

Meridian 500 Series components

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From the time of its inception in 1977, Boothroyd Stuart Meridian has concerned itself with the subtle integration of audio systems into the home. Its preference for active loudspeakers (in which active crossover circuits and power amplification are combined with the drive units in the one cabinet) has always been married to compact, strictly 'functional' ancillary components to provide high quality systems which complement most domestic environments, with their elegant lines and distinctive air of sophistication. Allen Boothroyd's flair for aesthetic design complements Bob Stuart's remarkable gifts as an electronics engineer and the result has been a sequence of fine designs, many of which have won accolades for form and/or function (*c.f.* The Design Council Award in 1988).

At the time of the launch of this 500 Series last year, Meridian had two current ranges of electronics units, the 200 and 600, the latter a group of 'flagship' products in which much of Stuart's innovative work in digital electronics was manifest, the former often benefiting from it subsequently by absorption. In essence, the 500 Series bridges the two, offering the latest in Meridian design at a less elevated price. So complete is the new range already (12 units at present, with more to come) that it must have been the focus of Stuart's thinking over the past couple of years; outwardly, certainly, it has rather stolen the limelight from the established 600 series.

The 200 and 600 units were housed in basically identical modular cases, either single or twinned according to the requirements of the device in question. The 204 tuner/timer, for example, occupied a single case, whereas the 208 CD player/preamplifier used the twin, with the player's transport in one half and the D/A converter and control electronics in the other. For the 500 series Boothroyd has devised a new 'twin-width' (321mm) but lower profile (88mm) case which is common to all models. It thus supplies a brand new identity, albeit one which could only come from Meridian.

In essence the chassis and cover are formed from the standard pair of U-section steel pressings, the chassis forming the base, rear panel and fascia support, the cover forming the top and sides. The top here, though, is recessed a little so as to frame a black glass sheet which is the range's strongest visual feature. The moulded black

polypropylene fascia complements this with a full-width glass insert at the top on to which, on the left, are printed the company logo and the model number and through which, on the right, a green LED read-out can be seen. Below this on each unit is a row of up to eight 'finger' buttons, all of them black except the right-most one which is coloured, like the model number, to give the unit a visual identity: red for the 501 control unit, green for the 504 FM tuner, grey for the 508 CD player and so on.

501 control unit

This is the simpler of two analogue preamplifiers in the 500 Series; the more elaborate 501V caters in addition for the routing of video signals. Six line-level inputs are configured as standard, but one of these can be converted for moving-magnet or moving-coil pickup cartridges by the addition of an optional, dealer-fit MM/MC module. The 501 is an entirely solid-state device and has a dedicated microprocessor which controls all input switching, level and balance settings and which also retains an array of user-preferred settings. Control of input selection, tape record output selection, volume and mute is available either from the seven front panel pushbuttons or via the optional System Remote Control handset (MSR), which also adds a balance control option.

The four-character alphanumeric dot-matrix LED display normally shows the selected input—two characters, e.g. CD, RD, LP—and volume setting (two digits) but can alternatively be set to show the source alone or can be switched off altogether (an option common to all 500 units and one I welcome for late-night listening in a darkened room).

The front panel buttons are labelled Source, which steps sequentially through the configured inputs; Copy, which routes any input independently to the Tape Out sockets (one can thus listen to one source whilst recording another); Mute; Display; ∇ and $\blacktriangle$, which decrease or increase the volume in 99 steps of 1dB; and Off (puts the system into a standby state). The remote handset adds to these options direct input selection via labelled buttons and balance (± 30 dB left/right in 1dB steps, shown temporarily on the display while the buttons are pressed).

The rear panel carries nine pairs of gold-plated phono sockets for the signal connections (the main output is duplicated on a second



501, 555 and MSR

pair of phono sockets to facilitate the connection of bridged power amplifiers) and a ground screw for the pickup arm earth lead. There is a headphones output socket here too plus two DIN sockets for the Comms connection (a communications link which goes from unit to unit), a 9-pin RS232 D-socket (used in testing at the factory) and a switched, fused IEC three-pin mains input socket.

