eMemory Technology Inc.

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IPR Notice

Cautionary Statement

This presentation contains forward-looking statements, which are subject to risk factors associated with semiconductor and intellectual property business. It is believed that the expectations reflected in these statements are reasonable. But they may be affected by a variety of variables, many of which are beyond our control. These variables could cause actual results or trends to differ materially which include, but are not limited to: wafer price fluctuation, actual demand, rapid technology change, delays or failures of customers' tape-outs into wafer production, our ability to negotiate, monitor and enforce agreements for the determination and payment of royalties, any bug or fault in our technology which leads to significant damage to our technology and reputation, actual or potential litigation, semiconductor industry cycle and general economic conditions. Except as required by law, eMemory undertakes no obligation to update or revise any forward-looking statements, whether as a result of new information, future events, or otherwise.

Contents

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Review of Operations

Q2 2019 Financial Results

The EPS of Q2 2019 was 1.55 NTD, ROE was 29%

(thousands of NT dollars)

	Q2 2019	Q1 2019	Q2 2018	Change (QoQ)	Change (YoY)
Revenue	316,541	395,061	302,073	-19.9%	4.8%
Gross Margin	100%	100%	100%	-	-
Operating Expenses	187,889	201,088	183,706	-6.6%	2.3%
Operating Income	128,652	193,973	118,367	-33.7%	8.7%
Operating Margin	40.6%	49.1%	39.2%	-8.5ppts	1.4ppts
Net Income	115,098	177,151	112,193	-35.0%	2.6%
Net Margin	36.4%	44.8%	37.1%	-8.4ppts	-0.7ppts
EPS (Unit: NTD)	1.55	2.39	1.48	-35.1%	4.7%
ROE	29.0%	38.9%	23.2%	-9.9ppts	5.8ppts

H1 2019 Financial Results

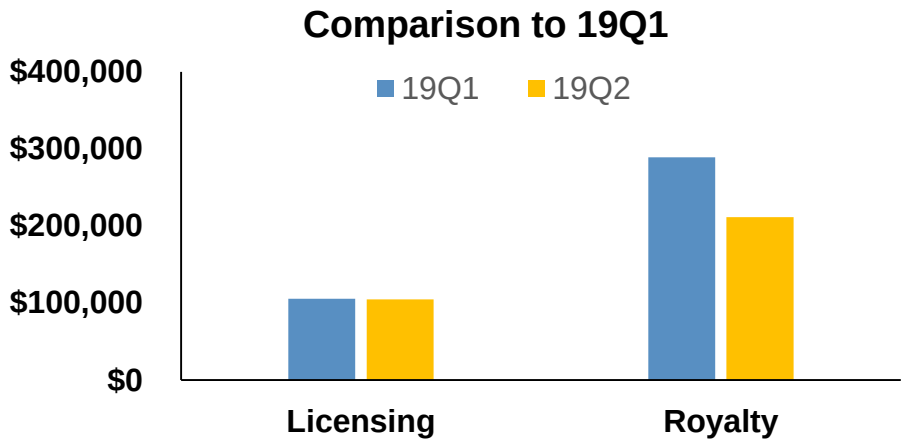
The EPS of H1 2019 was 3.94 NTD, ROE was 37%

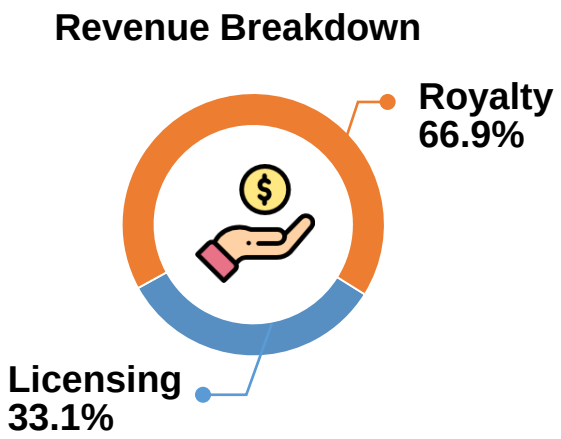
(thousands of NT dollars)

	H1 2019	H1 2018	Change (YoY)
Revenue	711,602	676,539	5.2%
Gross Margin	100%	100%	-
Operating Expenses	388,977	376,907	3.2%
Operating Income	322,625	299,632	7.7%
Operating Margin	45.3%	44.3%	1.0ppts
Net Income	292,249	280,923	4.0%
Net Margin	41.1%	41.5%	-0.4ppts
EPS (Unit: NTD)	3.94	3.71	6.2%
ROE	36.9%	29.0%	7.9ppts

Q2 Revenue in Different Stream

Revenue down 19.9% QoQ but up 4.8% YoY.



