仿真文件见工程目录下

“inst\_rom.data”——十六进制文件

“new”——汇编文件

寄存器变化情况见汇编码后注释，主要变化集中在1-4号寄存器

测试过程：

在ise中打开lab7工程，切换到仿真模式，编译检查test\_cpu语法，仿真运行；

在仿真文件里打开default.wcfg即可看到扩展的波形图；

重新运行，点几次1us运行即可看到完整波形图（比例需适当调节）

在mars中打开工程目录下new文件，编译运行即可(指令为无限循环指令，需逐条运行查看结果)

具体内容：

汇编码

.text 0x00000000

addi $1,$0,0x1234 #$1=0x00001234

add $2,$1,$1 #$2=0x00002468

sub $3,$2,$1 #$3=0x00001234

subi $1,$1,0x1234 #$1=0x00000000

or $1,$0,$3 #$1=0x00001234

ori $2,$0,0x1234 #$2=0x00001234

xor $3,$0,$2 #$3=0x00001234

xori $4,$1,0x0000 #$4=0x00001234

lui $1,0x1234 #$1=0x12340000

sll $2,$3,16 #$2=0x12340000

srl $4,$2,8 #$4=0x00123400

mthi $1 #hi=0x12340000

mtlo $2 #lo=0x12340000

mfhi $3 #$3=0x12340000

mflo $4 #$4=0x12340000

bgtz $1,label1 #branch to label1

nop

label1:beq $1,$2,label2 #branch to label2

nop

label2:sra $2,$1,16 #$2=0x00001234

srav $3,$1,$2 #$3=0x00000123

sllv $4,$2,$2 #$4=0x23400000

bltz $2,label1 #not branch

addi $1,$0,0x2000 #$1=0x00002000

sw $4,($1) #mem[0x00002000]=0x23400000

sh $2,4($1) #mem[0x00002004]=0x00001234

sb $3,8($1) #mem[0x00002008]=0x00000023

and $3,$0,$2 #$3=0x00000000

andi $4,$3,0x1234 #$4=0x00000000

movz $3,$2,$4 #$3=0x00001234

movn $4,$2,$3 #$4=0x00001234

bne $3,$4,label1 #not branch

slt $3,$1,$1 #$3=0x00000000

addi $1,$0,0x2000 #$1=0x00002000

lw $2,($1) #$2=0x23400000

lh $3,4($1) #$3=0x00001234

lb $4,8($1) #$4=0x00000023

mul $2,$1,$3 #$2=lo=0x02468000

mult $3,$2 #hi=0x29 lo=0x6b520000

j label3 #jump to target

nop

label3:jr $0 #jump to 0x00000000

十六进制码

20011234

00211020

00411822

20011234

00210822

00030825

34021234

00021826

38240000

3c011234

00031400

00022202

00200011

00400013

00001810

00002012

1c200001

00000000

10220001

00000000

00011403

00411807

00422004

0440fffa

20012000

ac240000

a4220004

a0230008

00021824

30641234

0044180a

0043200b

1464fff1

0021182a

20012000

8c220000

84230004

80240008

70231002

00620018

0800002a

00000000

00000008