Samsung SSD 2021 Product Portfolio

0:00

This is now starting, all attendees are in listen only mode.

0:05

Good morning everybody. This is Kent Tibbils with ASI..

0:07

ASI Thank you guys all for joining us for day three of our ASI Winter Technology Summit.

0:16

Today we have Samsung joining us.

0:18

We have Kim Wise and Adam ...

0:21

from Samsung, and they're going to be giving us the presentation today. Before we get started, I turn everything over to them.

0:30

I have a couple of housekeeping items that we need to go over, and I just wanted to start with those first.

0:37

So first thing is following from yesterday's session from Intel.

0:42

We had a couple of products that we wanted to give away, which include two, Intel Nooks.

0:48

So we did the drawings last night, and I want to announce the winners of those before we start our session.

0:54

And then I also want to remind everybody that forth today, Samsung is giving away a 50 inch LED, poor K smart TV.

1:06

So for joining our session today, and going from beginning to the end of the session today are all automatically going to be entered into the Raffle for a chance to win, that awesome, 50 inch TV, which we'll announce that winter at tomorrow's session, from supermicro.

1:24

So, for yesterday, for the NUC, I'm happy to announce that William Richman from Virginia, you're the winner of one of them.

1:34

And the other nook is for Vincent, Sherman from Texas.

1:40

So William and Vincent, congratulations. You're our winners for the NUCs.

1:45

We'll be sending you guys an e-mail to congratulate you and get all the information worked out, or getting you guys, your prizes.

1:52
Um, so congratulations to you, too. So we're all happy and maybe a little sad that we didn't win ourselves, but everybody, there's still chances to win great prizes, including that.

2:04
A Samsung LED 50 inch TV that we're doing today.

2:08
So with that said, I'm going to go ahead and kick everything off and turn it all over to Tim and Adam.

2:16
one more thing, guys, that I forgot to mention for customers on the line, if you guys have questions, we encourage you to submit your questions through the question icon on your control council. Just go ahead and type in your question, and we'll make sure that we get that question asked to Adam and Tim. So, I'm sorry about that, guys. I wanna make sure that they know how to ask questions before we start. So, now, with that said, let's turn it back to you guys, 10, Adam. Once you guys go ahead and introduce yourself, we'll start with him.

2:50
Sure, My name is Tim Wise, I'm with Samsung on the distribution account manager for the entire country. So work well with ASI, a very key partner to us. And we wanted to thank them for the opportunity to do, to present to you Folks.

3:07
Adam is going to take over the presentation today and Adam is our Systems Integrator Account Manager, Senior channel manager. He is a very key part to our organization, and I thought it would be great for him to share some information with you. So, I'm going to turn it over to Adam. Adam, the floor is yours.

3:26
Excellent, Thank you, Jim, As Tim mentioned, I manage the East Coast for our system integrators.

3:33
I'm dialing in today from Atlanta, Georgia.

3:36
So, before we get started, thank you all so much for joining today.

3:43
We really rely on our channel to position and sell our products, not just ASI, but our reseller community, our system integrators, our cars, our managed service providers, so thank you for listening today, we want to continue to earn your business, whether that's through pricing, support, no backend programs, all the things that we offer.

4:14
Today, we're going to be covering kinda the state of Samsung storage.

4:21

Kind of where we're at now, where we see ourselves going followed by a quick product overview.

4:28
So, you understand, you know, what products we have to offer in an SSD and memory and then we'll finish it off with the roadmap so you can kind of see what's coming, what's going.

4:41
This is a very timely, we have a lot of product introductions and some things going away.

4:46
And I've always found, through my work was the chairman of that product life cycle, so key. Especially when you're building white box. And OEM solutions, it's very important that you know your components, life cycle, so that you can plan accordingly to make those still a material updates as needed. And the more runway you have on that, the better.

5:12
So, you can, you can adjust those with last time buys, bringing in the samples as well as notifying your end user, your clients.

5:22
Especially when we're talking about federal government customers and things like that, that have very specific component requirements and documentation. With that, I'll go ahead and kick it off. If you have any questions, please feel free to dial that into the chat.

5:38
I may actually work with a lot of you already as a partner so if it's something you want to tie up with me directly, that's fine if you want to roll that up through your ASI account manager as well that's OK we want to make sure you guys are yeah, we want to hear your questions and answer them accordingly. So, quick overview on Samsung. I think most of you know Samsung is a global conglomerate. We're in a lot of different industries. We play in a lot of different technology places. You know, displays TVs. Whether that's something in your home for your home entertainment or whether that's digital signage at your corporate office, we're number one in that space. Hollow appliances. You know, we do really well in those things are getting really interesting and really smart and connected these days, so that's really interesting. Healthcare, you know, we're in radiology, We make different X-ray machines, things like that.

