Moore's law states that the number of transistors on an integrated circuit doubles every two years approximately.

Physical limitations that have prevented Moore’s law from continuing to be true:

Transistors consume power. Increasing the number of transistors increases the power consumption. Power is becoming a critical issue also called the power wall.

Limitations in dissipating the heat from the processor.

Increased power also causes increase in temperature which can physically melt the chips if not monitored.

Dennard scaling states the voltage swing should scale with the transistor size. But the voltage has to be above a threshold voltage. Hence the scaling cannot continue beyond a certain threshold value. Since Dennard scaling is paired with Moore's Law in terms of required increased speed of processors, this can be a limitation.

Leakage power is the power when the transistor leaks off power even when it's not switching. Leakage happens when insulation is not proper or thin. Increased density can cause weak insulation and hence power leakage.