Company Name: AMD
Company Ticker: AMD US
Date: 2017-05-01
Event Description: Q1 2017 Earnings Call

Market Cap: 29,559.14
Current PX: 27.33
YTD Change($): +8.87
YTD Change(%): +48.050

Bloomberg Estimates - EPS
Current Quarter: 0.054
Current Year: 0.659
Bloomberg Estimates - Sales
Current Quarter: 1256.958
Current Year: 6821.103

Q1 2017 Earnings Call

Company Participants

- Laura Graves
- Lisa T. Su
- Devinder Kumar

Other Participants

- Matthew D. Ramsay
- Ross C. Seymore
- Mark Lipacis
- David M. Wong
- Stacy Aaron Rasgon
- Ambrish Srivastava
- Hans C. Mosesmann
- John William Pitzer
- Vivek Arya
- Blayne Curtis
- Joseph L. Moore
- Christopher Rolland

MANAGEMENT DISCUSSION SECTION

Laura Graves

GAAP and Non-GAAP Financial Measures

Additionally, please note that we will be referring to non-GAAP financials during this call, except for revenue and segment operating income or loss, which is on a GAAP basis

The non-GAAP financial measures referenced are reconciled to their most directly comparable GAAP financial measures in the press release and CFO Commentary posted on our website at quarterlyearnings.amd.com

Lisa T. Su

Business Highlights

Revenue, Gross Margin and New Products

- First quarter revenue increased 18% from a year ago to $984mm based on growth across both of our business segments
- Gross margin also improved driven largely by the success of our recently launched Ryzen CPUs

- I am pleased with our first quarter product execution and improved y-over-y financial results, which demonstrate the revenue growth and gross margin expansion potential with our strong set of new products

Computing and Graphics Segment

Revenue Growth and Demand

- Looking at our Computing and Graphics segment
- We delivered our fourth straight quarter of double-digit percentage year-on-year revenue growth
- Strong demand for Ryzen CPUs and improved GPU sales resulted in CG revenue increasing 29% from the year ago period
- CG revenue declined 1% sequentially, which was better than normal seasonality, as significant growth in desktop processor sales driven by the first month of Ryzen CPU sales largely offset seasonal declines in GPU and notebook APU sales
- Solid demand for our family of premium Ryzen 7 processors, including our flagship Ryzen 7 1800X offering, which is the industry's highest performance 8-core CPU drove our highest desktop processor revenue in more than two years

Value Proposition

- Ryzen CPUs have been consistently ranked among the top-selling processors at global etailers and retailers, and press reviews and end-user sentiments have highlighted the strong performance and value proposition
- In early April, we launched our enthusiast-class Ryzen 5 processors and received overwhelmingly positive reviews that demonstrate our multi-threaded leadership and unmatched value proposition

Ryzen CPU Partner Ecosystem

- The Ryzen CPU partner ecosystem also continues to strengthen
- We have seated more than 300 software developers to support their work optimizing for Ryzen CPUs and have already seen double-digit performance gains across a number of top-tier gaming titles

OEM Gaming Desktops and New Radeon RX 500 GPUs

- Last week, the first Ryzen-based OEM gaming desktops were announced, and we continue the rapid rollout of Ryzen-powered systems with additional launches planned for major OEMs later this quarter
- In Graphics, GPU sales increased by a strong double-digit percentage from a year ago based on growth across all of our product lines
- The ramp of Polaris-based notebook design wins drove increased mobile GPU sales, while our desktop growth was led by improved channel sales
- In early Q2, we launched four new Radeon RX 500 GPUs, featuring our Polaris architecture that deliver improved performance
  - These new mainstream GPUs provide a compelling solution for the millions of gamers looking to upgrade their PCs to support advanced display technologies and deliver optimal gaming experiences

- We also saw higher professional graphics revenue from a year ago, driven by expanding channel sales and growing data center wins as we continue to increase our GPU compute footprint with leading cloud service providers

Next-Generation Radeon Vega Family

- We remain on track to launch the first products from our next-generation Radeon Vega family later this quarter
- Vega is a forward-looking architecture that combines a revolutionary memory subsystem, next-generation compute engine, advanced pixel engine and new geometry pipeline to dramatically improve performance and energy efficiency for the next generation of GPU workloads
- Customer excitement is building as we focus on bringing significant competition to the high-end GPU space across the PC gaming, professional design and GPU compute markets

