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Earnings Call

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## CORPORATE PARTICIPANTS

**C. C. Wei** Taiwan Semiconductor Manufacturing Company Limited - Vice Chairman & CEO

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

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

## CONFERENCE CALL PARTICIPANTS

**Andrew Lu** Sinolink Securities Co., Ltd., Research Division - Semiconductor Analyst

**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

**Nicolas Gaudois** UBS Investment Bank, Research Division - Head of APAC Technology Research, APAC Tech Strategist & Global Sector Strategist

**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

**Roland Shu** Citigroup Inc., Research Division - Director & Head of Regional Semiconductor Research

**Sebastian Hou** Neuberger Berman

**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 Third Quarter 2021 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](http://www.tsmc.com), where you can also download the earnings release materials. If you are joining us through the conference call, your dial-in lines are in listen-only mode.

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 third quarter 2021 followed by our guidance for the fourth quarter 2021. 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. Third quarter revenue increased 11.4% sequentially in NT terms or 12% in dollar terms. Our third quarter business was driven by strong demand across all 4 growth platforms, which are smartphone, HPC, IoT and automotive-related applications.

Gross margin increased 1.3 percentage points sequentially to 51.3%, mainly due to the improvement in back-end profitability and a more favorable technology mix. Operating margin increased 2.1 percentage points sequentially to 41.2%, mainly due to better operating leverage. Overall, our third quarter EPS was TWD 6.03 and ROE was 30.7%.

Now let's move on to the revenue by technology. 5-nanometer process technology contributed 18% of wafer revenue in the third quarter, while 7-nanometer accounted for 34%. Advanced technologies, which are defined as 7-nanometer and below, accounted for 52% of wafer revenue.

Now moving on to revenue contribution by platform. Smartphone increased 15% quarter-over-quarter to account for 44% of our third quarter revenue. HPC increased 9% to account for 37%. IoT increased 23% to account for 9%. Automotive increased 5% to account for 4%. And DCE decreased 2% to account for 3%.

Moving on to the balance sheet. We ended the third quarter with cash and marketable securities of TWD 976 billion or equivalent USD 35 billion. On the liability side, current liabilities increased TWD 8 billion mainly due to the increase of TWD 24 billion in accounts payables and the increase of TWD 6 billion in dividend payable, partially offset by the decrease of TWD 21 billion in short-term loans.

Long-term interest-bearing debt increased by TWD 50 billion mainly as we raised TWD 49 billion corporate bonds during the quarter.

On financial ratios, accounts receivable turnover days decreased 2 days to 40 days while days of inventory remained at 85 days.

Now let me make a few comments on cash flow and CapEx. During the third quarter, we generated about TWD 319 billion in cash from operations, including some customer prepayments, spent TWD 189 billion in CapEx and distributed TWD 65 billion for fourth quarter '20 cash dividend. Short-term loans decreased TWD 18 billion, while bonds payable increased by TWD 49 billion. Overall, our cash balance increased TWD 106 billion to TWD 854 billion at the end of the quarter. In U.S. dollar terms, our third quarter capital expenditures totaled USD 6.77 billion.

I've finished my financial summary. Now let's turn on to our fourth quarter guidance. Based on the current business outlook, we expect our fourth quarter revenue to be between USD 15.4 billion and USD 15.7 billion, which represents a 4.5% sequential increase at the midpoint. Based on the exchange rate assumption of USD 1 to TWD 28, gross margin is expected to be between 51% and 53%, operating margin between 39% and 41%.

On July 12, we announced we have completed the purchase of 5 million doses of vaccine as part of our efforts to help fight against COVID-19 pandemic in Taiwan. We recognized a small portion of the vaccine donation expense in the third quarter and the majority of it will be recognized in the fourth quarter, which will have around 1 percentage point impact on our operating margin.

This concludes my financial presentation.

Now let me turn to our key messages. I will start by making some comments on our 2021 capital budget.

Every year, our CapEx is spent in anticipation of the growth that will follow in future years. We are witnessing a structural increase in underlying semiconductor demand underpinned by the industry megatrends of 5G-related and HPC applications. In order to support our customers' growth and meet the increasing demand for our advanced and specialty technologies in the next several years, we have budgeted our full year 2021 CapEx to be around USD 30 billion.

Next, let me talk about our profitability. Our third quarter gross margin increased 1.3 percentage points sequentially to 51.3% mainly due to better back-end profitability and technology mix. Based on the exchange rate assumption of USD 1 to TWD 28, we have just guided fourth quarter 2021 gross margin to be 52% at the midpoint.

The midpoint of our fourth quarter gross margin guidance also implies that our full year 2021 gross margin is expected to be higher than 50%, despite the rapidly rising depreciation cost, the dilution from N5 ramp and the unfavorable foreign exchange rate in 2021 as compared to 2020.

As we have discussed before, 6 factors determine TSMC's profitability: leadership technology development and ramp-up; pricing; cost; capacity utilization; technology mix; and foreign exchange rate, which is not controllable. Taking all these factors into consideration, we believe our long-term gross margin of 50% and higher is achievable.

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

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**C. C. Wei** - *Taiwan Semiconductor Manufacturing Company Limited - Vice Chairman & 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 third quarter with revenue of TWD 414.7 billion or USD 14.9 billion, driven by strong demand across all 4 growth platforms, which are smartphone, HPC, IoT and automotive-related applications.

Moving into fourth quarter 2021. We expect our sequential growth to be supported by strong demand for our industry-leading 5-nanometer technology. Based on the midpoint of our fourth quarter revenue guidance, our full year 2021 revenue is expected to grow about 24% year-over-year in U.S. dollar terms.

