Washington County Museum
Oral History Interview with Chris King
At Chris King's home
April 5, 2012

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CK = Chris King

BD = Beth Dehn

BD: This is Beth Dehn at the the home of Chris King on April 5, 2012 recording an oral history for the Washington County Museum. So, Chris, if you could say your name.

CK: I'm Chris King.

BD: Today we're going to focus on Planar . . . well, Chris' history with Planar, with Tektronix, why the Silicon Forest has been an area of success for us. So, if you don't mind starting at the beginning, how did you get interested in study physics and how that led to . . . . So, way back to the beginning.

CK: Well, you know, I kind of went back and forth. I started out in engineering. This was just the beginning of solid state, and transistors were replacing vacuum tubes. It seemed that the college of engineering where I went was kind of behind the times. It wasn't really up on the solid state technology as much as I thought was going to happen. So, I switched to physics, and I got an undergraduate degree in physics. But then, after I graduated, I got a graduate degree in applied physics which was kind of half way between engineering and physics, so I kind of gravitated back to engineering, half way anyway. . . . I was always interested in electronics and electronic devices, and I wanted to really understand how they operated and what you could do with them and hopefully contribute some to new technologies, so that's why I got into physics. You know, I was part of the Sputnik age where we were all interested being in science and engineering.

BD: I saw that you at one point had a grant, perhaps, to go to the USSR?

CK: Well, when I was a graduate student, I was working on a topic called super-connectivity which is characteristics of some materials when they lose resistance to all flow of electricity. And this was just during the time when they had détente between U.S. and Russia with, I think, [Leonid] Brezhnev was the President of Russia then—or Premier. So this was a subject that they decided to joint cooperation in. Yeah, that was a lot of fun. I went to . . . this was before . . . the Iron Curtain was still in place, the Berlin Wall was still there, and it was kind of . . . actually kind of spooky over there. But it was interesting to meet the people. The people were really nice. I enjoyed it—the opportunity to meet the people over there.

BD: So when did you start working at Tektronix?

CK: I came to Tektronix in '76. I went to graduate school at Stanford, and I had a friend of mine who had come up here to Tektronix, like, the year or two before, and I had look at several places for a job. But I wanted to . . . I grew up in California, but I always wanted to be on the West Coast. California seemed like it was getting more and more crowded, so I was happy to move up to Oregon and the opportunity to work at Tektronix.

BD: What projects did you start with at Tek, and how did you get more—?

CK: They were just beginning to work on what they called electroluminescence, or EL, technology, and they wanted someone to help them start this project up and understand the basic device—how it operated, and how you make them. . . . That's basically all I did at Tek, this EL technology, which eventually became Planar Systems. I was very fortunate to get in on the ground floor there.

BD: Did you have mentors, or people that helped you progress to the point that you moved to Planar?

CK: Inside Tektronix you're talking about?

BD: Yes.

CK: Yeah. Certainly. The fellow that I knew was named Gene Chow [sp?], and he was in charge of what they called the Tek Labs, which was the research arm of . . . . So, certainly, he was a mentor of mine. And then Jim Hurd, who's one of the cofounders of the company. He was already at Tektronix, and we worked with each other a lot, and I really enjoyed his insight about things—how you get things done and what's possible and what isn't possible. Tektronix was a wonderful place when I came there.

BD: How was innovation encouraged at that time?

CK: Well, you know, Tektronix was very much an engineering-oriented company, and people had a lot of freedom to . . . I mean they had general projects there that they were working on, but they were also encouraged to innovate and look at other ways of doing things. So, it wasn't really structured, and, unlike today, most companies . . . things are very driven by the budget and the finance people really control things. At that time, Tek, when I was there, it was still very much engineering-driven, and the engineers were kind of the people that had the most status, and people respected them, and they had the ability, therefore, to do a lot of things on their own that you don't have in a lot of companies today, I don't think.

BD: How did you make your transition to cofounding Planar?

