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AMD - Q1 2017 Advanced Micro Devices Inc Earnings Call

EVENT DATE/TIME: MAY 01, 2017 / 9:00PM GMT

OVERVIEW:

Co. reported 1Q17 revenues of \$984m, net loss of \$38m and loss per share of \$0.04. Expects 2017 revenue to increase low-double-digit percentage on YoverY basis and 2Q17 revenue to increase 17% sequentially, plus or minus 3%.



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Laura Graves

Lisa T. Su *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

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PRESENTATION

Operator

Greetings, and welcome to the Advanced Micro Devices First Quarter 2017 Earnings Conference Call. (Operator Instructions) As a reminder, this conference is being recorded.

It is now my pleasure to turn the conference over to Laura Graves, Corporate Vice President of Investor Relations. Please go ahead.

Laura Graves

Thank you, and welcome to AMD's First Quarter 2017 Conference Call. By now, you should've had the opportunity to review a copy of our earnings release and the CFO commentary and slides. If you have not reviewed these documents, they can be found on AMD's website at ir.amd.com. Participants on today's conference call are: Dr. Lisa Su, our President and Chief Executive Officer; and Devinder Kumar, our Senior Vice President, Chief Financial Officer and Treasurer. This is a live call and will be replayed via webcast on amd.com.

Before we begin, I'd like to highlight a few dates for you. We will host our Financial Analyst Day on Tuesday, May 16, at our headquarters in Sunnyvale, California. Lisa Su will present at the J.P. Morgan Global Technology Media & Telecom Conference on May 22. Jim Anderson, our Senior Vice President and General Manager of Computing and Graphics, will present at the Stifel Nicolaus Conference on June 5. Mark Papermaster, Chief Technology Officer, will present at the BofA Merrill Lynch Global Technology Conference on June 6. And our second quarter quiet time will begin at the close of business on Friday, June 16, 2017.



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Today's discussion contains forward-looking statements based on the environment as we currently see it. Those statements are based on current beliefs, assumptions and expectations, speak only as of the current date, and as such, involve risks and uncertainties that could cause actual results to differ materially from our current expectations.

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. Please refer to the cautionary statements in today's earnings press release and CFO commentary for more information. You'll also find detailed discussions about our risk factors in our filings with the SEC and in particular, AMD's annual report on Form 10-K for the year ended December 31, 2016.

Now with that, I'll hand the call over to Lisa. Lisa?

Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

Thank you, Laura, and good afternoon to all of those listening in today. First quarter revenue increased 18% from a year ago to \$984 million 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 year-over-year financial results, which demonstrate the revenue growth and gross margin expansion potential with our strong set of new products.

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 2 years. Ryzen CPUs have been consistently ranked among the top-selling processors at global e-tailers and retailers. And press reviews and end-user sentiment 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.

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. 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 4 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.

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



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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.

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.

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.

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 road map.

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 the second half of the year, and expanding our participation in the fast-growing market for GPU compute with the launch of Radeon Instinct accelerators midyear.

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.

Now I'd like to turn the call over to Devinder to provide some additional color on our first quarter financial performance.

Devinder Kumar - *Advanced Micro Devices, Inc. - CFO, SVP and Treasurer*

Thank you, Lisa, and good afternoon, everyone. We had a good start to 2017 as we expanded gross margin, increased revenue 18% year-over-year to \$984 million and reduced losses year-over-year.

Computing and Graphics segment revenue increased 29% year-over-year, 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 the first quarter of 2017. Gross margin was 34%, up 2 percentage points year-over-year, 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 were \$364 million compared to \$332 million 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 \$27 million compared to \$7 million a year ago. Operating loss was \$6 million in the first quarter of 2017, a significant improvement from a \$55 million loss a year ago.

First quarter net interest expense, taxes and other was \$32 million, down from \$41 million year-over-year, primarily due to a lower overall interest rate and a lower debt balance. Net loss was \$38 million, or loss per share of \$0.04 calculated using 939 million shares of common stock as compared to a net loss of \$96 million or \$0.12 a year ago. Adjusted EBITDA was \$28 million, compared to adjusted EBITDA of negative \$22 million from a year ago.



