

Top of the Classé

Nowadays 1080p video is becoming de rigeur for high-end DVD players, and they don't get much more exclusive than Classé's CDP-300. Paul Miller offers the one and only full technical review



DETAILS

-  Classe CDP-300 DVD-A player
-  £4995
-  www.classeaudio.com
-  01903 221500
-  Superb picture, sound and build
-  Limited digital video adjustment

few months off, behind Pioneer's true 1080p PDP-5000EX plasma TV. But when 1080p displays do finally arrive in both quantity and variety, at least Classé's CDP-300 will be ready and waiting... And what an impressive



DVD-Audio player before its auspicious release this spring. At the time, the CDP-300 was to be the first player equipped with a 1080p digital video output while also offering 'universal' compatibility with CD, DVD-A and SACD. The likes of Denon and Marantz have delivered 1080p ahead of Classé's schedule while its implementation of SACD was to impact the system architecture so significantly that it was finally abandoned. Too great a cost for too little commercial uptake might serve as SACD's epitaph.

And yet the CDP-300 does retain more than a suggestion

of uniqueness with its full colour TFT display that combines a video (DVD) preview with a touchscreen setup menu. Classé is also the first company to implement the AVC2510 video format converter from National Semiconductor, a potent foil for the Realta de-interlacer and DVDO scaler combination used in Denon's DVD-A1XVA (*Hi-Fi News*, June 2006) and one that offers another route to 1080p digital video.

At the time of writing, TI is still to release the final drivers for its 1080p DLP chip solution, so the first such projectors from SIM2 and Projectiondesign are a

First demonstrated at the Munich High-End Show in 2005, it's been a year of further, steady evolution for Classé's £4995 CDP-300

REVIEW SYSTEM

Displays: SIM2 C3X Lite DLP projector; Fujitsu P50XTS40 50in plasma
Amplifiers: Arcam AV9 pre-amp/processor; 6 x Arcam P1 power amplifiers
Speakers: B&W Nautilus 802/804/801/ASW850 loudspeakers
Cables: Townshend Interconnects and CE3 speaker cable

chunk of architecture to complement Classe's other Delta-series components. The body is fashioned from a massive alloy extrusion that's rolled into the U-shaped chassis visible in our photographs. All that decorates this alloy girder is the colour TFT display (sourced from Sharp) and an illuminated slot designed to gracefully accept any 120mm CD(R/RW) or DVD(A/+RW/-RW) posted in its direction. Behind this thin letterbox lies a slot-loading DVD mechanism from TEAC, the DV28SL Atapi drive that's connected directly to a single-chip (DVD) audio and video, Dolby and DTS decoder solution from Crystal.

From here the video and audio take separate paths; the former to the National Semiconductor processor for de-interlacing, scaling and output to a Silicon Image SiI9030 HDCP-encoder that drives the HDMI v1.1 output. The audio is upsampled through three CS8421 processors from its native 44.1kHz (CD) or 48/96kHz (DVD) to 192kHz/24-bit before addressing three CS4398 DACs. These DACs have a built-in digital volume control which, in the CDP-300's default state, are disabled. You may activate the main volume from the Audio Options >> Volume Control menu path at the expense of some noise and lost dynamic range.

KEY FEATURES

This is not the sort of product designed to appeal to the gadget-conscious; for its range of audio and video adjustments are pared down to the bare essentials. This is no bad thing in my view, as the CDP-300 has been conceived to offer an exceptional level of performance right out of the box. Standard speaker configuration options are provided for small and large boxes but there's no user-adjustment of sub crossover frequency, for example. As we'll find (in Data File) the CDP-300 both measures and sounds at its best with the sub enabled and all its main channels set to 'Large'. Channel levels, distance and lip-sync delay are provided along with a 'late night'

setting that invokes Dolby's dynamic compression mode with DVD movie soundtracks. Video adjustments are very straightforward and limited to 0/7.5IRE black levels, 4:3, 16:9 and letterbox aspect ratios and 480/576 interlaced and progressive SD video along with HD 720p, 1080i and, of course, the ultimate 1080p resolutions.

but the CDP-300 is in a league of its own in this regard. At a time when reducing our power consumption is becoming a very real issue, the sad fact is you'll never hear the CDP-300 at its very best unless it's left on, permanently.

