

1971

4-bit microprocessor (Intel, U.S.A.)

~ Integrated Circuit ~

The birth of the world's first microprocessor was triggered by Intel receiving an order for calculator LSIs from a Japanese calculator maker, Nippon Calculating Machine Corp. (commonly known as Busicom) in 1969. Busicom requested the development of 13 different LSIs in order to line up calculators of different specifications, but it was difficult for Intel to do this because of lack of engineering resources just after the establishment of the company. Ted Hoff of Intel who took charge of this project got an idea that it would be possible to cope with this by developing a few product types, instead of developing all individual chips separately, in appropriate combination of memories and processors, and by coping with different product types by means of changing the programs stored in the memory. That is, it was a calculator with a stored program architecture. Together with Masatoshi Shima dispatched from Busicom, 4004 was developed based on this idea.

Busicom had borne the development cost of these chips, so Busicom owned the right to sell, but ironically the calculator market got into a rough battle pattern from that time. Busicom run into financial difficulties, and it decided to sell all its sales rights to Intel.

Intel, which gained marketing rights of 4004, sold this product not only to calculators, but also to various application fields. In other words, it changed the conventional design method of separately designing the chip for each system to a method of changing only the software stored in the memory to satisfy the system function requirement. The figure is the picture of 4004 from Intel.

In 1997, the Kyoto Prize (Kyocera founder Kazuo Inamori's international award, established in 1984) was awarded to contributors to the great product, microprocessor. The four winners were Federico Fajin, Edward (Ted) Hof, Stanley Mather and Masatoshi Shima, who were all deeply engaged in the development of 4004.



The world's first 4-bit microprocessor, 4004, by Intel
(By courtesy of Intel)