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Now turning to the business segments. Computing and Graphics revenue was \$593 million, up 29% year-over-year and down 1% sequentially. The year-over-year increase was primarily due to higher Ryzen desktop, CPU and graphics processor sales. The better-than-seasonal quarter-over-quarter 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 \$15 million, a significant improvement from a loss of \$70 million year-over-year, primarily due to higher revenue.

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

Turning to the balance sheet. Our cash, cash equivalents and marketable securities totaled \$943 million at the end of the quarter compared to \$1.26 billion 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 \$839 million compared to \$751 million at year-end in support of the ramp of new products and increased semi-custom SoC sales in the second quarter.

Long-term debt on the balance sheet was \$1.41 billion, down from \$1.44 billion at year-end, primarily due to debt reduction activities. The principal debt amount was \$1.73 billion, down \$34 million from the prior quarter as a result of debt reduction actions.

Turning to our outlook for the second quarter of 2017, which is a 13-week quarter. We expect revenue to increase 17% sequentially plus or minus 3%, non-GAAP gross margin to be approximately 33%, non-GAAP operating expenses to be approximately \$370 million, licensing gain associated with our server JV to be approximately \$20 million, non-GAAP interest expense, taxes and other to be approximately \$30 million, and inventory to be down sequentially.

For 2017, we now expect revenue to increase low double-digit percentage from a year-over-year basis and CapEx to be approximately \$140 million, including the capitalization of production mask sets beginning in Q1 2017. Additional 2017 guidance can be found in the CFO commentary document.

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.

With that, I'll turn it back to Laura. Laura?

Laura Graves

Thank you, Devinder. Operator, we're ready to begin the Q&A portion of our call.

QUESTIONS AND ANSWERS

Operator

(Operator Instructions) Our first question today is coming from Matt Ramsay from Canaccord Genuity.



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Matthew D. Ramsay - *Canaccord Genuity Limited, Research Division - Principal and Senior Analyst*

Lisa, I wonder if you could spend a little bit more time talking about the Ryzen desktop launch, how you would characterize that it's gone so far? Maybe any kind of quantification you can give on revenue for the 1 month you had in the first quarter and then for the second quarter guidance? And then anything that might have limited sales in the quarter. We heard things about, shortages of motherboards from the SKU suppliers, et cetera. So any kind of additional commentary around the Ryzen launch would be really helpful.

Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

Yes, sure, absolutely, Matt. So, look, we're very pleased with how the Ryzen launch well -- went. It was a big launch for us. We did Ryzen 7 first in 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 8-core devices as well as the Ryzen 5 4- and 6-core devices. Relative to how it performed in the quarter, actually it performed as we expected. So with the global launch, we were reaching many distributors and many channel partners, and I think that's going 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 the second quarter, we not only have the channel sales, but we also have the major OEMs that will be launching their systems in the second quarter. So I think that's the next piece of the Ryzen launch for us. But overall, I would say it went quite well.

Matthew D. Ramsay - *Canaccord Genuity Limited, Research Division - Principal and Senior Analyst*

And just as my follow-up question, 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 margins should expand. Yet your -- 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.

Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

Yes. Absolutely, Matt. So if you look at our gross margin progression, given the mix of our business, clearly we made actually very nice progress year-over-year. 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 the first quarter, and there will be a ramp of game consoles going into the second quarter. So the relative mix of the business sees more game consoles in the second quarter relative to the first quarter. So that's the reason for the sequential guidance. But again, if you look year-on-year, Q2 '17 to Q2 '16, you see again a nice margin expansion as a result of the strength of the products.

Operator

Our next question today is coming from Ross Seymore from Deutsche Bank.

Ross Clark Seymore - *Deutsche Bank AG, Research Division - MD*

Wanted to follow up on the Ryzen launch, 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?



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Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

Yes, So, sure, Ross. So as we go into the second quarter, 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 the semi-custom ramp that I just talked about. We are early in the ramp. Everything that we see is -- we're getting a positive reception throughout the ecosystem and we're going to continue with go-to-market activities and, as I mentioned, the OEM components of that will kick in, in the second quarter.

