

ASI Technology Summit Q3 2021

Supermicro: IoT/Embedded Edge Computing 5G System Roadmap & Vertical Market Highlight

0:04

Good morning, everyone. This is ... with ASI, I want to welcome you all to day three of ASIS Technology Summit.

0:12

Today we have joining us from Supermicro John Ferguson, and John as a few other panel members from supermicro that are joining him, the child's going to be doing the meat of the presentation here. But before we get started with that, just a couple of quick housekeeping things.

0:30

First, I need to apologize to everyone. I have a technical issue on my side that's preventing me from being able to access my list of who the prize winners were from yesterday.

0:45

So, unfortunately, I can't make the announcement right now, because in my great wisdom, I did not write those names down before we started this session. So I will try to get my hands on those so that we can make the announcement sometime today. But basically, we gave away two sets of power beats pros. And we are raffling off some \$50 gift cards.

1:10

in addition to those who've got \$550 gift cards or given away, and the two power beats that I have, all the names, but there, Save that a different file that I can't access right now, so I apologize for that, but we'll make sure that we get those announced. The other thing is, is that for questions, if you all want to submit a question, it's just like, the first two days, you can just type your question in the question box, and we'll be sure to get that over to John and the team at Supermicro.

1:38

So, without further ado, I'm gonna go ahead and turn everything over to john, I've got some other housekeeping things we'll take care of at the end, but let's make sure we jump into our presentation. So, John, take it away.

1:51

Hi, Good, good, Good morning, everybody.

1:54

It's great to be back With this super with the Supermicro presentation for ASI tech show a special place in my heart for for ASI, I was with ASI from about 2008 through 2012, and some of my Best friends in this business are still right there at the ASI so special place in my heart for SI so, but without any further ado, We'll kind of get going here.

2:30

First of all, just.

2:43

So, we're just gonna just briefly go through this agenda.

2:46

We're gonna go through the Edge AI, and the IOT, um, president portfolio from supermicro today, Edge management software, some of the software and fabric alliances we have, and I'm going to focus today on a lot of the edge and Cloud AI based solutions that we've been focused on.

3:07

It's super my, for the last couple of years.

3:10

We're also going to jump into some of the use cases and the Alliance partners that we use for software, both middleware and application. We kinda like to take the approach from these vertical perspectives.

3:24

I think it's a much more engaging conversation when you can talk about an application or a use case or a customer problem, our customer project, rather than just talking about hardware speeds and feeds, and number of hard drives and kind of a conversation. So, that supermicro, that's how we approach this market. And I'll go through some of that today. And then I'm also going to kind of give you guys an update on what supermicro is doing these days around telco and five G. Which is such a hot topic these days.

4:01

First of all, just, kind of, at a glance, supermicro just closed there, fiscal 21.

4:08

At the end of June, we recorded a record year. About 4.5 billion, We recorded our first billion dollars quarter. Things that supermicro are trending in the right directions and work.

4:22

We just did the ribbon cutting on our new facility.

4:26

In supermicro, we now are at about, just over one million square feet in our facility just off Brokaw, Dairy and in San Jose that includes manufacturing, engineering and some of our rack scale facilities.

4:46

The facility there, by the way, we, well, you know, we're looking forward to the day. When we can invite people back. We are starting to take visitors at supermicro and we are labs are open now.

5:01

So, we are doing validations and doing remote validations and we're also doing some insight, validations for POCs currently. So it's not as robust as it was at one time, but we are definitely getting back closer to normal.

5:20

Supermicro, we are just announced our 28th year.

5:28

We celebrated that in conjunction with our grand, opening of building 23, which is along the 101 freeway there in San Jose.

5:40

We also like to tout our green successes at supermicro. This one that's on the counter. This is the Intel data centers that has got 200,000 supermicro nodes in it. It's a world record for power efficiency at 1.06 P, So we are, as well as being a technology leader. Our green initiatives at supermicro are always front and center.

6:09

Just another, wanna just kinda highlight some of, you know, get a lot of awards during the past year, This 1 was 1 that we got from.

6:21

It is the award for, we've got Platinum and Gold in innovation for IOT.

6:30

This is that slide I was talking about where we like to talk about this Embedded in five G and IOT space. And by the way, in verticals, we attack this in.

6:42

Really the main verticals are telco, industry for renewable energy, retail, and health care.

6:55

I wanted to kinda highlight some of the relationships we have with some of the consortium and some of the open compute platform consortium that are leading the charge to date for open platforms.

7:10

Open platforms, give us all an advantage to enter into five G and Telco markets that traditionally have been locked out because of proprietary technologies.

7:21

So, supermicro is engaged with all of these that you see on the screen from Linux Foundation, Edge, Overran, Tip, which is a Facebook run lead consortium.

7:36

So, we're helping to drive not only the industry standards, but helping to write the specs for the technology going forward for Open Standards.

7:48

This is a kind of a, an overview of supermicro hardware across the top, kinda three rows, four rows.

7:56

This is what Supermicro traditionally has been known for.

8:00

So, traditionally, we've been known for our strength around the data center, we are the densest lowest power Tier one offering in the marketplace. Our Twin products are the densest in the marketplace.

8:15

Our super blades are the dentists along with the advantage of being green and very low power consuming.

