



Berkeley Audio Design's Alpha DAC Reference broke new ground in digital-audio sound quality when it was introduced two years ago. But Berkeley didn't sit on its laurels and regard the problem of digital-to-analog conversion as solved. Rather, the Alpha Reference's unprecedented technical and sonic performance provided a platform for discovering previously unseen techniques for improving sound quality. Designer Michael "Pflash" Pflaumer spent nearly two years researching these techniques to create the new Series 2.

The Series 2 looks and operates identically to its progenitor. (You can find a full description of the Alpha DAC Reference in my review in Issue 246, or at [theabsolutesound.com](http://theabsolutesound.com).) To summarize the salient features, the Alpha Reference will decode all PCM resolutions up to 192/24, has balanced outputs, sports a digital-domain volume control for driving a power amplifier directly, and offers selectable digital filters. The Alpha Reference is designed for all-out performance. That means no DSD decoding and no USB input. To accommodate USB sources you'll need Berkeley's Alpha USB (\$1895), which converts USB to AES/EBU or SPDIF. This \$1895 box is, by a wide margin, the state of the art in USB conversion. Berkeley contends that including the USB input in the same chassis as the D/A conversion circuitry degrades the sound. If you want to play DSD files you'll need to convert those files to PCM in a computer. The lack of a USB input and DSD decoding speaks volumes about Berkeley's ethos of no sonic compromises. I'm sure that it has lost some potential customers by omitting both, but it's not in Berkeley's DNA to add features that degrade sound quality.

The original Alpha DAC Reference was priced at \$16,000; the Series 2 is \$19,500. Owners of the original can upgrade for the \$3500 difference. (Contact your dealer or Berkeley Audio Design for details.) Note that Berkeley Audio Design is an MQA licensee, and will offer a software update to the Alpha Reference and Alpha Reference Series 2 later this year. The units need not be returned to the factory for the MQA upgrade.

Berkeley is characteristically guarded when describing the Series 2's technical innovations. The company did, however, suggest that the updates include optimized filters and improvements to the analog stage. It's worth mentioning that Berkeley takes a different approach to filtering than do other DAC manufacturers. In the Alpha DAC (\$4995) and the Alpha DAC Reference, the digital and analog filters are designed essentially as a single cascaded system, with a custom digital filter running on a DSP chip followed by a hand-tuned analog filter.



*Berkeley Audio Design Alpha DAC Reference Series 2*

## Listening

I was skeptical that the Series 2 could offer a significant sonic upgrade considering the performance of the original. How much room was left for improvement? A lot, it turns out. With the original and the Series 2 in my rack fed from the same source (an Aurender W20 and Berkeley Alpha USB-to-SPDIF converter) for side-to-side comparisons, it didn't take long to hear the startling advances wrought by the Series 2. In fact, I'm so familiar with the sound of the Alpha Reference DAC, and the Series 2 is so much better, that the differences were readily apparent without comparisons.

The first piece of music I played was "You're Driving Me Crazy" by the Dick Hyman All Stars on the Reference Recording HRx sampler (at 176.4kHz/24-bit). This amazing Keith Johnson recording is exquisitely revealing of DAC quality, from timbral realism, to dynamic expression, to low-level detail, to spatial dimensionality. Even in the short piano introduction, before the band joins in, I could immediately hear the Series 2's improvement in liquidity and dynamic agility. The piano reproduced by the Series 2 was smoother and less glassy, and the transient attacks of hammers hitting strings were reproduced with greater alacrity. I wouldn't have thought it until hearing the Series 2, but the original Alpha DAC Reference has a hint of hardness and glare in the upper midrange. By contrast, the Series 2 has a gentle, flowing ease that creates an instant sense of relaxing into the music—a quality that comes so easily to LP, incidentally. This improvement reminded me of the difference between the Magico Q7 and the Mk.II version of that speaker. The Mk.II sounded less bright and forward, but the two speakers had identical frequency responses. The difference with the Q7 Mk.II, and now with the Alpha Reference Series 2, is a reduction in artifacts that are perceived as brightness, glare, and forwardness. Significantly, this smoothness doesn't come at the expense of darkened tonal color, a reduction in transparency, loss of treble detail, or a diminution of the impression of air riding above the top octave. Rather, the upper midrange and treble through the Series 2 are full of light and verve, with a full measure of upper-harmonic brilliance and extension despite the apparent lack of brightness.