Ross Clark Seymore - *Deutsche Bank AG, Research Division - MD*

And I guess as my follow-up, 2 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'd 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 would be helpful as well.

Devinder Kumar - *Advanced Micro Devices, Inc. - CFO, SVP and Treasurer*

Why sure. And you're 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 put [those wafers] in Q1 ahead of Q2 sales and took advantage of the opportunity leading to the inventory at the \$839 million. On the share count, you're right. As we go ahead and look at the share count on a basic share basis, we have 939 million, but there are 2 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 will be included in the share count, otherwise it will depend upon dilution or not, depending on the EPS.

Operator

Our next question today is coming from Mark Lipacis from Jefferies.

Mark John Lipacis - *Jefferies LLC, Research Division - Senior Equity Research Analyst*

Perhaps a question for Lisa and one for Devinder. Lisa, can you talk about 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 also we should be thinking about as your customers take the higher ASP game console processors?

Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

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.

Devinder Kumar - *Advanced Micro Devices, Inc. - CFO, SVP and Treasurer*

Yes, on the semi-custom, Mark, as far as the margins are concerned, you are referring to the operating margins, I think we're pretty pleased where we are. And it's a mix for us in terms of transition to 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 are able to manage the cost down, too, and therefore, offsetting the ASP decline.



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Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

Yes, 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.

Operator

Our next question today is coming from David Wong from Wells Fargo.

David M. Wong - *Wells Fargo Securities, LLC, Research Division - MD and Senior Equity Technology and Services Analyst*

Can you give us some idea of where Vega sits? Does it focus on the price points above Polaris? Or does it provide a refresh also within the lower price points where currently you have Polaris?

Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

Yes, absolutely, David. So Vega is really a new architecture, so it is focused on the price point 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 sort of those mainstream price points in 2017.

David M. Wong - *Wells Fargo Securities, LLC, Research Division - MD and Senior Equity Technology and Services Analyst*

Great. And could you give us any specifics on when in the second half you expect to launch notebook and desktop processors [within cores] and integrated graphics?

Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

Yes, so we are on track to launch the rest of the Ryzen portfolio in PCs. We'll launched Ryzen 3 sort of earlier in the second half, and then we will launch our Ryzen mobile towards the holiday cycle for the second half.

Operator

Our next question today is coming from Stacy Rasgon from Bernstein Research.

Stacy Aaron Rasgon - *Sanford C. Bernstein & Co., LLC., Research Division - Senior Analyst*

For the first one, I'm a little surprised on the [CSG] business, you said -- I mean, sales were roughly flat, sequentially, give or take. You said Ryzen sales made up for seasonally lower GPUs in notebooks we have -- should have materially lower margins. I'm just amazed -- 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 versus the product that they're replacing? And give us a little bit of color on why the CPU margins didn't actually get much better just given the ramp?



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Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

Yes, Stacy, maybe let me start and see if Devinder has some comments to add. I think certainly the rise in 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 a \$7 million or \$8 million 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. Yes, so overall, it was as we expected. Maybe, Devinder, do you want to add to that?

Devinder Kumar - *Advanced Micro Devices, Inc. - CFO, SVP and Treasurer*

Yes, 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 year-over-year from a viewpoint of the operating loss getting better or the results getting better year-over-year from a segment standpoint.

Stacy Aaron Rasgon - *Sanford C. Bernstein & Co., LLC., Research Division - Senior Analyst*

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 side up by \$60 million for the year. You went from \$80 million to \$140 million. 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 \$60 million for the year?

Devinder Kumar - *Advanced Micro Devices, Inc. - CFO, SVP and Treasurer*

I think, 2 parts to it. First of all, on the mask piece, okay, you're right. The mask costs, as our product development becomes profitable, I think the mass costs have gone up. Especially with the latest technology, we went ahead and decided to capitalize the production mask set cost. From a geographic standpoint, the mask costs, but as they would have been an R&D previously, would be sitting in the COGS side of the P&L, and therefore, amortized in the COGS side related to the production of the unit. And the difference in the CapEx guidance, \$80 million to \$100 million, and \$40 million is primarily the mask costs.