CK: Well, what happened was . . . Tektronix—just give a little background on Tektronix—Tektronix when I first came there—and had been this way for many years—had been what's called a very vertically integrated company. I mean, they made . . . they sold these oscilloscopes instruments that people knew about and other electronic equipment, but the oscilloscope was the most famous. But they didn't design them and use other people's components. I mean they made their own display screens. They made their own transistors. They made their own high-speed circuit boards. I mean, they even made . . . they did the metal fabs and printed circuit boards, and all of those things were being done at Tektronix. A little bit before I came to Tektronix . . . you know, they started out making CRTs in, I think, like 1950 because they couldn't get a good enough quality from the normal manufacturers. They were focused on TVs; they weren't focused on smaller screens that Tektronix wanted to make. But one

of the things that happened about . . . I think it was about the middle '60s, they developed a CRT that had a memory function. When you write the image on the screen, it would stay on the screen. It's called a DVST. This was before . . . you know, we all have computers with all sorts of memory. Memory wasn't available. I was very expensive. People used tape, like for recording, for memory. This screen enabled Tek to get into the workstation business in engineering design. They were, basically, the leaders and one of the first—I think, the first, really—engineering workstation companies. Because of their success with this new display technology, they had an interest in developing other technologies. . . . What people were just starting to think about was going to flat screens, and this technology that they asked me to work on called electroluminescence was basically just a thin film coating of material on glass. It was completely solid state. You apply a voltage to it, and it gave off light. They thought that maybe this would be the next great technology that would enable them to go again because by . . . they basically doubled their size from this DVST technology. I worked at Tek between 1976 and 1983, and, during that period of time, slowly the financial people were getting more and more control of things. And Tek came to the decision in the early '80s that it didn't make sense to manufacture their own flat-screen technology. They just didn't make enough instruments to pay for the capital equipment that you'd have to invest in in order to make a manufacturing line. So, they decided that this just didn't really make sense, whereas we on our side, we thought this was really a great technology. I mean, you have to understand that at this time—early '80s—the only flat panels were, like, maybe digits on your calculator or your wristwatch, whereas we could make a full screen a whole page of text. We even actually built up, I think, one of the first kind of clam-shell laptops. It wasn't really a laptop. It was just a screen and a keyboard. It didn't have any, you know, computer ICs in it. So, we were very excited, and I can go down and show you some of the concepts downstairs. So, we, being naïve, I guess, we thought, "Gee, this is the best thing since sliced bread. We don't want this to stop. We'd like to keep on going with this," and we were very fortunate that Bill Walker, who was the chief operating officer, I believe was his title then . . . we went up and talked to him, and he was willing to take the technology and try and start our own company. And it worked out to be a really . . . kind of a win-win situation for all parties because, basically what happened, we had done seven years of development at Tektronix. They gave us the rights to all that technology. In exchange, they got an equity position in the company. Then they were also very generous to us as we were starting up. They let us continue to use the same laboratory that we had originally while we were building our own facilities and our own manufacturing line, and they also let us continue to use some of the sophisticated analytical equipment that we couldn't afford to use. So, it was very good synergy between the two companies, and it worked out very well because eventually Planar went public, and I think Tektronix got a lot of return on its investments, and also they did end up using some of our displays in some of their equipment, but we had a much wider market that we were able to address by being a separate company, and so then we could achieve some economies of scale that we could never have done if we were just inside Tektronix because the manufacturing . . . the capital investment . . . it's kind of . . . the manufacturing line that we used to build our displays was pretty much like an IC line—it was in a cleanroom, everybody wore bunny suits, and you had pretty expensive fluoro-lithography and thin-film deposition equipment. Anyway, I think it was really a win-win situation, and Tek . . . I think because of that . . . the success they had with Planar off . . . they used that going forward. They formed something called the Tek Development Company which was their venture arm. One of the companies that spun out also from Tek was TriQuint. TriQuint's a pretty big successful company that makes chips for Apple, among other things, for their iPhone and things like that. There are others. Merix, which made printed circuit boards. There was . . . I think it was called Teksmax. It was a hybrid circuitry company. They had other display technologies, plasma systems like liquid crystal that they licensed to a lot of people. So this venture arm was good because eventually outside investors came into Tek, and they used as their financial figure of merit is sales per employee. In order to achieve that . . . the simplest way to do that is you buy as many things from the

