19th Annual J.P. Morgan Tech/Auto Forum

Company Participants

- Colette Kress, EVP & CFO
- Harlan Sur, Analyst

Presentation

Harlan Sur {BIO 6539622 <GO>}

Good morning. Welcome to our 19th Annual CES Tech Investor Forum. My name is Harlan Sur -- Semiconductor and Semiconductor Capital Equipment analyst. Very pleased to introduce Colette Kress, Chief Financial Officer of NVIDIA.

It's been a tradition to have NVIDIA team be one of the first to present at our conference because the team is driving much of the trends that you will hear about today -- artificial intelligence and compute acceleration, next-generation compute architectures and automotive and next-generation gaming technology, to name a few.

I've asked Colette to start us off with an overview of what the team is showcasing here at CES. I know that the team has its GeForce RTX Game On Event at 9 a.m. PT. But maybe Colette can give us a sneak peek of what's under the hood there. After Colette's remarks, we'll kick off the Q&A. So Colette, thanks for joining us today, and let me turn it over to you.

Colette Kress {BIO 18297352 <GO>}

Thanks so much, Harlan. Thank you, JPMorgan, for allowing NVIDIA to kick off your conference. Even though this is digital here at CES, we still think it's a super important event. We're very pleased to be here. But now I need to open up with a quick overall statement to make here.

As a reminder, this presentation and our content today includes forward-looking statements, and investors are advised to read our reports filed with the SEC for information related to the risks and uncertainties facing our business.

Okay. So now that we've gotten that carried away, let's talk about CES. It will be a great week for us again here at CES. And you're right, we have some great announcements that we have already started to roll out and probably things to go in the future.

First, earlier this weekend, we just announced our win with NIO, our automotive company in China over the weekend. This will allow us to incorporate our new automotive platform, our drive Orin platform within their cars for the future, starting probably with cars and sales in 2022. And their overall volume of cars will continue to grow as we go forward. This allows us to have an overall trifecta in terms of the China EV cars, NIO, Li Auto and Xpeng are all now using NVIDIA DRIVE.

We also had the opportunity to announce our work with overall Mercedes earlier in the fall. And we also work with them right now on the hyperscreen. And beyond that overall hyperscreen is our focus in terms of on our overall automotive technology behind their big screen. So a very important deal going forward in terms of Mercedes, but right now, we continue to enable their AI cockpit.

Now we had an exceptional holiday season. Gaming demand is off the charts. Our RTX 30 Series is our best launch ever. This has been a great opportunity for here at CES to discuss our next wave of Ampere-powered GPUs. So I just need you to stay tuned, maybe stay tuned for later today to get more of an update in terms of our Ampere products and our RTX 30 Series. Turning here back to you, Harlan.

Questions And Answers

A - Harlan Sur {BIO 6539622 <GO>}

Great. Thanks for that, Colette. So if I look at last year at the same time, consensus view was that the NVIDIA team was going to grow their revenues 20% in calendar year '20. If you hit your guidance for this quarter, ex the Mellanox acquisition, normalizing for the 14-week quarter, the team is going to grow its business 30% to 35%. And The Street has you guys up another 20% to 25% for calendar year '21 year fiscal '22. Help us understand the trends and product cycles that are going to drive your fiscal '22. And longer term, how should we think about the overall growth profile for the different businesses, gaming, data center Pro Viz, auto, especially now that you've added the networking connectivity franchise to the portfolio?

A - Colette Kress {BIO 18297352 <GO>}

Yes. Thanks. A great question to really talk about what we're going to see in terms of fiscal year '22. We're entering fiscal year '22 with great momentum and feel really good about our long-term growth profile.

The completion of Mellanox in the early part of fiscal year '21, we are now both integrating and working together to focus not only on accelerated computing with GPUs in the data center but also focusing on all of data center computing with an overall acquisition.

Turning to overall gaming. Gaming will be driven by that continued rollout of our RTX 30 Series. ray tracing is now an industry standard. And overall gaming is a very important entertainment medium at this time. We are the only company right now

that's offering ray tracing enabled by AI, not just ray tracing but improving the overall performance of ray tracing in real-time with no loss in terms of that performance.