Enterprise, Embedded and Semi-Custom Segment

- Turning to our Enterprise, Embedded and Semi-Custom segment
- Revenue increased 5% from a year ago driven by the latest game console offerings from Sony and Microsoft and our third straight quarter delivering year-on-year embedded revenue growth
- We see solid demand for our latest FinFET based semi-custom offerings in 2017, including the planned holiday launch of Microsoft's 4K-focused Project Scorpio console featuring a new AMD SoC

Data Center

Naples Server CPU

- On the data center front, in March we demonstrated that our upcoming Naples server CPU would offer more cores, I/O, and memory bandwidth when compared to the highest-end dual socket x86 server CPUs currently available, resulting in better performance across multiple workloads
- Naples platform development work continued to accelerate in the quarter
- We are in the final stages of preparation in advance of launch and are very pleased with the status of our silicon and customer engagements
- We have now seated thousands of Naples processors across an extensive set of OEMs, end users and partners, and remain on track for our first Naples products to launch this quarter

Closing Remarks

In closing, we started 2017 delivering significant year-on-year revenue growth and margin expansion based on solid product execution and strong market and customer reception to our new leadership products

Our focus in 2017 remains on launching our Naples server CPU with broad customer, partner and ecosystem support

Naples is the first step in our long-term plan to:

- Deliver a leadership data center product roadmap
- Complementing the success of our mainstream Polaris-based GPUs with our high-end Vega GPUs

- Extending our Zen core into the mainstream desktop and premium notebook markets with the launches of our Ryzen 3 CPUs and Ryzen mobile APUs in H2
- And expanding our participation in the fast-growing market for GPU compute with the launch of Radeon Instinct Accelerators mid-year

2017 is an important year for AMD, and we are well-positioned for solid revenue growth and margin expansion based on bringing performance, choice and innovation to an expanding set of markets

I look forward to discussing more about our long-term strategy at our Financial Analyst Day later this month

Devinder Kumar

Financial Highlights

Revenue and Gross Margin

- We had a good start to 2017, as we expanded gross margin, increased revenue 18% y-over-y to $984mm, and reduced losses y-over-y
- Computing and Graphics segment revenue increased 29% y-over-y, driven by the launch of our high-performance Ryzen desktop processors and our strengthened GPU product portfolio
- Our Enterprise, Embedded, and Semi-Custom segment revenue increased 5% from a year ago
- Let me provide some specifics for Q1 2017
- Gross margin was 34%, up 2 percentage points y-over-y, driven by a higher overall mix of revenue from our Computing and Graphics segment and a richer product mix within that segment due to Ryzen desktop processor sales

Operating Expenses

- Operating expenses were $364mm compared to $332mm a year ago
- The increase is due primarily to R&D investments in Graphics and our Server business
- Net licensing gain from our server JV with THATIC was $27mm compared to $7mm a year ago
- Operating loss was $6mm in Q1 2017, a significant improvement from $55mm loss a year ago
- First quarter net interest expense, taxes, and other was $32mm, down from $41mm y-over-y, primarily due to a lower overall interest rate and a lower debt balance

Net Loss and Adjusted EBITDA

- Net loss was $38mm, or loss per share of $0.04, calculated using 939mm shares of common stock as compared to a net loss of $96mm or $0.12 a year ago
- Adjusted EBITDA was $28mm compared to adjusted EBITDA of negative $22mm from a year ago

Business Segments

Computing and Graphics

- Now turning to the business segments, Computing and Graphics revenue was $593mm, up 29% y-over-y and down 1% sequentially
- The y-over-y increase was primarily due to higher Ryzen desktop CPU and graphics processor sales
- The better than seasonal q-over-q decrease was due to lower mobile and graphics processor sales, largely offset by Ryzen desktop processor sales
- Computing and Graphics business segment operating loss was $15mm, a significant improvement on the loss of $70mm y-over-y, primarily due to higher revenue

