Qualcomm

Fire-side disscussion at J.P. Morgan Hardware & Semis Access Forum on Tuesday, August 16th, 2022 at 12:20 PT.

Samik Chatterjee: [0:03] Good afternoon, everyone. I think most have taken a seat, so we'll get started here. For anyone who's still grabbing lunch, please take a seat. Thank you. I'm Samik Chatterjee. Welcome back after lunch here.

[0:20] We have the pleasure of hosting Qualcomm and Akash Palkhiwala, the Chief Financial Officer from Qualcomm, Akash, thanks for making it to the conference here.

Akash Palkhiwala: [0:28] It's my pleasure.

Samik: [0:29] Just for a bit of background, Akash leads the global financial organization, strategy, M&A, IT, and investor relations at Qualcomm. Akash also serves as a member of Qualcomm's executive committee. Before this, Akash was the Senior Vice President and the finance lead for QCT for four years. Joined the company in 2001?

Akash: [0:54] Yeah. Way too long ago.

Samik: [0:58] Has an MBA from the University of Maryland. That's a bit of background on Akash. I'll get started here. Akash did mention he didn't want to take any smartphone questions.

[1:07] [laughter]

Akash: [1:11] I don't expect you to listen to that. [laughs]

Samik: [1:16] Great. Let's dig into some of the longer-term questions first. I'm sure I can leave the smartphone questions to the people in the room. [laughs]

Akash: [1:26] No problem. Any question is fine.

Samik: [1:31] Let's talk a bit about broad technology changes -- I think you've talked about the one technology platform as well, for a while -- how the broad technology changes in the industries you are involved in or participating in, those are helping Qualcomm differentiate in terms of your position in the market and leading some of the drivers towards you in terms of growth.

[1:54] [phone rings]

Akash: [1:55] Sorry. My son just started messaging me right when this started. From our perspective, there's a simple thing that's going on in the industry that's creating need for our technology. With the hyperscalers and cloud, everything is trying to connect to the cloud. It's very simple.

[2:21] If you believe that everything is going to connect to the cloud...When I say everything, pick an industry, healthcare, manufacturing, agriculture, transportation, whatever industry you like. If you believe that everything in that industry is going to connect to the cloud, it's going to require three key technologies.

[2:41] It's going to require connectivity. Whether it's 5G, WiFi, pick your flavor, we are the leader in each one of them. Second is most of these devices are battery-powered, so it needs to be very low-power processing.

[2:59] Then third is each of these devices, the whole point of connecting to the cloud is to be able to collect data. These devices are going to have to do AI at the edge to decide what data is sent over to the cloud.

[3:14] If you believe in this vision -- everything is going to be connected to the cloud, everything on the edge needs to be smart -- then that creates demand for our technology.

[3:23] That's the fundamental premise that, when Cristiano became CEO year ago, he changed our focus as a company and said, "OK, if this is the premise we want to make a bet on, every device that's on the other side, we should be selling our chip into." That's the framework.

[3:43] If you look at our technology portfolio, because we come from the phone heritage, we have all the connectivity technologies and all the processing technologies. Connectivity technologies, 4G, 5G, WiFi, Bluetooth, GPS. We are number one, I think, in all, if not most of them.

[4:08] Then you look at the processing side. Low-power CPUs, GPU, AI, security, audio, video, display, everything needs to be integrated in a very small form factor in mobile. We need to be an expert at all of them, all of these technologies, which we have become.

[4:31] We are in an enviable position from a technology portfolio perspective. You pick most of our competitors. You pick NVidia. They are really good at two things. They don't have the rest of the technologies. You pick AMD. They're good at three things, but they don't have the rest of the technologies.

[4:46] Because of the virtue of being in phones, we have this portfolio that applies to this industry transition I talked about. Maybe I'll pause there.

Samik: [4:55] That's a helpful overview. Let's start with digging into each one of those a bit, the auto market first. Really, the auto market is on the cusp of big changes here. We are focusing on electric vehicles ramping quickly, also automated vehicles or autonomous vehicles, whatever you want to call it.

[5:15] Where are the opportunities for Qualcomm? Maybe help us think about the timing of each of those as you look at the auto market.

Akash: [5:23] I'll maybe go back, try to link each of these markets to the framework I just laid out. Every car is getting connected to the cloud. If you look at the Tesla model,

you have 4G in the car. You have WiFi, Bluetooth, GPS, power line communication inside the car.

[5:46] We are the leader in those technologies I mentioned earlier. We have the ability to be the silicon provider that connects every car to the cloud. We are already the leader in that market. As more cars get connected, we have a chance to continue to be that leader. That's the first thing in cars.

