Morgan Stanley Technology, Media & Telecom Conference

Company Participants

- Colette M. Kress, Executive VP & CFO

Other Participants

- Joseph Lawrence Moore, Executive Director, Morgan Stanley, Research Division
- Unidentified Participant, Analyst, Unknown

Presentation

Joseph Lawrence Moore {BIO 17644779 <GO>}

All right. Good morning. I'm Joe Moore from the Morgan Stanley semiconductor team. Very happy to have with us today Colette Kress from NVIDIA. Colette, thanks for coming.

Colette M. Kress {BIO 18297352 <GO>}

Thank you.

Joseph Lawrence Moore {BIO 17644779 <GO>}

CFO of NVIDIA. So let me just walk through, it'll take about 30 minutes, walk through the business portfolio a little bit. And then we'll have some time for audience questions.

Questions And Answers

Q - Joseph Lawrence Moore {BIO 17644779 <GO>}

Let me just start with gaming, your gaming business, 57% of revenues, grew 36% last year, a pretty impressive year. And you did that really without the product cycle up to the big product cycle number the year before. And as I said, you sort of have 3 components of that. You have core gaming, your mobile Nintendo business and also cryptocurrency. So I'd like talk about each of those. Maybe a question in terms of gaming. Again, for a year without a product cycle, you had a very strong year. Can you talk about the drivers of that strength. And how you perceive the long-term growth for that segment?

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

Sure. Just to remind everyone of our market segments that we do have. The company is really based on one single product in terms of a GPU. And we do have 4 market segments that we've partaken using that overall GPU that spans from our gaming overall business; our pro visualization, which is taking graphics to the enterprise; our data center business, which has been quite front and center over the last couple of years as a focus in terms of accelerated computing, accelerated computing for AI as well as accelerated computing for high-performance computing and many other pieces; and then our last business is our automotive business, which is a sister to much of our work in terms of in the new data center and working in terms of on -- future autonomous, self-driving cars going forward. But to pause in terms of our gaming business, our gaming business has been one of our strongest parts of our portfolio, the longest standing. We grew this company based on graphics inside of PCs earlier. Gaming has been a great use case of that overall graphics and we've a seen tremendous growth over, not just this last year. But probably over the last 3 to five years in terms of the growth. But a lot of this has to do not necessarily with the underlying piece of hardware in specific. But the overall market itself and the overall growth that we've seen in the market for gaming. Gaming has really transformed over the last decade tremendously. Gaming used to be a place where you would partake in terms of gaming inside your living room with your overall PC. It's moved to an overall social platform. And that social platform has added gamers at new ages, both starting younger, staying longer. But their ability to play with their friends online is of a particular interest. Our overall platform for gaming is the leader in terms of -- in the PC. We stand there with probably the largest market share of all of the overall PC gamers that are out there. And our platform, although this is in its second year, it's still the strength of all the different kinds of platforms that are out there that you could buy. Additionally, what is key in terms of influencing the overall upgrade cycles and the adoption of our overall gaming platform is really looking at the overall games that are hitting the market. There's a tremendous amount of great popular games that influences gamers to use this opportunity to upgrade their platforms. Whether that be here in the U.S., whether that be Europe or worldwide, even in Asia Pac area, strong games are one of the key areas that we see that are influencing the overall growth. So this is probably the key underlying piece in terms of why our growth, I think, in this last year was so great.

Q - Joseph Lawrence Moore {BIO 17644779 <GO>}

And you've talked about competitive eSports sort of spectator-oriented eSports as a driver. How do you think that drives hardware sales because obviously that's a small group of participants who are playing -- streaming competitive games. But it seems like there is some pervasive benefit for the broader base of gamers.

