

CS315-01 Processor Design Branches Data Memory

Lab 06

part 1 addi add unimp

part 2 jal jalr
 call ← return
 also j (jump)

Remaining concepts and instructions

Branches

Data Memory

Setting up programs to run on our processors

Remaining instructions

Data Processing

addi sll
add sra
sub slli
mul srli
:
:
:

Control

jal jalr
j
beq
bne
blt
:
:

Memory

lb sb
lw sw
ld sd

Branching

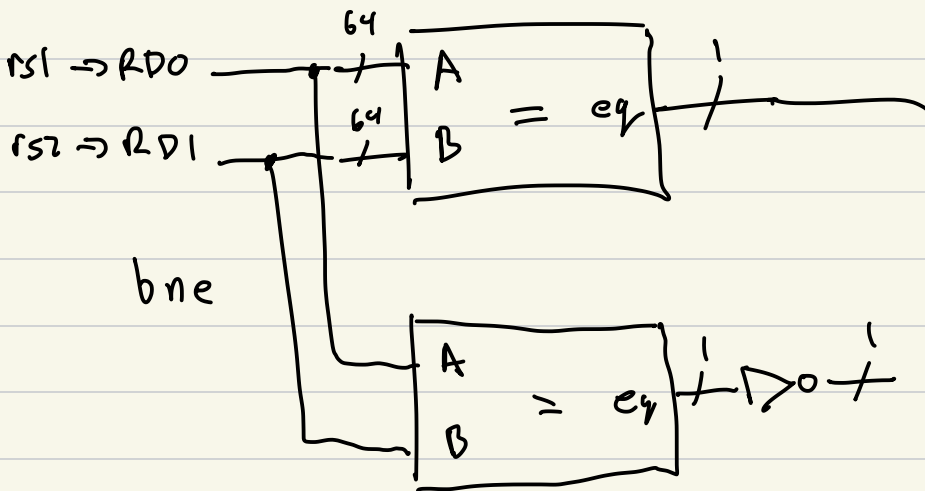
beq to,tl, label

1) Compute the branch target address (BTA)

