

## MERIDIAN 602 CD TRANSPORT AND 606 DIGITAL TO ANALOGUE CONVERTER



Meridian 602 CD transport

In my report on Meridian's futuristic model D6000 digital loudspeaker in April I mentioned that one of the sources used in its assessment was their model 602 CD transport. This item is, of course, not just solely intended for this purpose but can provide a digital signal input to various other pieces of equipment, such as digital and analogue preamplifiers and straightforward converters, both of their own make or the ever growing number of contemporary products sporting digital inputs. I therefore asked to borrow their own model 606 digital-to-analogue converter, the two together forming a very refined and decidedly up-market two-part CD player.

I should pause for a moment here to explain that current Meridian products divide into two ranges—the 200 series, which they call their benchmark entry level range, and the 600 no compromise series intended for the still more discerning customer. Mixing items from the two systems is perfectly possible as common interfacing has been adopted and either can become components of their multi-

room control system. One more thing: it is company practice continuously to update any item to incorporate developing technology without change to the model number so that, for example, the 606 already exists in two incarnations and it is the latest one, using Philips DAC7 components, which is under consideration here. The nature of their construction means that owners can usually follow these updates reasonably economically if it is considered worthwhile.

The entire range of Meridian electronic products shares an ingenious common housing which bears the stamp of Allen Boothroyd, the industrial designer half of the original company name, Boothroyd Stuart. It is based, as have been some previous models, on the use of custom black anodized aluminium extrusions, here used to produce attractive casings of differing sizes. Each is a flat 'U' 158.75mm (6¼in) wide and 44.45mm (1½in) deep, grooved and with an attractive brushed finish on the major external surface. Hollow channels are formed at the interior corners to accept screw threads. Two 310mm

### SPECIFICATION

#### 602 Compact Disc Transport

Type: digital output only CD transport  
Outputs: two high performance (15MHz) optical  
Control link: optical and cable Meridian system comms  
Mechanism: Philips CDM4—latest fast-response version  
Front panel controls: Open, Play, Stop and Pause  
Dimensions (W × H × D): 320 × 100 × 325mm  
Weight: 7.5kg  
UK retail price: £1,750

#### 606 Digital to Analogue Converter

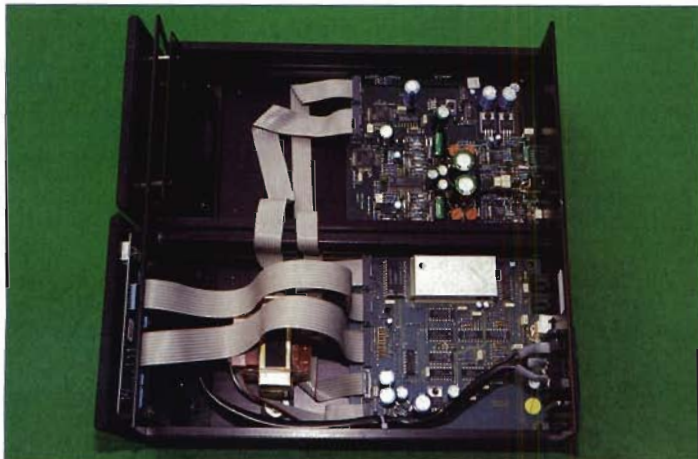
Frequency response: 20–20,000Hz ±0.2dB  
Distortion: <0.004%  
Conversion: Bitstream PDM, differential time-aligned mode, 256-times oversampling, passive filtering  
Precision: 16-bits  
Inputs: 32, 44.1 and 48kHz, automatic lock  
Input types: two optical, two coaxial  
Output: 2V fixed (see review)  
Dimensions (W × H × D): 320 × 100 × 325mm  
Weight: 6.4kg  
Manufacturer: Meridian Audio Ltd., 13 Clifton Road, Huntingdon, Cambs PE18 7EJ.  
Tel: 0480 434334  
UK retail price: £1,350

(12¼in) slices of this extrusion are mounted back to back and secured by these screws passing through suitably stamped front and rear steel plates to form a single unit box, four for a double width unit as in the two pieces in this report, to total 320mm (12¼in), slightly more than the average 'midi' system. Plastics control panels or glass fronted blanks pass through windows in the end-plates and are secured by hex-headed bolts in the base, the whole forming a handsome and satisfyingly solid package, devoid of obvious fixing screws and yet readily accessible for service.

