TIMISZOARA
PROGRAM CHART

CHORUS *is a bank offering various flavours of a classic effect based on modulated delay lines creating a stack of detuned voices.*

1. **3-PHASE** *(mono to stereo)*
   SPEED_1 / SPEED_2 / DEPTH

   A classic chorus effect inspired by Solina String Ensemble. Three parallel delay lines modulated by a combination of two LFOs, each shifted by 120⁰ in phase. Input signal is summed to mono, stereo outputs summed with different phase relationships. Independent control of two LFOs.

2. **4-PHASE** *(stereo)*
   SPEED_1 / SPEED_2 / DEPTH

   A combination stereo chorus with two parallel lines in each channel, modulated with a mix of two LFOs. Each delay line receives a different mix of input L and R signals, and is modulated by different phases of the LFOs.

3. **8-PHASE** *(stereo)*
   SPEED_1 / SPEED_2 / DEPTH

   A full stereo chorus with four delay lines in each channel. Each delay line is modulated by different phases of two LFOs, which results in a thick cloud.

4. **VARI_BAND** *(stereo)*
   RATE / DEPTH / SPLIT_FR

   A classic stereo chorus with a variable crossover. Frequencies above the splitting point are modulated, lower frequencies are not affected.

5. **2-VOICE** *(stereo)*
   RATE / DEPTH / FEEDBACK

   An experimental stereo chorus based on two interpolated delay lines with a wide range of modulation speeds and depths, and a resonant feedback path.

6. **DUAL_4-PH** *(stereo)*
   RATE / DEPTH / FEEDBACK

   A four-phase modulated stereo chorus with dual LFO and adjustable and filtered feedback.

7. **4-VOICE** *(stereo)*
   RATE / DEPTH / FILTER

   A vintage-style thick stereo chorus with two independent 4-voice sections, internal saturation and filtering.

8. **FATTENER** *(stereo)*
   DETUNE / TREMBLE / FILTER

   A multi-voice effect based on pitch spread with additional vibrato and filtering.

COMBO *is a special bank featuring pairs of different mono effects instead of a stereo one. These combinations (and limited controls) are carefully selected to offer maximum flexibility in a very compact setup.*

1. **DEL+REV** *(dual mono)*
   DEL_TIME / DEL_FBCK / REV_SIZE

   Left channel: a smooth, non-filtered delay effect with up to 500ms of delay and simple feedback.
   Right channel: a simple reverb effect with feedback-based size control.

2. **CHOR+REV** *(dual mono)*
   CHORUS / REV_SIZE / REV_DAMP

   Left: a simplistic, two-voice chorus based on pitch shifters.
   Right: a simple reverb effect with a damping filter, size control based on feedback.

3. **PTCH+REV** *(dual mono)*
   SHIFT / FEEDBACK / REV_SIZE

   Left: a single voice pitch shifter with bi-directional control (+/-1 octave) and feedback.
   Right: a simple reverb effect with feedback-based size control.

4. **LPF+REV** *(dual mono)*
   CUTOFF / RESO / REV_SIZE

   Left: a resonant lowpass filter with two parameters.
   Right: a simple reverb effect with feedback-based size control.

5. **CHOR+PHR** *(dual mono)*
   CHORUS / PH_SPEED / PH_DEPTH

   Left: a two-voice pitch spread-based chorus.
   Right: a SVF-based phaser with three modulated notches.

6. **FLGN+DEL** *(dual mono)*
   FLANGER / DEL_TIME / DEL_FBCK,

   Left: a simple modulated flanger based on an interpolated delay line.
   Right: a straightforward delay (up to 980ms) with deep feedback and saturation.

7. **PHR+DEL** *(dual mono)*
   PHASER / DEL_TIME / DEL_FBCK

   Left: an 8-stage phaser with variable modulation speed and fixed resonance.
   Right: a straightforward delay (up to 980ms) with deep feedback and saturation.

8. **PTCH+FRMT** *(dual mono)*
   SHIFT / PTCH_FBK / FORMANT

   Left: a single voice pitch shifter with bi-directional control (+/-1 octave) and feedback.
   Right: a three-formant resonant filter.

DECONSTR *is a bank full of creative programs destroying the incoming audio signal. Built around complex interwoven feedback networks each effect delivers a different flavor of sound mutilation. Ear-piercing, harsh, shrill, or rumbling with low end and everything in between—take your pick. The result reacts to the dynamics of the incoming signal.*

1. **HUSTLE** *(stereo)*
   FEEDBACK / FB_SHIFT / DISORDER

   A distortion effect based on overdrive and rectifiers with tuned feedback and micro delay. Might choke with high feedback amounts.

2. **TURMOIL** *(stereo)*
   GAIN / FEEDBACK / FB_TUNE

   A distortion effect based on multi-stage overdrive with tuned feedback employing a microdelay and filters.

3. **MUTINY** *(stereo)*
   GAIN / FEEDBACK / FB_TUNE

   A distortion effect based on overdrive with a microdelay inside a tuned feedback.

4. **RIOT** *(stereo)*
   FEEDBACK / FB_TUNE / DEMUR

   A distortion effect based on overdrive and logic gates with tuned feedback consisting of a microdelay, bit flipping, and all-pass filter.

5. **ASSAULT** *(stereo)*
   GAIN / FEEDBACK / FB_TUNE

   A distortion effect based on mutliple parallel overdrive sections, with tuned feedback.