outside as you can rather than make them yourself. Tek transitioned in the '80s—when we left it was like twenty-five thousand people to it's like five thousand people now—to a very vertically integrated company that not only designed its instruments but made the state-of-the-art components that enabled them to make the state-of-the-art instruments to company that basically just designed instruments, and they would try to buy the best components that they could from the outside people. So that stopped basic work like we were doing. It was lucky that we left at the time that we did because we would have been shut down at some point in the not too distant future.

BD: What was 1985 like? What were the early days like of Planar?

CK: Well, it was really exciting. I didn't quite tell the whole story in that even though Tektronix gave us all the equity and let us use their facilities, they didn't give us any money. So we had to go out [and] figure out how to make a business play (you know, I'm basically kind of a lab-science guy at the time), and we had to learn how to approach the venture capital firms. That just really opened up a whole new perspective for me that I never had before, so I felt very fortunate to be able to go through that. Then we had to transition our laboratory situation. We were making one or two things a day to try to make thousands a month, so we had to set up a manufacturing line—which we had never done before. In fact we were the first . . . this was another kind of synergy. The Oregon Graduate Institute had all this property around it, and they decided that they wanted to develop that property by building technology buildings. We were the first or second company to be located there, and we got to design our own building. We got to design it the way we wanted it to manufacture our products and design our products. You're doing all these things for the first time. You're learning. You make a lot of mistakes, but then you figure out how to get around them. It's just a real challenge. It's a situation . . . we started out with seven people, and by 1985 we were probably somewhere between fifty and a hundred—I don't know how many we had then. But everybody was so committed to the company and go out of his way to do whatever it takes to make things work. You know, you line up a customer, and it's so exciting to . . . again we made components, so we didn't make the final products, but it was always fun to see people were using them in computers. They were using them in industrial instrumentation. They were using them in medical equipment. They were using them in telephone exchange equipment. This was kind of an explosion. The flat panels really enabled portable instruments that you never could make before. The CRTs . . . the oscilloscopes that Tek made were almost that deep, and all of a sudden you could make an instrument like that and carry it around in a little lunch pail. That was one of the fun things that we felt we were not only doing our technology but we were enabling a lot of other people to do new technologies that they couldn't do before. That was a great time. One of the things we learned the hard way is that, just like learning what you have to do to deal with the financial people, you have to learn how to sell your product. Just because you think you have the greatest product in the world doesn't mean that other people are going to go out and buy it. So the whole thing about setting up a marketing and sales organization and trying to figure out where your product has a good fit for what the customer really wants to make for his final product. Again, there's really quite an eduction to see all the aspects of a business that it takes to really make it successful. It took us about seven years before we were profitable. That was probably another advantage of working with Tektronix. I think with most venture capitalists they would have shut us down because it did take us a long time, we made a lot of mistakes, and we didn't appreciate how hard it was to do various things like manufacture. But because Tek had a very significant position on the board, and we had seats on the board, we had enough to control it even though the money was coming from the outside. That enabled us to make it to a point where we really were making a profit. Then in 1993 we went public. Again, that was kind of another interesting experience to go through to figure out what you have to do to have an IPO. And so all those experiences were wonderful.

BD: I'm glad that you mentioned that because when I was looking through that folder I kept thinking, "Well, now here are some scientists, but what is their background in business?" So, was Jim Hurd . . .

