KEN MICALLEF

Cyrus CDi-XR

CD PLAYER

In the 1990s, I was a globetrotter, interviewing musicians in diverse locales for several publications. My habit when arriving in London was to hit the duty-free shops for Cuban Montecristo cigars, move on to the newsagent for the latest issues of *Hi-Fi News* and *Hi-Fi Choice*, then take a leisurely romp through Oranges & Lemons, Richer Sounds, and Sevenoaks Sound & Vision—three major London audio stores.

On at least one of those trips Cyrus Audio caught my eye. With its sleek, sculpted half-width façades, Cyrus equipment looked like it belonged in the dash of the Aston Martin DB5 I wasn't driving as it sped around a fast curve on the Strand, and you couldn't get it in the US.

The Cyrus played Cary's music with dense, saturated slabs of synthesizer color, deep bass, and dark-toned drums, like molten rock oozing from a volcano.

Founded in the late 1970s by Farad Azima, Cyrus was originally part of Mission Loudspeaker group; its earliest products were called Mission Cyrus. The brand debuted with two integrated amplifiers, the Mission Cyrus One and the Mission Cyrus Two, both of which already adhered to Cyrus's half-width remit. Those svelte Cyrus designs have always been more than cosmetic; despite modest prices, their diecast casework and the software and hardware inside were a purposeful excursion into audiophile terrain.

Deputy Editor Art Dudley reviewed the Cyrus 6vs integrated amplifier in 2005, writing, "My impression of this product as a good all-rounder and a true bargain is nigh on unshakable: The 6vs was a perfectly nice little amp, with good timing, surprisingly good drama and scale for only 40Wpc, … and an open and clear if slightly dry presentation overall." Art followed that up a few months later with a review of the Cyrus CD 8x CD player, wherein he stated, "It's fair to say that the Cyrus CD 8x is both a respectable performer and a pretty good value for $1995. It's commendably clear-sounding, has a good way with pitch relationships and timing information, and its stereo imaging is unquestionably first rate."

For a while, Cyrus Audio seemed to be missing from the US market, but now it has a new distributor: Fidelity Imports of Manalapan, New Jersey. Fidelity is importing products from Cyrus's Classic series and also its newer XR Series, which includes

SPECIFICATIONS

Description CD player with 32-bit, second-generation QXR (Sabre) DAC, Servo Evolution technology, iR14 remote control. Two stereo pair (RCA) analog outputs. One stereo pair each input/output via the proprietary MC-BUS system for use with Cyrus amplifiers. Optical outputs: TosLink, RCA S/PDIF. Power-supply connection for the PSX-R/PSX-R2 power supplies. Output level: 2.1V. Frequency response: 20Hz–20kHz, ±0.25dB. Channel separation: >110dB at 1kHz, >90dB at 20kHz. S/N ratio (using silent track): >106dBA. THD: at -10dB: 0.003%. Output impedance: 75 ohms. Sample rate accuracy at 44.1kHz: ± 50ppm. Clock jitter: <75pS. Disc compatibility: Audio CD, CD-R. Dimensions 2.87" (73mm) H × 8.46" (215mm) W × 14.17" (360mm) D. Weight: 8lb (3.8kg).

Finish Phantom black.

Serial number of unit reviewed DN1MB0080. Made in Nottingham, England.

Price Approximate number of US retailers: 25. Warranty: two years.

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the CDt-XR CD transport, Pre-XR preamplifier, i7-XR and i9-XR integrated amplifiers, the PSU-XR power supply, and the subject of this review, the CDi-XR CD player. In the US, the CDi-XR costs

A mightier mite

This may seem like an odd time to be introducing a CD player. Sales of new CDs have plummeted; in 2021, vinyl outsold CD for the first time since the earliest years after CD's introduction. And yet, anecdotally, an underground movement seems to be taking hold: People are shopping for used CDs, finding bargains much as vinyl collectors did before records got hot again. And what audiophile doesn't own hundreds and perhaps thousands of silver plastic discs? Who doesn't want a way to play them?

