J.P. Morgan | NVIDIA CFO Fireside Chat At CES

Company Participants

- Colette Kress, Executive Vice President and Chief Financial Officer
- Unidentified Speaker

Other Participants

- Harlan Sur, J. P. Morgan

Presentation

Unidentified Speaker

Welcome, and thank you for standing by. I would like to inform all participants that this conference call is being recorded and parts of this call may be reproduced in J.P. Morgan Research. If you have any objections, you may disconnect at this time. I would now like to turn the call over to Harlan Sur.

Harlan Sur {BIO 6539622 <GO>}

Great. Thank you. Happy New Year, everyone, and welcome to J.P. Morgan's Virtual Fireside Chat Series here at the 2024 Consumer Electronics Show. Again, my name is Harlan Sur. I'm the Semiconductor and Semiconductor Capital Equipment Analyst for the firm.

Very pleased to introduce Colette Kress, Chief Financial Officer of NVIDIA. It's been a tradition past 10 years to have the NVIDIA team kick off the investor events here at CES for us. The team is driving much of the trend that you hear about at the show, artificial intelligence, compute acceleration, next generation, compute architectures in gaming, in automobiles, in robotics, right along with an emerging software and services routable revenue stream.

So I've asked Colette to start us off with an overview of what the team announced yesterday at its special CES address, and then we'll go ahead and kick off the Q&A.

So Colette, Happy New Year. Thank you for joining us. Let me go ahead and turn it over to you.

Colette Kress {BIO 18297352 <GO>}

Well, thank you so much, Harlan, for having us. 10 years, it is a great trend to be kicking off your conference, and we're very pleased to be that lead for your

conference.

Let me first start. I do have to make an opening statement, but as a reminder, this presentation contains forward-looking statements, and investors are advised to read our reports filed with the SEC for information related to risk and uncertainties facing our business. CES is such a great opportunity for us to bring some of the new things that we are doing and speaking with such an important both consumer group, but also consumer enterprise group, particularly as we think about automotives that over the last 10 years have become even a greater contribution to CES.

No surprise, we've had some great announcements here at CES as we enter into an important era of PCs. PCs are now going to be a big part of that AI era in front of us. We are seeing and need to enable the developers that are working on AI, and NVIDIA RTX already is ready for AI for PCs. We have more than 100 million shipped of RTX GPUs that provides a huge installed base for us and an ability to start the work on AI applications.

We had some highlights here at CES as we look for end-to-end AI solutions for RTX AI-ready PCs and workstations. As no surprise, it was our time to bring our supers to market, okay? We are bringing here at CES our RTX 4070 Super, our RTX 4070 Ti Super, and our RTX 4080 Super. The price points on that was ranging anywhere from approximately $600 at the lowest of the 4070 Super to just about a $1,000 for the 4080 Super. And of course, the performance improvement that we are seeing of our supers is either anywhere from 1.4x to 1.6x, even before you infuse DLSS 3 in there, which can therefore move these supers to more than 2x faster than what we were seeing on the 30 Series there.

We're excited that these will be in market later this month and getting ready for this new calendar year for those to come out. But it wasn't just focusing on our desktop GPUs, we also have RTX 40 Series laptops coming from many of our providers, Acer, ASUS, Dell, HP, Lenovo, MSI, Razer, Samsung, so many different laptops coming to market. And this has also been a very interesting trend to see gaming now being so popular on some of the top laptops that are out there.

We're bringing together not only just gaming-specific laptops, but laptops that are also focused on NVIDIA Studio. NVIDIA Studio really also helping the creative world, helping the design world in the work that they are doing. Key piece also on GeForce NOW, which if you recall, is our cloud gaming platform, is now expanding to Japan. So we're very excited working with KDDI and starting in Q2, you'll see GFN Day Passes also available.

Those are some of the key things that we had from our gaming perspective, but very similar to what we've seen in prior years, this is also a great time to talk about automotive and the work that we've been doing there.