Behind the scenes the 501 maintains a variety of user-definable settings. These are accessed by switching on the unit whilst holding-in a given front panel button and they include provision for changing the number of active inputs, their display labelling and sensitivity. This last is a very sensible option which allows one to switch between inputs without having to adjust the volume control as well; sensible too in its consequent simplifying of tape recorder input level settings. Here also one can select one of two Meridian Comms settings, allowing for the integration of 200 or 600 Series units with the 500 Series control system.

508 CD player

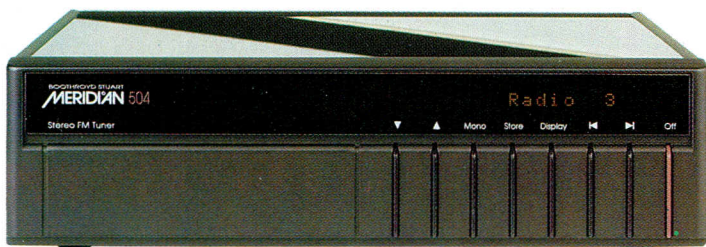
As with the 200 Series, the options as regards the various CD players in this new 500 Series can be a little confusing. There are two one-box stand-alone players—the 506 and this 508—plus a 500 CD transport and a matching 563 D/A converter. The 500/563 can thus be seen as a third, two-box player but the converter itself has four digital inputs (three coaxial, one optical) so can act on behalf of several digital sources.

At one time committed to Bitstream D/A processing (e.g. the 208), Meridian has more recently adopted the so-called Delta Sigma

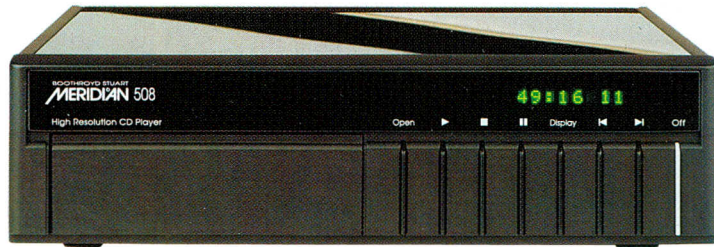
technique (e.g. the 206 Δ S). The 506 uses an advanced implementation of this, employing the Crystal twin (stereo) DAC to achieve 18-bit resolution, but the 563 and 508 take it a stage further, going to what seems like the extravagance of using one twin DAC per channel in a so-called dual-differential configuration to achieve 19-bit precision.

Internally the 508 is divided into two compartments, with the CD transport on the left and the decoding circuitry right. As has been Meridian's way in its previous two series, the transport combines the user-convenience of drawer-loading with the precision and isolation benefits of top loading. Instead of employing a carrier to load the disc, the entire transport is mounted on a high-mass shuttle, so that the user places the disc directly on to the drive hub. This has the further advantage of making the laser lens readily accessible for cleaning (rarely if ever required if the player is used in a smoke-free environment) and the disadvantage of exposing it to physical damage, but the main purpose is mechanical integrity and acoustic isolation, for the shuttle closes behind a sealed door. A Philips single-beam swing-arm laser assembly is employed but as before Meridian has developed its own control circuitry rather than rely on the proprietary circuit supplied as part and parcel of the OEM unit.

The front panel has eight push-buttons which control the basic functions of drawer Open/close, Play, Stop, Pause, Next and Previous track, Display mode and Off (standby). The Remote handset adds a raft of higher functions, such as direct track access via a numeric keypad, access to Index points (an option which has been



504



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disappointingly under-used by disc manufacturers in general), fast-forward and backwards, track programming and repeat. The 508's eight-character display has corresponding levels of operation: a choice of continuous display of the current track number alone, track number plus disc-elapsed time, track number plus track-elapsed time, or track number plus disc-remaining time—plus of course temporary displays of the various control functions. It can also be blanked.

