**Moore’s Law:**

In 1965, Moore stated that the number of transistors on an affordable CPU would double about every 18 month’s but more transistors is more accurate. This no longer is true because Densely populated transistors leads to higher power draw and which produces higher temperature that can lead to thermal failure.

**Limitations of Moore’s Law:**

1. Densely populated transistors leads to higher power draw and heat generation.

P=α X CFV^2.

P= power

Alpha is the frequency of switching,

C is capacitance,

F is the clock speed,

V is voltage swing.

1. Adding more transistors, increased the power, whch increased the temperature which lead to thermal failure.

Therefore Dennard scaling came in, Dennard scaling suggested that if we decrease the size of the transistors, Voltage will get reduced, leading to less power consumption.

But there is limit to the size of the transistors, if the transistor is too small, there is a change of power and charge leakage because of thin capacitors.

Also, Voltage in the transistor must be kept above threshold voltage and above noise level to ensure correct behavior and avoid errors.