

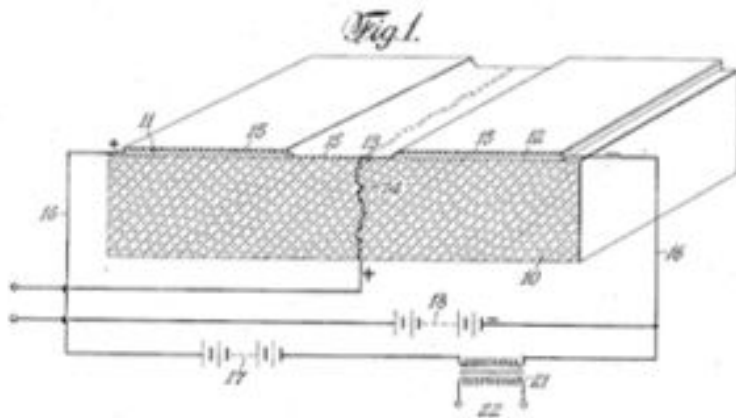
Brief History of the CPU

Josh Panos, Intern Datto Systems Engineering

The road to transistors

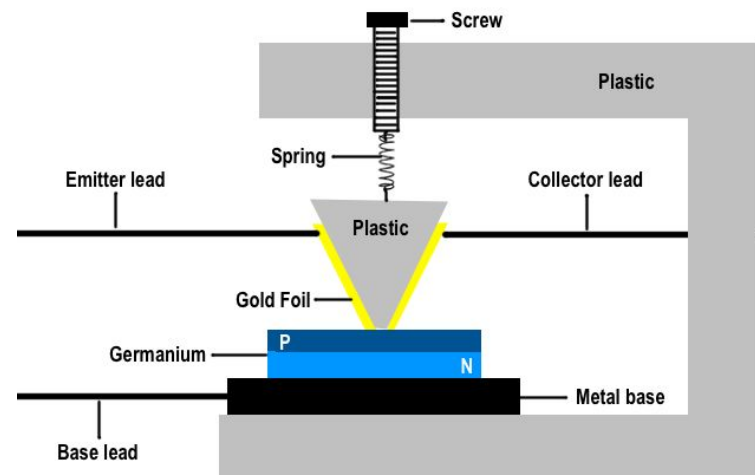
- 1925: Julius Edgar Lilienfeld patents the Field Effect Transistor
- FET: replacement for triode tube
- Alas, no prototype: Materials didn't allow it yet

