Meta-Gest

A flexible and adaptable performance environment created in Max/MSP for real-time audio processing.

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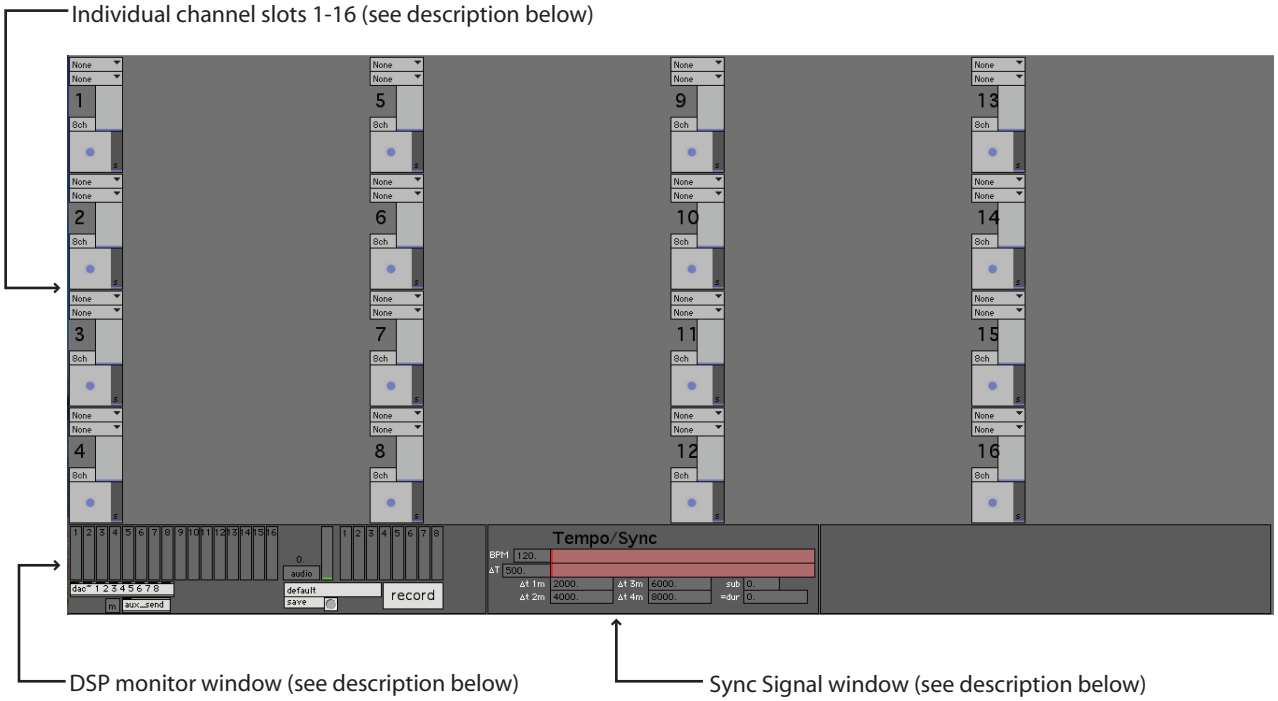
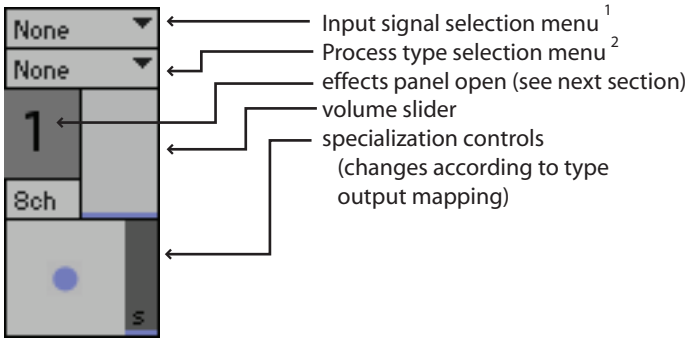
Meta-Gest: A flexible and adaptable performance environment created in Max/MSP for real-time audio processing.

Meta_Gest: *Overview* Navigating the main processing interface.



Channel_strip:

load processing modules, set input signals, and adjust volume and pan



1. Choose from direct ADC input, pre or post fader signals from the individual channels, or one of the aux send signals.
2. Select from the menu to load one of the processing modules into the channel slot.

1. Signal input list

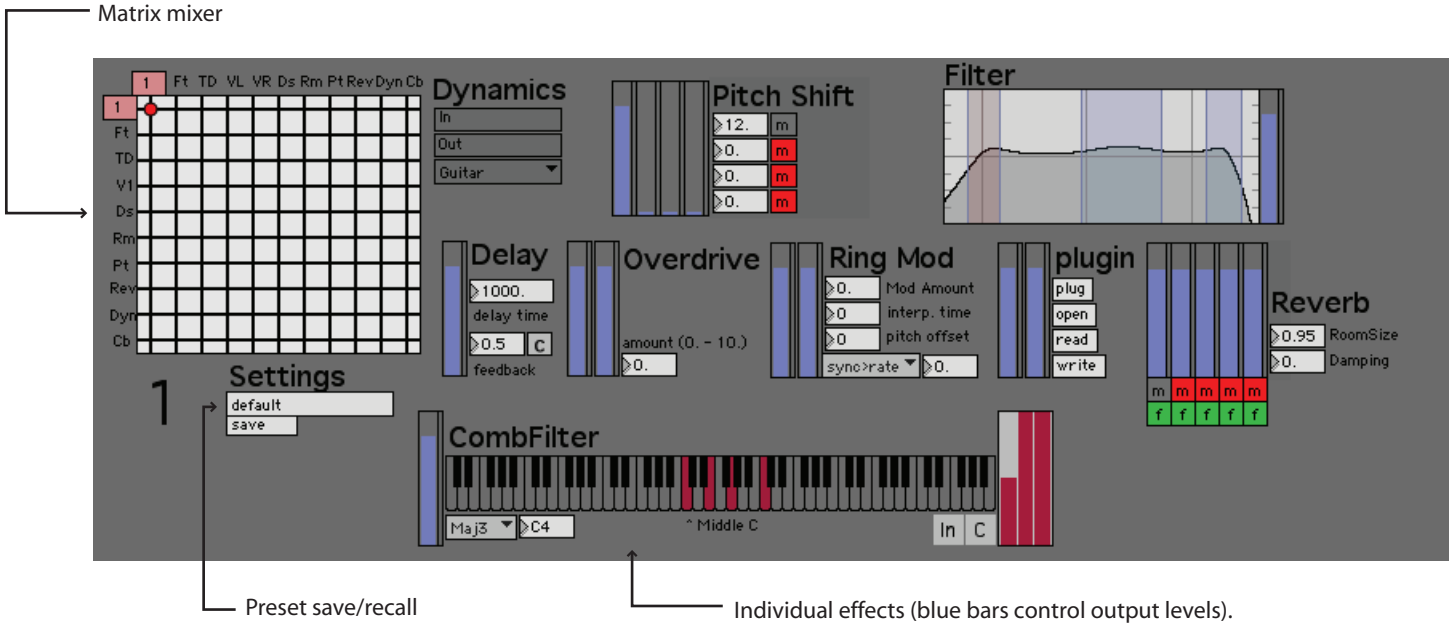
None	adc1
1Pre	adc2
1Post	adc3
2Pre	adc4
2Post	adc5
3Pre	adc6
3Post	aux1
4Pre	aux2
4Post	out
5Pre	out2
5Post	
6Pre	
6Post	
7Pre	
7Post	
8Pre	
8Post	

2. Process list

None
GrainLt
Granular
Filter
convolve
morph
sample
sync
linein
freezer
looper

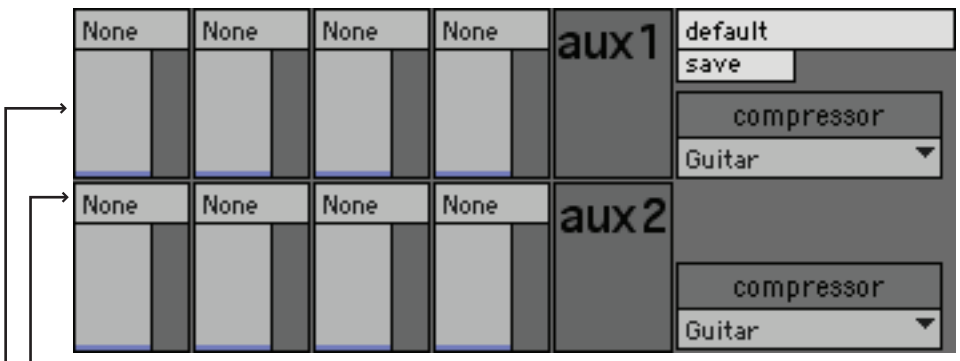
The effects window:

The effects window allows you to apply various signal processing effects to the channel output signal. It uses a matrix mixer to allow flexible routing of the signal, including the ability to feed a process back into itself. Inputs are represented by rows, outputs are in the columns.



The aux assign window:

Adjust the volume of up to four input signals for each aux send channel. Apply compression and save as a preset.

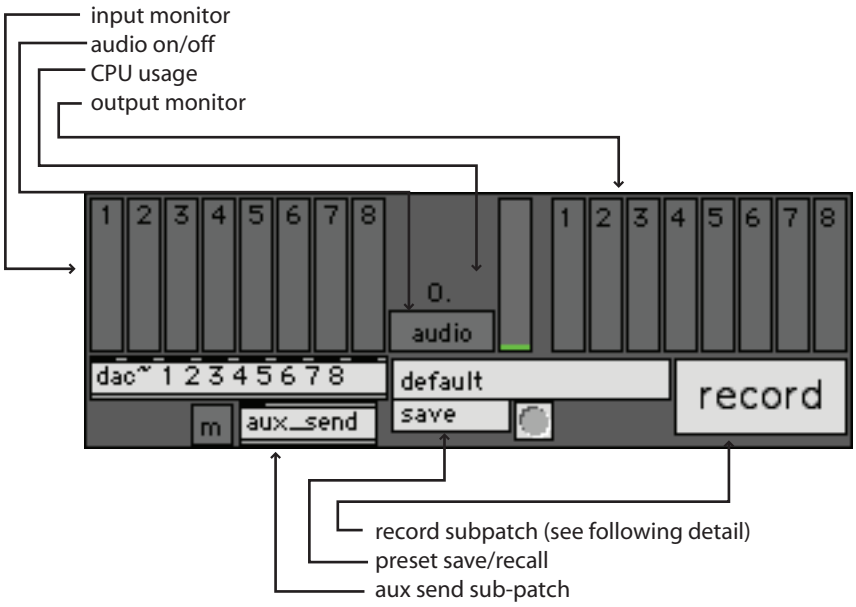


input list

None
1Pre
1Post
2Pre
2Post
3Pre
3Post
4Pre
4Post
5Pre
5Post
6Pre
6Post
7Pre
7Post
8Pre
8Post
adc1
adc2
adc3
adc4
adc5
adc6
aux1
aux2
out
out2

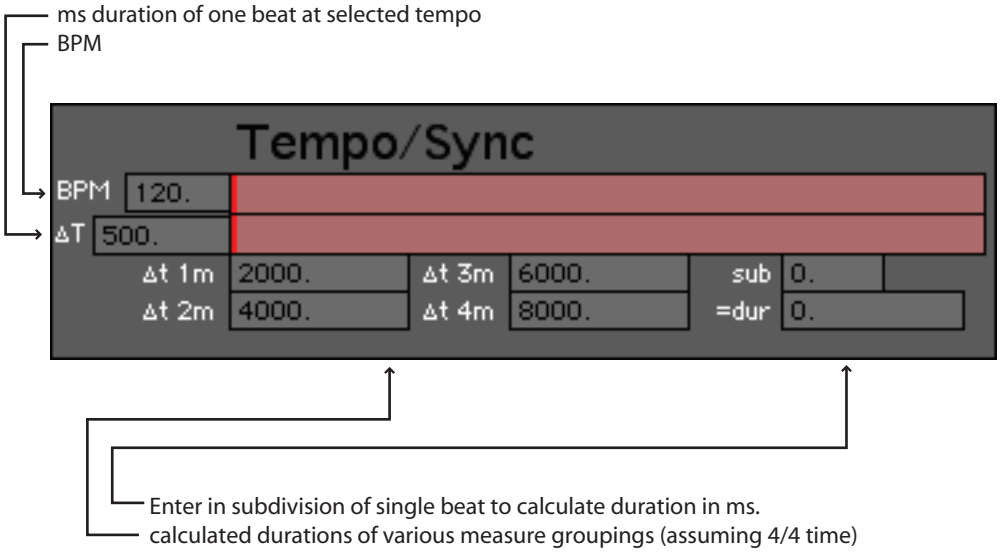
DSP monitor window:

Monitor input and output signal levels, access the aux send assignments, turn on/off signal processing, load in an overall preset and access the multichannel recording patch.



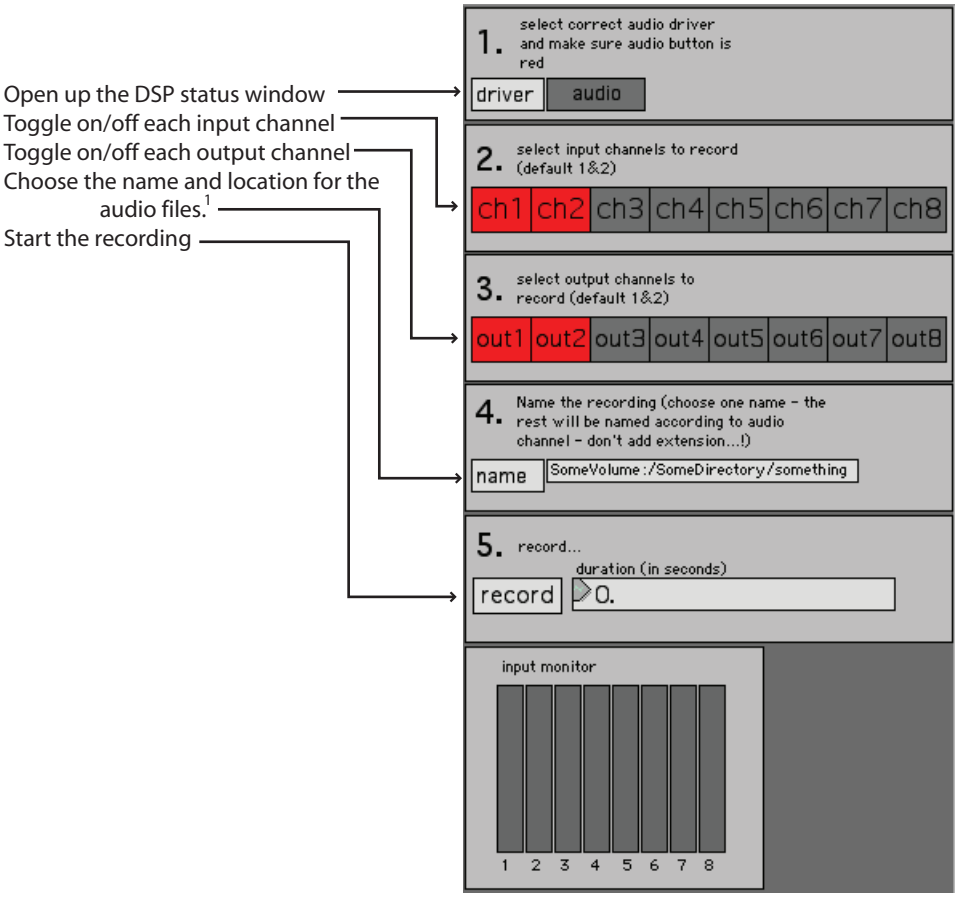
Sync Signal:

Set the project tempo sync signal and calculate measure or beat sub-division durations in ms.