The rear panel has a pair of gold-plated phono sockets for the conventional unbalanced analogue outputs plus two XLR sockets which carry balanced analogue signals (as used in professional circles). Digital outputs are also provided via coaxial electrical and EIAJ optical connectors. The 500 Series Comms DIN socket pair and an IEC switched, fused mains input socket complete the line-up.

504 FM tuner

The 504 has a front end developed from the 604 digital tuner. It uses dual-gate MOSFET RF amplifiers for high sensitivity and a Walsh function stereo decoder for low distortion and enhanced HF extension. Matched ceramic filters are employed and the main pcb is an advanced four-layer partitioned type, as is now routinely employed by Meridian. Once again, an on-board microprocessor looks after the housekeeping and keeps track of the preferred settings. In a manner similar to the 501, the 504 allows the user to customise the labels displayed for any given station, so that instead of showing just frequency or preset number, a more helpful name can be chosen, e.g. "Radio 3". The eight-character display normally shows just this label, but alternatively one can choose to see the preset number and tuning meter (left and right arrows indicate centre or off-centre tuning) plus a numeric representation (1–8) of signal strength; preset number and tuned frequency in MHz; or, once again, the display can be blanked altogether.

The eight fascia control buttons are for Tuning (▼ and ▲), Mono, Store station, Display, Previous and Next preset station, and Off. The factory-set tuning mode is automatic, so-called seek tuning,

where a frequency sweep of the FM band is made, halting when a signal is found. Step tuning can be chosen as the default if preferred, in which case the Up/Down buttons shift the frequency in 50kHz increments. Up to 30 preset station frequencies can be stored together with the preferred stereo or mono-override setting—one would choose mono to make the best of a weak signal, to reduce the hiss level and/or adjacent channel interference ('birdies')—and for convenience the 504 is supplied with 12 labels already defined.

Powering up the tuner with the Mono key held in gives access to its system preferences. Here one can alter the number of preset stations available (1–30) and thus constrain the Previous/Next buttons loop to just those presets actually set; choose Seek or Step tuning; select the signal Stop strength (i.e. the minimum signal strength at which seek tuning will halt); determine whether the tuning meter is available or not (if it is available it should not be left displayed since it slightly degrades the output signal); and set up customized station labels.

The rear panel carries a 75 ohms socket for the aerial input, a pair of phono sockets for the signal output, the 500 Comms sockets and the switched and fused IEC socket.

MSR system remote

Remote control has been an integral part of the Meridian philosophy for many years and system control handsets have always been available for the 200 and 600 series. This new model is completely re-styled and has a very elegantly curved profile. The layout of its 44 buttons seems more logical than before but the soft, rubber-type membrane which forms all of the buttons except for the input selection array along the top is a disappointment after the hard plastics buttons on the 209/609; it looks superb but feels like a poor relation. The context-sensitive logic is much improved, however, so that the numeric keypad or Previous/Next buttons give immediate track access when CD has been selected, or preset number when listening to Radio, without the need to press another button first.

Rather in the manner of the Control or Option key on a com-

puter keyboard, a Function key modifies the behaviour of some main keys. Function + Stop opens the CD drawer for example (and by the way this also works with the 208, a function unavailable on the 209). The Display button toggles the display of the currently selected source component only and I feel it is a pity that display blanking for all units together cannot be selected from just one command, by pressing, say, Function + Display. By moving the position of two circuit board 'jumpers' inside the case, the controller can be made to 'talk' to 200 and 600 series units, which can then be mixed in with the 500 series in various combinations.

555 power amplifier

The 555 is a stand-alone solid-state power amplifier which complements rather than matches the rest of the 500 series visually. It has no Comms link and thus cannot be switched out of and into standby by the remote control handset—it has to be switched on and off manually from its rear-panel mains input rocker switch. It would thus most logically be sited near the loudspeakers, with a long run of interconnecting cable back to the front-end components.