Automotive right now, you are seeing the use of Orin to be such an important driver of the AI computer with inside these cars. That will also be followed by Thor, which

will be available as well.

We're seeing new NEV OEM wins from Great Wall Motor and Xiaomi, who are -- both will be on Orin. But we also have an additional expansion, new wins with Li Auto, who will be using Thor; and then also ZEEKR, who added some additional Orin opportunities, very similar to some of our other industries, such as health care. You see automotive not just focusing on using our solutions inside of the specific applications or inside the specific for in this case, the cars, but you also see us in their data centers. You see us helping them end-to-end in terms of the work that they are doing.

We're seeing a growing adoption right now of Omniverse for automotive factory digital twins, not only with Mercedes-Benz, BMW, but many other companies. We are also seeing them use it for synthetic data generation with Mercedes-Benz and BMW and JLR, but also the use of auto configurators such as Lotus Motors.

So it's a very interesting field that end-to-end using AI solutions, accelerated computing solutions to rebuild how automotive industry is working is where we are front and center.

So that kind of summarized some of the key announcements that we have here at CES, and I'll turn it back over to you.

Questions And Answers

A - Unidentified Speaker

(Question And Answer)

Q - Harlan Sur {BIO 6539622 <GO>}

Yes. No, that was a great overview. Thank you for that. I'll start off at a high level. Let's talk about the -- just the overall business trends as we step into calendar '24, right? So if you hit your guidance this quarter, revenue for calendar '23, your fiscal '24 is expected to more than double, much of which is a reflection of the team's strong product cycles, combined with the build-out and adoption of Gen AI, right?

The Street has you up another 50%, 60% for calendar '24, your fiscal '25. What's the team's confidence on driving sustained outsized performance this year in an environment where global demand trends will continue to remain soft? Maybe help us level set the demand trends, product cycles that would drive fiscal '25 and long-term growth. And how should we think about the overall growth profile for the different businesses, right, gaming, data center, Pro Viz and automotive?

A - Colette Kress {BIO 18297352 <GO>}

Yes. Our -- we are just getting ready to complete our fiscal year '24 this month. And that will therefore start our new fiscal year, our fiscal year '25. The opportunities for

growth pretty much hit all of our different business and different business models that we have.

So we can first start with the thoughts regarding data center. This is an important era that it doesn't change at the change of the calendar year. I understand the brand new happy new year in front of us. But these transitions that we are working on right now of accelerated computing as well as generative AI will continue as we move into this new fiscal year and this new calendar year.

Accelerated computing is an important era as people look at the most energy-efficient and sustainable way for them to support their data centers. As you look at the ending of Moore's Law as an important time for them to determine the most efficient way to create their data centers going forward. So I think that has hit the minds of many of our customers that we are working with today, as well as future customers that really see this realization.

But more importantly, AI has also hit an inflection point that probably was designed with generative AI coming to market, but the work that we've done over the last decade and particularly over the last five years, influencing more and more large language models, has allowed us this ability to also partake in generative AI that I think will be a very important field that every company around the world is going to be able to understand how they can use generative AI.

We're just in the early days of that, early days of seeing folks both influence their infrastructure and they're changing their infrastructure to deal with generative AI. But once that gets moving, there will be just more and more opportunities as we go forward to support them. That is something that we are going to see in this calendar year.

Last calendar year or calendar year '23 was a year of us catching up in terms of that demand and improving our supply. We're very pleased with what we've seen so far in our ability to ramp supply, and we believe that is going to even get better as we move in terms of the first couple of quarters of this calendar year as well. But our plan is to continue growing supply all the way through the current calendar year that we're in right now.

So our focus is helping customers, as we've also announced the ability to provide new products, increase the speed of our architectures from over two years to maybe closer to one year. New product introductions are helping customers in their planning as they see more and more solutions for AI, and they are looking for new specific solutions to support them.

