# Deutsche Bank Technology Conference

## Company Participants

- Colette Kress, EVP and CFO
- Ross Seymore, Analyst

## Other Participants

- Unidentified Participant, Analyst, Unknown

## Presentation

### Ross Seymore {BIO 20902787 <GO>}

All right, let's get started with the next presentation -- or fireside chat, in this case. We are very honored to have NVIDIA on stage. And specifically Colette Kress, the CFO of the Company.

So Colette, let's start off at a high level. NVIDIA has grown amazingly well over the last couple years. Talk a little bit about the gaming side of that and what's driven the growth of a market -- admittedly, you didn't break it out as gaming, say, four or five years ago. But overall, that market growth has seemed to accelerate up to the mid-30s in the last couple years. What do you really believe is behind that acceleration in growth?

### Colette Kress {BIO 18297352 <GO>}

Ross, let me first start the room with a little bit of where we sit in terms of our four businesses. Then really what kind of took place over the last three or four years to where we have in terms of this position.

We about four or five years ago went through a transformation to focus on four very specific specialized markets that we thought would be effective for us to use our overall GPU architecture to. And we carefully picked out those four markets.

Those four markets include gaming, pro visualization, data center. And automotive. Each one of them is leveraging the exact same underlying architecture -- or essentially, the GPU is the key piece of technology basis underneath those. But we approached it in a platform position where we are using a development platform, the overall ecosystem around all of these platforms, to better seed our overall products into market.

So a different approach to where probably four or five years ago when we were more focused on a platform -- a PC platform, a server platform and being a component -- we've actually approached it as being an overall platform at this time.

Let me kind of dialogue in terms of gaming and what we've seen over this period of time. The gaming market is still a tremendously vibrant form of entertainment. It's moved to essentially be almost a social platform at the same time.

Our ability to address the overall gamers is really by providing one of the best underlying platforms for PC gaming. We have tremendous expertise in terms of the graphics ability. We have a surround type of view in terms of working with the overall ecosystem, working with software developers on overall future games, as well as keeping a very strong connection with the overall gamers that are in the market.

The overall gaming market has expanded tremendously because of the great games that are coming out. The higher production value games, those that need higher higher-end graphics or those that are essentially strategic multiplayer, have leveraged our high-end types of graphic cards for that. So we seem to have a large market share of this market. More than 70% of all PC gamers leverage our overall platform as we see.

We believe the market is extremely healthy. We'll see this continue to expand as higher production value games come to market, as broad-brand access across the world continues to expand to areas where it wasn't available before. And we see new types of next-generation gaming come forth, such as virtual reality.

So we feel very good and very well positioned with our graphic cards that are in market. We are currently selling our Pascal architecture and came out just several months ago with that new architecture. You've seen us launch Pascal 1060, 1070, 1080 as well as the TITAN X. Each one of them having a tremendous performance improvement from our last generation. So we are -- we've been doing very well, as the world has really accepted these graphic cards. And it's going quite well.

## Ross Seymore {BIO 20902787 <GO>}

You mentioned about having over 70% of the gaming side of the market. The third-party researchers talk about unit market share and mainstream, where you've actually lost some share. But when I look at your financials that you report and look at the gaming business, it doesn't seem apparent whatsoever. It seems like quite the opposite is occurring. Discuss a little bit of that dichotomy and how both are possible simultaneously.

## Colette Kress {BIO 18297352 <GO>}

Sure. So the market statistics that are out there, when they look at an overall unit of discrete GPUs, what they are looking at is the entire spectrum of discrete GPUs as it relates to overall PC shipments.

So we do continue to play in overall mainstream type of PCs, PCs that you use for general-purpose enterprise use or general-purpose consumer. And that is a significant amount of units. But they are not necessarily high price points. Those price points are usually in the high-double digits in the $20 or less in terms of an overall price point. So we are really concentrating in terms of on that gaming piece.

So we'll look at the economics in terms of those different pieces. But our overall share in total for gaming continues to remain very high, at the 70%. And what sometimes you see in terms of those differences, in terms of shares of units, is overall timing as well.

As you recall, we came out with the overall Pascal architecture towards the very end of our Q2 as we transitioned from our previous architecture of Maxwell. So you are seeing that a little bit in the share as well.