CK: Jim Hurd really was a scientist also, but he just always wanted, I think, to start a business. That was really his goal. . . . I think he could have been successful in a lot of different businesses. I think just because we were good friends, he decided to go with me and to start this company. But, you know the interesting thing about it was when I was doing . . . I was in charge of the EL program, he was actually in charge of the gallium arsenide program, and that gallium arsenide program became TriQuint. So, he actually probably could have been head of TriQuint as well as Planar but he chose . . . I don't know. I think, you know, flat panels were just such an exciting thing at that time that maybe that was it , that he . . . we all were very excited about it. I think he just had very good judgment and just had good intuition about what you have to do to be successful in business. He was a very charismatic business leader, and everybody really respected him in the display industry and really even beyond, I mean he was on several boards where people were giving input on science and what science could do and technology policy. He was working . . . Oregon State [University] had this [?] program where they try to get education to the people in the industry and have good synergy between the industry and science. . . . So, he was involved in a lot of different industry and education and government activities.

BD: Now, Planar certainly went through a lot of turbulent financial times, so what do you think got you through that? How did you persevere because other startups . . .

CK: Like I said, I think in the early days, because of the composition of our board, we had very patient people on the board. Then when we went public, between '93 and probably the next six years, '99, we were actually quite successful. The stock went public around seven [dollars], and it went up to twenty [dollars]. It stayed there for quite a while. . . . Our original vision is that we were going to enable these laptop computers. The initial laptop computers, what I consider the best [], used EL screens. But eventually the flat panel industry—and we were the largest flat panel company in the United States—but eventually all that moved to Asia, in particularly in Japan in the '90s, and they invested literally billions of dollars which was way more than we could afford to invest. So, the mass markets, like laptops, we basically had to move away from them, and so that was another marketing transition that we had to figure out what we could do to continue to be in business. We had a very good marketing guy by the name of Jerry Viera that identified the medical display market for us. Again, we were very successful in that. I think we had like forty percent market share. There was a local company here by the name of Protocol. It's now part of the Welch Allyn Company that made these portable medical monitors that will measure your heart rate and your pulses and a bunch of other things . . . oxygen and things like that. When it became a law that you had to have these defibrillators everywhere, all those were our screens. So, we did very very well in that. But what happened eventually was that in the first ten years the key issues were the information content (could you make a whole?) and also the viewing angle and the response speed so you can show wave forms or video or things like that. But starting in about '95 color became the really key technology. Although we made laboratory prototypes of color things, we were never able to design a process that we could afford to build ourselves. It would have taken more investments, and we wouldn't have been able to do that. So what we did then—this was Jim's strategy—we started to diversify. So, not only EL, which was like from when we started in '83 to '95. That was almost all our business. We acquired a part of Tektronix that made color CRTs for military aircrafts. That was a very profitable business, but we all knew that—and the reason Tek got out of it—we all knew that the CRT again was going to be replacing that application with flat panels. At least we had an arm of our company that was used to working with the military and knew what you had to do to qualify products in those applications. And then we formed another partinership—and again this was all Jim—with Xerox that had an active-matrix AMLCD manufacturing plant down in

Palo Alto, the Xerox PARC facility. And, so, the idea was that we would transition from the color CRT to the color AMLCDs and, thus, be able to get into kind of a niche market where you could get people to pay for . . . we basically a market where people were willing to pay extra for performance because we didn't have billions of dollars to invest in really high-volume manufacturing. We made maybe a hundred thousand units a year, and the people in Japan were making millions, and so it was just a different scale. That was kind of what happened, and then unfortunately Jim became ill, had leukemia and passed away. They picked another CEO to replace him, and he just did not want to work with the military. So that part of the business was shut down which was too bad—I'm just talking from a business perspective, not moral or anything like that. The United States got involved in all these wars in Iraq and Afghanistan and like that. I think we would have been very successful—probably a billion dollar company if we would have stayed in that area. Anyway, he wanted to go a different way. The new CEO wanted to compete in things like monitors. . . . Up until then we had been a manufacturing company. We made everything either here in Beaverton or we bought another plant over in Finland. But he wanted to get out of manufacturing, and he wanted to go buy already-built displays from Asia, and then just put the Planar name on it. The trouble then is you can't get the kind of gross margins that you need to support the engineering that you need to keep on being at the head of the technology curve. . . . Initially, you cut out a lot of expenses, but after a while you don't have any products and your sales go down. That's why Planar the last ten years it's just kind of struggled. It doesn't have the basic technology leadership that it had in the display industry during its first almost twenty years.