On the inventory front, we continue to expect our customers and the supply chain to gradually prepare a higher level of inventory in the second half of this year as compared to the historical seasonal level. Given the industry continuing to ensure supply security, we expect the supply chain to maintain a higher level of inventory for a longer period of time.

In the near term, we continue to observe short-term imbalances due to disruptions in the supply chain brought about by COVID-19. We also continue to observe the structural increase in long-term demand, underpinned by the industry megatrends of 5G and HPC-related applications and the higher silicon content in many end devices, including automotive, PCs, servers, networking and smartphones.

While the short-term imbalances may or may not persist, we believe our technology leadership will enable TSMC to capture the strong demand for our advanced and specialty technologies, and we expect our capacity to remain tight in 2021 and throughout 2022.

Next, let me talk about TSMC's long-term growth driver and return. We are entering a period of higher structural growth. The multiyear megatrend of 5G and HPC-related applications are expected to fuel a massive requirement for computation power and propel greater need for energy-efficient computing, which demands the use of leading-edge technologies. These megatrends will not only spur unit growth but also drive increasing semiconductor content in HPC, smartphone, automotive and IoT applications.

COVID-19 has also fundamentally accelerated the digital transformation, making semiconductors more pervasive and essential in people's lives. With our technology leadership, manufacturing excellence and customer trust, TSMC is better positioned to capture the growth from the favorable industry megatrend with our differentiated technologies.

To address the structural increase in the long-term market demand profile, TSMC is working closely with our customers to plan our capacity and investing in leading-edge and specialty technologies to support their demand.

Our capital investment decisions are based on 4 disciplines: technology leadership, flexible and responsive manufacturing, retaining customer's trust and earning the proper return. At the same time, we face manufacturing cost challenges due to increasing process complexity at leading node, new investment in mature nodes, expansion of our global manufacturing footprint and rising material and basic commodity cost.

As we continue to work closely with our customers to support their growth, our pricing strategy will remain strategic, not opportunistic, to reflect our value creation. We will also continue to work diligently with our suppliers to deliver on cost improvement.

Even as we shoulder a greater burden of the investment for the industry, by taking such actions, we believe we can achieve a proper return that enables us to invest to support our customers' growth and deliver long-term profitable growth with 50% and higher gross margin for our shareholders.

Now let me talk about our Japan fab plan. We are expanding our manufacturing footprint to sustain and enhance our competitive advantage in providing industry-leading technologies, the world's largest logic capacity, efficient and cost-effective manufacturing and to better serve our customers.

Our global manufacturing expansion strategy is based on customers' needs, business opportunities, operating efficiency and cost economic considerations. After conducting due diligence, we announced our intention to build a specialty technology fab in Japan, subject to our Board of Directors' approval.

We have received a strong commitment to support this project from both our customers and the Japanese government. This fab will utilize 22-, 28-nanometer technology for semiconductor wafer fabrication. Fab construction is scheduled to begin in 2022 and production is targeted to begin in late 2024. Further details will be provided subject to the Board approval.

We believe the expansion of our global manufacturing footprint will enable us to better serve our customers' need and reach global talent while earning the proper return from our investments and deliver long-term profitable growth for our shareholders.

Finally, I'll 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 technology development is on track. We have developed complete platform support for both HPC and smartphone applications. N3 risk production is scheduled in 2021, and production will start in second half of 2022. We continue to see a high level of customer engagement at N3 and expect more new tapeouts for N3 for the first year as compared with N5.

We also introduced N3E as an extension of our N3 family. N3E will feature improved manufacturing process window with better performance, power and yield. Volume production of N3E 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. With our technology leadership and strong customer demand, we are confident that N3 family will be another long and last -- will be a large and long-lasting node for TSMC.

This concludes our key message. Thank you for your attention.

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

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

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## QUESTIONS AND ANSWERS

### Operator

The first one to ask questions, Gokul Hariharan, JPMorgan.

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

Congrats on the good results. My first question is on the long-term road map. Intel has now unveiled their long-term road map until 2025 with 4 process nodes, looking to catch up with TSMC and potentially even overtake. Could TSMC talk a little bit more about its own longer-term road map, timing of adoption of some of the new technologies, like gate-all-around, high-NA EUV, back power line, et cetera?

And where does TSMC see itself from a process technology leadership perspective in the next 3 to 5 years? The N3 message is definitely well received. But maybe could we talk a little bit more longer term, given some of your competitors are kind of addressing that kind of time frame as well? That's my first question.

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

Okay. Thank you, Gokul. Please let me summarize your first question. So Gokul's first question is about -- regards to our long-term technology road map. He notes that an IDM outlined their long-term road map for the next 3 to 5 years and talking about catching up and overtaking. So Gokul wants to know what are our views or plans or our road map, I guess, around the timing of new technologies, such as new transistor structure like gate-all-around, high-NA, et cetera. And how do we see our technology leadership positioned in the next 3 to 5 years?

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**C. C. Wei** - *Taiwan Semiconductor Manufacturing Company Limited - Vice Chairman & CEO*

Okay. Gokul, I don't comment on my competitors' technology road map or their technology approaches. But for TSMC, we are confident that we'll be very competitive. And we do have a very competitive schedule. Actually, let me share that in our 3-nanometer technology and the 2-nanometer technology. And I can share with you that in our 2-nanometer technology, the density and performance will be the most competitive in 2025. And of course, I can also share with you that the gate-all-around structure is being considered, although I'm not going to -- not ready to release more information about it.