Stacy Aaron Rasgon - *Sanford C. Bernstein & Co., LLC., Research Division - Senior Analyst*

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?

Devinder Kumar - *Advanced Micro Devices, Inc. - CFO, SVP and Treasurer*

Well, I think margins, as Lisa said earlier, year-on-year, we're pretty pleased with the progress, 2 percentage points up. Q2 is a mix of the business, and then as we get to the end of -- to the second of the year, we'll see the full impact of, not just the Ryzen product, but also both Naples product that's coming up at the tail end of Q2, and then maybe into the second half of 2017.

Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

Yes, 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.



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Stacy Aaron Rasgon - *Sanford C. Bernstein & Co., LLC., Research Division - Senior Analyst*

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?

Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

Yes, 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-nanometer. So I don't think you can exactly put it the way you put it. But I think -- overall, I think what we're trying to do is basically, as the masks sets becomes more sizable on the production level to capitalize them.

Operator

Our next question today is coming from Ambrish Srivastava from BMO Capital Markets.

Ambrish Srivastava - *BMO Capital Markets Equity Research - MD of Semiconductor Research and Senior Research Analyst*

Yes, 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 the second half versus 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 have a follow up.

Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

Yes, 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 ended the year, we should see -- when you compare year-on-year sort of Q4 '17 to Q4 '16, you should see the margin expansion.

Ambrish Srivastava - *BMO Capital Markets Equity Research - MD of Semiconductor Research and Senior Research Analyst*

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 versus 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.

Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

Yes, so the full year guide is low double-digit revenue growth, '17 to '16. I think, given our product portfolio being very much influenced by the PC -- the Ryzen in 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 year-over-year basis, just given some of the consumer markets move faster than some of the data center and server markets.

Operator

Our next question today is coming from Hans Mosesmann from Rosenblatt Securities.



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Hans Carl Mosesmann - *Rosenblatt Securities Inc., Research Division - Senior Research Analyst*

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

Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

Sure. So look, we're really pleased with where we are with the Naples program right now. Overall, from a performance standpoint of the product and the customer engagements, it's going as we would expect. We will launch here in the second quarter. So we'll start some low-volume of revenue shipments here in the second quarter that will ramp gradually into the second half of the year. And so overall, I think that is how the server outlook will be. I think I have said before, and I did 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 quarters for us to ramp the Naples product over time. And you should see a number of customers announcing with AMD platforms over the next couple quarters.

Hans Carl Mosesmann - *Rosenblatt Securities Inc., Research Division - Senior Research Analyst*

Great. And then as a follow-up on the server side, what's the strategy in terms of positioning of the product? I mean, traditionally, in most cases, it's been more of, like, a me too product at the low end of the market. What's the strategy here? If you can share that with us.

Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

Yes. 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.

Operator

Our next question today is coming from John Pitzer from Crédit Suisse.

John William Pitzer - *Crédit Suisse AG, Research Division - MD, Global Technology Strategist, Global Technology Sector Head, and Semiconductor/Semiconductor Capital Equipment Analyst*

Yes, guys, can you hear me?

Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

Yes, John.

John William Pitzer - *Crédit Suisse AG, Research Division - MD, Global Technology Strategist, Global Technology Sector Head, and Semiconductor/Semiconductor Capital Equipment Analyst*

Lisa, can you hear me?

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Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

Yes, go ahead.

Richard Ewing Schafer - *Oppenheimer & Co. Inc., Research Division - MD and Senior Analyst*

Yes. Just quickly, Lisa, given that mix is now 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 it 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.

Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

All right, John, that might be hard for me to answer very specifically. But let me give you the high-level view. So, look, 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 sellout 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 you 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 that it will take us a couple quarters to transition the overall portfolio over to Ryzen.

John William Pitzer - *Crédit Suisse AG, Research Division - MD, Global Technology Strategist, Global Technology Sector Head, and Semiconductor/Semiconductor Capital Equipment Analyst*

Well, 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 sort of 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?

Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

So the long-term guidance at 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 target several different ways.

Operator

Our next question today is coming from Vivek Arya from Bank of America Merrill Lynch.

