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HISTORY OF THE PROCESSOR (CPU) AND CURRENT TRENDS IN ITS DEVELOPMENT

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CPU is a device designed to process something. It is the central computing element of any computer. It controls all its other elements. A modern microprocessor is a rectangular plate made of crystalline silicon. The processor itself is a small square plate, inside which there are millions of transistors. If we talk about how the Intel processor or its competitor AMD works, we need to look at how these chips are arranged.

The CPU will access programs, data, or other computer functions from RAM (Random Access Memory) when called by the computer's operating system. The processor will then interpret the computer instructions that are related to the ordered task before sending it back to the computer's RAM for execution via the computer system bus in the correct order of execution.

Every processor has clock speed or frequency. The clock speed indicates the speed of the processor in Hertz – the number of working operations per second.
The processor core can contain two computing centers that divide the execution of a command into several stages: 1) production; 2) decryption; 3) executing a command; 4) accessing the memory of the processor itself; 5) saving the result.

As for the development of processors, in 1971, Intel created the world's first 4-bit microprocessor, Intel 4004, designed for use in microcalculators. It contained 2,300 transistors, clocked at 92,6 kHz, and cost 300 $. At the moment the overall goal that all developers strive to achieve is to get the highest performance processor with the lowest cost in both development and production. At the same time, the processor should be as versatile as possible.

Every feature of the processors has improved every year. The first processor could perform 60 thousand operations per second and modern one's are able to perform more than 270 billion operations per second. This development is taking place at a rapid pace due to the competition between two giant companies. These are Intel and AMD. Intel controls 61 % of the market and AMD controls 39 % of the market. AMD has experienced a massive growth in share since just 2 years ago they controlled only 23 % of the market and the trend shows its share will only grow.

I analyzed modern processor development and I can say, at the moment, development of processors, namely, the increase in clock frequency, stands still due to the limitations of physics. Scientists try to increase the number of cores, which will improve the processor's ability to work on multiple different tasks at the same time. They try to find a new material which will have better conducting properties and that will allow them to continue their development.

Thanks to Intel's reducing share on the market, we can expect them to put all their effort to provide us with chips better and cheaper than AMD's.