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Ayre CX-7 CD player

John Atkinson, May, 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.

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Sidebar 1: Specifications

Description: Integrated CD player with remote control and two user-selectable digital filter settings. Analog outputs: 1 pair unbalanced (RCA), 1 pair balanced (XLR). Digital outputs: 1 AES/EBU (XLR). Maximum output level: 4.5V RMS at 1kHz (balanced), 2.25V RMS (unbalanced). Frequency response: DC-20kHz, ± 0.25 dB. S/N ratio: 110dB (unweighted ref. 0dBFS). Power consumption: 30W.

Dimensions: 17.25" (440mm) W by 4.75" (120mm) H by 13.75" (350mm) D. Weight: 25 lbs (11.5kg).

Finish: Brushed aluminum.

Serial number of unit reviewed: 9E001.

Price: \$2950. Approximate number of dealers: 30. Warranty: 5 years, transferable, except for transport mechanism; 2 years, transport mechanism.

Manufacturer: Ayre Acoustics, Inc., 2300-B Central Avenue, Boulder, CO 80301.

Tel: (303) 442-7300. Fax: (303) 442-7301. Web: www.ayre.com.

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**Sidebar 2: Associated Equipment**

Digital sources: [Mark Levinson No.31.5](#) CD transport & [No.30.6](#) D/A processor; [dCS 972](#) upsampler; [Technics DVD-A10](#) DVD-Audio player; [Ayre D-1X](#), [Musical Fidelity Nu-Vista 3D](#) CD players; [Musical Fidelity Tri-Vista](#) SACD player.

Preamplification: [Mark Levinson No.380S](#) line preamp, [Z-Systems rdp-1](#) digital control center (updated to handle 96kHz sources).

Power amplifiers: [Mark Levinson No.33H](#) & [Lamm M2.1](#) monoblocks.

Loudspeakers: [Canton Karat Reference 2 DC](#), [KEF Reference 207](#), [Dynaudio Confidence C4](#), [EarthWorks Sigma 6.2](#).

Cables: Datalinks: [Kimber Illuminations Orchid AES/EBU](#), [AudioQuest SVD-4 S/PDIF](#). Interconnect: [Madrigal CZ Gel-1](#), [Ayre Signature Series](#) (balanced); [DiMarzio](#) (unbalanced). Speaker: [AudioQuest Gibraltar](#). AC: [Synergistic Research Designer's Reference²](#), [PS Audio Lab Cable](#).

Accessories: [Target TT-5](#) equipment racks, [PS Audio Power Plant 300](#) at 90Hz (preamps, CD players only), [Audio Power Industries 116 Mk.II](#) and [PE-1](#) AC line conditioners (not power amps), [ASC Tube Traps](#), [RPG Abffusors](#). AC power comes from two dedicated 20A circuits, each just 6' from the breaker box. A [Mark Levinson No.33H](#) or a [Lamm M2.1](#) was plugged into each.—**John Atkinson**

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**Sidebar 3: Measurements**

The Ayre CX-7's maximum output level was very slightly higher than specified, at 4.514V balanced and 2.255V unbalanced. The latter is 1.03dB higher than the CD standard's 2V. Both sets of outputs preserved absolute polarity (*ie*, were noninverting), the XLRs being wired with pin 2 hot. The source impedance from the unbalanced RCA jacks was a low 58 ohms across the audioband, this doubling as expected from the balanced XLRs, which is still usefully low. Error correction, assessed using the *Pierre Verany Test CD*, was good, the player occasionally dropping out when the gaps in the data spiral reached 1mm in length.

With the rear-panel filter switch set to Measure, the response was flat up to the top octave, which, as can be seen from the top pair of traces in fig.1, then featured a rolloff of a fraction of a dB by 20kHz. De-emphasis error was negligible, as shown by the bottom traces in this graph. With the filter set to Listen, the response above 14kHz or so rolled off more rapidly, reaching -2.5dB at 20kHz. Not apparent on this audioband graph will be the fact that this filter setting doesn't roll off ultrasonic frequencies as aggressively as the Measure setting, which has ramifications that will become apparent later. All of these measurements were made from the balanced outputs; the response from the unbalanced jacks was identical.