6. **BLOODSHED** *(stereo)*
   GAIN / PITCHBACK / GRIT

   A distortion effect based on crude pitch shifting (1 semitone) with additional overdrive in feedback.

7. **BLOODBATH** *(stereo)*
   FEEDBACK / DIRT / DIRTRATE

   A distortion effect based on strongly overdriven short pseudo-reverb with a bit crushed feedback.

8. **MUDSLIDE** *(stereo)*
   FEEDBACK / DIRT / DIRTRATE

   A distortion effect based on heavily bit-crushed pseudo-reverb with extremely nonlinear feedback.

A special bank of mono delay effects that benefit from devoting the whole available memory to just one channel of audio.

1. **FILTERED** *(mono)*
   TIME / FEEDBACK / FILTER

   A modern, smooth and clean mono delay (up to 1sec) with deep sustained feedback including internal limiter and a tilt-type filter.

2. **EXP_LONG** *(mono)*
   TIME / FEEDBACK / FILTER

   A classic mono delay (up to 1sec) with exponential time control. Feedback featuring soft saturation and a tilt-type filter.

3. **DEL+CHRS** *(mono)*
   TIME / FEEDBACK / DEPTH

   An animated mono delay (up to 750ms) with additional chorus effect in the feedback.

4. **8_SECONDS** *(mono)*
   TIME / FEEDBACK / FILTER

   A special Lo-Fi subsampled delay (up to 8 seconds) with lowpass filter, variable feedback and saturation. Additional artifacts appear when delay time is adjusted.

5. **QUIVERER** *(mono)*
   TIME / FEEDBACK / FILTER

   A fluid effect with wobbly pitch artifacts caused by adjusting the delay time. Includes a tilt-type filter in the feedback path.

6. **MODULATED** *(mono)*
   TIME / FEEDBACK / MOD

   An experimental modulated mono delay (up to 1sec) with internal oscillator adding an FM effect ranging from a fraction of Hz up to audio rate.

7. **NESTED_FB** *(mono)*
   TIME_1 / FEEDBACK / TIME_2

   A dual nested loop mono delay effect with short delay (up to 250ms) inside a long "dirty" delay (up to 1.5sec). Additional artifacts appear when TIME_2 parameter is adjusted.

8. **REVERSE** *(mono)*
   TIME / FEEDBACK / FILTER

   A classic mono reverse-delay effect with smoothed ends. Includes a tilt-type filter in the feedback path.

A bank with delay effects that mix the input stereo signal to a mono one, and use most of the available RAM to operate on this mono signal. Stereo effects are obtained using various tricks.

1. **MULTITAP1** *(mono to stereo)*
   TAPS1 / TAPS2 / FDBC

   A multi-tap delay with mono input and a different combination of four taps mixed to L and R outputs. Another mixture of different four taps is used for feedback, which also features a soft knee limiter.

2. **PING+FILT** *(mono to stereo)*
   TIME / FEEDBACK / FILTER

   A ping-pong style delay with mono input and left/right alternating echos from two interpolated delay lines. Additional tilt-type filter in the feedback.

3. **MULTITAP2** *(mono to stereo)*
   TIME / FEEDBACK / FILTER

   A combination of multitap and ping-pong effect with mono input, a mixture of three taps in each stereo output, and cross-feedback with tilt-type filter.

4. **FLY-BY8** *(mono to stereo)*
   TIME / FEEDBACK / SPREAD

   A unique multi-tap delay producing a series of eight echoes flying through the stereo panorama. Besides time and feedback it offers an additional parameter for bipolar control of the width and direction of the sequence.

5. **FLY-BY4** *(mono to stereo)*
   TIME / FEEDBACK / SPREAD

   A multi-tap delay similar to FLY-BY8*, but producing a series of four more distinctive echoes flying through the stereo panorama.*

6. **MONO+PP** *(mono to stereo)*
   PRE_TIME / PP_FBCK / PP_TIME

   A combination of a longer mono delay (up to 750ms) followed by a pair of cross-coupled short delays (up to 125ms) in a ping-pong arrangement, generating a series of alternating stereo echoes. Note: no general feedback by design.

7. **DUCK+GLCH** *(mono to stereo)*
   TIME / FEEDBACK / GLITCH

   A mono to stereo delay with "infinite" feedback input ducking block. The looped signal is attenuated when new content is arriving. The audible echoes repeat mostly recent sounds. Additional glitching artifacts added outside of the feedback loop.

8. **DIFFUTAP** *(mono to stereo)*
   TAPS1 / TAPS2 / FEEDBACK

   A mono to stereo multitap delay with two interleaved series of repetitions that are independently scaled (up to 1 sec), which results in a variety of patterns. Feedback loop adds diffusion yielding a reverb-like tail.

A bank of stereo delay effects. These programs need to share the total available RAM between two channels, hence the range of times is more constrained.

1. **FILTERED** *(stereo)*
   TIME / FEEDBACK / TILT

   A classic, smooth and clean full stereo delay (up to 0.5sec) with adjustable feedback including internal soft saturation and a tilt-type filter.

2. **PING+FILT** *(stereo)*
   TIME / FEEDBACK / TILT

   A classic ping-pong style stereo delay (two cross-coupled lines, up to 0.5sec) with soft saturation and a tilt-type filter.

3. **PING+MTAP** *(stereo)*
   TIME / FEEDBACK / FILTER

   A stereo multitap ping-pong variation with consecutive taps alternately panned for a pronounced spatial effect. A tilt filter in the feedback.

