LAB NO : 1 DATE : 08/01/2025

Title : INTRODUCTION TO µKEIL VISION - 4

# Example 1 : Adding 2 Decimal Numbers

## Code :

AREA RESET, DATA, READONLY

EXPORT \_\_Vectors

\_\_Vectors

DCD 0X10001000 ;stack ptr value when stack is empty

;Processor uses a full descending stack => ptr holds address of last stacked item

;when a new item is pushed, ptr is decremented and item is written to new mem loc

DCD Reset\_Handler ;reset vector. The program linker requires Reset\_Handler

ALIGN

AREA mycode, CODE, READONLY

ENTRY

EXPORT Reset\_Handler

Reset\_Handler

MOV R0, #20

MOV R1, #5

ADD R2, R1, R0

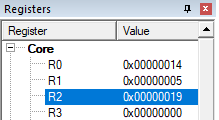
NOP

STOP

B STOP

END

## Output :



# Solved Exercise : Write an ARM assembly language program to copy 32-bit data from code memory to data memory.

Source : SRC = 0X00000008 at location pointed by R0

Desination : DST = 0X00000008 at location pointed by R1 after execution

## Code :

AREA RESET, DATA, READONLY

EXPORT \_\_Vectors

\_\_Vectors

DCD 0X10001000 ;stack ptr value when stack is empty

DCD Reset\_Handler ;reset vector. The program linker requires Reset\_Handler

ALIGN

AREA mycode, CODE, READONLY

ENTRY

EXPORT Reset\_Handler

Reset\_Handler

LDR R0, = SRC ;Loads address of SRC into R0

LDR R1, = DST ;Loads address of DST onto R1

LDR R3,[R0] ;Loads data pointed by R0 into R3

STR R3,[R1] ;Stores data from R3 into Address pointed by R1

STOP

B STOP ;Infinte Loop

SRC DCD 8 ;SRC location in code memory

AREA mydata, DATA, READWRITE

DST DCD 0 ;DST location in data memory

END

## Output :

# Question 1 : Add the contents of registers R0, R1, R2, R3 and store it in R10

## Code :

AREA RESET, DATA, READONLY

EXPORT \_\_Vectors

\_\_Vectors

DCD 0X10001000 ;stack ptr value when stack is empty

DCD Reset\_Handler ;reset vector. The program linker requires Reset\_Handler

ALIGN

AREA mycode, CODE, READONLY

ENTRY

EXPORT Reset\_Handler

Reset\_Handler

MOV R0, #10

MOV R1, #20

MOV R2, #30

MOV R3, #40

ADD R10, R1, R0

ADD R10, R10, R2

ADD R10, R10, R3

NOP

STOP

B STOP

END

## Output :

# Question 2 : Subtract the contents of register R8 from R7 and store it in R10

## Code :

AREA RESET, DATA, READONLY

EXPORT \_\_Vectors

\_\_Vectors

DCD 0X10001000 ;stack ptr value when stack is empty

DCD Reset\_Handler ;reset vector. The program linker requires Reset\_Handler

ALIGN

AREA mycode, CODE, READONLY

ENTRY

EXPORT Reset\_Handler

Reset\_Handler

MOV R7, #20

MOV R8, #10

SUB R10, R7, R8

NOP

STOP

B STOP

END

## Output :

# Question 3 : Add 2 Ocatal Numbers

## Code :

AREA RESET, DATA, READONLY

EXPORT \_\_Vectors

\_\_Vectors

DCD 0X10001000 ;stack ptr value when stack is empty

DCD Reset\_Handler ;reset vector. The program linker requires Reset\_Handler

ALIGN

AREA mycode, CODE, READONLY

ENTRY

EXPORT Reset\_Handler

Reset\_Handler

MOV R0, #8\_1

MOV R1, #8\_2

ADD R2, R1, R0

NOP

STOP

B STOP

END

## Output :

# Question 4 : Add 2 Binary Numbers

## Code :

AREA RESET, DATA, READONLY

EXPORT \_\_Vectors

\_\_Vectors

DCD 0X10001000 ;stack ptr value when stack is empty

DCD Reset\_Handler ;reset vector. The program linker requires Reset\_Handler

ALIGN

AREA mycode, CODE, READONLY

ENTRY

EXPORT Reset\_Handler

Reset\_Handler

MOV R0, #2\_01

MOV R1, #2\_10

ADD R2, R1, R0

NOP

STOP

B STOP

END

## Output :

