

【Samsung Electronics Q2 Earnings Call】

Welcome everyone, this is Ben Suh from investor relations.
Thank you for joining our earnings call for the second quarter of 2021.

For additional details regarding our quarterly results, please refer to our earnings presentation, which is available on our IR website at www.samsung.com/global/ir.

On the call with me today,
representing each of the business units, are

EVP 한진만 representing Memory

VP 조장호 for System LSI,

SVP 한승훈 for Foundry,

SVP 최권영 for Samsung Display,

VP 김성구 for IT and Mobile, and

VP 송원준 for Visual Display.

In addition, VP 강태규 from Investor Relations is present on this call as well.

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.

Before we present our quarterly results, let me first address the second quarter dividend. Today, the Board of Directors approved a quarterly dividend of 361 won per share for both common and preferred stock. The total payout for the second quarter is the same as it was for the first quarter, which is 2.45 trillion won, or one-fourth of the 2021 annual total of 9.8 trillion won in accordance with the shareholder return policy we announced in January. The dividend will be paid in mid-August.

Now, I would like to present the results for the second quarter. Total revenue in the second quarter came in at 63.7 trillion won, down slightly sequentially

mainly due to lower smartphone sales amid seasonally weak demand and component supply shortages.

However, we achieved a new all-time high for revenue in a respective quarter for the second quarter in a row, where our active response to server-led memory demand and the solid performance of premium home appliances led such results.

Compared to the same period last year, revenue increased by 20.2% mainly due to strong sales of memory, TVs, and digital appliances. Gross profit increased by 2.7 trillion won sequentially to 26.6 trillion won as a significant increase in contributions from the component business, led by migration enabled cost reductions in memory, more than offset declines in the IM Division that were mainly due to disruptions in smartphone production. Gross margin grew considerably to 41.8%, with improvement across all of our businesses, especially in the semiconductor business.

SG&A expenses came in at 14 trillion won, down slightly quarter-on-quarter and also as a percentage of sales, largely due to a reduction in advertising and promotional costs.

Operating profit increased by 3.2 trillion won quarter-on-quarter to 12.6 trillion won as market conditions improved in the memory market, operations normalized at the Austin Foundry fab, and as a one-off gain and price increases lifted profits in the Display business.

Our finished product businesses also contributed to the strong results, maintaining solid profitability by effectively managing our global supply chain amid strong headwinds such as component supply shortages.

Operating margin increased considerably to 19.7%. On a year-on-year basis, both operating profit and operating margin increased, with improvement in all of our business units.

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

For the DS Division, results improved significantly both quarter-on-quarter and year-on-year. In Memory, bit shipments surpassed bit growth guidance, price increases exceeded forecasts, and we also improved our cost competitiveness. Profits in system semiconductors increased as production normalized at the Austin fab.

In Display, earnings improved quarter-on-quarter despite weak seasonality for mobile products, primarily due to a one-off gain as well as an increase in overall ASP.

For the mobile business, sales declined sequentially, influenced by a component supply shortage and Covid-19 related production disruptions amid weak seasonality. However, we secured solid profitability by effectively managing our global supply chain capabilities, improving our cost structure and marketing efficiency, and through another quarter of solid contributions from tablets and wearables.

The CE Division once again generated strong results by expanding sales of premium products amid a continuation of pent-up demand.

Regarding currency effects, slight strength in the US dollar, the euro, and major emerging currencies against the Korean won positively affected both the component and finished product businesses, with a combined impact of approximately 200 billion won on operating profit compared to the previous quarter.

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

We expect to see favorable overall market conditions in the component business, and we will focus on enhancing our leading position in both products and technology.

As for our finished product businesses, we aim to keep profitability at a solid level by strengthening our leadership and lineups in the premium segment. However, risks of continued disruptions in component supply and uncertainties related to COVID-19 are likely to persist.

For Memory, we expect continued demand growth from server and mobile, propelled respectively by rising adoption of a new CPU and releases of new smartphones by major customers. We will improve our market leadership with bit growth driven from our accelerated migration to 15-nano DRAM and 6th generation V-NAND and by expanding the application of EUV in our DRAM production.

In system semiconductors, we expect demand for key System LSI products to increase as we enter strong seasonality for smartphones; and foundry will

accelerate growth by expanding Pyeongtaek S5 Line capacity and by adjusting pricing to enable future investment cycles.

For Display, we expect the mobile panel business to improve its performance as major customers launch new flagship models; and we will focus on finalizing the mass production process for QD display to allow product shipments to start within the year.

In the Mobile business, we will target achieving solid revenue and profits by boosting the competitiveness of our smartphone lineup with the launch of greatly enhanced foldable models and the expansion of our mass market 5G models. We will also continue to grow sales of our Galaxy Ecosystem lineup. For Network, we will drive revenue growth in our key markets, including North America, and continue to explore new opportunities in Europe and other parts of the world.

In the CE Division, we will solidify our leadership in the premium TV market by expanding sales of high-value products such as Neo QLED and Super Big TVs. We also aim to increase DA revenue by bolstering global sales of our Bespoke product line.

Let me now move on to capital expenditures.

Capex in the second quarter was 13.6 trillion won, with 12.5 trillion won invested in semiconductor and 0.6 trillion won in display.

The cumulative total for the first half of the year was 23.3 trillion won, with 20.9 trillion won in semiconductor and 1.4 trillion won in display.

Memory investments concentrated on addressing growing future demand via capacity expansions and process migrations, including to 15-nano DRAM and 128-layer V-NAND in Pyeongtaek and Xi'an.

Foundry investments focused on capacity expansions for advanced processes, such as 5-nano EUV, to respond to customer demand.

Finally, I would like to share some of our activities and key achievements in sustainability management.

