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2330.TW - Q1 2014 TSMC Earnings Conference Call

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**OVERVIEW:**

2330.TW reported 1Q14 revenues of TWD148b and EPS of TWD1.85. Expects 2Q14 revenues to be TWD180-183b.



## CORPORATE PARTICIPANTS

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**Mark Liu** *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

**C.C. Wei** *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

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**William Dong** *UBS - Analyst*

**Mark** *UDNTV - Reporter*

## PRESENTATION

**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

Welcome to TSMC's First Quarter 2014 Earnings Conference and Conference Call. This is Elizabeth Sun, TSMC's Director of Corporate Communications and your host for today. Today's event is webcast live at TSMC's website at [www.tsmc.com](http://www.tsmc.com).

If you are joining us through the conference call, you're dialing lines are in listen-only mode. As this conference is being viewed by investors around the world, we will conduct the event in English only. The format for today's event will be as follows.

First, TSMC's Senior Vice President and CFO, Ms. Lora Ho will summarize our operations in the first quarter 2014, followed by our guidance for the current quarter. Afterward TSMC's two Co-CEOs; Dr. Mark Liu and Dr. C.C. Wei will jointly provide a couple of key messages. Then we'll open both the floor and the line for the Q&A.

For those participants on the call, if you do not yet have a copy of the press release, you may download it now from TSMC's website at [www.tsmc.com](http://www.tsmc.com). Please also download the summary slides in relation to today's earnings conference presentation.

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 statement. Please refer to the Safe-Harbor notice that appears on our press release.



Now, I would like to turn the podium to TSMC's CFO, Ms. Lora Ho.

**Lora Ho** - *Taiwan Semiconductor Manufacturing Company Ltd - SVP & CFO*

Thank you, Elizabeth. Good afternoon everyone. Thank you for joining us today. I will start my presentation with financial highlights for the first quarter and followed by the guidance of the second quarter. You may have noted from the information we provided to you today, starting from this year, we have changed the wafer unit to 12-inch equivalent, as 12-inch accounts for the majority of our production capacity.

The first quarter came out better than expected. Our revenue, gross margin and operating margins were all exceeded the revised guidance. In the first quarter, the demand for TSMC's wafer was much stronger than we've had initially predicted in mid-January. The strength came from customers' better fourth quarter results, which led to a more positive outlook for the whole year, prompted through the active replenishment of inventory from a very low base in the fourth quarter last year. We were able to capture the bigger market share of customers' upside demand. Thanks to the better performance and the high yield and reliability for our advance technologies.

First quarter revenue increased 1.7% on a sequential basis and 11.6% on year-over-year basis, to reach TWD148 billion. Gross margin was 47.5%, up 3 percentage points from the fourth quarter last year, mainly due to higher capacity utilization, a favorable foreign exchange rate, offset by unfavorable inventory variation adjustments.

Operating margin was 35.4%, up 2.6 percentage points from the fourth quarter. Non-op items was a small gain of TWD0.78 billion. Overall, the first quarter EPS was TWD1.85 and ROE was 21.9% in the first quarter.

Let's take a look at the revenue by application. If you recall, the fourth quarter inventory correction was mostly serious in the communication-related applications. When customer demand came back in the first quarter, communication shows the strongest increase. Compared to the fourth quarter last year, communication increased 8%, computer increased 2%, and industrial-related revenue increased 2%, while consumer declined 14% during the first quarter.

By technology, 28-nanometer revenue continued to grow and account for 34% of our total wafer revenue in the first quarter. 40-nanometer has a nice rebound, now represents 21% of our total wafer revenue. The two advanced technologies, 28-nanometer plus 45-nanometer, represented 55% of our first quarter total wafer revenue, increased from 51% a quarter ago.

Now let's move onto the balance sheet. Cash and marketable securities decreased TWD10 billion sequentially to TWD235 billion at the end of first quarter. Current liabilities decreased by TWD15 billion, mainly because of the decrease in accounts payable to equipment suppliers. Meanwhile we borrowed TWD9 billion in short-term loans for hedging purposes. Accounts receivable turnover days decreased three days to 45 days. Days of inventory increased to 52 days, reflecting the strong demand in the second quarter and the starting of a 20-nanometer ramp.

Now let me make a few comments on cash flow and CapEx. During the first quarter, we generated TWD95 billion cash from operations, invested TWD115 billion in capital expenditures, and borrowed TWD9 billion short-term loans. At the end of the first quarter, our cash balance decreased TWD11 billion to TWD232 billion. Free cash flow for the first quarter was an outflow of TWD20 billion due to higher capital expenditure in the first quarter.

Our CapEx and capacity; first quarter CapEx was \$3.8 billion. We expect 2014 CapEx will be about \$10 billion, with front-end loaded pattern. About 70% of the budget will be spent in the first half to support the quick ramping of 20-nanometer. On a full-year basis, we plan to increase our capacity by 10% from 2013.

So the total annual capacity will reach 8 million 12-inch equivalent wafers.

So I have finished my report on the financial part. Now let me turn into the second quarter outlook. Based on our current business outlook and a forecast exchange rate of TWD30.10, we expect our second quarter revenue to be between TWD180 billion and TWD183 billion. This would translate into around 22% quarter-over-quarter increase.

On the margin side, we expect the second quarter gross margins to be between 47.5% and 49.5%, and operating margins to be between 36.5% and 38.5%. At a January Investor Conference I talked about the tax rate for the year will be about 13% and the second quarter will carry more burdens. Let me give you an update this time. According to the accounting principle, when shareholder approves the earnings distribution in June, we need to accrue the 10% retained earning tax for the undistributed earnings. Therefore our second quarter tax rate will go up to 21%, and then fall back to the normal level of around 11% in the third and fourth quarter. Full-year tax rate, however, will still be 13%. This concludes my remarks. Let me turn the podium to our Co-CEOs, Mark and C.C. for their comments.

**Mark Liu** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

Good afternoon, ladies and gentlemen. Let me cover the first three items on the agenda. Let me begin by saying our 2014 market outlook has improved since our mid January Investor Conference. The first quarter is typically a slow season for our customers and for TSMC. However, since mid January, we started to see strong orders across all segments. We now have an improved demand outlook from the following three perspectives.

