



Daniel Newman: Matt Johnson, CEO, Silicon Labs. So happy to have you here for the 2022 65 Summit. How are you doing?

Matt Johnson: Daniel, good. Thanks for having me. I'm excited to be here.

Daniel Newman: I'm really glad we were able to do this. I laugh about the fact that we are so close that we should be doing this in person. Long story short for everyone out there, I'm downtown Austin, he's downtown Austin with one of the best views of Lady Bird Lake in the city, but sometimes time still forces us to jump on and do these own video.

Matt Johnson: I think it's time and maybe a leftover of the pandemic, but we'll do the next one in person, for sure.

Daniel Newman: We will. I'm going to take you up on that. All is pretty well. You're in the semiconductor space. It's been a boon of a couple of years. 2019/20, I wrote a piece right before the pandemic that said semiconductors will eat the world. I think I had no idea just how right I was going to be heading into a period of time when everything went digital in a really short and compressed period of time. But now here we are a little over two years later and we've come full circle in some ways, meaning we had this huge boom for digital, we had a crazy pandemic, it caused a ton of cash to be pumped into the markets, markets roared, everything went risk on. Once I talked to CEOs, I do like talking a little bit about markets as well as technologies.

Wanted to just start with you there before we dive into what Silicon Labs is up to and I've just got to say, how is it going? I still see a ton of demand for chips. Recent earnings have been largely pretty good. TSMC's still pumping out big numbers out there in Taiwan. But if you read the media narrative, at the same time, you would think the buildings are falling.

Matt Johnson: That's right. Yeah, all true. The way I tend to think of it is the semiconductor space specifically, it was fundamental to our world before the pandemic and it will be afterwards, Our economy runs on it. Our people's lives run on it. I mean, the easy way to think of it is, imagine the world with and without. If you just took them all away, that would be the end of the world in terms of thinking about a bad experience. That hasn't changed. I think through the pandemic, it absolutely accelerated adoption and pulled ahead in some spaces. I think that it increased the visibility and awareness of our industry more than ever before. You go to any friend's house or dinner now and everyone's asking how you're doing on your chip supply, which never happened before all this.

But the fundamentals haven't changed. The need and the foundational component of semiconductors is just as strong as it ever was, and I think the next decade or so has a brighter outlook than it did before. That being said, it's never a perfectly linear progression. There's always lumps and bumps along the way and our industry's used to that. I think the key takeaway is the outlook is as strong, if not stronger. Yes, there will be bumps, but we know how to navigate them. It's what we've done as an industry for a long time now.



Daniel Newman: Absolutely. That's a great assessment. It could take us down a road and make this the whole conversation, but I want to talk about IOT. I want to talk about what you guys are doing in AI. There's so many other things I wanted to jump into right now. One of the things Silicon Labs has really zeroed in on is IOT and the opportunity that is IOT and building the chip sets required to develop these next generation of devices. You've been really focused on an open approach. Talk a little bit about why that's so important as we see the IOT come to fruition.

Matt Johnson: Why is open so important? I guess first things first, we have gone all in on IOT. It's all we do now and specifically wireless connectivity. I think why open matters so much in wireless connectivity is if you look at the history of our space and technology, open generally wins, and if you look at what we're dealing with in IOT, it's really a unique space, and we can talk more about that, but think of the just vast scale and diffuseness of this market in terms of customers, technology, ecosystems, it's unlike any other. What we've seen and found is that if companies try to overly segment, compartmentalize, close ecosystems, it doesn't work. It becomes too confusing and it stalls the scaling and growth of the market. An easy way to think about it is put ourselves in the shoes of a consumer going in and saying, "Well, Zigbee doesn't work with Thread, it doesn't work with Z-Wave, it doesn't work with you name it." What are they supposed to do?

Or they look at different ecosystems and, "Well, if I buy from this ecosystem, will it work with that one?" That's not set up to scale, that's not set up to be a great experience and our industry's never going to achieve what it's supposed to and capable of unless we solve that. I think great examples of that, Matter is one where it's gotten a lot of attention in the industry, probably for good reason, that it's really seldom in our space where you see so many competitors in technology coming together and working together because they've realized through hard experience that trying to have closed ecosystems won't get us where we need to go.

Daniel Newman: Real quick. Tell them what Matter is, because we have a mixed audience, some are much more technical.

Matt Johnson: For those of you who don't know Matter, think of it as a connectivity standard overlay that goes over a lot of existing standards and products. As a consumer, you'd see Matter compliant, which means if you buy it, it's going to work with everything else. It's really trying to abstract up the developer experience and the consumer experience so they don't have to worry about it connecting. It's just going to work and it's going to work with everything else. That's a pretty big step for our industry to get all these companies, all these competitors to work together and to say, "It's going to be hard, but we are going to work to make it so consumers don't have to deal with this, developers don't have to deal with this. It's all just going to work." That's where we're at.