[6:07] Second is the processing that's needed inside the car. There are two areas where you need the processing. The consumer experience inside the car is changing. You've gone from having monochrome displays, both from a dashboard and an infotainment perspective. That's changing to a digital tablet-like experience.

[6:32] We have the ability to take the tablet chips that we have, the smartphone chips that we have, and bring them to automotive. You will hear that as a digital cockpit market or infotainment market. It used to be supplied by NXP and Renaissance and other companies. Now, it's all us. As you think forward, we are the chip company for the inside consumer experience of the car.

[7:00] Whether you think about entertainment centers in the back, rear view displays, in the middle of the car, on the sides of the car, the infotainment cluster in the front, all of those, we have the ability to supply the chip to power. That's the second area within the car that is really our market going forward.

[7:20] The third area is ADAS. I think of ADAS in two parts. There is the software and the hardware. Hardware in ADAS requires low-power processing, and it requires AI. Because of our phone heritage, we bring those technologies into the car. We can go from the lowest-end car to the highest-end car.

[7:43] If you are Volkswagen and you have a Golf and you have a Boxster or 911, you need one chip platform that can cut across all those vehicles. NVidia is not going to be able to do that. We can. We can go from the lowest-tier car to the highest-tier car and use the same software baseline. The customer can use the same software across all of it.

[8:09] That's the third place where we are very strong in the car going forward. I'll come back to ADAS and the competitive landscape there.

[8:16] The last one is just software for ADAS. We acquired this company called Arriver, which came from the Veoneer transaction. We have a joint effort with BMW to develop software for their cars for ADAS, going over to autonomous driving. Then we have the ability to take that software and sell it to everyone else.

[8:42] Very strong position across all those areas in the car. If I bring it all together, we think of it as digital chassis, which is our platform that sits on top of the physical chassis and cuts across all these capabilities that cars are going to need.

[9:00] Last thing I'll say is just from a competitive perspective, what we have is a solution that addresses all these paradigms, which none of our competitors have. If you think

about Mobileye, they're very good at one thing, which is perception AI. They have a vertical area, but they can't go horizontal across everything else I talked about.

[9:25] NVidia is focused on Level 3 and above computing, but they cannot scale down in terms of price and in terms of performance. We have the ability to do all of it. I think we have a legitimate shot. Of course, we have to prove ourselves.

[9:40] I'll maybe invite all of you to September 22nd. We are doing our automotive investor day. We'll give a lot more detail about this. I think we have the ability to be the car company for the car chip company for the future.

Samik: [9:57] Just to then take those three areas a bit separately, on the ADAS side, like you mentioned, a Mobileye-like company is basically specialized in perception, or you'll have other examples there.

[10:11] When you think about Qualcomm, how do you think of the opportunity of becoming more like a turnkey solution provider, where you become the integrator of choice for the automakers, where you have a full sensor suite that you integrate?

[10:27] Obviously, we know that a lot of the large automakers have their in-house projects that might not opt for that, but there's a long tail of automakers that do need that turnkey solution, given some of their reliance on third party solutions.

Akash: [10:42] If you break it into parts, all the auto makers are going to want different suppliers for different sensors. Whether it's camera, radar, or LiDAR, you might have different suppliers. The challenge really is who's going to sit in the middle?

[11:01] Who's the central compute chip that is going to take all the data from the sensors and make sense of it, and then allow the car to make decisions based on that data? That's really the pole position to have. To be the central compute provider for the car.

[11:18] When we talk about our ADAS plan, that's where what we are focused on is we have the ability to do that. The sensors can be whoever. It could be a camera from any of the companies, LiDAR from any of the companies.

[11:33] The difficult part is how do you fuse all that data -- you hear the term sensor fusion -- fuse that data and enable the car to make a decision to improve the driver experience. That's the hard part. That's what we are working with BMW on.

Samik: [11:49] How do you think about the content opportunity on hardware related to software? Is this an area where the software content continues to expand over time as you add more to the software stack, the hardware is more stagnant?

Akash: [12:04] The hardware is going to get very complicated. If you look at the hardware that goes into a Tesla, just a tremendous amount of silicons. If you are convinced that all cars are going to have that model, ADAS could be just as large a market as PC or phones in terms of Silicon hardware content, but that's one part of it.

[12:31] Now we take that, think about the software opportunities on top of it, tremendous evolution happening in software. As more sensors, more data comes in, the software problem becomes harder. That's why we acquired a rival. That's expertise we did not have in house. We got it through the rival acquisition.