But when we think about our growth and data center, it comes from many different areas. It comes not only from here in the U.S. as we sit today, but thinking about the regional and sovereign AI that is being built now worldwide. This is a very important multi-billion dollar market that is growing, and our support of that will be a very key part of this next calendar year.

Enterprise AI and helping all different enterprises on their work as they focus on solutions, particularly for those that are software companies, and modernizing their software solutions, or if they are just large database types of companies, and how they are using AI to support the data that they have.

But our new solutions also come with software. And so, software enabling many of them, whether that be NeMo, whether that be BioNeMo, whether that be Picasso, is really helping build out much of the work that the enterprises will be doing.

So that's what we see right now as we go into this calendar year from the data center perspective, but let's not forget our other businesses.

Q - Harlan Sur {BIO 6539622 <GO>}
Right.

A - Colette Kress {BIO 18297352 <GO>}
Gaming growth is also a great opportunity. Not only is it great for gaming, but adoption of RTX as well as the adoption of just the Ada with DLSS has been an important piece to help both creators into this market and also be influential in terms of generative AI using PCs as well. So we think this is an important understanding of how this industry will likely grow going forward.

That is also also true when you think about our Professional Visualization business, the adoption of those GPUs and workstations for them to support AI longer term will also be a key thing.

We discussed early on here today about automotive, the additional growth opportunities that we see in Orin and additional design wins ramping. We do know that longer term, though, our work with Mercedes-Benz and JLR will be important for both a hardware and a software solution (inaudible).

So that's kind of a summary. If we go through all of our different businesses in terms of where do we see that growth potential coming from, but we have a lot in front of us that we're excited about.

Q - Harlan Sur {BIO 6539622 <GO>}
That's great. That was a great overview. Let's start off with the Data Center segment. As you mentioned, we're still in the early days of Gen AI adoption. We're only now starting to see monetization and adoption in applications across your hyperscale customers, your consumer internet customers, your enterprise customers, right? And it's clear that the demand profile remains extremely strong.

You touched upon this a little bit, but what's the team's view of your supply-demand balance here as we enter calendar '24 and as we progress through the year? Help us understand maybe some of the puts and takes just around the overall data center business. And the confidence level, it sounds like the team is confident on driving

supply growth sequentially for the remainder of the fiscal year. Does that imply that confidence on driving sequential growth through the remainder of this fiscal year as well?

A - Colette Kress {BIO 18297352 <GO>}

So when we think about balancing supply and demand, and the onset of ChatGPT really influenced a very quick adoption of demand for those that wanted to really support our Hopper series and use that with our generative AI. But that took us some opportunity to quickly move and shift to increasing our overall supply that we've had.

So our largest challenge that we've been very open about had been some of the challenges that we had with CoWoS, a very important part of our process in our Hopper architecture. But we believe we have continued to both ramp additional suppliers for that, and they have been -- able to being brought online, and that has both influenced this last calendar year, but also will be important in the first parts of this calendar year as well.

Q - Harlan Sur {BIO 6539622 <GO>}

Yes.

A - Colette Kress {BIO 18297352 <GO>}

We still have the ability to expand that. So that's been one piece that has been an important part.

There have been other focuses as we have done a phenomenal job of also incorporating our networking. Often, when we are selling our GPU solutions, sometimes really well, has called some issues that we can be a little bit short on some of the cabling. And networking is an important part of their time that they do building out their data centers, some of the first parts that they do even before the GPUs are coming.

We've worked again in terms of expanding that and helping the customers stand up the compute within the means of the planning that they had. So all of those things are moving in the right direction, but when you look at this calendar year in front of us, keep in mind, we have new product introductions --

Q - Harlan Sur {BIO 6539622 <GO>}

Yes.

A - Colette Kress {BIO 18297352 <GO>}

-- coming to market. This is where our H200, our Grace Hopper is also coming to market, as well as we discuss in terms of a transition again from an architecture perspective.

