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Class: 3rd year (5th sem)

**Experiment 4: Write a program to add N 8-bit numbers stored at consecutive locations starting from 2050H and store their 16 bit sum at following address.**

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| --- | --- | --- | --- |
| Memory Address | Assembly code | Hex code | Comments |
| 0000 | LXI H, 2050H | 21  50  20 | Loads data at memory position 2050H to Reg H |
| 0003 | MOV C, M | 4E | Moves data in memory to reg C. |
| 0004 | MVI A, 00H | 3E  00 | Stores value 00 to reg A |
| 0006 | MVI E, 00H | 1E  00 | Stores value 00 to reg E. |
| 0008 | BACK: INX H | 23 | Increase value of reg H by 1. |
| 0009 | ADD M | 86 | Adds value in memory with accumulator value and stores it in accumulator |
| 000A | JNC NEXT | D2  0E  00 | Jumps to Label Next if no carry |
| 000D | INR E | 1C | Increase value of reg E by 1 |
| 000E | NEXT: DCR C | 0D | Decrease value in reg C by 1 |
| 000F | JNZ BACK | C2  08  00 | Jump to label BACK if c not zero |
| 0012 | INX H | 23 | Increase value of reg H by 1 |
| 0013 | MOV M,A | 77 | Move value stored in A to memory |
| 00014 | INX H | 23 | Increase value of reg H by 1 |
| 0015 | MOV M, E | 73 | Move value stored in E to memory |
| 0016 | HLT | 76 | HALT |

**Procedure:**

Step – 1: Writing program in memory.

1. Press Reset
2. Press SET/MEM
3. Type in Address 0000
4. Press Enter
5. Type 1st Hex Code (Here 21)
6. Press Enter
7. Follow Step 5 and 6 to type in all Hex Codes

Step – 2: Assigning Values to the Address Location

1. Press Reset
2. Press SET/MEM
3. Type in Address of 1st Location (Here 2050)
4. Press Enter
5. Enter value of N (total count of numbers)
6. Press Enter
7. Enter a number
8. Press Enter
9. Repeat Step 7 and 8 N-1 times

Step – 3: Executing the Program

1. Press Reset to Clear buffer
2. Press Go
3. Enter Starting address of program (Here 0000)
4. Press Execute

Step – 4: Checking the Output

1. Press Reset and clear the buffer
2. Press Go
3. Enter Result Location (Here 2050+ value of N+1)
4. You will get here the sum of N digits in Hexadecimal format

Output:

Graphical user interface

Description automatically generated

A picture containing text, electronics, scoreboard

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