8:24

one of the things that these platforms take advantage of, this, they take advantage of multiple blades, take advantage of a single set of power supplies redundant, and as well.

8:36

So there's not a a lot of redundancy for power supplies and other hardware along these platforms. So it saves a tremendous amount of power.

8:45

It also enables us to upgrade these with all of the new silicon that comes out without having to forklift the whole product line.

8:56

one of the things that I wanted to focus on today, of course, and this is where most of the product that we work on together with ASI is this product along the bottom.

9:06

This is the on the left side. This is our fabulous product, which you guys are all very familiar with. It's from a low compute entry points with Atom based all the way up to a scalable.

9:18

And Xeon D the middle portion of this is fanned compute boxes, which have a lot of flexibility from a building block perspective.

9:29

It gives you a lot of options for compute power. Anything from Atom based all the way up again to Xeon scalable, including Xeon scalable third generation isolate product. And then on the right-hand side here, these products are the one of the the products that allow you to have a little more flexibility with the add on cards and acceleration. So today's compute environments are really trending towards a lot of AI functions, a lot of video function, a lot of facial recognition and other kind of AI and ML.

10:02

So these platforms here all allow space starting from one up to four full height full length GPUs or FPGAs or

10:27

This is, again, another kind of a slide that just kind of highlights this kind of vertical alignment with different use cases, You know, starting from the left, this, these compute environments of on on customer premise. These are very quiet. These are very reliable. They're very also very rugged. They also are very There are a lot of options for mounting, including Dan Visa and also on we can put these on 19.5 inch racks. Also lot of the edge based technologies here on this second slider. Lot of our hardware these days is now taking advantages of the speeds and the bandwidth that are now being available to use cases in five G where you've got just the requirement at the edge for very, very low latency and a lot of bandwidth.

11:23

So some of these can take up to millions of devices, millions of sensors in through them, as well as making sure that there is a very low latency, so that they can react make decisions at the edge.

11:39

This is kind of a highlight of our fabulous product that you guys are very familiar with. And by the way, I'm going to share this deck with everybody.

11:49

So you all know, there's, we're gonna go through a lot of content here today. And it's kind of impossible. I don't even remember at all, but I'll let you your own pace, go through it, and you can go back to anything that you feel might be relevant.

12:03

So it starts down here On the left side. With this is our E 50. This is a handheld, so it's literally 3 by 5 inches.

12:11

It's an atom based silicon platform.

12:15

And it goes all the way up from there all the way up to very high compute environments, including scalable Xeon and Xeon D, and then everything in between, including all of the core products, I 3, 5, 7, and nine.

12:41

This is a, this is a really great slide. So, again, what, I'm going to share this deck with everybody, but, when you have an opportunity, kinda check back here. The one thing that's really great about this is, Super Micro has a program called Global Skews, and Global Skews, and especially right now in these times when the supply constraints are playing such havoc with Oliver.

13:02

Ability to ship to customers. Global SKUs are a line of products from Supermicro, which are our highest running product.

13:10

We devote all of our component level assets to these projects so that these can be delivered quickly, and they can be delivered at scale.

13:22

The left side of this highlighted in yellow, these are our, are very low latency, and very high bandwidth product that are dedicated to Telco. And also five G Edge were that. And, again, I wanted to highlight here this, on this slide, also, we always like to put into these slides. The key applications are the use cases for these products.

13:46

So, it's not just looking at a Box and goes, well, you know, that's a great looking box. But, well, what do I do with it? And, again, the key applications are on all of these slides about where these fit.

13:56

Most of these products that on the left side are focused towards the virtualization.

14:01

A lot of do you a distributive unit in a, in a network environment for telephone for telco.

14:09

And, again, more use cases for Mac, five G, Corr, Edge, telco, micro data center and that kind of stuff. And the reason that they fit into the micro data centers that you'll see at the edge, a lot of these are short depth.

14:24

This, the one on the bottom here is actually 300 mm, so it's about 11.3 inches deep.

14:31

So it's a, it's a, a to use, single socket isolate based product.

14:37

In a short depth, this one in the center is a really, this is kind of our flagship for the five G products.

14:43

And this one is A two, U, two socket, isolate based, and this will take up to three full height full length GPUs, and then an additional by eight GPU. So you can tell this, and this is also, again, in a short depth.

14:59

This is 500 mm depth, and again, this meets the requirements from what we're seeing today, from requirements from the edge.

15:09

When you have applications where you're doing, machine learning, you're doing AI, you're doing a lot of, of inference chain and training, it's all requires a lot of heavy compute and heavy GPUs.

15:23

So that's what this product line is dedicated, then this other section over here in the middle.

15:28

This is kinda where our meat potatoes, right here.

15:32

This is kind of, again, this is very readily available and scalable on these global skews, so I want to make sure that everybody has time to go back and if you wanna look at any of these product, and, again, these, these all have the, the use case and key application use Cases on them.

15:51

So, it's kind of easy to kind of go through them and look for, you know, something to pick out for your customers solutions. And the one thing I'd just like to highlight here is, when you're in Customer Conversations, and I know you guys are out there talking to customers every day.