This is a 65 watts per channel design constructed in an almost entirely dual-mono format, for although its toroidal mains transformer is common to both channels, a high degree of channel separation is assured through the use of individual secondary windings. Circuit features include load, DC and thermal protection, a new high-linearity output stage using an advanced form of local feedback, and a "twin-nested" overall feedback system which gives high stability with very low distortion.

The fascia this time is a plain brushed aluminium panel let into the vane ends of two heatsinks which form the sides of the cabinet. It carries no controls and sports just a single tiny green LED to show when it is powered. The rear panel has a pair of gold-plated phono sockets for the signal inputs (it has unbalanced inputs only), two pairs of 4mm socket/binding posts for the loudspeaker connections (the pairs are twinned to facilitate bi-wiring—there is no provision for switching between two pairs of conventional non-

bi-wired loudspeakers), and the standard switched, fused three-pin IEC mains input socket.

Performance

Using these new Meridian units both individually and as a set over a period of several weeks has enabled me to build what I think is a fairly comprehensive assessment in terms of their subjective behaviour both ergonomic and sonic. Technically I could find nothing awry at all with any of them; my test facilities are by no means all-embracing in our world of ever-advancing frontiers but do enable the standard parameters to be measured accurately.

The 555 apart, all the units are normally left connected to the mains but in Standby, in which case activating any one of them, or the MSR, will switch all of them on and will cause the 501 to select the relevant input. Similarly pressing the Off button on any unit will put the entire system back into Standby.

I have used the 208 CD player-preamplifier/204 FM tuner/timer combination as the mainstay of my own system for some three years now (and during that period have had the 208 updated) so am completely *au fait* with both its positive attributes and its foibles. Its equivalent here is the 501/508 combination run in tandem, although one can also compare the CD-direct output of the 208 (bypassing its preamplifier section) with the 508, and its preamplifier section with the 501.

In assessing these two CD players one is comparing an advanced implementation of Bitstream D/A conversion with Meridian's best-realization of the Delta Sigma converter. After such a level of familiarity with the 208, the 508 sounds at first softer, rather more relaxed, features which are a little disconcerting when for whatever reason the expectation might be to hear something quite dramatically different. This is, though, unequivocally a more accurate sound, better in every musical department: "softer" as a result of its much better deciphered harmonics (most noticeable with the upper strings) and "relaxed" as a result, with a more clearly defined, more tangible image.

Track access time is as lethargic as ever with Meridian, to the

extent of being even a little confusing in that the currently playing track continues for a moment or two after another has been selected. This delay is of no consequence to those of us whose priority is the music itself but fidgets who want near-instantaneous track access will certainly be frustrated. A welcome feature of the 208 was the ability to reverse the absolute phase (in the digital domain) of its output. This is a rare inclusion on CD players (and rarer still on preamplifiers) but some people, myself included, feel that its effect is audible with some source material. Contrary to the 508 instruction booklet there is no Phase button on the handset. However, a bit of delving into the MSR's booklet reveals that there is a keystroke equivalent: Function + Record and that does indeed work, the display on the 508 toggling momentarily between "Phase +" and "Phase -" accordingly.

The 501 is also a significant advance over the 208's skeletal preamplifier section, and it has a transparency I somehow didn't expect from a unit whose gain and balance functions are handled entirely by solid-state circuits as opposed to the simple, mechanically operated potentiometers used almost universally elsewhere. These electronic 'potentiometers' have no mechanical tracks to wear (and thus go 'noisy') and the control provided by 99 precise increments of 1dB (9dB representing a doubling in loudness) is a vast improvement over the 64 somewhat uneven steps of the 208. A further advantage is that the channels remain in perfect balance regardless of any change in volume setting. The signal switching is also electronic of course and is, needless to say, completely silent.

The review 501 was fitted with an MM phono cartridge module, an area of preamp design I felt Meridian had rather left in limbo since the arrival of CD; certainly I found the optional 208 MM/MC module something of a disappointment. Here, though, I had virtually no qualms and the sound was not found significantly wanting even when compared with the superb Audiobolab 8000PPA phono preamplifier reviewed in July.