I've previously contended that there's not a linear relationship between the objective change in a reproduced sound and the musical significance of that change. That is, a "small" change in the signal can have a profound effect on the listening experience. Similarly, a fairly large objective change can have a minimal effect on musical engagement. It depends entirely on the nature of the change. The Series 2's reduction in hardness and glare, and concomitant increase in ease, liquidity, and timbral purity, is one of those differences that engenders a far greater musical involvement than the sonic difference would suggest. The powerful combination of fewer artifacts and more musical information puts the brain in a state of musical receptivity. Consequently, you need more than a cursory A/B comparison to fully appreciate the consequences of the Series 2's sonic advances. The Series 2's relaxed ease sneaks up on you during a listening session as you find yourself more deeply engaged in the musical expression. The Series 2's sound is self-effacing, not calling attention to itself but rather getting out of the way of the performance.

This greater timbral liquidity coupled with increased resolution is one of the twin pillars of the Series 2's achievement. The second pillar is the extraordinary dynamic expression realized by the Series 2. Notes just start faster with the Series 2, and do so with more lifelike attacks. Moreover, this transient speed and punch isn't accompanied by hyped edginess. Rather, the Series 2 more accurately renders the way the sounds of instruments start and stop in life. It's not just percussion, piano, a drum kit, and other instruments which produce sharp transients that are rendered more realistically—a wide range of other instruments benefit as well. One instrument that struck me as being reproduced with greater clarity, dynamic expressiveness, and realism by the Series 2 was acoustic bass. During Scott Colley's extended and expressive bass solo on the track "Never the Same Way" from Gary Burton's *Guided Tour*, the Series 2 portrayed the attack of each string pluck with greater speed, impact, and clarity, bringing the instrument to fuller life. Another vivid example is Stanley Clarke's playing at the beginning of "Song to John" from the acoustic trio album (with Jean-Luc Ponty and Al DiMeola) *The Rite of Strings*. He creates a sustained sound during the introduction by rapidly but gently plucking one of the bass strings. Through all other digital I've heard, the individual attacks of each note tend to get blurred together. The Series 2 revealed, for the first time in my experience, the dynamic detail of this passage. I use this as an example to illustrate a point, but the real benefit of the Series 2's dynamic clarity is in the DAC's ability to convey the full measure of a musician's dynamic expressions and nuances. You can simply hear much more of what each player is doing. It's interesting to hear intimately familiar music through a component that breaks new ground in some aspect of sound quality; through the Series 2 I had a newfound appreciation for subtleties of dynamic expression that were previously unresolved. It's impossible to overstate the role of dynamics in fostering a lifelike sense of music-making.

But in addition to that quality, the Series 2's dynamic alacrity infuses the entire presentation with a sense of life, vitality, air, and openness. The album *Live in America* by flamenco guitarist Paco De Lucia exemplifies how the Series 2's dynamic expression brought music to vibrant life. The Series 2 conveyed the speed and zip of the lightning-fast guitar runs, the handclaps, and the *zapeteo* (percussive footwork) with a thrilling vividness, yet the sound never became edgy or fatiguing. This track also revealed the Series 2's superior resolution of spatial cues, particularly image focus and the space between instruments. On this album, and so many others, the musicians just sounded more exuberant and energetic once the sound was liberated from its dynamic confines. There was an unfettered and joyous quality to some music that I simply hadn't fully experienced before.

