C660 MKIII COMPRESSOR/LIMITER

General Info

This Nebula library is based on a highly regarded modern recreation of the classic 660 compressor. It can sound 'creamy', yet still clear and detailed, and that aspect of the sound has been translated to these programs. It has been called the best compressor around for vocals by many, as well as for slamming drums, and among other uses it can even give sounds a nice sheen without engaging the compression, or using very little. You can also use the pass-through programs which don't provide any compression but do provide some nice saturation/harmonics.

This library includes:

- **3 different compressors** (A, B, and C)- all sampled from the same unit, but sampled using different input drive levels, different combinations of control settings , and slightly different signal path setups. All you really need to know is that they all behave slightly differently, and you may find that you prefer one over the others for particular tasks, so you just have to try to get to know all of them and find those preferences. You may also find that each of the 3 have different 'sweet spots' on the sampled thresh 2 control.
- **A fourth, special bonus compressor** (D-Special) that were sampled using the same hardware compressor, but in combination with a **76 compressor which was driving the input of the c660 'clone'. At higher levels of gain reduction you're also getting some compression from the 76. To make it more interesting I also took the attack/release behavior from an entirely different compressor- my 4k-Crunch release. It's also using a different level detection mode. So this one should sound and work very differently from A, B, or C. Think of this as an interesting kind of Frankenstein hybrid bonus.
- **Four preamp style 'pass-through' programs**, sampled from the gear in various ways. These don't compress your signal, they're just for use as subtle saturation/tone coloring tools. These programs alone are very useful and provide a lot of value to the library, at least in my opinion.
- Some really nice skins by JPN, for use with both Nebula 3 and Nebula 4. The Nebula 3 versions have special switches which allow you to click them to switch between lite, full, and SHQ versions of the compressor, without losing your settings on the controls. Unfortunately this is not possible with Nebula 4 so those skins don't have the switches, but they still look nice!

Installation

Just copy the .n2p files to your Nebula 'Programs' folder, and the .n2v files to the 'Vectors' folder. You can install one, or all four available sample rate sets. See the skin install guide contained in the skins .zip for info on how to install them.

Organization

The compressor programs will all be found in the 'COM' category in Nebula, then in the 'CC4', 'CC5', 'CC8', and 'CC9' sub-categories, for the 44.1, 48, 88.2, and 96khz sets respectively. The pass-through programs are placed in the 'PRE' then 'CW4', 'CW5', 'CW8', and 'CW9' categories.

Differences between the compressors and pass-throughs

In this library there are 4 different compressors- A, B, C, and D-Special, and 4 different pass-throughs- A, B, C, and D. Each were created from entirely different sampling sessions and using slightly or drastically different signal chains/setups.

The actual hardware unit has two different threshold controls, and no ratio. The second one acts like a typical threshold (although it's inverted), and the first thresh is kind of like an adjustable knee/ratio/thresh all in one, and it's labeled with 'comp' on one side and 'limit' on the other. I believe on the comp side you have a softer knee, and on the limit side you have a harder knee. The unusual nature of this is why I decided to sample the compressor with three different setups (and a bonus fourth setup with a 1176).

C660 A- Sampled with the loudest input drive levels overall, and the full/shq versions have higher harmonic levels (compared to B and C) due to this. Also, I increased the input level in between samplings as I adjusted the first threshold control (described above) more and more towards its 'limit' side. I did this because as you adjust towards 'limit' with that control, you get less gain reduction, like you would when raising a threshold. So I increased the input as a kind of compensation (so there would still be some gain reduction).

C660 B- Sampled similarly to A but this one had the lowest input drive of the three, and I adjusted the input a little less.

C660 C- Sampled with input levels a little hotter than B. Input level was never adjusted during sampling, so you can barely get any gain reduction with 'threshB' in the program set fully clockwise (setting = 0).

C660 Special-D- As the name says, this is a special bonus version of the compressor, and it was sampled in conjunction with a 1176 compressor. It's already described in more detail above, under the 'This Library Includes' section.

Now, for the pass-through programs we have:

      Pass-through A- For this one the unit wasn't overdriven during sampling. Use it just to get a subtle bit of character.

      Pass-through B- This one was overdriven a bit, then used a passive volume reduction stage after the unit to bring the volume back down before conversion.

      Pass-through C- Like B, but an active stage was used to lower the level.

      Pass-through D- The oddball of the group. It was sampled with a **76 driving the 660, and another after it to bring the level back down. It's a bit more extreme, so consider it as a bonus which was designed specifically for saturation effects.