So that's, again, let me conclude in 1 sentence we'll become very competitive and we are confident that our technology leadership will be maintained.

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

Okay. Thank you, C.C. Gokul, do you have a second question?

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

Yes. So looking at CapEx, I think back in Q1 results, TSMC indicated spending \$100 billion-plus in CapEx over the next 3 years. Since then, you have talked about Japan capacity expansion. It looks like there are some capacity expansion plans for leading-edge in Kaohsiung as well. Could we talk a little bit about is \$100 billion going to be enough? Or do you still need to see -- do you still see some upside to this \$100 billion budget on the CapEx over the next 3 to 4 years since the growth seems to be stronger?

And if we see that upside in CapEx, are we still looking at the high end of 10% to 15% growth CAGR? Or do we believe that there could be faster growth than this 10% to 15% -- or high end of 10% to 15% that we had talked about previously?

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

Okay, Gokul. Let me see if I can catch. Your second question is around our CapEx and growth -- longer-term CapEx and growth outlook. So Gokul is asking what sort of our plans in Japan and plans for expansion in Taiwan. Will there be upside to this \$100 billion CapEx number that we have talked about in the previous -- for the next few years? And then also, will there be a higher long-term growth CAGR target as a result as well?

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

Okay, Gokul. This is Wendell. Let me answer your question. We are not able to comment specifically on next few years' CapEx. Our capital investment decisions are based on 4 disciplines: technology leadership, flexible and responsive manufacturing, retaining customers' trust and earning the proper return, as C.C. just mentioned.

Every year, our CapEx is spent in anticipation of the growth that will follow in future years. As we said, we are witnessing a structural increase in underlying semiconductor demand, underpinned by the industry megatrends of 5G-related and HPC applications and increasing silicon content. So as long as our growth outlook looks good, there could be upside to our CapEx plans, and we will continue our disciplined investment approach to support our customers and capture the growth opportunities.

Now in terms of our revenue CAGR, we're not planning to make any changes at this moment. We will provide you with more information in our January conference.

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

Okay. Thank you, Gokul.

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**Operator**

Next one to ask questions, Bruce Lu from Goldman Sachs.

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

I think my first question is that 80% of TSMC's CapEx is focused on advanced node capacity expansion. And do you see that the mature node becomes the bottleneck for your customers? How do you ensure your customer can have enough mature nodes or chips?

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

Okay. Sorry, Bruce. Let me repeat your question. Question is around the mature nodes and that with 80 -- typically, a majority of our CapEx is for the leading nodes. So how can we ensure that our customers will not be bottlenecked or have enough on the mature nodes as well?

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

Okay. Bruce, let me answer that question. TSMC's strategy at mature nodes is to work closely with our customers, to develop and invest in specialty technology solutions, to meet customers' requirement and create differentiated and long-lasting value to customers. We take a holistic view and work with our customer to decide the optimal capacity to support their demand. Okay.

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

Okay, okay. Does that answer your first question, Bruce?

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

Yes. Let me try to answer it -- ask a different question. So I think recently, we have a lot of investors asking that there are a lot of noise on the end demand, such as on the TV or China's smartphone. The inventory level is all at a higher level. But the foundry outlook remains very, very positive and almost everyone is raising their capacity and CapEx.

And can you try to tell the investor what's the discrepancy? And where is the -- why the foundry can continue to see such a strong demand while the end demand is deteriorating?

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

Okay. So Bruce, let me summarize your second question. Second question for Bruce is around looking at end demand in the foundry. Bruce notes that there's a lot of, I guess, noises about different types of end demand, however, the foundry outlook seems to be very positive. So how do we explain this disconnect or discrepancy?

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**C. C. Wei** - Taiwan Semiconductor Manufacturing Company Limited - Vice Chairman & CEO

Okay, Bruce. Let me say that while we do not rule out the possibility of an inventory correction, but we expect TSMC's capacity remain very tight in 2021 and throughout 2022. This is because of our technology leadership position.

And even there's a correction to occur, we believe it could be less volatile for TSMC than previous downturn as our underlying structural megatrend of 5G-related and HPC applications, and actually the increasing silicon content, in addition to the unit growth, in the end devices will continue.

And again, with our technology leadership, we are better positioned to capture the mid- to long-term growth opportunities. I hope that answers your question regarding discrepancy between the demand and why it's still very tight in capacity.

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

Thank you, Bruce.

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**Operator**

Next one, Randy Abrams, Credit Suisse.

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

I wanted to ask, probably for Wendell, a few questions on the margins. You mentioned 50% and above. Just a couple of follow-ups on that. Should we think it's still within a couple of points of 50% or with efforts to firm up pricing, you could push it higher? Just reflecting to maintain return on capital, you will have a higher asset base. And that's kind of first part of that question.

And then within margin, if you can update us on the inefficiencies you had operating at a high level, if you've worked that out. And also if you have an initial view on depreciation for 2022.

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

Okay. Randy, let me summarize your question. So your question is about our margins. So Randy notes that we now say 50% and above. He wants to know, is this a couple of points above? How high above? And will we be able to maintain our, I guess, ROIC or ROE as a result?



And also that last time, we had talked about sort of running at a high level of utilization and certain inefficiencies. So has that now become more improved? Or what is the outlook there? And also the depreciation outlook for 2022.

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

Okay. Let me answer the last question first. Depreciation in 2022 will increase. But the magnitude, we are going to tell you next year in January.

For the margin, how many percentage points over 50%? We don't want to disclose it right now, but we hope we can tell you more in the January investor conference. And that will, of course, bring a better ROE than before due to the higher margin targets. You also asked about utilization?

