**Addition of two 16 bit numbers**

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**Branch:** CSE  **Section:** PH20BCS804-A

**Semester:** 04 **Date of Performance:** 05/03/2022

**Subject Name:** Microprocessor and Interfacing Lab **Subject Code:** 20CSP-253

**1. Aim:**

Familiarization with basic assembly language programming.

**2. Task to be done:**

Addition of two 16 bit numbers.

**3. Simulator used:**

GNUSim8085 – 8085-Microprocessor Simulator.

**4. Algorithm:**

* Initialize the input numbers in the memory.
* LHLD 0000 loads the value at 0000 in L register and that in 0001 in H register.
* Copy the first number to another register pair.
* XCHG change the content of HL register with DE register.
* Then move the content of register E to accumulator.
* Add the value A7 of register L to accumulator.
* Now we storing the result in variable, so we move the content of accumulator to L.
* Store the content of D to accumulator.
* Add with carry the data of H in register HL.
* Move the result from accumulator to H.
* At last store the result of HL to another memory location which is 004H and because there is a carry in this addition it will store in 005H.

**5. Code:**

LHLD 0000H

XCHG

LHLD 0002H

MOV A, E

ADD L

MOV L, A

MOV A, D

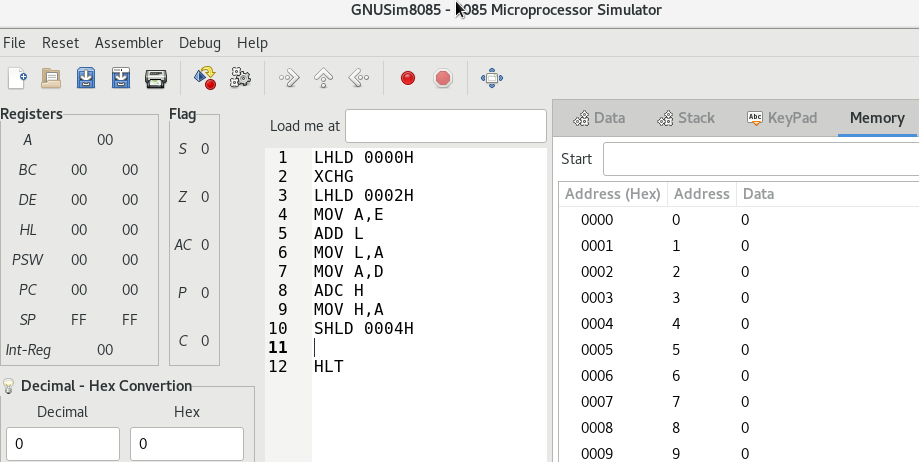
ADC H

MOV H, A

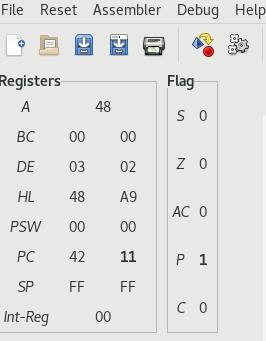
SHLD 004H

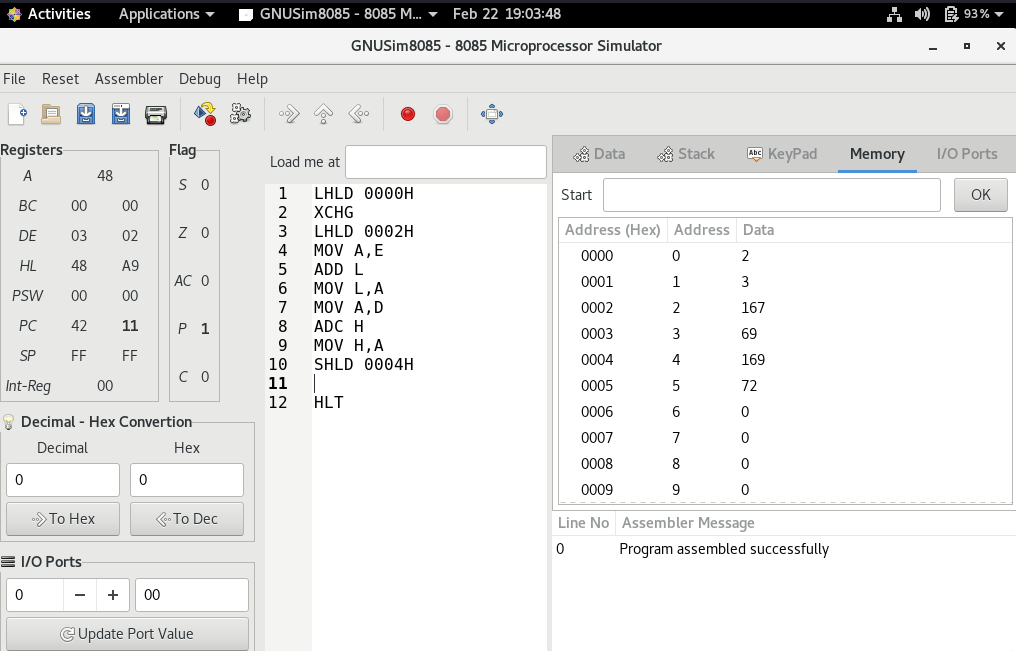
HLT

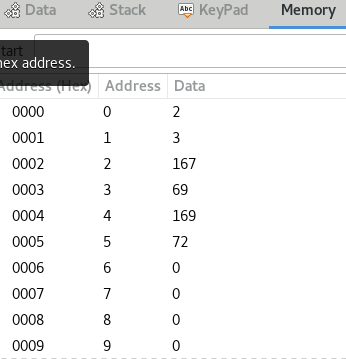
**6. Result/Output/Writing Summary:**

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As we can see here A9 is the result which is stored in register HL.

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We got the output of addition on 0004H is 169 which is equivalent to A9 in hexadecimal and the carry on 0005H is 72 which is equivalent to 48 in hexadecimal.

**Learning outcomes (What I have learnt):**

**1.** Learn the basics of assembly language programming.

**2.** Working of different type of register.

**3.** Working of microprocessor-8085 simulator.

**4.** Learnt about how to input value to memory and I/O port.

**5.** How to add two 16 bit numbers.

**Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):**

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| --- | --- | --- | --- |
| Sr. No. | Parameters | Marks Obtained | Maximum Marks |
| 1. |  |  |  |
| 2. |  |  |  |
| 3. |  |  |  |
|  |  |  |  |