COMP311: Logic Circuit Design

Spring 2022, Prof. Taigon Song

Final Project. Due: June 22 11:59pm [Total: 150 points]

Additional Document

(last updated: 2022. 6. 15)

1. A figure for reference:

Figure 1 describes how your processor should be designed.

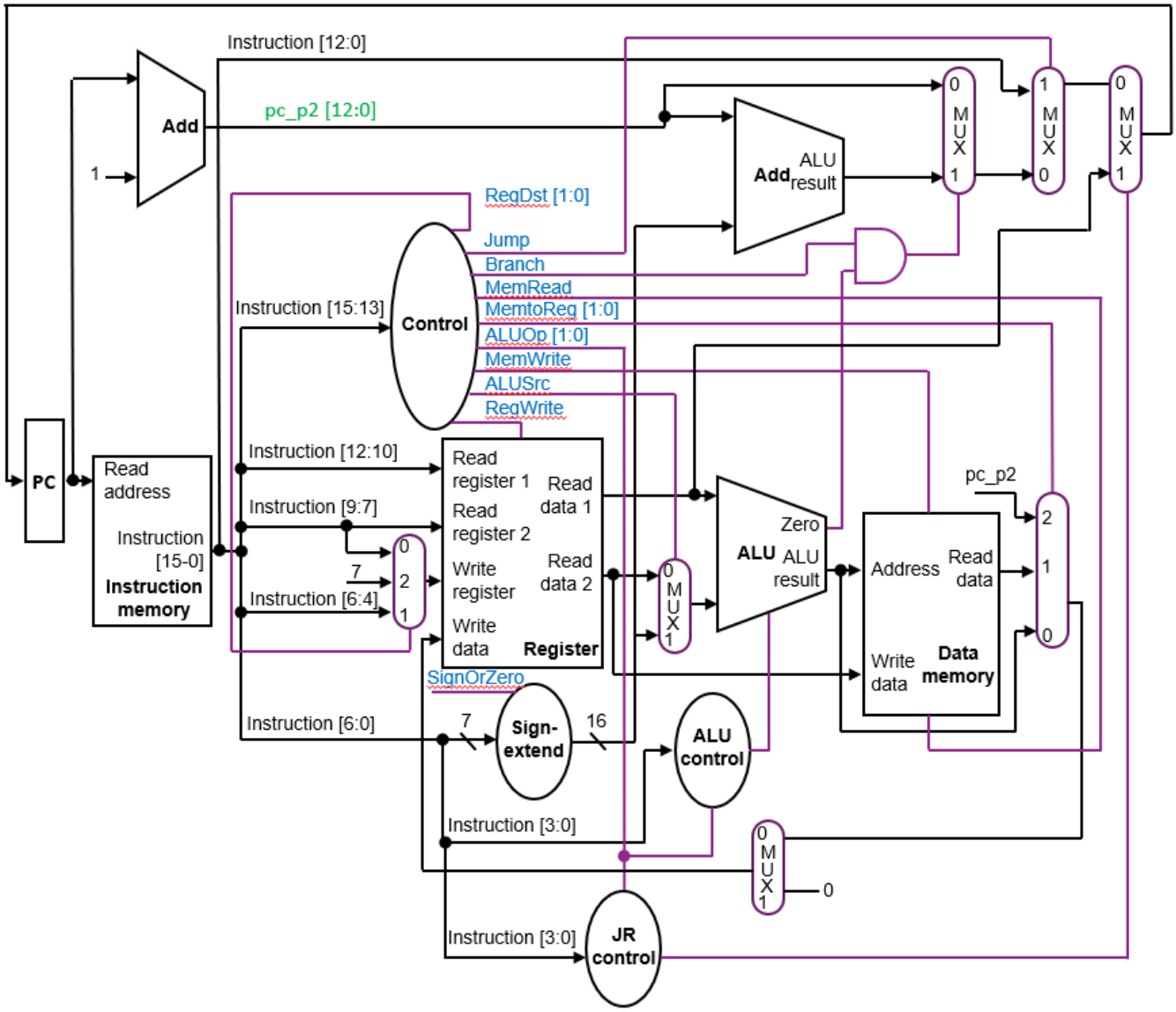

Figure 1 – Full diagram of the 16-bit MIPS architecture

2. Some additional instructions:

- Please print an iVerilog figure like Figure 2. ID should be the last 4 digits of your student ID.

- After “RF[0, 1, 2, 3, 4, 7] is: ”, you should print the according RF values at every ns.

- ‘final PC # processed’ is the PC # that was lastly processed right before ‘0000_0000_0000_0000’.

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ID:1234, at time                 2000 ps, PC =    0, RF[0, 1, 2, 3, 4, 7] is:
ID:1234, at time                 3000 ps, PC =    1, RF[0, 1, 2, 3, 4, 7] is:
ID:1234, at time                 4000 ps, PC =    2, RF[0, 1, 2, 3, 4, 7] is:
ID:1234, at time                 5000 ps, PC =    3, RF[0, 1, 2, 3, 4, 7] is:
ID:1234, at time                 6000 ps, PC =    4, RF[0, 1, 2, 3, 4, 7] is:
ID:1234, at time                 7000 ps, PC =    5, RF[0, 1, 2, 3, 4, 7] is:
ID:1234, at time                 8000 ps, PC =    6, RF[0, 1, 2, 3, 4, 7] is:
ID:1234, at time                 9000 ps, PC =    7, RF[0, 1, 2, 3, 4, 7] is:
ID:1234, at time                10000 ps, PC =    8, RF[0, 1, 2, 3, 4, 7] is:
ID:1234, at time                11000 ps, PC =    9, RF[0, 1, 2, 3, 4, 7] is:
ID:1234, at time                12000 ps, PC =   10, RF[0, 1, 2, 3, 4, 7] is:
ID:1234, at time                13000 ps, PC =   11, RF[0, 1, 2, 3, 4, 7] is:
ID:1234, at time                14000 ps, PC =   12, RF[0, 1, 2, 3, 4, 7] is:
ID:1234, at time                15000 ps, PC =   13, RF[0, 1, 2, 3, 4, 7] is:
ID:1234, at time                16000 ps, PC =   14, RF[0, 1, 2, 3, 4, 7] is:
ID:1234, at time                17000 ps, PC =   15, RF[0, 1, 2, 3, 4, 7] is:
ID:1234, at time                18000 ps, PC =   16, RF[0, 1, 2, 3, 4, 7] is:
ID:1234, at time                19000 ps, PC =   17, RF[0, 1, 2, 3, 4, 7] is:
The final result of $s3 in memory is:     0
```

Figure 2 – How you should display your final results

(the ordering of PC and the final result should be different from this figure)