6:41
So we have a strong market there as well. And, of course, on the client side, we're talking wearables. We're talking phones, cameras, cameras, things like that. That's a really important part of our business. And emerging industry that we're really gaining some leadership in with some new innovation is on the network side. So with the adoption of five G, there's a lot of infrastructure requirements around that when we're talking about you know, edge computing access, points, things like that. We're really taking a leadership position. There.

7:21
What we're talking about today is on the device solutions. So we're going to talk about memory. So, memory split up into a few different categories. We sell into, obviously, the larger OEMs, like Apple. Those companies have direct relationships with our OEM side.

7:40

What we like to support here on my side in the channel is through ASI is, you know, our traditional SSDs. And those are products that we share with retail like Newegg, Amazon, the products that we it's kind of shared skews across the board.

7:58

We found that, you know, the support on the retail side, obviously, wasn't guided enough for system integrators to build solutions around. So we created this team that I'm on about six years ago.

8:11

So we could directly support our product, our partners, with product life cycle, with backend programs, with marketing, with promotions, with aggressive pricing, things that we can engage directly with the channel, distribution teams on, to make sure that you had a quality product that you could trust, that you are happy to spec into your solutions.

8:34

Market Share is really important.

8:36

We always strive to be number 1 or 2 in every market that we serve. And this is where we're a leader taking a leadership category and across the board. We're very proud of that. That's something that we strive on. On the sales side, there's a lot of metrics behind that. But of course, you know, market share can't be even discussed without our channel without our partners trusting in the products that they're reselling into the client. So thank you so much for allowing us to be number one in sponsoring Samsung across the board.

9:12

Manufacturing is very important to us. We're very flexible. We're very nimble.

9:17

So we're manufacturing and a lot of different areas, which you can see across the board.

9:25

Home appliances is interesting. We just opened a new facility in Greenville, South Carolina, where a lot of that takes place. That's just north of me in Georgia. So, they're really proud of the position that they've taken there. You can kind of see where specific term memory today.

9:40

We responded to the Trump Tariffs couple of years ago, and moved a lot of our, ah, manufacturing out of China. And then back into Korea and Taiwan.

9:52

Whereas previously, we did a lot of fabrication in Korea, and Taiwan, and then, you know, move some of that out too, the fabricated elsewhere. That all sits now, and in Korea and Taiwan. So those products, for the most part are TAA compliant. And that allowed us a lot of flexibility, when the climate hit this year behind coven, to be able to adjust to that and be able to respond. to customers better.

10:18

So we weren't affected as badly as some of the other storage vendors out there.

10:25

R&D is so important, so innovation is so key with us. The beauty of the Samsung products, whether you're talking about phones or my product memory today, is all the pieces of the puzzle are Samsung. So we don't outsource any of the parts, the controller, the and the firmware, all of that a Samsung, and that allows us to really own everything across the board to drive adoption of new technology, as well as innovation. It's always gone back and forth from suing Samsung and IBM over the past. decade as far as who has the most patents and who's bringing the most innovation as far as technology is concerned. So, that's something that we're very proud of.

11:06
We dedicate a lot of time on the lab, and sometimes we even delay the launch of products to make sure it's just right, so that you have a positive and happy experience with the solution.

11:19
External stuff, you know, we're really proud of all the things that the different companies award us.

11:27
one of the real exciting ones this year was we were awarded the number one best place for employees by Forbes on how we've responded to covert and things like that.

11:39
So, no, we really strive on in addition to innovation and the technology solutions that we present is having happy employees so that we can create a great, positive experience for our clients and our channel. And we feel that trickles down to you guys, so you can see where we land across the board with regards to innovation. You know, brand raking rankings, not just from the US, but these are global.

12:08
Global sense. So that's something that we're really excited about.

12:12
That allows us to bring in really high quality talent across the board into our organization.

12:20
Semiconductor.

12:21
This has always been kind of a back and forth race between Samsung and Intel over the past decade or so.

12:29
You can see that although, yeah, one third of our overall revenue is memory. You know, the profit is about two thirds. So it's a very margin rich business. Storage always has been. And so that's why it's such an important product category in the overall product solutions that Samsung brings to Market. As you see, Intel overtook us last year. I think we've passed them again here in 20 20. something that's really interesting. It's not noted on here, of course, will update our slides into next year.

13:00
As most of you are aware, that SK Hynix, another Korean company has acquired Intel's SST business. I think they acquired most things outside of, like, obtain. So most of the client business, as well as the data center enterprise memory, that's all going to now fall under SK Hynix.

So that's going to be really interesting.

The storage industry has continued to consolidate over the past five or so years, with the goal of creating more innovation, as well as driving the cost down. So there's fewer players, but there should be more robust options when it comes to that. And it makes it a more seamless, cleaner experience. When our partners and our clients are selecting a storage vendor, in order to partner with, there's not as many options, But there's better options within the options that are presented. So we think this is exciting.

We always are thrilled by the challenge of what other partners are bringing because we continue to drive each other with you know, brilliant ideas that we can no continue to bring toward our clients.

Here's where everybody stacks up right now. Samsung continues to lead, We've been a leader in this for many years.

