

Profiles in Leadership #4

Hector de J. Ruiz: Persisting with Vision, Dreams

A poor Mexican kid from a border town who wanted to be an auto mechanic, Hector Ruiz rose through education and determination—and early mentors—to be CEO of AMD and take on Intel. Now he is mentoring Hispanic youth to go after their dreams.

by Trudy E. Bell © 2014 Trudy E. Bell

“I HAD THE JOB of chasing down the chickens to kill for dinner,” recalled Hector Ruiz of his childhood in Piedras Negras, Mexico, just across the Rio Grande from Eagle Pass, TX, 150 miles southwest of San Antonio. From age 7 (around 1952), Hector began contributing income to his parents and three sisters as a shoeshine boy. When he was 13, a silver-haired missionary from Ohio named Olive Givin who attended the same Methodist church as his parents began hiring Hector to run errands or do yard work.

From Shining Shoes To Ph.D.

One day, Ruiz recalled, Miss Givin asked him what he hoped to do after graduating from high school. “I love cars,’ I said. ‘You’ll need to know English because all the manuals are in English,’ she said.” She began tutoring him in English and suggested he consider attending the Texas high school in Eagle Pass. So as a sophomore, every day he drove four other students in his grandfather’s 1941 Chevy two-door coupe across the U.S. border to Eagle Pass High School. At first, Ruiz struggled with subjects taught in a foreign language, but he sought coaching and stuck with it—graduating in 1964 as class valedictorian.

But Miss Givin wasn’t done with him. “How good an auto mechanic do you want to be?” she asked. ‘I want to be the best,’ I said,” Ruiz

What does it mean to be a leader? In this series “Profiles in Leadership,” Tau Beta Pi is exploring that essential question through the lives of member engineers who attained leadership positions in their fields.

recounted. “All the best auto mechanics go to university and take mechanical engineering,’ she said, but I protested, ‘My family is poor—they can’t afford college.’” Texas had a law on the books, however, guaranteeing any valedictorian from a Texas high school attendance at a Texas public college tuition-free. It said nothing about the student’s citizenship. When faced with objections from various administrators and officials, Ruiz quietly but repeatedly made his case: he graduated from a Texas high school at the top of his class. “That was where I first learned the value of persistence.” He was admitted to the engineering department of the University of Texas, Austin—and Miss Givin shocked his parents by offering to pay for his first year’s room and board.

By the end of his first year, Ruiz was drawn to electrical engineering (“not a good name for the major, which encompassed solid state physics and quantum electronics”). Seeing his aptitude, several professors offered him work in their labs, unusual then for an undergraduate. Lab work plus scholarships and assistantships financed his next three years at UT Austin through graduation in 1968. Offered a fellowship at Rice University, he went straight on to graduate school, earning his Ph.D. in 1973.

Luck—Good And Bad

Ruiz couldn’t have received an engineering Ph.D. at a worse time. It was 1973, the depths of the aerospace recession after President Richard M. Nixon had



Hector Ruiz, right, then CEO of AMD, presents Microsoft CEO Bill Gates with an AMD-based laptop running Windows Vista at the launch of Vista and Microsoft Office 2007 in New York City in January 2007.

memorably declared following Apollo 17 the previous year that the U.S. would not return to the Moon. NASA and aerospace contractors were laying off scientists and engineers in droves. Jobs were scarce, Ruiz remembered: “One of my peers ended up driving an 18-wheeler.”

But that was also when Ruiz learned the value of connections through Rice University’s tight-knit alumni network. One of his professors called the head of research of Texas Instruments (TI) corporate laboratories, who agreed to meet Ruiz and talk. “We hit it off. He hired me.”

He started in the corporate research laboratories. At that time, integrated circuits were still relatively new and TI was suffering serious problems with manufacturing processes. The company had a culture of appointing a young person to head a problem-solving task force in an area about which he was not expert. So within a year, Ruiz was asked to head a task force to figure out why yields were low in one manufacturing plant. Six months later, the problem was solved. “Knowing very little about a problem is actually quite helpful,” Ruiz observed. “It forces you to look at every detail with fresh perspective void of preconceptions and baggage. It also revealed that a solid engineering background can be useful to any problem.”