First, the Board of Directors today approved to reorganize the Governance Committee into the Sustainability Committee. The new committee through its

increased duties will strengthen the Board's role and responsibility in sustainability management. The Sustainability Committee will assume the roles of the Governance Committee, which include practicing corporate social responsibilities and enhancing shareholder value.

In addition, the Committee will also address a broad range of ESG issues, including climate change, circular economy, labor and human rights, diversity and inclusion, supply chain, and ethical management, thus setting the direction for and monitoring the progress of the company's sustainability management. The committee will be composed entirely of Independent Directors to ensure its independence, and will also receive reports on the main issues discussed at the Sustainability Council, a company-wide consultative body.

The Sustainability Committee connects sustainability management throughout the company, from each business unit right through to the Board of Directors, advancing our goal of making sustainability an inherent part of our business.

Next, I will brief you on the key takeaways from our 2021 Sustainability Report released in June.

We actively pursued company-wide initiatives to strengthen the sustainability of our products and services, including programs such as Galaxy Upcycling and the Samsung Global Goals Campaign in the IM Division; the use of Eco-Packaging in the CE Division; and our commitment to increase energy efficiency of products in the DS Division.

We were recognized by the UK's Carbon Trust for our management of water use at the Hwaseong Campus, and we received Zero Waste to Landfill validation of gold level or above for all of our semiconductor sites. The Sustainability Report also summarizes our responses to COVID-19 and our commitment to our employees, partners, customers, and communities, including our efforts through various partner support programs.

For more details, the report is available on our IR website in the Sustainability Reports section. Our Company will continue to promote sustainability management and transparently communicate our direction and achievements with our stakeholders.

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. We will start with the Memory Business.
Thank you.

Good morning, this is Han Jinman from the Memory Global Sales & Marketing Office.

In the second quarter, our shipments exceeded our Bit Guidance due to strong memory demand mainly from Server and PC. Moreover, higher-than-expected increases in ASP for both DRAM and NAND combined with cost reductions from expanding the cutting-edge portion of processes contributed to a significant improvement in our results.

In the case of DRAM, Mobile demand was affected somewhat in the short term by the spread of COVID-19 in major smartphone producing countries as well as by production disruptions caused by component supply shortages. On the other hand, for Servers, On top of recovering investment sentiment in enterprise, new set builds at OEMs have increased due to the release of a new CPU; and demand from datacenters stayed strong backed by solid demand for Cloud.

In addition, a continuation of the 'Stay-at-Home' trend kept PC demand at a strong level, while demand for chrome books for education has also increased ahead of a new semester. Consumer products such as TVs and Set-top Boxes also showed strong demand, and the move toward high density has accelerated with the spread of 4K content and streaming trends.

Demand in the Graphics market has been strong, owing to increased demand related to cryptocurrencies; and growing demand for graphic cards for Gaming PCs as a byproduct of widespread Home Entertainment usage. Plus, the market for Game consoles showed robust demand, Evidenced by initial sales successes and backed by launches of new titles. By preemptively adjusting our product mix, we actively addressed strong demand from the Server and PC markets and exceeded our previous Bit Growth Guidance.

Next, I will talk about NAND.

For mobile, the set-build growth was insignificant due to component supply issues, but demand was strong from the high-density trend, centering on major customers. For Server SSDs, demand for 8TB and 16TB products was strong thanks to increased server investment and a high-density trend at major data center companies.

Demand for client SSDs also stayed robust, primarily from laptops, as online activities such as remote working and education continued. We achieved shipments that exceeded our Bit Guidance, by actively addressing increasing demand for Server SSDs and strong demand for Mobile and Client SSDs, while expanding the sales portion of 128 layer 6th generation V-NAND.

Now, let's move on to the outlook for the second half.

The market view for the second half is a mix of concerns and expectations. The spread of variant Covid strains requires urgent attention, supply issues of some non-memory chips are likely to persist, and various geopolitical issues are escalating— all of which are risk factors to market demand.

Positively, however, we expect the fundamentals of market demand to be robust. First of all, in the case of mobile, Along with the high-density trend for memory related to the expansion of 5G, launches of new models from major manufacturers bode well for demand. Furthermore, for Servers, We expect enterprise investment sentiment to recover With the expansion of vaccine supply and vaccination efforts combined with economic stimuli. We expect server demand to be strong with rising adoption of the new CPU, alongside the ongoing trend toward high-density.

In the PC market, Due to prolonged effects of Covid-19 we are witnessing fundamental changes in the way people buy and use their PCs. With the proliferation of a hybrid work model, we expect enterprise demand to be strong, while replacement demand should be solid, driven by the release of a new OS. On the other hand, our inventory level has fallen to an all-time low due to the impacts of our higher-than-guided shipments in 2Q.

In this situation, we will remain a leader in cost competitiveness and Bit growth by expanding migration to and production of our main nodes such as 15 nm DRAM and 128 layer V-NAND. Moreover, amid such uncertain market conditions, we are working to preemptively identify various issues that can affect customer demand, such as issues in the supply chain.

Accordingly, we will flexibly manage our product mix to better meet market demand. Also, we are securing additional capabilities to stably supply our products in a timely manner, even amid demand fluctuations, by extending the range of our demand forecast for each application and by using big data to sharpen our own predictive tools.

Our 14-nano DRAM is the smallest design rule in the industry's 14 nano-class. We will mass produce this product in the second half by applying EUV to 5 layers. In addition, our preparation is going smoothly for mass production of consumer SSD, which adopts Double Stack 176 layer 7th gen V-NAND technology, and we expect to start mass production in the second half as planned.

Accordingly, we, as the leading company in comprehensive memory solutions, will spearhead the establishment of the next-generation ecosystem of the IT industry. Thank you.

Good morning, this is Harry Cho from the System LSI Business.