Enterprise, Embedded, and Semi-Custom

- Enterprise, Embedded, and Semi-Custom revenue was $391mm, up 5% y-over-y, primarily due to higher semi-custom SoC sales
- Operating income was $9mm, down from $16mm a year ago, due primarily to higher server-related R&D investments, largely offset by an increase in the THATIC JV licensing gain

Balance Sheet

Cash, Cash Equivalents & Marketable Securities, Inventory and Debt

- Turning to the balance sheet, our cash, cash equivalents, and marketable securities totaled $943mm at the end of the quarter compared to $1.26B at the end of 2016
- The sequential decrease was driven primarily by the timing of sales and cash collections, debt interest payments, and increased inventory
- Inventory ended at $839mm compared to $751mm at year end in support of the ramp of new products and increased semi-custom SoC sales in Q2
- Long-term debt on the balance sheet was $1.41B, down from $1.44B at year end, primarily due to debt reduction activities
  - The principal debt amount was $1.73B, down $34mm from the prior quarter as a result of debt reduction actions

Outlook

Revenue, Operating Expenses and CapEx

- Turning to our outlook for Q2 2017, which is a 13-week quarter, we expect revenue to increase 17% sequentially +/- 3%, non-GAAP gross margin to be approximately 33%, non-GAAP operating expenses to be approximately $370mm, licensing gain associated with our server JV to be approximately $20mm
- Non-GAAP interest expense taxes and other to be approximately $30mm; and inventory to be down sequentially
- For 2017, we now expect revenue to increase low double-digit percentage on a y-over-y basis and CapEx to be approximately $140mm, including the capitalization of production mask sets beginning in Q1 2017
- Additional 2017 guidance can be found in the CFO Commentary document

Closing Remarks

In closing, we remain focused on continuing to improve our financial performance on the strength of new product introductions, continued financial discipline, and ongoing strategic investments in the business

I look forward to sharing further details on our longer-term prospects at our upcoming Financial Analyst Day on May 16

QUESTION AND ANSWER SECTION

<Q - Matthew D. Ramsay>: Lisa, I wonder if you could spend a little bit more time talking about the Ryzen desktop launch, how you would characterize it's gone so far. Maybe any kind of quantification you could give on revenue for the one month you had in Q1 and then for Q2 guidance and then anything that might have limited sales in the quarter. We heard of things about shortages of motherboards from a few suppliers, et cetera. So any additional commentary around the Ryzen launch would be really helpful. Thank you.

<A - Lisa T. Su>: Sure. Absolutely, Matt. So look, we're very pleased with how the Ryzen launch went. It was a big launch for us. We did Ryzen 7 first early March and then Ryzen 5 here in the middle of April. All of the feedback that we've gotten so far from both our customers and from end users has been very strong. I think the value proposition is very strong at both the Ryzen 7 eight-core devices, as well as the Ryzen 5 four and six-core devices.

Relative to how it performed in the quarter, actually, it performed as we expected. So with a global launch, we were reaching many distributors and many channel partners, and I think that's gone well. We did see some early shortages in terms of motherboards, and that was our motherboard partners ramping their supply in line with our CPU supply, but that was really dissipated after the first couple of weeks.

So nothing out of the ordinary there. So we feel really good about where it is. I think the important thing is as we go into Q2, we not only have the channel sales, but we also have the major OEMs that will be launching their systems in Q2. So I think that's the next piece of the Ryzen launch for us. But overall, I would say it went quite well.

<Q - Matthew D. Ramsay>: Thank you for that. And just as my follow-up question, I wanted to ask a little bit about gross margin. Lisa, you talked in your prepared remarks about – as the new product roll out across the different parts of the company through the year that that margin should expand.

Yet with a full quarter of Ryzen, you're guiding gross margin down slightly sequentially. I know the new gaming console business starts to ramp for the upcoming season in that quarter as well. So any kind of puts and takes around that gross margin because for some reaction I got from investors tonight, that sequentially down gross margin surprised a couple of folks. So any clarification there would be helpful. Thanks.

<A - Lisa T. Su>: Absolutely, Matt. So if you look at our gross margin progression given the mix of our business, clearly, we made actually very nice progress y-over-y. So if you look at Q1 2017 compared to Q1 2016, we expanded margin by 2 points, and that was really on the strength of Ryzen.

