



Shiraz University

Computer Architecture Lab Project
Fall 2021

You should change Mips datapath design in a way that the following instructions are supported as well :

1. *beq Rsrc1, Src2, labelBranch on Equal*
(Conditionally branch to the instruction at the label if the contents of register Rsrc1 equals Src2.)
2. *bgt Rsrc1, Src2, labelBranch on Greater Than Equal*
(Conditionally branch to the instruction at the label if the contents of register Rsrc1 are greater than Src2.)
3. *bge Rsrc1, Src2, labelBranch on GTE Unsigned*
(Conditionally branch to the instruction at the label if the contents of register Rsrc1 are greater than or equal to Src2.)
4. *blt Rsrc1, Src2, labelBranch on Less Than Equal*
(Conditionally branch to the instruction at the label if the contents of register Rsrc1 are less than Src2.)
5. *ble Rsrc1, Src2, labelBranch on Less Than Equal*
(Conditionally branch to the instruction at the label if the contents of register Rsrc1 are less than or equal to Src2.)

6. *bne Rsrc1, Src2, labelBranch on Not Equal*

(Conditionally branch to the instruction at the label if the contents of register Rsrc1 are not equal to Src2.)

7. *j labelJump*

(Unconditionally jump to the instruction at the label.)

8. *jal labelJump and Link*

(Unconditionally jump to the instruction at the label or whose address is in register Rsrc. Save the address of the next instruction in register 31.)

9. *multi Rsrc1, imm*

(multiply register Rsrc1 with the immediate value (imm))

10. *divi Rsrc1, imm*

(divide register Rsrc1 by the immediate value(imm))

11. *sra Rsrc1, imm*

(shift arithmetic right)

- ***Pay attention that you might need to make changes in different parts of your datapath as control unit and alu unit.***
- ***The place where you should calculate where do jump and branch instructions point to is after the EX/MEM pipeline stage.***
- ***Instead of labels add an address manually.***
- ***DO NOT FORGET TO SEARCH AND ALSO FEEL FREE TO ASK ANY QUESTION.***

Good luck :)

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