

# Software audio su Linux



## Introduzione all'editing e registrazione audio su Linux

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# Sotware audio e Linux



- Perché?
- Pro e contro
- Requisiti hardware
- Driver e schede audio

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# Programmi principali



- Programmi per il desktop
- Programmi per la produzione audio

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# Programmi principali (desktop)



- Player audio/video
  - Xmms
  - Alsaplayer
  - Rhythmbox
  - Amarok
  - KMid
  - MPlayer
  - Xine/Kaffeine/GXine

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# Programmi principali (desktop)



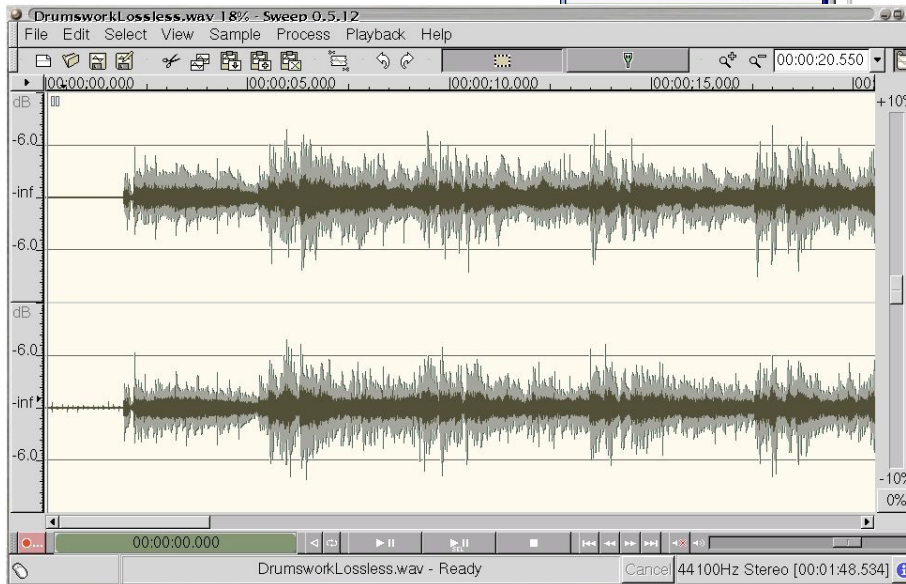
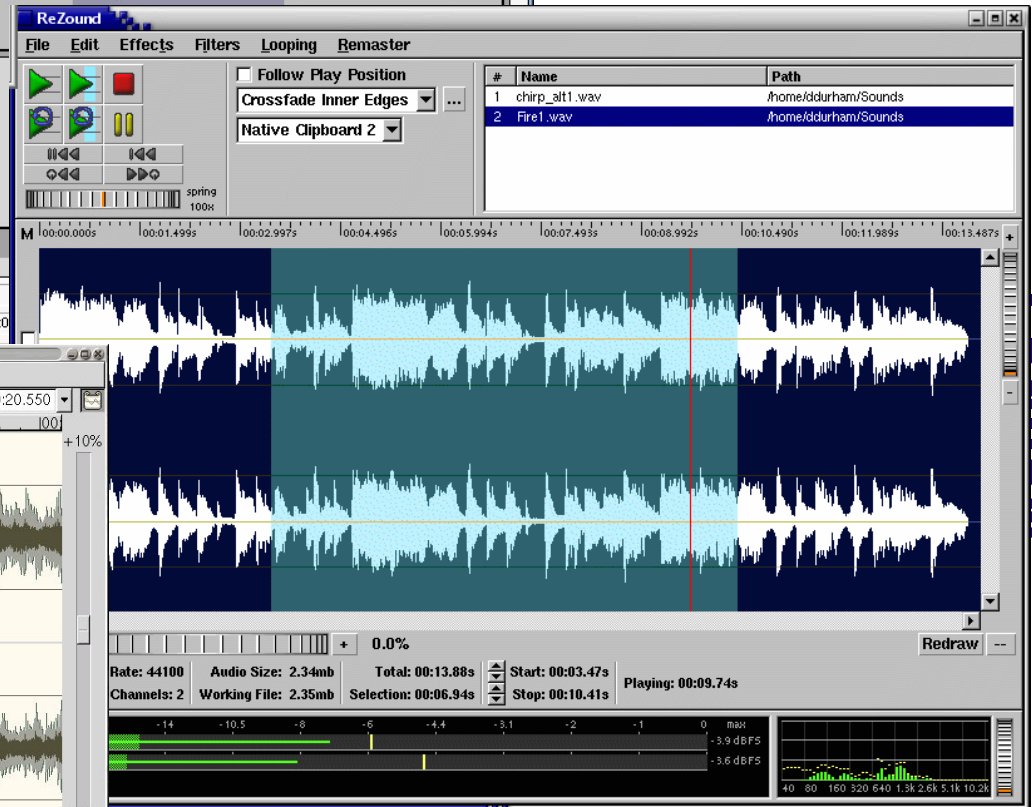
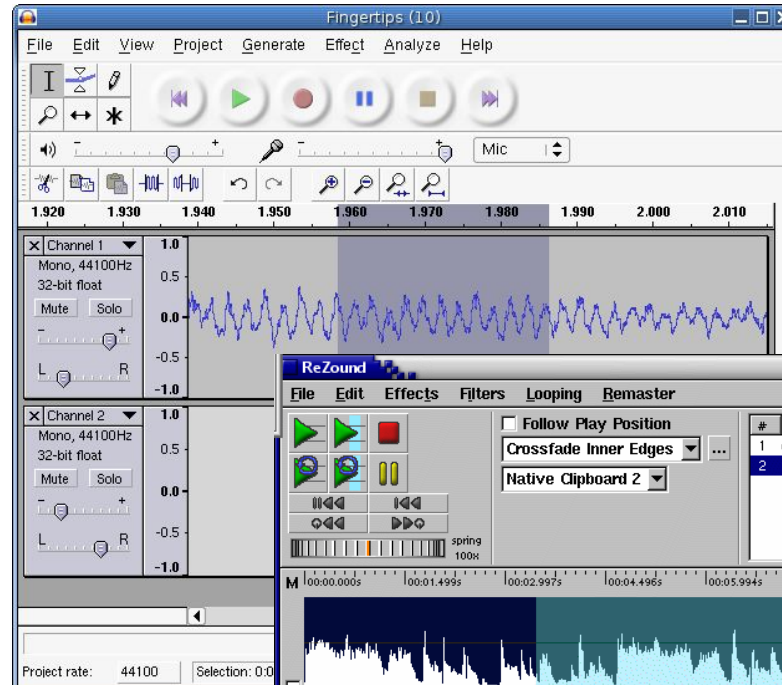
- Suoni di sistema, notifiche audio
  - ESD (Gnome)
  - ARTSD (KDE)
  - GStreamer

