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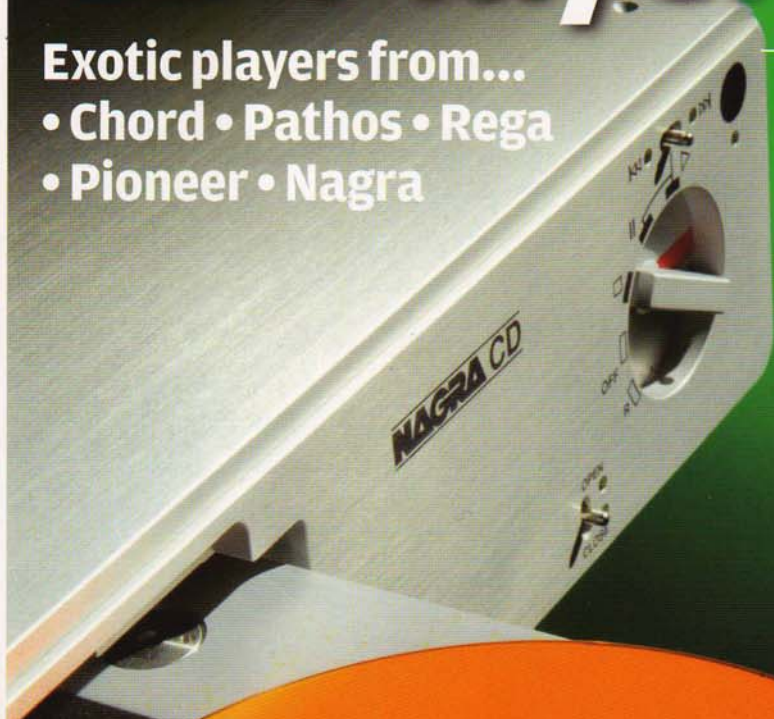
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S-1000/S-1500 AV processor & amp



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Pure Theatre

KRELL S-1000/S-1500 (£5350/£5450)

In this 'HD world' Dolby Digital and DTS are now legacy formats, but they've never sounded more vibrant than through this Krell combination



Tested by Paul Miller

High End Audio Theatre or 'HEAT' in Krell parlance, is a tacit acknowledgement that the core engineering values held dear by audiophiles the world over apply equally to both two-channel stereo systems and multichannel home cinema. And why shouldn't they – it's all about sound quality, after all. The S-1000 AV processor/preamp and S-1500 power amplifier are indeed forged from the same fully-balanced 'Current Mode' analogue circuitry used elsewhere in its range, just as the 24-bit/192kHz DAC selection has parallels in its CD/SACD and DVD players.

Pitched at a heady £5350, the S-1000 processor (inspired by Krell's earlier generation of 'Showcase' home theatre products) is compatible with all standard non-HD audio formats including Dolby Digital EX, DTS 6.1 ES, DTS NEO:6 and Dolby Pro Logic II, in addition to offering nine proprietary Krell Music Surround modes. HDMI inputs are provided as pass-through only, just as the composite, component and S-video inputs are offered without any additional deinterlacing or scaling options. This is tried-and-tested, wide-bandwidth video engineering from input to output, but nothing more.

The partnering S-1500 power amplifier is a flexible multichannel solution employing five, six or seven power amp 'cards', depending on your application, at £5450, £5900 and £6350 respectively.



KRELL'S ANSWER TO BLU-RAY AND HD DVD

Krell's S-1000 includes four HDMI inputs and one HDMI output, but these are switched connections only, so neither video processing nor digital audio decoding is performed on the circulating bitstreams. Compared to the Denon AVR-4308 AV receiver reviewed last month with its on-board DTS-HD Master Audio and Dolby TrueHD decoding, the S-1000 is looking a little dated.

Such is the pace of technology in this sector, specialist manufacturers who lack the huge resources and economies of scale enjoyed by the likes of Denon, Pioneer and Yamaha will struggle. Krell, quite naturally, is countering this technological back-foot with its mastery of audio engineering, benefitting from a deep understanding of the impact of audio circuit design and layout on the final subjective performance. Krell's HD upgrade for the S-1000, a mix of new HDMI 1.3a hardware, 1080p video processing, scaling and decoding software, will be offered to existing owners in the spring of 2008.



CLIMBING THE TREE

Despite boasting a display the size of a hockey pitch, Krell's setup menu is still only accessible via a separate monitor connected to one of its analogue composite, S-video or component OSD video outputs. As the HDMI inputs and output are switched only, there's no OSD superimposed on any digital video path. The menu itself is purely textural – no fancy graphics here – but remains surprisingly comprehensive in execution.

