Credit Suisse 25th Annual Technology Conference

Company Participants

- Colette M. Kress, Chief Financial Officer, Executive Vice President

Other Participants

- John Pitzer, Credit Suisse

Presentation

John Pitzer {BIO 1541792 <GO>}

Why don't we go ahead and get started? I'd like to welcome everyone to this morning session. It's my distinct pleasure to welcome to the stage the management team of NVIDIA Corporation. To my left is Colette Kress, Executive Vice President and CFO, also in attendance in the audience Simona Jankowski, who runs Investor Relations for NVIDIA.

Our format is fairly straightforward. We're going to have a 30-minute fireside chat in this room. If you have any questions, there are mics that are being sort of walked around, there's one stationary over there. Please raise your hand and we'll try to get you there. But I'll start things out.

First Colette, I really appreciate you. It's great to have people live after a year hiatus and I really appreciate you guys participating this year. So thank you. The first question I tend to ask is really a setting the stage question. I think since the last time you were at on stage here, the stock is up sixfold. I think your stock is up 150% this year. Help us remind or at least remind people in the audience, what's the vision, the mission statement that Jensen and you have for the company. And specifically, what are you doing to try to fulfill kind of that vision, especially around that your recent acquisitions like Mellanox and the proposed acquisition of Arm.

Colette M. Kress {BIO 18297352 <GO>}

Sure. Great question to start off with and thank you again for breaking the ice and holding the very first in-person investor conference, we're glad to be here. Our vision of NVIDIA may not have really changed over a long period of time. We set out with the journey of helping in accelerated computing. The very first app that we found that could use accelerated computing was gaming, and it's still in our heart and soul as a company as we continue to improve that.

But what we did find was other great use cases and platforms for accelerated computing. One of the great outcomes of accelerated computing has been AI and

building that. We look forward and think of us as a full stack data center computing company. When we mean a full stack, that means we start layer by layer. First layer that we think about is those chips, those systems and build up to the second layer, which would be our platform layer that is focused on the engines that are important to so much of that acceleration. Everything from RTX to AI to simulation, many other types of engines are very important to us. And then, lastly, on our top part of the stack is software.

We will enable software frameworks towards applications for different industries and that's how we've designed this full stack. So Mellanox has been added to that because we really think about the overall data center computing world as looking at the full data center end-to-end, every step along the way of data and networking is part of that. They've been a great addition to us and we'll continue to build upon that strategy for future growth as well.

Questions And Answers

Q - John Pitzer {BIO 1541792 <GO>}

(Question And Answer)

A lot of company specific questions, but I'd like to start off with kind of more of a bigger picture question about the state of the industry today because clearly we're in one of the worst supply shortages for semiconductors that the industry has ever seen. If I look at kind of what you guys have done over the last couple of quarters, your purchase obligations were up 45% sequentially last quarter after being up 40% sequentially the quarter before, after being up 35% sequentially the quarter before. How tight is the current environment? And when do you expect sort of supply to actually start to accelerate so that you can actually meet all the unfulfilled demand out there that you see

A - Colette M. Kress {BIO 18297352 <GO>}

Our largest issue that we deal with is demand is greater than supply, demand is greater than supply. We've been working all through the last 18 months focusing on supply, but really understanding that the world has changed in terms of how they need to think about procuring supply. It ranges from everything starting with wafers, to substrates, to components, to contract manufacturers. We talk about the distribution of the logistics, all companies really have to think through that. It's also taking the full ecosystem. You have to think about your supply ahead of your products, it is also thinking about the supply of the systems that you may enable downstream. And that's when we started focusing full and our ecosystem of doing that.

We have also therefore started to procure longer term. Most of our discussions with our suppliers has been what do we see going forward, how can we help them and enable them to build the capacity that they will need to support the system going forward. Helping them with that and working on long-term procurement you will see now in our purchase commitments, you will see that in our inventory. How long will it

take until this bounces out? It's difficult to say. We feel very good about, of course, our guidance that we have provided, we feel good about the beginning of next year and what we've computed, but when we think about the second half of next year, I think, we'll be in a great position given so much of the work that we've already done on long-term procurement.