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

Randy also asking about inefficiencies. When we had talked previously about when we run at a high level of utilization, less-efficient cost improvement and things like that, so Randy is wondering, is this -- is it continuing? Is it...

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

The utilization continues to be pretty high. At the same time, the cost improvement activities is ongoing. As a matter of fact, in the fourth quarter, we believe the margin will be better, partially because of the cost improvement activities.

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

Okay. Great. Then second question I'll ask. And just one quick follow-up. Actually, related to utilization 50% and above. If you have a utilization view, is that a 90% or is that full capacity?

And then the second question I have is on the capital intensity. One of the equipment suppliers, Tokyo Electron, they put up a slide about a moderating increase in capital intensity. So CapEx per K. They have it like 2-nanometer just rising gradually to 210 million per 1,000 wafers. Could you discuss, if you can, a CapEx per K either absolute or how you see that trending?

And do you see that continuing to accelerate up or actions you're taking to keep it more stable after the increase we've seen in the past few years?

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

Okay. So Randy's second question is about capital intensity. He notes that Tokyo Electron is showing that the capital intensity or the CapEx per K is moderating the pace of increase, particularly as you get into 2-nanometer. So he was wondering if we can just comment on our CapEx per K.

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

Well, Randy, I -- what I can share with you is that CapEx per K for advanced -- more and more advanced technology is normally higher. That's for sure. So -- but at the same time, through selling our values and working with the customers and the suppliers, we believe we are able to still earn a proper return, which is, at this moment, a 50% and higher gross margin is achievable.

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

Okay, Randy? Thank you, Randy.

**Operator**

Next one to ask questions, Brett Simpson from Arete Research.

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**Brett Simpson** - *Arete Research Services LLP - Senior Analyst*

Yes. My question was on the N3 introduction next year. Can you talk a bit about the ramp-up of N3? Is it going to be a typical ramp very similar to the last couple of node ramps? Or do you see the timing of this being different?

And also, just in terms of the cost, there's a lot of talk about cost rising above expectations for N3 as you add more EUV layers. Can you just clarify how you see costs at N3 and whether you can still achieve a 70% density gain at that node?

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

Okay, Brett. So let me see. Your first question is around N3. Brett wants to know with N3 ramping in the second half of next year, what type of ramp do we expect versus the prior nodes? Will it be typical? Or will the timing be different? And also on the N3 cost, what does the N3 cost structure look like? Is that your question, Brett?

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**Brett Simpson** - *Arete Research Services LLP - Senior Analyst*

That's right.

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**C. C. Wei** - *Taiwan Semiconductor Manufacturing Company Limited - Vice Chairman & CEO*

Okay, Brett, this is C.C. Wei. Let me answer your second part of the question first. N3 is of course -- definitely it is higher than N5. That is because of technology complexity and we have to use many new equipment, which is -- cost higher.

But then, the ramp-up is very similar to the previous node. With many customers' engagement, actually, it's higher than what we observed in the previous node. So second half of 2022 will be our mass production, but you can expect that revenue will be seen in first quarter of 2023 because it takes long -- it takes cycle time to have all those wafer out.

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**Brett Simpson** - *Arete Research Services LLP - Senior Analyst*

Okay. So basically, on 3-nanometer, this won't be -- typically, you'd see your first revenue Q2 or Q3. It's going to be later of next year, is that right?

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**C. C. Wei** - *Taiwan Semiconductor Manufacturing Company Limited - Vice Chairman & CEO*

That's right.

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

Yes, Brett. I think we have been consistently saying that N3 will begin the production in second half 2022. That has been a consistent message since we first introduced N3 in 2019.

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**Brett Simpson** - Arete Research Services LLP - Senior Analyst

Okay. Great. And maybe just a follow-up on 28-nanometer. You just talked about a new fab that's coming on stream in 2024 in Japan. And can you maybe just clarify the latest thinking in terms of Europe? Because I don't know that we could -- we may see new fab expansion for TSMC.

And then in terms of looking at the 28-nanometer node, there's a lot of capacity being expanded at the moment. Can you talk about what's driving this? And why you think this will not lead to an oversupply situation in time?

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

Okay. Thank you, Brett. So Brett's second question is around 28-nanometer. Two parts. First, of course, that C.C. just announced our intention to build 28-nanometer in Japan. So Brett wants to know, do we have plans in Europe? And then the second part is that with 28-nanometer, what is driving the longer-term structural demand for 28? Is there a risk of oversupply of 28-nanometer?

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**C. C. Wei** - Taiwan Semiconductor Manufacturing Company Limited - Vice Chairman & CEO

Okay. We don't rule out the possibility of building a fab in other areas, that including the Europe. However, we do emphasize when we build up a new capacity for 28-nanometer, it's almost all to serve the specialty technologies, for some of the specialty technology that is not offered by our competitor. And TSMC is working with our customers to meet their demand. So is there any possibility of oversupply? Not for TSMC, okay? That's all I can let you know.

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

Okay. Thank you, Brett.

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**Operator**

Next one to ask questions, Roland Shu Citigroup.

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**Roland Shu** - Citigroup Inc., Research Division - Director & Head of Regional Semiconductor Research

So my first question is, you have a global manufacturing expansion strategy to build more fab overseas going forward. Like you said, you also don't exclude the possibility to build a fab in Europe. So my question is, is a joint venture with a local government or key customers an option for you to build this new fab overseas? Or you prefer to build a fab 100% owned, like what you build for those fabs in China or U.S. that you are building now?