[12:49] The third problem is data. Whoever owns central compute needs to be able to ingest all this data, make sense of it, tell the car what to do, but then also send data to the cloud to take actions. There is a data business that automatically comes out of owning the software, which is the third leg of the stool in ADAS.

[13:13] Even if you just think about the chip business, very large opportunity. If you're throwing 500, 600, 700, 800 tops at the problem, the silicon opportunity is tremendous. Then you have the software for sensor fusion, and then you have the data business opportunity on top of it. It's a very extended area.

Samik: [13:34] Then obviously the biggest opportunity in dollar terms longer term will be these hardware and software combined. If you had to relatively size up the digital cockpit and the connectivity or the telematics portion of it, how would you quantify the size of those addressable markets?

Akash: [13:56] It's interesting. ADAS is definitely the largest especially when you take all three that I talked about, digital cockpit probably comes in next, and then connectivity third. The interesting thing with digital cockpit is if we have both ADAS and digital cockpit, we can actually do it with the same set of chips, which again, our competitors cannot do.

[14:22] Because it all just gets combined into central compute, and the central compute can power everything you need to power. Those markets you could very well see over time they could consolidate into one set of silicon property.

Samik: [14:43] Let me ask you one more on the auto industry before we move over. You've tried to acquire automotive semiconductor companies in the past.

Akash: [14:52] Yeah.

Samik: [14:53] What sort of is now driving the overall sort of belief that you can do this organically, or is this more of let's see where we get to, if we need to acquire on the way, we can add capabilities as we need on a need to on need basis.

Akash: [15:13] Since the entire NXP episode, by the way, nothing against NXP. They've obviously done very well in auto. If you look at what is happening to the car, forget us or NXP overall, right? Just what is happening within the car.

[15:27] You had a bunch of distributed compute in the car. That's where all the MCUs were sitting. The car was not cloud connected and it did not do AI. The architecture is changing where you have sensors. The distributed compute gets combined into central compute, and you're doing processing and AI at a very high pace.

[15:49] Really, with the change in the architecture of the car, it automatically favors companies that are compute companies, like us, Intel, and NVidia. We are trying to supply into the future of the car rather than the past of the car.

[16:10] The assets that we need are more the software assets that we bought with Arriver rather than what we are talking about in the past.

Samik: [16:20] I can change gears to other topics, but let me open it up to the audience for any question. Please, go ahead.

Audience Member: [16:25] [off-mic question]

Akash: [16:58] Maybe I'll try to reframe maybe some things that I said that you drew a conclusion I don't want you to draw. For these three areas, connectivity, digital cockpit, ADAS, we can be all things to all people. Clearly, there is a bunch of other silicon in the car that we are not participating in, that others are. Maybe to narrow it down to those things.

[17:21] The historical car model, as an example of how infotainment systems were always done. The car OEM will pick a tier one. The bidding happens at the tier one level, then the tier one bids chip vendors. That's how silicon was picked. The historical kind of car chip companies, their customer was actually the Tier 1.

[17:48] Today, when BMW makes a decision, Porsche makes a decision, or Volkswagen makes a decision to pick us for ADAS -- both of those companies have picked Qualcomm for their ADAS solutions -- the decision comes from the OEM. We are selling directly to those CEOs, not their procurement departments anymore. Then they tell the Tier 1s to bid with a Qualcomm chip.

[18:19] The entire model has changed. The reason for that is the chip decision and the ADAS decision is maybe one of the most important decisions they're making. They don't want to defer that to a Tier 1. They absolutely want to own it, especially through supply constraints. That's the second lesson they have learned.

[18:40] The interaction has completely changed. Our interaction now are with auto company CEOs talking to [inaudible] , not to procurement departments, either of tier ones or at the OEMs. Of course, those conversations follow, but the decision gets made at the CEO level.

[19:00] [crosstalk]

Audience Member: [19:00] [off-mic question]

Akash: [19:15] I'll say the first two domains, which is connectivity and cockpit, I think of us as the winner and we've taken most of it. Of course, there will always be another player. To be honest, media tech will be the second player in both of those areas because they have the same technologies that we have in phones.

[19:35] It's not going to be some of the existing names you're going to debate. On ADAS, you have three separate players who are material at this point. I'd probably say the incumbent is Mobileye. The challenger is Qualcomm.

[19:54] I'd say NVidia has like a small play at the very top end, but most of the bids that we are in it's us versus Mobileye. I'm sure if you talk to Mobileye, you'll probably hear the same thing. That I would say has to play out. We are in as good a position as Mobileye. NVidia has, in my mind, has challenges.

Samik: [20:19] Akash, just to follow up on that. When you say the telematics and the dual cockpit, you pretty much have the market. That's visibility based on the backlog that you have in the market, not obviously, in the current.

