Curs 7 P.L

Recapitulare Proiectare Logică — 7 —

```
  1 011              1101 -        00111 -      13
  1 0 01  ⊕          0111          01101       -5
  -------            ----          ------      ---
  1 1 000            0110        11 1,1010      7
                     11            ← 11
```

$5 = 110$

$-6 = 001 + 1 = 010$

$$X - Y = X + [Y]_2$$

$$[Y] = \bar{Y} + 1$$

```
          1101 +
positive  1001
          ------
         1 0110
          1   1
```

o este negativă

10110

adunări și scăderi

$$25,63_{(10)} \Rightarrow 2^4 + 2^3 + 2^0 = 11001_{(2)} = 25_{(10}$$

```
0,63·2 = 1,26      ↑
0,26·2 = 0,52      0.     =) 25,63 = 11001,10100001 .....
0,52·2 = 1,04      1.                  ⌣
0,04·2 = 0,08      0.                  25
0,08·2 = 0,16      0.
0,16·2 = 0,32      0.
0,32·2 = 0,64      0.
0,64·2 = 1,28      1.
```

(*) 0,10000000011... 00 11 010 001

|0| 1001101 00001

mantisa
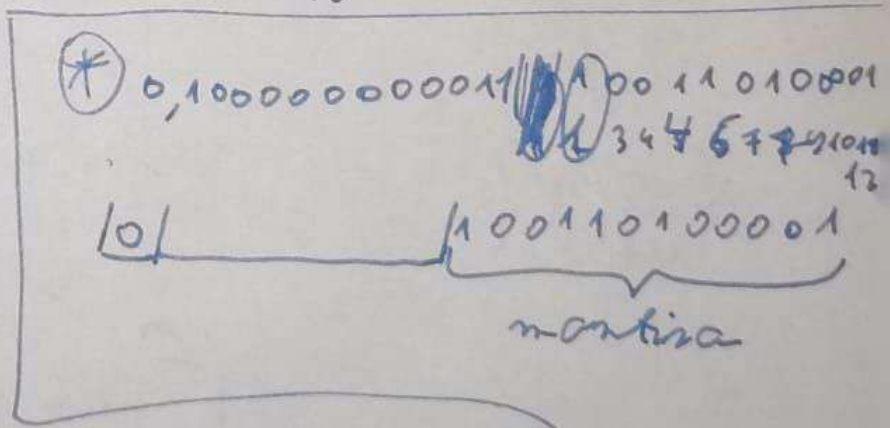
$$25,63 = 2^4\left(1 + 2^{-1} + 2^{-4} + 2^{-5} + 2^{-12} + 2^{-7}\right)$$

$ep = 4$

$h = 11$

$offset = 2^{h-1} - 1 = 2^{10} - 1 = 1023$

$$exp = offset + ep = 1023 + 4 = 1024 + 2 + 1$$

$$m = 2^{-1} + 2^{-5} + 2^{-9} + 2^{-7} + 2^{-12} =) \, (*)$$

$$FFE12,9AC_{(16)} = \underbrace{1111}_{F}\ \underbrace{1111}_{F}\ \underbrace{1110}_{E}\ \underbrace{0001}_{1}\ \underbrace{0010}_{2}\ ,\ \underbrace{1001}_{9}\ \underbrace{1010}_{A}\ \underbrace{1100}_{C}$$

$$= C \cdot 16^{-3} + A \cdot 16^{-2} + 9 \cdot 16^{-1} + 2 \cdot 16^{0} + 1 \cdot 16^{1} + E \cdot 16^{2} + F \cdot 16^{3} + F \cdot 16^{4}$$

$$= 12 \cdot 16^{-3} + 10 \cdot 16^{-2} + 9 \cdot 16^{-1} + 2 \cdot 1 + 16 + 14 \cdot 16^{2} + 15 \cdot 16^{3} + 15 \cdot 16^{4}$$

$$= 65576 \cdot 15 + 4096 \cdot 15 + 14 \cdot 256 + 16 + 2 + \frac{9}{16} + \frac{10}{256} + \frac{12}{4092}$$

Seven segment

a b c d e f g
1 1 1 1 1 1 0

a b c d e f g
0 1 1 0 0 0 0

abcdefg
1101101

abcdefg
1111001

abcdefg
0110011

abcdefg
1011011

abcdefg
1011111

abcdefg
1110000

abcdefg
1111111

abcdefg
1110011

abcdefg
1110111

abcdefg
0011111

abcdefg
0001101

abcdefg
0111101

abcdefg
1001111

abcdefg
1000111

$$f\,|\ \overset{a}{\underline{\quad}}\ |\,b$$
$$e\,|\ \overline{\underline{g}}\ |\,c$$
$$d$$

A   B C   D
↓   ↓ ↓   ↓

a   b   - - -   g