So no marketshare in the channel. That's the Samsung Play. You can kind of tax. So we continue to work to earn our partners' business every day. Whether that's through, you know, the products that we're selling and the innovative ideas that we're bringing to market as well as just the overall experience and the ease of doing business with Samsung.

That's something that's really important to us, and we do take voice of the customer very seriously around here, so if there's anything that you have as an idea that we could do better on, or, No, we love hearing that We're doing well, we would love to hear those ideas. Feel free to cycles a cycle. That up to your ASI account manager or to your Samsung rep directly.

As far as pricing and kind of where we're at with NAND in the market right now.

Obviously this year has been a challenge for supply chain across all components.

No, I would send a bike shop yesterday, getting my daughter, her bike, and, you know, we're talking about their supply chain, so Across the board, whether you're talking about technology all the way into bikes. It's, you know, created a challenge across the board on what next year looks like, what the next five years looks like. But, hopefully, then happy to see that our prices have continued to decrease.

And we're much closer to some of our competitors than we had been in the past, there's not much of a delta with regards to that overall cost of the SSD or that cents per gig that's getting closer. We're supposed to be in an oversupply position that hasn't always happened. That's what the analysts forecasted but we're in a pretty good place on a lot of our products.

But as always it's easier to have a vendor asked for a forecast than, you know, That's not all reality.

16:26
But as you can No anticipate the more communication you have with your channel partner with your distributor on what's forecasted. It's easier to baby, allocate that to you in the future than something last-minute, but we try to act on the fly, as well.

16:44
You can see, you know, the pricing is continued to come down as well, So, we'll see that going into the future and, you know, something that was $10. A gig now is now 10% a gig, 10 years ago or so.

16:59
Pricings continue to degrade. Hopefully that makes those decisions to transition from like a hard drive.

17:06
Easier to SSD or even when you're talking about SATA to PCIE, making those decisions easier as that cost has continued to come down.

17:16
Our supply chain, as I mentioned earlier, you know, we've made some adjustments to offset some of the tariffs that we saw over the past couple of years.

17:26
So, we've done a good job at staying ahead of that, and will continue to make decisions on what are the best options on where we fabricate where we manufacture in order to be able to supply our partners here in the US, as well as, know, our international partners.

17:48
What we're doing, as far as bringing new products, I had mentioned earlier that we have a lot of new stuff coming out, as well as some things going.

17:55
So we continue to, um, innovate as far as overall vertical NAND stacks. So where are the first to market to bring a VMs, which is means vertical.

18:07
And so, know, I want to our 32 bits 32 layer, 64 layers, 96 layer.

18:14
So our new generation will be in 128 layer, which gives us the ability to provide a denser Nan chip for higher capacity, SSDS in addition to those SSDS running cooler. So there's not as much of a heat problem.

18:31
PCIE for that's obviously a big. Big part of the puzzle, whether you're talking about a CPU or a GPU storage, is important that as well So there's no bottleneck when you're actually collecting that data. We have a new launch on that, the non empty Pro, not first to market. But we feel as if it is the best product in the overall PCI for landscape right now.

18:54

And then we have a strong, Strong Roadmap, and I'll get into that when I get a solution.

So, we have some great solutions. Great partners.

We feel like we have a pretty solid overall portfolio that fills a lot of the gaps on the different applications that you may need storage for.

So, with that, I'll go into the products kind of from A to Z on what we offer. All of this is available through the channel, through ASI shipping now. So any questions on that? Again, we can get you those specs.

So here we go, we feel like presenting all of this information on one slide is much easier than going over, You know, 5 or 6 slides.

This is something that it's nice for your cue ball, or I guess, your kitchen wall or your desk wall at your house, wherever you may be working from right now.

But this is a nice one pager on a quick glance and what you can offer in your different solutions, whether that's a Nook, white box PC, a gaming PC, a server, you know, enterprise storage.

Anything that you may be offering that requires storage, these are, these are different storage options that you can plugin.

So, I'll start from the left. Worked my way, right? We kind of have the entry level all the way up to the highest. So within each category, you can see good, better, best. That's how we like to frame out our solutions. Good me. It's a value play as far as that cost per gig. It's something that you're going to enter with in the solution and maybe a lower capacity at a lower cost, and then as we work our way, right?

Those are more higher performing options with higher capacities as well. So, on the SATA side, which is really the bread and butter, still in the SSD category.

We have a new solution called the 870 QBO. That's released over the past 90 days. That is a ..., so NAND SSDS, there's really three options. There's your MLC which is two bits per cell, which is really on its way out.

There's TLC, which is three bits per cell.

And then there's Q L C, which is a newer NAND and that is four bits for cell. So you can kinda think Hugh being Claude four bits per cell. So that is the entry level land. That's perfect for a PC, really. It's not gonna give you maybe that high endurance that she may need if you're doing a lot

of writing to that disk, but it's fine for a boot drive. It's great for a hard drive replacement. At age 70, ... is a great solution there. What's interesting about that one is we're actually the first to market with a 2.5 fish set, seven mm, eight terabyte SSD. So that's something we're really excited about.