First, the demand in smartphone appears healthier than we expected last quarter. The acceleration of LTE infrastructure buildup, LTE smartphone proliferation and the increased silicon content of smartphones improved our demand outlook. The silicon content increase has come with multi-core 64-bit application processor, multimode baseband, multiband RF transceivers, image sensors, MEMS, near-field communications and finger prints; these all are included in the smartphone.

The second, TSMC's 28-nanometer technology, performance and quality suffice to field more of those customers' demand. Fabless DOI was substantially below seasonal when we exited 4Q last year. So we still expect fabless DOI will be below seasonal in 1Q 2014. So, for second quarter of 2014, we expect our demand will continue to be strong and above seasonal in all major applications.

Now I'll cover the market supply chain and demand of second half and full year for 2014. Since first quarter fabless DOI is below seasonal, the second quarter demand on us is unseasonably strong, but we expect fabless DOI will return to seasonal level at mid 2014. Therefore, our second half demand would be more normal.

TSMC will gain 28-nanometer market share with 28-nanometer high-K metal gate transition in the second half of 2014. TSMC also expects to gain overall foundry market share in the second half 2014 when we ramp up 20 SoC in the second half 2014. However, since our first quarter and second quarter will establish a higher base. The quarter-to-quarter growth of third quarter and fourth quarter will be -- will both be positive, but will be more moderate than our second quarter. For the full year of 2014, our outlook improved from last quarter as follows.

Semiconductor revenue growth from 5% to 7%. Fabless revenue growth from 8% to 9%. Foundry revenue growth from 10% to 14%. So our growth for full year of 2014 will be higher than the forecasted foundry growth by several percentage points.

Then I cover the updates on 16 FinFET, 16 FinFET plus and our 10 FinFET. First, we have two general offers for customers, 16 FinFET and 16 FinFET plus. 16 FinFET plus offers 15% speed improvement, the same total power, compared to 16 FinFET. More importantly, 16 FinFET plus offers 30% total power reduction at the same speed, compared to 16 FinFET.

Our 16 FinFET plus matches the highest performance among all available 16-nanometer and 14-nanometer technologies in the market today. Compared to our own 20 SoC, 16 FinFET plus offers 40% speed improvement. The design rules of 16 FinFET and 16 FinFET plus are the same; IPs are compatible.

We will receive our first customer product tapeout this month. About 15 products planned for 2014, another about 45 in 2015. Volume production is planned in 2015. Since 95% tools of 16 and 20 are common, we will ramp them in the same gigafabs in TSMC. 16 FinFET yield learning curve is very steep today and has already caught up with 20 SoC. This is a unique advantage in TSMC 16-nanometer.

For 10 FinFET, 10 FinFET offer TSMC's third generation FinFET transistor, designed to meet the power and the performance requirement of mobile computing devices. 10 FinFET will offer greater than 25% speed improvement, the same total power, compared to 16 FinFET plus. More importantly, 10 FinFET offer greater than 45% total power reduction at the same speed, compared to 16 FinFET plus.



10 FinFET will offer 2.2X of density improvement over its previous generation, 16 FinFET plus. So, currently, 10 FinFET development progress is well on track, but risk production will be in 4Q 2015. Above are the key messages on three items. Thank you.

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**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

Thank you, Mark. And following Mark, there will be two remarks made by C.C. Wei.

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**C.C. Wei** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

Thank you, Elizabeth. Good afternoon, ladies and gentlemen. Following Mark's exciting forecast and our second quarter and second half of year 2014, I would like to take this opportunity to share with you the two topics with you; namely, the 20 SoC ramp and TSMC's advance assembly solution to our customer. First, I will brief you on the status of 20 SoC ramp.

Let me recap what we had said in the last meeting here. We started 20 SoC production in January this year and by fourth quarter of this year, the 20 SoC will account for 20% of the quarterly revenue -- wafer revenue. And for the whole year of 2014 we expect 20 SoC will be about 10% of our total wafer revenue of the year of 2014, of course. All these expectations remain the same today.

Now, there are some major achievement I would like to share with you. First, on the ramping speed. 20 SoC by far is the fastest ramping in TSMC's history. Of course, this fast ramp is to meet customers' strong demand. And I believe this production of 20 SoC in TSMC represents one of the largest mobilization in semiconductor history. Let me share with some numbers, so you can have a snapshot on this ramp.

In about one year's time we have built a manufacturing team of 4,600 engineers and 2,000 operators in two fabs; Fab 14 in Tainan and Fab 12 in Hsinchu. More impressively, in the same time period, close to one thousand engineer has been relocated among TSMC's fabs in Hsinchu, Taichung and Tainan. All these are prepared for the 20 SoC's ramp-up. This magnitude of mobilization, I believe, is not an easy job. We move people around that show our strength in manufacturing and this highly mobilization is not moving the tool or just a handful around. We're talking about we're moving the engineer and operator among TSMC's fabs. In the meanwhile, we have installed more than 1,500 major tools for this 20 SoC ramp.

Of course, the faster ramp has done with a very good device reliability and a very good wafer defect density. Without those, the fast ramp will make no sense. Now how important are these 20 SoC ramp? Well we knew that 28 nanometer provided the engine of TSMC's profitable growth in the years of 2012 and 2013 and similarly, we expect 20 SoC will provide the engine of TSMC's profitable growth in year 2014 and 2015.

Now let me switch gear to advanced assembly technologies. The purpose of -- for us to develop advanced assembly technology is to provide our customer a better performance and a lower power consumption, while at a lower cost as compared to the previous assembly solution. For example, we have developed CoWoS and CoWoS has been developed to connect two dies or more dies together to have a very high performance and a very low power consumption and today CoWoS is in a small volume production already. However, the cost structure of CoWoS has made CoWoS only suitable for some very high performance applications and the products. To address the cost structure issue and for those mobile -- very large volume mobile devices, we have developed a derivative technology called InFO; that stands for integrated fan-out.

