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INTERVIEW:
THE REVEREND
AL GREEN
ON SOUL
& SINGING**

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A new reference

Classé

cdp-202

John Atkinson

CD/DVD PLAYER

When, at the beginning of this century, the market profile of the high-end Mark Levinson brand took a dip due to the parent company's reorganization, one of the companies that took advantage of the opportunity was Classé Audio. Founded in 1980 by engineer Dave Reich (now with Theta Digital) and run by engineer-entrepreneur Mike Viglas since the mid-1980s, the Canadian electronics manufacturer's Omega line of high-end amplifiers and preamps had universally impressed *Stereophile's* scribes, and its Omega SACD player (reviewed by Jonathan Scull in November 2001) was the first such product to come from a North American company.

In 2001, Classé became part of the B&W Group. The first fruit of the new ownership was the Delta series of electronics, which feature a unique front panel that curves around to form the side panels and is apparently machined from solid aluminum. (It is actually formed by bending a vertical U-shaped extrusion, which, if you think about it, must be very difficult to do without the top and bottom webs buckling.) The cdp-202 (\$6500) represents Classé's attempt to bring to market a true reference CD player, with better audio circuitry than the older but similar-looking cdp-102.

The cdp-202

While the press release announcing the April 2006 release of the cdp-202 describes it as a "CD player," it will actually play *all* current disc formats other than SACD. I asked Mike Viglas about the decision to omit SACD when I visited Classé in Montreal in fall 2005, and he explained that this allowed a far wider choice of transport mechanisms. If SACD playback was to be included to make the cdp-202 a true universal player, there were only a handful of suppliers of suitable hardware, which might limit Classé's future ability to manufacture the product. By omitting SACD capability, Classé could use a DVD-ROM mechanism, which has a standard form factor. Their choice was a TEAC transport, which Classé claims has superior disc-handling abilities and reliability. Discs are loaded via a front-panel slot that's discreetly outlined with blue light when no disc is present.

When I unpacked the cdp-202, the first thing that struck me was its apparent absence of control buttons. There *are* three discreet black buttons, labeled Standby, Menu, and Eject, but none of the usual transport and navigation buttons. The mystery was solved when I powered up the player. To the left of the disc-loading slot is an LCD display that illuminates to show the player's and disc's statuses. When the player is first plugged into the wall, white letters on a black ground state that the player is initializing, followed by the screen going dark and an LED in the Standby button glowing blue to indicate that the cdp-202 is standing by. When the player is taken out of standby, a white Classé logo fades in against a blue background. The logo is then replaced by the image of a disc with the words "PLEASE WAIT," followed by "INSERT A DISC." Then, when a disc is inserted, either the usual transport and track info buttons appear on the screen (CD) or the screen displays the disc's main menu (DVD). The LCD is actually a touchscreen with which you can play CDs or navigate DVD menus (a remote control is also supplied).

The Menu button allows the user to customize the player's operation regarding disc programming, display brightness, video operation, trigger operation, and whether the digital output jacks put out PCM from CD, converted PCM from DVD-Video discs, or raw data from DVDs to feed an external surround-sound processor or A/V receiver for Dolby or DTS decoding, and the volume and muting levels of the cdp-202's analog outputs.

DESCRIPTION Single-box, two-channel, slot-loading CD/DVD player with remote and touchscreen control, single-ended and balanced analog outputs, three digital outputs (AES3 on XLR and S/PDIF on RCA and TosLink), DC trigger inputs, bidirectional RS-232 and IR repeater ports, and two video outputs (composite and S-video). Formats supported: CD, CD-R, CD-RW, DVD-Video, DVD-Audio, DualDisc, MP3, WMA, AAC, Video-CD, S-VCD. Maximum output voltage: 4V balanced, 2V unbalanced. Frequency response: 20Hz–20kHz, ±0.1dB. THD+noise: 0.001% (no level given). Signal/noise: 110dB typical (no reference level given). Channel separation: >110dB. Clock jitter: <200ps. Power consumption: 72W.

