Adder Adder result inputx result inputx inputy inputy ControlUnit BranchControlUnit opcode add taken branch memread funct3 toreg inputx add inputy memwrite regwrite alusrc2 alusrc1 jump immediate ImmediateGenerator PC ALUControlUnit instruction sextlmm add operation immediate funct7 funct3 DataMemory RegisterFile readddata address ALU InstMemory readreg1 readddata1 writedata operation result readreg2 readdata2 instruction address memread inputx writereg memwrite inputy writedata maskmode wen sext Memory imem dmem