

8-BIT MULTIPLICATION

EXP NO: 3

AIM: To write an assembly language program to implement 8-bit multiplication using 8085 processor.

ALGORITHM:

- 1) Start
the program by loading a register pair with the address of memory location.
- 2) Move
the data to a register.
- 3) Get
the second data and load it into the accumulator.
- 4) Add
the two register contents.
- 5) Increment
the value of the carry.
- 6) Check
whether the repeated addition is over.
- 7) Store
the value of product and the carry in the memory location.
- 8) Halt.

PROGRAM:

LDA 8500

MOV B, A

LDA 8501

MOV C, A

CPI 00

JZ LOOP

XRA A

LOOP1: ADD B

DCR C

JZ LOOP

JMP LOOP1

LOOP: STA 8502

RST

INPUT:

Start	8000	
Address (Hex)	Address	Data
1F40	8000	3
1F41	8001	9

OUTPUT:

The screenshot displays the GNUSim8085 - 8085 Microprocessor Simulator interface. The main window is titled "GNUSim8085 - 8085 Microprocessor Simulator". The interface includes a menu bar (File, Reset, Assembler, Debug, Help) and a toolbar with various icons. The central area is divided into several panels:

- Registers:** A table showing the status of 8085 registers. The PC register is highlighted with a value of 42 (hex) and 10 (dec). The PSW register is 00 (hex) and 00 (dec). The SP register is FF (hex) and FF (dec). The Int-Reg is 00 (hex) and 00 (dec).
- Flag:** A table showing the status of 8085 flags. The S flag is 0, Z flag is 0, AC flag is 0, P flag is 1, and C flag is 0.
- Decimal - Hex Conversion:** A section with input fields for decimal and hex values, and buttons to convert between them.
- I/O Ports:** A section with input fields for port values and buttons to update the port value.
- Memory:** A section with input fields for memory address and data, and buttons to update the memory.
- Assembly Code:** A text area showing the assembly code being executed. The code includes comments like ";<Program title>", ";data", ";code", and instructions like "jmp start", "LDA 8000", "MOV B, A", "LDA 8001", "SUB B", "STA 8002", "RST 1", and "hlt".
- Memory Window:** A table showing the memory contents. The address 8000 contains the value 3, and address 8001 contains the value 9. The rest of the memory is empty.
- Assembler Message:** A message box at the bottom right stating "Program assembled successfully".

The status bar at the bottom left indicates "Simulator: Idle".

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