4. **PITCH-UP** *(stereo)*
   TIME / FEEDBACK / SHIFT

   A classic stereo delay (up to 0.375s) with a continuously adjustable pitch shifting up effect in the feedback.

5. **PITCH-DWN** *(stereo)*
   TIME / FEEDBACK / SHIFT

   A classic stereo delay (up to 0.375s) with a continuously adjustable pitch shifting down effect in the feedback.

6. **UP+DOWN** *(stereo)*
   TIME / FEEDBACK / SHIFT

   Two cross-coupled delays with pitch shifters operating in opposite directions, giving an effect of successively cancelling shifts and embracing the artifacts in a long feedback.

7. **VIBRATO** *(stereo)*
   TIME / FEEDBACK / VIBRATO

   A stereo delay with LFO-driven pitch shift in its feedback path resulting in a subtle-to-excessive vibrato modulation.

8. **RNDM-PTCH** *(stereo)*
   TIME / FEEDBACK / DEPTH

   An experimental stereo delay with random modulation of the length of delay line in each channel.

DISTORT *is bank of traditional and less traditional programs that offer various forms of signal distortion operating mostly on signal amplitude.*

1. **WAHFUZZ** *(stereo)*
   ENVELOPE / DRIVE / OFFSET

   A stereo effect consisting of a fuzz-style distortion followed by an auto-wah filter with envelope taken from the input signal.

2. **RES+DRIVE** *(stereo)*
   ENVELOPE / FILTER / DRIVE

   A stereo overdrive effect with resonant lowpass filter at the front.

3. **DYNAFUZZ** *(stereo)*
   PREFILT / SUBOCT / —

   A stereo fuzz-style distortion with additional sub-octave divider. The output amplitude is controlled by original envelope for smooth tails.

4. **MULTI** *(stereo)*
   SUBOCT / SUPEROCT / AIR

   A stereo multi-distortion effect offering a sub-octave and super-octave components and additional high-frequency „airy" tone generator.

5. **FM_HELL** *(stereo)*
   DRIVE / LOW_FRQ / HIGH_FRQ

   An experimental stereo distortion featuring a bank of stacked FM operators: two lower and two higher frequencies oscillators that are all modulated by the input signal.

6. **3_BAND** *(stereo)*
   SPLT_FRQ / LOWS / HIGHS

   A modern digital distortion type based on bit inversion effects similar to Xaoc Devices Drezno+Lipsk package. Three different distortion paths are mixed in three frequency ranges.

7. **HYSTERIA** *(stereo)*
   AMOUNT / STAGE / FEEDBACK

   A super-aggresive stereo distortion with abundance of square waves produced from various delayed versions of the input signal. Combinations of parameters offer great variety of effects.

8. **BLUEBALLS** *(stereo)*
   FILTER / SUB_MIX / OCTAVER

   A simple vintage-style distortion combining an octaver and sub-octaver with filtered square wave version of the input signal.

A bank of various DSP takes on the simulation of some classic and modern synth filters.

1. **LP12+TITO** *(stereo)*
   CUTOFF / RESO / SELF_MOD

   A characterful stereo 12dB lowpass filter with resonance and nonlinear feedback for making the sound rougher when resonance is increased.

2. **LP24+DRV** *(stereo)*
   CUTOFF / RESO / DRIVE

   A 24dB lowpass ladder simulation with additional input drive section.

3. **LP_VINT** *(stereo)*
   CUTOF / RESO / DIST

   A vintage-style 24dB lowpass filter incorporating internal saturation for a thick sound.

4. **HP_VINT** *(stereo)*
   CUTOFF / RESO / DIST

   A vintage-style 24dB highpass filter incorporating internal saturation for an aggressive sound.

5. **SVF24** *(stereo)*
   FREQ / RESO / LP-BP-HP

   A clean, digital-style steep 24dB state variable filter with resonance gain compensation and output mixer sweeping between three response types.

6. **3_BAND** *(stereo)*
   TUNE / RESO / —

   A stereo three-formant filter consisting of parallel bandpass sections.

7. **BANDPASS** *(stereo)*
   CENTER_F / RESO / WIDTH

   A stereo flat-top bandpass filter with independent bandwidth and resonance controls.

8. **SVF12** *(stereo)*
   PFREQ / RESO / LP-BP-HP

   A clean, digital-style 12dB state variable filter with resonance gain compensation and output mixer sweeping between three response types.

FLANGER *is a bank of effect programs that incorporate very short delay lines that creates a dense comb frequency response when processed signal is mixed with original. Additional resonance and automated sweeping yield the characteristic effect that sounds best applied to harmonically rich signals.*

1. **CLASSIC** *(stereo)*
   MANUAL / RATE / FEEDBACK

   A stereo classic flanger with manual and LFO sweeping of single smooth delay line.

2. **DEEP** *(stereo)*
   RATE / FEEDBACK / COLOR

   Modern stereo digital-style flanger with deep and wide frequency range auto modulation.

3. **ENVELOPE** *(stereo)*
   MANUAL / ENVELOPE / FEEDBACK

   A stereo/dual (based on two delay lines) flanger with manual and envelope-based sweeping.

4. **BASIC** *(stereo)*
   RATE / DEPTH / FEEDBACK

   A vintage-style stereo flanger with two delay lines per channel and soft saturation in the feedback path resulting in specific retro sound.

5. **PHLANGER** *(stereo)*
   RATE / DEPTH / FEEDBACK

   An experimental combination of a classic flanger with a phase shifting network resulting in more complex pattern of notches in the frequency response.

