



## Euphonix Hybrid PC Option

Wouldn't it be nice if all of our control surfaces and DAWs could play together in harmony, sharing the same control protocols? **ROB JAMES** thinks so; and so, it seems, does Euphonix.

**W**HATEVER THE TECHNOLOGY, successful and economic postproduction is all about workflow. Twenty-five years ago postproduction was a world of certainties. Of course, there were lots of technical and artistic problems but these were in the main quantifiable and controllable, given the will and suitable discipline. In the world I grew up in it was relatively easy to define a production route. It was a fair bet that location sound would be recorded on a Pilot-tone Nagra. Sound rushes were transferred to magnetic film, manually synchronised with the picture and 'rubber-numbered'; that is, sync reference marks were printed on the edge of the sound and picture film. Editing was a physical process for sound and picture and the only way of speeding things up was to throw more people at the problem, although this was always subject to the law of diminishing returns as the organisational complexity increased. It was also a given that sound tracks, or units, would be played in for premixing from an array of sound 'followers' and the premixes and eventual final mixes would be recorded onto magnetic film. In short, there was one physical form factor for picture and sound from ingest to delivery.

Then along came digital. At first, the non-linear picture and sound editing machines were slotted into the existing workflows with picture presented for mixing on Umatic or Betacam tape and the sound

either transferred to mag film or sometimes played in from the editing machine. Then television post began to replace the entire postproduction chain with digital. In the relatively controlled environment of big broadcast organisations this was difficult but achievable and the way in which it was achieved was to single-source the console and editor/recorders. This was fine for big broadcasters but much less satisfactory in the world of film, where freelancers predominate and the sheer scale of the exercise is so much larger. Early approaches continued to use substantially the same model as analogue film. A (very) large and expensive console at the eye of the storm, fed by and recording to 'digital dubbers': 8-track hard disk or optical disk recorders.

It was at this point that a lot of noise was made about file and EDL compatibility in the hope that some of the virtues of non-linear editing could be retained at the mix even though the playout machine was a different make to the editor. With hindsight you have to ask, 'Why not simply plug the editor into the console and mix from that?' There are two principle reasons. The first was cost; non-linear editors, DAWs, were very expensive, especially if you needed a lot of real-time track outputs. Even more to the point, they didn't 'play nicely' with other equipment in terms of synchronisation and transport control. To this day some DAWs are lamentably bad in this respect with

slow lock-up times and no reverse play. However, the principle is now largely established that the most obvious way to work is to play material in from the DAW it was edited on (and now often pre-mixed as well) and to record the output to another DAW. As budgets decline and schedules shorten, the temp mix is getting ever closer to becoming the final version.

These changes in workflow mean that consoles need to adapt. Where once it was accepted that dedicated console DSP was the only way to go, the DAW has gained in power and respect. One thing hasn't changed though. By common consent the conventional mixer control surface is still viewed as the best human interface we've found to date for the final mixing process. The arguments for retaining dedicated signal processing in the console are still highly persuasive. To name just some of them: optimised algorithms with fewer constrictions due to lack of horsepower, powerful routing and monitoring and automation with no worries about running out of processing. However, it is arguable that it no longer makes sense for the console control surface to just act as a remote control for its own proprietary DSP. Premixing is increasingly taking place in smaller rooms using the DAW with, or sometimes without, a conventional control surface.

When the results arrive on the mixing stage it would be highly desirable to be able to make amendments to premix decisions from the main console work surface. On the face of it this should be a simple proposition. Knobs, buttons and faders all generate data whether this data is used to control proprietary DSP or the studio lights. In practice of course it is anything but simple. DAW manufacturers use a variety of control protocols and some are very proprietorial about them, which is understandable



since they would quite like to sell their own control surfaces. There are issues concerning resolution and speed, not forgetting simultaneity. For example, 128 steps is not sufficient to avoid zipper noise on a fader, control must be near-instantaneous and moving a dozen controls at the same time should not cause a fit of the sulks. The solution is a control protocol or family of protocols. Mackie was one of the first in this game and the protocols it established, HUI and the extended version, Mackie Control, remain the most widespread. However, there is a strong case for faster, more robust and more comprehensive protocols.

The problem is this: a protocol must be supported by the control surface and the workstation. The more far-sighted manufacturers have realised this and one or two have invested the time and effort in creating and/or supporting suitable protocols. Euphonix is well to the fore with EuCon. This is a high-speed Ethernet protocol developed to enable a hardware control surface to communicate directly with a software application (a DAW). EuCon offers the possibility of high-resolution (12-bit) fader and rotary encoder control, transports trackball/mouse and keyboard commands over Ethernet and supports the HUI and Mackie Control protocols. As you would expect, this is all bi-directional; changes made in the workstation are reflected on the System 5 surface, for example on its metering. Crucially, EuCon can control multiple DAWs and applications simultaneously.