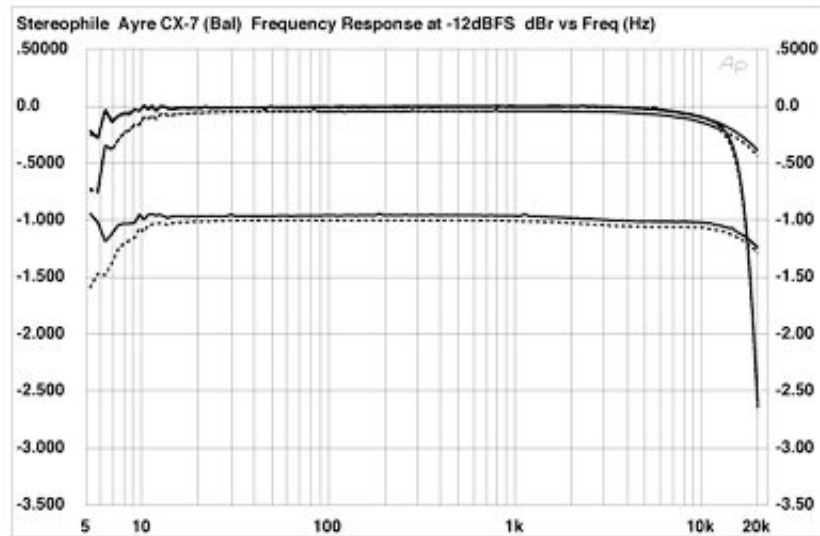


Fig.1 Ayre CX-7, balanced outputs, frequency response at -12dBFS into 100k ohms with filter set to Measure (top at 15kHz), with filter set to Listen (middle at 15kHz), response with filter set to Measure and with de-emphasis (bottom). (Right channel dashed, 0.5dB/vertical div.)

Channel separation from the balanced outputs (not shown) was excellent, at better than 105dB across the band in the R-L direction but only 90dB in the other direction. The unbalanced performance was about 5dB worse, but still respectable. Fig.2 shows a 1/3-octave spectrum of the Ayre's output while it decoded data representing a dithered 1kHz tone at -90.31dBFS. No harmonic or power-supply-related spurious can be seen above the noise floor, this actually due to the dither used to encode the 16-bit data. This is excellent performance, suggesting that the Ayre's true noise floor is very low.

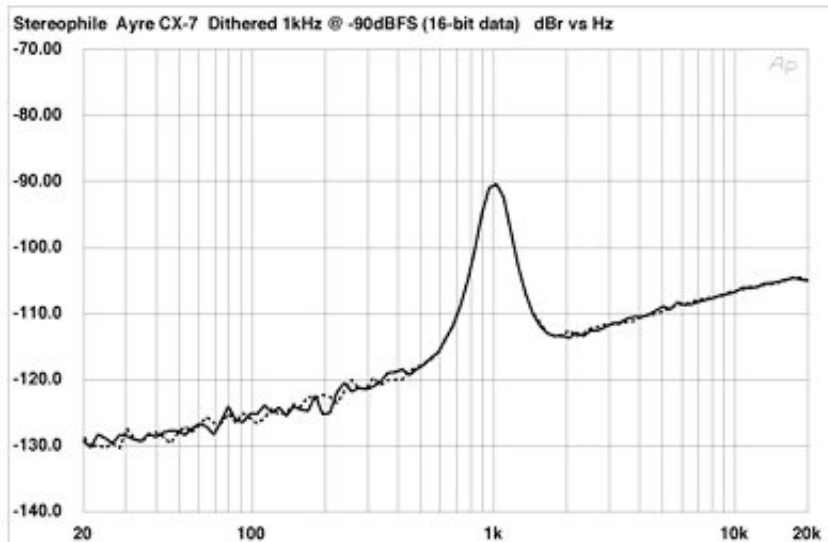


Fig.2 Ayre CX-7, balanced, 1/3-octave spectrum of dithered 1kHz tone at -90dBFS, with noise and spurious (16-bit data, right channel dashed).

Linearity error was also low, remaining below 2dB to below -110dBFS (fig.3), which, in conjunction with the player's low analog noise, results in accurate reproduction of the waveform of an undithered 1kHz tone at exactly -90.31dBFS (fig.4). Each of the three voltage levels that describe this signal can be clearly seen, with very little noise riding on the waveform.

