

Moore's law is the observation that the number of transistors in a dense integrated circuit doubles about every two years. It is named after Gordon Moore, and it is his perception. The observation was made in 1965. He states that we can expect the speed and capability of our computers to increase every couple of years, and we will pay less for them. Another tenet of Moore's Law asserts that this growth is exponential. The has stopped being true simply because engineers are unable to develop chips with smaller (and more numerous) transistors.

These are the physical limitations that have prevented Moore's law from continuing to be true.

- Smaller transistors switch faster
- As transistors increase, power demand increases, which increases heat.
- Exponential increase in density would lead to exponential increase in speed.
- Transistor's need a minimum voltage to switch, and voltage reduction has lower limits due to noise.
- Dynamic power consumption is reduced by voltage scaling.
- Voltage scaling does not prevent power leakage.