Ho Chi Minh City University of Technology
Faculty of Computer Science and Engineering

Computer Architecture

Practical session - Week 9 Autumn Semester 2018

Notes:

- The main purpose of this week is to analyse the operations of a single cycle MIPS processor.
- Students are NOT requested to submit anything.

Given the following single cycle MIPS processor architecture.

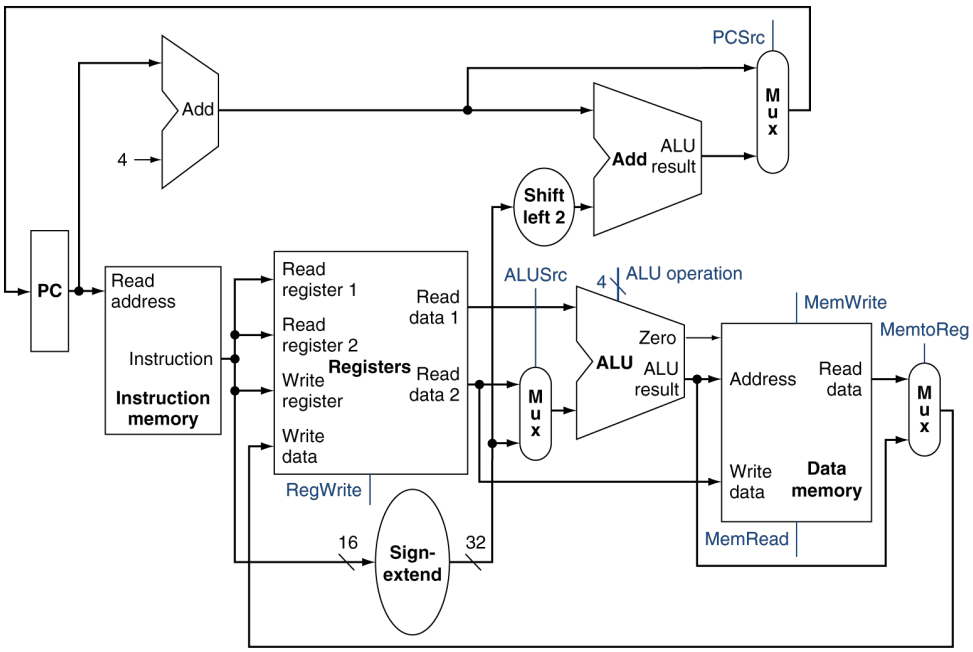

Figure 1: Full datapath of a single cycle MIPS processor

Assume that `$s0` and `$s1` registers store two integer numbers 100 and 200, respectively. The memory word at address 300 keeps an integer number 2017.

Question 1. With each instruction below, please identify which functional units will participate into the processing of the instruction? What are values of the inputs and outputs of those functional units?

1. `add $s0, $s0, $s1`
2. `addi $s1, $s0, 5`
3. `lw $s0, 100($s1)`
4. `sw $s0, 100($s1)`
5. `beq $s0, $s1, L1`

Question 2. Which instruction, among the above instructions, is the longest instruction (require longest time for processing)? Explain.

———————the end———————