In the second quarter, solid demand for 100Mp image sensors, mainly from Chinese customers, and an increased supply of DDIs and other display related products backed by normalization at the Austin fab contributed to earnings. However, earnings improvements were limited somewhat by a decline in launching effects of major customers' flagship smartphones and a seasonal decrease in SOC demand.

We released a variety of products in the second quarter with industry-leading technology. In particular, we launched an image sensor that applies 0.64 μ m ISOCELL—the smallest pixel size in the industry—and we released our first image-sensor product for automotives. In addition, we expanded our business areas by releasing 3 types of PMICs for DDR5 DRAM modules.

In the second half of the year, especially in the third quarter, we expect overall earnings to improve sequentially due to increasing demand for SoCs and OLED DDIs as we enter peak season for smartphones, and also due to growing demand for parts related to rising global IT and TV demand.

We will maximize our capability to supply chips by strengthening cooperation with major foundry companies, and we will flexibly adjust our product-mix to prioritize high-value-added products. By doing so, we aim to achieve double digit sales growth this year, which is an increase from our previous target.

Thank you.

Good morning, this is Shawn Han from the Foundry Business.

In the second quarter, we improved our earnings sequentially and set a new high for 2Q sales by maximizing our chip supply capabilities and through the earlier-than-scheduled normalization at the Austin fab. In addition, as demand for mature process products, such as CIS/RF/MDDI, is expected to keep growing, we worked to strengthen our competitiveness by improving existing processes and diversifying our portfolio through the development of various new derivative processes.

Turning to our outlooks, in the second half, we expect overall demand to exceed supply due to rising demand from accelerating penetration of 5G, a continuation of the work-from-home trend, and growing demand for safety stock from customers. As a result, we believe overall market growth will be higher than our previous estimate.

To address increasing demand, accelerate growth, and resolve growing industry concerns over supply, we will maximize our capabilities to supply chips via full-fledged operation of Pyeongtaek S5 Line, especially for mass production of 2nd generation 5-nano and 1st generation 4 nano based products.

We are targeting annual sales growth of well over 20% as well as significantly improved profits. We will work to achieve these goals through: pricing strategies to sustain future investments; customer and application diversification; and capacity expansions.

Thank you.

Good Morning, I'm Kwonyoung Choi from the Business Planning Department at Samsung Display.

In the second quarter, although sales of the Mobile Display business declined quarter-on-quarter, affected by weak seasonality, operating margin remained strong as the supply of OLED components has been more stable than that of LCD panels, with set manufacturers continuing to prefer the adoption of OLED panels.

On a year-on-year basis, both sales and operating profit increased substantially thanks to growing adoption of OLED panels on top of a low base.

For the Large Display business, the conversion of manufacturing lines to QD display weighed on revenue quarter-on-quarter, but a rise in the ASP of panels for TVs and monitors helped improve profitability.

Next, let me share the outlook and our core strategies for the second half of 2021

For the Mobile Display business, we expect earnings to rise compared to the first half of 2021, spurred by new product launches at major smartphone customers and an increase in supply of high value-added products, including foldables. At the same time, however, we may see a potential drop in shipments for some products due to a supply crunch of certain components, such as DDIs.

Meanwhile, starting from the second half of 2021, we are projecting full-fledged sales growth of IT and portable gaming products featuring OLED screens, satisfying consumers that are accustomed to the quality of OLED smartphones screens.

We, at Samsung Display, have been satisfying the expectations of consumers and maintaining a substantial gap with our competitors with timely and successful commercialization of new technologies each year, including Y-OCTA, HIAA and etc.

We will further fortify our innovative leadership by aggressively introducing Under Panel Camera technology and technologies related to higher energy efficiency in the near future.

For the Large Display business, we have been strategically preparing QD display to target the high-end market, and we expect manufacturing to start in the second half of this year.

We will channel all our efforts to thoroughly prepare its development and mass production so QD display can make a successful debut as planned.

Thank you for listening.

Good morning, This is Sung-Koo Kim from the Mobile Communications Business.

I would like to discuss the IM Division's Q2 results and outlook for the 2nd half of the year.

In Q2 2021, market demand is expected to have decreased quarter-on-quarter due to seasonality and a resurgence of COVID-19.

For our Mobile Business, revenue decreased from the previous quarter due to the component supply constraint in the mobile industry and production issues at our factory in Vietnam. Under these circumstances, we strived to minimize impacts by prioritizing on critical products and regions -utilizing our global SCM capabilities to optimally rebalance supply.

Meanwhile, products in our Galaxy ecosystem, including tablets, PCs, and wearables contributed substantially to the Q2 performance. In addition, our improved cost structure and efficient resource allocation helped us maintain a solid, double-digit operating margin.

In the Network Business, our performance improved quarter-on-quarter backed by growth in North America and 5G network expansion domestically.

Now let me move on to the 2nd half outlook.

As the adoption of 5G and the contactless trend continue to thrive, We expect the annual mobile market to recover to the 2019 level. However, uncertainties regarding the component supply constraint and COVID-19 are likely to linger.

In our Mobile Business, we will continue to strive to further solidify our leadership in the premium segment by mainstreaming the foldable category and maintaining sales momentum of Galaxy S series throughout the year. In the 3rd quarter, we will concentrate on successfully launching new foldable smartphones. We prioritized consumers' needs and worked to reflect such needs in our new Z-series models which offer remarkably enhanced product competitiveness and user experiences.

In addition to our own innovations, we have enhanced the open collaboration with our global-leading partners to add more meaningful innovations to our customers' daily usage. We expect to provide unique mobile experiences

and enrich customers' lives. Onto our Galaxy S series, it is our flagship lineup that features premium design and the utmost innovative technologies, including professional-grade cameras and superior display. We will continue to generate solid sales of the Galaxy S-Series by emphasizing their optimized user experiences and unique value.