Akash: [20:35] I would say on connected cars, even in today's cars, we are mostly the connectivity solution. More cars are obviously getting connected, so there is a growth curve left. In terms of digital cockpit, anyone who's building a modern experience that's Tesla-like, in cars today but more importantly in cars that will launch in the future, we've won it from our design in pipeline perspective.

Samik: [21:05] We should expect that you are the primary stakeholder there in all made to premium vehicles that are coming with that experience in the future.

Akash: [21:14] That's right.

Samik: [21:17] Any other questions?

Akash: [21:19] Yes, sir.

Audience Member: [21:20] I have a question on IOT when you look at the biggest growth [inaudible] of that segment. What are the products that you're selling into that are going to be an attraction maybe by size and then [inaudible] ?

Akash: [21:33] If you look at our web slides from last earnings release, we had a pie chart there that broke down where our revenue is coming from. Maybe I'll give you the overall pitch and then break into it. The overall opportunity for us is everything that is connected and intelligent can use our chip.

[21:55] That's the starting point and that's how we think about this market, and they just happen to fall in different buckets then. Bucket number one, which is approximately, if you look at eyeball, the pie chart, you will conclude, its 40 percent of our revenue. It is consumer IOT.

[22:12] Think of every device that looks like a phone but is not a phone, so tablets, wearables, hearables, and the two new emerging areas for us are PC and metaverse XR devices. The two big areas by far for growth is us getting into PCs and us getting into metaverse devices. I'd say in metaverse we pretty much have all the design wins, and now it's a question of adoption and scale for that market.

[22:45] Those two could very, very significantly grow the size, either one could grow the size of Qualcomm if you are successful in those areas.

Audience Member: [22:55] I don't want to confuse the [inaudible] .

Akash: [22:58] This would be Apple mode over to Arm. If the PC ecosystem has to match up and move over to Arm, that's us. It's almost like a belief system of do you believe PC ecosystem has to react or not. If they do, then that's our market to go and take.

[23:17] The second is industrial IOT. You look at the same pie chart. It'll probably ballpark it in the 20 percent area of revenues. What that area is, is every single industry that wants to connect devices to the cloud is using our chip.

[23:38] In retail, we are in the checkout counters going forward. If you go to a restaurant and someone walks up with a handheld device for your credit card, that's us. If you're in a Home Depot and you see someone walking around with a handheld device to see price of things, scan it and tell you the price, that's us.

[23:58] We are deploying right now, in electronic shelf labels, in Walmart stores so they can connect the labels to the cloud and change prices on the fly. That's us. You think of any industrial drone. The chip in that is us.

[24:15] Think of everything that's getting connected to the cloud, in any industry, can use our chip. Our problem or our challenge there is to have the channel into the customer. It's not whether we have the right chip. It's not whether we have the right technology. Do we have the channel to the direct customer so that we can educate them on using our chip?

[24:36] The third part of that market is edge networking. Two things that are in it, mainly. First is all WiFi access points. Anyone who has a two-pack, three-pack, six-pack, WiFi access points at home, that talk to each other and just super-easy to install, pretty much every one of them has our chip in it.

[25:02] By far, the leader in WiFi access points now. It used to be Broadcom. We took over the leadership about three, four years ago. We've been the leader since. Very strong position.

[25:14] Second area within that is 5G as a broadband technology into the homes. If you've seen Verizon ads during Super Bowl about having 5G access points in-home that can connect into the broadband, that's us.

[25:34] Those are the things that make up IOT. I know it sounds complicated, but if you go back to the core philosophy of put your chip into everything that connects to the cloud, that's the thing that binds the whole thing together.

Audience Member: [25:46] Maybe just one follow-up. Does the market structure of that segment, given there's a lot of players attacking it, versus some of these other markets that are more [inaudible] structure, what is the relative margin of IOT...?

[26:02] [crosstalk]

Akash: [26:02] What we have said in the past is the gross margin structure of IOT is higher than our corporate average. By the way, I think in most of those areas where our chip is used, we're usually significantly unique in those areas because it comes from a technology leadership place, rather than a commodity market where you have another large player who has the same value proposition.

Audience Member: [26:27] Thank you.

Akash: [26:29] Thank you.

Samik: [26:31] Akash, in relation to that consumer IOT business, have your growth expectations since the last analyst day, when you give targets for IOT to hit, I think, what, 10 billion or 9 billion...

Akash: [26:43] Yeah, nine billion.

Samik: [26:44] Nine billion. Has growth forecast or expectations for consumer IOT changed since we've started to see some of the consumer weakness come through after the post-pandemic boom [inaudible] ?

