

REFINITIV STREETEVENTS

EDITED TRANSCRIPT

2330.TW - Q1 2022 Taiwan Semiconductor Manufacturing Co Ltd
Earnings Call

EVENT DATE/TIME: APRIL 14, 2022 / 6:00AM GMT

CORPORATE PARTICIPANTS

C. C. Wei *Taiwan Semiconductor Manufacturing Company Limited - CEO*

Jeff Su *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Wendell Huang *Taiwan Semiconductor Manufacturing Company Limited - VP & CFO*

CONFERENCE CALL PARTICIPANTS

Brett Simpson *Arete Research Services LLP - Senior Analyst*

Charlie Chan *Morgan Stanley, Research Division - Technology Analyst*

Gokul Hariharan *JPMorgan Chase & Co, Research Division - Head of Taiwan Equity Research and Senior Tech Analyst*

Krish Sankar *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

Laura Chen *KGI Securities Co. Ltd., Research Division - Research Analyst*

Mehdi Hosseini *Susquehanna Financial Group, LLLP, Research Division - Senior Analyst*

Randy Abrams *Crédit Suisse AG, Research Division - MD and Head of Taiwan Research in the Equity Research Department*

Rick Hsu *Daiwa Securities Co. Ltd., Research Division - Head of Regional Technology & Head of Taiwan Research*

Rolf Bulk *New Street Research LLP - Research Analyst*

Sunny Lin *UBS Investment Bank, Research Division - Director & Associate Analyst*

Charles Shi *Needham & Company, LLC, Research Division - Senior Analyst*

Bruce Lu *Goldman Sachs Group, Inc., Research Division - Research Analyst*

PRESENTATION

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

(foreign language)

Good afternoon, everyone, and welcome to TSMC's First Quarter 2022 Earnings Conference Call. This is Jeff Su, TSMC's Director of Investor Relations and your host for today. To prevent the spread of COVID-19, TSMC is hosting our earnings conference call via live audio webcast through the company's website at www.tsmc.com, where you can also download the earnings release materials. (Operator Instructions)

The format for today's event will be as follows: first, TSMC's Vice President and CFO, Mr. Wendell Huang, will summarize our operations in the first quarter 2022, followed by our guidance for the second quarter 2022. Afterwards, Mr. Huang and TSMC's CEO, Dr. C.C. Wei, will jointly provide the company's key messages. Then we will open the line for Q&A.

As usual, I would like to remind everybody that today's discussions may contain forward-looking statements that are subject to significant risks and uncertainties, which could cause actual results to differ materially from those contained in the forward-looking statements. Please refer to the Safe Harbor notice that appears on our press release.

And now I would like to turn the call over to TSMC's CFO, Mr. Wendell Huang, for the summary of operations and the current quarter guidance.

Wendell Huang - *Taiwan Semiconductor Manufacturing Company Limited - VP & CFO*

Thank you, Jeff. Good afternoon, everyone. Thank you for joining us today. My presentation will start with financial highlights for the first quarter 2022. After that, I will provide the guidance for the second quarter.

First quarter revenue increased 12.1% sequentially at NT terms or 11.6% in U.S. dollar terms as our first quarter business was supported by strong HPC and automotive-related demand. First quarter gross margin increased 2.9 percentage points sequentially to 55.6%, mainly as we continue to sell our value and improve cost. Operating margin increased 3.9 percentage points sequentially to 45.6%, primarily due to lower vaccine donation expense as compared to the fourth quarter. Overall, our first quarter EPS was TWD 7.82, and ROE was 36.2%.

Now let's move on to revenue by technology. 5-nanometer process technology contributed 20% of wafer revenue in the first quarter, while 7-nanometer accounted for 30%. Advanced technologies, which are defined as 7-nanometer and below, accounted for 50% of wafer revenue.

Now moving on to revenue contribution by platform. All 6 platforms increased in the first quarter. Smartphone increased 1% quarter-over-quarter to account for 40% of our first quarter revenue. HPC increased 26% to account for 41%. IoT increased 5% to account for 8%. Automotive increased 26% to account for 5%. And DCE increased 8% to account for 3%.

Moving on to balance sheet. We ended the first quarter with cash and marketable securities of TWD 1.3 trillion. On the liability side, current liabilities increased by TWD 83 billion, mainly due to the increase of TWD 63 billion in accrued liabilities and others and the increase of TWD 30 billion in short-term loans, partially offset by the decrease of TWD 21 billion in accounts payable. Long-term interest-bearing debt increased by TWD 19 billion as we raised TWD 20 billion of corporate bonds during the quarter. On financial ratios, accounts receivable turnover days decreased 2 days to 38 days, while days of inventory remained at 88 days.

Now let me make a few comments on cash flow and CapEx. During the first quarter, we generated about TWD 372 billion in cash from operations, spent TWD 262 billion in CapEx and distributed TWD 71 billion for second quarter '21 cash dividend. Bonds payable increased by TWD 20 billion due to the bond issuances. Overall, our cash balance increased TWD 87 billion to TWD 1.2 trillion at the end of the quarter. In U.S. dollar terms, our first quarter capital expenditures totaled \$9.38 billion.

I have finished my financial summary. Now let's turn now to our current quarter guidance. Based on the current business outlook, we expect our second quarter revenue to be between USD 17.6 billion and USD 18.2 billion, which represents a 1.9% sequential increase at the midpoint. Based on the exchange rate assumption of USD 1 to TWD 28.8, gross margin is expected to be between 56% and 58%, operating margin between 45% and 47%. In addition, we maintain our 2022 capital budget to be between USD 40 billion and USD 44 billion. This concludes my financial presentation.

Now let me turn to our key messages. I will start by making some comments on our first quarter and second quarter profitability. As a reminder, 6 factors determine TSMC's profitability: leadership technology development and ramp-up, pricing, cost reduction, capacity utilization, technology mix and foreign exchange rate. As we discussed earlier, our first quarter gross margin increased by 290 basis points sequentially to 55.6%, mainly due to cost improvement and value-selling efforts and a more favorable foreign exchange rate.

Our gross margin guidance provided 3 months ago was based on exchange rate assumption of USD 1 to TWD 27.6, whereas the actual first quarter exchange rate was USD 1 to TWD 27.95. This created about 50 basis point difference in our actual first quarter gross margin versus our original guidance. We have just guided our second quarter gross margin to further increase by 140 basis points sequentially to 57% at the midpoint primarily due to a more favorable exchange rate assumption of USD 1 to TWD 28.8, which brings more than 100 basis points gross margin tailwind, and continued cost improvement and value-selling efforts.

