

Digital
Focus

Cambridge Audio Azur 840C CD Player

The best CD playback under \$5k for... \$1499

Robert Harley

the absolute sound®

**TOP
VALUE**



The new Cambridge Audio 840C CD player left me shaking my head in wonderment at how Cambridge can sell this much CD player for \$1499. The 840C is packed with advanced features, sophisticated technologies, and high-quality parts that one finds in digital products costing upward of \$10k. Here's a sample of the 840C's technology: custom transport mechanism; custom upsampling digital filter running on a 32-bit DSP chip; differential digital-to-analog converters; digital inputs; digital upsampled outputs; and balanced analog outputs. (See Features and Technology sidebar for details.)

Such an impressive feature and technology list, however, tells you nothing about how the player sounds. To know that, you must listen. Dropping the 840C into my reference system, I was stunned by its overall sound quality. I knew immediately that the 840C wasn't a player to be measured against similarly priced products, but was worthy of comparison with reference-grade digital front ends.

For starters, the 840C doesn't sound anything like a \$1500 CD player. It had a resolution, refinement, ease, grace, and musicality that were instantly recognizable as being different from every other product in the category. In fact, it's hard to know where to begin praising the 840C. We could start with any part of the sonic fabric, but I'll choose the treble reproduction, an area where CD players

often reveal their shortcomings. The 840C had a delicacy, refinement, and sophistication in the top octaves that must be heard to be believed. Most digital near this price—indeed, most digital at any price—tends to make cymbals sound like undifferentiated bursts of white noise, with no inner character or clue as to the mechanism by which the sound was created. By contrast, the 840C had a completely natural top end that was smooth and gentle, yet bursting with fine inner detail which gave high-frequency-rich instruments a remarkable timbral realism.

Listen, for example, to Jack DeJohnette's delicate and understated cymbal work on Michael Brecker's fabulous new (and, unfortunately, last) CD *Pilgrimage*. I could hear every nuance of his exquisite playing, and the cymbals were infused with a wealth of finely filigreed detail in their shimmer and decay. Many \$5k players don't approach the 840C's beautiful rendering of the top octaves.

The midrange was equally well served by this combination of resolution and ease. Instrumental tone colors were vivid and alive, as though the 840C had access to a wider color gamut than other CD players. Most CD players anywhere near this price tend to homogenize timbres by overlaying them with a common synthetic character; the 840C portrayed timbres with a stunning naturalness. The natural rendering of tone color, coupled with the overall ease, made the 840C musically vivid without being sonically vivid.

**Packed with
the advanced
features and
quality parts of
a \$10k player**



This rare combination of ease and resolution deepens musical involvement

The 840 also had a soundstage dimensionality that I haven't heard before in a sub-\$5k digital front end. The 840's spatial presentation reminded me of the first time I heard the Theta DSP Pro Generation III, with its spectacular sense of sculpted instrumental outlines "hanging" in the soundstage and separated by near-tangible air. The 840C presented tightly focused images, with sharp outlines that were surrounded by a sense of palpable bloom. The result of the 840C's ability to present instruments as distinct objects in three-dimensional space was a heightened ability to hear what each musician was playing. The subjective consequences of this objective change in the presentation cannot be overstated; rather than hearing a somewhat congealed and synthetic mass of sound, the 840C brought the music to life by conveying a convincing impression of individual musicians before me. In addition, the 840C resolved reverberation tails down to a very low level, which further added to the illusion of hearing instruments in a large acoustic space.

Music through the 840C had an organic "rightness" and fundamental musicality that's hard to describe. I heard a sonic coherence that translated to an enhanced ability to hear into the

Specs & Pricing

Analog outputs: Balanced on XLR jacks, unbalanced on RCA jacks

Digital outputs: Coaxial on RCA, optical on TosLink

Digital inputs: Coaxial on RCA, optical on TosLink (two each)

Digital input word lengths supported: 16–24 bits

Digital input sampling frequencies supported: 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz

Digital output sampling frequencies supported: 32kHz–192kHz (pass-through); 48kHz, 96kHz, 192kHz upsampled

Analog output upsampling: 384kHz/24-bit

Digital-to-analog converters: Dual Analog Devices AD1955 24-bit

Digital filter: Analog Devices Blackfin DASP-BF532 32-bit DSP, running ATF software, upsampling to 384kHz/24-bit

Dimensions: 16.9" x 4.5" x 14.7"

Weight: 18.7 lbs.