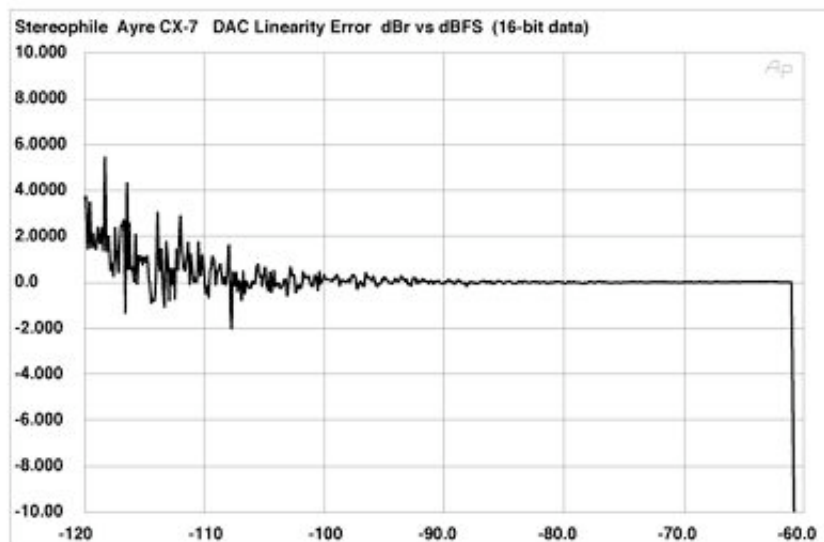


Fig.3 Ayre CX-7, left-channel departure from linearity, 16-bit data (2dB/vertical div.).

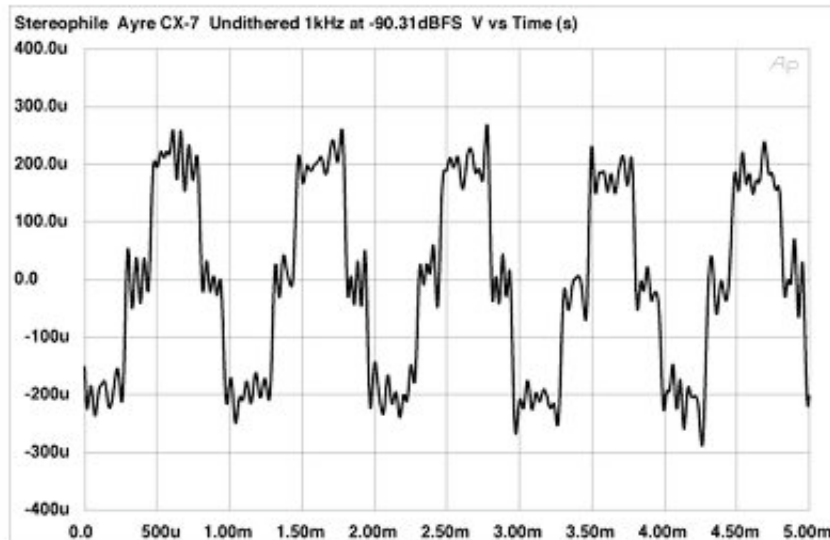


Fig.4 Ayre CX-7, waveform of undithered 1kHz sinewave at -90.31dBFS, 16-bit data.

When it came to harmonic distortion, the CX-7 was good rather than great, something that can be laid at the feet of its lack of loop feedback. Fig.5 shows the spectrum of the player's unbalanced output while it reproduced a full-scale 1kHz tone into a fairly low load of 8k ohms. A regular series of harmonics can be seen extending to the 10th, which lies at the right-hand edge of the graph. Only the second, third, and fifth harmonics lie above -80dB (0.01%), the first two lying at -70dB (0.03%), which should still be low enough to be inaudible. The right channel was, overall, better than the left, at 0.042% THD (actual sum of the harmonics) compared with 0.057%, though it has more fourth harmonic evident (red trace). As expected, the balanced outputs significantly reduced the level of just the even harmonics, leaving the third and fifth highest in level (not shown).

