

EE224 : Project Report

Processor

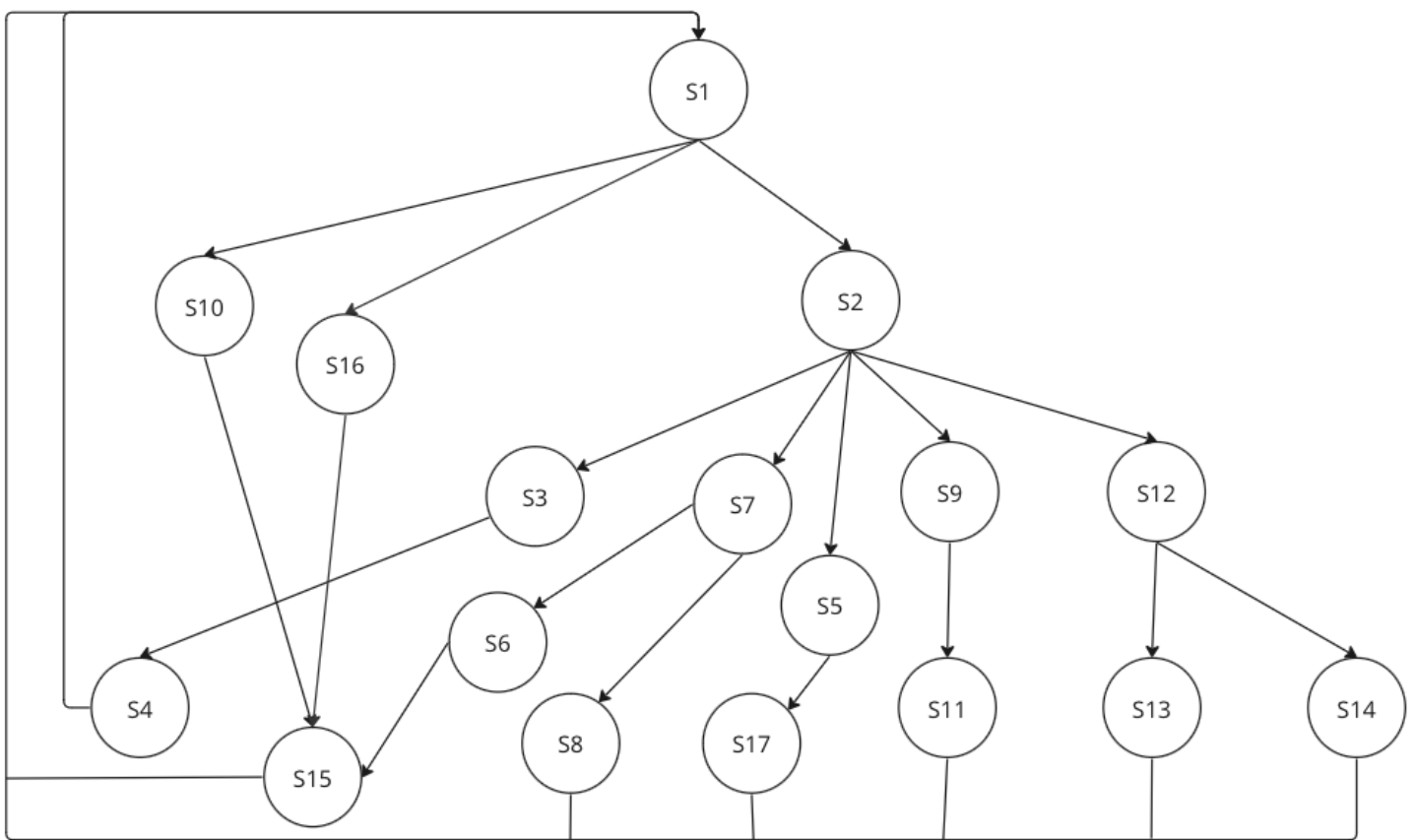
Team Members: Team No. 56

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3. Suchet Gopal (22B1814)