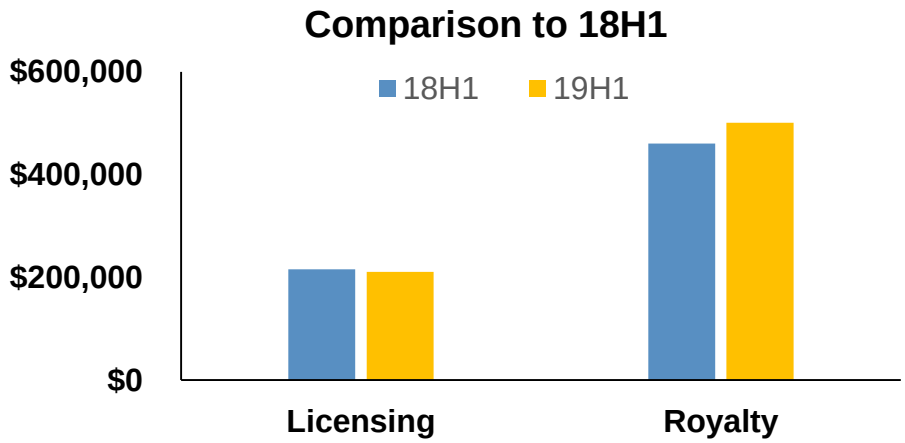


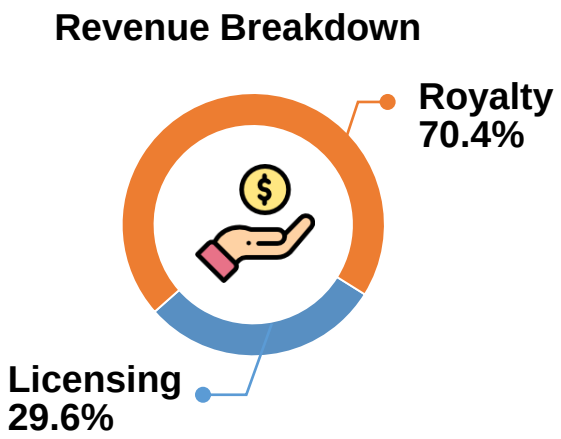
Revenue

NT$ Thousands	Q2 2019	Q1 2019	Q2 2018	QoQ	YoY
Licensing	104,806	105,824	101,283	-1.0%	3.5%
Royalty	211,735	289,237	200,790	-26.8%	5.5%
Total	316,541	395,061	302,073	-19.9%	4.8%

H1 Revenue in Different Stream

Licensing revenue down 2.4%, royalty revenue up 8.7%. Total revenue up 5.2%.





Revenue

NT$ Thousands	H1 2019	H1 2018	YoY
Licensing	210,630	215,823	-2.4%
Royalty	500,972	460,716	8.7%
Total	711,602	676,539	5.2%

Q2 Revenue by technology

Royalty revenue of NeoFuse has a growth of 40.3% QoQ and 109.8% YoY.

- ✓ The demand of NeoFuse continues to grow, as its licensing up 1.3% QoQ, and 53.1% YoY. Its royalty revenue increased 40.3% QoQ and 109.8% YoY.
- ✓ The royalty revenue of NeoBit decreased 36.8% QoQ and 2.6% YoY as a result of specific customer product transition. Its licensing revenue increased 38.6% QoQ but decreased 16.5% YoY.
- ✓ The licensing revenue of MTP (NeoEE+NeoMTP) decreased 48.7% QoQ and 57.3% YoY, while its royalty revenue decreased 16.8% QoQ and 47.8% YoY. The decrease in licensing and royalty revenue of NeoEE were mostly due to the decrease of revenue in fingerprint application.

