

# **DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING**



**THAPAR INSTITUTE**  
OF ENGINEERING & TECHNOLOGY  
(Deemed to be University)

## **Embedded System**

### **Experiment-10**

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**M.Tech (VLSI Design)**

## Experiment 10

### Aim:

To write an ARM Assembly Language to find the factorial of a given 8-bit number.

### Tool Used:

Keil uVision4

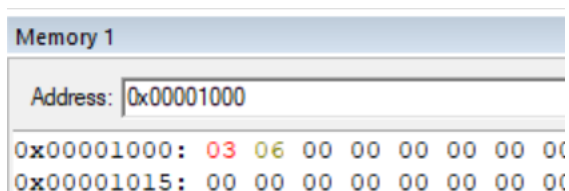
### Theory:

The numbers in the memory location are repeatedly multiplied and subtracted in an iterative manner.

### Code:

```
AREA PROGRAM, CODE, READONLY
ENTRY
MAIN
    LDR R0, =0x00001000
    LDRB R1,[R0], #1
    ADDS R1,R1,#0
    BEQ LOOP1
    MOV R2,R1
    SUB R2,R2,#1
LOOP2  MUL R7,R2,R1
    MOV R1,R7
    SUBS R2,R2,#1
    BNE LOOP2
    STRB R1,[R0]
    B LOOP3
LOOP1  MOV R8,#1
    STRB R8,[R0]
LOOP3  B LOOP3
END
```

### Output:



### Result:

The experiment to find the factorial of a given 8-bit number has been performed and verified to be correct.