



There's little that's 'standard' about Krell's HTS AV processor, including its room-filling performance Paul Miller lifts the lid

Krell Home Theater Standard 7.1

HEAT or High End Audio Theater, to give it Krell's interpretation, does not get much hotter than this statement HTS 7.1 channel AV processor which, at a heady £8988, will light the blue touch paper of all but the most fire-proof of cheque books. Bear in mind that it's normally associated with Krell's £5599 KAV3250 three-channel and TAS £8498 five-channel power amplifiers and we are quickly in the realm of systems equipped with top-end three-chip DLP projectors like the £20k Mercury HD or Screenplay 777. And judging by the sales of said items, there are more than a few of these dream home cinema installations already up-and-running in the UK.

So the HTS 7.1 has its market and offers a performance-driven solution to match those expectations. It utilises Krell's proprietary 'current mode' pre-amp topology throughout and is one of the very few processors to offer balanced outputs for all eight analogue channels – a useful feature if you intend running long interconnects out to remote power amplifiers. There's also a purist pre-amp mode that bypasses any digital processing, including the 24-bit/48kHz ADC that would otherwise number-crunch any incoming analogue inputs. Furthermore, the setup menu is clearly a custom effort on Krell's part –

comprehensive in tone but easy to navigate.

All the fundamental Dolby Digital and DTS decode modes are accommodated along with the extended DD EX, DTS ES (Matrix and Discrete) and THX Surround EX variations. There are also nine additional 'surround enhancement' modes to augment the performance of any two-channel audio inputs. Video is analogue only and there's no upconversion to component, for example, although each of the inputs is readily associated with any of the ten source buttons located on the front panel. It's also possible to define the video system format (PAL or NTSC) and type (interlaced or progressive) associated with the front panel input along with the partnering digital audio input and default decode mode. As you might expect, the digital inputs are S/PDIF only, servicing LPCM up to 24-bit/96kHz and DD/DTS bitstreams. HDMI v1.1, IEEE1394 and other encrypted digital audio/video interconnects are still the preserve of the Far Eastern majors, or so it would seem.

Similarly, while the HTS also lacks the kind of fancy auto setup routine offered by the likes of Pioneer and Denon, it does include an 'auto noise sequencer' that's designed for use with a hand-held SPL meter (not supplied). There's also a manual 'Room EQ' function. This digital equaliser offers a comprehensive adjustment of the processor's response through a choice of six different filter strategies, each with a programmable cut-off/centre frequency, shape and level. The adapted response may be applied to all or individual channels

Krell HTS 7.1 AV processor

Under the bonnet

The modular construction of Krell's flagship AV processor is clear for all to see, facilitating hardware upgrades and minimising any untidy internal cabling.

I took the liberty of lifting Krell's central DSP card from the chassis, exposing Crystal's older-generation 3000-series Dolby/DTS decoder with its separate back-end IC for THX post-processing, room EQ and bass management functions. In all likelihood, Krell will skip the current 4000-series decoder and move directly to Crystal's 5000-series chipset in its next products. On the back of this card, the HTS uses a mixture of two PCM1737 DACs to service the front and centre channels with a single (multichannel) PCM1605 DAC to look after the sub, surrounds and back channels.

A CS8415A input receiver accommodates Dolby/DTS bitstreams and LPCM data up to 24-bit/96kHz from partnering DVD player.

The 7.1 analogue output boards are linked via these four, two-channel CS3310 volume control chips, with another for the Zone 2 stereo output.

This Motorola CPU performs all the HTS's housekeeping functions, running the display, responding to the on-screen setup menu and keeping an eye out for any IR commands from its credit-card sized handset.

The single-ended and balanced analogue outputs are driven via this pair of four-channel cards, each packed with surface-mount chip resistors, transistors and op-amps in a highly complex and proprietary configuration called CMC (current mode circuitry). Krell also executes a part of its

speaker configuration here, blending the bass from the sub to front channels in its 'enhanced sub' mode. If any part of the HTS has an overwhelming impact on its overall performance, then it's these output cards with their topology inspired directly from Krell's statement KCT preamp.

and the result saved in one of four memory fields for later recall.