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

Okay. Roland, your first question is about our overseas fabs. Roland wants to know, as we expand overseas, will we consider joint ventures with local governments or our key customers? Or will we continue to -- or will it be 100% owned, like what we have done in China and in the U.S.?

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

Okay, Roland, let me answer these questions first. Normally, as you mentioned, our overseas fabs, we normally own 100%. We do not consider a JV with government. However, JV with other companies or key customers can be considered on a case-by-case basis.

**Roland Shu** - Citigroup Inc., Research Division - Director & Head of Regional Semiconductor Research

Okay. Yes. My second question is on your -- now you've set a short term goal of a zero emission growth by 2025, but you have to continue to invest in 5-nanometer, 3-nanometer or even 2-nanometer before 2025. So how are you going to achieve this zero emission growth target and also, in the meantime, keep up with your expansion plan? So these right now, these are aggressive zero emission growth plan to decelerate your investment plans to meet your target.

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

Okay, Roland. Roland's second question is asking that our commitment recently announced to zero emissions growth by 2025. But as we continue to invest and expand on N5 and N3, how will we be able to achieve this target?

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

Okay. Roland, it's actually a net zero in 2050, not zero emission in 2025. We are going to do this first by working ourselves to save -- to become more energy-efficient because a lot of the carbon emission comes from the electricity. Our production, we can try to minimize the carbon emission.

And secondly, we are going to use more green energy, which is the -- which will emit the most part of the carbon. And for whatever is left, it will depend on carbon trading, the carbon rights in the future. So that's the basic framework of achieving this net zero in 2050.

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**Roland Shu** - Citigroup Inc., Research Division - Director & Head of Regional Semiconductor Research

No. Actually, I'm talking about zero emission growth. So you have this near-term target, zero emission growth by 2025. So I know there's a difference from this, like in Net Zero in 2050.

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

Right.

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

Yes. The way to achieve those are pretty much the same.

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

I think when -- sorry. Roland, your question is about net zero emissions growth by 2025. And Wendell said, we have net zero emissions by 2050, right? So I think what Wendell was saying is that our -- we will continue to invest in technology, but we have also, as Wendell just said, our own internal efforts, our use of renewable energies, carbon credits and also working with our suppliers and our supply chain on green manufacturing to achieve and deliver on these targets.

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**Roland Shu** - Citigroup Inc., Research Division - Director & Head of Regional Semiconductor Research

Okay. Understood.

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

Okay. Thank you, Roland.

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**Operator**

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

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

So my question -- first question is about the chip shortage situation. I think the Chairman took an interview by Time Magazine, and his view is that there should be more than sufficient finished chip in the supply chain. So can you help us, our global investors, to understand when do you think that chip shortage, especially for the automotive can be fixed? And also, your advise to the major governments or car makers besides asking you to provide the customer data, what would be a better way to manage the shortage issue going forward?

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

Okay. So thank you, Charlie. Charlie's first question is around the chip shortage with several aspects to it. Charlie wants to know, with the chip shortage and also sort of observations of customers' stockpiling chips, he wants to know that how do we see the situation? And when can this be fixed, particularly for the automotive segment? And yes, let me stop there first.

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**C. C. Wei** - Taiwan Semiconductor Manufacturing Company Limited - Vice Chairman & CEO

Yes. For the automotive, let me specifically point it out. The automotive supply chain actually is quite long and complex. It's more complicated than we initially thought.

But let me say that TSMC's participation in the global automotive IC market is only about 15%. And we are doing our part to support our automotive customer with what they need. However, we cannot solve the entire industry's supply challenge. And recent factors, such as pandemic in Southeast Asia, are also affecting the auto IC supply. Again, we are actively taking the steps throughout the first half of this year to address the chip supply challenges for our automotive customer.

And we also believe the wafer supply shortage is greatly reduced for our automotive customers, starting probably in third quarter. The end of OEM, probably we'll wait for a couple of quarters to see it. That's our estimate.

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

It's super helpful. And another question is about, again, the price hike, right? So I think news were reporting you decided to hike the price by 5% to 20%. So may we know how do you determine the different range applying to different customers? What's the kind of strategic reason behind for a different range of a price hike?

And I know you don't want to give the next year guidance, right? But based on the 5%, 20% price hike, in terms of percentage of gross margin improvement, can you or Wendell comment on the margin improvement?

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

Okay. Charlie's second question is asking about pricing and he is asking that recently, there's lots of news that we have increased our price by anywhere from 5% to 20%. So he wants to know how do we decide, how much to increase for what types of nodes or customers. And then also, what will be the impact to 2022 gross margin? Is that correct, Charlie?

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

Yes.

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**C. C. Wei** - Taiwan Semiconductor Manufacturing Company Limited - Vice Chairman & CEO

Charlie. In fact, we do not comment on our pricing, this is a very private discussion between TSMC and our customers. But let me say that we continue to work closely with our customers to support their growth. That one needed TSMC to expand the capacity to support their growth. It's for both leading-edge technologies and specialty technologies. And so our wafer's pricing strategy continue to be strategic, not opportunistic or short term and so that we can be better prepared to support the capacity expansion.

As for the return, let me emphasize it again. Our gross margin will be 50% and higher. TSMC needs to earn a proper return that can enable us to invest for the future expansion to support our customers' growth.

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

Okay. I guess my question is that whether your desired ROI or desired margin changed, right? Meaning you -- for example, you hiked the price by certain percentage points, but besides passing through this cost, you just mentioned, whether they would lead to further margin expansion? I think that should be the core of my question.

