【Samsung Electronics 2Q Earnings Call】

Robert M. Yi

Good morning.
This is Robert Yi from Investor Relations

Thank you for joining our earnings call for the second quarter of 2019.

With me,
representing each of the business units, are

Mr. Se Won Chun, Executive Vice President of the Memory Marketing Team,
Mr. Ben Hur, Senior Vice President of the System LSI Marketing Team,
Mr. Sang Hyun Lee, Vice President of the Foundry Marketing Team,
Mr. Kwon Young Choi, Vice President of Samsung Display,
Mr. Jong Min Lee, Vice President of the IT and Mobile Business,
Mr. Louis Kim, Vice President of the Visual Display Business,
and Mr. Ben Suh, Senior Vice President and Mr. Tae Gyu Kang, Vice President of Investor Relations.

I would like to remind you that some of the statements we will be making today are forward-looking, based on the environment as we currently see it, and all such statements are subject to certain risks and uncertainties that may cause our actual results to be materially different from those expressed in today's discussion.

I will now cover our results for the second quarter. Total revenue in the quarter decreased 4% year-on-year to 56.1 trillion won as sales in the memory business declined due to weak market conditions.
As forecasted in the 1Q earnings call, business conditions for the memory industry remained weak in the second quarter even though there was some recovery in market demand.

Gross profit fell sharply year-on-year to 20.2 trillion won with a corresponding decrease in gross margin, mainly due to the semiconductor business.

Compared to last year, SG&A expenses rose both in absolute terms and as a percentage of sales.

Operating profit in the second quarter was 6.6 trillion won, a significant year-on-year decrease, mainly based on challenges in the memory and mobile businesses. A one-off gain from Display business is included in the earnings. Operating margin came in at 11.8%.

A strong US dollar and euro against the Korean won in the second quarter positively affected operating profit quarter-over-quarter by approximately 0.5 trillion won.

I will now briefly review the performance of each business unit.

In the memory business, as the effect of inventory adjustments by major datacenter customers in the previous quarters continued to cause weak market conditions and price declines, we placed a heavier focus on addressing demand in the mobile segment.

For system semiconductors, earnings came in lower year-on-year, despite growing demand for major products such as image sensors, due to a decline in demand for cryptocurrency applications.

In the display business,
mobile panel earnings improved due to a one-off gain and increased sales of rigid panels. The large panel business, however, recorded a slightly larger loss year-on-year as ongoing capacity expansions in the industry weighed on profitability.

In the IM Division,
a strong showing by the new mid and low segments devices helped increase overall smartphone shipments, but mobile profitability declined due to slower flagship sales, major spec enhancements of the new mid and low segment devices, and an increase in marketing expenses. In the Network Business, earnings remained solid due to accelerated commercialization of 5G in Korea.

For the CE Division,
Earnings in the TV business fell slightly year-on-year amid aggressive competitor pricing, despite growing unit sales of premium models such as

QLED and ultra-large models. For Digital Appliances, earnings grew with strong sales of new products, coupled with improved profitability of our mainstream products, such as refrigerators and washing machines.

Next, I would like to share our business outlook for the second half of the year.

In the semiconductor business,
Even though continued industry uncertainties are causing low visibility in the business, we do expect memory demand to grow under strong seasonality and adoption of higher-density products in major application areas. For system semiconductors, seasonality is likely to boost demand for mobile APs, image sensors, and OLED DDIs, among other products.

In the display business,
we expect earnings for mobile panels to improve thanks to growing sales and a resulting rise in utilization rate led by launches of new products by major customers; however, sluggish overall demand in the smartphone market may limit upside potential. The large panel business, under strong seasonality, will focus on high-end products for 8K and ultra-large TVs rather than on volume competition.

For the mobile business,
As we expect competition in the second half to intensify with the market seeing many new devices being released, we will bolster our strategic product lineup and also expand sales of our new A Series in the low-end to mid-range market.

We will focus on ensuring the successful third quarter launches of the Galaxy Note 10 and Galaxy Fold as well as on improving profitability thru improved operational efficiency.

The Network business will continue to build a strong foundation for expansion in the global 5G market based on its leadership in 5G commercialization in the US and Korea.

For the CE Division,
in the seasonally strong second half, we will work to further solidify our lead in the premium TV market by expanding sales of QLED TVs and boosting sales of innovative products such as 8K and Lifestyle models. For Digital Appliances, we will concentrate on sales of new products such as Bespoke refrigerators and clothes refreshers.

We face various challenges from uncertain conditions not only in our business areas but also from changes in the global macro environment. Despite these current challenges, we will continue our efforts to secure mid- to long-term growth by strengthening competitiveness of our key businesses via delivering innovative component technologies and continuing our leadership as a 5G solution provider.

In addition, investments in future technologies such as system semiconductors, AI, and automotive solutions will remain a key focus.

