
# Oral History of Michael (Mike) Hackworth

Interviewed by:
Charles (Chuck) Harwood

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**Charles (Chuck) Harwood:** Hi, Mike, how are you?

**Michael (Mike) Hackworth:** Just fine, thank you very much.

**Harwood:** Nice to have you here [at the Computer History Museum on May 19, 2010]. Let's start off at the beginning. Where did you grow up? Tell us a little bit about your family, high school, what you did in high school.

**Hackworth:** Well, interesting enough I'm probably one of the few people with the gray hair or whatever hair I have left that actually was born and raised in Silicon Valley. Obviously people younger than I were, but in my genre I'm one of the few. I grew up in San Mateo. My mother's side were farmers in Kansas where I did spend a few years during World War II growing up on the farm. My dad's side were farmers also in Eastern Kentucky and both of them said, "Well that's not a lifestyle they wanted" and came to California and happened to meet each other in San Mateo and the rest is history. So I went to school there locally, went to Serra High School in San Mateo, then on to Santa Clara University and my career, basically pursued my career here in the valley.

**Harwood:** What formed your career and influenced your direction?

**Hackworth:** Well, actually when I was a little kid my parents had a sandbox and I was trying to think how old was I and actually interestingly enough I was probably about ten years old. I enjoyed playing in the sandbox and making the sand a little bit wet because I could make these "blocks of wood". We couldn't afford toys and trucks and I was imagining them to be bulldozers and this and that and I was actually carving out roads and various geometric shapes in the sand. It suggested to me that I wanted to be a civil engineer. They were telling me I should be a doctor or lawyer but I wanted to build roads, bridges, and dams. So in high school I was thinking that civil engineering was going to be my career but I sprained my ankle one track season and I said, "Well I guess I better get a job." There was a start-up, if you can imagine this in 1957 that was doing electronic components, being sold primarily into the aerospace industry. I went to the unemployment agency to see if I could get a job and they said, "Well what do you want to do?" And I said, "I want to go to college." They said, "What do you want to be in college?" "I want to be an engineer." And they said, "Well, you're 23 on the list but since you want to go to college and you want to be an engineer we're going to send you out now to interview with this company because you're the only one that wants to do that." That started a ten year history with this company called Altronics and I was sweeping the floor and cleaning up from the machine shop and doing a little handyman kind of stuff while I was in high school but ended up spending ten years there. And as I was going to college and working there and putting my way through school, I shifted from civil engineering to electrical engineering and the rest is history from that standpoint.

  

**Harwood:** Tell us about your days at Santa Clara.

**Hackworth:** Well the days at Santa Clara, it was actually five years to get my undergraduate because I was working as well as going to school and I think I boarded there three and commuted two years. It was interesting in that all of the electronic curriculum was basically vacuum tube based and the computer labs were basically old IBM mainframes with punch card machines and that kind of thing and it was probably more oriented toward power and electrical engineering and less on the electronic side except in my senior year. My senior year they came out with a thing that said, "There's a thing called a semiconductor." This would be '64 now. It was mimeographed notes, if anybody knows what that is, on semiconductors and it was describing the point contact germanium diode that Bell Labs had developed back in the '50s so that was my total semiconductor education at the undergraduate level.

**Harwood:** What was your first full time job? Who were you with and what did you do?

**Hackworth:** After school?

**Harwood:** After school, yeah.

**Hackworth:** It was really at Altronics and a full time job and it was interesting. I did it over a period of, let's see, '64 to '67, so three years after school I did just about everything. I started out in engineering and then because I could explain how the products worked to customers they said, "Well maybe you should be in application engineering explaining to customers." And then with that expertise they said, "Oh well it sounds like you ought to be in marketing where you can figure out what products we ought to be doing and how to promote them." So I was in engineering, applications, and marketing. And then the company needed a salesperson to run things and so I was then the VP of Sales and Marketing. This is a 300 people company and I was like three years out of school.

