

eMemory Q4 2020 Results – Earnings Call Transcript

February 9th, 2021 16:00-17:00

Opening remark by Dr. Charles Hsu, Chairman of eMemory

Good afternoon, everyone. Thank you for attending our conference call today. To begin, I would like to recap our technology development and provide an overall view of what will drive our growth for the next five years.

Our technology takes an average of 5 to 10 years from development to take-off. The first technology, NeoBit, that we invented in 2000 had a penetration rate of 20% in 8-inch, and is still accounting for 60% of our current royalties. As most of the technology platforms have been established and the newest tape-out uses our fully developed IP, the R&D resource required is limited. We foresee that there will be a second growth phase as our NeoBit has been deployed into various Automotive platforms. Therefore, making room for its penetration rate to grow.

The second technology, NeoFuse, for 12-inch, which we invented in 2010, is the main driver in our current rapid royalty growth, will increase our penetration rate in 12-inch from the current 2% to at least 10% in the future. From our most recent royalty report, royalties from 16nm below have started to kick in.

We invented our MTP technology in 2013. The goal of our MTP technology is to become an embedded memory platform. In addition to our MTP technology, we have also developed an embedded MRAM, embedded ReRAM, and AI memory which uses our MTP as a memory cell to simulate neural-like memory cell architecture. There will be breakthroughs this year as licensing revenue and activities will significantly grow.

Our NeoPUF invented in 2015, will drive our growth beyond 3 to 5 years as we expect

that our PUF IP will play a key role as the core component in the security Root-of-Trust of Data Centers, AI, Autonomous Driving, Edge Computing, and IoT.

All of these pave the road for our future, and we are confident that the growth has just begun.

Next, I will invite Rick, to report our fourth quarter and full-year operating results and the outlook of our business.

Operating results and future outlook by Dr. Rick Shen, President of eMemory

Thank you, Charles. Good afternoon, everyone.

I will first begin with our fourth-quarter results.

- 1) Fourth-quarter revenue was four hundred and ninety-seven million NT dollars (NT\$ 497 mil), a sequential increase of 12.6%, and 37.2% year-over-year, or up 15% sequentially, and 45.3% year-over-year in US dollars.
- 2) The operating expenses were two hundred and sixty-one million NT dollars (NT\$ 261 mil), up 7.1% sequentially, and 29.1% year-over-year, mainly attributable to expenditure increases such as human resource expenses, rewards, bonuses, and the compensation of employees and directors.
- 3) This brings us to the operating income of two hundred and thirty-five million NT dollars (NT\$ 235 mil), with an increase of 19.3% sequentially, and 47.5% year-over-year. Therefore, the operating margin increased by 2.7 percentage points sequentially and 3.3 percentage points year-over-year to 47.4%.
- 4) Overall, our fourth-quarter EPS was 2.60 NT Dollars (NT\$ 2.60) and ROE was 41.8%.

- 5) For the full year of 2020, the revenue was one thousand seven hundred and seventy-seven million NT dollars (NT\$ 1,777 mil), up 26% year-over-year, or grew 31.6% in US dollars. The operating expenses increased 21%, and the operating margin was 46.3%, with an increase of 2.2 percentage points. EPS up 30.4% to 9.52 NT dollars (NT\$ 9.52), and ROE gained 6.7 percentage points to 38.3%.

Now let's move on to revenue contributions by licensing and royalty.

- 1) Licensing in the fourth quarter accounted for 31.1% of the revenue, up 39% sequentially, and 33.2% year-over-year, or up 42.1% sequentially, and 40.9% year-over-year in US dollars.
- 2) Royalties in the fourth quarter contributed 68.9% of the total revenue, increased 3.7% sequentially, and 39.1% year-over-year, or up 5.9% sequentially, and 47.4% year-over-year in US dollars.
- 3) For the full year of 2020, the licensing revenue is four hundred and ninety million NT dollars (NT\$ 490 mil), while royalties are one thousand two hundred and eighty-seven million NT dollars (NT\$ 1,287 mil). Licensing and royalty grew 13.9% and 31.3% respectively, or 19.1% and 37% respectively in US dollars.