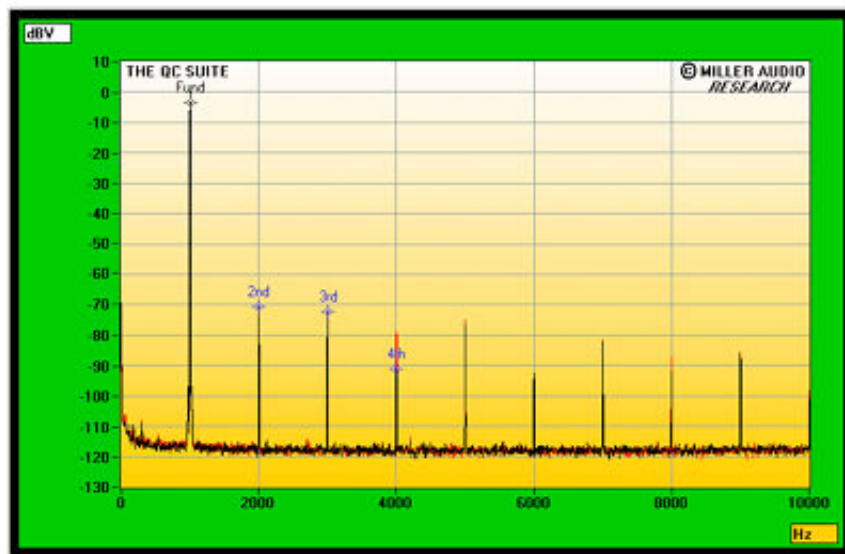


Fig.5 Ayre CX-7, unbalanced, spectrum of 1kHz sinewave, DC-10kHz, at 0dBFS into 8k ohms (linear frequency scale).

With the filter set to Measure, the Ayre CX-7's intermodulation behavior was good rather than excellent (fig.6). The difference tone at 1kHz was the highest intermodulation product visible, at 0.02% in the left channel and less than half that

in the right (0.006%), but several higher-order products can be seen. Switching the filter to Listen changes the picture quite dramatically (fig.7). The 1kHz product actually drops in level—to 0.012% left, 0.0008% right—but not only can a strong tone be seen at 24.1kHz (44.1kHz minus 20kHz), but many other aliasing tones and tone pairs are now apparent throughout the audioband, the latter spaced by 100Hz.

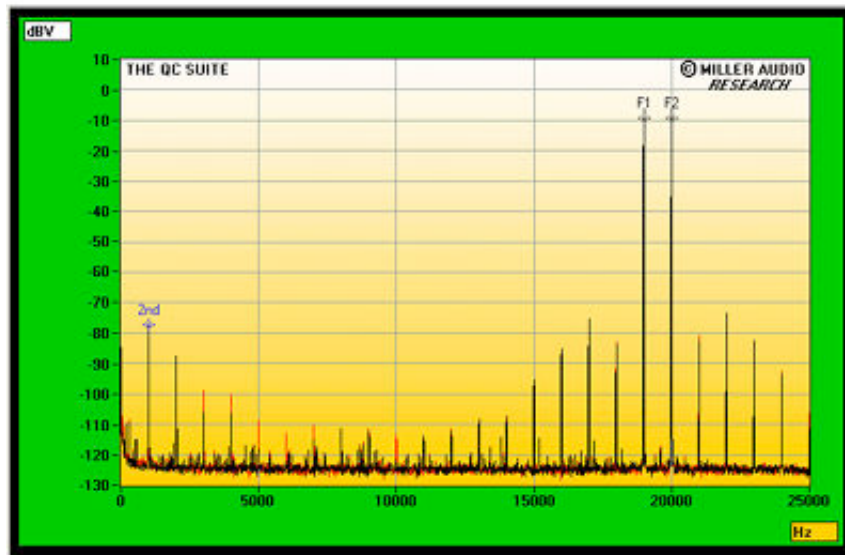


Fig.6 Ayre CX-7, unbalanced with filter set to Measure, HF intermodulation spectrum, DC-25kHz, 19+20kHz at 0dBFS into 8k ohms (linear frequency scale).

