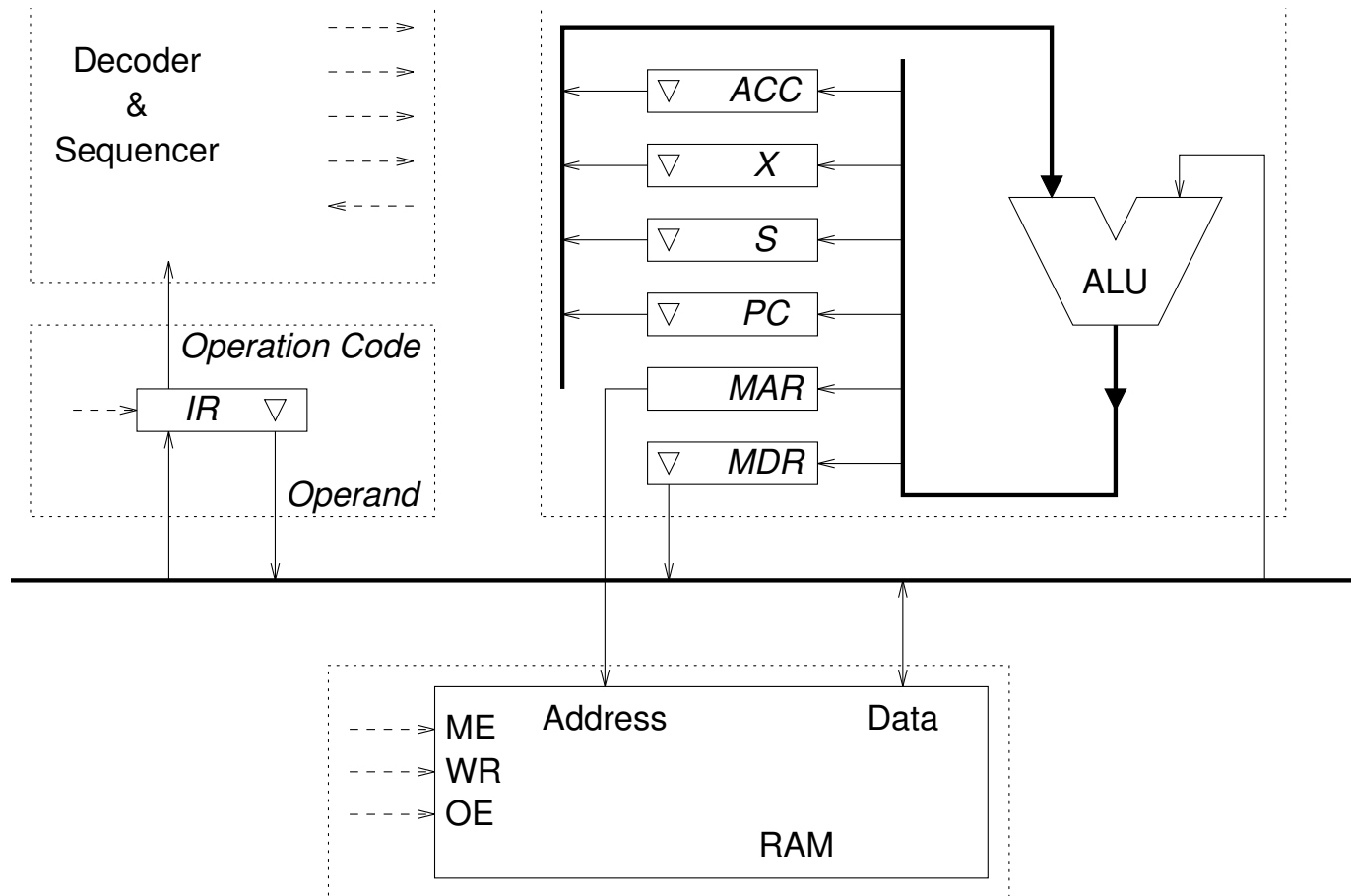