DIMENSIONS 17.5" (445mm) W by 4.75" (121mm) H by 16.5" (419mm) D. Weight: 26 lbs (11.8kg).

SERIAL NUMBER OF UNIT

REVIEWED 1830053. Firmware version: 1.06.

PRICE \$6500. Approximate number of dealers: 90.

MANUFACTURER Classé Audio, 5070 François-Cusson, Lachine, Quebec H8T 1B3, Canada.

Tel: (514) 636-6384.

Fax: (514) 636-1428.

Web: www.classeaudio.com.



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(The player can be set to bypass its volume control, which is how I used it in my auditioning.) The Menu button will also allow the player's operating firmware to be updated, with a file downloaded from Classe's website.

Technology

Beneath its acoustically damped, black-anodized top panel, the cdp-202's circuitry is carried on four surface-mount printed circuit boards: a main board running the full

width of the interior that carries the digital audio output and control circuits and the power supply; a daughterboard each for the video and analog audio outputs; and another small board for the video decoding, this based on a Cirrus CS98200 DVD Processor chip, which manages the DVD-Audio, Dolby Digital, DTS, MP3, and AAC audio signal handling, as well as the video D/A conversion.

The CD data output from the transport or the decoded data from the Cirrus DVD

decoder are routed to a Xilinx Complex Programmable Logic Device (CPLD) on the multilayer audio board, which upsamples digital audio data to 24-bit words with a sample rate of 192kHz and reclocks the data with a local crystal oscillator before feeding it to the D/A converters. These, two Burr-Brown PCM1792s, include the 8x-oversampling digital filters; one stereo DAC chip each is used for the left and right channels of the digital audio, these operated in dual-differential mode and true balanced operation main-

tained through to the analog output jacks. The single-ended Left and Right analog outputs are derived from a separate signal path using their own PCM1792 DAC chip. All the analog audio processing is realized with high-quality, FET-input, Burr-Brown OPA627 op-amps.

Sonics

The last Classé product I auditioned in my system was the CDP-10 CD player (\$2000), which I reviewed back in the September 2003 *Stereophile*. Though I found its low frequencies a little lacking in weight and definition in absolute terms, that was outweighed for me by its grain-free highs and well-resolved soundstaging and the fact that it offered HDCD decoding. By contrast, the cdp-202 doesn't decode HDCD discs,

which is a shame considering the superb standard of recording the revitalized Reference Recordings is now achieving with such releases as its new disc of Keith Lockhart conducting the Utah Symphony in orchestral works by Bernstein and Rachmaninoff (RR-105). Nevertheless, this was the first CD I played in the Classé, and my initial impression of the cdp-202 was, as with the CDP-10, of a superbly grain-free treble.

A favorite orchestral recording these days is the New Zealand Symphony's SACD of Vaughan Williams works, conducted by James Judd. I have this on SACD (Naxos 6.110053), but for this review I picked up the DVD-A version (Naxos 5.110053). The Classé defaulted to the MLP-encoded DVD-A data and I selected track 2, the *Norfolk Rhapsody*, using the onscreen menu. (It is so

convenient not to need an external display to navigate a DVD-A's menu.) Violins were silky smooth, and the overall sound had weighty lows and the feeling of a clean window opened onto the recorded stage.

Next up was a DVD-V of Robert Silverman performing Rachmaninoff's Piano Concerto 3 in Mexico City, recorded live without edits in the early 1990s for a TV broadcast (available from www.robert-silverman.com). Even though this has only a Dolby Digital soundtrack in the disc's Video zone and has a little more hiss, hum, and audience noise than you'd expect from a commercial release, the sound was rich and compelling over the cdp-202. And Bob's playing is muscular when required, lyrical always. Returning to the Naxos Vaughan Williams disc, the Classé recognized it when I slid it into the slot, and

MEASUREMENTS

The Classé cdp-202's balanced jacks put out a maximum of 3.8V from both CD and DVD, the single-ended RCA jacks 1.915V, the latter 0.4dB below the CD standard's 2V RMS level. The source impedance was a low 100 ohms from the unbalanced jacks, 596 ohms from the balanced jacks. The signal polarity was noninverting from both the single-ended and the balanced outputs, suggesting that the XLRs are wired with pin 2 hot, the AES-recommended practice.

