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Conference Call Transcript

TSM - Q2 2004 TSMC Earnings Conference Call

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PRESENTATION

Operator

Welcome to Taiwan Semiconductor Manufacturing Company's 2Q04 Results Webcast Conference Call. Today's event is shared by Ms. Lora Ho, Vice President and Chief Financial Officer; and Dr. Rick Tsai, President and Chief Operating Officer. This conference call is being webcast live via the TSM Web site at www.tsmc.com and only an audio mode. Your dial-in lines are also in listen-only mode. At the conclusion of the management presentation, we will be opening the floor for questions. At that time, further instructions will be provided as to the procedure to follow if you would like to ask any question. Please be advised for those participants who do not yet have a copy of the press release. You may download it from TSMC's Web site at www.tsmc.com. Please also download this summary's slides in relation to today's quarterly review presentation. Once again, the URL is www.tsmc.com. I would now like to turn the conference over to Dr. Elizabeth Sun, TSMC Head of Investor Relations for the cautionary statement, before the main presentation by Ms. Ho and Dr. Tsai. Please go ahead.

Elizabeth Sun - Taiwan Semiconductor Manufacturing Company Limited - Head of IR

Good morning and good evening to all participants. This is Elizabeth Sun, Head of Investor Relations for TSMC. Before we begin, I would like to state that the management comments about TSMC's current expectations made during this conference call are forward-looking statements, subject to significant risks and uncertainties and that actual results may differ materially from those contained in the forward-looking statements. The information as to those factors, that could cause actual results to differ materially from TSMC's forward-looking statements may be found in TSMC's annual report on Form 20-F, filed with the United States Securities and Exchange Commission on May 28, 2004 and such other documents of TSMC may filed with or submit to the SEC from time to time. Except as required by law, we undertake no obligation to update any forward-looking statements whether as a result of new information, future events, or otherwise. And now, I would like to turn the conference call over to Ms. Lora Ho, our Vice President and Chief Financial Officer.

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Good morning and good evening everybody. Welcome to TSMC's Second Quarter Conference Call. Again, we have some positive information to share with you. I'm pleased to say that during our past four consecutive quarters of strong financial performance, TSMC has delivered a record-breaking schedule financial results, where both top line and bottom line figures continued to elevate

TSMC's strong fundamentals. We've prepared some slides for you to look at as you listen to the call. These slides are available on TSMC Web site. During the call, I will refer to the slides by their individual numbers. To start with, let's take a look at some highlights of our second quarter 2004 operating results. These figures are showing slide number four. As announced on July 9, our second quarter revenue amounted to NT Dollars \$64.9b. Net income after-tax totaled \$23.4b NT Dollars. Both of these are record high numbers for the Company. Meanwhile, earnings per share reached NT Dollar, \$1 on a fully diluted basis, an increase of 25% sequentially. TSMC ended the second quarter with \$123.3b NT Dollars to encash any short-term investments. Shareholders equity after dilution of last year's earnings were \$351.1b NT Dollars, higher than that of the quarter one 2004. During the quarter, we shipped a total of 1.28m eight-inch equivalent wafers, 9.4% higher than 1.17m achieved in first quarter 2004.

Our overall utilization rate, which include TSMC Fab, WaferTech, and SSMC was 106% for the second quarter, slightly higher than the previous quarter which we were 105%. Overall, I am glad to announce that our ROE for the quarter has reached 26.4%, which is 4.2% over what we have achieved in quarter one. Now, let us go to the slide number five, compared with the first quarter this year revenue grew about 13% and gross profit margin improved almost 4% to 23.4% for this quarter resulting from higher utilization, improved ASP, and lower operating cost. The effect of our eight-inch fab coming off depreciation had contributed significantly to cost reduction. That will continue to help improve our margin in the future. Operating expenses as a percentage of total net sales was 9.3% for the quarter, slightly higher than the previous quarter, mainly due to higher-end activity level in quarter two and increased operating expenses, as we have expedited ramping up of Fab 14. Net income of NT\$0.1b for first quarter, net operating items for the quarter was an expense of NT\$0.3b mainly due to foreign exchange, regarding [evaluation?] losses on a certain short-term investments. Investment income on the other hand increased from NT\$0.8b in the first quarter to NT\$1.3b for this quarter through continuous improvement of WaferTech and SSMC's results. WaferTech revenue level went up significantly from quarter one as its utilization rate reached 106%. Net income before and after-tax, as well as our earnings per share all improved around 25% in comparison to the previous quarter.

You can see from slide number six that on a year-over-year basis, our revenue increased by 30% and gross margin was 6.6% higher than quarter two last year, mainly due to the increase of our utilization rates from 88% last year to 106% this year as well as the lowering of production costs. Total operating expense was only 9.3% of our net sales, lower than the 10% for quarter two 2003. Similarly, non-operating expenses reduced significantly from NT\$11.6b to NT\$0.3b, since we did not write-off idle assets this quarter as we did in quarter two last year that is for Fab 7 the total amount was NT\$1.2b. Our net investment income was up NT\$0.4b due to revenue improvement from WaferTech, SSMC, and Vanguard by about dollar NT\$2b left in the absence of NT\$1.6b

capital gains from disposal of equities from venture capital investments, in second quarter last year. Pre-tax income was NT\$23.1b, 84% over the NT\$12.6b, achieved in second quarter last year. As our capital expenditures this year was much higher than last year, so also related tax credit granted. As a result we ended the quarter with the tax credit of NT\$0.3b for whole Company. Profit after tax and earnings per share both doubled from that of second quarter 2003.

Side number seven will provide you with a few important items from TSMC's balance sheet and some key financial ratios. Our cash and short-term investments for the quarter was NT\$123.3b, NT\$3b lower than the previous quarter position of NT\$126.3b. Accounts receivable balance has increased from NT\$27.2b to NT\$30.8b reflecting higher sales activity in June. Accounts receivable turnover remain at 42 days, the same as quarter one. Total liabilities at the end of the quarter was NT\$49b which is NT\$10.9b higher than the first quarter. The difference was mainly accrual for cash dividends and employee profit sharing, which we have already paid out in early July, inventory levels remain healthy with equivalent (ph) days kept at 36 days for the quarter, which is the same as first quarter. Current ratio for the quarter was 3.5 times. TSMC continue to maintain a very solid balance sheet.

Slide number eight summarize TSMC's cash flow for the quarter. During the second quarter it was net profit of NT\$23.4b and depreciation and amortization of NT\$16b, cash flow generated from operating activities totaled NT\$36.1b. Our capital expenditure for second quarter increased significantly to NT\$22.8b equivalent to US dollar \$684m. In terms of cash investments, we have increased our short-term investments by NT\$24.8b and a long-term government loan by NT\$5.5b. With respect to our financing activities, TSMC has bought back 124m shares of common stock, during March to May for the total amount of NT\$7b. Overall speaking our cash balance reduced NT\$24.4b for the quarter. Cash in short-term investments together was down by NT\$0.3b.