Looking ahead on our profitability, we continue to face challenges from rising inflationary costs, increasing process complexity of leading nodes, new investments in mature nodes and overseas fab expansions. Despite the manufacturing cost challenges and excluding the impact of foreign exchange rate, of which we have no control over, taking the other 5 factors into consideration, we continue to believe a long-term gross margin of 53% and higher is achievable.

Now let me turn the microphone over to C.C.

C. C. Wei - Taiwan Semiconductor Manufacturing Company Limited - CEO

Thank you, Wendell. We hope everybody is staying safe and healthy during this time. First, let me start with our near-term demand and inventory. We concluded our first quarter with revenue of TWD 491.1 billion or USD 17.6 billion, which is above the high end of our guidance, mainly due to better demand from smartphone and automotive-related applications than our forecast 3 months ago and customer's continuing need to ensure supply security with the emergency of COVID-related uncertainties.

Moving into second quarter 2022, we expect our business to be supported by HPC and automotive-related demand, partially offset by smartphone seasonality. On the inventory front, we expect the supply chain to continue to maintain a higher level of inventory as compared to the historical seasonal level for a longer period of time, prolonged by recent COVID-related supply chain disruptions and uncertainties brought about by geopolitical tension.

On the demand side, despite the recent macro-related uncertainties, we continue to observe the structural increase in long-term semiconductor demand, underpinned by the industry's megatrend of 5G and HPC-related applications. This multiyear megatrend will support modest device unit volume growth, and much more importantly, drive substantial semiconductor content enrichment in many end devices across HPC, smartphone, automotive and IoT applications. With our technology leadership, TSMC is well positioned to capture the strong structural demand with our advanced and specialty technologies. And we expect our capacity to remain tight throughout 2022.

2022 will be another strong growth year for TSMC. And we expect our full year growth to likely be at or exceed the high end of our guidance range of mid- to high-20s percent in U.S. dollar terms.

Next, given the recent constraint in the tool supply chain, let me talk about the tool delivery update. As a major player in the global semiconductor supply chain, TSMC worked closely with all our tool suppliers to plan our CapEx and capacity in advance. However, like many other industries, our suppliers are facing great challenges in their supply chain from the continued impact of COVID-19, which are creating labor, component, and chip constraint in their supply chains and extending tool delivery lead time for both advanced and mature nodes. TSMC is working closely with our suppliers and taking several actions to do our part to help address the supply chain challenges. We have increased regular high-level communications to trace the progress.

We have sent several teams on-site to support our suppliers and are working closely with them to identify critical chips that are gating the tool delivery. We are working with our customers to prioritize our wafer capacity to support those critical chips to help mitigate the chip constraint issue. By taking such actions, we do not expect any impact to our 2022 capacity plan, and we continue to work closely with our suppliers on 2023 and beyond so that we can ramp-up our capacity to meet customers' demand.

Now I will talk about the materials supply update. TSMC operates a well-established enterprise risk management system to identify and access all relevant risk and proactively implement risk mitigation strategies. In terms of material supply, TSMC's strategy is to continuously develop multi-source supply solutions to build a well-diversified global supplier base and to improve the local supply chain. For specialty chemicals and gases, including Neon and Xenon we source from multiple suppliers in different regions, and we have prepared a certain level of inventory stock on hand. We are also working closely with our suppliers to further strengthen the resilience and the sustainability of our supply chain. Thus, we do not expect any impact on our operations from materials supply.

Finally, let me talk about the N3 and N3E status. Our N3 technology will use FinFET transistor structure to deliver the best technology maturity, performance and cost for our customers. Our N3 schedule is unchanged, and well on track for volume production in second half of 2022 with good yield. We expect the ramp of N3 to be driven by both HPC and smartphone applications. We continue to see a high level of customer engagement at N3 and expect more new tape-outs for N3 for the first year as compared with N5 and N7. N3E will further extend our N3 family with enhanced performance, power and yield. We also observed a high level of customer engagement at N3E, and volume production is scheduled for 1 year after N3.

Our 3-nanometer technology will be the most advanced foundry technology in both PPA and transistor technology when it is introduced. In terms of profitability, the initial outlook for new node is always challenging. And the increasing process complexity of leading nodes such as the N3 bring

even greater challenges to achieving the corporate average gross margin in 7 to 8 quarters, particularly as our corporate profitability has improved with long-term gross margin target of 53% and higher. As we have done at prior nodes, we will continue to work diligently with our cost improvement and value-selling effort to ensure that we earn the right profitability and return on N3. With our technology leadership and strong customer demand, we are confident that our N3 family will be another large and long-lasting node for TSMC.

This concludes our key message, and thank you for your attention.

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Thank you, C.C. This concludes our prepared remarks. (Operator Instructions) Should you wish to raise your question in Chinese, I will translate into English before our management answers your question. (Operator Instructions) Now let's begin the Q&A session. Operator, can we please proceed with the first caller on the line?

QUESTIONS AND ANSWERS

Operator

Yes. The first one to ask question is Bruce Lu from Goldman Sachs.

Bruce Lu - *Goldman Sachs Group, Inc., Research Division - Research Analyst*

Congratulations for the great result. I think the first one is still focused on the macro and inflation concern. How does TSMC evaluate the impact from the inflation and the geopolitical tension? We understand that TSMC worked with customers closely, but most of your customers probably don't have the full picture of end demand fluctuation. At the same time, TSMC has to bear the risk to build capacity a couple of years ahead to make the decision earlier, so how can TSMC provide more color to strengthen the investor confidence? Do we have any changes on our multiyear capacity expansion plan?

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Okay. Bruce, please allow me to summarize your first question. I think Bruce's question is related to the macro environment and inflationary concerns. He wants to know how do we evaluate the impact from inflation and macro environment. And also in terms of our capacity, our customers may not have the full clear picture of end demand but TSMC has to bear the risk of building the capacity multiple years ahead of time. And will the CapEx amplify our volatility, so he wants to know, if there's any color on what keeps basically management confident for the CapEx plan and color to strengthen investors' confidence in our CapEx.

C. C. Wei - *Taiwan Semiconductor Manufacturing Company Limited - CEO*

Bruce, this is C.C. Wei. Let me answer your question. As you said, TSMC works closely with our customers to plan capacity. And our CapEx and capacity expansion plan are actually based on customers' long-term demand profile, underpinned by the industry megatrend. We do not build capacity based on speculation. In advanced technology node, we have a leading position. In our mature node, our capacity is built to support customer demand for our differentiated specialty technologies. And we focus on building effective capacity, which is capacity that products and produce the specialized technology with high yield rather than just plain capacity. Thus, we are confident our capacity is built to support our customers' growth, and our utilization and profitability will be sustained.

