

## Department of Computer Science and Engineering

Course Code: CSE360

Course Title: Computer Architecture

Section: 03

Semester: Spring 2024

## Assignment 02

## **Submitted to:**

Md. Ezharul Islam, Phd

**Professor** 

Department of Computer Science and Engineering

## **Submitted by:**

Name: B M Shahria Alam

**ID:** 2021-3-60-016



ld x5,0(x30) Chapter-2 addi sers, ecolo 8 (61 x) -0 - 5 26 36 15) == g+ (h-5); Cred 25 , 25 25 25 St 2830 (0831) addi 25, 27, -5 add 25, 25, 26 [addi b.h. - 5 (note, no pubi) add, b, b, g] 1115 228=0(x10) == 1 x28==AII 10 2.2 add b, g, h = 0 = 0 = 1 8,0 9 x . 69 x ille add b, i, b 1/8 = 62 x 11 (11x)0 (65x 61 : b=g+h+i 1.08 J. 88 Je . 08 X blad 223, Gar (Seil) - Notice reputt in B[8] 100 Sub 230, 228, 229 // compute i-j SIII x 30, x 30, 3 // multiply by 8 to convert the world obbset to a byte obbset (ns) xs=d ×30, 10 (x3) 11 5,012 08 x 1660 2 30, 69 (XII) / / storce in B[8] Sd ibab 43 = FJAJ -1/- COENTO F 188 BLO] = ALB] + ALB+1] 13 230, 25, 3 // ×30 = 6×8 Alli 230, ×10, 230 /1 230 = &A[8] add x31, x6, 3 // x31 = gx8 Alli 231, x11, 231 add

Id x5,0(230)

addi x12, x30,8

Id x30,0(x,12)

add x30,230,x5

Sd x30,0(x31)

2.7

1-1-30 x 30 x 20 11 companies

18 x 11 x 31 x 31

illa

- hap terra-

E-1-1-1

· James 48	type	orcode bunet 3,7	nel	psq	rd	1mm
addi 2,30, x10,8	1-type	0 × 13,0×0	10		30	8
addi x31, 210,0	R-type	0213,000	10		31	6
sd x31,0(x30)	s-type	023,023	31	30	B4 7 3	0
ld x30,0(230)	1-type	0x3,0x2	30		30	6
add 25,230,23	Rtgp	0x33,0x	30	31	त	or is

2.11

There is an overeblow it 128 + 26 + 263 - 1In other words, it 26 + 263 - 129There is also an overeblow it 128 + 264 - 263In other words, it 264 - 263 - 128 (which is impossible given the range of 26)

Secretary of the Lections

yes I // add back

2.11.3

There is an overblow 16  $\times 6 - 128 > 2^{63}-1$ In other word, it  $\times 6 < 2^{63}+128$  (which is impossible given the range of  $\times 6$ )

There is also an overflow ib x6-128 <-263

In other words, ib x6 <-263+128

111:

1).

2.18 H can be done in eight RISE-v instructions: addi 127, xo, 0x36- / create thit mask 27, 27, 11 1/ shift the masked bits 28, 25, 27 // Apply the mask to 25. 27, x6, 15 / shift the mask xorsi x7, x7, -1 // This is a NOT operation 26, 26, 27 // "Zero out" 228, x28, 15 // move relection brom 25 911 ore 126, 26, 228/ lead bite. In other words, it wester 128 There is also on over blow it 128 + 26 < - 264 In other words, it x62-29-128 (whole good

addi x29, x29, -1// pubtract 1 bnom x29
bgt x29, x0, bop/ continue 16 x29 not
addi x29, x29, 1// add back

e. 24. Land 897 99 2 3 x 3; but on the mineral will acc = old magning i = 10; (1x 20)

i = 10; (1x 20)

Conite (i!=0)  $\begin{cases} 1 & \text{old} & & \text{old} & &$ 

10 cher 2000 1.6. 21 2-21

J

```
Ber (1=0; 12100; 1+1) S
LOOP I:
             addi 27, 20, 04 1/1 mit coi =0 = + 1 11007
              bge 27, 25, END I / while i La
            addi x29, x0, 0 // Ini+ j=0
   LOOP J; 111 200 201 2011
                bge 229, 26, END J // while j Lb
           add 231 27 229 1/231 = i+j
                  3d 231, 0(230) // D[axj]=231=2
               addi 230, 230, 22/1230= & D[4x(j+1)]
    1) Dotroid 1 (2x) 8 (2x be)
     1 and solo = g (a,b) : 60N3
                                                                                                      pol 21,8
                  addi x7, 2701019 Mitty)8, 11x bl
                   jal xo, LOOP I
                                                                                                     Jal 21, 3
                                              1d sel, 0(22) // Restore
       ENDI
                                               addi xez, az, 16 / Restore
                                10 11 ( 20 x 1) 1 ( 1 x 10 x 11 x 10 x 11 x 10 x 11 x 10 x 10
         în+ i;
         borz (i=0; i × 100; i++) of
                         result += * Mem Annay 01 x int
                                                                                    The del 20 10, 2010
                         Mem Array++;
                                                                        SII 710, SID, 32
           result result;
                                                                                           addi ocs. XS
                                                                               d. 1d 210 , 210, 25
```

int i;
bor (i=0; i2100; i+t)?

result += mem Annay [i];

return result;

2.31

addi 22, x2, -16 // Albeate stack space Sd x1, 0(x2)

day slides // cano ax cesses and

(1) add 725, x12, 213 /1 25 = etd

Sd x5, 8(x2) // Save and on the stack

icl cian Loof

jal 21, g / call 2010 = g (a,b)

ld x 11, 8 (x2) 11 reload

Jal 21, 9

ld x1,0(x2) // Restore

addi x2, x2, 16 1 Restorce

jalra 20, 21

2.36

lui 210, monimon \* -+ Hucon

addi x 10, x10

SIII 210, x10,32

addi x5, x5

add x10, 210, 25

resoult records

LUGHT!

TAA

Set mox:

try:

lp.d x5. (x10) // load-reserve \* shvar bge x5, x11, release addi 25, 211, 0

release;

Sc, d 27. 75 bne 27, 20, try jalre 20, 21

2.40.1

Take the weight average = 0.7x2 + 0.1x 6 + 0.2x3 = 8.6

2.41 ldro 228, 25 (210), 3 // Load 228 = ALRI addi x5, x5, 1 // bty ldp x29, x5(x10),3 // load 229 = A [6+1] add 229, x29, x28 // add 229 = ALB] + ATBAIT 5dn x12, x6(x11), 3 / stone B[g] = 229 ldn x 28, x 28, (x 10), 3 // Load x 29=AD

ldn x 29, x 29, (x11), 3 // Load

add x 29, x 28, x 29 (), (x 1)

Sd x 29, 64 (x11) // // Atore B [8] = x 29

recleme = e, d 2 = , x5 bn e 27, x0, thy date 20, 21

2.40.1

Take the weight average  $= 0.7 \times 2 + 0.1 \times 6 + 0.2 \times 3$  = 2.6

241 228, 25(210), 3 / 2000 228 = PLE]

240 25, 25, 25, 1 / 677

240 25, 25, 25, 26(210), 3 / 2000 250 = PLE/L

241 220, 220, 220, 228 / 2000 250 = PLE/L

341, 212, 26(211), 3 / 2000 8[8] = 225