

CompSci 535 Pipeline Hazard Exercise

Name(s) _____

Identify data hazards in advance by drawing a line connecting the assignment of a value to a register with each of its uses. Use the 8-stage MIPS R4400 pipeline structure (IF, IS, RF, EX, DF, DS, TC, WB), and indicate Data Hazard slots using D and structural hazard slots using S. Assume forwarding from TC to EX.

Ld R1, A																									
Add R5, R4, R1																									
Ld R2, B																									
Add R7, R6, R2																									
Ld R3, C																									
Add R8, R6, R3																									
Add R9, R7, R8																									
Add R10, R5, R2																									

Compute the efficiency (Optimal/Actual)

Reorder the instructions to improve the schedule. Follow the same process to determine the actual cycle count.

Compute the efficiency (Optimal/Actual)