Lite, Full, and SHQ

Lite programs use less CPU, but have no sampled harmonics. The Full versions add 2nd and 3rd harmonic orders, but also increase the CPU use. SHQ versions can have up to 9 harmonic orders on top of the fundamental, and all kerns are using the full length of the samples, which comes with a HUGE increase of CPU use. You will NOT be able to run them live- SHQ is for rendering only! You shouldn't load SHQ programs unless you are ready to render, because the moment they load, your system will take a huge hit in performance. Make sure to save your project before even trying! Here are the improvements you get if you render with SHQ:

- More accurate frequency response. The full or lite programs just don't have as perfect of a recreation of the frequency response of the hardware as the SHQ ones. This is very subtle and mostly just affects the low bass frequencies (sub-100Hz).
- SHQ programs have more kerns for more harmonics, so the distortion model is more complete. The additional harmonics added by SHQ are usually subtle unless you have high level inputs and lots of gain reduction, so it's up to you to decide if it's worth the extra time to render with SHQ.

I would recommend using either Lite or Full while mixing, then switching to Full or SHQ for rendering. You'll have to then readjust your controls to match how they were before switching (nebula will reset them to their default position), or <u>you could maybe use your DAW's automation system to 'hold' the controls in place before switching</u>. For example in Reaper I open the parameter automation menu for the track my comp is on, and quickly check all the relevant boxes for the parameters I have adjusted, which loads automation tracks for them and 'locks' them in place. Then I can switch to Full or SHQ and nothing changes.

If you're using Nebula 3, the best option is to install the N3 skin, and you can quickly switch between all the different program versions without losing your control settings, just by clicking the buttons on the skin!

You may need to modify the Nebula settings .xml setup file if you're going to use the SHQ programs with Nebula 4, otherwise the programs won't load with the full kern length like they're supposed to. Not sure why the max length is limited in the xml but it is. If you're using the Nebula 3 with the custom C660 skins, this setting is already made for you in the provided settings files you install with the skins. Changing this setting should have no effect on any other programs because it just raises the maximum allowed length for a Timed kern. Find this setting in the .xml and change it from this:

```
<LTIMED> 10000 </LTIMED>
```
to this:
```
<LTIMED> 100000 </LTIMED>
```

Program Dependent Behavior

The release time speeds up as the amount of compression is increased. So higher amounts of compression will actually release faster than smaller amounts. Amounts below 2-3dB take the longest. This could be thought of as a multi-stage release, but it could also be thought of as a form of program dependency. This was really difficult to set up and try to get it to match the hardware, and it's not exact (due to Nebula limitations) but I think it's as close as I could get it and it adds a lot to the sound of this release.

Controls

Attack- Variable from 1 to 80ms. The actual hardware compressor has a very fast fixed attack, and the attack in these programs loads in a default position that's very close to it. This means that all of the settings slower and faster than the default were included by me to provide more possibility. The attack in C660 D-Special is actually taken from my 4k Crush compressor release so it has a different range and shape/sound.

Release- Variable from .3 to 5 seconds. The hardware has 5 fixed, selectable positions along that range, but these programs are fully variable. Again, the release in C660 D-Special is taken from 4k Crush and is different.

ThreshA- This threshold control acts like a typical threshold control and does exactly what you'd expect.

ThreshB- This threshold control acts somewhat like another threshold control, but also like a ratio control, and it can even affect the knee shape. Going downward (counter-clockwise) usually gives you more compression and a softer knee

Ahead- It allows you to add a look-ahead of up to 1.5ms, and can be used to achieve a peak limiting effect, or just to soften the attack a little.

MakeUp- Allows up to 25dB of gain after compression. Boosting this can also affect the gain reduction you get because these compressors are using feedback detectors (which means higher output levels trigger more compression).

Hipass- Adjusts the cutoff point of a 2-pole high-pass filter on the internal side-chain in Nebula. If you are compressing a more complex input, like a mix of elements, you may not want the bass elements to dominate/control the compression effect. Can go up to 500hz.

Wet- This control is a wet/dry mixer control. If you lower it below 100%, you'll be getting some dry signal in your output. At 0% you're only getting dry.

Trim- This is an input drive control, that compensates with the opposite amount of output adjustment. For example, if you boost input by 6dB, the output is lowered by 6dB. This helps keep a somewhat steady level, allowing you to more easily hear the difference in effect you get by having different input drive levels. Only in the pass-through programs.

Dist- Only in the pass-through programs. This control directly adjusts the level of the harmonics that the program creates.

General Usage Tips/Ideas:

- The wet control is really useful for parallel compression.
- Don't get stressed out about the different compressor versions (A, B, and C). Just try them out and see if you can notice any differences and discover a preference for either of them. On the other hand you could just stick with version A, because it's just fine! D-Special is obviously a completely different thing, so try it out once in a while and see if you like it!
- Try slapping this compressor on inputs and using it only for a very small amount of compression, 1-2dB or less. You may find you like using it this way just for a subtle 'enhancement' of the signal.

V3.1 – use this version number to keep track of updates. If the manual posted at my site has a higher version number than the one you have, your C660 probably isn't up to date.