Intel Corporation (INTC)
Event: Cowen 49th Annual Technology, Media & Telecom Conference
Date: June 2, 2021

<<Matt Ramsay, Analyst, Cowen and Company>>

Good afternoon. Good morning, everybody. This is Matt Ramsay, again from the semiconductor research team at Cowen. Really appreciate you joining day two of our Annual TMT Conference, and for all the investors participating in the sessions. Really happy to be joined with – by Tom from Intel that runs Intel's IoT business.

And before we get started in some of the conversation, and I turn it over to Tom to give a bit of an opening statement. The Investor Relations team have asked me to read a brief Safe Harbor statement. Today's discussion will include some forward-looking statements, which are subject to risks and uncertainties. Please refer to Intel's SEC filings available at intc.com for more information on the risk factors that could cause actual results to differ materially from the things that Tom and I might discuss today.

So with that out of the way Tom, thank you for spending some time with my team with Cowen's clients and I'll turn it over to you for a brief introduction.

<<Thomas (Tom) P. Lantzsch, Senior Vice President, General Manager, Internet of Things Group>>

Yes. Thanks Matt, and I'm delighted to be here and to sort of share our story of what's going on with regards to the IOTG business at Intel. Just a little bit of quick background about myself before I get to the questions that, I'm sure you have for us is. So I'm 4.5 years at Intel. I joined frankly in January of 2017. And prior to that time, I spent 10 years with ARM, and was Executive Vice President of Corporate Strategy for ARM. So – and then before that, I did some small venture work with some small companies, but I also had recur at Motorola and also TI. So 40 years in the industry, small company, big companies, and always tried to pick into locations that I thought were at a point of disruption, and so I joined Motorola when the wireless trend was happening.

My journey at ARM was all about where I felt that the semiconductor industry is going through fundamental disaggregation strategy and IP technologies were going to be more and more pervasive. And ARM obviously was the market leader there. And then finally, at Intel, where I came into this role, and you could scratch your head and say, well, what's Intel and IOTG? But I thought, due to my period of time at ARM that I thought there was a unique opportunity for sort

of the different definition of that product line. It was really focused on what now everybody is calling the edge. But we weren't calling it the edge, when I joined, but we can spend some time talking about that. So anyway, I'm delighted to be here today.

<<Matt Ramsay, Analyst, Cowen and Company>>

No thank you for that. I think we prepared a number of questions here and investors will be pinging me one as we work through the session. But one of the reasons, I was excited to have this conversation with you is my semiconductor team at Cowen led a big project that we did around the edge market about a year ago. And it culminated in I don't know five or six big industry reports touching on everything from semis to software to security in a bunch of different markets around the edge. And your – the group that you lead at Intel was called IOTG. But I spent some time with the folks at Silicon Labs this morning with STMicro and Infineon yesterday companies that have microcontroller and connectivity portfolios that think about the edge from more of a client perspective. Intel's view of IoT and edge as I imagine very different, then there are some synergies between your group and the Data Center Group. Maybe you can just step back and talk about what is Intel's view of the IoT and the edge? And where do the lines blur? Where are they fixed between what the microcontroller companies do and maybe what your data center business does?

<<Thomas (Tom) P. Lantzsch, Senior Vice President, General Manager, Internet of Things Group>>

Yes. That's a great question. So, yes, as I sort of said, when I joined Intel little over 4.5 years ago, I think the industry view at that point in time was IoT was going to be defined by – largely driven by the companies that you're talking about microcontroller connectivity companies connecting to a gateway, and most of the action happening up in the cloud, the processing technology happening up in the cloud. I think that was a conventional wisdom at the time. And that as an IoT business within Intel wouldn't be very interesting, even though at that point in time Intel actually had some microcontroller businesses, which I closed. And it had some modem technology business which obviously we also have gotten out of. Due to my view from ARM, I had a different perspective which was, I thought that compute was going to get closer to where this data was getting created and there were going to be big compute loads happening that were going to be closer to where the action was.