When you look sequentially, because of the mix of our business, game consoles were at the lowest point in Q1. And there will be a ramp of game consoles going into Q2. So the relative mix of the business sees more gaming consoles in Q2 relative to Q1. So that's the reason for the sequential guidance. But again, if you look y-over-y, Q2 2017 to Q2 2016, you'll see again a nice margin expansion as a result of the strength of the products.

<Q - Ross C. Seymore>: I want to follow on the Ryzen launch, and not only in the quarter, but also in the guide, and specifically, any color you could provide on the channel inventory, how that exited the quarter and what your plans are for adding or boiling down some of that inventory in Q2?

<A - Lisa T. Su>: Sure, Ross. So as we go into Q2, we certainly are adding both the Ryzen 5 in addition to the Ryzen 7. So if we look at the forward guidance, up 17% quarter-on-quarter, that is driven by additional Ryzen, as well as a semi-custom ramp that I just talked about. We are early in the ramp. Everything that we see is – we're getting positive reception throughout the ecosystem and we're going to continue with go-to-market activities, and as I mentioned, the OEM component of that will kick in in Q2.

<Q - Ross C. Seymore>: And I guess as my follow-up, two quick ones for Devinder. The inventory went up sequentially by about 11% – 12% and you had an explanation for that, but if I recall right, you thought it would be flat. So I'm just wondering what changed there? And then with the share count, I think as you approach breakeven, the share count might change. So any color you could give us on the share count going forward will be helpful as well. Thank you.

<A - Devinder Kumar>: Sure, and you are right about the inventory. The ramp of new products and especially the ramp of the semi-custom product revenue that Lisa just talked about was the main reason for the high inventory. We also had the opportunity in the quarter to purchase wafers in Q1 ahead of Q2 sales and took advantage of the opportunity leading to the inventory at the $839mm.

On the share count, you're right. As we go ahead and look at the share count on a basic share basis, we have 939mm shares, but there are two parts to it. If we were profitable, the warrants that we issued to Mubadala last year as part of the WSA, those get converted depending on the stock price, and that would be in there depending on profitability.

And then the second thing is a convertible. Obviously, as you know how that works, is if converted, then obviously those would be included in the share count. Otherwise, it will depend upon dilution or not, depending on the EPS.

<Q - Mark Lipacis>: Perhaps a question for Lisa, one for Devinder. Lisa, can you talk about the – whether or not you're getting the right capacity and expected yields from your foundry as Ryzen launches?

And for Devinder, as your customers take higher ASP processors in the game console business, I seem to remember when you originally launched, I thought that the – maybe the initial yields or maybe the initial margins were not as good, but the margins improved over time. And I'm wondering if, assuming I remembered properly, if that's something else that we should be thinking about as your customers take the higher ASP game console processors? Thank you.

<A - Lisa T. Su>: Sure, Mark. So on your first question, relative to the margins and how those look, I think they are – the yields are as expected. So both the 16-nanometer and the 14-nanometer have done really well. And so, in terms of the new product ramp, the yields are as expected and per our margin structure.

<A - Devinder Kumar>: On the Semi-Custom, Mark, as far as the margins are concerned, we are referring to the operating margins, I think we are pretty pleased where we are. And it's a mix for us in terms of transition on some of the products – for example, the Sony PlayStation Pro that we launched sometime last year. And obviously, the older game console that we launched in 2013. The ASPs do come down over time; although, we're able to manage the cost down, too; and therefore, offsetting the ASP decline.

<A - Lisa T. Su>: And, Mark, maybe just to finish off the comment, I think, to your question, I think, we feel pretty good about our cost structure. We're always going to continue to try to reduce the cost structure over time.

But in terms of the margin expansion story, as we go through the year, it's going to be about the mix of business. And as we get into the higher ASP, stronger product portfolio and that ramps to a larger piece of the business, that will be the margin expansion story.

<Q - David M. Wong>: Can you give us some idea of where Vega is? Does it focus on the price point above Polaris, or does it provide a refresh also within the lower price points where currently you have Polaris?