Now, I will address capital expenditures.

Capex in the second quarter was 6.2 trillion won, with 5.2 trillion won allocated to semiconductor and 0.5 trillion won to display. Total capital expenditure for the first half was 10.7 trillion won, with 8.8 trillion won allocated to semiconductor and 0.8 trillion won to display.

As we explained in previous calls, the main portion of our 2019 capex is earmarked for building infrastructure to address demand beyond 2019, and a larger percentage of this year's investment will be made in the second half.

I would now like to cover a couple of items regarding shareholder return.

First, the Board of Directors today approved a second quarter dividend of 354 won per share to be paid in August for both common and preferred stocks. As was the case in the first quarter, the dividend payout for the second quarter is 2.4 trillion won, or one-fourth of the annual total of 9.6 trillion won.

And finally, I would like to talk about our shareholder return plan covering 2018-2020.

Today, we had planned to provide an update to our shareholder return program based on a review of our projected free cash flow for the 3-year period thru next year.

However, in addition to already high uncertainties caused by prolonged global trade conflicts and other macro risks, the external environment regarding our component business has recently come under significant new challenges.

As a result, we no longer believe that it is possible to reasonably predict our free cash flow for 2018-2020. We have decided that it would be best to share our update for shareholder returns in early 2020, after free cash flow for 2019 is confirmed and when the business outlook for 2020 should be clearer.

Before we move on to presentations from each business unit, I would like to share several data points in key business areas.

In the second quarter,
our DRAM bit growth came in mid-teens increase. Our ASP declined low 20%. For the third quarter, we expect the market demand for DRAM to grow mid-teens, and we expect to grow in line with the market. For 2019, for the whole year, we expect the market demand for DRAM to grow mid-teens, and our bit growth will be slightly higher than the market demand growth.

For NAND flash, for the second quarter, our bit growth came in around 30% and ASP declined mid-teens. For the third quarter NAND market growth, we expect to be high single digit and we expect to grow with the market. And for 2019, we expect NAND demand growth to be low 30s, and we expect to outgrow that market growth in our bit shipment.

Within Display Panel business, the OLED sales mix was high 70%.

For Mobile business, our total handset sales for the second quarter was 83 million units with about 5 million of tablets. The blended ASP for the second quarter was about $210, and mix of smartphone within total handset was low 90%.

For third quarter, we expect our handset shipment to be similar to the second quarter as well as the tablet to be similar, too. Our ASP for the handset is expected to increase quarter-on-quarter, and the mix of the smartphone within total handset will be -- remain at low 90%.

For our TV business, the LCD TV panel sales in second quarter declined mid-single digit quarter-on-quarter, but in the third quarter, we expect that number to increase low teens. And for the year, we expect our TV sales to increase mid-single digit.

I will now turn the conference call over to the gentlemen from each business unit to present second quarter performances and outlooks for their corresponding business segment.

Thank you.

Good morning, This is Sewon Chun from the Memory Marketing Team.

In the second quarter, overall demand increased due to the resumed purchasing from datacenter customers as their inventory levels started to be normalized, and high-density trend across overall applications.

For NAND, overall demand showed solid growth backed by the ongoing high-density trend for smartphones due to price elasticity and by the expansions of cloud infrastructure from server customers.

While we focused on demand for products that we have a competitiveness such as high-density eStorage with more than 128GB and high-value added/high-density SSD with more than 2TB, we actively responded to demand for wafer and component products as well, achieving results much higher than the previous guidance.

For DRAM, although the overall market situation remained weak, demand increased from a resumption of purchase in data center customers and from a high-density trend in mobile.

Server demand has been recovered mainly for high-density products thanks to recovered purchasing after inventory adjustments especially from datacenters and newly launched server CPU.

For PC, demand increased both for replacement-purchase considering Windows 10 from Enterprise PC and for pre-purchase considering global uncertainties.

For mobile, set demand has and the portion of high-density has increased in overall smartphone segments, resulting in a solid increase in demand.

Our sales result exceeded our previous expectations, as we actively addressed the recovered demand for datacenter customers and high-density trend for mobile.

In the second half of this year, we expect demand to increase due to seasonal effects but the market situation is likely to remain volatile due to expansion of global uncertainties, which include export regulations on semiconductor materials.

For NAND, we think demand will continue to expand mainly for high-density, high value-added datacenter and mobile storage, and the industry will be stabilized gradually from the third quarter.

For SSDs, adoption for high-density, high-performance SSD for datacenters is likely to keep expanding, Moreover, the high-density trend and NVMe portion for Client SSD is also expected to continue due to price decrease.

Mobile demand is expected to increase due to the ongoing trend toward high-density that has been driven by price declines, and especially on the effect of launching high-end smartphone with more than 128GB.