Jeff Su - Taiwan Semiconductor Manufacturing Company Limited - Director of IR

And then also, how do we -- I think the impact of inflation.

C. C. Wei - Taiwan Semiconductor Manufacturing Company Limited - CEO

Well, the inflation definitely impact the consumers' buying pattern. But let me stress then on overall demand, under the inflation environment, while the momentum in certain end market segment may slow down or adjust in terms of device units, other end market segment remains strong. In fact, we expect our HPC platform to be TSMC's strongest growing platform in 2022 and the largest contributor to our growth, fueled by the structural megatrend driving increasing need for greater computation power and energy-efficient computing. But then more importantly, the increasing silicon content in end devices such as 5G smartphones, PCs, servers, networking and automotive applications are a much more important factor in supporting our strong semiconductor demand. And with our industry-leading technology, we are well positioned to capture all the opportunities.

Jeff Su - Taiwan Semiconductor Manufacturing Company Limited - Director of IR

Okay. Bruce, does that answer your first question?

Bruce Lu - Goldman Sachs Group, Inc., Research Division - Research Analyst

Yes. Okay. I want to go for the second question. I think in the prepared remarks, I noticed that there was no mentioning about the N2 schedule. Both of your competitors accelerated their schedule for the next-generation transistor. Can you comment on TSMC's status for the gate-all-around, especially in performance and the ramp-up schedule?

Jeff Su - Taiwan Semiconductor Manufacturing Company Limited - Director of IR

Okay. So I think Bruce's second question -- Bruce, please allow me to make sure we got it is on the N2 schedule. He said that our competitors have commented on their N2 schedule, and Bruce wants to know what is our N2 plan?

C. C. Wei - Taiwan Semiconductor Manufacturing Company Limited - CEO

Our N2 development is on track, including new transistor structure and progressing to our expectation. We expect our N2 delivery to be the best technology, maturity, performance and cost for our customers. And we are confident that N2 will continue our technology leadership to support our customer growth. And we still plan the production in 2025.

Bruce Lu - Goldman Sachs Group, Inc., Research Division - Research Analyst

So the 2-year cadence remain unchanged for the N2?

C. C. Wei - Taiwan Semiconductor Manufacturing Company Limited - CEO

It won't.

Jeff Su - Taiwan Semiconductor Manufacturing Company Limited - Director of IR

Okay. Thank you, Bruce. Operator, can we move on to the next participant, please?

Operator

The next one to ask question is Gokul Hariharan from JPMorgan.

Gokul Hariharan - *JPMorgan Chase & Co, Research Division - Head of Taiwan Equity Research and Senior Tech Analyst*

My first question is on N3. Given we are less than 1 year from N3 mass production start, could we talk a little bit about how should we expect N3 revenues to be ramping up next year? Would it be similar to what we have seen with N5 and N7 with roughly about 10% of next year's revenues being N3? And also, could you talk -- I think you highlighted that there would be a little bit more challenge to get N3 to profitability closer to corporate average given some of the moving parts. Could we elaborate a little bit more on that as well? That's my first question.

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Okay. Gokul, please allow me to summarize your question. So Gokul's question is really related to N3. He wants to know with the ramp-up of N3 what kind of revenue contribution can we expect. Will it be similar to the past patterns of N5 and N7 for about 10% of wafer revenue in the first year. And also, he would like to ask given C.C.'s comment about process complexity challenges, what is the profitability outlook for N3. Is that correct, Gokul?

Gokul Hariharan - *JPMorgan Chase & Co, Research Division - Head of Taiwan Equity Research and Senior Tech Analyst*

Okay.

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Yes. Okay. Maybe Wendell can address.

Wendell Huang - *Taiwan Semiconductor Manufacturing Company Limited - VP & CFO*

Yes. Gokul, this is Wendell. It's too early to talk about the revenue contribution as N3 will not begin volume production until second half of 2022 with revenue contribution starting 2023. In addition, as the structural demand underpinned by the industry megatrends is driving growth across all our nodes, the specific percentage of the new nodes as compared to the historical pattern may be less meaningful in the future. But overall, we are confident that our 3-nanometer will be the most advanced foundry technology when it is introduced. And with the strong customer engagement and tape-out activity, our N3 family will be another large and long-lasting node for TSMC, just like N5 and N7 families.

Now about the gross margin, as C.C. said, the initial outlook for new node is always challenging. And the increasing process complexity of leading nodes such as N3 brings even greater challenges to achieving the corporate average gross margin in 7 to 8 quarters, and partially also because our corporate profitability has increased and our new long-term gross margin target of 53% and higher. Now it is a bit early to say when N3 can reach the corporate average gross margin at this stage because the volume production hasn't started yet. However, we will continue to work diligently on selling our value and cost improvement to ensure that we earn the right profitability and return. Now even considering the increasing process complexity of advanced nodes such as N3, we believe our technology leadership, manufacturing and capacity support and ability to earn our customers' trust will enable us to earn a long-term gross margin of 53% and higher.

Gokul Hariharan - *JPMorgan Chase & Co, Research Division - Head of Taiwan Equity Research and Senior Tech Analyst*

Got it. My second question is on the more mature process technologies, could TSMC give us some view on the industry growth for specialty and mature technologies? I think based on the data we look at, historically, that has only grown at maybe low to mid-single digit. But right now, we

see a lot of capacity being announced from many foundries in these older specialty and mature process technologies, let's say, defined as 28-nanometer and above. So could TSMC talk a little bit about growth rate for these mature process technologies going forward? Is it going to be materially higher than the 3% to 5% that we have seen in the past? In most cases, we have seen older nodes grow for 4 to 5 years and then kind of stagnate. Do we see that pattern changing because of some of the content per box or content per device dynamics that you talked about? Yes.

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Okay. Gokul, let me summarize your second question. I think your second question is -- Gokul's second question is on the mature node and the outlook -- growth outlook for mature nodes. His question is, how do we see the growth outlook at mature nodes? In the past, it has grown, in his words, about 3% to 5%. Do we think it can be materially higher than that on the mature nodes, which he defines as 28-nanometer and above?

Wendell Huang - *Taiwan Semiconductor Manufacturing Company Limited - VP & CFO*

Okay. Gokul, we forecast the growth rate of the overall semiconductor ex-memory industry to accelerate to high single-digit percentage level in the next 5 years as compared to around 4% CAGR in the past 10 years. The higher demand at mature nodes will be driven by structural factors, such as an increase in long-term demand for certain specialty technologies due to the multiyear industry megatrends of 5G and HPC and increasing silicon content in many end devices as well as the acceleration of digitalization. TSMC's strategy at mature nodes is to work closely with our customers to develop specialty technology solutions to meet their requirements and create differentiated and long-lasting value to customers. We believe our differentiated specialty technologies will enable us to capture the structural demand generated from the industry megatrends and continue to support our customers' growth.

