2024第一季法人說明會

May 8th, 2024

Embedded Wisely, Embedded Widely

ememory

智慧財產權聲明

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營運回顧

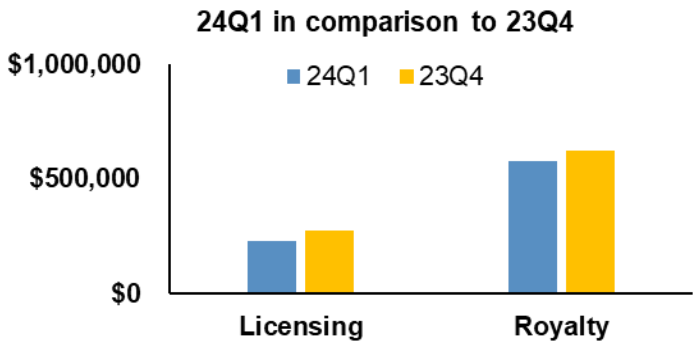
第一季綜合損益表

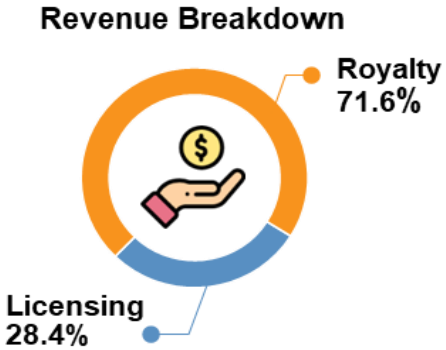
(thousands of NT dollars)

	Q1 2024	Q4 2023	Change (QoQ)	Q1 2023	Change (YoY)
Revenue	**802,764**	**898,858**	**-10.7%**	**667,751**	**20.2%**
Gross Margin	**100%**	**100%**	**-**	**100%**	**-**
Operating Expenses	**382,143**	**359,330**	**6.3%**	**300,657**	**27.1%**
-Operating Expenses exclude employee and director bonuses	279,605	279,173	0.2%	226,189	23.6%
-Employee and director bonuses	102,538	80,157	27.9%	74,468	37.7%
Operating Income	**420,621**	**539,528**	**-22.0%**	**367,094**	**14.6%**
Operating Margin	**52.4%**	**60.0%**	**-7.6 ppts**	**55.0%**	**-2.6 ppts**
***Net Income**	**430,577**	**403,753**	**6.6%**	**313,090**	**37.5%**
Net Margin	**52.7%**	**44.5%**	**8.2 ppts**	**46.1%**	**6.6 ppts**
EPS (NT$)	**5.77**	**5.41**	**6.7%**	**4.20**	**37.4%**
ROE	**53.2%**	**53.1%**	**0.1 ppt**	**38.9%**	**14.3 ppts**

***Net income attributable to Shareholders of the Company**

第一季營收分析– 授權金&權利金





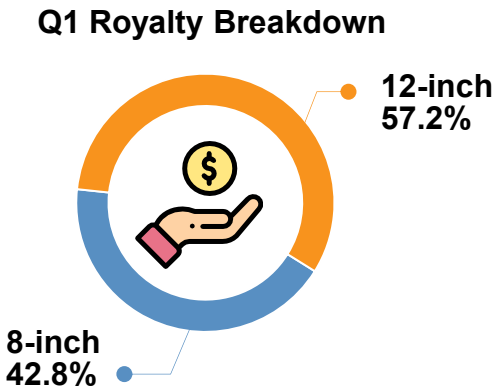
Revenue

NT$ Thousands	Q1 2024	Q4 2023	Change (QoQ)	Q1 2023	Change (YoY)
Licensing	228,329	273,927	-16.6%	143,049	59.6%
Royalty	574,435	624,931	-8.1%	524,702	9.5%
Total	802,764	898,858	-10.7%	667,751	20.2%

