

OPPO Digital UDP-205

A 4K Ultra HD Audiophile Blu-ray Disc Player

Get an in-depth look at OPPO Digital’s new 4K high-definition Blu-ray disc player, the UDP-205, which Gary Galo confirms to be a serious product for all audio enthusiasts.



By
Gary Galo
(United States)

Photo 1: This is OPPO Digital’s new top-of-the-line 4K Ultra HD Audiophile Blu-ray Disc Player, the UDP-205. This universal player supports most standard optical disc formats—from conventional CDs through 4K Blu-ray discs—and features state-of-the-art video and processing circuitry. (OPPO Digital photo)

The 4K Ultra-High Definition (UHD) video world is here—a search on Amazon for 4K movies shows at least 1,500 releases on 4K Blu-ray discs, and that list is constantly expanding. And OPPO Digital is ready. Last fall, it introduced its lower-cost 4K player, the UHD-203, which retails for \$549 US. In April 2017, it began shipping its new flagship player, the UHD-205, which is the device reviewed here (see **Photo 1**). Complete specifications for the UHD-205 are on the manufacturer’s website. As can be seen, both the UHD-203 and the new UHD-205

have identical video circuitry—the differences are entirely in the audio performance.

The UDP-205 “universal” player has much in common with its predecessor, the BDP-105, including support for nearly every standard optical disc format. The UDP-205 has added playback of 4K UHD Blu-ray discs to an already thorough array, including regular Blu-ray,

Blu-ray 3D, DVD-Video, DVD-Audio, SACD, and CD. Media file support is also exhaustive, and includes AIFF, WAV, ALAC, APE and FLAC, along with Direct-Stream Digital (DSD) audio files in stereo or multi-channel. OPPO Digital has dispensed with Internet movie streaming in the new players. Since most new televisions and many set-top boxes support this, retaining this feature in the player would be redundant and add unnecessary cost. The player does support streaming of audio, video, and photos from storage devices on a home network.

The UDP-205 was designed to be a complete media server and has connectivity similar to the BDP-105. The front panel has one USB 2.0 port and one stereo headphone jack; the HDMI input on the BDP-105’s front panel has been eliminated. The rear panel on the new player has a slightly different layout than the BDP-105, but essentially the same connections (see **Photo 2**). Two USB 3.0 inputs are included for connection of external storage devices. The BDP-105 had two HDMI outputs that could be configured using the setup menu for split A/V

OPPO Digital UDP-205 4K Ultra HD Audiophile Blu-ray Disc Player

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Price: \$1,299 US



operation, where HDMI 1 was the A/V output feeding the television, and HDMI 2 was a dedicated high-resolution digital audio output. If the user required two displays, the two outputs could be configured for dual-display operation. In the UDP-205, the two HDMI outputs are permanently configured as main and audio only. An Ethernet Gigabit LAN connector allows a wired network connection, and home network wireless access includes built-in 802.11ac Wi-Fi. Previous OPPO Digital players came with a USB wireless “dongle” that functioned as a transceiver for wireless network connectivity. With all wireless network hardware built into the new player, you’ll always be connected to your home network when the player is on.

All-purpose HDMI outputs are normally tied to the video clock, which is hardly optimum for high-performance audio. Configuring one of the HDMI outputs as “audio only” allowed OPPO Digital to design a high-stability, high-precision HDMI clock and a special HDMI jitter-suppression circuit dedicated to the audio output.

If I use my player with my Benchmark DAC3 HGC external digital-to-analog converter, I use the HDMI audio output to feed a KanexPro HAECOAX HDMI Audio De-Embedder to extract high-resolution PCM discs at full resolution, and output the high-resolution datastream via S/PDIF. (The player’s own S/PDIF output is normally down-converted to 48 kHz or 44.1 kHz on copy-protected Blu-ray and DVD-Audio discs.) Many other users will feed the HDMI audio output to an A/V processor or receiver. For anyone using the HDMI audio output, this performance improvement is most welcome. The article “Understanding the HDMI Audio Jitter Reduction Circuit in the OPPO UDP-205” in the Knowledge Base section for this player on OPPO Digital’s website offers a detailed explanation of this subject and is well worth reading.

OPPO Digital still includes an HDMI input on the rear panel, for connection of streaming set-top boxes, cable/satellite boxes, game consoles, computers, and other digital players. Digital audio outputs include S/PDIF coaxial and Toslink optical. The player can also be used as a DAC with other

digital sources, and includes the three digital inputs found on most DACs—S/PDIF coaxial, Toslink Optical, and a USB 2.0 input using the USB Type B connector that’s standard on USB DACs. On the analog end, there are eight RCA connectors for the 7.1-channel surround outputs, along with two XLR and two RCA connectors for the dedicated stereo outputs. OPPO Digital also includes trigger in and out connectors, infra-red remote sensor connector for receiving remote control signals from an IR distribution system via an IR emitter or blaster, and an RS-232 serial control port.

