

ACTIVE,

Meridian's DSP7000 is more than a visually arresting, exquisitely built lifestyle statement – it's an exhaustively engineered active digital loudspeaker. Who better than unreconstructed analogue addict David Price to put it through its paces?



It may not have escaped the notice of eagle-eyed readers of Hi-Fi World magazine that yours truly is hardly a reluctant cheerleader for that wondrous luxury of life I call 'analogue audio'. For this reason, it might seem a little odd for me to have volunteered to suffer life in the digital domain with a pair of Meridian's latest DSP7000 digital active loudspeakers.

Well, sometimes you just have to take your shoes and socks off and get wet in the name of journalistic enquiry, taking a walk on the wild side that – in normal circumstances – you'd frankly have turned the corner to avoid. I know, the prospect of Meridian personally installing twenty five grand's worth of ultra-high end hi-fi is an unpleasant one, but someone had to do it, and to keep the 'trusty sword of truth' sharp, that someone had to be me...

Now I've got your sympathy, I hope that you'll indulge me the odd nostalgic reminiscence about being able to listen to my prized turntable without it first being sliced into 24bits no less than ninety six thousand times every second, because I did miss the world of pure, unadulterated

LIFESTYLE

analogue. But for that precise same reason, I have to say I was more than slightly impressed with what the DSP7000s were doing with digital.

If you think about it, anyone listening to their music with a conventional CD player (and/or DVD-A, SACD), amplifier (pre-power or integrated) and speakers is getting the worst of both worlds. Think of the signal path: the original analogue music is converted to digital in the studio, pressed onto silver disc, played on a CD player and converted back into analogue, which then gets amplified by a factor of several by a tenuous assemblage of level controls and gain stages, then gets pushed through long, lossy runs of wire and squeezed into loudspeaker crossovers, where it's chopped and changed by a bunch of heavy duty filters before it emerges out of your drive units. So much for 'source direct'...

Active digital loudspeakers short-circuit so much of this; the analogue is converted to digital, where it travels from a CD player to the speakers down some coax cable, where it's split digitally into signals appropriate to each drive unit, then it's converted into analogue and amplified right 'in front' of each driver and err, that's it.

As such, if you're going to do digital then surely you should do it this way – i.e. actively? Just as a turntable feeding a small single-ended tube amp and super-sensitive loudspeakers is positively entrancing (because of its brilliant simplicity), so an active digital loudspeaker system fed by a silver disc spinner can romp away from the aforementioned clumsy assemblage of separates converting this to that and back again after a fashion? That is the thinking behind the Meridian DSP7000, and even without spinning a disc in anger, it makes perfect sense to me.

UP CLOSE

The DSP7000 is a four-way digital signal processing active loudspeaker, effectively a self-contained audio system, sporting four custom drivers,

four amplifiers, three digital converters, digital crossovers and sound-shaping DSP technology. The heavy (70kg) cabinet uses curved pressure-laminated panels, each using multiple layers of selected woods and metal to provide high stiffness and damping. Its narrow, tapered shape promises optimum dispersion across a wide listening area. It is constructed with extensive bracing, and the 1050x348x458mm speaker stands on triangulated adjustable machined foot assemblies with provision for floor spikes or skids.

Finished in silver piano lacquer (other hues are available), I have to say that I found these Allen Boothroyd styled beasts one of the most stunning looking loudspeakers I've ever set eyes on. They're beautifully crisp and clean, nicely proportioned and have a touch of nineteen sixties 'sci-fi modernism' about them. There's no other word for the finish; immaculate. It's as deep and flawless as a Jaguar paint job, and then there's even a touch of XJ40 dashboard about the supplied Meridian System Remote. Perfectly

weighted, shaped and spaced buttons, automatic backlighting (via daylight sensing) even the ability to change the templates should have won it a Design Council Award.

Each DSP7000 has a small front window between the midrange driver and bass units, for a green matrix display and an infrared remote control sensor. Control over source, volume, bass, treble tilt, listening axis, time-compensated balance and absolute phase is given at the touch of a button. The remote interfaces seamlessly with the

GOING LIVE!