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

Sure. When you think about eSports, eSports is really about influencing and watching other's overall game and the overall community that are watching the best of breeds in terms of overall gamers, learning key tricks in terms of showing them how to play. But essentially, now it's a spectator sport in terms of what you can do with gaming. What is different though is people influencing friends, how does it influence you actually buying the hardware? The top gear that your top influencers have in terms of gaming is very popular as well as with all the gamers as well. In

many cases, in life, we know that we purchase overall equipment or the gear to match some of the best of the breeds in terms of gamers. And so we're seeing that whole influence in terms of the gamers. But also influence the overall gaming developers in terms of what they are building because now everybody is watching the overall key features inside of games to determine what they need to build next.

Q - Joseph Lawrence Moore {BIO 17644779 <GO>}

Okay. Great. Then one of the areas you talked about more recently is mobile notebooks. You've had a pretty high-end gaming experience now on a fairly thin and light notebook. Where are we in the evolution of that as a business?

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

Yes. So when we think about the overall mobility front, which has been around for several years, what has been key to watch is the need in terms of mobility in a form of thin and light. People aren't going to change and go backwards on that thin and light. They really key into that as being the key feature. But now they also are interested in that high-end performance. So matching those 2 together has been one of the key proponents that we have done with many of the OEMs around the world, leading up to good current cycles that we have in terms of Pascal, our latest overall architecture. What we are seeing is more and more gaming notebooks exclusively using thin and light, using that high performance that allows a gamer to go anywhere. Sure, they still have many of their desktop types of infrastructures where that can incorporate their monitors, their screens, their controllers. But now the mobility of a high-end type of gaming notebook has been very key. We're in the early stages of seeing this overall rollout. But I think our overall OEMs like it as it also brings a tremendous value to them in terms of selling the higher-end notebooks to the overall industry.

Q - Joseph Lawrence Moore {BIO 17644779 <GO>}

Okay. Great. Then I do have one shorter-term question on gaming in the sense that you've been operating in a fairly supply-constrained environment for the last two months. Availability of your product at retail is typically above MSRP at this point. How is -- I guess, that entirely cryptocurrency that created that situation? And how is it running your business in that situation? How do you decide where to allocate? In that sort of tighter supply environment, how are you prioritizing things?

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

So we did talk about this at the end of our Fourth Quarter that we just finished and discussed the challenges that we have right now in terms of being supply constrained in terms of the channel. The channels had been influenced by not only the strength of the overall gaming that we had seen for the overall holiday season. But also the large uptick that we've seen in the overall valuation of cryptocurrency. That influenced not only those buying our cryptocurrency boards that we have available. But also moving up to the stack and using overall high-end GPUs to do a lot of the cryptocurrency mining. So trying to serve both of those markets with the overall GPUs, we became supply constrained. We're going to look forward. The best thing that we can do is not necessarily an allocation because our allocation,

particularly for our gaming GPUs, is largely geared towards gamers. We want to make sure those gamers worldwide receive the cards that we want to do. So we're working quite fast in terms of with our partners, with our suppliers in terms of picking up overall supply that we can get overall out to the channel. Yes. In the short term, you have seen retail prices potentially be a little bit higher, not something that we overall benefit from, primarily just our channel providers are benefiting from that because we've already sold them the overall units for them.

Q - Joseph Lawrence Moore {BIO 17644779 <GO>}

Okay, that's helpful. Then, I guess, on that topic of cryptocurrency, you guys have done a pretty good job of trying to help us understand the impact to that over the course of the last few quarters. But you have also said it is hard to quantify because you don't always know. And particularly since it's moved away from specialized chips and more maybe towards GeForce. I guess, how should we think about that business? And obviously, it's a great business you want to take advantage of. But how should we think about modeling that as we move through the course of the year? And things like your expectations are fairly prudent long term about where that goes.

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

So if we think about really what our goal is as an overall company, we have significantly large TAMs in front of us that we are executing against. That is associated with the gaming, associated with our data center, associated with our self-driving cars. Being assured that we can manage to those overall TAMs and be able to serve them is going to be our first overall priority. In the case of cryptocurrency, we do believe we can serve them primarily with those specialized cards and that's going to be our goal going forward. The volatility in the short term of the overall price of mining and the overall profitability -- merge them into the overall gaming. But we're going to really try our hardest to really focus our overall GPUs for gaming for overall gamers going forward. Why? It's becomes very challenging us -- for us to determine exactly how much of the mining is. It's sometimes we see a gamer actually doing both in terms of the gaming and overall the mining going forward. So you'll see us continue to focus on building specific cards for the overall mining and we think that is the best of breed and we can do that quite easily given our overall ability to produce many different types of GPUs for these markets.

