WriteRegM4:0

RegWriteW

RegWriteM

MemtoRegE

31:28

0

ALUControlE2:0

RegWriteE

MemWriteE

MemWriteE

WriteRegW4:0

CLK

ResultW

1

ALUSrcE

EqualD

SignImmE

PCSrcD1:0

RegWriteM

SrcBE

RegWriteW

SrcAE

WriteDataE

ReadDataW

ForwardBE

ForwardAE

**Hazard Unit**

RdE

RtE

RsE

FlushE

RegDstE

MemWriteD

ALUControlD2:0

ALUSrcD

RegDstD

JumpD

BranchD

MemtoRegD

RegWriteD

JumpD

ForwardAD

ForwardBD

WE3

CLK

25:0

BranchD

PCPlus4D

SignImmD

RtD

PCBranchD

RdD

RsD

PCSrcD2

StallF

PCSrcD1

StallD

<<2

CLK

CLK

0

1

2

20:16

25:21

20:16

15:11

25:21

15:0

5:0

31:26

InstrD

CLK

CLK

CLK

PCF

PC’

+

1

0

<<2

PCPlus4F

+

4

A WE

RD

WD

**Data**

**Memmory**

0

1

ALU

0

1

00

01

10

=

00

01

10

0

1

0

1

Sign

Extend

A1 RD1

A2

A3 RD2

WD3

**Register**

**File**

Control

Unit

Op

Funct

CLR

CLR

EN

A RD

Instruction

Memory

EN

ALUOutW

MemWriteM

MemWriteW

WriteDataM

WriteRegE4:0

ALUOutM

RegWriteE

MemWriteW