BD: This is kind of a nostalgia question, but when you started Planar did you envision this? I mean, of course you have to believe in what you are doing, but how did you . . . ?

CK: I was naïve in that I always thought we were going to be successful. Again, I thought the technology was neat, and I thought there was a real market for it, but I didn't envision that we would be a hundred-million-dollar company or a five-hundred-million-dollar company. I just . . . wanted to get the company so that we would be profitable. One of the nice things about Tek is that they really treated their employees well, and we wanted to have that type of company that could have that type of culture also. So, I think we did very well in that regard. At its peak, Planar was a thousand people. We had three different manufacturing sites: Beaverton, there's one . . . we bought a company in Wisconsin, and a company in Finland outside of Helsinki. I would have like to have been able to continue that, but. . . . I mean it wasn't only Planar that went the other way, the whole American industry went the other way. The trouble with that though is—and I think a lot of people are finding this out—they talk about, "Well, I'm going to do the engineering here, but I'm going to outsource all the manufacturing." Well, the problem is, when you're manufacturing something, you have to have engineers involved to make sure everything is working right. These engineers really get to understand the product well, and they see . . . and they're smart people, too. Just because they're in Asia doesn't mean their not smart or smarter than we are. They get their own ideas out, and pretty soon the engineering's being done over there and not being done here. That's why a lot of people are concerned about the future of America is because . . . I mean a certain amount of outsourcing might make sense if you're really doing trivial stuff, but anything technical that has the ability to have further improvements over time, if you start outsourcing that, after a while you'll find out that they're doing better than you are . . . . Again, I'm not an economist, but it seems to be a lot easier for people in Asia to raise capital to build manufacturing plants than it is here. I think it's the way their financial system is set up, and wall street guys want a certain return on investment, and they want it really quickly, and they don't want to invest a billion dollars in this plant and wait five years before it's paid off and you start making money. It's just not the way it works here anymore. So, you have to be very innovative. In our industry, I don't know—I'm talking about diplays now—I don't know . . . I mean there's still new companies forming, but just about everyone that I know of, their business plan is not to manufacture, but it's to acquire the intellectual property and get the

patents, and they make prototypes and they basically license it to somebody overseas. And that, I'm sure, has some advantages in the maybe ten or fifty people involved in doing that can do well, but you don't create the thousands of jobs and opportunities for people to do things. You wanted me to talk about why Tektronix was kind of the mother of a lot of things. There was just a huge number of people at Tektronix. You know, I have a PhD. I'm an academic type of person. But the thing that actually most impressed me about Tektronix was that there were people that had . . . you know, were technicians, maybe they only had two years of college, and there were engineers that, you know, they hadn't received their education so long ago that a lot of new things had happened since then. But a lot of these guys were just, you know, they were hobbyists, just loved that technology, and they could do things and be interested in doing new things and being so creative. Tektronix really had a very creative workforce, and it was very helpful to us when we started. I mean, we knew a lot of people; we knew their capabilities, and we were able to hire people to do just a whole range of different things from manufacturing to designing ICs to building cleanrooms. I mean, all those things, there were people at Tektronix that knew how to do those things, and they were excited about doing something new. You know, I don't know . . . of course, Intel's the big person the block here, but I think there's a lot fewer things that have come out of Intel than have come out of Tektronix. Part of it was the fact that Tek made this big change in size from twenty-five thousand to four thousand, so it just threw a lot of people out into the community that wanted to do something, obviously. They wanted to continue to work. . . . I think Intel, if anything, it's probably expanding. . . . The only large Intel spin off that I can think of is Sequent that now is owned by IBM, but there is probably others. I'm just probably not up to date. You've seen that chart that shows the . . .