Jan. 28, 1930. J. E. LILIENFELD 1,745,175
METHOD AND APPARATUS FOR CONTROLLING ELECTRIC CURRENTS
Filed Oct. 9, 1926



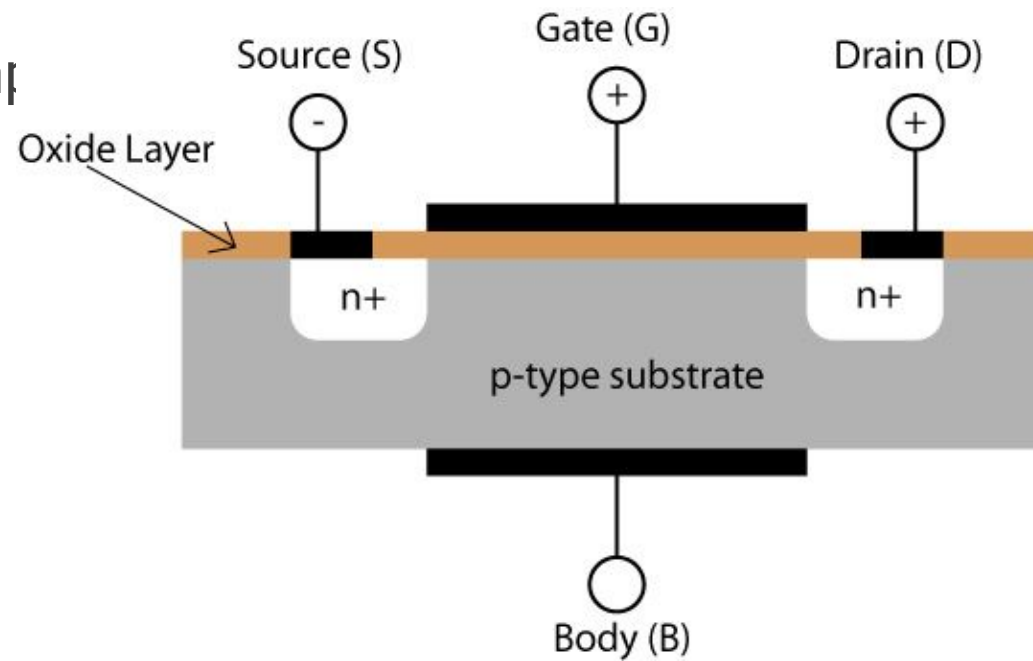
Transistors Infancy

- 1947: Bardeen, Brattain, and Shockley invented the point-contact transistor
 - Awarded 1956 Nobel Prize for research
- Was replaced in 1953 by the Philco Surface-Barrier Germanium transistor for its higher speeds



The birth of MOSFET

- 1959: Metal-Oxide-Semiconductor Field-Effect Transistor invented
- MOSFET: Improvement on the FET
- Allowed for infinite imp

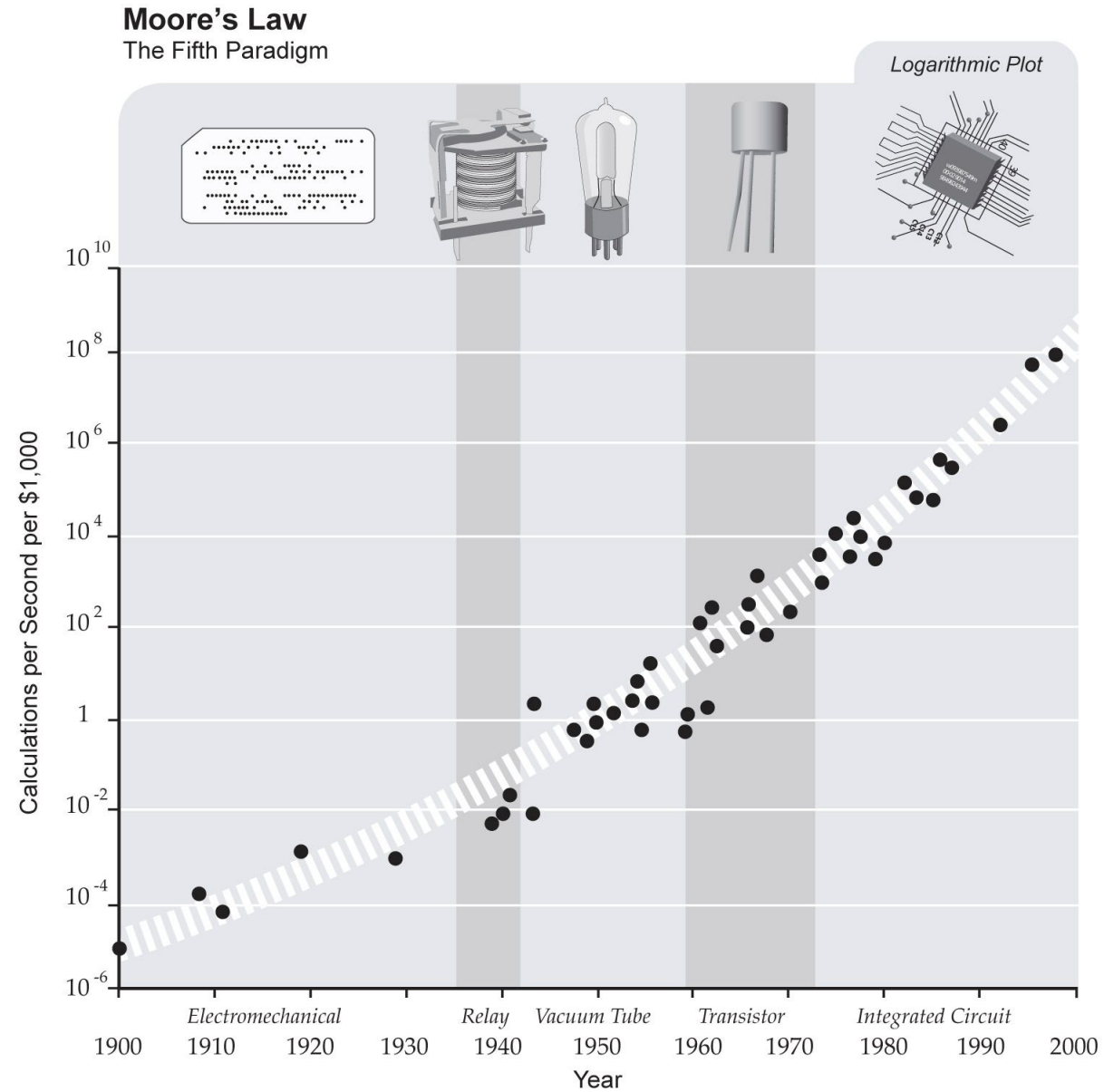


IBM System/360

- Same software, varying speeds and performance vectors.
- Led to the supercomputer.