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Gokul, does that answer your second question?

Gokul Hariharan - *JPMorgan Chase & Co, Research Division - Head of Taiwan Equity Research and Senior Tech Analyst*

Yes.

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Okay. Thank you, Gokul. Operator, can we move on to the next caller, please?

Operator

Next one to ask question, Charlie Chan from Morgan Stanley.

Charlie Chan - *Morgan Stanley, Research Division - Technology Analyst*

Congratulations for the great results, management. My first question is about the semi inventory debate. So may I clarify with C.C. that the company still believe that supply chain need to keep high inventory for several reasons. But in fact, we are seeing that PC, smartphone OEMs, they're working down channel inventory even, as you know, that the graphics they are working down the channel inventory. So do you think that the high inventory is actually a signal of a weaker demand? Or anything that we miss here because, in fact, we are seeing consumer tech inventory, we are seeing a correction?

Jeff Su - Taiwan Semiconductor Manufacturing Company Limited - Director of IR

Okay. Charlie, let me summarize your first question. So Charlie's question is on inventory and end demand. He wants to know or he notes that the consumers -- parts of the consumer end demand seem to be weaker or softer than expected. And so how does this also affect our view on the higher level of inventory, sort of our view? I guess, Charlie, your question is really what is our view on the end demand given potential weakness in consumer end market segments? And then what is our view on inventory. Is that correct?

Charlie Chan - Morgan Stanley, Research Division - Technology Analyst

Yes. Yes. And if the demand is indeed deteriorating, do you think the actual inventory level should come down?

C. C. Wei - Taiwan Semiconductor Manufacturing Company Limited - CEO

Charlie, this is C.C. Wei. You are right, some of the end market segments, actually, we start to see a little bit soft in these days for those smartphone, PC or tablets, load. But as I indicated, other end market segments remain very strong, all right? And so if you look at some of the imbalance in the supply chain, particularly in the MCU or the power management IC side, we still see very strong demand. And also because of those kinds of supply chain disruption by the emerging COVID-19 uncertainty, so we are continuing to observe that our customers will maintain a higher level of inventory for a longer period of time. We continue to observe that. And as a result, actually for TSMC, we -- our capacity remain very tight throughout the whole year of 2022.

Charlie Chan - Morgan Stanley, Research Division - Technology Analyst

I see. Okay. So is it more specific to those industrial automotive industry instead for consumer tech? Am I right about your comments about inventory level?

C. C. Wei - Taiwan Semiconductor Manufacturing Company Limited - CEO

Yes, you are right. In fact, the very important thing is a structural megatrend. So for the great -- you know that my customer require a greater computation power and energy-efficient computing and which is actually the strong point of TSMC's technology.

Charlie Chan - Morgan Stanley, Research Division - Technology Analyst

I see. And my second question is about your N3 progress. So we continue to hear a lot of good news and anecdotes about your N3E is actually progressing very, very well. So do you think there is a possibility that you could actually pull in your N3E for maybe 1 or 2 quarters to address the customers' demand, right? So I think it could be a win-win for both TSMC and your customers. Do you see that kind of a possibility and maybe convert some N3 projects to N3E earlier?

Jeff Su - Taiwan Semiconductor Manufacturing Company Limited - Director of IR

Okay. So Charlie's second question is on N3E. He notes the progress is going very well. So his question is, is there a possibility to bring in the timing of N3 to earlier? And will we convert N3 capacity to N3E?

Charlie Chan - Morgan Stanley, Research Division - Technology Analyst

Exactly.

C. C. Wei - *Taiwan Semiconductor Manufacturing Company Limited - CEO*

Okay. Charlie, you are right again. I mean that our N3E result is quite good. And the progress is actually -- is ahead of our schedule. And pull-in, yes, we are considering that. So far, I still did not have a very solid data to share with you that how many months we can pull in. But yes, it's in our plan. And also the capacity, since we have a very strong demand on the N3 and N3E, we are still planning to have enough capacity to support our customer.

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

All right. Thank you, Charlie. Operator, can we move on to the next participant, please?

Operator

Next one to ask question is Randy Abrams from Crédit Suisse.

Randy Abrams - *Crédit Suisse AG, Research Division - MD and Head of Taiwan Research in the Equity Research Department*

My first question, I wanted to follow up on your changed outlook where you took up from mid- to high 20s to now high 20s or above. Could you discuss because it is in light of the macro and the softening you've seen on consumer? Could you discuss the factors for the change if -- how much might be attributed to market share, technology or how much to a certain platform? If you could give an update on your view of the different platforms if certain platform drove it? And did you see any downward change on any of the 4 platforms?

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Okay. Thank you, Randy. So let me summarize Randy's first question is about our full year outlook, which as C.C. mentioned in his key messages that we expect to be at -- likely to be at or exceed the high end of our guidance of mid- to high 20s. So Randy's question is, what is driving the higher or better full year outlook given the macro environment looks a bit more shaky. Is it technology? Is it market share, et cetera? And what is the outlook by platform?

C. C. Wei - *Taiwan Semiconductor Manufacturing Company Limited - CEO*

Randy, we expect our HPC platform to be TSMC's strongest growing platform this year and the following years. And it will be the largest contributor to our growth. And this is all because of a structural megatrend driving increasing need for greater computation power and energy-efficient computing. As I said, these kind of technologies happen to be TSMC's strong point. So that all I can share with you is that we have confidence that it will be exceed or at on the high end of our guidance.

Randy Abrams - *Crédit Suisse AG, Research Division - MD and Head of Taiwan Research in the Equity Research Department*

Okay. And a follow-up just on the first. Did you change your view on...?

Wendell Huang - *Taiwan Semiconductor Manufacturing Company Limited - VP & CFO*

Yes, and then also... .

Randy Abrams - *Crédit Suisse AG, Research Division - MD and Head of Taiwan Research in the Equity Research Department*

Yes, so I wanted to know the other platforms, and if you change your view on smartphone or...

Wendell Huang - *Taiwan Semiconductor Manufacturing Company Limited - VP & CFO*

Now for this year, Randy, we can share with you that we expect HPC and automotive to grow faster than the corporate average. IoT, similar. And smartphone, approaching the corporate average.

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

For the full year.