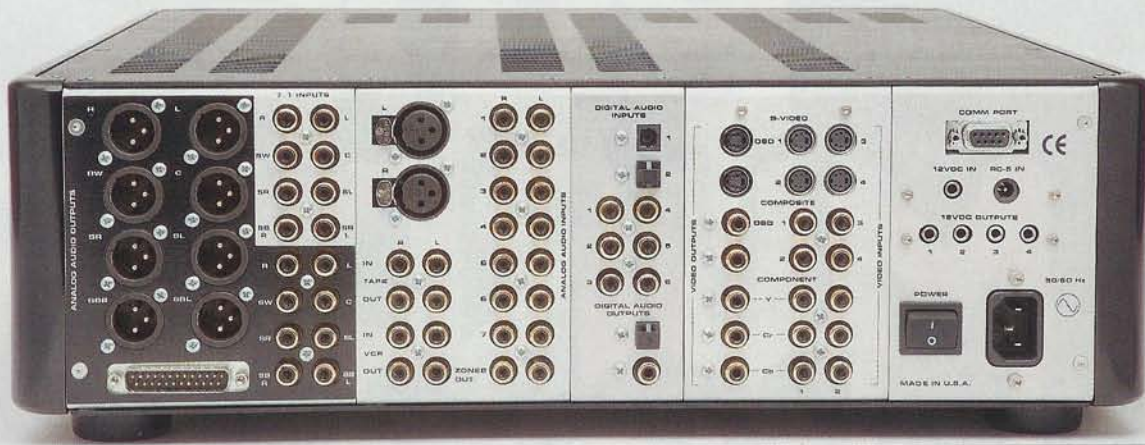
The speaker configuration options are very flexible, however, with independent control over the front and surround pairs plus the sub and centre channels and either one or two back channels. Speaker 'sizes' are sensibly restricted to either 'Full' or 'Limited' (there's no 'None' setting for the principal channels) with five crossover selections stretching from 40Hz to 120Hz. Incidentally, these configuration options are not updated on the fly – you have to exit the setup menu before they are applied...

LIGHTS OUT

Not all high-end AV processors emerging from the US have been greeted with wholehearted enthusiasm by our

panel. So far, the odds are running at about 50% with the likes of Lexicon's MC-8 receiving a firm thumbs down while the less well-known EAD Theatermaster 8800 left us all enthralled. The good news is that Krell's HTS 7.1 was right up there with the '8800, delivering a slightly rich, very slightly overblown and thoroughly larger-than-life presentation that suited our selection of Hollywood blockbusters down to the ground. It certainly pulled no punches with *The Chronicles of Riddick* as the invasion of Chronos Prime proceeded to roll out across the room, threatening to overwhelm us with the pulse of weapons and deep rumble of spacecraft looming overhead. Generous though it sounds, never does the HTS let the grand architecture of its 'surround bubble' burst into disarray. Instead, it supports a grand sense of atmosphere and tension,

Krell's backplane reinforces the benefits of its plug-in architecture. The eight XLR line output sockets are impossible to miss, sitting alongside conventional single-ended connections for 7.1 channel in and outputs. The DB25 socket, below, has been adopted by a few manufacturers as a more compact multichannel audio connector. In addition, there are two tape, one balanced and seven unbalanced inputs, two optical and six coaxial digital inputs plus four composite, two component and four S-video inputs. The 12V triggers and RS232 port will assist with the HTS's system integration.



where required, while giving subtler effects and dialogue the freedom to play out their role on a broad stage. Perhaps as a result, the HTS is more than capable of unmasking the different threads of a multichannel mix. The variable dialogue quality from *Around the World in 80 Days* was exposed on occasion. During the indoor scenes from the Academy, the edited dialogue of both Steve Coogan and Jackie Chan was revealed by a marked difference in local acoustic

But it's the immersive, you-are-there quality that is the Home Theater Standard processor's legacy, realised as the speakers finally dissolve from the room leaving a seamless and genuinely three-dimensional pool of sound populated with tactile images of actors and effects. Individual events appear to the front, the sides, behind and even above the listening position as the intentions of the mixing crew are finally realised.

