Moore's Law

Moore's law predicted that transistor density would double every 2 years

Up until the power consumption exceeds the heat limit, this prediction is true.
Smaller transitions (higher density) will switch more.
Every switch consumes power. So more switches means higher power consumption.
High power consumption leads to higher temperatures.
Temperature is traditionally regulated by air cooling (with fans).
But this is effective up until a certain temperature.
Another effect of small transistors is that thermal leakage increases which causes loss of power and higher temperatures.
When transistors gets smaller the range of noise also get smaller, which makes it difficult to determine the switch modes.