6. **THRU-ZERO** *(stereo)*
   RATE / DEPTH / FEEDBACK

   A rather subtle flanger based on through-zero modulation of two complementary delay lines in each channel. Feedback depth is limited by design.

7. **EXTREME** *(stereo)*
   RATE / DEPTH / FEEDBACK

   An experimental flanger-related bold effect with extreme sweep and deep feedback offering a wide range of non-orthodox sounds.

8. **PHASEY** *(stereo)*
   RATE / DEPTH / FEEDBACK

   A smooth laid-back flanger with resonance featuring allpass sections resulting in spreading of transients in the signal.

GLITCH *is a bank full of unusual time and frequency based effects simulating various defects of digital audio equipment, from lost sync, through buffer underrun, speed errors, modulation channel crosstalk, lost carrier up to a completely broken transmitter.*

1. **MANUAL** *(stereo)*
   ACTIVATE / DISTORT / BUFFER

   A basic manually-controlled effect simulating lost address and data bits resulting in buffer underrun and bit crushing artefact that accumulate over time.

2. **RANDOM1** *(stereo)*
   CHANCE / MOD / BUFFER

   A random buffer underrun effect with parameters controlling the probability of the glitch, the degree of instability of the loop, and the length of the buffer.

3. **RANDOM2** *(stereo)*
   CHANCE / MOD / BUFFER

   A random buffer underrun effect with parameters controlling the probability of the glitch, modulation of looped signal, and the length of the buffer.

4. **ALIAS** *(stereo)*
   CHANCE / RATE / DOWNSAMP

   A random effect of signal deterioration through aliasing. Control parameters determine the probability of the glitch, how often new probability is sampled, and the degree of aliasing.

5. **ENV_MOD** *(stereo)*
   SENS / BEND / BUFFER

   Envelope-controlled buffer underrun effect (occuring mostly in loud segments of the signal) with additional buffer legth being modulated by the envelope for unusual pitch bends.

6. **RAND+GRIT** *(stereo)*
   RATE / RAND_MOD / BUFFER

   A buffer underrun with a long lo-fi buffer resulting in glitches being long past fragments of the original signal, looped alongside the glitch, adding another layer of grit to the signal.

7. **REVERSE** *(stereo)*
   CHANCE / RATE / BUFFER

   A random buffer underrun and reverse effect. A recent segment of audio is locked and played back in reverse.

8. **MODEM** *(mono)*
   INTENSITY / FLAVOR / FRQ-SPLT

   A simulation of a broken analog modem with great variety of artifacts from spectral flips, stutter, alien modulation to complete sonic madness.

A bank of effects producing sound „granules" from short portions of the input signal, rearranged in time and scattered in the stereo field.

1. **SMOOTH** *(mono to stereo)*
   LATCH / SIZE / RANDOM

   A classic granular effect with 4 simultaneous granules sampled from a 1sec mono buffer and shaped with a smooth (sine-like) envelope. The parameters control: signal capture into the buffer, length of granules, and degree of randomness of each new granule.

2. **MULTIBAND** *(mono to stereo)*
   LATCH / SIZE / SPLIT_FR

   A granular effect with 3 granules sampled from a 1sec mono buffer, filtered, and shaped with a smooth envelope. The parameters control: signal capture into the buffer, length of granules, and the split frequency of the multiband filter.

3. **AMOD+PTCH** *(stereo)*
   DEPTH / SIZE / FEEDBACK

   A real time granular effect with multiple granules sampled from a stereo delay line with additional pitch modulation and feedback. The envelopes are decay type with fixed short attack. DEPTH *controls the degree of pitch modulation.*

4. **SOFT** *(stereo)*
   RATE / LOW_FREQ / SUSTAIN

   A real time granular effect with smooth and filtered granules sampled from a tail of a reverb. The parameters control rate/size of granules, filtering the low end and length of the reverb tail.

5. **REVERSER** *(stereo)*
   TIME / DEPTH / FEEDBACK

   A real time granular effect that randomly chops pieces of audio and plays them backwards. The processed audio may be partially fed back to the input producing a stream of small particles.

6. **4_GR_SCRF** *(mono to stereo)*
   LATCH / SIZE / RANDOM

   A classic granular effect with 4 simultaneous granules sampled from a 1sec mono buffer and shaped with a sharp envelope which adds roughness. The parameters control: signal capture into the buffer, length of granules, and degree of randomness of each new granule.

7. **4_GR_SPIKE** *(mono to stereo)*
   LATCH / SIZE / RANDOM

   A classic granular effect with 4 simultaneous granules sampled from a 1sec mono buffer and shaped with a decay envelope with short attack.

8. **GLITCHY** *(stereo)*
   AMOUNT / SIZE / FEEDBACK

   4-phase tremulator with long skippy delay in feedback. AMOUNT *controls glitch intensity.*

A bank of new type of effects based on pairs of slightly detuned delay lines (usually in stereo configuration).

1. **MONO–ST** *(mono to stereo)*
   TIME / FEEDBACK / SKEW

   The basic parallax effect with two delay lines and mono input. SKEW *controls the difference between delay times. The feedback path adds additional delay from one of the delay lines.*

2. **STEREO_FB** *(stereo)*
   TIME / FEEDBACK / SKEW

   A stereo version of the parallax effect with two delay lines differentiated according to the SKEW *parameter. Stereo* FEEDBACK *keeps both channel separated, thus emphasizing the spatial effects of the parallax.*

3. **MIXED_FB** *(stereo)*
   TIME / FEEDBACK / SKEW

   A combination parallax with stereo input, two parallel delay lines. SKEW *controls the difference between delay times. The delayed signals are mixed and fed back to the input emphasizing phase cancellation and Doppler effects.*

4. **SINE_MOD** *(stereo)*
   TIME / FEEDBACK / MOD_DPTH

   A stereo version of the parallax effect with two delay lines. The delay time difference is modulated with an LFO. The delayed signals are mixed and fed back to the input emphasizing phase cancellation effects.