BD: Yeah, the map. It's fascinating.

CK: Yeah, it's a great chart, I think.

BD: So, what do you think is the most interesting thing that's happening in your industry, the flat screen . . . technology-wise?

CK: Well, there's always something new going on. Our technology was called electroluminescence, which broadly means you apply a voltage to . . . or an electric field to a material, and it gives off light. But the type of materials we used are called inorganic—things that, you know, calcium or phosphorus or sulfur . . . you know, the things that actually were the same types of materials that made phosphors on the old CRTs. But toward the end of the '90s, people started using organic materials in these electroluminescence devices. If you look at the periodic table, there's like a hundred elements, and there's only so many permutations you have of those basic inorganic permutations. But organic materials—which are basically just things like carbon and hydrogen and oxygen and nitrogen—there's just millions of ways to combine those materials, . . . and the chemical industry is very clever, and the oil industry. Everybody knows how to manipulate these things, so people learn to make very sophisticated molecules that could give of any color. And the thing that's really nice about these organic EL—they call them now—organic EL is that they operate at very low voltage. One of the advantages of the liquid crystal display is that it operates at a low voltage. Our displays maybe operated at a couple hundred volts; liquid crystal display operate at maybe ten volts—something like that. That's the same way with LEDs. . . . Samsung has been making organic EL displays in their cell phones for several years, but they've had a hard time scaling up to large TV size which is kind of the ultimate. People want to do it this way, and just the last consumer electronics show in January, both Samsung and LG are showing fifty-five-inch organic EL displays, so I think that's probably the next thing. When we started . . . the difference between an EL screen and a liquid crystal screen is an EL screen gives off its own light. So, it can be just as thin as the glass it's on, and the film itself is less

thick than your hair. So, it's nothing. But LCDs basically have a light source behind them. They used to have, basically, florescent lights, and now they have LEDs. They say LED TV is really an LCD with an LED back light is what it is. A lot of people don't appreciate that, but . . . . So, you can make it a lot thinner, a lot lighter, a lot faster, and they can get a very wide color range. So, I think that's going to be a really big thing. The other thing—which hasn't been solved yet—is you have basically, in the tablet area, you have two basically separate directions. There's the Kindle that is very light and sunlight readable, and it's basically black-and-white—and it's also very slow, so you can never show a video on it; or you have the iPad that has an LCD, which is very nice and colorful, but it's a lot heavier, and it consumes a lot more power. The Kindle can maybe run a month on the same type of batteries. So, at some point, people are going to be able to figure out how to combine the best features of both of them, and there's a lot of different . . . just kind of beginning in the laboratory type of approaches to that, but I assume that in the next ten years or so you see something that's light as a kindle and as sunlight readable as a Kindle with a color and response time as the iPad display. It will be a pretty impressive thing, I think.

BD: Let me go back a little bit and ask what moments or projects stand out in your mind during your career?

CK: Well, of course the first display. I have a picture of an advertisement downstairs I can show you. The first really good computer was made by this company called Grid, and it used an EL display. Actually, it wasn't our EL display because we started a little bit in . . . . We were in competition with a small little company in Japan called Sharp, and actually we won that competition eventually, but that's because they focused on LCDs, I guess. But anyway, in the beginning, they had a little head start on us. That first Grid computer, and we then started making that size displays, and we sold to other computer manufacturers. It was used by astronauts in the early days of the space program as they were orbiting the earth, and, as I said, I think that was really the first viable laptop computer. I mean, it used to be . . . they tried to make LCDs then, but at that time, I mean, unless you're looking directly on you couldn't see it anything off the side, and it took forever for the screen to change. It was really wasn't very good at all. So, that was like '84, I guess, that happened. Then in '88—I think you gave me the picture here—we made the first . . . this was a nineteen-inch display for Digital Equipment Corporation. I don't know if you remember Digital Equipment. It used to be the major . . . what did they call those . . . minicomputers. You know, it was a box like this. But they were kind of going in competition with . . . . You know, IBM made these mainframes where you had to have a separate building that had separate cooling. These minicomputers you could put in your own laboratory, and they were pretty sophisticated. That was a nineteen-inch display, and that was way way ahead of the time, and really the LCDs couldn't make something like that until like mid-'90s. This was like '87.