In terms of revenue contribution by technologies, the results are as follows:

- 1) NeoBit accounted for 17.1% of total licensing revenue in the fourth quarter, increased 6.2% sequentially, but decreased 17.1% year-over-year. Its royalty accounted for 57.2% of total royalty, down 7.6% sequentially, but up 17.8% year-over-year, mainly due to content increase of applications such as PMIC, TDDI, Fingerprint and Sensors.
- 2) NeoFuse accounted for 71.3% of total licensing revenue in the fourth quarter, up 60.6% sequentially, and 67.5% year-over-year. Its royalty increased by 26.7% sequentially, and 94.1% year-over-year due to the continuous production of existing and new applications such as TDDI, OLED, PMIC, DTV, Bluetooth and ISP. This brings the royalty of NeoFuse to contribute 39.6% of total royalty.

- 3) Our PUF-Based Security IP contributed to 1.7% of licensing revenue in the fourth quarter. Although this technology has yet to contribute to any royalty, engagement with industrial leaders is still actively ongoing.
- 4) As for MTP technology, licensing revenue increased 33.6% sequentially, and 9.3% year-over-year to account for 9.9% of licensing revenue in the fourth-quarter. Royalty from MTP decreased 3.9% sequentially, but increased 8.9% year-over-year to contribute 3.2% of total royalty. Currently, our MTP team is working with partners on developing MRAM, ReRAM, and AI memory. Both ReRAM and AI Memory have been verified with proven results and will definitely have a breakthrough this year.

In the full year of 2020:

- 1) For NeoBit, the licensing revenue decreased by 17.4% year-over-year, but royalty increased by 9.2%, accounting for 50.8% of the total revenue.
- 2) For NeoFuse, the licensing and royalty revenue grew 38% and 119.8% year-over-year, contributing to 43.6% of the total revenue.
- 3) For PUF-Based Security IP, licensing revenue increased 148.2% year-over-year, contributing to about 0.7% of total revenue.
- 4) For MTP technology, the licensing revenue declined 30.9%, but royalty increased 1.9% year-over-year, accounting for 4.9% of the total revenue.

Now looking at royalties for 8-inch and 12-inch wafers:

- 1) 8-inch wafers, which accounted for 61% of royalties, increased 5% sequentially, and 21.2% year-over-year.
- 2) 12-inch wafers contributed to 39% of royalties, increased 1.7% sequentially, and 80.9% year-over-year.
- 3) For the full year of 2020, 8-inch wafers accounted for 62.3% of royalties, with an increase of 18% year-over-year. 12-inch wafers accounted for 37.7% of royalties, with an increase of 61.4% compared to the previous year.

There were 137 product tape-outs completed in the fourth quarter, a record-high quarterly number. In 2020, there were a total of 494 product tape-outs completed, which is also a record-high yearly number, reflecting increasing demand for our IPs. We will provide more information in the management report that will be released later today.

In the next section, I will address our future outlook. We expect the growth of revenue to continue in the first quarter of 2021 and beyond.

- 1) For licensing revenue, besides continuing strong demand from our NeoFuse and NeoPUF IP's, we also expect MTP licensing revenue to increase significantly. Overall, we expect licensing revenue to grow this year.
- 2) For royalty revenues, we expect both 8-inch and 12-inch royalties to continue their growth momentum. 8-inch royalties will grow due to PMIC content increase in 5G smartphones and demand pick-up for TDDI, Automotive, and IoT applications. 12-inch royalties will have strong growth as customers are increasing production for ISP, OLED, DRAM, SSD Controller, Multimedia-related, Networking-related such as Bluetooth, WiFi 6, TWS, and others. Besides, royalties from 16nm and below have started to kick in based on our most recent royalty report.

For new business development:

Our new applications are centered on the business development of hardware security.

- 1) NeoFuse, in advanced processes, is being adopted for secure Key Storage and is seeking to replace the conventional e-Fuse. We expect this will be a trend for hardware security.
- 2) Business activities of PUF-based security solutions are in progress in the applications of IoT, industrial IoT, AI, Blockchain, FPGA, Data Processor Unit (DPU), Mobile Storage (UFS), and Automotive. Our PUFrt has also recently been adopted by some American customers and all cooperation is in progress.