New ESS DAC

In October 2016, ESS introduced its second-generation Sabre32 HyperStream DAC chips, the ES9028PRO and ES9038PRO, and many manufacturers that used the ES9018 have designed new products based on one of these chips. Benchmark Media Systems is using the ES9028PRO

Photo 2: This is the rear panel of the UDP-205 digital player. The player features flexible connectivity like its predecessor, the BDP-105, but with a somewhat different layout. (OPPO Digital photo)

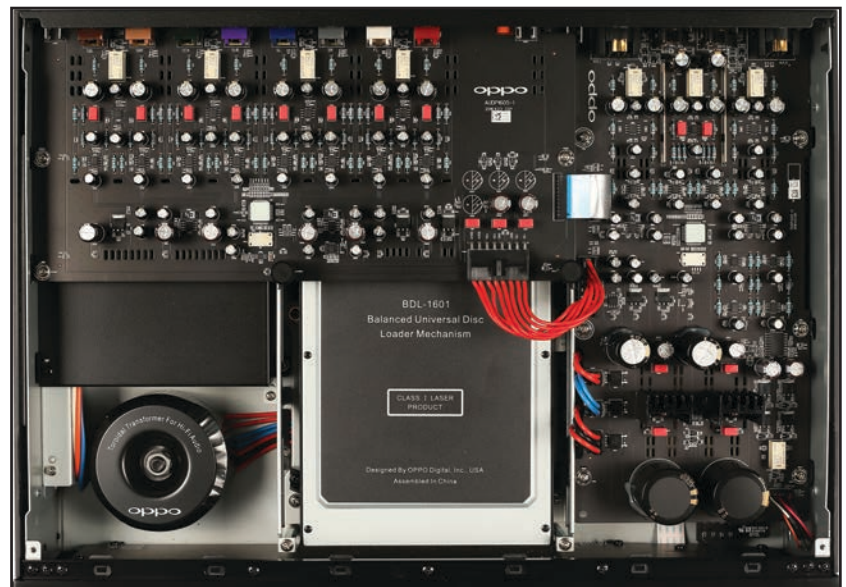


Photo 3: This is an inside view of the UDP-205. The 7.1-channel surround board is in the upper left. The dedicated two-channel stereo board is on the right. The toroidal transformer used for the DAC and analog circuitry’s linear power supply is in the lower left, and the custom-designed 4K disc loader and mechanism is in the lower center. The shielded video circuitry and switching-mode power supply are housed in the bottom of the player. (OPPO Digital photo)

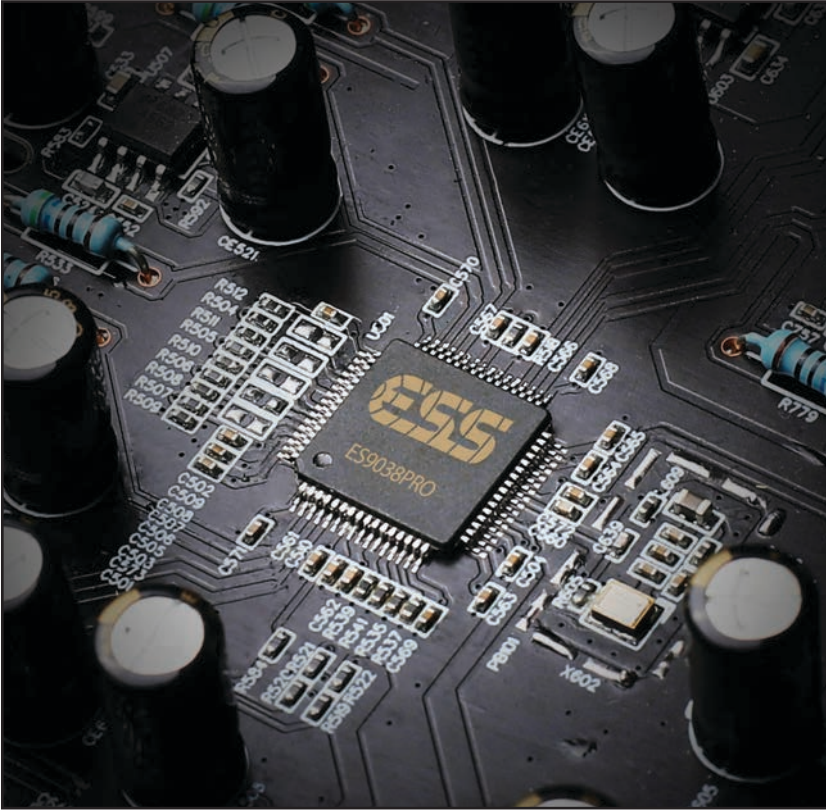


Photo 4: This close-up shows the ES9038PRO DAC chip on the stereo audio PC board. The chip is normally masked by a white heatsink, and the precision low-phase noise crystal oscillator to its right is covered with a metal shield. (OPPO Digital photo)

in its DAC3 HGC (which I reviewed in *audioXpress*, July 2017), and OPPO Digital selected the ES9038PRO for the UDP-205. As I discussed in my review of the Benchmark DAC3-HGC, the ES9038PRO and the ES9028PRO are both eight-channel chips and contain identical circuitry. The ES9038PRO has multiple paralleled DACs for each of the eight channels and requires a heatsink. Liao notes that ESS doesn't recommend paralleling sections of the ES9038PRO externally with IC op-amp I/V converters because of excessive output current.

Among the virtues of these new chips is the inclusion of eight pre-set and programmable digital filters, improved power supply distribution, and total harmonic distortion compensation that can even reduce distortion caused by external components. The new ESS DACs also support DSD over PCM using the DoP protocol.

