Moore’s Law – predicted that transistor density would double every 2 years (not a physical law, just an observation), because smaller transistor switches faster.

Why can’t that go forever?

1. Transistors consume power when they switch (power wall), density leads to increased power consumption.
2. High power leads to high temperature
3. Voltage must stay above threshold voltage, so voltage can’t scale down forever.
4. Noise problem occurs on a low voltage swing.
5. Voltage scaling does not prevent leakage power.