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

Right. Charlie, I think we just said that in the past, we always say about 50% gross margin. But now we're saying that 50% and higher gross margins is achievable.

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

Thank you, Charlie.

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**Operator**

Right now, we have Nick Gaudois from UBS.

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**Nicolas Gaudois** - UBS Investment Bank, Research Division - Head of APAC Technology Research, APAC Tech Strategist & Global Sector Strategist

Yes. Just going back to the confirmation you just did on investing in Japan. Should we understand that the portion of CapEx in '22, '23 is incorporated in your overall guidance of \$100 billion? Or would that come on top? And would you -- could you specify it if you can at all? And related question to that would be, what kind of capacity are we talking about for 22- and 28-nanometer?

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

Okay. So Nick's first question is about our fab plans in Japan. He wants to know that with today's announcement, is the CapEx for the Japan fab already incorporated in the -- this \$100 billion target that we have talked about previously? And also, can we disclose the capacity for Japan?

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

Okay, Nick. The CapEx for this project, as we said last time in last quarterly release, was not included in the \$100 billion budget that you mentioned. So it will be incremental. Other than this, we really are not able to comment on the investment amount and other details until after our Board's review and approval.

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**Nicolas Gaudois** - *UBS Investment Bank, Research Division - Head of APAC Technology Research, APAC Tech Strategist & Global Sector Strategist*

Right. Okay. Fair enough. Understood. And going back to N3 and N3E. I mean you talked about an improved process window for N3E. Is that the only main difference? Or is there a difference in performance as well between the 2?

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

Okay. So Nick's second question is on N3E. He notes that we have talked about the improved manufacturing process window. He wonders if there's any other improvements in things like performance and et cetera.

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**C. C. Wei** - *Taiwan Semiconductor Manufacturing Company Limited - Vice Chairman & CEO*

There's a difference. As we said, N3E is an improvement, improvement in the manufacturing window. However, the majority and the general assumption is similar. We're using the N3E to enhance the manufacturing window with a better performance.

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

Thank you, Nick.

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**Operator**

Next one, we have Laura Chen, KGI.

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

I think we are talking about seeing the solid demand across the board, thanks to TSMC's strong position and technology. But on the other hand, on the demand side, we are also seeing that smartphone growth is slowing down, particularly in China. So I think back in the early -- earlier this year, we mentioned about a 5G smartphone shipment. We estimate that will be 500 million to 550 million units. Just wondering, do you still keep that target?

And also, do you have any idea or preliminary projection for the 5G smartphone into next year? And also, where is like the smartphone if 5G move into a more like a lower-end or mainstream kind of segment? What's the implication to TSMC? That's my first question.

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

Okay, Laura. So Laura's question is focusing on the smartphone. She notes that recently, it seems the smartphone momentum in markets like China are slower. So she is wondering about what is our forecast for the smartphone market this year as well as how do we see the 5G penetration this year and then also the trend for the next few years. Is that correct, Laura?

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

Yes. Thank you.

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

Okay, Laura, let me answer this question. We see the proliferation of the 5G smartphone is still higher than the 4G at the same period of time before. And also, we're looking at about probably slightly over 500 million units of 5G smartphone for this year.

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

Right. So do you have any preliminary thoughts about the next year growth? And was that mainly driven by the lower-end segment? In that case, what's the implication to our outlook? Yes.

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

We'll update you about the information in January.

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

And also, my second question is also regarding our CapEx intensity. We already talked about like the 3-year horizontal, but just wondering that do we still expect the CapEx intensity to maintain high beyond 2023 since we are launching gate-all-around or 2-nanometer in 2025?

So can we expect TSMC will start to bear fruit like our previous intensity -- CapEx intensity hike back in 2011, and thus, we will maintain the high CAGR growth going forward?

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

Okay. So Laura's second question is on capital -- CapEx intensity. She is asking, what is the outlook for our capital intensity beyond 2023? Will we still have a very high level of capital intensity? Or she notes back in the 2010, 2011 period, of course, our capital intensity was higher, but then we were able to harvest the growth and grow -- capture the growth. So how do we see the next few years playing out?

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

Okay, Laura, in 2020, the capital intensity was 38%. 2021, this year, is going to be over 50%. As we said earlier, and C.C. mentioned this earlier, our CapEx spent every year is in anticipation of the growth in the future years. So if we think the future growth outlook is good, then there's a possibility of higher CapEx.

And we're entering into a higher-growth period because of the industry megatrends of 5G and HPC applications plus the silicon content increase. So the capital -- higher capital investment in the next few years is appropriate. As a result, we expect the capital intensity to be relatively higher



than previous year, like in 2020, for the next 2 to 3 years before gradually coming down maybe to mid- to high 30s level from what I can see at this moment. And your observation on the previous investment cycle in 2011 to 2014 will be a good one.

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

Okay. Thank you, Laura.

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**Operator**

Next one to ask questions, Sebastian Hou, Neuberger Berman.

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**Sebastian Hou** - *Neuberger Berman*

I only have one. It's on pricing. So I think last quarter, the company talked about firming up pricing to reflect the cost. And based on the higher long-term gross margin guidance that the CFO gives this time, a 50% plus, I'm curious if this round of pricing adjustment is enough to absorb the higher CapEx intensity only for this year or next multiple years. I have a follow-up to this question, so I will stop here.

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

Okay, Sebastian. His first question is on pricing, and we have talked about firming our pricing, actually also talking about selling our value in the past. So he is wondering, now that we say 50% and higher gross margin, does that mean we -- it is enough to cover the cost?