5. **RAND_MOD** *(stereo)*
   TIME / FEEDBACK / MOD_DPTH

   A stereo version of the parallax effect with two randomly modulate delay lines. An inverted feedback yields alternative phase cancellation pattern.

6. **PANORAMA** *(stereo)*
   TIME / FEEDBACK / X-SKEW

   A stereo version of the parallax effect with two delay lines of different length. The X-SKEW *parameter controls not only the difference of delay time, but also their stereo spread and inversion.*

7. **DUAL** *(stereo)*
   TIME / FEEDBACK / SKEW

   A dual, stacked, stereo parallax effect with two pairs of delay lines. SKEW *controls the time delay difference in both pairs. Two feedback loops yield great range of Doppler and phase cancellation effects.*

8. **COMBED** *(stereo)*
   TIME / FEEDBACK / SKEW

   A combination of a stereo parallax effect with stereo comb filter. SKEW *controls the difference between delay times in both. Dual stereo feedback emphasizes complex phase effects resulting from two interferring patterns.*

PHASER *is a bank of classic effects using notch filtering. Based on simulated analog allpass filters, or delay lines, these effects color the sound by introducing multiple notches in the frequency range (combining the original and phase delayed signal). Additional resonance parameters yield audible formants between notches.*

1. **BRIGHT** *(stereo)*
   RATE / DEPTH / RES

   A stereo 3-notch phaser based on cascaded state variable filters. Complementary (sin/cos) LFO pair used for modulation of the stereo pair. Resonance adjustable nearly up to self-oscillation point.

2. **ENVELOPE** *(mono)*
   SENS / DEPTH / RES

   A longer (10 stage) mono phaser with envelope-controlled LFO rate (up to sub-audio range).

3. **VINTAGE** *(stereo)*
   RATE / DEPTH / RES

   A vintage-style full stereo 4-stage phaser with tempered modulation and resonance.

4. **COUNTERPH** *(stereo)*
   RATE / DEPTH / RES

   A stereo filter-based phaser with counter-phase LFO modulation and deep feedback.

5. **MANUAL** *(stereo)*
   LEFT / RIGHT / RES

   A „manual" stereo phaser with left and right channel modulation available separately on two parameters.

6. **10-STAGE** *(mono to stereo)*
   RATE / DEPTH / RES

   A 10-stage mono input phaser with added auto-panning at the output for faux stereo effect.

7. **DEEP** *(stereo)*
   RATE / DEPTH / RES

   A 10-stage phaser with stereo tricks based on LR/MS coding resulting in a stereo response. LFO modulation up to 30Hz.

8. **SOFT** *(stereo)*
   RATE / DEPTH / RES

   A stereo state variable filter based phaser with three notches and wide modulation range (up to audio rates).

PITCH *is a bank of transpose effects, mostly based on the hardware capabilities of the Spin FV-1 chip. Continuous and quantized shifters, additional chorus or pitch modulation, chords, feedbacks—it's all here.*

1. **UP+VIB** *(stereo)*
   SHIFT / V_RATE / V_DEPTH

   A stereo wide-range (up to 2 octaves) chipmunky pitch shifter with additional vibrato modulation.

2. **UP-DWN+V** *(stereo)*
   SHIFT / V_RATE / V_DEPTH

   A stereo bi-directional pitch shift constrained to more usable range with additional vibrato modulation.

3. **LUP+RDWN** *(dual mono)*
   SHIFT / V_RATE / V_DEPTH

   A two-channel detune effect offering both downshift (in the left channel) and upshift (in the right channel), as well as vibrato modulation.

4. **2_QUANT** *(stereo)*
   SHIFT_1 / SHFT_2 / XFADE

   A stereo dual quantized pitch shifter/harmonizer. Two versions of pitch shifted signal with semitone steps are crossfaded with the third parameter control.

5. **CHRD1+FB** *(stereo)*
   CHORD / XFADE / FEEDBACK

   A stereo chord generator based on sets of fixed pitch intervals. The parameters control: chord type (major, minor, diminished, augmented, flatV, sus2, sus4, V+oct, V-oct), cross-fade between chord voices, and amount of glissandi-spawning feedback.

6. **CHRD2+FB** *(stereo)*
   CHORD / XFADE / FEEDBACK

   A stereo chord generator based on sets of fixed pitch intervals. The parameters control: chord type (major with inversions, minor with inversions, diminished with inversions), cross-fade between chord voices, and amount of glissandi-spawning feedback.

7. **CASCADE** *(stereo)*
   SHFT_UP / SHFT_DWN / DELAY

   An experimental dual stereo pitch shifter with delayed feedback, offering strange otherworldy clusters of sounds being shifted multiple times in both directions.