The joy of the DSP7000 is the easy way they connect up. Granted, as you're spending £16k then there will doubtless be a man from your local Meridian dealer in your home to do it for you, but it's impressively, elegantly, simple all the same. A long, thin, Meridian sourced coaxial cable runs from your digital disc player or digital preamp to the 'master' DSP7000. This then runs another length of coax to the 'slave'. The both are configured via the MSR to know who's who and, if you'll pardon the pun, "Bob's your uncle"! The DSP7000s accept any digital signal and then resample it to the highest possible sampling frequency they can work with, up to 96kHz (i.e. 44.1 becomes 88.2, 192 becomes 96). Of course, the DSP7000s are most elegant when working with a Meridian digital spinner or preamp, where there's seamless integration with the MSR, but even a £50 Freeview box will feed them.

speakers themselves (thanks to an abundance of IR senders/sensors), and suddenly 'pointing the plastic' at your CD player instead of your speakers seems completely counter-intuitive...

Still, the fact that these Meridians are incredibly easy to use is to completely miss the point; this is a welcome bonus of the active digital operation, but the real deal is what the design confers in terms of sound. The 25mm aluminium-dome tweeter (silver wired, short horn-loaded with protective grille) and 160mm polypropylene midrange driver are mounted in a separate acoustic enclosure. These two, which cross over at 2.6kHz, are driven by independent 100W low-feedback power amplifiers, boasting 'optimised magnetic design', star earthing and fast output devices, all powered by a substantial toroidal transformer feeding high-quality audiophile-grade

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capacitors. The DSP7000 then crosses over at 200Hz to two 200mm long-throw bass drive units, again aspirated by suitably appropriate power amplification, optimised for bass (as opposed to treble or midband) duties.

Before the four amplifiers (which power the four drive units) lie four 24bit, 96kHz, 128x oversampling digital-to-analogue converters, surface mounted onto partitioned 6-layer printed-circuit boards. These DACs in turn feed from a FIFO memory buffer input for the lowest

possible jitter from almost any source. Interestingly, at the other end of the chain, just before the drive units, Meridian say there is a small, subtle degree of analogue filtering – some things, confesses a company spokesman, can be done better in the analogue domain...

Round the back, there are two S/PDIF digital inputs supporting 32kHz–96kHz sampling rates at up to 24 bit; Meridian says that a future software update will enable support for 192kHz. There are also rear-panel controls for power, MSR and an RS232 port.

SOUND QUALITY

This is one of the most interesting sounding loudspeakers I've yet set ears on, and given my recent run of greats that's no small beer. The DSP7000's most obvious character is that of 'cleanliness' – they're almost antiseptic in their remarkably pure and unsullied nature. They have electrostatic levels of clarity; indeed I'd say they're even more revealing than my regular (£6,000) Quad ESL989s, especially in their airy treble and upper mid band. Same goes for the bass, whose massive controlled punch also puts the 989s to shame.

In another area where the Quad electrostatics are famous, the Meridians also shine with solar intensity – they image startlingly well, with an eerie dimensionality which – quite frankly – I've only ever come across twice before. One was in Peter Quortrop's all tube Audionote home system (using vinyl and AN-E loudspeakers), the other in Max Townshend's all solid-state home system (using vinyl and Sir Galahad loudspeakers). For one who's never heard a Red Book CD sound so sublimely spacious, it came as a real

had been remastered for cooking Compact Disc. The opening piano cadences showed the incredible clarity of these speakers; there was a real, tangible sense of the piano's tonality, texture, timbre – something that I6/44 usual just stamps on top of and marches right over. Next, as the drums and vocals kicked in, what struck me was how the keyboards didn't fade into the mid-distance;

something that lets the Quad ESL989s down in turn.

Now we're into mid-song, 'Breakfast in America' is sublime. The soundstage hangs back, behind the plane of the speakers, across what seems a thirty foot wide recorded acoustic. There's tremendous incision; you feel you can hear right to the back door of the recording studio and into the control room. There's

STEREO ACTIVITY

Active loudspeakers couple power amps directly to the loudspeaker's drive units, so if there are three drivers, for bass, midrange and treble, there will be three power amps, usually within the loudspeaker itself. Bass, midrange and treble signals for each are derived by electronic filter circuits placed before these amps, not in a crossover after them – that's the main distinguishing feature of an active loudspeaker.

