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Central Processing Unit: ADM or Intel?

The central processor is a central part of the computer that performs data processing and controls computer peripherals. As for the fourth-generation computers and older ones, the functions of the central processor have been performed by a microprocessor based on an ultra-large integrated circuit containing several million elements structurally created on a semiconductor chip by using complex microelectronic technology [1]. The central processor includes:

- control unit (CU);
- arithmetic logic unit (ALU);
- a storage device (memory) based on the registers of processor memory and processor cache;
- clock rate generator.

The control unit organizes the program execution process and coordinates the interaction of all computer devices during its operation.

The arithmetic logic unit performs arithmetic and logical operations on data such as addition, subtraction, multiplication, division, comparison, etc.

Storage functions are carried out by the internal memory of the processor. Its registers serve as intermediate high-speed memory which perform calculations and stores intermediate results with the help of the processor. To speed up RAM, we use a cache memory that loads commands and data the processor needs for subsequent operations from RAM ahead of schedule, necessary for.

The clock rate generator produces electrical pulses that synchronize the operation of all computer nodes. The central processor works in the rhythm of the clock rate generator.

The following characteristics of the CPU should be taken into consideration: the clock rate, the capacity of the processor, the amount of cache memory and the number of cores it has, and the technological standards which determine the distance between adjacent transistors.

There are many types of processors ranging from weak single-core processors to powerful multi-core ones; from gaming and working to medium in all respects. But, there are two main CPU camps – AMD and Intel. These are two companies producing the most popular microprocessors. They have advantages and disadvantages [2].

As for Intel processors, they have lower energy consumption, better connection with RAM and single-program operations in comparison with ADM ones. Their main disadvantage is their price which is much higher than that of their competitors. They are also characterised by low performance while using two or more programs simultaneously.

Another kind of the CPUs – AMD processors – are characterised by adequate quality-price ratio, high quality of the system operation, the ability to overclock the processor increasing its power by 10 – 20% and superior integrated graphics cores. On the other hand, they have greater power consumption and worse interaction with RAM than Intel processors.

In conclusion, we can say that both companies continue to develop making each generation of their processors more powerful and correcting errors of previous lines.

Литература

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