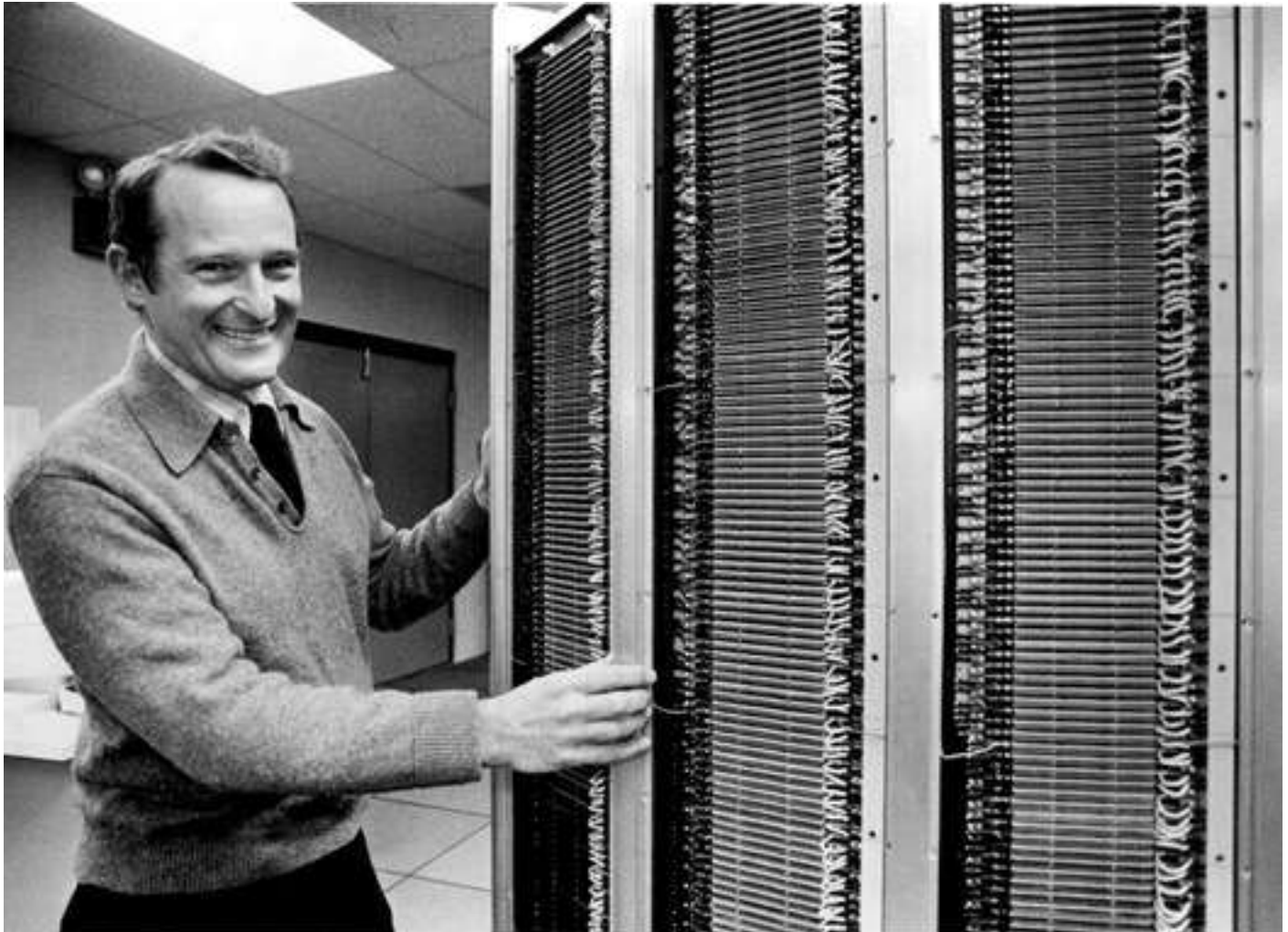


Minnesota history: Seymour Cray's mind worked at super-computer speed

By CURT BROWN

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Marlin Levison • Star Tribune Seymour Cray showed off the Cray-1 supercomputer built in 1976 by Cray Research in Chippewa Falls, Wis. Cray revolutionized computing, ramping up productivity and speed with each new design.

In the early 1950s, having secured degrees in engineering and math from the University of Minnesota, Seymour Cray experienced a young adult's on-the-cusp moment.

“It is fun to remember that point in time in one's life when you get your degree, you stand on your corner of the street and you ask yourself, ‘What's next?’ ” Cray said 20 years ago in a video interview with the Smithsonian Institution.

