Dolby DP600

While most audio facilities wait for decent and on-going 5.1 commissions, the business of outputting all your multichannel mixes in the various forms required just got easier with the introduction of the DP600. JIM BETTERIDGE says it makes perfect sense for bigger facilities with a lot of throughput.

As I'm sure you've heard, the HD 5.1 broadcast revolution is upon us. It has been so for some time apparently but, while there is undoubtedly an increasing amount of surround work going on, most of the UK's sound houses wait, like inland villages waiting for sight of the armies of a long heralded invader, for their first serious broadcast surround commission. How to best ready oneself for the onslaught, rather than simply staring vacantly at the horizon, is the subject of much debate. A few more speakers, an upgraded DAW, upgraded acoustic, 5.1 metering, 5.1 monitor controls, 5.1 reverbs — there's a fair amount to think about and nervously budget for. One expense that's less obvious than 3.1 extra speakers is Dolby E.

Dolby E is becoming the de facto standard used by broadcasters all over the world as a delivery format for 5.1 audio. And again increasingly it's being asked for laid back to a Sony HDCAM-SR (hereinafter called the SR) master video tape. This format supersedes the plain old HDCAM as Sony's flagship format and offers better quality pictures and 12 audio channels as against just four on the original HDCAM. In the good old days of stereo, 12 channels would have been a lot (1.5 times a DA88) but for 5.1 it represents only two mixes — a full mix and an M&E, for example. This is far from sufficient in today's world of complicated international deliverables.

This is where Dolby E comes in and indeed it's long been a broadcast solution for moving multichannel, metadata-rich, programme around. It allows eight channels of audio to be encoded into an AES pair that can be recorded on a pair of tracks on a DAW or digital VTR. The HD documentary series we're doing requires three Dolby E 5.1 mixes: full UK; dialogue + music + effects (DME); and dialogue + effects (DE). Plus two stereo PCM mixes: full UK and DME.

So once the mix is signed-off we have to render out a full set of stems: VO, Dial, Music and Effects, from which we render the three 5.1 mixes in their raw six-tracks form plus the two stereo mixes. The wonders of the Pyramix mixer make this relatively straightforward and certainly faster than real-time. From there, though, we have to make the Dolby E streams.

To achieve this we pass them, one six-track mix at a time, through a Dolby DP571 encoder that faithfully spits out the corresponding Dolby E stream in real-time. Before I do this I have to ensure that the full mix meets the dialnorm spec of the broadcaster; for this I have to play the programme through another Dolby box, the LM100. The required figure is -27 so if it comes out -25 I simply need to reduce the overall level of the mix by 2dB. In theory this should be sufficient but, based on the measure twice cut once concept, you might like to run it through again to check the reading. So all in all that's another five hours of processing time to check and then encode the mixes.

I then set up a separate project to take the five mixes and lay them back to an SR deck. The Dolby E streams are monitored in real-time, off tape, via a Dolby DP572 decoder through the normal surround monitor chain. The DP571 takes a frame to encode the audio and so the Dolby E streams are nudged a frame to the left within the layback project to bring them back in sync on tape. The DP572 takes a frame to decode so the SR machine has a setting to delay the picture by a frame to realign things.

Dolby's DP600 Program Optmizer is a big quad computer capable of running four processes at once at about five times real-time. The only connectors are a couple of IEC mains sockets (one of the two PSUs can expire and the system will still continue unimpaired) and a gigabit Ethernet connector. Once set up on your network, you simply drag a file into the relevant in box, wait a while, and then pick up the duly processed equivalent from the relevant out box. So in my case I drop my 5.1 full mix at -25 in and 28 minutes later it's measured its dialnorm, rerendered it 2dB lower, encoded it into Dolby E and dropped at the correct point of collection. This sounds like brochure-born theory but this is more or less what happens and it's most gratifying.

The DP600 is capable of a long and growing list of processes, depending on what model you buy: I could also ask it to spit out an AC3 version, a Dolby Pro Logic II version and (after a chargeable upgrade) a 5.1 upmix of a stereo file.

There's no limit to the number of files and processes you can have queued-up ready to go and so, in a large facility, any number of studios can throw their files into the appropriate folder and know that the appropriate processes will be applied to them ASAP with the processed files ready for collection in their own specified out folder — four processes at once, five times real-time. What's more, there's no one frame processing time and so no nudging to the left on the timeline when laying back. One odd thing — it spits out BWFs but, even though it was timecoded BWFs that went in, those that came out had lost their time reference which is not ideal.

There were a few tiny little IT-style issues when setting up and when booting up each morning but nothing of any significance; basically it did just work. I had two episodes to do that week, signing off the mixes on the Friday ready for a Monday layback. Without the DP600 I would have had a good day of fairly constant messing about, but I was able to simply drop the six 5.1 files into the in box, go and have a leisurely lunch and return to some pristine Dolby E files ready for layback.

This, of course, isn't the only use for the DP600. It can also be used in broadcast playout chains and for VoD encoding to solve loudness inconsistencies and smooth workflow, as well as helping broadcasters meet recently introduced loudness regulations.

The price for a fully loaded DP600 is in excess of £13,000 (prices start from £8975 + VAT). This could conceivably replace both the DP571 encoder and the LM100 loudness meter, the combined list price of which is around £3,600. So you're still looking at the best part of £10,000 difference. For a facility of some size with a number of suites and a constant flow of international surround work, the decision to buy a DP600 is a no-brainer. With just one series in 5.1 and the rest of our broadcast work being stereo, it isn't quite worth the expenditure for me. Another ongoing HD 5.1 series might just tip the balance… anyone..?

PROS Fast, multistream processing; very simple to use (once set up); no 1-frame processing delay for Dolby E; built like a tank.

CONS A bit pricey for smaller facilities.

Contact
DOLBY, US:
Website: www.dolby.com