Despite a rich history in streaming—Cyrus was among the first companies to pursue streaming, with a streaming R&D program that started in 2003—the company believes that CDs sound better than the same music does when it's streamed, or at least it has the potential to. Cyrus has worked to realize that potential with research aimed at eliminating the noise inherent in CD playback, partly by reducing the amount of error-correction that's necessary. "The principal objective with our CD players is to extract the data on the disc as accurately as possible the first time—and that is only possible through some very careful design and calibration in both the hardware and software elements of the player," Cyrus states in its marketing materials.

"Despite the general misconception," said Ceri Williamson,

MEASUREMENTS

I measured the Cyrus CDi-XR using my Audio Precision SYS2722 system.[1] This player doesn't have digital inputs, so I used test signals burned on a CD-R. As these signals are restricted to a word length of 16 bits, this affected my measurements of resolution and noisefloor.

I used the *Pierre Verany Digital Test CD* to check the CDi-XR's error correction. It played the tracks with gaps in the data spiral up to 0.5mm in length without stuttering, but there were audible glitches when the gap was 0.75mm and longer. The Compact Disc standard, the so-called Red Book, requires only that a player cope with gaps of up to 0.2mm, but the Cyrus's error correction is not as good as that of the best players or transports I have measured in recent years.[2]

The CDi-XR's output impedance was a suitably low 47 ohms from 20Hz to 20kHz. A 1kHz signal at 0dBFS resulted in an output level of 2.4V, which is 0.4V/1.6dB higher than the CD Standard's recommended maximum level of 2V. The Cyrus's impulse response (fig.1) indicates that the output inverts absolute polarity and that its reconstruction filter is a conventional linear-phase type, with equal amounts of ringing before and after the single sample at 0dBFS that I created for this test.

With white noise at –4dBFS (fig.2, red and magenta traces), the CDi-XR's response was flat in the audioband but rolled off sharply above 20kHz, reaching full stop-band suppression at the Nyquist frequency of 22.05kHz (green vertical line). An aliased image at 25kHz of a full-scale tone at 19.1kHz (blue and cyan traces) lies at just –101dB (0.0009%), but a higher-level image (–83dB) is present at 69.1kHz. The

1 See stereophile.com/content/measurements-maps-precision.

2 See, for example, stereophile.com/content/atc-cda2-mk2-cd-player-preamplifier-measurements.

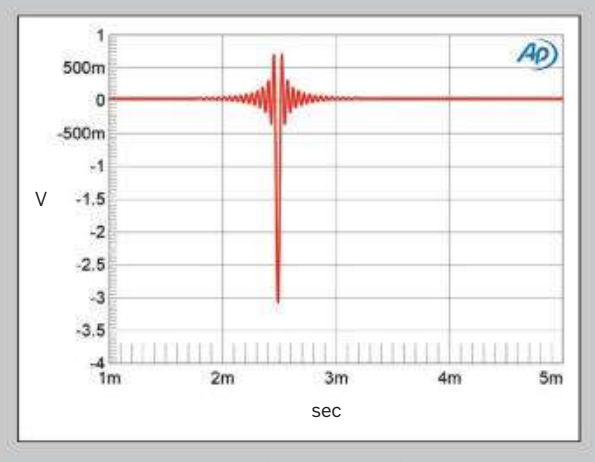

Fig.1 Cyrus CDi-XR, impulse response (one sample at 0dBFS, 44.1kHz sampling, 4ms time window).

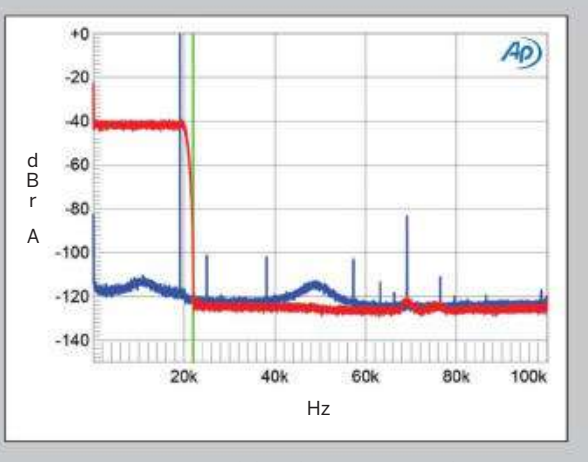

Fig.2 Cyrus CDi-XR, wideband spectrum of white noise at –4dBFS (left channel red, right magenta) and 19.1kHz tone at 0dBFS (left blue, right cyan), with data sampled at 44.1kHz (20dB/vertical div.).