Now let us look at some different analysis, Slide number nine, provides a quick look at our revenue break down by technology. TSMC continues to achieve record growth in our advance technology segment. Now defined as smaller 0.13-Micron, which accounted for around 25% of our total wafer sales for this quarter, up from 20% in the first quarter of 2004. Slide number 10 provides a view of application. During this quarter, we saw robust growth in the computer segment after two consecutive quarters of decline. Improvements were seen in almost all fields. Communication continued to pick up 45% of total sales. In wireless sector, the most reasonable growth we are seeing in mobile phones. On the other hand, rating for the computer sector declined by 5% to 27% of our total sales. The revenue actually remained flat, better than the modest decline as we forecast in the first quarter. Slide number 11 shows the geographical breakdown of our revenues. Revenue from North America, Asia Pacific, Europe, and Japan now account for

73%, 12%, 7%, and 8% of our total revenue. The overall trend was pretty similar to the previous quarters.

Slide number 12 provides a revenue breakdown by customer type. In the second quarter, revenue generated through Fabless Companies accounted for 68% of total sales, IDM 21%, and the System Customers 1%. In comparison to quarter one, Fabless has come down 1%, while IDM up 1%. Overall, there has been no major changes. Now, let me move on to slide number 13. This slide shows our Fab utilization in ASP trends. For three quarters in a row, TSMC has achieved utilization higher than 100%. Our utilization rate for the quarter reached 106%. As expected, ASP increased 3.2% this quarter. Let us turn to slide number 14, these slide summarize our installed capacity by Fab. Our total capacity during the second quarter was 1.13m 8-inch equivalent wafers, which is 13,000 pieces higher than our quarter one guidance as we pulled forward expansion schedule of Fab 6 and WaferTech in view of strong customer demand. With small increases to our 8-inch and 12-inch sets, we expect our capacity for the third quarter of 2004 to be 1.25m pieces, about 10% higher than that of second quarter. The last slide number 15 provides a recap of the major events in the second quarter. I would leave that to you for reference. Finally, let's briefly go over our guidance for the third quarter of 2004. Based on the business outlook, our first quarter 2004 guidance is as follows. Wafer shipments to increased by a mid single-digit percentage of points sequentially. Overall utilization rate to be slightly down from 106% in second quarter, but still be well above 100%. Gross profit margin is expected to be approximately 45%. ASP to remain as above the same level sequentially. 2004 Capex is expected to be about US \$2.4b. This ends my presentation today, thank you very much. Operator, please open the floor for questions.

QUESTION AND ANSWER

Operator

At this time, we will open the floor for questions. You would like to ask a question, please press the star then one on your touchtone phone now. Questions will be taken in the order in which they were received, if at any time you will like to remove yourself from the questioning queue, please press the star then two. Please limit your questions to one at a time to allow all participants an opportunity to ask a question to the management members. One moment please for the first question. And our first question is from Medhi Hosseini with FBR. Please go ahead with your question.

Medhi Hosseini - FBR - Analyst

Yes, before we get some clarification on the guidance, you are talking about the wafer capacity increasing by 10% in the third quarter where your wafer shipment is up only 5% and utilization rate above 100%, so where is the disconnect here?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

In the third quarter utilization rate is found be 104%.

Medhi Hosseini - FBR - Analyst

Right, I understand but if your wafer capacity is going to be up 10% in the third quarter, why did that your guidance for wafer shipment is on the -- up 5%?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Utilization calculated on wafer out and the shipment is on actual bidding there are some kind of difference between the two. This is why they are not always consistent.

Operator

Thank you. Our next question is from Robert Marie with Needham & Company, please go ahead.

Robert Marie - Needham & Company. - Analyst

Yes, that's very nice quarter. Could you address a little bit as to what you see in terms of inventory out there? There is obviously some controversy in the market as to where inventory exists and

what levels of inventory, maybe you could give us your view across different segments?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

I think the inventory situation of course varies from different company to company. So we are -- but we follow some of our customer's inventory levels. I think in some area, for instance the DVD area, we see a higher inventory build up, obviously some of the communication company has cleared up its inventory. We are not -- I think at the system level, OEM level, inventory situation seems to be in good control, and that's why I think our Chairman said in the afternoon, we believe the end-market demand is healthy, we do have inventory situation somewhere and that needs to be consumed in the next few months.

Robert Marie - Needham & Company. - Analyst

Okay. So, is it safe to say that some places have normal levels of inventories, some have in excess and some have below? Does the chips vary by market, there isn't a general oversupply currently?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Yes. I would say so, yes.

Robert Marie - Needham & Company. - Analyst

Okay. Thank you.

Operator

Thank you. Our next question is from Matt Gable (ph) with Calypso Capital (ph) . Please go ahead.

Matt Gable - Calypso Capital - Analyst

Looking at wafer starts in the PC and within communications, and specifically in the Handset segment, wafer starts quarter-to-date, how would you describe the sequential run rate that you're seeing versus what normal seasonality is, or what you expect it above, below, inline?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Are you asking about the run rate for PC segment, Handset?

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Matt Gable - Calypso Capital - Analyst

Both Handset and PC. If you would have looked at the run rate and sort of extrapolate that out through the quarter, what are you seeing in terms of growth rates versus what you think is normal? Is it above normal, below normal, inline?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

That's -- it's roughly above normal, PC is always improving going forward, compared to the last quarter.

Matt Gable - Calypso Capital - Analyst

Okay, would you think that the PC is -- we got a shorter track in a normal seasonality here in the third quarter?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Yes, I would say so, compared to second quarter, yes.

Matt Gable - Calypso Capital - Analyst

Okay. Thank you very much.

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Okay.

Operator

Thank you. Our next question is from Michael McConnell with Pacific Crest Securities. Please go ahead with your question.

Michael McConnell - Pacific Crest Securities - Analyst

Thank you. Looking at Q4, with respect it looks like Dr. Chang had stated on the earlier conference call that he was expecting revenues to grow sequentially in Q4. Can you help us understand if utilizations, you are still confident will remain at a 100% or greater in Q4?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Yes. I think the addition would be above 100%, we believe for the Q4 time frame.

Michael McConnell - Pacific Crest Securities - Analyst

Okay. And also with the raise in CapEx, it looks you are pointing to \$2.4b, looks like your capacity back into it, going in up about 6% in Q4. So, should we assume the majority of that -- of those tools are going to be coming in Q3 on the addition of capacities of above 10% here in Q3, is that the general assumption here?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

I think the \$2.4b CapEx, if you look at our -- this quarter and different quarter number, we have already spent above \$1.1b. So, the remaining will be spent in second quarter, this should be on the third quarter, I think it will be evenly distributed in the second half.

Michael McConnell - Pacific Crest Securities - Analyst

Okay so, does it mean that, that 4.8m in terms of your capacity could actually go higher?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Well, actually those spending are a big part for 2005 capacities, especially on the 12-inch and advanced technology, now necessary for the 4.8 for this year.

