

IR Day Pare2 Q&A

- Q Since around 2018, batch ALD market share has fallen significantly, but do you think it will be able to return to its former level of around 45%?
- A Tubes (batch equipment) in the film formation field include batch ALD and batch CVD. Our market share in batch ALD, our focus area, remains unchanged at 70%. In 2023, investment in advanced NAND was restrained, causing the batch ALD market size and our batch ALD sales to decrease significantly compared to 2022. On the other hand, the size of the batch CVD market has not changed, and its share of the batch ALD market has decreased relatively.
- Q It seems that industry expectations regarding 3D DRAM are somewhat declining, so I would like to confirm your company's level of expectations.
- A We are aware that 3D DRAM poses significant technical challenges, and that each device maker companies are falling behind a little. However, while the aspect ratio will be bigger than current 2D DRAM, the next generation will have a smaller base and will move towards a vertical transistor arrangement. In the process, you can find more opportunities with batch ALD. At the same time, we are working with our customers on the development of 3D DRAM. Though there have been some delays, progress is being made on projects to capture more business in 3D DRAM as well as 3D NAND.
- Q How many years ago did you start working on SiC equipment's development? Also, how long have you been working on SIMOX and SiC, and what is the current situation?
- A VERTEX Revolution is a product that has been developed by utilizing technology developed for 300mm equipment in 2018. As part of this, we also carried out process development for SiC power devices. High temperature technology is required for SIMOX, but by using this technology, we are able to handle temperatures of 1,400 degrees.
- Q I believe your previous medium-term target was a gross profit margin of 43% or more. Could you please tell us about the updated medium-term target for gross profit margin?
- A Gross profit margin was 43.6%, the highest figure ever recorded. I believe we can get close to that level in the fiscal year ending March 2025. Looking to the future, we will be able to increase the proportion of high value-added products through new product development and acquisition of new PORs, so we aim to reach a level higher than 43%.
- Q The mid-term target assumes that NAND levels will not fully return to their all-time highs, but will the proportion of NAND in film deposition decrease?
- A We are aware that when we look at the breakdown of WFE, the proportion of NAND is not very high. However, as the number of layers increases, the aspect ratio naturally increases, which increases the

technical requirements for film formation. Our company is looking to expand sales and profits from NAND equipment with higher added value equipment.

Q Is the main story that future growth for MARORA is expected to primarily come from DRAM?

A We expect that sales of MARORA will return to their highest ever levels around the fiscal year ending March 2027, just as batch deposition systems. It may take some time for NAND to recover, but we expect it to return to its highest level ever in the fiscal year ending March 2027.

Q Regarding the acquisition of new processes' POR in DRAM and Logic/Foundry, what is the likelihood at this point that you will be able to acquire additional processes?

A In DRAM, DOR and POR are approaching finality in D1c. With regards to the D1d, we are currently developing and evaluating it together with our customers, and there is the possibility that we will be able to win business from all of these customers. Logic explained the inner spacer, gate spacer, and hard mask, and it appears that there will be more of these processes. As new generations progress, processes become more complex, so we believe our batch ALD will provide more opportunities to demonstrate a competitive advantage. In addition, as the second generation of GAA requires further compactness, we have high hopes that we will be able to win more business.

Q Based on the mid-term sales target of 330 billion yen, equipment sales for NAND and DRAM were previously expected to be 70 billion yen, but this time they are calculated to be around 62 billion yen. Is this a downward revision of your previous view or should we consider this to be due to the increase in the ratio of DRAM and Logic/Foundry? Please tell us your thoughts on this.

A The equipment mix was examined from both a bottom-up and top-down perspective and we came to the conclusion that this mix was appropriate. This does not mean that sales of any particular device will decline significantly, Please understand that this reflects the fact that a certain level of demand for mature nodes will remain, particularly with the combination of Logic and cutting-edge GAA.

Q What kind of sales volume do you expect for the Advanced Package in the fiscal year ending March 2028, five years from now?

A First of all, we are not yet at a level where we can discuss specific sales figures. We expect a significant increase as our batch ALD equipment will be used for AI chiplets, HBM, and Si interposers. As we continue to have dialogue with our customers, I believe there is plenty of room for us to introduce and expand our batch ALD equipments lineup.

Q The DRAM 4F2 shift has been on the industry's radar for nearly 20 years, but it has been difficult to make the shift. Why did it become possible?

A Because we focus on batch film formation and treatment, there may be parts of the bigger picture that are not visible. However, 4F2 also requires precise step coverage, thin film control, and treatment technology. I think that by refining these technologies, we were able to move in a direction that made it possible to make 4F2.

Q Regarding Logic GAA, we believe there are two possibilities: the increased number of steps associated

with the structural change from N2 generation to N1.4 generation will lead to the adoption of batch ALD, and the larger aspect ratio will lead to a shift from single-wafer to batch ALD. What happens if you separate these two?

A We believe that there will be opportunities for our batch thermal technology to play an active role in lateral film formation, rather than single-wafer plasma. In addition, as we move from N2 to N1.4 and miniaturization progresses, the opportunities for us to perform batch ALD will increase. It is very difficult to categorize into two categories, but we would like to pursue business opportunities from various perspectives. In addition, there may be cases where power lines and other wiring are required, so there are opportunities for treatment equipment, and MARORA would also like to expand our business opportunities.