3) Partnership with Processor IP vendors are in progress, i.e. ARM and RISC-V related, this continues to extend our PUF-based security solution platform and bring in more customer adoption.

For new IP technology development:

- 1) We have demonstrated 6nm silicon results successfully. Our 5nm plus (N5P) has been taped out in Q4, and we expect the completion of silicon verification in 2021.
- 2) In Q3, we have announced Crypto Processor, PUFiot, which integrates our Root-of-Trust, PUFrt, with Crypto Engines. PUFiot is aiming to provide IoT and AI chips with a comprehensive, easy to use security solution. In Q4, we have announced a joint-partnership with UMC on PUFflash development by providing an integrated security solution for encrypting and protecting the data in the flash.
- 3) We will continue to develop our PUF-based solution to implement HSM (Hardware Security Module), which can be embedded in the chip to provide a security function for network applications.

Now, I'll pass the time to Charles.

Applications of PUF-based Security Solutions in Data Processing Unit (DPU) by Dr. Charles Hsu, Chairman of eMemory

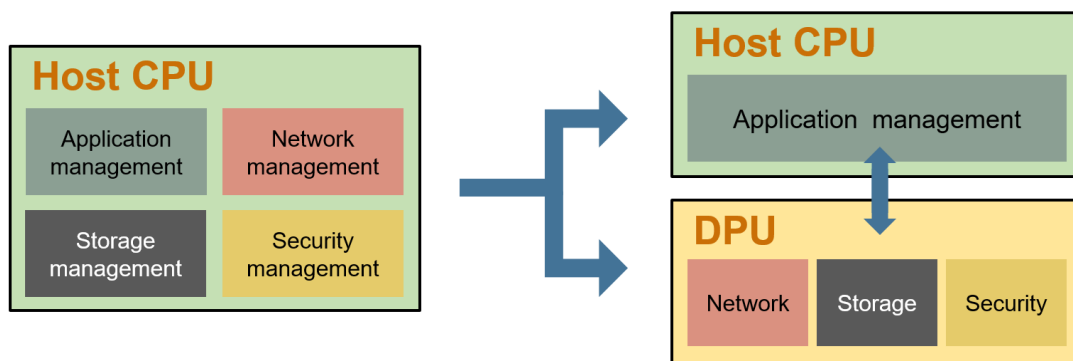
A Data Processing Unit (DPU) is a processor that can offload the CPU's burden by assuming the responsibility of managing the data processing in network servers and Data Centers, such as storage, classification, and security. This extended data processing capability will improve a system's performance in a similar way as the Graphic Processing Unit (GPU) does to improve the graphic processing performance. As IoT is booming, data-centric driven processors are becoming very important to manage big data. Therefore, in addition to CPU and GPU, DPU is required for

improving network servers and data centers' performance.

1. Why is DPU required?

Conventional Servers rely on the CPU to take care of edge applications, networking, storage, and security. However, the performance of the CPU alone becomes insufficient as the amount of data and required computations in storage and security increases.

The inclusion of a DPU offloads networking, storage, and security tasks from the CPU. The CPU can focus on processing edge applications instead. By doing so, the overall performance of servers sees a significant boost.



2. Why does DPU need Security Solutions?

When the CPU is at the core of everything, its heavy load of tasks may hinder the performance of security management. On the other hand, embedding security functions in the DPU not only enhances the overall level of defense, but also prevents CPU operations from being interfered with by hackers and preventing massive security breakdowns.

In times where both the amount and sensitivity of data surges, DPUs need to be equipped with solid security functions so that data is well protected during transmission or processing. This is why security solutions are essential to DPUs.

3. Why is PUF-based Hardware Security the solution to DPU Security?

To attain fast and reliable security operations, each system needs its own unique identifier at the hardware level. Every DPU can then use its one-of-a-kind PUF value to generate keys, encrypt data, ensure integrity, and authenticate between senders and receivers. Embedding PUF in DPU chips enables highly secure and high-performance Security on Chip solutions.

Closing comment by Dr. Charles Hsu, Chairman of eMemory

Thank you, again, for your patience and support for eMemory. We will continue to work hard on innovating IP and security solutions for our customers and bring higher returns for our shareholders. Thank you!