Michael McConnell - Pacific Crest Securities - Analyst

I see. Okay, thank you.

Operator

Thank you. Our next question comes from Dan Heyler with Merrill Lynch. Please go ahead with your question.

Dan Heyler - Merrill Lynch - Analyst

Hi guys. I had a follow-up question on the ASP environment. You kind of talked about potentially flat ASPs direct in the third quarter and yet, the consumer part of the business seems to be somewhat softer, some kind of reconciling software on lighting edge technology, why are you not getting a slightly higher improvement in ASP. Is it because you're getting - the economies of scale are coming through on 300-millimeter and you're able to pass on some of the advantages there to the clients or what exactly are we seeing?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

I think, the situation is just like what the Chairman said in the afternoon; basically some of your light technology pricing just have a higher lead of rate of erosion compared with the matured technology. That pretty much explains the flatness. The [segment?] really doesn't have a lot to do with the ASPs.

Dan Heyler - Merrill Lynch - Analyst

Okay. It seems though the economies of scale are coming through on 300-millimeter fairly nicely here in second half, are you saying that you are not seeing any necessary margin, cost advantage there, so that the decline in terms of your cost curve is pretty much a steady one such that now the pricing is stable or is there some economics here that we can see impact prices to decline further?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Well, I think Dan you're, you should see for more guidance about the gross margin for the third quarter, which is better than that of the second quarter. I think that you can infer from that about our 12-inch durability from full pricing and a cost point of view.

Dan Heyler - Merrill Lynch - Analyst

Okay. So, fair to say that the improvement in the second half has been fairly linear with regard to the cost on 300-millimeter relative to first half, there is not a big improvement that you're seeing? Fairly, it's a linear, it's a linear improvement, it's not a step function up in second half?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

We see a continued improvement, whether that's linear or non-linear, I think we'll see.

Dan Heyler - Merrill Lynch - Analyst

Okay. Could you go again probably to 10,000 wafers per month, it should be a step function up?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Go ahead.

Dan Heyler - Merrill Lynch - Analyst

Lora, could you comment, if you have some thoughts on that, it will be great, and then on the depreciation, I would be interested in that as well.

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

If you remember, back on that twelve-inch pressures, we have reached the cost cross-over in May, and with that in place and we're gradually increased our loadings on 12-inch, I think the economic benefits scale effect we have will be more to do things in second half. And, what was your depreciation question?

Dan Heyler - Merrill Lynch - Analyst

Great, thanks, yes. Could you give us your third and fourth quarter depreciation forecast?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Which quarter?

Dan Heyler - Merrill Lynch - Analyst

Both the third and the fourth.

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

The total year depreciation is around \$60b, and I think on page 30, it was about half, half. So, in second half, depreciation will be very similar to first half.

Dan Heyler - Merrill Lynch - Analyst

Excellent. Thank you.

Operator

Thank you. Our next question comes from Shekhar Pramanick with Schwab Soundview. Please sir, host your question.

Shekhar Pramanick - Schwab Soundview - Analyst

Yes. Hi, good evening. Two part questions. What have you seen in terms of wafer stock the last couple of weeks, have you seen a remarkable difference? Also, is the current guidance of shipments upside, is that factoring in those inventory concerns which have

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risen recently, given the - you have a touch and cycle time, which is almost few months or so? Thank you.

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

With the dollar (ph) rates really have been in line with our forecast all along and that's why we are forecasting a 104% dilution, also to the end of the quarter. What is the second question?

Shekhar Pramanick - Schwab Soundview - Analyst

Does the Q3 guidance already factor in the inventory?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Yes, of course, we start legal only with PO on hand, we don't want to start wafer, on forecast. Yes, that's.

Shekhar Pramanick - Schwab Soundview - Analyst

And my last question for Lora, what was that has been said about, first of all on the CapEx of '05; if there is any comments made in the afternoon session and the second, if the revenues grow in Q4, with the gross margins grow? Thank you.

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

You are asking the CapEx for 2005?

Shekhar Pramanick - Schwab Soundview - Analyst

No, I know you don't have any firm view but have there has been any comments made during the afternoon call?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

I think Kare (ph) didn't probably mention although we don't have a firm saying yes, but our internal thinking is that CapEx for 2005 will be moderately higher than 2004.

Shekhar Pramanick - Schwab Soundview - Analyst

And lastly, do you see the growth margins still could improve above the 45% level, if you have a revenue growth in the Q4? How did the utilizations mostly going to moderately decline?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

On fourth quarter, it's a kind of earnings to talk about margins, there will be raising up Feb 14. So the cost for will be some number as shows in fourth quarter.

Shekhar Pramanick - Schwab Soundview - Analyst

Thank you.

Operator

Thank you. Our next question comes from Bhavin Shah with J P Morgan, please go ahead with your question.

Bhavin Shah - J P Morgan - Analyst

Could you talk a little a bit about the 12-inch, I think you talked about cost cross over and how -- what is the flow through in the margin for 12-inch otherwise, if you as you add capacity in additional revenues. What sort of incremental margins can we expect from the 12-inch? Was when you compare it to 8-inch?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

We are seeing, once we get a cross over, the market will gradually improve. A initial range of 12-inch to economical scale so it's eventually the total margin from 12-inch would be higher than 8-inch.

Bhavin Shah - J P Morgan - Analyst

All right. And second question, I have is, it's Chairman made comments, that he expects inventory corrections to last a few months, next few months basically. What sort of demand, end-demand scenario have you assumed in drawing that conclusion?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

One this is for sure, we are not assuming, a very strong demand. What does the -- for the PC, I think we're assuming, moderate, were we can return, about 10% for the whole year. You know why, I think we pretty much follow the industry consensus, type of number when some are sold.

Bhavin Shah - J P Morgan - Analyst

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Fine.

Harvey Chang - Taiwan Semiconductor Manufacturing Company Limited

550m units.

Bhavin Shah - J P Morgan - Analyst

I see. I want to go back to the CapEx, of expectation of moderately high CapEx next year, and I would imagine that the TSM does have a lot of others competitors, who would also do something similar. In this semiconductor industry, CapEx is up 60%, slightly to be up 60% this year and if you go further from that versus as you discussed earlier, some sort of inventory dismantling all this year. Doesn't it worry you that you could end up with some sort of an over supply in 2005 and not in 2006?

Harvey Chang - Taiwan Semiconductor Manufacturing Company Limited

As far, I guess Bhavin the -- I think - we are fairly certain about this year capex and the Chairman made a comment on next year but he also said it clearly that he has - there's no firm numbers. We are far from really being finalized on that. And we were going to of course watch the business environment and the last thing we want is to invest unnecessarily. Right now, I mean I think the comment was based on or maybe -- if you could -- above trend 2005 growth for the whole semiconductor industry, I mean is our current view, we will move -- we will watch and move according to and accordingly. So, I mean, I don't think you should take that number now.