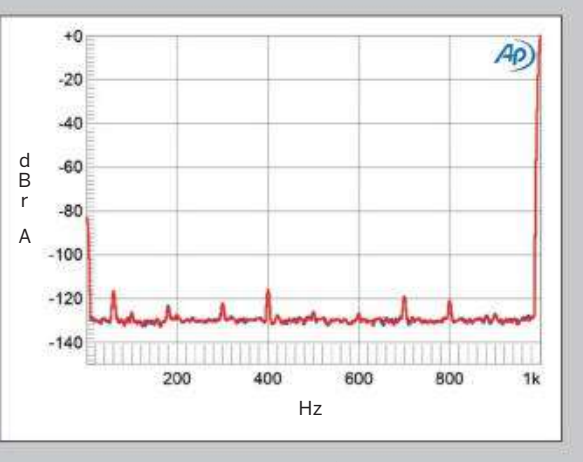

Fig.3 Cyrus CDi-XR, spectrum of 1kHz sinewave, DC–1kHz, at 0dBFS (left channel blue, right red; linear frequency scale).

Cyrus's head of research and development, in an email, "a CD player is actually very analog in its operation. These analog paths are affected by track layout, external noise, power supplies, etc. This hardware needs to be optimized to get the best out of the disc. The read-right-first-time approach means that the disc can play in a very linear fashion. If the data is not correctly read the first time, the CD head needs to skip back on the spiral to re-read it. This moving causes noise within the power supplies, etc., which degrades the overall performance. By being in full control of the software within the CD servo, we have tuned this platform to read 'Red Book' standard discs perfectly, with the lowest noise."

"Cyrus CD players are built around our in-house Servo Evolution platform," Williamson continued. Cyrus designed its own platform, Ceri told me, because the commercially available "servo/mech kits" are intended for automotive and portable players. "These products sacrifice detail for robustness. Driving down a bumpy road, it's more important that your disc doesn't skip than it is for you to hear the noise floor of the recording."

Cyrus's Servo Evolution technology includes "tailored" software to suppress noise created by motor speed, jitter and drift, lost laser focus, and error-correction circuitry. Cyrus claims their Servo Evolution technology reduces read errors by 20% compared to reference-level CD players. A downside is that it only reads old-fashioned CDs and CD-Rs—and not SACDs, for example.

The 8 ½" wide, 13 ½" deep, 3" high CDi-XR weighs 8lb. The case and chassis are constructed of diecast aluminum. The gunmetal gray review sample looked nearly identical to Cyrus models that preceded it, with a slanted control panel, a large viewing screen, and a small power button that glows blue. Inside, Cyrus uses custom, low-noise toroidal transformers and shielding around and between the DAC and power circuitry. The CDi-XR's chassis is said to be "inverted" to better control vibration.

The front panel of the CDi-XR includes the power button, viewing window, CD loading slot, and seven pushbuttons, angled slightly upward for ease of operation and illustrated with clear, easy-to-see symbols for all the usual operations: play/pause, previous track, next track, forward, back, repeat, eject. The eject button must be pushed twice to expel a CD; two taps on the remote's stop button do the same. The front-panel buttons are recessed, and it's sometimes hard to determine if contact has been made, at least for those of us with big paws, resulting in extraneous actuations. The multifunction remote control, which is longer than the CDi-XR is wide, adds a phase-reverse button. There's also a "Phase Normal" or "Phase Invert" indicator on the display.