**Harwood:** So you were what 22 or 23?

**Hackworth:** No, about 24 or 25, yeah. I had done some operations jobs before that, so I'd done everything except finance and CEO. But this VP of Sales and Marketing I don't think they called it VP, it was probably Director of Sales and Marketing, because there weren't any VPs. We had a national rep organization, sales rep organization, which is sort of unheard of today and so one company had all the sales offices around the U.S. and they actually had inventory of these specialized components. They called me up one day and said, "We want you to come out to our headquarters. We want to return all this inventory." I said, "Gee, if you return it and we have to give you your money back, we will go bankrupt." And they said, "Well that's what we want to do. We want to give you this stuff back. We can't sell it." I said, "Yeah but the contract says you own it. You can't return it." And they said, "Well, yeah that's true but if you don't take it back then we'll just tell our salespeople to not bother making sales calls on your

behalf." So here I am this young kid and saying, "Gees, what do I do?" And what I decided to do was terminate the rep right there on the spot nationally so that was a gutsy move obviously, and walked out of the room saying, "Oh, my God, what have I done? I have no sales organization and I've got a quota to meet this month. The company's got a payroll to make" and all of that. So I went back to our headquarters and sat down with a manufacturer's directory and picked companies that made complementary products to them, saw who their sales reps were, started dialing people for each territory around the country and got on an airplane, DC-6s in those days, and went out and visited these people and within I'd say maybe a two month period of time built a whole new sales organization with independent contractors for each territory and away we went.

**Harwood:** Great.

**Hackworth:** So that was a pretty character building experience having the guts to do that and then deal with the consequences of having to put a whole new team together in a very short period of time.

**Harwood:** When did you and why did you leave Altronics and go into the semiconductor industry?

**Hackworth:** Well most of our sales representatives that were handling our product line also had semiconductor product lines and so I could see that the semiconductor industry, and again you have to bear in mind this is late '60s, was an industry that was about to really take off and change the world. So I said, "Hey, I'm in passive components, resistors and capacitors, and that's important but it's not the next new thing." So I said, "I think I better get realigned here with the semiconductor industry." So I basically made a list of companies in the Silicon Valley area, about a half a dozen, sent out a resume to them and went and visited them. I had offers from Fairchild, I can't remember, a company that doesn't exist anymore, a pretty big company at the time, Motorola, and probably one other and Fairchild would have been sort of the key company to go to work for but I liked the culture of Motorola better. When the Fairchild guy picked me up to go out to lunch when I had my interview, I sat in the back seat of a convertible and it wasn't really a back seat. It was just kind of an open space and we're racing down the boulevard with the top down and drinks for lunch and hooray, hooray, hooray. And when I met with the Motorola guy it was a very stayed car. We had a very quiet lunch and I just said, "You know I think this is a better place for me to learn the semiconductor industry than Fairchild" and that put me into Motorola.

**Harwood:** What did you do to start off? Tell us about your Motorola experience and any magic moments you might have had with Motorola.

**Hackworth:** Well with Motorola probably the most significant event occurred about midway through my career there when this was a period when plastic transistors were just coming into the mainstream and I got a notification from the head of their component supply chain management. It was actually a 32-page letter that said, "We're having our instruments,"-- Hewlett Packard's instruments were failing in the field

  

and this was something I guess that had been going on for about six or nine months and "We've traced it to your components and there's a defect in your manufacturing and our instruments are failing all around." And then, of course, the 32-page letter was documenting all this evidence. And so that was very scary and I took the letter and well I sent the letter down to Phoenix. I was in Palo Alto dealing with Hewlett Packard and I sent the letter down to the headquarters, semiconductor division headquarters in Phoenix and then a week later flew down there. There was a guy named Wilf Corrigan who was the general manager of the plastic transistor division and we went through the letter, along with the general manager of Motorola, and they said, "Okay, we got to come up with a plan in how to deal with this." Wilf came up. I met him and we went into the see the guys at HP. It was actually a very interesting meeting because Wilf sat back in the chair. Al Bagley was general manager of the frequency and time division and Wilf put his feet up on Al Bagley's desk sitting in the chair and put his hands behind him and said, "So what's the problem?" Bagley just was obviously irate and I just sort of slid under the chair mentally anyway. Bagley just popped up out of his chair and there was a microscope set up nearby on a table and he just pointed to the microscope and so Wilf got up, looked in the microscope. He said, "I've got a problem. I'll fix it." And no words other than that were said, got up, walked out of the office, left the building. And, of course, the people from HP said, "We don't want to see that gentleman here again." But it turned out that Motorola did jump on it. They did a root cause analysis of the problem, were very forthright in what it was, fixed the problem, and the relationship with HP just got better and better and better. But Wilf, at least at that period of time, wasn't their favorite person.