Monitoring the cdp-202's digital output with RME's DIGIcheck program running on my PC, there were no flagged errors or audible glitches until the gaps in the data spiral on the Pierre Verany test CD were at least 2mm long. This is excellent error correction. Interestingly, DIGIcheck indicated that all 24 bits in the Classé's digital output are active, even for CD playback.

The cdp-202's frequency response was flat from 10Hz to 10kHz for CD playback, with just a small degree of rolloff at 20kHz (fig. 1, middle pair of traces) and zero error for de-emphasized discs (bottom traces, offset by -dB). Playing back test tones from a DVD-Audio disc I created using Minnetonka Software's DiscWelder program, the cdp-202's ultra-

sonic output (offset by +1dB) rolled off to -1dB at 32kHz and -3dB at 45kHz. This graph was taken from the balanced outputs; the right channel is 0.1dB higher in level than the left. Repeating the measurement from the unbalanced jacks (not shown), the left channel was now 0.05dB higher than the right. Channel separation (not shown) was superb from the balanced jacks, any crosstalk being buried in the noise floor across the audioband. The crosstalk did rise with increasing frequency from the RCA outputs, but was still below -90dB below 10kHz, which is still excellent separation.

Fig. 2 shows 1/2-octave spectral analyses of the Classé's output while it decoded dithered 16-bit (from CD) and 24-bit (from DVD) data representing a 1kHz tone at -90dBFS. All the traces peak at exactly -90dBFS, and the 16-bit traces are dominated by the recorded dither noise. (The swept-bandpass filter technique used gives a spectrum that appears to slope up with frequency.) Increasing the word length to 24 bits drops the noise floor by up to 12dB, implying a resolution of around 18 bits, which is good performance. However, it also unmasks some very-low-level power-supply components at 120Hz and 240Hz. Both sets of traces are free from any distortion harmonics.

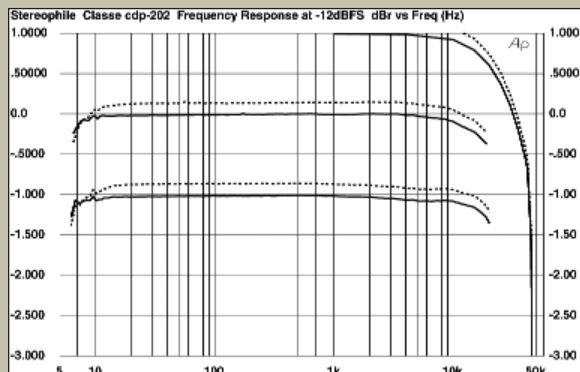


Fig. 1 Classé cdp-202, balanced frequency response at -12dBFS into 100k ohms from CD with (middle) and without (bottom) de-emphasis, and from DVD-A (top). (Right channel dashed, 0.5dB/vertical div.)

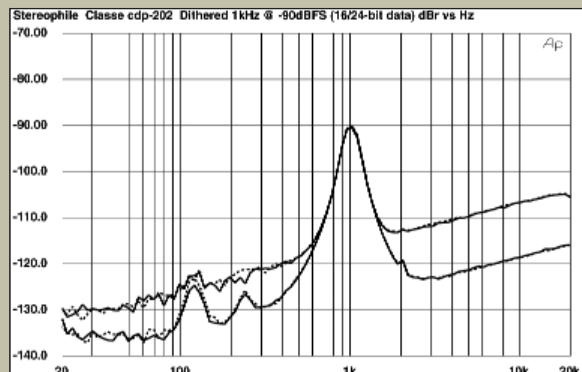


Fig. 2 Classé cdp-202, 1/2-octave spectrum with noise and spurious of (from top to bottom): dithered 1kHz tone at -90dBFS, 16-bit CD data, 24-bit DVD data (right channel dashed).

switched back to the Audio zone to allow me to resume playing where I had left off before playing the Silverman DVD-V. (Some older DVD-A players got confused about what zone they should be reading when presented with a mixture of DVD-Vs and DVD-As.) The Info button on the cdp-202's remote, incidentally, lets you see (on the player's LCD display) what you're listening to.