Photo 3 shows the inside view of the UDP-205. The player has completely separate analog/DAC PC boards for the 7.1-channel surround and two-channel stereo outputs. Each analog/DAC board has its own dedicated ES9038PRO DAC chip (see **Photo 4**). Each of the eight channels is used for the surround outputs on the 7.1-channel board. On the two-channel stereo board, only six sections of the DAC chip are used—two for the stereo unbalanced outputs, two for the balanced outputs and two for the headphone amplifier. The clock for each ES9038PRO DAC chip is a precision crystal oscillator with low phase noise, covered with a metal shield.

The ES9038PRO is not a drop-in replacement for the ES9018. Jason Liao, OPPO Digital's Chief Technology Officer and VP for Product Development, notes that although an older PC layout can be adapted to the new chip, "A new layout will better utilize the ES9038PRO's performance, since the clock and power supply can be improved." A comparison of the PC board photos shows a complete redesign of the layouts around the DACs to get the best performance from the new ESS chip. OPPO Digital has implemented seven digital filters in the ES9038PRO, user-selectable in the setup menu. These include a variety of minimum-phase, linear-phase and apodizing filters. The default is Minimum Phase Fast.

The IC op-amps for most functions on the stereo board are the same Texas Instruments (TI)/National LM4562 types used in the BDP-105. But, OPPO Digital has changed the fully-differential op-amps used for the balanced outputs from TI/National LME49724 to TI/Burr-Brown OPA1632. The OPA1632 exceeds the performance of the LME49724 in several key areas, including distortion (0.000022% for the OPA1632 vs. 0.00003% for the LME49724), slew rate (50 V/ μ S

About the Author

Gary Galo retired in 2014 after 38 years as Audio Engineer at The Crane School of Music, SUNY at Potsdam, NY. He now works as a volunteer in the Crane Recording Archive doing preservation, restoration, and digital transfer of vintage Crane recordings. He is also a Crane alumnus, having received a BM in Music Education in 1973 and an MA in Music History and Literature in 1974. Gary is a widely published author with more than 300 articles and reviews on both musical and technical subjects, in over a dozen publications. Gary has been writing for *audioXpress* and its predecessors since the early 1980s. He has been an active member of the Association for Recorded Sound Collections (ARSC) since 1989, and a frequent recording and book reviewer for the *ARSC Journal*. He has given numerous presentations at ARSC annual conferences, many of which have been published in the *ARSC Journal*. He was the Sound Recording Review Editor of the *ARSC Journal* from 1995-2012, and co-chair of the ARSC Technical committee from 1996-2014. Gary has also published numerous book reviews in *Notes: Quarterly Journal of the Music Library Association*, written for the Newsletter of the Wilhelm Furtwängler Society of America, *Toccata: Journal of the Leopold Stokowski Society*, and he is the author of the "Loudspeaker" entry in *The Encyclopedia of Recorded Sound* in the US. He has also written several articles for *Linear Audio*. He is a member of the Audio Engineering Society, the Boston Audio Society, and the Société Wilhelm Furtwängler.

vs. 18 V/ μ S), gain-bandwidth product (180 MHz vs. 50 MHz), and noise (1.5 nV/ \sqrt Hz vs. 2.1 nV/ \sqrt Hz). They also use a pair of OPA1632s to feed the differential inputs on the TI TPA6120A headphone amplifier. Although the same headphone amplifier was used in the BDP-105, in the new player the outputs are buffered with a discrete push-pull, high-current output stage using the J243/J253 complimentary bi-polar transistor pair, which provide higher power and lower output impedance than the stand-alone TPA6120A. These 4 A, 40 MHz transistors should drive any headphone with ease.

The op-amps on the multi-channel board have been changed from LM4562 to OPA1642A types. All analog outputs are capacitor coupled with the same Elna 100 μ F/16 V Silmic II capacitors used in the BDP-105. These advanced capacitors are designed specifically for the best possible audio performance and employ a silk-fiber dielectric. (For a complete description of these capacitors, see my review of the BDP-105, *audioXpress*, October 2013).

OPPO Digital continues the practice of using a switching-mode power supply for the video and control circuitry, and a linear supply for the analog and DAC circuitry. The front-end of the linear

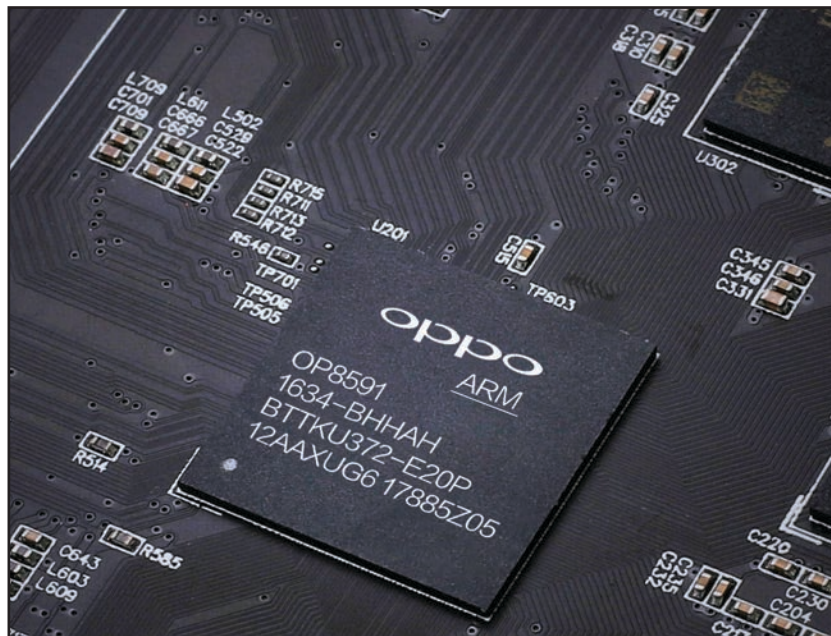


Photo 5: This close-up shows the OP8591 decoder chip on the video PC board. This complex integrated circuit was a joint development between OPPO Digital and chip manufacturer MediaTek. It includes a quad-core CPU and performs all decoding and video processing functions. (OPPO Digital photo)

