EVOLUTION OF INTEL PROCESSORS

Origins: Intel 4004 and 8008

- **Intel 4004 (1971):** The world's first commercial microprocessor. Initially designed for a calculator, the 4004 had a 4-bit architecture and contained 2,300 transistors. It ran at a speed of 740 kHz and could perform 92,000 operations per second.

- **Intel 8008 (1972):** A significant improvement over the 4004, the 8008 was an 8-bit processor with 3,500 transistors and a speed of 200 kHz. Although it is a very important advance, it had limitations in terms of performance and capacity.

The 8080 Series and the Beginning of Personal Computing

- **Intel 8080 (1974):** Considered the first truly useful processor for general applications. It had 6,000 transistors and a speed of 2MHz. It was used in many early computers, including the Altair 8800.

- **Intel 8086 & 8088 (1978):** With a 16-bit architecture, the 8086 had 29,000 transistors and a starting speed of 5MHz. The 8088, a cheaper version, was the processor used in the first IBM PC in 1981.

The Era of x86 Processors

- **Intel 80286 (1982):** A 16-bit processor with 134,000 transistors and a speed of up to 25MHz. Introduced protected mode, allowing the use of more memory and improving system stability.

- **Intel 80386 (1985):** Intel's first 32-bit processor, with 275,000 transistors and speeds up to 33MHz. It supported multitasking and virtualization.

- **Intel 80486 (1989):** An important advance with 1.2 million transistors and speeds of up to 100MHz. It integrated a mathematical coprocessor, significantly improving performance.

The Pentium Series and Modern Computing

- **Intel Pentium (1993):** With 3.1 million transistors and speeds up to 300MHz, the Pentium introduced superscalar execution, allowing multiple instructions per clock cycle.

- **Intel Pentium II (1997):** Improvements in the architecture and a new Slot 1 package. It had 7.5 million transistors and speeds of up to 450MHz.
- **Intel Pentium III (1999):** Introduced SSE (Streaming SIMD Extensions) instructions to improve multimedia performance. It had 9.5 million transistors and speeds of up to 1.4 GHz.

The Revolution of Core Processors

- **Intel Pentium 4 (2000):** It used the NetBurst architecture with speeds of up to 3.8 GHz and 55 million transistors. However, it suffered from energy efficiency problems.

- **Intel Core (2006):** Introduced Core microarchitecture, significantly improving power efficiency and performance. The Core Duo and Core 2 Duo processors marked the beginning of a new era.

- **Intel Core i7 (2008):** Part of the Nehalem family, with up to 731 million transistors and Hyper-Threading technology. It offered speeds of up to 3.33 GHz and support for DDR3 memory.

- **Intel Core i9 (2017):** The Core i9 series, with the Skylake-X microarchitecture, has up to 18 cores and 36 threads, providing extreme performance for professional and gaming applications.