

1. Say true or false:

- (a) Form factor of the motherboard defines the position of some components between several more things.
- (b) UEFI doesn't allow to change to BIOS mode.
- (c) L2 cache in processor with 1 core is faster than the L1 cache.
- (d) Hypertransport bus is called Front Side Bus in AMD processors.
- (e) FSB bus links microprocessor and L2 cache.
- (f) RAM memory has some methods of detection and correcting errors in data. Parity is one of them. That system generates an odd number of "1" in the message.

2. Answer the following question about the motherboard:



- (a) Identify brand and model of the motherboard
- (b) Find the following components of the motherboard on the picture and explain what each one of them is for. Search the datasheet of the motherboard on the Internet in order to help you
 - i. Mother board power supply ATX
 - ii. PCI-Express x 1 connector
 - iii. PCI Express x16 connector

- iv. PCI connector
 - v. Processor socket
 - vi. RAM memory slots
 - vii. SATA connectors
 - viii. Northbridge and southbridge
 - ix. CMOS Battery
 - x. Internal USB Headers
 - xi. I/O panels connectors
 - xii. Front Panels headers
- (c) What kind of socket does the motherboard have ? What processors can we use?
- (d) What kind of RAM and how many channels does it admit?
- (e) How many USB connectors are there in the I/O panel? What kind are they and what speed do they get?
- (f) Does this motherboard have integrated WIFI? What speed does it get?
3. Calculate the bandwidth of:
- (a) RAM DDR3-800.
 - (b) RAM DDR3-1066
 - (c) RAM DDR2-400
 - (d) RAM DDR-333
4. Calculate the bandwidth for a dual channel system which includes 2 DDR modules of 400 MHz.
5. What do you prefer, 1 DDR module of 1 GB or 2 modules in dual channel of 512 MB. The modules of both configurations work at the same frequency.
6. Find what the main physical features of form of the DDR, DDR2, DDR3 and DDR4 are
7. A hard disk has the following specifications:
- (a) 16200 rotations per minute
 - (b) It spends 12 ms from the closer axis track to furthest axis track.
- Find:
- (a) RPM
 - (b) Average latency
 - (c) Average seek time
 - (d) Access time
8. A Maxtor hard disk has the following specifications:
- (a) Capacity: 250 Gb
 - (b) SATA interface 300
 - (c) 7200 RPM

- (d) 16Mb cache
- (e) Transfer data rate: 44 MB/s
- (f) Write data transfer: 31 Mb/s
- (g) Acces time: 13.5 ms

How long does it take to transmit 1.3 Gigabytes from the hard disk to the RAM memory?

9. When the manufacturer indicates the hard disk specifications the CHS terminology is usually used, where C is the number of Cylinders, H the number of Heads and S the number of Sectors. Knowing this, can you calculate the capacity in GB of a hard disk with: $C = 200$ $H = 64$ $S = 40$.