

Meridian 508 CD player revisited

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Meridian Audio's 500 series was introduced in 1993, slotting in between its then flagship 600 range and the rather more affordable but still very highly rated 200 models. The company's investment in the 500 range quickly became evident in the number of units released (there were some 12 models in the range by the time I reviewed a system last September); indeed it has become the focal point of, the showcase for, Meridian's current thinking in various areas of the audio and audio-visual arena. In September I looked at the 501 preamplifier, 504 FM tuner, 508 CD player and 555 power amplifier. Since that review the 508 has undergone some revisions and I recently had the opportunity to compare the old with the new.

In essence there are basically three 500 options for CD reproduction. The 'starter' model is the single-box 506 which features a straightforward 18-bit implementation of the so-called delta-sigma D/A conversion technique, which is now preferred by Meridian to the Bitstream processing it formerly embraced. At the top of the range is a two-box system comprising the 500 CD transport and 563 D/A converter, the latter able to accept any of the standard digital audio signal sampling rates—32, 44.1 and 48kHz—and so can double as a common high quality converter for other digital sources (e.g. DAT). The 563 uses an advanced form of the delta-sigma circuit, employing one twin (normally stereo) D/A converter 'chip' per channel in a dual-differential arrangement which achieves 19-bit precision. The 508 has essentially the same circuit built into the one case, the compromises being that the D/A circuit is now dedicated to CD and that it forsakes the ultimate electrical and mechanical separation of the two-box arrangement. On the other hand it has no need of the digital output and input buffer circuits (coaxial and/or optical) required in linking two separate boxes. In effect, the two players (500/563 and 508) vie for supremacy. Both, certainly, are at the leading edge.

Like all previous Meridian players, the original 508 employed a Philips single-beam swing-arm laser transport—in this case the CDM4. As with most things in our fast-moving digital world, this had a production life of little more than two years, but although Meridian had bought sufficient stocks in 1993 to maintain its own production line well into the future, it had been investigating alternatives from the start, in particular looking at the three-beam 'sled' type mechanisms which are prevalent in Far East sourced players. In the event, a new Philips mechanism was identified, the CDM12-4, which is a high specification version of a 'domestic' CD player transport, the CDM12-1, and is intended primarily for use in more exacting CD-ROM applications. This transport is now fitted to the 500, 506 and 508. (Incidentally, the simple seven-segment LED display of the 506 has also been updated to the much more legible matrix type used in the remainder of the 500 series.)

The integrity of the digital data stream recovered from the disc depends on a variety of factors, not least the ability of the transport to track the pit spiral reliably. Three servo 'motors' are employed in the CDM12-4: the sled motor itself, which carries the whole laser assembly; a so-called actuator motor; and a focus motor. The three-beam mechanism involves the use of six diodes whose outputs are fed to the input matrix of the adjacent Philips TDA1301, a digital servo control chip which produces the dynamic drive signals required by the servos. The circuit looks at four basic parameters, which are described as focus error, radial error and offset, and sum gain.

Optimizing the behaviour of these servos is a complex business, requiring a high degree of digital signal processing. Most third party users settle for the parameter 'tables' developed for the mechanism by Philips themselves but Meridian has always preferred to use its own control circuitry and here again has devised its own 'look-up' tables for the TDA1301. The data stream has to negotiate a variety of obstacles on its journey

from disc to D/A converter—disc eccentricity, discs with varying degrees of surface damage (manufacturing faults, scratches, finger marks etc.) and possible interruption through physical shock—and different player manufacturers have different ideas about how best to set up a transport to cope. No one setting can be optimal in all respects so it is a question of juggling the parameters to achieve the best overall compromise. Meridian, for example, sets greater store by the ability to play through defects than immunity to physical shock and its tables for the 1301 are biased accordingly.

Jitter is perhaps the *bête noir* of CD players these days, being widely accepted as probably the most significant culprit in limiting sound quality. Meridian has been prominent in the investigation of its effects and has developed a brand new master 'clock' for the 500 series which has a much lower harmonic content than its predecessor. The possibility of jitter is addressed at the input, where the customized software described above is combined with a new analogue processing system that effectively 'de-jitters' the data at source, even before it is decoded by the TDA1301.