Top of the tree is its 'Main Menu', sub-divided into Listening Room setup, Configure Devices, Configure Level Adjustment and Operation. The Listening Room menu allows its full 7.1-channel speaker configuration to be customised with adjustable speaker distances and levels, the option of back and/or surround speakers, mixed sub and front+sub bass modes with a variable

ABOVE: Krell's processor has four optical and coaxial digital inputs, seven stereo, one balanced and one set of 7.1 channel inputs with balanced and single-ended outputs. The S-1500 includes both single-ended and balanced inputs

'Krell's HD upgrade, a mix of new HDMI 1.3a hardware and 1080p video processing will appear in spring 2008'

crossover frequency. The Dolby/THX default of 80Hz is also the default here, although the S-1000 is not a THX-certified processor. There is a THX button on the credit-card sized remote control, but no such function is enabled within the S-1000.

FRONT ROW SEAT

Meanwhile, the Configure Devices menu allows various of its video and analogue/digital audio inputs around the back to be assigned to one of the ten named buttons on its fascia. For example, the DVD button may be linked to the 'optical 1' digital input with a decode preference of either stereo, mono or one of several DSP modes including Mezzanine, Orchestra, Enhanced Stereo, On Stage, Front Row, General Admission, Party, DTS or Dolby modes. Other setup options include a programmable audio/video lip-sync, a device and analogue input trim, DTS and Dolby PLII control trims plus a setting to determine the maximum available volume limit. This extends from the default '60' all the way up to a notional '152'. I settled on a round '100' for my tests [see Lab Report].

AUDIO FILE

AV processor with 4 HDMI, 4 digital and 7.1 channel inputs. 5/6/7 channel power amp rated at 5x150W/8ohm

Price: £5350/£5450

Made by: Krell Industries Inc

Distributed by: Absolute Sounds

Telephone: 020 8971 3909

Web: www.krellonline.com

Finally, Krell has included a fixed set of 'Room Eq' curves with three different filter types, defined by frequency, shape and level. These may be defined on a channel-by-channel basis and saved into one of four memory presets. It's not a dynamic room-eq system requiring the services of a SHARC processor, like the Audyssey regime used by Denon and Marantz, but it does confer the S-1000 with greater flexibility than the average high-end AV processor.

ELEGANT COMPLEXITY

I never cease to be amazed how Krell can engineer such transparent and inherently musical sounding amplifiers without resorting to what might ordinarily be described as a 'minimalist' design approach. These products are sophisticated and complex designs and yet sound as if there's nothing more than a transistor and a couple of resistors in the signal path, so clean, unfettered and unprocessed is their sound. Bass is powerfully extended

BELOW: Slightly taller and thicker than a credit card, Krell's IR remote control may fit comfortably in the palm but its keys lack any back-illumination

and richly textured without sounding too strong or soft, the mid has a liquid smoothness while the treble manages to somehow combine pointed detail and clarity with a disarming sweetness.

In fact, the last AV processor/amplifier combination that sounded similarly enthralling was several years ago, courtesy of Enlightened Audio Designs. This elegant but technologically hair-shirt combo lacked the 7.1 channel/Dolby EX support offered by the S-1000 but it did develop the totally immersive 'surround experience' conjured so convincingly by this latter-day Krell.

CRASH COURSE

Listening to the higher bit-rate Dolby Digital stream from a Blu-ray disc of Dave Matthews and Tim Reynolds live recording of 'Crash Into Me' and I was not only struck by the rich timbre of the two acoustic guitars but

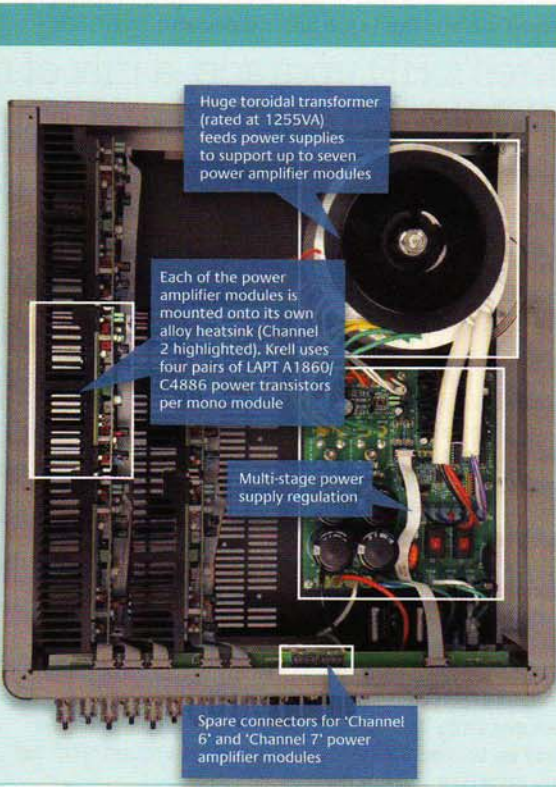
'Only the best AV kit also makes a good fist of stereo or multichannel music'

how the enveloping atmosphere of the performance put me right in the front stalls of the audience. Only the very best AV kit also makes a good fist of two or multichannel music and the S-1000/S-1500 is not only a great ambassador for such system hybridisation, but it's also quite the most impressive multichannel solution I've heard in any incarnation.