This is front mind of our work both now reworking that supply to get ready for those transitions, but also working with our customers on their demand needs on all of these different new products that are coming to market. All is going well -- all is going well as we are working on that and bringing it to market.

Do we believe that there is a statement that we are making here with the growth in supply that we are planning? Yes, we do believe that we need to be ready for our product transitions, for our customer needs. And we couldn't be more pleased with our relationships that we've had with customers that we've been working for more than a decade with and helping them on their planning processes as they work through their data center builds.

Q - Harlan Sur {BIO 6539622 <GO>}

Perfect. I have to ask this next question because this is a focus area for investors. And that is on the earnings call, Jensen was asked about continued data center growth beyond '24 and into '25. And I think the question was asked with respect to calendar year '25. And Jensen answered -- he answered, yes, I believe that the business is going to grow through '25, right?

But I guess the clarification is, was he referring to fiscal '25, which is calendar '24, or was he specifically addressing growth in calendar '25? And if it was confidence on growth through calendar '25, what type of visibility does the team have?

A - Colette Kress {BIO 18297352 <GO>}

So, let's focus in terms of why folks, when they think about calendar '24, feel comfortable in that perspective. One, our supply constraints are still there. We're still on an allocation model right now, where we are working as fast as possible to meet the expectations on when our customers want to receive their computing. Therefore, that comfort level regarding calendar '24 has left people to say, yes, we're there.

So the question came about that says, well, let's talk about the next calendar year.

Q - Harlan Sur {BIO 6539622 <GO>}

That's right.

A - Colette Kress {BIO 18297352 <GO>}

Let's talk about calendar year '25 and what we'll see. That's going to be where we will see some of our new products coming to market at that time, our new generations of products.

So as Jensen responded to that question, he focused that says, yes, we can grow as we move into calendar '25. There's an opportunity for both new product, new architectures. And as we see now, the work that we are doing on AI, the market's adoption of AI is just in the beginning stages. This is likely something for decades to come as we continue to grow out and the inclusion of AI in so many different

solutions. So our work is still in front of us, bringing these new products to market. But yes, he did say that we can grow in calendar '25.

Q - Harlan Sur {BIO 6539622 <GO>}

Perfect. And then, maybe switching gears a little bit on your China, talking about new products, right, and looking at your China data center business, the team is in the midst of working with -- within the performance requirement threshold set by the U.S. government to try and deliver new compliance solutions to the China market.

I know that you've already de-risked the China contribution here in Q4. But can you help us understand how the team is thinking about recapturing back some of the China data center sales as we move through the year? Can we expect the team to start shipping China-compliant products in the first half of the year?

I know there's been some speculation in the tech news journals that maybe you'll be bringing an H20 solution to the market sometime in the first half of the year. Any color that you can provide to us?

A - Colette Kress {BIO 18297352 <GO>}

So similar to our discussion that we had at earnings, this export control timing that we received from the U.S. government, we want to make sure that we are executing to their expectations and working as closely as we can to the U.S. government.

That takes us some time to both review the products that we are bringing to market, even if they are in a zone that says they don't need approval from the U.S. government. We are assuring that we are keeping those discussions as open as possible with the U.S. government about what we're bringing to market.

So it's taking that work as well as now with new products, discussing with our China customers, what are their needs, what are they trying to accomplish, what solutions do we have available. So we believe we're on track. We believe that our work right now is in the middle of all of those things that need to be accomplished. But yes, we do believe in this calendar year, we will have solutions for our China customers.

So that's our path that we're working on. Nothing out of the ordinary at this time. We are just still working through a very detailed process to make sure we meet what the U.S. government wants to do, but also understand what our China customers would like.

Q - Harlan Sur {BIO 6539622 <GO>}

Perfect. And much of the investor conversation, as I mentioned before, involves demand sustainability through 2025 and beyond, right? And the NVIDIA team has highlighted the high ROI opportunity in GPU hosting, right? With a dollar of upfront investments translating into $5 in cloud service provider revenue over four years, right, combined with the proliferation of generative AI applications in enterprise software.