21:46
Quite often, if you've looked back at our history in this space, were the first to market in a new capacity that is offered. So a terabyte, you know, down to one terabyte, is shipping now. Again, great hard drive replacement.

21:59
We've really improved the offering on that from its predecessor, the 60 series so it's a better controller we've updated the firmware as a little faster. Reis sequential read, and write as well.

22:11
But again the beauty of that is you have an eight terabyte solution, which has been something that the market has been demanding, especially when you're talking about replacing.

22:21
Yeah.

22:22
8, 2 15 terabyte hard drive.

22:26
As we continue on the 860 Evo, again, that's the TLC SSD. Source can even look better drive writes per day and endurance as far as terabytes written. That is on its way out.

22:37
So we're actually end up liking that product and introducing its replacement V 8 70 series, which I will introduce to you on the roadmap slide.

22:46
So that's currently in the last time by situation 250 up to four terabyte, if you have a rock solid Bill of materials that requires that that's going to require some transitions to occur. I'd highly recommend you, reach out to your ASI Rep today, and figure out what you can bring in, so you can ease the transition.

23:07
To the replacement, that comes in 2 flavors 2.5 inch, as I mentioned, as, well as M dot two, which is a 20 to 80. Something to note, is, that the M dot two is not end of life. That is just the 2 to 2.5 inch.

23:22
We will continue the M dot two into 2021. So there'll be two versions.

23:27
There will be the age 70 Evo 2.5 inch V 8 60 Evo. M dot C will have two different model names to different nomenclatures depending on if you want to go through and a half inch or two and then the 860 Pro We've extended the life cycle on that through the end of 2021.

23:44

That is our most robust Sata SSD offering with the highest sequential Read and Write, you know, in that high, 500 megabytes per second speed. As well as, it has no more endurance on it. It's gonna give you some extra features as well. So that is, you know, the best offerings. Have a lot of federal clients I've stuck that in.

24:08
We happy to hear that continue that the life cycle on that. So 20 21 you'll have the 8 70 and the 8 70 Evo ...

24:22
Pro across the board.

24:25
Moving on, we'll go into PCIE. So PCIE, interface NVME protocol is R 900 series.

24:34
So, we were the first to market in this space about six years ago, the 950 Pro.

24:41
That's really exciting and we've continued the innovation and the legacy of that product.

24:46
And it continues to be it's a market leader as far as performance and overall global sales.

24:53
Number one. So 970 Evo continues to be around. We've had that out for a couple of years now. It's a solid product in two capacities at a really nice price point. We've been of life that and brought it back a couple of times. Sorry if that's been confusing, but hopefully it's good for you to have a really solid product.

25:12
Pretty good price point that you can make offerings. So great OS Drive.

25:17
Its Big Brother is the 970 Evo plus. similar.

25:22
Performance has a little. it's about 2500 sequential read, 2000 right versus kind of 1500, and on the 970, but that scales up to two terabytes. So a lot more capacity options. That's going to be available through the end of the year, the 970 Pro.

25:42
We've actually extended the life cycle on that.

25:45
That is A MLC so two bits per cell.

25:49
So it has a lot of endurance on that. So that's something that if you're doing a lot of Drive writes per day in reading to that and writing to that, that's something you can consider Then. The 90 pros are brand-new PCIE for that's 20 to 80 as well. All of these are and that is exciting.

26:07
For us it actually has sequential reads in that seven gigs and sequential arrives in the five gig range. So we've launched that over the past 60 days.

26:18

We're still trying to find the sweet spot in our channel to get that stock to accordingly, 750 is a really solid. We're still working on one terabyte.

26:29

I expect that to improve as we go into Q one over the next couple of months, and then we will be introducing a two terabyte on that a Q one. So there are two terabyte options.

26:43

Then we do have external portable stuff.

26:45

So these are externalized testes that are great for creators, Independent filmmakers, you know, architects, students, anyone that needs data, on the fly, to be able to grab that data, and then, be able to move it onto a workstation later, R T five is your basic. Now 3.1, Gen two, comes in a couple.

27:09

Higher capacity categories. It's Big Brother. The T seven is a USB three. So whereas the T five is about 500 megs sequential reads and writes, the T seven, almost double that to, you know, almost one game.

27:25

That's three capacities. The T seven touches say the same as the T seven, except that has a biometric fingerprint reader on that. So you can actually register up to four fingerprint profiles per drive and be able to access that. It adds another layer of security on that, Of course, across these all have regular aes 256 bit encryption. So you can actually have a password protection on there, but the T seven allows you quick access if you want to unlock that on the fly. We see that, a lot of really interesting applications on that.

27:58

And then, the X five is the highest performing, that's a Thunderbolt works really nicely with Mac and an Apple products up to two terabytes.