Provided you have a matched set of front, centre and surround speakers, this Krell combination delivers a perfectly 'symmetrical' hemisphere of sound that makes for a wholly captivating atmosphere, from music and movies alike. Even the DTS core of Peter Gabriel's 'Solsbury Hill' (Blu-ray) was reproduced with a greater sense of involvement in the live event than I had experienced with Denon's AVR-4308 last month. Sure



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LAB RESULTS
KRELL
S-1000/S-1500 AV PROCESSOR &
5-CHANNEL AMP / £5350/£5450



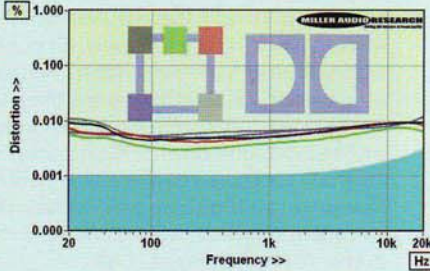
HI-FI NEWS LAB REPORT

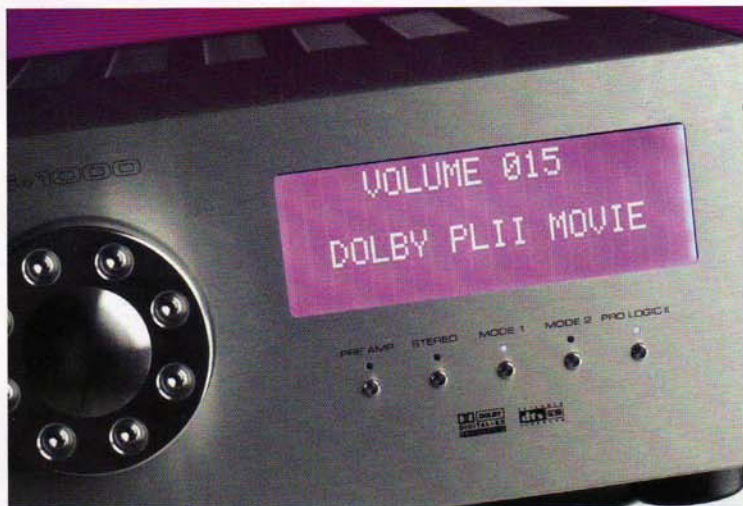
With the volume control set with a 0-100 range, a mere '027' will raise just under 1V from its balanced outputs with a peak level (0dBfs) digital input, with '030' raising 2.48V – equivalent to the line-level output of a beefy CD player. The processor offers a response just –0.8dB/20kHz and –1.7dB/45kHz with 48kHz and 96kHz digital inputs, respectively, along with a low 0.002% distortion from the lowest 20Hz bass right up to an inaudible 40kHz.

Low-level resolution is good to 0.8dB over a 110dB dynamic range, although the A-wtd S/N is influenced by a smooth carpet of white noise that brings it down (or up) to 98dB. Nevertheless, it's the data-related jitter that's most disappointing, amounting to a strong 2225psec/1480psec with 48kHz/96kHz data.

Dolby decoding is phase-positive and correctly responds to both Dial Norm and Compression metadata, the former denoted in 2dB steps

RIGHT: S-1000 distortion vs frequency comparing 48kHz LPCM (blue infill) with multichannel Dolby Digital





enough, there was not the see-through clarity of sound delivered by the native DTS-HD Master Audio stream, but this plain vanilla DTS rendition maintained an inclusiveness, an almost organic wholesomeness about it that had all who heard the performance enthralled.

RISE OF THE MACHINES

This same suspension of disbelief was also readily achieved throughout the most fanciful of movies, including *The War of the Worlds* where incidental effects and music – especially the massed strings – would build as impressively across the rear as the front of the cinematic stage. Sure enough, the subterranean rumble that marks the rise of the machines was as deep, as threatening and palpable as it ever was, but it was the spine-tingling ambience created by the background score that kept me on the edge of my seat throughout.