Price: \$1499

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ASSOCIATED EQUIPMENT

Wilson MAXX 2 loudspeakers; Mark Levinson No.3265 preamp; Mark Levinson No.433 power amplifier; MIT Oracle MA loudspeaker cables, MIT Magnum MA interconnects; Shunyata Hydra-8 power conditioner and Shunyata Anaconda power cords; custom-built room treated by Acoustic Room Systems

Features & Technology

The 840C offers a host of inputs and outputs beyond those traditionally found on CD players. These connectivity options take advantage of the 840C's custom digital filter, and include two digital inputs for decoding external sources (each input offers coax or TosLink jacks) and digital outputs with selectable sampling frequency, word length, and dither on/off. These features allow you to use the 840C as a DAC, or to upsample digital signals (either from the internal CD drive or for processing external digital sources) for output to an outboard DAC. (See Specs & Pricing for a full list of supported sampling rates and word lengths.) You can even name the two digital inputs, with the name appearing on the 840C's front-panel display when that input is selected.

The custom filter is built on an Analog Devices "Blackfin" 32-bit DSP chip running upsampling software provided by a company called Anagram Technologies. Cambridge calls the filter algorithm Adaptive Time Filtering (ATF), presumably because the filter is optimized for time-domain response (conventional digital filters are optimized for frequency-domain response). The filter upsamples the 44.1kHz/16-bit audio from the CD (or external source) to 384kHz/24-bit.

Dual Analog Devices 24-bit DACs convert the digital data to analog signals differentially. That is, the left and right channels are each split in the digital domain to create balanced signals, and converted to analog with two DACs per channel (one for each phase of the balanced signal). This technique reduces DAC-induced distortion (artifacts common to both halves of the balanced signal cancel due to common-mode rejection) and lowers the noise floor. It requires, however, double the number of DACs and analog output stages compared with conventional conversion. Another benefit of differential DACs is that a balanced signal is created without the penalty of a phase splitter in the analog domain. This is the right way to create a balanced output signal from a digital source, and one that is rarely used because of the additional expense.

The 840C gives you the option of adding dither, a small amount of noise that increases resolution at the expense of a slightly higher noise floor. A selection in the menu allows you to turn the dither on and off.

To top it off, the 840C employs a custom transport mechanism that's considerably beefier than standard-issue transports. The transport servos are all custom and enclosed in a shielded metal sub-compartment. A custom clock drives the DACs, and reportedly has less than 130 picoseconds of correlated jitter.

Finally, the power supply is massive, with a huge toroidal transformer, lots of filter caps, and rows of power-supply voltage regulators. I counted a whopping nineteen TO-3 regulators, about triple the number usually found in CD players of this price. Independent regulators for each subsystem increase the isolation between circuits, which often translates to better sound. RH



music and understand it more deeply. This was partly the result of the 840C's remarkable ability to keep individual instrumental lines distinct, and partly because of the player's tremendous sense of ease, smoothness, and liquidity. This player is amazingly free from midrange glare (often manifested on the leading edges of piano notes) and metallic hardness in the treble. Despite the

840C's utter grace and ease, the player is tremendously good at resolving fine detail. This rare combination of ease and resolution is an important factor in musical involvement and long-term listening satisfaction.

The 840C was good dynamically, but not out-of-the-ballpark great as it is in every other sonic criteria. Microdynamics were rendered with good resolution, but the 840C isn't the last word in slam, impact, and "jump factor." Through the balanced outputs, however, the sound is considerably punchier and more dynamic, with tauter and more muscular bass. If you have balanced inputs on your preamp, you should use them; the 840C sounds better in every respect through its balanced jacks.

Conclusion

The Cambridge 840C CD player delivers the best CD playback I've heard from any player under \$5k—and it costs \$1499. Not only is the 840C easily the greatest value in digital sources in my experience, it must be considered one of the greatest bargains in all of high-end audio. Even if your budget for a CD player is considerably more than \$1499, I encourage you to audition the Cambridge 840C. In fact, I could easily live with the 840C at the front end of my \$100k reference system—it's that good. **TAS**