Regarding our mass market smartphones, we will introduce new innovative technologies and more broadly adopt 5G, including in entry-level models. With these efforts, we will proactively address various regional needs while also broadening our customers' choices.

In addition, we will work to increase sales of Galaxy ecosystem products, including tablets, PCs and wearables, by promoting easier, more convenient connected experiences throughout our extended Galaxy ecosystem. We will strive to achieve solid sales and profits in the 2nd half by carrying out the strategies that we have outlined. In the meantime, we will continue to strengthen the foundation for future growth by maximizing customer satisfaction and increasing retention based on enhanced user experiences within the Galaxy ecosystem.

For the Network Business, We aim to promote growth of the business by increasing sales in North America and Japan, and we will continue to seek new business opportunities in Europe and other regions.

Thank you.

Good morning, everyone. I'm Wonjun Song from Sales and Marketing team of Visual Display.

I'd like to review the market conditions and our performance in the second quarter of 2021.

First, the TV market in the second quarter contracted quarter-on-quarter because of seasonality, but increased compared to last year. Even amid supply issues of some materials, Samsung optimally allocated resources and proactively fulfill demand for major sporting events in second quarter, such as Euro cup. Thus, we maintained solid profits by expanding sales with a focus on premium products.

In particular, the newly launched Neo QLED includes upgrades in all aspects offering not only outstanding picture quality, but also sound, design, and usability and it garnered positive feedback from numerous consumer reviews and major magazines.

Based on the positive responses, Samsung expanded sales of Neo QLED in full swing from second quarter and improved our product mix. Furthermore, Lifestyle TVs, our unique product line, are securing a strong position in the market by actively targeting various consumer passion points, such as indoor, home cinema, and outdoor viewing, and by providing experiences that conventional TVs cannot offer.

For the Digital Appliances in second quarter, as people spend more time at home, consumers become more interested in their home surroundings and home décor. Also, pent-up demand continued to affect the market amid governments' economic stimulus packages and strong housing markets. Samsung successfully launched the Bespoke globally in May and expanded sales based on positive feedback from major markets. In addition, by launching new lifestyle appliances, such as Shoe Dresser and cordless Stick Vacuum Cleaners, we fulfilled the diversifying needs of our consumers and expanded our sales.

Now, let us look at the outlook for CE in the second half of 2021.

As the TV market moves into peak-seasonality, we expect market demand to increase half-on-half. However, business uncertainties related to Covid-19, including effects of the surging Delta variant, are likely to persist.

Samsung will keep monitoring the rapidly changing market conditions and will swiftly respond to changes in demand using our global SCM competitiveness, thereby securing profitability and maintaining our leadership in the market. To do so, based on close collaboration with channel partners, we will plan peak-season promotions tailored to each region to expand sales and will keep improving our product mix.

Also, in order to capitalize on the trend of increasing online purchases during peak seasonality, we will improve our contactless sales infrastructure by enhancing the online-buying-experience for our consumers while also expanding digital content. Moreover, we will strengthen cooperation with online channels to expand sales opportunities.

For the Digital Appliances market in the second half, we also expect uncertainties related to Covid-19 to remain high, and external risks such as increases in raw material and logistics costs are likely to linger.

However, Samsung will strengthen the Bespoke lineup with top-notch products and expand its presence by launching in more regions while also carrying out various online and offline marketing activities. By doing so, we will craft our own unique brand image of providing customizable digital appliances to not only the domestic market but also global ones.

Moreover, we will enhance our overall operational efficiency and will respond to external risks by optimizing the allocation of global resources by region and by further strengthening supply-competitiveness based on product modularization.

Through these efforts, we will continue to lead the digital appliance industry.

Thank you.

Thank you. That sums up the second quarter results presentations. Before we move on to the Q&A session, I would like to share several data points in key business areas.

For DRAM in the second quarter, our bit growth was in the low teen percentage, and ASP increased by a percentage in the high teens. For the third quarter, we expect market bit growth to be in the low-single-digit range and our bit growth should be around the market level. For the full year, we expect market bit growth to be in the mid 20% range and our bit growth should be similar.

For NAND in 2Q, our bit growth was a high-single-digit and ASP increased in the mid-single-digit range. For 3Q, market bit growth is likely to be in the low teens and our bit growth should be around market level. For the full year, we expect market bit growth to be around 40% and our bit growth should be similar to the market.

In the Display panel business in the second quarter, the OLED portion of sales was in the mid-90-percent range, and OLED sales volume declined by a percentage in the high-single-digits.

In the mobile business in 2Q, sales volume was around 60 million units for handsets and 8 million units for tablets. The blended ASP, including tablets, was approximately US \$233 and the smartphone portion of handset shipments was in the mid 90% range. For the third quarter, on a sequential basis, we expect shipments of handsets to grow but stay similar for tablets, while blended ASP is likely to increase. We expect the smartphone portion of handsets to be in the mid-to-high 90% range.

In the TV business in the second quarter, sales volume declined by a percentage in the high teens, but we expect shipments in the third quarter to grow by a high-single-digit percentage.

Q&A

I will now move on to the Q&A Session.

Starting with this call, we are accepting questions via our webpage in advance of an earnings release as a part of our efforts to strengthen communication and enhance understanding of the Company, and variety of questions were submitted.

We would like to first answer the question on our company's technological competitiveness, which garnered a high level of interest from the market and investors and was asked a number of times.

The question goes: "I would like to hear the company's thoughts and explanations on the saying that the technology gap between Samsung and other rival companies are being narrowed. In particular, I would like to know whether the company has any concerns over its competitiveness after the development of 176-layer from other companies, and whether its cost and price competitiveness will be weakened when it transitions to DDR5, as the HKMG technology makes the processes more complex." This question will be answered by EVP Jinman Han from the Memory Division.

