CEDAR Debuzz

Extending its sphere of restoration, CEDAR's latest process addresses a variety of problems. **Dave Foister** gets the buzz

CEDAR'S DEDICATION to removing the bits of audio signals that should not be there is matched only by its determination to identify more of those bits and deal with them ever more effectively. From its perceived beginnings as a system for salvaging old archive material, particularly associated with the restoration of cylinder recordings and 78 discs, its range of processing has grown to encompass most of the nasties that plague even the best of us from time to time. Thus in addition to the archetypal CEDAR processes for removing hiss and scratches, we long ago were presented with crackle removal and inter-channel time correction, and increasing sophistication in dealing with the original problems.

A surprising accomplishment of the de-crackle process was its ability to deal with several elements besides the target area of LP surface noise and similar problems. It is also amazingly good at removing thyristor buzz and even some types of distortion—I have used it myself to get rid of the cracks of a couple of overs on a source tape I was having to remaster. This is, perhaps, the icing on the cake, however, and de-crackling alone cannot be relied on to deal with all forms of hum and buzz, some of which can be irritatingly complex in nature and too steady for de-crackling to even notice.

So along comes Debuzz. This is a totally new process in concept and operation, and for the time being forms part of the CEDAR for Windows collection, running on a PC with the CEDAR ProDSP hardware installed to provide the powerful processing capabilities it needs.

Debuzz addresses the specific problems of hum and buzz introduced by mains interference, power supplies and cameras, and whereas the other processes have widespread uses centred largely on mastering and remastering, Debuzz has particular applications in audio for picture work, dealing with common difficulties encountered with location sound. Its parameters and method of operation are clearly focused on this one task, with CEDAR's usual thorough understanding of the problems it is dealing with. The aim is to eliminate all the components of a hum or buzz from its fundamental through all its harmonics, and to do this without affecting the wanted signal. Obviously the usual methods of tackling this with notches and comb filters will leave their pawprints all over the remaining sound, so the approach here makes no use of such techniques.

Its appearance on screen follows the established pattern. A small window presents a pale blue front panel with six labelled green knobs, numeric read-outs for them all, and an illuminated toggle switch. As is the case with most of the CEDAR processes, since this is doing something not available elsewhere the control functions are not always intuitively obvious, but once the principle has been understood are perfectly clear and logical.

The most critical control is that for identifying the fundamental frequency of the problem. A button next to its display indicates the presence of a drop-down menu where CEDAR has thoughtfully provided a list of commonly encountered frequencies, although the value is fully adjustable for special cases, including shifted playback speed. Like the user-input controls on other CEDAR algorithms, it is better to imagine this as giving information to the process to help it identify problems rather than a direct control as such. Debuzz itself is then able to pinpoint each component of the problem and remove it, with further controls to determine the degree of reduction and tolerance to variations.

The important one is WIDTH, which can be imagined as adjusting the width of the notches in an analogous filtering setup. At its narrowest it is so precise as to make no allowance for even tiny variations in the frequency of the buzz—fine in a tightly locked digital situation, but inappropriate when the source has any speed variations at all, or even if the mains that caused the buzz varied in frequency, as it is prone to do. Increasing the WIDTH parameter allows for such fluctuations, and, although it is difficult to make it introduce unwanted effects, it is best to keep it as low as possible.

Having established the nature of the problem in this way it is still up to the user to decide the amount of attenuation to apply, and even here there's surprising subtlety as the function is split into three frequency bands with independent control of the attenuation in each.

CEDAR's demo material has never sounded as though it was designed to give the gear an easy time of it, and so it was with Debuzz, which was able to deal with some really unpleasant problems. Apparently irretrievable hum-ridden disasters were completely salvaged, to the extent that you'd never know there had been anything wrong, with the same strain to the credulity often induced by CEDAR restoration. As usual, the wanted signal appeared to be completely unmarred.

Debuzz is a very powerful addition to the problem-solving armoury, and, although its target may be different from the rest of the suite, no self-respecting mastering house, or possibly post house, will want to be without it for long. ■

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