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Photo 6: The UDP-205 remote control looks virtually identical to the BDP-105 remote. The old Netflix and Vudu buttons have been eliminated, and the illumination button in the lower right has been replaced with the HDR output mode selector. They've also eliminated the 3D button and replaced it with a PIC button that enables quick access to the picture adjustment menu. (OPPO Digital photo)

supply is a custom-designed toroidal power transformer, with three sets of secondary windings dedicated to the analog and digital supplies.

One winding feeds a pair of bridge rectifiers and the main 7812/7912 pair of IC regulators used for the analog circuitry. These main regulators are used with a pair of 6800 $\mu\text{F}/35\text{ V}$ input filter capacitors and 3300 $\mu\text{F}/50\text{ V}$ output filter caps. The two other windings feed bridge rectifiers dedicated to the digital supplies, which are regulated with AZ1117 three-terminal IC regulators. Local analog supply bypassing is generous, with 32 capacitors, each 220 $\mu\text{F}/35\text{ V}$. All electrolytic power supply capacitors are Elna audio-grade parts.

New Video Decoder

Previous OPPO Digital players had separate decoder and video processor chips. For its new 4K UHD players, OPPO Digital teamed up with MediaTek to design an entirely new chip, the OP8591, which combines both functions in a single package (see **Photo 5**). Liao notes that video processing is done with a combination of hardware, digital signal processing, and firmware. He says that they've applied what they learned from external video processing chips to ensure that the integrated processing meets their quality requirements. The OP8591 is extremely complex and was an enormously expensive effort. It's a quad-core design using ARM (Advanced RISC Machine) architecture, plus DSPs specifically designed for video and audio decoding and processing. The chip also incorporates all of the security features required

by the copyright control mechanisms. The video circuitry and its switching-mode power supply are housed in the bottom of the player and are fully shielded to eliminate electrical interference with the DAC and analog circuitry.

The UDP-205 supports all current SD, HD, and UHD resolutions, including 4K at 60p, 4K at 50p, 4K at 30p, and 4K at 24p using various color spaces (e.g., PC RGB, Video RGB, YCbCr 4:4:4, 4:2:2, and 4:2:0). The UDP-205 will also play 4K media files and

user-generated content. Decoding support includes HEVC, H.264, VP9 4K, and Hi10P video codecs. High Dynamic Range (the HDR 10 format) and Wide Color Gamut are also supported, and the player includes accurate conversion from HDR to standard dynamic range (SDR) for compatibility with older televisions. Lower-resolution video can be upscaled to 4K. This player is also the first to support Dolby Vision, a feature added in a recent firmware upgrade. OPPO Digital's high-precision disc loader and mechanism ensure fast loading times and reliable playback, with effective error detection and correction. All of the standard, advanced audio formats are supported, including Dolby TrueHD and DTS-HD Master Audio, Dolby Atmos, and DTS:X.

On the audio end, the UDP-205's S/PDIF and Toslink Optical inputs will support PCM files up to 192 kHz/24-bit. The USB DAC input will support two-channel DXD (Digital eXtended Definition) PCM files up to 768 kHz, and two-channel DSD files at 2.8224 MHz (DSD 64), 5.6448 MHz (DSD 128), 11.2896 MHz (DSD 256), and 22.5792 MHz (DSD 512). DSD 64 and 128 files are played in native mode—anything higher is converted to PCM. The USB inputs for media storage support PCM up to 192 kHz/24-bit and DSD at 2.8224 MHz.

HDCD Solution

OPPO Digital's previous Blu-ray players have included support for High-Definition Compatible Digital (HDCD) discs. This format was introduced in 1995, co-invented by Keith O. Johnson and Michael "Pflash" Pflaumer of Pacific Microsonics (and Reference Recordings), as a means of encoding 20-bits of resolution on a 16-bit Red Book CD. Although high-resolution audio formats have supplanted HDCD, many collectors have libraries of discs in this format and will want to continue playing them at full resolution. The new OPPO Digital players don't support HDCD. Liao explained that in the previous OPPO Digital players, HDCD decoding was done in the main decoder chip, but MediaTek was unable to include HDCD support in the OP8591. It was simply a matter of balancing the feature requirements with hardware design constraints.