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

Okay, Sebastian, let me answer it this way. Well, first of all, we're not able to comment on detailed pricing discussion with the customers. But we work closely with the customer to provide our value. And after providing our value, we're now expecting that long-term gross margin of 50% or higher -- and higher, I'm sorry. 50% and higher is achievable as compared to the 50 -- about 50% gross margin previously.

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**Sebastian Hou** - *Neuberger Berman*

Got it. Got it. So my follow-up is that given that the next couple of years' CapEx plan, it is still fluid, and I think CFO also mentioned there could be upside to our CapEx plan because of the Japan or any other reasons. So does that imply this will be a continuous adjustment? Meaning that it won't be just 1 shot, but we will evaluate the future pricing and what kind of value we can offer to customers based on the CapEx and based on our -- and also to balance the structural profitability. So that means that we may continue to see potential upside in the price in coming years?

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

Okay, Sebastian, so your follow-up is, again -- let me summarize it. I think Sebastian is asking our pricing, is it sort of a onetime? Or will it be sort of an ongoing thing?

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**C. C. Wei** - *Taiwan Semiconductor Manufacturing Company Limited - Vice Chairman & CEO*

Sebastian, this is C.C. Wei. Certainly, I will not be able to comment on the pricing discussion with our customers. But we work with them and we continue to plan our capacity and share our value. The capacity is one of the very important values of TSMC to support customers' growth. And so our pricing is accordingly with our value, and so we prepared for that.

This is a onetime or this is not? It's not a question. We do it strategically and not opportunistic and continue to work with our customer.

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**Sebastian Hou** - *Neuberger Berman*

Got it. But at least I think we can make a fair conclusion that the higher-margin guidance outlook at this time is a strong reflection or evidence of that the customer is willing to pay higher to -- because of -- we offer value-added service. Is that right -- fair to interpret as it?

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**C. C. Wei** - *Taiwan Semiconductor Manufacturing Company Limited - Vice Chairman & CEO*

Yes.

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

Okay. Thank you, Sebastian.

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**Operator**

The next one to ask questions, Mehdi Hosseini, Susquehanna International.

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

I want to go back to your comments on N3 and N3 plus. Can you tell me how I should think about EUV double-patterning and how it will impact the cost structure? And I have a follow-on.

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

Okay. Mehdi's first question is about -- on N3. And actually, Mehdi, it's N3E, not N3 plus. So his question on N3 and N3E. He's wondering about the impact of things, like EUV and double-patterning. What impact does this have on the cost structure, for N3 and N3E?

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**C. C. Wei** - *Taiwan Semiconductor Manufacturing Company Limited - Vice Chairman & CEO*

Well, let me answer that question. From N3 to N3E, we provide better value on the transistor performance and have a better manufacturing window. As for the cost, they are similar, but we think our customer will enjoy a better yield, better defect density and better transistor performance.

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

Okay. And my final question would be to you. Your earlier commentary on customer prepayment. In the past, you've had 1 or 2 largest customers that have promoted prepayment. Should I assume that there is a diversification and larger number of customers that are providing these prepayments?

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

Okay. So Mehdi's second question is on customer prepayments. He observes that in the past, we may have had 1 or 2 customers who do prepayments. He wants to know, are we seeing a diversification? Are we seeing a larger number of customers doing prepayments today?

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

Okay, Mehdi, let me answer these questions. Yes, in the past, there was only 1 or 2 customers providing the prepayments. But as we've been talking now, we expect to invest higher capacity, higher capital expenditures in the next few years to satisfy the strong demand. And in order to secure our customers' commitment, we are able to secure the prepayments for some of those customers. And the number of the customer, I cannot disclose, but it's more than before.

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

Okay, thank you, Mehdi.

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**Operator**

The next one will be Rick Hsu from Daiwa Capital Market.

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

This is Rick. So the first question is about -- I think a follow-up to Bruce's question earlier about the disconnect between sell-in and sell-through demands. And I think C.C. mentioned that he doesn't rule out the possibility of the inventory correction. May I know if that happens, do you -- when do you expect that to happen? And also, if that happens, which area would feel the more impact in terms of technology nodes and in terms of the end applications?

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

Okay. So Rick's question is, again, going back to the disconnect of sell-in versus sell-through and also that we have said we do not rule out the possibility of the inventory correction. Rick wants to know if one were to occur, when would it occur? What particular end segments or applications could be more impacted?

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**C. C. Wei** - *Taiwan Semiconductor Manufacturing Company Limited - Vice Chairman & CEO*

Rick, I said we do not rule out the possibility. It's just a possibility. And all I say is TSMC's capacity will remain very tight in 2021 and throughout 2022. Which market sector? So far we observed a little bit soft in smartphone and the PC market. But if you ask me to predict, I cannot give you a very accurate prediction. We are the only one -- I can give you a hint as we continue to say.

It's not for the semiconductor industry. The demand does not only come from the unit growth, but also it's increasing silicon content in end devices. So even you saw some smartphone units become soft or even decrease, that doesn't mean that semiconductor or the business or the demand will drop. Does that answer your question?

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

Yes. Perfect. Yes. That's very good. And the second question is on the technology migration. I remember that the 7-nanometer, you defined a 7-plus as a node for you guys to have a very good transition with EUV. So I'm just wondering if -- are you going to do the same thing to define a particular technology node for the GAA transition?

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

Okay. So Rick's second question is about technology migration and transition. He notes that in N7, we had introduced also N7+ to transition and start to adopt EUV. So he's asking if we will incorporate a similar transition as we move to a new transistor structure.

