



Boost Revision B Manual

Boost by UrsaDSP is an easy to use Upwards Compressor / Limiter which allows you to alter dynamics whilst minimising distortion.

Typical compressors and limiters are complex beasts whilst maximisers are simple but reckless – behaving more like soft clippers.

Boost is different; it provides simple controls that make the audio louder whilst taming peaks. Behind the scenes, two unique technologies (Trajectory and Peak Remapping) keep the audio as clear as possible whilst giving the user simple, direct controls. The Clarity inter-sample evaluator provides transparent true-peak analysis.

The Look ahead / Attack and Release controls define the room that Trajectory has to manoeuvre. It uses these bounds, to avoid sharp changes in gain that emerge as distortion or distorted transients in other designs.

The focus, max gain controls along with the central boost control instruct the Peak Remapper on how to reduce headroom on the incoming signal.

High levels of focus constantly adjust the amount of gain relative to how loud or quiet the audio is at any given moment in time:

- Very quiet passages receive the most boost
- Mid-volume passages receive a moderate boost
- and items that are already at full volume receive no boost at all

Thus, it retains the producer and performers dynamic intentions but scales them according to how much volume you want to achieve in the final mix.

If the original source ever exceeds 0dBFS, Boost seamlessly switches to work as a high fidelity, low distortion limiter.

By operating these principles at super human rates, it is possible to draw additional energy out of existing material whilst ensuring the levels of background sounds duck around the important elements of the original audio.

For instance, place it after an inline reverb or echo. It will increase the level of the reverb tails but never over the original source material. Simply leave the wet/dry of the reverb or echo at a relatively dry setting (say, 10% wet) and then increase the central control of the compressor so that it will boost only the tails of the reverb where they do not overlap the original sound source.

The character circuits (Drive and Emphasis) use harmonic generation to provide psychoacoustic cues as to the original volume of the source material. With Boost you can choose between volume and colour, you are not forced to accept one with the other.



Getting started and an overview of the controls

As ever there are no wrong ways to use a plugin, but certain ways will be more likely to achieve what you are aiming for. This section gives you a basic guide on how to use Boost for basic purposes as well as listing what the controls do.



1- Input Gain.

Set the slider so it is generally in the green area for most of the peaks in your music.

This is the incoming signal level and changes made here apply first before the audio is passed to the Trajectory analysis algorithm. The meter shows both the Peak (inner) and RMS (outer) for the left and right channels. The values shown are after the pre gain control but before the rest of the plugin.

2- Dynamic Boost

Increase the Boost level until the level starts to just touch the top mark on the output meter. This is the point at which the limiter is occasionally engaging. At this point you are just starting to observe Boost's transparent limiting. We'll come back to this control later once we have the other settings about right.

3- Focus

Increase the focus control to weight the volume gain towards quieter passages of audio. This control transforms Boost from a straight brick-wall Limiter to an upward limiter.

Here you are looking for the right handling of dynamics. Higher settings will give a fuller sound, lower settings can be punchier.



4- Post gain / output Level

Set this to reduce the final level. Some streaming platforms recommend a level of -1dB as encoding / compression can cause extra peaks. The associated meter shows both the Peak (inner) and RMS (outer) for the left and right channels. This is the signal as it leaves the plugin (after the post gain).

With True peak enables (see control 15) this will also reflect the true peak level of the output material.

The level chosen here is the absolute maximum peak level that Boost will output and it is achieved by scaling the levels at the output stage rather than by moving the limit down to that level. This method is important to complement how Focus scales the signal up to that point rather than up to a point that is beyond the limiter level.

When used on a single track or group bus this setting can be considered as a way of reserving head room for other elements of the mix.

5- Max Gain

When using high levels of Boost and Focus it is possible some reverb tails will get overly pushed. Reduce this to stop that happening.

This limits the maximum gain that the Peak Re-mapper will add to the signal (e.g. it constrains everything but the pre and post faders)

6- Difference meter

A dynamic view of the gain and cut that the plugin is applying to your signal. A visual reference for just what Boost is doing for you. The Max Gain shows as a blue bar on this control.

Single clicking this control will reset the scale. Double clicking on this control will put the scale in manual mode and it can now be dragged to zoom or change the range.

Summary and other controls

At this point you have manipulated the most significant controls

If you now go back and adjust the main Boost control this will allow you to change the amount of volume change the effect is applying with 0% corresponding to no volume change other than limiting to the output level chosen.

The remainder of this document covers controls that help when using Boost as an effect on other channels, when tracking and more advanced mastering scenarios.

7- Look ahead / attack

Lower values of attack may be able to get more volume out of source material, at the expense of fidelity. For mastering of classical or orchestral it is recommended to leave this at 40ms, for acoustic or ambient recordings 20ms may be suitable. Electronic music with an emphasis on presence will benefit from 10ms. It is unlikely that 2ms would ever be useful on a master bus, however it can be useful for more experimental treatment of sound.

By double clicking the text value it is possible to set this to any value between 2ms and 45ms.



If you are using this when tracking or recording, reducing this setting will immediately reduce the latency introduced by the plugin. As this causes Plugin Delay Compensation in your DAW to alter. As a result, it is highly likely that changing this setting will cause brief pops in the outgoing audio.

8- Release

Due to the precision of the Trajectory algorithm, this control is much less important than for typical limiters or compressors. In effect, this stops trajectory making the release any faster than this value. It can have the effect of softening the effect provided by Boost but may introduce more pumping artefacts.

9- Bypass

Preserves latency, leaves input and output meters running, but cancels all modification of sound caused by the plugin. This also bypasses any oversampling and true peak.

The character circuits

10-Drive / Emphasis

Uses dynamic amounts of saturation to ensure that the original volume levels remain audible.

This uses psychoacoustic hints to maintain the original level of the audio entering the plugin. Great for individual use, lower levels of emphasis can be useful on an overall mix.

11-Punch

Switch between Drive (enhance the body of the sound) and Emphasis mode (enhance the transients).

Refined Controls

12-Stereo Link

At the minimum, Boost is working as two separate mono limiters. At maximum, level change is applied equally to Left and Right. A little of this can be useful for retaining stereo image.

13-Linked Faders

Drag this control to quickly scale the pre and post faders together.

14-Dry / Wet

Blend the output with a latency compensated dry signal. As the dry signal is not limited this causes the plugin to behave more like a compressor when un-limited peaks are allowed through.

True Peak and Oversampling and Modes

15-Quality

Choose from Normal, Oversampled, True-Peak or Both.

Given the clarity of Boost's underlying technologies, Oversampling is only needed to avoid aliasing when using high levels of Drive. We do not think it is required for any other purpose.

True-Peak is useful when Boost is the last plugin on the master chain, it is not worth having it turned on at any other point as processing by subsequent plugins will re-introduce inter-sample overs. This is true of any plugin in your mastering chain.

16-Mode

Switch between Stereo and Mid / Sides mode. Choosing mid sides will reveal additional controls and re-purpose others.

Mid Side Mode controls



17-M/S Link

Under Mid sides mode, Stereo link becomes m/s link. This means that processing of the sides channel will take account of the mid level and vice versa.

18-Priority

Causes the plugin to only affect mid, or sides. Used with high levels of M/S link and focus this can cause the plugin to process the sides in a way that ducks them when the mid-level hits.

19-Metering

Under M/S mode, the input and difference meters change to show M/S. The output remains as stereo.



Signal path

The following shows the signal path within the plugin.

The plugin is essentially a wide band limiter, although the signal flow is unusual in a number of ways due to the technologies used.