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# Sound editor



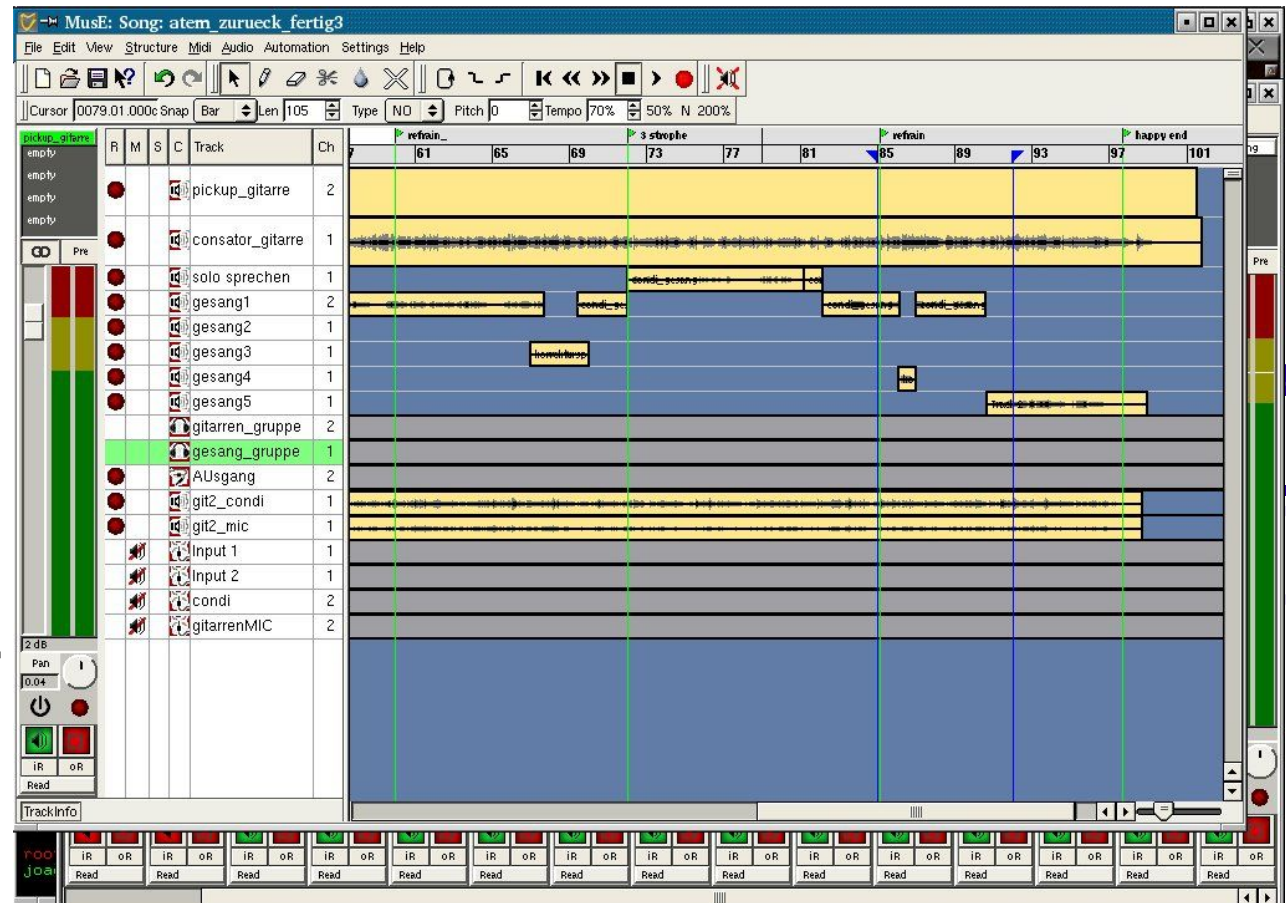
- Sound editor
  - Sweep
  - Audacity
  - ReZound