It's important to remember that Dolby Digital, its Plus variant and Dolby TrueHD all comprise 5.1 or more

ABOVE: This massive, back-lit display shows input selection, decode mode, volume and other basic parameters. It lights up in response to a changed input or input format (ie Dolby Stereo to Dolby Digital 5.1) or change in volume before returning to 'sleep' some ten seconds later

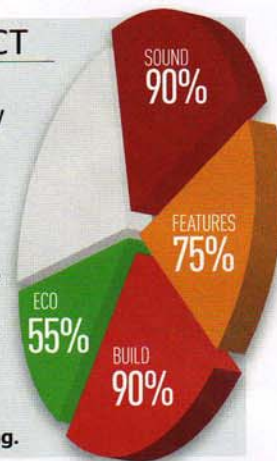
discrete channels of information, whether data-reduced or losslessly packed. There's no matrixing of channel code here and yet so many AV processors still tend to dilute the impact and contribution of the surrounds, a foible not to befall the S-1000.

To say its sound is simply orderly, composed or impressively balanced is to do the performance an injustice, for the whole is very much more than this. Instead, the speakers fall away to reveal an integrated network of voices, effects, ambient detail and music that's rarely less than spellbinding.

So Crowe's English accent might not have been any more convincing in *Master and Commander*, but the punch of wind in the sails, the complaints of timber, shouts of men and the swell of the orchestra ringing all around puts you square on the deck of the HMS Surprise with salt in your eyes and the smell of tar in your nostrils. I'll leave you with the thought that if you're going to get press-ganged, you might as well end up serving on the good ship Krell, the flagship of the audiophile fleet. ☺

HI-FI NEWS VERDICT

The S-1000/S-1500 is hugely impressive with 'legacy' Dolby and DTS bitstreams and yet I suspect only when enhanced with HD audio decoders will it truly bare its soul. Experience has shown Krell's earlier decode solutions to be technically flawless. So invest now with the confidence that Krell has your upgrade to full-HD home theatre in hand, at which point the HEAT should truly be turned up to blistering.



on the huge backlit LCD display. Krell's bass management is also well executed, although it does not apply any new settings on-the-fly – you must quit the setup menu before your changes are enabled. It's also worth noting that changes to the speaker size configuration are accompanied by (typically) a drop in volume to value '15' as you leave the menu, requiring a manual readjustment afterwards.

In sub 'Off' mode, Krell's bass management software adds LFE content to both front and surround channels if these are set to 'Large',

otherwise the bass content of any main channel set to 'Small' is redirected to the sub. By default, the sub channel is set +10dB above that of the main channels, as expected.

The matching S-1500/5 multichannel power amplifier is gutsier than Krell suggests, with each of its mono power 'cards' delivering 180W/8ohm and 310W/4ohm, only falling close to the 150W specification with all five channels driven simultaneously via the same power supply. Idling, the S-1500/5 draws some 120W from the wall, increasing to 570W at 2x150W

and 1220W at 5x150W.

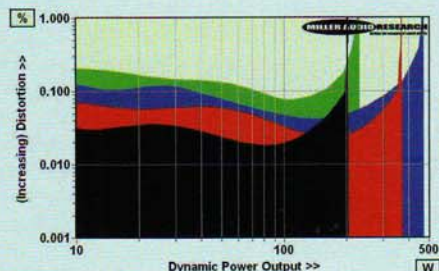
Under dynamic conditions the amplifier's power output increases to 200W, 370W and 475W into 8, 4 and 2ohm loads with some limiting to 235W into 1ohm. This is equivalent to a maximum dynamic current capability of 15.4A at <1% distortion.

Distortion hovers around 0.02% through bass and midrange which matches that of Dolby-encoded software delivered by the S-1000 preamp. The lowest distortion of 0.01% occurs at an output of 130W/8ohm but increases, with frequency, closer to

0.07% at 20kHz where the response is just starting to tip gently at -0.18dB. The 0.08ohm output impedance will not have a significant effect on the overall amp/speaker system response.

Gain is set at 26dB which means an input of about 1715mV is required to raise some 150W from each channel – well within the compass of the S-1000 preamp. A full QC Suite Report for the Krell S-1000 processor and S-1500/5 multichannel power amp combination is available to download by following the links to 'Test Reports' on our website, www.hifinews.co.uk. PM

RIGHT: S-1500 dynamic power output into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker load impedances



HI-FI NEWS SPECIFICATIONS

Multichannel Power Output, 8/4ohm	2x181W, 5x160W / 2x315W
Dynamic Power, 8/4/2/1ohm	200W/370W/475W/235W
Output Impedance (20Hz-20kHz)	0.080-0.098ohm
Frequency Response (20Hz-100kHz)	+0.0dB to -2.85dB
Input Sensitivity (for 0dBW/150W)	139mV/1715mV
A-wtd S/N ratio (for 0dBW/150W)	82.2dB/104.1dB
Distortion (10W/8ohm, 20Hz-20kHz)	0.018-0.067%