第一季營收分析 – 產品線

Technology	Q1 2024								
	Total Revenue			Licensing Revenue			Royalty Revenue		
	% of Q1 Revenue	Change (QoQ)	Change (YoY)	% of Q1 Licensing	Change (QoQ)	Change (YoY)	% of Q1 Royalty	Change (QoQ)	Change (YoY)
NeoBit	23.6%	-8.9%	1.0%	20.9%	-33.5%	70.0%	24.7%	4.0%	-11.1%
NeoFuse	67.0%	-8.7%	26.0%	52.6%	2.3%	69.3%	72.8%	-11.4%	17.4%
PUF-Based	2.3%	-38.9%	9.2%	8.0%	-39.0%	10.2%	0.0%	15.9%	-59.0%
MTP	7.1%	-20.3%	56.3%	18.5%	-22.8%	53.7%	2.5%	-12.2%	64.7%

第一季營收分析 – 晶圓尺寸



- 8-inch wafers contributed 42.8% of royalty, up 4% sequentially but down 0.2% yearly.
- 12-inch wafers contributed 57.2% of royalty, down 15.4% QoQ but up 18.1% YoY.

Wafer Size	Q1 2024		
	% of Q1	Change (QoQ)	Change (YoY)
8-Inch	42.8%	4.0%	-0.2%
12-Inch	57.2%	-15.4%	18.1%

未來展望

未來展望

Licensing & Royalty:

- Licensing:
  - 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.
- Royalties:
  - Our royalty will grow, driven by 1500 new tape-outs from the past three years in the pipeline entering mass production (i.e. 6nm DTV, 7nm ADAS, 12 nm SSD and ISP, as well as 22/28nm networking, switch, and smart image processor…)

未來展望

New IP Technology & Business Development:

- Specialty processes (HV, HK, 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.
- Advanced processes:
  1. NeoFuse has successfully qualified for the N5 automotive process with customer design in.
  2. PUFrt collaboration with CPU vendors in 3nm is progressing successfully.

未來展望

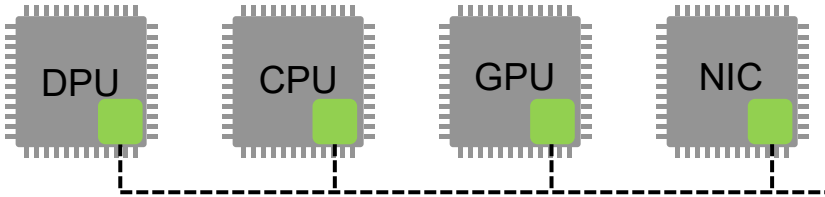
Business Collaboration Platforms:

- Non-volatile Memory (NVM) and PUF-based Technologies
  - We are expanding cooperation with all new foundries to license our technologies besides existing foundries.
- Security IPs:
  - We have completed the agreement with the largest CPU IP company to integrate our security solution into the CPU architecture.

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

Why is **Caliptra** so Important?

