

LAB 4

1 Target:

Build a mp3 player on the development board and play the given audio files (music.mp3). Record sound as a .wav file using a microphone and play it back.

2 Demonstration:

2.1 Play provided audio file with command. (60%)

2.2 Record sound and play it back. (20%)

2.3 Write a document about how you finish your work. (20%)

- Explain what command you enter.
- Explain the problems you encountered and how you resolved them.
- Explain the signal processing procedure for playing an MP3 file.
- Provide references.

2.4 No source code for this lab.

2.5 Upload your document in PDF named `<group_id>_lab4.pdf` to E3. If naming rule is violated, 10 points will be deducted from the assignment.

3 Note:

3.1 We already have a soundcard driver(ALSA), but we **don't have any audio player** on our board.

3.2 “aplay” is a command-line sound player for ALSA.

3.3 “madplay” is a command-line MPEG audio decoder and player based on MAD library (libmad).

3.4 You can either use the provided library files or use your own method to build the mp3 player.

3.5 apt-get command is not allowed in this lab

4 Hints:

4.1 “aplay” can only play .wav

4.2 You can play your MP3 file through following command:

```
% madplay -o wav:-music.mp3 | aplay
```