<A - Lisa T. Su>: Absolutely, David. So Vega is really a new architecture. So it is focused on the price points above Polaris. We expect Vega to be a broad product for us that will go across the gaming segment, the professional workstation segment, as well as GPUs in the data center. And we will be launching products across all of those segments with the Vega architecture in the next couple of months. So the Polaris refresh for us is the RX 500 series that we launched just a couple weeks ago. And that is what we would use in those mainstream price points in 2017.

<Q - David M. Wong>: Great. And could you give us any specifics on when in H2 you expect to launch notebook and desktop processors with Zen cores and integrated graphics?

<A - Lisa T. Su>: So we are on track to launch the rest of the Ryzen portfolio in PCs. We'll launch Ryzen 3 earlier in H2, and then we will launch Ryzen mobile towards the holiday cycle for H2.

<Q - Stacy Aaron Rasgon>: For the first one, I'm a little surprised, on the C&G business, you said sales were roughly flat sequentially give or take. You said Ryzen sales made up for seasonally lower GPUs and notebooks, which should have materially low margins. I'm just very surprised that the loss in the business barely got any better. Can you give us some indication for where Ryzen margins are today vs. the products that they're replacing and give us a little bit of color on why the CPU margins didn't actually get much better given the ramp?

<A - Lisa T. Su>: Stacy, maybe let me start and see if Devinder has some comments to add. I think certainly the Ryzen gross margins are substantially better than the legacy portfolio. So I think that is true. I think when you look at the sequential – there was 1% sequential decline, and there was $7mm or $8mm sequential improvement in operating loss. There was also some additional R&D in that segment as we're ramping up both product expenses as well as some sales and marketing and go-to-market expenses in the quarter. So overall, it was as we expected. Maybe, Devinder, do you want to add to that?

<A - Devinder Kumar>: I think the other thing I would add, Stacy, is on the Ryzen piece of it. The ASPs are better. The margins are better. And as you can see from a segment standpoint, we made some pretty good progress y-over-y from a viewpoint of the operating loss getting better, the results getting better y-over-y from a segment standpoint.

<Q - Stacy Aaron Rasgon>: Got it. For my follow-up, I guess maybe it hints at the OpEx a little bit, but it looks like you're capitalizing your masks now. You took your CapEx guide up by $60mm for the year. You went from $80mm to $140mm. Is that all the mask? And if so, were those mask costs actually in OpEx before? And if that's the case, have you actually taken your OpEx guide effectively up by $60mm for the year?

<A - Devinder Kumar>: I think two parts to it. First of all, on the mask piece of it, you're right. The mask cost, as our product development becomes profitable and the mask costs have gone up, especially with the latest technology, we went ahead and decided to capitalize the production mask set costs. From a geographic standpoint, the mask costs, whereas they would have been in R&D previously, would be sitting on the COGS side of the P&L and therefore amortized in the COGS side related to the production of the units. And the difference in the CapEx guidance, $80mm to $140mm, is primarily the mask cost.

<Q - Stacy Aaron Rasgon>: Got it. So what does that mean for I guess how you guys are tackling gross margin now if they would have been directly in the COGS before and now they're being capitalized over time? Is that a margin – I guess effective margin boost even though it's not anything on the cash side? And if so, I guess the same question, then why are margins down this quarter?

<A - Devinder Kumar>: I think margins, as Lisa said earlier, year on year we are pretty pleased with the progress, 2 percentage points up. Q2 is a mix of the business, and then as we get through the end of – to the second of the year, we'd see with the full impact of, not just the Ryzen product, but also launching the Naples product that's coming up at the tail end of Q2 and then again H2 2017.

<A - Lisa T. Su>: Stacy, maybe I just want to clarify because I want to make sure that we were clear. So the masks were in OpEx and now they're going to be capitalized as they go into production, so they weren't in COGS before.

<Q - Stacy Aaron Rasgon>: So you have effectively taken your OpEx up then, because it doesn't look like your OpEx is coming down by the same amount, so you're spending more?

<A - Lisa T. Su>: Yeah. I think it really is a full-year statement, and I think it's a recognition of, as we transition from 14-nanometer to 7-nanometer, 7-nanometer masks are substantially more expensive than 14. So I don't think you can exactly put it the way you put it. But overall, I think what we're trying to do is basically as the mask sets become more sizable on the production level to capitalize them.