Q - John Pitzer {BIO 1541792 <GO>}

You and I talked about this on the call back after a recent quarter and in an environment where supply is this tight, you just kind of take seasonality and throw it out the window. Is growth over the next couple quarters really a function of how much supply you can get? Question number one. And the second question around that is, given the concern in gaming around crypto and you guys have done a much better job with CMP to try to ring-fence that potential risk, but it's kind of silly when you think about how lean channel inventory is today in gaming to think that crypto is this big overhang that could potentially come and be a problem anytime soon?

A - Colette M. Kress {BIO 18297352 <GO>}

Yes. So first when you think about seasonality, we get asked quite often in terms of our quarter-to-quarter seasonality. It's a common question, but you are correct, with the supply constraints we are really operating on what demand levels do we need to fill, how do we think about the supply behind that. So yes, seasonality has not restored itself, and it's not very clear in terms of when it will restore itself in the supply constraint world.

Secondly, when we think about our gaming business, one that has probably been the most impacted from that lack of seasonality, we are still in a case where demand strongly exceeds the supply and our channel inventories are at very low level. We work each day trying to improve that situation, but there's a lot of different reasons that are causing that. One, RTX is just a phenomenal new capability for gaming. It is really transform how game makers are making their games, how creatives are working every single day. So not only are we exceeding the overall gaming market as a whole, we are continuing to expand new use cases beyond just a gamer, the creatives, the broadcasters.

Additionally, you've seen the large rise of notebooks. Notebook gaming, high-end notebooks that are still thin and light that you can do your best gaming. You can take your gaming everywhere has been a great growth driver for us as well. Finding and making sure that supply as well all the way through the OEMs is an important part of our work today.

And then, lastly, there probably is still some cryptocurrency in the -- in our numbers, very difficult for anybody to quantify because we just can't see that piece of it. But with the lean channel inventory and our steps that we have done to create other avenues for the crypto money, we believe we're in a really good position for it to continue to grow.

Q - John Pitzer {BIO 1541792 <GO>}

And then Colette, probably the number one question I get about NVIDIA, especially as and I don't want to jinx things. You're knocking on the door of a trillion dollar valuation, which is just astounding. Is what really is the TAM opportunity here? And you I've had many discussions about this and I think the latest -- and it's really a data center question I think more than a gaming question. I think the latest numbers you guys gave out at the last Analyst Day was a $100 billion TAM. And I look at that number and I think, okay, you guys are trying to balance something that's big with something that's credible. Not that there is you know a lot of bottoms up work that goes into that, but we all struggle in this room trying to figure out what that TAM is. We tried to look at attach rates of GPUs to server shipments. But if you look at fundamentally what NVIDIA is doing is you're fundamentally lowering the cost of analytics and typically when you look at technology, when, one half of the ecosystem figures out ways to do things cheaper. The other half of that ecosystem comes up with brand new use cases that always grow the market to be significantly larger. You're also augmenting what you're doing in silicon, as you mentioned earlier in your prepared -- in your opening remarks that you're augmenting your silicon with software stacks. So how do we think about the TAM opportunity you have inside of data center over time?

A - Colette M. Kress {BIO 18297352 <GO>}

Yeah. Really good to break down why the success has been there, why the TAMs are so large. One, we created a capability with acceleration to streamline the entire path in terms of how you process data. And if we think back to the piles and piles of data that was out there, that was just not analyzed, not able to get to. And when you think about a world of prior to the end of Moore's Law, there was never going to be an opportunity to get that done. So that huge transformation and aha that came forth with a new platform approach really expanded out the TAM.

It's not the easiest to look at a attach rate to a server because we're not each server because we're going to change the overall configuration within a data center regarding the number of GPUs versus the number of servers in a whole. So it's not exactly the best way to look at it. But what we did was we analyzed each of the industries, how much they spend, procure on their data centers and getting an understanding of how quickly they would move to this accelerated world. They all will, our dream, our thoughts, our vision is that they will all move to acceleration. How fast? That depends. Then comes in our software approach. Our software approach is to really help enterprises make that move. Enterprises need the help in stitching it together that system, software, that overall application framework to their applications to move to an accelerated work. We've chosen large overall industries, industries that we know would benefit quite quickly from an accelerated and AI model. Thus has absorbed and created the large TAM that we have.

