SSL Mixpander 5/Alpha-Link

The Mixpander name is familiar; Alpha-Link isn't. ROB JAMES revisits a DSP card and introduces himself to a family of convertors.

WELCOME TO THE latest chapter in the Sydec saga. Sydec was always the manufacturer behind Soundscape products, since the first Soundscape appeared in 1993. In 2001, Mackie bought Sydec. Sydec regained its independence when Mackie began a rationalisation programme. Today, Sydec is part of the Solid State Logic group.

Mixpander and Alpha-link provide low latency I-O in analogue and a comprehensive range of digital formats plus DSP for mixing and plug-ins. The premise is a compelling one. Add summing and a shed-load of DSP effects to a native processing DAW/ Sequencer without taking a huge hit on CPU load. Mixpander comes in two flavours, 5 and 9, and this simply refers to the number of Motorola fixed-point DSP chips provided.

Summing has been a hot issue recently and has resulted in a resurgence of outboard analogue summing. (Of course, you could also use a big-gun analogue console if you have one lying around gathering dust...) However, all this is rather missing the (floating) point. The real question is why does summing have a deleterious effect in some workstations and not others. Tom Schuh, product manager, has an interesting take on this: 'Our DSP-based mixing architecture uses 24-bit signal paths and 56-bit arithmetic provided by the Motorola 56K fixed point chips. We are not claiming anything "exotic" in our busing structure. However, we do not want to go in too much detail on what we actually do. Part of the secret is, that we are very thorough in carefully selecting the arithmetic model to provide a pristine, artefact free In to Out signal path and perfectly scaled busing to provide the full level of detail at all times.

'We do not claim a full double-precision 48-bit path; this would be too costly in DSP Cycles and/or DSP connections. (This is also true for other vendors using the same family of chips.)

'Therefore given how fixed point arithmetic works, there is no compromise to allow for headroom other than scaling down or let the user adjust the levels before the signal has to travel into the summing pool.

'Of course, you could say that 32-bit Float (24-Bit Audio+8-Bit Floating comma) is rescaling and normalising automatically, thus you don't need to adjust levels or adjust bit scaling yourself.

'However, with real life tests, currently available algorithms and mixing infrastructures inside DAW software packages are not doing this without altering the level of detail. You don't need an Audio Precision System to judge this. An EQ that suddenly sounds like a compressor as well is telling the whole truth.

'Apparently, bit scaling and headroom generation in floating point also requires a thorough headroom calculation if you do not want to loose resolution and level of detail. Since it will not clip in float that easily, this does not seem to be a major consideration for some developers.

'Wrong scaling in fixed will clip, so developers are very, very careful with the resolution considerations. This is why a lot of people claim that fixed point

systems sound better. Developers just HAVE TO do it right.'

I kind of agree with Tom's argument but properly executed floating point summing sounds good and requires a lot less operator care. That said, the sound from a Mixpander/Alpha-Link combination is undeniably very impressive.

The Mixpander/Alpha-Link combination will appeal to native DAW users looking for a solid, low latency system without the hassle of tuning a native

processing system.

The virtue of this solution lies in the effortless handling of 64 bi-directional streams to and from the native application and up to 48 channels of physical I-O talking to the outside world. With sufficient DSP (especially with a Mixpander 9) to cope with extensive mixer configurations you can see the attraction. If you use a lot of effects, further cards can be added. Mixpander makes most sense as part of a complete SSL Soundscape workstation.

If you don't want or need the DSP element, then the Alpha-Link is still a contender as a very useful I-O and format convertor box.

Sydec's Soundscape products have always been renowned for an unusually high level of solidity and reliability and I see no reason why the SSL Mixpander and Alpha-Link should be any different. ■

| PROS	Alpha-Links are very useful I-O boxes in their own right; solid, low latency performance; good range of optional plug-ins.
CONS	Mixer gain structure requires care; DSP only benefits proprietary versions of plug-ins; Alpha-Link settings are fiddly.

Contact

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Mixpander

A 1m proprietary TDM cable is the only physical connection between the Mixpander (UK£649 + VAT) and the Alpha-Link. SSL recommends setting the PCI Latency Timer to 64 and disabling the 'Spread Spectrum Clock' option in the BIOS. Low-latency MME drivers, WDM drivers, ASIO-2 drivers, multiclient DWave drivers and GSIF drivers for Windows 2000 and XP are all included. Mixpander also includes a special version of the SSL Soundscape Mixer and Audio Toolbox plug-in pack (with 4-band Parametric EQ, Filter, Dynamics, Chorus/Flange, MS Decoder and Dither).

Mixpander can be used with special release versions of a wide range of plug-ins from Acuma Labs, Aphex, Arboretum, CEDAR, Dolby Laboratories, Drawmer, SSL, Sonic Timeworks, Algorithmix, Synchro Arts, Spinaudio, TC Electronic and Wave Mechanics. VST plug-ins are also supported.

The unique mixer makes considerable use of mouse cursor tools. At 48kHz you get 64 bi-directional audio streams between the host application and the Mixpander card with 36 re-assignable internal buses. Once you are familiar with the concepts, the mixer is powerful and effective. Just remember the non-existent bus headroom and all will be well.
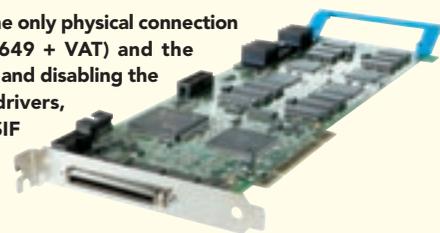
Alpha-Link

Alpha-Links are a series of A-D/D-A convertors supporting multiple digital formats. The Alpha-Link MADI AX (£1700 + VAT) I had for this article comes with optical MADI, ADAT and a proprietary expansion connector for the Mixpander (Alpha Link MADI SX £1700 + VAT; Alpha Link AX £1200 + VAT). Twenty-four tri-coloured LEDs provide rudimentary metering.

Analogue connections are on 25-pin D-Subs as are AES-EBU on units so equipped. The Alpha-Link also functions as a full 24-bit format convertor between any of the formats present. Routing is achieved by holding down the Output Button and pressing the Input Button to cycle through the available inputs. Inputs can be connected to multiple outputs, but multiple inputs cannot be summed to an output.

System Settings are fiddly. As an example, to change ADAT 96kHz mode to non-SMux, first you have to start the Alpha-Link in diagnostic mode by powering it up with the Sample Rate and Clock buttons depressed. The XS LED will then flash. There are two banks of 8 virtual Option Switches, not all of which have a function. Pressing the Meters button toggles between the two indicated by an amber LED on meter channel 17 or 18. Pressing the Output button cycles through the 8 options available for that switch. The power must then be cycled to return to operational mode.