eMemory Q3 2020 Results – Earnings Call Transcript

November 11th, 2020 16:00-17:00

Opening remark by Dr. Charles Hsu, Chairman of eMemory

Good afternoon, everyone. I hope you are all healthy and doing well. As mentioned in our previous conference calls, we are entering a multiyear growth cycle with a strong set of tape-outs in the pipeline. We expect the momentum of growth continue for licensing activities and royalty revenue.

In addition, our PUF-based solutions have gained vast interest as higher security requirements have become indispensable. We are actively engaging with leading companies for the design of our NeoPUF into their security architectures and expect more design wins in the future.

Next, I will invite Rick, to report our third-quarter operating results and the future 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 third-quarter results.

1) Third-quarter revenue was four hundred and forty-one million NT dollars (NT$ 441 mil), a sequential increase of 4.2%, and 31.1% year-over-year, or up 5.7% sequentially, and 38.2% year-over-year in US dollars.
2) The operating expenses were two hundred and forty-four million NT dollars (NT$ 244 mil), up 7.3% sequentially, and 23.6% year-over-year, mainly attributable

to expected credit losses of NT$ 11.23 million, affecting the operating ratio by 2.54%. The reason is that a Chinese foundry delayed the remittance due to a tax exemption approval flow deferment. It is expected to be deferred to the fourth quarter of this year and the expense will be reversed then.

3) This brings us to the operating income of one hundred and ninety-seven million NT dollars (NT$ 197 mil), with an increase of 0.7% sequentially, and 41.8% year-over-year. Therefore, the operating margin declined by 1.6 percentage points sequentially but increased by 3.3 percentage point's year-over-year to 44.7%.
4) Overall, our third quarter EPS was 2.26 NT Dollars (NT$ 2.26) and ROE was 38.8%.
5) For the first three quarters of 2020, the revenue was one thousand two hundred and eighty million NT dollars (NT$ 1,280 mil), up 22.1% year-over-year, or grew 26.8% in US dollar. The operating expenses increased 18.1%, and the operating margin was 45.9%, with an increase of 1.8 percentage points. EPS up 24.5% to 6.92 NT dollars (NT$ 6.92), and ROE gained 6.2 percentage points to 39.5%.

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

1) Licensing in the third quarter accounted for 25.2% of the revenue, down 5.9% sequentially, up 7.2% year-over-year, or down 4.8% sequentially, but up 12.9% year-over-year in US dollars.
2) Royalty in the third quarter contributed 74.8% of the total revenue, increased 8.2% sequentially, and 41.8% year-over-year, or up 9.8% sequentially, and 49.5% year-over-year in US dollars.
3) For the first three quarters of 2020, the total revenue grew by 22.1% year-over-year in NT dollar or 26.8% in US dollar. Licensing and royalty grew 6.8% and 28.7% respectively or 11% and 33.5% respectively in US dollars.

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

1) NeoBit accounted for 22.4% of total licensing revenue in the third quarter, increased 22.5% sequentially, but decreased 31.4% year-over-year. Its royalty

accounted for 64.2% of total royalty, up 5.8% sequentially, and 18.9% year-over-year, mainly due to content increase of PMIC, TDDI, and other applications.

2) NeoFuse accounted for 61.7% of total licensing revenue in the third quarter, down 18.2% sequentially, but up 42.7% year-over-year. Its royalty increased by 11.4% sequentially, and 128.2% year-over-year due to the continuous production of existing and new applications. This brings the royalty of NeoFuse to contribute 32.4% of total royalty.
3) Our PUF-Based Security IP contributed to 5.6% of licensing revenue in the third quarter. Although this technology has not contributed to any royalty yet, engagement with industrial leaders is still actively ongoing.
4) As for MTP technology, licensing revenue increased 3% sequentially, but decreased 40.9% year-over-year to account for 10.3% of licensing revenue in the third-quarter. Royalty from MTP increased 26.9% sequentially, and 45.5% year-over-year to contribute 3.4% 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.

In the first three quarters of 2020:

1) For NeoBit, the licensing revenue decreased by 17.5% year-over-year, but royalty increased by 6.7%, accounting for 53.2% of the total revenue.
2) For NeoFuse, the licensing and royalty revenue grew 27.1% and 133.7% year-over-year, contributing to around 41.3% of the total revenue.
3) For PUF-Based Security IP, licensing revenue increased fourteen times year-over-year, contributing to about 0.7% of total revenue.
4) For MTP technology, the licensing and royalty revenue declined 41.9% and 0.3% year-over-year, accounting for 4.8% of the total revenue.