As a result, we will focus on strengthening our competitiveness in the premium market by closely monitoring changes in demand across all applications and by actively responding to demand both for All-Flash-Array conversions in the 10K

HDD market and for high-density UFS regarding Chinese set makers and Flagship models.

Also, we are mass producing 5th generation V-NAND mainly for Brand SSD as planned, and we will enhance our technological competitiveness and strengthen our profitability base through the mass production of 6th generation V-NAND within this year.

For DRAM, although there remain global uncertainties, overall demand is expected to increase due to seasonal effects and a recovery of purchasing from customers as their inventory level normalized.

For Server, we expect demand to rise gradually not only from continuation of purchase following customers' inventory adjustments complete, but also from conversion to a new platform.

For consumer product, TV and set-top box demand is expected to increase by seasonal effects, and network memory demand is likely to expand along with 5G expansion.

For Mobile, As major customers will launch the new smartphones, high-density trend in overall segment is expected to drive the solid demand such as adoption of mobile DRAM with more than 8GB for product differentiation in volume zone.

Under the current global uncertainties, we will actively address customer requests through a flexible product mix, and maintain our technical leadership based on 1y nano meter products ramp-up.

In addition, we will focus on strengthening our market leadership of differentiated products such as 12Gb based LPDDR5 and HBM2 by the developing and mass producing in a timely manner.

Thank you.

Good morning, this is Ben Hur from the System LSI Business.

In the second quarter, as Chinese smartphone companies had intensified the competition for camera specs, demand for multiple cameras and high-resolution / big-pixel image sensors increased more and we have achieved solid results.

In addition, we increased the supply of 5G and volume zone smartphone chipset solutions, and we continued our efforts to expand the future SoC technology leadership by developing next-generation one-chip 5G SoC that integrated modem and processor.

In the second half, we expect demand for mobile AP, image sensor, and DDI products to grow seasonally as smartphones enter the peak season. Noticeably, demand for high value-added products is also expected to continue to increase because customers still want to differentiate products by adopting the products such as 64Mpixel image sensors and EUV 7-nano APs etc.

Looking ahead, we plan to expand our line-up of 5G chipset solutions and image sensors to address demand for high-specs in the smartphone market; and we will also expand our mid- to long-term business scope by diversifying our product offerings through the development of 3D/FOD sensors and automotive/IoT chips.

Thank you.

Good morning, this is Sanghyun Ryan Lee from the Foundry Business.

In the second quarter, we have achieved solid results due to increased demand from major customer's 8/10-nano mobile AP and image sensors.

In particular, new orders from existing major customers have expanded in 10/14-nano process, and orders for new customers have also been awarded. By doing so, the business base for future growth has been further strengthened by diversifying the region from the Americas to China / Europe / Japan as well as the applications from mobile to HPC / IOT / Automotive / Network / Consumer etc.

With the technical achievements, we have mass-produced EUV 7nm products for the first time in the industry, further strengthened our EUV process development leadership by completing the development of 5nm process and preparing for production. Furthermore, we also distributed the world's first GAA based 3-nano Process Development Kit(PDK) to our customers.

In the second half, we anticipate continued earnings growth due to the expansion of AP / CIS / DDI orders as the mobile season enters and the demand for HPCs including crypto currency mining chips and new orders from network/ADAS/consumer will increase.

We plan to start mass production of EUV 6-nano process, which is an optimized process in terms of performance and price. We will also continue to secure advanced node competitiveness by completing the tape-out of EUV 5nm products and completing 4nm process development and infrastructure.

In addition, we will use our specialty processes to take leadership in newly emerging areas such as 5G, AR, and automotive and expand our customer bases.

Thank you.

Good Morning.
I'm Kwonyoung Choi from the business planning department of Samsung Display.

In the second quarter, total earnings for the display business improved Q-over-Q led by a gradual recovery in consumer demand and one-off gain.

To be more specific, mobile display earnings increased Q-over-Q as utilization improved thanks to expanded shipments of OLED panels featuring new technologies such as fingerprint on display and hole display.

As for the large display business, despite a continued drop in ASPs, earnings increased slightly Q-over-Q led by improvement cost-competitiveness and increased shipments of premium panels, including ones used in ultra-large, High-resolution TVs and Curved Monitors.

Next, I'd like to touch upon prospects and strategies for the 2nd half of this year.

In the mobile display business, earnings are projected to improve half-on half; and shipments and utilization are expected to rise as major customers are planning to launch new products.

In particular, We expect to see growing demand for OLED panels offering ultra-slim design. 5G mobile phones require larger components, and more of them, so the lack-of-space issue needs to be addressed.

Therefore, We will strive to improve profitability by adding more value to OLED panels and boosting yield. At the same time, we will keep actively responding to demand from our customers.