Akash: [26:56] I would say we grew faster into the nine billion than we thought at that point. Now we are seeing some pockets of weakness. Net-net, I don't think anything changes, in our view. We probably grew faster in the first year than we were expecting.

[27:17] The most important thing to highlight is we could be much, much bigger than that nine billion if one of three markets in IOT hits. One is PCs. Second is metaverse XR devices. Third is industrial. Industrial is going to happen. It's a question of how quickly.

[27:37] Those are markets that can allow us to scale, much, much beyond nine billion. That's really what we are focused on, is on the big prize markets, while leveraging distributors for the longer-tail opportunities.

Samik: [27:53] Then maybe talk about the PC market here. What is required for Qualcomm to really succeed in this market, particularly like you have the Nuvia team that's now working on a chipset. You also have existing chips that you have for that existing market.

[28:12] In terms of convincing OEMs to really have that adoption, are you really more targeting sort of premium devices? Whether your unit opportunity is limited, whether the content opportunity is high, or more of a mass market adoption using the complete portfolio. How are you thinking about the opportunity there?

Akash: [28:30] There is maybe four things that were needed for us to succeed. By the way, people who followed Qualcomm knows that we've tried for a while to succeed in this market, reusing technology from mobile. It's been a focus area.

[28:45] Four things. First, is we needed a CPU that can match M2. As most of you know, Nuvia was founded by the designer of the M1 CPU core at Apple. He left, created Nuvia,

and he's since joined Qualcomm and they have designed a core for use. That was the first thing that was missing.

[29:12] We had only one weakness from a technology perspective is having a CPU that would match. Because we have everything else that you need in a modern compute device. Second, is we needed windows exported natively on Arm. Windows 11 has been imported natively on Arm.

[29:31] We finally have Microsoft has done their part in enabling it. The third thing is moving the app ecosystem from X86 to Arm. This is where our favorite company Apple has helped us because since they moved to Arm, the apps started moving to Arm anyways. Then the fourth thing is working with the OEMs to get the design win pipeline.

[29:59] We are working on number four now. One, two, three are in place. We are working on number four. I'd say I'm a lot more optimistic than I was maybe two years ago on this market.

[30:13] Then maybe I'll finish with the one last comment. The PC OEMs and Microsoft are highly motivated now with M1 and M2 coming out to match the Apple performance. They have seen what has happened in smartphones where Apple has run away with the high end of the.

[30:33] The motivation level from the PC ecosystem is very high at this point. That's obviously great for us.

Samik: [30:42] Maybe then to talk about AR/VR. It seems like it's the exact deposit where the PC market opportunity is, where you have share, but you really want to see more adoption of AR/VR.

[30:54] In your view, and we've all seen these devices or tried them out, there is a sort of a hurdle that they're hitting in terms of either be it a price point or engagement with the consumer. What, in your view, gets you to that inflection in terms of adoption? Is it again a price question? Is it something else in terms of features that are required?

Akash: [31:17] Honestly, from our perspective, it's a technology and a content question. Price will eventually follow. Content, we need experiences on entertainment, sports being the big opportunity there in my mind. There are other areas, but I'll not talk about that.

[31:38] Sports being the big opportunity there and then productivity are the two areas where you could have various use cases. Content being developed, that's why Meta's role is so important because they're investing in the creation of content. That's one.

[31:58] The second I'd say is you want the form factor much simpler than say where the Oculus sits today. It requires people like us making chips that allow that to happen. Of course, chips is a portion of it. There's a couple other problems to solve as well.

[32:15] We are excited about the fact that it is a place where everything that Qualcomm does well, connectivity, low power processing. display camera, are things that are very much needed and problems that need to be solved.

[32:33] I'll not shy away from the fact that what we really need to see is the volumes to take off. Having a hundred percent share of a smaller market is not as good as having a hundred percent share of a larger market.

Samik: [32:44] Last, and this is more of a follow up to the margin question. How much of the IOT market that you're co-pursuing at this point allows for the reuse of technology that's already been developed for previous smartphone generations? How much is it more sort of new R&D, incremental R&D put?

Akash: [33:04] I'll say there are two models of reuse of technology. One, is you just take a chip from the phone market and sell it into the other market as is. You turn the modem off because some of these devices don't need 4G, 5G. You just sell the exact same chip. That's model one.

[33:26] Whenever we go to a new vertical, a new market, we start with that model. The incremental cost is very low. When the market gets to scale, then we take the building blocks of technology we have, and we make a custom chip for that market. That's the second model, but we wait for the market to get to scale, to do that.