Bhavin Shah - J P Morgan - Analyst

I see. My last question is the following. I think one of the two comments, I think the gentleman made in the afternoon was that you -- at the minimum you don't expect to lose money, but that is hardly comforting because one of the targets that TSMC has set for itself is 20% normalized ROE. And I think -- it seems that target of not losing money is much more relaxed target than a target of normalized ROE of 20%. So, am I --?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

That's not talking about changing our target ROE, I can assure you that. I mean, make sure we know that everyday. So, borrowing ROE of 20% it is our target.

Bhavin Shah - J P Morgan - Analyst

Okay. Thank you.

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Sure.

Operator

Thank you. Our next question is from Ali Irani with CIBC World Markets. Please go ahead with your question.

Ali Irani - CIBC World Markets - Analyst

Yes. Good morning gentlemen. I am hoping you could help qualify for us the acceptance trends ahead in the demand from your customers for the advanced geometries. In particular, for 90-nanometer and the success that you are seeing for 90-nanometer yields. And also I am hoping qualitatively that you can help us understand what the shift to higher metallization designs is doing in terms of strain on some of your fab capacity out? Thank you.

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Your first question is on the 90-nanometer progress.

Ali Irani - CIBC World Markets - Analyst

Yes.

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

All right. We have now I think over -- more than 40 tape-outs -- more than 30 customers. And -- we will -- I saw the volume wafer starts, we just thought in the next month or so, we are doing that [Inaudible] support. We are not doing anything aiding to 90-nanometers and the yields for the first volume production very good I think actually it's better than the expectation even from the customers themselves. You said these are higher metallization, not every customer is using all of the highest number of metal layers, which is a wealthy age, fairly few customers for instance use nine-layer metals, quite a few you could use six metal layers. So, I do not see the major increase in the number of metal layers from 0.13-micron to 90-nanometer.

Ali Irani - CIBC World Markets - Analyst

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Okay. And in terms of acceptance of copper technology into designs?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Yes. Absolutely, I mean, I don't see --

Ali Irani - CIBC World Markets - Analyst

Any increase in the second half or are you seeing a pick up in the pace of acceptance?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

I think it's well accepted already by -- quite sometime. It's not this year's phenomenon -- it was past --

Ali Irani - CIBC World Markets - Analyst

Could you give us an idea of what percentage of your mix now is in the new copper materials?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Are you asking about copper right?

Ali Irani - CIBC World Markets - Analyst

Yes. Thank you.

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

All our 0.13-micron of production was in the copper material and the -- we are going to have more than 25% of our revenue coming from technology using copper materials

Ali Irani - CIBC World Markets - Analyst

All right. Thank you very much.

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

All right.

Operator

Thank you. Our next question from Mark Fitzgerald with Banc of America Securities. Please go ahead with your question.

Mark Fitzgerald - Banc of America Securities - Analyst

Thank you. I was wondering if you could explain to us why 0.18 and 0.25 technology has been, remained so strong for you at this point, where we haven't seen a more aggressive migration to the leading-edge technology among your customer base?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

I think several reasons, as for one, actually, basically what do we have observed over the years that it's a, many applications sort of, that relapsed the leading edge by more than one generation. Quite a lot of times by two generations, I think high voltage application is a good example for that. Another example is CMOS sensors which usually lapsed by one generation. So, we are seeing all those applications take up the capacity after the leading applications migrated to the more advanced technology and the 0.18-micron might from maybe, we are not certain, yes the 0.18 micron and in all case 0.18, 0.15 and you can come into 0.14. Quite a few customers I think are using aluminum, because maybe there are and they are staying for some more longer time.

Mark Fitzgerald - Banc of America Securities - Analyst

And, I'm curious then in terms of longer-term trend, here is the cost of design for these next set of technologies prohibitive hurdle for customers, I mean, given you got with us your own mask shops, you must have some sense of the trends of pricing for design at this point.

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

The cost of design is getting higher as we move into the more advanced technology. However, I think the cost savings and power savings and the performance increased of course, still justify the migration to you, more advanced technology. We are doing, what we are also seeing is, the - yes it is the more difficult than this but, EDA's buyers are also coming up with more and the better tool to help with the customers. We of course are doing what we can from the math point of view to ensure that this cost steps does not become a few steps prohibited, I don't think so, prohibited. It usually is higher at the beginning of the early stage of any new technology generation but the usually it goes down as time will come.

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Mark Fitzgerald - Banc of America Securities - Analyst

So, you basically don't sense that there's any sort of economic limitations that we're hitting in, in terms of Moore, is there lot here at this point?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Well, I'm not saying we don't see any, we are definitely seeing some, but what I am saying is the, I think that most of which can be overcome, but it does - I think we are - discussed that in our previous conference calls that the migration advanced technology is getting somewhat slower compared to the earlier generation.

Mark Fitzgerald - Banc of America Securities - Analyst

All right. Thank you.

Operator

Thank you. Our next question comes from Ben Lynch with Deutsche Bank. Please go ahead with your question.

Ben Lynch - Deutsche Bank - Analyst

Yes. I just want to ask a broader question on sort of pricing arrangements. When we shall think about '05 pricing, how much of that pricing will you set this year in the second half versus during the course of 2005. I know with some of your larger customers who actually set pricing already in Q3 '03 for the full year '04 and so I have just started wondering, already what sort of position you are, vis-a-vis that, whether you think your negotiating position on next year's pricing is better this year than it was last year, keeping in mind of course that it looks like your utilization rates in the second half of this year will be comparable to what they were in the second half of last year?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

We have not really started the major pricing discussion with our key customers and they usually do not expect us to discuss in our, negotiation strategy over the conference call, do you?

Ben Lynch - Deutsche Bank - Analyst

No I don't. But I'm just trying to understand that the timing of that and whether you feel you are in a better position this year in that respect than you were in last.

Dan Heyler - Merrill Lynch - Analyst

When will you be starting to negotiate '05 pricing and how much of your '05 pricing do you expect to have agreed by the end of this year?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

The timing varies of course from customer to customer. Really there is no set time. It's a strong function of the utilization and the business environment. So, I don't really think we have a good answer for you to what 2005 pricing will look like. I think we would probably know better in another six months.

Dan Heyler - Merrill Lynch - Analyst

Okay and just the last thing I will saying and I will drop it, but we've spoken to several of your larger customers and they have been happy with the pricing they have been able to achieve for '04 because they sort of set this pricing late Q3 last year when capacity utilization wasn't quite as tight as it became in the first half of this year. And I believe that has sort of held back some of your pricing increases this year. Again, it looks like this year, your utilization rates will be comparable to that which it was at the same stage last year and therefore you may find yourself in the same position of not being able to extract the best pricing from your customers.

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Well, I guess that we hope we haven't -- we always learn from our past experiences with whatever we do.

