

Company Name: Micron Technology, Inc. (MU)
Event: KeyBanc Capital Markets' Future of Technology Series
Date: August 13, 2020

<<Weston Twigg, Analyst, KeyBanc Capital Markets>>

All right, I think we're live now. So with that, I'd like to welcome Dave Zinsner, the CFO of Micron. And just to start, Dave, I was wondering if you have any opening comments, and in particular, if you'd like to maybe comment on second half data center digestion which other companies have been talking about.

<<David Zinsner, Senior Vice President and Chief Financial Officer>>

Yes, sure. First of all, thanks for having me. I appreciate the time. Let me just start with the preamble, if you don't mind, that I'll be making some forward-looking statements, and of course, those have risks and uncertainties. And so investors should look at our SEC filings for a discussion of the risk factors associated with any forward-looking statements. And also, most of what I'll say is on a non-GAAP basis, and we provide reconciliations of GAAP to non-GAAP on our Investor Relations section of the website.

So with that, maybe I'll just talk a little bit about the near term. And I'll start maybe – if you don't mind, a little bit start with the third quarter and then kind of roll our way forward. So third quarter turned out, as you all know, pretty well, \$5.44 billion of revenue. That was above our original guidance and even above the updated guidance that we gave towards the end of the quarter. Margins also were pretty healthy, 33.2%, also well above the original guidance and kind of within the updated guidance.

Earnings per share at \$0.82. That was also well above the high end of the range and even a couple of cents above the updated guidance that Sanjay gave at the end quarter. So pretty good results in a relatively challenging environment with COVID and the economic fallout of COVID. We have the advantage of – while of course, we were impacted in some markets related to COVID, there were other markets that actually experienced some uplift due to the work from home, the e-commerce and just the digital economy.

We saw good strength around the cloud space, good strength in notebooks. Graphics did particularly well. So that helped us kind of weather the storm. As we looked at guidance for this quarter, the fourth fiscal quarter, we took into account a couple of things: one, that certain of those markets, of course, would continue to do well. Others, the ones that are more tied to end consumer, would still be on the weaker side. We also have this extra week in the fourth quarter. So we have to take into account that an extra week of shipments is going to drive some uplift. And that gave us the \$6 billion midpoint range for revenue. And then we put kind of a relatively typical range around it of \$250 million, plus or minus.

I would say as the quarters progressed, things have been way more back-end loaded, I think, than we were expecting. And so we still have a few more weeks to go. We still have a decent amount

to cover in terms of ground. There's – as there always are, there's qualifications that have to happen towards the end of the quarter. But no update to that number to give either on the revenue side, margins or earnings. We also, which is somewhat unusual for us – we also gave guidance kind of out one more quarter. Not necessarily guidance but a little bit of visibility into what we thought everybody should be thinking about. And we did that partially because we were guiding the fourth quarter revenue and it had this extra week. And we wanted to make sure that people recognize that when you gain a week, you lose a week on the next quarter.

And just make sure that people were modeling that correctly because if you take \$6 billion and take an extra week out, you're roughly talking about some kind of \$400 million number that has to come back out of that. The other thing is, of course, there continues to be uncertainty. And there's uncertainty even as we look at it in terms of the visibility, but just to give a general framework for what we were thinking for the first quarter.

And so what we said is, hey, if you strip out the extra week in the fourth quarter and you look at that quarter, that Q4 on a 13-week basis, roughly, you get about \$5.6 billion. You look at the third quarter, that was about \$5.4 billion. We felt like those two somewhat – somewhere in that range was what we were thinking the first fiscal quarter would look like. I think at this point now, of course, like I said, we haven't closed out this quarter. We still have to close out this quarter. Then we'll look at all the data and look at kind of what the demand signals are telling us to give a really fulsome idea of what we think the first fiscal quarter might look like.

But I think it's – suffice it to say, it's probably somewhat weaker than that range that we gave of this \$5.4 billion to \$5.6 billion for the first fiscal quarter. So likely to be something less than that, but again, I think we're probably not prepared to give a lot of granularity and details around that until, again, we close out this quarter and just get a better sense of things. And when we get the two earnings, which will be late in September, we'll be able to give you some clarity around what the first fiscal quarter might look like.