Multi-Channel Recording:

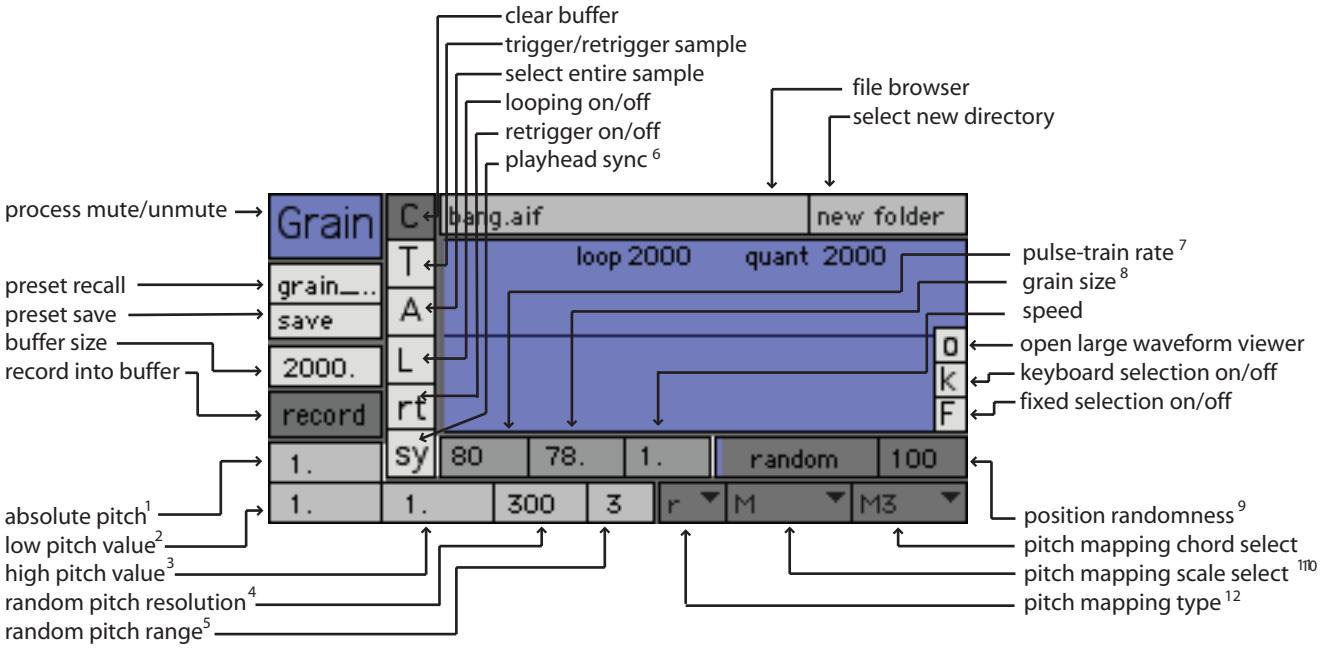
Create discrete audio files for various input and output channels.



1. Inputs files are automatically named with _in1.aiff, _in2.aiff, etc. extensions. Outputs file have _out1.aiff, _out2.aiff, etc. extensions.

GrainLt:

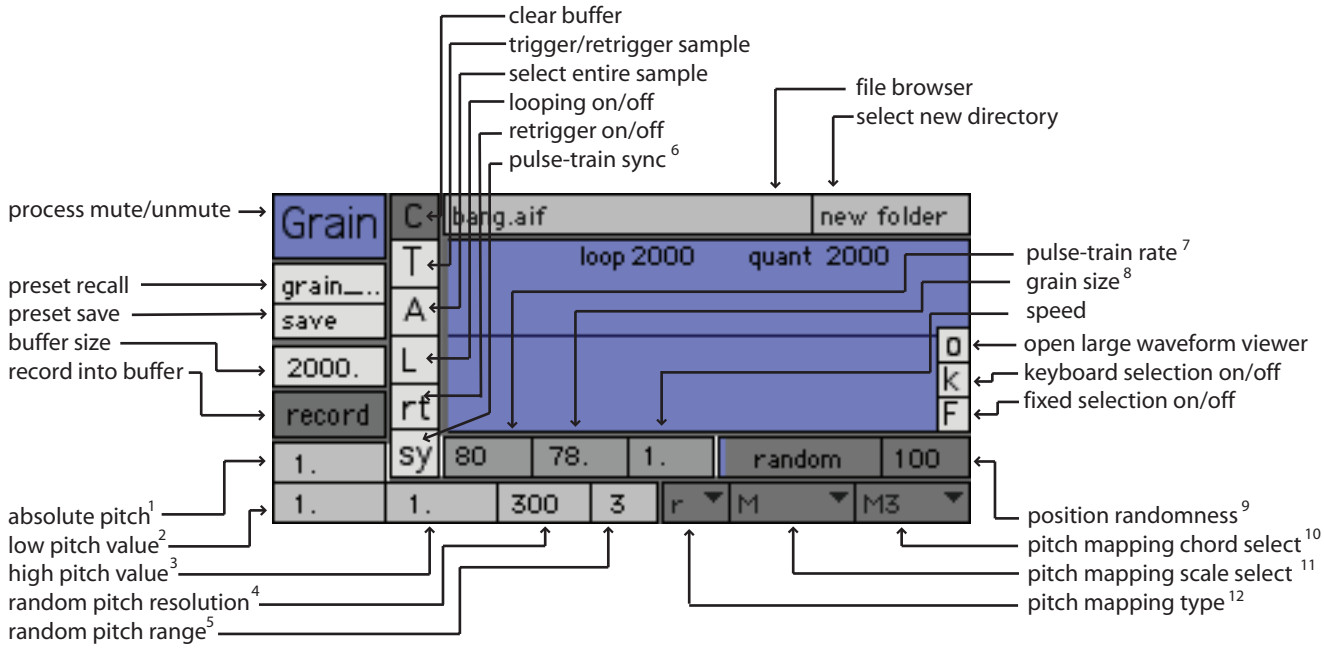
a sample playback module that uses a single-windowed granular process to allow independent control of time and pitch as well as many other fun granlar-based effects (less CPU expensive).



1. This parameter tunes all of the grains to the same pitch.
2. Defines the lower limit of the pitch spread when random (r) pitch mapping is selected.
3. Defines the upper limit of the pitch spread when random (r) pitch mapping is selected.
4. Defines the number of equal stages between the lower and upper limits of the random pitch spread.
5. Defines the maximum number of pitch increments a grain can move when in random mapping mode.
6. Force the playhead to follow the global sync signal (speed variable becomes rate multiplier).
7. This parameter determines the size of the secondary windowing function.
8. Determines the size of the primary windowing function.
9. Introduce bandlimited noise to the playhead position.
10. Define the type of chord to use when in chordal pitch mapping mode.
11. Define the type of scale map to use when in scalar pitch mapping mode.
12. Select from random (see notes 2. and 3.), scalar, or chordal pitch mappings.

Granular:

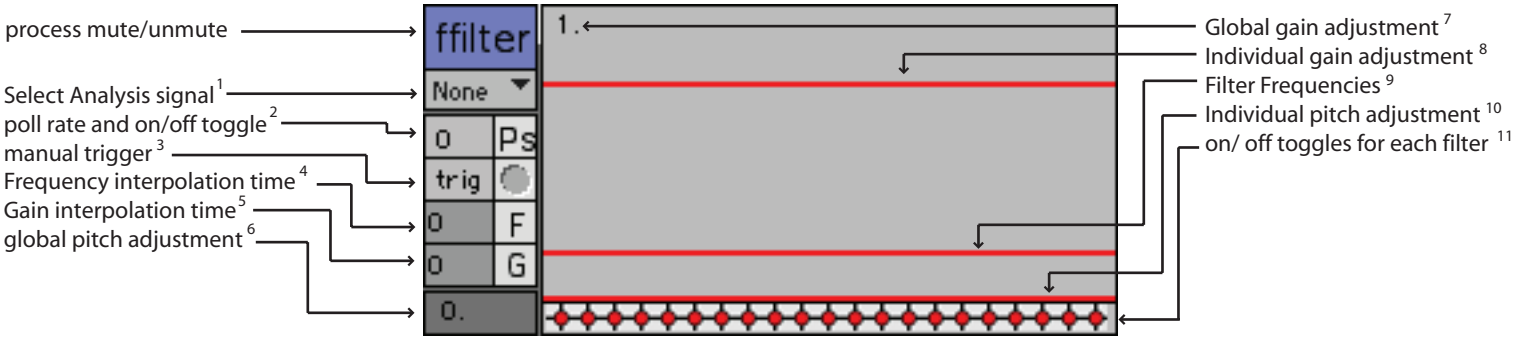
a sample playback module that uses a double-windowed granular process to allow independent control of time and pitch as well as many other fun granlar-based effects.



1. This parameter tunes all of the grains to the same pitch.
2. Defines the lower limit of the pitch spread when random (r) pitch mapping is selected.
3. Defines the upper limit of the pitch spread when random (r) pitch mapping is selected.
4. Defines the number of equal stages between the lower and upper limits of the random pitch spread.
5. Defines the maximum number of pitch increments a grain can move when in random mapping mode.
6. Toggle on to automatically scale the window sizes to maintain original relationship.
7. This parameter determines the size of the secondary windowing function.
8. Determines the size of the primary windowing function.
9. Introduce bandlimited noise to the playhead position.
10. Define the type of chord to use when in chordal pitch mapping mode.
11. Define the type of scale map to use when in scalar pitch mapping mode.
12. Select from random (see notes 2. and 3.), scalar, or chordal pitch mappings.

ffilter:

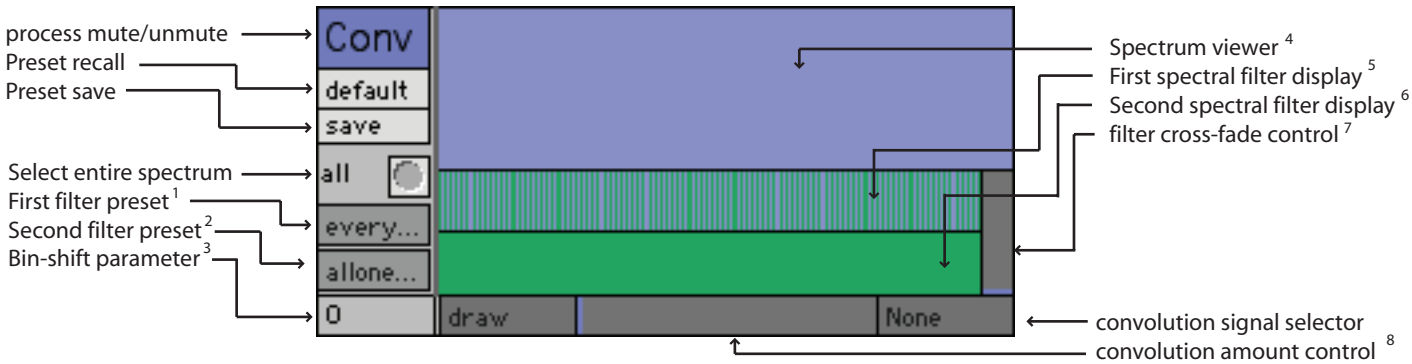
A bank of filters based on the fiddle~ and fffb~ objects. Allows you to tune the filters according to the spectral information of an input signal with independent gain and frequency control.



1. Choose which signal will be analyzed by the fiddle~ object.
2. Enable frequency information to be polled automatically at the defined time interval.
3. Poll the input signal to enter a new list of frequencies and relative gains.
4. Enter the time it takes for the frequencies to arrive at their new values once it has been polled.
5. Enter the time it takes for the grain values to arrive at their new values once it has been polled.
6. Adjust all frequency values in the list.
7. Adjust all gain values in the list.
8. View or adjust individual gain values with the multislider object.
9. View or adjust individual frequency values with the multislider object.
10. View or adjust individual frequency multipliers.
11. Enable or disable individual filters.

Convolve:

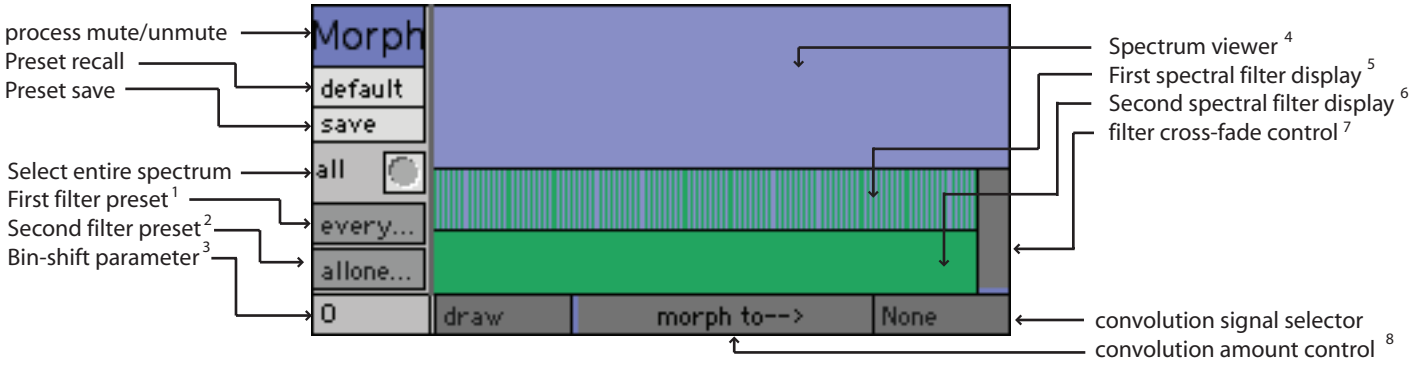
cross-synthesis of two signals using amplitude convolution. The module also includes two pannable fft-based spectral filters, a linear bin-shift effect, and a slider to control how much the signals are convolved.