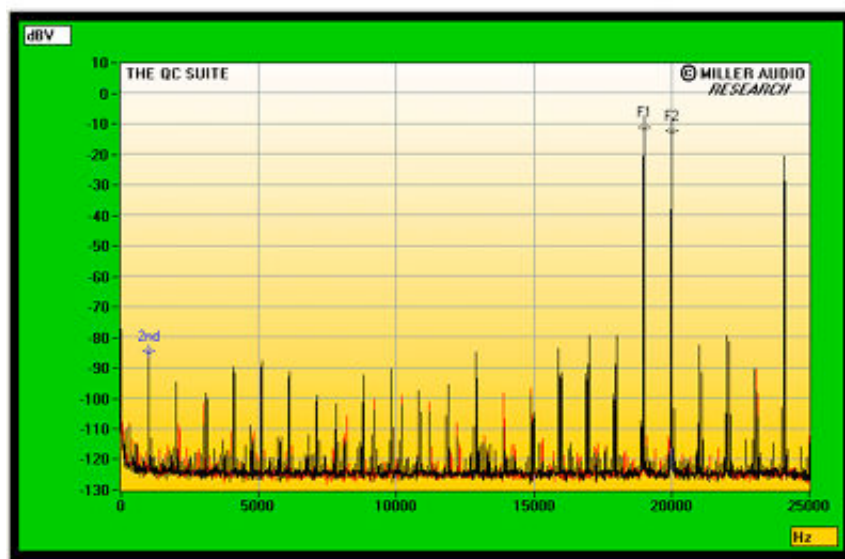


Fig.7 Ayre CX-7, unbalanced, with filter set to Listen, HF intermodulation spectrum, DC-25kHz, 19+20kHz at 0dBFS into 8k ohms (linear frequency scale).

I rush to make it clear that I heard *nothing* in my auditioning that could be laid at the feet of this filter behavior. Still, I don't like to see it. Both of these graphs were taken from the unbalanced output jacks; the balanced behavior offered a 1kHz intermodulation product that was about 10dB lower in level, but the same level of aliasing products with the filter set to Listen. Peculiarly, the intermodulation performance was best when the CX-7 was driving the demanding 600 ohm load.

I assessed the Ayre CX-7's rejection of word-clock jitter using the Miller Analyzer,

which examines the spectrum of a player's analog output for symmetrical sidebands around a high-level tone with a frequency at exactly one quarter the sample rate. The driving signal also contains a low-frequency squarewave at the LSB level, which is a worst-case situation for exciting jitter. The CX-7 did very well on this test, producing just 159 picoseconds of peak-peak jitter—among the lowest results I have measured. Fig.8 shows the jitter spectrum, which primarily consists of data-related sidebands (red numeric markers), these all very low in level. Some low-frequency sidebands can be seen at $\pm 15.6\text{Hz}$ and its harmonics (purple markers), but these are also very low in level.

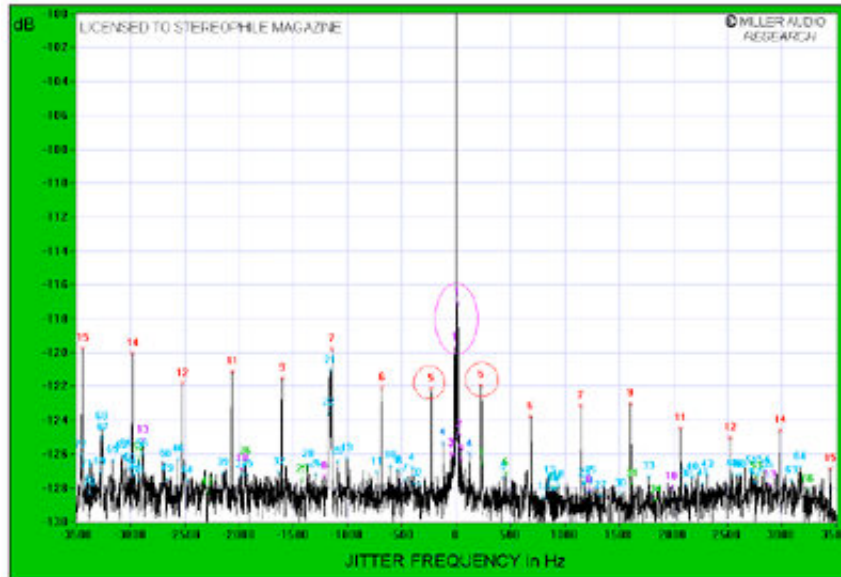


Fig.8 Ayre CX-7, unbalanced, high-resolution jitter spectrum of analog output signal (11.025kHz at -6dBFS sampled at 44.1kHz with LSB toggled at 229Hz). Center frequency of trace, 11.025kHz; frequency range, $\pm 3.5\text{kHz}$.