There are many advantages, plus some disadvantages, but they can be somewhat academic in real life. For example, three power amps are needed per loudspeaker, a potential disadvantage, but this is of little consequence if each costs little. Electronic filtering allows significant performance gains, and allocating a power amp to a specific drive unit opens up a whole host of interesting and unusual possibilities. Equalisation can be applied to the bass amp, for example, to give an extra octave of bass, something Meridian do within the DSP7000. For a specific cabinet size, this enables an active 'speaker to go lower than a passive, driver cone excursion and power handling permitting. Also, motional feedback can be applied but, being problematic, it rarely is.

In practice active loudspeakers generally sound very clean and well controlled, as they are of course. There are practical benefits too. Only a small and compact preamp is needed, connected to each 'speaker by a signal cable.

The whole arrangement lends itself to digital, since all signal processing can be done digitally, before final conversion to analogue through digital-to-analogue convertors that feed each power amplifier, but with a three-way loudspeaker this means six power amps and D/A convertors in total – expensive.

It makes sense to incorporate digital processing within each loudspeaker to control its behaviour, from switch on and protection, to equalisation, as Meridian have done with the DSP7000s. You end up with a complex, self-powered, 'intelligent' loudspeaker at which you must wave a remote control for set-up. Trouble is, active loudspeakers soon get very complex and very expensive – frighteningly so. They are strictly top-end as a result and, if you don't like how the loudspeaker sounds, the whole shebang must be changed; there's little flexibility.

Digital PWM amps benefit from being coupled directly to a drive unit, so they're ideal for active speakers, making for a lighter, cheaper and better product. And, in future, if digital drive units arrive, they will almost certainly need total integration with a digital power amplifier in order to work at all. Then we'll all be using active loudspeakers.

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shock. The only caveat is that you certainly have to be 'on axis'; maybe I've been spoiled by Quad electrostatics which hang the music out on a very long line, but the DSP7000s have to be toed in at you very precisely to switch from 2D to 3D.

An interesting illustration is Supertramp's 'Breakfast in America', recently remastered (very well) on CD. It was also a great recording on vinyl (if a tad topky) and the DSP7000s showed just how well it

they were they as strong as ever, despite the extra strands of the mix competing for the listener's attention. For me, this went on to define one of the things that most impressed me about the DSP7000; its grace under pressure. Every time music gets louder, pushes to a crescendo, then the Meridians shrug it off with nonchalant, effortless ease, maintaining their impeccable repose. It's one of the defining characteristics of my Yamaha NS1000Ms, and

amazing insight into the 'grain' of the singer's voice, not to mention the phrasing and breathing. The instruments behind him are immaculately defined, locked in space with utter precision, while the busy hi-hat flourishes (hey, it is 'prog rock' after all, is it not?), timed with metronomic certainty. Indeed, this is another joy of the DSP7000s; the treble is not only tonally sweet and silky but has brilliant definition and a rarely heard sense of rhythm. It's an interesting



point for me; often it's rough sounding tweeters that seem to time best (because of the edge they add to the music), but the DSP7000s are both luxuriously smooth and svelte, yet start and stop with rifle bolt precision.

After so much fun with Supertramp (and those two things certainly don't always go together), I moved to a favourite reference disc of mine, 4hero's 'Two Pages'. 'Spirits in Transits' is a wonderfully lilting listen on good systems, and the Meridians did themselves no harm at all. As the track started, that multi dimensional soundstaging was immediately obvious, then the brilliant, shining clarity of the midband and treble and the effortless 'velvet punch' of the bass. Then I found myself listening to the delicious tones of the cello and cor anglais, the sound of the wooden drumsticks hitting the snare rims, the soaring violins and viola and the sheen of the hi hat cymbals. Despite their prodigious pace, explosive power and biting clarity, let no one say the DSP7000s are brutal. Neanderthals? Quite the reverse. In fact, this is the key to these loudspeakers – they offer the sort of power and grip that you'd expect from the best pro monitors, but real, unadulterated subtlety and finesse that only the best electrostatics aspire to. Quite a combination...

