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Middle East's First Computer Named History Milestone

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With today's computer makers producing millions of ever-more advanced machines annually, it's hard to imagine a time when building just one computer meant spending a huge chunk of an organization's budget, almost a decade of work, and, most of all, a lot of faith that the finished machine would actually work.

But that's exactly what it took in 1954 for a group of scientists and engineers at the Weizmann Institute of Science, a research facility in Rehovot, Israel, to build the Weizmann Automatic Computer (WEIZAC)—the Middle East's first electronic digital computer. Although many were skeptical that Israel could build such a machine—after all, the country was not in the high-tech loop at the time—WEIZAC laid the foundation for the country's computer and technology industries. It also became a computing resource for scientists and engineers around the world.

That's why on 5 December, WEIZAC was recognized with an IEEE Milestone in Electrical Engineering and Computing during a ceremony at the place where it was built. And because WEIZAC was modeled after a computer built in the United States, it was also honored as an example of the importance of transferring information between countries.

INSPIRATION WEIZAC traces its roots back to 1942, when John von Neumann, a computer science pioneer, began building the first electronic digital computer at the Institute for Advanced Study, in Princeton, N.J.

By 1947, with that machine successfully built, Chaim L. Pekeris, a U.S. scientist who worked at the Princeton facility, made plans to build a similar machine in Israel. Pekeris initiated the WEIZAC project after Israel's first president, Chaim Weizmann, who founded what would become the Weizmann Institute, appointed him to head the school's newly created applied mathematics department. Pekeris said he believed the department needed a computer similar to the one in Princeton for solving difficult mathematical problems and to help Israel become a leader in the global scientific community.

The mathematics department's advisory committee, whose members included Albert Einstein, Robert Oppenheimer, and von Neumann, weighed the idea of building such a computer. After some debate, the committee approved the ambitious project, and US $50 000—one-fifth of the institute's entire budget—was earmarked to make it happen.

COMPUTER NO. 1 Work began in 1952 under the leadership of IEEE Fellow Gerald Estrin, a research engineer from von Neumann's group in Princeton. Estrin and his wife, Thelma—also an IEEE Fellow and an electrical engineer—traveled from the United States to Israel, where they began searching for engineers and scientists to work on the machine. Faced with skepticism from Israeli scientists who said their country had no use for such a machine, Estrin found his workers by posting newspaper help-wanted advertisements.

In 1955, all the money, hard work, and faith put into the WEIZAC project paid off when the computer performed its first calculation.

WEIZAC was used to study global tidal changes, the structure of atoms using atomic spectroscopy, and crystallography, or the arrangement of atoms in solids. It also performed numerical analyses. Among its many accomplishments, WEIZAC discovered an area in the South Atlantic Ocean where the tide does not change.

In its time, WEIZAC delivered 46,151 hours of scientific computation. But WEIZAC's heyday soon came to an end. It was replaced in 1964 by a more advanced machine, the Golem A, which was also built at the Weizmann Institute. Today, WEIZAC is on display in the Jacob Ziskind Building on the institute's campus, serving as a reminder of the Middle East's first steps in high-powered computer technology.