Yes. That was a very good question. Had I not been told I would have thought that, that was a question from an analyst. I will answer your question for NAND and DRAM each. First, regarding the competitiveness of the V-NAND side, actually our key point as we develop our V-NAND is no longer just in the

number of layers. We have already secured the industry's top etching technology as we worked on the 128-layer single stack.

And so, as of now, our current focus is how to efficiently increase the stack itself, as well as what will be the right time and method of achieving that efficiency.

So we believe that the game is no longer just a game of who makes the highest number of stacks or high number of layers, but our key point is currently in terms of the efficiency of the stack height as well as the competitiveness in terms of cost.

You've also voiced some concerns about the cost competitiveness of our DRAM and it is true as the DRAM migration passes from generation to generation, and as we know, it'd become more migrating or smaller the slope of the cost benefit from generation to generation is flattening out and the difficulty of the technology is also increasing. And that is why, in order to secure further cost competitiveness, we are exploring various avenues in addition to just process migration.

And so the DDR5 that applied the high-k metal gate technology is one of our various efforts to secure the key and the core technologies that will give us continuous cost advantages. Also, I would like to say that just because we have applied the technology does not mean that, that technology will be applied in mass production. New technologies will be adopted when they go through very close and careful consideration in terms of cost and efficiency.

For example, currently our 14-nano based DDR5 product actually uses EUV on five layers. The logic is that by applying EUV on larger number of layers, the number of total processes decreases which gives us the cost advantage. And so we believe that the 14-nano will be the start of the DDR5 node that has cost competitiveness. We also think that with the DDR5 ecosystem becoming more active starting from next year, there will be a gradual bit cross.

To sum my answer, I just wanted to re-emphasize that we are devoted to various different approaches of R&D that will give us the absolute technology competitive edge in memory going forward for both DRAM and NAND, and that we are planning to continue to secure competitiveness in all dimensions including cost, performance and power. Thank you.

<Q – Nicolas Gaudois>:

Good morning, and thanks for taking my questions.

- First question is regarding DRAM. Given the slowly recovering server demand in recent quarter, how is server demand developing in H2 '21? And how much server unit and content growth would you expect to see for the full year of 2021?

- And secondly regarding smartphones. Could you update us on the situation in Vietnam and India? What has been the impact of possible production disruption due to recent COVID wave? And how you're addressing those challenges and when do you expect effectively the situation to normalize? Thank you very much.

<A>:

- To answer your first question, yes, as you mentioned, server demand was very strong in second quarter from both DRAM and NAND as many companies started to increase their investments and also there was the benefit of the impact from the launch of the new CPU. And so, we have responded to this by operating our product mix effectively to capture this strong demand.

You've asked about the second half and we think that the demand from servers will maintain solid in the second half, even though there are many lingering uncertainties including the possible spread of the variant virus, various geopolitical issues and some uncertainty and volatility around IC supply. We think that first of all, there is an ongoing trend of higher content on server especially with the adoption of the new CPU and also there is an increase of set build as, for example, the cloud-based overall infrastructure expands within the industry. And so given all of these factors, we think that fundamentally server demand will remain solid in the remainder of the year. Specifically regarding the server unit increase, we are expecting that on a year-over-year basis server unit will grow at a high single digit this year.

Now to tap that strong demand from the servers, as you know, we are currently in customer sampling for our DRAM 14-nano DRAM, that is using the smallest design rule implementable at 14-nano for DDR5. We're expecting that to go into mass production as scheduled in the second half. Also, for the server SSD, we have a complete supply chain management formed including in-house fab to up all the way to the controller, and so we are fully prepared to provide the stable and timely supply as a leading supplier of our servers.

- To take your second question about our mobile production in India and Vietnam. Fortunately in the case of India, we have not gone through any special production issues due to COVID-19, thanks to the various preparation measures that we have made. For example, we instructed any employees in the Indian plant to not come to work if they have any symptoms. Also we had taken the pre-emptive measure of finding dual supply overseas for the key components and also we actually preemptively restructured the production line so that we, if necessary, could close down partially the production line without affecting other parts, but fortunately our Indian operation has not been affected.

In the case of our Vietnam plant, there has been some production impact mainly due to actually our injection molding supplier, for example, going on stopping operation due to the nationwide Vietnam lockdown due to COVID-19. However, we have made measures, for example, to find other alternative sources overseas outside Vietnam and also securing additional sources within Vietnam to minimize the impact. We're expecting that Vietnam will be able to normalize within this month.

<Q – Dongwon(Jeff) Kim>:

- I have one question about memory, specifically memory inventory. I think depending on which server company we're listening to, there are different opinions regarding the current memory inventory level. And so this is driving some concern that if the inventory level continues to go up in the second half, we may actually go through an inventory adjustment in the fourth quarter. Within that context, can you share your views regarding the inventory levels of both the memory suppliers as well as the customer?

<A>:

- You've asked about also the inventory level of our customer, but I hope you will understand that we are not in a position to give any definitive answers regarding the inventory level at our customers. But we are assuming that there will be a different inventory level from customer to customer given the fact that there was the impact of the supply issues that appeared differently depending on the application and also, the recent surge in demand. But overall, we expect that considering the overall demand forecast going forward, that there will be continued build to inventory demand.

You've also asked about the inventory at the memory suppliers. Well, as far as our inventory is concerned, as we mentioned during the presentation, our shipments in the previous quarter significantly increased than what we had expected. And so as a result, both our DRAM and NAND inventory is at considerably low levels. Given the fact that solid demand is expected in the second half across applications, we are expecting that our inventory levels will continue to remain at low levels.

<Q – Peter lee >:

I have two questions.

- First question is about DDR5 which is becoming quite a hot topic. There are expectation that the DDR5 would have to use an embedded ECC and this would result in the entire chip size becoming larger. Given all of that, what do you think will be the impact of the increased penetration of DDR5 on the DRAM market in year 2022?