Dan Heyler - Merrill Lynch - Analyst

Okay. Thank you.

Operator

Thank you. Our next question comes from Timothy Arcuri with Smith Barney. Please go ahead.

Timothy Arcuri - Smith Barney - Analyst

Hi guys. Can you kind of give us the -- a little idea as to what the capacity plan, kind of in terms of your tool deliveries, if it's changed over the last month or so or do you continue to take delivery of these tools kind of as you had anticipated if you look back maybe six or eight weeks ago?

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Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Our capacity expansion plan goes according to our schedule. We have not really made any change. We are also --

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

4.8m this year.

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Your question on the equipment?

Timothy Arcuri - Smith Barney - Analyst

Yes. I am just kind of wondering whether you pushed out the delivery of any tools or if at all changed your tool implementation or your tool installation plan at any of your facilities.

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

For this year, no. We are -- I think our planned equipment delivery and the installation for this year was that -- and will go according to our schedule.

Timothy Arcuri - Smith Barney - Analyst

Okay and I guess maybe as a last question. It sounds like we shouldn't put a lot of faith in you comments on '05 CapEx or we should put a lot of faith in it?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

I said -- basically -- I think I would just repeat what we just said earlier. Take that comment two-fold, for 2005 we will modestly higher if the industry growth rate is at about 8% and if not, we certainly will modify our CapEx, most likely downward.

Timothy Arcuri - Smith Barney - Analyst

Okay, is that number typically finalized, I believe it's typically finalized in kind of the October to November time. Is that correct?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

No. You were not -- in January.

Timothy Arcuri - Smith Barney - Analyst

But the internal planning process happens in kind of the October to November timeframe right?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

It's an ongoing plan, at no point do we finalize.

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

It's a continuous process and also as Chairman said it's not finalized until December 2005.

Timothy Arcuri - Smith Barney - Analyst

Of course. Okay. Thanks a lot.

Operator

Thank you. Our next question is from Ivan Goh with Dresdner Kleinwort & Wasserstein. Please go ahead with your question.

Ivan Goh - Dresdner Kleinwort Wasserstein - Analyst

Hi, a couple more questions. You -- it seems that as if your inventory adjustment that you have seen is going to come from the consumer and the Wireless coms area. I am just a bit curious as to whether that -- you might expect inventory correction in the PC and wireline communication space as well?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

PC, I think is walking out of a slow period, which was second quarter. We expect PC to do reasonably well, I mean -- or another way of thing that is to follow the more normal pattern. On the wireline -- I think wireline business constituting fairly small portion over the overall business. I think the pictures mixed. I think only a more network product and we seem to see some inventory building you know, all the shipments we need not that big. Yes, very difficult to see the impact.

Ivan Goh - Dresdner Kleinwort Wasserstein - Analyst

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So, basically there isn't any in PC and what much in Wireline coms. Is that correct?

Harvey Chang - Taiwan Semiconductor Manufacturing Company Limited

Not any in PC. This is Harvey. You don't want to do make that kind of adjective. I think it's overall the -- what we told more than -- from the picture point of view, and we don't see a major issue there in PC.

Ivan Goh - Dresdner Kleinwort Wasserstein - Analyst

Okay. So, another question with regards to the cost involved in ramping up the Fabs. You mention that Fab 14, there would be some start-up cost for Fab 14. I am just curious as to when should we start to incorporate set up cost for Fab 12-B and Fab 10 in Shanghai? Or how should we model that in our models?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

When we classified the turnover costs, that means before the mass production, before the shipments. This is where we categorized Fab cost. First we have revenue and there is no longer start-up cost. It will become normal cost of sales. So, for Fab 14, we will get over that stage by fourth quarter this year and for Fab 10, it's probably by the end of this year if we move everything according to our schedule. Fab 12 Phase II is hard to say, depend on the demand.

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Should probably reveal early next year. Of course that's what Laura is saying and it is the in the months we start the product shipment, will be part of the manufacturing cost. We will have the impact on the gross margins. But before that it is not on the cost, because it's included in the expenses below the gross margin line.

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Yes, in general expense, G&A.

Ivan Goh - Dresdner Kleinwort Wasserstein - Analyst

So, today we had already start up calls Fab 14, and Fab 10 and Fab 12 Phase II is that --?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Yes.

Ivan Goh - Dresdner Kleinwort Wasserstein - Analyst

Okay, and it's rising into the third and the fourth quarter?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

It's rising in the third quarter and for Fab 14 is moving into cost of sales. So, we have growth.

Ivan Goh - Dresdner Kleinwort Wasserstein - Analyst

Okay, and my last question actually with regards to the segmental. I just want needed some more details is to the segmental basis. Within the comms sector where you have forecast a decline sequentially in revenues, is there anything that is strong in that area or can you provide some further details in that? Communications and consumer area.

Harvey Chang - Taiwan Semiconductor Manufacturing Company Limited

Goh, I think the DVD areas, but only working some, we can quite a bit due in the first half already. DVD seeing some weakening, some slow down. Game /TV flattish. Digital still cameras showing improvement/progress.

Ivan Goh - Dresdner Kleinwort Wasserstein - Analyst

Okay thank you very much.

CCBN Editor

Missing section of the Q&A from Pranab of Daiwa due to audio difficulties.

Operator

Thank you, our next question comes from Shailesh Jaitly with Nomura Securities, please go ahead with your questions.

Shailesh Jaitly - Nomura Securities, - Analyst

Yes, thank you I wanted to understand a bit more on the changing visibility through the year, if you recall back when we entered

second quarter that was the time when there was some prescription about shortages, so with that pressure your customers should have been more inclined to give you firm figures, which could have extended a bit longer than second quarter? Again last quarter, you did not provide the guidance more than a quarter ahead, this time you have gone ahead, and provided the guidance for fourth quarter, so I was wondering what is the reason for this improved visibility in an environment where the capacity shortages are relatively eased.

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

I guess those probably just because the environment is the hardest here, from a lot of investors or the analysts' point of view. So, we are trying to give you a better visibility because this is the time of changes and we want you to have a more clear understanding of where we're going.

Shailesh Jaitly - Nomura Securities, - Analyst

And what proportion of your forecast for fourth quarter would be supported by the firm purchase orders at this moment?

Operator

Will you repeat your question?

Shailesh Jaitly - Nomura Securities, - Analyst

What proportion of your forecast for fourth quarter is supported by the firm purchase orders at this moment?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

We're beginning to get orders for the early fourth quarter and of course, in this time, we have close contact with all major customers and understand their loading situations. So we are getting orders for the early fourth quarter.

Shailesh Jaitly - Nomura Securities, - Analyst

Which are some of the specific products, which are driving your growth say in third quarter and also going forward in the fourth quarter?

Unidentified Company Representative

[Inaudible]

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Okay, I think computer, we will recover, communication will be flat, consumer declining moderately after a very strong second quarter growth.