**Harwood:** Why did you leave Motorola and where did you go?

**Hackworth:** That's a good question. So my boss at Motorola was recruited to head up a new division, I guess I would call it. It was actually a separate corporate entity of Fairchild Semiconductor and it wasn't part of the semiconductor division. It was its own division to do microwave and optoelectronics products with solid state as part of its background, semiconductor background, but not the general market stuff but in that space. So I was in line to replace him and I didn't get it; another gentleman did. And I said to myself, "Hum, well maybe I should go over to Fairchild" because he was recruiting me, wanting me to come over and give me a big promotion, the equivalent of what his job would have been had I stayed at Motorola and gotten his job. And so I decided to take that and go over to Fairchild and it was a good thing and a bad thing in a way. I'll just say the bad thing real quick. While my career from that point forward was terrific and I'm very happy with it, what I learned was if I had stayed at Motorola I probably would have ended up being a very senior executive at Motorola because I looked at the peer group that ended up running the company and they were basically my peers that I was working with at the time I left. And I said, "If I had just stayed there I probably would have been if not heading up the semiconductor division, probably one of the number two jobs there." So, I didn't need to leave, is the learning lesson from that. You just have to wait for the timing to be right. But anyway, I went to Fairchild and I was supposed to be the western area sales manager and I started trying to sell the products and find the customers and match the customers to the market. And I realized after being there about six months that the products didn't match the market. So Thanksgiving weekend I said, "Hum," I sat down and I wrote a new business plan that says, "Here's what the company should be doing and here's who the customer should be and here's the market potential for it" and turned it over to management to say, "Hey, go. You

need to change things." Well I just assumed that they were going to pick some of that and maybe do it, maybe not, but I was just trying to be helpful. And instead, they called me in the office and said, "You are now the general manager the microwave component unit of this new operation." I said, "Oh!" "You wrote the plan. We love it. Just go make it happen." And so that was a very, very exciting thing. I have never had a multidiscipline function responsibility before. I had been in engineering or marketing or sales or whatever and it was a terrific experience.

**Harwood:** So then you came to Signetics. How did that happen?

**Hackworth:** Well, Signetics was in the digital and analog integrated circuit domain. This was microwave and optoelectronics which is a very specialized niche within the semiconductor industry. So the market opportunity for those products is probably five percent of the total semiconductor market; whereas, Signetics was addressing the other 95 percent. They had an opening for a marketing executive for a pretty good chunk of the digital products. I guess I shouldn't say a pretty good chunk. It was the bipolar digital products which is the bulk of the company. I said, "Wow, this is exactly what I want to do." This puts me right in the mainstream so I jumped at the opportunity.

**Harwood:** You know you almost didn't get that job. Were you aware of that?

**Hackworth:** No, I wasn't aware of that. I was aware of one thing that you said to me afterwards that maybe is where you're going but let's see.

**Harwood:** The boys looked out the window and they discovered that you had arrived for the interview in a Rambler, a pretty boxy old car and they scratched their heads about that decision on your part but we overlook that.

**Hackworth:** Oh, okay.

**Harwood:** What were you going to say?

**Hackworth:** Well there's a term that you used, flegmatic so you had told me sometime after that interview you said, "Mike, the one thing that I was concerned about is that you struck me as being a flegmatic person" which sent me to the dictionary because I had a very, very good vocabulary at that time but I didn't know that word. But you said, "No, I was wrong." You said, "You just appeared to be that way but internally you're an extraordinary energetic person." So I said, "Hum, that's interesting." But yeah, no it was a great move, no question.

  

**Harwood:** Yeah, yeah, yeah, well obviously we loved you. Tell us the key things that happened to you while you were with Signetics, which was then part of Coring [Glass], and later part of Philips, and tell us that story, the jobs you had, what you accomplished, and did for us.

**Hackworth:** Well there's a couple of interesting things let's say before Philips. One was I was heading up the digital marketing effort for the company and the lead time started to go out because of the supply and demand imbalance, (the semiconductor industry is a cyclical industry) so we were going up one of those strong cycles. What was interesting was our bookings and our backlog was growing at this incredible rate and I forget the numbers now but I'll just make up some numbers for purposes of illustration, let's say 30 percent annually and yet my sense of the general market for what we were doing was only growing maybe ten or 15 percent. So I said, "Gee something is wrong here. Either we're gaining enormous market share versus Texas Instruments," who was the king at that time "or the market's really growing much greater than everybody believes. So I did some more analysis on this and developed the position that this was artificial backlog that customers were double and triple ordering just to get into the queue to get product and that the business really wasn't growing that much. And so I confronted the management team on that and the then VP of Sales decided that I was not very smart and not very appropriate for the job and expressed his opinion in some pretty negative ways on that. But what was interesting was about 90 days later enough supply had begun to become available that the lead time corrections flipped the other way and the cancellations was so precipitous that I think we even had one quarter of negative bookings. So I was very proud of the fact that I recognized the trend. I figured it out. I wrote a paper. I took a position. It was very controversial. Most people thought I was crazier than a hoot owl and it played out exactly as I said.