Around back, in addition to the obligatory IEC power inlet, two RCA analog stereo pairs, and TosLink and coaxial S/PDIF outputs is a pair of proprietary MC-BUS connectors (on RCA), which allows coordinated operation of several Cyrus components. (What I first took to be the cheapest pair of interconnects I've ever seen was actually intended for MC-BUS interconnection between the CDi-XR and an i9-XR integrated amplifier Cyrus supplied but that I haven't yet tested.) There's also a 15-pin umbilical connector for Cyrus's optional outboard power supply, the PSU-XR, and a USB port for maintenance. Cyrus equipment is manufactured in Nottingham, England, in partnership with electronics manufacturing service provider Smart Made Simple.

Visually, the CDi-XR is attractive but unobtrusive, an effect aided by its diminutive size and "phantom black" paint.

measurements, continued

distortion harmonics of the 19.1kHz tone all lie below –100dB (0.001%), though a small rise in the noisefloor with this signal can be seen both in the audioband and between 45kHz and 55kHz.

Channel separation (not shown) was good at 79dB in both directions from 20Hz to 20kHz. The low-frequency noisefloor was clean (fig.3), with power supply–related spuriae all lying close to –120dB. The random noise components in this graph are due to the dither used to encode the full-scale 1kHz tone. Similarly, the noisefloor in a spectrum taken with a dithered tone at –90dBFS (fig.4, cyan and magenta traces) is due to the dither. Repeating spectral analysis with "digital black" (blue and red traces) indicates that the CDi-XR's noisefloor is 20dB lower than that of dithered 16-bit data. With undithered 16-bit data representing a tone at exactly –90.31dBFS (fig.5), the three DC voltage levels described by the data were well resolved, and the waveform was perfectly symmetrical. An inconsequential 25µV positive DC offset is present in the right channel (red trace).

As seen in fig.2, the Cyrus CD player featured very low levels of harmonic distortion. The third harmonic was the highest in level (fig.6), laying at just –94dB (0.002%). While higher harmonics can be seen in this graph, these were all below –110dB (0.0003%). Fig.6 was taken with the very high 100k ohm test load, but, commendably, none of the harmonics increased in level when I reduced the load to the current-hungry 600 ohms. Intermodulation distortion with a mix of equal levels of 19 and 20kHz tones was vanishingly low in level (fig.7), though the rise in the noisefloor centered on 10kHz that was present in

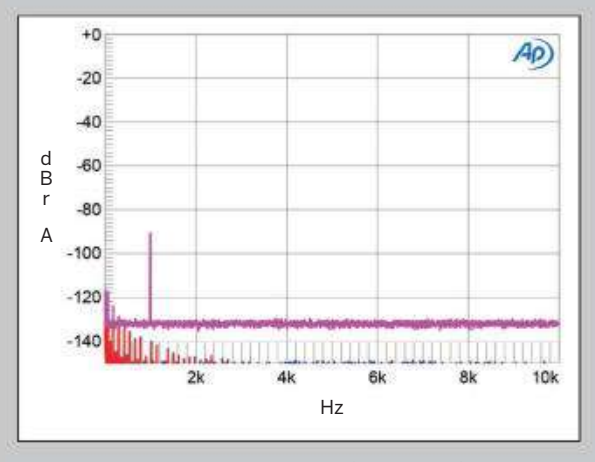

Fig.4 Cyrus CDi-XR, spectrum with noise and spuriae of dithered 1kHz tone at –90dBFS with 16-bit data (left channel cyan, right magenta) and with "digital black" (left blue, right red) (20dB/vertical div.).