As maybe – and the answer to your question was, if you look at data center demand going through the back half of calendar 2020, I think it's – you've got to kind of break it into probably two pieces. There is the enterprise side and the cloud side. The enterprise side is clearly weak, and it has been weak. Not surprisingly, some of the bigger data center customers, end customers are experiencing weakness, for sure. That's influencing their capital spend, and ergo, that's influencing the demand on us. And not likely to change, I think, through the rest of the year given that, I think, things will continue to be disrupted by COVID.

On the cloud side, it continues to be healthy right now. And I think as we look at it, it's likely that the revenue is – will be – if you kind of break the calendar year in two pieces, it's likely that the second half will be less than the first half. But that's mostly a function of just a pretty big pickup in demand, maybe an acceleration of some of the demand from many of the cloud customers as they experienced some pickup in demand, as people kind of had to migrate towards work from home and e-commerce, and those things that clearly picked up demand.

And I think – so it's likely we'll see a bit of like – a bit of a lower level number in the second half of the year, calendar year versus the first half of the calendar. That said, that's actually not

quite kind of unusual. I mean it can be a little bit lumpy through a calendar year in terms of demand. As we look out into 2021 in the cloud space, we're very excited about what will progress through calendar 2021. I think what we saw in terms of this kind of acceleration of demand for cloud, I think, was just a pull-in of what is going to be a very long-term trend that as companies shift to the cloud, as IoT drives more cloud usage, as we all leverage the cloud more, there's just going to continue to – and as AI use cases continue and increase, this is all going to drive more demand for cloud, more content for us as the platforms – as the emerging platforms require more and more memory to support it. So we're very optimistic about the cloud business long-term and really excited about what the next year will bring, quite honestly.

<<Weston Twigg, Analyst, KeyBanc Capital Markets>>

Okay. That's helpful.

<<David Zinsner, Senior Vice President and Chief Financial Officer>>

I'll stop there and let you ask more questions.

<<Weston Twigg, Analyst, KeyBanc Capital Markets>>

And well, this is all really helpful. So we can dig into different areas, but I wanted to come back to something you said. You said the quarter was tracking more back-end loaded, and I'm wondering what would cause that?

<<David Zinsner, Senior Vice President and Chief Financial Officer>>

It's a good question. I mean obviously part of it is our own supply. We have had to shift around things as demand has shifted around. We came into the year with an entirely different view of how things were going to progress through the year, and that has definitely changed given COVID. And so we've got to react to that and mix shifts. The second thing is that customers have their own schedules, have their own uncertainties. And they've got to kind of figure out where they need product and they can need product, what their inventory situation is relative to where they think customer demand is going to play out.

And I think that's also created some churn in terms of their expectations. I also would say for this quarter, we always have qualifications. And many times, those qualifications are happening until the waning days of the quarter. And this quarter, we probably have a bit more of that, where qualifications just so happened to have landed right at the end of or close to the end of our fiscal quarter, and that's driving a little bit of it, too. So we got to get through all the R&D side and the development side and then the qualification side of these products. And just where that all ends up in terms of timing just may have skewed things, I think, a bit more to the back half of this quarter.

<<Weston Twigg, Analyst, KeyBanc Capital Markets>>

Okay. That's helpful. Thank you. Touching back just on the data center piece, a couple more questions. Are you seeing any geographic risk that's greater or maybe stronger in one region versus another?

<<David Zinsner, Senior Vice President and Chief Financial Officer>>

No. I mean I think it's really customer to customer specific. And all of these customers have a plan around how they're going to invest the capital and build out their data centers. And obviously the timing around those are moving around a little bit for sure, given the COVID situation and the economy. And I think it's really a function of that, not necessarily geared to any one specific geography.

<<Weston Twigg, Analyst, KeyBanc Capital Markets>>

Okay. Another kind of broad-based demand question, we'll dig into some of the market segment stuff for NAND and DRAM. But smartphones, China smartphones in particular, those are expected to be – see some more improvement heading into the second half. Have you seen that in your business? It seems like it's still relatively soft. And so I'm just wondering what you're seeing from that segment and what would you normally see.

<<David Zinsner, Senior Vice President and Chief Financial Officer>>

Yes. I mean, well, look, the – obviously anything tied to the consumer had a hiccup as it relates to COVID and people getting locked up at home. And if they're not out shopping, that part of the market is certainly going to be impacted. And I think as we looked at the end customer demand, we saw that.