We started with 100 billion, probably the last time we were here on stage in these white chairs, but we've added quite a few things that are not in there as well. Our choice of adding software separately, adding and licensing software to enterprises separately is not in there. Our favorite topic in terms of Omniverse is also not there in terms of a opportunity. We also haven't included our Grace CPU, our niche CPU that's really focused on high performance computing and AI, attached to that overall vision that we have that it's data center computing as a whole that we'll focus on in

every single part of the data center. So the TAM, the opportunity is large. How large will it get? It's very un -- unknown, but there are big markets out there for us.

Q - John Pitzer {BIO 1541792 <GO>}

You brought up software and that's an area that I get a lot of questions in. And I think last time you and I spoke offline as it gets to be 10% of revenue. I think, that's sort of the threshold that you think about breaking it out as a standalone within the financials. One is that rate. Two, how quickly can you get there? And I guess, third question is what exactly are you doing? This VMware announcement on AI enterprise software and I'm just a dumb silicon guy, I have a hard time spelling software. Can you help explain to the audience, what software suite and tools you're actually providing the enterprise within that JV?

A - Colette M. Kress {BIO 18297352 <GO>}

Okay. Our most recent announcements that we have discussed is the amount of software that we have available is quite large. Software is not new to what we've been providing. We've talked about it for many years that our success has been really that system software or some of the key things that we provide free. For example, CUDA, 30 million downloads to 3 million developers that are out there. All free, but it's a development platform for them to also write software. But we assist even beyond overall CUDA and things that we bring. We bring to market AI frameworks, application different frameworks in the engines that we've talked about. But now there's an opportunity for us to sell the software separately.

Now why would we? Because some of our big opportunities in front of us are working with enterprises. Enterprises are very key in terms of the assistance that they need. When I say the assistance, they need support. Our ability for them to have a license that they know they can come to us and seek the support that they need for their application is key. Our work with VMware is very important. Why? Most enterprises use VMware. If we are incorporated in the stack that they use inside of their IT data centers that they can see and view and model their jobs and their virtualization of their accelerated servers in the same way that they do their CPU servers, that's an initial important step for enterprises as well.

So it is linking them together for all of the bells and whistles that the enterprises need. Which applications will we offer separately? There are several out there right now. Enterprise AI is an opportunity now in general availability and we are signing up customers for them to have within their infrastructure as well. We'll talk further in terms of Omniverse as well. That is also something that's available for the creatives for them to do. From time to time, we'll do more. But we have 150 STKs out there. 65 of them have been revised and/or new for people to look at. But the goal is helping the enterprises move into this world of acceleration.

Q - John Pitzer {BIO 1541792 <GO>}

And it really is a question of which of your businesses are going to grow faster. But is there a benchmark you can provide us with as to when you think software might actually be a reportable segment within the model?

A - Colette M. Kress {BIO 18297352 <GO>}

The software is a assistance in terms of helping a bigger piece out there, which is the overall purchasing of the infrastructure. The software has a multiplier to it, which is the infrastructure that is purchased by them. We will provide metrics along the way in terms of what we are signing in terms of software. You will likely be able to see pieces of it as it is still on the balance sheet and those pieces, but we'll talk about it from time to time.

Q - John Pitzer {BIO 1541792 <GO>}

And then if you go back three to four years ago, I think, one of the concerns in the AI market is that you were very well positioned in training, but perhaps not as well positioned in inference. And the view was the overall AI market at its end point would be 25% in training, 75% in inference and there was a fear that maybe your mix would be the exact opposite given your core IP. You've kind of changed that. Can you talk a little bit about the inference side of the market for you? You talked about that as being a faster growing portion or the fastest growing portion of AI for the last several quarters. Where is it as far as the mix in your AI business? Where does it go and is that limiter that we -- that some people thought it might have been three or four years ago.

A - Colette M. Kress {BIO 18297352 <GO>}

Yes. So inferencing and inferencing with GPUs has been extremely successful. Probably years ago sitting in this room talking about we are going to go after the world of inferencing that we knew was taken up by the CPU world. But we understood that the complexity of inferencing in front of us was important that they had both the programmability and the flexibility of a platform to take on those larger workloads. So inferencing is now growing faster than our overall data center as a whole. And when we indicate inferencing in this thing, this would be our inferencing processors that we have. We have some processors and platform-specific for inferencing, but we also did a different thing with A100. The A100 Ampere 100 was an opportunity to provide both. You have an opportunity not only to do training, you could take a portion of the A100 and divide it for specific inferencing types of jobs. So even only counting the inferencing platform-specific, it is still growing faster than our overall data center, not including the overall A100. So our overall approach to not only providing a flexible system and platform, but also all the software that we've enabled so many different inferencing types of frameworks out there, it has been extremely successful.