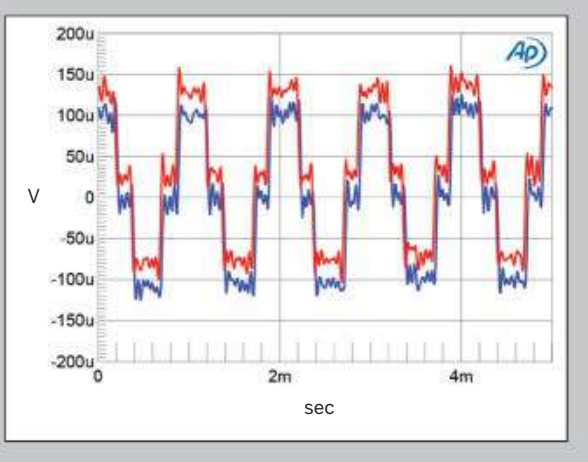

Fig.5 Cyrus CDi-XR, waveform of undithered 16-bit, 1kHz sinewave at –90.31dBFS (left channel blue, right red).

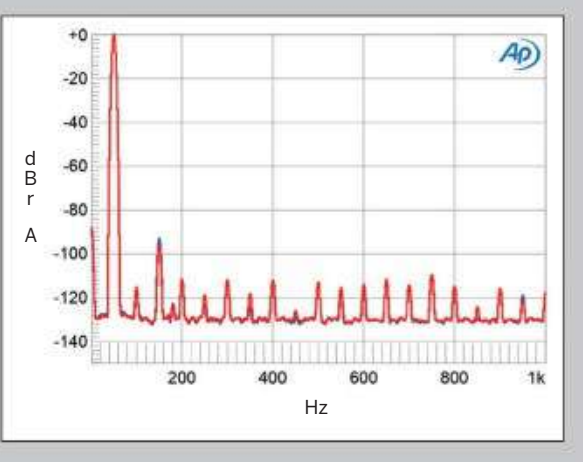

Fig.6 Cyrus CDi-XR, spectrum of 50Hz sinewave at 0dBFS, DC–1kHz, into 100k ohms (left channel blue, right red; linear frequency scale).

A clean machine

I slid the Cyrus onto the second shelf of my Salamander rack and connected it to the Sugden LA-4 preamplifier[1] using a 2m pair of Triode Wire Labs Spirit II (RCA) interconnects. I connected the Sugden to the LKV Research Veros PWR+ power amp using LKV's own RCA-to-XLR interconnects. For streaming, I used a laptop and a Denafrips Ares II DAC augmented with Sonore opticalRendu and systemOptique fiberoptic Ethernet cable, Small Green Computer sonicTransporter i5 and power supply, a TRENDnet switch, and one in-akustik Reference USB 2.0 cable. My DeVore Fidelity O/96 speakers accepted electrons from the amplifier via an 8' pair of Auditorium 23 speaker cables.

I'm a jazz-vinyl guy, but much recorded American jazz from the CD era—let's say, the last 30+ years—is unavailable on vinyl. However, it can be heard on silver discs. As I learned over the course of this review, much of the music in my 200+ collection of CDs isn't available on Qobuz, Tidal, or the other streaming apps—a very good reason to keep a disc player around. Some titles, of course, were available streaming, so I was up for a CD-vs-streaming comparison, egged on by Cyrus's contention that well-reproduced CD sounds better than streaming.

Bassist John Hébert's *Sounds of Love* (Sunnyside) features superb bass work. The Cyrus player reproduced it with physicality, good tone, and ample punch. Solos by drummer Ches Smith were positioned precisely on a deep soundstage. The Cyrus let go of its notes quickly; the effect was to make the music seem natural and real. Hébert's bass fig.2 is also evident in this graph.

I tested the CDi-XR's rejection of word-clock jitter with the undithered Miller-Dunn J-Test signal (a high-level tone at one-quarter the sample rate over which is overlaid the least-significant bit toggled on and off at a frequency equivalent to the sample rate divided by 192). The Cyrus reproduced the odd-order harmonics of the LSB-level, low-frequency squarewave very close to the correct levels (fig.8, sloping green line), and no other sidebands were present. However, fig.8 also shows the rise in the high-frequency noisefloor that was also present in figs.2 and 7.