I think that's one of the biggest testimonies you could have to people realizing that it needs to be open in order for it to be successful. We've leaned in on it. We are actually the largest source code contributor as a semi company to matter because we really believe in this. IOT's all we do. We see it as the long game and our success is the IOT succeeding. We'll do whatever we can to help with that.



Daniel Newman: Absolutely. I think that's really important. I think if you look at a lot of the industries that are able to innovate and disrupt at scale, there has to be open and there has to be standards. Those are the couple of things. You think about the process of 5G and how that actually comes to fruition. Yes, there are some companies that lead and some companies that follow and some that participate little bits and some that participate big bits, but in the end, it's consistency or else these things wouldn't work. It's actually an amazing Marvel of engineering that you can take this anywhere in the world and go from carrier to carrier.

Matt Johnson: That's it.

Daniel Newman: I think that's kind of a microcosm of what's going on in IOT right now is you have to get to a standard.

Matt Johnson: Absolutely. That's a great parallel way to think of it. Then think of it on a scale or as a magnitude more and bigger than cellular and handsets, think of the diversity and diffuseness of applications globally to get that all corralled and going in the right direction. It's a Herculean task, but that's why something like Matter is so foundational and elemental towards getting that standard and openness going.

Daniel Newman: By the way, we're going to end up with the two things working very closely together because you can be absolutely certain that cellular networks on edge IOT devices are going to be a thing, especially on some of the more intelligent ones. I mean, that's how we're going to make sure they're both connected all the time, and of course, you need them to work in terms of connecting to the internet of things. I want to touch on AI with you really quickly because this is a bit of a debate point. I understand on a big edge device that you're going to want to put full compute and AI and everything else, but we're hearing a lot about AI promising on some of these little fitness things and wearable things. What is your thought about the promise of AI across the IOT?

Matt Johnson: We're believers. I think the easy parallel I can give you is if you went back years ago, there was a lot of debate in our space of will security be important in the IOT space? It's funny to debate it now because it's foundational. No one debates it. But back a while ago, it was, "I don't know if I want on the device, don't want to have to deal the complexity or the cost." I think that's easily where we're at with AI and particularly ML in our space and battery powered applications, it's coming, it's inevitable. The reason is, that space, there's just a massive amount of applications that live on battery power that can benefit from machine learning.

The problem is, to run inference at the edge, a lot of times it'll consume so much power that you have short battery life, then no one's happy. What we've been focusing on is how to bring machine learning to battery powered applications with wireless connectivity so that they can really enable what those applications can fully realize and do with machine learning. Does that make sense in terms of why we see that space? Maybe I'll give you some applications examples, if that helps.

Daniel Newman: Absolutely.



Matt Johnson: I'll give you home and industrial, two very different markets. In the home space, think of a lot of sensing. If you have a smart switch, that's going to respond to your voice, some simple voice commands to turn on your switch, that would be an example. Or your motion detection for occupancy detection. How many people in the room? That's pretty easy to do with machine learning. You don't need to classify them, but you could, but you want to know how many people are there. Or glass break detector on your alarm. you don't want false triggers on that. You only want it to work when there's actually an event. Another one we're seeing is child monitor. You're watching with a monitor and you want to be notified only when you need to be notified, not false triggers. Those are some examples I can think of in home.

In industrial, industrial would be more monitoring. Monitoring a meter for anomalies or changes in gas flow, electricity, water flow, preventive maintenance, vibration, those are all things that are battery powered and could benefit from that prediction and pattern recognition to make the application better. But you can't do that today without having a very short battery life, which is counterproductive. A lot of our customers, especially in industrial or commercial, they're looking for seven to 10 years battery life for it to be a viable solution. What we've been able to do is bring those together by bringing the industry's first wireless SOC with dedicated ML acceleration to these applications so our customers can start providing those features and benefits for their customers.

Daniel Newman: Those examples make a lot of sense. Of course, the span of what it can be from very entry level type home applications, all the way to these very critical business and industrial apps that are running sensors of critical infrastructure.

Matt Johnson: Exactly.

Daniel Newman: The span is super significant, and of course, companies like yours are looked to find that blend of low power consumption, yet highly powerful chip sets, meaning that they're able to process a lot of data, which by the way, has always been a bit of a trade off. As Moore's law, we continue to push the envelope. We're trying to get more and more power and use less and less power, if you know what I mean, more and more powerful chips, less and less power consumption.

Matt Johnson: No, you're absolutely right. I mean, if you step back and really think about some of the stuff that we're doing and talk about, imagine something that is so small, a few millimeters by a few millimeters, and it runs on a watch battery for 10 years and has wireless connectivity, it's providing compute, it's crazy when you think about what these things are and there's billions of them. It's really cool, but it's amazing how far we've come.

Daniel Newman: It really is. As we kind of come to the back half back, latter part of this conversation, one of the things I'd like to discuss with you, just the possibilities of IOT. I think we're all starting to see it. I'm building a home, the locks on my doors, the light bulbs. You used to want to do an intelligent lighting system, it was a mega implementation. Now with a simple IOT controlled light bulb .. In fact, these ones right behind me are IOT controlled by the way.