InFO will have significant lower cost as compared to CoWoS and at the same time, InFO also can have the same capability to connect multiple dies together just as the CoWoS did. Currently, we're working with major customers and the InFO, to incorporate this structure into their future product. We have delivered many functional dies to our customers already and the process optimization are ongoing.

In fact, we are very excited about TSMC's advanced assembly technology development as we're building a innovative solution for our customers product, which requires high performance, lower power consumption and at a very reasonable cost structure.

Now let me sum up today's key message which is presented by Mark and myself. First, we have revised up2014 forecast for the semiconductor industry and for foundry segment, as our outlook has become very positive. More importantly, TSMC will be able to strongly outperform our foundry peers and we will continue to increase our market segment share as we have done in the past four years. The demand for 28 nanometer and 20



nanometer will provide a foundation for our profitable growth and the strength to outperform this year. 20 SoC's ramp is a new record. That is one of the largest mobilization in the semiconductor industry. Our 16 FinFET, especially 16 FinFET plus, are highly competitive and we have a very similar good defect density performance already with -- of course just like Mark said, it's 95% similar to 20 SoC, which we already have a very good defect density performance.

Our 10 nanometer technology development are on track and we're working on the cost effective advanced assembly solution InFO for our large volume mobile devices. And we believe all these activities will pave the way for our continued profitable course for the next few years.

This ends our prepared remarks. Thank you very much.

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**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

Thank you C.C. This concludes our prepared statements. Before we begin the Q&A session, I would like to remind everybody to limit your questions to no more than two at a time, so that we can allow all participants an opportunity to ask questions. Questions will be taken both from the floor and from the line. Should you wish to raise your question in Chinese, I will translate it to English before our management answers your question.

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## QUESTIONS AND ANSWERS

**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

(Operator Instructions) Donald Lu, Goldman Sachs.

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**Donald Lu** - *Goldman Sachs - Analyst*

(interpreted) First question Donald has is with respect to smartphone semiconductor content. He likes to know what is the semiconductor content for the smartphone on average in 2013 and 2014 and what's the semiconductor content to TSMC for a smartphone in 2013 and 2014 and if we could do that, he also want us to break it down into low end and high end smartphones. That's the first question. The second question is with respect to 16-FinFET progress. According to Donald, ASML said they saw mobile FinFET delayed and he was wondering whether the delay is caused by TSMC or another company?

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**Mark Liu** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

Okay. I probably cannot give you as detailed numbers as you wish, but let me give you some numbers from my perspective, from my granularity. For the smartphone total, in 2013, TSMC's average wafer value per unit, per unit, is \$7 last year, it will increase to about \$8. So this increase, of course, include the silicon content increase as well as the market share increase. But I cannot -- at this point I cannot distinguish those two. But this increase significantly stands out -- is in the high-end smartphone. High-end smartphone, last year, we are about \$10.8 per unit in average. This year we expect to be \$13.9. So that's a major increase. For the mid-end and low-end we see similar level. Last year was about \$6 and this year will also be \$6 and low end is 3.6 and this year will be 3.6 also.

However, we do see the low-end performance spec continue increasing. Mid-end and low-end smartphones continue increasing and we see a lot of features, regardless of mid-end or low-end, it's still increasing almost like the high-end of last year. So these are the perspective we can see now.

Secondly, about the ASML's message, I really don't know what he means. But let me give you some comment on that. If you talk about the FinFET technology difficulties, our I must tell you that our 16 FinFET technology development is well on track and our new improvement is well on track and we are working with customers closely and we expect to ramp up 2015. But I think one unique feature of our 16 FinFET is, our 16 FinFET has the same design rule, back-end design rule like 20. So, we can leverage all the new learning, all the massive work C.C had talked about in this year into next year 16 FinFET.



Secondly, if you observe the industry, mobile device industry, we do see in the past six months and we do see the 32 bit conversion to 64 bit in the processing after the Apple's announcement and that change, that transition, clearly indeed bring a lot of attention of the product development back to 28 and 20 nanometer product design. And indeed, we see increased demand on the 28 and 20 this year as well as next year. So that's the second message.

And the last message I'd like to comment, well that is if you combine in 20 and 16 -- our Chairman has mentioned to you that combined 20 and 16 total revenues in the first eight quarters or first two years will be even bigger than the 28-nanometer revenue in total. So that I give you this above. Thank you.

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**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

Randy Abrams, Credit Suisse.

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**Randy Abrams** - *Credit Suisse - Analyst*

I could ask a follow-up on the 16. Could you talk about the timing for the 16 regular version versus the plus version, if there is a difference on timing and also the customer adoptions? Then could you also talk about your expectation at this early stage on market share for the 16 node?

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**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

So Randy, your question is with respect to the timing, the availability of the 16 FinFET versus the 16 FinFET plus. And then the way the customer adopts, whether they're more adopting 16 FinFET or the 16 FinFET plus?

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**Mark Liu** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

Okay. 16 FinFET plus will be qualified in September. But remember, we and our customer work on 16 FinFET design one and a half years before. So all the customer already design -- the design is on 16 FinFET, okay. So the customer -- for those customers when the product tape out -- for example, we have a first product tapeout this month, it will ride on 16 FinFET process. And for those customers taped out in the second half, mostly, I would say mostly, will be riding on the 16 FinFET plus. So I would think majority of our process customers will run on 16 FinFET plus. And looking into the volume for the next year, I would say that most of the product will be run on 16 FinFET plus. Okay, thank you.

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**Randy Abrams** - *Credit Suisse - Analyst*

And the second question, if we look ahead to second half, you talked about normal -- kind of normal profile for growth. I mean if you could give a characterization, would that normally be for third quarter, fourth quarter, how you think about normal seasonal? And then in that context, for gross margin, given 20-nanometer is ramping and depreciation is going up, if potential of normal gross margins [can be had]?

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**Lora Ho** - *Taiwan Semiconductor Manufacturing Company Ltd - SVP & CFO*

Okay, you are talking about a second half growth will be normal. If I just give you the guidance of second quarter, we'll grow 22%. We believe "second half will be normal" means less than 22%. I cannot give you specific number, sorry. You also talked about the margins. I think last quarter a lot of analysts asking how can we maintain even better structure profitability, given 35% year-over-year depreciation increase. Let me elaborate and I will talk about 20-nanometer impact.