As major IT customers are about to launch new laptops featuring our OLED panels, we will add to our foundation for sustainable growth by creating new markets in other non-smartphone areas, such as tablets and automotives, to name a few.

On the other hand, Given the lingering concerns over mounting uncertainties and an overall market slowdown caused by the global macro environment, we are closely monitoring the situation to minimize any potential impacts.

Although the large display business expects to see growing demand for premium TV panels, such as the ones used in ultra-large, UHD and 8K models, capacity expansion in the LCD industry is likely to destabilize supply and demand, and add more uncertainty in the market.

In preparation for such conditions, We are striving to keep improving profitability. To that end, We are focusing more on premium TV panels and strengthening non-TV business for monitors and Public Information Display.

Thank you.

Good morning.
I am Jongmin Lee from the Mobile Communications Business.

I would like to share our 2nd quarter results, and the second half outlook for the IM Division.

In the second quarter for the Mobile Business, Followed by the relatively weak season period, overall smartphone demand decreased due to a number of global macro variables.

On a QoQ basis, our smartphone shipments increased as new A series models, including the A50 and A70 showed stronger sales performances than their previous models.

However, the sales volume of flagship models, including those of the S9 and Note9, decreased QoQ as the launch effects of S10 became weaker and the demand for the premium segment decreased.

Profit also decreased QoQ due to increased costs associated with intensified competition in the mass market and inventory adjustment of older models.

In our Network Business,
our performance improved QoQ thanks to full-scale commercialization of 5G in South Korea and continued expansion of LTE networks in overseas markets.

Now, moving on to the outlook for the 2nd half of this year.

Although the mobile market, in general, is soon to face a period of strong seasonality, demand is expected to keep trending down due to growing global macro-economic uncertainties.

We will focus on not only enhancing our flagship lineup but also expanding sales of our new mid-to-low segment models as well.

Also, we will respond quickly to any changes in the global business environment, such as trade restrictions or changes in the competitive landscape.
Furthermore, we will strive to secure profitability through improving the efficiency of our operations in all aspects, from R&D to manufacturing and marketing.

In the 3rd quarter,
we are going to focus on ensuring successful launches of the Galaxy Note 10 and the Galaxy Fold.

The Note 10 will be officially revealed at our Unpacked event this August 7th in New York.
It will offer improved productivity, best-in-class performance, and a differentiated design compared to its previous model.

For Galaxy Fold,
which will be available to consumers from September, has improved the design and construction to provide the best experience for our customers.

We will begin an entirely new mobile category based on our accumulated flexible display technology.

And we expect that Galaxy Fold will give our customers a completely new experience and create endless possibilities.

Along with these innovative products, we aim to strengthen our 5G leadership by expanding our 5G product portfolio to meet the commercialization schedules in each regions.

For mid-to-low end smartphones,
most regions are already showing higher sales, which is clearly due to the impact from the changes in our lineup earlier this year.

To keep up the momentum going,
we are going to expand overall sales by releasing new highly competitive A series models in the 2nd half and efficiently leveraging the seasonality in all regions.

For the Network business,
based on our leadership in 5G commercialization in South Korea and the U.S,
we will do our best to keep adding to a foundation for global 5G business expansion.

Thank you very much.

Good Morning. I am Louis Kim, Vice President of Visual Display Sales and Marketing Team at Samsung Electronics.

Let me start with current market conditions and our results for second quarter of 2019.

The overall TV market declined quarter-on-quarter due to weakened consumption caused by unfavorable exchange rates in emerging markets.
In terms of year-on-year growth, however, it is equivalent to that of last year thanks to economic recoveries in developed markets.

For Samsung, TV profits slightly decreased both year-on-year and quarter-on-quarter caused by intensified price competition in the market.

However, we improved product-mix through early launches of new models and expanded sales portion of strategic products such as QLED TV and super-large screen products.
In particular, the QLED TV has solidified its position as the industry-leading premium product in terms of both awareness and sales.

We will further strengthen our technology leadership with QLED 8K TVs launched in the first half.

For the Digital Appliances market in second quarter,
demand in developed markets such as North America and Europe have been stagnant, but global demand slightly increased backed by steady growth of emerging markets like India.

We expanded the sales of premium products and new models and had strong sales of Wind-Free Air Conditioner during the peak season.

Our profits have also greatly increased year-on-year with the help of our main products such as refrigerators and washing machines.

Now I will share market prospects for the second half of 2019.

The TV market is expected to be equivalent to that of last year despite risks such as unfavorable exchange rates in some emerging markets and increase of protective trade practices.

We will maximize on year-end peak season sales by co-operating closely with partners, and will make a stable high-profit structure by expanding the sales portion of high-value-added products such as QLED TVs and super-large screen products.

Moreover, we will solidify the message that Samsung is the leader in 8K by mainstreaming QLED 8K TVs in the market and take lead in establishing the 8K eco-system at an early stage.