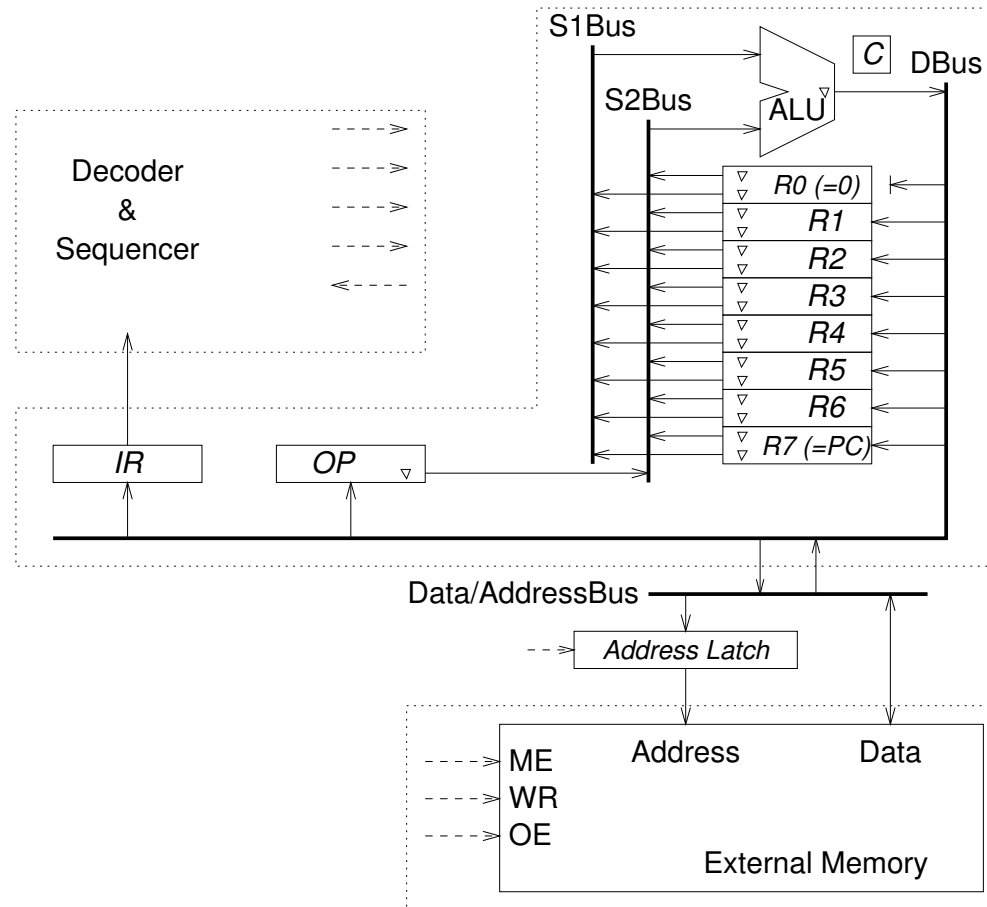


