

DOOTHROYD STUART
MERIDIAN

Digital Surround Controller



Home

Chan

Sine

200

Total Control

MERIDIAN G68 (£3650)

This high-end digital audio and video processor has a host of functions, including a suite of room-correction modes for fine-tuning your system

Tested by Keith Howard

There's hardly space to tell you all you need to know about a product as complex as the Meridian G68. No matter, because the focus here is its room correction system. Just one small part of what the G68 gets up to in its DSP chips, it merits particular attention because it is so different in philosophy and implementation from competing systems – specifically those in the Copland and Lyngdorf products already considered in this review series.

Two things make the Meridian approach distinct. First, it is adamant that correction filters should only be applied at frequencies up to 250Hz, whereas other systems continue correction – at reducing levels – to higher frequencies. Second, it uses a quite different filtering regime in which individual room modes are identified, characterised (in terms of centre frequency, gain and Q) and then controlled, if necessary, using IIR rather than FIR digital filters. In other words, Meridian Room Correction works like an automatic digital parametric equaliser.

TOTALLY PC

The bad news about the G68's process of analysing the room's modal behaviour and designing the appropriate equalisation is that – unlike the Copland and Lyngdorf systems – it is exclusively driven from a PC, connected via a USB or RS232 serial cable. Meridian's configuration software controls a lot more besides room correction, and may faze anyone who is not computer literate. You may prefer to have your dealer or installer do the setup

Inputs and outputs for every occasion, including multiple S/PDIF digital connections for front, centre/sub, side and rear digital speaker configurations

AUDIO FILE

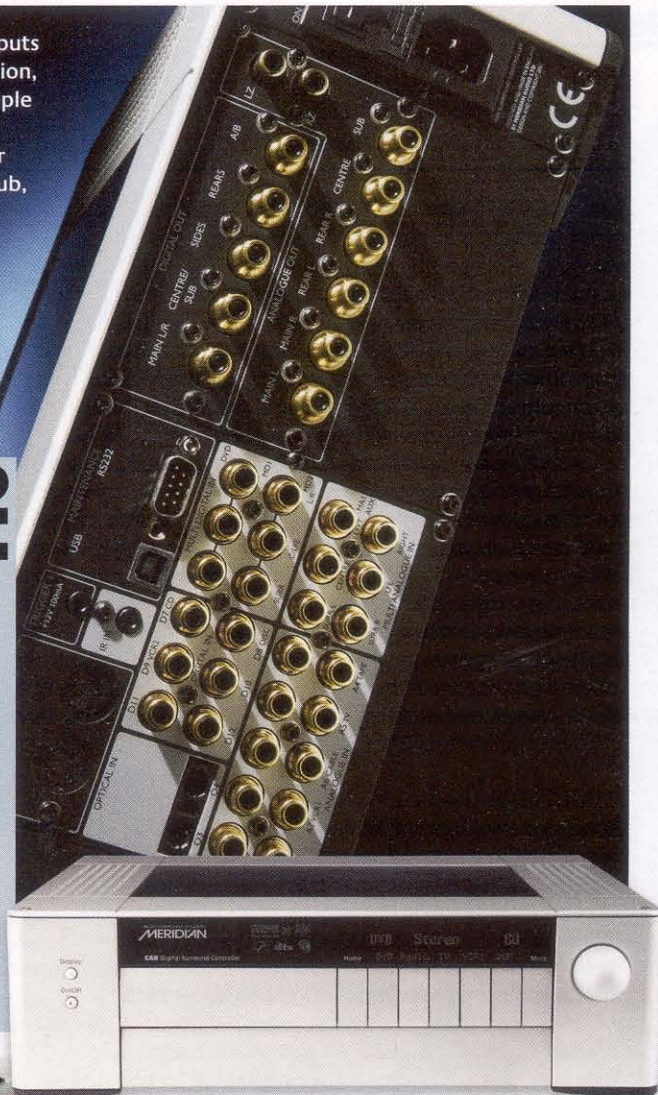
G Series
Surround
Controller

Price: £3650

Made by:
Meridian Audio
Ltd

Telephone:
01480 445678

Web: www.meridian-audio.com



ABOVE: A combination of two 'hard' and five 'soft' keys allows the user to navigate its comprehensive setup menu

for you. Also, Meridian doesn't provide a microphone for the setup process. This won't be a problem if the correction is configured for you or if you have a suitable one available – even an inexpensive sound pressure level meter with an audio output will do. I pressed into service the GRAS 40BE measurement microphone I use for speaker testing – overkill in this context, but assuredly accurate.