1. Choose a pre-made buffer for filter one.
2. Choose a pre-made buffer for filter two.
3. Linearly shift the output bins to perform a non-harmonic pitch shift.
4. Click and drag on the spectrum to voom into a particular area.
5. Draw on the waveform object to shape the first filter.
6. Draw on the waveform object to shape the second filter.
7. Pan between the first and second filter states.
8. Pan from the unprocessed input signal on the left to a completely convolved output on the right.

Morph:

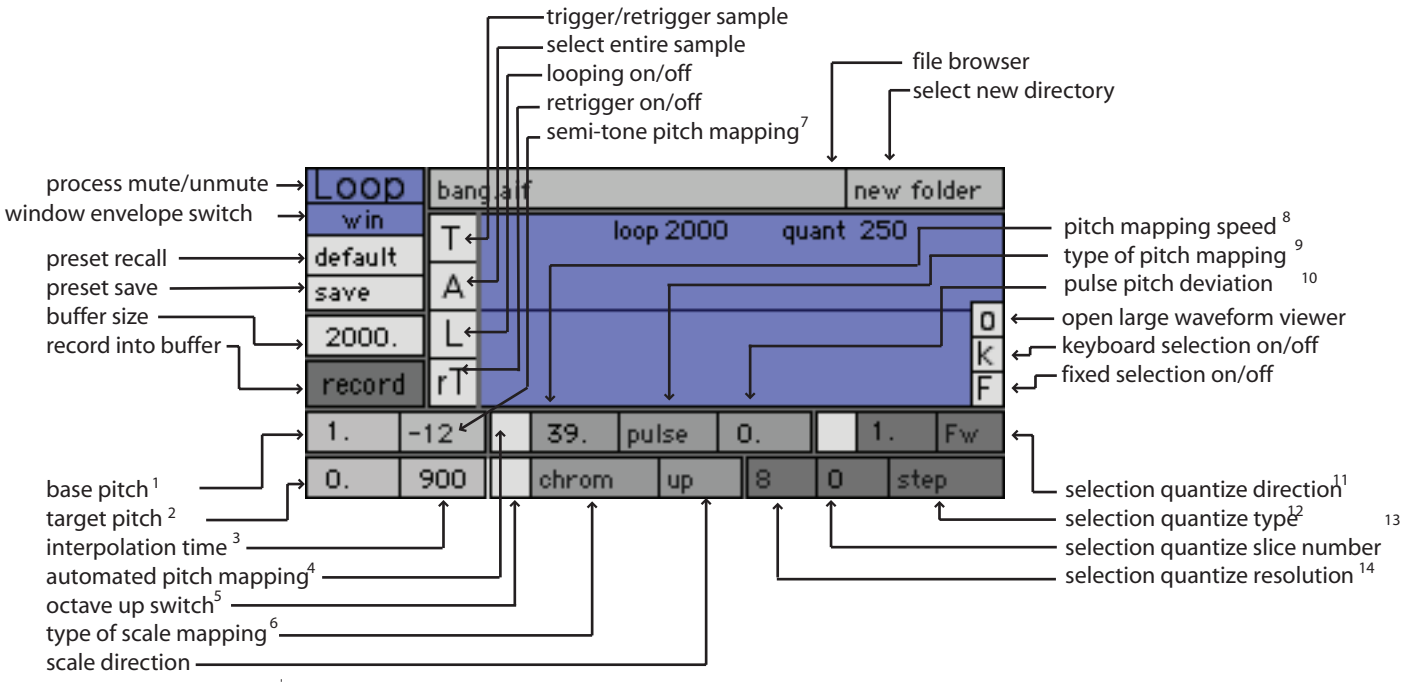
cross-synthesis of two signals using complex convolution. The module includes two pannable fft-based spectral filters, a linear bin-shift effect, and a slider to spectrally 'morph' between the two signals.



1. Choose a pre-made buffer for filter one.
2. Choose a pre-made buffer for filter two.
3. Linearly shift the output bins to perform a non-harmonic pitch shift.
4. Click and drag on the spectrum to zoom into a particular area.
5. Draw on the waveform object to shape the first filter.
6. Draw on the waveform object to shape the second filter.
7. Pan between the first and second filter states.
8. Pan from an unprocessed signal on the left or right to a completely convolved output in the middle.

Sample:

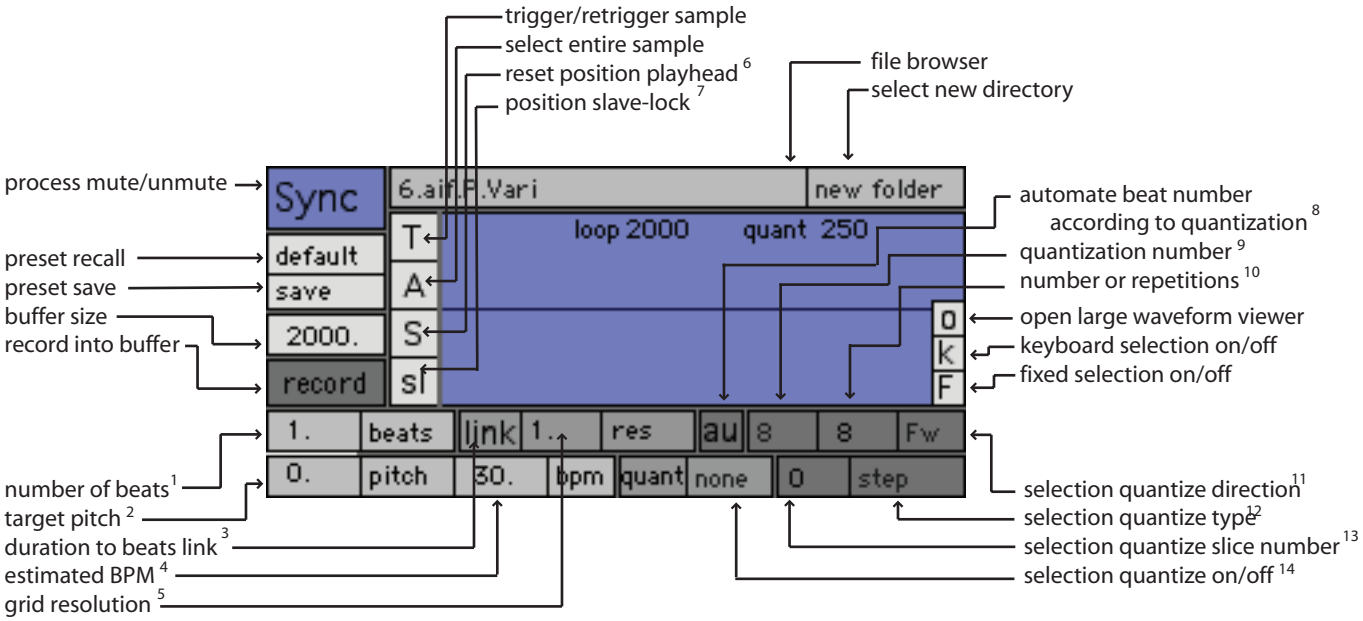
a basic sample playback module built around the MSP groove~ object. It includes various scale-based and tone-row pitch mappings as well as a selection quantizing and a windowed looping function.



1. Change the pitch/rate of playback by sample rate conversion.
2. Create a glissando pitch effect by smoothly moving from this pitch value to the base pitch value.
3. Sets the interpolation time for the glissando pitch effect.
4. Activate the sync-based triggering of pitch mapping.
5. Shift all pitch mappings up one octave.
6. Choose from various preset pitch mappings or enter in your own tone row.
7. Use this menu to set the base pitch or enter in a new tone row.
8. Determines the rate of triggering by setting the number of subdivisions of the sync signal.
9. Select from Scale (up or down the selected scale), Random (randomly play selected scale), or Pulse (uses the glissando pitch effect to create a continuous stream of pitch ramps).
10. Determines the range of pitch ramps in 'Pulse' pitch mapping mode.
11. Step forward or backwards through the quantized slices.
12. Choose between random and sequential slice ordering.
13. Displays the currently playing slice. You can also enter a number here to jump to that slice directly.
14. Determines the number of slices to create from the current selection.

Sync:

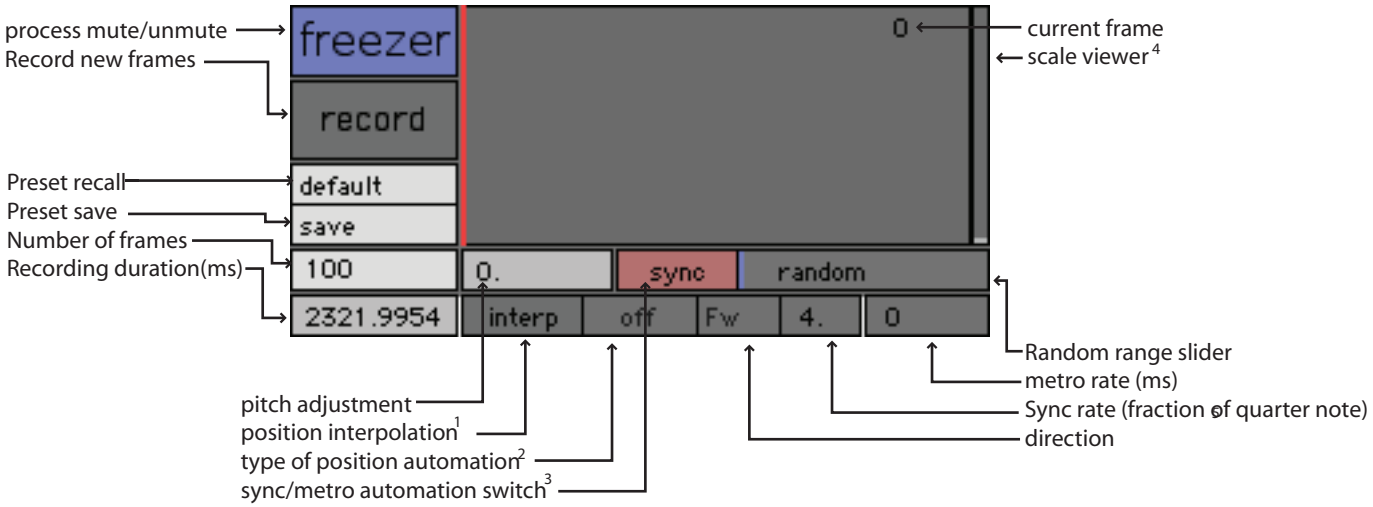
A sample loop player that is slaved to the main sync signal.



1. Enter in the number of beats (quarter notes) to set the sync signal rate multiplier.
2. Adjust the pitch (time-independant).
3. When initiated, the beats value will adjust itself according to the current selection's fractional relationship to the overall selection.
4. Displays the BPM value of the current selection according to the sync signal's BPM value and then number of beats of the selection.
5. Enter in a fraction or multiple of a quarter note to set the selection grid resolution.
6. Reset the position playhead to the sync signal.
7. Prevent the position playhead from becoming out of sync with the sync signal (disables the trigger button).
8. When initiated, the beats value will adjust itself according to the current quantization setting.
9. Enter the number of equal subdivisions of the current selection.
10. How many times each subdivision should be repeated before moving to the next.
11. Move through the sample in forward, reverse, or ping-pong motion.
12. Step through the slices linearly or randomly.
13. Displays the currently playing slice. You can also enter a number here to jump to that slice directly.
14. Turn on/off selection quantization (see note 5).

freezer:

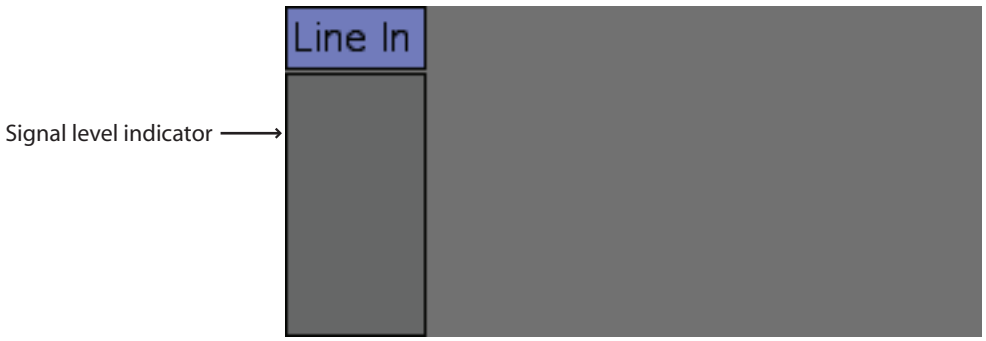
A phase vocoder module that records spectral data into a buffer to allow independent pitch, time, and frame resynthesis order manipulations.



1. Generates ramped line-segments between successive frame selections.
2. Choose between manual, sequential, or random automation of frame selection.
3. When automation mode is on, choose between sync-signal or ms metro triggering.
4. Move slider to adjust vertical resolution.
5. Random slider determines the amount of deviation away from the current frame when in random mode.

