

# CEDAR for Pro Tools

From elite beginnings, CEDAR's audio processing technology has moved into the mainstream. **Dave Foister** loads it into Pro Tools

**C**EDAR'S ACCLAIMED audio restoration processes have operated from a variety of hosts. The original DOS-based system spawned a collection of self-contained processors, offering removal of hiss, clicks, crackle and azimuth errors in a set of four rackmount units. The development work on these led in turn to a return to the PC, this time as a plug-in card with Windows software. Multitasking allows CEDAR for Windows to work alongside a DAW system, such as SADiE, in the same machine, but integration goes no further than plugging cables across between

available MacDSP cards. A card can support two mono processes or one stereo, and the processes and their control windows are identical to those in CEDAR for Windows.

CEDAR long ago identified three primary categories of sound degradation which required different approaches to their removal: clicks, crackle and hiss. The Declick process removes the kind of click typified by the scratch on a vinyl or 78 record, and three distinct algorithms or models cope with differing lengths and severities of disturbance. User adjustment consists solely of choosing the most appropriate algorithm and setting a Threshold value.

Decrackle deals with the very different problems of more constant signal disturbance, and uses a 'split and recombine' approach to identify the unwanted elements and remove them. An additional control on this module allows you to help the system distinguish between wanted and unwanted signal, and this, in conjunction with two basic algorithms and a THRESHOLD control, deals with all kinds of problems from record surface noise to thyristor buzz—it can even get rid of certain types of distortion.

Finally, Dehiss2 addresses the apparently impossible problem of removing broadband noise from a signal without altering its spectral content or interfering with it in any other way. This, too, is very simple to set up, with controls to help the system identify the nature of the noise and determine how much it should be reduced. A BRIGHTNESS control is not there for artificially adjusting the treble before or

after processing, but as a further aid to the system to help it distinguish between wanted HF and unwanted noise. All these processes are quite spectacular in operation, but Dehiss2 in particular is almost spooky. In every case, forget the compromises and degradations introduced by any other noise removal system you may have tried; CEDAR really does get rid of all these problems completely without affecting the wanted signal at all.

Control of the modules is carried out from simple blue panels with rotary controls, numeric readouts, toggle switches and stereo ganging locks. As always, the biggest surprise is how easy it is to make CEDAR processing achieve the apparently impossible and how hard it is to do anything nasty. In every way these processes are the equal of the existing versions, producing equally astonishing results. CEDAR still stands alone in its extraordinary capabilities, and bringing it to a new audience as the Pro Tools version does is not only good for CEDAR, it's good for the business. ■



the respective hardware interfaces. The CEDAR system on its own has internal busing between cards to simplify patching, but no common audio bus currently exists within the PC world to allow proper integration between disparate software packages.

Whereas on the Mac, Digidesign's TDM has become as much an essential part of the Mac virtual studio environment as a patchbay in a physical one, and the resulting palette of effects can contain as much as a control room's worth of racks, often from the same manufacturers. Now that palette can include CEDAR restoration processes.

Most TDM plug-ins are pure software packages, using the host DAW's available hardware for the actual audio processing. Sometimes this will utilise the computer's own sound facilities, but more often it will be something like the Digidesign Audio Engine with its DSP Farm cards—the more Farms, the more processes the system can run simultaneously. CEDAR for Pro Tools is different, because the usual hardware can't even come close to supporting the 40-bit floating-point arithmetic necessary for the restoration processes to work. Instead, one or more of CEDAR's own MacDSP cards is required alongside the existing hardware, just like the PC card on which CEDAR for Windows runs. Once in place the cards become a transparent part of the system, with access to the software modules achieved in exactly the same way as any other TDM plug-in from within the DAW environment.

The processes themselves will be familiar to many, but perhaps not to the Pro Tools fraternity this new package addresses. Three separate processes are available; these are purchased individually as software packages, and can be run in any combination on the

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