Faculty of Computers and Artificial Intelligence

CS222: Computer Architecture

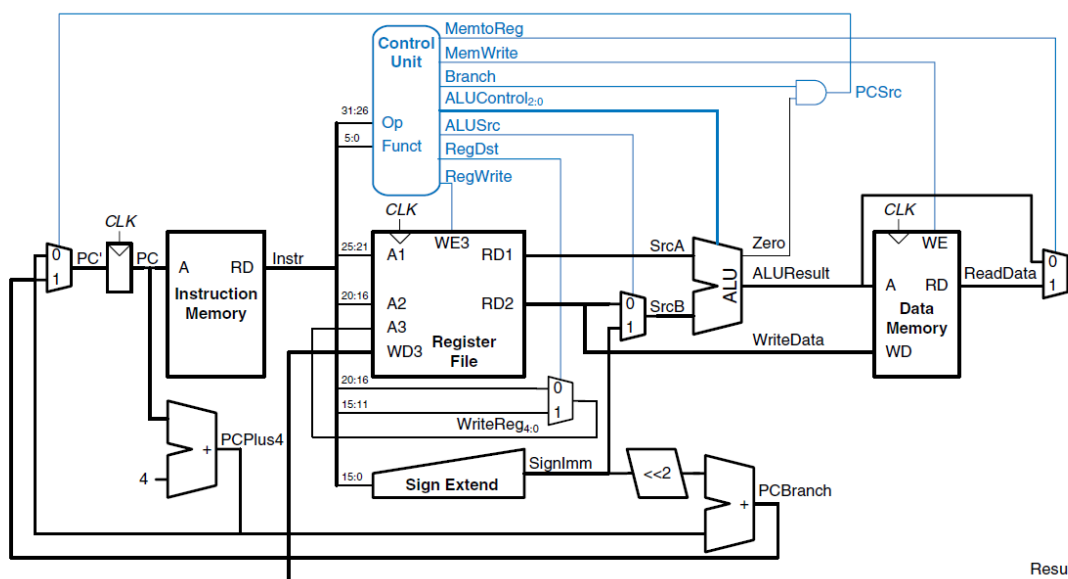# Assignment no 10:
Chapter 7: Microarchitecture

Note: You can check the exercises after the Chapter. In our assignment, we are using the 2nd Edition of "Digital Design and Computer Architecture" By David and Sarah Harris.

Exercise 7.03 (a). Modify the single-cycle MIPS processor to implement the following instructions. Mark up a copy of Figure below to indicate the changes to the datapath. **Name** any new control signals. **Mark up** a copy Table below to show the changes to the main decoder. **Describe** any other changes that are required.

      a. **sll**

Function	Name	Description	Operation
000000 (0)	sll	Shift left logical	[rd] = [rt] << shamt

Hint: ALU may need to be modified.

Instruction	Opcode	RegWrite	RegDst	ALUSrc	Branch	MemWrite	MemtoReg	ALUOp
R-type	000000	1	1	0	0	0	0	10
lw	100011	1	0	1	0	0	1	00
sw	101011	0	X	1	0	1	X	00
beq	000100	0	X	0	1	0	X	01