Although direct input selection is available via named pushbuttons on the MSR, changing the currently selected input on the 501 itself is a matter of pressing the Source button repeatedly until the required input is routed, which is the price to be paid for such an uncluttered fascia. The same applies to Copy (tape record output) which is *only* available from the 501. I have one criticism of the Mute function: given the state-of-the-art microprocessor control, surely a rapid fade-up/down could

have been implemented rather than the standard, rather disconcerting instantaneous mute/unmute.

The 504 is an excellent FM tuner for those of us who want simply to switch on and listen to one of a preset selection of good quality radio broadcasts. Tonally rounded, very 'complete' sounding it presents a stable stereo image of convincing naturalness, given a good signal. One cannot over-stress the importance of installing a first-rate, preferably roof-mounted aerial for any tuner. The 504 is significantly more convincing sonically, I feel, than the already excellent 204. I for one (though I gather I'm one of only a few) miss the timer facilities of the latter and not least its option of a continuous display of the time of day! I would like to have seen an option to reduce the RF bandwidth so as to make a better job of eliminating the so-called "cross-modulation" interference signals which seems to be an increasing problem these days. Though unusual, this was a welcome feature on the Technics ST-G90L tuner (reviewed by GH back in January 1989), which had a normal alternate channel selec-

tivity of 55dB ($\pm 400\text{kHz}$) and a "super narrow" one of 30dB ($\pm 200\text{kHz}$).

Finally, the 555, which is as close to the ideal of "a straight piece of wire with gain" as you will find at the price. It exerts a convincing sense of control, sounds open and, to use the jargon, "fast". Its top end is focused and sweet sounding, quite devoid of any edge and its only limitation, it seems to me, is its relatively modest power output, though for the great majority of us who live in typically sized British homes it will be more than adequate with almost any loudspeakers.

In sum, these new 500 series units form an extremely impressive ensemble, providing leading-edge performance in stylish, functionally straightforward, if slightly idiosyncratic, packages and at a very reasonable price: performance ratio. As befits a company that has devoted so much effort to the improvement of CD reproduction, the 508 is outstanding and I think the undoubted leader of this excellent quartet. The musical analogy is apt; indeed I doubt if there is a more complete player before the public today. 

Specifications

501 control unit

Inputs Six line-level, of which one can be customized for MM or MC pickup

Input sensitivity/ Line-level adjustable 27–150mV/20k ohms

impedance Optional MC adjustable 38–210 μV /220 ohms/10nF
Optional MM adjustable 0.5–3mV/47k ohms/100pF

Tape output 1.5V

Main output 1.4V; 3V rms maximum

Headphones 2V maximum

Distortion <0.01% line-level; <–70dB MM; <–60dB MC

Dimensions—all units (W x H x D) 332 x 331 x 88mm

Weight 5kg

UK retail price £595. Optional MM and MC modules £69-50

504 FM tuner

Tuning range 87.0–108MHz

Sensitivity 1.5 μV mono; 23 μV stereo; 100 μV ultimate

Distortion <0.2% mono; <0.4% stereo

Noise –70dB

Output 2V

Weight 6.4kg

UK retail Price £595

508 CD player

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; balanced XLR; co-axial and optical digital

Weight 6.4kg

UK retail price £1,350

555 stereo power amplifier

Output 65Wpc channel into 8 ohms; 100Wpc into 4 ohms

Input sensitivity 1.4V rms

Distortion <0.05%

Noise <–90dB

Power consumption 30VA quiescent; 300VA max

Weight 9kg

UK retail price £595

MSR remote handset

Features infra-red, RC5 coding; 44 keys; PP3 battery (life: 6 months)

UK retail price £50

Manufacturer Meridian Audio Limited, 14 Clifton Road, Huntingdon, Cambs PE18 7EJ. Telephone 0480 52144