Q - John Pitzer {BIO 1541792 <GO>}

You mentioned Omniverse earlier. Some people call it metaverse now that Facebook is -- has rebranded themselves. And I want to be careful how I couch this because I would argue that Omniverse has been a background driver of your business forever. If you think about sort of the metaverse is the interface between the physical and the digital world, NVIDIA throughout its history has been trying to improve that interface. You've been doing it in gaming and now you're moving into a broader space. So I'm curious, are we at an inflection point in Omniverse, metaverse? Do we need AR, VR to kind of catch up? And is there, again, I think this is a very bullish long-term trend

for you. I'm trying to figure out if it's been a little bit overhyped here in the near-term?

A - Colette M. Kress {BIO 18297352 <GO>}

Okay. So Omniverse is a piece of technology and the next wave of technology that we've been talking about for a couple of years. But the great thing about it is, it brings together all of the different pieces that we have already from a simulation and do it collectively. Let's talk about that. So first, when you think about RTX. RTX with the ability to simulate light in real time. Additionally, we have done acceleration and huge amounts of simulation for high performance computing and then you add the piece of AI and what we have done.

Really what Omniverse is simulating accurate physics in a 3D World, 3D collaborative virtual environment. We think that we're in a 3D world, but we're really not yet. If you're thinking about the last 18 months, we've been focused in a 2D world with a little screen in front of us. What if this conference will actually wasn't in person and we had each of the digital twins out there and you and I would be our little digital twin onto -- on stage here, that they --

Q - John Pitzer {BIO 1541792 <GO>}

I can't wait for the day.

A - Colette M. Kress {BIO 18297352 <GO>}

I can't wait for that day as well. Okay. So Omniverse really brings together the best of breed of everything that we have developed. Now that the architectures have advanced over these years, Omniverse is not available. It will include VR, it will include AR, it will do everything for collaborative us, work spaces, it will help in terms of manufacturing and design as well.

Q - John Pitzer {BIO 1541792 <GO>}

Well, I'm curious because everyone, investors tend to be tactile creatures, if we can see and touch something, it's more meaningful to us and it seems like where Omniverse is really going to take off first might be scientific and industrial simulation. What might be the first killer app that we in this room wake up to one day and go, oh my god, we're here, the Omniverse is now present.

A - Colette M. Kress {BIO 18297352 <GO>}

Yeah. So let's start first though, but why is it important for manufacturing. Why is it important for architecture. It's an important area because they spend a lot of times collaborating across the world. Their teams are in all different types of regions and particularly now in a hybrid environment, more and more in terms of working from a different space than the overall office. The world of taking large documents to look at a 2D design is not effective anymore. One, they want to see it real time. Not when they finished three quarters of the way through the design and then say we need to make a change.

They want a single source of the truth of the design. Well, wait a minute, what version are you on. Are you on version 17, I'm on version 5. How do they keep that design world working? So Omniverse really helps many of these large manufacturers collectively collaborate on a design before it becomes real, before it is something that they have changed because that change could be rather expensive. Now you and I in terms of what we will probably see, will be things such as bots, okay, which we'll see call centers, which we will see places where -- where customer service be accomplished. Those will be probably two things that would be available every single day to us. Additionally, we'll probably have a car that will have our little assistant inside of the car. How to get home, how to get to Judy's house? All those different things will also be available using Omniverse.

Q - John Pitzer {BIO 1541792 <GO>}

I want to go back to gaming and you brought up RTX earlier. And one of the questions I always get is, how do I model long-term gaming growth? And I went back and looked at past the Analyst Days, and I think the last time you quantified and I could be off, if I am, correct me. It was sort of a mid-teens type CAGR with about half coming from units, half coming from ASPs is kind of how I thought about the business. If you look at where you've been over the last couple of years, five-year CAGR has been 25%. If you look at the last couple of years, it's been well above that 40% and 60%. And I think this helps to kind of form concerns that this is crypto related and not something else. Can you talk a little bit about kind of how we should think about the long-term growth here? How RTX is really played out units versus ASPs? And I think, one of the most interesting data points is just the penetration of RTX and where you are on that curve versus the prior cryptic correction with GTX?