## Ross Seymore {BIO 20902787 <GO>}

So talk a little bit about the ASP side of the equation, the idea behind the Founders Edition. And how that's been received.

## Colette Kress {BIO 18297352 <GO>}

Yes. So with this generation with Pascal, we elected to actually provide a Founders Edition for many of these different gaming cards. The Founders edition was our ability to reach the enthusiastic gamers that wanted something specifically branded NVIDIA. And knowing that NVIDIA would probably surround it with very high-end components around the overall chipsets in that piece, too.

It was essentially to get to market extremely fast and meet the overall demand of those enthusiastic gamers. It's a very small percentage of our overall population of cards that we seeded the market during that time. But it served a great purpose of a very well use of our brand and giving them a very high-end overall gaming card.

## Ross Seymore {BIO 20902787 <GO>}

Part of having that high end is the high margins that come along with it. For many, many years, the graphics market in its entirety was kind of viewed as having a poor handle on the gross margin it could deliver. Obviously that's no longer the case, at least not for you at NVIDIA.

What has really changed to allow the gross margin of your business to rise so substantially, excluding of course the Intel royalty side?

## Colette Kress {BIO 18297352 <GO>}

Sure. The gross margin is really about the value that we are delivering to gamers. It's not about just providing them a great chip -- it is about the overall ecosystem, the

connection that we have with each of those gamers.

We have GameWorks, which is working with our overall software developers on many key features that they are going to want to put in their games going forward, such that we've been working for many years with any future game that will overall hit this market.

Additionally, working specifically with the overall gamers, connecting with them with GeForce Experience, gives them the ability to be with the overall community, instantaneously get the drivers and updates that they need to play their overall favorite games. So there's a tremendous additional amount of value added on top of the overall chip.

You've also seen gamers continue to move towards higher and higher-end GPUs. Over the years, we have provided a platform for essentially any type of gamer that would come out there. If you wanted to play a game and had $100, we had a card for you. Or if you are interested in some of our highest-end cards, we also have a $1,000 card for you.

So the overall thing that we are putting together is a performance-based, a value-based overall platform for them, which has also enabled us to produce some great margins along that way.

## Ross Seymore {BIO 20902787 <GO>}

Before I start with this one, as again a reminder for the crowd, if you do have questions, just raise your hand. We'll get the mic to you. What about sticking within the graphics side or the gaming side. Virtual reality. Obviously big buzzword.

Do you view it as something that is game changing for NVIDIA or just kind of the next evolution of where gaming is going? And it can be very, very good. But more of an iterative change or more revolutionary?

## Colette Kress {BIO 18297352 <GO>}

Yes. So when we think about virtual reality, I think it's an important piece of the future, not just for gaming. But when we think about a lot of the overall graphics universe. And we can think about that as we relate to enterprise applications and the work that they do in terms of building products and building buildings and what that will be like, leveraging virtual reality.

Virtual reality has now met its match in terms of the underlying technology to make it real. We are seeing a tremendous amount of interest in terms of the overall content that will be built as well. So our overall goal is to make sure that each and every one of our platforms as best as we can can allow virtual reality to take place in the overall gaming world.

It is something in terms of an ongoing bonus I think for the overall gaming universe rather than today, every single gamer is buying for VR. But it extends their overall life in terms of that gaming platform, as we believe virtual reality will become a significant portion of gaming as we go forward.

## Ross Seymore {BIO 20902787 <GO>}

Do you think it will be something that draws people up the stack into higher-priced items? Because you guys come in from the top and seem to bring things top-down. Your competition seems to be trying to come from bottoms up. But everybody is saying all of those are VR-enabled.

So is it going to from your perspective make people trade up the stack? Is it going to increase the frequency of them replacing their GPUs? How do you think that folds in?

## Colette Kress {BIO 18297352 <GO>}

I think it's a case of a gamer going to market. They are excited about the new platform. They are excited about Pascal and the opportunity for the new games that will be available probably during the holiday season.

Being eligible, available to be also leveraged for virtual reality is just another plus. It's another thing on their list in terms of the justification of an upgrade for a graphics card. It's too early for us to say if we believe that is their sole reason why they may go to market. But we do think it's another reason for an overall upgrade at this time.