Also, we will explore sales opportunities by strengthening the line-up of Lifestyle products, which add additional value to consumer's life.

This way, Samsung will achieve high profitability and expand sales by continuously leading the premium TV market.

For the Digital Appliances business,
Samsung will focus on marketing and expanding sales of new products for our consumer's improved lifestyle, such as Bespoke and Air Dresser.
Also, we maintain solid growth by continuously strengthening our B2B business, which includes built-in appliances and system air conditioners.

Thank you.

Robert M. Yi

Thank you. This concludes our part of the presentation, and now I will turn to questions-and-answer session.

Q&A

Operator

The first questions will be presented by Mr. J.J. Park from JPMorgan.

<Q – J.J. Park >

I have 2 questions. The first question is about the recent measures that are being announced by the Japanese government regarding the key components that are used for display and semiconductor industries. Does the company see any potential impact of these measures to the company's business? And if so, how is the company preparing internally?

Second question is tied to this. Actually, since this Japanese government plan was announced, there has been some increase in spot prices for both legacy and new products. Then -- and there seems to be some restocking demand happening. Do you also see this restocking demand by your long-term contract customers? For example, are you getting, for example, some rush orders or your long-term contract customers seeking to get more volume?

<A>:

To answer your first question from the IR team. Even though the recent measures by the Japanese governments do not ban export of materials, we are facing difficulties due to the burden of this new export approval process and the uncertainties that this new process would bring, so the visibility is low. However, our executives and the relevant business divisions are dedicating their utmost efforts and deriving solutions to minimize any potential negative impact these new measures may have on our manufacturing process.

Regarding your second question, it is true that there has been observed some increase in the spot market prices recently. We read this as the combination of mainly 2 factors. One, it's actually a fundamental side where there is seasonality kicking in with a strong second half.

At the same time, we also read that there were some concerns of future supply stability due to the recent announcements. But given the fact that the recent increase in spot prices is actually combination of various internal and external factors, I think, at this point, it is difficult for us to conclude whether this recent increase in spot market prices would have an effect on our long-term contracted prices.

Operator

The next questions will be presented by Mr. Nicolas Gaudois from UBS.

<Q – Nicolas Gaudois>

The first one is on memory. You have considered earlier converting Line 13 from DRAM to image CMOS sensors. As the DRAM down cycle continues for now, is this actually back on the agenda? And if so, in which time frame would you execute the conversion?

And secondly, for the Mobile business, you confirmed you're relaunching the Galaxy Fold very soon. What would be now your volume expectations for the Galaxy Fold in 2019? And as you alluded earlier, you seem to expect to use foldable displays across several products. Can you confirm this is for 2020 and about to be 2 or more products?

And so could you give us a little bit more clarity on the Note 10 expectations this year, in particular, your shipment forecasts?

<A>:

To answer your first question, currently, we don't have any decisions regarding the Line 13 conversion to LSI. And as we have always mentioned, basically, our line operation strategy considers not only Memory business but also system semiconductors, and we try to find a strategy that would optimize our overall semiconductor line efficiency. So any future decisions would take into account comprehensively various factors including the DRAM business cycle, mid- to long-term image sensor demand forecast as well as line efficiency.

To answer your question on the mobile side, the Galaxy Fold, which is an innovative product that adopts new technologies, new materials and displays, we're planning to supply that this year for -- this year in limited countries in limited volume. However, the foldable category itself is something as a new form factor that we have been preparing for a very long time; and going forward, we will continue to expand the foldable lineup with various forms. Regarding your question about the Note 10 new model that will be launched, the new Note 10 will even further upgrade the unique values of the Note series. Especially it would feature an S Pen experience that is even more intuitive and is more rich and expanded. Some of the highlights of the Note 10 would be the more powerful performance, also more enhanced productivity-related functions and also an optimized multimedia experience for the 5G network. Even though it's early for us to present any specific volume targets, we're expecting the Note 10 to achieve higher volumes versus its predecessor, Note9.

Operator

The next questions will be presented by Mr. Peter Lee from Citigroup Global Market Securities.

<Q – Peter Lee >

I have 2 questions regarding the semiconductor side. First on the DRAM. Have there any -- have there been any changes in terms of DRAM production since the last conference call?

Second question on the NAND side. We've been hearing that the capacity on your Line 12 has been decreasing. Can you share some details about that?

<A>:

To answer your first question, actually, there hasn't been any changes in our DRAM production since the last call, but we can say that as we have always, our line operation will be managed flexibly in response and depending on the demand changes. And currently, we're not considering, for example, any artificial decrease of wafer input.

And in the case of the second question about our NAND Line 12 capacity, that's actually -- the decrease in our Line 12 capacity is a reflection of how the demand is shifting for NAND from planar to V-NAND, and so there is a decrease in planar NAND demand. And that is why from the first half, we have been converting some planar capacity for R&D purposes.