Before he would become the master architect of the supercomputer — prompting comparisons to Alexander Graham Bell and Thomas Edison — Cray would scratch his head and contemplate wooden gliders.

A college instructor suggested he head to St. Paul and check out a company called Engineering Research Associates, one of the first firms developing digital circuits for use in what would soon be called computers.

“The building itself was an old glider factory, a woodworking facility with a very large hangar,” Cray recalled. “I thought: Who in the world would make gliders?”

He learned that the plant had been built to make several wooden gliders to pull behind a single airplane during the D-Day landings in France and other World War II battles.

Seymour Cray

What: Considered among the pioneers of supercomputer architecture, five times designing the world’s leading computers, at Control Data (1957-72) and Cray Research Corp. and Cray Computer Corp. (1972-95).

Born: Sept. 28, 1925, in Chippewa Falls, Wis.

Died: Oct. 5, 1996, at 71, after a car accident in Colorado.

Military service: U.S. Army communications platoon, 1943, arriving just after D-Day, seeing action at the Battle of the Bulge, Pacific theater.

Education: University of Minnesota, 1950, electrical engineering; master’s degree in math, 1951.

“I think they were not very significant,” he said. “In any case, I went to work in a wooden glider factory and they were making computers.”

Cray was born in Chippewa Falls., Wis., in 1925 — “I was one of those nerds before the name was popular.” At 10, he reportedly used his Erector Set to create a gadget that converted punched paper tape into Morse code dits and dats.

His father, another U engineering grad named Seymour Cray, was sent to Chippewa Falls to design dams for his employer, Northern States Power. He liked the place so much he became the city engineer, plumbing inspector and electrical inspector, raising his nerdy son near the confluence of the Mississippi and Chippewa rivers.

After stints in the Army during World War II and then at the U, Cray built his first computer — the 1103 — in the converted glider plant. He went on to design the world’s most powerful scientific computers five times — before microchips, when computers took up entire buildings and Minnesota was the Silicon Valley of the era.

In 1957, after the Univac division of Sperry Rand took over Cray’s engineering firm and phased out scientific computer design, a dozen engineers and executives started their own firm —

including William Norris and Cray, who joined them a year later, after finishing a Navy decoding project.

They brainstormed words to describe their new venture. “Control” and “Data” topped the list. None of the engineers really liked the name, but they couldn’t come up with a better idea.

“We didn’t know what we were going to do, at least I didn’t,” Norris, the CEO, later confessed. “But when Seymour came up with the idea of building a very big computer and the means for doing it, I kind of felt like shouting: ‘Eureka.’ ”

They initially offered stock for a buck to friends, colleagues and neighbors. Within four years, those \$1 shares were worth \$100. If you kicked in \$1,000 in 1957, your investment would have reaped \$783,000 within 11 years.

Cray’s idea was to manufacture special circuit boards using transistors instead of cumbersome vacuum tubes, in room-sized computing machines.

Among the keys to his success were his cooling systems, which helped ensure signals arrived at the right time. At first, Control Data wasn’t interested in taking on the big boys of early computers — namely IBM. It would supplement their products.

Norris hoped for \$25 million in sales within five years. Instead, the company reported sales of \$41 million with another \$49 million in backlogged orders. By 1976, after Cray had struck out on his own to start Cray Research, his systems were selling for nearly \$9 million apiece.

“I’m an overpaid plumber,” he quipped, remaining down to earth and running much of his work out of a lab he built in Chippewa Falls.

Beneath his nearby home, Cray carved a tunnel to a large bomb shelter, spurred by his fear of nuclear war.

“While I’m digging in the tunnel,” he said, “elves will often come to me with solutions to my problem.”

He was eccentric and shunned both publicity and fancy computer programs, preferring No. 3 pencils and flipped-over graph paper so the lines were less dominant.

An avid skier, wind surfer and tennis player, Cray moved his operation to Colorado in 1980. His old Control Data factory in Arden Hills now houses Boston Scientific’s cardiac rhythm business. The old Bloomington headquarters is now a HealthPartners facility. And Cray Inc. is now based in Seattle.

In the end, it wasn’t nuclear war, but a car crash that killed Seymour Cray in 1996. He was 71 when his Jeep Cherokee rolled three times after a three-car collision on Interstate 25 near Colorado Springs. He died two weeks later from head and neck injuries.

“It seems impossible to exaggerate the effect he had on the industry,” said Joel Birnbaum, a Hewlett-Packard executive. “Many of the things that high performance computers now do routinely were at the furthest edge of credibility when Seymour envisioned them. ... He ranks up there with Edison and Bell.”

Curt Brown's tales of Minnesota's history appear each Sunday. Readers can send him ideas and suggestions at mnhistory@startribune.com.