<Q - Ambrish Srivastava>: I actually wanted to just continue with the discussion on margins. So would the margin profile then as we exit the year, should we expect margins – gross margins to trend up for H2 vs. what you reported, i.e., or what you're guiding to, i.e., would that be the lowest point for the year? And then I had a follow-up.

<A - Lisa T. Su>: Yeah. So, Ambrish, I think you should expect that we will expand margins as we go through the year. We do have this mix effect between Semi-Custom and new product revenue. But certainly, our exit velocity, as we exit the year, we should see – when you compare year-on-year sort of Q4 2017 to Q4 2016, you should see the margin expansion.

<Q - Ambrish Srivastava>: Okay. And then, for my follow-up, in your full year guide, on the top line, now, you're giving a – you're quantifying it vs. what you had before. I just wanted to get a little bit more clarity or to the extent you guys can share on the assumptions that you have baked in there for the various segments. Thank you.

<A - Lisa T. Su>: Yeah. So the full year guide is low double-digit revenue growth, 2017 to 2016. I think, given our product portfolio being very much influenced by the PC – the Ryzen and PCs, Vega for GPUs as well as Naples from a server standpoint, we expect that the Computing and Graphics segment will be – will grow more so than the EESC segment overall on a y-over-y basis, just given some of the consumer markets move faster than some of the data center and server markets.

<Q - Hans C. Mosesmann>: Lisa, can you give us a sense of the introduction of Naples into H2 and next year? Is that going to reflect or be similar to what you're doing with Ryzen 7 and then 5 and then 3? And I have a follow-up.

<A - Lisa T. Su>: Sure. So, look, we're really pleased with where we are with the Naples program right now. Overall, from a performance standpoint, the product and the customer engagements is going as we would expect. We will launch here in Q2. So we'll start some low volume of revenue shipments during Q2 that will ramp gradually into H2.

And so, overall, I think, that is how the server outlook will be. I think I have said before and I would still say that the server market has a longer design win to revenue conversion cycle. And so we would expect it to take a couple of quarters for us to ramp the Naples product over time. But you should see a number of customers announcing what AMD platforms over the next couple of quarters.

<Q - Hans C. Mosesmann>: Great. And then, as a follow-up on the server side, what's the strategy in terms of positioning of the product? I think traditionally, in most cases, it's been more like a me-too product at the low end of the market. What's the strategy here if you can share that with us? Thanks.

<A - Lisa T. Su>: So we believe we're highly differentiated with Naples in the sense that we have more cores. We have more memory bandwidth. We have more I/O than our competition. So for certain workloads, I think, Naples is going to do very, very well, certainly, in the cloud as well as in certain HPC workloads and big data workloads that can use all of that memory and I/O bandwidth.

We will be talking more about the positioning of Naples and the key workloads, as we go through the next couple of months prior to launch. But, certainly, we feel that it's, again, like Ryzen, on the strength of the Zen core, we have a very, very strong foundational product. And now it's about making sure that we help our customers get to market.

<Q - John William Pitzer>: Just quickly, Lisa, given that mix now is becoming quite important in trying to understand gross margin, I'd be kind of curious, what percent of your Compute business in the March quarter was based on Ryzen? And I guess, if you assume that all of the transitions to Ryzen eventually – had that occurred in the March quarter, can you give us an understanding of how much better gross margins would have been? And then I have a follow-up.

<A - Lisa T. Su>: All right, John, that might be hard for me to answer very specifically, but let me give you the high-level view. So we started selling Ryzen on March 2, and a good piece of it was – basically for us positioning into the distributors. We take revenue on a sell-out model and so you should think about – although, we shipped a number of Ryzens, we didn't necessarily revenue them all in the quarter just given that we're on a sellout model for our revenue recognition.

In terms of where we are in the transition, Ryzen, non-Ryzen, we still have a long ways to go. I mean, the way we should think about it is Ryzen 7 was at the very high-end. We're going to – Ryzen 5 has started. We have Ryzen 3 that will come next, and then we have the entire mobile portfolio as well.

So it will take us through this year to really transition the majority of the product over to Ryzen. I think everything that we've seen, the ASP uplifts are definitely very beneficial. And so, we're pleased with sort of the pricing that we're commanding for the product and the reception for the product. So I think it's just – it will take us a couple of quarters to transition the overall portfolio over to Ryzen.