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State Diagram



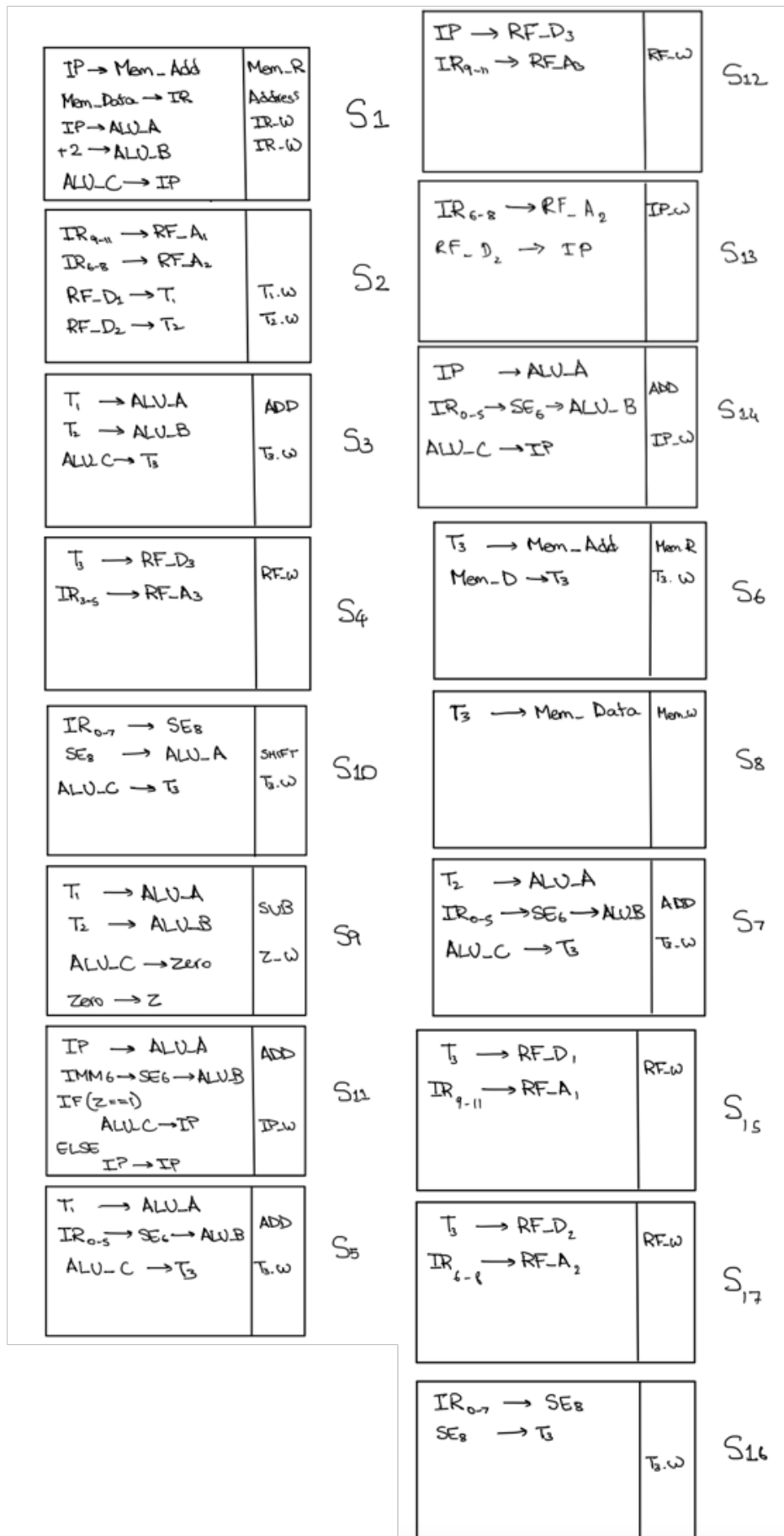
State Descriptions

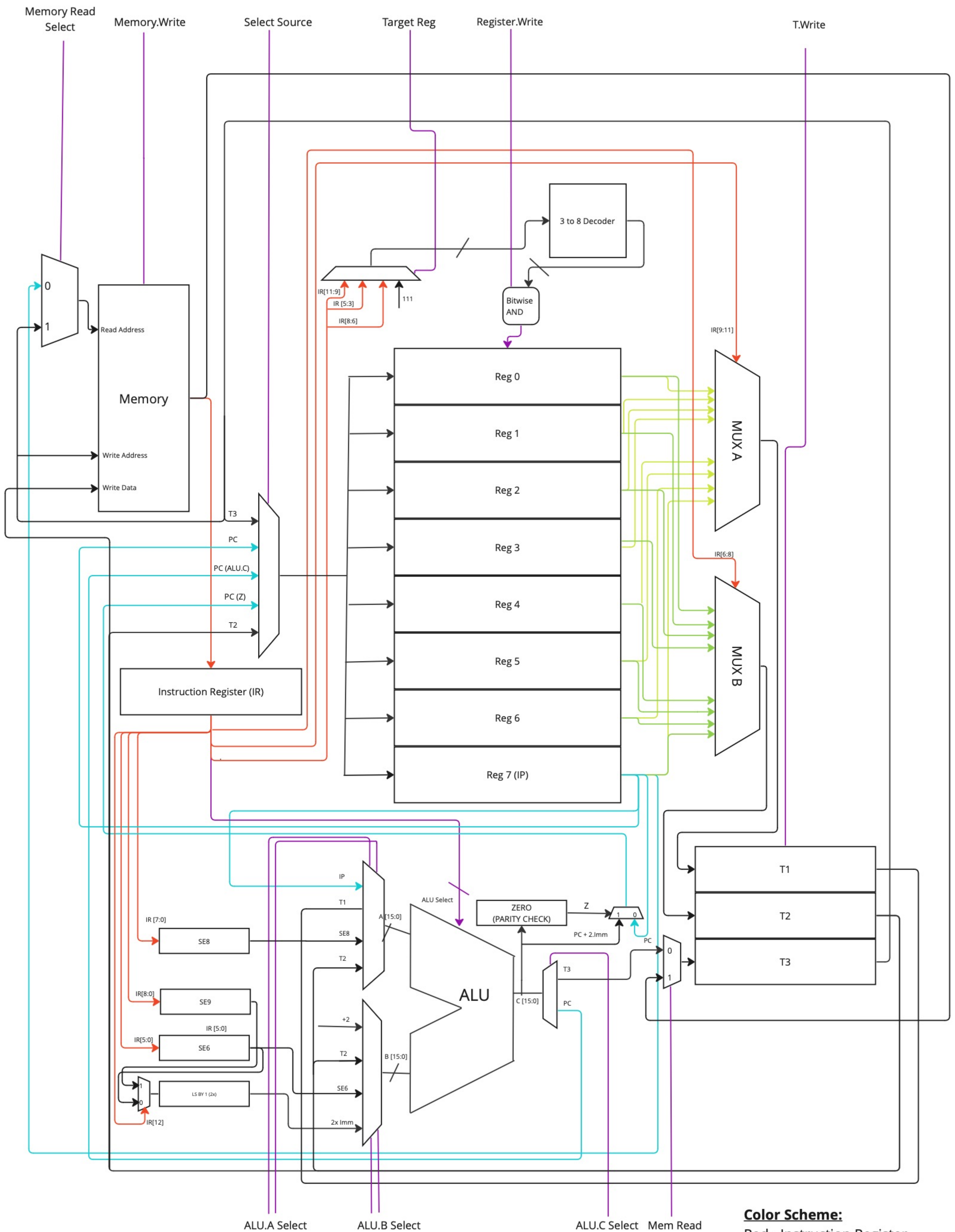
S1: Fetch
S2: Operand Read
S3: Execute
S4: Update
S5: Immediate Addition (T1)
S6: Memory Read
S7: Immediate Addition (T2)
S8: Memory Write
S9: Zero Evaluation
S10: LHI Shift
S11: Program Branch
S12: Store PC in Reg A
S13: Store Reg B in IP (Reg 7)
S14: Add Immediate to IP
S15: Store T3 in Reg A
S16: LLI Sign extension
S17: Store T3 in Reg B

Operation Flow

ADD, SUB, MUL, AND, ORA, IMP: S1 -> S2 -> S3 -> S4
ADI: S1 -> S2 -> S5 -> S17
LHI: S1 -> S10 -> S15
LLI: S1 -> S16 -> S15
LW: S1 -> S2 -> S7 -> S6 -> S15
SW: S1 -> S2 -> S7 -> S8
BEQ: S1 -> S2 -> S9 -> S11
JAL: S1 -> S2 -> S12 -> S13
JLR: S1 -> S2 -> S12 -> S14

Flowchart





Color Scheme:

Red - Instruction Register
 Purple - Control Signal
 Blue - Instruction Pointer
 Green - Register output

Work Distribution

1. Ashwajit (22B1227)

- Controller
- Memory
- Debugging

2. Raunak (22B3955)

- Register File
- ALU
- Debugging

3. Suchet (22B1814)

- Top Level and Support Structures assembly
- Debugging