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**C. C. Wei** - *Taiwan Semiconductor Manufacturing Company Limited - Vice Chairman & CEO*

Well, I don't think that we can have any more information to share with you as we move from N3 to go to the next more advanced node. Today, I only announced the N3 to N3E, that we have a better transistor performance and better manufacturing window. For N2 GAA, we will share with you when we are getting more ready.

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

Okay. Thank you, Rick.

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**Operator**

Now the one who's going to ask question is Krish Sankar, Cowen and Company.

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

I just wanted to follow up. One is on C.C.'s prepared comments. You said the industry is going to maintain a higher level of inventory. Can you tell us the specific end markets and which specific technology nodes you're seeing with higher level of inventories? And your comment that you're seeing softness in smartphone and PCs. Is there a function of end demand? Or is it a function of not being able to get the components to make those products? And then I have a quick follow-up.

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

Okay, Krish. Krish's first question is on the higher level of inventory that we see preparing in the supply chain. He wants to know which end markets or applications specifically or which technology nodes do we see this higher level of inventory. And then also, the slower momentum in the sell-through of smartphone or PCs, is this related to component tightness or shortages?

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**C. C. Wei** - *Taiwan Semiconductor Manufacturing Company Limited - Vice Chairman & CEO*

Well, let me answer the question. The high level of inventory is actually caused by some of the necessity, not to be disrupted in the supply chain. So it's across the board. Actually, it's not any node or any product. It's across the board.

And we say it will be continued for a period of time. That is because of today, all those elements to drive the people to prepare more inventory still continue to exist. Did that answer your question?

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

Got it. Yes, it did. And then just like the second part of this question, which is the softness in smartphone and PCs, is that end demand-related or component tightness-related? And then I'll ask one final question along with it. The gross margin upside you saw in Q3 from back end, was it a onetime thing? Or is there more upside to that in the future?

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

Okay? So Krish's question, also sort of this weakness that we see in areas like smartphone, is it -- and PCs, is this related to end demand? Or is it related to component shortages?

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**C. C. Wei** - Taiwan Semiconductor Manufacturing Company Limited - Vice Chairman & CEO

Both, actually. Let me answer the question quickly. Actually, end market is a little bit soft, it's slow, but we think it's partly due to the component shortage.

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

And then the second part -- or Krish's second question, I should say, is on the gross margin side and also the improved back-end profitability.

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

Right. The back-end business is sort of seasonal. It has high season, low season during the years. So normally, second half is high season, especially third quarter. As a result, the profitability of back-end will be better in that quarter.

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

Okay. Thank you.

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**Operator**

Yes. The last one to ask questions is Andrew Lu from Sinolink Securities.

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**Andrew Lu** - Sinolink Securities Co., Ltd., Research Division - Semiconductor Analyst

C.C., I want to ask. This year, you just guided 24% year-over-year growth. I think this number is probably in line with the industry. It is clear we have a strong growth in advanced technology but losing some share in the legacy. Earlier, Wendell mentioned we will build more mature technology based on the customers' demand. So if our CapEx is unchanged, will we adjust down our advanced CapEx but increase more CapEx on mature technology?

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

Okay. So Andrew's first question, he's looking at our growth in 2021 to be around 24%. He sees the strong leadership in the advanced nodes, but his note is that we're losing share in the mature nodes. So going forward, will there be any adjustment in our CapEx strategy, leading versus mature? Is that correct, Andrew?

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**Andrew Lu** - Sinolink Securities Co., Ltd., Research Division - Semiconductor Analyst

Yes, correct.

**C. C. Wei** - Taiwan Semiconductor Manufacturing Company Limited - Vice Chairman & CEO

Andrew, let me answer that. We did not change our strategy or philosophy in our CapEx plan. But certainly, the most important thing is that we are working with our customers to support their demand. This is very important. That including the specialty technologies. We shared them -- actually, we shared them to increase the mature nodes capacity. But as we announced the Japan fab, actually it is a mature technology. It's a 22, 28 node.

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**Andrew Lu** - Sinolink Securities Co., Ltd., Research Division - Semiconductor Analyst

So can we say that in the future, we should have a higher percentage of CapEx in terms of total CapEx compared to the past?

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

So Andrew really wants to know, well -- Andrew wants to know will the CapEx spending portion -- proportion of the mature nodes versus leading edge, will we have a higher proportion for the mature nodes in the future years?

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**C. C. Wei** - Taiwan Semiconductor Manufacturing Company Limited - Vice Chairman & CEO

Andrew, not yet because we increased our CapEx, right? So even the same proportion, the mature nodes, actually, we spend a lot of money also. Did that answer your question?

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**Andrew Lu** - Sinolink Securities Co., Ltd., Research Division - Semiconductor Analyst

Yes, yes. My last question is, since we are adjusting our price based on the cost increase or whatever, how do we factor into our model for next year? What kind of blended ASP increase should we factor into our model? Because I have been -- observed average price on a blended basis for the last 3 years including this year.

Our price for last 3 years, including this year, about 7% to 9%. So if next year, we have additional adjustment on the apple-to-apple pricing level, should we say easy to have a 10% blended basis increase on ASPs?

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

Okay. So Andrew, second question is on the blended ASP outlook. He wants to know, in essence, can he model a 10% or greater blended ASP increase for 2022?

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

Andrew, it's too early to comment on 2022. We will provide you more color in January. Plus we don't really comment on ASP anyway.

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

Okay. Thank you. 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 4 hours from now, and the transcript will become available 24 hours from now, and both of which are available through TSMC's website at [www.tsmc.com](http://www.tsmc.com).

So 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 in January. Goodbye and have a good day.

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