# Possible CISC Datapath<sup>1</sup>



<sup>1</sup>from <http://users.ecs.soton.ac.uk/bim/notes/ups/lecture/pdf/ups03.pdf>

# Hybrid RISC Datapath<sup>2</sup>



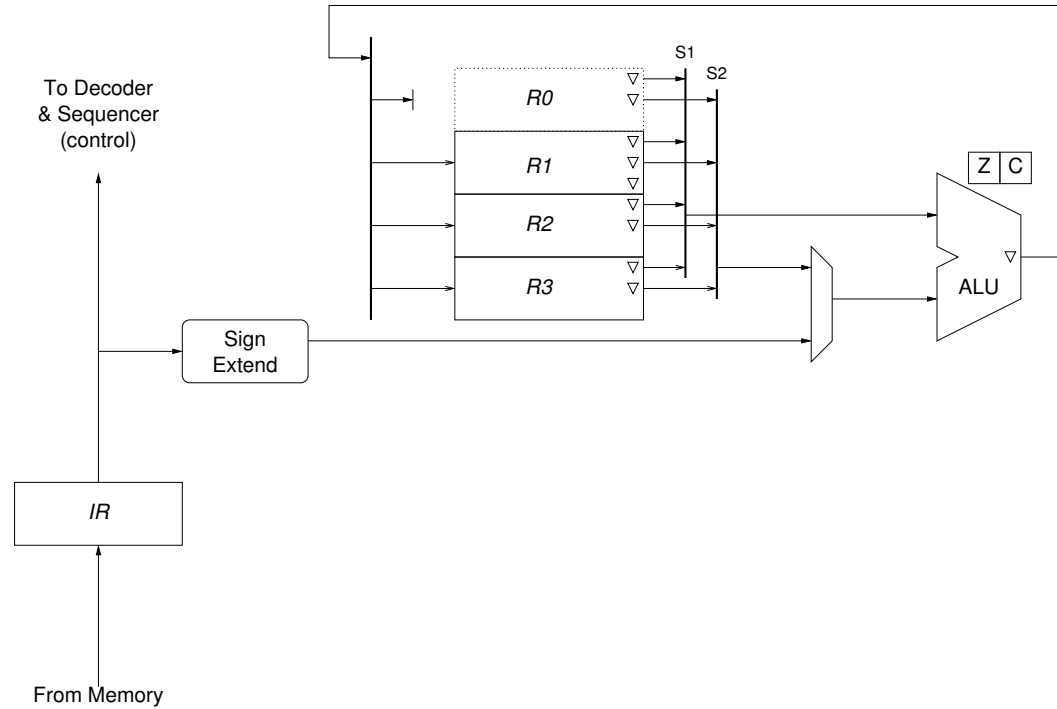
<sup>2</sup>from <http://users.ecs.soton.ac.uk/bim/notes/fcde/assign/pdf/superrisc.pdf>