Wendell Huang - *Taiwan Semiconductor Manufacturing Company Limited - VP & CFO*

For the full year.

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Yes.

Randy Abrams - *Crédit Suisse AG, Research Division - MD and Head of Taiwan Research in the Equity Research Department*

Okay. So it sounds like not much change. My second question is more tied to -- there's a lot of fear about do we head into the downturn or a slowdown. If you can give the other way in terms of flexibility on expansion plans, if hopefully we don't, but if we go into a more of a recession, how much flexibility with your fab plans across U.S., Taiwan, Japan and Nanjing? And on the other side, with the prepayment in deposits, is there flexibility on timing of shipments, full flexibility for customers if they need to respond to a slowing demand?

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Okay. So Randy's second question is about if there's a downturn or a slowdown, will this change? Or how flexible is the timeline for our new fab and capacity expansion plans whether in Taiwan, Japan and overseas if the outlook changes for the worse? And what is the flexibility of our prepayments with customers if there was a downturn or slowdown?

C. C. Wei - *Taiwan Semiconductor Manufacturing Company Limited - CEO*

Randy, this is C.C. Wei. Our CapEx and capacity expansion plan are always based on our customers' long-term demand profile. This is underpinned by an industry megatrend. As long as the mega trend continues, which we believe it will, we will continue to invest to capture the growth that will follow. So even a short term with the possibility of downturn, which we don't think it will impact too much to TSMC, if even it happens, we will continue our plan and we have confidence to invest to capture the growth that will follow.

Randy Abrams - *Crédit Suisse AG, Research Division - MD and Head of Taiwan Research in the Equity Research Department*

Okay. And on the customer side for their -- the deposits and capacity they're locking in?

Wendell Huang - *Taiwan Semiconductor Manufacturing Company Limited - VP & CFO*

Randy, actually, we believe signing contracts to guarantee the loading in the future is not a common practice. We focus really on technology leadership, manufacturing excellence and earning customer trust as a more effective way to secure customer commitments. Now we work closely with our customers to plan the capacity, including receiving their prepayments for capacity support. And we will continue to work with them to determine the best way to support them.

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Yes, Randy. So I think the answer for customer side and capacity side is pretty aligned or similar. Does that answer your second question?

Randy Abrams - *Crédit Suisse AG, Research Division - MD and Head of Taiwan Research in the Equity Research Department*

Yes. I mean, I guess, just like in the past, it was the flexibility like we saw the slowdown in utilization. So I mean I would think it's still work with customers on their plans if they need to reschedule because we've seen in the past like if they have to adjust their utilization. Like I don't know if anything's changed in the model on that element?

Wendell Huang - *Taiwan Semiconductor Manufacturing Company Limited - VP & CFO*

No, no, nothing changed in the model. Yes.

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Okay. Thank you, Randy. Operator, can we move on to the next caller, please?

Operator

Next one is Sunny Lin, UBS.

Sunny Lin - *UBS Investment Bank, Research Division - Director & Associate Analyst*

Congratulations on the strong performance. So my first question is on the pricing strategy for you going forward. I mean if we look at this up-cycle, the tight supply and the strong restocking demand has supported pretty meaningful price increase for foundry industry and TSMC throughout 2021. So from here, would you look to further raise price for some of the technologies to justify rising cost of expansion? And on the other hand, if the supply demand start to normalize, do you think there could be any risk to pricing?

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Okay. So Sunny, let me -- please allow me to summarize your first question. Her question is on pricing on both sides sort of in an up-cycle. But as we face cost challenges, will TSMC consider to further raise the price. And then on the flip side, on the other hand, if demand were to soften, I think, Sunny, you -- on the other hand, was will there be any risk to pricing to lower price. Is that correct?

Sunny Lin - *UBS Investment Bank, Research Division - Director & Associate Analyst*

That's right.

C. C. Wei - Taiwan Semiconductor Manufacturing Company Limited - CEO

Okay. Sunny, this is C.C. Wei. We do not comment on our pricing detail. But let me assure you that our pricing strategy is strategic, not opportunistic or short term. And customer understands our effort to support their growth. As you said that if there is a downturn coming and on the flip side, is TSMC going to drop our price? The answer is no. Did I answer your question?

Sunny Lin - UBS Investment Bank, Research Division - Director & Associate Analyst

That's very helpful. So my second question is to follow up on the N3 ramp-up. So just trying to get a bit of a color on 2023. I understand the demand is pretty robust. But when we think about the potential revenue contribution for 2023, with the less equipment supply and delivery time, would that be a capping factor for 3-nanometer to exceed the typical 10% revenue contribution for next year? Or do you think there's still some time for you to try to accelerate the equipment expansion?

Jeff Su - Taiwan Semiconductor Manufacturing Company Limited - Director of IR

Okay. So Sunny's second question is on N3 and the ramp-up. Her question once again is sort of around the revenue contribution of N3. And specifically, she is asking whether the equipment supply or some of the tool delivery issues would affect the ramp-up of N3 in next 2023 and, thus, the revenue contribution.

C. C. Wei - Taiwan Semiconductor Manufacturing Company Limited - CEO

Well, we did see some of the issues on the tool delivery and we are still working on it. As I said in the statement, we are working on 2023 right now, and we hope that we won't have any big issue. But right now, we are not ready yet to share with you that how much we can resolve the issue. But we have strong demand. We try to build enough capacity for our customers. And we are working with our equipment supplier to get enough tool to expand our capacity.

Jeff Su - Taiwan Semiconductor Manufacturing Company Limited - Director of IR

Okay. Thank you, Sunny. Operator, can we move on to the next participant, please?

Operator

Next one to ask questions, Rick Hsu from Daiwa.

Rick Hsu - Daiwa Securities Co. Ltd., Research Division - Head of Regional Technology & Head of Taiwan Research

Yes. My first question is regarding your revenue guidance for this year. I think you think that it should be at or even exceed your mid- to high-20s guidance in U.S. dollar terms. So in that case, are you revising your forecast for the global semiconductor ex-memory for this year and also the global foundry market forecast for this year?

Jeff Su - Taiwan Semiconductor Manufacturing Company Limited - Director of IR

Okay. Rick's first question is about our 2022 outlook. Sorry, Rick, let me try to summarize. So Rick notes that C.C. said, our 2022 growth will likely be at or exceed the high end of our revenue guidance of mid- to high 20s. So he wants to know what does this mean for our forecast or expectation for the semiconductor ex-memory and foundry markets.

C. C. Wei - Taiwan Semiconductor Manufacturing Company Limited - CEO

So let me answer your question. So far, we are confident on TSMC's performance. But the whole industry, semiconductor's foundry industry remain that it will be around 20% year-over-year as a growth. All others, we are still trying to understand the status and not very ready to share with you yet.

