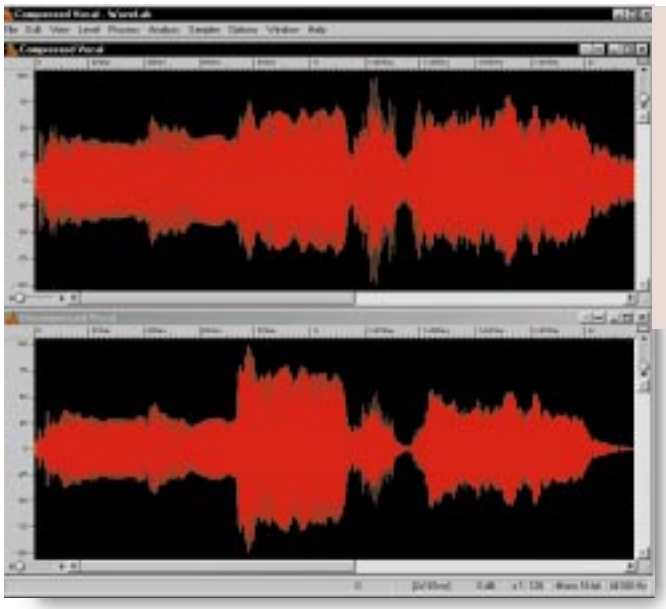
Create a good compression

Steven Helstrip explains the creative force of the useful compressor tool for smoother tracks.



◀FIG 1 THE WAVEFORM DISPLAYED IN THE LOWER HALF OF THE SCREEN SHOWS THE NATURAL DYNAMIC RANGE OF A VOCAL RECORDING. IN THE UPPER HALF OF THE SCREEN, THE VOCAL HAS BEEN COMPRESSED

Over the past two months we've discussed ways of using EQ to improve the clarity of your mixes. Hopefully by now you've had a chance to try out some of the examples (not to mention those free plug-ins) and are ready to tackle what is probably the second most useful audio processing tool, the compressor.

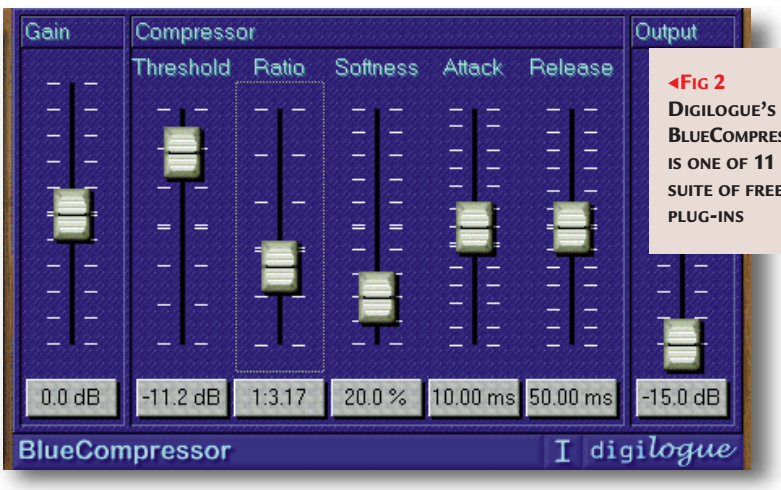
So what do compressors do? In simple terms, when audio is compressed all the loud sections are attenuated, or reduced in level, while the quieter sections are raised in volume. So really, a compressor is like an automatic volume control that keeps an eye on the input gain of a signal and makes the necessary adjustments to output sound on a more even, or constant, level. Fig1 illustrates the effects of compression on a vocal recording. The settings used are quite extreme, but illustrate what goes on.

Compressors are insert-type signal processors. As such, they can be used on individual instruments in a mix, or across the main mix output to smooth out an entire track. Once audio has been compressed it has less dynamic range, which enables you to raise its overall level. In fact, gain make-up controls can be found on the majority of compressor units and plug-ins.

Compressors are not only used to control the overall dynamics of a track, though. They have many creative uses in the studio, virtual or otherwise, and enable you, say, to extend the natural decay of instruments and add punch, or greater impact, to percussive sounds. In a similar way to EQ, if you have a basic grasp of using compression you can greatly improve how your music sounds.

A compressor is like an automatic volume control

Now that we know what they are, let's take a look at how they work. Compressors come into effect when the input signal rises above a set threshold. The amount of compression applied — also called gain reduction — is determined by the ratio setting. With a ratio of 1:1, the sound will remain unchanged because for every 1dB of input level that rises above the threshold, 1dB of level will pass through to the output stage. A setting of 6:1, however, means that for every 6dB of sound which rises above the threshold, the output will only increase by 1dB so the higher the ratio, the stronger the effect.