Technology	Q2 2019								
	Total Revenue			Licensing Revenue			Royalty Revenue		
	% of Q2 Revenue	Change (QoQ)	Change (YoY)	% of Q2 Licensing	Change (QoQ)	Change (YoY)	% of Q2 Royalty	Change (QoQ)	Change (YoY)
NeoBit	57.1%	-31.0%	-5.1%	26.5%	38.6%	-16.5%	72.2%	-36.8%	-2.6%
NeoFuse	35.9%	14.7%	72.8%	62.7%	1.3%	53.1%	22.6%	40.3%	109.8%
NeoPUF	0.2%	100.0%	100.0%	0.6%	100.0%	100.0%	0.0%	0.0%	0.0%
NeoEE	5.5%	-35.0%	-45.7%	8.9%	-39.0%	-25.7%	3.8%	-29.5%	-58.8%
NeoMTP	1.3%	-41.3%	-69.3%	1.3%	-75.4%	-89.1%	1.4%	61.8%	88.0%

H1 Revenue by technology

Royalty revenue of NeoFuse has a growth of 128.5% YoY.

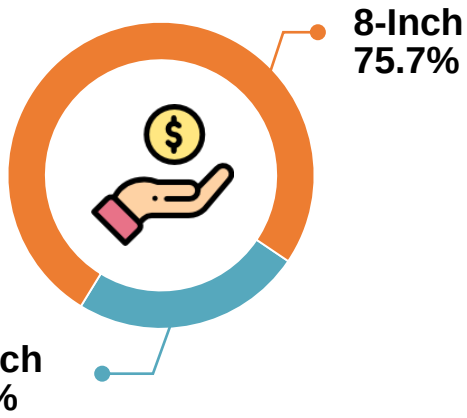
- ✓ The demand of NeoFuse continues to grow, as its licensing up 37.3% YoY. Its royalty revenue increased 128.5% YoY.
- ✓ The royalty revenue of NeoBit increased 2.8% YoY, while its licensing revenue decreased 31.5% YoY. The decrease in licensing revenue was due to specific product customer transition.
- ✓ The licensing revenue of MTP (NeoEE+NeoMTP) decreased 37.8% YoY, while its royalty revenue decreased 40.8% YoY. Their total revenue declined 39.2%.

Technology	H1 2019					
	Total Revenue		Licensing Revenue		Royalty Revenue	
	% of H1 Revenue	Change (YoY)	% of H1 Licensing	Change (YoY)	% of H1 Royalty	Change (YoY)
NeoBit	62.2%	-2.5%	22.7%	-31.5%	78.8%	2.8%
NeoFuse	29.9%	62.3%	62.0%	37.3%	16.4%	128.5%
NeoPUF	0.1%	100.0%	0.3%	100.0%	0.0%	0.0%
NeoEE	6.2%	-27.9%	11.7%	2.0%	3.8%	-47.6%
NeoMTP	1.6%	-61.7%	3.3%	-74.2%	1.0%	24.3%

Royalty Revenue by Wafer Size

Royalty from 12 inch increased due to continuous strong demand in advanced nodes.

Q2 Royalty Breakdown



- ✓ 12 inch royalty revenue decreased 47.1% quarter-on-quarter but increased 6.6% year-on-year.
- ✓ Royalty contribution of QoQ from 12 inch decreased due to seasonal factor of DDI related products.

Royalty (thousands of NT dollars)

	Q2 2019			H1 2019	
Wafer Size	% of Q2	Change (QoQ)	Change (YoY)	% of H1	Change (YoY)
8-Inch	75.7%	- 16.5%	5.1%	70.3%	5.9%
12-Inch	24.3%	-47.1%	6.6%	29.7%	16.2%

Future
Outlook

eMemory Embedded Everywhere

eMemory's IP seeks to penetrate across all the applications.

Core Tech

- ✓ **Product Applications:**
  eMemory's IP are already applied into different scenarios, which includes PMIC, LCD driver, Sensors, RFID, OLED Driver, Connectivity IC, DTV, STB, SSD Controller, Bluetooth, TDDI, MCU. Fingerprint Sensor, Smart Meters, Surveillance, DRAM, embedded Flash and FPGA.

- ✓ **Future Target**
  1. Application Processor
  2. CPU
  3. GPU
  4. NAND Flash

Security

- ✓ **The Future in Hardware Security Market**
  The rapid growth in IoT drives the demand for the security market. All the connected devices need to build security capability quickly.

- ✓ **PUF-based Hardware Security IP:**
  In order to satisfy the need for the market, eMemory developed a new series of PUF-based hardware security IP, which include PUF_{kengen}, PUF_{uid}, PUF_{trng}, PUF_{Kst}, PUF_{auth}, PUF_{enc}.

