Control Unit
opcode branch
jai
jair
itype
aluop
xsrc
ysrc
plus4
resultselect
memop
toreg
regwrite
validinst

NextPC Unit
branch nextpc
jal taken
jalr
inputx
inputy
funct3
pc
imm

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

