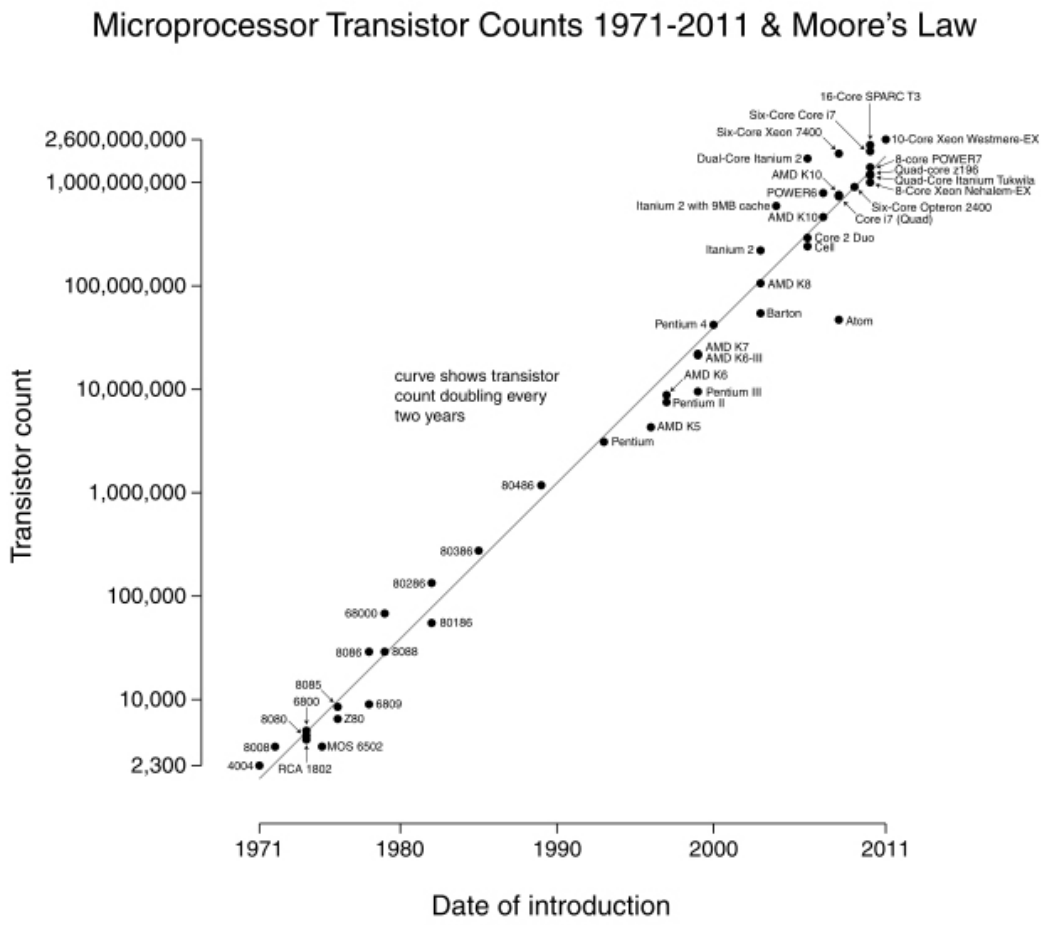
Moore's Law and a description of physical limitations in devices that prevented him from continuing to be true.

1965: Moore Formulates Assumption

Moore's Law is an empirical observation made in 1965 (six years after the invention of the integrated circuit), in the process of preparing the speech by Gordon Moore (one of the founders of Intel).



Moore suggested that the number of transistors on a chip would double every 24 months. When analyzing the growth graph of the performance of storage microcircuits, he found a pattern: the appearance of new models of microcircuits was observed after approximately the same periods (18-24 months) after the predecessors, while the number of transistors in them increased approximately twice each time. Gordon Moore concluded that while maintaining this trend, the power of computing devices in a relatively short period of time can grow exponentially. This observation is called Moore's Law.

Physical restrictions:

- transistor size (impossible to get a transistor smaller than atom size)
- data rate(cannot exceed the speed of light)
- silicon replacement(some III-V semiconductor materials can operate at lower voltages and at higher frequencies than silicon, but they do not make atoms smaller or light slower. Physical restrictions still apply.)
- power limitation(impossible to get maximum performance)
- The voltage is not going anywhere(it is impossible to reduce the voltage itself)