The reasons we can improve structural gross profitability are the following. Number one, you see the 35% increase in depreciation that's on dollar to dollar, but we have also increased 10% capacity. So, if you divide that by unit basis, actual depreciation on a whole basis go up about 22%. It's



number one. Number two, depreciation accounts for about half of our manufacturing cost. We have another half. That's basically the variable cost, these are material and other fixed cost. We work extremely hard to drive those costs down. So with very good progress. With that, along with a better blended ASP, thanks to the technology migrations and our higher yield and better performance, we are able to raise the overall corporate SGM level.

With the ramping of 20-nanometer, which just started in a second quarter, we will have a very, very small volume shipment. We'll have much more volume in the third and fourth quarter at any new nodes, starting with low margin. So, we expect there will be some dilution to corporate level margin starting from second quarter. The magnitude of that, it will impact by 1% in the second quarter. It will be slightly bigger than 1%, will be a very low single-digit impact on our second half. For the whole year, we still expect to see a slightly higher SGM compared to last year.

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**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

Dan Heyler, Bank of America Merrill Lynch.

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**Dan Heyler** - *Bank of America Merrill Lynch - Analyst*

Thanks. Good afternoon. Thanks for all the clarifications on 20 and 16. It's very helpful. I now want to follow up on Donald's questions on the mobile numbers that you put out, which were helpful. That's a very significant increase in the high-end content per phone for TSMC in terms of market share. Congratulations there. I wanted to talk more about your mid-end number. I am a little bit surprised to see that you talked about the mid-end phones being basically flat, but you also commented that the specs are increasing for mid to low-end phones. So, would that suggest that there is significant pricing pressure and you're not benefiting from that content increase? Thanks.

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**Mark Liu** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

This is the number for the full year. So the current we can see is from 5.9 to 6. So, I really cannot distinguish the silicon content versus the market share. I think we will hold our market share as we had before. Price, as you know, is always there, yeah.

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**Dan Heyler** - *Bank of America Merrill Lynch - Analyst*

Okay. Yeah, I think that mid-end market is where there's significant units in terms of -- globally it represents the biggest part of the units and I am amazed how much that content is increasing the mid-end phone. So, I was a little surprised as to why you're not seeing your dollar value in the mid-end market go up more. Is that maybe happening in the second half of the year in 2014 or 2015? So, how should we think about that?

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**Mark Liu** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

I think it has to do with 20 SoC also, which is mostly second half.

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**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

Dan, do you want to release your microphone?

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**Dan Heyler** - *Bank of America Merrill Lynch - Analyst*

Well, they were chatting. I thought C.C. was going to comment there. No, I will not give up my microphone. I have one more question. I wanted ask a bit about -- if you could elaborate on what's your feeling of the progress on EUV, if you think it's coming on slowly or are we still kind of treading water and your latest best estimate on when there would be an insertion into your progress, again, timing? Thanks.



**Mark Liu** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

No. I think we work very closely with ASML. So, their comment about EUV yesterday, I think, we hold this same perspective. Okay, today, of course, EUV is not up to the production spec. Actually the most recent breakthrough was a 30 watt and now they have higher 80 watt machine that we're still working toward that goal. So -- and also the same as Peter had mentioned yesterday that EUV will not be inserted in 10 nanometer at the start, because it will slow the pass-through window. So we, however -- our EUV team is still continuously working on EUV, hopefully to insert a few layers after the 10 nanometer process start to qualify as a follow up process simplification. Okay. And that will mean to be second half next year.

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**Dan Heyler** - *Bank of America Merrill Lynch - Analyst*

Thank you.

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**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

Michael Chou, Deutsche Bank.

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**Michael Chou** - *Deutsche Bank - Analyst*

I don't know, C.C. Wei, could you give us more color on the advanced packaging you just mentioned. What's the difference between this one and CoWoS?

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**C.C. Wei** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

The difference between the InFO and the CoWoS is actually the geometry to connect multi-dies together. In the CoWoS, actually we are using very small geometry, actually 65 nanometers of geometry to connect the multi-dies together. In InFO, we're using the larger geometry, which are still technical confidential information. But the cost is much, much lower.

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**Michael Chou** - *Deutsche Bank - Analyst*

Could we expect that would be adopted by mobile customers?

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**C.C. Wei** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

I would like to say that we are working with major customers.

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**Michael Chou** - *Deutsche Bank - Analyst*

Thank you. The second question is regarding Q2 outlook by segments?

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**Lora Ho** - *Taiwan Semiconductor Manufacturing Company Ltd - SVP & CFO*

Second quarter, all segments will grow more than seasonal, especially strong in communication, consumer and industrial-related applications. Computer will grow less than the other three segments.

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**Michael Chou** - *Deutsche Bank - Analyst*

Thank you.

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**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

Gokul, JPMorgan.

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**Gokul Hariharan** - *JPMorgan - Analyst*

Yeah, thanks for taking my question. My question is about the second wave of demand, both for 28-nanometer. I think some of it is already coming through. And how do you think about second wave of demand for the future process like 20 or 16? Is it going to be much smaller and how does that have an impact in terms of your thinking on investment as well as future returns? Thanks.

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**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

I think Gokul, your question is with respect to the backfill of the 20 and 16-nanometer once the first wave customers migrate to the next node, whether or not we will have sufficient demand, as big as what we had in the past and whether or not -- if not whether this will change our investment profile and change our return on invested capital?

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**Mark Liu** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

Hi. Let me answer this question. The 20-nanometer SoC is not a transition node. We have worked with our customer, already come out with very powerful products and in the ramping up. So -- and these customers, some of them indeed will quickly transition to 16 FinFET plus. However, still some other product will stay on 20 SoC for quite a long time, for quite a long time. Not every product requires the highest speed for example. But the key is we manage this transition by -- the tool commonality between 20 and 16 are 95%. So when the customer move from 20 SoC to 16 FinFET, we only need to increase a very marginal amount of the capital to suffice that demand. Of course, the ASP. And the product will be more competitive for our customer. So that's how we -- so we consider 20 SoC, CapEx-wise, almost -- very similar to -- I'll put it together as one node. But it does provide our customer their product grade or product spec to continually improve year-after-year.