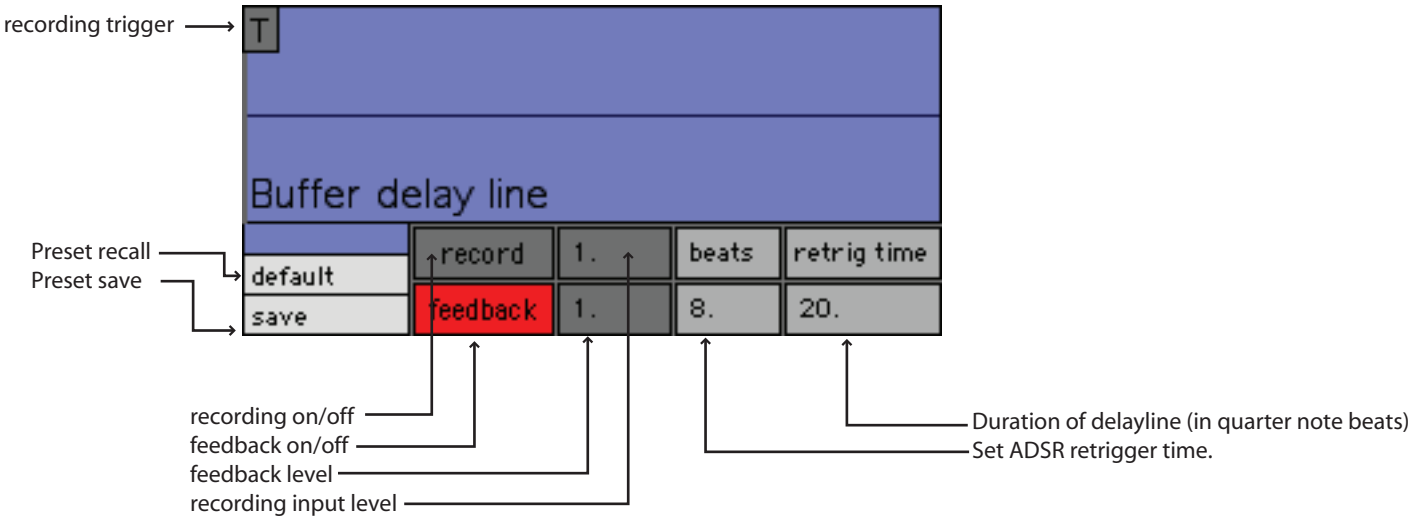
Linein:

Used mainly for monitoring, routing, or applying effects to audio signals.



looper:

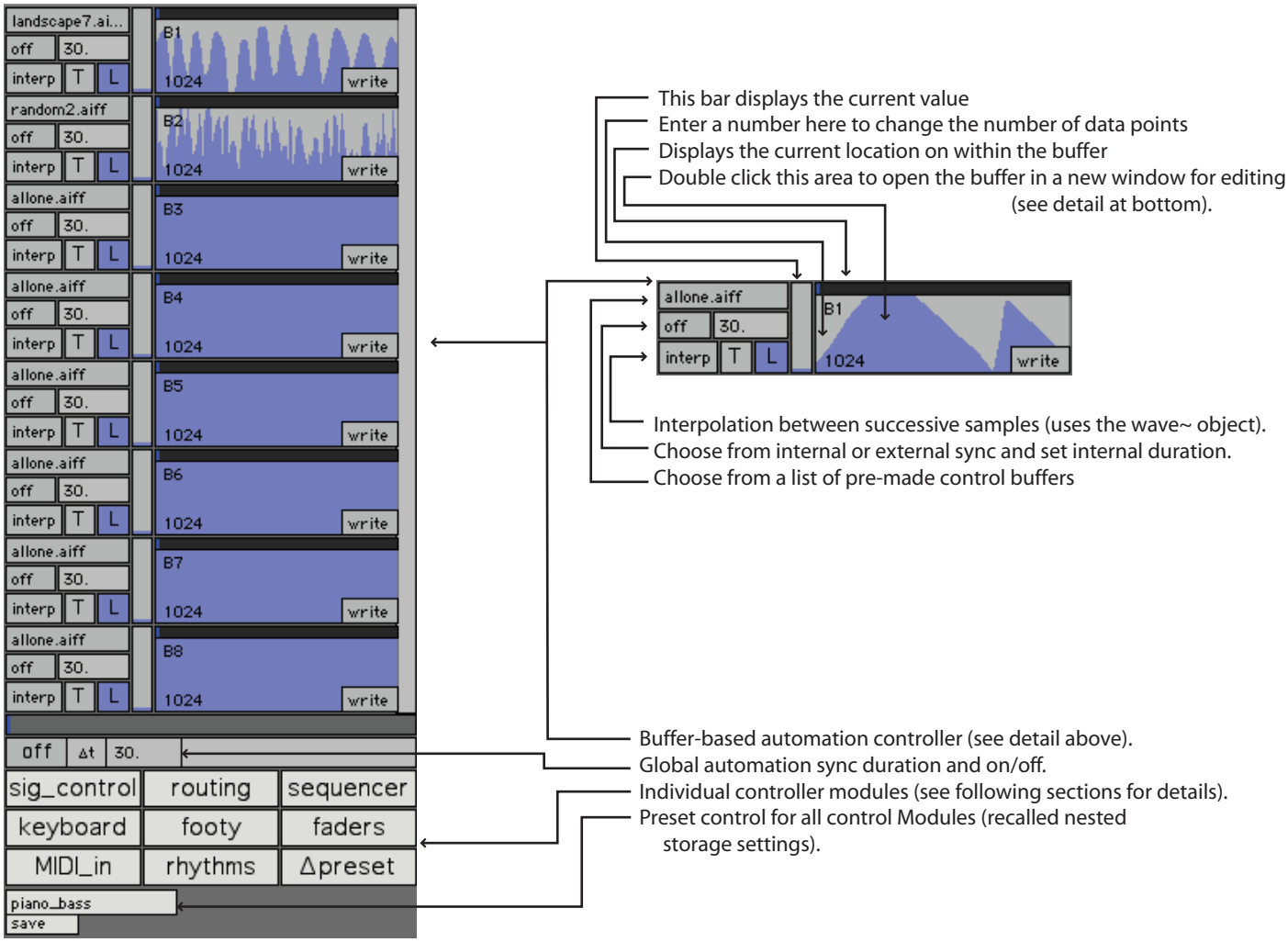
a buffer-based delay-line with variable input and feedback levels and an ADSR envelope for triggered recording.

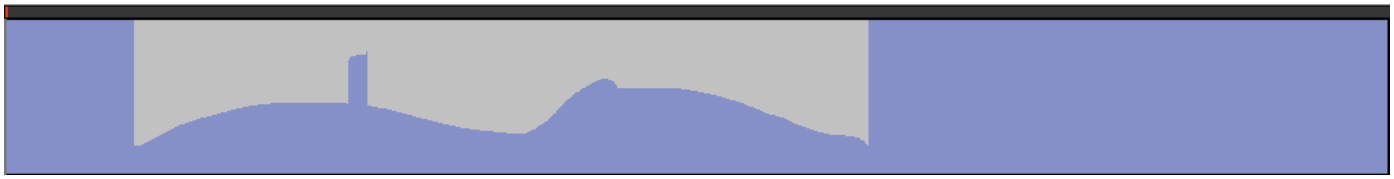


MG_Control: Managing control data for the processing modules in Meta_Gest player.

Overview:

navigating the main control interface. All control information is sent as a list of three elements, the first determines where the data should be routed, the second determines which parameter to control and the third is the actual control data.

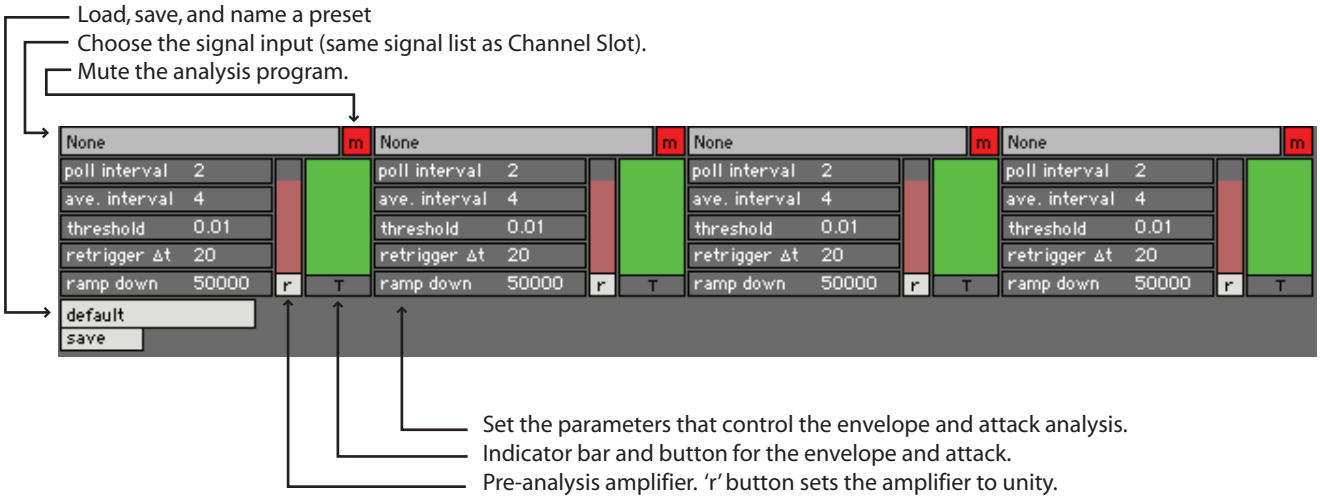




Detail of buffer drawing window.

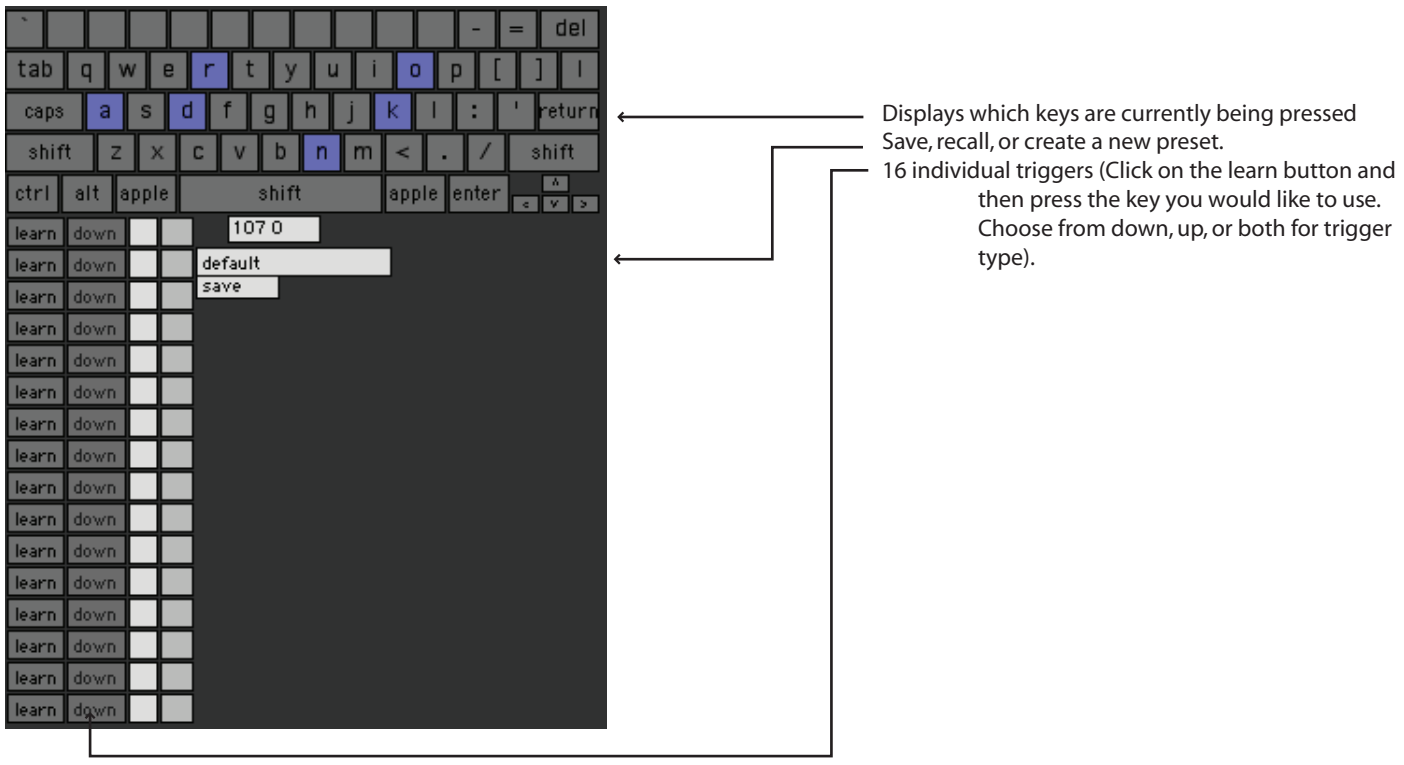
Sig_control:

Use an audio signal's envelope or attack as control data (listed as Amp#e or Amp#t respectively). The envelope follower uses the slide~ object for different smoothing of signal increases and decreases. The attack detector compares the current amplitude value with the average of a set number of preceding amplitudes.



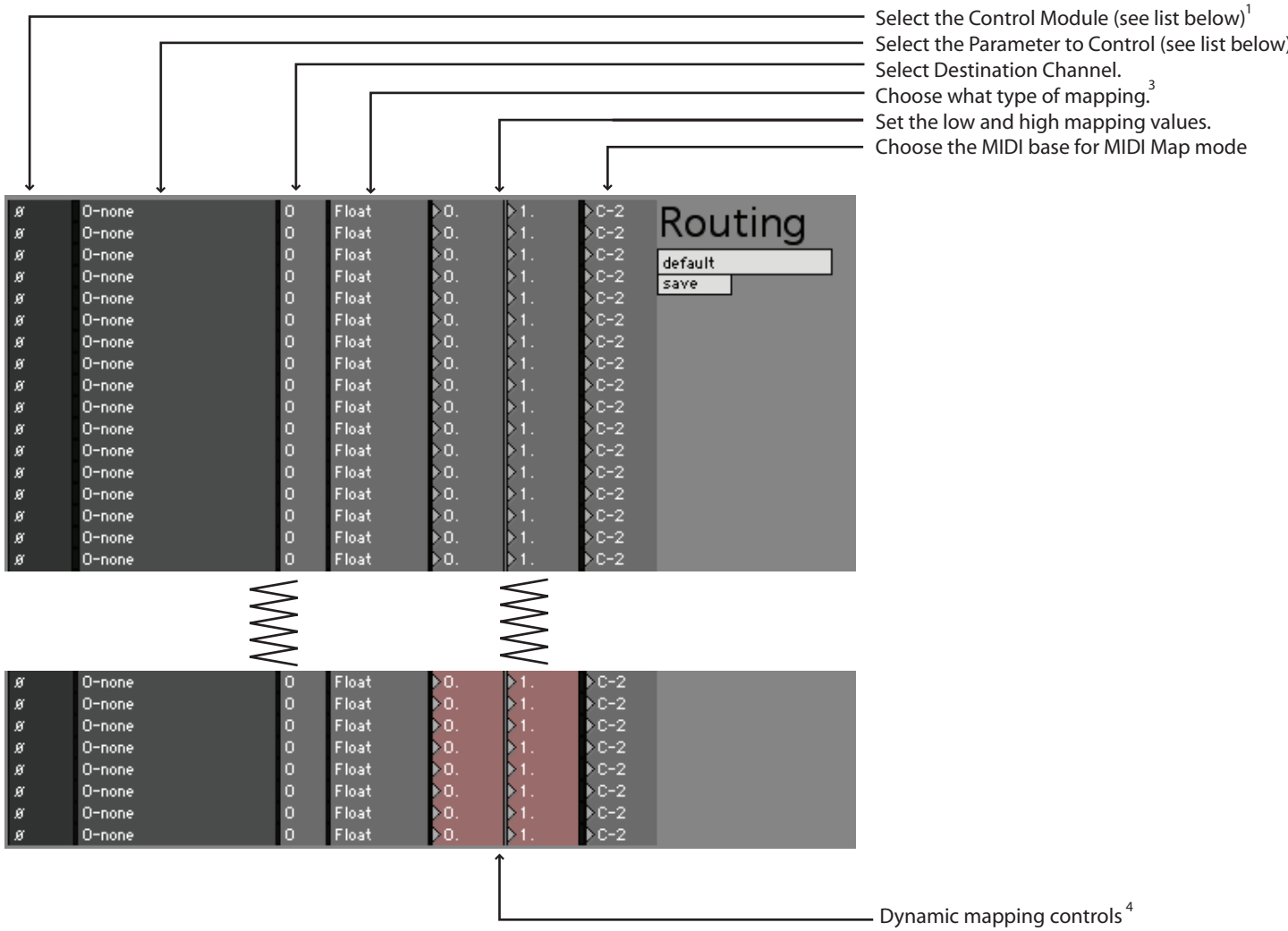
Keyboard:

Use the computer's keyboard to send trigger control data. Sends of key-down, key-up, or both.