Enough video. I inserted the DualDisc of Bruce Springsteen's *The Seeger Sessions* (Columbia 82876 82867-2) into the cdp-202's slot—not without some trepidation, given the incompatibility some earlier slot-loading mechanisms had with DualDiscs, which are slightly thicker than CDs. Not to worry; the cdp-202 recognized the disc—except that I'd inserted it with the DVD side up. (Good grief, the print around the center

hole of a dual-sided disc is *tiny!*) I selected PCM Stereo with the onscreen display and watched and listened to the “making of” documentary before flipping the disc to play the CD side. Again, the highs of this rather overcooked recording were smooth, and the bass was weighty. However, in level-matched comparisons with the Mark Levinson No.30.6 D/A processor, fed by the Classé's digital output, I did feel the cdp-202 didn't dig quite as deep or have quite as much leading-edge definition on this recording's double bass as the standalone DAC. But even this rather raucous disc still sounded sweeter in the treble.

One of the drawbacks of the DualDisc format is that the data integrity of the CD side has had to be compromised in order to make the disc thin enough to be bonded

back to back with a DVD. Even with the Classé's superb error correction, I got occasional dropouts on the *Seeger Sessions'* CD side.

One of the few DVD-As that allows an in-the-clear, 24-bit/96kHz data output is Hi-Rez Music's reissue of the Ray Brown Trio's classic *Soular Energy* (HRM 2011). The cdp-202 played the 96kHz- and 192kHz-sampled sides of this two-sided DVD without problem, with a 96kHz datastream available at its digital output from both. Again, the Classé presented a combination of a sweeter high end and slightly less-extended low frequencies than the No.30.6.

Against the Ayre

My current reference for DVD-Audio and CD playback is the Ayre C-5xe universal

measurements, continued

As expected from fig.2, the cdp-202's plot of amplitude error against absolute level (fig.3) showed very good performance down to -105dB, with the error below that level due to the 16-bit data's dither content. The low level of audioband noise and excellent linearity meant that the Classé's reproduction of an undithered sinewave at exactly

-90.31dBFS, which is represented in 16-bit data by just three DC voltage levels, was excellent (fig.4). Increasing the word length to 24 bits gave a good facsimile of a sinewave (fig.5), even at this very low level.

The Classé player also had low levels of harmonic distortion. Fig.6 is an FFT-derived spectral analysis of its out-

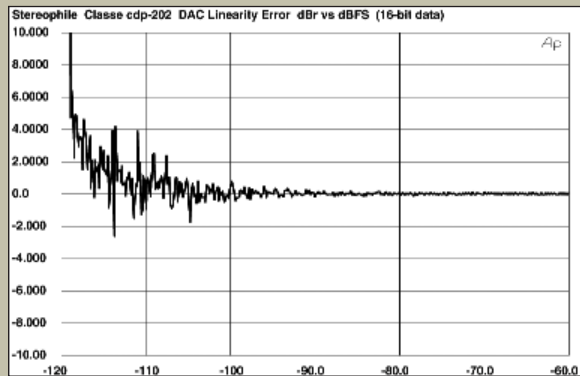


Fig.3 Classé cdp-202, right-channel departure from linearity, 16-bit CD data (2dB/vertical div.).