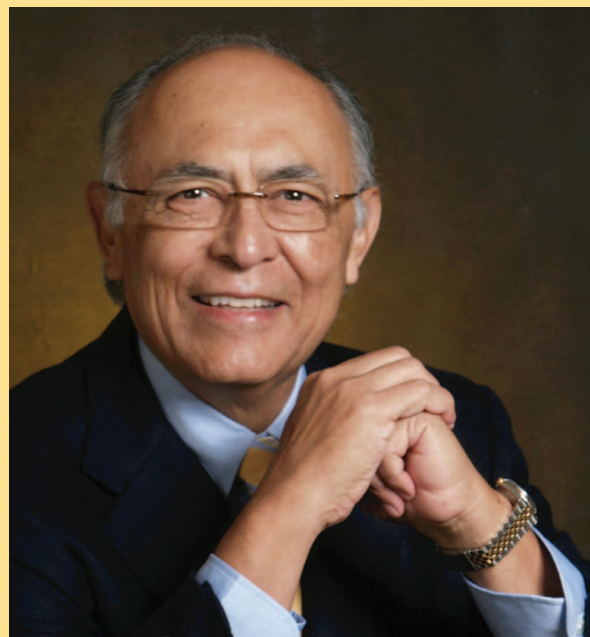
During this period Ruiz suffered personal tragedy—and joy. As a college junior in 1967, he had married education major Judith Villegas. Judith was later diagnosed with leukemia. After a long battle, she passed away in early 1976, leaving Ruiz a 31-year-old single father of 4-year-old Hector, Jr. But she also gave him a gift. She told Ruiz that a young widow named Judy whose 4-year-old son Greg attended the same preschool at which Judith taught had just lost her husband to a brain tumor and been left with two children. Judith said, “I hope you have a chance to meet her. She’s a great person.” Ruiz and Judy did meet at a dinner party and were married at year’s end.

‘What Do You Dream Of Doing?’

Around that time at TI, Ruiz met Al Stein, general manager for TI’s integrated circuits division, who became a friend and mentor. One day at lunch in 1978, Stein asked, “What do you dream of doing?” to which Ruiz replied, “I think it would be great to work in another country.” Shortly, Stein left TI to become general manager of Motorola’s Semiconductor Products Group. Soon he telephoned Ruiz and said, “If you come to Motorola, I can offer you a chance to head a factory in Scotland.”

The challenge was tough. Ruiz was to modernize an old factory to produce Motorola’s new 68000 microprocessor chip for the European market. In so doing, Ruiz learned how to build local teams in another country, absorbed a global perspective, and steeped himself in the British and German culture of valuing workers during downturns and reskilling them to be prepared for emerging opportunities.

On his return to the U.S. in 1981, Motorola asked Ruiz to build a brand new factory in Phoenix, AZ, to be the first plant in the world to make integrated circuits using semi-automated lithography and stepper technology. From there, he took charge of Motorola’s research and development, including of then-new gallium arsenide compounds



This Leader In Brief

Full professional name: Hector de Jesus Ruiz

Current position: Chairman and Founder, Advanced Nanotechnology Solutions (ANS); CEO and Founder, Bull Ventures, LLC (consulting firm).

Birthplace: Piedras Negras, Mexico

Highest degree: Ph.D., electrical engineering, Rice University, 1973

Major career highlights: Texas Instruments, 1972–1977 in research and manufacturing. Motorola, 1977–2000, culminating as President, Semiconductor Products (1997–2000). Advanced Micro Devices (AMD), 2000–2009, culminating as Chairman of the Board and Executive Chairman.

Board memberships: 25 past and present, including: RAND Corp. (since 2009); Engineering Foundation Advisory Council, University of Texas, Austin (since 1998); Rice University (2007–2012); President’s Council of Advisors for Science and Technology (2006–2008).

Honors: Over 25, including Distinguished Alumnus at The University of Texas, Austin (2012); Semco Bellwether Award (2009); Triunfado Award, Hispanic Scholarship Fund (2007); Rice University Distinguished Alumnus (2005).

Greatest accomplishment: “Despite my shortcomings as a father, we have three great children and six awesome grandkids.”

Book published: *Slingshot: AMD’s Fight to Free an Industry from the Ruthless Grip of Intel* (Greenleaf Book Group Press, 2013)

Leaders most admired: Pope Francis (current Pope); President Barack Obama “especially after what Robert M. Gates wrote about him in *Duty*”; Robert W. Galvin (1922–2011), CEO of Motorola, 1959–1986.

Family: Wife Judy (married 37 years); daughter Joanna, sons Gregory and Hector; six grandchildren.

Hobbies: “I’m a car fanatic” (currently restoring a 1973 Porsche 911T); bicycling (both road and mountain); guitar; “I’ve started playing golf—a frustrating game.”

Favorite books: *From Good to Great* by Jim Collins (2001), “anything about science, math, or business strategy,” and poetry.

If you could do one thing over: “I would have learned to play golf young. Too often, discussion while playing is a continuation of the corporate meeting, and I could not participate. Also, a person’s character—such as cheating or impatience—comes out on the course.”



TOP: As a student at Eagle Pass High School, Ruiz, left, was part of a team named Number Sense that competed against other Texas high schools in mathematics. CENTER: Ruiz at his graduation from the University of Texas, Austin, in May 1968, stands with his father Gregorio, left, and grandfather Ramon Cardenas. BELOW: Ruiz with wife Judy and four of his six grandchildren, Laura, Anna, Diego, and Makayla, while on vacation zip-lining in Flagstaff, AZ.



for fiber optic communications and high-speed computing.