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**Gokul Hariharan** - *JPMorgan - Analyst*

Okay. Just one more follow-up on that. I think you have indicated that your 2015 CapEx will start to come off a little bit. Should we expect that to continue going into 2016 and 10 nanometer or is it intermediate stock and then we need to ramp up as we ramp up the EUV and (inaudible)?

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**Lora Ho** - *Taiwan Semiconductor Manufacturing Company Ltd - SVP & CFO*

We have not decided CapEx for 2015, but from what we are seeing right now we expect the CapEx for next year will be similar to this year's level. However, because our revenues are continuing to grow for this year and also for next year, so the CapEx intensity will go down this year and next year as well. Next boost of CapEx will be 10 nanometer. So I think that will be coming on maybe the timeframe of 2016 and 2017.

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**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

Steven Pelayo, HSBC.

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**Steven Pelayo** - HSBC - Analyst

Hi. We focus so much on 20 and 16 nanometer, but I guess, one thing I noticed here in the first quarter is your 45 nanometer actually grew about 25% quarter-on-quarter. That was a bit of a surprise. So what's the driver for kind of that mid node? And then the second question would be the More-than-Moore strategy. Are you out of capacity in 200 millimeter? Are you able to transition some of those products to 300 millimeter, what are we thinking for the higher nodes that are still half the business?

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**Mark Liu** - Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO

I'll answer the 45-nanometer demand. I think our 40 and 45-nanometer market share holds up this year much better and our -- the product mostly is the -- associated with the connectivity, and the connectivity integration become very big. So -- and our -- we hold very large capacity for our customer. So the demand is very strong this year.

Your second is More-than-Moore?

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**Steven Pelayo** - HSBC - Analyst

On even higher level nodes. I mean, obviously things like CMOS image sensors, fingerprint sensors, they suck up a lot of capacity and historically these are being built on 200 millimeters. So I'm curious are you out of more mature node capacity and what are you doing about that?

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**C.C. Wei** - Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO

That's a good question. Actually we did not increase huge amount of capacity for those specialties. But we did modify and buying some parts and tools to increase a little bit and also to convert the logic capacity into the more and more specialties capacities. We did all the time. We continue to see the strong demand on those specialties just like you mentioned, CMOS image sensor, fingerprint especially, embedded flash, for the multi, for those kind of products.

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**Steven Pelayo** - HSBC - Analyst

I can just sneak one last question. We're still focused on intensifying competitive landscape potentially at 16 and 40 nanometer. But it seems to me that at 28 to maybe now 45 as well, you guys are just extending, you're lengthening your period of dominance. So, this fear of -- this talk of potential second sourcing, it almost seems like the competitive landscape has almost got less intense. Would you agree with that?

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**Mark Liu** - Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO

I think it will be more difficult today and even more difficult in the future. Take 28 nanometer, for example, this is already the third year -- the fourth year we ramped 28 and the third year we ramped 28 high-K metal gate. And, first of all, the complexity is hard. But, secondly, when we ramped 20, our performance did not stand still. We continued to improve the product grid in the 28 nanometer. There are several ways our product saw improvement. That's how we try to defend our market share.

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**Elizabeth Sun** - Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications

Roland Shu, Citi.

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**Roland Shu** - Citi - Analyst

Good afternoon. My first question is to C.C. C.C., you are talking about the engineer mobilization is the key for the fast ramp on the 20 nanometer. I think definitely the reason you highlighted, TSMC has enough talent pool for that. Adding new people, sure. But I think going forward, I think the last couple of weeks TSMC say, we like to hire about 5,000 talent. And at the same time Hon Hai and the other Tier 1 company in Taiwan also would like to hire thousands of the talent. So are you worried about the shortage of the talent pool in Taiwan?

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**C.C. Wei** - Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO

I think TSMC today is a preferred employer in Taiwan. So, I don't use the word worry.

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**Roland Shu** - Citi - Analyst

Okay, yeah. I think it's very nice to hear you're so confident about that. But I think another question is how you are going to motivate current employees going forward or the new employees and to motivate them to work more hard, more smart, more innovative and give more contribution to TSMC?

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**C.C. Wei** - Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO

How to motivate existing employees? Actually TSMC continue to expand and our young engineer or the employees all have a very bright future, because of -- there are a lot of new openings in the higher position and Company's performance is getting very good, that's enough to motivate our existing employees. We never have that problem.

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**Roland Shu** - Citi - Analyst

Okay. Yeah, TSMC is a very good career place to all of your employees. Okay my second question is to Lora. I actually look at your -- you said on your margin improvement actually from the continuous cost reduction is one of the reason and also look at your other manufacturing cost in first quarter have been declined about 7% quarter-on quarter even though you have the same amount of wafer shipment. So my question is how much room is there for you to continue cut cost and to squeeze your gross margin?

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**Lora Ho** - Taiwan Semiconductor Manufacturing Company Ltd - SVP & CFO

I also ask myself the same questions, how much room. But I was -- every time I was surprised how much the engineer actually can do. So I'm confident. We will continue to drive that. It's old technology, current technology and leading edge technology.

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**Roland Shu** - Citi - Analyst

Okay. Thank you. And I think a follow-up is on -- I think TSMC now is loading at very high utilization now and what's your expectation if TSMC is loading at 100% utilization, what is the margin expectation for TSMC at the current SGM? Thank you.

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**Lora Ho** - Taiwan Semiconductor Manufacturing Company Ltd - SVP & CFO

I think you are trying to understand whether we can achieve 50% again if the capacity utilization gets to 100%, right? I can say I think we have the capability to achieve 50% if the utilization exceed or reach 100%.



**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

Okay, I think this is about time that we should open the Q&A to those people who are on the line. Operator, could you proceed with the first caller on the line?

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**Operator**

Mehdi Hosseini, SIG.