Our Perspectives for the Year

eMemory continue to create value for the industry and our shareholders.

Licensing & Royalty

- ✓ Licensing:
  - Expect sequential quarterly revenue growth of 2nd half due to new product ramping up for smart phone and non smart phone products.
  - License agreements with two first tier IDMs for multiple products, which will contribute royalty growth in the future.
- ✓ Royalty :
  - Largest PMIC customers will increase production further in the 2nd half and next year to increase 8-inch royalty. 12-inch royalty will continue to grow as accumulated 244 tape outs in the pipeline ready for production.
  - Our first DRAM customer already started production one quarter ahead of schedule and will promote our technology to worldwide DRAMs.

New Technology Development

- ✓ Finish first 5nm IP tape out.
- ✓ ReRAM IP has completed preliminary verification.
- ✓ Two security processor customers projects are under evaluation referred from our partnership with the largest processor IP company.
- ✓ Our PUF_{trng}, true random number generator, is proved to be the fastest and lowest power solution.

Q&A

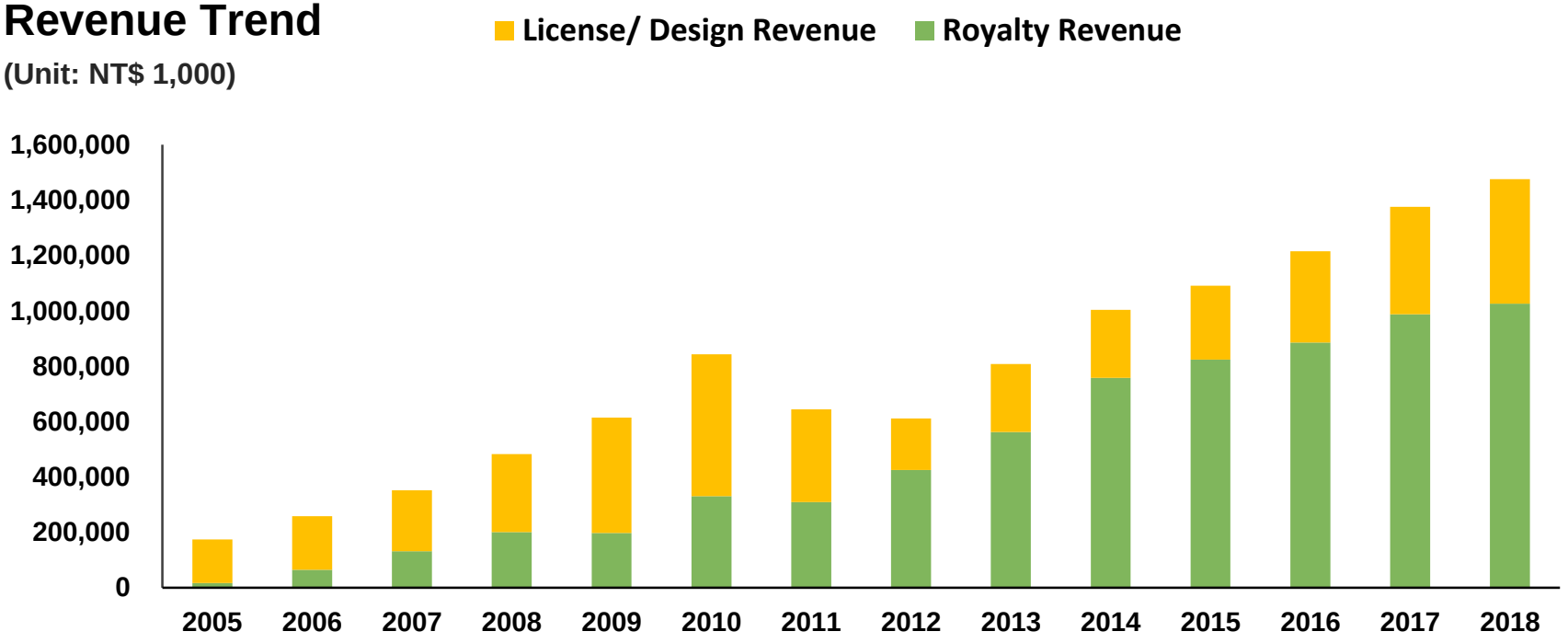
Appendix

Company Overview

eMemory is the global leader of embedded non-volatile memory IP

Revenue Trend

(Unit: NT$ 1,000)



Founded

In 2000

Based in Hsinchu, Taiwan.
IPO in 2011

600+

Patents Issued

241 pending patents. 257 employees with 70% R&D personnel

Best IP Partner

With TSMC

TSMC Best IP Partner Award since 2010.

