

Computer Organization

1. The input fields of each pipeline register:

IF/ID :

Pipeline_IM -input (instr), output (IF_instr)

ID/EX:

Pipeline_Reg size(11) Pipeline_Control:

- input {RegWrite, ALUOp, ALUSrc, RegDst, MemRead, MemWrite, MemtoReg},
- output {ID_RegWrite, ID_ALUOp, ID_ALUSrc, ID_RegDst, ID_MemRead, ID_MemWrite, ID_MemtoReg}

Pipeline_Reg size(32) Pipeline_RS:

- input ReadData1
- output ID_rs_data

Pipeline_Reg size(32) Pipeline_RT:

- input ReadData2
- output ID_rt_data

Pipeline_Reg size(32) Pipeline_SE:

- input signextend
- output ID_sign_instr

Pipeline_Reg size(32) Pipeline_ZF:

- input zerofilled
- output ID_zero_instr

Pipeline_Reg size(32) Pipeline_IM_ID_EX:

- input IF_instr
- output ID_IF_instr

EX/MEM

Pipeline_Reg size(5) Pipeline_Control_EX:

- input {ID_RegWrite, ID_MemRead, ID_MemWrite, ID_MemtoReg}
- output {EX_ID_RegWrite, EX_ID_MemRead, EX_ID_MemWrite, EX_ID_MemtoReg}

Pipeline_Reg size(32) Pipeline_Write_Data:

- input WriteData
- output EX_Write_Data

Pipeline_Reg size(32) Pipeline_RT_EX:

- input ID_rt_data
- output EX_ID_rt_data

