THỰC HÀNH KIẾN TRÚC MÁY TÍNH

IT-3280

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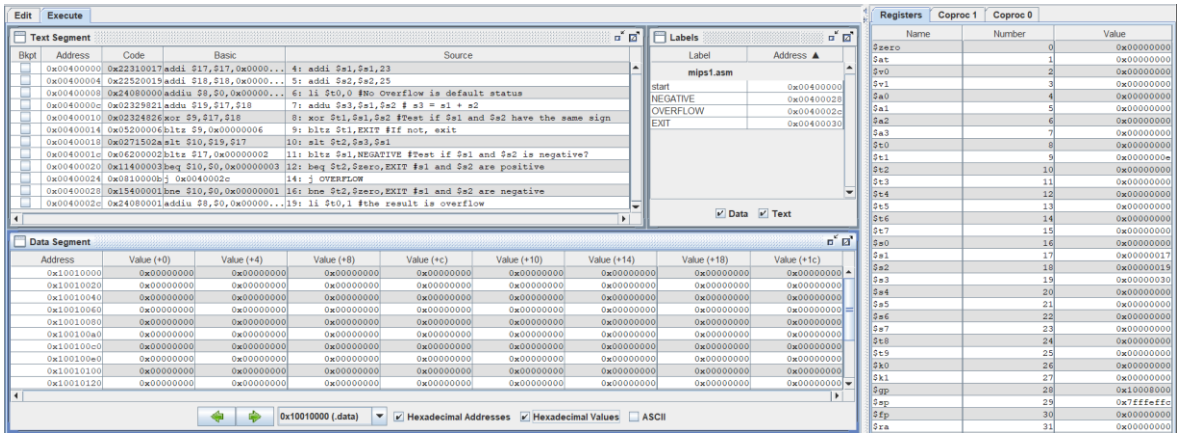
Assignment 1:

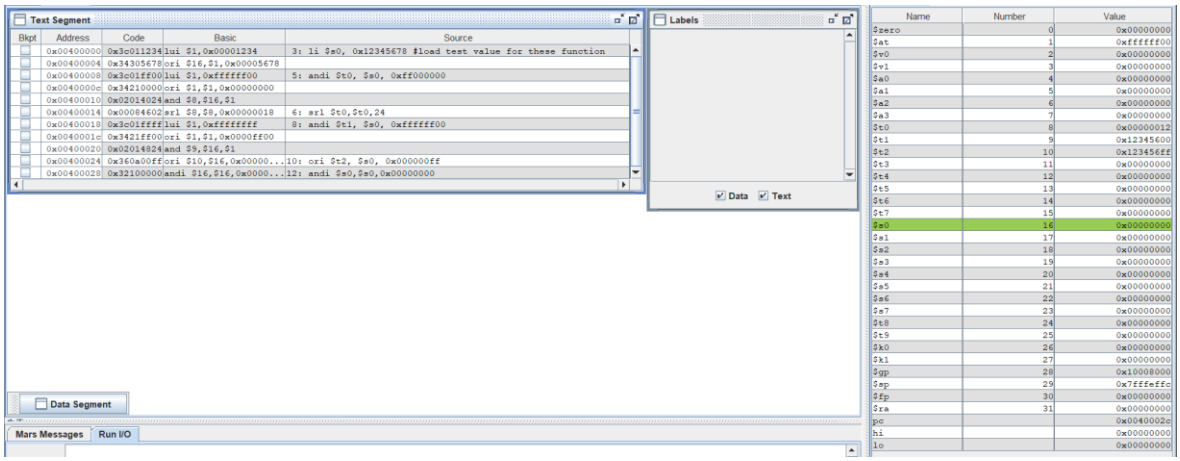
- Đặt giá trị thanh ghi $s1 = 23 , $s2 = 25
- Chạy lệnh:

Bước chạy	Thanh ghi	Giá trị ban đầu	Giá trị sau
1,2	$s1, $s2	0x00000000	0x00000017,0x00000019
3	$t0	0x00000000	0x00000000
4	$s3	0x00000000	0x00000030
5	$t1	0x00000000	0x0000000e
7	$t2	0x00000000	0x00000000



Assignment 2:

