

eMemory 1Q24 Earnings Call Q&A Transcript

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Q&A Transcript

1. During the last earnings call, you mentioned that there are three main areas in AI applications, Computing, Storage, and Sensing. Which of these three areas will contribute the fastest to your royalty revenue? Which one will have the largest addressable market in the future?

>> For AI application systems, there are three main components: data input, data/model storage, and computing (accelerators). Currently, data input will go through various sensor applications, and eMemory has already entered the field and started receiving royalties. For data storage in NAND/DRAM, there are quite a few customers in NAND SSD controllers and CXL memory interfaces using our IPs, which also results in royalty contribution. In terms of computing, mainly in advanced nodes, customers are using our Root of Trust IPs and SRAM repair IPs, and we believe it will significantly contribute to royalty in the future.

2. Do you have any solutions for chiplet-related?

>> eMemory's IPs have been adopted across various applications, which will be integrated into a packaged module as chiplets:

- 1) In Digital ICs, for storing keys, ROM code, and repairing high-density SRAM.
- 2) In Analog ICs, for circuit repair and code storage.
- 3) In DRAM ICs, for DRAM repair functions.
- 4) In NAND modules, for storing keys for confidential computing.

In the future development of chiplets, we anticipate that more chips in the chiplets will incorporate our IPs instead of just one chip.

3. TSMC's latest A16 (1.6nm) process technology, featuring Super Power Rail, will relocate the power grid to the backside of the wafer. Will this have an impact on your technologies?

>> Backside power primarily aims to achieve two objectives in processes below 2nm: 1) Improving power efficiency, and 2) Reducing the number of backend layers to lower manufacturing costs. This has no impact on the use of our IPs.

4. The announcement of the new board members this year include notable additions such as Dr. F.C. Tseng and Dr. Jack Sun, both well-known figures closely linked with TSMC. What is the reason behind selecting these two members and how does it benefit the company?

>> Per FSC regulations, our independent directors have served three terms, and therefore, more than half of them need to be replaced. eMemory is a leading company in embedded NVM within the IP industry. We will continue to collaborate with foundries in advanced processes to develop cutting-edge NVM and security technologies, while also expanding our business strategy and partnerships. The newly nominated directors will provide invaluable support to the company, bringing expertise in technology, operational strategy, and forging key partnerships.

5. Synopsys' recently acquired Intrinsic ID. Will this affect your PUF-based applications? Also, will this have an impact on similar technologies and IPs of your company?

>> After the launch of NeoPUF which is our PUF technology, many customers have switched to use our NeoPUF and OTP instead of SRAM PUF, from Intrinsic ID's technology is based on. The main reason is that our NeoPUF has better properties than SRAM PUF, including:

- 1) Enhanced stability
- 2) Increased reliability
- 3) Eliminates the need for error correction
- 4) Eliminates the need for OTP for storing helper data
- 5) Demonstrates radiation-hardened capabilities

We are confident that we will become a leading company in the field of PUF, OTP, TRNG, and RoT IPs. Furthermore, Synopsys' acquisition of Intrinsic ID is a good sign that the industry recognizes the significant potential and future demand for PUF in chip security and driving the provisioning of these IP solutions through acquisition to better penetrate the market and capitalize on these opportunities. eMemory recognized this trend in 2015 and developed the best PUF-based technology to address the problems encountered by SRAM PUF. Combined with our own OTP, we can provide customers with complete hardware security solutions. We believe that we are at the forefront of this trend and will be the first to provide one-stop-shop services to meet customer demands.

6. TSMC is accelerating their investment in advanced 3D packaging technologies such as CoWoS, InFO, and SoIC. Are there opportunities for your IPs? Can you tell us if you currently have any customers adopting these applications?

>> In 2.5D/3D packaging, chips with different functionalities are packaged together, therefore, if one chip fails, the entire package chip will fail. Our IP can help repair these failed chips. For example, memory components (such as DRAM and SRAM) and image sensors (CIS) are frequently combined with logic ICs. OTP plays an important role as a high-density memory repair and sensor repair in these packaged chips. We already have many customers in this area with continuing adoption from new customers and applications.

7. Do you have any solutions for AI applications?

>> There are three aspects to this question:

- 1) AI applications need a hardware root of trust for protecting assets and ensuring operational security. We offer several security solutions tailored to address these specific security concerns related to AI applications.
- 2) The computational demands of AI applications require substantial SRAM. Our comprehensive SRAM repair solutions are designed to improve the yield of AI chips and reduce production costs.
- 3) AI applications rely heavily on a large scale of DRAM. Our complete DRAM repair solution can help meet the demands of AI chips in high-density memory applications.

8. We noticed a significant increase in operating expenses in Q1 compared to last year. Was there a rise in recruitment during this period? Additionally, could you provide an estimate of the growth ratio of your operating expenses for the entire year?

>> The increase in operating expenses in the first quarter is mainly due to the increase in employee and director bonuses as a result of increased net profit before tax. We allocate bonus expenses each quarter as a percentage of net profit before tax (15% for employees, 1.5% for directors), which were included in that quarter's operating expenses. In the first quarter, there were foreign exchange gains in non-operating income, leading to an increase in net profit before tax and non-recurring increase in bonuses expenses.

The fixed operating expenses in the first quarter, excluding employee/director bonuses, were approximately NT\$280 million, which is quite similar to previous quarter. We currently do not have any plans for significant recruitment, therefore, apart from the annual salary increase for employees (averaging 3-5%), changes in future operating expenses will primarily be influenced by changes in net profit before tax.