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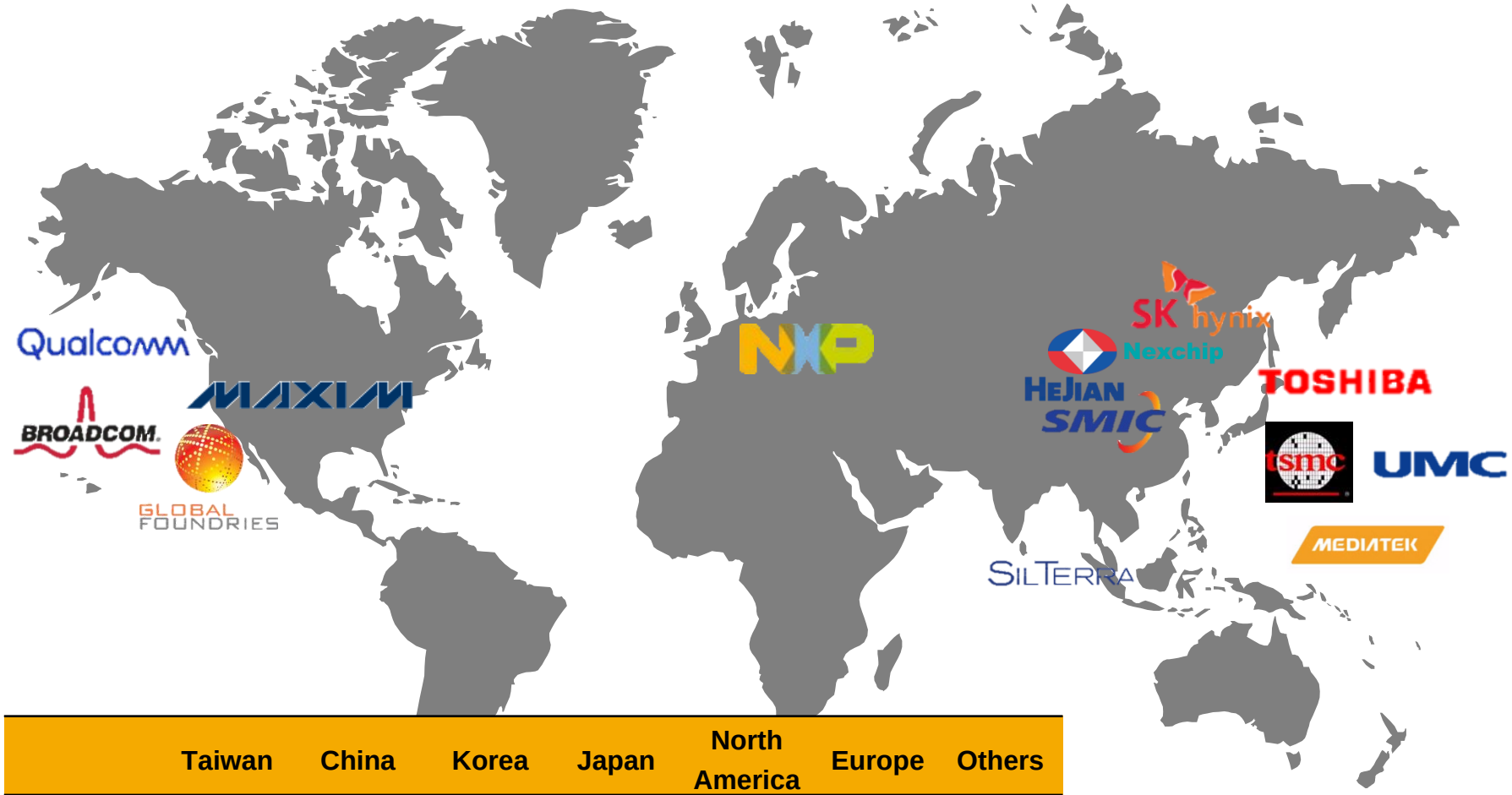
Worldwide Customers