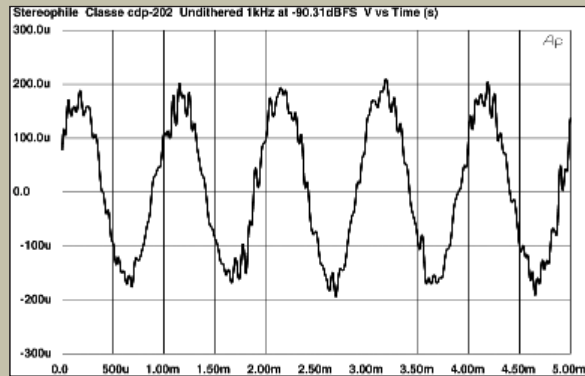


Fig.5 Classé cdp-202, waveform of undithered 1kHz sinewave at -90.31dBFS, 24-bit DVD data.

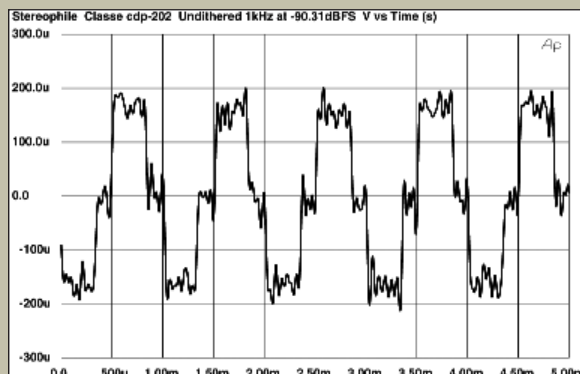


Fig.4 Classé cdp-202, waveform of undithered 1kHz sinewave at -90.31dBFS, 16-bit CD data.

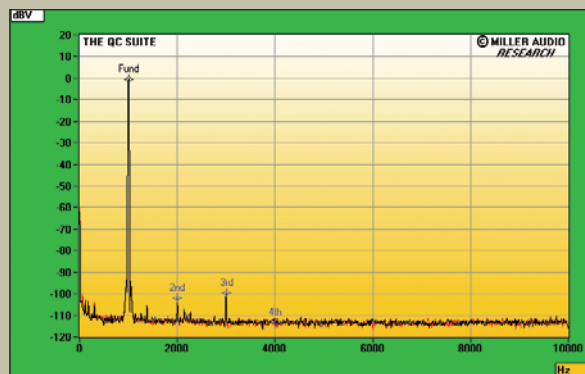


Fig.6 Classé cdp-202, unbalanced spectrum of 1kHz sinewave into 4k ohms, DC-10kHz, 24-bit data (linear frequency scale).

player (\$5000), which I bought following Wes Phillips' July 2005 review. For specific comparisons, I matched the outputs of the Classé and Ayre players to within 0.1dB at 1kHz, using the Levinson preamp's Input Offset Level function.

Starting with a reference track, the Mozart Flute Quartet movement on *Editor's Choice* (CD, STPH016-2), the Ayre and Classé players sounded extremely similar. Both had a less forward-sounding midrange than the Levinson DAC, both had sweet and smooth high frequencies, and both reproduced the acoustic of Santa Fe's St. Francis Auditorium in equal measure. But on extended listening, I began to suspect that the cdp-202 had just a little more top-octave energy than the C-5xe. But only a little.

I confirmed that impression first by playing "Cry Me a River," from the *Soular Energy* DVD, then the 24/96 transfer of Dusty Springfield's version of "The Look of Love,"

from the *Casino Royale* soundtrack (HDAD/DVD, Classic HDAD 2007). There was a slightly more wispy quality to Springfield's voice through the Canadian player; conversely, the Coloradoan player could be just as easily described as having slightly less top-octave air. It's a matter of swings and roundabouts. The Ayre perhaps very slightly emphasized the body of sounds, the Classé very slightly the leading edges. Which did I prefer? Whichever one I was listening to at the time.

I finished my comparisons by playing in both players CD-Rs of the master of my new Cantus recording, *There Lies the Home*, due to be released next month. I'd worked hard to preserve the sense of space on the recording, captured in June 2005 in Sioux Falls' delicious-sounding Washington Pavilion. Both players reproduced the sense of space surrounding the male voices and cello in Brian Arreola's "Break, Break, Break." However,

the cdp-202, despite its somewhat more forward presentation, did slightly better at separating the musical threads of this rather densely scored work. And both excelled at contrasting Kelvin Chan's solo baritone against the piano backdrop in Sir Charles Stanford's *Songs of the Sea* suite.

