

# the absolute sound

ELECTRONICALLY REPRINTED FROM MAY 2013

## EQUIPMENT REPORT



## Bryston BDA-2 Digital-to-Analog Converter

Presence from Absence

Karl Schuster

Perhaps it was serendipity, perhaps inevitability, that led me to play The Modern Jazz Quartet's *The Last Concert*. "Softly, As In a Morning Sunrise" unfolds kaleidoscopically, somehow by turns psychedelic, funky, dapper, bluesy, and sly. "Summertime" blossoms open with a novel hypnotic repeating figure on the vibes that we cannot help but hear through the haze of the late 60s, then morphs through variations both familiar and enlightening, ultimately returning to the dreamy, gauzy reverie whence it all began. So what do we have here? Masters of effortless ensemble musicianship, leading us on a journey—their journey—through the decades of their storied careers.

I hadn't expected this sort of musical revelation, but I have gratefully come to accept such delightful rewards from the technically evolutionary but musically revolutionary Bryston BDA-2 digital-to-analog converter.

Bryston's BDA-1 DAC has been a cornerstone of my reference system for several years. Frankly, I have found little to criticize about its performance, which has earned justified praise and a Golden Ear Award in these pages. Thus, my curiosity regarding what improvements those clever Canadians might have incorporated into the new BDA-2 was tempered by an "if it ain't

broke, don't fix it" wariness. That concern was effectively upended the moment that I began auditioning the BDA-2.

The most notable new feature added to the BDA-2 is an asynchronous USB input capable of handling all standard sample rates up to 192kHz, replacing the "convenience feature" adaptive USB input of the BDA-1. Bryston's USB implementation aims to be state-of-the-art, featuring proprietary firmware running on the XMOS USB Audio micro-controller platform. The addition of this feature alone fully justifies the minor price differential over the BDA-1, which remains in the Bryston product line, albeit now at a reduced price. Whereas the BDA-1 utilized a pair of time-tested 24-bit Crystal CS4398 DACs, one per channel in a dual-differential configuration, the BDA-2 has been upgraded with the latest top-of-the-line 32-bit AKM 4399 DACs. Of course both products feature Bryston's venerable discrete Class A analog output circuitry, rather than off-the-shelf IC op-amps.

The BDA-2 retains the input flexibility of its progenitor, with two TosLink optical, two RCA, and two 75-ohm BNC SPDIF inputs, and a balanced AES/EBU input. Both single-ended RCA and balanced XLR analog outputs are offered, as well as a convenient RCA SPDIF pass-through digital output. Inputs can be selected via front-panel switches or Bryston's BR2 system

## EQUIPMENT REPORT - Bryston BDA-2 Digital-to-Analog Converter

remote control, which also enables the user to toggle the BDA-2's upsampling function from the listening position. This feature synchronously upsamples the input data to either 176.4kHz (for 44.1 and 88.2kHz signals) or to 192kHz (for 48 and 96kHz signals), thereby preserving all the original sample data while interpolating intermediate values at the higher sample rates. In contrast, asynchronous sample-rate-conversion techniques essentially synthesize an entirely new data set from the input signal (with the disquieting implication that none of the original input data are rendered with bit-perfect accuracy). I found that upsampling could smooth the rough edges of some older pop CDs, but that the majority of recordings sounded best when decoded at their native sample rates. An array of front-panel LEDs displays the input sample rate, though the arrangement of those LEDs would have been more logical with the left column indicating 44.1, 88.2, and 176.4kHz (rather than 44.1, 48, and 88.2) and the right column indicating 48, 96 and 192kHz (rather than 96, 176.4, and 192kHz). Consider this nit-picked.

Since the asynchronous USB input is the BDA-2's most eagerly anticipated new feature, let's begin our listening therewith. Apple's Macintosh operating system natively supports USB Audio Class 2 devices such as the BDA-2 in versions 10.6.4 and above. Microsoft Windows users need to install the driver supplied by Bryston on a USB key (literally the USB "stick" resembles a metal key).