There's an easy and cost-effective work-around to this problem. A program called dBpoweramp includes a CD ripper that will decode HDCDs and write the decoded data to 24-bit .wav files. For reasons unknown to me, only the Windows version supports this feature. If you use a Mac, find a friend with a Windows computer. You must purchase and register the program to get this feature, but the program costs \$39 US—worth the price for anyone with an HDCD collection. I only have a handful of HDCDs, but the program worked great

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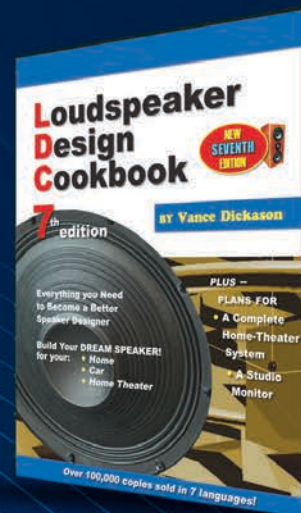
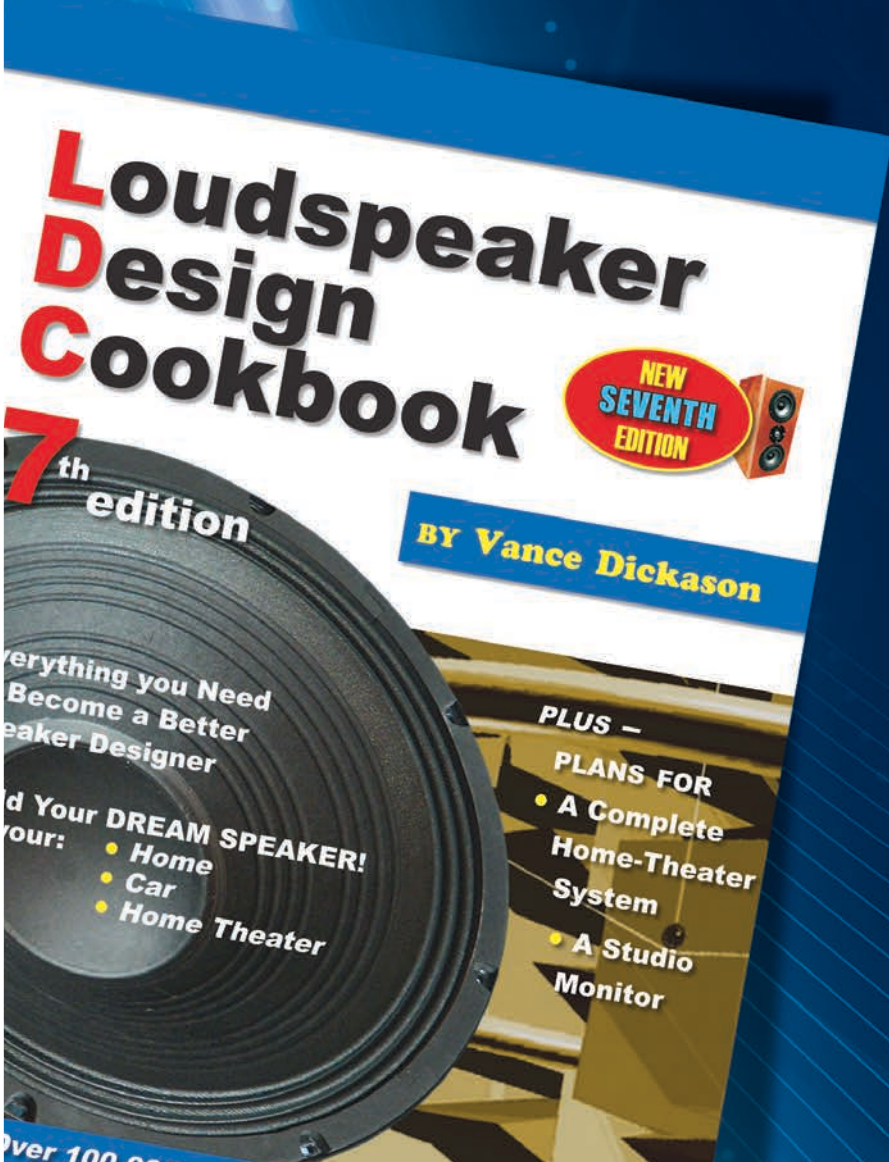




Photo 7: This cutaway view of the UDP-205 shows the dual-layer reinforced metal chassis. The brushed-aluminum front panel brings the total weight to 22 lb (10 kg). (OPPO Digital photo)

on all of them. You can play the 24-bit wave files on the UDP-205 directly from any USB storage device.

The UDP-205's remote control is very similar to the one supplied with the BDP-105 (see **Photo 6**). Since the new player doesn't support Internet movie streaming, the dedicated Netflix and Vudu buttons have been eliminated. An HDR button has been added to select the output mode for HDR content, and replaces the illumination button on the BDP-105 remote. The buttons on the new remote illuminate as soon as you pick it up or press any button; they remain illuminated for 5 seconds. They've also eliminated the 3D button and replaced it with a PIC button that enables quick access to the picture adjustment menu.