[33:46] The PC market is an example of a place where now we have enough scale to make a custom chip for it. The last thing I'll say is there was only one area, and I highlighted this earlier, where we did not have the technology needed, which was CPU for a laptop-like device.

[34:09] All other technologies, whether it's GPU, AI, everything, connectivity, camera, display, we have all those technologies in house. Great example is you think of security cameras, very easy for us to go pursue that market at scale.

[34:33] In manufacturing, there's a conversation about using cameras to inspect a manufacturing line, take pictures, use AI to analyze the pictures, and send back data where there's a defect. Very easy for us to go pursue those markets because we have all the technologies.

[34:50] We could probably just reuse one of the chips we have. The question on a market like that is channel, not the technology or the product.

Samik: [35:00] Any questions?

Audience Member: [35:02] [off-mic question]

Akash: [35:20] A lot of the Intel model, if you look at it, they have an ASP and they have like marketing dollars to get to a net ASP, and their net ASP gives them 60 percent gross margins. It's still a pretty attractive margin structure. Even if you set aside a bunch of monies to do the go to market investment.

[35:41] That's the model that we are following. That's what the industry is used to. That's what we'll do as well. There is no shying away from the fact that this is a channel penetration issue that we have. What has changed, as I mentioned earlier, is the need for

the OEMs and Microsoft to see us succeed, for completely different reasons, to compete with Apple.

[36:07] We are seeing them step up to do their portion and more to help us address some of those issues, so that when we see you next time, Josh, you don't have a Mac. You have a PC with our chip in it.

[36:19] [laughter]

Samik: [36:23] Great. Let me move to smartphones. I guess we have a good half an hour to...

Akash: [36:28] My favorite topic.

Samik: [36:30] talk about smartphones. Let's start with licensing. We've had a lot of back and forth on the licensing business over the last five years or so, in terms of both OEMs stopping payments, restarting payments, etc.

[36:44] How should investors think about the long-term trajectory that they need to model for licensing revenues? Also the relevance of the recent agreement that you signed with Samsung on that front.

Akash: [36:56] No change to the financial guidance we gave at investor day, so I won't go through that again. The agreement with Samsung, incredibly important. For folks who have not followed it, we extended our license agreement with Samsung through 2030, on the same terms we currently have, and it includes 6G technology.

[37:21] None of us know what 6G is. We're all working on it, but we are at the front end of it, and it's already included in this license agreement. A tremendously important for the following reasons. Samsung, at least unit-wise, is the largest OEM in the world. In terms of all the OEMs, they probably have the best 4G, 5G, 6G patent portfolio.

[37:46] Even with those things, they value our patent portfolio enough to sign this extension at the same rates. It becomes a very good benchmark when we are talking to any other OEMs about this negotiation. That's the first key point to take.

[38:09] Second is we don't have any renegotiations for the next couple of years. It's not like there's something that's imminent. The third is the battles we went through in the past and the challenges against the business, which was three key challenges. You can't charge royalties at the device level. It should be at the chip level.

[38:29] No license, no chips, and your royalties are not fair and reasonable. There were court rulings in our favor, on all three of them. Key arguments against our business model have been defeated in court. You put all those factors together, QTL is in a great place. It's a source of stable cash flow for us, and it allows us to invest in these new areas that we discussed earlier.

Samik: [38:58] One of the concerns that still remains is you have these contracts in place or agreements in place with most of the OEMs, but still, as we saw during the 4G time

period as the technology curve started to mature, there were OEMs that stopped payments. In this case, you probably have better context of when those were up for renewal, versus did anybody stop before it came up for renewal as well.

[39:27] The concern is more on, do you stop? Is there an opportunity for the OEMs to stop payment before it even comes up for renewal, and basically take it to the next legal recourse? How do you get comfortable about some of the OEMs willingness to continue to honor that agreement, and it won't disrupt your roadmap on licensing?

Akash: [39:52] Really, when you think about every OEM was our customer, they're working with our chips. We have a very good relationship with them, and they have a contractual obligation to continue to pay the licensing royalty. To me, until there is a existing contract that has not expired, there is no conversation about not paying.

[40:17] The conversation is really about what happens when you get to a renewal date for a contract. Hence the Samsung agreement is so important because it sets the benchmark for a company that has a very strong portfolio against ours. Also as I said earlier, the key arguments that Apple made against our business model have already been defeated in court.

[40:45] We're confident about where we are at. We can't control what any customer is going to do, but this gives us a tremendous amount of stability to our business.

Samik: [40:54] Let's see if there are any questions on the smartphone side.