**Harwood:** Good job.

**Hackworth:** Of course that earned me the right to be the sales executive six months later and that was an interesting challenge because that entailed a culture change. The life's lesson in that was the previous sales executive was actually a very smart man and really very good, a strong leader, tough, very demanding so all the good things I can say about him is endless but he had one fault in my opinion and the fault was that he told the regional managers, "You must meet your quota no matter what." And so when they were in that period where supply was lagging demand and the lead times were going out, it was very, very tough to meet the quota because you had to ship the product and the product wasn't there. What salesmen were doing is entering false orders. One guy was entering the serial number of his tire as the PO number for accounts to get in the queue so that they could get product to get to their customer. And what I learned from that, is this guy was absolutely correct in being tough and demanding, except he should have added one more phrase to what he said. "You shall meet these quotas no matter what as long as it's ethical." And if he'd added that piece then everything would have been fine and there wouldn't have been the false orders on the books and the inflation at the backlog and all the crazy things. So what I learned from that is you can be tough and demanding on people but you have to put a boundary condition on your tough demands; otherwise, be careful what you're asking for. You may get it.

  

**Harwood:** You told me a little story once about managing deadlines. Tell me that again.

**Hackworth:** Refresh my memory on that.

**Harwood:** Well, the story of when somebody had a deadline and they weren't going to meet it, the way you spoke to them about having their deadline.

**Hackworth:** Yeah I guess I'm in a senior moment here and not coughing that up.

**Harwood:** Okay.

**Hackworth:** But the key thing is, is that if you have a deadline, I guess that—

**Harwood:** Oh, I remember what it was that if you miss a deadline that the next week they'd have another deadline and just go through with a deadline.

**Hackworth:** Yeah this actually goes back to my days when I was a hands-on engineer and my boss would come in and ask me when am I going to finish the project? I would see I had a few more things to do so I'd say, "Well by Friday." And then he'd come around on Friday and say, "Well where are you?" And I'd say, I will have thought about a few more things to make it better so I said, "Next Friday." He said, "Okay." So then the next Friday comes but I had thought of some more things to make it better and so I'd say, "Ah, next Friday." Well pretty soon there's a trend here, next Friday, next Friday, and he finally said, "Okay, enough's enough just get it out." And what I learned from that is you can always make something better but you really need to finish it when it's good enough because adding that extra better is costing time and not necessarily adding any value and that's interesting insight in how to deal with engineers because they're really never finished with the project.

**Harwood:** Then at Signetics you were promoted to being over the general managers of the MOS division, microprocessor division and the analog division. Tell me about that and a well known factory you built in the desert.

**Hackworth:** Yeah so that was interesting. I was the marketing guy for the bipolar digital but there were a couple of other businesses. There was an analog business, which was a bipolar analog business. There was an MOS memory business and there was an MOS microprocessor. And so my boss, Chuck Harwood, said "We're going to make you the general manager of those three businesses." And, of course, if I knew then what I know now I would have said, "No, thank you" because what it turned out to be was the analog was the turnaround even though it was a very successful business. It was in a

  