Right now only 10% of our installed base is on RTX, and we're moving quite quickly to work in terms of on that upgrade cycle that is ahead of us.

Now when we think about that upgrade cycle, we can continue to look at our overall installed base. Our installed base can think about not only our last generation or generation even before that and looking at what possibility we have for an overall upgrade. Data center. Our data center business right now is at a $8 billion annualized run rate. And it has a TAM in front of us now with the combination of Mellanox of more than $100 billion.

Now this is a great opportunity with the inclusion of Mellanox to focus on data center computing as a whole and look at A100 right now continues to ramp across the hyperscale and enterprise customers. We're in that initial onset of A100. A100 is just in the early stages of the overall deployments in the areas that it can go with the overall hyperscales, the enterprises, the cloud and the edge. We have great momentum for inference also when we go forward. And we have seen in this last year, strong demand in terms of Mellanox as well.

Pro Viz is another great opportunity for us to grow. We have new applications such as AR and VR, both blended and separate that really help build what is necessary for both the virtual as well as those physical worlds.

Now we've talked about overall automotive highlights in terms of what we're going to expect long term. In the short term, we'll be driven by our AI cockpit and our initial AV ramps as we move into calendar year '22.

A - Harlan Sur {BIO 6539622 <GO>}

Great. Thanks for that. So you're absolutely right. I mean reading your enthusiast class gamers and the blogs out there, obviously, we've heard a lot about the adoption of the A100 by your cloud and hyperscalers. We had Kimberly present at our Healthcare Conference and talk about the adoption rate of A100 in DGX with her partners as well.

And then you've got some new products coming out, right? I know you're not going to give us a sneak peek of the Game On Event at 9:00 a.m., but my sense is that you're going to be rolling out your Max-Q lineup of products driven off of your 30 series RTX-based products.

But the problem is that given all of this strong demand, and I just checked, like, for example, some of the retail sites like Best Buy today, I still can't get an RTX 3070, 3080, 3090, your latest 3060 Ti. I still can't get it. It's sold out everywhere. And so can you give us an update on supply availability? Are the constraints more focused on wafer supply or advanced packaging and substation supply? And more importantly, when does the NVIDIA team expect the situation to improve?

A - Colette Kress {BIO 18297352 <GO>}

Thanks for that question. So in order to talk about supply, we first have to discuss the demand. We did have an exceptional overall holiday season. Gaming demand is off the charts. Our overall Ampere architecture and ray tracing are really a true success. This demand has remained stronger for longer. Okay. So supply does remain tight at this time. We expect the overall channel inventories, meaning the inventories that are with our AIC partners as well as in our Etail and retail channels will likely remain lean throughout Q1. Our overall capacity has not been able to keep up with that overall strong demand that we have seen.

We've seen in terms of constraints, constraints really from the overall global surge of compute and the overall capacity, capacity that may be necessary for assembly and test and/or substrates as well. But again, we remain focused on this and working each day to improve our overall supply situation.

A - Harlan Sur {BIO 6539622 <GO>}

So given the strong demand profile that you just outlined in your opening commentary, combined with the supply constraints that you, I think, just articulated could extend into the April quarter. Could the April quarter, quarter-on-quarter trajectory drive a better-than-seasonal profile, even with the 13-week quarter in April? In other words, could we see NVIDIA's revenues flat to up sequentially in April?

A - Colette Kress {BIO 18297352 <GO>}

Yes. So when you think about overall seasonality at this time, you're right, it's a little bit hard to look at when you are overall supply-constrained. So as we think about demand remaining very strong as we move from Q4 to Q1, seasonality is probably not a big factor this year as we are supply-constrained.

Our channel inventories being lean and likely remaining lean, though, we'll focus in terms of how to think about that supply for our revenue as we think on Q1. We'll provide more guidance on Q1 when we report earnings next month. But again, I don't believe that seasonality will be a large factor this year.