[40:58] [laughter]

[40:58] [crosstalk]

Samik: [40:58] You've addressed those. Let me then ask you more on the competitive landscape here on the chipset side. MediaTek, Qualcomm, and then Samsung, with Exynos, and Apple, obviously, with plans to launch an in-house modem.

[41:22] How are you thinking about the competitive landscape, how it looks a few years from today? Does Qualcomm remain pretty well-positioned in terms of market share, or do you see any changes coming over the next two, three years?

Akash: [41:36] If you look at the Android market, we've been very vocal that our strategy is premium high-tier Android, is our focus area. It's really down to us and MediaTek. Of course, there's Exynos, but Samsung just made the decision to, in the most important socket for Samsung Mobile, they made the decision to use Qualcomm on a global basis. That was part of our agreement with them.

[42:01] I see it as us versus MediaTek. Obviously, a very large market, 1.3 billion units, and a lot of silicon opportunity. With the amount of silicon in the device growing, I think there's tremendous opportunity for both of us.

[42:16] We have respect for MediaTek. I think they are our competitor in auto IOT, all places, because they have the same technology portfolio as ours, trailing us in terms of

technology but the same breadth. I think there's enough money for both of us to make. That's the first answer.

[42:39] Apple doing their modem. We have been very clear. We outlined our assumption for business with Apple going forward. That's not our focus. We'll have the best modem. They know where to call us if they need us.

Samik: [42:54] The concern, even for investors who assume Qualcomm and MediaTek are going to be the two large players in the smartphone market, there's a concern about the pricing holding up, particularly as the outlook for the smartphone market has changed in recent months based on the outlook in China particularly changing materially.

[43:13] How do you address that concern about Qualcomm and MediaTek engaging in discounted pricing or getting into a price war in relation to just the smartphone industry itself and the impact of that on margins?

Akash: [43:27] I'll say maybe two things. First is I think this is first time in the history of the phone market that we are down to two players. Both of us have been behaving rationally. If you look at comments that we have made on our call, they have made on their calls, you will see some consistency in our behavior. I'll leave it at that.

[43:52] The second comment I will make is when we gave our operating margin target -- I have been consistent in saying that -- we always assume that post-supply constraints, there will be some pressure that will come through on margins.

[44:08] We've always factored into the guidance we gave. Really no change to our guidance. We assumed some pressure when we gave that guidance. If it plays out that way, great. We're focused on executing on upside.

Samik: [44:22] Any questions? [inaudible] . Yes, sir?

Audience Member: [44:26] Thanks for attending. Wanted to get your thoughts on the whole manufacturing localization and diversification CHIPS Act. You guys recently made some big agreements with US-based foundries for forward business. Has this been more driven by business continuity, proper business continuity, diversification of manufacturers?

[44:44] Doesn't matter whether it's geopolitical, geographical, natural disasters, COVID-19 lockdowns. Help us understand how is the team thinking about it mid to longer-term relative to maybe how you were thinking about it two to three years ago.

Akash: [45:16] If you go back to three years ago, where geopolitical was not such a large conversation, supply constraint wasn't a large conversation, if you look at our strategy then, we were the only large chip company that used both Samsung and TSMC at the leading edge. We've always had a large presence in GlobalFoundries at 14 nm, 28 nm.

[45:42] We've always had a large presence at UMC and Smack. We've always been diversified, but mostly because of scale and because of negotiating leverage benefits. If

you look at us, with the geopolitical uncertainty on top of it, and with supply constrained environment that we've had for two years now, our strategy is largely unchanged.

[46:09] We are still very diversified at the leading node. We've talked about using Intel, if they can get to a place where they become a tangible alternative, we'd love to use them. With more manufacturing happening in the US, we have an opportunity to expand our presence at GlobalFoundries. GlobalFoundries' 14 nanometer, we use them a lot.

[46:31] We use Samsung in Austin and Korea. TSMC, they expand their presence here, we would love to use them as well. Honestly, we've always had this strategy. Now, there is more reason to have this strategy, but it doesn't fundamentally change how we've approached the problem. Diversification was a bigger part of our strategy than any other chip company anyways.

Audience Member: [46:56] [off-mic question]

Akash: [47:21] We definitely hear it more in automotive and IOT than we hear in handsets. If you look at the portfolio of handset companies, you have Apple in the US, Samsung, and the Chinese. There's less of a diversification conversation there, a lot more on automotive for sure in IOT.

[47:45] To be honest. Yes, we change our strategy on the fringes because of that, but fundamentally when you step back and look at the approach, it hasn't changed much. Thank you.