Q The plasma used in KOKUSAI ELECTRIC's treatment equipment is characterized by its isotropy. Is it possible to improve the quality of lateral deposition by applying this technology to plasma single-wafer ALD?

A We believe that it will not be easy to utilize our plasma in single-wafer ALD equipment. Therefore, we believe that as device structures become more complex, there will be more ways for our MARORA to thrive.

Q The outlook for DRAM devices does not appear to be showing much growth in the medium term. What is the background to this?

A Comparing the fiscal year ending March 2025 with our mid-term targets, the graph does not appear to show any growth, but we are anticipating growth of around 10%, aiming for a level of 60 to 70 billion yen. In addition, while sales for the fiscal year ending March 2025 include the benefit of very strong investment by major Chinese DRAM manufacturers, our mid-term targets are based primarily on investments with a high degree of certainty. As investment in DRAM is becoming very active around the world, we believe that we will be able to make a positive revision when we formulate our next medium-term plan.

Q How much do you expect Logic/Foundry to contribute to sales in the medium term for both cutting-edge processes and mature processes?

A Logic/Foundry has always invested in cutting-edge areas, but recently it has expanded to a variety of regions, and we expect to continue to see active investment in mature nodes, including China. In other words, it has a two-tiered structure, with cutting-edge businesses such as GAA on top of mature node businesses. We have set mid-term goals based on these different aspects of Logic/Foundry.

Q We see Chinese companies such as Naura gaining market share in the batch CVD market, but how do you plan to increase your market share in China where mature nodes are expected to become increasingly localized?

A We recognize that the rise of Chinese manufacturers is an issue that cannot be overlooked. It is extremely difficult to differentiate ourselves through technologies such as LP-CVD and diffusion, but as we provide our customers with cutting-edge batch ALD technology, we are improving peripheral technologies and know-how that are not directly related to film formation, and we believe that this is where we can differentiate ourselves from Chinese manufacturers.

Q What percentage of sales do you envision coming from China in the medium term?

A We believe that there is unlikely to be a significant decline in investment appetite in China market over the

next few years. Therefore, the scale of our business in China will be maintained to a certain extent. On the other hand, as global investment is recovering significantly, the Chinese ratio will decrease relatively. In the medium term, we expect this to settle down to around 30%, which has been considered normal up until now.

Q Does Logic/Foundry foresee strong demand outside of China?

A We stated that expand sales of LP-CVD and oxidation equipment, in addition to batch ALD. As business opportunities are increasing in North America, Europe, and Japan, we plan to further expand our business targeting mature nodes in the global market.

Q You have mentioned dividends and share buybacks as ways to return value to shareholders. When do you plan to start buying back your shares?

A We are aiming to achieve net cash in the fiscal year ending March 2025, but free cash flow is not sufficient. In fiscal year March 2026, we will decide whether or not to buy back our own shares depending on our free cash flow.

Q Regarding the market size for batch and single-wafer, up until now the market size for batch was 3 and for single-wafer was 7, but how do you think this will change in the future? Also, other companies are trying to enter the batch market in the memory field, so please tell us again about the competitive advantage of batch ALD.

A It is difficult to answer questions about the market breakdown, but as device structures become more complex and three-dimensional in the future, I think batch ALD equipment will be used more frequently for functional films with complex structures. On the other hand, I think that the demand for film formation for processing will naturally increase to a certain extent. The differentiating feature of batch ALD is the mini-batch equipment called TSURUGI. 3D NAND has already been proven successful and its necessity has been proven. We are continuing to make further improvements, and we are confident that we will be able to differentiate ourselves from other companies in the lead-up to 1,000 layers of 3D NAND, as well as in the area of increasing complexity of DRAM and Logic.

Q If Logic's CFET becomes a reality, how much will the number of deposition processes and TAM increase? Also, I believe that the manufacturing method for CFETs is currently under development, but if the manufacturing method uses wafer bonding, which reduces the aspect ratio, is there a risk that the CFET will become smaller than the expected TAM?

A As you are aware, the detailed process flow for CFETs has not yet been decided. In discussions with customers about processes in which batch ALD is used, we estimate that the TAM will increase by 1.4 times compared to Fin-FET. Additionally, CFET is seeing opportunities for its treatment MARORA to play an active role. This creates an opportunity for growth as we have more opportunities to capture more POR.

Q While single-wafer processing is strong against hard masks and sacrificial films, your company has obtained POR for the hard mask process at this GAA event. How was it possible to achieve POR with the sacrificial film process? Can we expect to achieve POR in the future with the traditional single-wafer process?

A The reason we were able to achieve POR with GAA's hard mask is because as device generations progress, more complex processes such as lateral film formation have been introduced. This means that even for hard masks, our technology is accepted by customers in complex processes. We will continue to explore further processes where our technology can be used.

Q GAA sales have grown significantly from the fiscal year ending March 2027 to the fiscal year ending March 2028. What is the background to this?

A Currently, the first generation of GAA is 2nm, followed by 1.4nm and 1.0nm. We expect our TAM to increase slightly for the first generation of GAA, and then further for the next second generation, CFET.

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