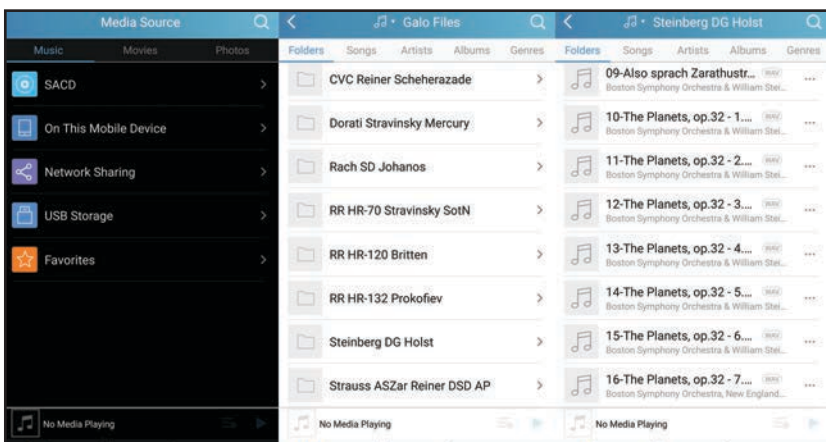


Photo 8: Here are three screenshots from OPPO Digital's Media Control App for Android devices. The app enables you to select a source (left), navigate folders on external USB drives (center), and select the files you wish to play (right). From the screen on the left you can also select Remote, which duplicates the functions of the player's remote control, and Player Setup, which enables you to do the entire setup without turning on your TV. The shot on the left shows the app in Night Mode, which will probably extend the charge on the device's battery.

The build quality of the OPPO Digital players has always been excellent, but each generation of players seems to be more massive and robust than the previous. The UDP-205 is built on a double-layer reinforced metal chassis to improve stability and resist vibration (see **Photo 7**). The player also has a brushed-aluminum front panel which, combined with the steel chassis and the circuitry itself, brings the total weight of this player to a hefty 22 lb (10 kg). Compare this to 17.3 lb (7.9 kg) for the BDP-105 and 16 lb (7.3 kg) for the BDP-95.

The HDMI Phantom

My television is in my audio listening room, and we also have a second set upstairs in the living room. I have no interest in surround sound—video requiring more than the “news” quality audio plays through my stereo audio system. Back in February, I replaced my 42” Panasonic Plasma TV, Viera-series model TH-42PZ85U (we moved that set upstairs to the living room). The replacement is a Sony model XBR-49X800D, a 4K LED set that's part of the Bravia series. When we bought it in 2008, the Panasonic had one of the best TV pictures I had ever seen and was excellent with 1080p Blu-ray discs played on the OPPO Digital BDP-93, BDP-95, and BDP-105 players that I've had in my system.

After installing the new Sony television, I began experiencing an audio glitch that never happened with the Panasonic. If I'm playing an audio disc on the OPPO Digital BDP-105 or UDP-205, with the Sony TV turned off, the audio will periodically mute for second or so and then come back on. (There's never a problem when the TV is on.) This will happen if I'm using the OPPO Digital as a stand-alone player or with an outboard DAC. If I'm using my outboard converter, the DAC's digital lock light will momentarily go out. I contacted Liao about this and he replied as follows: “I am guessing that the mute is caused by the HDMI handshake with the TV. Older TVs tend to completely shut off the HDMI input ports when it is powered off, so there is no problem. Some new TVs do not shut off the HDMI inputs when they're turned off, so the player still receives the “hot plug” signal and will try to perform a handshake with the TV based on the existence of the hot plug signal. The handshake causes the clock to reset. Completely cutting off AC power to the TV can be a work-around to the problem.”

As I'll explain shortly, Liao's guess was right on target. Cutting power to the TV does solve the problem, as does unplugging the HDMI cable from the TV. But, neither of these options is particularly convenient, and the TV takes a minute or so to reboot when power has been disconnected. Some

TVs may lose certain setup information if unplugged for an extended period. My solution was to purchase an HDMI switch and insert it in the line between the OPPO Digital player and the Sony television. I plug the HDMI switch's wall-wart power supply into a switched outlet on the power line conditioner dedicated to my TV and cable DVR. The TV and DVR are plugged into outlets that are always on, so I simply turn on the power line conditioner's front panel switch to turn on the HDMI switch when I need video from the OPPO Digital player. This solved the muting problem.

You must get a 4K switch that supports high-bandwidth digital content protection (HDCP), specifically HDCP 2.2. The OPPO Digital UDP-205 supports this copyright protection standard, which is mandatory for all 4K UHD players. Mine is an Expert Connect 3x1, a three-input switcher available from Amazon for around \$36 US. The manufacturer claims compatibility as follows: Ultra HD 4K/2K at 60 Hz (60 fps), HDR, HDMI 2.0, HDCP 2.2, Full HD/3D, 1080P, DTS, Dolby Digital, Direct TV, and 18 Gbps bandwidth.

The bandwidth is important for both the switcher and the HDMI interconnect cables. There are a lot of "4K" HDMI cables that don't offer full 18 Gbps bandwidth—avoid them, especially if you plan to play HDR discs. There are many brands that meet the requirements for 4K video, and one way to guarantee performance is to buy cables approved by the Premium HDMI Cable Certification Program. (For more information, visit the official HDMI website.) I purchased two "Premium High-Speed HDMI with Ethernet" cables made by On-Q Legrand from Crutchfield, 7 m from the player to the HDMI switch, and 1 m from the switch to the TV (see Resources). They work just great.

The Expert Connect 3x1 has LEDs to indicate both input and output connections. Even with my Sony TV turned off, the output LED remains illuminated, indicating a connection to a live HDMI input. You have to unplug the Sony TV to turn off the output LED. This confirms Liao's explanation of the muting problem. Fortunately, the Expert Connect switch passes 4K video without degradation. The only thing it doesn't support is the HDMI Audio Return Channel (ARC). If you need to get audio from your TV back to your audio system, I suggest a Toslink Optical digital interconnect, between the TV and the Toslink input on the OPPO Digital player. Vanco's HDMISW41 switch supports ARC, but it costs \$149. I haven't tried it.