As the Cyrus CDi-XR has digital outputs, to allow it to be used as a CD transport with a separate D/A processor, I examined the quality of those outputs. Fig.9 was taken from the TosLink output with J-Test data plotted over one "unit cycle." The eye pattern is wide open, with almost no blurring of the leading and trailing edges. The average jitter level, assessed with a 50Hz–100kHz bandwidth, was relatively high, at 2286 picoseconds (ps) compared with 340.5ps when I looped the Audio Precision SYS2722's TosLink output to its optical input. The jitter present in the CDi-XR's optical output will be inconsequential when the Cyrus is used with a D/A processor that has good jitter rejection, but the coaxial S/PDIF output, which offered a jitter level of 583.7ps, is to be preferred.

The Cyrus CDi-XR offers generally good measured performance, although I do wish it had digital inputs. I suspect that its intrinsic performance is limited by the 16-bit CD medium.**—John Atkinson**

1 See Jim Austin's review of the Sugden Masterclass LA-4 at stereophile.com/content/j-e-sugden-masterclass-la-4-line-preamplifier.

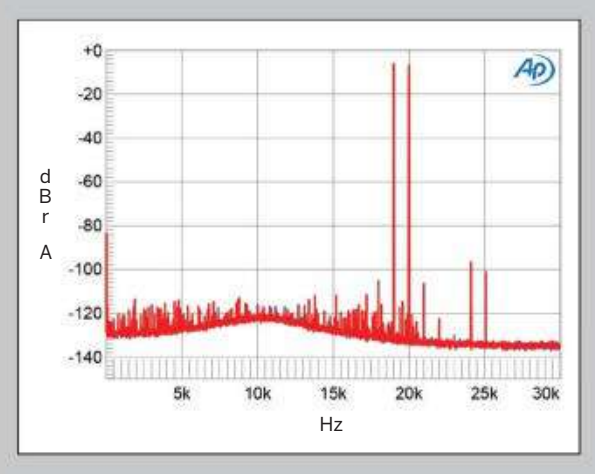

Fig.7 Cyrus CDi-XR, HF intermodulation spectrum (DC–30kHz), 19+20kHz at 0dBFS into 100k ohms (left channel blue, right red; linear frequency scale).

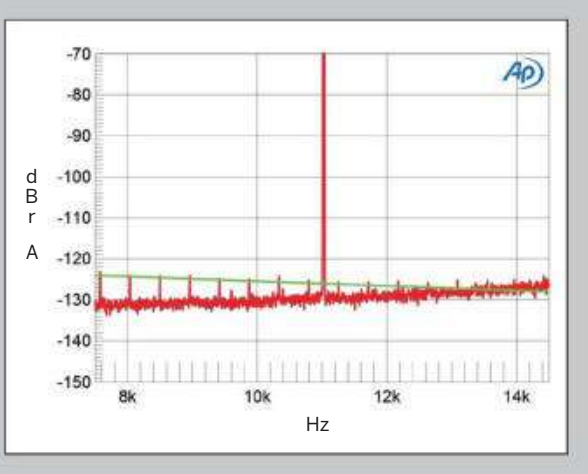

Fig.8 Cyrus CDi-XR, high-resolution jitter spectrum of analog output signal, 11.025kHz at –6dBFS, sampled at 44.1kHz with LSB toggled at 229Hz: 16-bit CD data (left channel blue, right red). Center frequency of trace, 11.025kHz; frequency range, ±3.5kHz.

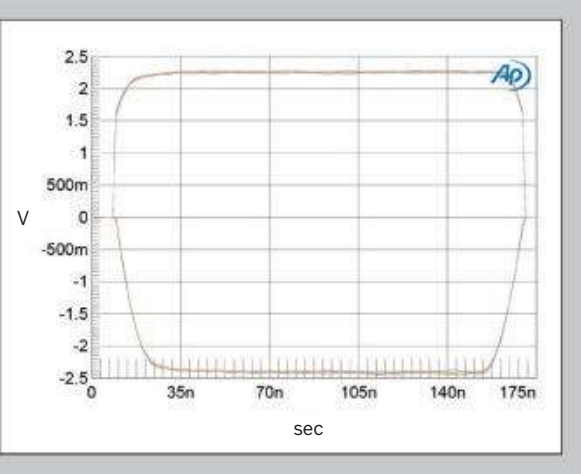

Fig.9 Cyrus CDi-XR, eye pattern of TosLink data output carrying 16-bit, 44.1kHz J-Test data (±2.5V vertical scale, 175ns horizontal scale).

had good, textured luster and live, realistic string bounce and touch. The Cyrus earned kudos for rhythm and timing.

