David Dearden

The man behind the varied designs carrying the Audient brand has had a varied career in studios and manufacturing. He talks to ZENON SCHOEPE about one trick ponies, digital obsolescence, the summing bus issue and how modern manufacturing methods are making analogue desks even better.

TECHNICAL DIRECTOR OF MIXING console manufacturer Audient, David Dearden was born in South Africa and in 1968 took a job in a large studio in Johannesburg belonging to David Manley (the original founder of Manley Laboratories) where he experienced music, commercial, drama and film recording as well as disc cutting. It was during this time that he had his first involvement with mixing consoles by assisting in the construction of a valve console using mainly Telefunken V72 modules.

In 1970, aged 20, he arrived in the UK to further his work experience in the recording industry and within two weeks was working at Advision Studios as junior maintenance engineer. Despite not wanting to stay too long in England, five years later he was still there and had worked with Eddie Offord and Gus Dudgeon. He was also involved with studio designer Eddie Veale in building a custom console and private studio for John Lennon for his Imagine sessions, and subsequently studios for George Harrison, Ringo Starr, Gus Dudgeon, and Chris Squire of Yes.

Following three years with MCI and two years at Soundcraft, David and Gareth Davies (also ex Soundcraft) founded DDA (Dearden Davies Associates) in 1980 and over the next 15 years David was responsible for the design of the majority of DDA products starting with the DD1000 and DD500 electronic crossovers. The first mixer was a custom 10:2 portable design for Tony Faulkner, which was later expanded and became the basis for the 4 bus M Series and S Series, and the 8 bus D Series mixers.

The real break came with the introduction in 1985 of the AMR24 24-bus split desk, which broke new ground and set a new price/performance marker. More desks followed including the automated and centrally assignable in-line DCM232 and the all-input Profile and DMR12 plus a variety of live sound mixers. When DDA became part of the Klark Teknik Group he also designed the Midas XL200 and did the initial concept and design of the Midas H1000.

In the 1997 Dearden and Davies decided to get back to doing what they enjoyed most: market research and detailed designing of mixing consoles, and formed Audient.

What is special about Audient products?
The ethos behind Audient products is to provide

high quality, cost effective solutions. The product line includes recording and live sound mixing consoles (ASP8024 and Aztec), 8-channel microphone amplifiers (ASP008), an analogue summing unit (Sumo), and 5.1 monitoring solutions (ASP510). They are all characterised by excellent performance, ergonomic simplicity, a shallow learning curve and rugged, real-world interfaces.

Many manufacturers have dropped out of the analogue recording desk sector claiming uneconomic manufacture for a market that has disappeared, what do you say to that?
The market has not disappeared, but it has changed dramatically. The days of many large studios with vast SSL and Neve consoles may be over, but for any live sound an analogue front end is still required, as is EQ and compression. Even if the resulting processed signal is then recorded digitally, some form of monitoring of the recorded tracks is usually required, not to mention all those boring bits like foldback and talkback. While all these can be provided by individual bits of gear, it is still more convenient in most cases, and if space permits, to have a console. Automation is not that much of an issue anymore, as it can be performed in the workstation, and in general, the feature set and complexity of the console can be reduced. This usually has the beneficial effect of simplifying the signal path and improving audio quality. In the foreseeable future, there will continue to be a requirement for the analogue interfaces to wrap around a digital core.

What are the limitations of modern digital desk designs?
Not so much a limitation as an irritation is ease of use. With an analogue console everything is clearly laid out and has one button per function and gives a 'graphic' view of the status of all the functions on the inputs, outputs and returns. The superior ergonomics and shallow learning curve are apparent to everyone who requires 'real-time' operation and it cannot be compared with the multifunction knob and/or layered control surface. The in-line recording/mixing console has had many years to evolve and become optimised to the job in hand, although this may not be optimum for other purposes. For instance, broadcast, postproduction and theatre sound consoles all have their own requirements, which are not optimally catered for in the conventional in-line architecture. However, I think the greatest limitation of a digital console is the built in obsolescence factor. It's a bit like buying a computer. No sooner have you got it up and running and it has been superceded by a new model. Digital consoles and computer-based systems are still evolving, and inherently have a high redundancy and obsolescence factor. In 10 years time what would you be willing to pay for a current digital console or DAW and would you still be able to use it?

Where are the compromises in designing and building an economically priced and well featured analogue desk in the 21st Century?
If we compare consoles currently in production with those built in the 1970s and 80s, the biggest change is probably in the mechanical construction, and in the method of wiring. The replacement of transformers with electronic balancing allowed the use of simpler module mechanics, which did not need to be totally enclosed for screening. The massive reduction in module weight allowed the use of much simpler frame designs. The introduction of flat ribbon cables

replacing large bundles of screened cables reduced frame wiring times from weeks or months down to days. The combined result of all these factors were products that could offer more and more features for the same or even less money.

Today there are even more techniques that can be used in the design. Higher density ribbon cables and connectors are now economically available, and surface mount components allow a substantial reduction in the depth (if not the length) of the printed circuit boards. However, the use of surface mount components can be a double-edged sword: faster assembly times, but sometimes more expensive components. In addition, the quality of the components needs to be carefully evaluated to maintain noise and distortion performance.

