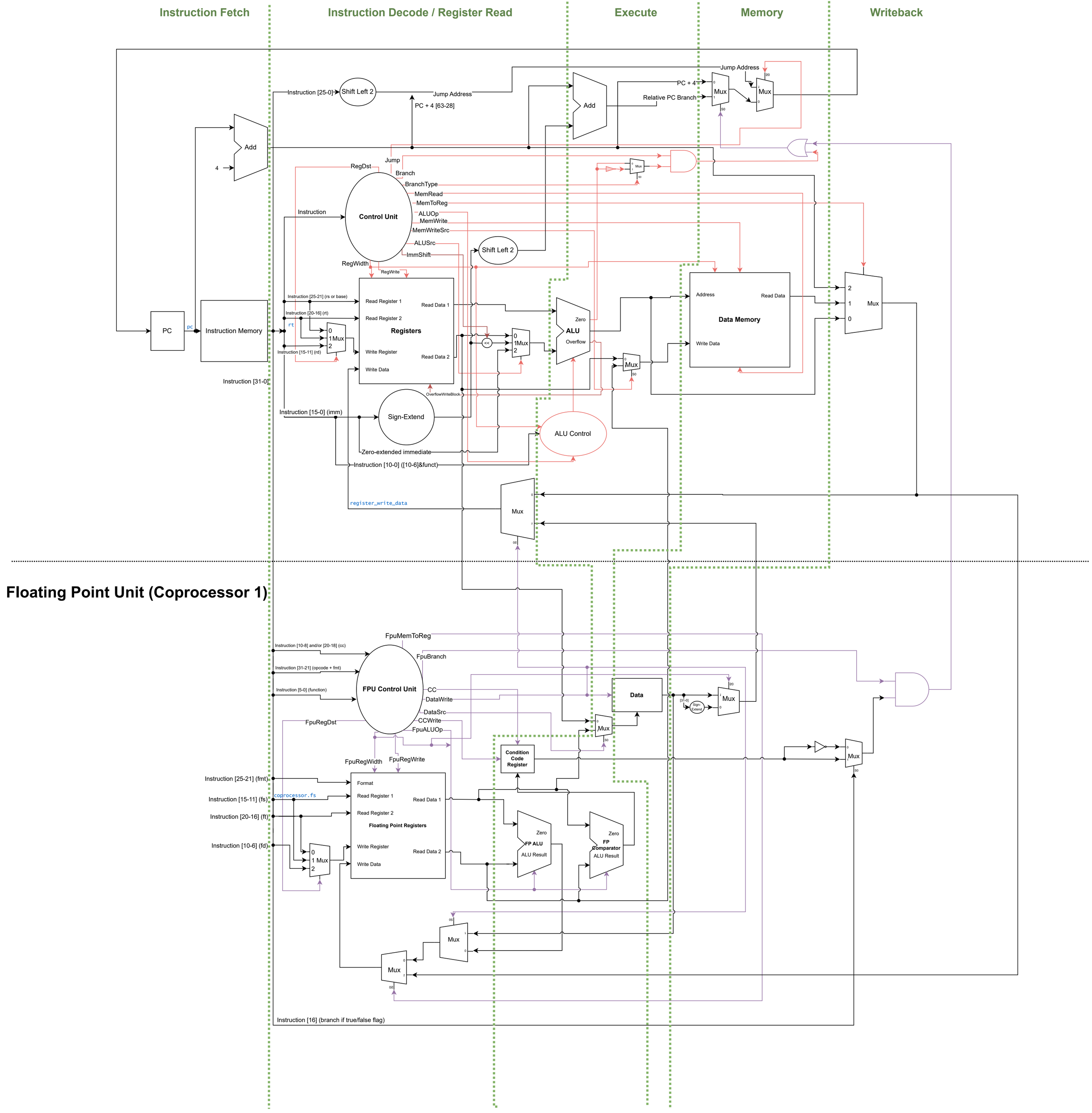
Instruction Fetch
Instruction Decode / Register Read
Execute
Memory
Writeback
Floating Point Unit (Coprocessor 1)
PC
Instruction Memory
Add
4
Instruction [25-0]
Shift Left 2
Jump Address
PC + 4 [63-28]
Add
PC + 4
Relative PC Branch
Mux
Jump Address
Jump
Branch
RegDst
Control Unit
Instruction
BranchType
MemRead
MemToReg
ALUOp
MemWrite
MemWriteSrc
ALUSrc
ImmShift
RegWidth
RegWrite
Shift Left 2
Instruction [25-21] (rs or base)
Instruction [20-16] (rt)
Instruction [15-11] (rd)
Registers
Read Register 1
Read Register 2
Write Register
Write Data
Read Data 1
Read Data 2
OverflowWriteBlock
Instruction [31-0]
Instruction [15-0] (imm)
Sign-Extend
Zero-extended immediate
Instruction [10-0] ([10-6]&funct)
ALU
Zero
Overflow
ALU Control
Data Memory
Address
Read Data
Write Data
register_write_data
FPU Control Unit
FpuMemToReg
FpuBranch
Instruction [10-8] and/or [20-18] (cc)
Instruction [31-21] (opcode + fmt)
Instruction [5-0] (function)
CC
DataWrite
DataSrc
CCWrite
FpuALUOp
FpuRegDst
FpuRegWidth
FpuRegWrite
Condition Code Register
Data
Sign-Extend
Instruction [25-21] (fmt)
Instruction [15-11] (fs)
Instruction [20-16] (ft)
Instruction [10-6] (fd)
Format
Read Register 1
Read Register 2
Floating Point Registers
Write Register
Write Data
Read Data 1
Read Data 2
FP ALU
ALU Result
FP Comparator
Instruction [16] (branch if true/false flag)