A - Harlan Sur {BIO 6539622 <GO>}

I've got a question regarding the gaming side of the business. So question is, has cryptocurrency mining contribute meaningfully to gaming strength? And is that incorporated into guidance/near-term strength?

A - Colette Kress {BIO 18297352 <GO>}

Yes. So cryptocurrency is interesting. So GPUs, as you know, have been programmable for many, many years. And it allows a constantly discovering capability for new applications to use the overall GPUs, and that has driven our overall growth in the market.

Cryptocurrency mining is one of those such applications. Now mining demand depends on our installed base of mining capacity, potentially new coins. And what we would consider to be a return on investment of new GPUs. For example, mining demand takes into account cash rate per dollar of GPU or even the current coin price. That's something to keep into mind.

We don't have visibility on how much of the RTX 30 Series end demand comes from mining. So we don't believe it's a big part of our business today. Gaming demand is very strong, and we think that's larger than our current supply.

This time feels different than what we had seen several years ago for a couple of reasons. One, inventory levels are now very lean, and we have better visibility into that channel inventory, something that we are monitoring on a periodic basis and often to make sure we have an understanding where that inventory is in the world.

Additionally, we're in the beginning of a product life cycle with overall Ampere architecture. It's got a long runway ahead of us. And the last time, if you recall, we were transitioning from Pascal to Turing, which made it challenging to manage both the channel inventory and the end of that product cycle. And so in summary, if crypto demand begins or if we see a meaningful amount, we can also use that opportunity to restart the CMP product line to address ongoing mining demand.

A - Harlan Sur {BIO 6539622 <GO>}

Why don't we stick with the gaming side of the business since we started off with crypto? So you launched the 3070, 3080, 3090, September, October, like you said, I mean, still can't get it in retail. You launched the mid-range 3060 Ti in December. You've got a bunch more of new follow-on products. I'm assuming the Game On Event at 9:00 a.m. is to introduce your Max-Q lineup of 30 Series products for laptops. That's my assumption.

Demand has been strong. You've given us the statistics that your installed base of 200 million GeForce users, still 70% of that installed base is on Pascal or prior generation platforms. You just gave us another statistic that only 10% of that installed base is on RTX-based platforms.

And so what's your sense on how much -- as you proliferate the 30 Series, how much of that -- where could that 10% move to, let's say, over the next 12 to 18 months? Could it move to 20% of the installed base, 25% of the installed base? Would love to get your views on that.

A - Colette Kress {BIO 18297352 <GO>}

Yes. So when we think about this holiday season and what we've already seen with our 30 Series, now that it's such an important part of the year to sell our overall GPUs. You've watched in terms of a couple of highlights. One of them is looking at Steam online and the concurrent users overall is up 40% year-over-year. This is influenced by folks, more and more gamers coming into this arena to actually use

gaming as an entertainment and social and probably for a long time to come as we move forward.

We have 36 games already powered by RTX. Remember, we use AI in our overall cards in order to enable a better performance in terms of ray tracing. We're just really pleased that both ray tracing, given where we started with overall Turing, has now quickly been adopted as a new standard for overall gaming.

So, so far, what we're seeing in terms of the majority of the Ampere upgrades are actually coming from Pascal, which is essentially our N minus 2 overall architecture. This is just an initial sample. As you know, we are in this early stage of the overall Ampere rollout and the overall upgrade, but it's a really, really great sign.

If you recall, our overall Pascal architecture was a true success, and there is a tremendous amount of opportunity in terms of both an improvement in performance as well as getting a dollar per performance improvement for those that overall upgrade.

Remember, Pascal as well did not support ray tracing. So this is a great opportunity. For games to get better and for them to see and participate in this future of next-generation gaming with all of the overall ray tracing games that are out there, big new titles that are already supporting it. And now it is really looked at as a must-have overall feature.

So when we think about this upgrade cycle, yes, it is true. About 10% of our installed base is only on ray tracing. And it is the key feature for this holiday to focus on ray tracing. So we're really excited about that ray tracing opportunity but also in terms of the upgrade opportunity that we have.

