

The Linux Audio Proof Of Concept - Project

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Abstract

At the LAC 2006 and 2007 I introduced the Linux Audio Workstation (LAW) - a preconfigured Linux-PC for productive audio use. In october 2007 I have started a project to prove the ability of this system to work in the real world of music-production. The goal of this project called LAPOC (Linux-Audio-Proof-Of-Concept) is to produce at least 30 minutes of music in different styles that meets the quality standards for airplay and CD-releases for independent record companies. Whithout expensive outboard-hardware and with free software under linux only.

Keywords

usability, testing, music-production, documentation

1 Introduction

Much has been said about Linux audio software, about what it can do, about new concepts emerging with the modularity of Linux and about the impact that the free software model makes on the audio-applications produced in the realm of GNU. But all this discussion tends to be theoretical - much talking about tools and how to use them but little about products made with them and how they make a stand in the real world. I have made a bold statement in several online-discussions amongst audio-software users:

Linux is perfectly able to produce a Peter Gabriel-LP whith it.

I am sure it is but talk is cheap - if someone asks: Where are the reference-recordings made with Linux *only*? What CD shall I buy to hear what Linux can do in the field of music production? I had not much to offer but my own experimental sketches and some tracks from the LAU-list more or less the same as experimental. Some of this stuff is great, like the works of Dana Olson, that have a fairly advanced level in terms

of complexity but with few exeptions¹ there is little documentation about how the music was made. What hardware was used? What versions of wich applications? Hardware-samplers or Specimen? Guitars from the recording-out of a multi-FX box or recorded via DI-box and manipulated with software? And last but not least: recorded with Ardour on Linux and mixed/mastered on a Mac with scores of VST-plugins? The LAPOC is out to help this. We have scheduled recordings with 3 very different Bands and 3 solo-artists. The recordings have begun in November 2007 and will end in February 2008. Furthermore there will be sessions to produce and compose music completely in the box using samplers, synths and sequencers. The results will be released under a creative commons license and will be available for download as well as projectfiles, samples, the documentation and patches for synths. I also will offer a DVD containing the material.

2 What we use

Recordings are made with an MSI laptop (AMD64 Turion X2, 768 MBRAM) running 64Studio/Debian connected to a Presonus Firebox firewire interface. We also record on a PIV2.8/1Gig RAM machine with Ubuntu Studio32 and on a AMD64 Athlon 3800+ running 64 Studio and Ubuntu Studio64. None of the machines runs its distro out of the box, several applications are built from source and the machines run either XFCE or KDE as their desktop. All recordings are made with Ardour, we use Alsa Modular Synth as a virtual guitar amplifier, Specimen as a sampler and ZynaddSubFX and AMS as softsynths. The se-

¹Dana Olson documents his studio-equipment and software quite well and Robert Jonsson does everything with Linux but both do not offer extensive documentation. Ron Parker has written several tutorials on his work with Linux but his MirrorImage studios has a lot of outboard hardware and a Mac running Logic also.

quencers are Rosegarden and Seq24. Other Linux audio tools are used also but 90% of the work is being done with those mentioned above.

2.1 What we do not use

Advocates of proprietary audio software often claim, that Linux even limits the freedom of music-makers because it does not offer the wide range of VST-plugins that help to cut costs for outboard hardware. "If you cannot use VST, you need to spend lots of money to buy hardware solutions for FX and mastering." It is true, that LADSPA does not hold a candle to the thousands of plugins available for VST but we dare to try to make it without. If proper care is being applied during the recordings and some extra effort is spent on the settings of the available LADSPA-plugins and Jamin, we believe, that our recordings will sound perfectly well. To prove that free audio software allows to get the same results as a software environment with VST support without spending more money on hardware, we decided to make the following rules for our equipment:

1. Do everything in the box, that can be done in the box. (Guitars are recorded with AMS serving as amplifier, whenever this is accepted and sane, Keyboards play sounds from softsynths etc.)
2. Dont spend more than EUR 1000,- on hardware (Computers not included).
3. The only equipment, that is borrowed, is microphones (no rental/use of 19inch FX).

So, whatever we will achieve, it will be achieved with free software only. The recording-sessions of the project worked very well so far - it looks, like our goals can be reached.

