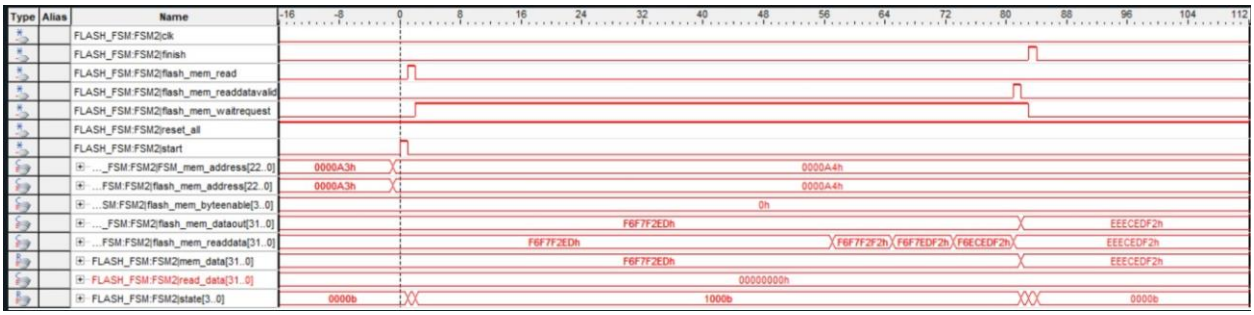
Location of SOF file: Located at the lab2_template_de1soc folder and is named

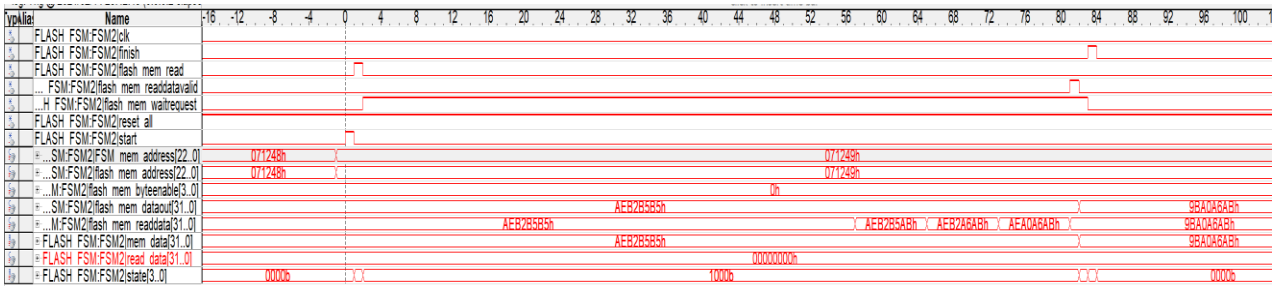
simple_ipod_solution.SOF

Status: Lab is working as expected. The DE1_Soc plays the song and repeats after the song ends, Keys 0, 1 and 2 speed up, slows down and reset the speed respectively and the key D from the keyboard stops the music while key E starts the music, however keys b and f were not implemented.

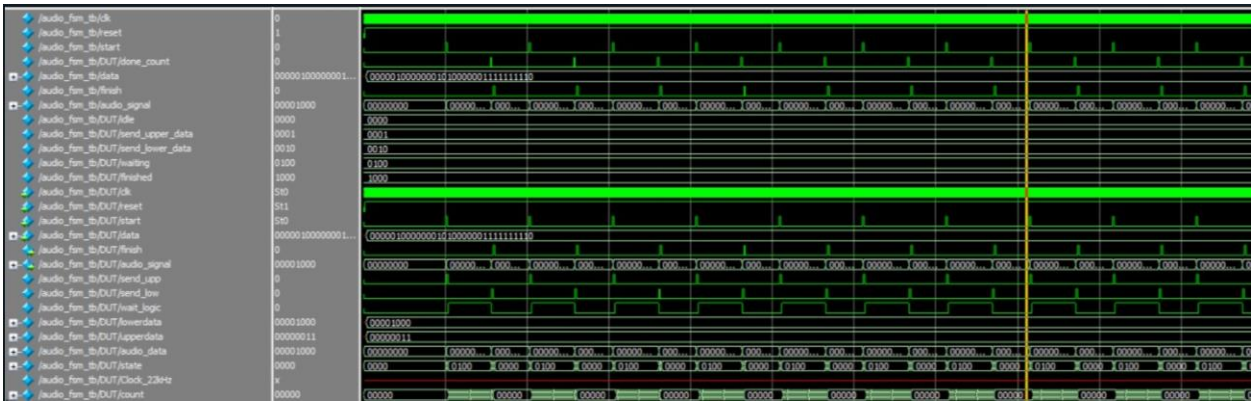
Simulation: I have provided a folder called Model_sim, where all the testbenches are located. My lab is composed of three FSMs to output the music. The first FSM is the address handle fsm(ADDR_FSM.sv) that basically loops through all the addresses of the music and sends to the next fsm once every address. The second FSM handles the FLASH memory, where it sends the received address and ouputs the received flash memory data. And finally, the third one divides the 32 bit address into 2 and sends the most significant bits to the audio signal.