Q - Joseph Lawrence Moore {BIO 17644779 <GO>}

Okay. Then it's a little tricky talking about what the year looks like for you guys because you typically don't talk about products before they come out. But you've been typically on a 2-year cadence. I would assume that there are products coming out over the course of this year. And yet you have this situation where inventories are extremely low at the moment. Is there anything we should think about, any context we should have in terms of how you're going to manage through the rest of the year when you have that combination of constrained inventory and new product?

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

Yes. So historically, our architectures, we have kept everybody on their toes. We don't preannounce our products. We do like to excite our overall gamers. Our overall cadence has been probably 2, 2.5 years over the last several different architectural increases that we've done that. So we still haven't even met the overall 2-year mark in terms of our overall Pascal bars that we have in the market. They are still, remember, the best of breed in terms of overall performance against anything that is out in the market and we're still selling quite, quite well. So we're going to continue to focus on that as we move forward and stay tuned. And we'll see what we can do in terms of announcing much later.

Q - Joseph Lawrence Moore {BIO 17644779 <GO>}

Okay. Great. So shifting gears to talk about your HPC cloud, your data center-oriented businesses, 133% growth last year, now up to 20% of revenues. It's pretty, pretty solid I think. Obviously, it's been some great opportunities. Can you just give us a little bit of an overview around that business? Then I know there's multiple segments, multiple different ways you can parse that. Just give us a little bit of an overview of that and then your thinking.

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

Sure. Over the last several years, we've now increased the overall data center business. So we're looking at a $1.9 billion business as we finished this last fiscal year. The business is really broken down into 5 different pieces. Under the underlying fundamentals that says as we move forward and think about the overall range that a CPU can benefit from the future in terms of our architecture, there's not much upward movement. In terms of the overall goals of using acceleration and using GPU acceleration, it's front and center as it relates to our overall data center business. So what we have seen is the emergence of not only acceleration in terms of one of our businesses, high-performance computing under the data center business. But we've also seen the data center expand tremendously focused on artificial intelligence and new techniques to solve modern AI. We're seeing deep learning to be a primary focus, deep learning in the form of training overall data. So one of our key underlining businesses is overall training. Training started with our overall high-performance computing cloud service providers using it for internal applications and that still remains a very significant part of our business. Additionally, over the last 24 months, you've seen the overall growth in terms of cloud instances. This is giving the opportunity for many of our AI researchers, our start-ups, our enterprises to get quick access to the ability to do AI without self-building overall infrastructures. So you've seen the overall cloud, a second business, also grow quite nicely. So with the 3 of them thinking of training, our overall cloud and high-performance computing, those are the majority of what we have in our data center business. But we have other emerging types of businesses within there as well. The fourth one, thinking about our inferencing business. Inferencing is looking at AI from an incremental data perspective and the ability to use an overall GPU in both scenarios as well after you've already trained that data. Still in the early stages. But a very large market in front of us. Then the fifth one is thinking about the AI on the edge, AI for industry that could also continue to grow. Still in its early stages, it started mostly with cloud service providers. But we also see that as a very large business.

Q - Joseph Lawrence Moore {BIO 17644779 <GO>}

Okay. Great. Then the deep learning piece is the part that, I guess, has really captured a lot of people's imagination, including us and your developers conference is coming up later this month, have actually been the last couple of those and just seen track after track of different industries reporting on all the things they're doing with deep learning. It's pretty fascinating. How do you, when you're at the beginning of something like this, how do you think about that growth opportunity? How do you predict it from quarter-to-quarter, from year-to-year? It just seems like it's kind of growing everywhere. But obviously we have to put a number around it. How are you guys thinking about forecasting that business?