And so that was sort of the reason why I joined Intel and largely because there are very few people that could actually pull this off because it wasn't just a silicon technology and a big compute problem, but it was also a big software problem. And it leveraged a tremendous amount of the assets that had been developed into – in the data center and brought that down closer to this location of where computation was happening. And I'm talking about virtualization. Now we're talking about containerization. We're talking about all these various things that have been developed and deployed in the cloud. But I had a view 4.5 years ago when we started this journey that we were going to bring that closer to where this data was created.

The other thing is that, we focus on pretty much non-consumer things. We're really not focused on consumer-like applications which I think consumer applications heavily will be impacted by

sort of the first thing that I talked about smart connectivity. Microcontroller-based companies connected to gateways and the action up in the cloud. I think that will be the norm for consumer-based applications. So we're focused on big industry problems across big verticals and how we take advantage of providing compute to enable really business outcomes with some of these technologies, largely driven by AI actually. And we can spend some time about that as we get further in the conversation.

<<Matt Ramsay, Analyst, Cowen and Company>>

No, it's interesting the way that you articulated your answer there. Our thesis and the conclusion I guess preliminary conclusions from a bunch of the work that we did on edge was there were going to be very data intensive applications that were exceedingly latency sensitive that were going to require cloud. Maybe not mega data center we're not talking about that, but then we're talking about server-level and cloud-level computing be pulled towards the edge. If as you look around your business and say, what applications are really what Intel's strike zone is versus not, is it – what are the, I guess, limiting factors? Is it data intensity? What kind of factors are you looking for?

<<Thomas (Tom) P. Lantzsch, Senior Vice President, General Manager, Internet of Things Group>>

Yes. So, when we talk to our customers first and foremost I'll be clear, no one comes and says, Tom I really want to buy one of those edge things, right? That's not the conversation that happens. And again, we really try to find business outcome driven things. Now with that being the case, what we – and this started – the hypothesis we had which we're now four years into actually September 2017, we really started this journey which was – all right, we believe that workloads were going to get consolidated closer to where this data was created. That was – we called it workload consolidation. We didn't call it edge devices. They are server class or high-end they could be high-end CPU like desktop class products.

And we were going to provide the software infrastructure to enable those kinds of applications to exist there. We saw the killer app to drive this process initially is video streams. It was cameras. It was AI on cameras taking action and largely because they're just sheer amount of volume of data that was coming off these cameras. There was no way you could send it all to the cloud. And we thought cameras were very interesting. The combination of camera technology and AI technology was an impetus to go through that. And so that horizontal technology, we thought was critically important. We thought that we were – historically this business – you would call this business prior to my arrival pretty much Intel's embedded business in many ways where we took products from Data Center Group and Client Group and would apply it to different markets.

That was fine for the compute platform. But these systems were going to require more and more differentiation mostly on IOs. It's not so much on the compute structure, but the IO structure. You can well imagine, if you were to take a compute structure of a modern-day laptop even if we put it into a factory, the IO structure would be a little bit different than what you could expect on a PC. So we went from purely adopting technology from other groups to actually doing our own chips. And we've done chips all the way from Atom class chips to we've got – we're doing our

own Xeon product. So we have our own development team that we obviously leveraged the mother chip significantly, but we modify a lot of it in the IO structure. We thought that developer communities were going to be increasingly important and largely driven by this AI computer vision workload that's going to be critically important. So we invested big in the development community. We can talk about that.

And then last but not least as everybody on this phone call probably realizes this, we'll call it operational technology world that we deal in very fragmented, similar use cases, but very fragmented in their deployment. And so we had to really crank up our ecosystem partners on enabling them to address the various capabilities across these various vertical markets. And we created a big program around that, we call them Market Ready Solutions, but it's an ecosystem approach to providing these solutions across these various verticals. And all of that is really then targeted taking these horizontal technologies and applying them vertical-by-vertical. It is a vertically driven – we go to market very vertically focused in this business. And so that's essentially the playbook we've been underway for the last like almost four years now.

<<Matt Ramsay, Analyst, Cowen and Company>>

Yes. It's interesting you talk about going to the market from a vertical specific approach. If you look back over the last four or five years since you joined, it looks like the business is growing double-digits. I mean, there's a couple of things in there you mentioned you're killing a couple of microcontroller programs. You guys divested Wind River. There's a couple of things that are perturbating the revenue, but it organically seems like a double-digit growth rate that given the opportunity should be accelerating. I wonder which verticals are driving the majority of the revenue today.