The reduction of required PCB area has also allowed the re-evaluation of the module structure. Instead of having separate vertically mounted boards on individual modules, the board can be placed parallel to a single front panel, and shared by a number of channels. This can lead to a substantial reduction in cost, but the perceived downside is the difficulty of maintenance. This really is a hangover from less reliable times. In reality, modern components and surface mount assembly methods are now so reliable that it really is a non issue. This is the construction method used in the Audient ASP8024 console and in the interests of efficiency, board sizes were designed to take full advantage of the maximum assembly sizes possible on auto placement, auto insertion and flow solder machines. This allowed 12 channels of an in-line configuration console to be placed on just three PCBs with a channel to channel pitch of just 37mm! The first PCB contains 12 sets of channel input and output circuitry, including the mic pres, the second contains 12 sets of auxiliary sends (14 buses) and group assignments (24 buses), and the third contains the 12 sets of equalisers and channel/monitor paths.

These methods should certainly not be considered as compromises, I don't think that the hundreds of users of ASP8024 across the world would think so. Evolution is a better way of putting it.

What are the processing strongholds of analogue?

The obvious answer to this has to be the sonic 'flavour' introduced by different consoles, compressors and EQs. Plug-ins rarely, if ever, manage to reproduce the nuances of character that a vintage analogue compressor can achieve. However, most users of plug-in emulations have never actually used the real thing so they don't miss what they have never experienced. Of course, they also don't miss the noise, crackles, and general unreliability and high maintenance overhead of vintage units. Dynamics processing in the digital domain is notoriously difficult to emulate, although there are excellent digital limiters that are able to control levels inaudibly. However, these are protection devices, and analogue compressors are used as much as effects devices as level controllers, as was the use of tape compression by overdriving. It is no coincidence that there is now (in the digital age) such an abundance of external analogue processing gear available to try to reintroduce some of the character that seems to have been lost.

Having said all that, I have never really subscribed to the view that a console should impart a flavour, such as old Neves and Tridents are reputed to do. In my view, this is rather a 'one trick pony'. What happens when you don't want that particular sound? It is probably impossible to remove it. I prefer to design a console to be as transparent as possible. In this way, any required flavour can be added at will.

Have analogue desk designs changed in an ergonomic sense because of user familiarity with digital?

Probably quite the opposite. To many music recording and live sound engineers, it has reinforced their view that ergonomically, an analogue desk is far superior to the multi-function and menu orientated structure of a digital desk. As an analogy, who would want to drive a car with a single assignable foot pedal? Yes it is possible, but not preferable. It is economics not ergonomics that has dictated the typical digital desk layout. Given the choice I think that most people would prefer one knob per function, but that many encoders/motor driven pots is not really viable.

No one selling analogue consoles can afford to ignore modern work practises — many users work with both analogue and digital tools. We've recently launched the ACS8024 — a new variant of our established recording console. This provides a section in the centre of the console that can house a DAW controller and LCD screen, so that all the core physical controls are immediately to hand in one neat ergonomic package.

How real is the summing bus issue in DAWs?

It is certainly real enough for a large number of people to be concerned about it, and to be able to hear a

worked for an entire session. Then SSL appeared with a beautifully thought out and ergonomic worksurface, which almost anyone could operate, and with automation which actually worked. Pity about the sound of course, but they learnt how to do that too a few years later!

How far can we go with analogue — at what stage will it become redundant?

The last few years have actually seen a resurgence of interest in analogue recording consoles. It's interesting to look at what has driven the apparent reversal in what had, only a few years ago, seemed to be an inexorable march towards the all-digital recording path.

Pound for pound there is still no comparison between the sound quality of an analogue console like the ASP8024 and a comparatively priced digital console. Anything other than the very expensive digital consoles suffer from subjectively poor sound quality compared to their analogue counterparts. If you are using the internal convertors on a lower price digital console, this problem will be compounded. If you consider that 24 channels of high quality A-D, D-A convertor could cost in excess of £15,000 it is easy to see where some of the problem occurs.

Perversely perhaps, developments in digital audio and the move to higher sampling rates have highlighted the benefits of analogue recordings. Digital consoles able to process DSD data are still rare. Material that has been recorded digitally using low sample rate PCM techniques cannot benefit from the increased resolution of more modern formats. The analogue path provides the ideal solution and indeed many 5.1 SACD re-releases have been remixed on analogue consoles, quite often from tape-based sources.

We also need to remember that digital audio techniques are still at a relatively early stage of development. The pace at which they are advancing is rapid and this means that obsolescence is a real issue — in just the same way as it does in computing. Analogue on the other hand has reached a stage of development that renders it future-proof. That is not to say that analogue has reached the end of the development road. Audient, along with many others in the industry, works continuously on new topologies and implementations that will keep analogue moving forward in terms of performance and usability. ■

difference in what should be two identical mixes. Different does not necessarily equate to better, but the general consensus seems to be that analogue mixes are more spacious and detailed. However, not all DAWs are created equal, and as far as sound quality is concerned some are certainly better than others at the moment. There are many factors at work here, such as fixed versus floating point processing, summing algorithms and D-A conversion topologies, clocking accuracy, to name but a few. In theory though, all digital summing should sound the same if the same algorithms and convertors are used. Of course, the same does not apply to analogue circuitry, and each analogue summing product will have its own character, as does every mixing console.

The characteristic sound of different analogue units is probably due more to systems design, internal grounding, and power distribution than to the choice

of which IC has been used. The Audient Sumo unit has been designed to be as neutral as possible, using high headroom, balanced summing buses to eliminate any ground related artefacts. An integral mix bus compressor can be switched in to introduce character if required, and fully balanced insert points allow the use of any external processor.

Which console designs have you admired as being pivotal in the evolution of the mixer?

The SSL E series must be the defining recording product of the 1970s. Prior to this, although there were a few standard recording consoles from companies such as MCI and Harrison, the majority were still one-off custom builds designed specifically for the needs of each studio. Every one was different and had its own set of operating idiosyncrasies. Automation, if it existed at all, was extremely primitive, and rarely