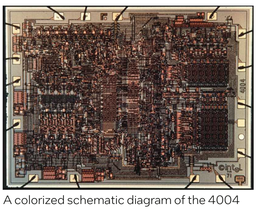
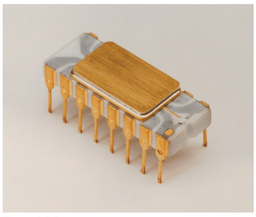
Celebrating the 50th Anniversary of the Intel 4004

On Nov. 15, 1971, Intel launched the world's first programmable microprocessor, the Intel® 4004.

Early days

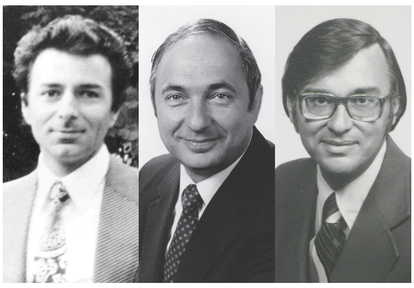


A colorized schematic diagram of the 4004



The 4004 microprocessor

Three Intel engineers – Federico Faggin, Stan Mazor and Marcian E. (Ted) Hoff – created the 4004. It was a defining moment in Intel's history and would forever change the way computing technology impacts the world.



From left: Federico Faggin, Stan Mazor and Ted Hoff

How history was born

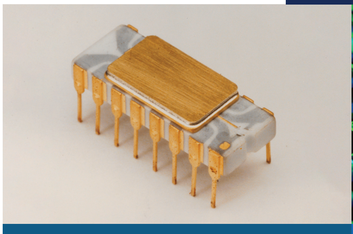
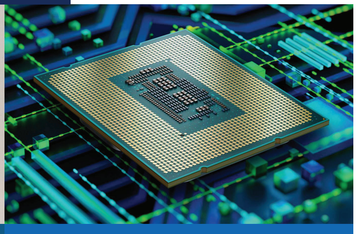
The Busicom 141-PF printing calculator

In 1969, Nippon Calculating Machine Corp. approaches Intel to design 12 custom chips for its new Busicom 141-PF printing calculator.

Intel engineers suggest a family of four chips, including one – the 4004 – that could be programmed for use in a variety of products.

Plans for the 4004 set in motion an engineering feat that dramatically altered the course of computing technology.

A 50-year comparison

1971		2021
		
Intel® 4004		12th Generation Intel® Core™ processor family
2,300	Number of transistors	Billions
16-pin dual in-line (DIP) on a package	Number of pins	1,700 pins on a single socket
Silicon gate	Manufacturing process	Intel 7
4-bit binary-coded decimal (BCD) oriented	Instruction set	64-bit
10 µm	Lithography	Intel 7
750 kHz	Frequency	Up to 5.2 GHz
2-inch P-channel silicon gate MOS technology	Wafer diameter	300mm
1	Number of cores	Up to 16 (8 Performance-Cores, 8 Efficient-Cores)
1	Number of threads	Up to 24