- Second question is about your mobile business, especially the smartphone lineup. I think there were media reports that the company will not be launching a new Galaxy Note model in the second half. What is the implication to your overall flagship lineup and strategy including the foldable? There's I think also a lot of talk that your new foldable that will be launched in the second half will be introduced at a lower price point. Does that imply that the foldable specs would also become lower than before? And how will that impact your profitability?

<A>:

- To give you an update on our DDR5, we are currently in sampling of our 14-nano DDR5 in line with the schedule for the new CPU launch that supports DDR5 and PCIe Gen-5. The mainstream of the DDR5 is expected to be the 16 gigabit with high-density product, and so we think that this DDR5 will be the product that significantly gives -- stimulates the trend of high density. Also, in addition to that, in order to meet the demands and request by the cloud companies, we're also developing a maximum 24 gigabit DDR5 product.

Now that being said, looking towards to the market itself, as you know, the DDR5 does have some cost increase factors versus DDR4 including the die size overhead also. So therefore, this may act as a constraint in terms of bit growth overall. Also, I think another variable that we need to look for in terms of DDR5 market growth is the supply situation of a major chipset that would support DDR5.

- To answer your question about our premium segment lineup, as you know, our flagship strategy has always been to prepare a lineup that meets the customer's needs and to respond to market change. Our key top priority for the second half

in terms of our flagship is to focus on mainstreaming the foldable form factor and to drive sales volume growth of the foldable by doing this. And so the new foldable model that we are preparing, we'll be delivering even a higher level of product completeness and innovation and on top of that, we are preparing optimized and differentiated user experience that takes advantage of the foldable form factor.

And so on top of this extremely competitive product, we are going to promote this with a full-scale flagship marketing, including a far more visibility and exposure in offline displays to raise the awareness of the new foldable products that we will be launching. By increasing the overall sales volume of the foldable, we are planning to achieve economies of scale and with optimized product design, we expect to achieve solid profitability for the foldable. Please stay tuned for the unpack event that will -- is coming soon for the details of our new foldable models.

So in addition to the foldable, the second piece of our flagship strategy is to maintain the sales momentum behind the S Series. As you know, the S Series has always been satisfying the needs of various premium customers. So we will increase and maximize the sales of our S Series throughout the second half of this year by appealing to not only customers that want the most innovative technology experience, but also those that are looking for a greater performance for price, and also by upselling to users of S Series or A Series that have a very strong loyalty towards the S Series

<Q – Claire Kim >:

- My question is about your NAND technology. Can you share with us or give us updates of your NAND technology roadmap?

<A>:

- About our NAND roadmap, the focus of the NAND roadmap is sixth generation and seventh generation up to around year '22. And then even after that, we have a roadmap design for 10 years to follow. And for the subsequent five generations, we have already prepared a very detailed technology roadmap regarding the key element technologies.

To give you some updates, the industry is only single stack based 128-layer, sixth generation V-NAND has already grown to take up a significant part of our overall production volume during the first half. Also, our 512 gigabit share is expected to continue to grow. This is the technology that has significant cost competitiveness and will benefit from the increased demand for server high-density SSD. Also, as we mentioned during the presentation, we are preparing to launch a consumer SSD that is based on the 176-layer, seven generation V-NAND which is optimized for high density and multitasking environment.

To give you some updates on the use ramp-up for the double-stack 176-layer, because we have already secured the etching technology by working on the 128-layer with single stack, we are confident that we will be able to ramp up much faster compared to the previous generations. And as we expected currently, we are achieving ramp-up at around twice the speed that we did in previous generations. Also the 200-layer plus 8th generation V-NAND product which would give us the absolute cost competitiveness in double stack, in that case,

we have already secured a working chip and it's been -- is preparing to expand the lineup.

<Q – SK Kim >:

- My first question is about the use of EUV on your DRAM operation. I think many investors are wondering what impact the adoption of EUV in DRAM would have in terms of DRAM supply. During the presentation, you mentioned you've emphasized 14-nano nodes, but also your competitors are announcing plans of adopting EUV technology. So, given all of that, can you tell us what is the competitive differentiating factor that you have in EUV that set you apart from your competitors? And also if possible, can you share with us your roadmap for EUV on DRAM?

- Second question is about the CE, the consumer electronics business. You've mentioned during the presentation, but I think there are some concerns that, especially the CE division will have to bear additional cost burden as raw material prices increase and logistic prices are also on an upward trend. In that context, can you share with us details of how you plan to maintain your profitability or reduce your costs?

<A>:

- To answer your first question, yes, there are many memory companies have recently started to announce EUV related plan. It seems that finally EUV is becoming a mainstream trend in the industry. But as you will recall, we have been talking about EUV several times through earnings conference calls and media reports from 2018.

Now having already done EUV, I think one thing that we have learned is that, EUV is much more than just simply purchasing the equipment and also applying this production, that what is much more critical is to maximize the synergy on the technology side and also to build the know-how. And to internalize the know-how of the entire ecosystem, such as masks and inspections.

And so, as you know, within the memory industry, we were early to realize the importance of EUV technology. We preemptively invested in EUV technology and so we had a head start in, first of all, building a very stable ecosystem, so close collaboration with the key EUV related suppliers around the world starting from the mid-2000. Also, we have already accumulated a significant EUV related technology knowledge as well as knowhow based on various research through application of EUV in the DRAM process and as a result of that, we were able to apply EUV in five layers in 14-nano DRAM, which naturally would give us cost competitiveness.

And so, you've asked about the strategic or the competitive differentiation that we have against other companies and I think that this specialty that we have already built up using EUV technology is a key technology strength that is unique to Samsung. And so the preemptive adoption of EUV on our memory process was not just another step in our process and node migration. Actually, it was done in the context of giving us long-term absolute technology competitiveness. And so, in addition to, as we did with the pre-emptive adoption of EUV, if we find that there are leading technologies that will give us that breakthrough in memory process migration, we will continue to make these pre-emptive investments.

