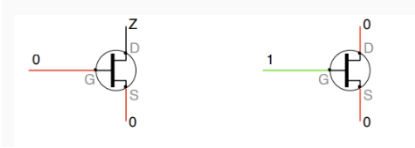
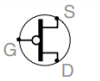
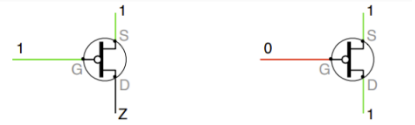
Technologie CMOS (complementary metal-oxyde semiconductor) -> procédé de fabrication de transistor / effet de champ (MOFSET metal oxyde semconductor) / tech planaire (implanté à la surface du silicium)

> Transistor NMOS

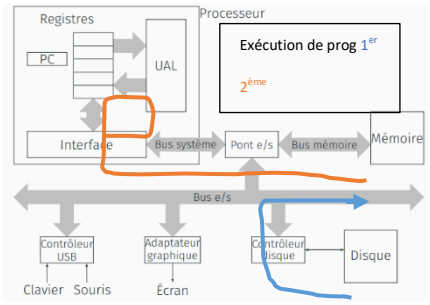




> Transistor PMOS

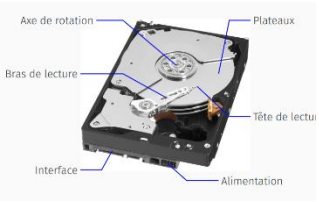



D « gain » ; G « grille » ; S « source »




Disque dur :




HDD : hard disk drive

SDD : Solid state drive

Mémoire vive : DRAM :

dynamic Random Acess Memory

Bit (binary digit) :

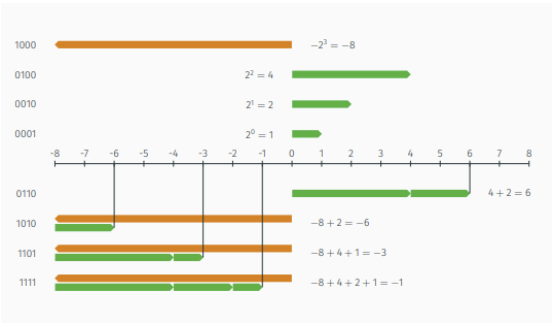
Une valeur logique pouvant prendre deux états : 0 ou 1

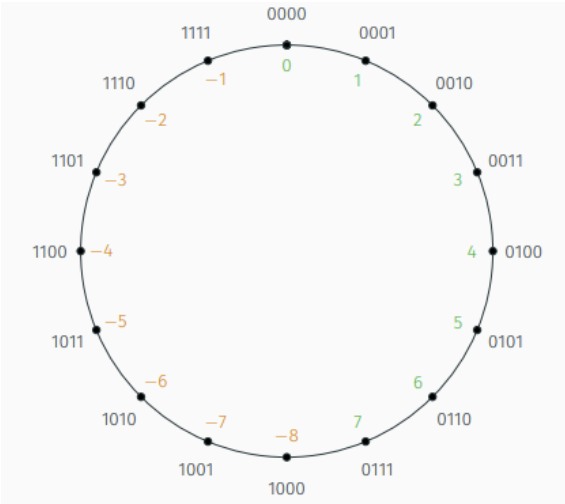
| Nom | Symbole | En octets | En bits |
|---|---|---|---|
| bit | b | - | 1 |
| octet | B | 1 | 8 |
| Kibioctet | KiB | $2^{10}$ | $2^{13}$ |
| Mébioctet | MiB | $2^{20}$ | $2^{23}$ |
| Gibioctet | GiB | $2^{30}$ | $2^{33}$ |
| Tébioctet | TiB | $2^{40}$ | $2^{43}$ |
| Kilooctet | KB | $10^3$ | $8 \times 10^3$ |
| Mégaoctet | MB | $10^6$ | $8 \times 10^6$ |
| Gigaoctet | GB | $10^9$ | $8 \times 10^9$ |
| Téraoctet | TB | $10^{12}$ | $8 \times 10^{12}$ |

| DECIMAL | HEX | BINARY |
|---|---|---|
| 0 | 0 | 0000 |
| 1 | 1 | 0001 |
| 2 | 2 | 0010 |
| 3 | 3 | 0011 |
| 4 | 4 | 0100 |
| 5 | 5 | 0101 |
| 6 | 6 | 0110 |
| 7 | 7 | 0111 |
| 8 | 8 | 1000 |
| 9 | 9 | 1001 |
| 10 | A | 1010 |
| 11 | B | 1011 |
| 12 | C | 1100 |
| 13 | D | 1101 |
| 14 | E | 1110 |
| 15 | F | 1111 |

| $2^{-n}$ | n | $2^n$ |
|---|---|---|
| 1 | 0 | 1 |
| 0.5 | 1 | 2 |
| 0.25 | 2 | 4 |
| 0.125 | 3 | 8 |
| 0.0625 | 4 | 16 |
| 0.03125 | 5 | 32 |
| 0.015625 | 6 | 64 |
| 0.0078125 | 7 | 128 |
| 0.00390625 | 8 | 256 |
| 0.001953125 | 9 | 512 |
| 0.0009765625 | 10 | 1024 |

## Complément à 2




$1001_2 = 9$ $1001_{C2}=-7$

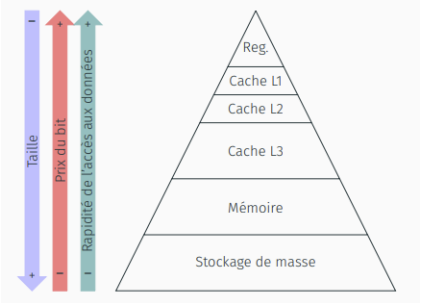
Si 1 0101 comme sur 4 bits = 0101

Sur 8 bits = de -128 à 127

Ex en Cà2 :1000 0000 = -128

## Le format IEEE 745 :


## Hiérarchie de la mémoire :




## Addition :

table d'addition

0 + 0 = 0
0 + 1 = 1
1 + 0 = 1
1 + 1 = 10 (on pose 0 et on retient 1)

1+1+1 = 11 (on pose 1 et on retient 1)

## Soustraction : -x = $\overline{x}$ +1