



Plugin Manual

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Introduction

The SF2 compatible Sound Blaster cards are closely related to the E-MU samplers technology, the chip (on cards like Creative Audigy 2) supports 64 individual digital tone oscillators, running at a sample-clock rate of 48Khz. Sophisticated sample-interpolation algorithms and digital filtering makes it capable of very high-quality sample playback that can be further enhanced and modified using filters, envelopes and modulation, just as in a serious hardware synthesiser. Each Sound Blaster Audigy 2 synth provides extensive modulation capability via two sine-wave LFOs and two multistage envelope generators.

The modulation sources are the LFOs and envelope generators, while the modulation destinations can be the oscillator pitch, the output volume or the filter cut-off frequency. In addition to the oscillator or sound source, each sound-producing element of the Sound Blaster Audigy 2 chip consists of a resonant low-pass filter and two LFOs, where one (LFO2) modulates pitch and the other (LFO1) modulates pitch, filter cut-off frequency and volume simultaneously. There are also two envelope generators, where envelope 1 affects both pitch and filter cut-off frequency simultaneously while envelope 2 controls the volume of the output. The output stage includes an effect/processor section that mixes the dry (untreated) synth sound with the native effects.

In fact you can say that the Sf2 synth relies on the subtractive principle (like some classic analog or "virtual analog" synths), but, instead of starting out with only simple electronically generated waveforms, they can use a variety of electronic samples (recordings of real instruments sounds). These are then further modified by traditional subtractive means, such as the use of filters and envelope shapers.

More Control

The fun part here is that now you can edit your SF2 sounds in a non destructive way inside a VST host like Sonar, Cubase or Bidule. Using the SF2 Control + plugin you can control all Sound Blaster SF2 synth parameters and effects (up to 4 effects in a Sound Blaster Audigy 2). This means that you don't have to create different patches, for example in Vienna, since all the edits can be done inside your sequencer and saved as presets.

Plugin usage & description



In dependence of the host, plugin insertion may varie, in any case you need to get MIDI Out from the plugin, if your host does not support correctly this feature you can use a MIDI loopback cable like MIDIYoke and choose the right port-output from the plugin and the proper input to your MIDI tracks (and channels) inside the sequencer or host. In the Master section there is a virtual piano to hear your sounds, once set a correctly configuration channel by channel it is easy to edit and save your parameters as common plugin presets.

Sound Blaster Audigy 2 structure

SoundFont envelopes may be edited with up to six stages. Listed below are the basic building blocks of the Sound Blaster Audigy 2 synthesiser.

Oscillator

This is the original sound source, which in this case may be an audio waveform or a sample of a real instrument. A collection of these raw sounds are loaded as SoundFonts.

Low-Pass Filter

Sound Blaster Audigy 2's filter section comprises a low-pass filter, where the cut-off frequency can be selected from a range spanning 100Hz to 8kHz. By modulating the value of the filter cut-off frequency, analogue-sounding filter sweeps can be achieved, especially when using higher resonance settings. An example of a GM instrument that makes use of filter sweeping is instrument number 87, lead 7 (fifths). Increasing the

resonance of the Sound Blaster Audigy 2 filter dramatically emphasises signals at the cut-off frequency in order to produce wah-wah or synth filter-sweep effects.

Amplifier

The amplifier determines the loudness of an audio signal and can be modulated by an envelope generator to shape the attack and release characteristics of a sound. It may also be modulated via an LFO to create tremolo effects.

LFO1

LFO1 operates at sub-audio frequency, from 0.042Hz to 10.71Hz, and modulates the pitch, volume and filter cut-off simultaneously.

LFO2

LFO2 is similar to LFO1, except that it modulates only the pitch of the audio signal, creating vibrato effects.

LFO1 To Volume (Tremolo)

LFO1's output is routed to the amplifier, with the depth of oscillation determined by the "LFO1 to volume" parameter. This produces tremolo, which is a periodic fluctuation of volume that was popular with guitar players in the '60s. An example of a GM instrument that makes use of LFO 1 to volume is instrument number 45, "tremolo strings".

LFO1 To Filter Cut-Off (Wah-Wah)

LFO1's output is routed to the filter, with the depth of oscillation determined by the "LFO1 to filter cut-off" parameter. This produces a periodic fluctuation in the filter cut-off frequency, producing a regular wah-wah effect. An example of a GM instrument that makes use of LFO1 to filter cut-off is instrument number 19, "rock organ".

LFO1 To Pitch (Vibrato)

The output of LFO1 is routed to the oscillator, with the depth of oscillation determined by the "LFO1 to pitch" parameter. "LFO1 to pitch" produces a periodic fluctuation in the pitch of the oscillator, which is known as vibrato. An example of a GM instrument that makes use of "LFO1 to pitch" is instrument number 57, the trumpet.

LFO2 To Pitch (Vibrato)

The Sound Blaster Audigy 2 chip's LFO1 can simultaneously modulate pitch, volume and filter range. LFO2, on the other hand, modulates only pitch, with the depth of modulation being determined by the "LFO2 to pitch" parameter, which produces a

regular vibrato effect. When this is used at the same time as "LFO1 to pitch", a more complex vibrato effect can be achieved.

Volume Envelope

Here, the envelope shaper modulates the output level of the synthesiser chip, enabling the attack and release characteristics of the sounds to be modified. Not only does this make it possible to emulate real instruments, but it also makes real-instrument waveforms sound more abstract.

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