Currently, Steinberg's Nuendo and Apple's Logic Pro are the only applications to be fully 'EuConized'. Merging Technologies' Pyramix provides a comprehensive level of support for EuCon via its own Oasis protocol, while Pro Tools users have to make do with what is possible via HUI or Mackie Control.

The first physical manifestations of EuCon came in the shape of the Euphonix MC and System 5 MC controllers. The logical extension of the idea to the full-on System 5 console has now arrived in the shape of the Hybrid PC option. For around UK£15,000 plus the price of the console it is now possible to have the benefits of EuCon control combined with the DSP power of a System 5. The fader buckets in a System 5 and a System 5 MC are identical in hardware terms. The fundamental difference lies in the programming. In an MC the bucket does some of the work normally undertaken by the Studio Computer in a System 5. This currently means there are a few EuCon limitations in the Hybrid version.

Since I last looked at a System 5 in 2000 the console has matured considerably and, with the addition of optional Touch Knobs since last year, is now a much more desirable device. It is worth a reminder about the System 5 structure. In essence, a System 5 is a bunch of networked computers. Each block of eight physical strips and the centre section can be considered as standalone units. The only connections to each block are a mains plug and an RJ45 100BaseT



network connector. The desk-frame of whatever size is merely furniture, no motherboard or backplane is necessary. The Studio Computer, which handles the housekeeping and automation, connects in the same way. The Hybrid option adds a EuCon Hybrid 2U Pilot PC and an Ethernet switch. The Hybrid PC connects to the System 5 Ethernet switch and via the extra switch to external DAWs. The Hybrid can also control a DVI switch if required to switch a screen or screens between workstations.

At first glance the System 5 control surface is a two-layer design that could, of course, be used in in-line fashion. The Swap key reinforces the impression. In fact there is a lot more to it than this. Any processing channel, including group masters, can be called to a strip using a pop-up menu and attached to either layer. Complete sets of these assignments are made and saved as layouts, which are simply a means of storing which strips control which channels on the console. Layouts can be recalled virtually instantly from the layouts page in the centre section Panel Viewer. For example, one layout could bring up channels 1-24 to Strips 1-24; another could group together a set of similar channels such as all Foley effects or all dialogue channels.

In effect this means you can have as many layers as you like. In the context of the EuCon Hybrid this becomes an extremely powerful feature, meaning that it is possible to have strips controlling Pyramix tracks adjacent to strips controlling Pro Tools tracks, System 5 DSP channels, Logic Pro tracks, and so on, in any order you wish. A single button-press brings up a page of DAW-specific keys onto the surface — several pages in some cases. In a perfect world the control strips and centre section would function in exactly the same way whether you are controlling DAW channels or native System 5 DSP channels. Unfortunately life just isn't like that. With the fully 'EuConized' DAWs the majority of strip functions do work in the same way, so hitting the EQ button brings up EQ controls onto the strip and so on. But with other DAWs, EQ and dynamics processing are seen as plug-ins, and you have to hit the plug-in key, locate the relevant plug-in and then control it. Pro Tools uses four 'channels' of HUI to control 32 Pro Tools tracks,

although this 'window' can be moved across however many tracks you have, one strip or a bank (eight channels) at a time.

At present, due to the architecture of the System 5, the centre section can only control Euphonix DSP channels. Transport control can be achieved in several ways. The DAW's transport controls can appear on System 5 buttons with Record on the strips, or you can use RS422 control from the surface transport buttons and paddles, via a CB Electronics box to control several DAWs simultaneously if you wish. The Euphonix automation only applies to native System 5 DSP channels; DAW channels rely on the host application's automation capabilities.

The Hybrid concept is thoroughly sound and is applicable to System 5-P, System 5-F, System 5-BP or System 5-M consoles. With a fully 'EuConized' DAW the effect is highly impressive. You can, to all intents and purposes, forget where the channels are coming from or what you are actually controlling and get on with the business of mixing. So, the idea is right and fits in perfectly with current workflow practice. The catch is that a comprehensive implementation depends on close co-operation between the DAW manufacturer and Euphonix; unless the DAW implements the EuCon protocol properly, results will be less than optimal. The user must also exercise a little discipline to extract the maximum benefit, although this simply means following practices like keeping plug-ins in a suitable order. When you're working with a 'EuConized' DAW, Euphonix gets you most of the way there. I'm sure that if the market demands it, a way will be found to map the centre section controls and joysticks to the appropriate DAW functions. It would also be good to extend control to more than four workstations, although of course you can have several more in timecode 'chase' and switch between them for direct control.

However, the crucial issue is third-party support. With the Hybrid concept you are at the mercy of at least two manufacturers. Personally, I would want to be very sure that either my chosen DAW is fully 'EuConized' by its maker or that it will be before parting with the cash. Meanwhile, even with other DAWs, the Hybrid shows the way. Just be sure it gives you adequate control for your needs. ■

**PROS**

A contemporary solution; impressive with the right DAW; an acknowledgement of reality.

**CONS**

Not cheap even in the context of a 'big gun' console; still some work to do; could be taken a lot further.

**Contact**

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