16:07

When you hear any of these topics come up around retail, or health care, or Industry four, and production lines, Smart cities, and smart places, and traffic management are all key topics these days. But when you're out there talking to your customers, and any of these topics come up. But I'd like you to do is just kinda, you know, remember this. And just, you know, take some notes, bring us into the conversation, and let's see if there's a way for us to attack these, these customer opportunities and projects.

16:40

We've got a very robust lineup the best in the industry, the most flexible in the industry, as far as compute, and add on cards.

16:48

So we can meet almost any requirements for any project these days.

16:55

Again, this is just, kind of redundant, but I think it's important for us to highlight, you know, how we approach this market in this go to me, go to market strategy, the energy and power, It's a big topic these days.

17:09

And one of the key features of Supermicro Hardware is, we have a, we have a middleware management tool that will allow you to manage these compute assets remotely.

17:22

So you can actually, from a cell phone or as a single pane of glass, do all the management on any hardware.

17:31

Even if it's out in the Sahara Desert or it could be out in the continent of Africa at a wind farm. And you can still do all the bios upgrades, all the software revisions.

17:42

You can do advanced and all all of the service and maintenance can all be done remotely, so you can think you can think about how you know what it would take to get somebody out to remote site in this Sahara Desert at a solar farm.

17:59

This is a great tool to be able to manage this hardware remotely.

18:03

We'll go through a couple of these other use cases here in a second.

18:07

But I just wanted to highlight, again, that the Industry four, well, I'll show you a couple of use cases that were engaged in today, around welding machine, and welding machines, and also paint, and paint inspection.

18:22

We've got a couple of really significant wins on Fortune 500 companies in food handling and retail.

18:30

And we'll highlight a couple of those as we go through here.

18:33

And a couple of use cases, also around Telco, smart cities and healthcare.

18:41

And again, I think the most important thing is, when you are out there, hearing these cuts, talking to customers, when you hear these things come up, again, bring us in, and let's see if there's a way that we can approach these from the hardware, to the middleware, to the application layer, and to the actual installation to the customers.

19:03

Again, this is a kind of that approach that we use. We, we call it a t-shirt, kind of an approach, the small, medium, and large.

19:14

We follow the Intel terminology, a thin thick, and extra thick, But again, it just kinda speaks to the overall kind of capabilities to meet and match any kind of customer requirements from a compute perspective, and also IO. You'll notice that on a lot of these.

19:35

The smaller servers, and even are embedded in our families, products.

19:40

All of these IO functionality are all approached through a building block approach.

19:47

So customers can interchange any of this connectivity and networking to meet their particular circumstances, anything from one gig up to 100 gig and soon to be higher.

20:02

So, a lot of flexibility.

20:04

I also wanted to point out something that's really unique for supermicro, is this, this is a cabinet and we'll get into it in a minute.

20:11

But this is an IP 65 cabinet, which means it's rated for dust proof, and it's also waterproof.

20:18

So it'll take direct jets of water, and it also can handle extreme temperatures. So it's meant to go outside on building tops on radio towers. And we'll get into a couple of use cases where, again, if you get into those customer conversations where that those kinda topics come out, now we have something to talk about.

20:40

This is a really nice tool.

20:43

We talked a little bit in this presentation about video and AI.

20:49

And the leader in this market space is Intel with open fino as a development kit.

20:57

And Dev Cloud from Intel is a way too, login using open veno in the learning capabilities around more videos and open vino.

21:11

And you can login through Dev Cloud, use, open vino, do your AI in inference chain, and training, on any one of these supermicro hardware devices that are at Intel's lab.

21:25

And you can login to them remotely.

21:27

You can test Drive Open Vino, you can test drive your, your training, and your inference seen in all of the other AI projects that you're going on. That you're trying to run these days. And you can develop right on these, and these are all free of charge.

21:43

So you can do benchmarking prototype, and you can run applications from anywhere in the world on this hardware taking advantage of all these great resources from Intel and Supermicro.

21:59

Again, I just wanted to just point out, again, this, I won't get into a lot of this, but the key thing, a key takeaway here is, software defined is becoming a very big topic these days, and it's, it has to do with the ability to use multiple nodes and multiple, use, multiple sensors, and use a single point of hardware and manage it with software. And we are aligned with some of the top rated and middleware and application software companies in the world today.

22:39

Just talk a little bit about Industry four. This is a very big topic for us. It's super micro, and I know you guys are out there calling on industrial customers all the time, and again, so, we approach this market from this small, medium, and large kind of an approach.

22:58

It goes from you know, one, a customer that's just trying to do POS checkout to all the way up to where they would want to run the entire store. from RFID to incoming freight to outgoing inventory management to security, to the Any assets that may be robotic on, inside of a store or your digital signage. So as the requirements grow in this space, you would grow with the compute resources that you require.

23:31

Again, I'll give you this deck, so when you can, go through these, and if you have something that you want to dive into, You'll have a little time to do that, after this.

23:44

Again, this is just kind of another slide about how we approach these markets, and again, as you're out there, talking to customers every day around embedded computing.

23:55

If you're trying to run a machine with a motherboard in a harsh environment or any kind of big heavy machinery in CAD cam or any kind of computer or CRT milling machines, these compute platform from motherboard up. We have a great solution for all of these and if you're out talking to any of these industrial comes these from Siemens and E to the robotics guys that are using robotics to for production lines in any kind of self checking, self healing, machinery.