A - Harlan Sur {BIO 6539622 <GO>}

The other growth vector within gaming has just been the move from desktop to laptop, right? And the Max-Q line of products from NVIDIA, which I assume you guys are going to announce your next-generation 30 Series today, has been a big catalyst for laptop adoption amongst the enthusiast class gamers, right, your highest end gamers. I'm curious as to -- if you can give us a sense of your GPU business, how has the percentage of laptop-based high-end GPUs, the Max-Q family of GPUs, as a percent of your total enthusiast class gaming portfolio, how has that mix evolved over time?

A - Colette Kress {BIO 18297352 <GO>}

Yes, a really good focus in terms of laptops. The laptops of yesterday versus the laptops of today. Laptops over time became very important that it was thin and light. Thin and light, and overall ability to leverage high end GPUs was the work of NVIDIA, working with the overall OEMs and working with them on that Max-Q technology.

We wanted to enable the overall mobility of overall gamers, the ease of use, and we have seen a now new generation of overall laptops that are focused on the high-end

touch of gaming. You can go out and procure many different types of overall laptops at different prices, including the same overall performance that you can get in an overall desktop.

So we use this as an opportunity to both attract new gamers, new gamers that aren't necessarily interested in self building their PCs or looking at gamers to have a second overall PC to do their overall gaming. But more importantly, it also serves as doing more than just gaming because we use this as an opportunity to get to the creators, the broadcasters and many more.

So laptops have been a wave over the last couple of years. We are on a multiple year growth in terms of our overall notebooks. And our notebooks, if -- are approaching nearly 30% of our overall gaming type of revenue that we have today.

So a great example of really innovating and showing how the gamers can learn how to game on many different types of devices. So stay tuned. I'm sure you'll hear more about our notebooks and our laptops for gaming as we move forward.

A - Harlan Sur {BIO 6539622 <GO>}

Great. I'm getting a lot of questions on automotive. Let me start it off with the first question, which is there's a strong -- obviously, a strong showing by NVIDIA at CES in automotive, especially with some of the upcoming EV start-ups. As you mentioned, NIO announced their latest ET7 EV with advanced autonomous compute platform using your DRIVE Orin platform. Li Auto, Xpeng have also announced integration of NVIDIA's DRIVE platform for their EV lineups. I think all 3 of these companies shipped over 100,000 vehicles last year. And all 3 of them are expecting strong growth in shipments this year.

Now near-term, your design wins for next-generation AI cockpit and infotainment are actually what's driving the business, I believe, today. How should we think about the trajectory of your auto business over the next 3 years? Because I know that NIO, for example, said that they're going to be shipping their ET7 next year with 4 of your Orin platforms integrated into their advanced computer, right? So how do we think about the trajectory and the use cases for your auto business over the next 3 years?

A - Colette Kress {BIO 18297352 <GO>}

Yes. So great question. And we've definitely been through a whirlwind in 2020 as it relates to the overall automotive industry. The automotive industry was probably one of the first ones to come back and figure out the overall manufacturing during this overall pandemic. So they have been ramping in terms of the manufacturing of overall cars.

Our focus on AI cockpits, therefore, is on that top piece we finish overall calendar 2020. Our AI cockpit work with Mercedes is very important, a very important beginning. As you know, we are connected with Mercedes for the long term as we think about the revenue stream and focusing on AV as we move forward.

So over the next year, 2 years, we will see a ramp of that overall AI cockpit where we begin the overall AV ramps, some of that overall China partners that we have there as well as our existing partners that we have here with Mercedes and many of our other initial overall ramps.

We'll continue to have development agreements as well, focusing on startups and/or OEMs that are focused on building overall AV for their future cars. But in probably calendar 2024, that is when we will start to drive a very important revenue stream, one that really unlocks a significant higher-margin revenue as we look to do a shared overall software revenue with Mercedes as providing their full stack inside their fleet of cars that come out.