Unfortunately, my decade-old Windows XP desktop PC did not like Bryston's USB driver at all; regardless of the output mode that I selected (ASIO, Kernel Streaming, and even DirectSound for diagnostic purposes), every time that I attempted to begin playback the computer crashed with an alarming "blue screen of death" Stop error. This was not an auspicious start. Fortunately, Bryston's USB driver has worked well on my Dell Latitude D620 notebook PC, with nary an operational glitch.

The BDA-2's asynchronous USB input must be judged a resounding success, fully competitive with the relative performance of other top-class USB implementations that I have had the privilege of hearing, such as those of the Esoteric D-07X and dCS Debussy DACs. Indeed, because of its particular strengths, the BDA-2 will be especially appealing to listeners seeking to maximize enjoyment from USB sources. The overriding impression of music played via the BDA-2's USB input is one of relaxed ease and unflustered composure. Tonality exhibits a rounded, mellow, non-fatiguing character. Rhythms are well preserved, and spatial relationships are clearly portrayed.

Alas, as with every other DAC that I have auditioned—including the aforementioned dCS and Esoteric products—the BDA-2 can sound substantially better when driven by a SPDIF or AES/EBU source than via USB. To be sure, the manifestations of USB's lingering deficiencies differ between these products. For example, via USB, both the Esoteric and Bryston homogenize timbres, dynamics, and textures, but do so differently. The D07-X renders everything with a superficial glaze or sheen, akin to the synthetic air-brushed "perfection" of the cover models on contemporary fashion magazines, while the BDA-2 imposes a barely perceptible foggy haze between the listener and the performers, reminiscent of the flattering soft-focus filters that glamorized the leading ladies of Hollywood's

golden era. Neither effect is a deal-breaker, and may even escape notice absent a superior non-USB source for comparison.

The BDA-2 substantially reduces the grainy textures and wiry edginess that have marred the sound of massed strings on lesser USB DACs, but it does not entirely eliminate these stubborn artifacts. However, here is a case where the BDA-2's specific strengths tilt the balance in favor of Bryston's USB implementation, since its intrinsic balance is so self-effacing, refined, and relaxed, in contrast with, for instance, the D07-X's more forward presentation. Upgrading the USB cable from the baseline Belkin Gold to the reference-grade WireWorld Platinum Starlight wrought obvious across-the-board improvements in purity, dynamic contrast, impact, and scale. All things considered, since the BDA-2's USB performance mirrors that of far more expensive products both in character and degree, it merits a strong recommendation to anyone looking for a USB DAC.

However, in order to unlock the full potential of the BDA-2, one must feed it from a superior source. In every conceivable parameter, the BDA-2's performance took an unequivocal leap forward when connected to the SPDIF output of the ESI Juli@ sound card in my desktop PC. With the Juli@ card delivering the bits, the BDA-2 sounded vibrant, rich, energetic, lithe, open, and engaging. In contrast, its presentation via USB sounded comparatively smaller, desaturated, muffled, and constrained, paralleling my experience with other premium DACs. Since I extolled the virtues of the ESI Juli@ in Issue 213, there is no need to belabor this point, other than to confirm that USB audio still has a way to go before it can compete with this inexpensive sound card.

Playback from optical disc players was also well-served by the BDA-2. As Alan Taffel observed in his review of the BDA-1, Bryston's digital input circuitry exhibits less variation between SPDIF sources of varying quality than many DACs, and the BDA-2 continues this tradition. I use an admittedly off-the-wall technique to play high-resolution music from optical discs: feeding the HDMI output of an Oppo Blu-ray player into an HDCP-compliant "audio de-embedder" fitted with a standard SPDIF RCA output. (Non-intuitively, this arrangement sounds demonstrably better than the Oppo player's SPDIF output!) Configuring the Oppo to decimate DSD to 88.2kHz PCM opened the door to the tantalizing prospect of utilizing an external DAC