24:31

We've got it a use case again.

24:33

And I guess the takeaway is just when you hear these topics come up and you have customers that are approaching these kind of use cases.

24:43

It's, let's have a discussion and see if there's a way for us to work together.

24:52

And again, I'm kinda gonna speed through these kinda quickly. We've already covered a little bit of this content, But when you have an opportunity, you can kinda go back. This just kinda goes through the ... migration of digital transformation, and we're all very aware of where the digital transformation is at today.

25:11

We are leading edge on technology for just a number of requirements and some of them have been sped up by the recent pandemic.

25:20

And we have some real solid use cases around some use cases around the pandemic and use cases for safety.

25:32

one of the things I'd like to also highlight is when you guys are out, and if you ever have, taking a look at our website, this link at the bottom here, supermicro dot com, IOT Edge.

25:49

If you click, If you go to supermicro dot com, under Solutions, and this link will take you right there.

25:56

But on that, there is just a tremendous amount of content and white papers and solution briefs, and different videos from some of our biggest wins and some of our biggest customers.

26:09

So, I'd encourage you to, when you're looking at some of these opportunities, and you want to dig a little deeper into the, what's available, and what kind of success and use cases we've had. There's just a tremendous, as you know, just scroll through it some day in you.

26:27

You'd be amazed at all the places where we can partner together to meet customer opportunities and projects.

26:36

The one thing, one takeaway from this slide, this, again, just kind of talks to the industrial for use cases these days at the edge. But the one thing that I wanted to just highlight here is that all of the supermicro hardware we're talking about today is all been validated on all of the cloud platform.

26:55

So, Microsoft, Azure, Amazon, and got Google Cloud.

26:59

So, anytime you, again, you're having customer conversations, and they're using those services, we certainly have some use cases and validations that you can bring to your customers.

27:17

Again, this is another one.

27:19

This actually is a really kind of a cool use case.

27:24

This is a manufacturing line in the UK, and it uses one of our 400 and threes. What did this E 403 does in this use case? These are welding machines.

27:37

So the, the manages the remote arm, it also has three, a 100 GPUs in it.

27:47

So it has the ability to not only inspect the way of the welds from this robotic welding machines, but it also can tap it with a microphone, and there's a resonance that comes back from a good weld.

28:03

And one that comes back from a band, what bad world, so they can visually inspect the, well, they can inspect it through sound, and there's, again, just a whole myriad of cases where, you know, you can talk to customer opportunities.

28:22

When you're out there talking to your customers, you can have to hope to be.

28:25

I don't want to be redundant, but I just want to drive that home that again, anytime you're having these conversations, it's, it's a great opportunity for us both to Engage where we just need to start having that conversation.

28:45

I'm heavily involved in with Schneider on a lot of projects, and again, I just wanted to point out with this slide, some of the flexibility we have with mounting, and again, Dan visa and also 19 inch regular rack rails.

29:04

This is another use case. This was a similar use case, too.

29:09

The one we just talked about, this is of the odd Audi manufacturing and I'm Mia, and this is a paint inspection program. So these cars go down through the manufacturing process.

29:23

They have cameras all over the place that are visually inspection, both the content, and also the perfection in imperfections in paint.

29:33

So again, some, you know, a wide variety of use case that you can now have a discussion with concept, with customers.

29:41

This is one of those slides, just quickly go through this. This was one that, in handling work, workplace security, and health and safety.

29:52

So, there's a lot of use cases, these days, as you're out talking to customers, where they're trying to keep their workforce safe, trying to, you know, make sure that there.

30:02

People are complying with social distancing and maskin and hopefully some of that stuff is going to be less and less these days.

30:10

But for the near term, it's a very viable product, a lot of customers look into, these use cases today, oil and gas.

30:23

So, next time you're out, having a customer conversation around oil and gas pipelines, or any kind of solar farms or wind farms, can bring us into these conversations work on together.

30:41

This is another one of those open compute platforms. This is one in conjunction with Intel in the manufacturing facilities. There. it's a.

30:53

There is a lot of legacy hardware that, especially in the sensor realm, that's out there. So this O P F is an open compute platform that's giving the ability for common hardware. To handle all of these legacy kinds of sensors and all, and not be, not have to go out and replace all of the sensors that have been in place, and our expenses have been there for many years.

31:20

It's a way for you to have a customer conversation in these larger applications and in industrial.

31:31

This real quick note, we have ..., these are middleware management tools. We talked about a little bit about the ability to manage these farms. This is actually a wind farm and solar farm in Africa.

31:43

And they, these are managed remotely and, again, from anywhere in the world, through a single pane of glass, very important for customers to have that capability.

31:59

Smart Cities are places, it's a big topic these days, and around a lot of the management of traffic, A lot of building management.

32:12

Oh, traffic, light, management, CCTV, and we'll get into a couple of use cases where you'll, this will be a little more relevant here in a second, But again, we have, we bring to bear for this kind of an application, both the compute, the software, and also the the rugged environments, so that the IP 65 provides.

32:38

Barton big success story here in the Bay Area where we manage traffic flows and also the toll gates and ticketing.