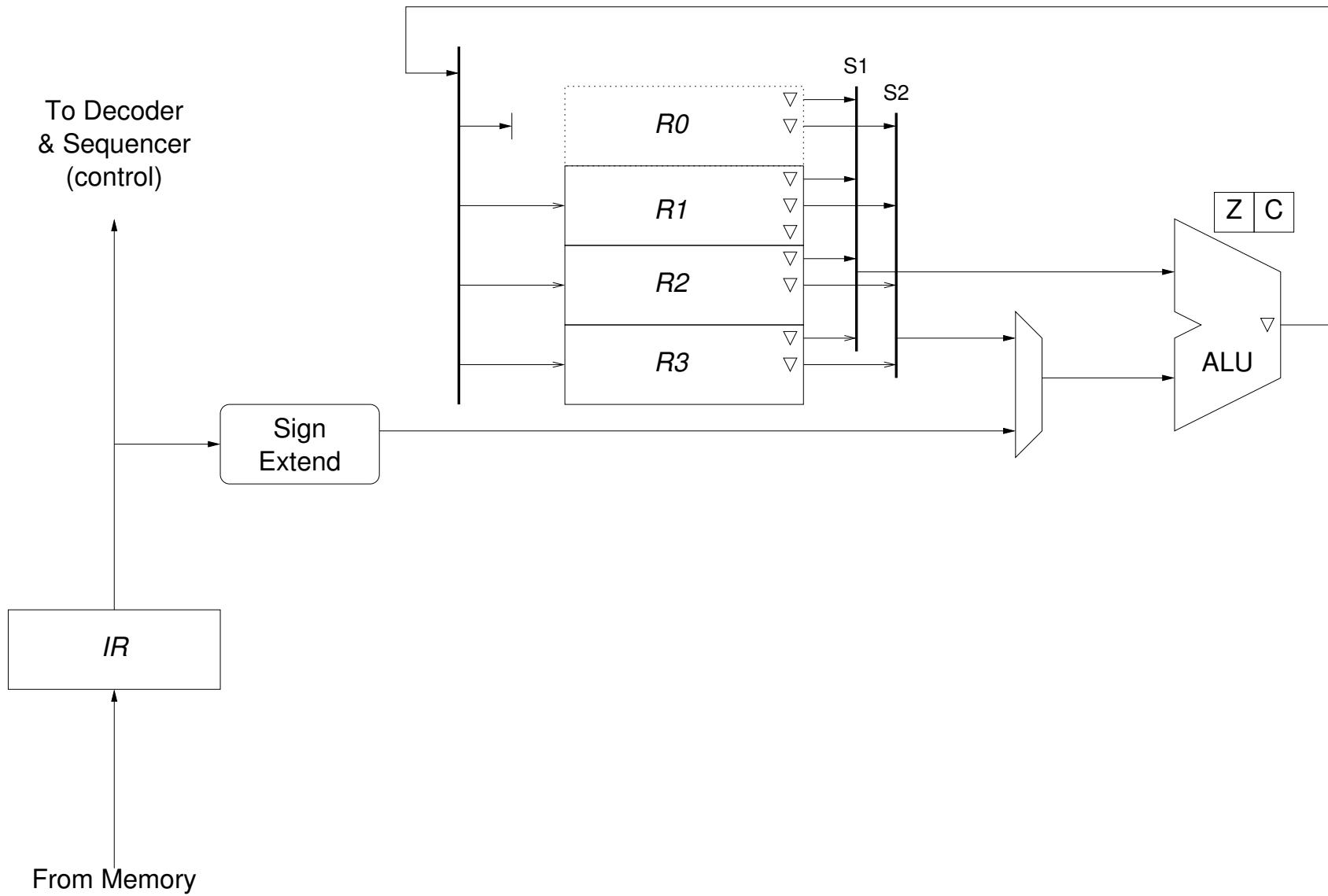
# Datapath Construction for RISC #1

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## Arithmetic/Logic Instructions

- $R_D \leftarrow \mathcal{F}\{R_{S1}, R_{S2}\}$
- $R_D \leftarrow \mathcal{F}\{R_{S1}, imm7\}$