### SPECS & PRICING

**Sample rates:** 44.1, 48, 88.2, 96, 176.4, 192kHz  
**Frequency response:** 20-20kHz +/-0.1dB  
**Noise:** -140 dB unweighted  
**Output level:** 4.6 volts balanced, 2.3 volts unbalanced  
**Dimensions:** 19" x 2.5" x 11.2"  
**Weight:** 18 lbs.  
**Price:** \$2395

**BRYSTON LTD.**  
677 Neal Drive  
Peterborough, Ontario  
Canada K9J 6X7  
(705) 742-5325, (800) 632-8217  
byston.com

even for SACD playback. DSD purists may scoff at this approach, and indeed I used to prefer listening to SACDs decoded in their native DSD form via my previous Marantz disc players. But it's imperative to keep an open mind and open ears. With the Oppo BDP-83, BDP-83SE, and BDP-93 I was surprised to find that I emphatically preferred the pitch stability, rhythmic precision, and solidity of SACDs when internally converted to PCM.

The Bryston BDA-2 sounded delightful playing the 88.2kHz signal derived from SACDs, whether effortlessly revealing the subtle interplay among guitar, organ, and drums on The Wes Montgomery Trio's essential October 1959 Riverside recording or the complex dynamic shadings and meticulous rhythms of Paavo Jarvi's captivating performance of Stravinsky's *A Soldier's Tale* [PentaTone]. Despite the "heretical" conversion of DSD to PCM by the Oppo player, the BDA-2's timbral purity, relaxed fluidity, and refined ebullience dovetailed exquisitely with the virtues of SACD.

As wonderful as the BDA-2 sounded with both the Oppo player and the ESI Juli@ sound card, its performance entered another realm entirely when playing music files from Bryston's BDP-1 Digital Player (reviewed in Issue 215). My initial reaction to this combination betrayed that dumbfounded sense of momentary confusion that accompanies first exposure to something defying expectation. Driven by this reference-grade digital source, the BDA-2 simply does not sound "digital." It imposes none of the usual digital artifacts on the music: no grainy texturing, no edge, no glare, no smearing, no frequency-specific colorations, no level-dependent distortions of spatial perspective.

The BDA-2 portrays instruments with vivid three-dimensional body, precise focus, and rich timbres, but in a natural and unforced manner. It is the first DAC in my experience to completely eliminate "peak shriek"—the unfortunate tendency for high-level transients to induce momentary dynamic instability, thereby imposing a sharp, shrill edginess during musical peaks. We have had to put up with this fatiguing digital artifact for so long now that hearing a product that finally banishes it from the listening room is cause for a rousing standing ovation. I spent hours indulging in this unique virtue of the BDA-2, delighting in the freedom to enjoy digital music at louder levels than with lesser DACs—tellingly, with the same abandon that I experience when listening to records played on my Goldmund turntable.

Much of the BDA-2's remarkable transparency must be due to its preternaturally low noise floor. Bryston cites a noise figure of -140dB, and turning my preamp volume control all the way up leaves no reason to doubt this claim. With electronic distortions reduced to vanishingly low levels, music blooms and decays with lifelike ease. This freedom from low-level interference is complemented by imperturbable handling of high-level crescendos, without overshoot or ringing. Listening to large-scale orchestral recordings through the BDA-2 is a revelation, as each instrument's distinctive timbral signature is maintained without alteration throughout its full dynamic envelope.

Accustomed as we have become to the digital artifacts that tend to add glare, grain, or brightness in the upper octaves, some listeners may at first wonder if the BDA-2 is lacking in high-frequency extension. A quick listen to a well-recorded jazz album with ample percussion, such as Manu Katché's *Third Round* [ECM], will

quickly confirm that the only thing missing from the BDA-2's treble range is distortion. Every cymbal crash and delicate brush stroke shimmers and breathes with beguiling harmonic complexity and an open, airy, natural decay.