Turkish drummer Kaan Çelen's *Na-Zi-Le* (Lin Records LR-J042) was one of my favorite jazz finds in 2021. (It was released in December 2020.) Kaan is surrounded by an empathic trio: Tamer Temel on soprano and tenor saxophones, Tolga Bilgin on trumpet, and Volkan Topakoğlu on bass. Together, they play wistful jazz with deep soul and somber feeling. Here, too, the Cyrus made the most of the music's bass-register instruments. The deeper drums and bass took on a warm, darkish hue that complemented the music well. From tender ballads to surging improvisations with dramatic crescendos, I found little to fault with the Cyrus's presentation of this music, and much to enjoy. I sat back and played more digital tunes.

Whit Dickey's *Village Mothership* (Tao Forms TAO06) is a meeting of modern-day free-jazz giants. The leader-drummer is joined by bassist William Parker and pianist Matthew Shipp. It cracks me up that people say "free jazz" is like a traffic accident, a mashup without thought or direction. *Village Mothership* has a matrix, a theme, a direction; the musicians perform with playfulness, enthralling energy, focused concentration, and stately interplay. Via the Cyrus, drums and bass loomed large in the mix, with deep tone. Shipp's piano sparkled across a wide expanse on a deep soundstage. This is a warm-sounding CD; the Cyrus played up that trait.

William Parker's *Mayan Space Station* (AUM Fidelity AUM 115-2), with guitarist Eva Mendoza and drummer Gerald Cleaver, came on like a Sonny Sharrock–meets-Hendrix shredfest; the Cyrus expressed the trio's bruising, daring, dynamic, exploratory sounds with edge-of-your-teeth ferocity.

Now it was time to compare CDs played with the Cyrus with streamed versions of the same music, using the Sonore opticalRendu feeding the Denafrips Ares II DAC. Playing "Pharaoh's Dance" from Miles Davis's *Bitches Brew* (Columbia 88985474622), the CD version presented sharp leading edges, realistic ambient space, and an urgent, full-bodied, forceful sound. The streaming version of "Pharaoh's Dance" (24/96 FLAC, Qobuz) was airier, but it had less weight even at higher resolution, and the images were smaller.

Homeward Bound, drummer Johnathan Blake's 2021 Blue Note debut (Blue Note B003421502), features his state-of-the-art skinsmanship, fevered, hard bop–inspired arrangements within adventurous, modern-sounding compositions. The CD had depth, punch, and meat on its bones. The soundstage was broad and deep. Streaming the title track via Qobuz at 24/96, I heard more filigree, detail, upper-register air, and perhaps a more refined sound overall. Instruments had slightly more palpable, touchable surfaces when streamed compared to CD playback.

Marc Cary's *Life Lessons* (no catalog number) is another favorite 2021 jazz CD. The Cyrus played Cary's music with dense, saturated slabs of synthesizer color, deep bass, and dark-toned drums, like molten rock oozing from a volcano. Cary's acoustic piano had worthy depth, punch, and scale. The streaming version (16/44.1, Tidal) had less weight and bass heft, but it was more delicate and perhaps cleaner sounding.

Drummer Kenny Washington is a jazz scholar, a New York University instructor, and an audiophile. His cracking rhythmic commentary drives pianist Ray Gallon's trio on *Make Your Move* (Cellar Live CM103120). Gallon's CD produced better drum tone, more separation between instruments, and bigger images on a bigger stage than I heard when streaming the same music (16/44.1 FLAC, Tidal). Streaming offered more detail, air, and top-end extension.