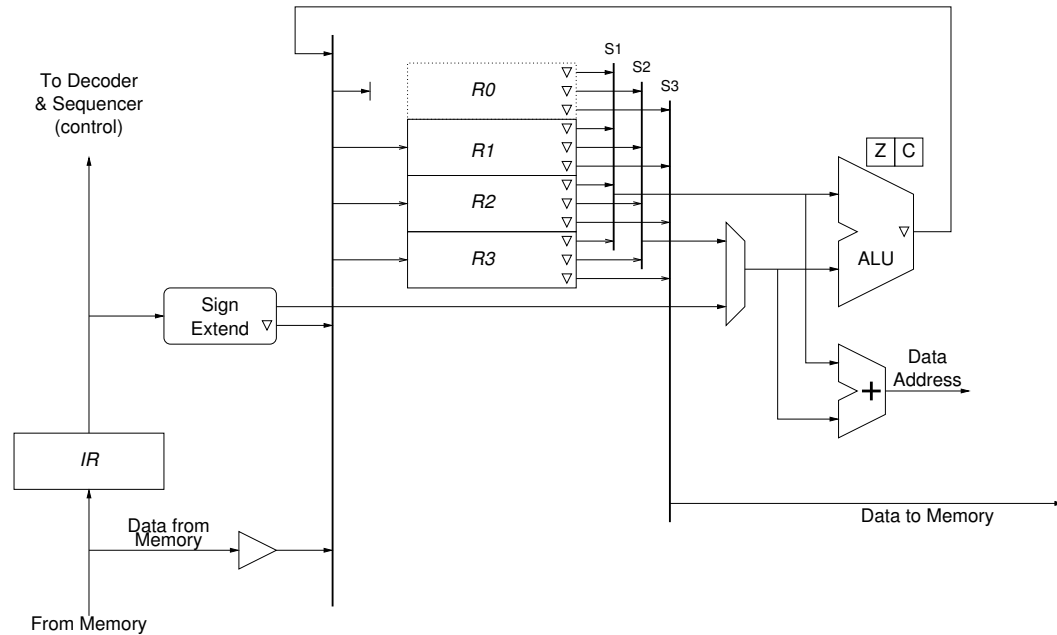


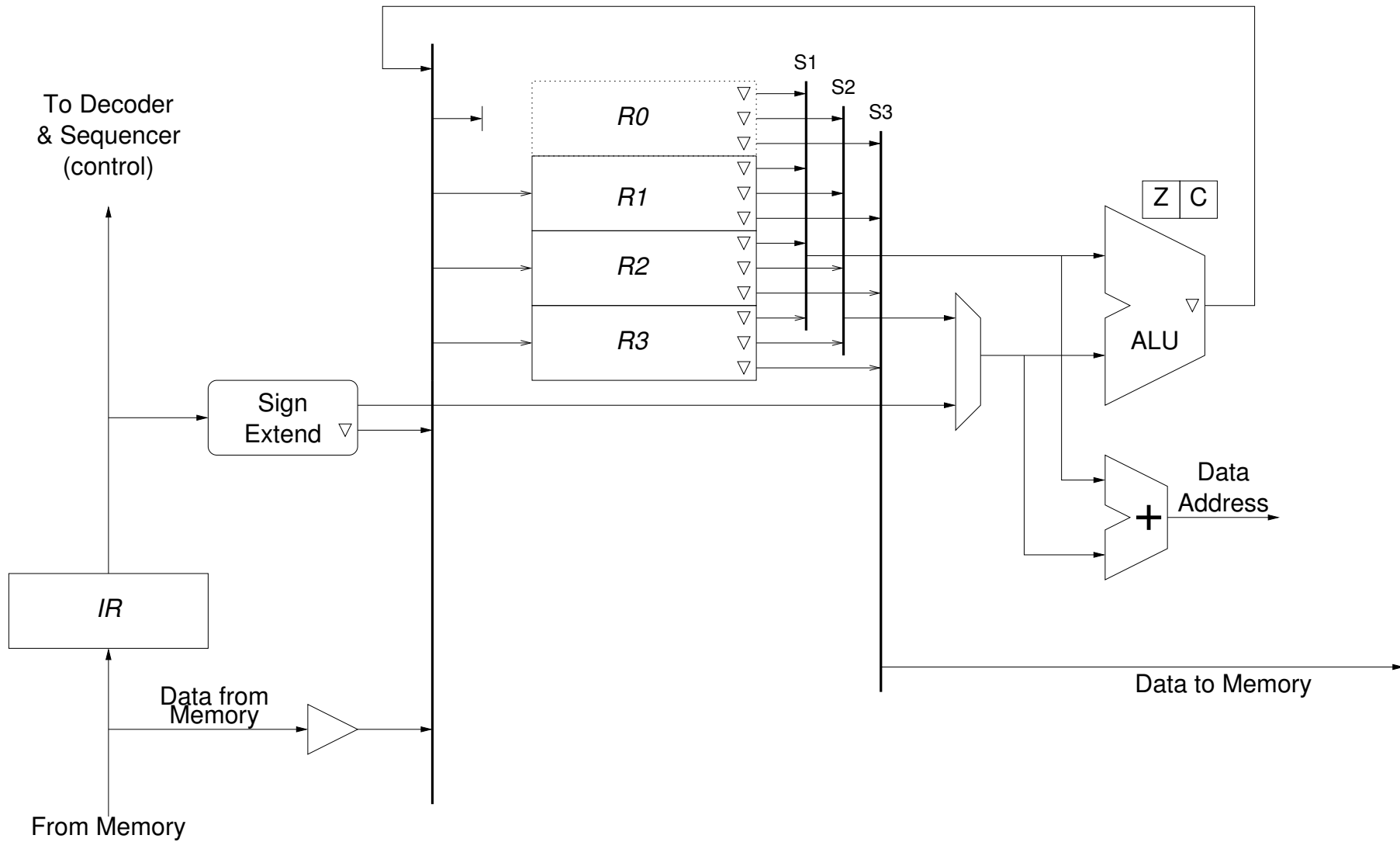
# RISC #1 Possible Datapath

# Datapath Construction for RISC #1

## Data Movement Instructions

- $R_D \leftarrow \mathcal{F}\{R_{S1}, R_{S2}, imm7\}$
- $mem(R_{S1} + imm7) \leftarrow R_{S3}$
- $R_D \leftarrow mem(R_{S1} + imm7)$
- $R_D \leftarrow imm10 \ll 6$



