

Computer Systems – Activities 2

UNIT 01. FUNCTIONAL ELEMENTS OF A COMPUTER



Computer Systems
CFGS DAM/DAW

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Nomenclatura

A lo largo de este tema se utilizarán distintos símbolos para distinguir elementos importantes dentro del contenido. Estos símbolos son:



Importante



Atención



Interesante

UNIT 01. FUNCTIONAL ELEMENTS OF A COMPUTER

Activities-2

(Exercise 1) We have a computer with this instruction set:

Code	Instruction	Description
ENT M(m)	000mmmmm	Read data from keyboard to memory.
SAL M(m)	001mmmmm	Show data on screen from memory.
CAR R0, M(m)	010mmmmm	Load content from a memory address to register R0.
ALM M(m), R0	011mmmmm	Store content from R0 to a memory address.
MOV Rx, Ry	1000xxyy	Copy content of RY to RX (<u>X, Y are register numbers.</u>)
SUM Rx, Ry	1001xxyy	Add RX+RY and it is stored in RX.
RES Rx, Ry	1010xxyy	Subtract RX-RY and it is stored in RX.
MUL Rx, Ry	1011xxyy	Multiply RX * RY and it is stored in RX.
DIV Rx,Ry	1100xxyy	Divide RX / RY and it is stored in RX.

Following the instruction sequence (simulating machine code):

**00001011(A) 00001100(B) 00010001(C) 00011100(D) 01001011 10000100 01011100 10001100
01010001 10001000 10111110 10101101 01001100 10001000 10011110 01010001 10001000
11001110 10000011 01101101 00101101**

Where A, B, C, D represents the input using the keyboard and their values are:

A=1
B=2
C=3
D=4

- What is the formula associated to A, B, C, D?
- What is the result shown on screen?
- What is the state of memory?
- If Program Counter (PC) initial value was 258... Which is its actual value?
- How many registers of general purpose (RX) has our architecture?

Share your solution and your doubts in the forum!!!
If a classmate has problems with it, try to help him.