



UGO
STRING THEORY V.15

WWW.CORTIDESIGN.COM/UGO

STRING THEORY V.15

Reference Guide

Installation:

Just put the dll file into your host's VST directory.

Description:

String Theory is a flexible physical modeling string synth that offers a very wide range of plucked string and hybrid synth sounds. Experimentation is very much encouraged as it can lead you in directions you may never have thought the synth could go.

Known Bugs:

- Switching between arp patches with the keys still held down may cause a note to stick. If you notice a stuck note or notice that the synth's CPU usage is higher than it was a second ago, turn the arp button off, then back on again.
- On some hosts, the two arps will not sync up unless the host's sequencer is running (and sending the arps a clock to sync to). Once you turn off the sequencer, the arps will stay in sync until you change the patch. So if you are auditioning patches, you may want to keep a sequencer loop running.
- When used with Cakewalk's standard VST wrapper, the first few notes of a sequence may get dropped from playback or recording. A fix for this is being investigated. However, String Theory should work fine with the DirectiXer wrapper from www.tonewise.com.
- Notes get louder in mono mode.

General Usage

Feedback Warning:

String Theory is delay based synth and some combinations of settings can result in **feedback** and individual notes with ridiculously loud volume compared to those around it. In order to keep these **extreme frequency spikes** from happening (or being too harsh, please work carefully with the following functions:

- The oscillator delay when the sliders are maxed out in either direction (especially when you've got a sustained/bowed sound.)
- The Metal Module...this is another series of tuned delays, which are prone to frequency spikes of their own.
- The filters when you've got the resonance cranked.

If you are experiencing unwanted high output and/or distortion:

First, turn down the volume of your speakers or headphones. These loud frequencies can

General Usage Continued...

potentially cause damage to both your equipment and your ears.

Second, turn down the TO FILT slider in the filter section. This will lower the amount of signal that's allowed to pass through the oscillators into the rest of the synth. This will also help eliminate any distortion that's being caused by the oscillators overdriving the filters.

Third, adjust the main volume slider in the oscillator section as needed.

CPU Usage:

This synth can be a real CPU hog if you are not careful. To keep the CPU under control...

- Keep the release times lower than you probably want to, especially if you've got the arp running. Long release times keep a voice active and moderate/fast playing (or an arp) will just keep layering voice tails, thus eating up polyphony and cpu.

- Watch out for those stuck notes. That will eat up extra CPU too. You can hear them during sustained notes or when the arp is on. You can't hear them when you've got a fast release and no arp, but they can still be there eating up a voice. Just like leaving a key held down.

Description of the controls and functions

UGO Logo - When turned on, it provides much more clarity, depth and life to the sound than in previous versions. However, when switched off it brings back the tonal characteristics of the earlier versions of String Theory.

Hints - If you hover your mouse over a control (all except the Ugo logo switch), a text box will pop up and tell you the name of the control and the MIDI CC number it responds to.

Oscillators:

The oscillators in String Theory are built from two parts: pitched delays and the waveforms that feed them.

VOL - master volume

PRT - portamento

Feedforms - The output of the waveforms selected here merge into a single signal which is then fed to both pitched delays.

Note: Pink noise usually works best for plucked strings. Also, the output of the second waveform is a bit lower than the first.

Delay OSC 1 and 2 - These sliders control the feedback for the pitched delays.

- All the way up = higher pitch + brighter sound
- All the way down = lower pitch + a more hollow sound
- Towards the middle = short, percussive/muted sound.

DT - This alters the pitch of delay oscillator 2, detuning it from oscillator 1.

Pitch LFO - The slider adjust the depth of the LFO while the switches offer waveform, rate, and pitch selections.

The pitch switch allows you to set the note that the LFO will peak at. You can choose from a one octave range above your current note. (X = Off.) This allows you to do things like have the LFO set to bend a 5th above your current note. However, for the LFO to hit that note, you must have the depth control all the way up. Otherwise the LFO will not reach its peak and the note will be flat.

The pitch bend occurs only in the beginning of the LFO phase. As a result, a 4 bar LFO set to a square wave will shift the pitch up only for the first bar, leaving the other 3 down at the normal pitch. Additionally, the pitch LFO's depth control can be controlled by the mod wheel on your keyboard.

All LFOs in String Theory sync to your host and the rates are set in BPM divisions. Also, the LFOs will reset when you start playing or recording in your host.

MONO - Switches the synth into a monophonic play mode. There is a bug though...the notes get louder in mono mode. String Theory is primarily intended as a polysynth, but i have included the mono mode, despite the known bug, because it reduces the CPU load.

PK - Adds in a very short attack noise to help simulate the sound of a pick hitting the string.

BOW - Raising this will give you a bow-like drone. This is actually the sustain portion of the Post Envelope.

Pre A - Adjusts the attack of the feedforms before they go into the delay oscillators. This offers a very different sound to the normal attack envelope control, one that is particularly useful for short bow sounds and breath attacks. (Technically, this control allows you to adjust the attack of the exciter before it enters the resonator [delay oscillators.]

Post ADR - The rest of the amp envelope...attack, decay and release.

Tremolo - This is an LFO that's wired to the volume. Use it as you would a tremolo guitar pedal.

Filters:

TO FILT - This adjusts the level of the signal going into the filter section from the oscillators.

Note: Some combinations of settings in the oscillator section can result in feedback and individual notes with ridiculously loud volume compared to those around it. Not only can this be a rather unwelcome blast to your speakers and your ears, but it will also cause the filter section to distort. To clear up the distortion, turn down the TO FILT slider, then readjust the main volume slider in the oscillator section as needed.