Taking that into account, and if you look at sort of the third-party forecast out there, data center infrastructure market, which is what we define as server plus networking, right? That's about a $220 billion market in 2027. So, what's the right way to think about about the normalized percentage of NVIDIA GPU spending, as it relates to that framework, beyond sort of the initial infrastructure build-out phase, which is more sort of calendar '23, calendar '24?

A - Colette Kress {BIO 18297352 <GO>}

So when we step back and look at what's in front of us in terms of an opportunity, accelerated computing opportunity alone is looking at an installed base of about a $1 trillion worth of CPUs, or you can break that down to be about a $250 billion per year that folks have been spending for decades on CPU-based infrastructure.

What you see going forward, though, is that size of data center spending will need to address new productivity solutions and will need to incorporate AI and accelerated computing. So that mix of what you're going to see about what is just CPU-based and what will be GPU-based or acceleration-based is going to change over time.

We have been making progress, but again, even as of early year ago, we were maybe in the low single-digits, low single-digits as a percentage of that market and now we're seeing a shift as folks are looking at the productivity improvements, looking at the monetization opportunities, looking at the efficiencies of moving to accelerated computing. Efficiency just in pure computing solutions, not necessarily even AI, as, if you are looking to procure CPUs, you're not seeing that much of a performance increase for the money and the capital that you would have to spend.

So this way of understanding, just a way of understanding this paradigm and how it is shifting shifting is really what we see. Not what I would refer to as a will there be a normalization, we're just going to see a continued shift. Folks shifting to accelerated computing and then also shifting to AI solutions.

But let's step back about those AI solutions that you'll see. Generative AI is a massive TAM expansion on top of both hardware and software. For infrastructure, you have a new class and a new build-out of data centers and our platform can influence just a huge significant ROI. We talked about that, that says if the CSP invests, let's say a $1, they can likely $4 to $5 type of return just because they have that expertise of setting up that cloud and those looking for solutions are turning towards the cloud right now as an easy way to get moving on their generative AI solutions.

But also when you think about the software for copilot for assistance will augment so much of the more popular tools, the most popular software tools will modernize. Tools that you have used for decades now have the likely infusion of generative AI in them and it will be an important part for them to monetize going forward. But you see generative AI with a lot of different use cases. We've talked about the productivity tools such as Microsoft Office, but you also have, for example, how they've infused AI just into Search. Search has been with us for a couple decades,

has transformed over and over again with the use of AI and our solutions to help them.

You see the overall creators and the overall professional creators really working to change their model as well. Adobe Firefly is a very key example. You can synthesize a different type of solution with different type of art, a different type of picture, a different type of marketing. Digital marketing will likely change from here in terms of going forward. But social platforms also incorporating generative AI, but putting language models in front of all databases will be a very large market.

We see SAP, Snowflake, Dropbox, Databricks, all of them really focusing where are these databases, where is this data in front of us? So how does that spend change? It's really just about a mix change that says, most people will invest where there's a high return on investment to work, where they will see whether that be efficiencies, productivity, or monetization. And moving to AI solutions and accelerated computing will be an important need for so many companies for the decade going forward.

Q - Harlan Sur {BIO 6539622 <GO>}

Let's switch topics. Something that Jeff touched upon yesterday, something that you touched upon in your opening remarks, which is there is a lot of focus on AI-enabled PCs here at CES. And the ability to run smaller models locally on the PC and the opportunity to unlock new services, applications, is pretty significant. And actually, many are saying that it could actually catalyze a strong PC upgrade cycle, right?

And as you mentioned, as Jeff mentioned, I mean, it's interesting, right? Because NVIDIA actually already has a head start here, right? Because all of your RTX GPU-enabled PCs, that's a 100 million installed base, can be an AI-enabled PC. And then, you layer that on top of what Jeff introduced yesterday, which is TensorRT-LLM compiler, right? And so, all of a sudden, you can port all of these AI-based applications to run on an RTX-enabled PC.