In addition, the mobile customers, and particularly some of the customers in China, they were impacted in certain regions from a manufacturing perspective. There were locations like India that were completely shut down for a while, and that impacted their ability to make phones. And of course, that also affects us. They already – the China customers – and we talked about this a couple of quarters ago, that we felt like coming into this calendar year, customers in China in particular, because of the trade situation, were likely carrying more inventory, an elevated level of inventory.

And I think as things progressed through the early parts of this year, that was certainly continuing, if not increasing, as they were thinking about additional disruption in their supply now, in addition to the trade-related concerns now, concerns around their ability and our – and their suppliers' ability to give them product. And so they erred on, I think, on the side of building as much as they could.

I think as you look at China, as China came back out of lockdown, the demand came back in a pretty healthy way for handsets, which I think is a good kind of [indiscernible] (13:30) view into how things should behave. More importantly, they – we saw a pretty good mix of 5G. And so that's – I think that's also important. I think as we look at it, if you go through the rest of this year, as more and more countries come out of lockdown, people get back to, quote, unquote,

"normal," whatever that is, we do expect demand to continue to improve there. We do think 5G, while in the early stages, looks like it's a pretty interesting market for consumers. And so we do expect that there'll be a reasonably decent percentage of the handsets that will be 5G.

Now given this inventory, we don't know exactly how customers will manage inventory. It's likely that it may take some time for that to get worked through on the inventory side, but I think that's okay. We'll want to see just the end demand really picking up and then our – and then the inventory getting into a better place. If you kind of take – go out into calendar 2021 then, of course, there will be seasonality. But as you progress through calendar 2021, I think this is going to be a really good trend for us.

5G is going to increasingly become a bigger percentage. You'll have this bounce back, so to speak, in purchases of handsets, maybe even a bit more of kind of – one of the things that's been going on in the last few years in mobile is maybe a reluctance to refresh your handset. You kind of hold off. I think this 5G aspect of things stimulates some demand. People are more likely to want to refresh their mobile phone. And the reason now that's important is while end unit demand improving is a good thing for us, the 5G aspect of the thing is a great thing for us. We get – in the low and mid-tier phones, we're getting twice the content of DRAM and NAND.

Maybe not quite as much of an increase in the high-end phones, but it's a meaningful increase in terms of percentages. So if 5G becomes more and more of what consumers are buying through next year, and we would expect this to be a multiyear secular growth driver for us. We think that content increase is really going to be great for us. And the beauty of this thing is that on times when you're trying to drive more content, that's increasing the cost of the phones. It's making it more challenging for consumers to get behind buying the phones because of the price point. But what the architectures – the early architectures that we see in some of the China handsets, they're actually showing \$250, \$350 price points for these 5G phones.

So even though we're getting a good content and increased – the phones, because of other things they've done in terms of the bill of materials to get the cost down, are actually at a very attractive price point to, I think, stimulate customer demand.

<<Weston Twigg, Analyst, KeyBanc Capital Markets>>

Interesting. Okay. That's very helpful. Let's spend a few minutes, I want to be cognizant of the time here – a few minutes on NAND and then DRAM. So pricing is always a concern with memory markets. For NAND, it appears to be softening a little bit. I'm just curious kind of what you expect for pricing trends through the back half of the year and what, if any, impact that might have on gross margin? Particularly since you're really still shipping NAND from inventory as you move the replacement gate.

<<David Zinsner, Senior Vice President and Chief Financial Officer>>

Yes. So we shy away from talking about future pricing as a policy, so I have to kind of avoid that. But I think I can give you some things to think about. One thing is as we are shipping from inventory, we're shipping 64- and 96-layer NAND. And the cost structure of that NAND is

actually pretty good. And so that's, I think, important to remember. We also, of course, as you know, have been ramping our first-generation replacement gate. But we made that – the volume within that replacement gate, first-generation replacement gate node relatively small. And so it's not as big an impact, but we are planning on transitioning to the second generation here in fiscal 2021.

And that does have a really good cost structure. So I think from a cost perspective, there was a little bit of a headwind for sure this year because of the first generation replacement gate, but still the cost was good. It wasn't like it was massively punitive for us. And as we get to the second generation, this is going to help out a lot. It might take a little while because we got to ramp it up and get mixture yields and so forth. But I think we'll be at a much better place here pretty soon.