By 1990, Ruiz had caught the eye of Motorola's new CEO **George M.C. Fisher, Ph.D., Illinois Alpha '62**, who made him general manager of Motorola's paging products group in Boynton Beach, FL. "Motorola was king of the hill in pagers at that time," Ruiz recounted. "Pagers were the most profitable business in the company. Fisher told me, 'I don't want you to go and fix something. I just want you to get experience running a company in a global business. And I'm going to leave you alone.'"

Ruiz's five years there proved to be "a fantastic laboratory for being a CEO that allowed me to grow faster than ever before," he said. Without traditional oversight, "you make mistakes nobody else looks at, and you have to figure out how to fix them and learn from them. But you've then learned what you are strong at and doesn't work, and you also absorb wisdom from a fundamental leader he admired: son of Motorola's when I was debating whether to promote a certain man to become a vice president, I asked Bob how he would handle it," Ruiz recalled. "Bob replied, 'Would you like your son to grow up to be this man? Well, you have your answer.'"

'I want to see that other talented Latino children do not suffer the soft bigotry of lower expectations.'

In 1995, Ruiz was promoted to president of Motorola's semiconductors sector, one of the company's three lines of business—and essentially the former position of his mentor Al Stein. His immediate task, however, was unenviable: move the 1,000-employee headquarters and research labs from Phoenix to Austin, which had become the company's integrated circuits headquarters. "These are people's lives, people's families, whole communities being disrupted," Ruiz ruminated. He drew on his experience in Europe to "spare no energy or dollars to make sure we did this right"—announcing the 1998 move a year in advance, scheduling it for the summer so as not to affect families' school schedules, and assisting with selling houses and finding new ones.

David And Goliath

Just before Christmas 1999, Ruiz was approached by Jerry Sanders, founder and CEO of Advanced Micro Devices Inc. (AMD), about becoming AMD's future CEO. A Fortune 500 company, AMD was second only to Intel Corp. in the manufacturing of the computer microprocessors at the core of almost every business. After discussing the offer with Judy over the holidays, Ruiz decided in January 2000. After 22 years at Motorola, he became chief operating officer of AMD, taking the helm as CEO in 2002.

"AMD was not yet really a global company," he recalled. In the next five years, he grew the annual business with China from \$60 million to over \$1 billion and established a strong presence in Latin America. As excellent as AMD's chips were, however, the company had only about 10 percent of the chip business compared to Intel's 85 percent market share. That mystified Ruiz until irrefutable evidence convinced him and other AMD managers that Intel

had achieved a near monopoly through unfair competition that included intimidation of customers and other unsavory practices.

So scrappy little AMD took a big gamble: it sued the global industry giant. Inside AMD, the lawsuit became code-named Project Slingshot, not only because of its David and Goliath aspect, but also because of Ruiz's experience in Mexico. As a boy, he had become skilled in whirling the same type of leather hunting slingshot that both David and indigenous people in Mexico used to release a smooth round pebble at high speed to nail a can at 20 feet. "From this childhood play," he recounts in his book *Slingshot*, "I learned a lesson that would come in handy as we prepared to combat Intel: When taking a shot, no matter the size of the adversary, what matters most is the strategy—the stone you choose, your position, and your aim."

In 2009, the case was settled out of court: Intel agreed to pay AMD \$1.25 billion but without admission of wrongdoing. Ruiz has mixed feelings about the long-term results: "The industry did not benefit as much as I had hoped and expected. I'm not sure the playing field today is as level as it should be. But industry leaders are becoming more in tune with the need to compete fairly so everybody wins."

Today, Ruiz is pursuing what he feels is the next phase in computation and chip design: three-dimensional interconnections, where integrated-circuit connections travel not only in the horizontal plane of the chip, but also vertically to neighboring chips. He has started a new company Advance Nanotechnology Solutions (ANS); the factory, under construction in Utica, New York, is slated to open in early 2015. "This would be the first time in decades that brand new jobs in advanced technology manufacturing are birthed in this country," he observes.

Giving Back

"Without Miss Givin, I would not be here today," Ruiz stated. "I want to see that other talented Latino children do not suffer the soft bigotry of lower expectations." Along with two other Mexican-born high-tech leaders, he co-founded a nonprofit Hispanic Leadership Council in Texas, which coaches people in Latino communities on the challenges of leadership and the importance of becoming strongly involved in all aspects of civil life. And he serves on the board of Breakthrough, an organization devoted to helping children at risk to stay in school and prepare for college.

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Ruiz, CEO of AMD, holds a 300-millimeter (12-inch) wafer containing 64-bit computer chips, one of the first products produced in 2004 by a new AMD factory just opened in Dresden, Germany.



Ruiz meets with New York Senator Hillary Clinton in January 2007 in her Washington, DC, office.



Ruiz stands among children from Modelo primary school in Piedras Negras, Mexico—which he attended as a child—when AMD set up a computer lab for the school in 2004 as part of the company's 50X15 initiative, to get 50% of the world's population online by 2015.