turnaround mode at that time. The MOS business, memory and microprocessor, had really failed to execute the program. They had great product definitions and some great designs but they weren't able to actually get a working product and shipping in high volume. So this was a big deal and that involved the culture shift on many levels. The process engineer who was developing the MOS processes was a genius and a brilliant man but his intent was to make Signetics a better MOS company by having a better process than anybody else did. And the problem was that he was kind of inventing the process as you went along while the design engineers were inventing the product while they're going along and then there was also a problem of what's the test program and how do you know whether the product's any good or not? So there were too many independent variables. The process was changing. The design was changing and the test programs were changing and you never knew where the hell you were. So the chips would come out and you couldn't tell what was wrong and how to fix it. So I said, "Look, let's get on a standard MOS process" so we had to recruit a whole new technology team and at least remove one of those independent variables and get that perfected and then once we have that perfected put lots of product on it and get going. But the other was we needed a new factory and originally the idea was to build it in Sacramento nearby relatively speaking but Jerry Brown, the then governor, said "No more expansion of power utilities in the State of California" so we ended up in Albuquerque, New Mexico. So here's a thing of building a new factory, renting essentially new processes on essentially new products, so we brought in a team to do project management. This is basically the classic Gantt chart with all the daily, weekly reporting on the critical events to move through the Gantt chart which we had I think 5,000 or 6,000 things that we were tracking but it was good because we were working an industry standard process. We were using a highly disciplined project management procedure and so what ended up happening was the plant was built on time, came in under budget, and the first wafers down the line yielded working chips so it was an amazing success. And, as I said, if I knew then what I know now I would have never in the world attempted that but we did it the right way and it worked.

**Harwood:** I have a question, I suppose many magical moments there, could you recall a few pre-Philips and post-Philips?

**Hackworth:** I think the one I just described about the Albuquerque one.

**Harwood:** That was a very magical moment. That was a real accomplishment.

**Hackworth:** That was a real accomplishment. The factory went on for many, many years thereafter in the Philips acquisition. It was a real asset to the company.

**Harwood:** And many other integrated circuit companies followed us to Albuquerque.

**Hackworth:** Right, Intel being one of them.

  

**Harwood:** Intel being the biggest one.

**Hackworth:** Yeah.

**Harwood:** Then you left to form Cirrus Logic, which ten years later would then become the fastest chip company to go from zero to 18 million— no, to one billion in revenue.

**Hackworth:** Right, the fastest growth company. Well it was interesting.

**Harwood:** Tell us that story.

**Hackworth:** While I was at Signetics, there was a company in L.A., Xerox Data Systems, and they had a group in there that was basically doing computer design, development, manufacturing but they had a group in there that was doing chip development and they needed somebody to fabricate the chips because they obviously didn't have a wafer fab, all of that. And since we were a supplier to them, they called up and said, "Would we be willing to fabricate chips for them?" I was in charge of the group then that we were describing earlier, so I said, "Sure." And what that showed me was that a company that didn't have a wafer fab could, in fact, design chips and work with a company that did have a wafer fab and get a supply line of chips, so I had an existence proof of that working. That was sort of an important thing because when we were doing the Albuquerque project that we were talking about a minute ago, that was in those days about $150-170 million investment which, of course, today would be $1.7 billion but it felt like that in that time and I was very nervous about it because I wasn't a semiconductor processing guy by background. I was more on the business side so I said, "Gee $170 million, what's the financial consequences of all this?" And I knew that fabs were a fixed cost and that the business cycle would be high and low and that when the fabs were full they made a lot of money and when the fabs weren't full they cost a lot of money. And I actually did a study of the semiconductor industry at the time we were building the Albuquerque plant or getting ready to and what struck me was the retained earnings of the semiconductor industry in let's say 1978 timeframe, history to date, was negative with the exception of Intel and TI. Everything else was negative. So I said, "Hey, this thing isn't making any money." And so what I did in the case of Signetics was I tried to set the business plan at a 70 percent capacity level so that we would break even at 70 percent and if there was anything over that we would be making money and then if it went under that that's when we would start losing money. That was my philosophical approach by owning the asset. But it struck me that you could have a semiconductor company that didn't have a wafer fab, didn't have that problem at all, and its value that it would be contributing to the marketplace would be based on architecture, not on low cost manufacturing or exotic processes. And in my mind I said, "There's three kinds of products. There are products that are differentiated on the basis of process technology." And Cypress Semiconductor and T.J. Rodgers would be an example of that. He was always tweaking the recipe to make his memory chips a little bit better. And then DRAMs would be an example of the cost driven thing where everybody knows what the DRAM is supposed to do. There's no innovation there. It's just how cheap can you make it and how good a quality can you make it? And