A - Harlan Sur {BIO 6539622 <GO>}

Question from an investor. So Tesla is talking about the intelligence of the fleet, in other words, using their fleet of EV to capture all of this real-world information, right, and put it in a big database, right? Mobileye as a part of Intel is also talking about the advantage of having real-world driving data being available for edge cases and being able to train their proprietary AI networks. How does NVIDIA make up for this "disadvantage"? Or is it a disadvantage as it relates to having that real-world data to help you and your partners train your models and getting set for semi and fully autonomous to kind of go prime time here?

A - Colette Kress {BIO 18297352 <GO>}

Yes. So I think an important part to think about is both the collection of data and, keep in mind, we have our own cars on the road. We are working with many of our OEMs and partners that also have cars on the road. The data is one piece of it, but the ability to manage that data and be able to really work with that data inside of their overall data centers, that's right, we're a very important part of the automotive industry's infrastructure and data center, which is working with all of this data, moving the data analytics through to build the next AV that is inside the cars.

So yes, you see in our automotive business our actual solutions from full systems and platforms and the overall software once that work is complete. But we also have a tremendous business working with automotive OEMs, startups and others in terms of the overall infrastructure that they have back in their data center to mine that overall data that helps them in terms of building the solutions for AV going forward. So we're a big part of that overall business and the right part of it because we're focused in terms of on the AI, and we're focused in terms of on the compute.

A - Harlan Sur {BIO 6539622 <GO>}

Let me just switch over to data center. There's -- we've got a couple of questions on data center. So following up on your A100 product cycle, 7-nanometer Ampere offer significant performance gains over the previous Tesla V100. Can you just talk about the overall ramp in customer traction? What percentage of the data center sales mix in Q3 was A100? And where do you see this mix going as we move through calendar year 2021?

A - Colette Kress {BIO 18297352 <GO>}

Yes. So let's first start with what we're seeing right now in terms of our overall run rate in our data center business. We're probably on an annualized run rate right now of about $8 billion. A100, remember, is still in that early stages of that ramp because it just came about midyear in terms of 2020 calendar year.

Now where we are focused in terms of A100 in its early stage of that realm, is focusing a lot in that first quarter, 1.5 quarter, focused in terms of on the cloud and hyperscales. We also focus in terms of on the consumer Internet companies as well that are using overall AI day-to-day in terms of their solutions.

We turn the corner as we move to Q3, Q4, focusing on the enterprise and the edge as we continue to work with our overall OEMs in creating overall server opportunities that incorporate A100 as well. And those are now beginning in terms of that piece as well. But it's still in the early days of the overall performance improvement in A100 as well as the overall flexibility of A100. A 100 is a solution that allows both training and inferencing at the same time.

So really, when an overall customer is determining what it needs for its overall projects. And it is going back and forth between whether or not they start on training, whether or not they think about inferencing, A100 can do both and can continue to be reconfigured for the future as the needs overall change.

Now inferencing is an important piece of our overall data center business as well. And A100 is also being used for those that want to use inferencing full time.

We still have record T4 revenue, also one of our true inferencing-only type of product and that momentum has been great throughout all of calendar year and is expected even heading into calendar year '21.

So as we move forward, we've got other new products as well. We are releasing in terms of overall DGXs on A100. This is also an opportunity for us to bring one of our very first products together with Mellanox and focusing on the DPU. And that allows, again, a great increase in terms of our long-term opportunities as we go forward.

Now breaking out the details of that sales mix, it's not something that we break out in terms of granularity of the overall A100. We've got a good mix of focus in terms of the hyperscales in the cloud, and we also have a good mix in terms of focusing on the enterprise. And from time to time, they will switch. But essentially, they're both a very good part of our business and our sales of A100.

A - Harlan Sur {BIO 6539622 <GO>}

Great. Well we're just about out of time, Colette. I want to thank you as always for your participation. Looking forward to the NVIDIA team driving strong growth this year. So again, thank you very much.

A - Colette Kress {BIO 18297352 <GO>}

Thanks so much for hosting us. Appreciate it.

A - Harlan Sur {BIO 6539622 <GO>}

Thank you.