Routing:

The is where all the control data is received, scaled, and then sent to the processing modules.



1. Control Modules are listed with an abbreviation followed by the specific number (See below for abbreviation list).
2. Each controllable parameter has a unique number associated with it (See next page for full parameter list).
3. Different Mappings include floating point interpolation, MIDI note (according to a reference), and change (sends a bang whenever there is a change).
4. This variation allows any of the control module to adjust the scale low and high values on another controller map.

Control Module Abbreviation List.

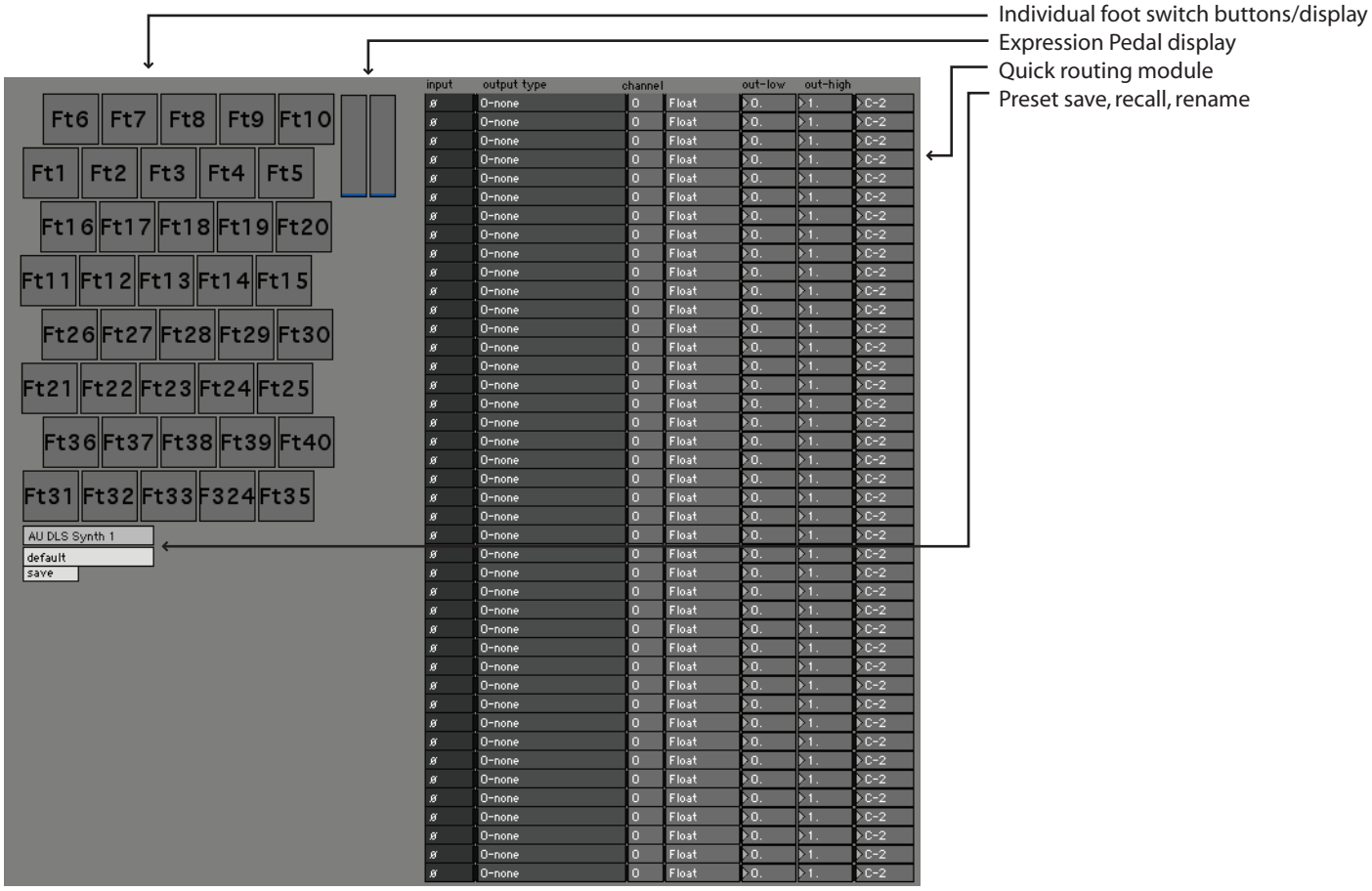
B - Buffer-based automation control
M - MIDI control
R - Buffer-based record control
UC - Evolution UC33e fader control surface
RH - Rhythm modules
BT - Beat trigger
BS - loop-based trigger control
BSs - Step Sequencer
Amp#e - amplitude envelope
Amp#t - amplitude threshold trigger
Ky - computer keyboard control
Ft - Foot switch control
Fc - Foot continuous controller

Full Parameter List:

0-none	21-Channel fader	42 eDelayFeedback	63 eReverbMute4
1-target pitch	22- Channel pan	43 eDistortVol	64 eReverbMute5
2-pulse speed	23-MIDI	44 eDistortInput	65 eReverbFrez1
3-grain size	24-multipan angle	45 eDistortknee	66 eReverbFrez2
4-speed	25-multipan distance	46 eDistortcutoff	67 eReverbFrez3
5-range	26-multipan sub	47 eRingVol	68 eReverbFrez4
6-step size	27 multipan time	48 eRingVolRing	69 eReverbFrez5
7-min pitch	28 ePitchVol1	49 eRingModAmt	70 eReverbSize
8-max pitch	29 ePitchVol2	50 eRingIntTime	71 eReverbDamp
9-record	30 ePitchVol3	51 eRingOffset	72 edelay_trigger
10-soundfile	31 ePitchVol4	52 ePlugVolL	73 buffer_clear
11-convolution-pan	32 ePitchPitch1	53 ePlugVolR	74 loopon_off
12-convolution-target	33 ePitchPitch2	54 ePlugP2	
13-pulse on/off	34 ePitchPitch3	55 eReverbVol1	
14-trigger	35 ePitchPitch4	56 eReverbVol2	
15-gain	36 eFilterVol	57 eReverbVol3	
16-frequencyslewon/off	37 eFilterFreq	58 eReverbVol4	
17-frequencyslewvalue	38 eFilterGain	59 eReverbVol5	
18-gainslewon/off	39 eFilterQ	60 eReverbMute1	
19-gain slewvalue	40 eDelayVol	61 eReverbMute2	
20-filtertype-pan	41 eDelayTime	62 eReverbMute3	

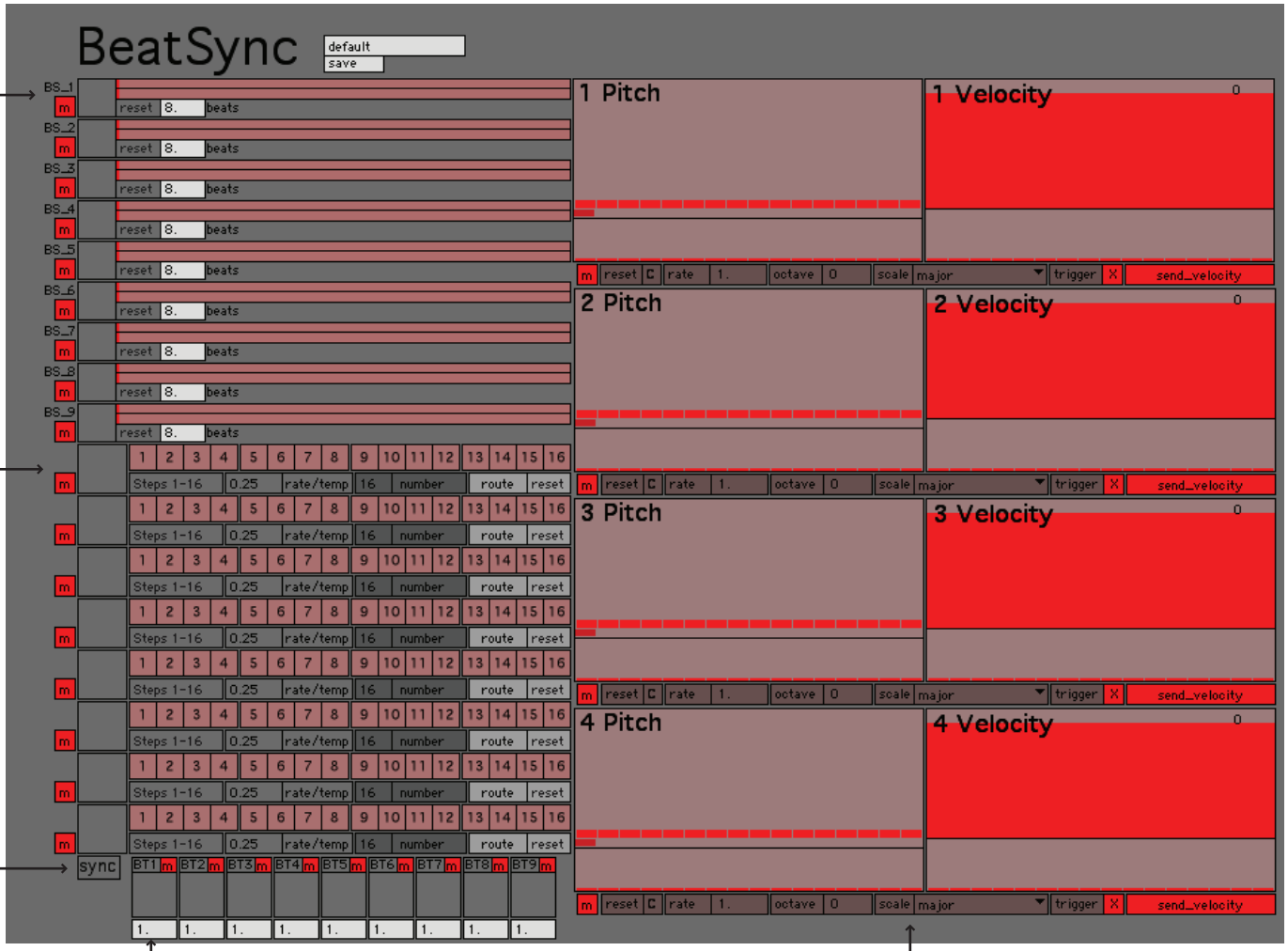
footy:

Input module for MIDI foot controller.

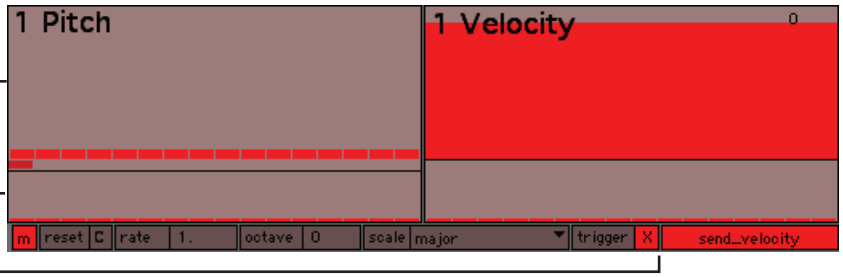


Sequencer:

Various control modules to organize and trigger events in time. Modules include loop-based sequencers, sync signal-based sequencers, step sequencers, and a few idiosyncratic pitch/velocity generators.



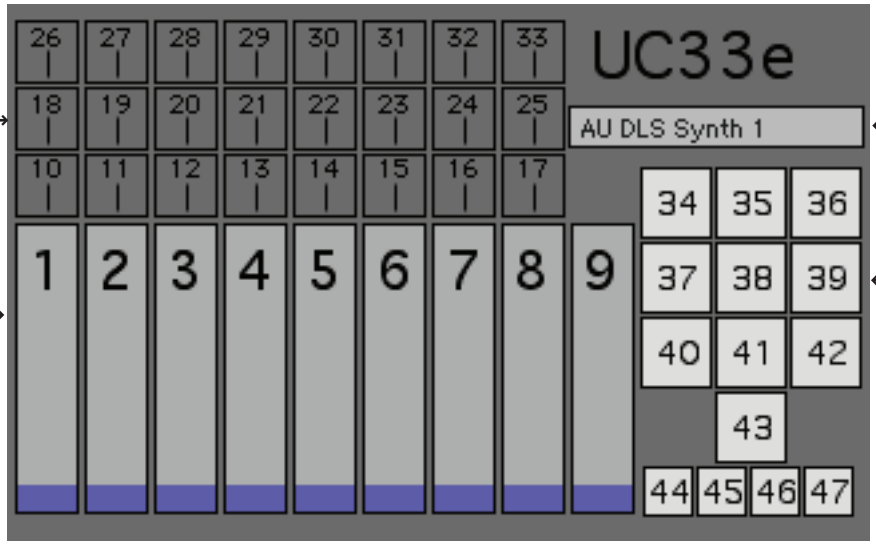
Beat-trigger module. Enter in a rate relative to the global sync-signal.
Restart all the step-sequence modules.
Step Sequencer module - enter parameters for number of steps and resolution.
Loop-based sequencer - set the duration of the loop according to sync-signal beats, and then enter trigger impulses by clicking on the square at the left.



