



I first spied the Ayre Codex two Januarys ago, at the 2015 Consumer Electronics Show, and its scrappy proletarian vibe sure made it look different from any other Ayre creation. On learning that its price would be well under \$2000, I was immediately curious what [Charley Hansen](#) and his gang—makers of the \$3450 [QB-9DSD](#) USB digital-to-analog converter, plus a few five-figure amps and preamps—could create when cost *is* an object.

Indeed, as Hansen says, "The Codex was deliberately built to the lowest price point we've ever done. Doing so imposes specific constraints. No matter how clever one gets with the circuitry, the fact that there are cost constraints limits the ultimate performance level."

I wondered: would this turn out to be trickled-down technology at its best, or would some essential Ayre magic be lost in the process?

## Description

The Codex retails for \$1795 and sits nicely on a desk, like a thick hardback book stood on its long edge: it's much taller than it is wide, and deeper than it is tall. Other DAC-headphone amps have gone this route, including Denon's DA-300USB and NuForce's Icon. But unlike DACs that can be placed horizontally or vertically, the Codex must be stood on edge, where its four rubber feet reside. One benefit: you can use the Codex as a headphone stand, knowing that your 'phones will be nice and toasty, all warmed up, when you put them over your ears. (My sample of the Codex got hot to the touch—about 108°—after a couple hours.)

On the front, across the top, is the Codex's name in large white letters; below that—and featuring notably smaller characters—is the unit's multi-function display. During normal listening, the display shows the sample rate. Then, as you turn the large volume knob directly below it, the display temporarily indicates the volume level in increments of 1.0dB, from 0 to 100. Every time you power up the Ayre or insert headphone plugs in one of its jacks, the volume resets to a friendly 66. That's probably a safe, sane feature, but it meant I had to keep returning the volume to my calibration target as I switched back and forth for comparisons: other DAC volume controls always stay where I leave them.

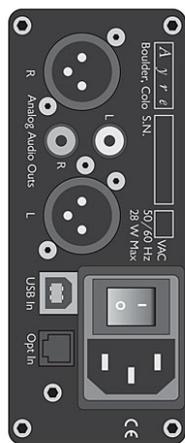
The volume knob is wrapped with a couple of rubber rings, for good grippiness. Ayre claims this stepped digital control retains a full 24 bits of resolution down to -60dB. Pushing in the knob mutes the Codex, and holding it down for a couple seconds accesses other functions: input and output selection, display brightness, and firmware version. Though this is a hefty little DAC, pushing the knob hard enough to get it to click caused the Codex to slide a bit across my desk each time. I learned to hold it down with one hand.

You can set up the Codex to bypass its volume control for use as a straight DAC in a system with preamp. With the Codex in this mode, inserting headphones will temporarily turn on the volume control and reset it to 66. Remove the headphones and DAC mode resumes. Very convenient.

Listening to headphones and using the output jacks at the same time is not recommended. The user manual warns that, when trying to use both, "In single-ended mode, the rear-panel jacks will not output the correct signals. While this will not damage any equipment, you will not hear the proper sound quality from your speakers in this situation."

Below the Volume/Select knob is a small LED that indicates when the headphone output is configured for Balanced mode. Below that are two 3.5mm headphone jacks, which can be used for shared listening with two sets of headphones—or, in Balanced mode, one jack for the left channel and one for the right. Each time you plug any headphones into one of the 3.5mm jacks, the display flashes "BAL" and lets you choose balanced or unbalanced operation.

Below the smaller jacks is a regular ¼" stereo jack for unbalanced headphones. If you've set the 3.5mm jacks for Balanced mode, you can still use the ¼" jack for unbalanced headphones, though you can listen only to one set—balanced or unbalanced—at a time. As soon as you pull the unbalanced headphones out, the Balanced light comes back on; when you insert the balanced headphones into the 3.5mm jacks, the display flashes "BAL," you push the volume knob once, and you're back in business.



On the rear panel are both balanced (XLR) and unbalanced (RCA) audio outputs and, below those, the USB and optical inputs, as well as an IEC power connector and switch. Up to 24-bit/384kHz PCM and DSD64 and DSD128 are accommodated, which I tested via USB (I didn't test the optical input). Inside is ESS's ES9018K2M 32-bit DAC chip, along with the same fully balanced, zero-feedback topology used in Ayre's R Series models.

But according to Charley Hansen, the key to the Codex is the linear power supply stuffed into its little case. "Remember that every circuit is a modulated power supply," Hansen told me. "When you have a fully differential balanced circuit from input to output it makes a massive difference. We put the very best power supply in the Codex that we know how to make, the AyreLock regulator that is in our Twenty series products. When you run balanced, it is like making the best power supply literally 1,000 times better."