Our IP solutions are adopted by leading foundries, IDMs and fabless worldwide



	Taiwan	China	Korea	Japan	North America	Europe	Others
Foundry	4	7	4	3	1	2	1
IDM	1	0	0	7	1	1	0
Fabless	269	632	79	56	268	127	69

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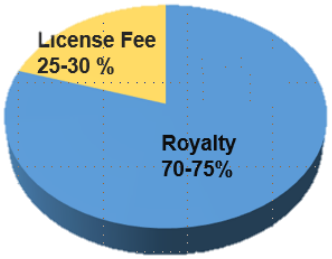
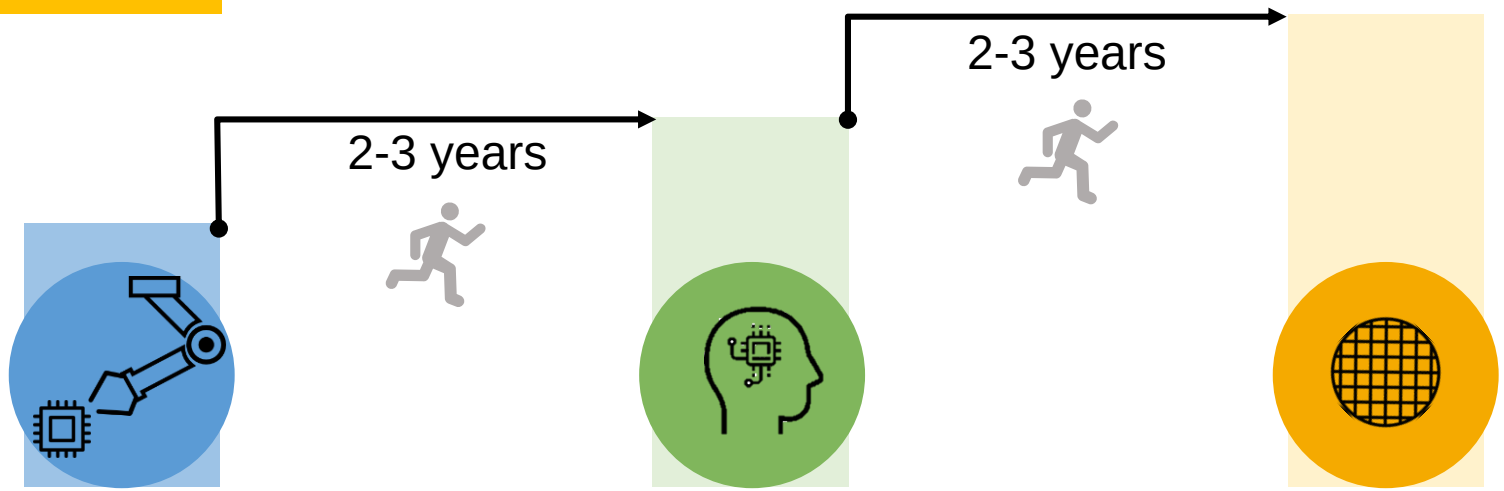
Business Model

Recurring royalty is the backbone of our business



Revenue Breakdown

- ✓ 70-75% revenue are from royalty based on wafer production
- ✓ More adoption = more volume shipment
- ✓ More advanced node wafers = higher ASP per wafer