28:07

And then closing out our products is our enterprise ladder. So DCT, Nomenclature Model, I mean, data center technology.

28:14

So these are rated for july 24th seven, always on operations. For enterprise servers, enterprise, storage, high performance workstations.

28:28

These allow you to have A more endurance as far as, you know, being able to write to that over the life of the life of the drive. So this is your marathon runner, versus some of our other guys, which are your sprinters, These are long and steady SSD, so the 860 is a good content delivery CDN drive. It's has a high endurance rating for read applications. So it's very similar to our 860 sat, a lineup, but it has more endurance, but it's unlike the rest of our products on the DCT because it does not have power loss protection. Does not have the tensile capacity, so it's great, like I said for.

29:12

Yeah, CDN.

So, we have, you know, Netflix, YouTube, a lot of those type of clients using, using that type of products.

Our bread and butter on the DCT lineup is the 883.

So that's, you know, low capacity up to four terabytes.

This is where we start, bring in, the PLP the tangible capacitors for Power Loss Protection.

So, it allows you an extra layer of insurance to be able to you finished the right cycles of these without losing data, and these are a solid product across the board.

Then, our best performing would be our PCIE, that's our 983 comes in to form factors becomes an M dot two, but it's a little bit longer. Whereas the 970 is 22, ...

are 983 is 20 to 110. So it's a little bit longer.

And then, and that's really just so it can support those tangible capacitors for PLP.

And that's in two capacities, and it also has a U dot two, which is a 2.5 inch SSD, for more hot, pluggable, enterprise applications, whereas the M dot two, maybe more for embedded type of solutions.

So that's our lineup. We're really proud of it. We feel like we fill the gaps in a lot of different places.

It allows you a lot of flexibility on where to pull those, And for storage applications, I'll get into the Roadmap now, so you can kinda see where things are coming and going.

And you can get an idea, where, to get your last time, Byes, and end of life, as well, of course, some of us to TV changes.

So, you know, kinda play it by ear on actual launch dates.

So, as I mentioned, 860 Pro, really the last MLC or two bit ... on the market, with really high endurance. We've extended that through the end of 2021. So you have a nice, robust, our long, long life on that.

We have a new product coming to market.

As I mentioned, the age 60 vote, 2.5 inches going away, being replaced by the 8, 72, and a half inch that's going to be up to two terabytes. So expect that out. We're going to announce that in January, and you can expect that on hand in the channel, right?

Late January, early February, and then probably end of March on some of those 2 and 4 terabyte capacities.

And as you see, the age 60 is going away.

So if you have any requirements for age 60 Evo, you're not comfortable transitioning to the 8 70 yet or your client wouldn't be make sure you're grabbing anything on him. It's in the channel from ASI now.

So you can support that business, I would say, in some March, you know, because you never know when those are really going to be available. And then the MDOT version of that, up to two terabytes.

We'll be around until the end of next year. And our Q L C lineup.

We just released the 870, so that's shipping now. Uptake Terabytes. Really exciting eight terabytes really limited right now, that's a new capacity in the industry. So, lead times are a little extended on that, so if that's something you require, make sure you're forecasting that.

Then we did we did go away from the age 60 cavier already. So, that's sata.

Let's talk PCIE or NVME.

So 980 Pro, we've extended the life on that.

That's going into next year.

Excuse me: 8080. Press something. We just announced that shipping now with that she terabyte capacity that's PCIE for will see the adoption really uptake on that as the new AMD rising solutions are released, which they're out now and then the new intel solutions will be shipping that support PCIE for. So the key thing around that is you need to make sure your entire ecosystem is supporting PCIE for of course.

Some other boards the backbone of it but then you're going to have to take a look at the CPU to make sure that is know, working well with other PCIE for solutions. It's backwards

compatible. So, you may, if you're putting that in an older board or you're running that with an older intel or AMD processor, you're not gonna see peak performance on it. You'll see, you know, still world-class but you probably won't see those 7 and 5 gig read rights, as I had mentioned earlier.

33:44
So, just make sure you're putting together a good solution that supports you know the most high performing peripherals in your in your kit.

33:54
Then the 970 Evo Plus, again around to the end of next year Solid solution that's really our bread and butter across the board. Then the 970 Evo will be around into Q one. Expect a replacement on that we're still working on the details.

34:10
So we feel we have a pretty significant, you know, play in the ... base of 250 up to two terabyte PCIE, three PCIE, four.

34:24
no value, middle up to higher.

34:26
So pick whatever the best solution is with that. We can help kinda consult you on, you know, what, what she needed there.

34:36
Just a whole slide on the 980 Pro, something real excited about, it's been highly rated, highly reviewed, a lot of awards. You can see that the performance on that is world-class.

34:49
And no, has a really solid warranty on as well, up to five years.

34:57
Then this is our external lineup.

34:59
So as I had mentioned, you know, we have Thunderbolt USB 3, 1, 3, 2. Of course, when you're talking about USB 3, 1, and 32, you need to make sure you're running those in the correct USB slots, or you're not gonna get peak performance on that, but up to two terabytes across the board, on that really solid solution, and we continue to have a great option for external solutions.