Vivek Arya - *BofA Merrill Lynch, Research Division - Director*

Lisa, for my first one, back to Ryzen. When I look at your Q2 outlook, it's going up about \$170 million or so sequentially. And when I look at the last few years, generally Q1 to Q2, just the console side, has gone up over \$100 million or so. So is it fair to assume that Ryzen perhaps is contributing something in that \$50 million, \$60 million, \$70 million? And if that is the case, how does that compare to your original expectations? Did they



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change throughout the quarter because of whatever pricing action [people] might have taken? Just that this \$50 million, \$60 million, \$70 million, 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?

Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

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 the second quarter 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 mentioned on one of the previous questions, we don't expect to be at peak run rate in the second quarter. 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 the second quarter is -- will certainly be higher than the first quarter, and I would expect the second half to be higher than what we're seeing in the second quarter, as we ramp more and more SKUs, as more OEM platforms come online. As you guys know, the PC business is -- it 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.

Vivek Arya - *BofA Merrill Lynch, Research Division - Director*

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. Have you -- 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?

Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

Yes, on the GPU side, we actually haven't seen anything abnormal. We normally see the seasonality going from the 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.

Vivek Arya - *BofA Merrill Lynch, Research Division - Director*

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 trend persists in terms of both unit and pricing expansion this year?

Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

Yes. 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 a 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 the first half of the year. 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.

Operator

Our next question today is coming from Blayne Curtis from Barclays.



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Blayne Peter Curtis - Barclays PLC, Research Division - Director and Senior Research Analyst

Actually 2 related ones. 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 that OpEx dollars are going? And if it's, in fact, servers, can you just talk about the spend required to get at the market? And then just I wanted to clarify on the expense, it should hit gross margin, but can you just talk about 7-nanometer as a whole and timing as those would come through? Is it a back -- is the CapEx back-end loaded when you're doing the \$140 million? And then just talk about the impact to the gross margin with the higher 7-nanometer spend now hitting gross margin.

Lisa T. Su - Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director

Yes. 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...

Devinder Kumar - Advanced Micro Devices, Inc. - CFO, SVP and Treasurer

I think the CapEx, you asked about the front end -- back end. I think it's pretty balanced. Maybe it's about \$40 million, \$60 million, first half, second half to \$140 million, but it's pretty balanced.

Blayne Peter Curtis - Barclays PLC, Research Division - Director and Senior Research Analyst

Then just in terms of the impact to the gross margin as the mask sets roll through?

Devinder Kumar - Advanced Micro Devices, Inc. - CFO, SVP and Treasurer

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

Operator

Our next question is coming from Joseph Moore from Morgan Stanley.

Joseph Lawrence Moore - Morgan Stanley, Research Division - Executive Director

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 2 product portfolios? Or are you sort of rotating everything to Ryzen on a faster basis?

Lisa T. Su - Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director

Yes. 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. I mean, we've actually added [SAM] to our CPU market coverage. The legacy products will continue in the market. They would certainly continue through this year, and that's all contemplated in the model. So we feel that they're very complementary products.



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And different geographies move 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.

Joseph Lawrence Moore - *Morgan Stanley, Research Division - Executive Director*

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 you know, 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?

Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

Yes. 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 are -- 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 road map, whether you're talking about PCs or GPUs or servers, to ensure that we continue to refresh our product plans and our product road maps 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.

Operator

Our final question today is coming from Chris Rolland from Susquehanna.

Christopher Adam Jackson Rolland - *Susquehanna Financial Group, LLLP, Research Division - Senior Analyst*

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 enthusiast and the major PC OEM market together? And do you plan to do the same on Ryzen 5 and 3?

Lisa T. Su - *Advanced Micro Devices, Inc. - CEO, President and Non-Independent Director*

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 launches, and we'll be rolling out many more products over the coming quarters.

Laura Graves

Thank you, Lisa. Thanks, everybody. And thank you to everyone on the call who joined us today. We look forward to speaking with you again. As a reminder, our Financial Analyst Day will be Tuesday, May 16, at our corporate headquarters in Sunnyvale. We look forward to speaking with you again. Thank you.

Operator

Thank you. That does concludes today's teleconference. You may disconnect your line at this time, and have a wonderful day. We thank you for your participation today.



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