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**Mehdi Hosseini** - *SIG - Analyst*

Yes, thanks for taking my question. Going back to the commentary on 16 and 16 plus, it seems to me that 16 nanometer plus will have a larger mix of revenue and 16-nanometer revenue contribution would be limited. Could you please clarify that? And then what should we think about the actual contribution? Is it going more of a Q4 2016, or would it be more meaningful in early 2016?

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**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

Alright. Maybe I think his question is with respect to 16 FinFET versus 16 FinFET plus, whether or not we will have a bigger business volume from 16 FinFET plus and if so, whether or not the volume will be coming from Q4 of 2015 or we have to wait until 2016?

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**Mark Liu** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

From 2015, first of all. The volume of 16 FinFET plus will happen in 2015 and let me drive that. Even for some of the customer, initially their products sits on 16 FinFET, they also would like to migrate their second if market opened up indeed to upgrade their product. So I will see the majority, I really mean vast majority will be 16 FinFET plus.

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**Mehdi Hosseini** - *SIG - Analyst*

Okay and then one follow-up question for Lora. You talk about the SG&A trend into the second half. What should we think about R&D? Should we also assume that the R&D, because so much of revenue will go higher in the second half and into 2015?

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**Lora Ho** - *Taiwan Semiconductor Manufacturing Company Ltd - SVP & CFO*

I think the current R&D to revenue is ranging from 7% to 8%. If I look at the second half, I think they are still in that range, from 7% to 8% range.

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**Mehdi Hosseini** - *SIG - Analyst*

Okay, thank you.

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**Operator**

Brett Samson, Arete Research.



**Brett Samson** - *Arete Research - Analyst*

Thanks very much. Just had a quick question. Can you give us a sense within the 28 nanometer nodes, how does that split between poly-SiON and high-K and how do you think this might trend through this year?

**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

So Brett's question is what is really the mix between poly-SiON, that is our 28 LP, versus our high-k metal gate and what is going to be the trend with respect to that kind of mix throughout this year?

**Mark Liu** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

Allow me to answer that. Our 28 nanometer high-k metal gate has three options, 28HP, 28HPM and 28HPC. And this year these 28 high-k metal gate technology will be about 85% of the overall 28 nanometer in terms of the wafer.

**Brett Samson** - *Arete Research - Analyst*

Great. That's very helpful. And I have follow-up question on InFO. Can you maybe talk a little bit about attach rates for InFO over the next couple of years in smartphones? Is this something you expect all major smartphone chip makers to adopt or is it something that you think is more targeted at the high end? And maybe as a quick follow-up on that, what is the real benefit that InFO is bringing to chipmakers? I don't know, if there is a performance or power saving you can share with us. And also how should we think about the margin structure for this within TSMC's business? Thank you.

**C.C. Wei** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

You ask whether we are working with the customer and when we will have a product out? We are working with the major customers that all I can say and outlook is very good, performance is very good. The cost is low. I believe that we will see the product out, but that will be our customer's schedule. Technology is close to be in production ready probably early next year.

**Brett Samson** - *Arete Research - Analyst*

Okay. And if I look out maybe a couple of years from now, just to get a sense, is this something you think will be a very high attach rate? When you sell SoCs with the leading edge, do you think the percentage of chips you sell at leading edge will be attached with InFO? I'm just trying to get a sense for the penetration that you think InFO will have within your -- the bigger smartphone chipmakers?

**C.C. Wei** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

We certainly believe that attach rate; you're using that word attach rate, we certainly think it will be very popular among the mobile product and because we provided a very low cost solution and continue to give the high performance and lower power consumption. Whether it's going to be -- what is the percentage of attach rate, I cannot answer that question right now.

**Brett Samson** - *Arete Research - Analyst*

Okay, thank you very much.



**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

Alright, let me go back to the floor now. Bill Lu, Morgan Stanley.

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**Bill Lu** - *Morgan Stanley - Analyst*

Hi, good afternoon. I will start with a housekeeping question for Lora. A quarter ago, management said that the Company was pre-building -- forgot what the word was exactly, but building some of the demand in 2Q and 1Q and that impacted margins. If you look at your 2Q guide, if that didn't happen can you tell me what the margins would have been? I think that would have been -- 1Q margin little bit lower and 2Q margin little bit higher, right?

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**Lora Ho** - *Taiwan Semiconductor Manufacturing Company Ltd - SVP & CFO*

2Q will be a very strong quarter and our capacity are essentially full. So, there's no need to build inventory and no room to build the inventory.

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**Bill Lu** - *Morgan Stanley - Analyst*

So I wasn't clear. I don't mean that you would do that again in 2Q, but what you did in 1Q impacted 1Q margins and 2Q margins, correct?

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**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

Yeah, Bill's point is that since we did it in the first quarter, which probably represents some sort of a pulling from the second quarter. So, had we not done that, our second quarter utilization probably will be even higher and the second quarter's margins will be higher.

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**Lora Ho** - *Taiwan Semiconductor Manufacturing Company Ltd - SVP & CFO*

I have to talk from first quarter. I said, first quarter we did do some inventory and the impact for first quarter was about one percentage point, margin. For second quarter, had we continue doing that, well you have to look at which node you're building. For example, for certain capacity, it's already full. So you can only run that much, right? So, I don't know how to assume, we will be exceeding 110% utilization? That's essentially not possible. So am I answering your question?

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**Bill Lu** - *Morgan Stanley - Analyst*

Not exactly. I guess I could take it offline. That's okay.

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**Lora Ho** - *Taiwan Semiconductor Manufacturing Company Ltd - SVP & CFO*

Okay. Maybe I should say that the inventory build for the first quarter has no impact on second quarter. It will impact first quarter, because we utilized first quarter's capacity ahead of time.

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**Bill Lu** - *Morgan Stanley - Analyst*

Doesn't mean that that second quarter margins would have been a little bit higher?

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**Lora Ho** - *Taiwan Semiconductor Manufacturing Company Ltd - SVP & CFO*

Second quarter order already coming in, it's a regular order.