35:24
And then, finishing up, we'll talk about the DCT, which is our data centers.

35:29
And so, this is the life cycle on it. I discussed each product on a slide earlier.

35:35
We're going to have these at the end of next year, so, feel, confident, feel comfortable that you have a data center solution for the remainder of the year across the board in NVME, as well as setup.

35:51
And that is it, I appreciate your time today. Do we have any questions on the line?

35:58
Yeah, thanks, Adam. We do have some questions, though.

36:01
Just to remind everybody, if you have a question, go ahead and type it into the question box on your console, and we'll be sure to get the question answered, or asked to Adam and Tim both.

36:15
So, just starting off, I know, you just kinda answered that on the last slide, but I just wanted to go over again, because we did just have a question about it regarding data for data centers.

36:28
So, I want to make sure that we get that highlighted, but data is very common in the data centers still.

36:37
So, how long do you see data being available for that data center market space?

36:45
So our current option, the 860, which again is the more of the CDN high, right, as well as the 83, which is some more of the mixed applications. Those are alive for another year.

36:57
And we'll have the follow on product announced, you know, when the time is right. Yes, that is not going anywhere. The only we're only place, you will see it probably is higher capacities for that next round.

37:10
So another question is, do you guys have any kind of a competitive matrix that kind of shows if the customer is using say, this microphone or WD drive, what would be the best option to introduce them to Samsung Drive?

37:31
Yeah, we have some definitely some competitive data sheets that we can share. We have those rated, as far as internal. But we also, a lot of customers like to see kind of a third party on what their actual ratings are, as far as speeds and feeds of no vendor X, Y, and Z, and Samsung. So we can definitely share those if you guys just provide who we need to send those to. I think a good option probably would be to send those into the ASI product team.

37:58
And then they could load those up to the repository for the reps to send out directly to their client, OK. Does that include any kind of pricing comparison or it's strictly spec?

38:13
I mean, we can list, and boy, or math cost, but we really rely on our channel partners to set the pricing and their markup. So, yeah, we can have kinda street costs on that. But, that's such a dynamic discussion, because it always changes.

38:30
So, uh, that's kind of difficult to answer on any given day, because it's a moving target, but Samsung has always been kind of in that premium sector and that premium category, we've never been the lowest cost option. But, we strive to be competitive for the solutions that we offer.

38:51

So, I have kind of a question related to a specific scenario or application, but What would you suggest is the best drive for somebody that may be streaming live to a disk, or they're doing a high-end security video streaming to do it?

39:11
What would be kinda the best Samsung drive option for that kind of environment?

39:18
I would say probably weird, go in that 883 series and that data, Sarah lineup because it has the most endurance on it, and it has the highest drive writes per day.

39:32
So DW drive writes per day so important when we're talking about desks because that affects kinda the warranty. So it's really, you know, there's the year warranty and then there's the drive writes per day and it's really comes down to which comes first.

39:47
So that would be a solid option.

39:50
Or you could even look at, you know, the age 60 pro, which again, has a nice, high endurance rating on it. Day three would give you that additional power loss protection.

40:00
So, if you're the, what's your surveillance saying is very important. You don't want to lose that data if something were to go down.

40:10
As far as power is concerned, you when you, you keep that data.

40:14
So, yeah, you can look at a couple of options. You could go with the client side.

40:19
Or if you want an extra security, with more drive rates per day, go with that 83, OK?

40:26
So as you're looking within the mix of all your, your different products, and you're, you're moving from, look at one generation to the next within the 7760 family.

40:40
Are there some, you know, general performance increases that you see moving from those, those different family drives, as you move from the previous generation to the new one, Will customers expect to see some performance gain, and is that coming from controllers or better?

40:59
You know, logic design within the software. What's kind of driving some of that chain?

41:04
Yeah, so, as far as data is concerned, so, for example, the 868 70, we've really tapped out what we can do in Santa. As far as sequential reads and writes, it's going to be in that 500 made 500 up to high 500. And that's all control array. So I wouldn't expect a lot of performance gains from the age 60 to the 8 70.

41:29

But when we're talking about moving from no, a whole different interface sat at a PCIE.

Yeah, that's a whole other performance gain.

But then when we're talking about moving from PCIE at a PCI four yeah, we're talking about three X, the speed, you know, because you've doubled the lanes on that. So, you know, it's 2 to 3 times faster.

So, for example, on the 170 Evo Plus, you're looking at about 3003 gigs or so sequential reads when he moved to the 980 pro, the PCA four where you double the lanes, you're seeing, you know, 6500 to 7 gigs reads on that.

So, it really depends on the, the interface. But, yeah, we've tapped outside at this point.

Don't expect a lot of innovation there, but as we continue on with PCI for PCI five will be around the corner in the next few years, as well.

