**Department of Computer Engineering**

BLG 351E  
Microcomputer Laboratory Experiment Report

Experiment No : Choose an item.

Experiment Date : Click here to enter a date.

Group Number : Choose an item.

Group Members :

|  |  |  |
| --- | --- | --- |
| **ID** | **Name** | **Surname** |
| Click here to enter text. | Click here to enter text. | Click here to enter text. |
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Laboratory Assistant : Choose an item.

# Introduction

Briefly describe what you have done during the experiment.

# Requirements

Answer all questions and provide everything that are required in the “Report” section of the experiment document.

Edit following sub-heading as you wish.

## First header

Your text comes here.

## Part Two

In the second part of the experiment, following assembly code is written. Used memory addresses about code is shown below.

|  |  |
| --- | --- |
| Adress/Label | Information |
| $5000 | Iterator for main array |
| $5002 | Iterator for odd array |
| $5004 | Iterator for even array |
| l1 | Loop to initialize main array |
| loop | Main loop of the program |
| ret | Return address for odd and even subrotines |
| tek | Odd subroutine |
| cift | Even subroutine |

jmp $4000

.org $4000 ;program starts at address $4000

ldx #$4100

clra

l1 staa 0,x ;write numbers 0 to 9 in starting array adress $4100

inx

inca

cmpa #$0a

blt l1

ldx #$4300 ;odd array starts from $4300

stx $5002 ;store odd array's address at $5002

ldx #$4200 ;even array starts from $4200

stx $5004 ;store odd array's address at $5004

clra

clrb

ldx #$4100

loop ldaa 0,x ;main loop of the program

rora ;rotate the number to check carry bit

bcs tek ;if the carry bit is 1, then the number is odd

bra cift ;else, it is even

ret ldx $5000

inx ;increment main array's iterator

incb

cmpb #$0a ;check loop condition

blt loop

wai ;(for simulator) to stop when the program ends, not required for the kit

swi

tek rola ;rotate again to correct the number

stx $5000 ;store address of main array's iterator at $5000

ldx $5002 ;load the iterator for odd array

staa 0,x ;write the number to odd array

inx ;increment the iterator

stx $5002 ;store address of odd array's iterator at $5002

bra ret

cift rola ;rotate again to correct the number

stx $5000 ;store address of main array's iterator at $5000

ldx $5004 ;load the iterator for even array

staa 0,x ;write the number to even array

inx ;increment the iterator

stx $5004 ;store address of even array's iterator at $5004

bra ret

Machine code equivalent of the assembly code is produced by the emulator:

4000: CE 41 00 4F A7 00 08 4C 81 0A 2D F8 CE 43 00 FF

4010: 50 02 CE 42 00 FF 50 04 4F 5F CE 41 00 A6 00 46

4020: 25 0D 20 1A FE 50 00 08 5C C1 0A 2D F0 3E 3F 49

4030: FF 50 00 FE 50 02 A7 00 08 FF 50 02 20 E6 49 FF

4040: 50 00 FE 50 04 A7 00 08 FF 50 04 20 D7

# Conclusion

Comment on any difficulties you have faced, what you have learned etc.