Operator

The next questions will be presented by Mr. Doh Hyunwoo from NH Investment & Securities.

<Q –Hyunwoo Doh>

I have 2 questions. First question is about your DRAM and NAND inventory. Can you give us the inventory changes on a quarter-on-quarter basis? And also, can you share with us your second half outlook for your DRAM and NAND inventory?

Second question is about the recent announcement of the licensing agreement for the GPU technology with AMD. Can you share with us, for example, what specific SoC models we can look forward to, when those models you plan to launch, and also the implications of this AMD relationship on your existing relationship with ARM?

<A>:

To answer your first question about our inventory. First, on the DRAM side, our second quarter DRAM inventory was flat. It was similar to the previous quarter levels. However, given the fact that data center customers have resumed purchasing and also there's been a continuous trend of high density on the mobile side, the sales volume has increased and our inventory turnover has shortened versus first quarter.

Looking forward to the second half DRAM inventory, we do expect there to be strong demand given the seasonality.

And also, we expect our inventory level to continue a gradual decrease. However, in terms of the pace of our inventory decrease, given the very low visibility of increased expected industry volatility and external uncertainty, it's difficult for us to predict.

On the other hand, the case of the NAND inventory, given the fact that customers have realized that the prices have bottomed up -- bottomed out, this has driven up demand. Also, sales towards the channels have also increased, so NAND inventory has already started to significantly decrease. And we expect this to continue as strong demand comes up in the second half, and so we expect that in third quarter, for NAND inventory, we will be able to achieve balanced levels.

To answer your second question about our AMD partnership, as you know, AMD has been a leader especially in the GPU area since the early days of the PC market and is one of the leaders in terms of technology. We think that with this partnership, we will be able to leverage the GPU competitiveness of AMD to enhance the performance of not only our mobile SoCs but also in other applications. But considering the usual time it takes to vet out IT technology, we expect that the GPU technology will start being adopted in products that will be launched 2 years down the road roughly.

Regarding the relationship that we have with ARM. ARM, yes, is an important strategical partner that we have, and that partnership will remain solid going forward.

Operator

The next questions will be presented by Mr. SK Kim from Daiwa Capital Markets.

<Q –S. K. Kim>

I have 2 questions. The first question is about the DRAM. I think the market is still concerned that perhaps due to various uncertainties, the data center demand may stay weak for long term or that in the second half, the mobile demand may become more uncertain. So in that context, can you share with us the company's perspective on future demand from both the server and mobile applications as well as your outlook on second half demand-and-supply situation for DRAM?

Second question is for the mobile side. Actually, regarding the 5G smartphones, there were some positive news that actually the Chinese handset makers may actually adopt or bring online 5G handsets earlier than expected. In that context, can you give us the company's view on 5G demand as well as how the company plans to respond to the stronger 5G demand?

<A>:

To answer your first question about the DRAM demand, first, for the server side, as you know, the data center customers have been going through inventory adjustments starting from fourth quarter last year and continuing onto first quarter. So given that period, we think that a large part of their inventory has already been normalized. And in fact, these customers have started to resume purchasing from late second quarter, and once the strong seasonality of the second half kicks in, we expect the demand to remain solid.

In the case of the mobile side, one major trend has been the high density trend across all smartphone products. Also, the price elasticity has been driving up demand for mobile DRAM as well. And so with the second half seasonality, we expect, on the mobile side, demand will also continue to expand. So from both server and mobile side, the basic fundamental demand remains strong and solid, and we expect that second half demand will increase versus first half.

However, given the increase in uncertainty in external environments, we do expect this may lead to more volatility in overall industry situation, and that's why we find it difficult to present any specific supply-and-demand forecast.

Regarding your second question about our 5G strategy, for example, to give you an update on Korea, which started 5G commercial service last April, we have reached more than 1.8 million 5G service subscribers, and 5G service is actually growing faster than expected. In this growth, we have been showing very good strong performance with our S10 5G model, and we are rolling that out to other countries such as Europe and Australia as we did in Korea and the U.S. already. In the second half, we will also be expanding our 5G line up with the Note 10 5G, and we will be preparing for the demand for 5G commercial service for each country depending on the country's 5G commercialization schedule.

According to strategy analytics, the 5G smartphones would account for about 42% of the entire smartphone market by year 2025. Given the initial pickup, which has been faster than expected, actually, the 5G smartphone market may expand faster than expected. Therefore, based on the early leadership that we have in our commercial experience and track record as well as our technology,

we will contribute to the rollout of 5G service and also, at the same time, solidify our leadership in the 5G market.

Operator

The next questions will be presented by Mr. Yoo Jong Woo from Korea Investment & Securities.