LP1 / KEY - This is a 1 pole low pass filter that is wired for key tracking so you can warm up the low end.

BP+BR CUT / RES - This is a combination band pass and band reject filter with standard cutoff and resonance controls. This filter arrangement is very useful for getting a better string sound, especially in the mid range. From here the signal branches off in series to the other filters.

Note: This combo filter has an interesting side effect. If you max out the resonance and start dropping the cutoff, you'll get the typical pitched filter effect...but as the pitch gets closer to the bottom, it eventually starts beating, essentially turning its self into a sort of tremolo effect.

LP2 CUT / RES - After the signal goes through the BP+BR filter, its wired in series into this basic low pass filter.

LADSR - This is the envelope for the LP2.

L - sets the level for the envelope.

MOD - LFO for LP2. The slider controls the LFO depth and the buttons select the LFO waveform and the speed...which is listed in BPM divisions since the LFO syncs to your host's MIDI clock.

HP VOL / CUT / RES - After the signal goes through the BP+BR filter, its wired in series into this basic high pass filter. This filter also has its own volume control.

LADSR - envelope for the HP filter.

MOD - LFO modulation section for the HP.

Arpeggiator:

One of String Theory's more unique features is its dual phrase arpeggiator. Both arps can be run at the same time, playing the same synth engine, but can be set to different speeds, gates, octave ranges, and directions. This opens up a much wider range of rhythmic possibilities that what you would get from a normal arp and allows you to create interesting plucked patterns that are a bit more like finger picking a guitar.

Also, since this is a phrase arp, the note order is determined by the order that you press the keys down in.

Arpeggiator Continued...

Arp Button - Turns the arps on/off.

1/2 - This lets you choose whether you want to use only arp 1 or 2, or have them both going at the same time. (The latter begin the the more exciting option.)

CH - This sets the MIDI channel that the arps respond to.

Gate - These sliders adjust the note gate times for arps 1 and 2.

DIV - These set the note division / speed of the arps.

OCT - Sets the octave ranges for the arps.

DIR / HOLD - these controls set the direction of the arps and whether or not the arps will continue to play after you have released the keys.

Effects:

Metal

This consists of two pitched delays which provide a clangorous, metallic effect. This can also be used to help simulate an instrument body. Its not an accurate effect by any stretch, but it does help add some extra character and "air" to the sound.

These two pitched delays are wired in parallel but you can also mix the output of delay 1 into delay 2 to get a more extreme effect.

Note: Since we're dealing with pitched delays again, the same warning of potential frequency spikes applied here too.

Metal Button - Turns the effect on/off.

L - Adjust the level / volume of the metal effect.

CUT - Lowering this slider will reduce the highs, adding warmth to the metal effect, which helps when trying to simulate something a little woodier...or at least less metallic.

T1 - This sets the time of the metal effect's first pitched delay.

F1 - Sets the feedback of the first delay.

Note: just as with the oscillator delay's, the closer to the middle the feedback is set, the shorter the sound gets.

1 > 2 - This lets you mix the output of delay 1 into the input of delay 2 to make the overall effect more powerful.

Effects Continued...

T2 - sets the time for delay 2

F2 - sets the feedback for delay 2.

Metal MOD - This LFO modulates the time for both delays, providing a sort of flanger effect.

Delay

This is a dual digital delay setup with independent speed and pan settings you can create a wider, more spacious effect.

MIX - Sets the mix between the dry signal and the delay.

- up = wet

- down = dry

VOL - Sets the volume of the delay signal.

For average delay use, this control would be redundant with the mix control around...but if you crank the mix to fully wet, you will only get the delay signal. Then you can use the delay volume control to fine tune the level of your patch without the need to push the master volume.

FBK - Sets the feedback level for both delays.

PAN 1 and PAN 2 - Sets the pan for each delay.

DIV - Sets the speed / clock divisions for the delays.

DOT - Gives you dotted notes for each delay.

MIDI

String Theory offers MIDI CC support for every switch and slider on the GUI except the tone enhancement switch (ugo logo.) If you hover your mouse over a control, it will show you the MIDI CC number that's assigned to it.

Credits:

String Theory v.1.5 - created by Ugo (Chris Scieurba)

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This VSTi features modules and prefabs by:

Chris Kerry (www.chriskerry.f9.co.uk)

Bones (www.novakill.com)

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David Haupt (www.dehaupt.com)

ikaldor

Credits Continued...

Patches By:

Tim Conrardy (TC)
Matthew DeMeritt - Geeseaplenty (GSE)
Mark Stolk - Mystahr (MY)
Ugo (all others)

Additional thanks to the Yahoo SynthEdit users group, www.kvr-vst.com, Steinberg for their VST format, and...of course...Jeff McClintock for creating SynthEdit. (www.synthedit.com)

Version History:

5/28/05 - v.1.5

Corrected missing mono info in the manual.

4/17/05 - v.1.5

Added new tone enhancement switch (Ugo logo button - on by default)
More even velocity response for reduction of volume spikes
Added new detune function
Added attack control for the feedforms before they enter the delay oscillators
Enhanced pitch LFO control
Improved the sound of the Metal LFO
LFO's now reset with host play/record
Renamed the MW control to CUT and reversed its range to match other cutoff controls
Added full MIDI CC# support
Corrected a minor error in the GUI (filter routing line)
Improved GUI design/layout
Reduced polyphony down to 6 voices

11/3/04 - v1.0.1

Corrected filter wiring description errors in the manual

6/08/04 - v.1.0.1

Improved note sticking problem

6/06/04 - v.1.0

First public release.

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