1. Flash FSM simulation and signal tap

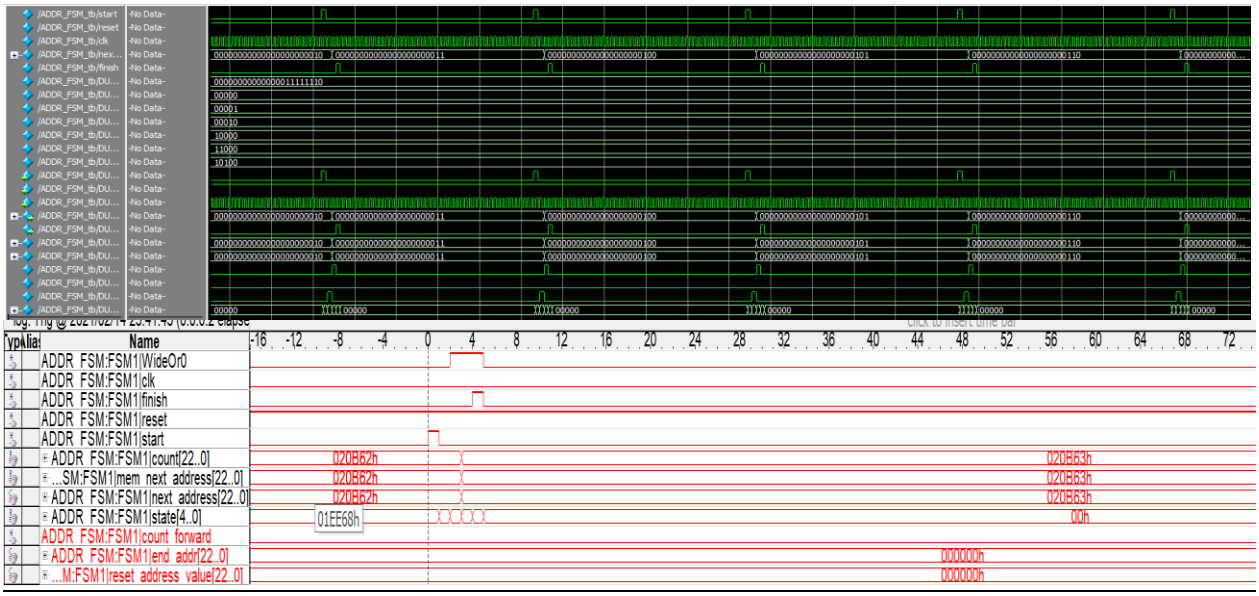




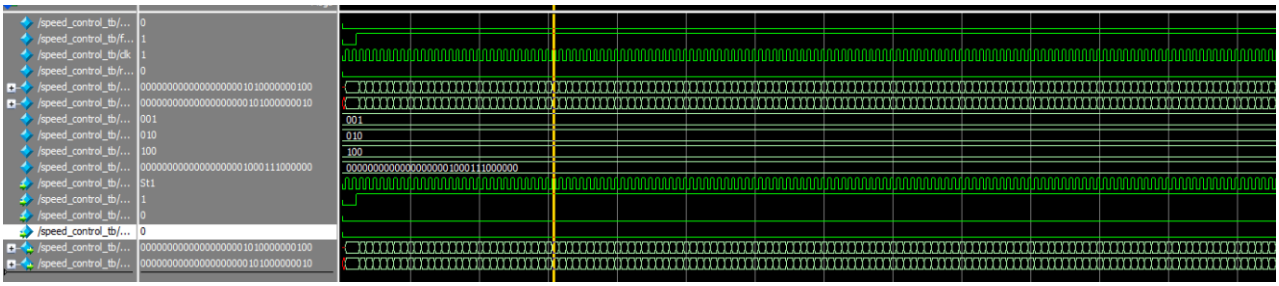
2. Audio signal FSM simulations and signal tap