Standby mode just doesn't cut it, for unless the player is kept cooking it tends to sound

AV processor/DAC like the Arcam AV9, it both sounds and looks superb straight from the box. The slightly pinched vocal quality and sharp percussion from Jamie Cullum's *Catching Tales* CD undoubtedly relaxes into its stride once the CDP-300 is properly on-song, ensuring his voice is articulate but not it also cuts through the thicke

FRONT & REAR PANELS



Wired IR, 12V trigger, CAN-BUS and RS232 communications ports allow the CDP-300 to be fully integrated into any home automation system. Six single-ended analogue outputs service multichannel DVD-A and decoded Dolby/DTS movie soundtracks while a pair of balanced outputs are provided, as an option, for stereo CD/DVD-A media. Composite, component and S-video connections are provided by default although most users will avail themselves of the digital video (up to 1080p) offered through HDMI. In addition, the v1.1 HDMI output delivers S/PDIF, Dolby/DTS bitstreams and 6-channel DVD-A up to 192kHz, despite the fact that the Silicon Image datasheet for its SiI9030 PanelLink transmitter suggests it's only version 1.0 compatible...

'This is not the sort of product designed to appeal to the gadget conscious... this is no bad thing'

The latter is only available as digital video through the HDMI v1.1 port. There is no deeper menu offering adjustment of gamma, colour, digital noise reduction or video/film mode detection regimes, for all this is irrevocably burned into the CDP-300's brain – the National Semiconductor AV2510 [see The Inside Track...]

LISTENING IN

Hi-Fi News readers will be familiar with audio products that take a time to warm-up before reaching their sonic potential,

slightly congested through bass and midrange while strained and lacking freedom through its treble, whether auditioned with plain vanilla CD or multichannel DVD-A. Once the player is simmering, its sound is similarly warm and richly flavoured, infused with a musical colour that's not dissimilar to the open transparency achieved by the Esoteric UX-1 [*Hi-Fi News*, January 2006].

The protracted warm-up is certainly an analogue affair because, as a CD/DVD transport linked to an external

and heavier Hammond organ mix of MMW's *Uninvisible* DVD which can all too easily sound congested. Instead, the deep smooth-sounding bass, clear mid and sweet but extended treble all build into a bold but never boisterous acoustic that captures all the atmosphere of the event, large or small.

In fact, the CDP-300's ability to cast a large and impressive acoustic is mirrored by its deft handling of the most ambient of movie soundtracks. The rainstorm sequence midway through *Open Range* has water splashing off the rooftops and running down the muddy thoroughfare as if your room were placed plumb in the middle of the set. Similarly, the protracted gunfight near

the dramatic conclusion of the movie finds the percussive impact of pistols, rifles and the double-barreled scattergun all possessing a satisfying, if rib-crunching thud that contrasts beautifully with the gentle pace of the movie as a whole.

Then there's the creaking walls of ice that permeate the queen's castle from

The Chronicles of Narnia, a scratching, groaning effect that'll have you turning your head as the CDP-300 perfectly illustrates the image on the screen with sounds from front, centre and surrounds. It's worth remembering that the CDP-300, in common with all DVD players, only offers a 5.1 channel analogue output. To

enjoy 6-channel Dolby EX or DTS ES decodes you'll need to hook the player into an external AV processor via either S/PDIF or HDMI digital outputs. The latter may also be employed to carry encrypted, multichannel DVD-A to the few AV amps equipped with decoding, products like the Denon AVC-A11XV [*Hi-Fi News*, October 2005] for example.

LIGHTS OUT

Viewed with my calibrated SIM2 C3X projector onto a 10ft matt white screen, the image quality offered by the CDP-300 via HDMI is clean, crisp and in terms of colour purity, up with the very best players. MPEG noise reduction, too, is just about the very best we've seen, or not seen, as the case may be.

