

FACTORIAL OF A GIVEN NUMBER

EXP NO: 9

AIM:To find the factorial of a given number using 8085 microprocessor.

ALGORITHM:

- 1)
Load the data into register B
- 2)
To start multiplication set D to 01H
- 3)
Jump to step 7
- 4)
Decrements B to multiply previous number
- 5)
Jump to step 3 till value of B>0

6)

Take memory pointer to next location and store result

7)

Load E with contents of B and clear accumulator

8)

Repeatedly add contents of D to accumulator E times

9)

Store accumulator content to D

10) Go to
step 4

PROGRAM:

LDA 2001

MOV B,A

MVI C,01H

MVI E,01H

LOOP: MOV D,C

MVI A,00H

LP: ADD E

DCR D

JNZ LP

MOV E,A

INR C

DCR B

JNZ LOOP

MOV A,E

STA 2010

HLT

INPUT:

Start 2001			OK
Address (Hex)	Address	Data	
07D1	2001	5	
07D2	2002	0	
07D3	2003	0	
07D4	2004	0	
07D5	2005	0	
07D6	2006	0	
07D7	2007	0	
07D8	2008	0	
07D9	2009	0	
07DA	2010	120	

OUTPUT:

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers: A 78, BC 00 06, DE 00 78, HL 00 00, PSW 00 00, PC 42 1F, SP FF FF, Int-Reg 00. Flag: S 0, Z 1, AC 0, P 1, C 0.

Decimal - Hex Conversion: Decimal 0, Hex 0. To Hex, To Dec.

I/O Ports: 0, 00. Update Port Value.

Memory: 0, 00. Update Memory.

Load me at: 1 ;<Program title>, 2, 3, 4 jmp start, 5 ;data, 6, 7, 8, 9 ;code, 10 start: nop, 11 LDA 2001, 12, 13, 14 MOV B,A, 15, 16 MVI C,01H, 17, 18, 19 MVI E,01H, 20, 21, 22, 23 LOOP: MOV D,C, 24, 25 MVI A,00H, 26, 27, 28 LP: ADD E, 29, 30, 31, 32 DCR D, 33, 34, 35 JNZ LP, 36, 37, 38 MOV E,A, 39, 40, 41 INR C, 42, 43, 44 DCR B, 45.

Memory View: Start 2001, Address (Hex) Address Data. 07D1 2001 5, 07D2 2002 0, 07D3 2003 0, 07D4 2004 0, 07D5 2005 0, 07D6 2006 0, 07D7 2007 0, 07D8 2008 0, 07D9 2009 0, 07DA 2010 120, 07DB 2011 0, 07DC 2012 0.

Line No Assembler Message: 0 Program assembled successfully.

Simulator: Idle

Windows Taskbar: Search, ENG IN, 08:22 17-10-2023.

RESULT: Thus the program was executed successfully using 8085 processor simulator.