Automatically route trigger (parameter 14) and velocity values (parameter 21) to the processing channels.
Adjust controls for rate, octave, and scale mapping. 'M' button mutes the module.
Raise these sliders to adjust the amount each pitch or volume value can randomly deviate per cycle.
Enter pitch and velocity values (intended for use with the 'Sample' module).

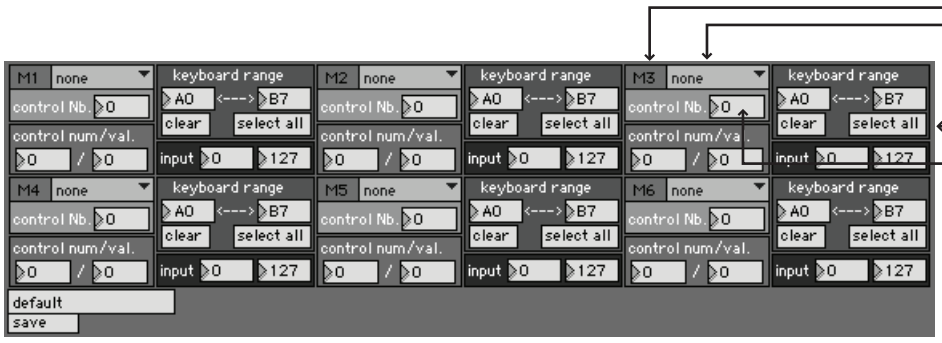
Faders:

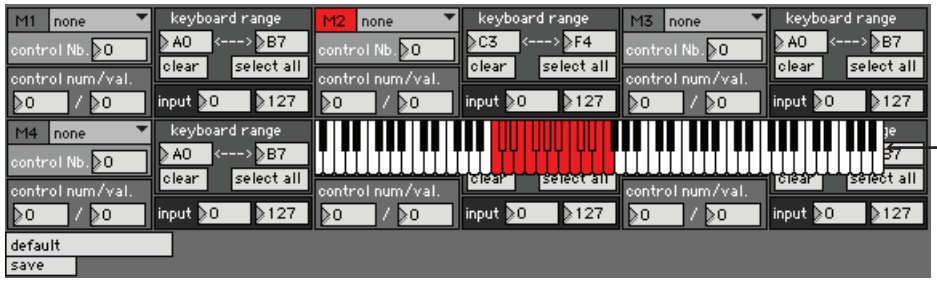
Direct input for MIDI control surfaces such as the Evolution UC-33e.



MIDI_in:

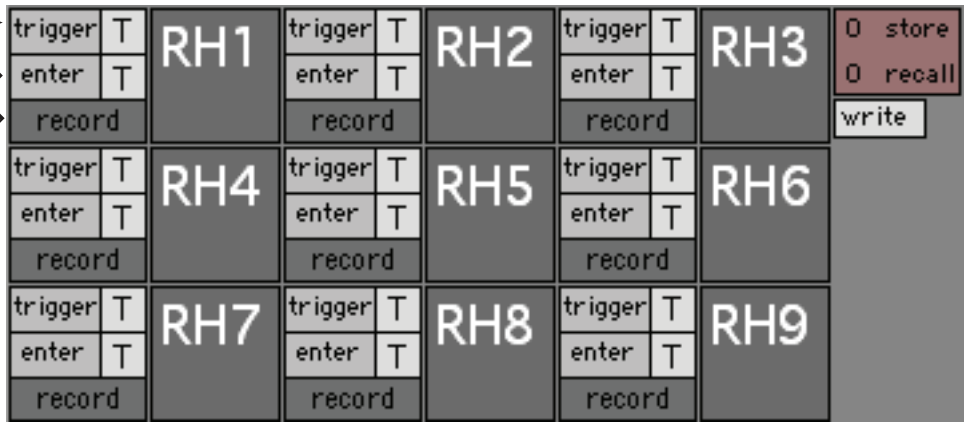
A MIDI input module for note, velocity, pitchbend, and controller inputs.





Rhythms:

Another control module for holding trigger events. This module, however, is not slaved to the master sync signal.



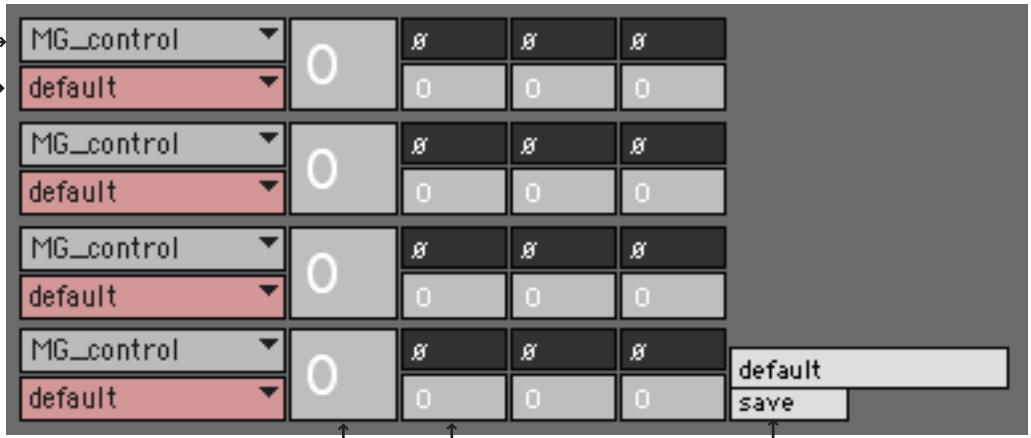
Preset store, recall, and write (previous interface).

Trigger the rhythmic sequence.
click on the 'T' button to enter in a new sequence
Erase the current sequence and start a new one. Times are not recorded until the first trigger is received.

Delta_preset:

Use the Footy input to change a preset setting in any of the other control modules.

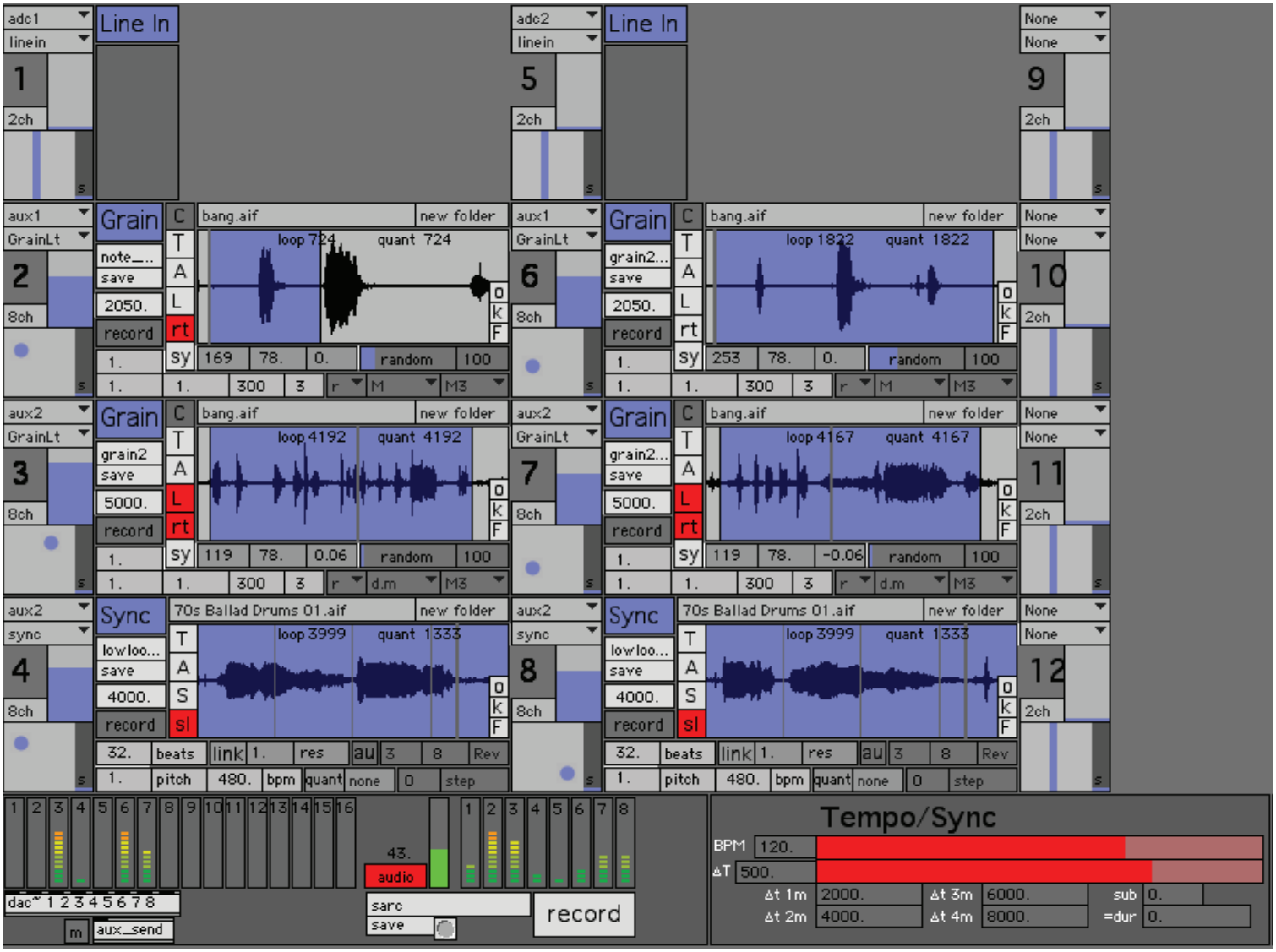
Displays a list of the available presets for a given Control Module. Automatically updates when a new Control is selected.
Choose the Control Module you would like to change.



Preset recall, save, or rename.
Choose the footy controller and the corresponding preset number.
Displays the currently triggered preset.

32_grains:

This pieces uses four granular and two sample record/playback modules. The sequencer triggers recording in the granular and sampler modules, and can be turned on and off with the foot controller.



Channel 1 - Monitor for ADC channel 1.
Channel 2 - Granular process with speed parameter set to '0' and randomized playhead position within the recorded sample.
Channel 3 - Granular process with speed/rate parameter set to 0.06.
Channel 4 - Sync Module for sample playback down one octave.
Channel 5 - Monitor for ADC channel 2.
Channel 6 - Granular process with speed parameter set to '0' and randomized playhead position within the recorded sample (larger grain size than Ch. 2 for variation in texture)
Channel 7 - Granular process with speed/rate parameter set to -0.06.
Channel 8 - Sync Module for sample playback down two octaves.

Detail of the Routing Preset for 32_grains.

B1	24-multipan angle	3	Float	0.05	0.49	C-2
B2	24-multipan angle	7	Float	0.41	0.99	C-2
B3	22- Channel pan	3	Float	-100.	100.	C-2
B4	22- Channel pan	4	Float	-100.	100.	C-2
B5	53 ePlugVolR	0	Float	0.	158.	C-2
BS1	59 eReverbVol5	0	Float	0.	1.	C-2
BS2	60 eReverbMute1	0	Float	0.	1.	C-2
BS3	61 eReverbMute2	0	Float	0.	1.	C-2
BS4	62 eReverbMute3	0	Float	0.	1.	C-2
BS5	63 eReverbMute4	0	Float	0.	1.	C-2
BT1	9-record	2	Float	0.	1.	C-2
BT2	9-record	3	Float	0.	1.	C-2
BT3	9-record	4	Float	0.	1.	C-2
UC1	21-Channel fader	0	Float	0.	158.	C-2
UC2	21-Channel fader	0	Float	0.	158.	C-2
UC3	21-Channel fader	3	Float	0.	158.	C-2
UC4	21-Channel fader	4	Float	0.	158.	C-2
BSs1	9-record	6	Float	0.	1.	C-2
BSs2	9-record	7	Float	0.	1.	C-2
BSs3	9-record	8	Float	0.	1.	C-2
UC5	21-Channel fader	0	Float	0.	158.	C-2
UC6	21-Channel fader	0	Float	0.	158.	C-2
UC7	21-Channel fader	7	Float	0.	158.	C-2
UC8	21-Channel fader	8	Float	0.	158.	C-2
UC11	1-target pitch	2	Float	0.	1.	C-2
UC12	1-target pitch	3	Float	0.	1.	C-2
UC15	1-target pitch	6	Float	0.	1.	C-2
UC16	1-target pitch	7	Float	0.	1.	C-2
UC35	25-multipan distance	3	Float	0.	1.	C-2
UC10	25-multipan distance	7	Float	0.	1.	C-2
Ky1	73 buffer_clear	2	Float	0.	10.	C-2
Ky2	73 buffer_clear	3	Float	0.	10.	C-2
Ky3	73 buffer_clear	4	Float	0.	10.	C-2
Ky4	73 buffer_clear	6	Float	0.	10.	C-2
Ky5	73 buffer_clear	7	Float	0.	10.	C-2
Ky6	73 buffer_clear	8	Float	0.	10.	C-2
ø	0-none	0	Float	0.	10.	C-2
ø	0-none	0	Float	0.	10.	C-2
ø	0-none	0	Float	0.	10.	C-2
ø	0-none	0	Float	0.	10.	C-2
ø	0-none	0	Float	0.	10.	C-2
ø	0-none	0	Float	0.	10.	C-2
ø	0-none	0	Float	0.	10.	C-2
ø	0-none	0	Float	0.	10.	C-2
ø	0-none	0	Float	0.	10.	C-2
ø	0-none	0	Float	0.	10.	C-2
ø	0-none	0	Float	0.	1.	C-2
ø	0-none	0	Float	0.	1.	C-2
ø	0-none	0	Float	0.	1.	C-2
ø	0-none	0	Float	0.	1.	C-2
ø	0-none	0	Float	0.	1.	C-2
ø	0-none	0	Float	0.	1.	C-2
ø	0-none	0	Float	0.	1.	C-2
ø	0-none	0	Float	0.	1.	C-2

Routing

sarc

save

Control buffers 1-4 determine the angle and distance for 8 channel panning.

BT modules 1-3 trigger recording on channels 2, 3, and 4.

BSs(Beat step-sequencer) modules trigger recording on channels 6, 7, and 8.