Again, our approach is really allowing as much VR on every single one of our platforms because we want to make sure it's available for the gamers as we go forth. And so that's our overall position as we go forward.

## Ross Seymore {BIO 20902787 <GO>}

Just a couple more on the gaming side of things. With that launch of Pascal, how should investors think about the channel fill associated with that? Your guidance sequentially was very, very strong and in your -- I guess it's the Third Quarter, up 17%, 18% sequentially. How much of that is channel fill? How does that dynamic play into some sort of seasonality?

## Colette Kress {BIO 18297352 <GO>}

Yes. So during our Q2 when we were working through the transition of Maxwell to Pascal, it moved actually quite smoothly. Our job was to make sure our gamers were pleased, our channel partners were pleased. And we executed as best as we could. And you saw that. You saw nearly flawless execution as we made that transition.

So we work on making sure the channel has the right availability of the product based on the overall demand that we see. Given our market position, we do have a

good ability to see over the overall demand and making sure that we can provide the channel with the right amount. And that's what I think you see.

As we move into the second half of the year, essentially seasonality-wise, most of the holiday season will take place in the second half of the year. So our job is to make sure we have enough inventory, have enough product for that overall demand.

There were a couple times during our launch of Pascal that some ZIP Codes around the world didn't have the exact product that we needed. And that really was just filling that demand and the strong demand that we saw for the overall Pascal architecture.

### Ross Seymore {BIO 20902787 <GO>}

It looks like we have a question in the back.

## Questions And Answers

### Q - Unidentified Participant

You said one of your areas of focus was automotives. And do you feel that are you behind it from the competition, like a Mobileye or something?

### A - Colette Kress {BIO 18297352 <GO>}

The question was regarding our automotive business and how do we feel we are positioned against some of the other players in the automotive? Automotive is a very busy place right now. There's a tremendous amount of focus on autonomous driving and really working in terms of the overall solutions of there.

Back at CES in January, we announced our DRIVE PX platform. Our DRIVE PX platform, the important part of it, was a approach to autonomous driving that was essentially very similar to our approach in terms of the data center. Using deep learning frameworks, a centralized supercomputer focus in order to write the overall algorithms that will be necessary for self-driving cars going forward. A different approach than actually growing from ADAS into autonomous driving.

So even a week ago, two weeks ago, we had discussed our overall partnership with Baidu. And why that was an important partnership for us is Baidu, as you know, is also a big partner for us in the data center and in deep learning on many of their workloads that they are using in the data center.

As we approach the overall autonomous driving arena, we look at it in the same manner. We look at it as a data center type of problem. They are very familiar with the overall capabilities of the GPUs. And we are working together on future algorithms for self-driving cars in that case. So a very, very important partnership to us.

Also, if you've been watching over the last couple days, in our GTC China event, we also announced some additions to our DRIVE PX platform. We launched two different ones. As you recall, back at CES, we indicated that our platform was scalable.

The scalable meant that it can move to any type of overall performance level that would be necessary for the level of autonomous driving. So we've announced AutoCruise and AutoChauffeur. AutoCruise for highways. AutoChauffeur for point-to-point or exactly shuttling in that manner.

The overall size can be scalable to something that's just about 10 watts that could be inside of the car. We've spoken about having one of our platforms in a car within the next year. We're on track to that. So stay tuned to that.

There's a lot of different types of approaches out there in the market. However, our DRIVE PX platform has been well endorsed by the more than 80 different engagements that we have across the world with OEM manufacturers, Tier 1s as well, as startups that are using our platform to work in terms of their autonomous driving. So I think we are in a tremendously great position with a very, very vast market of those speedily working to get autonomous driving to market.

## A - Ross Seymore {BIO 20902787 <GO>}

Looks like another question the back.

## Q - Unidentified Participant

Colette, you guys recently announced the 1060, 1070. And 1084 for the mobile market. And it looks like from the specs, the differential versus the desktop counterparts is about -- it's much narrower than it's ever been.

Can you talk about that and how much of the thermal challenge to put into a laptop that is not a bowling ball kind of weight? Have you solved? And generally what you see as the laptop market with these new products?