BD: And this was when it was yellow? Everything was yellow?

CK: Yeah, it was just yellow. . . . So, that was a big moment. . . . I don't think we have anything that really shows it. You know, the way this works, you have this thin film and you have to apply a voltage, so you have to have an electrode on either side. The top electrode is transparent because the light has to get out. But the back electrode we used aluminum, and, so, it was very shiny and, so, it was reflective. So, we had to put what they call a circular polarizer over it so we could get a dark background instead of a shiny background. One of the guys in our group by the name of Eric Dickey developed a process to turn those shiny aluminum electrode into nice, deep, black electrodes, and it gave very good contrast. That was kind of when we finally beat Sharp in the EL display business because we could make these displays just have so much . . . such superior contrast—really black blacks, and of course there wasn't any white, but yellow yellows.

BD: You've probably answered this, but why this area? Why did this happen here?

CK: Well, in my case—and I think in a lot of people's cases—just because Tektronix was here. . . . Howard Vollum grew up here, and that's why he was here, I guess. But, as I said . . . Tek was the largest, I think, employer in Oregon—private employer, and probably the government was bigger. And they were involved . . . you know, they were very civic minded. They had foundations, the Murdoch Foundation, and Howard Vollum basically funded the development of the Oregon Graduate Institute. They funded chairs at Oregon State in the engineering department. Howard, again, I think he was a real engineer at heart, and he encouraged people to be innovative, and he acquired . . . the personnel at the company was very innovative and interested. It wasn't a nine-to-five job. All these people were . . . you know, they go away at home, and they'd be thinking about it. Have you every gone over . . . there's this Tek museum?

BD: I haven't. In southwest?

CK: Yeah. It's on Beaverton-Hillsdale [Highway]. About 45th and Beaverton-Hillsdale. That's kind of fun. There's still guys there that just love the Tek instruments. They sit there, and they recondition old Tek instruments. You can see some of the early interesting CRTs that Tektronix made there. We have a group called Society of Information Display. We have a northwest chapter, and we went over there and had a nice evening session over there. Just must have been in January this year.

BD: I remember Pat said people were going.

CK: It just has to go with Tektronix and the culture that Tektronix had. You know, I don't think that . . . people weren't told . . . were given a lot of freedom. . . . Like I said, Tektronix helped us spin out. It was a friendly spin out. It wasn't like a lot of people leave, and then there's a suit between the new company and the old company. They had a very supportive approach to their employees and let people fulfill their potential. They wanted to be successful, too, but they wanted it in a way that didn't really force you to just go down a certain narrow path. Again, I've never worked in Microsoft, and I've never worked in Intel, but I don't think they have that type of culture that Tektronix had here.

BD: Well, is there anything else that you would like to talk about that I have not asked?

CK: Well, one other thing. . . . You wanted to know about big events in the company's history, and probably one of the very significant ones, the one that probably finally got us over the hump to be profitable is we acquired this company in Finland called FinLux about 1990, I think it was. They made displays with the same technology as we did. But they were part of a much bigger company that was mainly a building-materials company. But they had . . . This was before the formation of the EU, so every country had its own little market and had various tariff barriers, and so you could kind of be a boutique electronics company or boutique some other type of company within the borders of each country. When this larger company—which I think was Lohja—found out about the EU, they figured they could no longer be competitive in the electronics field. They just didn't have the resources to do that, so they decided to spin off this operation. That operation was about the same size as we were, and we were losing money, and they were losing money. You might have though we'd be crazy to take that on, but the . . . again, you got to credit Jim Hurd with this. His idea was, "Well, right now were competing against each other, and we're driving prices down to such low levels that neither one of us can make profits." Also, although we were doing fairly well in the United States, we didn't have any market access to Europe, and Europe has a lot of instrumentation and medical tech companies which is