<<Thomas (Tom) P. Lantzsch, Senior Vice President, General Manager, Internet of Things Group>>

It's pretty well distributed across all of our vertical space. We also had a headwind probably the fastest growing vertical that we had a little bit of a headwind going actually is leveraging this video technology. Two of our major customers, several of our major customers were in China, which now have appeared on the U.S. government entity list, so I can no longer sell to them, which was quickly it was a 10% hit. And despite that 10% hit, we're continuing to grow.

Our first quarter this year was record revenue, despite having a 10% hit on that business and COVID the previous year. So I would say, horizontally vision systems are driving this growth. It doesn't matter if we're applying those across every vertical from industrial to education to retail spaces. They're all growing quite well. We've seen quite a rebound post-COVID. Last year was a bit of a rough year for us. COVID impacted us very strong. And as you said prior to COVID even with the departure of Wind River, we were growing this business in the mid to high-teen growth rates and expanding bottom line up margin. So we sort of think 2021 is going to be the year 2020 – we anticipate 2020 to be, and so far through the first quarter it's shaping up to be just that.

<<Matt Ramsay, Analyst, Cowen and Company>>

No, that all makes sense. And I guess, as you go to market and try to go and win business from customers, your business is in between a couple of very, very large businesses at Intel that the Data Center Group has connectivity with, I would imagine, the majority of your customers. The client business probably does as well. When do they lead the customer engagement in certain instances and you get pulled in? Do you guys have specific go-to-market and sales and marketing channels that you dominate? I just wonder how that – it's not often that you have two groups that are that large and the strategic focus of your group and the growth rate of it could be significant, but it's a bit of a tweener relative to some of the bigger organizations.

<<Thomas (Tom) P. Lantzsch, Senior Vice President, General Manager, Internet of Things Group>>

Yes. Yes. I think over the last couple of years, we have now got a dedicated sales team that we've carved out. It's a combination of – it's a bit of a hybrid to be honest with you. But, we have a dedicated team that really focuses on – instead of the IT organizations of these major verticals, the OT organizations of these major verticals. So from that perspective, it's significantly different, I would say, in that we're really focused on operational technologies. Whereas our client teams or even our data center teams, historically, has been focusing on the CIO of these organizations. And we're not.

And so, that makes us a little bit different, which drove us to create our own dedicated sales team, which is somewhat – in some cases it's independent and in some cases, it's an over-layer and collaborative with our various groups. And because, what we're really trying to do is help these customers and our partners, be disruptive in their own industries and to provide them technology and guidance to go do that.

So again, it's a little bit different motion, significantly different motion than the rest of Intel. And again, if I take a look at the semiconductor environment in its entirety, which I have a pretty good handle on, it's a different motion even than, say, what I was working on when I was at ARM with our microcontroller partners. And it's totally different from that perspective, on how we go about doing our business.

<<Matt Ramsay, Analyst, Cowen and Company>>

It's essentially, as you say, the Intel IoT business is very different than the microcontroller companies that are usually tagged as IoT companies. Like, who do you view as your competitor? Is your – is the challenge in growing your business getting the customer base to deploy these sort of new technologies or yet-to-be-proven tiers of the market, or is the challenge competition?

I know ARM has introduced the v9 and the architecture that pulls some of the features that the more mature x86 architecture may bring into some of these tiers. Anyway there's a certain ARM licensees that are direct competitors, and go against you in bids that you're looking at? I'm just trying to – is AMD in those markets at all? I'm just trying to figure out where the competition is for you guys, if you deploy stuff?

<<Thomas (Tom) P. Lantzsch, Senior Vice President, General Manager, Internet of Things Group>>

Yes. Well, let's go through the normal list of characters. AMD, so, there's sort of two aspects on how we approach the business. There's a push side of our business where we – one of the things we have built over the years, which has been a phenomenal asset that I inherited was a great number of partners in the – I'll call it, the ODM and OEM ecosystem, which we push our technology into. Certainly AMD shows up there for sure. There's no question there. But, by and large, I think AMD is focused on – given the fragmentation of our business today, it's probably not their highest priority. So, it's not a huge competitive threat there for the most part.