All this is by way of enabling the recovery of the wanted digital data. Once captured, its processing back to a precise analogue of the original is an equally delicate and complex affair. In the CDM12-4 an on-board Philips TDA1302 laser supply and diode amplifier boosts the delicate signals coming off the disc before they are sent on to the decoder so that they are already more 'robust' than with the CDM4. Meridian prefers to use the SAA7310 decoder in preference to the alternative SAA7345 as it has found the error correction performance to be significantly better. Also, despite the fact that the 7345 also has on-board de-emphasis, Meridian feels that significant performance benefits accrue from managing this process in the analogue domain *beyond* the D/A converter. As before, the converters themselves are from the American Crystal company. One final improvement concerns the eight-digit front panel display which is now powered by a driver arrangement that radiates much less 'hash' from its multiplex circuits than before. Some listeners have felt that the sound is improved with the display blanked (one of its options) though I must admit to being hard put to tell the ☺

difference. However, hard put *then* will be harder put now.

Outwardly the new 508 remains identical to its predecessor. The front panel has just eight push buttons for drawer open/close, play, stop, pause, display, next and previous track and on/off. Normally it is left in a standby state, with its rear panel mains switch left on. Operationally too it is virtually unchanged save for the inclusion now of a simple 22-button remote control handset. This offers direct track access via a numeric keypad, next/previous track and index access, fast forward/reverse search, repeat, track programming and control of the 508's display. The optional £60 Meridian MSR (Meridian System Remote) will control all 500 series components via its 44 buttons of course so is rather wasted on the CD player alone, but it does additionally provide drawer open/close, (remote) switching in and out of standby, a clear-program option (removes track numbers from a programmed sequence) and the perhaps rather esoteric, though many of us feel audible with first-rate recordings, switching of absolute phase. [Absolute phase determines whether both left and right loudspeaker cones move forwards for a given common signal component or backwards (neither situation is necessarily 'correct' for all recordings since we have no way of knowing how many changes in absolute phase the signal has undergone in its journey from the microphone to disc); it is not to be confused with the *relative* phase of the two loudspeakers where, if incorrect, one cone moves forwards and the other backwards for the same signal component.]

Standard unbalanced analogue outputs are provided on gold-plated phono sockets and there are also balanced outputs on professional XLR connectors. The digital data stream is available on coaxial and optical sockets and the rear panel is completed with a pair of DIN sockets which carry Meridian's "Comms" system control bus.

Performance

In reviewing the original 508 I made detailed comparisons between it and the 208 player I had

used for some three years previously. The 208 was Bitstream based and I expected to hear differences, although as I said at the time they were of an altogether more subtle nature than I anticipated. If one listens too hard, too consciously for differences of the kind we talk about in these reviews they are just as likely to be missed—all CD players play the tune and you can follow it just as well on a 14-bit machine released in 1983 as on a state-of-the-art player made yesterday. The sort of refinement to which we refer manifests itself more in perceptions of image depth and detail, in the ease with which the acoustic 'signature' of a hall can be perceived, in subtle gradations in string harmonics, in the ability to separate out the mechanical 'noise' of bow on string from the, as it were, wanted sound. The 508 was obviously better than the 208 in all these areas; in a sense it sounded softer in its more complete resolution of harmonics, the image a little more tangible, in a word more natural. The revised 508 takes this a stage further, though the improvement here is really very subtle. The definition of image it achieves is just a shade more complete: musical strands within it are better separated, freer, less dependent (a transient centre-left has less 'pull' on another musical strand set centre-right), the 'texture' of a hall's acoustic more apparent. These are small but nevertheless significant improvements.

In summing up my composite review last September I described the 508 as the leader of what I consider to be a first-rate quartet of units (501, 504, 508, 555), as perhaps befits a company which has been a continuous presence on the front line of digital sound development. The changes to the 508 (500/563 and 506) are too extensive to permit the upgrading of existing players, which is the only disappointment in what is otherwise an entirely positive development, though clearly the original models are no *less* good than they were. Things move on so fast these days that one is almost wary of opening the box lest the contents have already been superseded! As a rule I don't much care for advertising jargon but to adapt a recent example: one of the best just got better **G**

Specification

D/A conversion Dual differential delta-sigma, 64-times oversampling at 2 bits per channel, giving 19 bits resolution

Distortion <-93dB FS (THD)

Noise <-93dB FS

Outputs 2V fixed, unbalanced; co-axial and optical, digital; balanced XLR

Dimensions (W x H x D) 332 x 331 x 88mm

Weight 6.4kg

UK distributor Meridian Audio Limited, 14 Clifton Road, Huntingdon, Cambs PE18 7EJ. Telephone 01480 52144

UK retail price £1,475