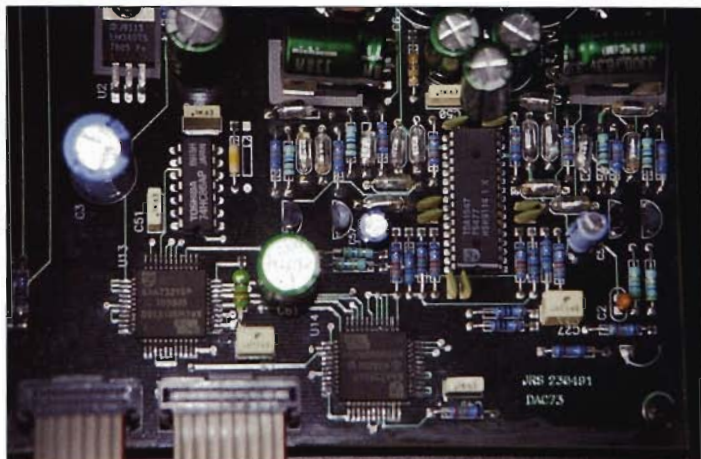
The left hand box of the 602 case contains the CD mechanism, power supplies and the servo control circuits which look after disc speed, laser focus, track following etc, hiding below the latest version of the Philips CDM4 mechanism, here suspended on a custom magnesium die-casting and drawer mechanism of Meridian design. The other box contains the digital and display circuits, as shown in our photographs. Much of the electronics have been the subject of considerable development by Bob Stuart, co-founder of the original company, Boothroyd Stuart, and now Chairman and Technical Director of the present one, Meridian Audio, who leads a happy team of young engineers who are making significant advances. An example can be seen in the form of a

small screening box on the main printed circuit board; this contains a new high-precision master oscillator which is claimed to improve the sound by minimizing jitter (minute timing errors). The photograph (below, left) also shows how the control and display panel can be withdrawn through the window in the front steel panel.

There are six control switches operated by thin gold-plated vertical bars. Each has an illuminated indication of its purpose; Open, Play, Stop, Pause, Previous and Next, the last two referring to track selection. Above them is a green dot-matrix display which repeats each legend in "upper and lower case English", as Bob Stuart puts it (the seven-segment display of the 200 series is badly limited in this respect), together with additional information as instructed by remote control, this to include programming as well as all the usual time and track details. Less frequently seen indications are notification of disc reading errors resulting in interpolation, correction of discs with pre-emphasis and engagement of the Repeat mode. Any Philips hand-held remote control will operate this machine but the one provided is a rather superior 160mm square die-casting finished in matching black with 37 control buttons, not all of them applicable to this transport. Connections on the rear panel of the 602 are for optical and coaxial digital



Interior of the 606



Meridian's unusual deployment of the Philips DAC7 'chips'

output, alternative DIN and optical 'Comms' sockets (Meridian's name for their room-linking system), plus a fused and switched IEC mains power socket.

Turning now to the 606 digital converter we again find a division into two boxes forming a double width case. Here the reason lies more with the isolation so afforded rather than the need for space. The right hand box, viewed from the front, now contains the power supply and most of the digital part of the converter. This comprises the input source selection from a choice of two optical and two coaxial input sockets at the rear. Four of the five gold switch bars on the front panel deal with this, the fifth operating digitally to alternate the absolute phase of the audio outputs. The state of these switches is confirmed by illuminated legends in the glass half-panel above. Also indicated is the automatic locking to whatever sampling frequency is present at the selected input. This is achieved by a standard Philips integrated circuit allied to another high precision locking oscillator which recovers each incoming sampling frequency with minimal jitter.

Having acquired and regularised the incoming digital data stream from whatever source, it is now conducted to the left hand box wherein lies the conversion proper. The latest 'audiophile' application of the Philips Bitstream technology seems to consist of taking a number of older chips, utilising such parts of them as are deemed of current value and adding a new one which is responsible for the actual conversion alone; this has the type number TDA1547. Thus we find an ageing SAA7321 used purely for a spot of oversampling, leading on to the earlier Bitstream SAA7350 used

for more oversampling and noise shaping, its DAC section ignored, this job now being taken over by the TDA1547. Confused? So was I, but I think I have followed the sequence, designed to avoid some of the original deficiencies of the system which was conceived as a low-cost option but offered the one outstanding advantage of virtually perfect linearity down to the lowest signal levels. After leaving the new converter, the left and right analogue signals meet passive filters which Meridian have provided to remove unwanted out-of-band hash and some rather exotic audio stages which terminate in the now customary pair of gold-plated phono sockets on the rear panel. There too is another switched and fused IEC mains inlet.

