



Q3 2022 Investor Conference

November 9th, 2022

Embedded Wisely, Embedded Widely

ememory



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Contents

- 1 Review of Operations
- 2 Future Outlook
- 3 Q&A
- 4 Appendix

A hand is shown dropping a coin into a stack of coins. A small plant with three green leaves is growing out of the stack. The background is a warm, golden-yellow color. The image is framed by a white, brush-stroke-like border on the right side.

Review of Operations

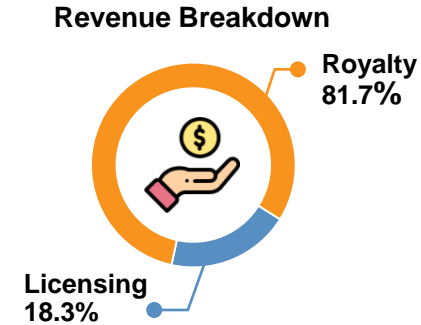
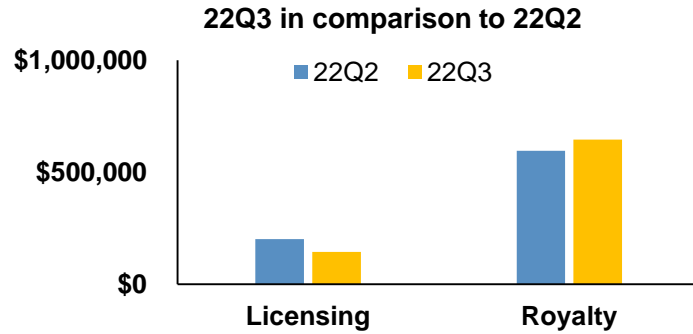
Q3 2022 Financial Results

(thousands of NT dollars)

	Q3 2022	Q2 2022	Change (QoQ)	Q3 2021	Change (YoY)	Q1-Q3 2022	Q1-Q3 2021	Change (YoY)
Revenue	790,608	796,292	-0.7%	594,277	33.0%	2,314,007	1,732,426	33.6%
Gross Margin	100%	100%	-	100%	-	100%	100%	-
Operating Expenses	345,160	336,197	2.7%	277,611	24.3%	995,203	795,335	25.1%
Operating Income	445,448	460,095	-3.2%	316,666	40.7%	1,318,804	937,091	40.7%
Operating Margin	56.3%	57.8%	-1.5ppts	53.3%	3.0ppts	57.0%	54.1%	2.9ppts
*Net Income	406,430	408,924	-0.6%	277,181	46.6%	1,181,373	813,894	45.2%
Net Margin	50.9%	51.5%	-0.6ppt	46.3%	4.6ppts	50.7%	46.7%	4.0ppts
EPS (NT\$)	5.45	5.48	-0.5%	3.72	46.5%	15.84	10.92	45.1%
ROE	63.7%	69.5%	-5.8ppts	53.2%	10.5ppts	61.7%	52.1%	9.6ppts

*Net income attributable to Shareholders of the Company

Revenue across Different Streams



Revenue

NT\$ Thousands	Q3 2022	Q2 2022	Change (QoQ)	Q3 2021	Change (YoY)	Q1-Q3 2022	Q1-Q3 2021	Change (YoY)
Licensing	144,631	200,729	-27.9%	188,667	-23.3%	536,968	540,219	-0.6%
Royalty	645,997	595,563	8.5%	405,610	59.3%	1,777,039	1,192,207	49.1%
Total	790,608	796,292	-0.7%	594,277	33.0%	2,314,007	1,732,426	33.6%

US\$ Thousands	Q3 2022	Q2 2022	Change (QoQ)	Q3 2021	Change (YoY)	Q1-Q3 2022	Q1-Q3 2021	Change (YoY)
Licensing	4,829	6,878	-29.8%	6,778	-28.8%	18,582	19,237	-3.4%
Royalty	21,616	20,425	5.8%	14,584	48.2%	61,425	42,385	44.9%
Total	26,445	27,303	-3.1%	21,362	23.8%	80,007	61,622	29.8%

Revenue by Technology

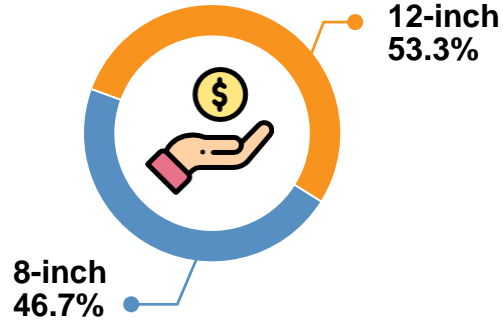
- NeoFuse licensing down 28.6% QoQ and 28.1% YoY because many NeoFuse customers adopted PUF-based solutions, such as Root of Trust, to upgrade their security functions. Since the royalties for PUF-based solutions consist of both PUF-based royalties and existing NeoFuse royalties, it will drive the growth of future royalties.
- PUF-based royalties grew by 209.5% sequentially and 23,455.6% yearly as PUF-based solutions are adopted in IoT, Industrial IoT, WiFi, DPU, Video-ISP, STB, SSD Controller and automotive fields.

