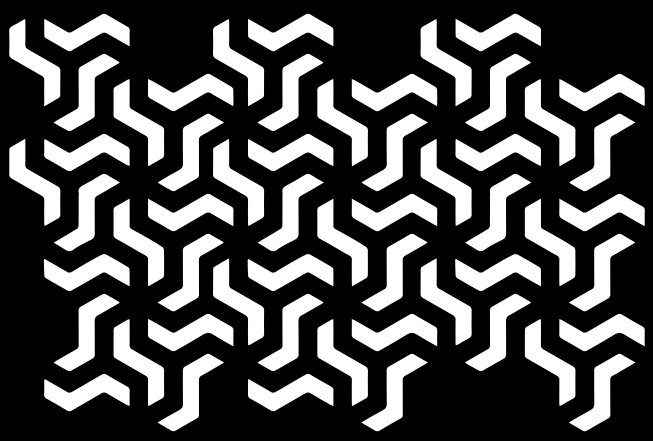
Mod Delay



Modulated delay card for Z-DSP

The programs on this card extends from the basic delay algorithms of the Dragonfly Mk2 card that comes with the Z-DSP. Each program adds different processing like diffusion, chorus, panning and modulation to the basic mono or dual delay line structure. The Modulator programs are intended for use with external CV opening up vast modulation possibilities of the modular synthesizer.

Most of the programs have summed mono inputs with stereo outputs, while the others have dual independent inputs and outputs.

1> Diffuse Delay

Diffusion in front of the delay line creates a smearing of the sound using a set of short delays. There is a single delay line and the output of it feeds a stereo diffusion. The input is summed mono and LFOs modulate the diffusion delays.

Internal feedback taps the output of the mono delay line before the output diffusion and returns it to the input diffusion. Using the analog feedback path will add in the output diffusion and also tend to sum the entire effect into mono. Adding a small amount of external feedback and using the internal feedback can deepen the sound. The feedback can get out of control at the maximum because the diffusion also adds a lot of gain, but keeping the internal feedback just below that threshold can make very long tape delay style effects.

P1 - Time - Delay Time for the mono delay line
P2 - Fdbk - Internal feedback of the mono delay line into the input
P3 - Chorus - The amount of modulation of the diffusion delays

2> Tremolo Taps

A single delay line with eight taps which are panned in stereo. Two internal LFOs control the gain for each tap making for a stereo tremolo effect.

P1 - Delay Time
P2 - Feedback
P3 - LFO speed

3> Panning Taps

Input is summed into a single delay line with multiple taps off the delay feeding the output. A Time control sets the longest tap time and the other taps use useful ratios (1:2, 1:4, etc) for rhythmic effects. LFOs control the Rate of panning in the stereo field.

P1 - Time - longest tap delay time
P2 - Rate - Speed of the LFOs controlling the panning of the taps
P3 - Filter - Low pass filter on the input

4> Six Voice 2

A mono delay line fed into the Six Voice Chorus algorithm. Maximum delay time is about 650ms and the delay line is interpolated for external CV modulation with no artifacts. The output feeds into 6 chorus delay lines which are panned across the stereo field.

P1 - Time - Delay Time for the mono delay line
P2 - Fdbk - Internal feedback of the mono delay line into the input
P3 - Chorus - The speed of modulation of the chorus delays

5> Hall of Mirrors

Input is summed to mono and fed into 8 successive delay lines. The delay lines all have the same delay time with a maximum of 125ms for each, and the output from one is fed into the next. Each tap is panned across the stereo field, and a low pass filter removes high frequencies from the repeats. The delay time is fully interpolated so external modulation using CV will be smooth. This sound is a cross between ping-pong, tremolo, chorus and a small room depending on settings. Sound tends to hang in space, yet pan around the taps for movement.

P1 - Time - delay time for each of the 8 delays
P2 - Fdbk - Internal feedback path
P3 - Filter - Low pass filter on the input

6> Glide Delay

A pair of delay lines for Left and Right that have very slow slightly drifting LFO modulation with adjustable depth. The depth has an intentional glitch above 50% that causes the modulation to read from the wrong parts of the delay line and appear to start and stop. This effect is based (ab)using an old digital delay with external CV. The base delay time can also be externally modulated for even more warped effects. Feedback has gain greater than 1 so sound can be captured and manipulated endlessly.

P1 - Base Delay time
P2 - Feedback
P3 - Glide Depth

7> Short Time Modulator

A dual delay line program designed for external modulation as the delay lines are fully interpolated (no artifacts from changing delay time). Each delay line is about 63ms in length making it good for Chorus, Flange and Resonator type effects. The CV input has slewing and a maximum rate of 10Hz, so slow LFOs and ADSR are best for modulation.

P1 - TimeL - delay time of the left delay line
P2 - Fdbk - Internal feedback path
P3 - TimeR - delay time of the left delay line

8> Long Time Modulator

A set of independent delay lines designed for external modulation as the delays are fully interpolated (no artifacts from changing delay time). The difference from Program #5 is the delay lines go up to 500ms in length. Modulating slowly and with attenuation will create wobbly tape and analog delay tones, while fast changes result in tape fast forward and stop effects. The CV input has slewing and a maximum rate of 10Hz, so slow LFOs and ADSR are best for modulation.

P1 - TimeL - delay time of the left delay line
P2 - Fdbk - Internal feedback path
P3 - TimeR - delay time of the left delay line