Intriguingly, the BDA-2's purity and "quietude" manifest in surprising, unexpected ways. On Santiago de Murcia's *Gaitas* [Linn Records], William Carter's baroque guitar was recorded in a large space, unfortunately shared with a particularly noisy air-circulation system. It is instructive to hear how the ambient sound of the room is conveyed by different components. The intrinsic "resolution floor" of many USB sources obscures much of the sound of the room, in a manner that is acoustically analogous to what happens visually when someone opens a door in a darkened movie theater, allowing light to spill onto the screen, obscuring shadow details with an amorphous, undifferentiated gray haze. Through Bryston's BDP-1 and BDA-1, one can hear all manner of fluctuations in air pressure and reflections around the room, surrounding the small guitar.

I was quite startled when I first played this track through the BDA-2, wondering, "Hey, where's the noise?" However, after a few seconds of acclimation, I found that the ambient room sound was simply being "decoded" in an entirely different manner, intermodulating less with the direct sound of the guitar. Put another way, the BDA-2 was doing such a superior job of reproducing both the guitar and the air conditioner as familiar, identifiable, distinct sound sources, that the brain could more easily isolate the "subject" from the "background," and thus more effectively tune out the annoying air-conditioner noise, and focus on Carter's exquisite playing—just as we do when listening to live music in real spaces with similar ambient background noise levels. I smiled with appreciative recognition at this realization, since it paralleled my experience hearing the legendary Goldmund Reference turntable in the mid-1980s.

Most audio components tend to render the spatial dimensions of recordings with some degree of editorial perspective. For example, the Esoteric D-07X presents the listener with an upfront, immersive experience, emphasizing immediacy and expansive width. The Bryston BDA-1 opts for a seat farther back in the hall, with correspondingly reduced size, but appropriate scale. The dCS Debussy paints an altogether larger, more illuminated picture than the BDA-1, albeit one viewed through a scrim of ultra-fine mesh. In direct side-by-side comparisons, I can easily understand why different listeners might prefer one of these interpretations over the others.

Here again, the BDA-2 just doesn't play by the same rules. I hear no intrinsic spatial characteristics whatsoever from this DAC. Instead of "throwing a soundstage" or "bringing the musicians into your room," the BDA-2 does something quite unlike anything that I have ever heard before. It is as if the end of my listening room behind the plane of the speakers has been removed, leaving an open-air view into the recording venue itself, with life-sized proportions, scale, and volume. Perhaps paradoxically, this absence of spatial coloration does endow the BDA-2 with a distinctive perspective. Because instruments and performers are rendered with a much more realistic sense of distance than we are accustomed to hearing, the surrounding space logically extends far beyond the listening room boundaries, especially in depth. Some listeners might

## EQUIPMENT REPORT - Bryston BDA-2 Digital-to-Analog Converter

initially find the BDA-2 “laid-back” or “recessed”; it takes a little time to move past our preconceived categorical constraints, and embrace the paradigm shift implicit in the BDA-2’s radical advance in conveying spatial relationships. The sensation of being in the presence of live musicians is uncannily realistic, yet un-spectacularly natural.

As thrilled as I was to explore these advancements in digital playback fidelity, I found that the crowning achievement of the Bryston BDA-2 can be described in the simplest of terms: It makes the best of every recording that you play through it. Late one night, I browsed through the BDP-1’s music library, and selected one of my “desert island” discs: the eponymous 1993 debut release from

October Project. This album is a delectable pop confectionery that I will never be able to assess objectively, as it has a special place in my heart. Alas, its densely layered studio production can become murky during complex passages, and some tracks suffer from a dull tonal balance. As much as I love the music, I usually end up playing only a few songs at a time, frustrated by the sonic compromises. What an unadulterated joy, then, to finally surrender to this cherished album’s unabashedly romantic spell from beginning to end, enraptured by the BDA-2’s magical ability to allow the music to transcend the recording’s limitations. I have never enjoyed the music more, and have never heard more in the recording. I cannot think of higher praise, nor can I imagine living without the Bryston BDA-2. **tas**