Shailesh Jaitly - Nomura Securities, - Analyst

Okay, one last question on ASPs is I would believe that some of these longer term pricing contracts should have come to fruition, which could have contributed to this ASP increases. Are you still having some longer term pricing contracts, which could be set to the current pricing going forward in the next quarter? Or are you done with those longer term pricing contracts last year?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Yeah, I think some of those prices; we will start discussing sometime in the next quarter about. Are we answering your questions?

Shailesh Jaitly - Nomura Securities, - Analyst

Can you repeat? I can't understand. Are you saying that some of these contracts would be re-pegged to the ongoing pricing in the third quarter?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

No, Rick was saying that we will be taking up the discussion of pricing, negotiating the price contract. Some of that will start in next quarter.

Shailesh Jaitly - Nomura Securities, - Analyst

Okay. Thank you.

Operator

Thank you. Our next question comes from Ashish Kumar with Credit Suisse First Boston. Please go ahead with your question.

Ashish Kumar - Credit Suisse First Boston - Analyst

Thank you. One, if I may ask a follow-up question. As it was said earlier, you typically do not give two quarter guidance. And clearly you are trying to help them, I could understand how semiconductor

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industry is behaving. Shall we take your fourth quarter '04 guidance as right now your best estimate? Or is this to be taken as the least that TSMC is going to deliver in fourth quarter?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

I think, fair to say that, that's our current best estimate.

Ashish Kumar - Credit Suisse First Boston - Analyst

It's your best estimate, you said ma'am?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Yes.

Ashish Kumar - Credit Suisse First Boston - Analyst

Okay, and in moving onto '05 CapEx, it was heartening to hear that you are closely observe and in case or just in case demand doesn't support, you will -- for the right use of CapEx. Clearly in the previous cycles, your utilization rates have dipped to as low as 40%. Qualitatively speaking, what is -- what will TSMC management do this time around that the semi cycle is also -- for you at least, it's shallow and bottom at much higher utilization rates than you have in the past.

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Also while we do not really believe that there will be such a drastic change in that at all. I mean, as we said that we were -- we believe that is going to be a moderately growing year. And also for the year, the cycle, when it comes, we also believe that the -- it's going to a more modest one especially compared to 2001 cycle. And our spending will be -- we'll do our spending according to that.

Ashish Kumar - Credit Suisse First Boston - Analyst

Sure sir. I think, you know what, hypothetically if there were to be a slow down and just hypothetical, I understand your views and Chairman's view on '05, and if you look at the previous downturns, there is not a single shallow downturn in semis. You know, its either big inventory, which thankfully this time around as you explained is not, or big supply growth? And industry leaders like you determine the supply growth and I am just trying to understand that clearly, I mean the signals are mixed but surely there are signals of slowdown. And, so how closely and how do you ensure that you don't get into a situation where you have no mid 60s

utilization. I don't know if there is a way to answer this question qualitatively?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

What we actually do is, we have monthly capital meeting. And chaired by our CEO, and every year every capital requirement needs to be adjusted by the functional VPs. And I can assure you that this expectation we depend mainly on the demand pictures and deals, that's what we watch. If the demand picture have any vital change, the management team really put the brakes on the spending. So, as we did -- I think as we have demonstrated during the past two years, 2003 and 2002, we were very cautious in our spending. And as I said earlier, we do not expect that to happen next year, but if that were to happen, you would see the same attitude of cautious spending, under-spending. We can guarantee you that.

Ashish Kumar - Credit Suisse First Boston - Analyst

Thank you. If I may ask this one follow-up question, in this monthly meetings that you've had, have you sort of -- as a senior member, got an impression talking to your business managers that indeed there is slowdown, I mean, outside PC, there are number of areas that clearly if you speak with the OEMs, including handset, TFT, clearly are slowing down. Do you get the same sense when you talk to your own people, and as a result are you very carefully sort of relooking at your CapEx plans for '05?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

I think that TFT -- certainly there is a -- well, I think the other certain seasonality effective but also I think it's probably more important with the supply getting ahead of demand from TFT point of view. And that's -- if we remind you that from TFT point of view, the semiconductor content is growing but still occupies a fairly minor portion of the overall business. Handsets, however, I think the picture differs from company to company. I think obviously from the end-market point of view, Nokia has shown some difficulties but there are some other handphone manufacturers doing quite well and our customer base, I think it's doing reasonably well. Moreover, we are not -- although I think for the full quarter, we're seeing kind of a flattish demand from cellular phone point of view, but it's not declining. We expect reasonable end-market demand for that market overall.

Ashish Kumar - Credit Suisse First Boston - Analyst

Sure. Thank you very much.

Operator

Thank you. Our next question comes from Sunil Gupta with Morgan Stanley. Please go ahead with your question.

Sunil Gupta - Morgan Stanley - Analyst

Hi. I wanted to follow upon some of the questions earlier about 12-inch versus 8-inch. If I take a look at your second quarter numbers, your flow-through excluding depreciation is about 65% for the company. Could you help me understand what's the flow-through on 12-inch fabs versus 8-inch fabs?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

You're asking rate of depreciation on the total costs?

Sunil Gupta - Morgan Stanley - Analyst

No.

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Okay. I think we continue to offer costs of 8-inch for depreciation, it's much lower than 12-inch. It's very simple just because we have one more 8-inch equipment coming off depreciation. As to the 12-inch, we just start to depreciate, so it's roughly 45% to 50% of total cost. I think 8-inch product is sometimes even below 40%. Did I answer your question?

Sunil Gupta - Morgan Stanley - Analyst

Yes, I guess that helps, but what I was looking for is actually your revenue lifts manufacturing costs excluding depreciation. So, your manufacturing cost excluding depreciation in the second quarter was about 35% of your revenue, so the balance being flow-through just 65%. I'm trying to figure out what -- if the 65% is a blended flow-through for the company, what's the flow-through for 8-inch fabs and what's the flow-through for 12-inch fabs? How different is that, is what I'm trying to figure out?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Sunil, I think you have a pretty good model for 8-inch and 12-inch and I tell you that these issues in component of the total cost of sales and it should be easy to figure out yourself in your model.

Sunil Gupta - Morgan Stanley - Analyst

Okay, okay and in terms of just the CapEx, I know you are not adding too much of leading-edge capacity on 8-inch, but just based on what the current equipment pricing is. What would be the pricing ratio for 12-inch versus 8-inch and your view on 0.13 micron capacity if you were to add \$0.13 micron capacity? I think earlier, sometime ago you had mentioned the ratio was down to 1.7 times and I'm wondering if that has changed much?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Your talking about the CapEx investment, 8-inch versus 12-inch?

Sunil Gupta - Morgan Stanley - Analyst

Correct.

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Yes, I think theoretically if you round to a very optimized position and the total CapEx can be reduced to 1.5 times, I think we have mentioned that earlier, is that what you mean?

Sunil Gupta - Morgan Stanley - Analyst

Yes, and are you already achieving that kind of a number?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Yes.