<Q - John William Pitzer>: Lisa, as a follow-up to that, I know you guys are coming up with an Analyst Day next month and some of these targets might change. But to the extent that your old gross margin target was sort of 36% to 40%, I'm just kind of curious. To what extent can you get to that 38% midpoint just by moving your current market share mix towards Ryzen? And to what extent does getting to 38% or above imply either market share gains in the Compute business on the desktop, notebook side or on the server side? How do I think about that dynamic?

<A - Lisa T. Su>: So the long-term guidance, 36% to 40%, I think we have multiple ways of getting there. Certainly, on the PC side, it is not anticipating that we gain a significant amount of share over our historical numbers. So I think the idea on the PC side is, again, I think 2017, a large percentage of the margin story is around PCs.

I think as you go into 2018, you'll see a larger percentage of that be in servers. But to the fundamental question, I think we feel good that the mix dynamics are there, the product is strong enough to command the right ASPs that we can get to the long-term margin targets several different ways.

<Q - Vivek Arya>: Lisa, for my first one, back to Ryzen. When I look at your Q2 outlook, it's going up about $170mm or so sequentially. And when I look at the last few years, generally, Q1 to Q2, just the console side has gone up over $100mm or so. So is it fair to assume that Ryzen perhaps is contributing something in that $50mm, $60mm, $70mm? And if that is the case, how does that compare to your original expectations? Did they change throughout the quarter because of whatever pricing actions that you might have taken? Just that $50mm, $60mm, $70mm, if this is right, is this a run rate number for Ryzen or how should we put this in the context of what Ryzen can be as it becomes a bigger part of your portfolio?

<A - Lisa T. Su>: Sure. So without commenting on the exact numbers between Semi-Custom and Ryzen, I think, it's fair to say that the Semi-Custom business will have a reasonable ramp in Q2 as will Ryzen.

In terms of relative to our expectations, it's actually very close to our expectations of what we expected the ramp rate to be, as we're going into this new segment. As I think I've mentioned on one of the previous questions, we don't expect to be at peak run rate in Q2. I think we will be continuing to ramp Zen-based product in the PC business throughout the year, as we bring more and more SKUs online.

And so, I think, Q2 will certainly be higher than Q1. And we expect H2 to be higher than what we're seeing in Q2, as we ramp more and more SKUs, as more OEM platforms come online.

As you guys know, the PC business tends to be a very back-half loaded business. So, as we get into back-to-school, the retail segments and holiday, you would expect that both channel and OEM PC sales to benefit from the stronger product portfolio.

<Q - Vivek Arya>: Got it. And as my follow-up, how do you feel about the PC gaming market for this year? I know just near term there have been some concerns about excess GPU inventory in China. Are those concerns based on fact, or are they just perception? And have you seen anything abnormal in the demand or supply for PC GPU product in any region or any customer segment? Thanks.

<A - Lisa T. Su>: On the GPU side, we actually haven't seen anything abnormal. We normally see the seasonality going from Q4 to Q1 that sales go down. We saw something very normal to that. From an inventory standpoint, we think it's normal to maybe even slightly lean because we were going through a transition from our 400 Series to 500 Series. So we see the gaming segment as healthy.

<Q - Vivek Arya>: And any comment for the full year? Last year – last actually couple of years have been quite strong in PC gaming. I know you probably may not quantify it. But just how do you feel about the overall PC gaming market? Do you think the trends persist in terms of both unit and pricing expansion this year?

<A - Lisa T. Su>: From what we see, I think we feel good about the gaming segment overall. Graphics continues to be a strong segment. For us, it's not just the channel business, but it's the ramp of our OEM business. So we have a number of new OEM systems that are also ramping here in H1.

As it relates to ASPs, we are excited with the launch of Vega that will see a significant improvement in our ASPs, just given our current presence in the high-end segment of the GPU market. So yes, overall, I think, we feel good about the market.

<Q - Blayne Curtis>: Actually, it's two related ones. I just wanted to go back to the OpEx in terms of, not only is it up sequentially, but then you're getting extra from the move of the mask sets. Can you just talk about where the OpEx dollars are going? And if it's in fact servers, can you just talk about the spend required to get that to market?

