eMemory 1Q24 Earnings Call Transcript
May 8th, 2024, 16:00-17:00 Taiwan Time

OPENING REMARKS

Dr. Charles Hsu, Chairman

Good afternoon, everyone, and thank you for attending our conference call today.

As we mentioned in previous quarters, our multi-year growth cycle has just begun. eMemory is a company dedicated to inventing semiconductor device technologies. We license these technologies to foundries and based on our technology, we design IPs that are then licensed to fabless customers. Each of our newly invented technologies take at least 5-10 years to commercialize. However, once successful, the resulting royalties can last for over 20 years. For example, we are still receiving royalties from our first technology, NeoBit, which was licensed 20 years ago. Over the past two decades, once foundries and fabless adopt our technologies, they continue to use them for every following generation. Moreover, our technologies and IP portfolios continue growing. We now offer not only OTP, but also MTP, EE, Flash, RRAM, PUF, SecureOTP, PUFrt (Root of Trust), PUFcc (Crypto Co-processor). The demand for each technology has been increasing, resulting in significant growth in our licensing fees. The corresponding royalties will increase greatly in the future. With expansion of foundry capacity worldwide, both existing and new foundries continue to license our technologies. Royalties for advanced processes or new technologies are much higher per wafer compared to the past. Therefore, we are very confident in our future continuous growth.

Next, I'll invite our president, Michael Ho, to share our first-quarter performance and future outlook.

FINANCIAL RESULTS

Michael Ho, President

Q1 2024 Financial Results

Good afternoon, everyone. Now, let's begin with our 2024 first-quarter financial results.

The first-quarter revenue was eight hundred and three million NT dollars (NT$ 803 mil), down 10.7% sequentially but up 20.2% year-over-year.

Operating expenses were three hundred and eighty-two million NT dollars (NT$ 382 mil), up 6.3% sequentially and 27.1% year-over-year. The increase in operating expenses 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). This 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.

Operating income was four hundred and twenty-one million NT dollars (NT$ 421 mil), with decrease of 22% sequentially but an increase of 14.6% year-over-year.

Operating margin decreased by 7.6 percentage points sequentially and decreased by 2.6 percentage points year-over-year to 52.4%. Our net income, amounting to four hundred and thirty-one million NT dollars (NT$431 mil), experiences an increase of 6.6% sequentially and 37.5% year-over-year.

EPS for the quarter was 5.77 NT dollars (NT$ 5.77) and ROE was 53.2%.

Revenue across Different Streams

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

Licensing in the first-quarter accounted for 28.4% of the total revenue, down 16.6% sequentially but up 59.6% year-over-year.

Royalties in the first-quarter contributed 71.6% of the total revenue, decreasing 8.1% sequentially but increasing 9.5% year-over-year.

Total revenue for the first-quarter decreased by 10.7% compared to the previous quarter but increased by 20.2% compared to the previous year.

<u>Revenue by Technology</u>

With that, I will comment on our revenue contribution by specific IPs.

NeoBit accounted for 20.9% of total licensing revenue in the first-quarter, decreasing 33.5% sequentially but increasing 70% year-over-year. Its royalties accounted for 24.7% of total royalty, up 4% sequentially but down 11.1% year-over-year.

NeoFuse accounted for 52.6% of total licensing revenue in the first-quarter, up 2.3% sequentially and up 69.3% year-over-year. In terms of total royalty revenue, NeoFuse royalties decreased by 11.4% sequentially but increased by 17.4% year-over-year, accounting for 72.8% of total royalties.

PUF-Based Security IPs contributed 8% of licensing revenue, decreasing 39% sequentially but increasing 10.2% year-over-year. Its royalties accounted for less than 1% of total royalties, up 15.9% compared to the previous quarter, but down 59% compared to the previous year.

MTP technology accounted for 18.5% of total licensing revenue, down 22.8% sequentially but up 53.7% year-over-year. Royalty from MTP decreased 12.2% sequentially but increased 64.7% year-over-year, accounting for 2.5% of total royalties.

<u>Royalty Revenue by Wafer Size</u>

Now, let's look at royalties for 8-inch and 12-inch wafers.

8-inch wafers accounted for 42.8% of royalties, up 4% sequentially but down 0.2% year-over-year.

12-inch wafers contributed 57.2% of royalties, decreasing 15.4% sequentially but up 18.1% year-over-year.

In total, 154 product tape-outs were completed in the first-quarter. We will provide more information in the management report.

FUTURE OUTLOOK

Michael Ho, President

In the next section, I will address our future outlook.

For licensing revenues: Due to strong demand from foundries and chip design customers for all of our technologies, the growth momentum of licensing revenue will continue to increase.

For royalty revenues: We are beginning a multi-year growth cycle for royalties. Over the past three years, we have accumulated over 1500 new tape-outs which are entering mass production. From the first quarter royalty report, production for 22/28nm and below has resulted in new royalty contribution from applications such as 6nm DTV, 7nm ADAS, 12 nm SSD and ISP, as well as 22/28nm networking, switch, and smart image processor.