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

Yes. So it's really interesting when you attend our GPU developer conference that we've had. GTC is later in March. What it is, is it's bringing together all of the different developers that now stand more than 700,000 developers worldwide and giving them the opportunity both to see what is happening in the field of AI, in the field of data center or just the field of in terms of accelerated computing. We can't always see every single opportunity that is out there. But the overall putting it in the hands of AI researchers, a platform that allows them to see a lot of different opportunities for these GPU really brings us all together in terms of in the conference. You'll see all different types of industries being represented. You'll see all cloud service providers being represented as well as all different types of enterprises there in terms of attendance. When you think about our data center business, it's not about us crafting specifically how the GPU will be used. But allowing an underlying platform that can serve the masses. So the masses of any type of development that will be out there and allowing them both the ability to both use it on-premise, about the ability to put it in terms of any cloud or use it in terms of any OEM that's out there. What is particularly a focus of us is focused on the platform, focused in terms of the software, focused in terms of the frameworks that are necessary to do this AI and keeping that all completely together. Our overall business and the overall growth is really an add-up one by one of all of the different projects that are occurring. It is not a scope of a top down at this time and to move an overall TAM because I think we're still in the very early stages of AI. It'll probably be with us for decades going on in the future. So our focus is to keep current with all of the initial changes that we see in the industry, which is enormous. Every single day, those frameworks continue to change. New developments come forth. And we've got loads of engineers and software talent that is focusing on improving the overall capabilities of AI using the overall GPU platform.

Q - Joseph Lawrence Moore {BIO 17644779 <GO>}

And I guess, on that note, I mean, maybe we could talk a little bit about emerging competition from your own cloud customers who have developed, at least one that we know of, has developed their own custom silicon and press stories about a second. What are the benefits of that approach for somebody running these larger homogeneous workloads? And what are the limitations of that approach in terms of getting broader usage?

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

Yes. I mean, it's really kind of going back to that overall strategy. Our strategy is really to serve the masses, to really allow and excite any type of AI developer out there, the access to the latest of tools, the latest framework without limitations in terms of a certain cloud and/or certain framework because we're not exactly sure -- any of us -- in terms of the direction that this will move. We'll keep an overall platform that's synonymous across all of our different GPUs, together with an overall CUDA development platform that is used by hundreds and thousands of different developers and keeping that as current as possible. That's going to be our first scope in terms of the overall vision that we see moving forward. Sure, there's an opportunity and possible area where people will create very specific chips, very specific chips for both certain clouds, certain frameworks. And again, a piece of hardware, not necessarily thinking about the full dynamics of the software needs that is going to be necessary to do this AI as well. Those may serve them well in those cases. But the overall purpose of ours is a platform overall.

Q - Joseph Lawrence Moore {BIO 17644779 <GO>}

Yes. I mean, it seems clear that you're going to be in a strong position regardless. But I guess, is that the competition that we should be most focused on? Or should we think about -- obviously Intel is going to -- has multiple product families to come back at you with -- other GPU vendors, AMD will be participating. Is that ASIC really the top of mind consideration? Or are you guys just sort of focused on optimizing NVIDIA silicon.

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

The reality is we're not exactly seeing much in terms of anything from any of those competition. Each one of them is either both in store in terms of development mode and also really looking at their overall ability to serve the market with the overall software needs and the overall development language. It's just really challenging for a lot of them. AI researchers want to go where the masses are, where are the masses developing and they'll stick with that overall group. So we'll see. We'll see in terms of whether or not those developments move through. In the meantime, we're busy at work considering all the different changes that are happening in the environment every day and revising where we are. We're not sitting still. We're continuing, as you know, to build products every day.