  

then there's the third category of architecture which are microprocessors and things of that nature where the architecture was the distinguishing characteristic. So I said, "You know you could do a company who is focused on architecture and you don't have to do the wafer fab and you can come up with a much better business model for a chip company." So then that was just in my head. And then I got a call from a gentleman, Dr. Suhas Patil, and he said, "I've come up with a new design technology and it's called a silicon compiler." That was a buzz word at the time. And he said, "We're looking to recruit a CEO and start up and we want to talk to you about it." I would normally have just hung up on that kind of call except that my boss, Mr. Harwood, put me in charge of a task force to evaluate the EDA industry and to pick which tools to use. "Hum, I probably ought to talk to this guy and see what he's got because if it's any good we'll just buy him and his company and install it at Signetics." So I went out and had a dinner with him and he explained what his technology did and I said to myself, "Wow, if it really does that I can go out and hire computer people to design chips who don't know a darn thing about polygons and silicon and using this tool they'll be able to actually design a chip but they will be system experts not silicon experts and then I could use this model I was thinking about where I'll just buy the wafers. I won't build a wafer fab." So I thought about it and thought about it and it was a tough thing because I knew that my position at Signetics was a good position and I would probably be in line for some promotions down the road. I had this belief that start-ups were kind of a menace on the semiconductor industry. They were just stealing IP and how could you possibly do anything as a start-up when I had the Philips research labs and third largest research lab in the world and I'm going to go start a chip company with six guys in a tilt up building and build a real company. So I was struggling with those yin and yang of those two concepts. I finally decided the heck with it. I'm going to go ahead and give it a shot and I was scared but we did and the big surprise when I was on the other side was that, yes, I left the company with the largest research lab or one of the largest research labs in the world in semiconductors, but you know what in the start-up world there's a whole network in the valley of hundreds of companies and thousands of people that you can get similar problems solved with a beer or a glass of wine or just relationships that you couldn't get that I'd have to go back to Eindhoven to get the same answer for. So it wasn't as tough as I thought and then the other was even if it failed, there's hundreds of companies so you just go to another start-up so it wasn't as scary. It seemed scary when I made the decision but afterwards it wasn't so scary after all.

**Harwood:** So Jerry Sanders poked fun at you at a major conference.

**Hackworth:** Oh, yes.

**Harwood:** Saying that real men have fab areas.

**Hackworth:** Yeah so that's interesting. When Cirrus Logic was doing its business model [the fabless model] — I'd say a few comments leading up to "It is very controversial." When I'd go to Sand Hill Road to raise money for the financing there would just be two reactions to the presentation. One is "Get out of here. You're stupid. How can you be a semiconductor company without a wafer fab?" Or the other was, "Gee that's a novel idea, hum, let's talk some more." Obviously those are the ones that funded us and

  

the other ones did not. But it was a very controversial topic. And about two or three years, I guess probably three years into the company when we were at revenue stage and starting to get some industry recognition for actually selling something, we were at a semiconductor conference and he [Jerry Sanders] was talking about the state of the industry from his perspective and there was this notion of these fabulous companies starting to spring up. He looked at me in the audience and said, "Real men have fabs." So it was my turn to speak and so I got to the microphone and I just said in a little tweaky voice said, "We are going to be a semiconductor company." But it was very controversial. People didn't really think it was going to work out.

**Harwood:** When did the companies in China and Korea start up as fab companies and start taking work from you?

**Hackworth:** Yeah, good point. When we started in 1985 there weren't any foundries as we use that term.

**Harwood:** Foundry is the word right.

**Hackworth:** And so the suppliers we went to were sharp and Yamaha and people like that who had excess capacity and basically I was sort of like Xerox Data Systems going to Signetics. I was saying, "We'd like to buy wafers." And in order to get them to talk to me what I did was I put together the infrastructure of the semiconductor company. So I actually had a head of process development. I had a head of device modeling and all of that so that when they talked to me it was like talking to one of their divisions but I didn't have any depth underneath. I just had three or four super technical people. So we were able to convince them to unload their excess wafer capacity on us and away it went. And then TSMC actually started probably around, oh, three or four years after that around '91 I would think and actually Phillips Semiconductor was the primary investor in TSMC. So ironically my alma mater was the one who had the vision to make the investment in the foundry business. It made a ton of money for them as anyone would know if they checked the record. They didn't become real until probably the '93, '94 timeframe which actually leads to another interesting point and that is that from '87 to '93 we were growing 50 percent a year and I mean literally. It might have been 52, 53, but if you go back and look at each year it was 50 percent. We were able to get the wafers from this network of probably six or seven different chip companies from their excess capacity. Then we started. TSMC came along so we started going with TSMC probably in '92 or '93 timeframe. We got to a point around— I guess I'm off a little bit. Let me go back. It was probably '91 or '92 that we started doing business with TSMC. And around '93 or so, TSMC, I got a call from TSMC that said, "You're not getting any more wafers. You get what you got but you can't increase because you have now hit 35, 40 percent of our output and we want to bring on other companies." So I said, "But you can't. We got all these customers. They're depending and their business is growing and we got it have it." So flights to Taiwan and begging Don Brooks on weekends and on bended knee and whatever to get more wafers and he just said no. And if I was on his side of the street I would have done the same thing but it was a horrible problem for us. I thought, you know, I made

