Adder

inputx   result

inputy

Adder

inputx   result

inputy

Control Unit

opcode   branch
memread
memwrite
memtoreg
aluop
regwrite
alusrc
pcadd
bypassalu
pcreg
itype
jump
pcfromalu
validinst

Immediate Gen

instruction   sextImm

ALU Control

itype   operation
aluop
funct3
funct7

Data Memory

address   readdata
memread
memwrite
valid
maskmode
sext
writedata

PC

Inst Memory

address   instruction

Register File

readreg1   readdata1
readreg2   readdata2
writereg
wen
writedata

ALU

operation   result
inputx
inputy

Single cycle DINO CPU