## A - Colette Kress {BIO 18297352 <GO>}

Yes. Thanks for the question. The question was really about our mobile or essentially our notebook offerings. The very similar offerings that we have for the desktop we are enabling in the overall notebook. A tremendous opportunity for that mobile experience. Essentially, I want to mobile gaming anywhere I go and do the exact same type of games that I have in terms of the overall desktop.

So we have worked keenly with many of the OEM suppliers of those notebooks and being very, very well received of these higher-end graphic cards for overall very specific gaming types of infrastructure. You see many of these OEMs putting out very specific platforms to take a hold of this gaming market. And it's probably one of our fastest-growing parts of our overall gaming is the overall mobile notebook.

So really addressing the need for the right performance and the right power efficiency, as that has also been our focus. We do believe that these cards will be -- continue to be well received for the overall mobile market.

## A - Ross Seymore {BIO 20902787 <GO>}

Any other questions from the audience right now? Keep them coming. Just raise your hand and I'll call on you. If we go back to the automotive side, the prior question, it's about 8% of sales now. The vast, vast majority of that revenue today is infotainment-related, I believe.

How do you see that transitioning? What are the implications for the revenue growth side of things and the margin growth side of things as that transitions from infotainment to autonomous driving?

## A - Colette Kress {BIO 18297352 <GO>}

Sure. Most of our revenue today -- lion's share of our revenue right now we receive from our infotainment systems. Our focus has been on premium car manufacturers, premium infotainment systems, whether they be the center console or whether they are the digital dashboards. We see this moving forward as a place where the focus on digital dashboards or cases where it essentially looks like your overall smartphone in terms of a screen and a user interface will be where we will concentrate.

We still have quite a bit of a pipeline for the overall infotainment systems as we move forward. But our long-term strategic approach is really on autonomous driving, which essentially is a different piece, where we are focusing on supercomputing inside and central computing with the overall car manufacturers.

So what we probably will see over that transition is we'll continue to work on development service agreements as we focus on autonomous driving. We will start to see that with platforms inside the car. And we will eventually move in terms of overall that transition.

Our infotainment systems that we have have been largely focused on either our Tegra chips that we've had for several generations or have moved to overall modules and platform for those overall infotainment systems. Their overall price points on average have been around the $50 to $100 and have been around what we see in terms of our overall Tegra overall gross margins.

As we move forward and we think about the additional value that we are delivering through this development platform and working on the instruction sets necessary for autonomous driving, we do believe both the overall ASP will appreciate that overall value that we'd also be able to move in terms of higher gross margins.

## A - Ross Seymore {BIO 20902787 <GO>}

One question on that content side of things. We've talked to different companies that attack autonomous driving in a multitude of ways. But our work along with our automotive team's work talked about $4,000 or $5,000 of incremental content for a vehicle to be truly autonomous.

When you look at that, obviously there's huge dollar amounts. And like you said, the margins can be very good for yourself entering that market. But who do you think pays the incremental $4,000 or $5,000? If the average vehicle is $30,000, on a $100,000 car, obviously it can be absorbed relatively easily.

But only $30,000 car, when people are multiplying out these units in ASPs, that's a big pop. So how do you think that flows through on the economic argument for autonomous driving?

## A - Colette Kress {BIO 18297352 <GO>}

Sure. I guess since I see the market and what we actually see now, it's very similar to any of the type of technology that is currently inside of the car. It's probably one of the biggest selling options that is available into the car.

Often in terms of infotainment systems are sold in terms of a package, an add-on package. In the premium cars, it's standard. It is expected in terms of those. But what it is is it's an opportunity to really align to what the consumer is overall needing. It doesn't surprise us that that kind of development and the sophistication of that development will essentially afford an expansion of what is necessary in technology in terms of the car.

So whether or not that is passed fully to the consumer, whether that is at the OEM, what I believe it is, an area where the consumers are very interested in. It's an area also where OEM manufacturers are very interested in, as it's in safety improvement. All want to think about the ability to provide additional safety as we go forward.

That price of safety I think is very difficult to coin and determine what that is, given the amount of lives that are lost every year. So I think looking at that in terms of the value that that is delivering, I think it is reasonable to assume throughout the entire system it will be absorbed.

## A - Ross Seymore {BIO 20902787 <GO>}

We have another question in the back and then a second one.