Datacenter Chips



Caliptra Root of Trust

Every chip needs Root of Trust

Caliptra 1.0

Complete specification, firmware coverage, countermeasures and testing

September 2021

Project Start

Founders begin the effort

May 2022

OCP Intro

Specification is formalized at Open Compute Project

March 2023

Open Source

Charter is adopted at Linux Foundation

Functional RTL

Founders contributed RTL Op8 pre

August 2023

Full Functionalities Defined

All flows are defined and are implemented in RTL

October 2023

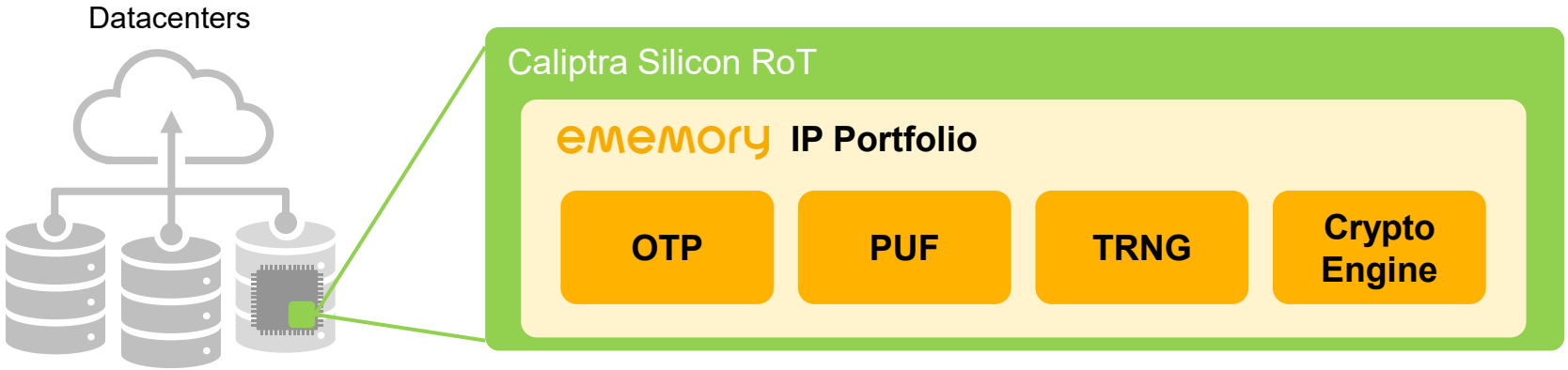
Validation Completed

RTL, ROM are fully validated and ready for chip design-in

March 2024

What is the Important Role of **eMemory** in **Caliptra**?

- eMemory's root of trust IP is ready to meet Caliptra's requirements.



Unique Chip Identity

Chip Fingerprint

Secure Attestation

Device Certificate

Secure Boot

Boot into Trusted Operating System

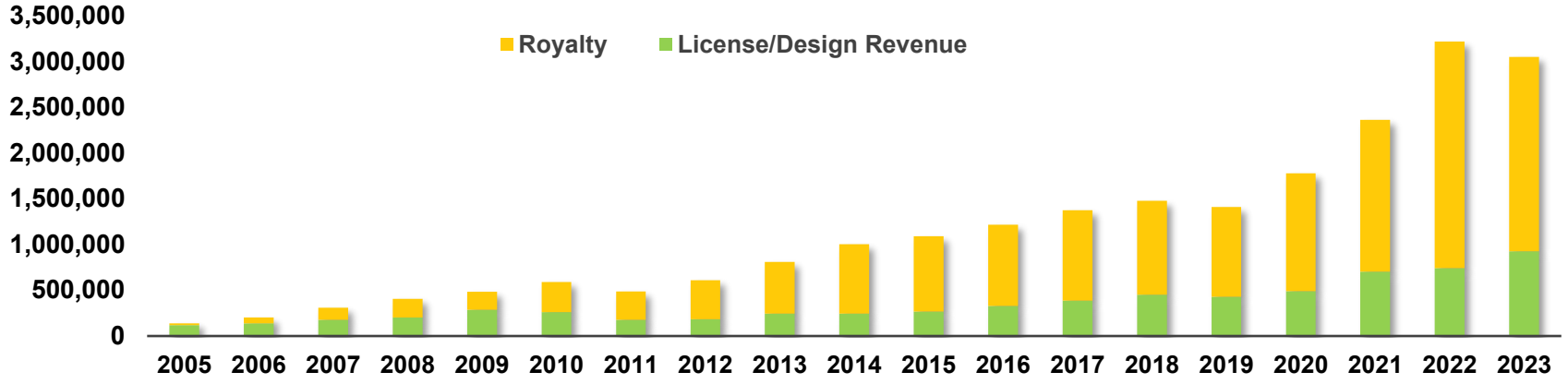
Q&A

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. Over 58M wafers shipped.