8. **THRU-ZERO** *(mono)*
   SHIFT / FEEDBACK / CHORUS

   A stereo two-directional wide range pitch shifter with feedback and additional chorus effect. The SHIFT *parameter is nonlinearly scaled to facilitate setting low amounts of shifts around zero.*

RECONSTR *features programs based on clusters of oscillators that are cross-modulating each other. Various combinations of feedback loops, delay lines, logic gates, overdrive stages and envelope followers are responsible for the variety of results.*

1. **WOE** *(mono)*
   IMPACT / TUNE / RELOAD

   A cluster of parallel oscillators with frequencies modulated by the input signal. Expect a mild dissonant tone.

2. **DISTRESS** *(mono)*
   IMPACT / TUNE / RELOAD

   A tandem of oscillators which are multiplexed by the polarity of input signal, filtered and cross-modulated.

3. **TRESPASS** *(stereo)*
   REGRESS / TUNE / RELOAD

   Input signal is filtered with self-oscillating lowpass filters which are audio-rate modulated by a local oscillator.

4. **TORMENT** *(stereo)*
   DEFECT / SLIP / SCOPE

   A 3-operator FM chain driven by the input signal.

5. **THROES** *(mono to stereo)*
   IMPACT / WEALTH / TUNE

   A tandem of single FM operators modulated by the input signal with deep nonlinear feedback yielding near-chaotic but still controllable oscillations.

6. **ANGST** *(stereo)*
   TUNE / CUMBER / WEALTH

   An FM algorithm with 3 chained operators with feedback.

7. **DREAD** *(stereo)*
   TUNE_A / TUNE_B / RELOAD

   A tree-structured FM algorithm with 3 operators and global feedback. The output signal is a sum of operators 2 and 3.

8. **SHIVERS** *(mono to stereo)*
   IMPACT / TUNE_A / TUNE_B

   A tree-structured FM algorithm with 3 operators and a feedback loop including operator 2, while the output signal is taken from operator 3.

RESONATE *is a bank of Karplus-Strong style resonators based on looped short delay lines.*

1. **MAJOR** *(mono)*
   TUNE / FEEBACK / DETUNE

   Four parallel delay lines with individual feedbacks, tuned to a major chord. The DETUNE *parameter adds the same delay value to each line, thus ruining the harmony towards a lower, dissonant cluster.*

2. **MINOR** *(mono)*
   TUNE / FEEBACK / DETUNE

   Four parallel delay lines with individual feedbacks, tuned to a minor chord. The DETUNE *parameter adds the same delay value to each line, thus ruining the harmony towards a lower, dissonant cluster.*

3. **TIMES8** *(mono)*
   TUNE / FEEBACK / DETUNE

   A stack of eight feedback delay lines that are deliberately tuned to non-harmonic ratios for a dense pattern of resonant peaks.

4. **FILTERED** *(mono)*
   TUNE / FEEBACK / DETUNE

   Four feedback delay lines whose times are configured as power series, but may be additionally detuned towards a messy dissonance. Additional allpass filtering spreads the impulse response to avoid sharp spikes.

5. **ALLPASS_L** *(mono)*
   TUNE / FEEBACK / DETUNE

   Four parallel delay lines featuring an additional long diffuser within each feedback loop resulting in very audible inharmonicity of the resonance patterns resembling those of a thin sheet of metal.

6. **ALLPASS_S** *(mono)*
   TUNE / FEEBACK / DETUNE

   Four parallel delay lines featuring an additional short diffuser within each feedback loop resulting in slight bell-like inharmonicity.

7. **DIFFRENTL** *(stereo)*
   TUNE / RES / DETUNE

   A stereo differential resonator with two closely tuned parallel short delay lines in each channel. The resulting signal is a difference between these two producing a highpass type sound.

8. **DIFFUSED** *(stereo)*
   TUNE / RES / DETUNE

   A dual resonator effect with additional diffusion in the feedback, which allows for a deeper resonance at the cost of temporal smearing of the sound.

A bank of classic, standard reverberations, inspired by various studio and pedal effects. None of them really strives for realistic simulation of an acoustic space, but rather offers a usable and universal tool with a wide range of settings.

1. **CATHDR** *(stereo)*
   SIZE / HI-FREQ / PREDELAY

   A long diffused reverb based on a combination of allpass filters and recursing delays offering a massive sound and emphasis on lower frequencies.

2. **HALL** *(stereo)*
   SIZE / HI-FREQ / PREDELAY

   A medium-long stereo reverb based on a combination of allpass filters and recursing delays, with the response 75% diffused, quite direct and bright.

3. **ROOM** *(stereo)*
   TIME / DAMP / GEOMETRY

   A stereo reverb with multiple parallel allpass chains resulting in relatively short and dense reflection pattern. The GEOMETRY *parameter controls which part of the response (ER vs tail) is more affected by HF damping.*

4. **CAVERNOUS** *(mono to stereo)*
   SIZE / HI-FREQ / ERL_REFL

   A mono to stereo reverb structure with long buildup time based on a tree of recursing delays resulting in even but grainy pattern of reflections. Due to low amount of diffusion, this reverb performs best on harmonically rich sounds with slow attack.

5. **AVALON** *(mono to stereo)*
   SIZE / HI-FREQ / PREDELAY

   A mono to stereo reverb based on a stacked chain of allpass blocks with careful equalization resulting in short decay followed by long bright tails.

6. **LARGE** *(mono to stereo)*
   SIZE / HI-FREQ / PREDELAY

   A mono to stereo reverb structure with several allpass chains in parallel resulting in a complex pattern of reflections with audible traces of echos in the middle frequency range.

7. **SPRING** *(stereo)*
   LENGTH / DAMP / RATIO

   An experimental emulation of a classic spring reverb employing four parallel delay lines with control over springs' stretch.