On the innovation side with cameras and AI and AI workloads, we can't ignore NVIDIA, for sure. And they are a – they constantly innovated on software. I think it's much more about, I fight for – with NVIDIA for developers much more than I fight for a GPU, CPU issue in many cases. And a lot of times, on some of these constrained environments, we'll take a device that was originally architected for a client. We'll use the CPU and the GPU on their client to do AI workloads to do camera streams. So, we can do eight camera streams on a high-end desktop SKU and put that into a – put that into a retail store for instance, and we'll use the CPU and the GPU to go enable that. So, to me the competitive positioning and battleground with NVIDIA, is much more about the developer community than it is "the silicon" per se.

We have plenty of silicon to address lots of these markets. And a lot of these markets in those spaces are not as price-sensitive as you would imagine, because really the value is about the solution not so much about the silicon in many cases. And so, those are the two probably dominant competitors. Other than that, not many silicon competitors, I compete about – compete with. What is the challenge in this market and always has been the challenge in this market is, how do you deal with the fragmentation issue. And that's really how we leverage, these ecosystem around these market-ready solutions.

And just to put in context, we have like 560 of these market ready solutions that do all sorts of different applications that were developed by ISVs. They've been certified to be sold more than one customer. So it's not just a like a one-off thing. It's actually scalable and we've scaled those to the tens of thousands of deployment. So I mean it's – but it's fragmented. It's highly fragmented. I think that's one challenge to grow in this market faster.

So the second challenge to grow in this market faster is interestingly enough is compute has gotten consumed differently largely driven by the cloud providers. This issue of OpEx and CapEx with some of these deployments is a challenge for some of these end customers about how they fund some of these initiatives. We can prove the business value clearly, but a lot of these companies struggle with, do I want to go do that myself, or is this a service that I want to buy? And so this is now sort of the second order effect that's appearing in this market and we're working on ways to address that to provide options for them independent of how they want to be consumed. They don't want to have any OpEx or a CapEx issue. But I think that's another issue to big compute deployments in general I mean it impacts this market as well.

<<Matt Ramsay, Analyst, Cowen and Company>>

Got that. Yes. No, thank you for that and that makes sense. I wanted to ask a little bit about security in our work on – in the context of this conversation I'm using IoT and Edge, sort of, interchangeably. But in our work on Edge that's one of the big concern/maybe opportunities for a company of your scale given the security works that you've done in other markets. Is that a limiting factor? Is it an opportunity for you? How much focus is put on security as you roll out these solutions?

<<Thomas (Tom) P. Lantzsch, Senior Vice President, General Manager, Internet of Things Group>>

Yes. Well all you have to do is read the news while on – on this issue and understand that the cybersecurity threat happening in some of these operational technologies is getting critically important. I mean, we just saw the latest one that happened in the last couple of days on meat production. So it's a very real issue as we all know.

Look I think this is an industry; we certainly can play a leadership role. And this is an industry activity and frankly we've tried to do everything we can to collaborate. Look let's just say like we'll talk about the microchip controller community. I want to do everything I can as an industry to be supportive of creating any kind of standardization to enable these devices to be connected in a secure manner and enable that information to flow all the way from the device up into the cloud.

It's a complex issue that no one company can solve on its own. And it's an area where we have got to get much more aggressive at coming together as an industry for all of us to grow our businesses aggressively. And as part of that we've dedicated – donated we had a technology that we called Secure Device Onboarding. It's a technology that enables devices to be discovered securely. It was Intel-enabled technology. It's very compelling. We've tried to collaborate and do collaborate with the ARM community and with various alliances like the FIDO Alliance to give that technology up. I mean, I don't sell microcontrollers so bringing out the security to connect these things is easy for me to do and is advantageous to our business.