Media Control App

I highly recommend downloading OPPO Digital's free Media Control App for your smartphone or other



Photo 9: The most complete player from OPPO Digital, both in terms of video and audio formats supported, the UDP-205 is also the highest quality source any audio enthusiast could want.

portable device (you must have wireless network capability for your smart device to use it, since it communicates with the player through your home network). On the OPPO Digital support page, select your player and then scroll down to the links for the Android and the iPhone/iPad/iPod Touch versions. **Photo 8** shows three screenshots from the Android app, which I use on my Samsung Galaxy Note 4. The app enables you to select any active media source, including the player's own internal optical drive and all external USB storage devices. The menu system then enables you to navigate folders on the external storage device and select files for playback, all without ever turning on your television.

You can also select a screen that duplicates the functions of the OPPO Digital remote control, and perform all player set-up functions, including upgrading the firmware. The only function that still requires you to turn on a television is the program selection on DVD-Audio discs. Setup is similar to previous OPPO Digital players—mostly easy and intuitive. The User Manual is detailed and clearly written. Updated versions—sometimes necessary because of firmware changes—are always available as a free download on the OPPO Digital website. One thing I'd like to see improved is an explanation of how to use the trigger I/O connections. The manual says very little about this, and doesn't specify the required trigger voltage (it's probably 12 VDC).

Video Quality

I purchased my first 4K UHD disc specifically for this review, a film made for IMAX theaters called *Journey to Space*, which describes the contributions made by the Space Shuttle and the planning



underway for a trip to Mars. The film is narrated by Patrick Stewart, and the package also includes a regular Blu-ray disc. On the UDP-205, the 4K picture quality is simply stunning—razor sharp with incredibly low background noise, amazing contrast and vivid, life-like colors. This disc also has a HDR program—the HDR function is selected on the disc’s opening menu.

The difference in sharpness and contrast is very obvious with HDR, though I found the color saturation to be a bit too much, requiring a re-adjustment of the color level (which can be done either on the TV or the OPPO Digital player). I find that factory-default color settings on televisions are

almost always too high. I prefer a natural rather than overly saturated picture. OPPO Digital’s factory default settings on its players have always been sensibly chosen. The UDP-205 enables you to customize and save three picture adjustment modes, so I used Mode 2 to reduce the color saturation for HDR discs. Naturally, as I get other HDR discs, this may change. The PIC button on the OPPO Digital remote, described earlier, makes access to the picture adjustments quick and easy.

The UDP-205 does a superb job of upscaling regular 1080p Blu-ray video to 4K UHD. I was surprised at just how close the *Journey to Space* Blu-ray disc came to the 4K UHD disc when upscaled by the player. I suspect that the differences will be more apparent on much larger screens than mine, but on my 49” Sony, the Blu-ray disc still qualifies as stunning. Surely, we have not reached the point where 1080p Blu-ray discs get no respect!

Resources

2L, www.2l.no/hires/index.html.

Acoustic Sounds, <http://store.acousticsounds.com>.

Cirrinca HD-Audio Solo Ultra, www.cirrinca.com.

dBpower amp Software, www.dbpoweramp.com.

Elusive Disc, Inc., www.elusivedisc.com.

G. Galo, “OPPO Digital BDP-93 Blu-ray Disc Player,” *audioXpress*, June 2011.

_____, “OPPO Digital BDP 95 Universal Network 3-D Blu-ray Disc Player,” *audioXpress*, January 2012.

_____, “OPPO Digital’s New 3-D Blu-ray Disc Player Raises the Bar,” *audioXpress*, October 2013.

_____, “KanexPro HAECOAX HDMI Audio De-Embedder,” *audioXpress*, July 2016.

_____, “Benchmark DAC3 HGC Stereo D/A Converter,” *audioXpress*, July 2017, www.audioxpress.com/article/fresh-from-the-bench-benchmark-dac3-hgc-stereo-d-a-converter.

HDtracks, www.hdtracks.com.

HDMI, www.hdmi.org.

OPPO Digital, www.oppodigital.com.

Reference Recordings, <https://referencerecordings.com>

USB Audio Player Pro, <https://play.google.com>.

Sources

AudioQuest Carbon USB 3.0 Cable

Audio Advisor, Inc. | www.audioadvisor.com

AC2MP1-BK (1 m) and AC2AP7-BK (7 m) On-Q Legrand premium High-Speed HDMI cables

Crutchfield | www.crutchfield.com

Vanco HDMISW41 Switch

Markertek | www.markertek.com

Audio Performance

All of my listening was done with the player’s dedicated two-channel stereo outputs, using the default Minimum Phase Fast filter. I’ll get right to the point—the UDP-205 is a stellar audio player. In my review of the BDP-105, I noted a number of areas where that player improved upon the already fine audio performance of the BDP-95. If anything, the differences between the UDP-205 and the BDP-105 are even greater, especially on a high-resolution system.