1200+
Patents Issued

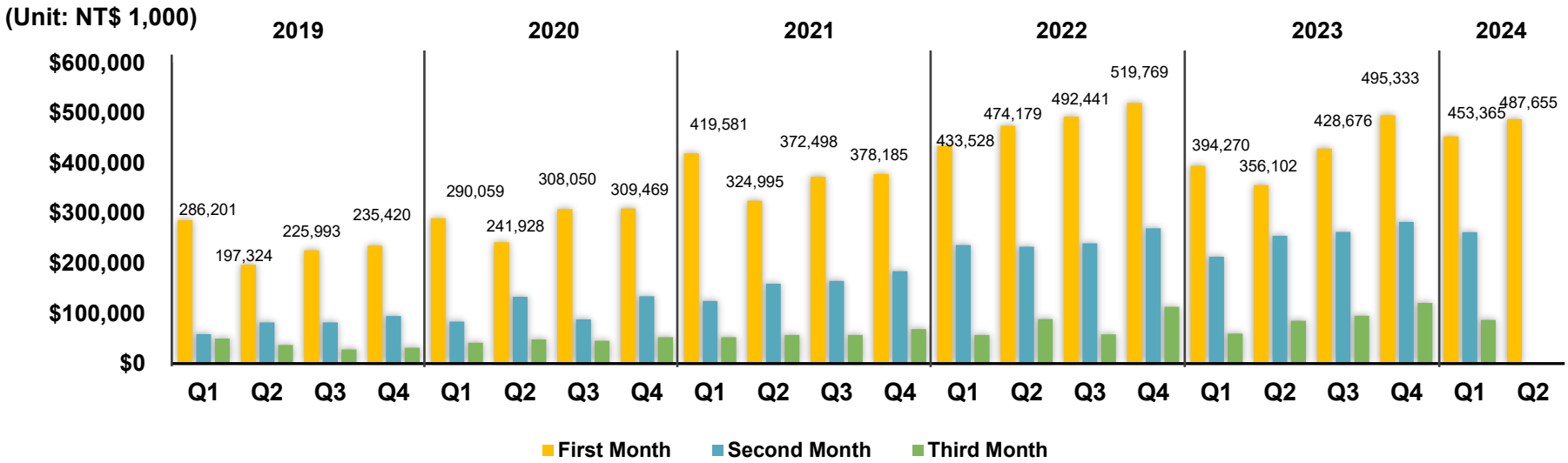
193 pending patents. 360 employees with 67% R&D personnel.

Best IP Partner
With TSMC

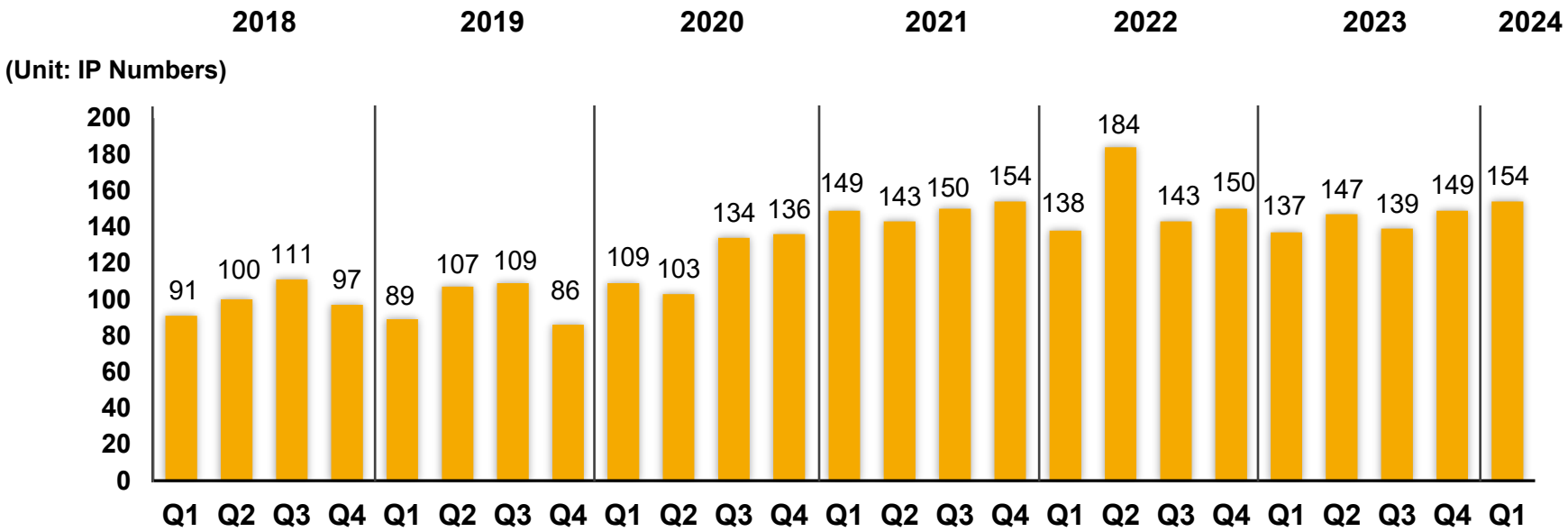
TSMC Best IP Partner Award since 2010.

