

Chapter 3: History of Mainframes

IBM

IBM developed its first mainframe computer, known as the Automatic Sequence Controlled Calculator (ASCC), in 1944. It solved addition and multiplication problems in less than six seconds. The ASCC was operated by a system of thousands of vacuum tubes.

IBM was a little slow evolving to transistors. While other computer companies were experimenting with the new technology of transistors, IBM experimented with a computer known as the RAMAC 305, which used an ascending stack of aluminum discs covered with iron oxide to store information. With the disc system, data could be magnetically coded allowing random retrieval of data from a storage file. IBM's RAMAC was a stepping stone in the development of **RAM** (Random Access Memory), which, of course became the core of current computer memory.

During the 1980's and early 90's the use of personal computers became more widespread, business forecasters predicted that the mainframe computer would lose its pomp within the world of business. Although concerned about the predictions, IBM made the decision to continue its production of large computers. The decision was beneficial; today IBM is the leading producer of network processors (a small version of the old mainframe).

UNIVAC

During the late 1940's and early 1950's Dr. J. Presper and Dr. John W. Mauchly developed the Universal Automatic Computer, UNIVAC. Commissioned by the Census Bureau, the two sought to create a super-computer that no longer utilized the card-punching methods of earlier times.

The production was grueling. Presper and Mauchly had grossly underestimated the cost of the project. The Census Bureau refused to give them any more money and was very skeptical about the progress they had seen. It appeared that the project was headed for collapse when a hero emerged. Remington Rand, the prestigious typewriter company, saw the floundering project as an investment opportunity. They purchased the Eckert-Mauchly Computer Corporation in 1950; the purchase gave Mauchly and Presper the financing they needed to complete the UNIVAC I.

Production from start to finish lasted four long years, so it was no wonder that critics and skeptics were amazed when the team delivered a completed UNIVAC I on March 31, 1951 to the United States Census Bureau. The long-awaited supercomputer cost nearly \$1,000,000 to produce; it occupied 352 square feet and used 5,400 vacuum tubes to process information. Its efficiency and data processing capabilities were exceptional for the time. Despite its prowess, many corporations were unwilling to embrace the new computer, but that all changed after the 1952 presidential election.

During the Eisenhower-Stevenson election of 1952, the computer accurately calculated the outcome of the election. Pollsters had been predicting that Stevenson would be the next president; they were sure of it. On the night of the election, a news broadcaster submitted a mock-up of the election numbers to be processed by the computer. The UNIVAC calculated the data and indicated a win for Eisenhower, however, the broadcaster refused to publicly announce the results. He feared that if the computer was wrong his network would lose its honorable reputation. Later, when the election was over and Eisenhower was victorious, the reporter appeared on national television and sheepishly explained that the UNIVAC-1 had called the election long before the true results had been tabulated.

American citizens were shocked by the abilities of the computer. The revelation that a computer could outwit and outthink educated pollsters was scary. People became fearful of automation, saying that computers would overpower the natural man. The 1952 election sparked a superstition concerning technology that would outlast the UNIVAC by decades.

CRAY

Seymour Cray invented a truly revolutionary computer. Released in 1976, the CRAY-1, as it was appropriately called, was a giant supercomputer. Unlike earlier models such as the UNIVAC or IBM 701, the CRAY-1 could process over a hundred million arithmetic operations per second.

The CRAY-1 had a million word memory base. Loaded with wiring and dense with circuitry, the C-shaped computer was incredibly fast. Because everything was so fast, the machine put out mass amounts of heat. In order to avoid system meltdowns, Cray created a cooling system that used Freon-quite revolutionary for such a large system-but very costly for the consumer.

The price for the supercomputer ranged between five and eight million dollars but housing the system was very expensive. Each supercomputer needed its own room, as well as several mainframe computers to feed it the information. Despite its bulk, the CRAY-1 really opened the doors for large, effective computers in business.