The performance will continue to double on that. So, that's really what you can see over the next few years is about performance gains on PCIE, as well as higher capacity offerings.

As we, as our ... continues to become more dense. So, we're seeing a 128 layer and then now as we get into that 200 layer and, you know, that's when you're going to start or terror by a terabyte PCA.

OK, I know you. You talked about PCIE for Canada.

It was.

Might have the model wrong.

And 980 pro is moving PCIE Ford Auto in September, when do you see PSA for Dotto coming for the data center?

Right Now, we have two options for data center, PCIE.

They're both PCA three, so we have the 983 DCT which is M dot 220 to 1 10 as well as U dot two.

We currently don't have anything on the channel side that's PCA for at this point.

We do have some things on the OEM side so Samsung DSA that currently they announced PCIE for. So I think that's called the Samsung 9 Alpha 3.

43:54
And that's something that's been announced.

43:56
Usually how it works is that trickles down to the retail or the channel after 12 to 18 months.

44:03
So I don't have anything concrete, but you could probably expect something in that range 2022.

44:11
But, again, don't quote me on that.

44:12
I'm just going off of no, historical, OK, so I know you may have covered this and I might have missed it on your spec sheets.

44:23
I know I saw some eight terabyte SSD drives on the sheet.

44:30
But can you kind of give a quick view of what are the eight terabyte drives, know, are they, are they Are they ... data? What kind of do you have on the eight terabyte drive?

44:47
Yeah, of course, so, we have 100 terabyte options, so we just announced it or we just started shipping it. We released that, it's part of our Q L C so four bits per NAND. It's called the 8 70 QBO.

45:00
That started shipping over the past couple of months, and that is more of a value SSD so it has lower endurance but it's great for our drive replacement. That's a 2.5 inch sat SSD. seven mm.

45:14
So, it's currently the largest client SSD offering on the market.

45:20
I think the only thing that I see, coming up, that's even closer, I think Saverin announced a 16 terabytes, I just saw some media on. I don't know when that's coming out.

45:30
But, uh, hundred 70 QBO's are a terabyte option, 2.5 inch sata SSD.

45:39
OK, let me scan through here. So, how about heat on the SSD drives?

45:46
You know, mechanical drives are obviously known for having considerably more heat, some of them even have heat issues.

45:54
What about SSD drives?

45:58

Yeah, so, really, where we run into heat discussions is not so much around 2.5 inch sata because they have the, you know, the casing around them and they're not running as fast.

Where we talk about heat is when we started talking about that PCIE 900 series. So Samsung, since our inception of that product five years ago, something we've been working on.

So on the 980 product, which is the new product, as well as in our 970 series, there's a copper label underneath the label on the SSD on the M dot two, and it actually helps with heat dissipation.

The 980 is a 128 layer NAND. So it actually runs a little cooler because it's more dense.

And what we found is that the ecosystem, so the case manufacturers, the motherboard manufacturers, the heat sink third party manufacturers, they've actually thought about a lot of this. So the airflow, within this, the systems is much better to support these really fast CPUs, GPUs, SSD.

So we also have what they call is.

Yeah.

If your SSD gets too hot, say, and it's writing too much, it will actually downshifts the performance on itself so that it cools itself off. So that's a software thing. That's a firmware play as well.

But we've done a really good job at thinking about he said that that does not become an issue in the overall ecosystem, because everything's running really fast right now.

And really hot, but, you know, with the right ecosystem. As well as selecting the right partner, I've heard some ... controllers and some of the other manufacturers. they run really hot, when we're talking PCIE, four in our ellipsis controller, It really helps to dissipate the heat on the SSD.

So on the data center drives, you know, some of your competitors have had challenges with supply. On the data center side. What does supply look like on Samsung data center drives?

And how can our customers work closer to make sure that they don't run into any hiccups with that data center supply?

Because it's really critical that you get the same product every single time, when you're in the data center environments.

How do we OK.

Yeah, that's a great question. So in a perfect world, we can always talk about that beautiful, magic forecast that we talk about. But we understand that's not always the case.

48:43

So, I would say on the data seller lineup just continue to key.

48:49

Communication with your rep, We have on hand stocks, some of those higher capacities are more limited. But we are investing in that. We extended the product life cycle on that into 20 21.

49:03

So if you have bigger rollouts that need support, I would say get in front of me, your rep, all of us.

49:11

30, 60 days ahead of time on what that rollout looks like to get ahead of that, and we can make sure that you have allocation that we're building enough.

49:22

There's some good on hand, in the lower capacity stuff, but the current 883, is built off of our older, NAND version.

49:32

So our Generation four, which is our 96 layer, are new products that are coming out like the 980 Pro, the 870 Evo, et cetera.

49:42

That's based off a newer version, the 128 and so we actually have different fabrication and manufacturing setup for those different processes.

49:53

So we're kind of phasing out the old stuff and bring in the new stuff, but keeping the lights on with the old stuff to be able to support our current product line. So if you see any gaps as far as availability, that's the reason behind it. Plus, we've had some really big orders lately that we've had to fulfill. So as always, just keep us in the loop on bigger pops, but for smaller quantities, we should be able to support anything big. Let's talk about it ahead of time.