Q - Joseph Lawrence Moore {BIO 17644779 <GO>}

Yes. Okay. Great. Then you mentioned inference. The use of sort of specialized silicon for inference is still pretty new, like most of this is done in the cloud, on CPUs. But even Intel has been very clear that they see this migrating to specialty silicon. I guess, it was initially not intuitive to me that the same chip is good for both training and inference. One is very sensitive to different type of computing than the other. But you guys have made such good strides on software, TensorRT 3. As we talk to your customers, it seems like there's a real opportunity. So how should we measure you on inference? In software, it seems like a lot of your wins are sort as a service types of wins that are visible. But where will you see it first deployed? And where will we externally be able to see to measure your progress?

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

Sure. Within our data center business, you are correct. Inferencing in the past has primarily been focused in terms of on a CPU. And we do know that it has different characteristics in terms of what you will do for overall training of new data. A different form of precision is often necessary in terms of the overall inferencing and it's really about the images per second that can do it -- be done with the overall GPU at that time. So what we're seeing right now is there is a lot of benefit that they're seeing in terms of leveraging the GPU that they have been training for -- a lot of the high-end inferencing that we're going to see going forward. Not the simplistic type of inferencing at an overall individual device. But thinking about the autonomous machines, particularly when you think about automotive as well as other high-end types of inferencing that will take place. There is a real world benefit in terms of the success that we're having right now both with our TensorRT, which is really focused in terms of our inferencing software as well as our different overall GPUs there. Still in terms of the early stages of that. But you will probably see a lot of it take place in a lot of our cloud instances as well as with our overall cloud service providers using it for internal labs.

Q - Joseph Lawrence Moore {BIO 17644779 <GO>}

Okay. Great. Then the other segment that you'd mentioned was high-performance compute. And you gave us numbers from time to time that really surprise me in terms of the underlying growth that we're seeing in that part of the business because it's not intuitive maybe. And we don't see systems growing at the same rate. So there's obviously a GPU-specific element to that growth. Can you just talk about why that is? Why that's -- that part of the market has accelerated?

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

Sure. I think the underlying reason really focuses on the Moore's Law, Moore's Law slow down and the understanding of what that means in terms of these large supercomputers that are being built around the world is the need to really focus in a form of acceleration, a part of the business that we've been in for more than 10 to 12 years. But now the urgency of improving overall performance is absolutely necessary now. But there's also an ability to merge what we're seeing in terms of the AI as well as what we're also seeing in terms of supercomputing. You can actually do both of those things together with these high-performance computing. So the design wins are long-standing. We continue to move in terms of accelerating all of the top applications that are out there. And you're seeing a larger percentage of all the new supercomputers that are coming onboard using overall GPU acceleration in terms of those. All of these fundamental reasons is why we're seeing such an increased overall growth in terms of high-performance computing. It can be, in some cases, sometimes growing as fast as the overall data center business as a whole.

Q - Joseph Lawrence Moore {BIO 17644779 <GO>}

Okay. Great. Then just a final HPC cloud question. I mean, how do you run a business that's growing this quickly from a CFO's perspective? How predictable is it? Did you know you were going to grow triple digits again last year when the year began, I

guess? And how do you think about things like headcount? Like how do you grow as fast as this business sort of justifies from a resourcing perspective?

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

To say that we have any form of ability to look all the way out there multiple years and overall forecast the business is not necessarily a perfect science by any means. What we do is we look at, though, how large the overall TAMs are that we're addressing. We know that these are large TAMs. We also know that these are extremely hard and difficult TAMs to track and also solve with the overall products that we're doing. So we stay focused on that. We're quite agile in terms of how we think about overall investment. We think every day how do we think through in terms of where the next area that we should be growing. And so the best that we can do is to assure that we have these engineers well focused in terms of the large TAMs that we have in front of us, focused in terms of building the overall software and really establishing the overall infrastructure that they need to do their overall jobs. But it's not a one-for-one in terms of revenue growth here, investment. We will think that through extremely carefully. But right now we just know that these TAMs are large in front of us for investment.