The ES9038PRO DAC chip and other design changes made by OPPO Digital have laid the sonic virtues of its predecessor on a new ground. In my review of the Benchmark DAC3 HGC, I noted the improved soundstage reproduction, and how the ES9028PRO chip revealed the connecting acoustic space between the instruments better than the ES9018. The new OPPO Digital player reveals similar virtues in the ES9038PRO. The soundstage is more three-dimensional and precise, with a more realistic sense of the acoustics of the original recording venue. In the 1959 RCA Living Stereo recording of Sergei Prokofiev’s *Alexander Nevsky* with Fritz Reiner and the Chicago Symphony, on Analogue Productions SACD transfer (CAPC 2392 SA, from Elusive Disc or Acoustic Sounds), the player realistically reproduces the acoustic space around the low brass instruments in the rear of the soundstage, compared to the more homogenized sonic presentation rendered by the BDP-105.

In Deutsche Gramophone’s new 96 kHz/24-bit Blu-ray transfer of its 1966 Bayreuth Festival recording of Richard Wagner’s *Tristan und Isolde*, conducted by Karl Böhm, the UDP-205 reveals an

amazing level of orchestral detail not heard in previous digital transfers of this recording (479 7291, available from Amazon). And, the positions of the singers in the soundstage are rendered with greater precision, and the OPPO Digital player reveals an improved sense of depth on this recording. I've owned the German-pressed LPs since the 1970s. If anything, the Blu-ray disc, played on the UDP-205, is warmer than the vinyl.

Digital audio technology has improved considerably over the past three decades, yet I'm often amazed at how well the CD transfers of the Mercury Living Presence recordings, produced by Wilma Cozart Fine between 1990 and 1995, have held up. The Mercury CD of Ottorino Respighi's *The Birds*, with Antal Dorati and the London Symphony, vividly captures delicacy of Respighi's orchestration, the amazing soundstage, and palpable sound of the massed strings. On the UDP-205, this and other Mercury CD transfers in my collection sound surprisingly up-to-date.

Tonal neutrality has been a virtue in both of OPPO Digital's ES9018-based players, and the UDP-205 certainly retains those qualities. The Benchmark DAC3 HGC is my reference for transparency and neutrality. By comparison, the BDP-205 leans slightly toward warmth in the midrange and is slightly laid back in the treble (I emphasize slightly). There's nothing lacking in high-frequency extension, however. Heavily multi-miked recordings that favor the treble region, like William Steinberg's DG recording of Gustave Holst's *The Planets*, are reproduced with even greater listenability than they were on the BDP-105, particularly in the passages where the high strings are prominent (heard on the 96 kHz/24-bit files from HD Tracks).

OPPO Digital has also improved the low-frequency extension and weight in the new player, evident on Igor Stravinsky's *Song of the Nightingale* (Eiji Oue, Minnesota Orchestra, 176.4 kHz/24-bit files, Reference Recordings HR-70). The new player very accurately and impressively delineates the timbres of the various bass-drum whacks in this recording. The percussion instruments on Oue's recording of Aaron Copland's *Fanfare for the Common Man* are also very impressive in this regard, using 24-bit files extracted from the HDCD using dBpoweramp (Reference Recordings HDCD RR-93).

Some OPPO Digital owners may be reluctant to upgrade to the UDP-205 player because of the lack of HDCD support. They should rethink this view. Because of the UDP-205's superior audio performance compared to the BDP-105, the 24-bit decoded files made with dBpoweramp actually sound better on the new player than the original discs did

on the old one. Improved spatial qualities and detail are evident on the Copland recording, as well as Frederick Fennell and the Dallas Wind Symphony performing Václav Nelhýbel's *Trittico* (Reference Recordings HDCD RR-52). For best performance playing media files, I suggest a USB 3.0 external drive connected to one of the USB 3.0 inputs on the player with a high-quality cable. I use an AudioQuest Carbon.

Conclusions

With the UDP-205, OPPO Digital has a new, reference-quality player, redefining what's possible with a high-performance universal digital player, at a very affordable price (see **Photo 9**). It's possible to improve audio performance even further with the addition of an outboard DAC. But, you'll need to pay at least as much, and possibly a lot more, for the outboard DAC as you did for the UDP-205. It will take outboard DACs at least approaching performance of the Benchmark DAC3 HGC to get you to the next level of transparency and refinement. Many audio enthusiasts will question the need for anything better—the performance of the UDP-205 is that good. The UDP-205 is a new reference for stand-alone digital players. I could not recommend it more highly. 📧

A New Part Introduction for 2016

1.8 nV Low Noise Dual P-Channel JFET 4pf Low Capacitance Complement to N-Channel LSK489



The image shows three LSJ689 components: a gold-plated TO-18 package, a black SOT-23 package, and a black SOIC-8 package. To the right is a graph titled 'LSJ689 Series' showing noise voltage in nV/√Hz versus frequency in Hz on a log-log scale. The noise voltage starts at approximately 1.8 nV/√Hz at 10 Hz and decreases to about 1.5 nV/√Hz at 10,000 Hz. A purple arrow points to the curve with the text 'New LSJ689 Dual P-CH JFET'.

- Low Noise < 1.8nV
- Low Capacitance: 4pf max
- Low Offset: 20mV max
- Complement to Dual N-Channel JFET - LSK489
- Ideal for Differential Amplifier Applications when uses with the LSK489
- Ideal for Voltage Controlled Resistor Applications
- T071, SOIC-8, SOT23-6, ROHS Packages
- Contact the Factory or Visit the LIS Website for Data Sheets/Pricing/Samples

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