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Moore’s law.

The Moore’s law, misnamed law, was formulated by Gordon Moore, co-founder of Intel, in 1965, and is undoubtedly the most accurate prediction in the field of computing. This prediction describes that the number of transistors on an integrated circuit would double every two years.

Why can Moore's law no longer be true?

On the one hand, the manufacturing costs of these chips are increasing annually. On the other hand, there is a physical limit to the size reduction of these transistors.

What are these physical limitations in the devices?

Basically, the physical limit of making these transistors smaller is the tunnel effect, i.e., quantum physics would start to give us problems. Also, being much smaller, they would be much more sensitive to heat, so they would end up burning out in a short time. To avoid this, a liquid cooling system would have to be used, and this is very expensive for an end user.

Does this mean that there will no longer be hardware upgrades?

No, it might be more complicated to keep doubling the transistors, but multicore processors were chosen. Also, then there are advances in the architecture and this gives us better performance.

What can developers do to confront this problem?

We as developers must adopt new ways of writing code, such as parallelism and concurrency, which helps us to optimize the execution of our programs.