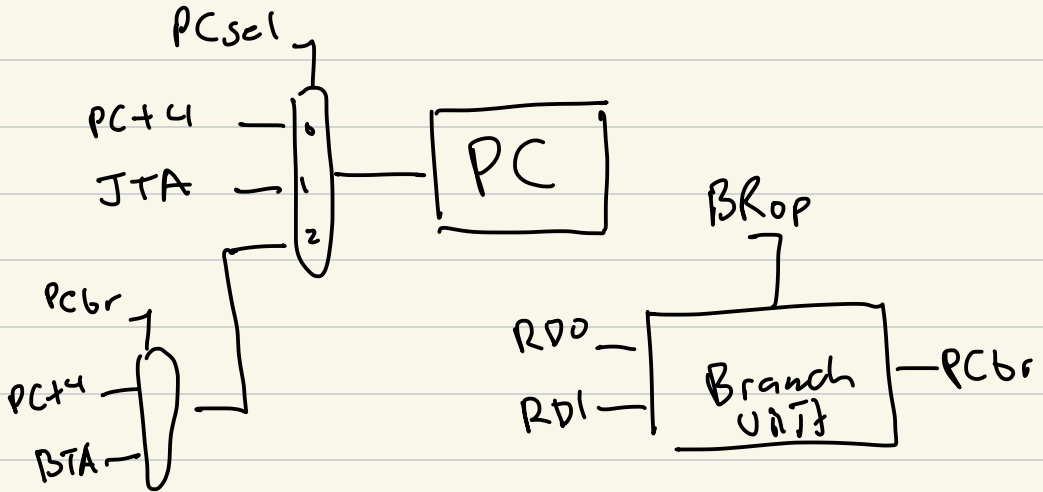
$$BTA = PC + imm - b$$

2) Determine if we take the branch
need to compare rsl and rs2

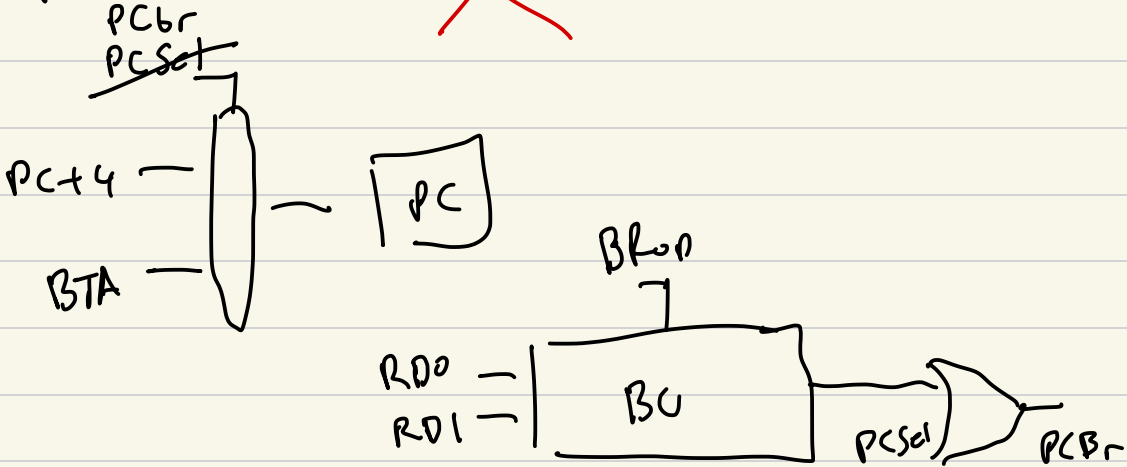
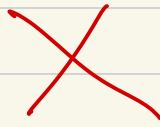
beq



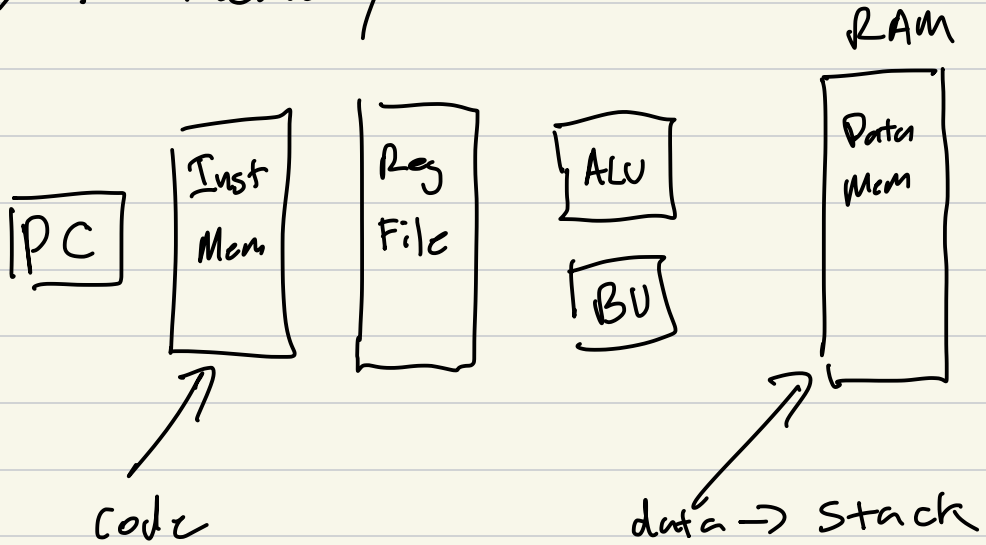
Option #1 for PCbr



Option #2



Data Memory



Digital

RAM Component
(Stack)

$$2^7 \cdot 2^3 = 2^{10} = 1024$$

sd to, 8(sp)

