MemRead ALUSrcA = 0 lorD = 0 IRWrite ALUSrcB = 01 ALUOp = 00 PCWrite PCSource = 00

ALUSrcA = 0 ALUSrcB = 11 ALUOp = 00

Start

Instruction fetch

Instruction decode/register fetch

(ALuOp = 'LW') or (Op = 'SW')

(Op = 'BEQ')

(Op = 'J')

Jump completion

Branch completion

R-type completion

R-type completion

Memory access

Memory access

Memory address computation

(Op = 'LW')

(Op = 'SW')

Execution

2

ALUSrcA = 1 ALUSrcB = 10 ALUOp = 00

3

Memory read completion step

MemRead lorD = 1

RegDst = 1 RegWrite MemtoReg = 0

RegDst = 1 RegWrite MemtoReg = 0

RegDst = 1 RegWrite MemtoReg = 0

RegWrite MemtoReg = 0

RegWrite MemtoReg = 0

ALUSrcA = 1 ALUSrcB = 10 ALUOp = 00

MemWrite lorD = 1

ALUSrcA = 1 ALUSrcB = 00 ALUOp = 10

ALUSrcA = 1 ALUSrcB = 00 ALUOp = 01 PCWriteCond PCSource = 01

PCWrite PCSource = 10

4

9