License Fee

Foundries Process Development

Design License Fee

Fabless Product Development

Royalty

Wafer Mass Production

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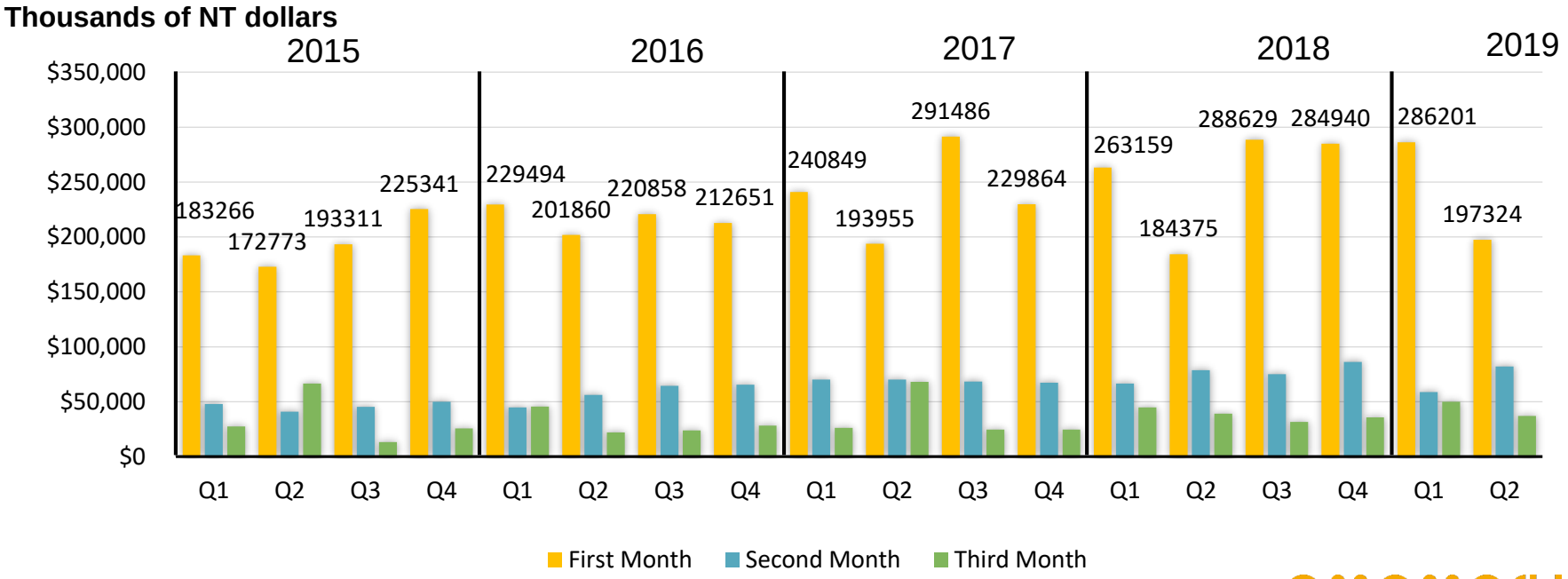
Quarterly Revenue Pattern

eMemory's revenue are mostly received in the first month of the quarter

- ✓ 1st month: Receive License Fees of the month and Royalty from most foundries on previous quarter's wafer shipments
- ✓ 2nd month: Receive License Fees of the month and Royalty from other foundries
- ✓ 3rd month: License Fees Only.
- ✓ Two foundries pay royalty semiannually, reported in Jan and July Revenue.



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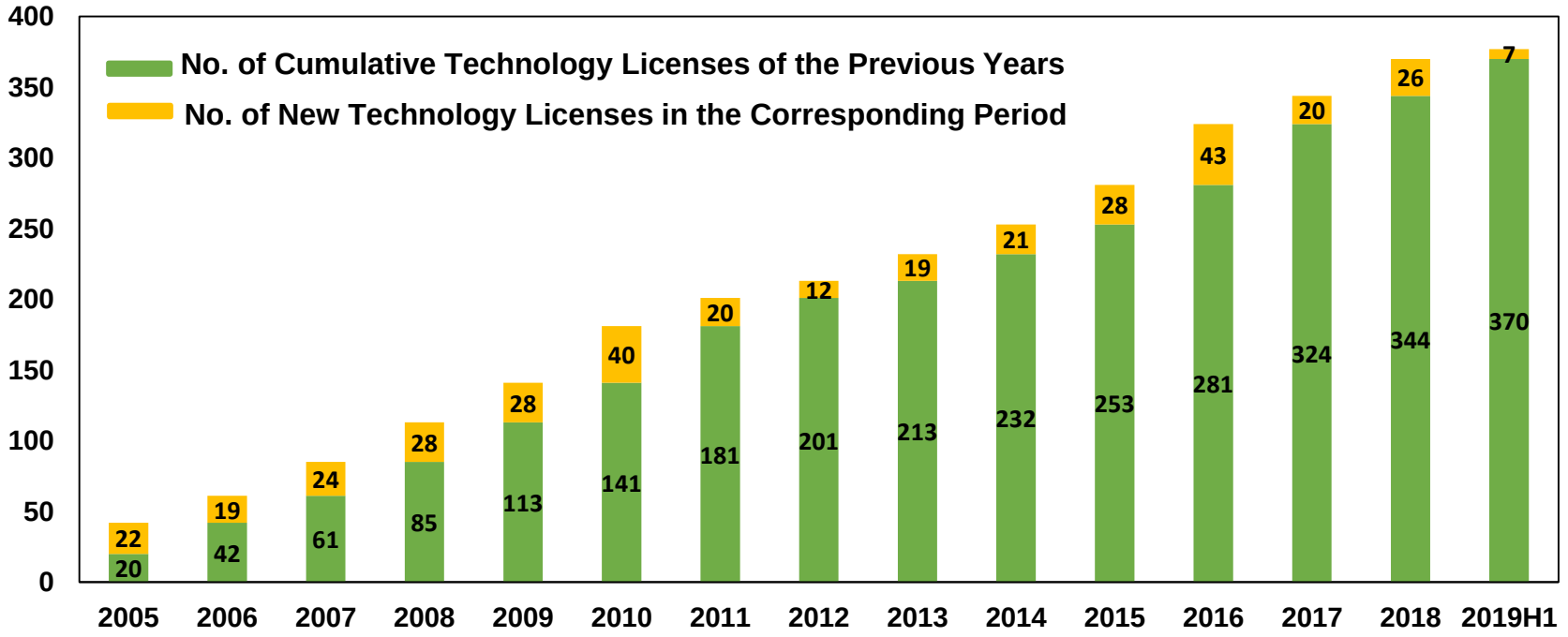
Technology Licenses