Now looking at royalty by 8-inch and 12-inch wafers:

1) 8-inch wafers, which accounted for 60.2% of royalty, increased 1.7% sequentially, and 27.6% year-over-year.
2) 12-inch wafers contributed to 39.8% of royalty, increased 19.8% sequentially, and 70.5% year-over-year.
3) For the first three quarters, 8-inch wafers accounted for 62.7% of royalty, an increase of 16.9% year-over-year. 12-inch wafers accounted for 37.3% of royalty, with an increase of 55% compared to the previous year.

There were 136 product tape-outs completed in the third quarter, a record-high quarterly 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 fourth quarter and beyond.

1) For licensing revenue, the main contributions will be from NeoFuse and NeoPUF as we continuously build technology platforms among foundry partners and increasing demand for design license activities.
2) For royalty revenues, we expect both 8-inch and 12-inch royalty to continue their growth momentum. 8-inch royalty will grow due to PMIC content increase in 5G smartphone and demand pick-up for automotive, and IoT applications. 12-inch royalty will have a strong growth as customers are ramping up productions for ISP, OLED, Networking-related such as WiFi 6, multimedia-related, DRAM, SSD controller, and others.

For new business development:

Our new applications are centered on the security business development.

1) NeoFuse in advanced process is adopted for secure Key storage to replace conventional e-Fuse. We expect this will be a trend for security requirement.

2) Business activities of PUF-based security solutions are in progress in the applications of IoT, industrial IoT, AI, Blockchain, FPGA, data processor unit, mobile storage (UFS), and automotives.
3) Partnership with Processor IP vendors i.e. ARM and RISC-V related continue to extend our PUF-based security solution platform and bring in more customer adoption.

For new IP technology development:

1) We are developing 6nm and 5nm plus (N5P) technology with our leading foundry partner, and have already demonstrated 6nm silicon results successfully.
2) In Q3, we have announced crypto processor, PUFiot, which integrates our Root-of-Trust, PUFrt, with crypto engines. PUFiot is targeting to provide IoT and AI chips with comprehensive but easy to use security solutions.
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 security function for network application.

Now, I'll pass the time to Charles.

How PUF Works for AI Security by Dr. Charles Hsu, Chairman of eMemory

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Thank you, Rick. Let me take a few moments of your time to introduce to you how PUF-based root-of-trust can secure AI. Recently, many industrial developments on AI has significantly advanced the operation efficiency of many industries, such as factory automation, medical application, autonomous driving, and etc. However, there are also many reports that show adversarial compromises on AI applications. Particularly with edge devices, where comprehensive security is unlikely due to insufficient computing

power and the low-cost of the devices deployed. In an AI system, the security concerns are (1) to protect data at rest, (2) to protect data in transit, (3) to protect data integrity, (4) to authenticate authorized parties, and (5) to sign the authorized software.

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In order to perform these security functions, cryptographic operation on data by a secret key becomes indispensable. Therefore, generating a secret key, a storing secret key, and performing cryptography using this secret key becomes the foundation of AI security. This is referred to as ‘root-of-trust.’

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We, at eMemory, use our technology, PUF, for key generation, key storage, and building root-of-trust, and integrating these functions with cryptography to perform security operations to protect AI applications.

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As illustrated in the table on page 20, the corresponding threat, countermeasure, solutions for the AI operations for the system boot, model training, and inference are summarized. PUF-based root-of-trust IP can provide key and unique ID (UID) to protect the boot program and authentication during the boot and device-to-server authentication, respectively. PUFiot IP, which integrates PUFrt with a cryptographic engine, can encrypt data in transit, data at rest, provide a signature for the software, unique ID (UID), and also tampering-resistance functions for model training and inference operations.

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In summary, for AI application, NeoPUF-based hardware root-of-trust provides Unique ID, Secure Key Storage, True Random Number Generator, and Anti-Tampering solutions to protect AI assets and operations. In addition, it is highly manufacturable

with ultra-low cost. Our technology provides very high value proposition for secure AI applications.

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In page 22, our PUF-based cryptoprocessor, PUFiot can perform; (1) unique ID (UID) generation, (2) secure key storage, (3) protect data and software, (4) secure boot, (5) authentication, (6) secure communication, (7) secure update over the air, and (8) anti-counterfeit, to safeguard products throughout the entire life cycle, not only in AI, but also any other electronic devices.

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!