# Sequencers



- Sequencer
  - Muse
  - Rosegarden
  - Seq24
- Trackers
  - Soundtracker
  - Cheesetracker

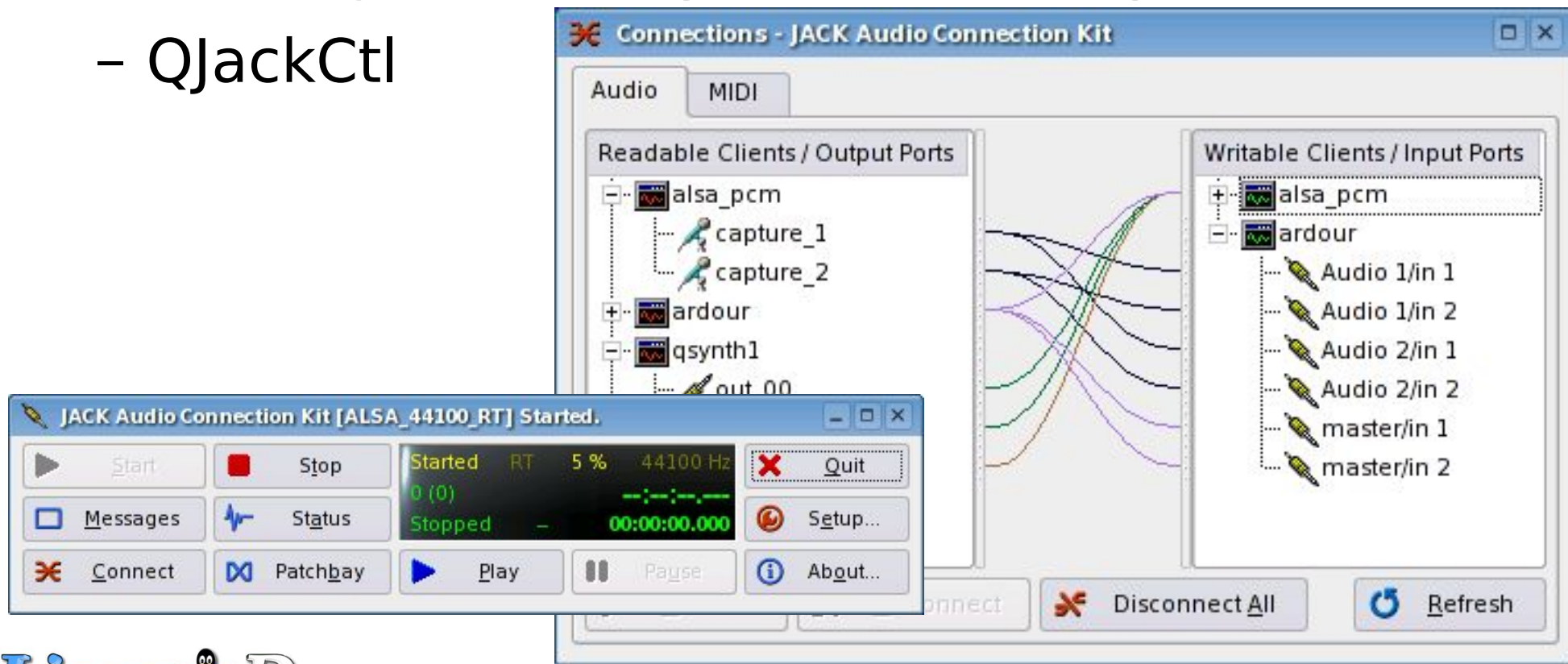




# Jack Audio Connection Kit



- Jack (Jack Audio Connection Kit)
  - Cos'è?
  - Routing audio e Sync (Jack-transport)
  - QJackCtl





# Ardour (DAW)



- Ardour
  - DAW (Digital Audio Workstation)
  - Editor non distruttivo
  - Mixer configurabile dall'utente
  - Sync MTC/MMC, Jack-transport (Master/Slave)
  - Killer application?

