Netaji Subhas University of Technology

Practical Report

Microprocessors and Microcontrollers

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Computer Science Engineering (Internet of Things)

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Contents

1 The Fibonacci sequence

1.1 Objective

Write an assembly program to generate the numbers of the Fibonacci series.

1.2 Implementation

The Fibonacci sequence is defined as follows:

$$
\begin{aligned}
F_0 &= 0 \\
F_1 &= 1 \\
F_n &= F_{n-1} + F_{n-2}
\end{aligned}
$$

1.2.1 Assembly code

```
;Declaration Part
.MODEL SMALL
.DATA
RES DB ?
CNT DB 0AH        ; Initialize the counter for the number of Fibonacci
 ↪  numbers needed
.CODE
START: MOV AX, @DATA
MOV DS,AX
LEA SI,RES
MOV CL,CNT        ; Load the count value for CL for looping
MOV AX,00H        ; Default No
MOV BX,01H        ; Default No

;Fibonacci Part
L1:ADD AX,BX
MOV [SI],AX
MOV AX,BX
MOV BX,[SI]
INC SI
LOOP L1

INT 3H            ; Terminate the Program
END START
```

1.3 Results

2 Results

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References

[1] D. Knuth, “Knuth: Computers and typesetting.”