Quarterly Revenue **Pattern**

- 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.



Quarterly Number of **New Tape-outs**



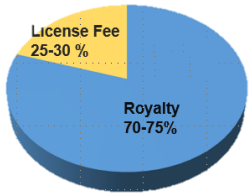
Worldwide Customers

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

Country	Foundry	IDM	Fabless
Taiwan	4	1	318
China	11	0	1185
Korea	4	0	98
Japan	1	9	81
North America	2	2	365
Europe	2	2	224
Others	1	0	110

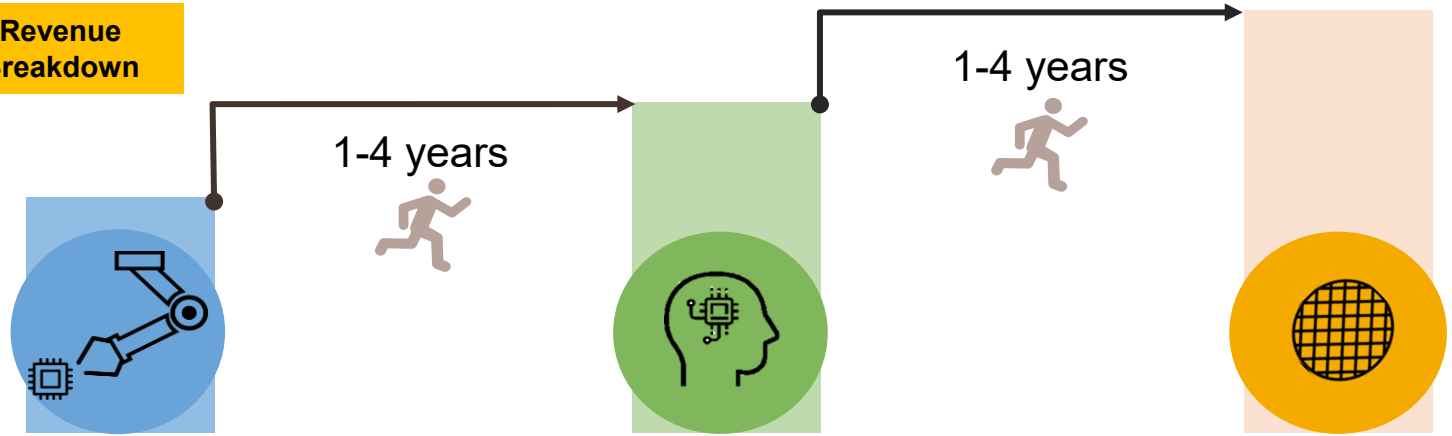
Business Model

- 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

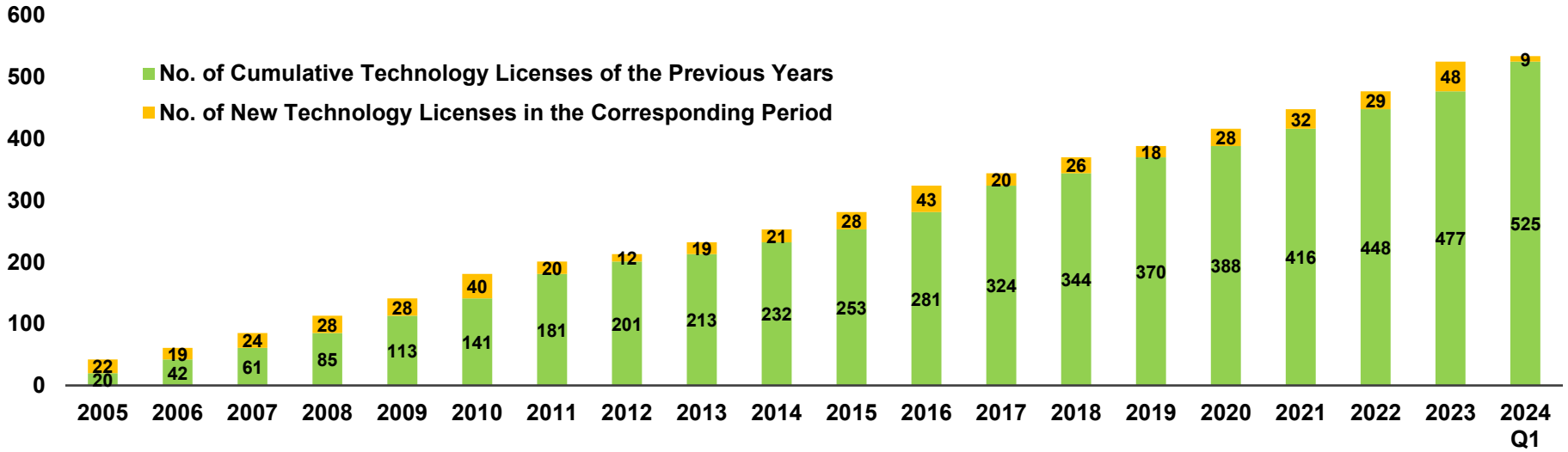
Royalty
Wafer Mass Production

Technology **Licenses**

Number of Licenses

Year	2016	2017	2018	2019	2020	2021	2022	2023	2024 Q1
License	43	20	26	18	28	32	29	48	9

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.



Technology Development

- Developments by process nodes

12" Fabs	Production	Development	IP Type	Process Type
3nm	0	4	OTP, PUF	FF, FFP
4/5nm	6	0	OTP, PUF	FF, FF-Auto
6/7nm	4	1	OTP, PUF	FF, FF+
12/16nm	9	8	OTP, PUF	FF, FF+, FFC. FFC+, LPP, DRAM, HV