LIFTING THE LID

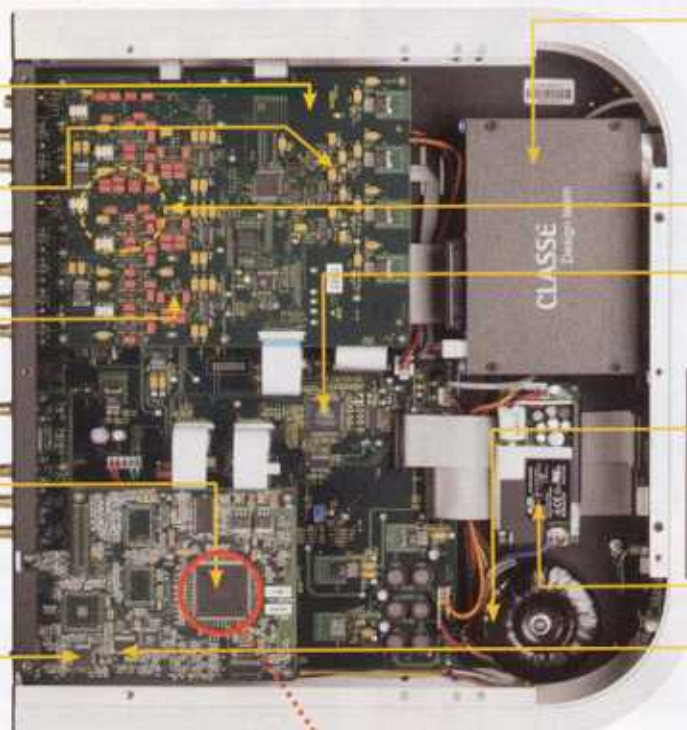
The player's main DVD audio/video and Dolby/DTS decoder chip is fitted to the mainboard under the audio daughter board

Upconversion to 192kHz/24bit digital audio is achieved here...

...before reaching the three CS4398 DACs from Crystal

National Semiconductor's dual-channel video de-interlacer and scaler lies at the heart of the player

This Silicon Image TDMS PanelLink converter encrypts and drives the HDMI video output. The chip supports HDMI v1.1 with up to 8 channels of 192kHz/24bit digital audio and digital video up to 1080p/60Hz



Slot-loading DVD drive from TEAC

Separate analogue filter stages are provided for the first six single-ended analogue outputs and the two balanced analogue outputs

This Altera processor offers full video blending, combining the DSD graphics with the (DVD) video throughput to the colour, touch panel TFT isplay.

A big, linear PSU is used for the analogue audio circuits...

...with a switchmode supply feeding the DVD transport, video and digital electronics.

The analogue video outputs are driven from the ADV7310 video DAC from Analog Devices

THE INSIDE TRACK ON...

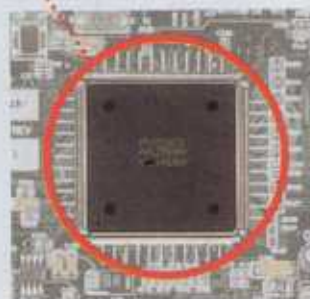
NATIONAL SEMICONDUCTOR AND 1080P

As I discussed in our review of Marantz's DV9600 DVD player [*Hi-Fi News*, April 2006], 1080p video might well be the Holy Grail of super-HD home cinema but the native resolution of DVD still remains only 480 or 576 lines with NTSC and PAL formats, respectively. Most home cinema projectors use native 1280 x 720 display chips, so there's a need to scale up to 720p along with 1080i as the preferred resolution for many plasma panels. We are on the cusp of true, progressive 1080-line displays which will surely benefit from Sky's forthcoming 1080i HD broadcasting, but 1080p source material remains as rare as hen's teeth. Until one or either HD-DVD format gets off the ground, we are left with plain vanilla DVD scaled, albeit with highly intuitive software, up to this

exalted standard.

Up until now, the Silicon Optix Realta, Anchor Bay/DVDO and Gennum scaling options have ruled the 1080p roost, but they now face competition from the National Semiconductor AVC2510 dual-channel format converter used by Classe in its CDP-300. I believe we'll also see the same chip pressed into service by Naim when it finally launches the scaler to accompany its DVD5 and n-Vi products.

