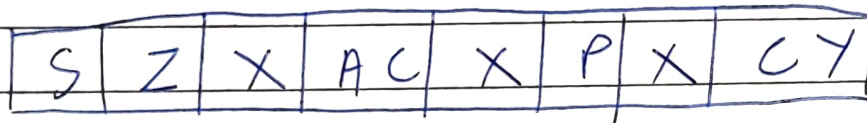


# Flag register



S = Sign flag  $\rightarrow S=1$  if MSB of ALU Result

Z = Zero flag,  $Z=1$  if ALU result =  $00_{16}$

P = Parity flag,  $P=1$  if ALU result even parity

CY = Carry flag,  $CY=1$ , if Carry or borrow occurs in addition or subtraction

AC = Auxiliary carry  $\rightarrow$  Carry from lower to upper nibble or Borrow from upper to lower nibble

Example:

Addition of ~~BC~~ BC and DE

B  $\rightarrow$  11

C  $\rightarrow$  12

D  $\rightarrow$  13

E  $\rightarrow$  14

B C

$26 - 16 = 10$

1 D E

$25 - 16 = 9$

9 A

1 0 1 1

1 1 0 0

1 1 0 1

1 1 1 0

①

1 0 0 1

1 0 1 0

- MSB  $\rightarrow$  most Significant Bit

1001 1010

$$S = 1$$

- ~~ALU~~ ALU ~~result~~ result is not 00H, it is 9A  
hence  $Z = 0$

- There four (4) '1's in ALU result, hence it is in even parity.  $P = 1$

- We got a carry hence  $CY = 1$

We got carry from lower nibble to upper nibble  
 $AC = 1$

Programmer cannot access it, it can be internally accessed by computer