Samik: [47:59] Any other questions? Let me then ask you a similar comparative landscape question, but on the RF side. We can hit smartphone RF first on the competitive landscape here. There's been this narrative for a while that as some of the early sort of benefits of the RF attached with your modem starts to dissipate, we'll see the comparative standing rate approval incumbent, like a core war, skywalk start to moderate.

[48:32] How do you feel about where you are in terms of market share and continue to increase the attach with the modem to provide a full solution, even as 5G starts to mature a bit more as a technology?

Akash: [48:48] Here, the approach we used in our front end is we first needed to get a full portfolio of products. Now we have that, and including leading edge performance at mid band 4G payments that we now have leading edge performance across the board. The first part of the strategy.

[49:13] Second part is to leverage our platform and get higher attach rates. That part has played out. It'll play out more, as more 5G gets deployed. Third part of the strategy is to start developing end to end features. Because we have the modem and because we have our front end, we can develop features that work across the link.

[49:38] That people who just have the modem can do, people who have just the other front end can do. That's the next big step we have to take. Then the fourth is expanding

outside handsets into automotive and IOT, and leveraging really the same products across the board.

[49:54] Maybe the last one -- should flip fourth and fifth -- is our RF front end for WiFi. We are the largest WiFi chip company, but the RF that sits next to our chip is from our competitors. We have the opportunity to go win that.

[50:12] This is a multi-play game for us. We are halfway through. There's a lot more to do for us. I'm not assuming any kind of brave assumption on millimeter wave, because if that changes then upside then you could have a lot more growth very quickly.

Samik: [50:33] Then how are you thinking about the opportunity around, or how would you quantify the opportunity around RF or WiFi? I believe WiFi 7 is really where...

[50:43] [crosstalk]

Akash: [50:43] Our intersection point with phones, we intersected with 5G, with WiFi we're intersecting with WiFi 7. Typically, per chip it's a few dollars of WiFi attached. It depends on which bands, on which region. It's very difficult to size it per device basis.

[51:06] It's a very large market that we have zero share in today. That's an opportunity for us to grow. In phones and in access points, both.

Samik: [51:19] Since we are talking smart phones and might as well ask you the more near term sort of progress question, which is, you've talked about the inventory digestion in the market for them. That's included your guide for the next couple of quarters. What's the latest trend there? What are you seeing?

[51:37] Particularly one question that we're getting is, what gives you comfort around a two quarter inventory digestion, and not a bit longer than that.

Akash: [51:45] This is obviously evolving situation. What we said at earning still holds true. The data we have from our customers is there's uncertainty in the market. They have adjusted their purchases that was reflected in our guidance already.

[52:07] We think they're going to be careful for the next couple quarters just based on what we know is sitting in the channel globally. We obviously have a lot of data, both because of our licensing business and because of our chip business on where the chipset.

[52:25] Based on kind of triangulation and customer information, that's our best estimate. That's no change to what we set our earnings.

Samik: [52:35] I have a couple more for you too, before we wrap up. Any more questions? Last couple here. Capital allocation, how are you thinking between buybacks and M&A? Particularly given where the smartphone market is, but you're diversifying and that's continued to drive revenue growth. How you're thinking between allocating between buybacks and M&A at this point.

Akash: [53:01] We've obviously done one large acquisition, which is we bought back a bunch of stock over, of over $30 billion. That's worked out great for us. Really our M&A model has been smaller acquisitions. We've acquired RF 360, which created our RF business.

[53:22] We acquired Nuvia, which is the basis for our PC play. We acquired Arriver, which is the basis for ADAS software play. In each of these areas, when we think about a new market, we're looking at what's the technology that we're missing and how do we get that. Those are smaller acquisitions versus doing a transformative acquisition. That's in our sweet spot.

[53:47] The philosophy is pretty simple. We have a plan. Anything that can accelerate the execution on the plan is something that fits in our M&A model. We'll stick to that. No change to our buyback strategy either.

Samik: [54:01] Lastly, what do you think investors are still missing about the Qualcomm story and where you and Cristiano have a vision? What are investors not appreciating in that?

Akash: [54:11] If you think about the timeline, Cristiano has been CEO for a year. Last November, eight months ago, he came out and talked about the company a different way than we had ever either presented the company or, even internally, the way we were executing.

[54:33] I think we have come a long way in eight months, since Investor Day. Most people recognize the emphasis on the diversification plan. They recognize the progress and the opportunity, but there's a lot more to do. We are hard at work executing on what we said we'd do. Hopefully, the investors see that happening.

Samik: [55:03] Thank you. Thanks for coming to the conference.

Akash: [55:05] Of course. Thank you. Thanks, everyone.

[55:07] [silence]