To sum up, the slow-rolloff Listen setting of the CX-7's reconstruction filter trades off better time-domain performance against the introduction of some aliasing-related spurious. However, it is fair to note that anyone bothered by this measured behavior can simply switch the filter to its Measure setting. Its relative lack of transfer-function linearity aside—and again, this was not something that I was aware of in my auditioning, unless it contributes to the vibrant character—Ayre's CX-7 is a model of modern CD-player design.—**John Atkinson**

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John Atkinson wrote again about the CX-7 in December 2004 (Vol.27 No.12):

When I reviewed the \$2950 Ayre CX-7 CD player in May 2003, I had a hard time determining its final rating in the magazine's "Recommended Components" listing. "Its balance is vibrant, its bass well-defined and deep, its highs clean, detailed, and well-resolved," I concluded, but there was an elusive something missing that prevented me giving the player a Class A rating.

I kept the Ayre in-house for a couple of months to compare with the [Classé CDP-10](#), but a number of high-performance digital components have passed through my listening room since the CX-7 went back to Ayre: the [Mark Levinson No.390S](#), the [Benchmark DAC1](#), the [Arcam FMJ CD33](#), the [Lavry DA2002](#), and the [Simaudio Moon Equinox](#). I thought it worthwhile, therefore, to ask Ayre for a more recent sample of the CX-7, to check how it stood up.

According to Ayre's Charles Hansen, they have made several running changes to the CX-7, including a new FPGA chip, "that have resulted in somewhat improved performance." Physically, however, the CX-7 looks unchanged, the central, blue display still dominating its appearance. The serial number of my original review sample was 9E001; that of the new sample was 9K0121.

I used the CX-7 in a system comprising either [Revel Ultima Studio](#) or [Paradigm Studio/100 v.3](#) loudspeakers driven by either [Mark Levinson No.33H](#) monoblocks or a [Halcro dm38](#) stereo amp, and a [Levinson No.380S](#) preamp. Cabling comprised balanced [AudioQuest Cheetah](#) interconnects and [Kilimanjaro](#) speaker cables. The player's digital filter was switched to the Listen position, which rolls off the top few kHz by a fraction of a dB to achieve better time-domain performance.

Without reference to any other digital sources, my impression of the Ayre's presentation was pretty much as I remembered it: a rather forward, grain-free balance and a well-defined soundstage. But the highs seemed smoother than I was expecting. I used the CX-7 as my workhorse digital source for a couple of weeks, and during that time it seemed to get even smoother, but without any feeling of suppressed detail or rolled-off highs. Despite its rather inconsistent perspectives and sometimes obtrusive noise (from the Royal Albert Hall organ?), the 2004 *BBC Music Magazine* CD of Leonard Slatkin conducting the BBC Symphony in Vaughan Williams' *A Sea Symphony* in concert (BBC MM244) sounded simply glorious on the Ayre, with velvety highs and an enormously deep bass.

It was time for some comparisons, matching playback levels at 1kHz to within 0.1dB, using the No.380S's input offset function. First up was the \$2000 [Simaudio Equinox](#). The presentations were very similar, with a slightly forward balance and a deep, detailed soundstage. However, the slight *chiff* that starts each note of the flute in the Mozart Quartet movement on my [Editor's Choice CD](#) (Stereophile STPH016-2) sounded slightly disembodied through the Equinox compared with the Ayre. While the bass guitar on "The Mooche" (from the same CD) had perhaps both a little more low-frequency weight and better-defined leading edges through the Simaudio player, the Ayre was better at presenting the ambience surrounding the vibraphone vamp at the start of this track. Billy Drummond's brushed cymbals also had less of a white-noise character through the Ayre, sounding more realistically metallic.

After prolonged listening, it became clear that the CX-7 was slightly better at differentiating the individual sounds of instruments than the Canadian player. As each orchestral "choir" took its turn offering variations of the underlying Purcell theme in Benjamin Britten's *Young Person's Guide to the Orchestra*, with the ECO conducted in 1964 by the composer (JVC/Decca JVCXR-0226-2), the Ayre more clearly allowed each instrument's tone quality to stand clear of the enveloping acoustic of London's Kingsway Hall. Even so, it was a close-run thing much of the time.