32:51

Timberline, we've got a big use case where we partner with Nvidia to manage traffic flow in their stores.

33:01

Loyalty programs and the purchase and automation at the checkout is all remote and done autonomy ously. So again, retail environments are a big topic these days.

33:14

So again, if you have a customer conversation with the retail, we've got a solution.

33:21

Another software partner that we have: paper an AI, just to kinda give you a kind of an overview of the different ways that you can use AI these days. This has a bunch of cameras, watching everything that's going on out on it.

33:37

An apron around an aviation prospect perspective.

33:44

manages the whole.

33:54

This is an interesting project, and it kinda highlights what we kind of were talking about earlier.

34:00

This is a project done with radar, Radar is a mobile app that this was rolled out in Mexico City first. So what it is, it's a mobile app that you get on your phone.

34:13

And just every day, people have this app on their phone and it interconnects with the management and the video, and the access to fire and police through your phone.

34:28

And the way it works, it's over Wi-Fi six.

34:31

But the way that it works, it's really interesting. There's a bunch of these. This is our IP 65 cabinet.

34:37

So it's a outdoor, and you can imagine, in Mexico City, the heat so that it's, it's both deaths proof waterproof. And it's the compute environments, what's a micro data center? It's hooked up to cameras. It's hooked up to microphones. And it's hooked up to multiple cameras. In fact, every one of these boxes has 50 cameras hooked up to it.

34:58

And what happens is these cameras can do any number of use cases, they can monitor traffic flow, they can monitor any kind of security threats that happen to come up.

35:11

People that have the radar app can report any kind of, you know, any robberies, or any accidents or anything that's going on. This also has gun top gunshot detection capabilities.

35:27

So this was first rolled out all over Mexico City, and it's a very successful plan.

35:33

That they're rolling it out in a couple of cities in Florida in the, uh, next iteration of this, but a crate.

35:42

Use case four.

35:45

All of this smart city, advantages that you can bring with AI and compute these days.

35:50

So again, have a customer when you're talking to a city, they're looking for ways to manage security and manage different aspects of the city, There's options for you.

36:05

This is just a second slide about some of the capabilities of this radar app.

36:11

This is also done in conjunction with a lot of different partners, software partners, application partners.

36:19

And again, Intones Supermicro partnering.

36:26

Smart Edge, if anybody's familiar with Smart Edge, this is a use case from Asia, it manages Trafficant pedestrian flow, and, again, I won't get into this very deeply beginning, it takes advantage of a lot of the technology today.

36:42

And you can, again, go out with open vino and do some of your your POCs on some of this modeling at no cost, using Intel, and supermicro asked.

37:02

T, Sys Admins, Ed, and Ed Jair, it's another, I'll let you guys, when you have a chance to go through this. This is, you know, this was a use case for private, five G and network private networks, in a campus environment. So we ... is a software tool that lives on Supermicro hardware.

37:19

And if you're out talking to institutions, medical or or universities, again, bring us into that conversation.

37:26

And we can, I'll let you know how we can help support your projects.

37:33

And, again, this solution brief is up on our our web page, on our solution, IOT Edge space.

37:43

So you can go download this anytime and take a look at how this was accomplished in the use case.

37:51

I'll try, and, again, this is another one of those private five G networks in traffic flow and management, and this is also in toll gate, and toll traffic management, again, using this IP 65, which is you see out here on a light pole, where they have to have pretty harsh and rugged environments.

38:18

one of the other things that's really interesting today, some of these heavy compute environments and especially with GPUs require liquid cooling.

38:26

It's kind of a, you know, a cutting edge, but I just wanted to just highlight the ability that we, we, we have an ability to do both immersive, then also heat pipe kind of cooling.

38:43

Again, we've kind of touched on a lot of this previously, but again, I just kinda want to highlight some of the capabilities that we have together.

38:51

You know, anything for managing the automated checkout, RFID tracking, product safety and management, as well as slip and fall kinds of, um, observations through video, it also gives the the store the capability to do merchandising, so it tracks and can input to customers of specials or it notices, trove, traffic and customer opportunities so that it can make better advantage of the store footage.

39:29

Loss Prevention is also a big topic these days, so again, these anytime you're out talking in your customer that's looking at ways to improve loss prevention through video, there's, we have some capabilities that we can bring to those opportunities.

39:48

Yeah. And this is another one of those slides, I just wanted to just kinda highlight, again, we follow this kind of small, medium, and large kind of approach to this market.

39:59

So you can do, as little as just autonomous checkout to a full-blown AI ML kind of environment that customers are trying to provide use cases for today.

40:18

Quality is a big one today. This is a huge opportunity that we wanted Supermicro. You'll probably recognize this store here, But this is a At scale. This is a huge project. And if you, Again, this so solution brief is up on our website.

40:36

And you can take a look at it.

40:38

to see if you have customers that may be and have an opportunity to a duplicate this, which is one of the really nice things about these projects is, most of these projects are repeatable and they are at scale.

40:55

You can not have to start from ground zero.

40:58

There's a, an interesting way to use the technology that's already there.

41:05

Food based projects, Again, I won't get into a lot of this.

