Moore's Law

Moore's Law, rather than a physical law, is an observation which the number of transistors in a dense integrated circuit would double at a regular intervals of approximately every two years. It has stated that people can expect the speed and technical specifications of the computers to increment every few years, and people can save more money for them. Another principle of Moore's Law attests that this growth is exponential where there have been consistent improvements made to smartphones and different gadgets.

Moore's Law has stopped being true due to several reasons as followed:

- Impossible to create smaller circuits due to **high temperature** of transistors as cooling down of transistors will acquire **more energy** than the amount of energy that has passed through the transistors
- Smaller transistors switch faster
- Power Wall:
    - **Exponential increase in density** would lead to **exponential increase in speed and power**
- Dynamic Power:
    - Dynamic power consumption is reduced by voltage scaling
- Dennard Scaling:
    - Voltage scaling cannot prevent leakage power loss
    - Voltage scaling is restricted due to noise problems and threshold voltage to which must stay above