And then just I wanted to clarify on the expense, it should hit gross margin, so can you just talk about 7-nanometer as a whole and timing as those would come through? Is the CapEx back-end loaded when you're doing the $140mm? And then can you just talk about the impact to the gross margin with the higher 7-nanometer spend not hitting gross margin?

<A - Lisa T. Su>: Maybe let me start on the OpEx and then have Devinder comment on the second piece of the question. So on the OpEx, we are making targeted investments in several different areas. The key areas are in GPUs and server, and it's both on the R&D side as well as on some go-to-market. So from our standpoint, these are very strong products. We want to make sure that we have enough customer resources to help our customers ramp into production. So I think they're targeted investments, but as we've been in the past, we'll be very prudent with where the OpEx goes. And then relative to the...

<A - Devinder Kumar>: I think the CapEx, you asked about the front and back end. I think it's pretty balanced. Maybe it's about 40/60 H1/H2, the $140mm, but it's pretty balanced.

<Q - Blayne Curtis>: Then just in terms of the impact to gross margin as the mask sets roll through?

<A - Devinder Kumar>: They're all contemplated. I think we've had a lot of discussion on the gross margin improvement y-over-y and sequentially, and Lisa had referenced about improving gross margin as we go through the year. And the move of the expenses from the OpEx side related to the mask cost capitalization to the COGS side of it, which impacts gross margin is all contemplated in that gross margin improvement.

<Q - Joseph L. Moore>: I wonder if you could talk about what the CPU mix looks like over the course of the year. And you've talked a lot about the Ryzen ramp, but what's happening to the older products? Do you see a long tail on that, or is there a coexistence between the two product portfolios? Or are you rotating everything to Ryzen on a faster basis?

<A - Lisa T. Su>: So, Joe, the way to think about that is for the Ryzen 7 and a good portion of the Ryzen 5, we really didn't have a competing product in that segment, so it's really additive. We've actually added Sam [Samsung] to our CPU market coverage. The legacy products will continue in the market. They will certainly continue through this year, and that's all contemplated in the model. So we feel that they're very complementary products and different geographies moves at different rates. We have still a significant installed base of motherboards out there from our previous generation, so we'll keep supporting both products.

<Q - Joseph L. Moore>: Okay, great. That's helpful. And then as you've talked about getting better Ryzen penetration over the course of the year, how do you think about Intel's new products in the back half and they've talked about sort of a 15% performance per clock improvement on their new 14-nanometer product. Is that contemplated in your guidance and how are you thinking about the Ryzen products stacking up against that?

<A - Lisa T. Su>: So we're very pleased with where the Ryzen product is positioned now. We think, from a value proposition standpoint, performance, performance per dollar, it's very strong. We obviously have other products we're going to be launching throughout the year to ensure that we have strong product positioning throughout the year.

And I think the more important thing, Joe, and we'll talk more about this at our Financial Analyst Day is we have a long-term roadmap, whether you're talking about PCs or GPUs or servers to ensure that we continue to refresh our product plans and our product roadmaps over time. So I think we feel good about where we are positioned today, and we're going to ensure that we continue to roll out products to strengthen that positioning over time.

<Q - Christopher Rolland>: I wanted to ask about the staggered launch to the major PC OEMs. Was that like just a modest supply constraint on the rollout or, if not, then why not just launch to the enthusiasts and the major PC OEM market together? And do you plan to do the same on Ryzen 5 and 3?

<A - Lisa T. Su>: Yes, Chris. So there was no particular supply constraint. I think it's more of the ebb and flow of the market. When you think about the channel market or the DIY market, you can basically introduce your product any time during the year. The OEMs have a very set cycle. They typically launch new products in Q2 for the back-to-school season. And so that was just the timing of when the OEM platforms were ready.

And then, again, when you're launching so many different SKUs – I think, launching Ryzen 7 first, then Ryzen 5, then Ryzen 3 – was absolutely our plan to make sure that we hit all of the logistics and stuff on plan. But, overall, like I said, nothing different than what we expected. I think we're pleased with where the overall launch is, and we'll be rolling out many more products over the coming quarters