

- a) Qual é a operação realizada pelo código acima?

Este código inicializa a0 com 1 e a1 com 2. Em seguida, inicia um loop que dobra repetidamente o valor em a1 e incrementa a0 até que a0 seja igual a 5. O valor de a1 após o loop será 32 (2 vezes 5 vezes).

- b) Qual é o conteúdo (em decimal) dos registradores a0, a1 e a2 ao final da execução do programa?

a0: 5
a1: 32
a2: 5

- c) Quais são os valores de loop (na instrução j loop) e fim (na instrução beq a0, a2, fim)

loop: -12
fim: 16

- d) Adicione "prints" da tela do simulador ao arquivo PDF. Esses "prints" deverão mostrar todo o ambiente, incluindo o código em Assembly que foi executado e os valores exibidos na interface após a execução de cada instrução (código de máquina armazenado na memória, valores do pc e dos demais registradores envolvidos).

Editor

Simulator

RunStepPrevResetDump

Machine Code	Basic Code	Original Code
0x00100513	addi x10 x0 1	addi a0, zero, 1
0x00a505b3	add x11 x10 x10	add a1, a0, a0
0x00500613	addi x12 x0 5	addi a2, zero, 5
0x00c50863	beq x10 x12 16	beq a0, a2, fim
0x00159593	slli x11 x11 1	slli a1, a1, 1
0x00150513	addi x10 x10 1	addi a0, a0, 1
0xff5ff06f	jal x0 -12	j loop
0x00000013	addi x0 x0 0	nop

console output

RegistersMemory

zero	0
ra (x1)	0
sp (x2)	2147483632
gp (x3)	248425456
tp (x4)	0
t0 (x5)	0
t1 (x6)	0
t2 (x7)	0
s0 (x8)	0
s1 (x9)	0
a0 (x10)	0
a1 (x11)	0
a2 (x12)	0
a3 (x13)	0
a4 (x14)	0
a5 (x15)	0
a6 (x16)	0

Display SettingsDecimal

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t1 (x6)	0
t2 (x7)	0
s0 (x8)	0
s1 (x9)	0
a0 (x10)	1
a1 (x11)	0
a2 (x12)	0
a3 (x13)	0
a4 (x14)	0
a5 (x15)	0
a6 (x16)	0

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s0 (x8)0

s1 (x9)0

a0 (x10)1

a1 (x11)0

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s0 (x8)0

s1 (x9)0

a0 (x10)1

a1 (x11)0

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s1 (x9)0

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s1 (x9)0

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t1 (x6)

0

t2 (x7)

0

s0 (x8)

0

s1 (x9)

0

a0 (x10)

2

a1 (x11)

4

a2 (x12)

5

a3 (x13)

0

a4 (x14)

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t1 (x6)

0

t2 (x7)

0

s0 (x8)

0

s1 (x9)

0

a0 (x10)

2

a1 (x11)

4

a2 (x12)

5

a3 (x13)

0

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0

a6 (x16)

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t1 (x6)0

t2 (x7)0

s0 (x8)0

s1 (x9)0

a0 (x10)2

a1 (x11)8

a2 (x12)5

a3 (x13)0

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a6 (x16)0

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t2 (x7)0

s0 (x8)0

s1 (x9)0

a0 (x10)3

a1 (x11)8

a2 (x12)5

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0

t0 (x5)

0

t1 (x6)

0

t2 (x7)

0

s0 (x8)

0

s1 (x9)

0

a0 (x10)

3

a1 (x11)

8

a2 (x12)

5

a3 (x13)

0

a4 (x14)

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0

a6 (x16)

0

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tp (x4)

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t0 (x5)

0

t1 (x6)

0

t2 (x7)

0

s0 (x8)

0

s1 (x9)

0

a0 (x10)

3

a1 (x11)

8

a2 (x12)

5

a3 (x13)

0

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t1 (x6)

0

t2 (x7)

0

s0 (x8)

0

s1 (x9)

0

a0 (x10)

3

a1 (x11)

16

a2 (x12)

5

a3 (x13)

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t1 (x6)

0

t2 (x7)

0

s0 (x8)

0

s1 (x9)

0

a0 (x10)

4

a1 (x11)

16

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t0 (x5)0

t1 (x6)0

t2 (x7)0

s0 (x8)0

s1 (x9)0

a0 (x10)4

a1 (x11)16

a2 (x12)5

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s0 (x8)	0
s1 (x9)	0
a0 (x10)	4
a1 (x11)	32
a2 (x12)	5
a3 (x13)	0
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0

s0 (x8)

0

s1 (x9)

0

a0 (x10)

5

a1 (x11)

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0

t2 (x7)

0

s0 (x8)

0

s1 (x9)

0

a0 (x10)

2

a1 (x11)

4

a2 (x12)

5

a3 (x13)

0

a4 (x14)

0

a5 (x15)

0

a6 (x16)

0

Display Settings

Decimal

Editor

Simulator

RunStepPrevResetDump

Machine Code	Basic Code	Original Code
0x00100513	addi x10 x0 1	addi a0, zero, 1
0x00a505b3	add x11 x10 x10	add a1, a0, a0
0x00500613	addi x12 x0 5	addi a2, zero, 5
0x00c50863	beq x10 x12 16	beq a0, a2, fim
0x00159593	slli x11 x11 1	slli a1, a1, 1
0x00150513	addi x10 x10 1	addi a0, a0, 1
0xff5ff06f	jal x0 -12	j loop
0x00000013	addi x0 x0 0	nop

console output

RegistersMemory

zero0

ra (x1)0

sp (x2)2147483632

gp (x3)248425456

tp (x4)0

t0 (x5)0

t1 (x6)0

t2 (x7)0

s0 (x8)0

s1 (x9)0

a0 (x10)5

a1 (x11)32

a2 (x12)5

a3 (x13)0

a4 (x14)0

a5 (x15)0

a6 (x16)0

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console output

RegistersMemory

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s0 (x8)0

s1 (x9)0

a0 (x10)5

a1 (x11)32

a2 (x12)5

a3 (x13)0

a4 (x14)0

a5 (x15)0

a6 (x16)0

Display SettingsDecimal