9. TSMC has lowered its growth forecast for the global semiconductor foundry industry, indicating weak demand across industries apart from AI-related products. What is the impact on your business in 2024?

>> For the business growth in 2024, we are very confident due to the following reasons:

- 1) Our IP portfolios are increasingly diversified, including OTP, MTP, EE, Flash, RRAM, MRAM, PUF, SecureOTP, PUFrt (Root of Trust IP), and PUFcc (Secure Co-processor IP). This will drive significant growth in Licensing, NRE, and Usage revenue in 2024 compared to 2023.
- 2) Regarding royalties, according to the feedback from our customers, their inventory has decreased to a certain extent, returning to normal levels. Therefore, demand for products in mature nodes will also return to normal levels of production. Furthermore, we have accumulated over 1500 tape outs in the pipeline in the past three years, which will drive our royalty growth further.

10. Will the excessive expansion and price-cutting competition among Chinese foundries affect the company's royalty?

>> The impact of the excessive expansion of Chinese foundries in mature process nodes will be limited for the following reasons:

- 1) The leading foundries have not followed pricing cuts as reducing foundry prices does not necessarily guarantee an increase in market share.
- 2) Customers choose foundry partners not only based on pricing, but also on time delivery, time to market, yield, and services.
- 3) Furthermore, geopolitical risk pushes major US chipmakers to shift away from manufacturing in China. Also, semiconductor manufacturing localization policies in regions like Europe, the US, and Japan, all limit the effects of China's overcapacity and downward pressure on foundry prices outside of China.

As our technologies develop towards more advanced nodes and specialty processes, such as NeoFlash and MTP, the royalty we receive will be higher than average. Therefore, we are not concerned about the impact of price-erosion of Chinese foundries.

Additionally, based on our previous experience, IPs' demand and adoption tend to rise as the prices of foundry wafer price decline, ultimately resulting in increased penetration and royalty revenue over time. Also, as foundries continue to expand their capacities, our royalty revenue will grow continuously.

11. Do you have cloud service customers?

>> Major cloud service providers are our customers already, using our IP across different product lines. These major players have strict requirements for IP vendors, which we have qualified for many years. Therefore, our IPs can be used in chips of different functionalities, whether in AI servers or edge devices.

12. There are multiple companies claiming to enter the OTP market and stating that their IPs are more competitive because their IP size is smaller than yours. Will you be losing orders because of them?

>> OTP and MTP technology have been in the market for over 20 years, and competition has never stopped. Our company continues to progress into the most leading process nodes, extending our technology portfolio into the security area. Reputation is very important in the IP industry and our customers, whether they are foundries, fables, or even OEMs, are all satisfied with our technologies and services. All of these are reflected in our revenue and earnings. We strongly believe this trend will continue in the future.

13. UMC mentioned the postpone of its Singapore fab expansion. Will this affect you?

>> Foundries frequently revise their expansion plans and schedules in response to economic cycles, customer demand, and various other factors. Our collaboration with UMC is not limited to specific processes or location. There are multiple projects ongoing across all our technologies. Therefore, the delay in expanding a particular foundry location will not affect us.

14. Your customer mentioned in their earnings that Driver IC is facing severe price pressure, with hopes of foundry reducing wafer prices. Will this affect your royalty?

>> Our DDI customers continue to migrate towards more advanced processes, with the proportion of high-end OLED DDIs steadily increasing. Additionally, the number of OLED DDIs will increase in foldable smartphones, along with content increase on panels (such as e-paper, labels, PMIC-related and more). Overall, we believe that these factors will mitigate the impact of declining wafer prices and remain a strong cash cow for us.

15. Does China's semiconductor localization plan include IP? Do we face competition from local IP vendors in China? Are customers switching to domestic IPs due to government policies?

>> As we mentioned before, the NVM IP business is characterized by high technological barriers, very long periods of development, and relatively small revenue output compared to foundries and chips. Therefore, this is not the focus of localization of semiconductor policies. While we have observed some competition from local IP vendors, customers are very careful about IP adoption, which is not only cost consideration. Factors such as patent protection, quality, reliability, and technical support are much more important considerations. Thus, our licensing cases in China continue to increase. Additionally, some customers have encountered big issues after trying local IP vendors and have subsequently switched to using our IP.

16. Starting from 3Q2020, the average NTO (New Tape Out) number is around 140~150 for every quarter with no significant increase. Does this number mean that the company is deliberately selecting cases or your R&D resources are limited? How do you predict your future NTO trend?

>> Approximately 85% of our NTOs are from Usage cases, where customers re-use existing IPs and therefore, require minimal engineering resources. Although there hasn't been a significant increase in NTOs per quarter in recent years, our tape outs are continuously moving towards more advanced nodes. The cost of design, development and mask layers increase at more advanced nodes, resulting in fewer NTOs in advanced processes compared to mature processes. The average royalty per tape out in advanced nodes is much higher. In addition, as the proportion of tape outs in advanced node increases year over year, so does our licensing revenue.

17. The license fee for MTP in 2023 grew nearly 100% compared to 2022. When can we expect to see a significant royalty contribution, and in which area? Additionally, how do you view the ESL market?

>> In the past three years, we have accumulated over 200 NTOs for MTP, primarily used in applications such as MCU, PMIC, and sensors. These products have gradually entered production, contributing to royalty revenue. In the first quarter alone, we saw over 60% year-over-year growth in MTP royalty. As for ESL, we already have customers in production using our OTP for single-color and three-color driver ICs. Due to customers requiring MTP on new four-color driver ICs, we already have many customers adopting our MTP on multiple foundry process platforms over the past year, which will contribute to our royalties soon.