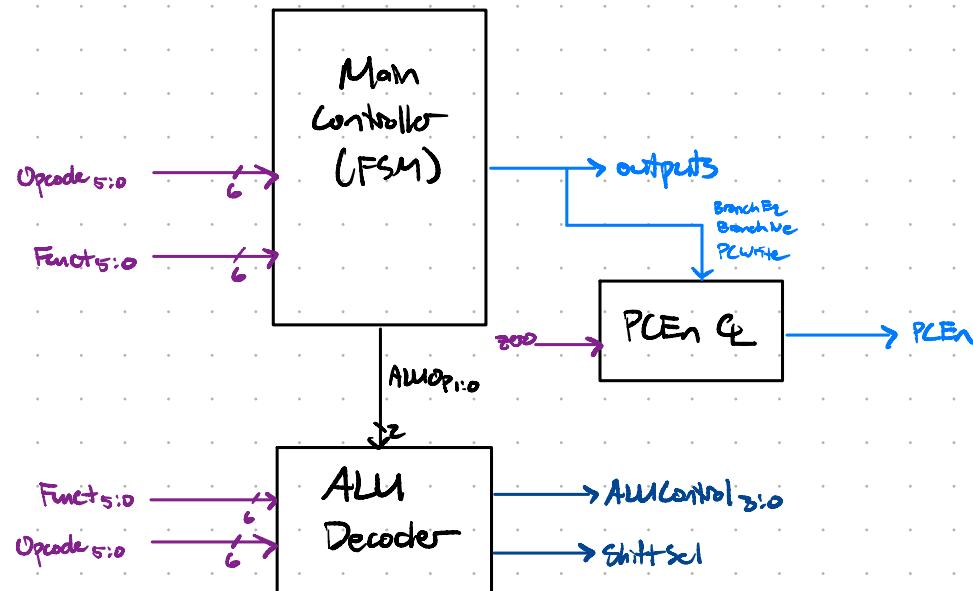


Control Unit



(FSM) Outputs:

Selects

I or D: access inst or data memory

Mem to Reg: write to RF from ALUOut, memory, or PCPlus4

RegDst: destination register to write to — \$t1, \$t2, or \$t3
(I) (R)

ExtSel: Sign-Extend or Zero-Extend Imm (only matters when ALUSrcA=10)
(anything else) (condi,ori,xori)

ALUSrcA: SrcA — PC or A

ALUSrcB: SrcB — B, 4, ExtImm, or SignImm < 2
(immse) (branch target addr offset)

ALUOp: How ALU Decoder finds op — add, sub, or look at Funct.

PCSrc: what to write to PC — ALUResult, (usually PC+4 in IF)
ALUOut, (usually target addr in EX)
PCJump, (jump target)

or A (target from \$t5 in JR)

ALU Decoder:

ALUOp	meaning
00	add
01	sub
10	look at Funct
11	look at opcode

Map Funct/Opcode to ALUControl, shiftSel:

nop \rightarrow \$D = \$D || \$D

JR \rightarrow 1111 (out = 0)

Enables

MemWrite

IRWrite

RegWrite

PCWrite

PCPlus4Write

BranchEq

BranchNe

Cond 1 or IF
for write req
by JZ/JR

Enables

MemWrite

IRWrite

RegWrite

PCWrite

PCPlus4Write

BranchEq

BranchNe

Cond 1 or IF
for write req
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