So you guys already have a head start. But my question is, why not take it one step further, right? And target the entire PC market, right? That's a 280 million unit TAM per year, right?

You have an ARM CPU core, you have the GPU. If there is enough ecosystem support, Microsoft and others, would the NVIDIA team consider entering the $40 billion PC processor market with an ARM-based solution?

A - Colette Kress {BIO 18297352 <GO>}

So, the PC market for many years has been focused on x86, but you're right. There is an opportunity for more ARM-powered products, particularly at the PC.

We are focusing, as you know, right now, on ARM in terms of data center. And that's a great progress that we've made with our solutions on AI to now use ARM, which is one of the most energy-efficient types of operating systems, to enable more

productivity as we look in the data center. We welcome more ARM-powered products as we move forward and we'll continue to grow and support that broader ecosystem.

Right now, we're focused mostly on our ARM-related efforts on data center and automotive as right now. But your statements as we start with thinking about the PCs and how important they will be for generative AI, whether they be consumers, whether they be enterprises. Yes, our focus and understanding that we already do have a very good start with our work with RTX for AI solutions and using these desktop solutions or laptop solutions for their generative AI, whether they're building generative AI or they're using generative AI. Again, we have a great opportunity for many of these.

Q - Harlan Sur {BIO 6539622 <GO>}

On software and services, you're enabling your customers to come to market rapidly by developing full-stack turnkey solutions, managed services. The team is seeing strong traction, right, with your DGX Cloud service, your AI enterprise software suite, and the team is on track to exit this fiscal year, calendar '23, at $1 billion of annualized software and services run rate. How should we think about the revenue run profile as you look at the adoption curve and extrapolate sort of over the next sort of two to three years?

A - Colette Kress {BIO 18297352 <GO>}

Yes. So we had discussed in our last earnings that we believe we're really, right now, close to that annualized revenue run rate of $1 billion of software, SaaS support, through our whole list of different software offerings that we have.

NVIDIA AIE or NVIDIA AI Enterprises is a very important piece of the work that we are doing there. When we start working with our enterprises, our enterprises need the assistance of a software platform for all the work that they will do, whether they're in generative AI, whether they're building out their LLM, having that support from NVIDIA to help them with their solutions is key. And that software is very important piece.

For example, if you purchase our DGX Solutions, it is coming with that full stack. If you are purchasing also our solutions with many of our OEM providers, whether that be the Dells or the HPs, again, you have the opportunity to buy that NVIDIA AIE solution for them. That is really helpful for them, that they can get that full stack that we are also using as a reference with inside NVIDIA.

All of our software, therefore, is kept up to date. All of our software is both backwards compatibility (inaudible) compatibility. As they move forward and think about new architectures like that software is going to continue to work for them.

Now, our growth will be consistent, let's say, with what we're seeing in terms of the infrastructure or the hardware that we're also selling. Because as we sell the hardware, we are looking for them to adopt the software with those solutions as well.

No matter if you're doing that hardware infrastructure both on-premise or you're in the cloud, we're giving an opportunity for them to purchase that software and help them in their business.

These are going to be important needs as more and more enterprises, more and more regions are focusing on Generative AI. But that's not our only software solution. Keep in mind, we still have in front of us drive software for our automotive business.

Mercedes-Benz, as well as JLR, will be important folks to watch as we both install that hardware inside of our cars and we work in terms of that software solution that will be available within all of their fleet.

Omniverse is an important part of our work as well. You see the creatives, the designers, really using the synthetic capabilities that you have with Omniverse and really the digital twin capabilities of factories and manufacturers to really use Omniverse.

So these are all great opportunities, but it comes alongside our infrastructure. As we sell the infrastructure, we now have the ability to grow the software as well.

