Notes:

* What is a multicycle processor?
  + Processor that uses multiple cycles to execute an instruction
* Why use a multicycle processor?
  + Economy of Chip
    - Fewer adders
    - Shared Memory
    - Why is it important: \_\_\_\_\_\_\_\_\_\_\_\_\_
  + More Efficient
    - Not hindered by slowest instruction
    - How is speed improved? \_\_\_\_\_\_\_\_\_\_\_\_\_\_
* 5 Step Process for Handling Instructions
  + Fetch and PC increment
  + Decode and register readout
  + ALU Operation
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Memory Access/Register Write
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Register Write
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Datapath
  + Control Signals dictate the datapath
  + Different datapath for each of the following types of instructions
    - * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Multicycle Performance
  + Performance is measured by Cycles Per Instruction (CPI)
  + CPI can be translated into execution time
  + Cycles per instruction
    - Load word - \_\_\_
    - Store word - \_\_\_
    - R type - \_\_\_
    - Branch - \_\_\_
    - Jump - \_\_\_
  + SpecInt2000 Benchmark
    - 25% loads
    - 10% stores
    - 11% branches
    - 2% jumps
    - 52% R-type instructions
    - Average CPI 4.12



