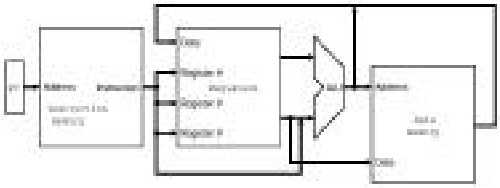
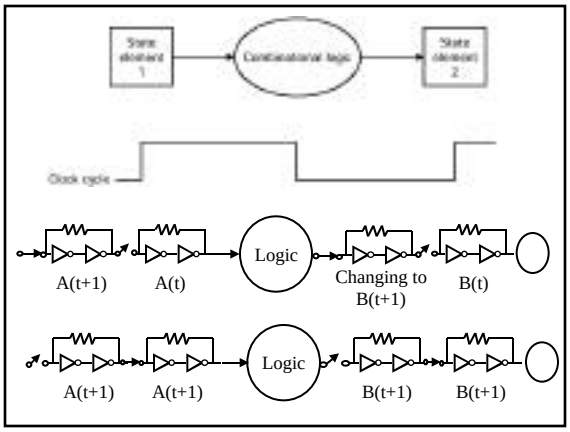
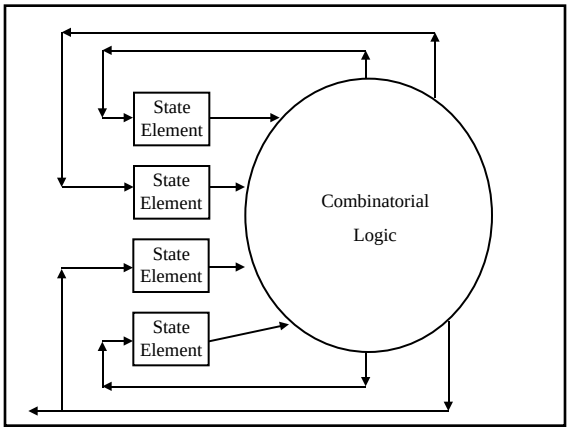
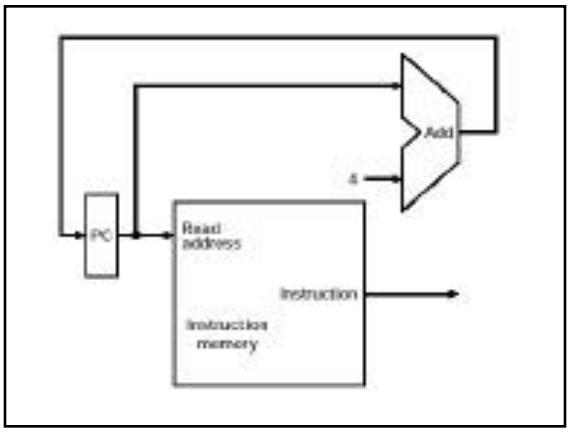
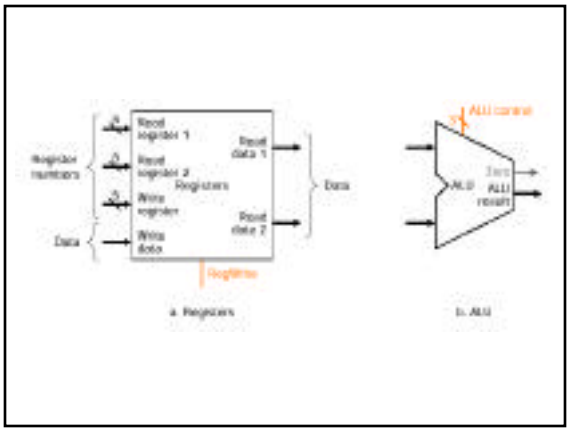
Lecture 3
CPU - Data Path
Reading - Pat. & Hen. Chap. 5