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# Ardour (DAW)



Session Edit Windows SR: 44.1 kHz Buffers p: 92% c: 100% Disk r: 0.0 w: 0.0 MB/s DSP Load: 37.0% space: 01h:02m:32s 23:30

00:03:02:26 092 |02|1533

00:00:00:00 00:01:07:24 Left Beats Magnetic Slide 00:00:00:00

Tracks: master, bass, guitar, piano, stereo drum, vocal, harmonica, rhythm guit.

ardour: mixer: weather

Track	no group	INPUT	polarity	solo	mute	off	off	RECORD	db FS	pre	db FS	pre	db FS	pre	db FS	pre	db FS	pre	db FS	pre	db FS	pre
bass	no group	INPUT		off	off	off	off	RECORD	-0.5	-5.0	-13.3	-22.7	-5.2	-9.7	-0.1	-4.4	-1.5	2.9	-1.9	-8.2	-8.8	-11.0
guitar	no group	INPUT		off	off	off	off	RECORD														
piano	no group	INPUT		off	off	off	off	RECORD														
stereo drums	no group	INPUT		off	off	off	off	RECORD														
vocal	no group	in 9		off	off	off	off	RECORD														
harmonica	equalfade	in 9		off	off	off	off	RECORD														
rhythm guitar	no group	INPUT		off	off	off	off	RECORD														
master	no group	INPUT		off	off	off	off	RECORD														

Plate reverb Steve Harris [1 in | 2 outs] weatherharp

Reverb time: 4.255 off  
Damping: 0.250 off  
Dry/wet mix: 0.523 off

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# Sintetizzatori



- Fluidsynth/QSynth/Swami
- Zynaddsubfx
- LinuxSampler
- Specimen
- Hydrogen
- Pure Data
- AMS (Alsa Modular Synth)

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# Synth Fluidsynth/QSynth/Swami



- Utilizza banchi di suoni in formato SoundFont

The screenshot displays the qsynth GUI interface. At the top, a window titled "qsynth: Channels [qsynth1]" shows a table of channels. Below it, the main "qsynth - A fluidsynth Qt GUI Interface [qsynth1]" window is visible, featuring several control panels: Master (Gain), Reverb (Room, Damp, Width, Level), Chorus (N, Level, Speed, Depth), and a vertical volume meter. A menu on the right includes options like Quit, Options..., Messages, and About... At the bottom, a channel list shows "16 0 15 Dulcimer 0 ct4mgm".

In	Ch	Bank	Prog	Name	SFID	Soundfont
●	1	0	4	E.Piano 1	0	ct4mgm
●	2	0	33	Fingered Bass	0	ct4mgm
●	3	0	25	Steel Guitar	0	ct4mgm
●	4	0	30	DistortionGuitar	0	ct4mgm
●	5	0	57	Trombone	0	ct4mgm



# Synth - Zynaddsubfx



The screenshot displays the ZynAddSubFX software interface, which is used for creating and editing digital synthesizer sounds. The interface is divided into several panels:

- ADsynth Glob:** Contains amplitude controls (Vol, V.Sns, Pan) and an amplitude envelope editor.
- ADsynth Oscillator Editor:** Features an oscillator waveform display and a base function editor.
- ZynAddSubFX:** The main control window, including a menu bar (File, Instrument, Record), a transport section (Play, Stop, Panic), and various effect and modulation parameters.
- System Effects:** A section for applying effects like Reverb, with a 'Reverb' preset selected.
- Filters:** Includes a filter section with a cutoff frequency slider and a filter envelope editor.
- Modulators:** A section for modulation, currently showing a PM (Pitch Modulation) modulator with amplitude and depth controls.
- Virtual Keyboard - ZynAddSubFX:** A MIDI keyboard interface for playing the synthesizer.

A copyright notice window is overlaid on the interface, stating:

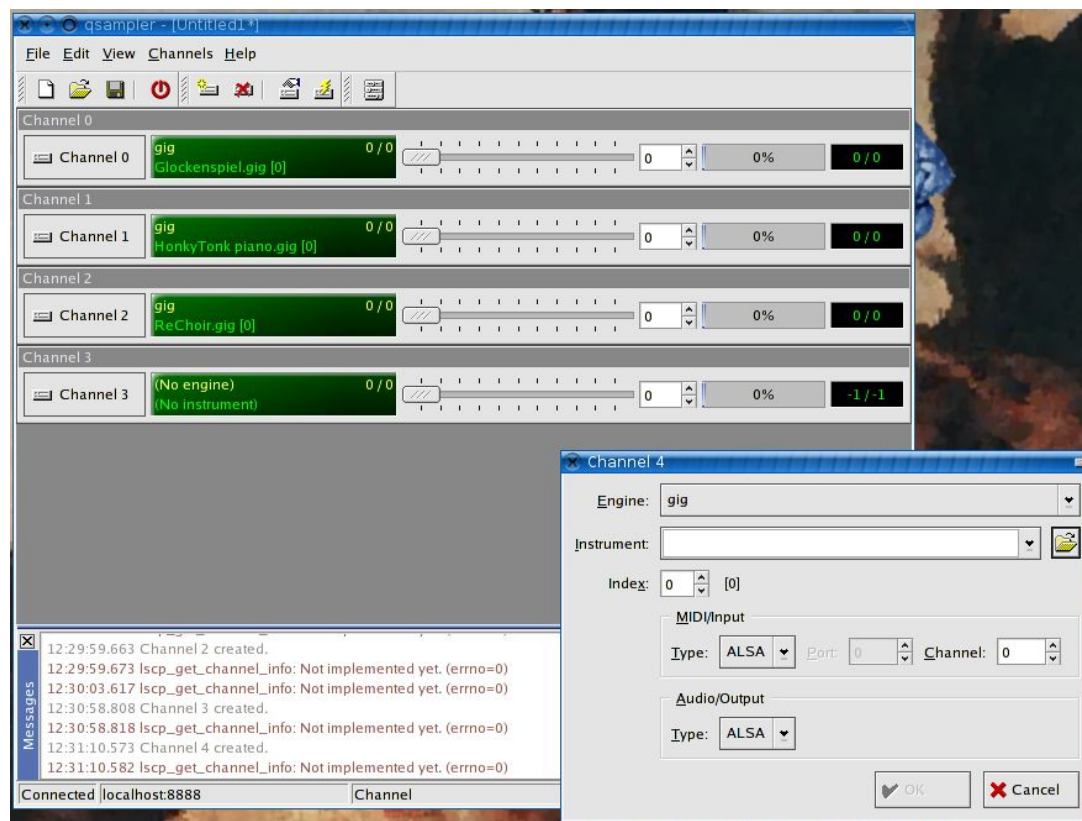
**ZynAddSubFX**  
Copyright (c) 2002-2003 Nasca O. Paul  
This is free software; you may redistribute it and/or modify it under the terms of the version 2 of the GNU General Public License as published by the Free Software Foundation. This program comes with ABSOLUTELY NO WARRANTY. See the version 2 of the GNU General Public License for details.

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# Synth - LinuxSampler



- Usa banche di suoni compatibili con GigaSampler
- Ancora instabile.. :(



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# Synth - Specimen



- Sampler molto semplice

The screenshot displays the Specimen software interface. On the left, a list of samples is visible, including 'kick', 'snare', 'chh', 'ohh', 'bass', 'deepbassL', 'synthleadL', 'quote', 'ohh2', 'chh2', 'kick2', 'snare2', 'congaL', and 'congaR'. The 'kick' sample is selected, and its parameters are shown: Volume, Pitch, Panning, and Steps (set to 2). The 'Sample' section shows 'kick001.wav' with a waveform. The 'Playback' section has a 'Single Shot' dropdown and a 'Reverse' checkbox. The 'synthleadR' instance is also shown, with its own Volume, Pitch, Panning, and Steps parameters. Below these, there are tabs for 'SMP', 'MIDI', 'VOICE', 'FILT', 'VEL', 'ENV', and 'LFO'. The 'ENV' (Envelope) tab is active, showing a graph with parameters: Delay, Attack, Hold, Decay, Sustain, Release, and Amount. The 'Envelope' checkbox is checked.

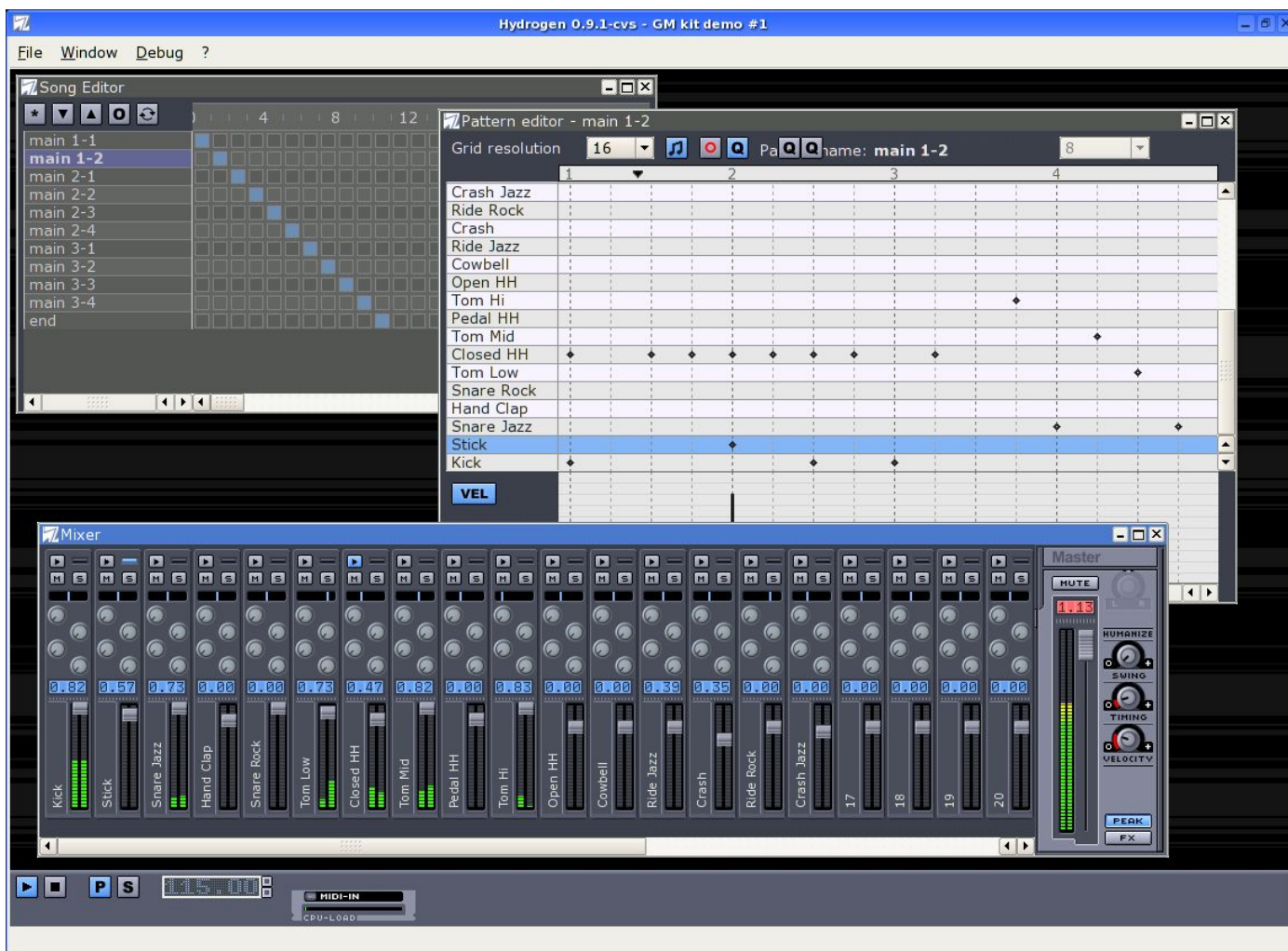
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# Synth - Hydrogen