Rick Hsu - Daiwa Securities Co. Ltd., Research Division - Head of Regional Technology & Head of Taiwan Research

Okay. So basically, the strength is more TSMC company specific, right?

C. C. Wei - Taiwan Semiconductor Manufacturing Company Limited - CEO

That's because our leadership in the technology, and you are right.

Rick Hsu - Daiwa Securities Co. Ltd., Research Division - Head of Regional Technology & Head of Taiwan Research

Okay. Great. C.C., and second question, I think your customers have been waiting in the long queue since last year. And I know this year, there's some macro issues, there's some change and you mentioned some demand slowdown. But some others still very strong. So I assume for any customers releasing capacity will be quickly filled up by others. But are you saying the queue is shortening? Or if that's the case, when do you think the queue -- there's no more queue? When do you think that will happen?

Jeff Su - Taiwan Semiconductor Manufacturing Company Limited - Director of IR

Okay. So Rick's second question is about the -- C.C. mentioned that our capacity will remain tight throughout 2022. But C.C.'s -- sorry, Rick's question is more about the queue or the line to wait because, as we said, certain end market segments may slow down or adjust, but others remain strong. Rick's question is really is that wait or list line shortening, or when do we expect that to shorten?

C. C. Wei - Taiwan Semiconductor Manufacturing Company Limited - CEO

Rick, so far, as I said, TSMC's capacity will be very tight, not enough to support our customers. So if you ask whether the list in the queue will be longer or smaller, it doesn't matter. It's still just not enough to support our customers. And we are working very hard to support them. That's what I can share with you.

Jeff Su - Taiwan Semiconductor Manufacturing Company Limited - Director of IR

Okay. Thank you, Rick. Operator, can we move on to the next participant, please?

Operator

Next one online Brett Simpson from Arete Research.

Brett Simpson - Arete Research Services LLP - Senior Analyst

Yes. I had a question on your overseas fab expansion plans. I guess today, if we look at your wafer capacity, it's 100% in Taiwan. Are you seeing any pressure from your strategic customers to accelerate your overseas plans for fab expansion? And can you also share with us if you have a target for what portion of your wafer capacity long term might come from your overseas fabs? And in what time period might that happen?

Jeff Su - Taiwan Semiconductor Manufacturing Company Limited - Director of IR

Okay. So Brett's first question is about our overseas expansion and global manufacturing footprint. His question is that, are we seeing any pressure from strategic customers to expand overseas? And he wants to know what proportion or percentage of our capacity will be overseas by what time frame?

C. C. Wei - Taiwan Semiconductor Manufacturing Company Limited - CEO

Okay. Let me answer the question. In fact, talking about the overseas supply or the capacity we are building, our responsibility as TSMC's management is to make the best decision for our customers and in the best interest of TSMC. And we are in close and constant communication with all of our customers. And so far, actually, their priorities are securing capacity, enough capacity to support their business and also working with TSMC on technology development. That's TSMC to focus on.

And for the how much of the capacity to build outside, let me share with you, right now, we have fab in Arizona with 5-nanometer, a fab in Japan which are 28 and 16 FinFET technology and expanding our capacity in China with 16 FinFET and 28. Also, we're building in Taiwan for 28 nanometers more capacity. We definitely have some future plan, but while increase in the next several years, but not enough to share with you say how many percentage in total will compared with TSMC's capacity. Does that answer your question?

Brett Simpson - Arete Research Services LLP - Senior Analyst

Yes, that's great. And maybe just a second question. On -- you mentioned N3E is coming 1 year after N3. But you can give us an update around timing of 2-nanometer, which I believe is going to have a new transistor architecture gate-all-around. I guess the move from N5 to N3 was more than 2 years, which is what you've typically been -- that cadence you've typically been running at. Are we going to get back to 2 years with N2, between N3 and N2, so that we'll see an end of 2024 introduction for N2? Or will it take longer?

Jeff Su - Taiwan Semiconductor Manufacturing Company Limited - Director of IR

Okay. So Brett's second question is really on N2 and the cadence. He wants to know that N5 to N3 is about more than 2 years cadence between those 2 nodes. For N3 to N2, will it be back on a 2-year cadence? And what's the time frame for N2?

C. C. Wei - Taiwan Semiconductor Manufacturing Company Limited - CEO

Brett, our progress so far today for the N2 is on track. And all I want to say is, yes, at the end of 2024, you will enter the risk production. 2025, it will be in production, probably close to the second half or the -- or the end of 2025. That's our schedule.

Jeff Su - Taiwan Semiconductor Manufacturing Company Limited - Director of IR

All right. Thank you, Brett. Operator, can we move on to the next participant, please?

Operator

Next one, we have Laura Chen, KGI.

Laura Chen - *KGI Securities Co. Ltd., Research Division - Research Analyst*

My first question is about the advanced packaging development. Can you share with us your view on TSMC's current progress in advanced packaging in terms of the revenue contribution and the growth trend? And since we know that there are a lot of high computing PC clients relied on TSMC advanced packaging or 3D packaging service, so can we expect your advanced packaging revenue will be kind of part of your high computing PC growth outlook? That's my first question.

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Okay. So Laura's first question is on our 3D IC or advanced packaging progress. She wants to know the progress in terms of the revenue contribution, the growth outlook for the packaging business and how correlated is it to the high HPC platform.

Wendell Huang - *Taiwan Semiconductor Manufacturing Company Limited - VP & CFO*

Right. Lauren, let me answer the first part. In 2021, the advanced packaging generated \$4.1 billion of revenue. Now we expect that this year, the growth will be similar to the corporate growth. And during the 5-year -- in the next 5 years, we expect its growth in CAGR will be slightly higher than the corporate.

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

And the correlation with HPC?

C. C. Wei - *Taiwan Semiconductor Manufacturing Company Limited - CEO*

Well, let me answer that correlation. Actually, very advanced SoC technology actually serve for the HPC high-end applications. So that required high bandwidth and very low power and very high performance. And so far, we just entered a small volume of the production in 2022 and we expect this one will continue to grow. That's what we have today.

Laura Chen - *KGI Securities Co. Ltd., Research Division - Research Analyst*

Okay. That's very clear. And my second question is more like a follow-up. I think C.C. already mentioned a lot about the strategy of the CapEx expansion in longer term. But we know that the equipment lead timeline has been quite longer. So I'm just wondering any specific area or process you are seeing the biggest impact? And what's your action accordingly? Or do you have any priorities for various technology nodes?