really what we were going for then—that we thought would be interested in our market. So, we thought if we combine the two maybe we could make one plus one equal three. So, we spent about two years . . . a lot of us would spend maybe a quarter of our time over in Finland because they weren't quite as far along as we were in terms of getting their manufacturing yields up, and some of the processes for controlling the process flow and design . . . make sure everything was qualified and meeting all the certifications and things like that. So, that was a really challenging time, but somehow we came out of it, and we did make one plus one equal three, and for me and a lot of people, it was a really rewarding personal experience to get to know a lot of these people in this other country and see what their culture was like. You know, I have a lot of respect for those people, and it was a great opportunity. I don't know if I'd ever get a chance to visit Scandinavia . . . certainly not spend as much time as I spent there. So, that was kind of the make-or-break decision we made, and that one fortunately turned out okay for us.

BD: Anything additional?

CK: Well, another kind of interesting episode in Planar . . . I wasn't so involved. It was more Jim Hurd. As it became clearer in the late '80s that Japan was making these massive investments in display technology—again, they were selling things at prices that we thought were much lower than the manufacturing cost were—Planar brought this free-trade complaint to the Federal Trade Commission. (PBS actually made a video of it. I gave it to the head of the Washington County Museum. I think he has that.) It was very interesting hearings where we had our lawyer, but we were fighting not only all these companies in Japan—we're talking about Sharp, Hitachi, Toshiba, Panasonic, you know, all the big [companies]—but we were fighting not only the Japanese companies, but we were fighting all the big American companies because IBM, for instance, they were buying all their products from Japan, and they didn't want to pay more money for them. Anyway, these hearings went on, and, again, David-and-Goliath type of thing, we actually won, and so there was a tariff placed on some of these display technologies. You're probably aware that Sharp has a plant in Camas?

BD: I did not know that.

CK: Yeah. And the reason Sharp has a plant in Camas—which is mainly R&D now—is they would do the final assembly of their displays over there to get around these tariffs. It was Jim's philosophy . . . that even if Japanese companies ended up making things here in the United States, they would create all the support infrastructure companies that service these companies that we would be able to benefit because there would be a lot of companies around here. Just like Nike and Adidas and Columbia, they're all around here. They've got a big support infrastructure in the footwear and athletic. And, so, the idea was to try and make this area a center of display technology. The sad thing about that . . . I don't want to get sued on this thing . . . it was not only Planar. It was a consortium of all the flat panel displays. So, Planar was an EL company, there's a couple plasma companies, and there's a company in Michigan called OIS . . . . They were the only company that made AMLCDs. They were a government-financed operation, and the idea was that they were going to make these displays that go on these cockpits I told you about earlier. Apparently, OIS got approached by one of the major users—I think I know who, but I'm not going to say because I don't want to get in trouble—that if they would drop out of this complaint with FTC and thus allow the active-matrix people, which was mostly what Japan was doing, to not have to have these tariffs and be able to continue to manufacture in Japan and not in the United States, they would get a certain amount of business from this company. They basically got bribed to drop out, and because of that everything is now made in Asia, it's not made here. It's just really a sad situation. But, again, that just kind of shows you some of the perspective that Jim had of where things were going and what you had to do to be successful and what you had to do to

have the industry group to make things happen. Yeah, it's too bad. I mean, we were . . . It had kind of negative connotations in Planar with a lot of the big companies for a while because they thought we caused them a lot of trouble, so we probably hurt ourselves in the marketplace by doing it, but on the other hand it was a matter of either doing it or just getting completely wiped out. At least we were able to finally find markets for where we could be successful.

BD: Shall we end there?

CK: Yeah, probably.

BD: Well, thank you very much.

*****

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Jim Hurd
Bill Walker
Jerry Viera
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Planar
Tektronix
Tek Development Company
TriQuint
FinLux

Oregon Graduate Institute