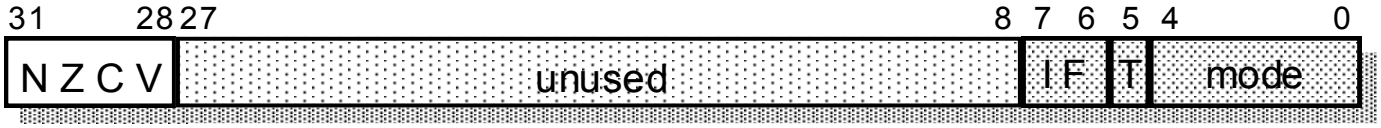
Flags

- flags are 4 bits in „status register“ CPSR , having values of :
- 1 – flag is SET.
- 0 – flag is NOT SET (unset).



Flags (can) be changed according to results of ALU operations:

N = 0: bit 31 of the result is 0, N=1: bit 31 of the result is 1 (*Negative*)

Z = 1: result is equal to 0, Z=0: result is not equal to 0 (*Zero*)

C: **+**: C = 1: result has carry, C = 0: result doesn‘t have carry (*Carry*)

-: C = **0**: result has carry, C = **1**: result doesn‘t have carry (*Carry*)

V = 1: result has overflow, V = 0: result doesn‘t have overflow(*oVerflow*)

If we want that ALU instruction changes flags, we have to add „s“ to coresponding instruction !!!

```
movs r1, #3            @ r1 ← 3
adds r2, r7, #0x20     @ r2 ← r7 + 32
subs r4, r5,#1         @ r4 ← r5 - 1
```

Subtraction sets C flag opposite of carry (ARM specialty)!

- if (carry = 0) then C=1

- if (carry = 1) then C=0