Sunil Gupta - Morgan Stanley - Analyst

Okay and finally I have a housekeeping question, in terms of your operating expenses, I noticed that there was an increase in your general and admin expenses in Q2 compared to Q1, it went from NT\$2b to about NT\$2.6b and I'm wondering what should I expect going forward in Q3 and Q4?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

I think in Q2, there are costs associated with Fab 14 startup and some IT spending associated with business activities. I would say that the number, it's close on third and fourth quarter to that number.

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Sunil Gupta - Morgan Stanley - Analyst

But same as Q2, about NT\$2.6b?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Second quarter probably on the high side and close is slightly lower than that number, should be okay.

Sunil Gupta - Morgan Stanley - Analyst

Okay. Thank you.

Operator

Thank you. Our next question comes from Nitin Bhambani with J.P. Morgan Investment Management. Please go ahead with your question.

Nitin Bhambani - J.P.Morgan Investment Management - Analyst

Yes, my question is on your focus for the industry for next year. I was interested to know how did you come up with this 8% growth number in terms of the correlation of that to your CapEx, if I look at just where you have turned, fourth quarter would be, if I analyze your perspective fourth quarter, assuming it to be slightly higher than third quarter, you can, that would imply a 10% year-on-year growth rate in 2005 which would imply that you don't need any capacity to grow around 10%, 12% next year?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Okay. The way we figure out the CapEx is cash outflow. So, for even for some purchase order placed this year, the actual payment will get down by next year. So, that will come for next year's CapEx. So, it's not directly, it doesn't say that, if you don't have CapEx increase, you have a zero CapEx, that can never happen.

Sunil Gupta - Morgan Stanley - Analyst

All right.

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

You are going to have carry overflow from previous year.

Sunil Gupta - Morgan Stanley - Analyst

Okay, so then perhaps a better position will be to understand, how much of capacity addition are you planning for next year?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

We have not decided but I think will be 10% plus.

Sunil Gupta - Morgan Stanley - Analyst

All right. Looking at your, having a NT\$2.4b this year has given you around 24% additional capacity, but a lot of weight has come on 200 millimeters, I'm assuming that next year you are going to spend mostly on 300 millimeters, will that be correct?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

We said, it is moderately higher than this year if [Inaudible] 10. I think that should give us the capacity, roughly 15% above.

Nitin Bhambani - J.P.Morgan Investment Management - Analyst

So you won't be spending more on 300 next year than 200?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Yes.

Nitin Bhambani - J.P.Morgan Investment Management - Analyst

Unlike this year?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Also CapEx of 300mm.

Nitin Bhambani - J.P.Morgan Investment Management - Analyst

Okay. And then just going back to the cost discussion you mentioned the cost for crossover for 300mm has occurred. I am

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assuming that's on 0.13. Is the cost on 110 and 90 now lower than 130 on 300mm?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

I think we are just going through the transition. So, it would take a few months to have the crossover from 130 to 110.

Nitin Bhambani - J.P.Morgan Investment Management - Analyst

Okay. I think it's taken you quite long to see the crossover from 0.15 to 0.13 because transition also involved wafer size change. It seems like the transition from 0.13 to 0.11 in 90-nanometer looks like to be faster than that we saw from 0.18 or 0.15 to 0.13?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Yes. You can say that.

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Yes. The transition from 0.15 to 0.13 also had copper, which is new process and is 12 inch so both factors complicated the length in the transition time.

Nitin Bhambani - J.P.Morgan Investment Management - Analyst

Okay.

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

And for 90 nanometer we don't have a lot of problems, or in 2 inches or copper.

Nitin Bhambani - J.P.Morgan Investment Management - Analyst

Okay. And so if the crossover happens as you expect, which is quite soon, that would mean that you would continue to invest in 300mm capacity because that gives your customers lower cost even if there is a downturn?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Yes absolutely.

Nitin Bhambani - J.P.Morgan Investment Management - Analyst

Okay, thank you.

Operator

Thank you. Our next question comes from Christina Osmena with Jefferies & Co., please go ahead with your question.

Christina Osmena - Jefferies & Co - Analyst

Hello and good evening over there. I wanted to see if I could get a little bit more of a better idea on your Q4 revenue visibility? You said that you -- your customers are providing you guidance for Q4 orders for early in Q4. But, typically at the end of Q4, do customers continue to order at the same pace that they do or today tend to take a break relative to -- in anticipation of the holiday season? What is the typical pattern?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

You mean whether the customer will order --?

Christina Osmena - Jefferies & Co - Analyst

You have visibility, you provided us guidance for Q4 saying that revenues will be up over Q3, and you said earlier that you been provided visibility in terms of the orders that you are getting from customers for the first half of Q4, but is not the second half of Q4 typically softer than the first half of Q4 given that the Christmas season is already almost complete?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

I said that the -- that probably used to be the pattern, but now the pattern has also changed somewhat because of the demand for it from the Asian area, especially from China. As Christmas season going to the high side from the Chinese New Year point of view. This year you have that in February of the year. So, I think -- I don't think that pattern necessarily will happen.

Christina Osmena - Jefferies & Co - Analyst

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But, if the majority of your revenues come from the United States, shouldn't the pattern limit really the buying patterns of the United States as well?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

I think the chip comes from the company based in the US --but their product goes to all kinds of boxes and which gets sold all over. Chinese nowadays consume a lot of those boxes.

Christina Osmena - Jefferies & Co - Analyst

Okay. So, basically you are saying -- would it be safe to say then that your typical Q4 pattern that would be up over Q3?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

I think -- yes, for this year, yes. I forgot about last year.

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

We also have seen the same patterns in previous years as well seeing in most years, we are -- definitely have revenue in normally [Inaudible] looks forward to higher than the third quarter -- fourth quarter. This is not something abnormal.

Christina Osmena - Jefferies & Co - Analyst

Okay and it's not typical then the Q3 is the highest revenue quarter?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Q3 higher than Q4 typically.

Christina Osmena - Jefferies & Co - Analyst

Okay. I wanted to move on to a different question then. If you could please explain to us, the difference between wafer outs and wafer shipments, so that we might reconcile the utilization rate trends with your shipment trends?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Wafer out means the wafer produced all over the Fab and for shipment --

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

I think we ship wafers in different -- I'm not sure if form is the right word, but basically many of our customers require us, for instance to do wafer testing before we ship them. A small number of customer even ask us to complete the assembly and testing, before we can ship them. So, there usually is a time difference between wafer out and when we say wafer out, it is a wafer out of the Fabs. Fab is where we have the highest cost. So, the utilization of the wafer Fab is the most important from cost point of view. So, we usually keep that number and the wafer shipment usually has the delay of a few days from that.

Christina Osmena - Jefferies & Co - Analyst

Okay. All right. And also could you provide us a preliminary estimate, than of what's the capacity is expected to be in Q4? Total TSMC managed capacity in eight inch equivalent.

