



Ayre CX-7 CD player

By John Atkinson • Posted: May 18, 2003

With hindsight, one of the sideways steps taken by the High End in the early 1990s was the splitting of CD players into separate transports and processors. There were good reasons for this development, not the least of which was the flowering of creativity it engendered in high-end audio engineers. Having open access to the digital audio data also made possible effective digital equalizers and room-correction processors, but in the rush to increase a system's component count, it was overlooked for too long that keeping everything in one box offered certain advantages.



Yes, the highest-performing digital processors, such as the [Weiss Medea](#) (reviewed by Kal Rubinson in February), the [dCS Elgar Plus](#) (reviewed by Mikey Fremer in April), and my long-term reference, the [Mark Levinson No.30.6](#) (reviewed by me in October and November 1999), still offer uncompromised CD sound. And yes, for those few of us with multiple data sources—DAT recorders, audio workstations, even a [Nagra-D](#)—using a standalone processor is mandatory. However, using an asynchronous interface that embeds the word clock in the data introduces further problems that need then to be solved. (See Malcolm Omar Hawksford's and Chris Dunn's 1992 AES paper, "Is the AES/EBU Interface Flawed?," reprinted as "Bits is Bits?" in the March 1996 *Stereophile*.)

So, our views now sharpened by hindsight, these days *Stereophile* is paying more attention to one-box CD players.

Enter the CX-7

Although Ayre's top CD-playing machine is the DVD-based [D-1X](#), which Paul Bolin reviewed in February, the CX-7 is considerably more affordable, at \$2950. (The D-1X costs \$6000 and up, depending on the video options chosen.) With its brushed-aluminum finish and blue display above the central disc drawer, the CX-7 looks very trim. The eight control buttons are to the right of the front panel, which gave rise to my only complaint: the Standby button on the bottom left of the array is adjacent to the drawer Open/Close button on the bottom right. Perhaps reviewers are more fumble-fingered than regular folks, but I kept putting the CX-7 into Standby when what I really wanted to do was eject a CD.

As I was beginning my auditioning, Ayre sent me a replacement EEPROM for fixing a bug in the control circuitry (it is fair to note that I hadn't had a problem). Installing the v1.3 chip, which is mounted on the display and control board behind the front panel, gave me an opportunity to look under the hood.

The CX-7's interior is dominated by two large blue-painted transformers and the transport, a CD-ROM mechanism sourced from TEAC and feeding what appear to be S/PDIF-encoded data to the printed circuit board that sits behind the output jacks. This double-sided board carries both surface-mount and traditional components, and the digital data are processed by an AKM receiver chip. This is capable of handling 24-bit words with sample rates of up to 96kHz, though in the CX-7, of course, it is dedicated to 16/44.1 data. The CX-7's AES/EBU-formatted digital output bypasses this chip, but is buffered and reclocked with a flip-flop and a pulse transformer and with the pcb traces surrounded by ground planes to minimize contamination of the analog circuitry.

The first stage of digital filtering is via the Burr-Brown DF1706 chip, a 24-bit device capable of operating at sample rates of up to 192kHz. Ayre appears to use this chip to upsample the data to 176.4kHz. The DF1706 also offers sharp or slow low-pass operation, which Ayre calls their Measure and Listen modes, these selectable via a rear-panel switch.

Ayre's data sheet on the CX-7 says that a second filter "oversamples the data to 1.4112MHz." I assume this is the function of the large Field Programmable Gate Array (FPGA) chip adjacent to the DAC chip, this a single Burr-Brown PCM1738 compared with the D-1X's balanced array of PCM1704 chips. The well-regarded '1738 is a 24-bit part, its upper six bits converted with a conventional resistor-ladder topology, the lower 18 bits converted with a five-level sigma-delta architecture operating at 11.2896MHz.

The PCM1738's analog outputs are in the form of current and appear to be fed directly to Analog Devices AD844 chips. This is a high-speed (2000V/μs!), low-settling-time bipolar op-amp optimized for current/voltage applications. Eight AD844s are used for the direct-coupled analog output stages. Although there are no coupling capacitors, no DC servo circuits are used; Ayre's Charles Hansen feels that this seat-of-the-pants approach optimizes low-frequency quality. Ayre also claims that the circuitry is "zero-feedback." Not only is there no loop voltage negative feedback, there are not even current feedback loops around the op-amps. When the player is powered up, two arrays of green LEDs, presumably used for biasing, lend the interior a festive appearance.



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Sound

Setup consisted of sitting the CX-7 on four of Ayre's Myrtle Wood Blocks, using four more of these blocks to damp the player's rather resonant top panel, powering it with a PS Audio Lab Cable, and connecting it to my Levinson preamp with 0.5m lengths of Ayre's new Cardas-sourced Signature balanced interconnect. All comparisons were performed with levels matched at 1kHz, using the No.380S's input offset function. In general I set the CX-7's digital filter to Listen, but I could hear no appreciable difference between that mode and Measure. Sometimes I thought I favored one setting over the other on some passages of music, but there was no consistency to my preference.

