

605.611 - Foundations of Computer Architecture

Assignment 08 - Pipelining

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1. Identify the size and bits values for each of the pipe line registers IF/ID, ID/EX, EX/MEM, MEM/WB. You should use slides 66 and 75 combined for this. Be sure to include the control bits in the registers. So for the IF/ID register, you would say "size is 64 bits, contains Instruction (32) and PC(32)".

Pipeline Register	Size (bits)	Values
IF/ID	64	Instruction (32) PC (32)
ID/EX	147	Control bits (9) PC (32) Read data (64) Sign-extended immediate (32) rs from IF/ID (5) rt from IF/ID (5)
EX/MEM	107	Control bits (5) PC (32) ALU result (32) ALU zero (1) Read data 2 (32) rt/rs (5)
MEM/WB	103	Control bits (2) Read data (64) ALU result from EX/MEM (32) rt/rs (5)