### How it performed

Measurements made on the combined units using the preferred coaxial digital link provided rather mixed results, due in the main to the ineffectiveness of the internal low-pass filtering, which allowed some 25–30 millivolts peak of mixed high-frequency 'rubbish' to pass through the output stages into the audio outputs. It was obvious that they were somewhat embarrassed by this as, when playing some of the higher frequency high level test tones, e.g. 15kHz, it was possible to hear low-frequency beat notes not present on other machines. Some high-frequency energy in musical programme material might strike up similar false signals, leading to a subjective impression of 'improved' ambience. There is too the question of its possible effect on the following amplifier.

The presence of the aforementioned multiple harmonics, which extended into the megahertz region only some 60dB below maximum signal, made



Meridian 606 digital to analogue converter

the usual checks for signal-to-noise ratio, crosstalk and very low level linearity impossible without additional weighting, but that done nothing untoward was uncovered. However, the output signal level was high at 2.34V left and 2.36V right, making this machine sound louder on a direct comparison with others. There was a small DC offset of 2.1mV on the right channel, absolute phase was correct (but reversible on demand) and the frequency response flat except for small ripples of around 0.05dB at 3kHz and above.

Listening tests were conducted intermittently over a period of some weeks—either side of a wretched cold which made hearing unreliable. The general impression is of a very refined, extremely detailed but rather laid-back presentation. It was accu-

rately focused, replete with ambience and depth, with a full if somewhat cramped bass opposing a crystal-clear, delicate and airy treble. As a friend said, "This one doesn't sound electronic". I agree with that but at the same time I must admit that it often failed to draw me into the music, to the extent that I found my attention wandering; but then that can happen at a concert!

At £3,000 this is a beautifully constructed and strikingly unusual CD player. It is easy to use (though I found the delay before it obeys an instruction rather trying) and can be part of a multi-room system where it collaborates effectively with other Meridian units. Whether one would choose it as a solus item is something for the prospective purchaser to decide. GEOFFREY HORN.

## NEW PRODUCTS

## AUDIO

### Denon Lambda CD

New from Denon are two 'UK Edition' Compact Disc players using the same 20-bit "Lambda" D/A converter technology which has previously been the province of their top-end players. The players are the DCD-1290 and DCD-890. Denon have borrowed the English spelling-out of the Greek letter into an acronym to stand for LADder-form Multiple Bias D/A converter, an ingenious circuit arrangement that seeks to eliminate the zero-level crossover distortion which otherwise spoils very low-level signals. The circuit divides the digital data into two streams and adds a small positive bias to one and a negative to the other, combining them after D/A conversion and so cancelling out any distortion components. Other aspects of the circuit are said to benefit larger signals and the rare high-level peaks.

The 20-bit converter is preceded by an eight-times oversampling digital filter, giving an effective resolution 23 times that of conventional 16-bit, four-times oversampling players. Fitted with an over-large power supply, the player also uses a newly



Denon DCD-1290

developed laser transport suspension to help protect it from external vibration. The convenience features on the DCD-1290 include remote volume control, Time Edit (displays a 'calendar' of those tracks on a CD which will fit into a given cassette playing time), a Link function which extends this facility to a number of discs, optional Fade-in and Fade-out and Peak Search. There is also a Pitch control which adjusts the digital PLL

(Phase Lock Loop) demodulation lock in 0.1 per cent increments across a  $\pm 12\%$  range. Lesser used controls are neatly hidden away under a flap on the aluminium fascia. The DCD-1290 costs £329.99. Several of these features are common also to the more modest DCD-890, which also includes remote control and costs £269.99. Hayden Laboratories, Chiltern Hill, Chalfont St Peter, Bucks SL9 9UG. Tel: 0753 888447.

### New Castle

Castle Acoustics have released a new loudspeaker called the York. A medium sized, two-way design intended for stand mounting, it employs a 25mm soft dome tweeter and a 150mm twin-port reflex-loaded bass/midrange unit. With a 50–20,000Hz frequency range, a nominal 8 ohms impedance and a sensitivity of 89dB/watt/metre, it employs a high quality crossover and is fitted with two pairs of input terminals to permit bi-wiring or bi-amplification if required. The cabinet is hand crafted and finished in real wood veneers, in grain-matched pairs. Suitable for amplifiers rated at between 25–100 watts per channel into 8ohms it incorporates Casteck overload devices for each of the two drivers which protect against input signals which exceed 300 watts. The cabinet dimensions are 220 x 430 x 260mm (W x H x D). The York costs £320 in black ash or £340 in the standard grains. Further details are available from Castle Acoustics Ltd., Park Mill, Shortbank Road, Skipton, North Yorkshire BD23 2TT. Tel: 0756 795333.