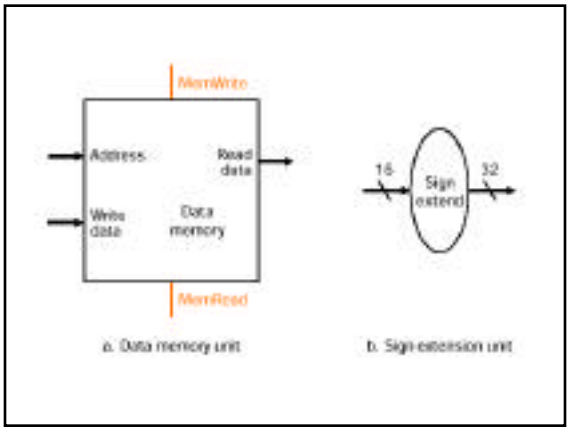


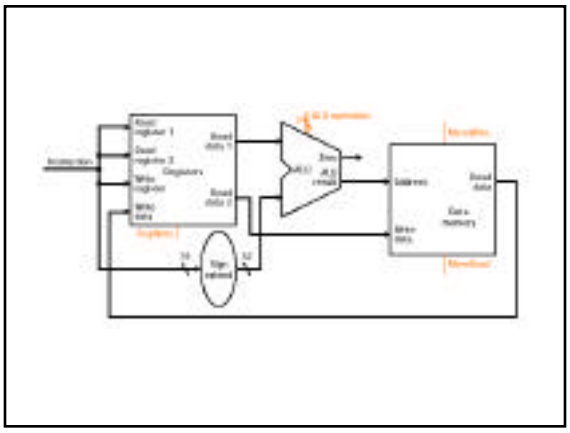


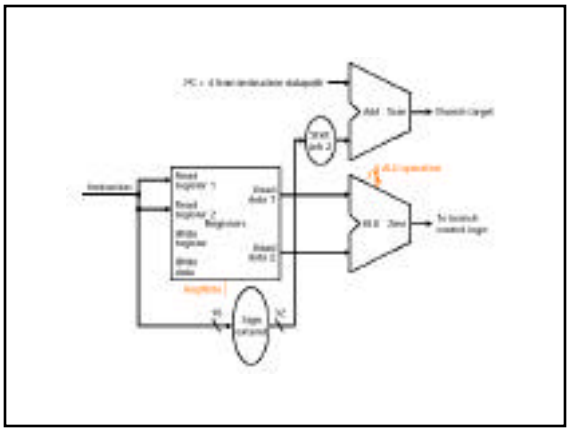


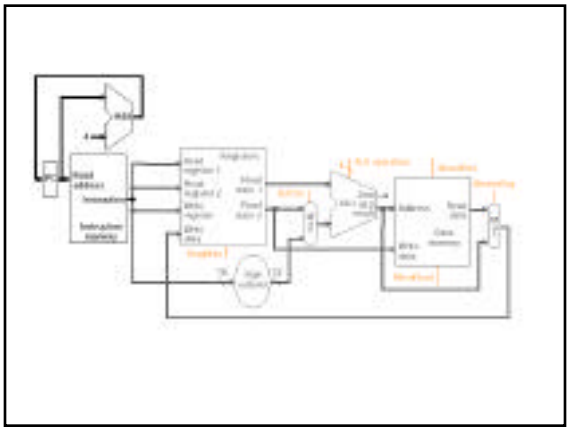

Add
4
PC
Read address
Instruction
Instruction memory

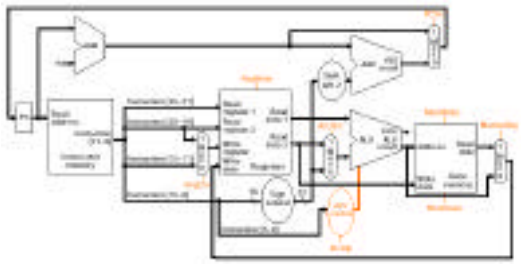

Read register 1
Read register 2
Registers
Write register
Write data
Read data 1
Read data 2
Data
Register numbers
Data
RegWrite
a. Registers
ALU control
ALU
Zero
ALU result
b. ALU

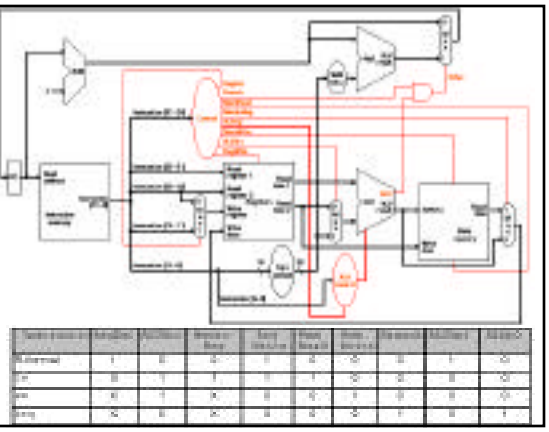

MemWrite
Address
Read data
Write data
Data memory
MemRead
a. Data memory unit
16
Sign extend
32
b. Sign-extension unit

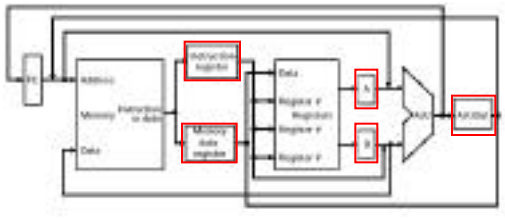






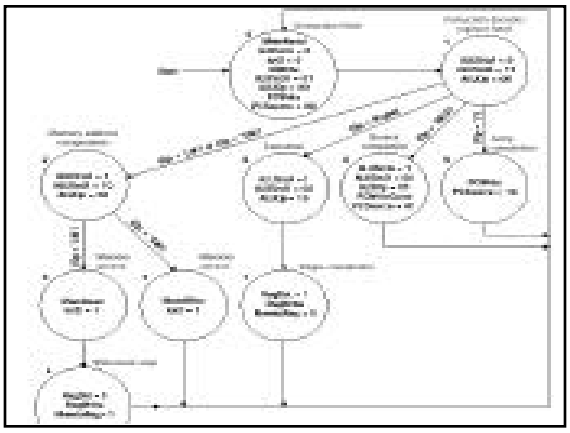


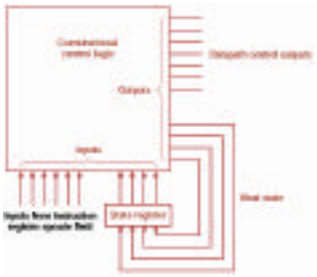


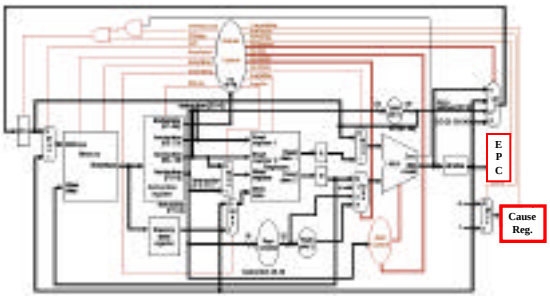


A Multi-Cycle CPU (Datapath) needs additional registers to hold data between cycles.

Notice the common memory for data and instructions (code).







Two new registers are added to handle Exceptions and Interrupts

the EPC (Exception Program Counter) and the Cause Reg.s.