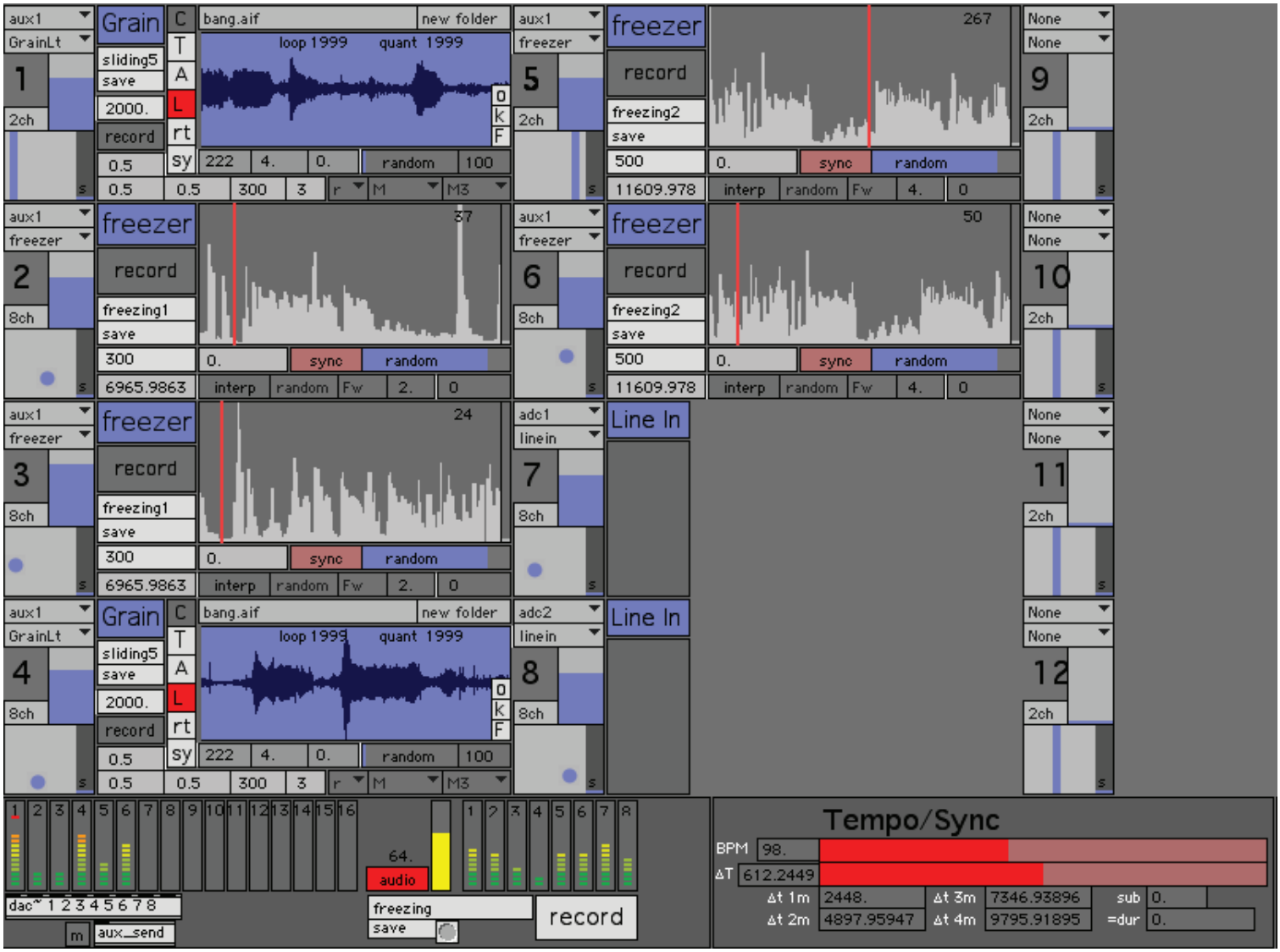
UC33e faders 1-8 control volume on channels 1-8.

Keyboard controls 1-6 clear buffer contents.

UC33e rotary knobs 11, 12, 15, and 16 adjust pitch on granular processes.

Freezing_pitch:

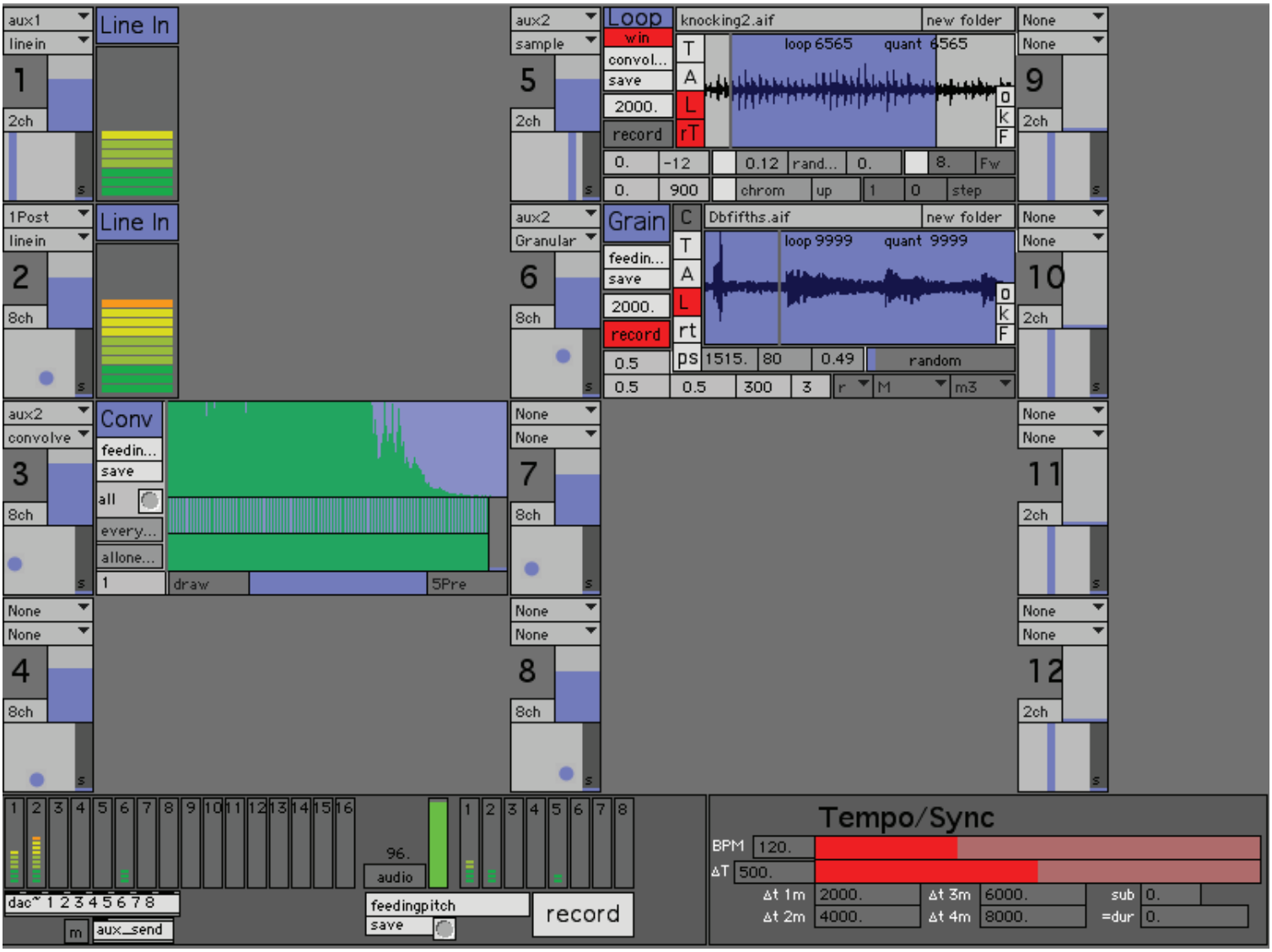
This piece uses the freezer module to create rhythmic patterns out of melodic material recorded in real-time. There are also two granular modules that generate a drone that slowly shifts between a perfect 5th, minor 3rd, and a unison relative to the melody being played.



Channel 1 - Granular drone process.
Channel 2 - Freezer Module with position parameter determined by sync signal triggering.
Channel 3 - Freezer Module with position parameter determined by sync signal triggering.
Channel 4 - Granular drone process.
Channel 5 - Freezer Module with position parameter determined by sync signal triggering.
Channel 6 - Freezer Module with position parameter determined by sync signal triggering.
Channel 7 - Monitor for ADC channel 1.
Channel 8 - Monitor for ADC channel 2.

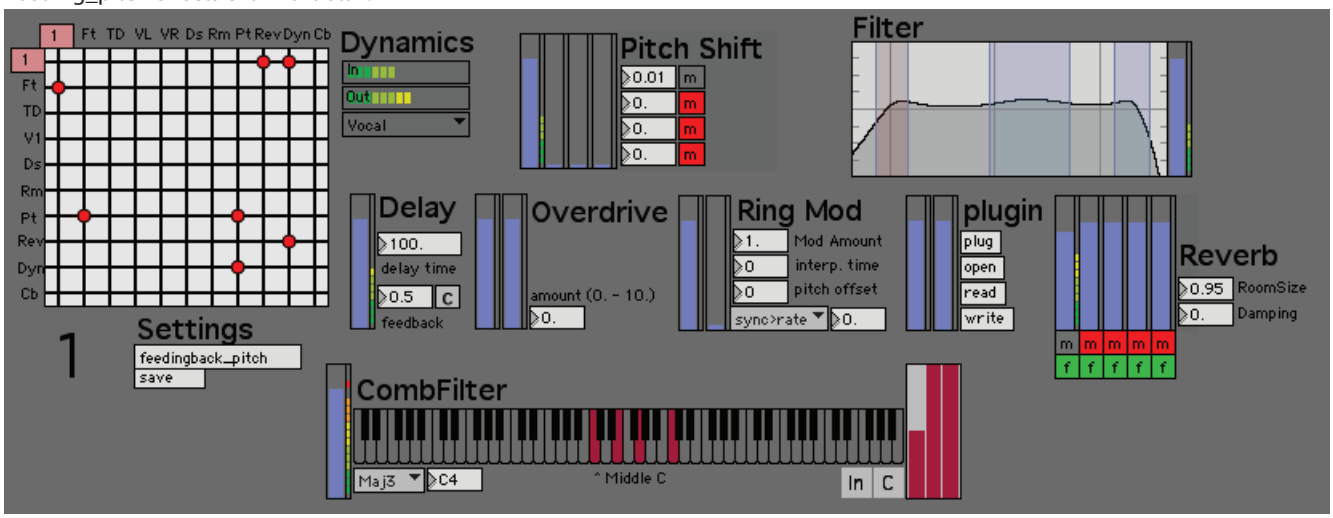
Feeding_pitch:

This piece uses a live input signal with pitch-shifting and feedback, convolution with a pre-recorded sample, and a granular drone.



Channel 1 - Line_in module performs the initial pitched feedback (see effects detail on next page).
Channel 2 - Another Line_in module performs a second pitch shifting process.
Channel 3 - Convolution of the input signal with a audio from Channel 5.
Channel 5 - Pre-recorded sample playback.
Channel 6 - Granular Drone.

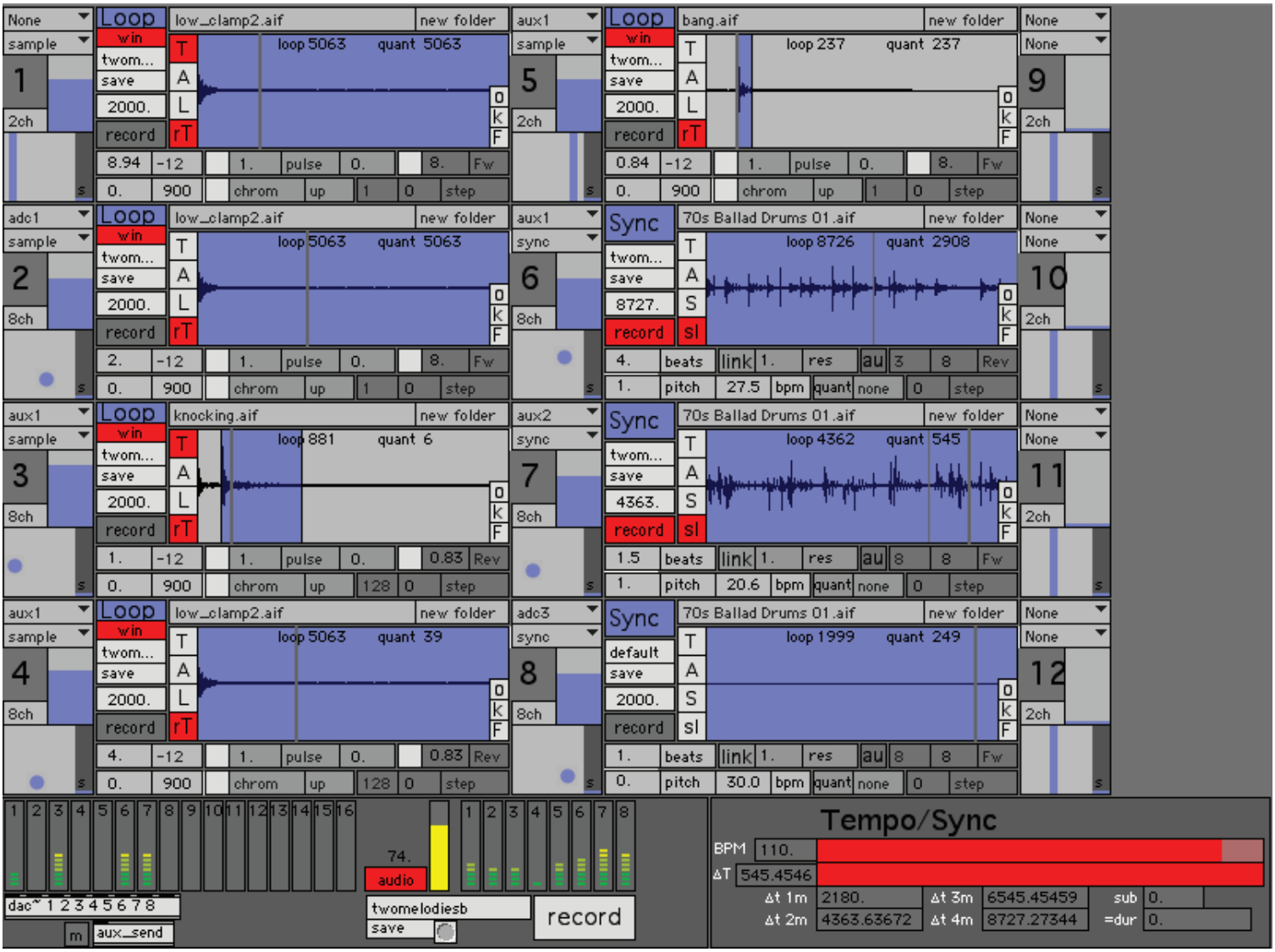
Feeding_pitch effects channel detail.



