



# McDSP APB-16

The digital signal processing experts unexpectedly launch an innovative programmable analogue processor. **GEORGE SHILLING** gets his hands on the first one in the UK

**M**cDSP was one of the first companies to persuade DAW users to part with cash for third-party plug-ins, and have continued to develop innovative and useful signal processing with their famously green (coloured) plug-ins, used and loved by many audio professionals.

The APB-16 ('Analog Processing Box') is a surprising departure for the company headed up by their exuberant founder Colin McDowell, for this is a hardware unit that contains actual ('premium') analogue processing, albeit entirely controlled by DAW plug-ins.

And after 20 years modelling analogue circuits in digital, McDSP has even replicated some of its digital processes in analogue. I grew up in the analogue era yet now mix almost entirely in-the-box. But there are still some analogue processors that (only just) seem to have the edge: I always have my AnaMod ATS-1 across the mix.

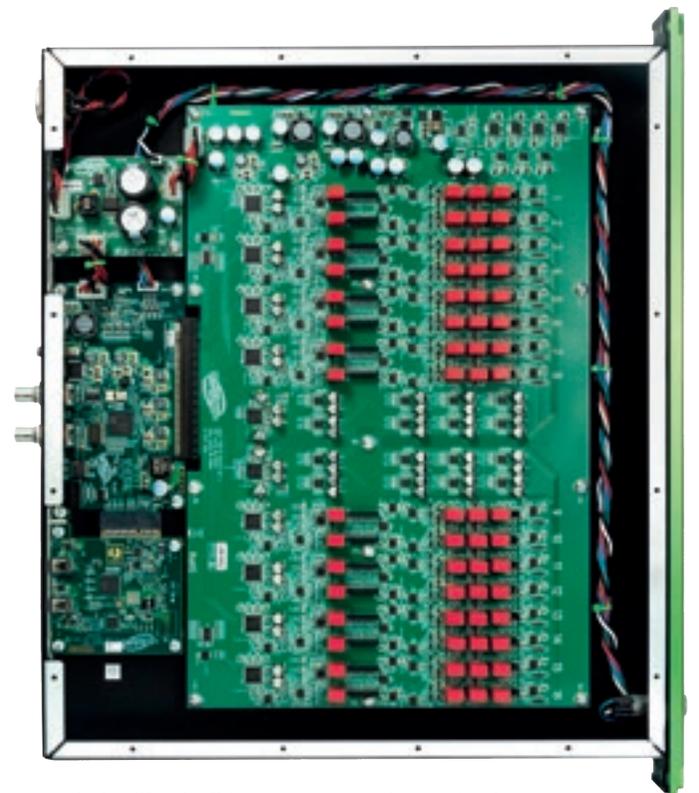
The 1U rack unit — with bright green front panel of course — contains 16 channels of audio processing. Unlike previous plug-in-controlled analogue hardware, the APB-16 is pioneering in using a single cable for Control and audio interfacing — it is all done through a Thunderbolt (compatible with Thunderbolt 2 or 3) connection. Internal A-D/D-A converters take care of all audio interfacing; conversion is 32-bit. You can daisy-chain units to provide up to 96 channels of processing per Thunderbolt bus. Also on the rear are Wordclock sync connectors. Power goes in on an XLR-type connection from an in-line transformer with IEC connector. Around the front panel power button, a bright green ring lights up when connected to the computer. If the Thunderbolt lead isn't connected, it flashes red. The hardware has no other

controls.

A bundle of six dynamics plug-ins/processors comes with the initial release of the APB-16. Although the unit is effectively a big dongle, the plug-ins still require iLok authorisation in order to encourage users to register with McDSP. The APB does not offer EQ — McDowell found the necessary components would generate too much heat, surmised that digital EQ was generally meeting sound professionals' needs, and that differences between digital and analogue are mostly felt in the saturation characteristics.

## Sample-accurate automation

The boasts of the APB-16 include mix recall, sample-accurate automation of all controls, preset saving, etc. And unlike other digitally controlled analogue hardware, there is no analogue patching or connection to be bothered with — up to 16 channels automatically reconfigure to the correct tracks when you load up a previous mix session. Latency through each processor is about 2,100 samples, or 46mS at a 44.1kHz session sample rate. Once the driver and plug-ins are installed and the unit powered on, you just load plug-ins as you would any conventional processors. Delay compensation is spot-on, and so seamless is the integration that you can forget you are using an analogue processor, apart from a slightly longer plug-in load time while communication is established and processors configured. But there are no clicks and pops when you bypass a processor, the controls are instantly responsive and behave exactly like any good plug-in would. You can instantiate mono, dual mono or stereo versions just as you would with a normal plug-in (until you use up the 16 audio paths).



/ **Resolution** lifts the lid on McDSP's analogue circuitry

All processors allow use of Pro Tools' Key Input feature and allow you to select that to trigger gain reduction instead of the input signal, and you can flip a button to monitor the key signal instead of the compressed signal for checking purposes. Switchable meters allow you to keep an eye on gain reduction, input and output signals. Pro Tools' mixer gain reduction meters are supported too. Metering within the plug-ins is good, but I'd have perhaps liked to see a row of lights on the front of the unit for reassurance. In practice though, you don't really need to ever see the hardware box once it is installed and hooked up. Any overloading from

high levels coming back are contained by analogue saturation circuits (dependent on the particular plug-in) which can sound pretty nasty when pushed hard, but far preferable to digital distortion. With sample-accurate delay compensation, you can set up parallel processing by duplicating the track in the DAW.