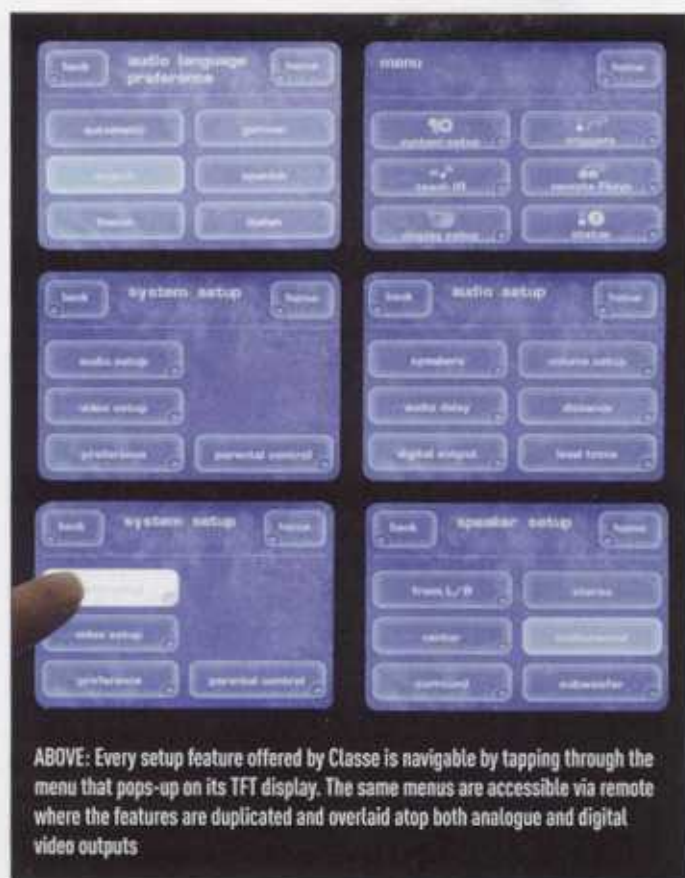
This one chip combines advanced noise reduction with full per-pixel, motion-adaptive de-interlacing and scaling to 1920 x 1080p up to 60Hz. The video DSP also includes an adaptive contrast enhancement, a luma and chroma edge enhancement and colour remapping within a 'TwinD' architecture



that supports the simultaneous output of HD and SD video. This means up to 1080p from HDMI with 480/576p from the component analogue output. 720p and 1080i are technically possible from component video, but as this would contravene its Macrovision copy protection licence, Classe's legal eagles have set a glass ceiling of 576p.

This performance comes courtesy of the National Semiconductor video processor as does the slight edge enhancement and cool-looking gamma specified by Classe's engineers. Movies like *Open Range* with their natural lighting, broad panoramic vision and minimum reliance on special effects look entirely realistic while other films, like the recent *Chronicles of Narnia* release can have their CGI and disappointingly crude overlays torn apart by the explicit resolution of the CDP-300.

As expected, the player's resolution of Aslan's (Narnia's heroic lion) rugged mane was slick and finely-detailed while, in a more general context, the dazzling contrast between the



ABOVE: Every setup feature offered by Classe is navigable by tapping through the menu that pops-up on its TFT display. The same menus are accessible via remote where the features are duplicated and overlaid atop both analogue and digital video outputs

100-year winter of the forest to the verdant greens of Narnia in spring possessed an almost visceral impact. Have no doubt, the CDP-300 is both audibly and visually a player of substance.

Indeed, as the picture quality is within a gnat's whisker of the very best available, it's almost easier to point out its minute shortcomings. For example, and compared with Denon's DVD-A1XVA, the CDP-300 seems less comfortable at handling scrolling text on film and betrays just a hint of de-interlacing artefacts with particularly busy scenes.