- Your second question was how the CE division plans to deal with the expected cost increase. As we've mentioned during the presentation, we are also expecting there to be increase in raw material prices and logistics costs in the second half, but we are prepared to respond to this actively and to defend our profitability at a solid level on various fronts, including product, distribution, and operations.

First, in terms of products. We will focus on further improving our product mix by increasing the sales of, for example, the bespoke lineup that we have already launched globally in the first half, and also increase the sales of the high-end premium products, such as the new lifestyle consumer electronics products that caters to the various needs of consumers. In terms of distribution. In addition, while maintaining the competitiveness of our existing offline channels, we will continue to also strengthens, for example, B2B and online these growth channels to further gain sales opportunities. Also we will further build in our cost competitiveness by newly launching more modularized products. And at the same time, make sure that we are prepared to cope with any risks posed by COVID-19 by analyzing the competitiveness of our different manufacturing sites and also readjusting our overall volume to enhance our operational efficiency.

<Q – SoonHak Lee >:

I have two questions.

- The first question is about your IM division. You have emphasized the Galaxy Ecosystem products, for example, the tablets, the wearable and PCs. Can you share with us the amount of appeals this Galaxy Ecosystem is having on the

consumer's demand? Do you have a sense of how strong the lock in effect is from the Galaxy Ecosystem? And how much contribution are you expecting on your revenue as well as profits from these ecosystem products?

- Second question is about the QD Display. It appears that the mass production of the QD Display is imminent. If you say that it will go into mass production as scheduled that will probably we're assuming be in the fourth quarter. At this point, can you share with us the preparation status as well as an update if there is on the mass production timing? Also, it seems that the initial mass production capacity for the QD Display would be limited to around 30k. Do you think that there is additional up room on that capacity?

<A>:

- Your first question about our Galaxy Ecosystem products, by providing a differentiated Galaxy Ecosystem experience, the sales of our tablets, wearables and PCs are expanding. Even though we do not disclose the revenue or profit per product, we are expecting that in 2021 within our mobile IM business division, the result -- the Galaxy Ecosystem products and overall performance will increase considerably versus what they did in 2020. Also, the wearable market itself is continuing to grow at a high pace, but especially since we are planning to launch new models of our wearables in the second half, we're expecting that our wearables will be growing and will be outgrowing the overall market.

And our strategic approach to the Galaxy Ecosystem product is not to just gain the direct contributions to our business performance, but also to even further develop the connected experience across our devices so that it is a major driver

to increasing our customer retention, also to raise the customer's trust in the Galaxy products and also to make Galaxy itself a stronger premium brand with higher level of aspiration by customers.

- To answer your question about the QD Display, actually as you know, we launched we announced our plans to invest in QD Display in October of 2019. Since then we have been developing the technology and acquiring the equipment. We completed the equipment we brought in the equipment in the first quarter, we are currently to give you a status update going through the ramp-up and test product after we complete the test product testing.

As you mentioned, yes, we are planning to go into mass production in the fourth quarter. Currently, actually we're preparing the QD Display for both TVs as well as monitor products; this is per the request of our customers. We are currently still discussing about specific timing as well as sizes, and we will not be able to share details today.

You've also asked that whether we have plans of additional capacity investments. As you know, our basic approach to additional investment is to closely listen to the customer's demand and also sense the market movement. So, according our current capacity is, as you mentioned, 30K per month and additional investments will be decided by market movement after ramping up the capacity.

The QD Display is actually a product that can satisfy the consumer needs that the needs of the consumers that are actually wanting a premium display that can deliver the high quality OTT or game content. And so, based on our past experience of how we led the mid-sized and small-sized OLED as the display of

smartphones, we think that the QD Display will provide that next engine of growth for the large-sized display market that has actually been stagnant since the transition from CRT to LCD.

<Q – Wonsik Lee >:

I have two questions.

- First question is about your SOC business. I think there is concern in the market that your SOC business is losing its competitiveness. How does the company plan to recover the competitiveness of its SOC business especially regarding the APs?

- Second question is about the DP business. It's great to see how OLED is now moving beyond smartphones and being adopted in new applications such as tablets and PCs and foldable, and in that context, can you give us the update on the benefit of your OLED business, how your OLED business is expected to benefit from the newly created demand across these new applications?

And whether you have plans for additional investments?

<A>:

- To answer your question about our SOC, we are aware of the concern in the market regarding the SOC business' competitiveness. We are currently looking towards various approaches to enhance our competitiveness and expecting to see some visible results during the second half.

For example, in terms of the products, we have adopted a new GPU IP, which will give us improvements in terms of performance as well as GPU power also by applying the functions that are specialized to game consoles onto mobile. We will be able to offer a competitive edge for game or game related features.

Our strategy specific to the mid to low end SOCs for the volume market is, first of all, to gain long-term contracts in order to drive our long-term revenue, and also to gain on new customers for the volume market.

Also, given the fact that the mobile market is a saturated market, we are looking into leveraging the advantage that we have accumulated on the mobile SOC business to apply that to new applications such as automotive and also to develop a custom SOC business to further drive our business growth.

- To answer your question about the display side, as you mentioned, since we succeeded in the mass production of OLED displays for smartphones first in the world in 2009, we have been the leader driving the growth of premium smartphones. We have followed with introduction of innovative technologies, such as flexible form factor, on cell touch, hole display etc. to meet the higher demand of the customers and that has played a key role in making OLED the mainstream technology for smartphone displays. Leveraging this success experience in smartphones, we have been focusing on further expanding our OLED to other applications including tablets, laptop and automotive and have started to see visible results.