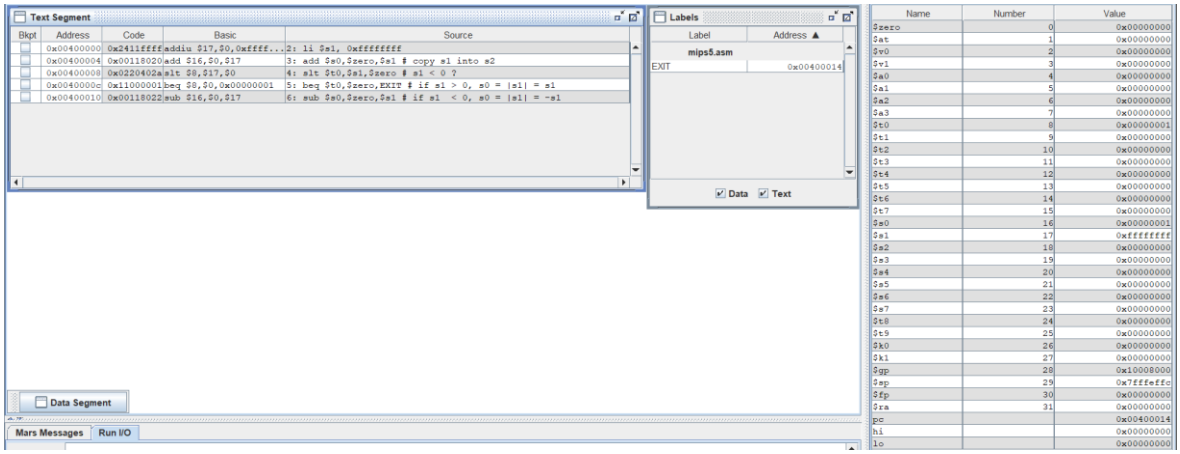
```
#Laboratory Exercise 4, Home Assignment 2
.text
li $s0, 0x12345678 #load test value for these function
#Extract the MSB of $s0
andi $t0, $s0, 0xff000000
srl $t0,$t0,24
#clear LSB
andi $t1, $s0, 0xffffff00
# Set LSB of $s0 (bits 7 to 0 are set to 1)
ori $t2, $s0, 0x000000ff
#clear $s0
andi $s0,$s0,0x00000000
```



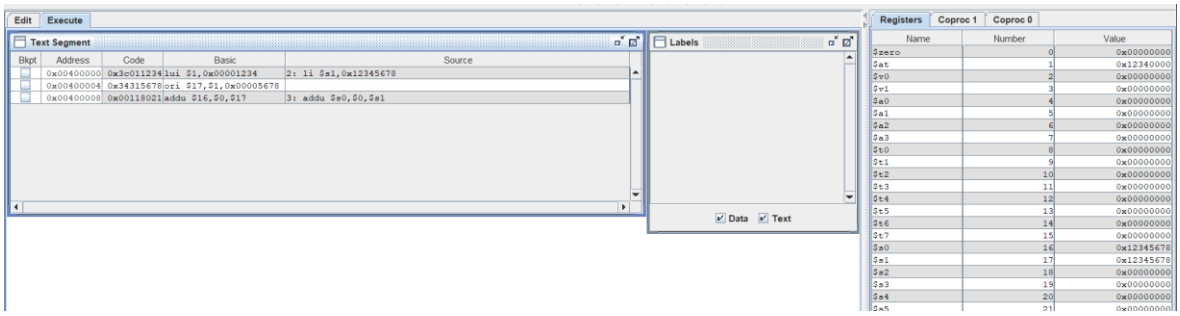
Assignment 3:

a. abs

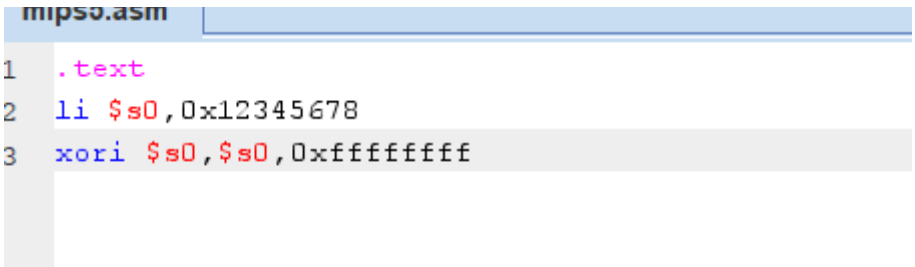
```
1  .text
2  li $s1, 0xffffffff
3  add $s0,$zero,$s1 # copy s1 into s2
4  slt $t0,$s1,$zero # s1 < 0 ?
5  beq $t0,$zero,EXIT # if s1 > 0, s0 = |s1| = s1
6  sub $s0,$zero,$s1 # if s1  < 0, s0 = |s1| = -s1
7  EXIT:
```