41:09

It's, and, again, it's, there's a lot of different, autonomous approaches to retail and other environments and gas stations, and fast food.

41:21

So we bring a lot of different technologies to bear on handling those use cases and projects, again. And, again, these are, I think, it's important to see the different kind of use cases that this hardware fits into.

41:38

So, again, when you're in your customer conversations, and I hate to be so repetitive, but the success stories, and these are all up on our website again.

41:46

And I will also share this deck with you, so that you can go through these later on, with a little more detail to anything you find might be need a little more detail.

41:58

Kiosks, kiosks are huge these days, and then embed these compute environments in kiosks, smart surveillance, cameras, and other surveillance equipment, a huge topic today.

42:11

POS and POS systems are very big topic today, and we can bring this.

42:20

You can approach customers with solutions.

42:25

Another, just to, kind of a quick went on, healthcare, healthcare is a huge one today.

42:30

This is a, there are, a lot of these portable x-ray machines are also MRI and pet scan machines that, you know, we have use cases too bring to bear into any of those opportunities as you're in there talking to these customers.

42:48

And again, this highlights some of the connectivity options you can manage and you can offer customers just about any option as far as IO and networking.

43:07

Worker safety, you already did that.

43:08

Sorry, this just shows you kind of another use case for health care.

43:17

At the edge, this, or this one was a use case around VR and AR.

43:24

five G solutions. I don't know how many types, you guys are out there talking to telcos and some of the major network carriers.

43:33

But if you are, we certainly have some of the strongest hardware in the industry and a lot of validation and a lot of success stories and some testimonials from some of the top tier network carriers.

43:50

Wow.

43:52

All right, again, we now can bring white Box hardware into what traditionally was locked out by proprietary hardware from Nokia Ericsson And some of the others that just kinda had this market captured for years. But now, these are all open compute environments.

44:18

Again, virtualization and container workloads, and cool, like micro data centers.

44:23

Again, any of these topics that you hear, now you have something that you can talk with these customers about.

44:32

Again, we've kind of gone over a lot of this already, so I won't go over it again, kinda constraint on time.

44:40

But, again, so wide, wide options, for you, as you approach customer conversations, guineas, Telco, Environments.

44:51

When you start talking to any of these carriers, or any of these network providers, we have a really compelling story to tell to approach these, these markets.

45:07

Yeah.

45:09

one of the things you'll hear when you're talking to Network Terriers is they have something called a D U, a distributive unit, and have a radio unit, and then they have a core unit. The main place where we focus is in the distributive unit because the scale and the distributive unit is about you know, I don't know exactly.

45:30

But the scale compared to core and radio units is just is minuscule compared to the distributive units. So, we focus on distributive units. And, again, we have a, a small, medium, and large offering.

45:44

Anytime you hear a customer talking about a distributed unit, you have something that you can offer your customers.

45:56

These outdoor environments, and we've kind of talked to this, So I won't spend a lot of time here. But I just want you to know that if you ever run into one of these, when your customers are saying, hey, I gotta have this out on this compute out close to my building and managing a building, or a managing traffic flow, and I, it's a harsh environment.

46:17

Now you have a solution for those kind of use cases.

46:24

Private V five, and Private five G is a huge topic.

46:27

These days, private five, G, and private five G networks are huge, so you can, can University campuses use these private networks? Industrial Florida use these private networks? And what they saw?

46:41

And what these are, is these are compute and a radio that will blanket a specific area with private five G.

46:50

So it allows you to have a secure environment and take care of and take advantage of all the advantages of ultra low latency, and also very wide bandwidth. And you'll see a lot of you'll see a lot of these today around stadiums.

47:07

Large venues, large manufacturing floors. University and University campuses would have a private five G network. And if you run into any of these conversations, again, bring us into those conversations. And we can, we can work this together, is an opportunity for us to win together.

47:30

Openness is another one of these private five G network tools from Intel.

47:36

So if any of your customers are talking to you about openness and open venal.

47:41

Again, now we have a conversation.

47:49

This deck has just a tremendous amount of, uh, it's got just a, you know, the volume of stuff and technology, and this is just overwhelming. So, I'm gonna share this deck with you, so that you can kinda go through it.

48:09

But wanted to kinda get to the in here, where we start talking about our, our hardware, and all of these. All of, most of the four front of our hardware is all listed in this deck.

48:24

And again, I wanted to highlight the application portion of this use case for you, so that when you're looking at these, it's kinda it's kinda easy to see where they fit and how you could use them in customer conversations.

48:39

This, Jac, again, it holds the the bulk of our hardware from the Edge and our IOT perspective. So, you have a, nest, you know, a lot of content here and you can access it anytime and go through it at your own pace.

48:56

I won't go through it today.

48:57

There's just too much to kinda unload, but I do want to just highlight real quickly that these are all of these products that we're that I'm showing here today.

49:08

All follow, the latest generation of Intel.

49:12

Yes, Silicon, these are, one of the strengths of Supermicro, was we, we pride ourselves in being first to market and leading with all of the technologies that are coming out from Intel and also the other manufacturers from AMD and Nvidia and others. But we track very closely with the next generation, and we're always first to market with all of the next generation.

49:37

We have these available in the Intel third generation scalable processors in Isolate available right now for mass production and also for POCs.