Something rarely addressed in reviews of automated room correction systems is their consistency. If the setup procedure is run multiple times without any changes to the room, does it always result, within reasonable

'Room correction should gild the lily, not recast it as a different species'

experimental error, in the same equalisation? Meridian's system provides its own check on this, in the form of graphs and numerical data available within the configuration program. Consequently I ran the setup procedure three times in a row and compared the results. As described in the Lab Report, some significant differences were apparent, so I had to select which was the best correction profile.

If you read my March review of Lyngdorf Audio's RoomPerfect, you'll know my principal criticism was that it altered the system tonal balance. To a degree this is inevitable but I reckon DSP room correction should



IIR FILTERS

Digital filters come in two flavours: finite impulse response (FIR) and infinite impulse response (IIR). FIR filters have the advantages of being more adaptable, but IIR filters, particularly when imitating classical analogue filters, are much more computationally efficient. For example, if a room mode has a decay time to -60dB of 500 milliseconds and we wish to control it down to this amplitude, an FIR filter will require 22,050 coefficients if the sampling rate is 44.1kHz, 48,000 coefficients if the sampling rate is 96kHz, etc, and applying a filter of this size requires a fast and powerful processor. To cut back on this requirement, decimation techniques are often used to reduce the sampling rate at low frequencies and cut the filter length proportionately. By contrast, an IIR filter – because it incorporates feedback – can achieve the same using just four coefficients and trivial processing power, without any need for decimation.

PROCESSOR TEST



ABOVE: The G68 includes Meridian's full system remote

clean up the bass while leaving the overall tonal balance much as before. RoomPerfect couldn't achieve that in my system, but Meridian's room correction does.

As you can see from the in-room response graphs in the Lab Report, its effect was for the most part quite subtle in my room and, true to Meridian's philosophy, had no influence above about 300Hz. So the inherent system tonal balance was largely unchanged, except for a removal of excess weight from the low bass. In my book subtle is best here: room correction should gild the lily, not recast it as a different species.

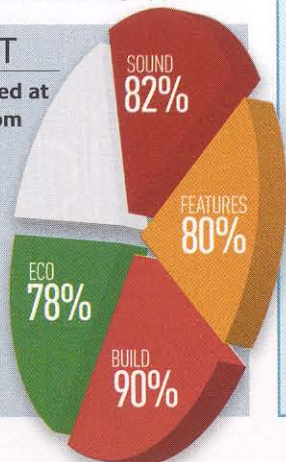
FLUFF AND MUDDLE

As is usually the case, the largest improvements were heard with correction enabled when listening to music which involves bass runs as well as steady bass notes. Brian Bromberg's *Wood* is a CD I habitually reach for when issues of bass performance are involved. Track 3, an unlikely take on Lennon and McCartney's 'Come Together', wasn't dramatically overhauled by engaging room correction but some extreme bass fluff and muddle was removed. This left a presentation that was appreciably improved in both pitch and rhythm, if a little more bass-light. Likewise with Tony Joe White's 'Across From Midnight' from *One Hot July*: some indistinct low-bass grumble was removed to be replaced by a bass guitar contribution that was cleaner and more tuneful. Although the bass was a tad less weighty with correction enabled, in shedding that excess it became faster moving, with benefit to the track's timing and tempo. Organ music also benefited, making for easier perception and appreciation of the pedal work.

All told, then, Meridian Room Correction – with its distinct EQ approach – is a notable if understated success. All I would criticise are the filter design variations I encountered and the fact that (in common with the Copland and Lyngdorf systems) no ready guidance is provided for the optimisation of speaker and listening positions prior to equalisation being applied. ☺

HI-FI NEWS VERDICT

If your room is fairly well behaved at low frequencies, Meridian's Room Correction will not necessarily make a huge difference. However, it will subtly and discretely tidy-up the bass, removing bloat and clarifying what bass instruments are playing – all without recasting your system's inherent tonal balance. Just how room correction should behave.