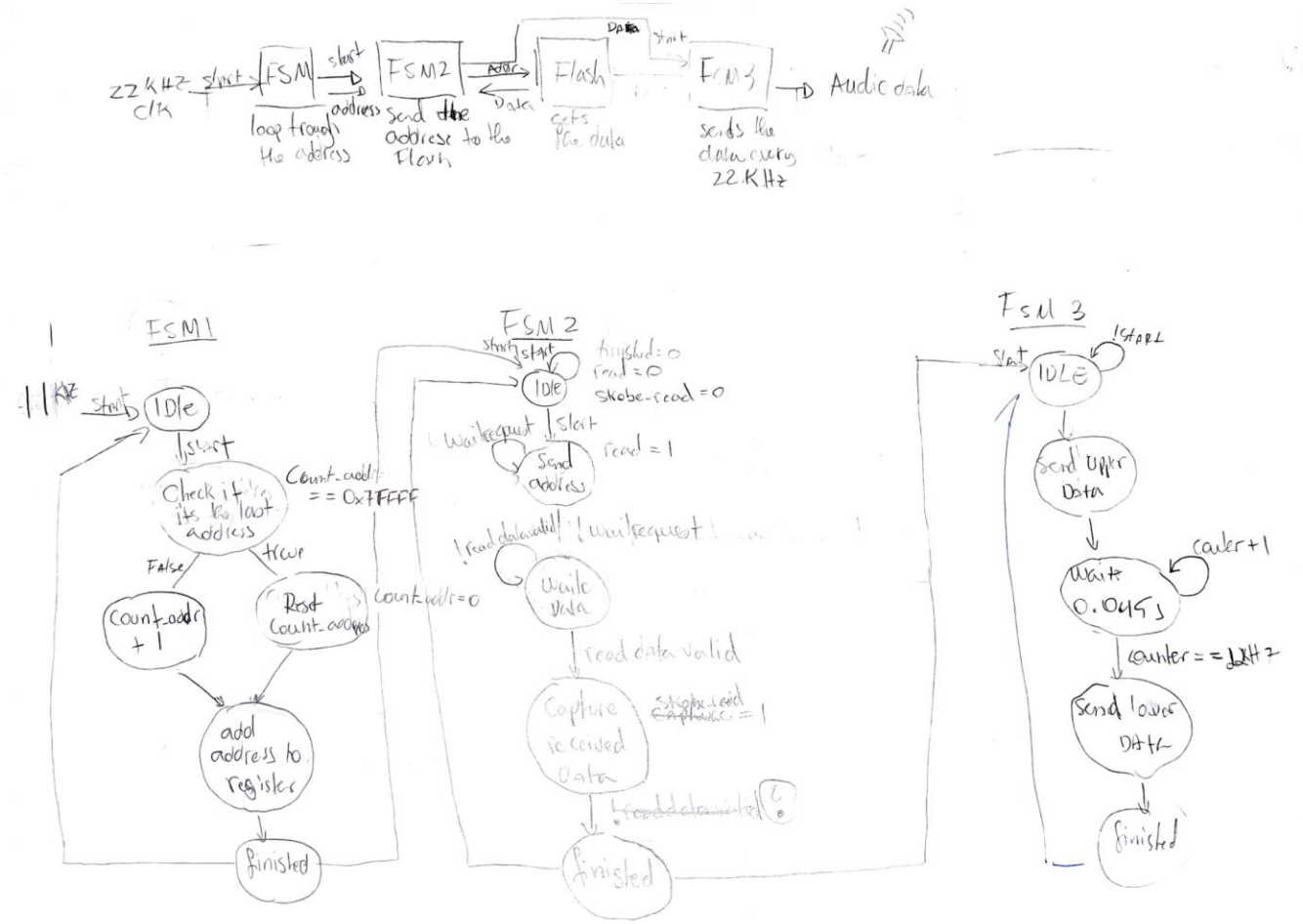
3 . Address FSM simulations.



4 Speed control simulation



Before starting the lab I built this schematic.



And at the end the overall schematic is :