A - Colette M. Kress {BIO 18297352 <GO>}

Yes. So when we think about gaming, RTX is a very important technology that has been brought to the world. The first architecture that we had was that setting stone for the ecosystem to begin the work in building out the games. Right now, the number of games using RTX almost all new games, important high-end types of games will be RTX.

You've seen the industry as a whole, whether they'll be working on GPUs, whether they'll be working on consoles, focused on RTX. That gives us the ability for us to grow not only on desktops, but also with the notebooks in that important piece. We have the ability to upgrade a large installed base. It's not just upgrading the last architecture, but thinking about two architectures before that did not have ray-tracing at all. It was a very important architecture. It was very popular architecture in terms of performance. And now when they think about two architectures, performance improvement and RTX, it is very popular.

We will probably continue to be bigger than the overall gaming industry when we think about our overall growth because we are supporting more than just gamers. We are supporting creators. We are supporting broadcasters, broadcasters in a lot of different universes, whether they're doing AR, VR or working in terms of contractors or enterprises. It's out there and this high-end graphics is an important piece.

When we think about what is driving our growth. Is it units? Is it ASPs? Yes, it's both. It is both. Both that upgrade, bringing on new users but also pay per ad continuing to turn to higher end platforms to really make those purchases in the top parts of our stack as well.

Q - John Pitzer {BIO 1541792 <GO>}

Well, one of the things I think it's under appreciated. You mentioned a couple of times in your comments, it's just the penetration to the notebook market for discrete graphics. Can you help us understand where you think we are on that curve because that's been a great story for NVIDIA over the last several years? And I would argue one of the key drivers is to why the growth rate has probably accelerated versus history?

A - Colette M. Kress {BIO 18297352 <GO>}

It has been just an important piece, really working with the OEMs on that design, working together with that ecosystem to help them understand, you can put just as great as a GPU into a notebook as you can of a desktop has really transformed. If you think about the world today and the hybrid work environment, the remoteness, that laptop, that workstation, mobile workstation is very important. So the Max-Q technology that enabled that has been just very key and has really assisted both gaming, but also our workstation as well.

Q - John Pitzer {BIO 1541792 <GO>}

Do you think we're getting close to full penetration, or is there more to go in the notebook market?

A - Colette M. Kress {BIO 18297352 <GO>}

There's plenty of places to go. I think, in the current arena with the OEMs working with them on the fine-tuning, which ones they can ship right now as we get ready for the overall holidays is a key thing. There's opportunity additional, penetration not everybody is on a high end GPU notebook by no means.

Q - John Pitzer {BIO 1541792 <GO>}

Not a business that gets a lot of attention, but it's a good segue with RTX, which is ProVis. And I remember when you guys first introduced RTX, you actually brought a bunch of analysts into your headquarters when we were still doing in-person visits and the pitch was really what RTX could actually do to the ProVis business. If you look, that business has been experiencing accelerating growth over the last couple of quarters, and I guess I'm trying to figure out, is this a reopening trade that that's helping that business or you're actually starting to see RTX bringing down the cost of rendering and creating just new markets and new applications? I think the one that you highlighted when you first introduce RTX was actually could you actually stimulate -- simulate housing, real estate and instead of driving around and seeing four houses in five hours, you can see 40 houses in an hour virtually.

A - Colette M. Kress {BIO 18297352 <GO>}

Absolutely. So the workstation market has had very, very strong growth over the last several quarters. And you would say, is part of that just due to the environment that we were in. It's really about the future environment that is creating that. The hybrid ability for folks to have workstations both in their home as well into the office is very important. Being able to upgrade to RTX saves them tremendous amount of time, resources and finishes their work in so many great areas.

We've seen this both with the entertainment industry in terms of what they need to do to create overall films. We've helped stitch that together for their overall rendering. You can use an example such as, real estate, but there are many examples where creatives working on their own are using RTX to assist them and all the creative, whether that be catalogs, pictures, all that type of things are done using RTX. So this is a -- not a trend at the moment, but something that will probably take us for many years.

