Controller

OpCode
Funct
PCSrc
Branch
RegWrite
RegDst
MemRead
MemWrite
MemtoReg
ALUSrc1
ALUSrc2
ExtOp
LuOp

ALUCtrl
Sign
ALUCtrl
OpCode
Sign
Funct

ALU Control

PCSrc[0]
PCSrc[1]
PC
4
+
<31:28>
address
OpCode
rs
rt
rd
Shamt
Funct

Instructions Memory

1
0
00
01
10
11
31
x
RegDst
RegWrite

Op1
Op2
Ra
Rb
Rw
RegWrite
WriteData

Register File

MemWrite
MemRead
Op2
MemWrite
MemRead
address
MemData

Data Memory

Branch
ALUCtrl
Zero
ALUout
IN1
IN2
ALU
Sign
ALUSrc1
ALUSrc2

Immediate
ExtOut
ImmExt
ExtOp
LuOp

00
01
10
11
MemtoReg

<<2
<<2