Matt Johnson: Nice.



Daniel Newman: Smart light bulbs. My point though is we've actually taken things like the smart home, made it extremely achievable in a vast pricing matrix because of IOT. Let me ask you this way. What are the big high tech possibilities in what I would say a low tech world with the help of IOT?

Matt Johnson: It's a few things. Let me process. One is, it is interesting that most of our customers don't even identify as IOT. They identify as what they do. When you think of what they're building, they're like, "I make appliances, I make great appliances. I don't make IOT devices." Or, "I make great lighting products solutions," and consumers, they don't go shopping for IOT. They go shopping for something that'll be smarter than what they had before. It is interesting. But if I think about the future, I think two ways of thinking about this, quantity and quality. Quantity wise, we really haven't seen anything like this.

We were talking about handsets. Think about handset volumes for smartphones or the annual units of PCs or automobiles, and then think of everything else that's connected and intelligent, those IOT edge or end devices, you're talking well over 10 billion units annually already, and easy potential over the next decade to get to 50, 60, 70 billion units a year. You have to stop and think about those numbers and what those represent. We've never seen anything like this in the semi space or in tech of those types of volumes and think how transformative that will be, what that will enable and what the possibilities that'll come from that. That piece is just exciting just in terms of thinking about the sheer scale.

But I think the more valuable, more meaningful piece is the qualitative, that this will have social and economic impacts and environmental impacts that are truly awesome, whether it's just improving quality of lives, whether it's helping with the environment or sustainability in a large scale, or really underpinning economic growth and impact, I think that's amazing and exciting. We're excited to be part of that and to see how that's going to unfold over the next decade and beyond it, it's pretty cool.

Daniel Newman: It's interesting you said that because you sort of alluded to a lot of things. I mentioned light bulbs and door locks. Of course, you have retail shelves. I mean, how does a Amazon store, the Just Walk Out technology, actually happen? I mean, it's all kinds of different things. But ultimately, it's an IOT retail shelf. You look at a lot of wearable health devices, things that can help monitor your blood for diabetics, it can help you to monitor your sleep and the quality. When you look at low tech, I mean, it's not actually low tech. It's just things that you never really considered could be tech. You can have a shirt that you'd wear to the gym that's going to be able to tell your temperature, which particular exercises are creating the right blood flows. You can say, "Am I getting that pump?" I mean, it's honestly like we're going to be at that point where it's going to be sensors in our clothing.

Matt Johnson: Absolutely.

Daniel Newman: These are all kinds of these low tech, or what I'd say no tech applications, where no one expected tech to actually be able to play a part and it's going to play a big part and you see it, you see the Oura Rings out there, you see the Fitbits out there, you see people that used to have to prick their skin 10 times a day for blood. Now they're wearing a wearable all day long that's



helping to monitor. It's come a long way. I want to end here. I want to ask you a question that's going to take all this and summate it, Matt. IOT was helpful as a label when it first came into market because people didn't know what it was. But over time, it became a marchitecture. It's a huge opportunity. But is it beyond that? Because you kind of alluded to the fact that people don't think about IOT. What is it now? What is internet of things now?

Matt Johnson: That's a great question and probably a longer discussion that I'd love to have with you. A few things. It was a useful construct and still is. I mean, at some point, it consolidated a trend that was new and gave away to speak and talk about it. But I do think it's important to recognize what I said earlier, that most of our customers don't identify as IOT and consumers don't necessarily even know what IOT is in a lot of ways. We do because we live it every day, but we had a couple big customers the other day ask us, "Do you consider us IOT?" It's like, "Absolutely," but that's not how they think of it. They think of themselves as the best in the world at X or Y, whatever their solution or product is.

If you think about what we're really doing, we're providing wireless connectivity and compute for devices that, as you said really well, didn't have access to this before and it enables a whole new set of things, because with that connectivity, you get access to other devices, you get access to communication to people, machines, the cloud, and that's game changing. That's really what we're talking about. I think because it means so many things to so many people, we need a way to frame it for the industry that we all know what we're talking about, because I don't think that's been solved after more than a decade and there's a big opportunity there.

Daniel Newman: Well, I think that's a great way to wrap this all up, Matt, and I do agree, we could spend a little more time probably brainstorming what the answer should be. But what we do know is that the volumes are up. Demand for chip sets to connect pretty much anything and everything and add intelligence is in its infancy but it's exponential. Having you here, having companies like the one you're leading continuing to contribute to standards, build these technologies and educate the world of what's possible is exciting to me, certainly as a tech geek, and I'm sure to many of the listeners out there. Matt Johnson, CEO of Silicon Labs, thanks for joining me here at the 2022 65 Summit.

Matt Johnson: Thanks for having me. Really enjoyed it.