1 Code running

datapath.vhd and combined.vhd are two files which contain codes.
For running two files on eda playground:

1. Design.vhd=> combined.vhd

2. testbench.vhd=>datapath.vhd

3. Top entity=> controller
Now run the codes

2 Instructions stored in Memory:

??

```
1
2    data_out <= X"E3A00002" when (address="000000000000000000000000000000000") else
3              X"E3A00104" when (address="0000000000000000000000000000000100")  else
4              X"E2811002" when (address="0000000000000000000000000001000")  else
5              X"E0832001" when (address="0000000000000000000000000001100")  else
6              X"E0440001" when (address="0000000000000000000000000010000")  else
7              MEM(to_integer(unsigned(address)));
8
```

Code 1: Codes in component datamem

Correspondig Instructions: **??**

```
1
2    mov r0,#4   <= X"E3A00004"
3    mov r1,#2   <= X"E3A00102"
4    mov r2,#2   <= X"E3A00202"
5    add r2,r2,#1<= X"E2811002"
6    add r3,r2,r1<= X"E0832001"
7    sub r4,r0,r1<= X"E0440001"
8
9
```

Code 2: Corresponding instructions to data stroed in memory
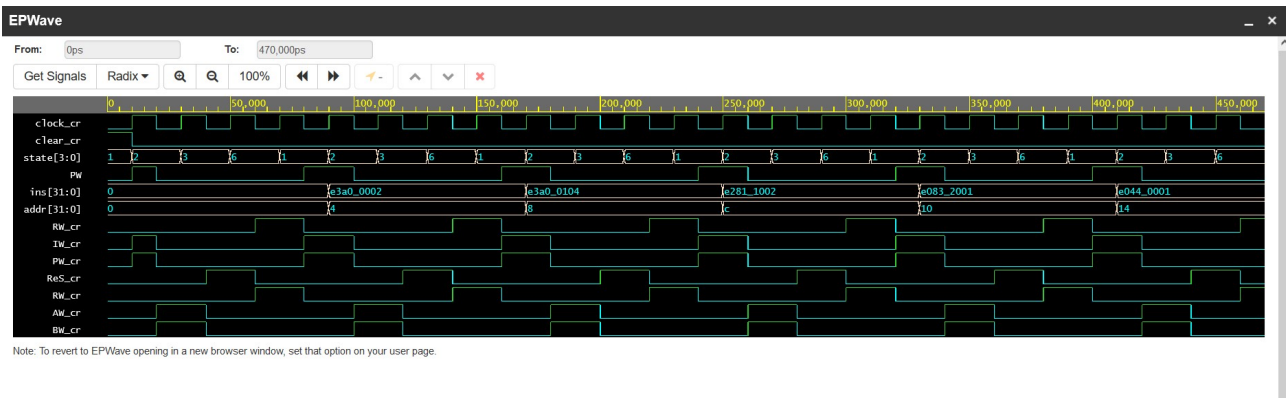
3 EPWave

Response of codes:

Fig 1: EPWave Result

References