Audio input is routed first to a filter module, then to the pitch shift, which is routed both to the compressor and back into itself to create a controlled feedback loop. The Compressed signal is then routed to the output and into a reverb module, which is also routed to the output.

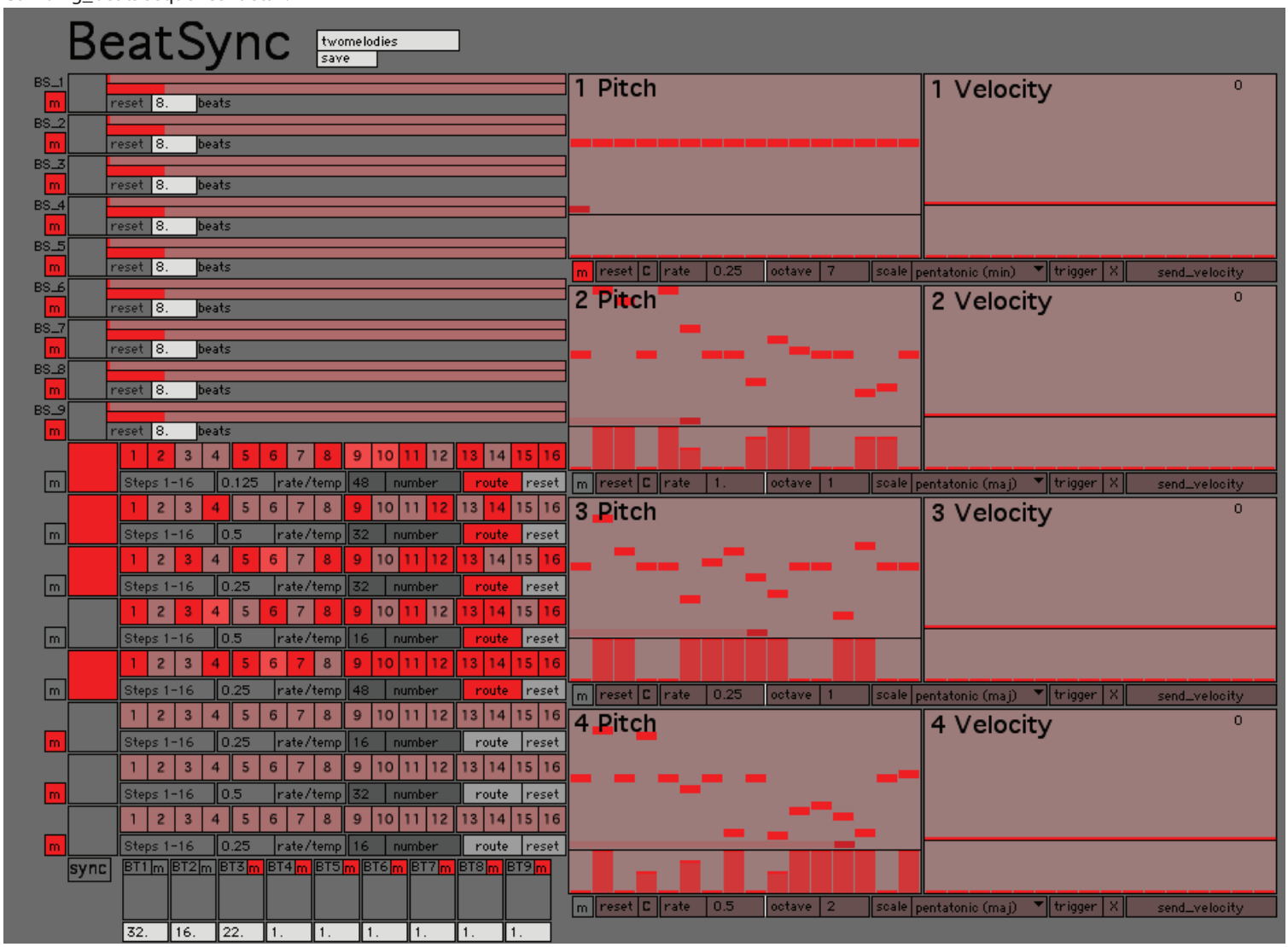
combing_beats:

This is an example of a real-time multi-channel diffusion of a sequenced rhythmic pattern.



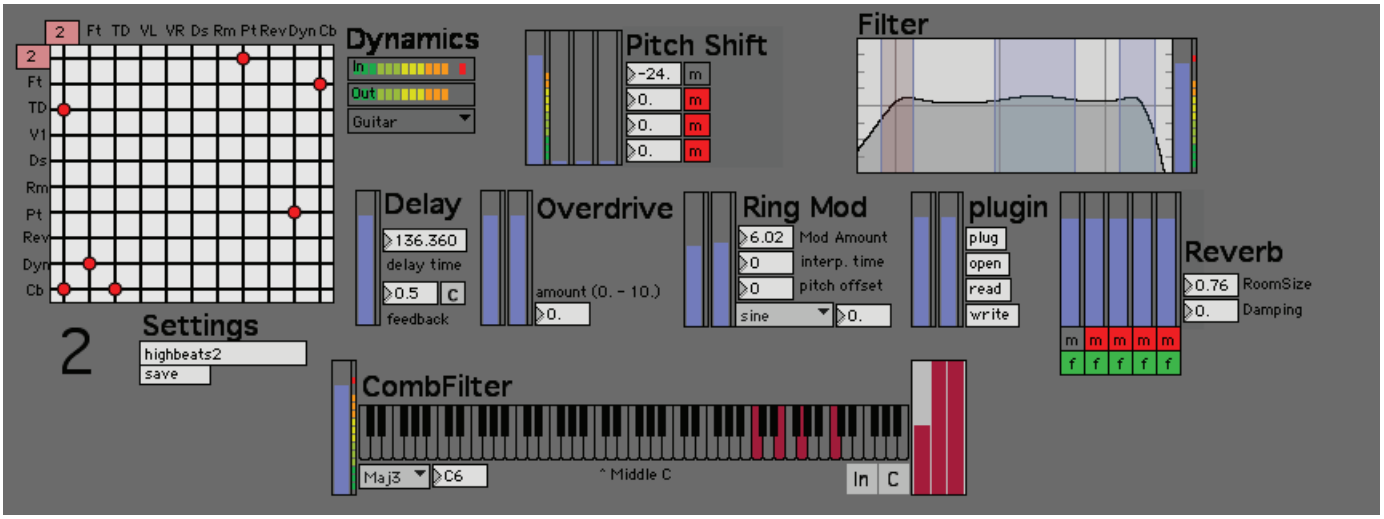
Channels 1-5 - Sample playback modules for the individual audio files.
Channel 6 - Sample playback module that records channels 1-3 and pitches the result up two octaves.
Channel 7 - Sample playback module that records channels 4 and 5 and pitches the result up two octaves.
Channel 8 - Extra sample playback module for recording live audio into the sequence.

Combing_beats sequencer detail:



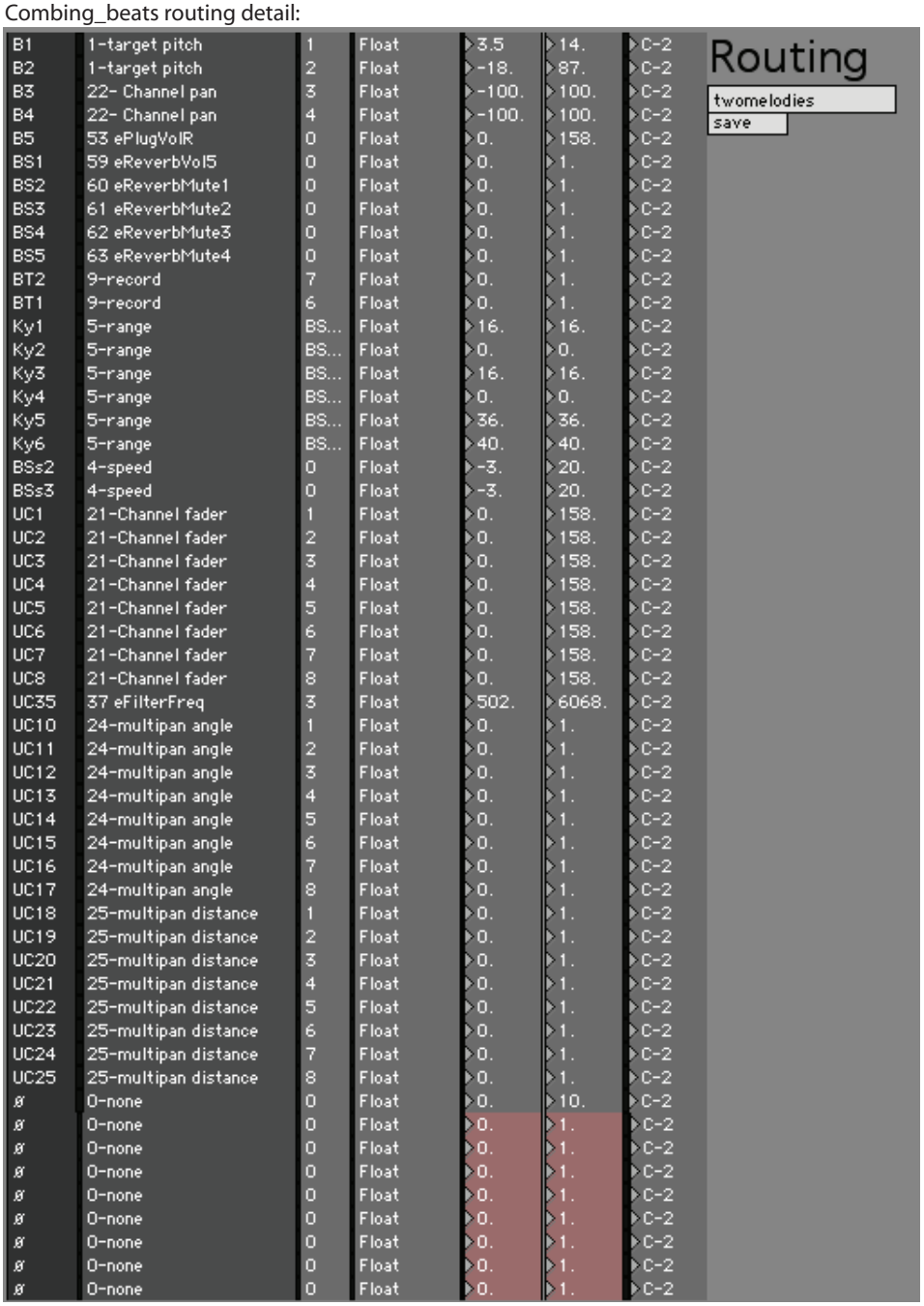
Pitch modules 2-4 adjust pitch on Channels 2-4. See next page for more details on the routing.

Combing_beats effects detail:



Audio from this Channel (2) is routed to a tap delay module, then to a comb filter tuned to a major chord. The result it send to a filter, then compressed and finally pitched down two octaves.

Combing_beats routing detail:



B1	1-target pitch	1	Float	3.5	14.	C-2
B2	1-target pitch	2	Float	-18.	87.	C-2
B3	22- Channel pan	3	Float	-100.	100.	C-2
B4	22- Channel pan	4	Float	-100.	100.	C-2
B5	53 ePlugVolR	0	Float	0.	158.	C-2
BS1	59 eReverbVol5	0	Float	0.	1.	C-2
BS2	60 eReverbMute1	0	Float	0.	1.	C-2
BS3	61 eReverbMute2	0	Float	0.	1.	C-2
BS4	62 eReverbMute3	0	Float	0.	1.	C-2
BS5	63 eReverbMute4	0	Float	0.	1.	C-2
BT2	9-record	7	Float	0.	1.	C-2
BT1	9-record	6	Float	0.	1.	C-2
Ky1	5-range	BS...	Float	16.	16.	C-2
Ky2	5-range	BS...	Float	0.	0.	C-2
Ky3	5-range	BS...	Float	16.	16.	C-2
Ky4	5-range	BS...	Float	0.	0.	C-2
Ky5	5-range	BS...	Float	36.	36.	C-2
Ky6	5-range	BS...	Float	40.	40.	C-2
BSs2	4-speed	0	Float	-3.	20.	C-2
BSs3	4-speed	0	Float	-3.	20.	C-2
UC1	21-Channel fader	1	Float	0.	158.	C-2
UC2	21-Channel fader	2	Float	0.	158.	C-2
UC3	21-Channel fader	3	Float	0.	158.	C-2
UC4	21-Channel fader	4	Float	0.	158.	C-2
UC5	21-Channel fader	5	Float	0.	158.	C-2
UC6	21-Channel fader	6	Float	0.	158.	C-2
UC7	21-Channel fader	7	Float	0.	158.	C-2
UC8	21-Channel fader	8	Float	0.	158.	C-2
UC35	37 eFilterFreq	3	Float	502.	6068.	C-2
UC10	24-multipan angle	1	Float	0.	1.	C-2
UC11	24-multipan angle	2	Float	0.	1.	C-2
UC12	24-multipan angle	3	Float	0.	1.	C-2
UC13	24-multipan angle	4	Float	0.	1.	C-2
UC14	24-multipan angle	5	Float	0.	1.	C-2
UC15	24-multipan angle	6	Float	0.	1.	C-2
UC16	24-multipan angle	7	Float	0.	1.	C-2
UC17	24-multipan angle	8	Float	0.	1.	C-2
UC18	25-multipan distance	1	Float	0.	1.	C-2
UC19	25-multipan distance	2	Float	0.	1.	C-2
UC20	25-multipan distance	3	Float	0.	1.	C-2
UC21	25-multipan distance	4	Float	0.	1.	C-2
UC22	25-multipan distance	5	Float	0.	1.	C-2
UC23	25-multipan distance	6	Float	0.	1.	C-2
UC24	25-multipan distance	7	Float	0.	1.	C-2
UC25	25-multipan distance	8	Float	0.	1.	C-2
ø	0-none	0	Float	0.	10.	C-2
ø	0-none	0	Float	0.	1.	C-2
ø	0-none	0	Float	0.	1.	C-2
ø	0-none	0	Float	0.	1.	C-2
ø	0-none	0	Float	0.	1.	C-2
ø	0-none	0	Float	0.	1.	C-2
ø	0-none	0	Float	0.	1.	C-2
ø	0-none	0	Float	0.	1.	C-2
ø	0-none	0	Float	0.	1.	C-2