Low-level detail was also better-resolved, particularly very fine treble textures. Cymbal strikes were more gentle, now sounding more burnished bronze and less "white." The cymbal strikes seemed to be surrounded by a larger and better-defined envelope of air, and hung in space longer as they decayed. Moreover, I could hear more deeply into the cymbal's harmonic structure; it was less like a burst of noise (a gross exaggeration) and more like a delicate shimmer. I'm sure that you've all heard that characteristic of low-quality digital in which the treble is bright yet lacking in top-end air and extension. The Series 2 is the antithesis of this sound; it is less bright in the upper-mids and treble than the original Berkeley, yet is more open, extended, and airy. The sound was "illuminated from within," to use Jonathan Valin's evocative phrase. Less bright but more open and extended may seem like a paradox, but it's the way live music sounds. And that's quite an achievement to realize in an audio component, particularly in a DAC.

After I listened to a wide range of file resolutions through the Series 2, it struck me that the most impressive aspect of this DAC isn't its all-out performance with 176.4kHz/24-bit files (which is spectacular), but what it can do with garden-variety CD files. The sound quality difference between CD and high-resolution sources is less stark through the Series 2 than through any other DAC I've heard. It's surprising how good CD can sound when played back through a state-of-the-art system (CD ripped to an Aurender W20 and decoded by the Series 2 with the Berkeley Alpha USB converter). Because so much of my favorite music is available only on CD, this quality of the Series 2 is particularly welcome. I'm surprised that improvements in digital

playback continue to extract more and more information from digital recordings, particularly CD. To our great fortune, our CD libraries contain much more music just waiting to be uncovered by improvements in digital-to-analog conversion.

## Conclusion

The Alpha DAC Reference Series 2 delivers significantly better sound quality than its predecessor, and in ways that matter the most to musical enjoyment. After listening to music through the Alpha DAC Reference nearly daily for the past two years, I'm shocked that the Series 2 can push the state of the art that much further. The fact that owners of the original can upgrade for the price difference between the two models, and that Berkeley will offer MQA capability as a software update later this year, is icing on the cake.

The Series 2 seems to have crossed an important threshold in digital's long slow march toward musical realism. This DAC's sound is open, airy, transparent, highly detailed, lively, and fast, yet at the same time smooth, liquid, relaxed, and non-fatiguing. Throw in a newfound dynamic fidelity, ultra-high resolution, and a stunning rendering of spatial cues, and you've got the recipe for maximum musical engagement.

## Specs & Pricing

**Input sampling rate:** 32kHz-192kHz

**Input word length:** 24-bit

**Inputs:** AES/EBU, SPDIF on BNC (x2), TosLink

**Outputs:** Balanced on XLR jacks, unbalanced on RCA jacks

**Output level:** Variable: 6.15Vrms at 0dBFS (balanced); 3.25Vrms at 0dBFS (unbalanced)

**Digital volume control and balance:** 0.1dB steps, 0.05dB L/R balance, 60dB range

**Remote control:** Volume, balance, input selection, absolute polarity reversal

**Digital filter:** Custom, user selectable

**THD+N:** <-110dBFS at maximum output

**Firmware:** Upgradable through signal inputs

**Warranty:** Three years parts and labor

**Dimensions:** 17.5" x 3.5" x 12.5"

**Weight:** 30 lbs.

**Price:** \$19,500

## BERKELEY AUDIO DESIGN

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## ASSOCIATED EQUIPMENT

**Loudspeakers:** Magico Q7 Mk.II, EnigmAcoustics Sopranino self-biasing electrostatic super-tweeters

**Preamplifier:** Constellation Altair II

**Power amplifiers:** Berning 211/845

**Digital sources:** Aurender W20 music servers, Berkeley Alpha USB

**Support:** Critical Mass Systems Maxxum equipment racks (x2), Maxxum amplifier stands (x2)

**Loudspeaker cables:** MIT Oracle MA-X SHD

**Interconnects:** MIT Oracle, AudioQuest WEL Signature and AudioQuest Wild

**Digital interconnects:** Audience Au24 USB, AudioQuest Wild Digital AES/EBU

**AC:** Four dedicated AC lines; Shunyata Triton 2, Triton DP, Typhon (x3) conditioners, Shunyata Sigma power cords

**Acoustics:** ASC 16" Full-Round Tube Traps, ASC Tower Trap, Stillpoints Aperture Panels

**Accessories:** Shunyata cable lifters, Stillpoints Ultra2 and Ultra6 isolation