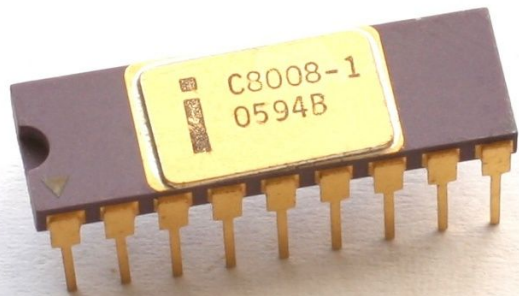
Moore's Law

- Logarithmic plot
- Still present today



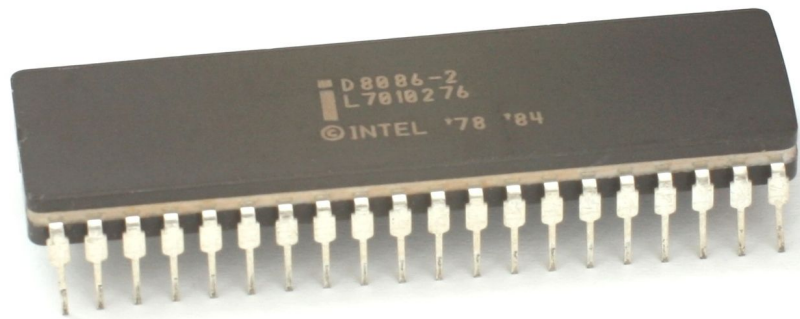
Microprocessors go public

- Created for the calculator company Busicom
- First step to small self-contained computers
- Followed by Intel 8008
- Whole CPU was finally printed on a single die



Welcome to the x86 architecture

- 1978: Intel releases 8086 16-bit processor
- The x86 architecture revolutionized the processor industry
- Intel Licensed the architecture out to many manufacturers so they could deploy different microarchitectures



ARM begins...

- 1985: Acorn Computer developed the ARM architecture based on a RISC design
- ARM based processors are extremely efficient and powerful without consuming the high levels of power required by most other processors
- Was initially a secondary processor for the BBC Micro

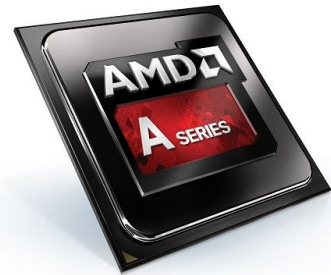


Explosive growth into the 2000s

- 2004: AMD released the first dual core processor
- 2007: Intel releases the first quad-core processor
- 2008: AMD sells off its last remaining fabs
- This was a game changer between the Intel v AMD market



VS



Where is ARM now?

- ARM based processors dominate the small electronics market
- ARM processors have enable devices like Raspberry Pi to leak into the market.

Today?

- **Intel:**
 - Is now renowned throughout the gaming industry for having the highest caliber processors with unmatched performance at the top tier. Intel continues to revise their processor's IPC to create a faster and more efficient processor. In addition to refining their IPC, Intel has also lead the industry in their chip sizes. (Preparing to break into the 10nm in the coming year).
- **AMD:**
 - AMD has lead the charge for more cores with a less efficient IPC, however this is made up by having higher clock speeds and consuming more power in order to compete with their competition. AMD was the first company to break the 5 GHz barrier in 2013, which was thought to have been an impossible feat for the first decade in the 21st century.

Thank you

The background features abstract, overlapping geometric shapes in various shades of blue, ranging from light sky blue to deep navy blue. These shapes are primarily located on the right side of the frame, creating a modern, layered effect against the white background.

Ancient Computing

- The basics before electricity
 - Abacus
 - Napier's Bones
 - Slide Rule
 - Antikythera mechanism*
 - Pascal's Calculator