MOMENTARY JAGGIES

Throughout *Miracle*, the re-telling of the US ice hockey team's eventual supremacy over the Russians at the 1980 Olympics, there are scenes where massed waving of the stars and stripes combine with the clash of sticks and showers of powdered ice to cause some momentary jaggies. These are less obvious when the 720p or 1080p feed is supplanted by 1080i, although such distinctions will only be noticed by seasoned viewers using state-of-the-art

'The CDP-300's ability to cast an impressive acoustic is mirrored by its deft handling of the most ambient of soundtracks'

display systems.

Otherwise, the CDP-300's freedom from motion blur, chroma artefacts and its ability to deliver both inky deep blacks along with crisp, Daz-like whites with no crushing of bright highlights is both memorable and impressive.

Along with National Semiconductor, Classe's design team has spent this last year fine-tuning the de-interlacing, enhancement and scaling algorithms applied by the AVC2510 so that we, quite frankly don't have to. As a result, the Classe CDP-300 represents a viable but very different

DATA FILE

MEASURED SPECS

Maximum multichannel output Level	1.98V
A-wtd S/N ratio (single-ended/balanced)	105dB / 110dB
Distortion, 1kHz, 0dBFs/-30dBFs	0.0014% / 0.004%
Distortion, 20kHz/0dBFs	0.024%
Distortion, 40kHz/0dBFs	0.03%
Digital jitter (CD/DVD-A)	140psec / 114psec
DVD-A resolution @ -100dBFs	+0.3/-0.0dB
Stereo separation, 20Hz-20kHz	105dB-75dB
Dimensions	445 x 121 x 419mm (whd)
Weight	12kg

LAB REPORT

This is certainly a DVD player fine-tuned for a 'house sound' rather than to set new standards in low distortion or the widest achievable S/N ratio. For example, THD reaches a minimum of -0.0013% with CD/DVD-A media at its 1.98V peak output through the midrange, but this increases to -0.024% with CD and 48kHz DVD-A at 20kHz and -0.03% with 96kHz DVD-A at 40kHz as the analogue filter circuit is progressively strained. In fact, distortion at 20kHz falls to a minimum of 0.003% at -23dBFs which, from the standpoint of musical content, is a more realistic level than 0dBFs.

The S/N ratio is also acceptable at 104dB but somewhat behind what can be achieved with 24-bit audio (see Arcam CD36, this issue) and shows some additional artefacts between 5-15kHz on the right-hand channel. Close attention to the digital path has resulted in a low 114psec jitter with DVD media while the response is gently rolled off to -0.9dB at 20kHz (48kHz/96kHz DVD), -4dB at 45kHz (96kHz DVD-A) and -10dB at 80kHz (192kHz DVD-A).

Classe's player passes all the Dolby conformance tests with flying colours, offering a low 0.0017% distortion through the midrange with 5.1 channel media. Unpacking of MLP encoded audio is also handled without upset, even at 192kHz where some players have exhibited a bug or two. Bass management, however, still requires some further tweaking for while the LF content of any 'Small' channels is cleanly directed to the sub, it is possible to clip the front channels (-12% distortion) once the sub is disengaged and additional LF content is re-routed. Stick with the sub engaged or all channels set to 'Large' if the sub is defeated, and you'll not go wrong. This issue does not affect multichannel audio piped out via HDMI or 5.1 channel bitstreams delivered through S/PDIF to an external AV processor.

• For full *Hi-Fi News* test reports on the CDP-300's CD, DVD-A, DVD and Do/By Digital performance, please log onto www.milleraudioresearch.com/avtech

HI-FI NEWS VERDICT

Classe's CDP-300 is a plug-and-play, fit-and-forget DVD solution for the enthusiast who values performance but is rather less turned-on by the prospect of extensive fiddling to achieve the ultimate viewing experience with every disc. Hey, you might even have it in another room entirely and run the player via an RS232 controller such as an iCommand or Crestron. It is, if you pardon the pun, a distinctly classy option for the well-heeled movie buff.

alternative to Denon's DVD-A1XVA DVD player.

Both units offer state-of-the-art DVD replay and both are fully future-proofed with digital 1080p video outputs. The difference comes in their

user-configuration, for while the Denon is festooned with adjustments for gamma, colour and noise reduction, the sight and sound of the Classe model is largely predetermined by its engineers. ■