As it relates to maybe what's in our control of our margins, in addition to the cost side, the biggest thing we focus on is to make sure that we get the right ROIC on any of our businesses but specifically NAND, is to just make sure that we're being methodical about our CapEx investments. We're looking over the long-term. We're looking at utilization. And we're looking at inventory levels and just managing all of that effectively to make sure that we keep the market healthy from our perspective.

And if you look at our CapEx, we brought CapEx down more than 40% in NAND in fiscal 2020. Fiscal 2021 likely to be up, but we have certainly dialed it back quite a bit from where we're thinking, just to make sure. We're constantly making sure that we're being very proactive and managing things and keeping things in a healthy place. The other thing is what we've also been trying to do to help gross margins is drive more of our NAND bits into higher-value products, which carry higher margins. And that's been a long-term trend, but I think if you look at the last quarter, I think we said that our NAND bits were more than 75% going into high-value products.

So that's going to continue. Our goal is to get to 80%. And I think that will help a lot on the gross margin front as we cross over the next year or so. So those are things that are within our control. Obviously pricing, we're going to continue to be very diligent about supply and be willing to really be disciplined around how we price products through the year. And we'll see how things develop.

<<Weston Twigg, Analyst, KeyBanc Capital Markets>>

Okay. Do you still think that the industry as a whole – or maybe you can't say this, but I think it will be – that the industry as a whole will be exiting this year in some level of undersupply, just given the low levels of investment in NAND and the inefficient scaling with 3D NAND.

<<David Zinsner, Senior Vice President and Chief Financial Officer>>

Yes. I mean it's – obviously, it's hard for me to know exactly what everyone is going to do on the NAND front from a supplier perspective. But if you look at what they have done up until this point, I think they have shown a willingness to adjust – as an industry, adjust CapEx to get it back to healthy levels. And we did see a couple of quarters of recovery on the NAND side. And one way to look at our relative health of our business is to look at our storage business unit,

which is focused almost entirely on the NAND side. And the margins, the operating margins were 17%.

So I think the industry is focused on ROIC. I think we think about the supply and demand dynamics. Cost, while maybe better in terms of percentage declines than DRAM, still continue every generation – it gets tougher to get cost declines out of the progression of node transitions for NAND. And so one would expect that you got to get it through making sure that pricing is in a healthy place. Quarter-to-quarter, that's not easy to manage. But I think over multi-quarter, multiyear periods, the industry could – can and should be, I think, pretty disciplined.

<<Weston Twigg, Analyst, KeyBanc Capital Markets>>

Okay. You mentioned cost declines. Have you given a target on cost declines at the current call? I know Western Digital yesterday reiterated their 15% annual cost decline target for NAND.

<<David Zinsner, Senior Vice President and Chief Financial Officer>>

Yes. I think the industry in general is in that ZIP code on the cost declines. For us in fiscal 2020, we had a little bit of a headwind because as we transitioned to the first-generation replacement gate, it did not add a lot of bit growth. And in addition, it was a pretty heavy CapEx investment to make. And so that kind of limited the amount of cost reductions. We did see cost – or we will – I guess when history is written on fiscal 2021, we will see cost declines not quite to those levels. But mostly, it was a function of changing the NAND depreciation life. I think that once we get really meaningfully into the second generation of NAND, we're back into what you probably hear from the industry in terms of cost declines. And I think we'll have very competitive costs relative to the industry.

<<Weston Twigg, Analyst, KeyBanc Capital Markets>>

Okay. Good. Another question on the industry. Just new competitors coming in, in China, Yangtze Memory in particular. They're ramping fairly aggressively this year. I know they're still behind on technology. They don't have a lot of wafers in the market, but by next year, they could be part of the conversation. And I'm just kind of wondering, like do you worry about too many players in the space and being able to hold pricing in a crowded market?

<<David Zinsner, Senior Vice President and Chief Financial Officer>>

Yes. I mean obviously the – this is a competitive market. And now there are – China has aspirations to have some part of the market. We assume that, that would happen, quite honestly. And I would say how things are rolling out is pretty similar, if not even a little worse than what we had expected if you look back at our view of the world a year or two ago in terms of where we would be today. So I'd say nothing really surprising. The thing to remember about really semiconductors in general, I'd say memory specifically, is you have to be on top of your game in terms of technology and innovation and execution on that innovation.

