

Moore's Law:

According to this law, number of transistors double every 2 years in a dense integrated circuit. It was purely based on observations from historical data. From 1980s till late 2000s it was proven to be true, however, we have reached a point where this law is no more applicable due to the overheating. In simple term, more transistors consume more power and more power generates more heat.

$$\text{power} = CV^2f$$

From this formulae, Power is directly proportional to C - capacitance and V - voltage .

C - capacitance of transistor and V - voltage are inversely related.