My favorite vocal CD discovery of 2021, Kristiana Roemer's *House of Mirrors* (Sunnyside SSC 1597, released in 2020), features the German singer's elastic, rounded, pure-toned vocals with a smart cast that includes drummer Adam Arruda, guitarists Ben Monder and Gilad Hekselman, pianist Addison Frei, and saxophonist Dayna Stephens. Roemer's songs wash over you like a bright spring Sunday morning, especially her version of Charles Mingus's "Duke Ellington's Sound of Love." The streaming version (24/96 FLAC, Qobuz) matched Roemer's vocal appeal: clean, sweet, incisive, and detailed, with tight bass and a slightly hard piano sound. The CD was thicker sounding and less transparent, with less bloom.

The gleeful group improvisations of East Axis's *Cool With That* (ESP Disk) are understandable given this supergroup's members: saxophonist Allen Lowe, bassist Kevin Ray, drummer Gerald Cleaver, and pianist Matthew Shipp. The group generates a mael-

strom on "Oh Hell I Forgot About That," each instrument surging and sliding, the streaming version (16/44.1, Tidal) supplying ample detail, bust 'em up dynamics, and hellacious transient snap. The CD offered more weight and bigger images, with better separation.

If there's a theme here, it's that there is no theme. With the players and tracks I chose, neither format sounded consistently better than the other. Each offered its own pluses and minuses, which varied with the music. The Cyrus seemed to offer greater weight and punch, but on some recordings this manifested as tonal thickness and a loss of transparency. Streaming tended to excel at treble, detail, and upper register air but often gave up some presence and weight.

Cyrus CDi-XR Sabre meets Denafrips Ares II R2R

Using a 2m run of inexpensive Hosa DRA-502 S/PDIF cable, I bypassed the Cyrus's DAC and ran the digital signal out to the Denafrips Ares II DAC. I then returned to the Kristiana Roemer and East Axis CDs. The Cyrus/Denafrips duo playing Roemer's "Duke Ellington's Sound of Love" seemed to flatten the sound. The Cyrus alone was more transparent, with more brushes-on-snare clarity and upright bass detail. Spatial cues were clearer and everything sounded more natural.

On the East Axis CD, the reverse seemed true. Go figure.

Conclusion

Comparisons like this one—between a CD player and streaming—are fraught because so many variables change. It's impossible to draw conclusions. Streaming certainly has advantages over CD: more music at your fingertips, much of it in higher resolution. But some music does sound better on CD, and a big chunk of the music released during the CD era, especially in more obscure genres and on smaller labels, hasn't yet made it to the main streaming platforms. More than half the CDs I wanted to use in this review were unavailable streaming. For music-first audiophiles, especially those with obscure or eclectic tastes, a good CD player will remain necessary for years to come. The CDi-XR is a good CD player and a solid value. ■

ASSOCIATED EQUIPMENT

Digital sources Denafrips Ares II DAC augmented with Sonore opticalRendu, Small Green Computer sonicTransporter i5, Small Green Computer power supply, TRENDnet switch, streaming Roon/Tidal/Qobuz via Apple iPad Mini.
Preamplification J E Sugden Masterclass LA-4.
Power amplifier LKV Research Veros One PWR+.
Loudspeakers DeVore Fidelity O/96.
Cables Interconnect (RCA): Triode Wire Labs Spirit II. Digital: Hosa DRA-502 RCA to RCA coaxial cable. Speaker: Auditorium 23. Power cable: manufacturers' own. Sonore systemOptique fiberoptic Ethernet cable. USB: in-akustik Reference USB 2.0.
Accessories Kuzma Plastis 65 isolation platform, IsoTek EVO3 Aquarius line conditioner, Pro-Ject VC-S2 ALU Record Cleaning Machine, Audio Desk Systeme Premium Ultrasonic Vinyl Cleaner PRO, Salamander five-tier rack; IKEA Aptitlig bamboo chopping boards (under preamp, Thorens turntable, integrated amps); mahogany blocks (2" × 2" × 0.5") under boards.
Listening room 12' L × 10' W × 12' H, system set up along long wall; suspended wood floor, 6"-thick walls (plaster over 2×4), wood-beamed ceiling.—**Ken Micallef**