I turned to the \$2900 [Naim CD5x](#), which Art Dudley enthused over in our November 2004 issue. On the Mozart Flute Quartet movement from *Editor's Choice*, the Ayre

sounded more incisive, the Naim slightly warmer, but also more muddled in the lower mids. The Ayre was again better at portraying the intimate acoustic of Santa Fe's St. Francis Auditorium, which came over as a bit more anonymous through the English player. With Antony Michaelson's performance of the Mozart Clarinet Concerto (*K622*, Musical Fidelity SACD017), both players reproduced the "Red Book" layer of this hybrid SACD with a full, rich balance. The solo instrument sounded very slightly more reedy through the English player, however, with the orchestral picture wider but flatter.

Dipping into the boxed set of Robert Silverman performing the complete Beethoven piano sonatas (OrpheumMasters KSP830), both players were excellent at bringing out the inner voices of the writing. The Naim was perhaps a bit better at reproducing the sound of hammers hitting strings, the Ayre at preserving the image of the Bösendorfer instrument within the small-scaled acoustic of the Santa Monica recital hall where I had made the recording.

My final set of comparisons was with the \$975 Benchmark DAC1, which has indeed become my benchmark for affordable digital sound. I used the Ayre's digital output to drive the Benchmark, using a 2m length of Illuminati Orchid AES/EBU datalink. Playing a CD-R of the new CD of Cantus singing Christmas music (Comfort, Cantus CTS-1204), both the Ayre and the Benchmark were excellent at capturing the feeling of hushed expectancy on Morten Lauridsen's lusciously scored *O Magnum Mysterium*. The DAC1 had a little more top-octave air around the singers; the CX-7 was smoother-sounding overall, and was a little better at differentiating among the lower voices in this dense arrangement.

Returning to *Editor's Choice*, the CX-7 was slightly better at preserving the character of the Albuquerque church in which I had recorded Robert Silverman performing Liszt's *Liebesträum*. On the Britten XRCD, the Ayre was slightly better at integrating the leading edges of timpani notes with the body of the drum sound. Both CX-7 and DAC1 sounded superbly rich, smooth, and detailed on the new Linn hybrid SACD of Sir Charles Mackerras conducting the Scottish Chamber Orchestra in works of Kodály and Bartók (CKD 234).

Without access to the original sample of the CX-7, it is impossible, of course, for me to decide whether the current production of this player is better, or if I have become more appreciative of the design's mix of sonic virtues in the intervening 18 months. But when you get down to it, the CX-7 is one of the better one-box CD players around, and fully deserves a Class A rating in *Stereophile's* "Recommended Components."—**John Atkinson**

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Art Dudley wrote about the Ayre CX-7e in February 2006 (Vol.29 No.2):

Remember all those full-function (line-plus-phono) preamps we used to be able to buy from manufacturers like Audible Illusions, Audio Research, Conrad-Johnson,

Convergent Audio Technology, Counterpoint, Dennesen, EAR, Electrocompaniet, Klyne, Mark Levinson, Motif, Naim, New York Audio Labs, Nova, Precision Fidelity, Robertson, Spectral, Theta, and Threshold? Today, most of those companies have stopped making full-function models—that, or vanished from the scene altogether.

But never mind them: Remember all those high-end CD players we used to be able to buy...?

Consumers aren't to be blamed for deciding they don't want a certain something anymore, but whenever that happens, it's not unusual for *some* demand to remain—and for the best or the canniest companies to cement their following and keep what's left of the market to themselves. (I'm thinking Victor Mousetraps Inc. here.) Not only have some of the aforementioned audio-electronics manufacturers survived, but a few have made names for themselves as enduring sources of good full-function preamplifiers—positions from which they're unlikely to be toppled.

I daresay the high-end CD player shakeout is upon us now, and when the leaves have all settled, some variation of the Ayre CX-7 (\$2950) will be among the survivors.

I was more or less indifferent to the CX-7 when it was introduced in late 2002—dizzied, I suppose, by the torrent of players that still seemed to be coming from everydamnwhere back then—but I came to know the Ayre well a little less than a year later. That was when I reviewed the company's [AX-7 integrated amplifier](#), and the folks at Ayre eventually suggested that I try their balanced-output player with their balanced-input amp. I did, and the rest is history—or at least what passes for history in a hobby this small. The CX-7 stood apart from the crowd as a fine all-arounder that got the notes and the beats right and offered the sound that most devotees of high-end audio expect.