Q - Joseph Lawrence Moore {BIO 17644779 <GO>}

Yes. I mean, it really is just remarkable how quickly that business has evolved. So maybe shifting over to cars a little bit. CES was -- has turned into more of an automotive trade show at this point. You guys had a lot of developments there. Obviously, the number of customers that you've announced is fairly impressive. Can you just give us a little bit of an overview of that opportunity and then maybe talk about where we are today? I mean, obviously, your core revenue base is not really growing until you get to the point where you start to deploy this also. Let's talk through a little about that opportunity.

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

Yes. So it's been several years now focused on self-driving cars, autonomous vehicles of the future. Every single year, we become more entrenched in terms of the industry, understanding how it's going to evolve from a Level 2, Level 3 all the way up to a Level 5 going forward. CES was a great opportunity for us to both showcase our latest overall platform focused on Xavier and its availability for customers' overall sampling. Xavier is probably the highest performance chip that we have completed from an SOC for this underlying platform. It allows people to begin working and thinking about this platform inside cars in the future. So they're able to sample it today. We're probably more than two years ahead of any other competition focused on a platform of this kind. What has been a focus over the last couple of years is an understanding that self-driving cars is an AI problem. The amount of compute, the amount of data that needs to be processed from so many different parts outside of that car, whether that'd be cameras, sensors, LiDAR, radar, is enormous. The overall processing capability that needs to occur in the car is huge. What you've also seen is in terms of a bifurcation to say this is not necessarily just about high-end premium types of cars that we've seen in the past and the overall infotainment system. This is really changing the overall transportation industry as a whole as we think about transportation as a service, as we think about overall trucking, as we think of overall

passenger cars in Level 2. At the same time that we may see the features and the needs for a self-driving features in terms of passenger cars at Level 2, high-end Level 2, Level 3 we may also see in terms of robo-taxis, shuttles that allow us in a small, confined community area for there to be overall self-driving. So our partnerships that we have, broad and wide, probably more than 320 different partnerships with both OEMs, Tier 1s and many of the start-ups that are focused and their adoption of the overall platform has grown quite tremendously over the last couple of years. There were a lot of the pieces of the announcements that we have discussed in terms of CES. As we move forward, you're going to see us continue in terms of working with these manufacturers on the development work ahead of the overall production. So you'll see infotainment systems still be a majority of our overall revenue that we have in terms of our automotive business, working in terms of the development work with the OEMs then for the future overall platforms as we go forward. These platforms will be enriched with the overall software that will likely be codeveloped between us and the overall manufacturers. But the important part of them is they will be AI-enabled. And they will likely be a significant increase in terms of overall price that we're seeing in terms of infotainment systems.

Q - Joseph Lawrence Moore {BIO 17644779 <GO>}

And how should we think about the price of those systems when once we get to production vehicles? And will you sell silicon? Will you sell software? Will you sell compute systems? Like how are you going to approach that? And how should we think about that relative to you're in production of vehicles today in places like Tesla, is that opportunity bigger once you sort of get to large scale?

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

So it's very similar to what we have today with most of our businesses, whether that be gaming, whether that be data center. It's a significant amount of software that is enabled with each piece of our hardware that we are putting in the market. We built that together. We built that together, the software and hardware, jointly together that provides that increased value in terms of what we receive. It's all put together. It allows us the overall gross margins that we have because that key investment is in terms of our overall OpEx. So when we think about price points, it's still super, super early to determine, substantially increased from probably what we're seeing in terms of the infotainment systems. The infotainment systems are a broad and wide market and have probably reached their overall maximum that we're seeing in terms of overall price. Those may move in terms of AI-enabled types of infotainment where you have AI within the car in terms of voice recognition, facial recognition. But as we've seen moving forward, overall doubling ASPs and then some as we go forward is likely to happen in terms of the overall autonomous platforms.

Q - Joseph Lawrence Moore {BIO 17644779 <GO>}

That's helpful. Let me pause now and see if we have questions from the audience. If not, I'll go into some of the financial. We have a mic somewhere. Yes.

Q - Unidentified Participant

If we look at gaming, I think the point was made earlier by Brian and more and more that is done online and he said basically the 2 playing mechanisms would be the PC where you have great representation. But also consoles. And I think your penetration in the console market, maybe I'm wrong that's why I'm asking the question, has been so far pretty much limited to the Switch. Do you have any prospects with the other major console devices? And if not, why not?