To introduce some of the key new applications that we have been focusing on, one would be the high-end laptop market. As you know, the laptop market itself

has benefited and is growing quite rapidly with the untapped or non face-to-face demand and the high-end laptop is a market where you have not only content creators that need productivity, but also consumers that actually want to enjoy videos and games. And we expect that this high-end laptop market will continue to grow in the future. In addition to that, the portable game device is another application that we have been focusing on.

Also, we are quite interested in the EV display market. I think with the launch of new electric vehicles, consumers are naturally expecting to see a higher end, more sophisticated interior and I think our flexible OLED which is able to be curved and free formed will be a great offering for the EV interior displays, and we're currently discussing supplying the flexible OLED to EV market with customers.

So, we believe that these new applications will provide an additional driver or a new driver of growth for the mid-sized OLED products and as we did in the smartphone market, we will continue to lead the market by offering differentiated technology innovations. A key differentiating factor for us is that we are able to offer not only the low end or low price rigid OLEDs, but also the high-end flexible OLED. We have the full product lineup which we will actively leverage to further develop business. Regarding additional investments, we will respond depending on the market situation and also our discussion with customers.

<Q – Hyunwoo Doh >:

- I have a question about the 14-nano process. First of all, can you give us when you expect to ramp up the 14-nano? And also what would be the contribution within your overall production as of end of year '22? You have applied EUV on your 14-nano quite actively, but I think there is conflicting views of whether this is a benefit or not. Even though, yes, by using EUV you are able to implement a smaller pitch sizes on the other hand that involves more expensive equipment as well as other costs increasing factors considering that other parts of the supply chain, such as photo-resist or the inspection machines probably aren't as tested and proven as non-EUV processes. So I'm assuming that the company has compared the cost of using EUV on your 14-nano versus not. Can you share with us your cost comparison results?

<A>:

- To answer your question, yes, our 14-nano is a process that has implemented the smallest possible circuit size or pitch that's possible at 14-nano range and it will be using EUV on five layers for our DDR5 product, which is currently in customer sampling with plans of going into mass production in the second half. Regarding the share that this 14-nano EUV will take up in our process, that will be actually tied to the formation of the DDR5 ecosystem.

You've asked about cost comparison. Actually, in terms of cost, we already passed the cost point with 14-nano, when we were using EUV only on one layer. So naturally, by using EUV on five layers with 14-nano, there will be cost benefits.

<Q – Younggun Kim >:

- First question is about your technology roadmap. For the GAA process, can you give us an update of where your GAA process development currently stands, and what kind of competitiveness you are expecting? Also, can you introduce to us the new packaging solution that is receiving some attention as well as the competitiveness of that packaging solution?

- Second question is for the network business. Recently, you've announced plan you've announced that you won a contract with Vodafone following the contract from Verizon. Do you have any additional contract plans or orders with global operators in the second half and onward? Also, can you give us some details of the competitiveness of the vRAN solution that you recently announced?

<A>:

- To answer your first question about our GAA, our target for GAA is to go into mass production with first generation process on 3-nano by year '22, and then to start mass production of second generation process on 3-nano by year '23, and we are on track with this roadmap.

The 3-nano first generation process is currently in design product design phase by a key customer. Also, looking forward to the 3-nano second-generation GAA process, we think that this will further expand the leadership that Samsung has in GAA process technology by innovating our process technology process development, manufacturing, and infrastructure capabilities, and also further enhancing our PPA.

Regarding the cutting edge package technology, we have been internally

developing differentiated technologies for packaging including the 2.5D and 3D ICs which will give us additional competitiveness in, for example, areas such as HPC. In addition to developing the technology internally, we are also focusing on building an open ecosystem by cooperating in various ways with global OSAT as well as PCB companies and also having joint development projects.

- To answer your question about our network business, based on our 5G technology, we are currently in 5G trials where with a large number of carriers within Europe, and we are actively promoting our 5G equipment to various operators in the European market in addition to Vodafone.

You've also asked about vRAN, which is a technology that is capable of delivering RAN performance that is similar to existing RAN technology, but by using commercial off the shelf servers. We were able to secure the large-scale commercial level 5G vRAN solutions first in the industry, which offers advantages in terms of network deployment, management efficiency as well as scalability and flexibility. We have already proven that we are the leader in these virtual base station area by supplying our vRAN solution to Tier 1 operator in the U.S. We will continue to further expand our technology leadership and preemptively respond to market changes including the adoption of vRAN by global operators to expand our customer base and also to build our business.

As we mentioned, we had actually received questions in advance, and I think most of the submitted questions were sufficiently answered during the Q&A session that we just had over the conference call. But I would like to suggest that we take one more question on a topic that received high level of interest before ending today's call. That question is about our cash and M&A plans. The

question was that, even though our cash is continuing to accumulate, there has not been a significant size M&A to follow the Harman acquisition and the person wanted to know our plans to execute M&As to drive our future growth.

I would like to answer that question. In times when business paradigms change rapidly and competition becomes increasingly fierce, I believe strategic M&A is necessary to make a breakthrough by acquiring companies that possess the core capabilities. We have been undertaking preparations for M&A in various fields and although it is difficult to specify a timing due to the domestic and global uncertainties, we remain positive on the prospects of carrying out an M&A of a meaningful size within three years, as we mentioned in January.

We are open to considering businesses in various areas and of various sizes, when we push ahead with an M&A, as long as the deal will contribute to the sustainable growth of our company. And so, we are actively reviewing numerous fields that are deemed to be new growth engines including AI, 5G and automotive. However, it is difficult to specify a particular field over concerns of revealing our business plans.

Due to the limited time, we were unfortunately unable to answer all of the questions that were submitted in advance. However, I would like to thank everyone who shared their opinions and providing us with valuable information that we will reference in our decision-making process. And that completes our conference call for this quarter. We wish all of you and those close to you, stay strong and in good health. Thank you.