Cumulative technology licenses

Number of Licenses

Year	2016	2017	2018	2019 H1
License	43	20	26	7

Note: Terms (including number of process platforms and licensing fees) for each technology license are set contractually. Payments are made according to set milestones, and there are no particular seasonal factors involved.



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New Technology under Development

Products in different process nodes

- New technologies being developed for 103 platforms by Q2 2019.
- 4 licensing contracts were signed for NeoFuse.

	5/7/10nm	12/14/16nm	22/28nm	40nm	55/65nm	80/90nm	0.11~ 0.13um	0.15~ 0.18um	>0.25um
NeoBit	-	-	-	-	1	1	8	8	1
NeoFuse	5	2	13	6	7	8	3	2	-
NeoPUF	-	-	2	2	2	-	-	-	-
NeoEE	-	-	-	-	-	2	4	6	-
NeoMTP	-	-	-	-	2	2	7	9	-

As of June 30th, 2019

Technology Development

Developments by process node

12" Fabs	Production	Development	IP Type	Process Type
5/7/10nm	0	5	OTP, PUF	FF, FF+
12/14/16nm	3	2	OTP	FF, FF+
22/28nm	18	15	PUF, OTP	LP/ULP/ULL, HPC/HPC+, HV-OLED, DRAM, SOI
40nm	10	8	PUF, OTP, MTP	LP/ULP, HV-DDI/OLED, eFlash
55/65nm	19	12	PUF, OTP, MTP	LP/ULP, HV-DDI/OLED, CIS, eFlash, DRAM, BCD, PM
80/90nm	11	10	OTP, MTP	HV-DDI/OLED, LP, eFlash, Generic
0.13/0.11um	12	8	OTP, MTP	HV-DDI, BCD, Generic
0.18um	1	0	OTP	BCD, Generic
Total	74	60		

8" Fabs	Development	IP Type	Process Type
90nm	3	OTP	HV-DDI, LL, BCD
0.13/0.11um	14	PUF, OTP, MTP	HV/HV-MR, BCD, LP/LL, CIS, Green, eFlash, SOI, Generic
0.18/0.16/0.152um	25	OTP, MTP	HV/HV-MR, BCD, LP/LL, CIS, Green, Generic
0.25um	1	OTP	BCD
0.35um	0	OTP	UHV
Total	43		

Note: As of June 30th, 2019

PUF-based Hardware Security IP

NeoPUF provide the foundation for developing eMemory's security function IPs.

PUFkeygen

Key Generations

Each device can generate its own key from embedded NeoPUF.

PUFkeyst

Invisible Key Storage

NeoFuse is an invisible one time key storage memory.

PUFuid

On Chip Unique ID

NeoPUF generates a unique code similar to a fingerprint ID for each chip.

PUFtrng

True Random Number Generator

NeoPUF based true random number generator(tRNG) with the best randomness.

PUFauth

Authentication

Authentication process can be applied by using PUF key.

PUFenc

Firmware Protection

NeoPUF can protect firmware using local secure key, which is from inborn NeoPUF secret.

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