Adder inputx result inputy

Control Unit
opcode branch
pcfromalu
jump
memread
memwrite
regwrite
toreg
resultselect
alusrc
pcadd
itype
aluop
validinst

Adder inputx result inputy

Immediate Gen instruction sextImm

ALU Control itype operation aluop funct3 funct7

Inst Memory address instruction

Register File
readreg1 readdata1
readreg2 readdata2
writereg
wen
writedata

ALU operation result inputx inputy

Data Memory address readdata memread memwrite valid maskmode sext writedata

Single cycle DINO CPU