Q - Harlan Sur {BIO 6539622 <GO>}

Let's turn to automotive. We talked about automotive in your opening commentaries. That business has grown at a 25% CAGR over the past five years to roughly about a $1.1 billion sort of run rate in calendar '23.

You still have a $14 billion design win pipeline, which by and large is still mostly in front of you, right? You've talked about Orin is starting to ramp. You talked about the great design win traction with Thor. You still have the Mercedes and Jaguar Land Rover partnerships ahead of you.

How do we think from the $1.1 billion in calendar '23 and sort of how do we think about ramping into that $14 billion pipeline over the next few years?

A - Colette Kress {BIO 18297352 <GO>}

The current calendar year that we are in after we finish calendar year '23, so calendar year '24, will be an opportunity of our Orin-related designs and our continued ramping of new opportunities within Orin. And we will start beginning now those design wins on Thor, as we've discussed earlier, in today's meeting.

But also, we have in front of us a huge ramp related to Mercedes as well as JLR. Mercedes is likely to ramp in calendar '25. You'll see JLR ramping in calendar '26. Both will drive opportunities of meaningful scale, both from a hardware and a software perspective for us. But right now, we are also seeing new design, new business wins, or it has been very, very key of any of these in the NEV market as they use it for both the computing platform and AI solutions together. You'll see Li Auto,

you'll see Great Wall Motor, Xiaomi, and additional design wins likely to come as well.

Q - Harlan Sur {BIO 6539622 <GO>}

Perfect. And then on the financial side, we've just got a few minutes left. We talked about -- the team has talked about a more aggressive product cadence, right? And in addition, moving from bringing out a new product in data center every two years to now every year, but on top of that, you're smartly continuing to segment out the product lines, right? So it's not only just every year, but maybe more products now for different segments of the market every single year, right?

And so, when we think about the investments and support required to drive that, right? If I look at your OpEx, it's grown at about 13% this past calendar year. It's grown at about a 20% CAGR over the past five years. So going forward, how do we think about the pace of the OpEx spending considering the more aggressive roadmaps?

A - Colette Kress {BIO 18297352 <GO>}

Yes. It's very interesting to look at our plans for the roadmap going forward, but you highlighted some important pieces in that. It's not just an architecture change of moving from two years to one year. It is about providing additional products within the same architecture. and helping influence many of the different types of industries and solutions that is going to be needed for them.

There are different solutions, whether or not you're a database company, whether or not you're a software company, whether or not you're an automotive company. You want a different type of solution and we are helping bring that to market, because we see generative AI and AI growing that we now have that capability to produce more volume of different types of solutions for them and that work will be in front of us.

We have been increasing, therefore, our investment. You've watched us this year, each quarter, starting not just to increase investment quarter-over-quarter but increase the growth rate of that. That is going to be an important thing to think about.

One of our most important assets that we invest in is our people --

Q - Harlan Sur {BIO 6539622 <GO>}

Yeah.

A - Colette Kress {BIO 18297352 <GO>}

-- is our engineers. And when you think about how we are organized as a company to be quite horizontal, to be not a business group or business unit type of company, but all hands on deck, working at every level from the hardware up to the software,

for us to be as agile as possible for the ever-changing parts of this market. So we are investing.

As we leave this year, we will have grown quite well in Q4. I think you're going to continue to see that as we go into the new calendar year. It takes some time to find that great talent. We have so much interest and we're really pleased at our growth here. But that has been an important part of our ability now to work on these new architectures and these new products bringing to market. We feel very confident that we'll be continuing that.

Q - Harlan Sur {BIO 6539622 <GO>}

Well, we are out of time, Colette. As always, great insights. Thank you very much for your participation today and over the last 10 years, really appreciate the support. We look forward to monitoring the progress of the team this year. So thank you very much again.

A - Colette Kress {BIO 18297352 <GO>}

Thank you so much for having us. Appreciate it. Take care.

Q - Harlan Sur {BIO 6539622 <GO>}

Thank you.