- Drum machine



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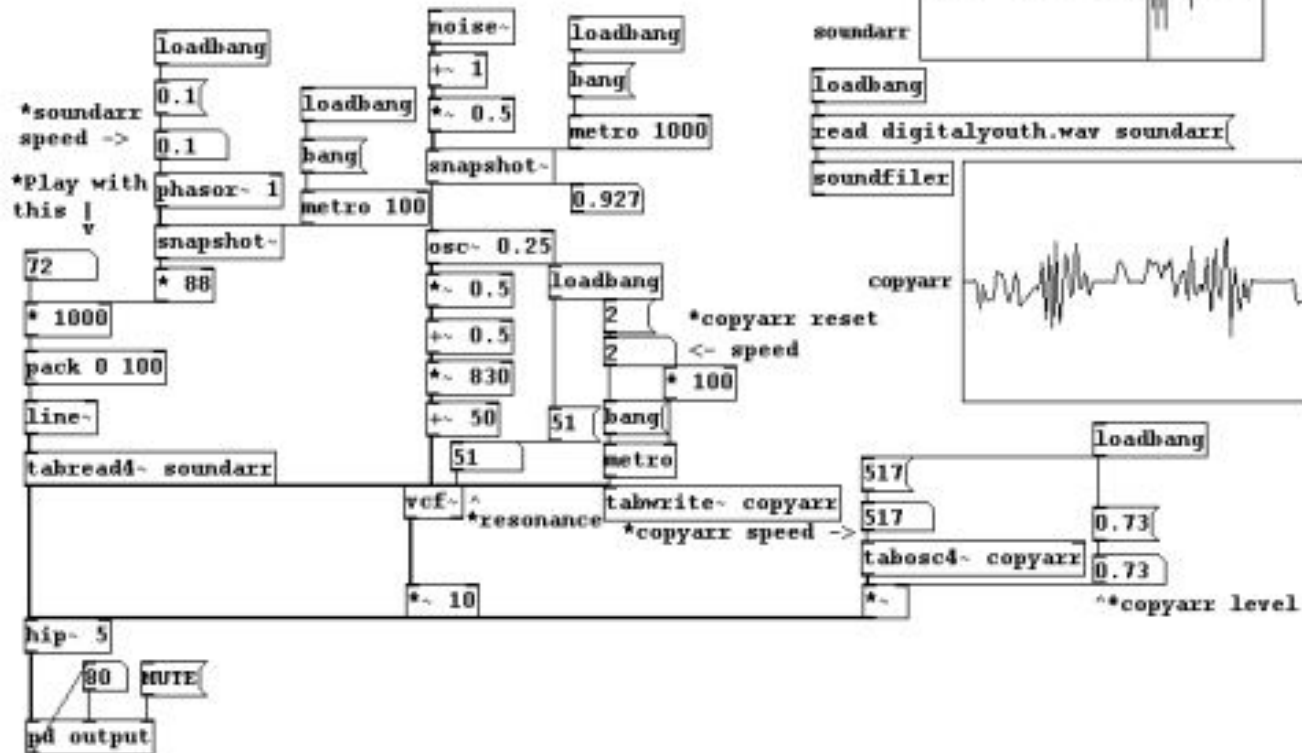
# Synth - Pure Data



