3* goes into an "Auto-Standby" mode when it hasn't been fed any audio for thirty minutes, unlike any other studio monitor I have come across in my 17-plus years of hanging around pro-audio equipment. I find this "feature" a little unsettling and rather odd, since I feel like any power saving during this sleeping is completely overshadowed by the likelihood of cranking up the volume of whatever is feeding the speakers during that second of silence, only to experience a loud surprise when it wakes up. Plus, there's that moment of "huh, what's going on?" when switching over to them for the first time in a half hour, and anything unexpected like that interrupts your mix flow, which ain't good.

Aside from that functional issue, I think this is a fine speaker. It's more different sonically from the G2 than I thought it'd be. I find the *G3* warmer in the top, that is to say that I can hear more high-end detail on the G2. The *G3* is also a little tubbier in the low and low-mids than the G2, which I already feel is a little on the boomy side. Even after notching the LF adjustment down a couple of dB, the *G3* still has an ample amount of low-mid info, at least living a foot from the back wall in my small mix room. As for true low end, well, it is still just a 5" woofer, so if you really want to hear subs clearly, you'll need a subwoofer — or full-bandwidth headphones — but that's the case with any speaker this size. As for the high end, even with the HF adjustment bumped up a dB, the G2 has a fair amount more sizzle, and I consider it to be dark speaker!

The takeaway is that the *Rokit 5 G3* is really quite good for its extremely low price tag of $300 per pair. I've grown to like it more and more, as it burns in and I get used to its sound. I think I'll hold on to my G2 pair for now, but that has as much to do with familiarity as anything else. The *G3* is warmer and "rounder," and therefore may sound better to some users, but I would definitely recommend coupling them (as with any small, affordable monitor) with some headphones that have both frequency extremes better covered (I rely heavily on my Audio-Technica ATH-M50 [*Tape Op* #63]), to make sure your subs and sibilance are both kept in check.

(*$149.50 street each; www.krksys.com*)

–Eli Crews <www.elicrews.com>

TASCAM

UH-7000 mic preamp & USB interface

Instead of offering eight or more inputs loaded with mic preamps in a never-ending quest for bang-for-buck, some companies are designing two-channel units that put the emphasis on quality rather than quantity. Such is the latest USB interface from TASCAM for both Mac and PC. The *UH-7000* costs about the same as a mid-priced multi–in/out interface, but its analog I/O is limited to two channels, with two built-in mic preamps. It's capable of 24-bit, 192 kHz operation, and TASCAM has done a bang-up job of making this a high-end unit with premium sound.

The *UH-7000* is a 2RU-height, half-rack unit, but it is made for tabletop use, with feet and no rack ears. Connection to computer is via USB 2.0. The drivers and firmware should be checked, downloaded, and installed before firing up the unit. Installation, including new firmware, was as smooth as a shoulder rub. The front panel is simplicity itself with three buttons and three knobs. The power button on the left is single function, but the two smaller buttons on the right do double duty. If you push the left button, the *UH-7000*'s Mixer Panel application opens up on your computer, while the right-hand button toggles the link state of the output volume knob. Link controls the headphone and main volume together, while unlink, no surprise, gives control of only the headphone, resetting the main output to full volume. If you hold either button down, phantom power is engaged for its respective mic input. The rest of the front panel is occupied by the 1/4" headphone jack and status LEDs for sample rate, link, and phantom power. That leaves plenty of space devoted to each channel's input knob and associated 20-segment meter. The knobs are big, feel solid, and offer just the right amount of resistance. The peak-hold meters hang for a second at the highest point, providing great ease in setting input volume. They are nice enough that I wish they could be switched to output. The back is busier, with XLR mic inputs, 1/4" TRS line inputs, and XLR line outputs. XLR jacks handle digital I/O, switchable between AES/EBU and S/PDIF formats. Analog and digital I/O can be used simultaneously, for up to four channels of audio between the *UH-7000* and your chosen DAW. There are no instrument-level DIs on the unit, and neither are there inserts.

The included Mixer Panel software is straightforward yet flexible, incorporating a three-tabbed UI. The Interface tab is for status and settings like driver version, sample rate, clock source, etc. The Mixer tab is for controlling the *UH-7000*'s onboard mixer. When set for the default Multitrack Mode, it offers mixing of input signals to the DAW, routing of input and DAW signals to the outputs, and a cross-fader for low-latency monitoring. You can choose *either* the mic preamp *or* the line input for each analog input channel. The digital channels can be mixed and routed separately from the analog channels. Plus, the mixer has access to four virtual output channels from the DAW. Switching to Stereo Mode simplifies everything, mixing everything into a single stereo track that goes to the DAW and all of the *UH-7000*'s outputs simultaneously. The Effects tab is for the built-in effects. The usual suspects are available, including various dynamics, EQ, and reverb effects. I found the latter most useful, allowing the artist to hear reverb in the monitor mix without having to commit reverb to the DAW recording.

When I first listened to the *UH-7000* during playback of a song I was almost finished mixing, the first thing that jumped out at me was the vocals, and I immediately felt that they could use a touch more reverb. I could hear just that much deeper and cleaner into the song. At home, I use a long-in-the-tooth but still useful TC Electronic Studio Konnekt 48. It delivers excellent sound for a home studio, and I never experienced any problems transferring projects between home and studio. The difference in conversion quality between the TC and the TASCAM is obvious to the trained ear. The TASCAM's capture is a little deeper and more distinct, so the edges of the sound, especially distorted guitars and such, are smoother and more realistic. The *UH-7000*'s preamp is an even bigger step up in quality. Although transformerless (like just about every other built-in preamp design), it's smoother, with no hint of the graininess found in the TC and most interface preamps I've tried. It even holds its own against standalone preamps like my Rupert Neve Designs Portico II [*Tape Op* #82] and Warm Audio units [#91, #97] at home, as well as the Neve and API preamps at The Kitchen Studios. Not to say that the TASCAM preamp sounds like these transformer-based designs — its sound isn't as "big" as Neve's, and its highs aren't as sweet as API's — but I wouldn't hesitate to use it alongside these for its clear image and full lows. The only thing I wanted was inserts for the TASCAM preamps so I could use analog compressors going in. John Painter at The Kitchen thought that the