  

a mistake. We should have had a wafer fab. So I went off and did joint ventures with IBM and Lucent, billion dollar capital commitment. We went out and did financing for all that and did these two joint ventures 50/50 to have control over wafer capacity only to get to the point in 1995 where the industry went through one of the correction cycles and all of a sudden they had all these excess capacity and the problem I was trying to avoid by going fab-less. So what that proved to me was the only time, the only mistake I made in life was when I thought I was wrong and I was really right. I should have not built that. I should have not done those joint ventures. I should have stayed fab-less. And we had to go through a horrible restructuring at Cirrus Logic to get rid of those obligations. And, of course, today we're back to the original fab-less model, have been for the last ten years but there was a five-year period there where we really screwed it up.

**Harwood:** I gather that you had your IPO about the time. There was the Tiananmen Square protests.

**Hackworth:** Ah, yes, yeah our road show was in June of 1989 and we did the front half of the road show the week before Tiananmen Square and it was going well and excitement and everybody signing up and then went home to rest for that weekend. And then the Monday we were supposed to be in Europe to do the European piece and then come back and finish in Boston and New York and then close the deal and start trading later in the week. Lo and behold, Tiananmen Square blew, not blew up but occurred that weekend and I thought, "Oh, my God that's the end of the IPO." But amazingly the markets did not collapse on that and we were able to complete the IPO and add a premium to the offering price so it worked out but it was a very scary weekend.

**Harwood:** Yeah, yeah, yeah. Now at the current moment you are chairman of the board.

**Hackworth:** Right.

**Harwood:** Take us from where you were to what you went through and you moved the company's headquarters from here to Dallas, is that it?

**Hackworth:** Austin, yes.

**Harwood:** Austin. Tell us about that.

**Hackworth:** Yeah, so in 1995 the PC industry went through a correction, as I was referring to and there was a company called Packard Bell that was one of the main suppliers. It was really a partner with Intel and actually Intel was all the technical brains behind Packard Bell as they were also the technical brains behind Dell Computer at that time and so our relationship was primarily with Intel, but we were selling commercial into Dell and into Packard Bell.

  

**Harwood:** Packard Bell or Hewlett Packard?

**Hackworth:** No, Packard Bell. We were constrained on capacity so Compaq and HP and IBM all wanted chips from us and were getting some but we couldn't meet the demand because of the constraints. But we felt that we had to 100% support Intel so they got the first things. Packard Bell and Dell through Intel got the first thing. So anyway, Packard Bell got into trouble, excess supply, inventory, all of that and our business went through a— if they moved ten percent, we moved 30 to 50 percent so that precipitated a crisis within Cirrus Logic. At about the same time, competitors started coming on in the graphics and storage area. Up to that point we were pretty much two-thirds market share in those two areas. We fell behind a little bit in product offerings because we kept redesigning the same chip to run at multiple companies because we were trying to find capacity instead of doing new product. So we sort of did it to ourselves in that sense. We also had a problem in going from 2D graphics to 3D graphics. That's a whole different mindset of engineers so we had lots of problems. So this crisis hit. We had to get rid of these foundries that we did the joint ventures on and restructure the company. And so I made a decision and the decision was— there were two choices we had. One was restructure these product teams and come back into those classic markets, storage and graphics and so on with new generations of products that would take two or three years but get back on track to where we were. Or the alternative is to say, "You know what this is way more competitive now with maybe ten guys in that business where when we got into it there was one or two. Let's go to where we have a distinctive capability, distinctive competency where we can be the number one or number two guy." What we had done back in 1990 was to acquire a company called Crystal Semiconductor in Austin, Texas which had mixed signal analog design skills and signal processing skills. It was actually a core team out of Bell Labs that went over there. We said, "You know this is a place where we can uniquely differentiate ourselves in the marketplace. We'll be doing audio and video and communications kind of stuff and it won't be this boom bust, disc drive, graphics chips on the motherboard kind of thing but more of a steady, high profit margin, 55, 65 percent gross margin, 20 percent operating profit, 15 percent per year growth not 50 percent per year growth, but a very rock solid business and good market cap multiples." So I wrote up a 15, 20 page business plan saying, "Okay, this is what we ought to do going forward." And this would have been 1996-97 and the board adopted that and away we went. We recruited Dave French initially as a COO and then ultimately promoted him as the CEO. And we decided to move the corporate headquarters from Fremont to Austin because that's where the core skills were to execute this and that's how we moved from California to Austin.