A final note about the Codex's exterior design: The case is quite simple and direct, and our own Michael Lavorgna blames the front-panel fonts (they're kinda large) for spoiling an otherwise serviceable design. I have to agree. I wouldn't say the Codex is ugly, but maybe it looks a little plain—certainly not as stylish as Ayre's pricier stuff. I see this as more a missed opportunity than a dud; the question is, can the Codex make up in sound quality what it lacks in looks?

## Installation and setup

Setup was easy, and once I got the hang of the Volume knob/pushbutton and how the balanced operation works, it all made sense. And, as noted, Ayre highly recommends using the Codex's Balanced mode with headphones when possible, which I was eager to put to the test.

When using headphones or listening to my main system, I primarily listened to the Codex with it hooked up to my MacBook via USB and running the [Roon app](#). My library has files of pretty much every sample rate and format, and the Codex properly switched on the fly—with never a pop or a click—and indicated the result on its display.

In an effort to rack up a few hundred hours of break-in before critical listening, as Ayre recommends, I left the Codex on continually over the course of several weeks, and used it casually with various headphones: AKG K 240, [Audeze LCD-X](#), [AudioQuest NightHawk](#), [Grado HP1](#), NAD Viso HP50, and Sennheiser Amperior. Ayre also sent a custom set of Cardas Clear balanced headphone cables, to mate with the Audeze connectors and the Codex's dual 3.5mm jacks.

A note about Ayre's warranty: You're automatically covered for 90 days, but if you send in the registration card and a copy of the receipt from an authorized Ayre dealer within 30 days of purchase, the warranty

extends to five years. Don't toss that card!

## Listening

I began with a stroll through Pentangle's lush English meadow of music. The first incarnation of the group, formed in late 1966 or early 1967, created a handful of essential folky-jazzy-rocky albums featuring great acoustic (and occasionally electric) guitar playing layered around Jacqui McShee's bright, clear voice. The title track of their fourth album, *Cruel Sister* (CD, Sanctuary 634), begins with just McShee's voice and Bert Jansch's guitar, more voices and instruments steadily added throughout the track's seven minutes. As I listened through the Codex, everything imaged clearly from extreme left to extreme right, wonderfully suspended in a wide, open, dreamlike space.

First things first. Listening to "Cruel Sister" with the Audeze LCD-Xes, I switched back and forth between balanced and unbalanced operation, and found, as Charley Hansen had suggested, that the advantage indeed went to balanced. As I ran through a selection of my standard demo cuts, I found that the difference was a cleaner, slightly more focused sound that was unforced and very natural during balanced operation. All my other headphones mated fine with the Codex during unbalanced operation—but if you can, get a balanced cable fitted to whatever 'phones you use, and try it.



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The second track on *Cruel Sister* is a cappella: McShee singing "When I Was in My Prime." In addition to the you-are-there intimacy of the studio space captured in the recording, with the Codex I could clearly hear an odd artificial reverb that sat behind McShee at the center of the stage. I could also hear the compression-pumping artifacts each time she takes a breath. Then there was an obvious edit at 2:23, where they glued a different take on at the end of the song. I realize all this is diving into audio-geek territory (headphone listening can do that), but rarely does a DAC so precisely reveal the mechanics of that edit. In other words, there was plenty of detail to go around, as well as the ability to hear into the space with the performers. This was the quality of Ayre's QB-9 DAC that attracted me years ago, and it was clearly audible through the Codex.

Shel Talmy's production of early-1960s albums is noted for, among other things (the Kinks!), the bell-like sound of his technique of recording acoustic guitars. With Pentangle, this brought the guitars of Bert Jansch and John Renbourn right into the room with me. While not sounding particularly real or accurate—there's a bit too much steel to the sound for that—these acoustic instruments emerged very alive and attractive under Talmy's guidance: his sound influenced how acoustic guitars would be recorded from that point on.

## Comparisons

Talmy produced Pentangle's second album, *Sweet Child* (CD, Sanctuary 354), and I used "Three Part Thing" as a typical example of those bell-like guitars to compare the Codex with a couple other headphone DACs. I set up the [Chord Hugo TT](#) (\$4795) and the [Benchmark DAC2 HGC](#) (\$1995), and switched back and forth after each playing of this instrumental. Both of these DACs are more expensive than the Codex, the Chord especially so at well more than twice the price. The big caveat is that the Chord and Benchmark have no balanced option for headphones, and so, at first, I did these comparisons unbalanced. And since I'd already established that balanced operation does indeed have the advantage, the comparisons got more complicated when I included it.