8. **GARAGE** *(mono to stereo)*
   DECAY / DAMP / PREDELAY

   A lof-fi metalic reverb with relatively short tail and very audible slapback echo component simulating a medium space with bad acoustics.

A bank of interesting reverb variants, featuring simulations of some more unusual and unnatural acoustics that may be useful in experimental, ambient patches.

1. **ABYSS** *(stereo)*
   SIZE / DAMPING / DIFFUSE

   A long and slightly grainy reverb with rich and dense pattern of reflections creating a slowly decaying tail that is thickened in the first 500ms.

2. **UTOPIA** *(stereo)*
   SIZE / SHADE / DIFFUSE

   A long, smooth, slightly bright and airy reverb with built-in animation of the tail resulting in a lively and spacious sound.

3. **VOX_OEA** *(mono to stereo)*
   SIZE / O-E-A / TEXTURE

   A long and and animated reverb with a formant filter at the input, which results in vocal sounding tail that is not affected by the filter until new sounds arrive. Formants morphed between Ooh, Eeh, and Aah.

4. **VOX_UAY** *(mono to stereo)*
   SIZE / U-A-Y / TEXTURE

   A long and and animated reverb with a formant filter at the input, which results in vocal sounding tail that is not affected by the filter until new sounds arrive. Formants morphed between Uuh, Aah, and Yyi.

5. **MODUVERB** *(mono to stereo)*
   SIZE / DAMPING / MODULTN

   A long and spacious mono to stereo reverb based on a tree of allpass chains combined with multitap delays. A modulated diffusion block is employed in the feedback allowing for adjustable balance between tonality and smoothness.

6. **ALIAS** *(mono to stereo)*
   SIZE / ALIASING / FILTER

   An experimental dirty reverb with aliasing block introduced within the main path as well as the feedback loop. It adds grittiness and nonlinear spectral distortions that can be carefully adjusted with a lowpass filter.

7. **PHASEVERB** *(mono to stereo)*
   SIZE / RATE / CREEP

   An experimental mono to stereo reverb with additional phasing effect added to the output stereo pair. The feedback path features an additional slight pitch shifter resulting is audible frequency creep of the tail.

8. **SPLASH** *(mono to stereo)*
   FALL / SIZE / SPILL

   A very unusual reverb-like effect, simulating objects falling into a deep well (which results in Doppler pitch decrease) and splashing at the bottom.

A bank of effects related to amplitude modulation, best known from the cliché Dalek voices.

1. **FILTERED** *(stereo)*
   FREQ / WAVE / FILTER

   A stereo classic ring modulator with internal carrier affecting both channels with phase shifted wave (0–5kHz) that can be morphed between a sine and square. Additional tilt-style filter affects the signal before modulation.

2. **ENVELOPE** *(stereo)*
   FREQ / ENV_MOD / FILTER

   A stereo classic ring modulator with internal carrier affecting both channels with phase shifted sine (0–5kHz) that can be controlled by the input envelope. Additional tilt-style filter affects the signal before modulation.

3. **MODULATED** *(stereo)*
   FREQ / RATE / DEPTH

   A stereo classic ring modulator with internal carrier affecting both channels with phase shifted sine (0–5kHz). The frequency of the carrier is modulated by internal LFO (0–75Hz).

4. **WIDE** *(stereo)*
   FREQ / SIDE_DEL / FILTER

   A ring modulator with special stereo trickery. The internal sinusoidal carrier affects middle and side mapped signals, and the side part can be additionally delayed with regard to middle. Additional tilt-style filter affects the signal before modulation.

5. **2-BAND** *(stereo)*
   FREQ_LOW / FREQ_HGH / SPLIT_FR

   A two-band version of the stereo ring modulator, with independent sinusoidal carriers for each band. The split frequency is controlled by the third parameter.

6. **X-AMFM** *(stereo)*
   FREQ_L / FREQ_R / FILTER

   An experimental, weird cross-modulator. Each input channel is filtered, and then modulated with a separate carrier which in turn is frequency modulated by the signal from the opposite channel.

7. **THRUZ-FM** *(mono)*
   FREQ / DEPTH / WAVE

   A stereo through-zero FM thingy. Each stereo channel features an independent FM operator that is TZ frequency modulated by the input signal. The output amplitude of this operator is copied from the amplitud of the original signal.

8. **FM+AM** *(mono)*
   FREQ / FM_DEPTH / AM_DEPTH

   A combined frequency and amplitude modulator. Each stereo channel is double modulated (FM+AM) by an internal sinusoidal oscillator. Independent controls for FM and AM depth.

SHIMMER *is a bank of special reverb effects that feature additional pitch shifting yielding an eerie ambient tail of the reverb.*

1. **UP** *(mono to stereo)*
   SIZE / AMOUNT / SHIFT

   A flexible interpretation of the shimmer recipe with continuously variable pitch shift at the front of a reverb effect.

2. **2-VOICE** *(mono to stereo)*
   SIZE / FILTER / SHIFT

   A shimmer effect with double pitch shifter within the reverb loop. Generates a sweeping harmonious tail.

3. **DRUNK** *(mono to stereo)*
   SIZE / AMOUNT / DRINK

   An experimental shimmer with a weird unstable pitch shifter within the reverb loop, resulting in distant spooky voices being added to the sound.

4. **OCTAVE** *(stereo)*
   SIZE / DIFFUSE / WARP

   A classic octave shifter based shimmer effect with long ambient tail.