3 The documentation

There is a website: <http://lapoc.de> (in German). It serves as a newsboard for the project and will offer reports, tutorials and a lot of downloadable material under free licenses. The music is under a creative commons license. I try to save every precious bit of information on how everything is being done. A lot of the experience will also be used to build the LAW-Documentation under <http://gnupc.de/~zettberlin/law/Documentation>.

4 The Range of styles

1. A mainstream rockband with a femal singer.
2. A not so mainstream rockband with reduced, harsh arrangements build upon a distorted acoustic guitar, bluesrock-roots and advanced virtuosity.
3. A band rooting in punkrock, metal and modern underground rock.
4. A young metal-guitarplayer that experiments with multi-layered guitars.
5. A Singer/Songwriter.
6. A Musician experimenting with electronic equipment and acoustic instruments.

There will be other styles also that are produced in the box combining sampeled loops and instruments from the recordings and softsynths. If we find enough time we will also produce a feature on "De Machandelboom" - a fairytale from the collection of the Brothers Grimm. If everything works as planned, there will be more than 1 h of material to be released.

5 Spin-offs we expect

At a very early stage of the project I have begun to build something, that I would call a meta application. It is a virtual guitar-amplifier made out of LADSPA-Plugins(most of them from the CAPS-collection) integrated in AMS. The patch for AMS is called ams-guitrack, a guitar-signal from Jack can be processed as known from a guitar stack with FX-boxes. There are Midi-controllable parameters and an easy way to save presets. We want ams-guitrack to act like a real amp. A player shall get a decent clean signal at low volume settings on the guitar and powerfull distortion at maximum volume without great differences in the loudness of the output. I can get ams-guitrack to act just like this with some effort spent on the input-settings. The concept of a meta-application, that is built on existing software, includes documentation, demos and tutorials also. It can be compared with a web-application that builds upon scripts, a web-server and a database.

I also will release dozens of patches for ZynaddSubFX, AMS and Specimen and hundreds of samplefiles. Samples are already available under <http://gnupc.de/~zettberlin/law/samples/>. AMS-guitrack, other patches and music can be found under: <http://lapoc.de/downloads.html>.

6 Current status of the project (in january 2008)

We have made 3 recording sessions in band rehearsal rooms and about 30 sessions at my small homestudio to record overdubs. Experiences are encouraging. No problems, that we could not find a solution for. The musicians were quite pleased with the possibilities, Linux Audio has to offer. Especially the AMS-guitrack surpassed my own expectations - 3 extremely different guitar players worked with great satisfaction with the patch. Ardour does very well also: we run it exclusively on 64Studio now. We had a single case of a recording being interrupted by a timeout - in about 100 h of recording-sessions up to 40 tracks at 96KHz/32float.

7 Conclusions

I would be happy to get the chance to give a report of our recording-project. I hope this could give some more down-to-earth solidity to the discussion about Linux audio. By showing what can be done and how exactly it is done I hope to attract more musicians and music-producers to free audio software. To spread and endorse the ideals and concepts behind free software.

8 Links

The LAPOC Website: <http://www.lapoc.de>

Papers for LAC 2007: http://www.kgw.tu-berlin.de/~lac2007/papers/lac07_noack.pdf

Papers for LAC 2006: http://lac.zkm.de/2006/papers/lac2006_hartmut_noack.pdf

Dana Olson (Founder of the UbuntuStudio-project, his Band RIVIR is produced with Linux): <http://www.rivironline.com>

Robert Jonsson (Muse-project, musician and producer with Linux audio): <http://spamatica.se>

Ron Parker (Mirror Image Studios, runs Linux for commercial recordings): <http://multitrack.us/linux.html>

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keeping AMS alive, Eric Dantan Rzewnicki for taking over the maintenance of Specimen after it was abandoned and Atte Jensen for helping Paul Nasca to carry on his great work for ZynaddSubFX. And personally I would also like to thank all the musicians that spend their time, skills, creativity and effort to be the guinea pigs in my experiment, especially: Henry Peuckert, Christoph Lffler, Bernd Kleinert, Michael Telschow und Fred. And all those from the Linux-community that help to keep the good thing going, especially Frank Hofmann and the Potsdam Linux User Group (UPLUG).