<Q – Jong Woo Yoo>

I have 2 questions. First question is about the Foundry business. It seems that you've been signing up new customers for the Foundry business. Can you share with us whether you have any plans of capacity expansions for 2019 or 2020?

Second question is for the mobile side. Your margins for the second quarter was actually lower than expected. Now going forward, given that you're probably expecting a larger volume or a volume increase from your A Series and also overall component prices are probably going to decrease, what -- how much possibility do you see in terms of improved profitability or margins from your Mobile business in the second half?

<A>:

To answer your first question about the foundry, we're currently maintaining high utilization, and we are planning to expand our capacity around UV cutting-edge -- cutting nodes image sensors and 8-inch technology where there is more demand growth that we're seeing. To give you some details, for example, we're planning to start operation of our Hwaseong UV line from the first half of year 2020, and we'll be putting -- bringing that online in line with the 7-nano

technology development. For the image sensors, the S4 line is the dedicated line for image sensors, and we will continue to add on new capacity in line with the trends that we see on the device and for example, the multi-camera adoption on smartphones and also the greater demand for high-pixel image sensors. For the 8-inch lines, we will continue to also add capacity there, especially around the PMICs and discrete power products.

To answer your second question about our mobile profitability, as you know, this year, our focus has been on increasing our market share overall by strengthening the attractiveness of our overall lineup. So as part of this process, we have been not only diversifying our flagship models but also have been changing up our mass model lineup. And in this process, our second quarter profitability has decreased mainly due to the need for building in more price competitiveness for our new mass segment model and also, the inventory adjustment for our older models. Now in the second half, we'll be focusing on increasing our revenue, both on the premium as well as the mass lineup. For the premium model in the second half, we have the new premium models being launched based on our 5G as well as foldable new technology.

Also, in the mass lineups, we will be leveraging our product competitiveness and also our channel capacity to increase our sales globally. And so with such increase in revenue and also with greater operational efficiency, we will continue our efforts to improve our profitability.

Operator

The next questions will be presented by Ms. Claire Kyung Min Kim from Hana Financial Investments.

<Q – Kyung Min Kim>

I have 2 questions. I will give you the first question first before asking you the second one. The first question is on the NAND side. We are seeing NAND demand improving, recovering and also there may have been some supply-side issues due to the recent power outage at the competitor. Can you share with us your views regarding supply as well as demand situation? And do you see a possible quick turnaround of the market situation during the second half?

<A>:

In the case of NAND, I think it was mainly 2 factors. One is the price elasticity and also the fact that the customers have realized that the prices have started to bottom out that's been driving a significant increase in demand starting from the second quarter. This has resulted in significant increase of our shipments for NAND in the second quarter and also a significant decrease in our inventory levels versus the first quarter.

Even though we can't comment on the supply situation of other suppliers, if we assume that the second half seasonality will kick in and also if the suppliers -- other suppliers, for example, go through their investment adjustments as they've been announcing in their conference calls, it is possible to expect stabilized prices and industry situation as overall industry inventory levels become normal starting from the third quarter. But at the same time, we do -- given the very high level of uncertainty in the external environments, there could be quite a lot of volatility in the demand and supply side, and that's why we will continue to very carefully monitor the market situation.

<Q – Kyung Min Kim>

The second question is about the memory CapEx for year 2020. Can you share with us your CapEx direction for next year and also when you plan to operate the Xi'an and Pyeongtaek new fabs?

<A>:

Regarding our next year CapEx plan, because the planning is not yet finalized, it's difficult for us to share with you the details. But as always, we will be executing our investment efficiently in line with the market situation. Given the high level of uncertainty in the external environment and also the potential high volatility of the market, we believe that, that flexible CapEx is very critical at this point, and that's why we have actually increased the frequency of reviewing our investment plans so that we're able to reflect any changes in market demand as quickly as possible. Regarding our new fabs, they will be completed as scheduled.

So existing schedule was to have Xi'an Phase 2 completed by end of 2019 this year, and Phase 2 of Pyeongtaek to be completed during 2020. And Xi'an 2, we'll -- we are planning to start operation of Xi'an 2 as scheduled in early 2020 to respond to mid- to long-term demand growth. Specific sizing of Xi'an and Pyeongtaek is still not yet decided, and we will be operating our investments flexibly considering the market situation.

Operator

The next questions will be presented by Mr. Kim Dongwon from KB Securities.

<Q – Dongwon Kim>

I have 2 questions. The first question is about the display side. There are a talk in the market that the glass input feeding into your 8 -- Asan #8 line or 8 generation line has been discontinued. Can you share with us the company's position regarding this? And also, there's -- can you share with us your position regarding the conversion to QD OLED on the display side?

