Marcian E. "Ted" Hoff Jr.

Science Talent Search Finalist 1954
National Inventors Hall of Fame 1996

Ted Hoff's powers of observation have led him to see solutions where others only see obstacles. In 1969, when confronted with a design request for 12 custom logic chips, a number beyond the scope of Intel Corporation's small design staff, he saw the solution in an elegantly simple architecture that led to the invention of the world's first microprocessor. In 1971, the world was introduced to the first programmable computer-on-a-chip and has never been the same since. The single chip had as much computing power as the first electronic computer, ENIAC, which filled a room. Today microprocessors provide intelligence for everything from home appliances to automobiles and have spawned whole new industries from digital watches and calculators to video games and personal computers.

For this singular achievement, Hoff was inducted into the National Inventors Hall of Fame (NIHF) in 1996, along with co-inventors Federico Faggin and Stanley Mazor.

Hoff's scientific interests bloomed early. He started reading *Popular Science* when he was just 12 and was introduced to electronics and chemistry by his father and uncle. "I loved the magic you could do with chemistry and pretty much decided to follow in that career until my uncle advised against it. He said that unless I went into chemical engineering, as opposed to chemistry, he thought the job market didn't look very good."

In high school Hoff built his own oscilloscope and became a finalist in the 1954 Science Talent Search. Coming from a rural school with a senior class of only 37, attending the competition was Hoff's first opportunity to meet others passionately interested in science and mathematics, get feedback on his capabilities, and boost his confidence. "But it also showed me that I had a lot more to learn." His project involved looking at ways carbon dioxide and hydrogen react with catalysts to see if it was possible to create hydrocarbons.

Prompted by his uncle's earlier career advice, Hoff studied electrical engineering at Rensselaer Polytechnic Institute in New York. During his summers he worked at General Railway Signal Company where his developments led to the first two of his 16 patents. He attended Stanford University as a National Science Foundation Fellow where he completed his master's and doctorate in electrical engineering. After three years as a research associate, he left in 1968 to become employee number 12 at Intel Corporation. In 1980 Hoff was named the first Intel Fellow, the highest technical rank in the company. Hoff is now vice president and chief technologist at FTI/Teklicon, a firm that provides technical expertise for patent disputes and other legal cases involving complex technical products.

Hoff encourages budding scientists to “maintain a broad range of interests, because often ideas from another discipline can stimulate new research in your own. ... I believe we have too much emphasis on being in one discipline.”