

Moore's law predicted that the density of transistors would double every two years. Reasons for Moore's law not being accurate anymore are:

1. Power Consumption: Making CPUs denser and denser increases power consumption. Since most electronic devices are becoming portable and powered by batteries, they must manage power consumption so batteries would last for a while. And most importantly, higher power consumptions lead to higher temperatures.
2. Heat: As denser and more power-hungry the CPUs become, the more heat they generate. Most of our desktop computers and laptops use air cooling, but air cooling can only cool so much. We do not want to use liquid-cooling systems in our daily-used devices. With power usage and, therefore, processor temperature rising, it can reach a point where the processor melts. It was not a big issue in the past since the transistors used were much bigger then.
3. Voltage scaling reduces power consumption and heat generation, but there are limits. Voltage scaling is limited by transistors' threshold voltage and noise. Also, voltage scaling cannot prevent power loss from leakage due to transistors becoming smaller and having smaller, thinner insulators.