49:49

So, again, I won't go through these, but, again, just take a look at them.

49:54

Again, noticing the applications and where they kind of fit. I will. I will kinda point out just a couple of other ones real quickly.

50:05

The, the two latest platforms that are coming out in the core level and atom level.

50:12

So if you're hearing some of your customers that are asking for Tiger Lake or Elkhart Lake, which are the two us new releases from Intel on the mid-level compute environments in core and an atom.

50:27

We have, right now, we have POCs available, and mass production on Elkhart Lake is going live in October and in Tiger Lake, we're already in mass production.

50:37

So, again, if you're out there talking to customers and they're looking for Tiger Lake or Elkhart Lake, which are the newest intel Silicon, we supermicro have those for customer POCs and for mass production shortly. Again, and I won't go through these this of just a lot of cars content, but all of these new products all take killer of the latest generation.

51:01

As scalable third generation Xeon, they all take advantage of PCIE, Gen four. So, you know, PCI Gen four is in some cases up to double the capabilities of ... three. So, again, there's.

51:19

just a ton of connectivity options, even up to 100 gig, Nice platforms and again, this is this deck is pretty in-depth. There's, I think there's a total of about 90 slides here, so I won't go through them all.

51:36

But you, I will share this with the team here, so you'll have access to this content and you can go through it at your own pace. You can also reach out to me or Mike or Toney.

51:49

We'll make sure that you have our contact information Would be more than happy to support you on any of your customer engagements and pointing you in the right direction for any of the use case and projects that year working with customers on today.

52:04

So, again, I don't have anything other than that, and if there's any questions, I'd be happy to take them.

52:13

Yeah. Thanks, John. Thanks for the very detailed presentation.

52:16

I do think it's a really good idea for customers to be able to see some of the different projects and things that supermicro solutions are being deployed on, because we have so many customers that are involved in so many different kinds of vertical markets that we rarely never really know what thing is going to strike a chord.

52:35

I'm sure there's a lot of people out there that are really interested in the retail edge products that you were showing might even be worth doing a future event, maybe just focusing just on that.

52:46

Because that certainly touches a lot of opportunities for a lot of our customers to bring some of those solutions into the retail space that they're, that they're working with, and in education. So, a lot of really good information here. And thanks to customers, good ideas, and what they think about, I do have some questions that I didn't want to ask.

53:08

First or very early on.

53:09

You were showing some IOT systems Kinda like some Edge IOT devices.

53:15

Now, are those custom configurable, and then you can add your own memory and your own storage, or do they come completely built and completely integrated from supermicro?

53:27

Yeah, so Use supermicro follows a building block approach.

53:33

So, there is a bit of on the smaller devices, because of size constraints, there's not as many options, but we approach every piece of hardware that we build from a building block perspective.

53:47

So we allow you to do M dot two and any kind of connectivity from USB to SFP plus two, any kind of networking options and we allow you to meet that with any of your customer requirements from serial to PCI, two, PCI three, PCI, four, Any, any of those options we can build to your customer.

54:13

And because of our building block approach, those don't have long lead times either.

54:18

They have a standard lead time with the building block approach.

54:23

So I do have a couple of questions regarding supply, so I'm gonna kinda try to combine this into maybe kind of a two part type of questions.

54:33

So, early on, you talked about your global, your global skews. So I was wondering if you could, you know Part one, kinda touch on again how the global skews can help customers that are struggling with availability and supply around server solutions in general.

54:51

And maybe the second part of that is, could you touch on a little bit about maybe where supermicro is in terms of supply?

54:59

If there's things that you can share with us, kind of about what's happening within, know, the supply and availability area for, for the products.

55:11

Yeah, so, can you know its supply constraints continue to be an issue?

55:17

So, one of the things that Supermicro has done, and we've announced this to Wall Street. So I can I can say here is that, you know, we have on hand at Supermicro right now, today.

55:28

We have \$1,000,000,000.5 and component level parts.

55:33

So we're in a very good position to support customer projects.

55:39

Now, that being said, there are still some areas where there are some down on the board, kinda components that are in shortage, that are holding up some motherboards.

55:50

Most of those supply constraints, we're seeing them on the data center level, mostly from a speed, and a couple others from TI, and a couple others.

55:59

But for the most part, and especially around the global skews, we treat those specifically to meet those challenges of supply constraints.

56:11

I'm not saying that we're, you know, that we're always going to be able to deliver in the, you know, in a few weeks time, like we normally do, but we're in pretty good position compared to our our competition, \$1,000,000,000.5 for us is represents about a year's worth of component level parts.

56:31

So, and we continue to build on that, and we're doing that just because we're trying to support our customer requirements for delivery.

56:40

So couple of questions kind of about maybe you know, partner programs or support tools.

56:46

We do get this question asked quite a bit and it was asked again during during this session is supermicro have any specific tools that can help system integrators with configuring your servers, you know, identifying the right power supply, picking the right?

57:02

You know back plane solutions or the or the right removable drive vacates. You know, do you have some online tools to help with that type of configurations?

57:16

Yeah, so hey, great question, Kenway, and we are right now just launching our online Configurator, so through my com, you guys can get ahold of Mike and Mike and give you guys access to our online configurator.