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Our Q4 capacity will increase about 5% from Q3.

Christina Osmena - Jefferies & Co - Analyst

Okay. Thank you.

Operator

Thank you. Ladies and gentlemen, if there are any additional questions, please press the star followed by the one on your touchtone phone. One moment please for the next question. And our next question is a follow up question from Dan Heyler. Please go ahead.

Dan Heyler - Merrill Lynch - Analyst

Here is a quick follow-up on -- you guys have talked a lot about the inventory, I appreciate that. Are you seeing from the standpoint of any major IDM's going to this process of inventory adjustment and reducing inventories on -- reducing your wafer stocks on the basis of inventory reasons?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

We don't see a particular -- I mean, I think we are seeing a similar pattern. We don't see IDM being particular its better or worse, Dan.

Dan Heyler - Merrill Lynch - Analyst

Okay. With that there is my guess was that you talked about com IC's as being flattish and that's logically IDM's are all -- the portion of it is and just, I was wondering if that's -- if you we're sensing that from IDM's, I guess, if we did look at this another way, looking at the IDMs from the standpoint of capacity, is there -- are there any wafers getting pulled back into any IDMs, on the basis of them wanting to use their own capacity and have you seen any of that yet?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Well, we have not seen that. From a com point of view, I think the -- I think, I said earlier from the mobile component view, we are not seeing a slow down -- it is kind of a flattish but not slow down.

Dan Heyler - Merrill Lynch - Analyst

Okay. And had a very focused question on your 0.18 high voltage process. Where are we that -- is that, is that shipping in volume yet and will that be picking up in the second half?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

I think now it's going to -- I mean let's see the pick up stage. I don't think we -- I don't have lot of data on my bill at right now but I understand that the process of getting [Inaudible] the volume pick up we still can have.

Dan Heyler - Merrill Lynch - Analyst

Okay. We just heard publicly that [INAUDIBLE] is going to increase outsourcing to you guys, while I think in pretty looked like a fairly large number. Can you talk about and as I think it's LCD [Inaudible] subsidiary. Can you talk about your big legacy technology, it seems as though there's still a lot of demand on legacy technology. Would you be willing to add more capacity in that area, given that it is fairly cheap to add and it does provide you with more growth and more breadth?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

I think then the key words is the CHEAP capacity. So actually your writing, brilliant idea, you have a matured capacity, you can always supply them, and in some cases where demand outpace our supply. We are developing also a lateral technology to -- in the

mature technology area to broaden that. We look at opportunities, growth for Fab 10 in China is one good example. We are adding capacity there, obviously a mature technology. Yes, the key word is to get a low enough cost of mature technology, so we can have the recurrent level that we need.

Operator

Thank you our next question is from Michael McConnell; please go ahead with you follow-up question.

Michael McConnell - Pacific Crest Securities - Analyst

Thank you I think I missed this regarding the Com IC being flat for Q3. Could you just give some comments on what wireless within that was going to be tracking, is that down or is that going to be or flat on the base band side ?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

What I said early I mean, from wireless point of view overall, but mobile phone is some what flattish, but overall, it is up.

Michael McConnell - Pacific Crest Securities - Analyst

Overall, it is up on wireless, okay. Now when you said network cards, is that where you saw the inventory a little bit higher was that on the wireless LAN side. Is that the network cards that you are talking about?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

No it is the wired.

Michael McConnell - Pacific Crest Securities - Analyst

The wired, okay.

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Yes.

Michael McConnell - Pacific Crest Securities - Analyst

Great, so we should-- wire line then kind of offsetting some wireless being up, and communication is roughly flat, is that the way to look at it?

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Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

I think we guided the comms sector to be, yes the wire line, the wired part is seen some decrease. But I want to caution you, is overall, I mean it is not a big increase in wireless and the big decrease of wire. It is really a fairly slowly moderate in amplitude.

Michael McConnell - Pacific Crest Securities - Analyst

Okay on then on PC side would the majority of the strength looks like its that's going to be your strongest group for Q3, is that seen to be driven by the graphics customers?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

I think graphics certainly is improving and but from the preference point of view it's a moderate. But you know graphics occupy the big volume, so even the moderate percentage increase constitute a major increase. We are seeing also some other increase in other area like hard-disk drive.

Michael McConnell - Pacific Crest Securities - Analyst

Okay, and how the HDD is coming back too?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

HDD is flat.

Michael McConnell - Pacific Crest Securities - Analyst

HDD is flat?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

No, the HDD is growing, but LCD is flat.

Michael McConnell - Pacific Crest Securities - Analyst

Thank you very much.

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

I think this will be our last question.

Operator

Thank you our last question is from Medhi Hotswani (ph) please go ahead with your follow-up question.

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Yes there is two clarification, what would you expect you revenue mix of the 110 nanometer and below by the time you exit 2004? And I have one more.

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

We normally combined 0.11micron with 0.13micron. You will see the low end more than 0.13micron revenue companies will continue increase effect the smaller than 0.13micron revenue will reach more than 30% by fourth quarter this year.

Medhi Hosseini - FBR - Analyst

More than 30%, I am sorry is it 130 or 110 nanometer?

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Both.

Medhi Hosseini - FBR - Analyst

For both, okay.

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Combination.

Medhi Hosseini - FBR - Analyst

Sure, and then on just one clarification on the wireless, have you seen any changes, any disconnect between GSM and CDMA related orders?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Oh, this is the first year, the first day asking question about list of customers. So we cannot really comment on that.

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Medhi Hosseini - FBR - Analyst

Sure I understand I'm just trying to get a color you said that the wireless is going to be up a little bit. I am just trying to understand if one sector is weaker than the other or it is both flat to up a little bit?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

I think it is there to create our customer base in the mobile phone area but, in general we are doing well. We are not seeing a slowdown.

Medhi Hosseini - FBR - Analyst

Okay. And just to make sure I understand, some of us in US did have a chance to listen to the Chairman's comments. So, the comment on the fourth quarter was that revenues will be higher than the third quarter. There was nothing above and beyond that, correct?

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

May be we should repeat that sentence.

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Yes. Okay, what Chairman said this afternoon, we forecasted that in fourth quarter, our utilization will still be above 100%, our ASP will be flat to up, and our revenue will increase over third quarter.

Medhi Hosseini - FBR - Analyst

Okay. Thank you very much.

Rick Tsai - Taiwan Semiconductor Manufacturing Company Limited - COO

Thank you.

Operator

Thank you. Ms. Ho, please continue with any closing statement.

Lora Ho - Taiwan Semiconductor Manufacturing Company Limited - CFO

Well, thank you very much for attending the conference. We certainly appreciate your questions, so we'll meet you each at the next quarter. Thank you. Bye-bye.

Operator

Thank you. Before, we conclude TSMC's 2Q '04 results webcast conference call today, please be advised that the replay of the conference call will only be accessible through TSMC's website at www.tsmc.com. Thank you all, and have a good day.

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