Exercise 4 – Multimedia in the Net

Task 4: An Audio Player

Write an audio player, `play` that does the following:

- accept a .wav file as command line parameter and play it over the PC's speakers
- the player must be able to play RIFF WAVE audio files using PCM encoding
- it must support 8 and 16 bit resolution, 1 or 2 channels, arbitrary sampling rates up to 44.1 kHz
- the player must automatically detect which format the file has
- the player should use the ALSA API for playing the file

There are two bonus tasks if you have too much time:

1. provide a command line switch to play the audio file backwards
2. implement a test-tone generator (see ALSA example files)

Hand in a make file (`Makefile`) and one or more .c and/or .h files which can be compiled on a computer in the CIP pool by issuing the command

```
make play
```

The resulting binary file `play` must run on the computers in the CIP-Pool.

Hints:

- read the tutorial at http://equalarea.com/paul/alsa-audio.html and the API documentation at http://www.alsa-project.org/alsa-doc/alsa-lib/ .
- A useful explanation of the RIFF WAVE file format can be found at http://ccrma.stanford.edu/courses/422/projects/WaveFormat/ .
- use the `-lasound` flag for gcc to link in the ALSA library.

Send an e-mail with „MMN – Exercise 4“ as subject, your immatriculation number in the e-mail body, and a tar.gz archive containing only the make file and source files (play.tar.gz) as an attachment to raphael.wimmer@medien.ifi.lmu.de

Deadline: Sunday, 26. November 2006, 24:00.