Compared to the Hugo, with the Codex set for unbalanced operation, the sound of the latter had a bit more edge—not brightness per se, but slightly less mellowness than the Chord, with more emphasis of the sheen of the guitar: a little extra detail, whereas the Hugo was more polite. One side effect of this extra detail was that the Codex's soundstage felt wider through headphones; the Chord's soundstage was more centered and forward in my head. In the long run, the Chord was more relaxing to listen to, but when I set the Codex for balanced operation and once again made the comparison, it seemed more of a draw. The Codex still soundstaged wider, and now its sound was closer to having the Chord's refined feel.



Unbalanced, in fact, the Ayre Codex veered closer to the Benchmark in the detail department. The Benchmark has always been a no-nonsense DAC; I found that the Codex further refined that approach, fleshing it out, returning a bit more life to the music. Where the Benchmark was a little lean, the Codex seemed just right, with more meat and dynamic pulse. Through the Benchmark, acoustic guitars sounded almost too thin, and not as pleasant. The Benchmark offers more features in terms of inputs and remote control—but if you don't need those, the Ayre seems the clear winner.

## Against the QB-9DSD

In my main system, the Codex hewed closer to the [QB-9DSD](#) and Chord

than to the Benchmark. The Chord is so musical and seductive, and both Ayres are hanging in the same ballpark, so credit to the cheaper Codex for making the team.

I spent an afternoon listening to the new high-definition remastering of Gary Numan and Tubeway Army's *Replicas* (PCM 24/96, Beggars Banquet), which is more analog than one might suspect for an artist who clearly ended up in the electronic category. I don't care so much for the sound of the more popular follow-up, *The Pleasure Principle*, and so tend to stick with this earlier album, also released in 1979.

Listening to "Me! I Disconnect from You," I pitted the QB-9DSD against the Codex and switched back and forth at least a dozen times before I began to sense a bit more control with the more expensive DAC. The Codex had all the attributes that first won me over several years ago, when the original QB-9 landed in my system, but sounded ever so slightly looser: there was a tad less definition of the soundstage—although this didn't affect the bottom end, or my system's overall tonal balance.

No surprise, but the Ayre Codex and QB-9DSD sounded much closer to each other than to the Chord. "Are 'Friends' Electric?," from *Replicas*, features a constant if tempo-challenged acoustic drum part that, through the Chord, sat farther back in the mix than it had through the Ayres. But, in fairness, all three DACs were able to reveal detail galore from this analog recording and mix, and without any hardness or edge. The Hugo TT, of course, comes with more input options, fanciful packaging, and remote control, and though I might prefer it in the long run, as the price increases you enter the realm of diminishing returns in sound quality.

A last sonic note: The one area in which the Codex did not perform miracles was with bright or problematic recordings. It revealed all, and it refused to butter up dry, hard slabs of toasted music. What they mastered is what I got. Take, for example, the recent hi-def remasters of Elvis Costello's albums, especially the earlier ones, such as *This Year's Model* and *Armed Forces* (PCM 24/192): the Codex revealed them in all their bright, sizzling glory—I could take only a minute or two before I had to turn the volume down. In the end, I consider this a small price to pay for a DAC that can elevate great recordings to their rightful heights.

## Conclusions

With the Codex, you get a humble-looking component for your desktop, without that flash Ayre metalwork you've ogled for years, at a price that's attainable by a greater number of people—all while keeping the family sonic heritage intact. In fact, if they could all come out *this* good, I'd encourage Hansen and company to make an entire line of generic-case electronics that also sell for lighter-than-Ayre prices.

Probably the best words to describe the Codex's aural character are *neutral* and *detailed*—and add *Control*, with a capital *C*. It was easy to listen into the soundstage of a complicated recording and pick out filigree and nuance. But the Codex also presented a simple, well-recorded, unaccompanied voice with ease, humanity, and that essential breath of life.

Add to that the Codex's secret weapon: balanced operation for headphone listening. Unbalanced, it did fine, but the Codex's Balanced mode reminded me why I liked [Antelope Audio's Platinum DAC](#) and headphone amp so much—and, more recently, why I've been crazy for the Chord Hugo TT: effortless detail that doesn't fatigue.

Taking into account the price difference with the QB-9DSD (\$3450), the Codex is the most value-packed DAC in the Ayre Acoustics repertoire, and its modest enclosure hides a pyramid of technological achievement rarely available at this price point. The Codex should be part of the roundup for anyone looking for a DAC under \$2000—even if they never need its headphones options.