◀FIG 2 DIGILOGUE'S BLUECOMPRESSOR IS ONE OF 11 IN A SUITE OF FREE PLUG-INS

Attack and release are two more controls which greatly affect how compressors work. Attack determines how quickly the compressor comes into effect once the threshold has been passed. With a setting of, say, 1-3ms the compressor will kick into action almost immediately. When audio is attenuated this quickly it comes across with more punch and sounds crisper. With a setting of around 400ms the effects of compression are more subtle. The release control sets how long it takes for the output to return to its normal level once the input signal has fallen below the threshold.

Depending on the instruments and the type of music with which you are working, compressors can have many different effects. Moreover, each control interacts differently with the others depending on how they are set. Confusing, or what?

E-MU MODULE MANIA SOUNDFONT CDS

E-mu has released five of its professional synthesiser modules in SoundFont format. The collection includes the Planet Phat, Vintage Keys and all three Proteus expanders. Each synth has featured on countless top ten hits over the years and can now be yours for just £25 apiece, or £80 for the lot. Here's a quick run down of what's what.

Proteus I is best suited to pop music and includes a classic selection of pianos, strings, organs, brass and percussion. To give you some idea of their quality, there is 30Mb of instrument samples comprising just 128 presets. In contrast, most PC sound cards have just 2Mb of instruments stored in ROM. **Proteus II** has over 40Mb of orchestral sounds, covering everything from solo flutes and oboes, to marcato and tremolo string sections.

Proteus III is dedicated to world instruments and contains a slightly more obscure set of sounds. Examples of what's in store include gamelan, Irish harps and Asian gongs.

Planet Phat was designed for hip-hop and R&B, providing a wealth of cutting-edge bass, drum and guitar samples.

Vintage Keys is perfect for dance and includes over 220 analogue synths.

☛ **Contact E-Mu** on 0131 6536556 or at www.emu.com. For a wide selection of free SoundFonts go to www.sblive.com.

Hot utilities on our cover CD

Two new utilities have become indispensable to my work so I feel duty bound to tell you about them.

The first is a replacement CD-ROM device driver for Windows 95/98 which enables audio tracks (CD-DA) to be viewed as wave files from the Explorer. For example it enables you to load CD audio tracks straight into Sound Forge or WaveLab for editing, replacing the need for a dedicated audio ripper. The driver should work with any CD drive supported by Windows — I can't vouch for this although I have tested it with three CD drives with great success. The driver (CDFS.VXD) can be found in the handson\software\sound folder on this month's cover CD. To install it, copy it into your Windows\System\IOSubSys directory and reboot. You may want to backup your original CDFS.VXD first, to be on the safe side.

The second utility is Virtual Audio Cable, or VAC for short. This is a driver that enables audio to be routed from one application to another in much the same way that Hubi's LoopBack Device allows you to interconnect MIDI programs. So, for example, you can record the output of a software synth straight into your sequencer or record the output of an effects processor to your sound editor. The driver is multi-client so any number of applications can simultaneously access your sound card. VAC can also be found on this month's cover-mounted CD. Have fun.

▲ **Fig 3** SYNCHROMESH'S KWIKKOMP 3 IS A DODDLE TO USE AND PACKS QUITE A PUNCH

Setting up

There are no right or wrong ways to dial-in your own settings. Neither are there any rules when it comes to deciding what gets compressed and by how much. If the track in question sounds good and cuts through with compression, then you must have set it up right — that's all there is to it.

As a rough guideline, I tend to get started by setting the ratio to around 4:1. Next, I loop a fairly quiet section of the track and lower the threshold until there is just a touch of gain reduction — most compressors have a meter to show reduction levels. Then I adjust the attack time, listening carefully to the effect on the audio. When the compressor is doing its job quickly enough without being too obtrusive, I tweak the release until there's a natural, even-sounding decay.

It is important to A/B the results with the original mix by occasionally by-passing the effect. And by all means, if you find that compression does not help to bring out the best in your music, then don't use it.

☛ **Tip:** Set your compressor before reaching for EQ as compression changes the tonal characteristics of a sound. With any luck, you may not need to use EQ at all.

If you don't have a compressor installed on your PC, there are two free plug-ins available on the internet for VST and DirectX-compatible applications: BlueCompressor [Fig 2] and KwikKomp 3 [Fig 3]. These can be downloaded via the Cubase web ring. Go to www.webring.org/cgi-bin/webring and just type Cubase.

PCW CONTACTS

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