So I think this is – it's a real issue. I think it's going to take all of us to come together more to go address it. It may even take some regulatory issues to push it to be honest with you. And we're big time involved in Washington to help do that not for the benefit of Intel solely, but for the benefit of the industry our customers and probably the nation and being able to provide greater security for these devices. But it's a real issue and we are just one of the actors that need to participate and we're all in at leaning in on this.

<<Matt Ramsay, Analyst, Cowen and Company>>

No, that – got it. That's pretty consistent with the analysis and the feedback that we get and the work that we've done. I wanted to shift the conversation a little bit and we only have I guess five minutes left in this chat. But I'd be remiss if I didn't ask you in your leadership role at Intel. There have been just a few changes in the last – maybe you've noticed, in the last six, nine, 12

months. And Pat has talked openly about this return to – I think he terms it a Grovian focus and intensity.

I was in my own industry career in the server market at that time, when the Opteron business took a huge amount of share. And you could see this galvanization of Intel to have a resurgence and that ended up happening over 1.5 decades in the server market after that. There's been manufacturing challenges leadership changes, a number of things that have happened at Intel, from your view, outside with the work you did with ARM and now inside in the leadership team. What have you noticed in the last, I don't know, three, four months that have been tangibly different? And have there been things that have been different in terms of intensity focus, any of those things. Then, any perspectives there would be really valuable.

<<Thomas (Tom) P. Lantzsch, Senior Vice President, General Manager, Internet of Things Group>>

Yes. Well, for those of you, who don't know, Pat is a pretty intense guy. He starts his days early and ends his days late. He's our driving guy. Look, I think, the clarity around the manufacturing strategy which has been driven into this IDM 2.0 discussion that Pat leads is certainly creating a lot of energy in the company and driving that forward.

For me, as a business, I mean to be honest with you, what that enables me to do is, just a business within Intel. That's just pure margin to the top line. I mean when that works well, it's great incremental margin that we're not giving up to other people, right? And we can look at TSMC and their financial results. And you can do the math yourself. You guys understand that, extremely well. So, it is a financial competitive advantage for us for sure, when it's all working correctly.

I think Pat's been there three months now. He's been spending a fair amount of time trying to understand like, what – where we were where we need to go. And I think many of the things that he says I was fairly well aligned on before we hit a rock. This focus on developers, I started a big activity like, I said early on, for my business which was all about enabling, what we call the democratization of AI. And we created a tool for inferencing technology called, OpenVINO.

Just to put the numbers aside, we launched that in June of 2018. This week we'll pass 500,000 downloads for this technology. That's all developers that we didn't touch before. And it's a big deal for us. For you on the outside, that would be sort of a – it's not quite the same, but it's sort of in the range of what a TensorRT is in NVIDIA. So we've got a big activity there. And we have – totally refocused our efforts with regards to developer enabling on our websites and enabling people to go to do things. So a lot of things Pat talked about, maybe it was because, I came from the outside I already was working on. So to me it was just more gasoline onto my fire, which has been positive.

And so it's going to take some time to do the things that he's challenging us to do. But I think, again, 4.5 years with the company one thing I would say about joining Intel, there is no shortage of brilliant people in this company. We – I'm always impressed with the caliber of people that

are employees of Intel. And so it's a focus and an intensity that we just need to crank up. And then, direct towards the competitive threats in solving our customers' problems.

<<Matt Ramsay, Analyst, Cowen and Company>>

No. Well, I think, we're bumping up on time here, but I really appreciate those perspectives about the broader things going on in the leadership team at Intel and for your business in IOTG and at the Edge. At least from the work that we've done, it seems like there's a lot of opportunities out there for you guys to go and unlock. So thank you for spending some time. We really enjoyed the conversation. And for the investors that have joined. And if you have any follow-up questions obviously you can get in touch with my team or the Investor Relations team at Intel. But thank you so much Tom for your time and really enjoyed it.

<<Thomas (Tom) P. Lantzsch, Senior Vice President, General Manager, Internet of Things Group>>

Thanks Matt. Appreciate it. Have a great conference.

<<Matt Ramsay, Analyst, Cowen and Company>>

Bye. Thank you.

<<Thomas (Tom) P. Lantzsch, Senior Vice President, General Manager, Internet of Things Group>>

Bye-bye.