Impressive as they are on rock and acoustic 'new jazz', the Meridians possess an ideal combination of attributes for both classical acoustic music and electronic. Debussy's 'Prelude a l'apres-midi d'un faune' (Poloarts, Kakhidze) showed that brilliant midband in all its glory, along with breathtaking air and space. Once again, as the music drew to a

crescendo, the DSP7000s displayed immaculate control – never once slipping out of time or buckling under the load. Kraftwerk's 'Tour de France remixes' confirmed this; these speakers capturing this album's essential, 'architectural' quality like almost no other passive analogue amp-

speaker combination I've heard. Strands of the music that went unheard on £12,000 of Marantz/ Musical Fidelity/ Quad gear were lit up almost as if by spotlight via the Meridian. Best of all was the way that the kick drum that permeates most of the album cut through the mix with the sharpness of a scalpel; on my reference system, whenever it came up against another instrument, its definition was somehow lessened, its impact softened.

After such a long eulogy to these great loudspeakers, can I possibly raise any objections? Well, yes. I'm sure Bob Stuart has not played much 'urban R&B' of late, but the heavy, sequenced electronic bass lines of Twister's 'Slowjamz' showed how the DSP7000 can be just a little loose down below. Now, I'm aware that dealers can actually get into the 'BIOS' of the DSP to compensate for room resonant modes, but I'm still not convinced that the 7000s have the binaristic 'on-off' quality to the bass that they so obviously display further up the frequency range. This isn't to denigrate the bass; by and large it's superb – it's fast by any standards and displays wonderful ease and speed allied to a ferocious 'thwack' when called upon so to do, but it's still not the match of the breathtaking midband and treble – which is why I raise it as a criticism.

Secondly, we have the obvious point about the DSP7000s not being 24/192 compatible right now. Obviously, this will be offered as an upgrade when it's available, but right now you're stuck with MHR (Meridian Hi Res?) at 24/96. Interestingly, a 24/96 DVD-A disc of Foreigner's 'Waiting for a Girl Like You' showed not a huge difference between 16/44 – which shows just

how effective all the signal processing that ye olde CD is getting is. In practice, most people's digital music collections are on CD, and the key point is that with this, the DSP7000 veritably shines.

My final aside is (and here it's a case of 'my name's Ben Elton, bit of politics...'), there's no SACD playback. Of course, the 7000s play the CD layer (brilliantly) but I for one am more convinced by the SACD releases to date (despite the format's theoretical inferiority to 24/192 LPCM). It would have been nice to hear Peter Gabriel's 'Solsbury Hill' on SACD through the Meridians.

CONCLUSION

At £16,175 these loudspeakers are way beyond the means of most people, but when you consider that the DSP7000s effectively replace almost every part of a hi-fi system

REFERENCE SYSTEM

Marantz CD63KI DP CD player
Musical Fidelity kW500 integrated amplifier
Quad ESL989 loudspeakers
Townshend Maximum Supertweeters

and/or:

Meridian 808i digital disc player/preamp

(DAC, preamp, power amp, speakers), then they're not quite so crazily priced. Certainly, put against an equivalently priced separates system [see REFERENCE SYSTEM], the Meridians make a powerful case for themselves, sacrificing almost nothing and bringing a number of obvious sonic benefits – providing you're already using a digital source, of course.

Sonically, they're deeply special; wonderful depth, dimensionality, space, insight, clarity, textuality and finesse allied to a truly engaging – enrapturing even – musicality. Factor in effortless power, firecracker dynamics, stunning aesthetics, ergonomics and build and even at the price of decent family saloon, you certainly get your money's worth. Meridian is an interesting company, it's never followed fashion and has at times been just plain quirky. For this reason, many have lazily dismissed the products as being a little 'leftfield' and not for them. The DSP7000 is certainly the former – unusual and innovative – but one listen will instantly convince any doubter as to the wisdom of Meridian's approach.

VERDICT

One of the most effective loudspeaker systems get made, the DSP7000 offers incredible insight into the recording. Wilfully unconventional and all the better for it, it's a masterpiece of audio engineering.

MERIDIAN DSP7000 £16,175

Meridian Audio Ltd.

☎ +44 (0)1480 434334

www.meridian-audio.com

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