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

Yes. So the question stems in terms of, yes, playing games from a mobile standpoint has been associated with the overall GPUs and the GPUs within the PC. So there's also a key market in terms of consoles on consoles for playing games. (Are we are)? Yes, correctly in terms of the Nintendo Switch. The Nintendo Switch has been a tremendously successful console. It is the best-selling console in the U.S. industry that we've seen. But I think the important part of that console decision that we made was about a partnership that we had made with Nintendo, a partnership that we could both overall benefit from the overall console market. When we think about being a part of a console or being part of a different platform, it takes resources, resources dedicated to Nintendo, dedicated to the overall success of that product. We have to think about using that dedicated workforce and whether or not that would benefit us as a whole or whether or not there are other things that we could overall use that workforce to do. We're very pleased that it was very successful because we were able to work with Nintendo both that we can overall win from there. In the future, there's nothing to say that we may not partake in terms of other consoles. But we will still think about that in those parameters in terms of is that beneficial for us in terms of using specific reserve resources for those overall businesses. Makes sense?

Q - Joseph Lawrence Moore {BIO 17644779 <GO>}

Why is it that economically PCs are so much better of a business? I mean, a high-end gaming card costs multiples of what an entire console costs. We know what those chips go for in a console, they're relatively low ASPs. Is it just because of the life cycle of the console being lengthier that you're selling older GPUs by the end of that life cycle? Or just why are there not the same rich economic opportunity that PCs are? And can we see the evolutionary nature of these consoles where they're doing this sort every 2-year upgrades, keep them closer to the cutting edge?

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

Yes. So what you have in terms of the console business is it's static over that overall life. And so what happens is you're working towards the overall masses. There's other different components that are associated with that overall console that have to get together to make the overall console. The PC market allows the ability for whatever type of gamer you are, you can define the level of performance, the level of high-end types of gaming that you want to do based on the GPU that you choose. We've even seen now a shortening often of that console life cycle because the overall PC market continues to influence with its constant upgrades, both influencing better games in terms of what is overall being built -- the overall upgrade of that -- we continue to evolve the overall innovation in terms of gaming. That, therefore, leads to higher price points because there's just so much innovation that it's

incorporated in terms of those higher end and the overall realistic view of the types of graphics that are coming out of our high-end graphics.

Q - Joseph Lawrence Moore {BIO 17644779 <GO>}

We have time for one more question from the audience, if there is one. There in the front.

Q - Unidentified Participant

Could you just talk a little bit about capital allocation, the dividend buybacks, how you're looking at reinvesting in the business, if there's a formula or something of that sort. And if you can rank order it?

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

The capital returns, the overall focus in terms of investment. So when you think about how we approach in terms of our overall investment portfolio or how we think about our overall cash that we have, the #1 thing that we are going to do is investing in the business. That investment in the business usually stems from overall OpEx. The overall hiring is probably the most key thing that we overall invest in. We need to make sure that we have the overall infrastructure available for the overall engineers through the overall facilities that they may need or keep in mind many of them are actually working on supercomputers more than they're working on simple overall laptops. So that is key in terms of our #1 focus to address the market going forward. Additionally, from time to time, we'll work in terms of our hiring in group. Sometimes, we'll pick up small teams through overall acquisitions. But that has never been really a large particular amount of our overall investment. I'm not saying that it wouldn't be in the future. But we intend to find most of it from overall organic growth and an overall investment. That allows us to then still focus in terms of our capital return program for investors. We do this both with a combination of repurchasing our overall shares as well as our dividend that has been with us for many, many years. So those are our overall uses of our cash, our uses and focus in terms of our overall investments as we go forward.

Q - Joseph Lawrence Moore {BIO 17644779 <GO>}

With that, I think we've just ran of -- we'll just go ahead and wrap it up there. Colette, thank you very much for your time.

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

Thank you.