50:21

Got time for a couple more questions here.

50:23

I'm going to try to squeeze them in, and then we'll get everything wrapped up and get everybody back to the rest of their day. But let me try to squeeze in a couple of more questions.

50:35

This one may be very similar to the question you answered earlier about streaming video.

50:42

And it may actually be the same ultimate answer, but what product would you recommend for the streaming broadcast industry in terms of providing the best overall performance.

50:56

So, you know, best overall performance.

51:59

You know, it's always going to be that PCIE, you know, we're talking about No two great gig reads writes versus 500 megs. So that's always going to be your best option. I would say, like a 983 dot 2, but it doesn't give you the capacity that you need. You want a good mix of high capacity and performance.

51:21

And I'd say your best kind of mix of that would be in that 883 four terabyte DCT range or Year 860.

51:32

You want to make sure you have plenty of drive writes per day, as well as, you know, the performance, hi, not.

51:39

So surveillance, 883, D CT.

51:42

probably best followed by the, next step would be the 860 pro, those are 2.5 inch SS teats.

51:51

So I'm gonna ask you to get out your super futuristic crystal ball here for this next question. And if you can, answer it, that that's understandable, because we're asking you to look out into the future here. But what about PCH and five? What do you see on the horizon for that?

52:10

So PCI five, so PCA four was really late market. So PCA three was launched, I don't know, 10 years ago.

52:18

PCI four has been delayed, a barrier was certified over the past couple of years.

52:26

But it was launched late, because there really wasn't a ecosystem to support it. We, of course, needed the board support first at a minimum.

52:35

So, the motherboard, whether that's a Nook, are micro IT X, or, you know, traditional PC motherboards, server motherboard related that supports.

52:45

So that was first and then, in addition, we needed the CPU to be able to support that as well, which AMD just released their series to support it.

52:56

So, that's where we are with PCIE for that will be, you know, kind of rolled out over here over the next 12 to 18 months as as Intel has their products released.

53:08

PCIE five is actually I think recently Certified.

53:13

Um, And you can expect that out probably in the next 36 months, would say.

53:21
Of course, that probably more the early stuff would be on.

53:25
On enterprise, kinda OEM types, big metal plays from, you know, HP, Dell, et cetera.

53:34
But I'd say that trickled down the channel over the next, probably three years, so four will have its party here over the next, you know, 24 plus months, but you'll see the five replacements sooner than you did.

53:49
The four were replacing the three, which was 10 years. So innovation continues to double down.

53:58
Cycles are slower when we're bringing things to market. So, you know, and that's just based off what I've read. At this point. We don't have any products in play. We don't have a roadmap for it.

54:11
But, that's more just, kind of a general statement, based off what I've seen an industry updates. Well, great answer for, have to look out so far into the future. So really appreciate you addressing that for us.

54:25
So, I am gonna go ahead and wrap things up since we're coming up toward the end of our time here, So, before I close everything out completely, I want to, again thank Chairman Adams for joining us today and for going through this presentation. We really appreciate it for all our customers on the phone.

54:47
You know, thank you again for joining us for our third day of our Tech Summit.

54:52
Just a reminder that tomorrow is our final day. We have Supermicro, who's going to be presenting on their server product line. There'll be covering AMD talking about their server lineup tomorrow.

55:06
And as we close out the session for joining us through all of the day's activities, the grand prize that we'll be giving away, at the end of all the sessions will be a gaming notebook.

55:19
So I'll make sure that you know, you've attended all these first three so far, make sure you make it to the fourth one, so you get entered into that drawing.

55:28
And then for today, we will download our report and get all the attendees names, and be giving away the Samsung 50 inch LED TV, which will announce the winner of that tomorrow.

55:43
So, with that, again, I wanna thank customers for joining us today.

55:49
Tim, Adam, is there anything you'd like to say in closing before we wrap things up?

55:57
That's all I have. Thank you so much. I hope everyone has a fantastic holiday. I'm looking to see and hopefully get uptake back. Get back on the road.

56:07
Just to re-iterate, you know, a lot of things are coming and going make sure that you're planning accordingly as far as last time buys, and certifying the new products.

56:15
So, you guys can be in a level playing field with everyone else, and bring innovative products to market.

56:25
I just want to say, thank you to everybody for joining and participating. We appreciate your partnership and your trust in Art and Samsung, and its products, and if there's anything that we can do to help you out, please don't hesitate to reach out. And we'll be here now, guys. Alright? Alright. Fantastic. Thanks, everybody. I'm gonna go ahead and end the session. We'll see everybody back tomorrow at 11 o'clock AM Pacific time for Super Micro. And I will close out our Tech Summit tomorrow. Thanks, everybody, for joining him. Adam, thank you so much, everybody. Have a great rest of the day.

57:02
Take care.