The audio quality of DVD releases is improving season by season as mixing engineers learn the tricks of the multichannel trade. No longer are the surround channels and even the sub channel simply a repository for incidental effects, but are now treated as an integral part of the three-dimensional experience. As a result, the strength of atmosphere from movies like *U-571* and *Master and Commander* is sufficiently potent that, even with eyes closed, you are transported to the scene. The

Krell HTS 7.1 may just be the vehicle that takes you on the journey, but it's a Rolls Royce among Ford Cortinas.

AVTECH SAYS...

This is a classically big and generous-sounding US decoder that's most comfortable in a suitably grand home cinema installation. Many grands, in fact, because the UK price seems unaffected by the very favourable exchange rate that currently exists across the pond. Even if you can't quite stand the fiscal HEAT (sorry), you'll still get a flavour of the HTS 7.1's easy-going personality with smaller speakers and less powerful amplifiers, although I'm bound to say the HTS only really comes to life with heavyweight ancillaries. Which, quite frankly, is what Krell's HEAT strategy is really all about. ■

Supplier

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Hi-FiNews verdict

Sure, it's expensive, but Krell's big HTS 7.1 processor really can deliver the best in home cinema sound. It will find its rightful place in the most ambitious of high-end AV systems.

On the Bench with AVTech

Krell has opted to employ a superior PCM1737 DAC combination for the front and centre channels (only three out of the four are used), but the differences in performance between this and the PCM1605 multichannel DAC used for the sub and surrounds are not especially significant from a sonic perspective. There is a maximum difference in distortion of about 10dB over the top 20dB of the HTS's dynamic range, in the '1737's favour. Otherwise, the 102dB A-wtd S/N

ratio is determined by Krell's proprietary analogue output cards just as the 1450psec and 1550psec of jitter (48kHz Fs and 96kHz Fs) is linked more to the CS8415A digital input receiver and its subsequent clock recovery.

Meanwhile, it is possible to adjust the maximum volume limit of the HTS using its setup menu which is set to '60' by default. This is already more than sufficient, for at '31' (Krell's Reference setting), the HTS already delivers +9.5dBV or 3.0Vrms through its balanced XLR outputs.

Measured at this level, the processor's response is just -0.2dB down at 20kHz with 48kHz Fs material (including DD/DTS) and some -1.1dB at 45kHz with 96kHz Fs DVD. Low-level linearity is good to -100dB but starts to trail off thereafter, just as the lowest distortion never quite breaks the (academic) 0.001% barrier. More importantly, distortion is pretty consistent with frequency, increasing from 0.0014% at 1kHz to just 0.003% at 20kHz.

As you can see from the downloads, the Dolby performance is spot-on with merely a +0.2dB channel imbalance on the surrounds. Headroom on the 'bass managed' channels is awesome, with some +8.2dB

being added to the sub channel (bringing the total to +18.2dB) when the remaining channels are set to 'Limited'. Just make sure the line-level input of the partnering sub can handle this boost!

Full QC Suite Test Reports detailing the HTS 7.1's LPCM, Dolby Digital and Bass Management performance are available at www.milleraudioresearch.com/avtech.

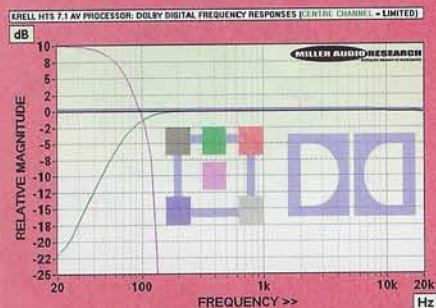


Fig 1: By default, the LFE channel (purple) is raised +10dB above the main channels. The centre (green) channel is set to 'Limited'

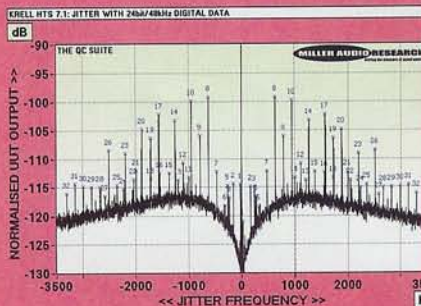


Fig 2: Jitter is not as low as it might be, but the sharp central peak typically correlates with good (multichannel) imagery