## Q - Unidentified Participant

You guys have done a great job with the Founders Edition launch. I'm just wondering: could you talk to the business strategy, the go-to-market strategy? Has that changed? How are you guys working with your traditional partners, like the MSIs and Gigabytes? And should we expect this for the new high-end launches going forward, where you are selling it direct to consumers?

## A - Colette Kress {BIO 18297352 <GO>}

If I understand the question, it is has anything changed in terms of our go-to-market at launch. The overall success, what have we seen. And how we work with the overall partners.

When you think about our business model, it actually has expended quite a bit over the last five years in terms of who we work with. In the past, our channel had been largely consumed of large OEMs, working with the OEMs to deliver the product and essentially them working with the overall end market in terms of getting that market there.

When we moved to gaming, we are essentially selling a gaming card one by one, gamer by gamer. We do have an overall partner network that is very aligned to our overall goals and is very well understood in terms of how to get our demand out there for the gamers to overall realize.

When you think of our other businesses, whether that be our data center business or our pro vis business, many times we are working very, very specifically with the end customer. The fulfillment is their choice. Whether or not they are working with an OEM, whether or not they are working with an ODM, or whether or not we are dropping it off on their doorstep on the way in. Any one of those types of scenarios may exist.

So our overall approach is as the biggest connection that we can with the end consumer, that both helps us build better products, that helps us build the demand that they need in fulfilling that as well. So I think that you've seen an evolution of us move in terms of that. And I think it's going to continue in that space going forward.

## A - Ross Seymore {BIO 20902787 <GO>}

Go ahead.

## Q - Unidentified Participant

Colette, can you just touch on your balance sheet, as you are in the market now with a new benchmark offering. Can you just touch how that aligns with your existing capital allocation plan?

And also on M&A, how do you think NVIDIA participates if at all from a consolidation perspective? Historically, it's been more small tuck-in acquisitions. Is there a desire to do anything larger scale, especially now that the stock has had such a phenomenal run and you've got a $32 billion market cap. Any -- to the extent that you'd be willing to engage in industry consolidation?

## A - Colette Kress {BIO 18297352 <GO>}

Sure. When we think about our overall allocation of cash and we think about our overall free cash flow in those pieces, of course our first order is to be assured we

have correctly funded the overall business. And that has been done continuously.

Our focus historically as a Company is we have relatively been quite organic in terms of our growth. We've continued to spend to these four different platforms that we have today just from our ability to elevate the engineering resources and all of the other resources in the Company towards those four different platforms.

Every once in a while, we'll think about a small acquisition of a bolt-on either technology or a small team size that we think will be effective. As we go forward, that probably strategy is continue. There's nothing necessarily wrong with a strategy that's worked in the past and thinking about that as we move forward.

So therefore, the rest of our overall free cash flow is ripe and needed in terms of what we can do in terms of the size of a capital return program. As you've seen us over the last three years, we've returned approximately 100% and in some years more than 100% of our free cash flow as we restarted that program. And it was our opportunity to return a significant amount of that to shareholders.

Over the lifetime of our overall program, we've probably returned more than 70% per se of our overall free cash flow. We think that's quite a very solid amount and it's something that we look at each year to determine in terms of the next year out.

We have solidified an overall dividend within our capital return program. We've continued over the years to continue to grow that dividend. So that will be a focus and that will be a key anchor in our capital return program.

As we look in terms of share repurchases, also something that we've done. We've been quite successful with our share repurchase program over the last three or four years. And you would probably expect that to be a piece of our program going forward.

## A - Ross Seymore {BIO 20902787 <GO>}

On that capital return side of things, how do you balance where the cash is actually located? I think in your last 10-Q, you talked a little bit about the -- it's a high-class problem to have. But the convertible note to the extent that gets redeemed and has to be paid back with US cash and some of the limitations or decisions that you have to make. How do you think about the jurisdiction of the cash flow?

## A - Colette Kress {BIO 18297352 <GO>}

Sure. To help everybody understand our position. So we have a $1.5 billion convertible note outstanding. As we had discussed in our 10-Q filing, given the strength in the overall stock price, that is a deep-in-the-money convertible.

What we had seen is the option where many of our convert holders have early converted to the tune of probably approximately one-third. A little bit less than them

have early converted. We are contractually obligated based on that to repay that principal amount in overall cash.

