CS223- Hardware Sample Mini Projects
Hardware design using HDL(Verilog)

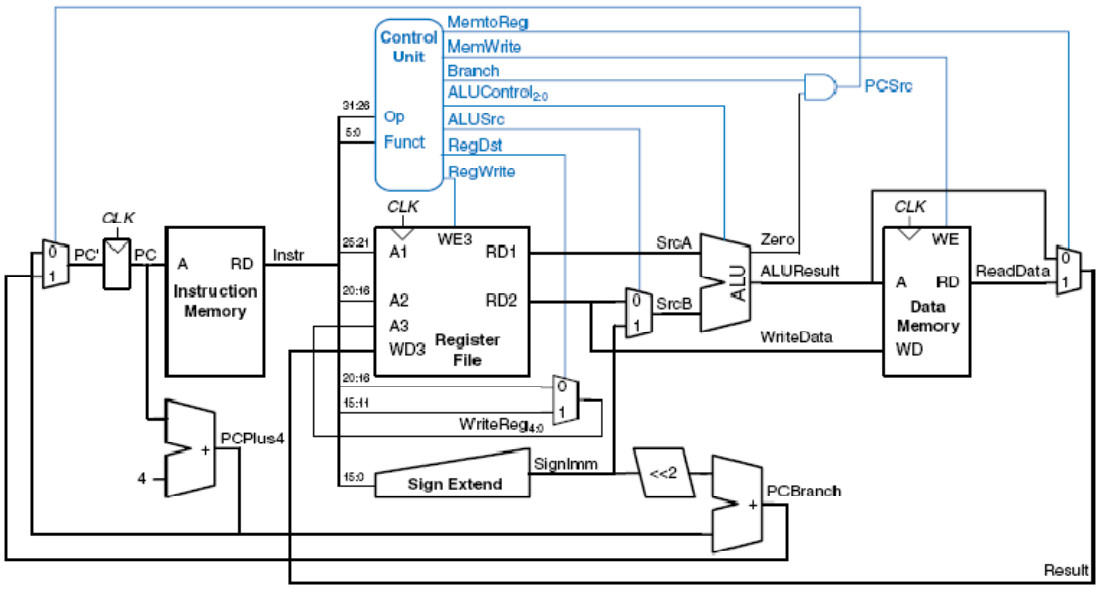
Project 1

Design a 4 bit ALU using discrete components available in the lab(Minimum 7 instructions of your choice).

Project 2

Simulate the following architecture in Logic sim (implement add, sub , LW , SW, BEQ, ADDI, Jump instructions).

A microarchitecture that executes instructions in a single cycle is shown in figure. The structure shows the datapath , connecting the state elements with combinational logic that can execute the various instructions. Control signals determine which specific instruction is carried out by the datapath at any given time. The controller contains combinational logic that generates the appropriate control signals based on the current instruction.



Reference: Digital Design and Computer Architecture- David Harris Sarah Harris

Project 3

Extend the single cycle CPU architecture given in Lab 9 with 4 more instructions of your choice

Your Mini project (20% of the total)

Submission of mini project should contain appropriate source file (for project 2 and Project 3) and report (maximum 10 pages). Demonstration date on or before 13 th April 2016

Please submit document either doc format as a file YourrollNo_Lab9.doc, or as pdf as a file YourrollNo_Lab9.pdf.

Lab submission through cs223.iitp@gmail.com with subject: YourrollNo_miniProject