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### Japanese Computer Pioneers



**Ikeda Toshio**  
1923~1974

Ikeda Toshio was born in August 7, 1923. He entered Fuji Tsushinki Manufacturing Co. (currently Fujitsu Ltd.) in 1946 immediately after his graduation from Electric Engineering Department, Tokyo Institute of Technology. The blank period passed after the world war. When the interest in the computation equipment rose again, the Statistic Section of the Tokyo Metropolitan Government Office decided to install the statistical sorting machine, which had been developed by [Yamashita Hideo](#) and others, for the substitute of the IBM punch card statistics machine that had been destroyed during the world war. It was ordered to Fuji Tsushinki Manufacturing Co. and delivered to the Tokyo Metropolitan Government in May 1951. After that, Yamashita Hideo sounded to Fuji Tsushinki Manufacturing Co. for the development of the stock exchange settlement equipment. Ikeda Toshio, [Yamamoto Takuma](#) and others engaged in the development of it under the command of [Kobayashi Taiyu](#) and completed it in March 1953. This equipment gave a lot of suggestion for the development of the relay type automatic computing machine succeeding it.

After that, Ikeda engaged in designing the computer, which was named [FACOM 100](#) later, and completed it in October 1954. FACOM 100 was the Japan's first practical relay type scientific computer and used the inner decimal excess-3 code. There were no similar computers in the foreign countries at that time. FACOM 100 was utilized to perform computations consigned from in and out of the company. FACOM 100 also responded to the multiple integration presented by Yukawa Hideki with the perfect answer in three days, which would require two years or more, if manually computed.

The design of the commercial machine started immediately after the completion of FACOM 100 and the relay type computer [FACOM 128A](#) was completed in September 1956. The first unit of FACOM 128A was delivered to the Institute of Statistical Mathematics of the Ministry of Education (, Science and Culture) and the second unit was delivered to Yurin Denki Seiki Company in November of the same year. The inner code of this computer was decimal, but its computation speed was improved approximately two to five times by the modification to the bi-quinary code and other inventions. Many inventions related to the system adopted in this computer include the unique checking method and asynchronous procedures, the storage equipment utilizing cross-bar switches, the semi-fixed storage equipment using large-sized paper card, and the index registers. Most of these inventions were originated with Ikeda Toshio, the leader of this project.

In 1954, [Goto Eiichi](#) invented [Parametron](#). Ikeda exerted his effort to develop the Parametron type computer. In 1959, he engaged in the development of FACOM 212 that adopted the stored program system by using the magnetic cores and the Fuji card reader (ROM), and in 1960 [MUSASINO-1B](#) (FACOM 201) based on the technology cultivated in the Telecommunications Research Laboratory of NTT, and [PC-2](#) (FACOM 202) cooperatively developed with the University of Tokyo.

Ikeda, paying attention to the great promise of semiconductor technology, started the development of the transistor type computer in parallel with the Parametron type computer and completed in 1961 the large-scale general-purpose computer FACOM 222P equipped with the main memory composed of 400-word cores. He also played a leading role in the development of FONTAC that was jointly developed by Fujitsu,

Oki Electric and NEC with the subsidy of the Ministry of International Trade and Industry, and completed it in 1964.

In April 1964, IBM released the System/360 Series and Fujitsu, thanks to Ikeda's effort, announced [FACOM 230 Series](#) in opposition to IBM the year after that. Ikeda's strategy against IBM started in these days. The development of the super large-scale computer [FACOM 230-60](#) well symbolizes his consciousness of IBM. The first system delivered to the Kyoto University in 1968 had the epoch-making construction of the multiprocessor system equipped with two units of CPU sharing the main memory each other.

Ikeda started his next global strategy, after his success in the computer business. First of all, in 1972, he announced the joint project with Amdahl Corp. of the United State for development of the IBM compatible computer. His effort was realized as [FACOM M-190](#).

Ikeda kept on cherishing a dream, while concentrating on industrialization of a computer. In 1968, CDC Corp. of the United States launched the supercomputer STAR (STring ARay computer). As soon as Ikeda knew their launching, he started the development of the original supercomputer. Just then, Miyoshi Hajime of the National Aerospace Laboratory of Japan had a conception of a computerized wind tunnel. The first supercomputer developed in Japan, [FACOM 230-75 APU](#) (Array Processing Unit), was born under the guidance of Miyoshi and through the promotion in the company by Ikeda.

In this way, Ikeda was the leading engineer of the computer through his life in Fujitsu. When he was the executive director of the company in 1994, he fainted in the lobby of the Haneda Airport because of the hard work and passed away. APU was delivered to the National Aerospace Laboratory of Japan in 1977, but Ikeda could not see with his own eyes the completion of it. However, his dream is inherited, as the unbroken tradition of the company, through FACOM VP Series announced in 1982 and the supercomputers developed by Fujitsu thereafter.

Main awards:

- In April 6, 1970, Ikeda won the Award of the Director General of the Science and Technology Agency for "the development of the large-scale computer system, FACOM230-60"
- In April 18, 1971, he awarded the Imperial Invention Award.
- In November 10, 1971, the Medal with Purple Ribbon was awarded to Ikeda.
- In November 14, Ikeda received the Higher Fifth Court Rank and the Third Class Order.

(Miwa Osamu)

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