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Okay. So Laura's second question is about capacity expansion and equipment lead time. Given the tool delivery that C.C. talked about, she wants to know what areas or nodes are we seeing the biggest impact? And are we prioritizing -- how are we prioritizing this?

C. C. Wei - Taiwan Semiconductor Manufacturing Company Limited - CEO

Laura, I mean that's -- we see this kind of tool delivery problem unexpectedly from beginning of this year. And we are working very hard with our tool suppliers to resolve all the issues. And so as for which technology node or which technology or what are being impacted, all the leading-edge technology and mature node technologies capacity expansion are being impacted. And certainly, in order to support our customers' strong demand, we're working very hard for the tool suppliers to resolve all the issues. And so far, 2022, no problem. We're working on 2023 and beyond. I hope a few months later that we can report that the issue will be resolved. But we're still working very hard with our suppliers and to resolve all the issue. That's all I can say right now.

Jeff Su - Taiwan Semiconductor Manufacturing Company Limited - Director of IR

Okay. Thank you, Laura. Operator, can we move on to the next participant, please?

Operator

Next one to ask questions, Mehdi Hosseini from SIG.

Mehdi Hosseini - Susquehanna Financial Group, LLLP, Research Division - Senior Analyst

Yes. My first one has to do with better understanding demand dynamics. You highlighted better than average growth from HPC. And in that context, I'm just wondering how I should think about the mix of 5 and 7-nanometer node by year-end '22 or second half of '22?

Jeff Su - Taiwan Semiconductor Manufacturing Company Limited - Director of IR

Okay. So Mehdi's first question is looking at the demand and also by node, he wants to know how should he expect the contribution or the mix from N5 and N7 in the second half of this year.

C. C. Wei - Taiwan Semiconductor Manufacturing Company Limited - CEO

It will be greater than we just reported of 50%, right? I mean for the second half of this year, the contribution to TSMC's revenue will be greater than 50%, combining 7 and 5 together.

Mehdi Hosseini - Susquehanna Financial Group, LLLP, Research Division - Senior Analyst

Okay. I was just trying to better understand how that increase would look like compared to prior years where in the second half, usually the advanced node contribution increases and with the leap in (inaudible) mix. I was just trying to better understand how the second half of '22 will look like in the past prior years.

Wendell Huang - Taiwan Semiconductor Manufacturing Company Limited - VP & CFO

Yes. Mehdi, I think that the second half revenue is normally higher partially because of seasonality of some of the products.

Mehdi Hosseini - Susquehanna Financial Group, LLLP, Research Division - Senior Analyst

Okay. Great. And one more follow-up. And thank you so much for the color on the next technology migration of 2-nanometer. You highlighted the transistor change. But I also want to understand what is underlying assumption, especially as it relates to lithography. We also have another

change coming up as going from EUV to high-NA. And I'm just curious to know if you are assuming if you will be using EUV, or you would need high-NA as you go into HBM for 2-nanometer in the second half of '25?

Jeff Su - Taiwan Semiconductor Manufacturing Company Limited - Director of IR

Okay. So Mehdi's second question is on N2, a very specific question. He wants to know with N2, there's a change in transistor structure. He also wants to know on the lithography side, will we be using EUV or high-NA, correct, Mehdi?

Mehdi Hosseini - Susquehanna Financial Group, LLLP, Research Division - Senior Analyst

Yes.

C. C. Wei - Taiwan Semiconductor Manufacturing Company Limited - CEO

Well, let me answer the question. We are the largest user of EUV tool today in the industry. And so we have intensively evaluated and are very familiar with those high-end EUV tools for a while. And we will continue to evaluate and adopt the high-end tool whenever we think is necessary and is ready and cost effective. Whether it is a N2 or not, I have not yet to be able to share with you.

Jeff Su - Taiwan Semiconductor Manufacturing Company Limited - Director of IR

Okay. Thank you, Mehdi. Operator, can we move on to the next participant?

Operator

Next one to ask questions, Charles Shi from Needham & Company?

Charles Shi - Needham & Company, LLC, Research Division - Senior Analyst

I want to ask my first question a little bit longer term. One of your IDM customers, well, I don't want to call the name. But their CEO, I believe, revisited you twice over the last 6 months. They think they can both buy wafers from you and, at the same time, compete with your technology. And they are hoping in 2025 and beyond, they'll compete with you in the foundry business. So there has been concerns that you may not really get a fair deal out of this a little bit of complex relationship. One concern, very specifically, I heard this that you may end up basically teaching this competitor, enabling their accelerated road map. But in the end, they will break away from you and compete against you, especially in the foundry business. So maybe can you address this concern and provide us some high-level thinking to the investor community and the public?

Jeff Su - Taiwan Semiconductor Manufacturing Company Limited - Director of IR

Okay. Charles, let me summarize your first question. His first question is on the IDM customer that wants to buy wafers or outsource to TSMC, but also said that they would like to compete in the foundry industry. So Charles, your question is really, I guess, 2 parts in the sense that how will TSMC end up teaching this IDM and enabling the road map? And how will we compete on the foundry side?

C. C. Wei - Taiwan Semiconductor Manufacturing Company Limited - CEO

Well, Charles, let me answer the question first on the competition. As a leading pure-play foundry, TSMC have never been short on competition in our 35-year history. And we know how to compete, all right? And you asked about how to protect the TSMC's IP or technology detail. In fact, we

have a well-established process and design enablement system to ensure a productive engagement with all our customers and while we can protect our own IP as well as customers' IP. We do not anticipate any issues at all. And for the future, actually, this IDM -- might take back their business back into their own house. We have already taken this into our capacity planning consideration already. Did I answer your question, Charles?

Charles Shi - *Needham & Company, LLC, Research Division - Senior Analyst*

Yes. C.C., so maybe really just to follow up, the second question and then actually is a follow-up to my first question. There has been some press reports, I believe, over the last 2, 3 months saying TSMC is building -- potentially building a dedicated fab for this particular customer. I'm not sure if dedicated fab or production line for specific customers is really TSMC's standard practice. However, can you kind of provide your thinking? Would the answer be no, even if like this customer is going to bring you a significant volume?

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Okay. So Charles' second question is there's been certain media reports saying that we will build a dedicated fab or production for certain IDM. Is this our practice? Or -- and would the answer still be no even if there is large volume behind such a dedicated capacity?

C. C. Wei - *Taiwan Semiconductor Manufacturing Company Limited - CEO*

Well, Charles, to be frank with you, our capacity planning, as we said many times, is based on the long-term market demand profile, underpinned by the industry's megatrend of 5G and HPC and the semiconductor content enrichment in many end devices. We are not dependent on any single customer or product. Did I answer your question?