Moving on to new IP technology and business development

For Specialty processes: (i.e. HV in FinFET, BCD, embedded flash and emerging memory):

1. NeoFuse is developing towards FinFET in HV process for OLED DDI applications.

2. RRAM is expanding into more processes.

3. NeoFlash continues progressing in specialty processes for Automotive PMIC and MCU-related products.

For Advanced processes:

1. NeoFuse has successfully qualified for the N5 automotive process with customer design in.

2. PUFrt collaboration with CPU partners in 3nm is progressing successfully.

Regarding the business collaboration platforms

For NVM and PUF-based technologies: We are expanding cooperation with all new foundries to license our technologies besides existing foundries.

For Security IPs: We have completed the agreement with the largest CPU IP company to integrate our security solution into the CPU architecture.

This concludes my comments. Next, I will pass the time to Charles.

CHAIRMAN REMARKS

Dr. Charles Hsu, Chairman

Page 14: Caliptra : Building a Silicon Root of Trust in Datacenters and Every Chip

(Page 15: Why is Caliptra so Important?)

As many devices are connected through internet, there is a growing demand for emerging business models at the edge and higher levels of confidentiality between clouds and edge devices, particularly for datacenter applications.

Confidential computing for datacenter applications is raising the bar for security, requiring every individual chip at the SoC level to prove its trustworthiness. As a result, industry leaders have come together as part of the Open Compute Project (OCP) community to define and introduce Caliptra, a re-usable silicon level security IP blocks (Hardware Root of Trust) designed for integration into future chips used for datacenters, such as DPU, CPU, GPU, and NIC and more.

Caliptra's development is spearheaded by Nvidia, AMD, Google, Microsoft, and other key players. The related Silicon Root of Trust IPs will be adopted in the datacenters, especially driven by AI datacenters. The milestones of Caliptra are shown on this page. As you can see, Caliptra 1.0 has just been published in March of 2024.

(Page 16: What is the Important Role of eMemory in Caliptra?)

After knowing the background of Caliptra, let me share with you about what eMemory's IPs can do for Caliptra.

Caliptra Silicon RoT requires several key components, including Secure OTP (One-time Programmable Memory), PUF (Physically Unclonable Function), TRNG (True Random Number Generator), and Crypto Engine. These elements establish a Hardware Root of Trust for the chip, ensuring the security of operating systems, software, and personal privacy data.

eMemory has long been the major OTP IP provider. Based on our OTP technology, we also invented PUF, which is the most stable and reliable PUF in the industry. By integrating OTP, PUF and four environmental noise inputs, we have created the fastest TRNG. To achieve Caliptra's high level Root of Trust requirement, our Root of Trust plays a very important role. With the continued proliferation of chips integrating Caliptra Silicon RoT, the demand for eMemory's IPs will be increasing.

Next, I would like to further elaborate how eMemory's IPs can achieve the three security functions required by Caliptra's Root of Trust.

The first important security function is Unique Chip Identity (by Chip Fingerprint):

This function is like a personal ID, with each chip having a unique identity number. eMemory's PUF and TRNG can generate non-repeating random numbers, stored directly into the Anti-Fuse OTP. This Unique Chip Identity serves as the foundation for the secure attestation process.

After making sure the connected devices' unique ID, the next step is performing Secure Attestation (by Device Certificate):

Each chip must undergo attestation, which is the process of verifying its integrity and authenticity. This process involves generating a device certificate based on unique chip identifiers, granting the chip a genuine identity. With this certificate, the chip can be authorized by the datacenters and registered as a recognized device in the datacenter system to ensure secure connections. This process is similar to a company issuing a badge to a new employee, granting access to the company's facilities and resources. Following secure attestation, inter-chip communication via ciphertext is performed. TRNG and Crypto Engine will play important roles to ensure cybersecurity is maintained at a secure level.

Next, after attestation, is booting the system by Secure Boot (Boot into Trusted Operating System):

Secure Boot is a critical step in ensuring the integrity of the operating system during the boot process. If the tampered operating system manages to boot through a non-secure boot process, subsequent applications may be vulnerable to malicious eavesdropping, which may lead to the leakage of private information. Secure Boot is essential to verify the authenticity of the operating system image and ensure that it has not been altered.

During Secure Boot, the hardware used for performing security is initialized first. Then, the operating system image and code are authenticated through the hardware during the boot process. To ensure the integrity of operating system image, the source image must be protected and verified, which requires key generation by a true random number generator (TRNG) and encryption/decryption by a crypto engine.

eMemory has the full IP portfolio required for Caliptra Silicon RoT. With Nvidia, AMD, Google, and Microsoft implementing the Caliptra Silicon RoT in datacenter chips, we believe the use of eMemory IP in every chip for security will speed up.

That concludes our sharings on Caliptra, which is building a silicon root of trust in datacenters and every chip. Thank you very much for your time.

Next, we will enter the Q&A session.

CLOSING REMARKS

Dr. Charles Hsu, Chairman

For more information about our PUF-based security IPs and technology, we encourage you to visit our PUFsecurity website at https://www.pufsecurity.com/ and check out our articles and other materials.

Thank you once again for your patience and support for eMemory. We will continue to work hard on technology and IP innovation and PUF-based hardware security solutions for our customers and bring higher returns for our shareholders. Thank you!