\*\*\*\*\*  
\*Digital Youth\*  
\*\*\*\*\*

(<http://www.niallmoody.com>)

- by Niall Moody



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# Synth - AMS (Alsa Modular Synth)



The screenshot displays the ALSA Modular Synth (AMS) software interface. The main window shows a complex signal flow graph with various modules connected. The modules include:

- MCV ID 12 (MIDI Controller Velocity)
- LFO ID 16 (Low Frequency Oscillator)
- VCO ID 5 (Voltage Controlled Oscillator)
- VCO ID 19 (Voltage Controlled Oscillator)
- VCF ID 7 (Voltage Controlled Filter)
- Mixer ID 18 (Mixer)
- ENV ID 3 (Envelope Generator)
- ENV ID 14 (Envelope Generator)
- Lin. VCA ID 4 (Linear Voltage Controlled Amplifier)
- PCM Out ID 1 (Pulse Code Modulation Output)
- LADSPA Freeverb (Version)

Several control windows are open, showing parameters for different modules:

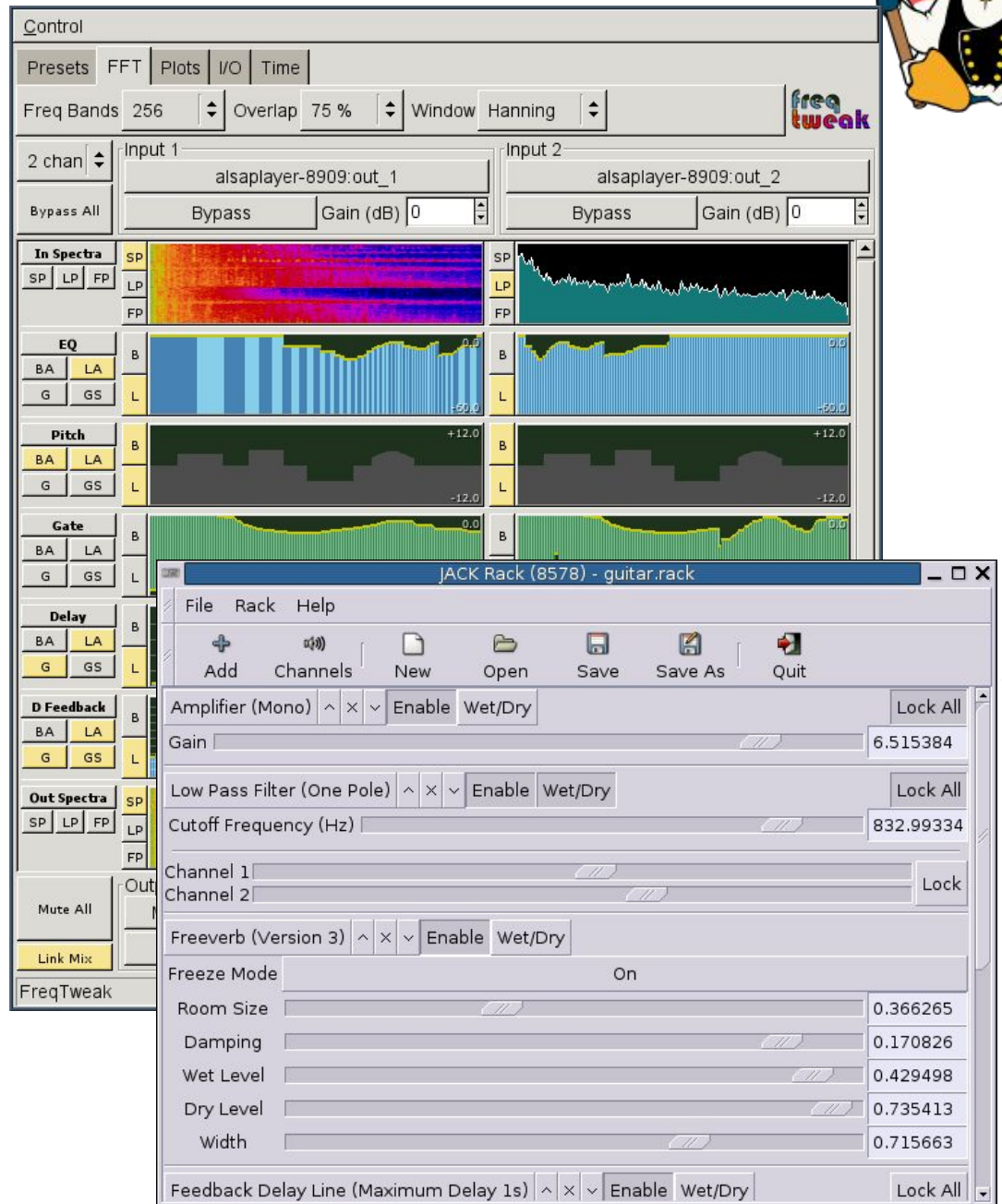
- VCO ID 5:** Frequency (6,378), Phi0 (0,000), Harmonic (1), Subharmonic (1).
- VCF ID 7:** VCF Type (24 dB Lowpass I), Input Gain (0,485), Frequency (3,484), Exp. FM Gain (0,510), Lin. FM Gain (0,000), Resonance (0,800), Resonance Gain (0,000).
- AlsaModularSynth Control Center:** MIDI Controller / Parameter table, Module / Parameter table, Frequency (3,484), MIDI Channel (Omni).