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**Bill Lu** - *Morgan Stanley - Analyst*

Second question is on this inventory cycle that we have seen. So, if you look back into last year, 1Q, 2Q were also very good and the things dropped off in 3Q and 4Q. Can you talk about what you're seeing now that is different from a year ago in terms of potentially a broader base recovery, maybe more end markets, more customers, or what are you seeing that gives you confidence that that won't happen again this year? And I guess, if you look at this more broadly, TSMC used to have a very diversified customer base, but in the not too distant future, I could see your top two customers being 25%, 30% of total revenues, both in the mobile segment, right? How do you manage that concentration going forward?

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**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

Bill, you actually have two questions packaged into one.

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**Mark Liu** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

Okay. I think, as you know, in the past few years, we see the end of the year people try to control inventories and towards the end of the year it's about back to the seasonal level. However, last year, we look at our fabless DOI and in the industry they drastically control the inventory, reduce the inventory. Even at the end of Q3, we see them get to seasonal. And going to Q4, everybody find that their inventory is below seasonal. Our data shows below seasonal by six days, which didn't happen before. Therefore, you see the -- the reason they did this, because of their perspective for the outlook when they were in the third quarter of last year.

Now for this quarter, we see the inventory not even back to seasonal. It is still, from our data, is minus five days below seasonal. So, they don't have time to replenish inventory given the better outlook. So, what happens to -- you see the inventory will happen in the second quarter. Now, whether this year we will be as bad as last year, I think I am typically more optimistic, because even down to the second quarter is only to the seasonal level. So it might -- even we assume it doesn't overshoot, it shouldn't be very much below seasonal. So, this is the difference we see this year.

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**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

Customer concentration risk

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**Mark Liu** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

Customer concentration, we just work very closely with our customers, okay. Remember if you're IDM, you have to face the -- and if you have much big market share you have to face the same consumer product demand decontrol. So this problem is more an industry problem than our problem, but we deal with this problem by working very closely with our two biggest customer and today we're already together planning our 2015 supply/demand very closely. So we recognize these challenges. Our customer also recognize the same challenges, so the only solution is work very closely together.

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**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

Andrew Lu, Barclays.

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**Andrew Lu** - Barclays - Analyst

You just now forgot my name?

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**Elizabeth Sun** - Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications

I forgot your company.

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**Andrew Lu** - Barclays - Analyst

We still survive. (spoken in foreign language) The first one is the CapEx number for next year, about 10 billion. For this year we are going to spend a lot of money on 20-nanometer capacity, but it is very likely one or two customers is going to migrate to FinFET -- larger customer to 16 FinFET plus or something. And earlier you said is capacity is 95% convertible. I believe the spending is very low. Assuming we have a 40k, 50k capacity by the end of this year and next year 30k convert to 16 FinFET, instead of adding a new capacity. Supposing next year CapEx should be sharply decline compared to this year, so I don't know what's the mix on this one? Thank you.

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**Mark Liu** - Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO

You said next year the capacity will suddenly decline?

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**Andrew Lu** - Barclays - Analyst

Yes, because your 20 versus 16 is 95% convertible.

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**Mark Liu** - Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO

Okay. What do we see is this year we ramped 20-nanometer very steeply, but toward the end of year, we see next year the combined 20 and 16 capacity will continue to increase next year. So some of the 16 FinFET we will convert 20 to 16, but we will also add a new 16 FinFET capacity next year. That's what the most of the CapEx this year is due for. So the total 20 and 16 capacity will continue to increase next year.

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**Andrew Lu** - Barclays - Analyst

So total combined, 20 plus 16, the amount, the capacity you're going to add, quite similar for both each year, can we say that? For example, just using example is a 40k capacity by the end of this year and next year and next year about 80k?

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**Mark Liu** - Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO

Allow me to say that the increase of -- total capacity increase next year, I think will be more than the conversion of 20 to 16.

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**Elizabeth Sun** - Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications

Okay, Andrew, I think you can go home and work out your numbers.

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**Andrew Lu** - *Barclays - Analyst*

The reason I asked this question is because I assume one customer take all your 50% of your capacity on 20. This customer is not going to use 20 next year, he is going to migrate 16 to another and you will have a totally -- the capacity next year, you don't need add that much on 20, unless you add additional 20 nanometer capacity.

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**Mark Liu** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

I think the key is this customer will still continue to use 20 SoC next year.

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**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

That's right. And Andrew, well --

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**Andrew Lu** - *Barclays - Analyst*

That's clear enough. The second question I have is, when you calculate US dollars per smartphone, do you calculate based on the shares you have or you use the total value divide by the global smartphone shipment?

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**Mark Liu** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

Yes, we use the total TSMC wafer revenue, divided by global smartphone shipment.

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**Andrew Lu** - *Barclays - Analyst*

That's why the high-end side, if you gain shares then your ASPs change a lot?

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**Mark Liu** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

Yes. That includes the silicon content increase and also the share increase. I cannot distinguish which portion is how much at this point.

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**Andrew Lu** - *Barclays - Analyst*

Well based on our calculation, it should be much higher than \$8.

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**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

Maybe your number is correct and they will be very happy, yes.

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**Mark Liu** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

Average, total average?

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**Andrew Lu** - Barclays - Analyst

Yes.

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**Mark Liu** - Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO

Okay. I will check with my staff.

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**Andrew Lu** - Barclays - Analyst

Thank you.

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**Elizabeth Sun** - Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications

William Dong, UBS.

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**William Dong** - UBS - Analyst

Thank you. My quick question is, I think in terms of competitive landscape there is always a lot of talk about design portability. Obviously, I think your competitor will try to come after your clients next year very aggressively. So, I wanted to just check what is your view on design portability and is it a realistic threat as sort of with the move from 20 to 16, we're using the same design rule. Does that really mean that your competitors can actually try to get some of these customers?

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**Elizabeth Sun** - Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications

All right. So William's question is with respect to design portability, in the sense that if 20 nanometer and 16 nanometer share the same design rule, will we open the window for our competition to learn something about our 20 nanometer design rule and then compete with us on 16 nanometer?