## L-18



The L-18 Limiter is based on the ML4000 plug-in and the control plug-in uses a suitably familiar green interface. The idea here is a clean, pristine limiter, and this is a good one. I normally use a software limiter as my final mix bus plug-in, but swapping this in provides all the control of that, but with seemingly a touch more musicality, a tight low end and a nice amount of density which increases as the variable Knee control is increased towards a softer setting. Even at the softest Knee setting, all the peaks are caught effectively. The soft saturation prevents overloading or anything nasty happening. Release can be set to Auto or controlled with a knob; the Auto mode dealt with most program material effectively but the manual settings have a wide range from 50 to 5,000mS. There is also a Color knob, which when enabled adds (or cuts) a glint of treble — mainly useful to compensate for any muddying that limiting causes.

## C-18



The C-18 Compressor is another green interface based on classic McDSP software; this draws from the legendary CompressorBank plug-ins, although it has a new trick of its own: BITE. This is short for Bi-directional Transient Enhancement which causes the compressor to react differently, giving more... bite! The soft saturation across the output is similar to that on the L-18, and like the sister limiter this is designed to be clean sounding. Across the mix bus of a rock track, the C-18 sounded best with medium Attack and fast Release settings — the Auto release seemed to pump a bit — and with BITE enabled just seemed a bit oddly lumpy.

But on drums, enabling BITE adds a nice bit of extra punch. For vocals, the Auto Release works well, and the C-18 is a great tamer of all kinds of vocal performances. You might expect extreme crunchy drums would be best achieved using one of the vintage-style compressors, but I found that cranking the Output on the C-18 made the high frequencies crunch nicely, avoiding farty low-end distortion.

## C673-A



The C673-A Compressor is loosely Fairchild based, with a single Time Constant control for attack and release, and a subtle and complex compression model. This works more invisibly on vocals than the C-18, warms up a mix beautifully, and is particularly suited to bass. You can turn the Output knob up to add some great analogue saturation from the custom circuit, and pull the fader down in the DAW or follow it with a Trim plug-in to compensate for the louder signal.

## ChickenHead



Looking at the plug-in interface, the ChickenHead is apparently based on the classic Altec 436. It is the most aggressive compressor in the line-up. It's great for signals with lots of transients. The 'secret' Sauce button increases 'low frequency bias' for a beefier bottom end, often wonderful on drums when crushing things to bring up the room ambience. Fast settings are great for this. For powerful rock vocals, this compressor can add further excitement, even with relatively low Ratio settings. And it works well for exciting and pumped guitars and keyboards too.

## MooTube



The MooTube is a vintage style compressor with a more languid approach, and a rather lovely warming character. There's no Ratio control nor any Auto Release, its controls simple to set with Threshold, Attack and Release knobs, and an Output gain capable like the other processors of driving into saturation before chucking the signal back to the DAW. With pretty slow characteristics even on the fastest settings, this is good for general gentle level control, although you can certainly hot things up with the Output saturation, with pretty aggressive distortion if you crank it right up.

But for invisible gain riding, using MooTube on slow settings works very well, and for invisible taming when mastering this can prove a useful processor. Vocals are smoothly tamed with the MooTube too.

## EI Moo



The EI Moo is described as a Tube Limiter. There are no vacuum tubes in the APB, but like its sister compressor this takes a generally less pristine approach than its green-coloured sibling. As with the L-18 a Peak knob sets the maximum output level, while Gain drives up the level into the limiter. There is a separate Saturation knob provided which lets you spice things up without affecting level. A wide-ranging Recovery knob is provided and things can start getting juicy when the Release is set fast, even without turning up the Saturation. So although it is possible to set this up for clean limiting, it is great for creating more interesting tones.

## Programmable

While there is already excellent plug-in controlled hardware available, the APB-16 is the first to send and receive audio as well as control data down a single Thunderbolt cable. That's unarguably preferable to patching 32 audio cables in along with a USB, and I love how the APB automatically assigns paths with no re-patching required. The other pioneering uniqueness of the APB-16 is in the programmability. McDSP promise future developments with new processor plug-ins being added, including one that focuses on the saturation and distortion capabilities, a multi-band (using digital filters within the plug-in to split the frequency bands) and even some kind of side-car mixer. It's great to see this kind of creative thinking; the APB-16 sounds great and will no doubt get better as further plug-ins are released. The converters are top-class, and the analogue processing is very good indeed. It's the easiest and most reliable way of adding some genuine analogue processing to your in-the-box mix, with instant recall and fantastic sound quality. There are now some very good dynamics and saturation plug-ins around — with no upper limit on channel count, so you'll need to be sure you prefer the APB-16 processors over rather cheaper conventional plug-ins. But I'm impressed: McDSP — previously a specialist digital plug-in company — are showing the way for the future of analogue processing. **i**

## resolution/VERDICT

**PROS** Seamless "analogue processing as plug-in" solution, 16 channels in one box, simple hook-up, great sounding processors, lovely saturation — or pristine clean.

**CONS** Expensive compared to plug-ins, no hardware metering, no EQ

[www.mcdsp.com](http://www.mcdsp.com)