

COMPUTING ARCHITECTURE

PERSONAL COMPUTER BUILD RESEARCH PROJECT

CONTINUOUS ASSESSMENT 3

PROGRAMME: BSC IN COMPUTING AND IT

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Introduction

This is a research project where we will address how to build our own PC, based on the needs of the user. An analysis of the main components, their price and the tools to carry it out will be carried out. Without a doubt, assembling a computer can be one of the most exciting experiences. Although it is a complicated process, it is not necessary to be an expert to carry it out, of course we must carry it out with the greatest of care.

Assembling a PC from scratch brings us a lot of benefits. In principle the costs, since the truth is that the construction of our own equipment will be significantly cheaper than buying a pre-assembled one. Also with the same budget we can access a computer that is really superior to the one offered in the store, and we can even choose to acquire excellent quality components.

Components and price



PROCESSOR

PROCESSOR INTEL 1200 I5-10600
6X3.3GHZ/ 12MB BOX

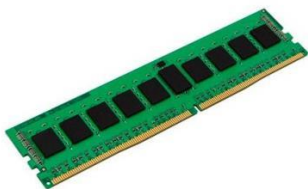
217,95 €



MOTHERBOARD

MOTHERBOARD GIGABYTE 1200 H470 HD3

110,92 €



RAM

MEMORY RAM DDR4 16GB PC2400
KINGSTON RETAIL

74,90 €

SSD



Hd Ssd Samsung 1tb 970 Evo Plus M.2 Pci Express 3.0 V-nand Mlc Nvme Mz-v7s1t0bw

181,40 €

CHASSIS



SilverStone ML09B HTPC USB 3.0 Black

74,00 €

LIQUID COOLING



COOLERMASTER LC120E AR07 CPU FAN

40,27 €



POWER SUPPLY

POWER SUPPLY ATX 550W APPROX
APP550PS BLACK

24,90 €



VIDEO CARD

VIDEO CARD MSI GTX 1050 TI 4GT LP
GDDR5

137.49 €



COOLBOX

Coolbox Lector Intern Cr-606 +sim+dnie
(40)

6,55 €

DVD MEDIA



Internal recorder Liteon Lhas124-14 X24 SATA
Bulk Black

15,85 €

WIFI



WIRELESS LAN MINI PCI-E EDIMAX AX3000
EW-7833AXP

49,71 €

OS



Windows 10 Pro 64 bits

40,00 €

TOTAL

973.94 €

Peripherals

MONITOR



Dell 27 Monitor: S2721HS

27" monitor beautifully designed to sit easily into any space ready for your everyday lifestyle.

€194.29

KEYBOARD



Alienware Mechanical Gaming Keyboard | AW310K

Intelligently designed to deliver exceptional performance, value and essential gaming functionality in a compact design.

€99.83

MOUSE



3Dconnexion CadMouse - Mouse - right-handed - laser - 7 buttons - wired - USB - matte black, steel

€137.21

TOTAL

€ 431.33

Steps

Motherboard assembly

1. The first thing we are going to do is remove the motherboard very carefully from its box, and let it rest on an antistatic surface. A rubber surface or place it on the unpainted metal part of the cabinet.
2. Now we will proceed to carefully remove the microprocessor and its heatsink from their box.
3. We will remove the SATA cables from their bags and carefully remove the microprocessor from its protector always holding it by the edges.
4. Now we will proceed to place the microprocessor on the motherboard and verify that the socket lock is facing up.
5. If the processor does not fit properly, never force it! Because they could bend the pins and short circuit.
6. Now we proceed to lower the lock to secure the microprocessor on the motherboard.
7. We will now proceed to place the heat sink on the micro, making sure that the locks on both sides match, both on the motherboard and on the socket.
8. Now we are ready to connect the cooler to the Motherboard. Placing on the part of the board that says CPU FAN, gives the power that the cooler needs according to the temperature that the micro rises.
9. Now we proceed to place the RAM memory in its corresponding place, after making a little pressure checking that the space in the middle coincides with the plate.
10. Now we proceed to connect the SATA cables, which are the ones that connect the data drives such as the hard drive and the DVD drive to the motherboard. On the board we must connect them to the ports that also have that shape.

Cabinet or Chassis Assembly

1. The first thing we must do is open the cabinet and remove its side cover.
2. We proceed to remove the screws that the cabinet brought from its packaging, we separate them in an intelligent way for later placement.
3. Now we will place the power supply, assembling in the upper rear part of the cabinet, matching the place to put screws, once this is done we proceed to use the screwdriver and secure it.
4. Then we place the DVD recorder, from the outside to the inside, and fasten it with the screws.
5. We do the same with the card reader.

Hardware Assembly

1. Now we are going to assemble the plate inside the cabinet, placing its screws, verifying that they coincide, including the ports with the plate of the motherboard.
2. Connect the source cables to their respective locations on the motherboard.
3. Connect the front usb cables of the cabinet, the usb cable of the memory and audio reader, we must connect them in the corresponding usb place of the motherboard.
4. Connect the Power LED + and - cables for the front button power light and the HDD LED cable, which indicates when the disk is working. The POWER SW and RESET SW cables are the most important, since they turn on and restart the machine respectively.
5. We insert the hard disk and place its respective screws
6. Then we connect the SATA power, the cable that comes from the source, and the SATA data cable, the one that comes from the motherboard.
7. Finally, it is necessary to connect the DVD recorder in the same way as the hard disk with its respective power SATA and SATA data.
8. We close the cabinet, placing the metal plate that it brings with it.
9. We started to place our peripheral elements.
10. We install Windows 10.

Conclusion

Assembling our own PC is a more complicated task than it seems, however the learning benefits are good, since we give a reference to how our computer works and the advantages of having a better PC with a better speed. This work also made me appreciate the value of buying a computer, it really is a very hard job that is equivalent to the price of a computer that we buy.

However, the quality of the products that we can use, buying separately under the characteristics that the user requires, the prices are better and with a unique style, since it can be customized according to the needs of the user and their economy.

References

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