57:34

And it's not 100% up and running right now, but it will be shortly, and it will identify just exactly those, kind of use cases that you just talked about where you can.

57:47

It makes sure that you have the right parts, and make sure you have the right power supplies, that make sure, that if you change something out, that the right cable gets added, That kind of thing.

57:58

So, we have a new tool that's going to be launching here shortly, and it's going to be a very usable, and it's hype.

58:04

I've test driven it myself, and it's got some real nice attributes, and Mike can help everybody out with that.

58:13

So we'll touch base with Mike and see if we can get our hands on that and be able to send it out to everybody. So we'll, we'll see if we can help make that connection happen. So other question kind of around partner programs. Does supermicro have no Deal Raj programs also available?

58:32

So we do have a deal rich program. The only caveat is it has a threshold.

58:39

And I can't remember, I don't know why I can't, but it's either a one million or \$5 million threshold for it to be a deal registration.

58:49

And that's not a hard number.

58:50

It's just kinda overall project kind of expectation, so, but to answer the question, yes, we do, but it does have a, a threshold.

59:03

And this and sales, Mike can help you with that.

59:07

OK, great, so, kinda another question around five G, so are there supermicro have a list of recommended five G adapters, I know five G's.

59:22

And networking in general is one of the choking points around server availability.

59:27

But are there a list of five G compatible adaptors recommended by Supermicro that can be used in your systems?

59:37

Yeah.

59:37

I'm guessing that you're talking about add on cards and different acceleration options, and different connectivity options, and the answer to that is, Yes, we do. So That would be a tool that would live on the Configurator also.

59:55

But if you have a specific question, Please bring it to me or to Tony and we'd be happy to answer those questions, but the answer to that is yes. We do.

1:00:08

OK, All right, Yeah. I think Mike was trying to jump on here for a second to try to answer some of the questions, so We successfully unmute you. Yes, so can you hear me?

1:00:23

I can hear you, Yeah, OK, so we do have dual registration, so anytime there's any deals, are you in the front governments? Schools, and the larger projects, now, you want to register, even if it's not a public deal. We can definitely some, It, or not do anything. I want to make a quick correction on a configurator configurator is open to ASI.

1:00:48

So the one customer requests per configurations, Chris and team, will, have access to the configurator, you will be able to configure to make sure on a cabling and all of these are going to be in there. So nothing will be missing from there.

1:01:09

OK, great, So here's what we'll go ahead and do. I know we're kind of past the top of the hour. So, you know, everybody that's sent in a question, if we didn't get a chance to ask, the super micro team will get the questions over to them so we can follow up. I will be honest with you guys, some of the questions are quite tall, and I'm afraid I have to answer those.

1:01:35

Probably not, Or I have to ask, that, are probably not going to come out, Right. So, we'll get those answered separately. And we will send out details about how to get connected with someone who can help you with the online configurator.

1:01:50

Because there are a lot of questions in the queue about that. But since we are past kinda at the top of the hour, I'm gonna go ahead and wrap things up. I do want to ask. Everybody Just hold on for a few more minutes. I got a couple of quick announcements that I want to make here. First is, I do apologize again.

1:02:07

For those of you that might have missed, I was unable to announce the winners of the drawing for drives from yesterday because I had a computer glitch. But I'll make sure that we get that announced tomorrow, or e-mailed out to everybody. So you can see, you know, who the lucky winners were of the prizes from yesterday. For today, we have the Nintendo Switch that we'll be giving away. And we'll announce the winner of that tomorrow morning. And I'll be sure to make sure I write it down so that I have with me. So I can make that announcement.

1:02:38

But we'll announce that tomorrow morning for our Samsung session, which will be tomorrow at 11.

1:02:44

And the last thing I want to announce is, is that I did send out a meeting invite to everybody. I send it out yesterday, it's for an added session that were added on for Friday, will be an ASI session as kind of a summary of some of the things that we've heard that have been talked about during this week. We will go into some information about the shortage situation. That's happened in the market will kind of share ... perspective with you guys into what we see happening, where we can kind of pull multiple points of view together.

1:03:17

To kind of give you guys some idea of, OK, here's here's what we see is going on with the shortage.

1:03:23

Here's some things that we see that are happening in the markets, trends, some opportunities to look for. We're going to talk a little bit more about Intel's 12th gen processor launch, that'll be coming up.

1:03:34

So kind of some good summary information on Friday if you can join us, Great, would love to have you. It is something we added last minute, so I know a lot of you already have things that have been planned for Friday and you won't be able to join. But if he can make it and join, please do. We will record it just like all the other sessions so we can set it up and everybody.

1:03:53

That'll be Friday at nine o'clock in the morning. And I sent the invite to everyone yesterday.

1:03:59

So with that said, I want to thank you all for joining us today, John, Mike, and everybody from Supermicro. Thank you so much. John, is there anything you want to say in closing before we give everybody back the rest of their day?

1:04:13

Kent, thanks Shelley. Thanks, appreciate it.

1:04:18

Well, thank you everybody. Again, we'll look forward to seeing you all back with us tomorrow, and thanks for joining us for day three, and everybody, go have a great rest of your day, and we'll see everyone back tomorrow. Thanks.