**Harwood:** It became an analog company.

**Hackworth:** It became basically an analog signal processing company right.

**Harwood:** That's quite a change.

  

**Hackworth:** A huge change and the thought behind it I had was I have to admit that Hewlett Packard, Dave Packard and Bill Hewlett were very instrumental in my formative years, if you will, in industry because they had a philosophy back in the '60s and '70s when it was primarily an instrumentation company that we want to be a company that innovates new products and when competition comes in and there's five guys that make the same thing, we get out. We're not going to sit there and battle it out with another five people but we're smart. We'll figure out something new to go do and we'll go do that and they've built the company over a 30, 40-year period that they ran it extraordinarily successful. I saw that model. I saw how it worked and I saw people who would try to compete on the commodity side and what happened to them and I saw how brilliantly they navigated through that water. I saw the same kind of situation here for Cirrus Logic that, yeah, we could battle it out with NVIDIA and ATI and all the commodity players and just control their chips and graphics chips, or we could take where we have the unique skill set where it's really hard to find engineers to do mixed signal analog signal processing and do really hard stuff, get high margin, a little bit lower growth rate, but more predictable, more stable business and so that was what was behind my thinking. It wasn't that I thought of it myself. It was just I used the Hewlett Packard model and away we went.

**Harwood:** When did you stop being the day-to-day CEO and full time chairman, not day-to-day, hands-on and how did that happen and how were you liking life after that?

**Hackworth:** Well I think there were two things I think in that. One is myself internally I began to feel that there should be term limits for CEOs and not necessarily from a legal standpoint but ten years is a good run for being a CEO of a company. I think for the person who's leading the company, setting the direction of where to go going forward that a refresh in thinking every ten years is probably a good thing. I was thinking that myself but we were also grappling with restructuring these joint venture deals with IBM and Lucent and also trying to restructure the company and all these new strategies. We had this guy Dave French who had a mixed signal analog background, the COO, grooming him to be CEO so that was really the timeframe to make that decision. The board they took the initiative but I certainly agreed with it. I wanted to stay on the board and kind of coach him along that direction but not hold him accountable for the rest of the board to hold him accountable and I was really there to be a resource in executing the new strategy. That was fine. I basically at that point got some new business cards that said "advisor to entrepreneur."

**Harwood:** And you're still the chairman?

**Hackworth:** I'm still the chairman today, yeah.

**Harwood:** So how much percentage of your time let's say a week or a month do you devote to Cirrus matters?

  

**Hackworth:** Boy that's hard to quantify but I would say it's typical board member participation, not really anything beyond that though I will say this that if I have concerns on the strategic direction of the company or how the CEO is communicating with the board on how things are going, I do take it upon myself to talk to him and suggest things that he might do or address or topics for the next board meeting that we ought to open up on and have an in-depth review. It's more of a classic board role kind of thing. Now having said that, we did have a change in the CEO back in '07 and I had to do an interim stint for about six or eight months going to Austin every week to run the company until we actually promoted a gentleman from within to take over that role but it's a class board position.

**Harwood:** So where do you spend your time now?

**Hackworth:** Well I'm on the board of three public companies, which it turns out post Sarbanes-Oxley to be a lot more than it was and that's a good thing. Pardon?

**Harwood:** What are the names of those two?

**Hackworth:** One is Virage Logic which is a semiconductor, intellectual property company and the other is Epicor Software which is an ERP, SAP, Oracle kind of company but for small and midcap companies. It's about $450 million in size. Virage Logic is now running about $100 million run rate. And then I'm on three private company boards and two non-profits so it keeps me off the streets at night.

**Harwood:** So you're working full time?

**Hackworth:** I'm pretty busy. I'm pretty busy.

**Harwood:** A great career, Mike, a great career.

**Hackworth:** Thank you. Thank you.

END OF INTERVIEW

  