5. **SPIRAL** *(mono to stereo)*
   SIZE / DAMPING / DENSITY

   A shimmer effect with feedback featuring a variable pitch shift and delay yielding a harmonic splash.

6. **RESONATE** *(mono to stereo)*
   SIZE / AMOUNT / FREQ

   An experimental shimmer effect with octave pitch shifter and a resonant filter inside the feedback loop allowing for additional modulation of the tail.

7. **STEPPY** *(mono to stereo)*
   SIZE / STEP / AMOUNT

   A shimmer effect with distinctive delay and lo-fi pitch shifting block inside its feedback. Audible pitch steps in the tail.

8. **FILTERED** *(mono to stereo)*
   SIZE / SHIFT / HI-FREQ

   A shimmer with smooth filtering of its pitch shifted tail, gently introducing angelic ambience.

SPECTRAL *is a bank of effects based on multiband and frequency domain processing of signals.*

1. **DELAY_HI** *(stereo)*
   DELAY_H / SPLIT_FR / FEEDBACK

   A spectral dispersive delay with high frequencies being more delayed than lower frequencies.

2. **DELAY_LO** *(stereo)*
   DELAY_L / SPLIT_FR / FEEDBACK

   A spectral dispersive delay with low frequencies being more delayed than higher frequencies.

3. **SCATTER** *(mono)*
   RANGE / FEEDBACK / SHIFT

   An experimental effect involving shifting signal spectrum to higher frequencies, diffusing the signal, and shifting down to original frequencies. The result is an unusual spectro-temporal scattering of transients.

4. **ALIEN_DEL** *(mono)*
   DELAY / FEEDBACK / SHIFT

   An experimental effect involving shifting signal spectrum to higher frequencies, applying a feedbacked delay, and shifting down to original frequencies. All this results in a cascade of oddly shifted echoes when SHIFT *parameter is modulated.*

5. **PANORAMA** *(mono to stereo)*
   FILTER / RATE / DEPTH

   A spectral autopan effect. The input signal is split to 3 frequency bands. Each band receives different panning animated by a separate LFO.

6. **UPSHIFT** *(stereo)*
   SHIFT / FEEDBACK / DELAY

   A stereo frequency shifter effect using Hilbert method offering a range of 0Hz up to 2.5kHz. The SHIFT *parameter is nonlinearly bent to facilitate setting a very small amount. Adjustable* DELAY *in the feedback loop yields cascaded shifted echoes.*

7. **DOWNSHIFT** *(stereo)*
   SHIFT / FEEDBACK / DELAY

   A stereo frequency shifter effect using Hilbert method offering a range of 0Hz down-to -5kHz. The SHIFT *parameter is nonlinearly bent to facilitate setting a very small amount. Adjustable* DELAY *in the feedback loop yields cascaded shifted echoes.*

8. **DIFFRACTN** *(stereo)*
   WAVLEN_1 / WAVLEN_2 / FEEDBACK

   A DSP interpretation of acoustic wave diffraction and interference obtained by confronting two detuned comb filters.

Time-based rhythmic effects synchronized to an external clock (tap-tempo style). Stereo programs use first parameter as the clock input (NOTE: slider sets threshold). Mono ones use right audio input for the clock, and allow setting a tempo division or multiplication with the first parameter. NOTE: bar length is clipped when it exceeds the available range.

1. **MONO-LONG** *(mono)*
   RATIO / FEEDBACK / FILTER

   A long (up to 2 seconds) mono delay with filtered feedback. RATIO *scales the tempo by 1:2, 2:3, 1:1, 3:2, and 2:1.* NOTE: *special subsampling technique prevents smooth changes of the delay time.*

2. **M-SMOOTH** *(mono)*
   RATIO / FEEDBACK / FILTER

   A smooth mono delay (up to 1sec) with filtered feedback. RATIO *scales the tempo by 1:2, 2:3, 1:1, 3:2, and 2:1. Quick changes of the scaling factor result in smooth pitch response.*

3. **ST-SMOOTH** *(stereo)*
   TAP / FEEDBACK / FILTER

   A smooth stereo delay (up to 500msec) with filtered feedback.

4. **ST-PPONG** *(stereo)*
   TAP / FEEDBACK / FILTER

   A stereo ping-pong delay (up to 0.5sec) with filtered cross-feedback between channels.

5. **DUAL_M** *(dual mono)*
   TAP_L / FEEDBACK / TAP_R

   A dual mono tap tempo delay (up to 0.5sec in each channel) with two independent tap inputs (no scaling). A common feedback control available on parameter 2.

6. **M2ST** *(mono to stereo)*
   TAP / FEEDBACK / FILTER

   A mono to stereo tap tempo delay (up to 1sec in total). Left output is a first tap of the delay line, right output offers a second echo of the sound. A single filtered feedback loops the signal after the second tap.

7. **MULTIFIL** *(mono to stereo)*
   TAP / FEEDBACK / SPLIT_FR

   A multi-tap filtered mono to stereo tap-tempo delay. Various taps are panned left and rigth with different filter responses creating a complex pattern of rhythmic filtered echoes synced to the input clock.

8. **MONO+ALS** *(mono)*
   RATIO / FEEDBACK / ALIASING

   An experimental, long (up to 8 seconds!) and very digital sounding lo-fi tap-tempo delay with additional aliasing distortion added in the feedback loop.

The program banks are presented in this document in alphabetical order. However, the banks in Timiszoara are sorted in the order they were written to the card.