Charles Shi - *Needham & Company, LLC, Research Division - Senior Analyst*

Yes.

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Okay. Thank you, Charles. Operator, in the interest of time, I think we'll take the last 2 participants' questions, please.

Operator

Okay. And the next one to ask question is Krish Sankar from Cowen & Company.

Krish Sankar - *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

I had 2 of them. The first one is for Wendell. In the March quarter, there's quite a big difference between the revenue growth and the shipment growth. So I'm kind of curious on your full year guidance of high 20s or even beyond that for revenue growth, how much is coming from pricing? Any color there would be helpful. And then I had a follow-up for C.C.

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Okay. So Krish's first question is in looking at our full year outlook. He wants to know how much of our growth this year, how much of it is coming from price versus volume, I guess?

Wendell Huang - *Taiwan Semiconductor Manufacturing Company Limited - VP & CFO*

Yes. Krish, volume, price and product mix are important contributing factors in driving our growth. But we do not have a specific breakdown to share with you.

Krish Sankar - *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

All right. No worries. And then I had a follow-up for C.C. Clearly, investors seem to be worried about a recession or a slowdown. So C.C. from your experience, when you look at price cyclical slowdowns or even macro corrections, what are the leading indicators TSMC looks for specifically? Is it a pricing slowdown? Is it pushed out of capacity? Is it customers breaking LTAs? What do you think is the first shoe to drop? Any color there would be helpful.

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Okay. Krish's second question is in terms of looking at, again, the demand environment. He wants to ask C.C. and based on past recessions or slowdowns, what are some of the leading indicators that we watch for to -- as a signal? Do we look at pricing slowdown? Do we look at slowdown in capacity and CapEx? What are the indicators that we look at?

C. C. Wei - *Taiwan Semiconductor Manufacturing Company Limited - CEO*

Krish, this is a tough question to be asked because we always in close working with our customers. So we know that each customer's demand and their forecast and we plan our capacity, we plan our technology by working with them. So if there is a downturn, sure, we've got the firsthand information from our customers. And we collect them together, and we look at it. And we decide our long-term CapEx and capacity. But which one is a leading indicator, that, I don't have a specific answer for your questions.

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Okay. Thank you. Operator, we'll take the questions from the last participant, please then. Thank you.

Operator

Yes. The last one to ask question is Rolf Bulk from New Street Research.

Rolf Bulk - *New Street Research LLP - Research Analyst*

At the beginning of the year, you guided for advanced processes to account for 70% to 80% of CapEx and specialty nodes for 20%. Now with the year now underway and you're having better visibility on the demand in your different end markets, can you share with us if your thinking on capacity additions of advanced versus specialty have changed? Or whether those ratios that you gave originally still hold?

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Okay. Rolf's first question is about our CapEx and CapEx spending. His question is with the -- in the past 3 months, has the allocation or breakdown between events and specialty technologies in terms of our CapEx, has that changed?

Wendell Huang - *Taiwan Semiconductor Manufacturing Company Limited - VP & CFO*

No, no, it has not.

Rolf Bulk - *New Street Research LLP - Research Analyst*

That's helpful. Now as a follow-up, you mentioned that you're working with suppliers to secure and further diversify your material supply. Can you discuss whether you expect your material input cost increase in the second half of the year? And how we should think about gross margin in the second half of 2022 in that context?

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Okay. So Rolf's second question is a little bit on materials cost. We have said that we're diversifying our material supplier. So are we seeing the input cost increase? And then what does this mean for the margin outlook in the second half?

Wendell Huang - *Taiwan Semiconductor Manufacturing Company Limited - VP & CFO*

Yes. Well, let me answer that. Yes, we do face manufacturing cost challenges, partially due to the rising materials inflationary cost. But we always work closely with our customers to provide our value. And we will continue to ensure that the pricing strategy reflects the value creation. We will also work diligently in our fab operations and with our suppliers to deliver on cost improvements. So by taking such actions, we believe we can achieve the long-term gross margin of 53% and higher and earn greater than 25% ROE through the cycle. That will enable us to invest to support our customers' growth and to deliver profitable growth for our shareholders.

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Okay. Rolf, does that answer?

Rolf Bulk - *New Street Research LLP - Research Analyst*

Very helpful.

Jeff Su - *Taiwan Semiconductor Manufacturing Company Limited - Director of IR*

Yes. Thank you, Rolf. Okay. So thank you, everyone. This concludes our Q&A session. Before we conclude today's conference, please be advised that the replay of the conference will be accessible within 1 hour from now. The transcript will become available 24 hours from now, both of which will be available through TSMC's website at www.tsmc.com.

Thank you for joining us today. We hope everyone continues to stay healthy and safe. And we hope you will join us again next quarter. Goodbye, and have a good day.

DISCLAIMER

Refinitiv reserves the right to make changes to documents, content, or other information on this web site without obligation to notify any person of such changes.

In the conference calls upon which Event Transcripts are based, companies may make projections or other forward-looking statements regarding a variety of items. Such forward-looking statements are based upon current expectations and involve risks and uncertainties. Actual results may differ materially from those stated in any forward-looking statement based on a number of important factors and risks, which are more specifically identified in the companies' most recent SEC filings. Although the companies may indicate and believe that the assumptions underlying the forward-looking statements are reasonable, any of the assumptions could prove inaccurate or incorrect and, therefore, there can be no assurance that the results contemplated in the forward-looking statements will be realized.

THE INFORMATION CONTAINED IN EVENT TRANSCRIPTS IS A TEXTUAL REPRESENTATION OF THE APPLICABLE COMPANY'S CONFERENCE CALL AND WHILE EFFORTS ARE MADE TO PROVIDE AN ACCURATE TRANSCRIPTION, THERE MAY BE MATERIAL ERRORS, OMISSIONS, OR INACCURACIES IN THE REPORTING OF THE SUBSTANCE OF THE CONFERENCE CALLS. IN NO WAY DOES REFINITIV OR THE APPLICABLE COMPANY ASSUME ANY RESPONSIBILITY FOR ANY INVESTMENT OR OTHER DECISIONS MADE BASED UPON THE INFORMATION PROVIDED ON THIS WEB SITE OR IN ANY EVENT TRANSCRIPT. USERS ARE ADVISED TO REVIEW THE APPLICABLE COMPANY'S CONFERENCE CALL ITSELF AND THE APPLICABLE COMPANY'S SEC FILINGS BEFORE MAKING ANY INVESTMENT OR OTHER DECISIONS.

©2022, Refinitiv. All Rights Reserved.