

EXPERIMENT 1.2

Addition and subtraction of two eight bit hexadecimal numbers by register indirect addressing mode and store the result in scratch pad memory location.

Code:

```
ORG 00H
MOV 40H, #32H
MOV 41H, #42H
MOV 42H, #0A0H
MOV 43H, #0FH
MOV R0, #40H ; pointer for inputs
MOV R1, #53H ; pointer for outputs
MOV A, @R0 ; move 1st value to A
INC R0 ; inc A
ADD A, @R0 ; add 2nd value to A
INC R0 ; inc A
MOV @R1, A ; store result
DEC R1 ; dec R1
JNC L1 ; check for carry
INC @R1 ; store carry
L1: DEC R1 ; dec R1
MOV A, @R0 ; move 3rd value to A
INC R0 ; inc R0
SUBB A, @R0 ; sub 4th value from A
MOV @R1, A ; store result i
DEC R1 ; dec R1
JNC L2 ; check for carry
INC @R1 ; store carry
L2: NOP
END
```

Output:

| Memory 1 | | | | | | | | | | |
|---------------|----|----|----|----|----|----|----|----|----|----|
| Address: i:00 | | | | | | | | | | |
| I:0x00: | 43 | 50 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| I:0x10: | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| I:0x20: | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| I:0x30: | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| I:0x40: | 32 | 42 | A0 | 0F | 00 | 00 | 00 | 00 | 00 | 00 |
| I:0x50: | 00 | 91 | 00 | 74 | 00 | 00 | 00 | 00 | 00 | 00 |
| I:0x60: | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| I:0x70: | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| T:0x80: | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |

| Register | Value |
|--------------|-------|
| Regs | |
| r. 0x43 | |
| r. 0x50 | |
| r. 0x00 | |
| r. 0x00 | |
| r. 0x00 | |
| r. 0x00 | |
| r. 0x00 | |
| r. 0x00 | |
| Sys | |
| a 0x91 | |
| b 0x00 | |
| s 0x07 | |
| s 0x07 | |
| d 0x0000 | |
| P C:0x0023 | |
| s 27 | |
| s 0.00001350 | |
| p 0x41 | |