As we had discussed, we'll leave it in terms of options to think about whether or not to fund that overall cash is whether or not we repatriate cash, whether we go into the market and overall finance, or we use overall cash on hand to pay back that overall principle. All three of those are options.

When you think about our overall distribution of cash between the US and international, we still have a significant amount of our cash in international waters. But that is something that we have the options or several options in terms of how to be able to use that here back in the US.

## A - Ross Seymore {BIO 20902787 <GO>}

And the appreciation -- the premium above the principle, just talk a little bit about that. Because the $1.5 billion is the principal side of it. But the premium above it I think is upwards of almost 2X that amount. Talk a little bit about your exposure there or lack thereof.

## A - Colette Kress {BIO 18297352 <GO>}

Yes. So our premium position in terms of it trading in the money. At the time that they early convert or going forward, there is an option whether or not we repay that in cash, in shares, or in any other combination in terms of how the Company sees that going forward. Many of that is already taken account in terms of the overall share outstanding balance that we have from a dilutive perspective of that overall premium value.

## A - Ross Seymore {BIO 20902787 <GO>}

I guess the last topic in the last couple minutes we have here that we haven't touched on. But I think one that's a very exciting to investors is the data center side of things. That business -- you broke it out. And last year, it really didn't do that much. But in the last three quarters, it's exploded to the upside.

Talk a little bit about what's going on in that market. And you get asked this 50 different ways -- I'll just do it the obvious one. What do you think the eventual TAM of that market is?

## A - Colette Kress {BIO 18297352 <GO>}

Sure. Let me help everyone understand in terms of three components of our data center business. One of them is our existing long-standing high-performance computing business, where the leveraging and accelerated computing platform for many of the high-performance computing applications that we have out there.

Acceleration in high-performance computing continues to take a huge focus. Many of the top 500 supercomputers in the world are now using acceleration. And we represent probably about 75% or more of that overall acceleration market. So our

high-performance computing market continues to expand as the focus on acceleration gets larger.

Additionally, we have also a cloud offering. Our cloud offering essentially puts a GPU in a virtualized experience. A one-to-many type of form. That can be used for either compute in the cloud or it can be used in terms of any types of streaming events.

Streaming, where you are streaming the application, or essentially where you actually have your desktop or your workstation located in the cloud running the applications in the cloud. That has also been a very fast-growing business for us in this last Q2. It's more than doubled as the expansion and the availability of the GPUs in many of the public environments has continued to grow.

But that leads us to our third point, which is probably one of our largest opportunities within our data center. And that's our focus in terms of on deep learning. Deep learning frameworks as it helps in terms of artificial intelligence.

The GPU is uniquely positioned for this arena, as it focuses on very, very high on compute availability. But also overall performance to power efficiency is also very key. We have been working with many of the hyperscales around the globe, essentially all of them. And focusing on very key deep learning workloads. Things such as voice translation, image detection, video transcoding.

Very, very popular workloads, leveraging the deep learning frameworks. This is something that we've been talking about for several years: the focus on deep learning to aid in terms of anything in terms of artificial intelligence.

Just a couple days ago, we also launched two new cards in the data center. A focus not just on deep learning training. But on deep learning inferences in terms of overall improvement to other types of accelerators that can do this. Our new cards show a substantial overall improvement.

Now, when we think about the overall TAM and TAM size of this data center together, it's a very big opportunity if we think about all of the server workloads that could move to this. We could approach it from a tops-down view and say what type of penetration within every single server. Or really trying to focus on the individual workloads that we'll probably see in the data center that will move to using deep learning for artificial intelligence is probably a better way.

The only thing we can't see with perfect understanding is the speed in terms of what we will need. How many of them will apply it to their existing architectures? How many of them will apply it to only brand-new architectures. And new infrastructure that they may put in.

But we do see a vast and broad, not just with the hyperscales. But also moving into enterprises, enterprise focused on a significant amount of data that they have also

moving through their network are prime candidates and thoughts of using deep learning as well. So it's some -- probably we'd say from a TAM side is probably one of our largest opportunities as we move forward.

### A - Ross Seymore {BIO 20902787 <GO>}

Great. Colette, we are right on time. So thank you very much for coming.

### A - Colette Kress {BIO 18297352 <GO>}

All right. Thank you.