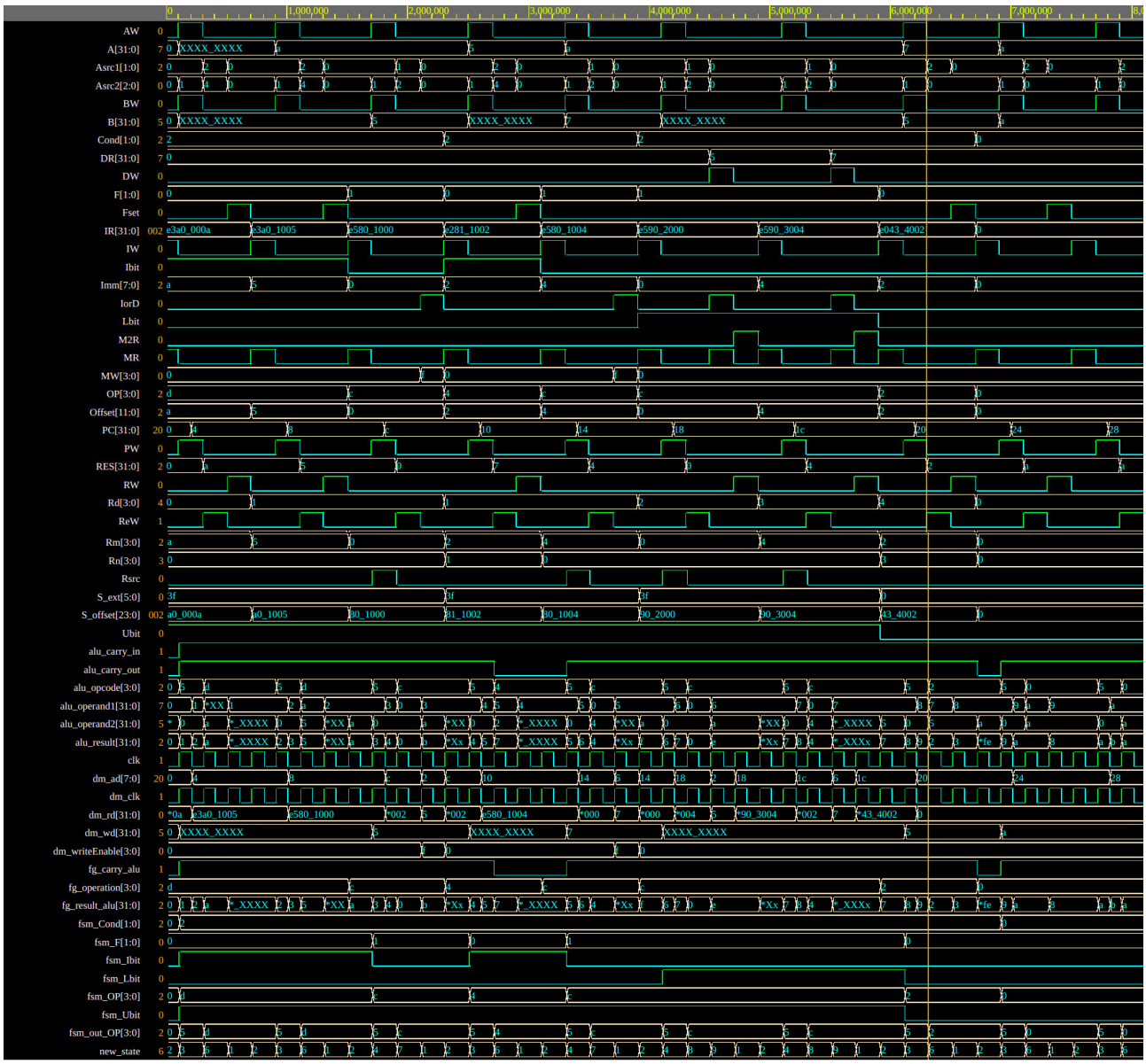
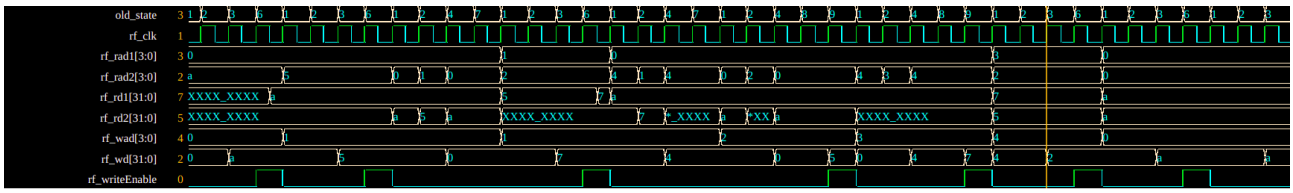
There are 7 files namely alu.vhd, control_fsm.vhd, data_memory.vhd, flags.vhd, register_file.vhd, stage3.vhd and testbench.vhd.

alu.vhd:	handles all the arithmetic operations and also incrementes pc.
data_memory.vhd:	reads and write in the program memory and the data memory. The size of data_memory is 128x32 out of which first half stores program memory and second half stores data memory.
flags.vhd:	it sets the C, N, V and Z flags.
register_file.vhd:	it reads and write in the 16 registers of the program.
control_fsm.vhd:	it sets all the control signals depending on the current state and update the state also.
stage3.vhd:	this is glue code for this stage.

(At some places all the functionality are not implemented because only few instructions have to b implemented in this stage (especially in flags.vhd)).

EP Wave for first test case:




old_state
rf_clk
rf_rad1[3:0]
rf_rad2[3:0]
rf_rd1[31:0]
rf_rd2[31:0]
rf_wad[3:0]
rf_wd[31:0]
rf_writeEnable
XXXX_XXXX