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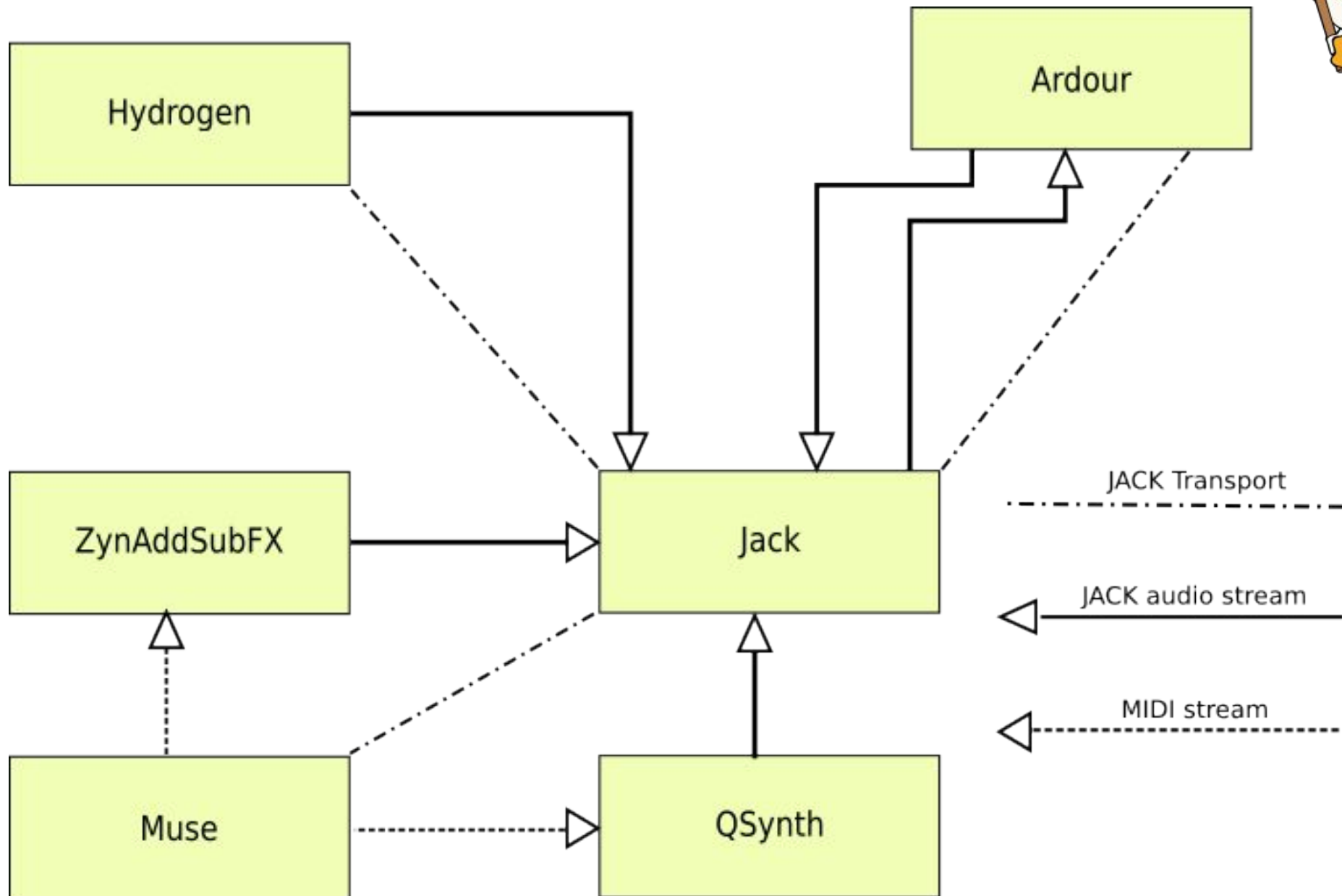
# Effetti



- LADSPA
  - Cos'è?
  - Jack Rack
  - Jamin
- FST (VST su linux)
- Freqtweak



# Sessione tipica



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# Demo



- Setup
- Base ritmica
- Uso di sequencer e synth
- Registrazione
- Mix

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# Domande?



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# Qualche link...



- <http://linux-sound.org>
  - Contiene i link a **tutti** i programmi audio
- <http://hydrogen.sf.net>
  - Il mio programma preferito ;)
- [cominu@gmail.com](mailto:cominu@gmail.com)
  - Per informazioni e domande

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