Summing up

Putting aside its stunning looks—which you will either love or hate—the Classé cdp-202 offers a user-friendly interface and superb sound from all disc formats other than SACD. Whether or not that omission is an issue for you will depend on how much of your favorite music is available on that medium, or, conversely, how important it is for you to be able to get the best from both CDs and the increasing number of DVD-Videos of live music performances. And you gotta love its touchscreen display and control interface. Very nice, Classé. Very nice. ■

measurements, continued

put while it played back a 24-bit/1kHz tone from DVD. The noise floor is flat with increasing frequency in this type of graph, and is actually that of the analyzer, not the player. However, the very small amount of AC supply spurious appears to be characteristic of the player, as are the low-order harmonics that can be seen. The third harmonic is the highest in level in the left channel's unbalanced output, though this still lies at -100dB and will thus be subjectively benign. The second harmonic was the highest in level in the right channel, at -103.5dB ! The THD percentage in this graph (true sum of the harmonics and not including noise) was 0.0014% for the left channel and 0.0008% for the right. Intermodulation distortion was also very low (not shown), the only products visible lying at -100dB (0.001%). The balanced outputs performed even better on these tests (not shown).

I assessed the cdp-202's rejection of word-clock jitter using

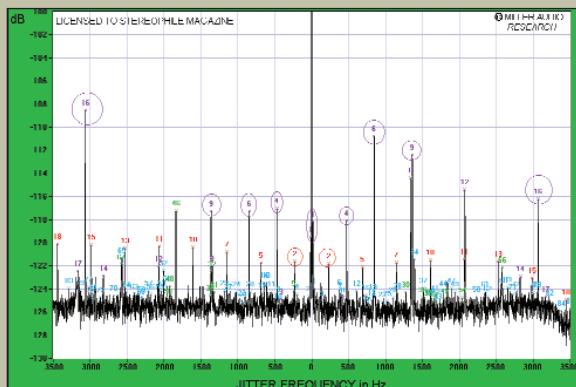


Fig.7 Classé cdp-202, high-resolution jitter spectrum of analog output signal (11.025kHz at -6dBFS sampled at 44.1kHz with LSB toggled at 229Hz), 16-bit CD data. Center frequency of trace, 11.025kHz; frequency range, $\pm 3.5\text{kHz}$.

the Miller Audio Research Analyzer. Playing back a CD-R with a high-level, 16-bit/11.025kHz sinewave overlaid with a 229.5Hz, LSB-level squarewave (both frequencies an exact integer fraction of the sample rate), the cdp-202 raised 315 picoseconds peak-peak of jitter sidebands, measured at its single-ended jacks. While this is about twice as high as the very best players I have measured on this test, it is still very low in absolute terms. Fig.7 shows a narrowband spectral analysis of the Classé's analog noise floor while it played back the diagnostic signal from CD. The data-related sidebands (red numeric markers) are close to the residual level in the signal, almost all the measured jitter coming from sideband pairs of unknown origin (purple numeric markers). The narrowness of the central peak in this graph, which represents the 11.025kHz tone, suggests that the cdp-202 offers good rejection of low-frequency random word-clock jitter. (Note that while these measurements are very different from the cdp-202's specified jitter of $<200\text{ps}$, there is very little correlation between the results of different measurement techniques. My figures can be compared only with other measurements performed in an identical manner.)

Repeating this test with a 24-bit version of the data recorded on a DVD-R gave a slightly higher amount of word-clock jitter: 406ps peak-peak. While the data-related sidebands have disappeared from the graph (not shown), the higher-frequency sidebands all increased slightly in level. I have no idea what this behavior indicates, but I doubt that it will have audible consequences.

Overall, the Classé cdp-202 offers superb measured performance that will get the most from CDs and DVDs.

—John Atkinson