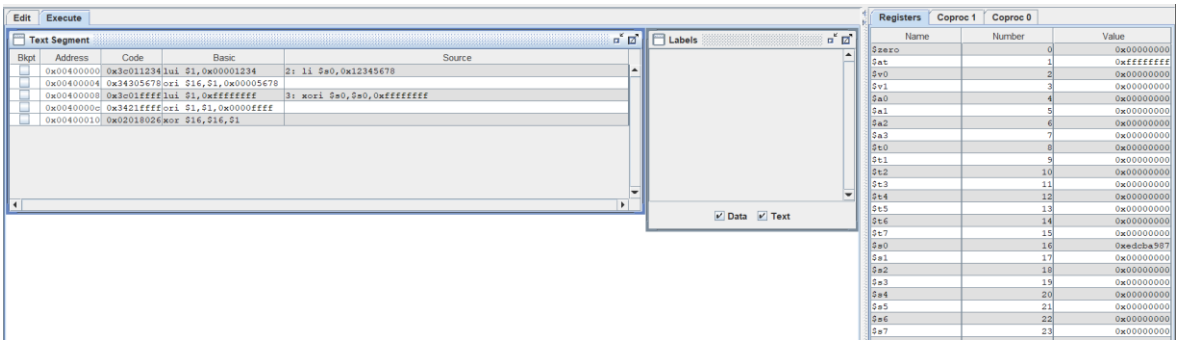


b. move

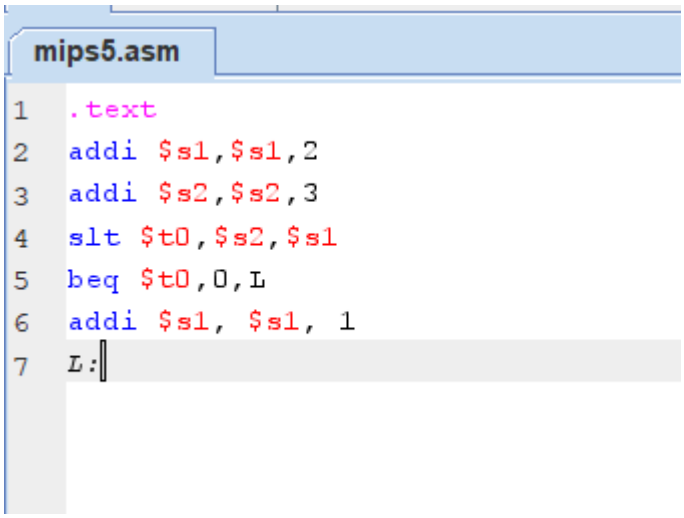


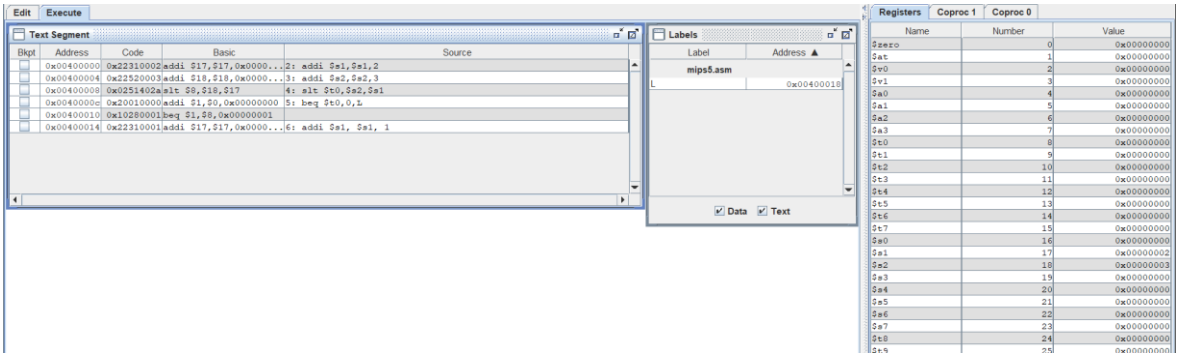
c. not (đảo bit)





d. $s1 <= $s2

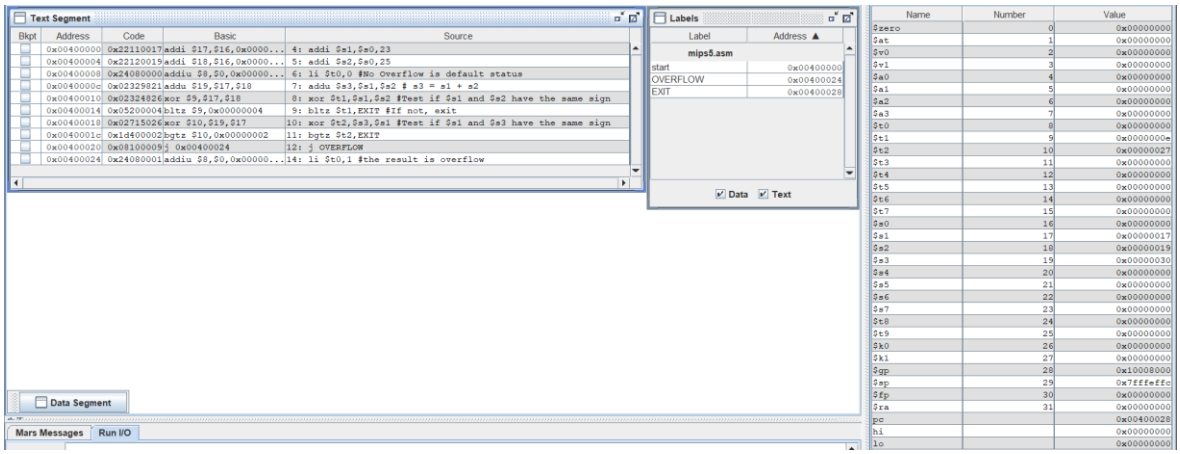




Assignment 4:

mips5.asm

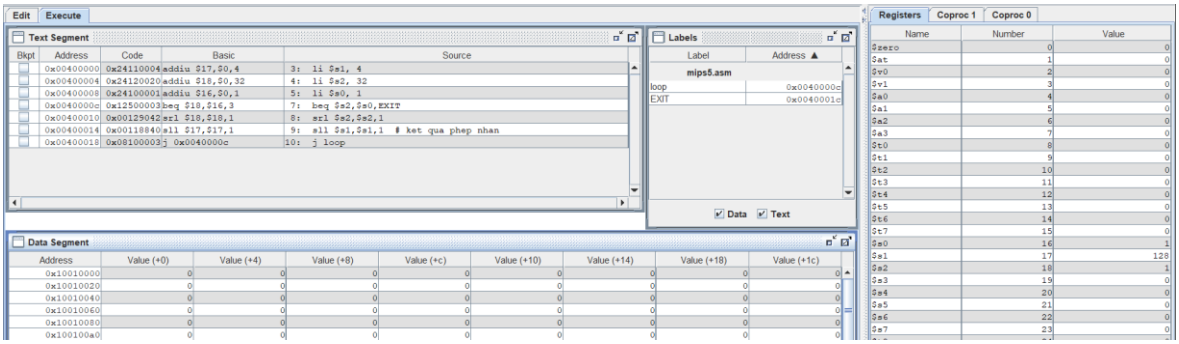
```
#Laboratory Exercise 4, Home Assignment 1
.text
start:
addi $s1,$s0,23
addi $s2,$s0,25
li $t0,0 #No Overflow is default status
addu $s3,$s1,$s2 # s3 = s1 + s2
xor $t1,$s1,$s2 #Test if $s1 and $s2 have the same sign
bltz $t1,EXIT #If not, exit
xor $t2,$s3,$s1 #Test if $s1 and $s3 have the same sign
bgtz $t2,EXIT
j OVERFLOW
OVERFLOW:
li $t0,1 #the result is overflow
EXIT:
```



Assignment 5:

mips5.asm

```
.text
#VD nhan 4 voi 32
 li $s1, 4
 li $s2, 32
 li $s0, 1
loop:
 beq $s2,$s0,EXIT
 srl $s2,$s2,1
 sll $s1,$s1,1  # ket qua phep nhan
 j loop
EXIT:
```


Edit
Execute
Text Segment
Bkpt Address Code Basic Source
0x00400000 0x24110004 addiu $17,$0,4 3: li $s1, 4
0x00400004 0x24120020 addiu $18,$0,32 4: li $s2, 32
0x00400008 0x24100001 addiu $16,$0,1 5: li $s0, 1
0x0040000c 0x12500003 beq $10,$16,3 7: beq $s2,$s0,EXIT
0x00400010 0x00129042 srl $18,$18,1 8: srl $s2,$s2,1
0x00400014 0x00118840 sll $17,$17,1 9: sll $s1,$s1,1 # ket qua phep nhan
0x00400018 0x08100003 j 0x0040000c 10: j loop
Labels
Label Address
mips5.asm
loop 0x0040000c
EXIT 0x0040001c
Data Text
Data Segment
Address Value (+0) Value (+4) Value (+8) Value (+c) Value (+10) Value (+14) Value (+18) Value (+1c)
0x10010000 0 0 0 0 0 0 0 0
0x10010020 0 0 0 0 0 0 0 0
0x10010040 0 0 0 0 0 0 0 0
0x10010060 0 0 0 0 0 0 0 0
0x10010080 0 0 0 0 0 0 0 0
0x100100a0 0 0 0 0 0 0 0 0
Registers
Coproc 1
Coproc 0
Name Number Value
$zero 0 0
$at 1 0
$v0 2 0
$v1 3 0
$a0 4 0
$a1 5 0
$a2 6 0
$a3 7 0
$t0 8 0
$t1 9 0
$t2 10 0
$t3 11 0
$t4 12 0
$t5 13 0
$t6 14 0
$t7 15 0
$s0 16 1
$s1 17 128
$s2 18 1
$s3 19 0
$s4 20 0
$s5 21 0
$s6 22 0
$s7 23 0