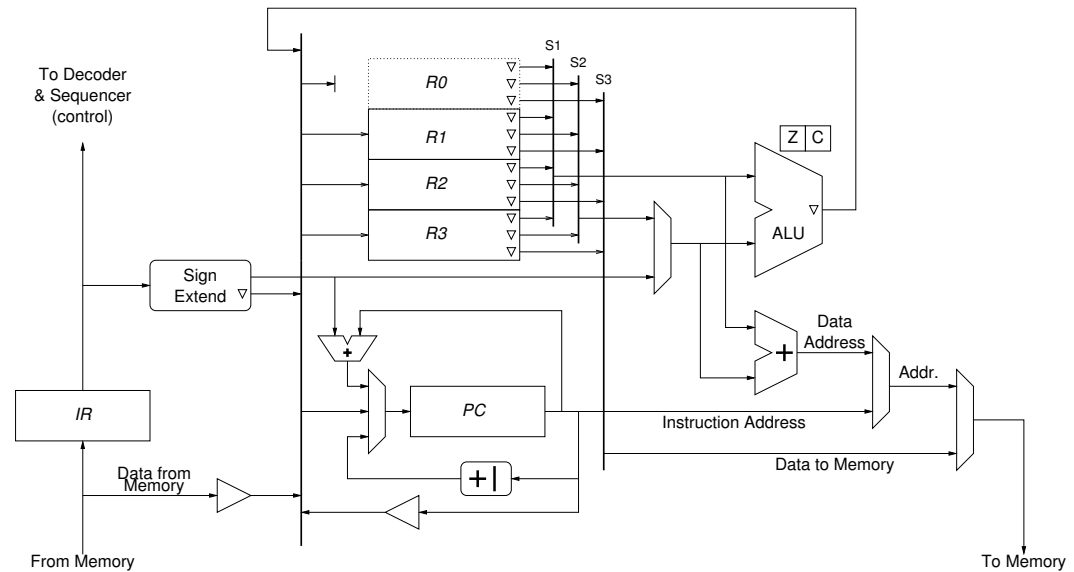


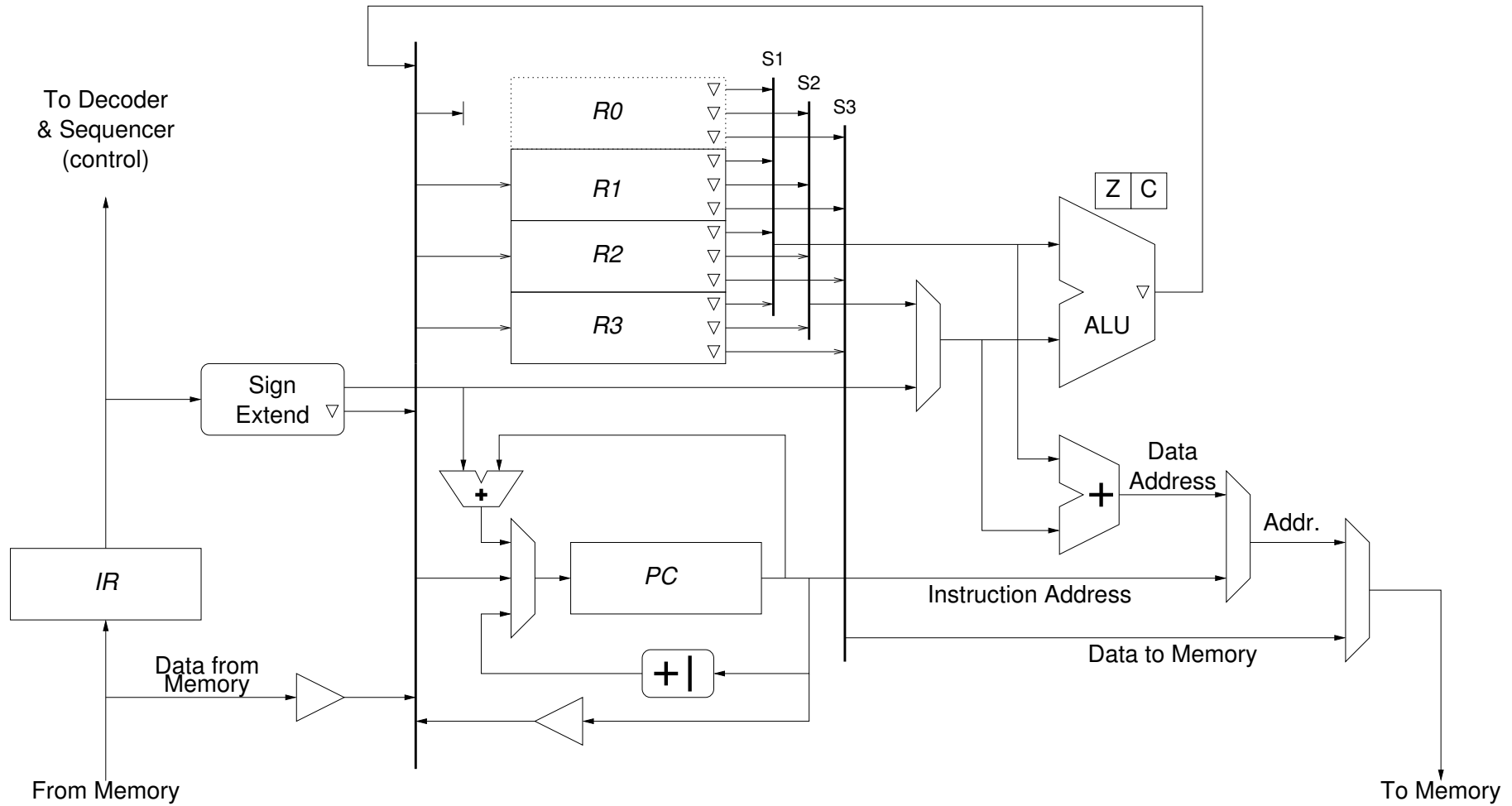
RISC #1 Possible Datapath

# Datapath Construction for RISC #1

## Control Transfer Instructions

- $R_D \leftarrow \mathcal{F}\{R_{S1}, R_{S2}, imm7\}$
- $mem(R_{S1} + imm7) \leftarrow R_{S3}$
- $R_D \leftarrow mem(R_{S1} + imm7)$
- $R_D \leftarrow imm10 \ll 6$
- $R_D \leftarrow PC$
- $PC \leftarrow PC + 1$
- $PC \leftarrow PC + imm10$
- $PC \leftarrow R_{S1} + imm7$





## RISC #1 Possible Datapath