22/28nm	50	21	OTP, PUF, MTP	LP/ULP/ULL, HPC/HPC+, HV-OLED, DRAM, SOI, ReRAM, MRAM, E-Flash, BCD, WoW
40nm	24	7	OTP, PUF, MTP	LP/ULP, E-Flash, HV-DDI/OLED, ReRAM, BCD+
55/65nm	51	21	OTP, PUF, MTP	LP/ULP, E-Flash, HV-DDI/OLED, DRAM, CIS, BCD, PM
80/90nm	28	15	OTP, MTP	HV-DDI/OLED, LP, Generic, BCD, CIS
0.11/0.13um	21	5	OTP, MTP	HV-DDI, BCD, Generic
0.15/0.18um	11	11	OTP, MTP	BCD, Generic
Total	204	93		

8" Fabs	Production	Development	IP Type	Process Type
80/90nm	9	3	OTP	HV-DDI, LL, BCD
0.11/0.13um	81	27	OTP, MTP	HV/HV-MR, BCD, LP/LL, CIS, Green, Flash, SOI, Generic
0.152/0.16/0.18um	240	25	OTP, MTP	HV/HV-MR, BCD, LP/LL, CIS, Green, Generic
0.25um	42	1	OTP	BCD
0.3/0.35um	53	0	OTP, MTP	UHV, BCD
0.4/0.5um	11	0	OTP	UHV, BCD
Total	436	56		

Note: As of March 31st, 2024

THANKS

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For more information, please visit:
eMemory Website: https://www.ememory.com.tw/
PUFsecurity Website: https://www.pufsecurity.com/