Q - John Pitzer {BIO 1541792 <GO>}

Another end market where are your software strategy is going to start paying dividends as autos with the announcement you made with Mercedes, I guess it's over a year now, for 2024 autonomous driving. That -- that's been a business that's been kind of winding down with your legacy products before it's ramping up with your new core products. How should we think about kind of the growth in that business as we get out into '23, '24. I think, in the past we've talked about either $5 billion or $8 billion worth of backlogs over like a five-year period.

A - Colette M. Kress {BIO 18297352 <GO>}

We have been talking about our autonomous pipeline and we have analyzed all of the companies that we have signed with in terms of creating autonomous robotaxis, trucking or just the passenger cars such as Daimler. That market size is about 8 billion if we look out to 2027. As we see today, we're still in the early days of this in terms of providing samples, continuing to build out the end to end platforms that they will have in the car. So the way that you should think about that is, yes, it may start at the end of '23, move into '24. But hit the 8 billion in total. So it will be quite an important part in terms of how it accelerates in those first couple of years. It's an important part because it doesn't mean just the infrastructure that will be inside of the car, it is also a software opportunity. We have creatively working with Daimler, helping them on that software and we'll share the software that each -- the company will procure from putting the autonomous vehicles inside those passenger cars.

Q - John Pitzer {BIO 1541792 <GO>}

Couple of modeling questions as we come to the end here. First is, just on gross margins. There's a lot of headwinds in the current environment. There's inflation, there's logistics. You're ramping new products. What's the longer-term sort of view that we should have on gross margins? One. And two, as you report the January quarter, one of the helpful things you gave us is, as you look out to the next fiscal year is your OpEx. And as much as you tell guys like us not to look at an OpEx to rev ratio and back into revenue, we inevitably do that. How should we think about kind of the OpEx given the opportunity set that you have in front of you?

A - Colette M. Kress {BIO 18297352 <GO>}

Yeah. We still get asked quite a bit about gross margin. Probably one of those key metrics that people look for a semiconductor company, we -- as we've discussed here, we're different. We're different in terms of thinking about us from a full platform perspective. The best thing that we've been able to do with our gross margins is incorporate software in so many of the platforms that we're doing, meaning, the software is not in the gross margin and that's why our gross margins have been so successful.

We look at each of the platforms that we have put out there and the margins have grown particularly related to data centers and people purchasing more of our high-end cards into the market. As we go forward, probably in the distance, if software becomes an important part, whether that be autonomous vehicles, whether it be things that we standalone, you've got another ability to raise our overall gross margins.

When you think about OpEx. You're right, that we tend to try and assist thinking about our investment levels. We do not model it versus revenue. We don't. We know the most important part of what we can do as a company is invest correctly, invest appropriately and what enables us to build these products, bring them to market, we will be investing, we will provide some assistance in terms of what we know we can control. OpEx is some of the things that we can control and we'll talk about that going forward. We have huge market opportunities in front of us. We have great exciting ideas to do. Now it's our job to think about which ones we can fund? Which ones are nearest to the boat, things that we need to fund today, what things longer term we also want to. Any point in time, we have things that are providing revenue today, things that are providing revenue a little bit more in the future and certainly work that we're doing long-term at all times.

Q - John Pitzer {BIO 1541792 <GO>}

Great. We've come to our end of time in here, but I want to thank Colette, Simona, and everyone in the room for joining us. This was great. I really appreciate the time this morning.

A - Colette M. Kress {BIO 18297352 <GO>}

Thank you.

Q - John Pitzer {BIO 1541792 <GO>}

Thank you.

This transcript may not be 100 percent accurate and may contain misspellings and other inaccuracies. This transcript is provided "as is", without express or implied warranties of any kind. Bloomberg retains all rights to this transcript and provides it solely for your personal, non-commercial use. Bloomberg, its suppliers and third-

party agents shall have no liability for errors in this transcript or for lost profits, losses, or direct, indirect, incidental, consequential, special or punitive damages in connection with the furnishing, performance or use of such transcript. Neither the information nor any opinion expressed in this transcript constitutes a solicitation of the purchase or sale of securities or commodities. Any opinion expressed in the transcript does not necessarily reflect the views of Bloomberg LP. © COPYRIGHT 2024, BLOOMBERG LP. All rights reserved. Any reproduction, redistribution or retransmission is expressly prohibited.