Moore's Law And It’s Physical Limitations

Moore's Law states that the number of transistors on a microchip doubles about every two years.

Dennard scaling is that voltage, the voltage swing should scale with the transistor size. Dennard Scaling means that as transistors get small they need less voltage and current, so power consumption relative to physical area stays Constant. Dennard scaling can't continue forever. Because the voltage swing between low and high has to be higher than the threshold voltage of the transistor.

Voltage swing, from zero to five volts is if there's some kind of noise on your signal .Voltage swing from zero to five volts is pretty big. it becomes impossible to tell the difference between “ones” and “zeros”.So noise tolerant is a big problem because there's always noise in any kind of practical system.
Due to noise, voltage scaling is limited to a transistor’s voltage threshold.

One of the practical limitation is about putting more number of semiconductor into the same size silicon chip.Practically, it may not be possible to manufacture such a small transistor.

High temperatures of transistors eventually also make it impossible to create smaller circuits. For this cooling down the transistors takes more energy than the amount of energy that already passes through the transistors.

As Dennard Scaling stops, so ends Moore’s law, meaning that clock speeds can’t significantly grow. Processing speed of the von Neumann bottleneck, which is caused by slow memory. Remaining area’s performance increases using more processor memory/caches.