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**C.C. Wei** - Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO

Let me answer the question. First, 20 SoC and 16 FinFET are totally different device structure. Even the back-end design rule are similar, you cannot port one to the other easily. No, it won't be easy. And what's your second question?

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**William Dong** - UBS - Analyst

Okay. So, I guess, from 20 to 16 it's difficult, but in terms of perhaps you having 16, your competitor is having 16 nanometer as well, obviously I think there has been some talk in the market about them having some ability to port designs. Do you think that's a realistic threat or is that really just lot of wishful thinking?

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**C.C. Wei** - Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO

Well, Mark already answered this kind of question saying that porting from one foundry to the other foundry you are getting harder and harder. The real reason is all the device characteristic right now is related to the strain, all those kind of things, which you cannot just copy. You cannot de-layer or you cannot do the reverse engineering to look at it what is the device structure and get the same kind of IC characteristic. So, it's quite very hard -- actually very hard.

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**Mark Liu** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

Okay, let me answer. The porting it happens and I just want to make two points. We just have to live with it, deal with it. Let me point out two points. One is porting is cost more and more nowadays for this generation. I think it takes a lot of R&D resources to do that. Secondly, we just have to do better 16 technology. There are reasons to do that, because, first of all, we ramp 20 SoC massively this year and lot of learnings, a lot of process window control, a lot of design and collaboration with our customer, we will build ahead of our competitor. So we believe our 16 FinFET right on top of our 20 SoC, given they are same design rule, will be more mature at the time compared with our competitor.

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**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

Dan Heyler, Bank of America Merrill Lynch.

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**Dan Heyler** - *Bank of America Merrill Lynch - Analyst*

I just wanted to come back a little bit to the 16 discussion. Again and again this industry encounters some big node changes and 28 saw problems that TSMC didn't anticipate and your customers did not anticipate when 28 was first rolled out. How should we think about 16 and this is really uncharted territory? It is a totally new device structure. Should we be a little more conservative on the possible unknowns coming in and that this could easily be pushed out say a few quarters? How much are you really setting expectations here very high that you can have 16 in the market? Should we be thinking of this as a pretty uncertain node given how early it is? Thank you.

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**Mark Liu** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

I think this is your comment. We'll accept that and think. I think at this point we develop our technology, we can only make sure our technology do not stand in the way. When customer has need, for product needs we will be there, and mature, and support their business with enough capacity, okay. As I mentioned earlier, the industry -- market does change, for example, from 32 bit to 64 bit. That does sway somehow the schedule of 16 FinFET. But today I really talk about our readiness as to how much real business, and we will let you know when we do the next year's financial forecast.

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**Dan Heyler** - *Bank of America Merrill Lynch - Analyst*

Just to be clear, a follow-up, just to be clear that sort of -- kind of we should start to see volumes in first half 2015 where we would start to see a few percentage of revenue, based on your current expectations, few percentage contribution by second quarter next year, is that fair? Lora is checking.

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**Mark Liu** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

You mean the 16?

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**Dan Heyler** - *Bank of America Merrill Lynch - Analyst*

Yeah.

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**Lora Ho** - *Taiwan Semiconductor Manufacturing Company Ltd - SVP & CFO*

We will see some revenue in 2015.

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**Dan Heyler** - *Bank of America Merrill Lynch - Analyst*

Good okay. Setting the expectations low, that's good. I want to follow up on this InFO, this is quite interesting. Could you just maybe elaborate a bit more on what exactly are you going to be attaching, so which devices are we talking about in terms of what - with CoWoS it was pretty much PLD companies were there and others, some baseband. So what devices are you attaching on the initial generation between the different chips? And second part of that question would be what kind of -- how many customers do you expect to manage to have in this area, because you start peddling lots of devices and lots of customers it gets really complicated, you start to look more like an OSAT. So I wonder if this is going to be a pretty small group of high volume products? And finally on -- as you attach -- are you actually doing a chip attach or will you be doing only the wafer level activity and will you be having -- working with the OSATs to do the actual chip attach? Thank you.

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**C.C. Wei** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

Dan, to answer your question, the InFO actually we're right now working on application processor together with memory dies. That's good enough for you. I cannot say anything more than that. We're working with mobile product customers and we did not -- we expect very high volume, but we did not with many, many customers as current status. We're working on the wafer level process, stacking die, and couple of them, we're able to do the complete line all here.

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**Dan Heyler** - *Bank of America Merrill Lynch - Analyst*

Thank you.

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**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

All right. We have a hand raised on the back of the room. I think this is from a media. Please say your name and the company you work for.

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**Mark** - *UDNTV - Reporter*

I'm Mark from UDNTV. Just first congratulate on the TSMC on the very great quarter -- another great quarter. But I still have a -- just out of curiosity, I'm just wondering what the management team by now how is it they're managing that thing right now, because we're now obviously Morris is not here and I'm just wondering if that is a sign he is very confident that for both CEO right now here, and how do you divide work right now between Mark and C. C. just out of curiosity? And is TSMC shifting into a new generation management team?

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**Mark Liu** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

Well I'm delighted to work with C. C. Of course Chairman. We three contact constantly to devise new initiative for the Company all the time. And the rest I think is for you to judge.

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**Mark** - *UDNTV - Reporter*

But how open is Morris to both of your ideas to the Company? I mean does he just let you guys do your expectation or does he still make the final decision?

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**Mark Liu** - *Taiwan Semiconductor Manufacturing Company Ltd - President & Co-CEO*

Of course we -- everybody contribute ideas. Of course, decision usually is made together and -- but more than often we find wisdom talking, discussing with Morris, our Chairman, and that's we learn and that's the way we want to grow and up to his expectation I guess. Yeah.

**Elizabeth Sun** - *Taiwan Semiconductor Manufacturing Company Ltd - Director, Corporate Communications*

Alright, I think in the interest of time, we will conclude our conference here today. Please be advised that the replay of the conference will be accessible within three hours from now. Transcript will become available 24 hours from now, both of which will be available through TSMC's website at [www.tsmc.com](http://www.tsmc.com). Thank you for joining us today. We hope you will join us again next quarter. Goodbye and have a good day.

#### Editor

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