And regardless of who it is you're competing with, that's going to be very important. And so that's one of the things that drives us every day to come back to work is to focus on executing on the technology road map. The other thing for us on the NAND side is, and I mentioned it before, that is we're trying to do more of a product play within NAND. And when you do that, it even steps up the game higher in terms of the innovation required. You've got firmware. You've got to get – you've got a controller that's got to work with the device.

And so that level of integration, even with us, that is challenging every day to get that right. And I think somebody coming from the beginnings will struggle even harder on that front. And so while it's good to be paranoid, we're always going to be looking over our shoulder and making sure we stay ahead, I'm not sure we're worried about who the competitors are. I think most of it is around our execution and our innovation.

<<Weston Twigg, Analyst, KeyBanc Capital Markets>>

Okay. That makes sense. Let's spend a few minutes on DRAM. I know last year as pricing was coming down, I think it was last year, that Micron held some inventory and worked through that process and tried to manage it. Do you see that happening again as pricing starts to decline here entering the second half of this year?

<<David Zinsner, Senior Vice President and Chief Financial Officer>>

Well, we'll definitely be willing to use inventory as a lever. I mean we have – we exited last quarter at about 130. It was, I think, 131 days to be precise, days of inventory in total. DRAM was a bit lower than that. NAND was the one that's elevated. And it's all – it's more elevated because we're carrying some inventory for this RG transition where we don't get as much bit growth on the production side. But on DRAM, it's still elevated. I mean it's not like it's – it's not at optimal levels. Having said that, a lot of what caused that at this point has really been this really quick shift away from markets that were negatively impacted by COVID and into the markets that were positively impacted. And that shift, I think, creates a little bit of a bubble on the inventory side, which is what we're dealing with.

That said, it's not unhealthy. It's actually not at a level where we feel uncomfortable. We will sell all this product. We have good demand for the product. So I'm not concerned around that. So really, the question is would I feel comfortable even going higher, if necessary? And we've talked about the fact that even up to 150, we feel pretty comfortable carrying the inventory. We can't – we don't feel like the price point is right or demand is just not there. We will be willing to hold it. We've also, quite honestly, been willing to adjust utilization levels, too.

And we – now going back to the early, let's say, late parts of 2018, early parts of fiscal 2019, we did that. We reduced utilization in DRAM. We're not at that level. I mean we're running DRAM at full utilization levels except for a little bit of trailing-edge DRAM on the automotive side, where we tweaked it down. But we will be willing to do that. I mean the way the math for us works is we look at kind of the longer-term growth profile of both NAND and DRAM, but in your question, DRAM.

And we look at – as our road map of the evolution of our nodes and what bits that drives in terms of growth rate, we dial CapEx in the long term to make those things be in line. And if we have any sort of kind of air pocket, so to speak, in the near term, we adjust inventory levels. We'll increase inventory levels of necessary. And we'll adjust utilization, if necessary to manage through it.

<<Weston Twigg, Analyst, KeyBanc Capital Markets>>

Okay. That's great. I also want to ask quickly about DRAM technology because this is an area where I think Micron has made some significant improvements over the last two years. And I'm wondering how competitive do you feel you are now with the leading-edge producers in DRAM? And does that mean that there's some significant margin expansion available moving forward.

<<David Zinsner, Senior Vice President and Chief Financial Officer>>

Yes. So we were fairly early on the 1Z front, which was good. We like where things are going on the one-alpha front for us. So I think from ability to hit the leading edge, we're quite pleased with where we are. We don't necessarily have the volume all kind of to the leading edge in order to have absolute cost parity with the leader, but we've made a lot of progress. And I do think over time, we will continue to see improvement. There was the easy stuff, "easy stuff."

And of course, we've gotten – made good progress on that. But there's still ways to go. There's still ways to go on the node side. There's still progress to be made on the product side to drive profitability. And there's still a lot of other things operationally, both on the front end and the back end, that we still can and need to do to improve our cost structure. So we're happy where we are. I think we've made a lot of progress, but we're by no means done.

<<Weston Twigg, Analyst, KeyBanc Capital Markets>>

Okay. Good. Well, I just looked at the time. We've already burned through our entire half hour slot. So this has been really interesting. I have a ton more questions, but I apologize that we kind of used our time so quickly. Thank you very much for participating and joining our virtual conference. So thank you. Appreciate it.

<<David Zinsner, Senior Vice President and Chief Financial Officer>>

Thank you very much. Thanks, everyone, for listening. Appreciate it.