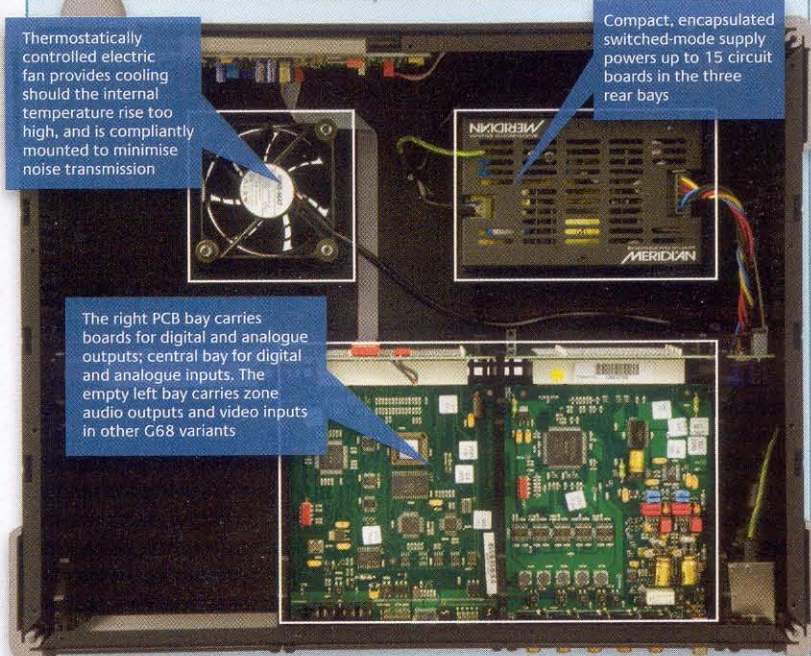
MERIDIAN G68 AUDIO PROCESSOR / £3650

Hi-fi news
**LAB
RESULTS**

Thermostatically controlled electric fan provides cooling should the internal temperature rise too high, and is compliantly mounted to minimise noise transmission

Compact, encapsulated switched-mode supply powers up to 15 circuit boards in the three rear bays

The right PCB bay carries boards for digital and analogue outputs; central bay for digital and analogue inputs. The empty left bay carries zone audio outputs and video inputs in other G68 variants

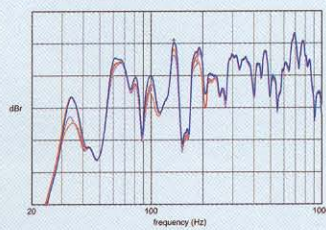
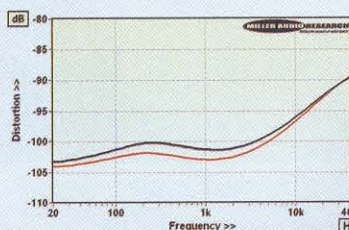


HI-FI NEWS LAB REPORT

The top 6dB of the G68's dynamic range is governed by digital gain, so with a peak level (0dBFS) digital input, its analogue outputs are clipped beyond a volume setting of 94 out of 99. For most purposes, and to achieve the optimum signal level for the lowest distortion, a maximum volume setting of 87 should prove satisfactory.

With an output level of 2.1V, there's sufficient 2nd and 3rd harmonic distortion to account for a total of 0.0017% through the midrange and a perfectly creditable 0.004% at 20kHz. Responses show Meridian's familiar, gentle HF rolloff that amounts to -0.6dB/20kHz (48kFs) and -2.5dB/45kHz (96kFs) while jitter is vanishingly low at <70psec, regardless of digital input. PM

During three consecutive configuration runs there was negligible external disturbance during the measurements and the program reported a healthy S/N of around 50dB. On the first run, the G68 configured seven filters for the left channel and 12 for the right. On the second run it was 6/8 and on the third 8/10. Checking the centre frequency, gain and Q data, the shared filters were pretty consistent with the exception of the two lowest-frequency filters in each channel: a 60Hz notch for the left and a 34/35Hz notch for the right. Gains and Qs for the left channel 60Hz filter were, respectively, -1.3dB/12.0, -6.5dB/16.2 and -4.0dB/14.0 in the three runs, and for the 35Hz right channel filter -7.7dB/11.7, no filter, -5.0dB/10. KH



ABOVE LEFT: Distortion versus frequency (digital in, analogue out) for left (black) and right (red) channels. ABOVE RIGHT: Uncorrected in-room response (blue trace) with corrected responses for three config. runs behind

HI-FI NEWS SPECIFICATIONS

Distortion 1kHz, 0dBFS/-30dBFS	0.0018%/0.0025%
Distortion 20kHz/40kHz, 0dBFS	0.0025%/0.0032%
Frequency Response (20Hz-45kHz, 96kFs)	+0.0dB to -2.75dB
Digital Jitter, 48kFs/96kFs	65psec/33psec
Suppression of Digital Images (48kHz/96kHz)	99.5dB/25.5dB