Second question is about the micro TVs, MicroLED TVs. You've launched the 146 super large TV version. And also there is expectations that you will bring this down to the consumer side, for example, a B2C consumer platform. But I would assume that the price point would be a bit too high for consumers to approach. And so in that context, can you share with us your plans of how to reduce the cost on the micro TV platform as well as your future product launching road map?

<A>:

Regarding your first question about our display business, we believe that, in the long term, there will be some customer -- greater customer need for higher quality display technology given the expected increase in higher picture quality content and broadcasting that will be rolling out, and that's why we believe that maintaining a technology leadership will be very important and critical in maintaining our overall business leadership. However, regarding the technology, no specific decisions have been reached yet. Regarding your first question about our line operation, we are operating our resources flexibly depending on the market situation as well as our business strategy.

Regarding your second question about the microLED TVs, as you know, it's one of the next-generation display technologies that's gaining a lot of attention currently. The critical 2 issues in terms of technology is making the LED smaller and also securing the technology to go into mass production.

And the -- we have actually secured -- these are the 2 key focuses in terms of technology for microLEDs. Given the strength that we have -- given our semiconductor background, we have already gained the industry-leading position in these areas. And so currently, our focus is on, as you mentioned, gaining the cost competitiveness or reducing the cost.

Regarding our product lineup and future plans in terms of road map, as you know, in the first half, we've launched The Wall for the B2B segment. And also in the second half, we're planning to launch the Wall Luxury, which addresses the B2C premium segment. We will continue this in the next year with, for example, more household or consumer applications, even branching out to the large-sized segment. Of course, the specific timing of these launches will take into account the market situation.

Operator

The next question will be presented by Mr. Mark Newman from Bernstein.

<Q – Mark C. Newman>

Two questions. First question, could you clarify some of the questions you've had in the past on memory capacity? You commented earlier that there's no artificial reduction in wafer input, but last quarter, you commented that there's going to be some line optimization for memory fabs, which would have

some impact on wafer output, i.e., wafer output will be slightly down. I would like to ask specifically any update on that and if you could quantify how much wafer output will be different compared to the peak levels in Q4 last year, particularly for DRAM but also for NAND.

And then the second question is on the memory demand visibility. So a lot of positive comments on demand improvement. I'd like to ask specifically on data center. You commented data center DRAM demand improving due to low inventory. Can we say that year-on-year gigabytes, are they going to be up in the second half versus last year? And if you could quantify year-on-year data center DRAM, either market demand or Samsung demand, if you have any quantification around that will be very, very useful to get an understanding of how much the DRAM demand is improving.

<A>:
To answer your first question, what we mentioned in the last conference call about our line optimization, that is basically relocating, repositioning our equipment in order to achieve greater line efficiency. And on that side, there hasn't been any specific changes due to that. Our line operation policy, as you know, has always been to flexibly operate our lines in response to market demand changes. And once again to clarify, at this point, we are not considering any artificial decrease in wafer input.

To answer your second question about the DRAM, specifically the data center demand, you've asked for specific quantified outlook for -- on a quarterly as well as the second half versus last year's second half comparison. Given the low visibility, it's difficult for us to share with you any details about the demand

on a quantified basis outlook. But we do expect that on a full year basis, in terms of content for DRAM, there will be about a 10% increase on a year-on-year basis.

Operator

The last questions will be presented by Mr. Mehdi Hosseini from SIG.

<Q – Mehdi Hosseini>

Two follow-ups. On the memory side, can you please provide the mix of DRAM technology today and by year-end '19, DRAM technology in terms of the 1z mix? And a follow-up on that, can you update us on when you would insert EUV lithography for DRAM application?

And one follow-up question on System LSI, if you could provide the mix of image sensor and how does foundry compare to that. So the mix of image sensors and foundry revenue would be great.

<A>:

Regarding your first question, I think we can answer that by sharing with you our outlook on our cutting node share that we're expecting at the end of the year, so this will be 1x and above. We're expecting that to account for about 70% as of end of 2019. Regarding the 1z, we can tell you that, that development is coming along as we planned.

Regarding your second question of EUV adoption on our DRAM side, actually, our R&D center is going through evaluation of the equipment. And also, we are trying to measure the productivity benefit versus the economics of using EUV

for our 1z process.I think there were some press releases in last March that hinted that we will go and develop 1z without adopting EUV. But actually to clarify, we're doing a 2-track development for our 1z, so we're also, at the same time, considering a 1z process that uses EUV.

Sir, would you mind clarifying your third question about the System LSI business? You've asked for the share of image sensors and foundry.

<Q – Mehdi Hosseini>
Yes. The mix of image sensor and foundry within System LSI or within the overall semiconductor industry.

<A>:
To answer your question, in terms of revenue of our entire System LSI business, image sensors account for about 1/3.

Robert M. Yi
With that, we'll be ending the conference call. Thank you very much.