Adder Adder result inputx result inputx inputy inputy ControlUnit BranchControlUnit opcode branch taken branch memread funct3 toreg inputx add inputy memwrite regwrite immediate alusrc1 jump ImmediateGenerator PC ALUControlUnit instruction sextlmm add operation immediate funct7 funct3 DataMemory RegisterFile readddata address ALU InstMemory readreg1 readdata1 writedata operation result readreg2 readdata2 instruction address memread inputx writereg memwrite inputy wen maskmode writedata sext Memory imem dmem