In the January 2006 *Stereophile* I described how that AX-7 amp has been refined and rechristened the AX-7e (for *evolution*, no jokes, swear to God); now the CX-7 has come in for the same treatment. And while I don't have a sample of the older version on hand, nor was my time with the earlier sample long enough that I can lay out one of those *comparisons from memory* that we audio writers love to sling, this is a good opportunity to bring you up to date on Ayre Acoustics' bread-and-butter digital source, and to share a few of my responses to a product that I think is a bit more enduring than most.

As with their revived integrated amplifier, Ayre's e-series changes to the CX-7 amount to two areas of power-supply refinement: additional filtering and enhanced current availability on the AC side, and a much more sophisticated—yet enduringly purist—approach to voltage regulation on the DC side.

Yet the CX-7 has evolved in an additional way: Its already sophisticated digital filter, based on multiple Burr-Brown chips, has been replaced with a Xilinx Field Programmable Gate Array, or FPGA. This was, if you'll pardon my use of an expression so liberal it embarrasses even me, an *empowering* move. Using support software supplied by the Xilinx company, Ayre can not only program the FPGA for use as a digital filter, but can further customize it to do virtually anything within a PCM context: upsampling, downsampling, conforming to various different filter algorithms, you name it. In the CX-7e, Ayre used this capability to implement slightly different coefficients than in the earlier CX-7's filter, which they say results in a more open and transparent sound.

Again, I can't give you a hand-on-heart comparison, but I *can* say that my sample of the CX-7e sounded superb—as when I listened to the Lonesome River Band's "Swing That Hammer," from their *Talkin' to Myself* (CD, Sugar Hill SUG CD 3913). First, here's how that album *usually* sounds: It's obviously a digital recording, probably made on somebody's backwoods hard drive, and it sounds more than a little bit *canned*: kinda flat, kinda plastic, overly compressed, not a lot of drama. What the Ayre CX-7 did was to extract the minimal humanness seemingly left in

those pits, and in a way that no other player I've used quite has. During Don Rigsby's nice mandolin solo—especially the second half of it, where he digs into the chords with a forceful syncopated strum—the CX-7e made all the left-hand slurs and right-hand attacks leap out of the mix in a wonderful way. It also revealed guitarist Kenny Smith's G-runs as the explosive and downright manly all-downstroke things that they are (no wimpy down-up-down stuff for Kenny), all while maintaining an excellent sense of timing and momentum.

Compared with other players in more or less the same price category, the Ayre CX-7e distinguished itself as an almost aggressively (in a good way) rhythmic player, yet one with a wide open and transparent view of the sound, with excellent instrumental colors and textures. For its part, the obvious competitor on that field, the [Naim CD5X](#) (\$2950 stock, \$4000 with FlatCap 2X power supply), had an even more relentless way with the string bass on "Swing That Hammer," and just as good a sense of touch in the picking—but it didn't sound as open or as present as the Ayre. In fact, by comparison, the Naim sounded rolled-off on top.

Stretching the comparison in a slightly different direction to accommodate a multiformat player such as the [Linn Unidisk SC](#) (\$4995) also proved interesting: On Mobile Fidelity's excellent hybrid SACD/CD reissue of Béla Fleck's *Drive* (MFSL UDSACD 7003), I still preferred the DSD layer through the Linn over the "Red Book" layer through the Ayre—but barely. The Linn had the better sense of musical flow, but sonically it was also just a bit too smooth compared with the Ayre's more vivid and tactile sound.

On single-layer discs, the Ayre maintained a slight advantage—as on an early European CD issue of Procol Harum's *Live with the Edmonton Symphony Orchestra* (1972, Chrysalis/Eurodisc 252675). In those first Rodrigo-inspired bars that introduce "Conquistador," the Ayre had more color, and more of a sense of digging in, than either of the aforementioned British players. Even before the music began, the CX-7 distinguished itself as having superior detail retrieval and intelligibility (as when singer Gary Brooker tells the orchestra "This is a hot number" just before they start playing), with clearer separation between the electric bass and the string basses, and even better spatial layering, front to back.

All that, and still just \$2950: an impressive value.

The CD Player directory in the 2007 *Stereophile Buyer's Guide* really needs room for an additional spec: Next to the columns for "Maximum Output Level" and "Special Features" should be one that reads "Honestly Now, Do You Really Believe This Product Will Still Be Offered For Sale In Five Years?" For the majority of them, the answer would be a resounding *no*; for this one, I think it would be *yes*. Forgive me for thinking that's at least half the battle.—**Art Dudley**

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