First disc up was March's "[Recording of the Month](#)," Ry Cooder's and Manuel Galbán's *Mambo Sinuendo* (Perro Verde/Nonesuch 79691-2). Engineer Jerry Boys worked hard to set the sounds of the musicians within the acoustic of the EGREM studios in Cuba—within what Cooder termed the "bubble," in both acoustic and musical senses (see Robert Baird's interview with Cooder in March, p.49). Via the Ayre CX-7, this aspect of the sound was reproduced in spades. Even when the lead guitar is using artificial reverb, as in "La Luna en tu Mirada," the contrast between its character and the real acoustic surrounding the drums is laid deliciously clear.

The Ayre seemed to excel at preserving this fragile sense of an acoustic around recorded instruments, something that is so easily destroyed by mid-fi playback. Ella Fitzgerald's *Songbook* albums were recorded in the 1950s and '60s, when the band played live in the studio. Her 1959 take with arranger Nelson Riddle on George and Ira Gershwin's "Fascinatin' Rhythm" (*The Songbooks*, Verve 823 445-2) begins with drums vamping in a distinctive space that is further defined when the saxes enter with a figure that meanders upward. As the trumpets loudly take the tune in the instrumental break, you can still hear that same space around the drums. I'm talking about tiny details and differences in the reverb tails here, but nothing sounded confused or obscured via the CX-7.

This is relative, of course. Playing the same cut on the megabucks Mark Levinson [No.31.5/No.30.6](#) combination revealed slightly better differentiation between the trumpets and trombones when they were playing the same line, and the high strings that make an appearance in the recapitulation of the tune floated higher in the image than they had through the Ayre. Ella's voice was set a little farther back in the image through the Levinson, with a little more chest tone. But it's a lot easier to write these words than it was to reach these conclusions during the auditioning sessions.

I had a brief opportunity to compare the CX-7 with Ayre's [D-1X](#), which had to be returned to the manufacturer post-review just as the CX-7 arrived. There was no doubt that the more expensive player offered a more refined sound, the tiny tonal inflections in Ella's distinctive vocalizing being presented with better clarity, but it sounded a little laid-back compared with the CX-7. In my system, I actually preferred the "budget" Ayre overall for its more coherent character and more vibrant presentation.

Compared with the [Musical Fidelity Nu-Vista](#) player that I bought following Mikey Framer's review in October 2001, the Ayre CX-7 sounded more forward, but with better upper-bass definition. On the Cooder/Galbán collaboration, the Musical Fidelity sounded more of a piece in the midrange and highs, but the double-bass sounded more lumpy. The Ayre player presented the bass instrument with the right combination of tonal body, LF extension, and the attack of fingertips plucking the strings. The Levinson's lows sounded more authoritative than both one-box players, but at \$27,500, at a price way more than either.

Overall, the CX-7's high frequencies were clean, clear, and grain-free. Could the Ayre have been slightly exaggerating recorded detail? Through the Nu-Vista, it was certainly a little harder to hear what sound like LP artifacts in the JVC XRCD reissue of Fritz Reiner's performance of Tchaikovsky's Symphony 6 (JMCRXR-0021). Check out what happens at 6:50 and 9:20 in the first movement, just before the entry of the big tune—was the master tape damaged and a dub from the LP used for patches? Whatever their source, these peculiar spuriae sounded more homogenized with the Nu-Vista, more starkly revealed with the Ayre. Analog tape hiss on this 1950s recording was also a little more obvious, "whiter"-sounding, via the CX-7.

Yet this sense of detail was not achieved at the expense of tonal neutrality. The CX-7's high frequencies were silky-smooth, rendering acceptable the inherent brightness of one of this month's "[Recordings of the Month](#)," Yes's *Fragile* CD (Elektra/Rhino R2 73789). The lower mids on this recording actually sounded relatively warm on the Ayre compared with the 24/96 two-channel mix on the DVD-Audio version (R9 78249), which sounded thin on the [Technics DVD-A10](#) player.

As I write these words, I'm listening to *Stereophile's Mosaic CD*. Everything sounds as I remember it at Chad Kassem's Blue Heaven Studios: the cello set back in the center between the two violins and the viola, and the clarinet on the right, its image occasionally splashing to the left as its sound at climaxes raises reflections. Yet with the Ayre CX-7's resolving view into the recorded soundstage, the acoustic is a little more apparent than I remember hearing when mastering the CD. Nice. Very nice. Closer to what I was trying to achieve when deciding on microphone placement.

Summing Up

Ayre's CX-7 sounds as clean as it looks. Its balance is vibrant, its bass well-defined and deep, its highs clean, detailed, and well-resolved. While SACD and DVD-Audio remain in the wings for most people, waiting still for their commercial cues, the money spent on a CX-7 by a music-lover with a large CD collection will be repaid by many, many hours of enjoyment.