মিলে ৭টা Flag Register এর ভিতর, ৫টা হল Status Flag
-আর বাকি -তিনটা হল Control Flag

ZF
CF
AF
PF
] Unsigned Integer

SF
OF
] Signed Integer

-আমাদের Calculator Unsigned Result দেখায়,

1 Byte = 8 Bit

So, 0, 1 -এর Combination -এ $2^8 = 256$ টা— Combination Possible (0 থেকে 255 পর্যন্ত)

* 2's Complement -এর মাধ্যমে

Half Number Positive

Half Number Negative

8 bit Signed Integer এর ক্ষেত্রে limit টা হবে

+0 to +127 [Decimal]
-1 to -128 [Decimal]

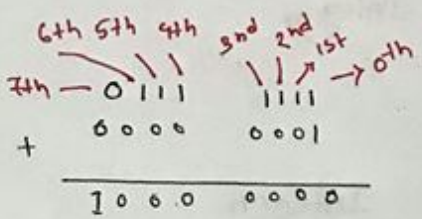
=> Result যদি Range এর ভিতর থাকে, তাহলে OF = 0 হবে,
আর Result Range -এর বাইরে থাকলে OF = 1 হবে,

* ADD 7FH, 1H, Show Status Flag Values with explanation-

Ans:

$7FH = (0111\ 1111)_B$

$1H = (0000\ 0001)_B$



AF = 1 [There is Carry from 3rd bit to 4th bit]

CF = 0 [No Carry in the MSB]

PF = 0 [Odd Number of 1's]

ZF = 0 [The result is non-zero]

SF = 1 [MSB is 1, so the result is negative]

OF = 1 [The result is not in the range as limit for 8 bit signed integer is +0 to +127d & -1 to -128d]

$(7F)_H = (127)_d$ (+127)H

$+ (1H)_H = (+1)_d$

~~$(128)_d$~~

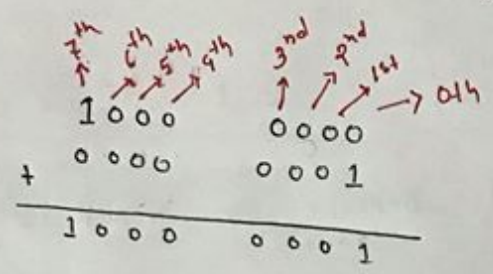
$= (128)_d$

* ADD 80H, 1H. Show Status Flag values with explanation

Ans:

$80_H = (1000\ 0000)_B$

$1_H = (0000\ 0001)_B$



AF = 0 [There is no Carry from 3rd to 4th bit]

CF = 0 [No Carry in the MSB]

PF = 1 [Even Number of 1's]

ZF = 0 [The result is non zero]

SF = 1 [MSB is 1, So the result is negative]

OF = 0 [The result is in the range & as limit for 8 bit signed integer is +0 to +127d & -1 to -128d]

$(80)_H = (-128)_d$

$(1)_H = (+1)_d$

$= (-127)_d$

- mov al, 1h;
  sub al, 1h; what will be ZF?

Ans:

ZF = 1. Because the result is 0.

- mov al, 0h;
  add al, 0h; what will be ZF?

Ans:

ZF = 1. Because the result is 0.

- When Canny flag becomes 1?

Ans:

In two cases Canny flag becomes 1.

a. Two unsigned numbers were added & the result is larger than capacity.

b. Two unsigned numbers were substracted & the bigger value has been substracted from the smaller one.

mov al, 65h;
add al, 7h;

write the status flags value

Ans:

$(65)_h$ = 0 11 00 10 1

$(7)_h$ = 0 0 0 0 0 11 1

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  0 11  00  10  1
  0 00  00  11  1
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  0 1 1 0  11  00
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AF = 0 [No carry from 3rd to 4th bit]

CF = 0 [No carry in the MSB]

PF = 1 [Even number of 1's]

ZF = 0 [The result is non-zero]

SF = 0 [The MSB is 0, so the result is positive]

OF = 0 [The result is within range as limit for 8 bit signed integer is +0 to +127d & -1 to -128d]

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 +65
 + 7
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 +72
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