Technology	Q3 2022								
	Total Revenue			Licensing Revenue			Royalty Revenue		
	% of Q3 Revenue	Change (QoQ)	Change (YoY)	% of Q3 Licensing	Change (QoQ)	Change (YoY)	% of Q3 Royalty	Change (QoQ)	Change (YoY)
NeoBit	34.3%	-3.9%	17.7%	26.2%	-14.5%	-2.9%	36.2%	-2.0%	21.9%
NeoFuse	57.7%	6.1%	54.4%	46.5%	-28.6%	-28.1%	60.2%	15.8%	92.6%
PUF-Based	2.8%	-53.9%	685.4%	13.7%	-57.8%	611.7%	0.3%	209.5%	23,455.6%
MTP	5.2%	13.8%	-37.1%	13.6%	28.1%	-63.1%	3.3%	3.3%	78.0%

Technology	Q1-Q3 2022					
	Total Revenue		Licensing Revenue		Royalty Revenue	
	% of Q1-Q3 Revenue	Change (YoY)	% of Q1-Q3 Licensing	Change (YoY)	% of Q1-Q3 Royalty	Change (YoY)
NeoBit	34.5%	14.9%	21.8%	0.7%	38.3%	17.7%
NeoFuse	56.9%	51.9%	53.2%	-0.3%	58.0%	77.8%
PUF-Based	3.3%	641.3%	13.7%	610.4%	0.2%	36,222.2%
MTP	5.3%	-23.6%	11.3%	-52.3%	3.5%	80.7%

Royalty Revenue by Wafer Size

Q3 Royalty Breakdown



- 8-inch wafers contributed 46.7% of royalty, down 0.8% sequentially but up 42.3% yearly.
- 12-inch wafers contributed 53.3% of royalty, up 18.1% QoQ and 77.9% YoY.

Wafer Size	Q3 2022			Q1-Q3 2022	
	% of Q3	Change (QoQ)	Change (YoY)	% of Q1-Q3	Change (YoY)
8-Inch	46.7%	-0.8%	42.3%	49.3%	37.8%
12-Inch	53.3%	18.1%	77.9%	50.7%	62.0%

A hand is shown dropping a coin into a stack of coins. A small green plant with three leaves is growing out of the stack. The background is a warm, golden-yellow color. The image is framed by a white, brush-stroke-like border on the right side.

Future Outlook

Future Outlook

Licensing & Royalty:

- Decline in licensing this year was due to waiving technology license fees but increasing production royalties for several foundries to accelerate the development of licensed technology platforms, especially for MTP-related technologies. We expect license to grow significantly next year driven by PUF-related solutions.
- The growth momentum of royalty will be driven by penetration rate increase from 28nm, 12/16nm, and 6/7nm.

New IP Technology & Business Development:

- NeoFlash technology platforms are developed in several foundries, targeting embedded flash market.
- Our PUF-based Secure Crypto Coprocessor IP (PUFcc) is PSA Certified Level 2 Ready which will accelerate the adoptions on Arm's platform.
- PUF-based IPs have completed N5 tape-out and is moving to N4/N3.



Q&A



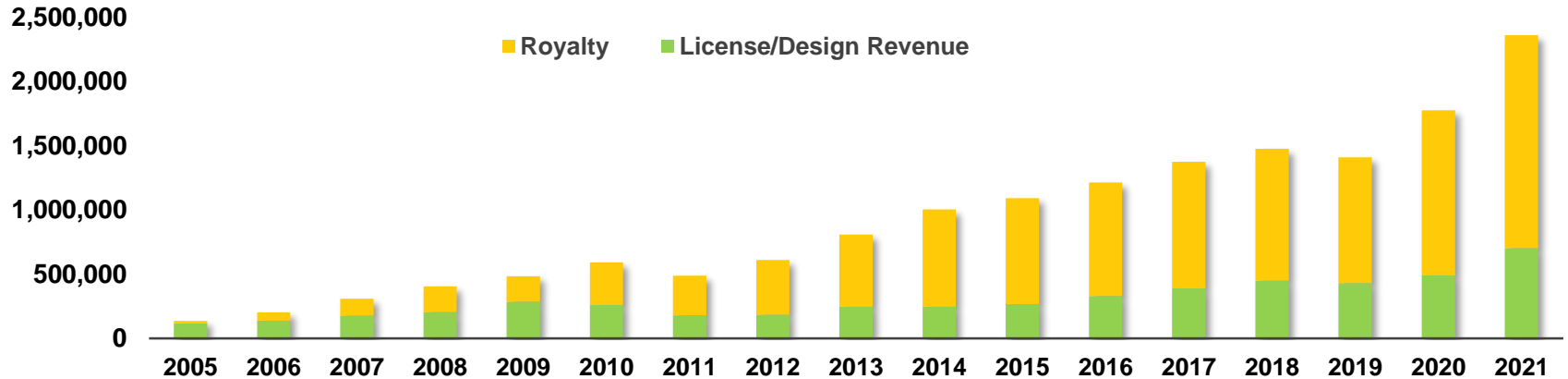
Appendix

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 46M wafers
shipped.

**1050+
Patents Issued**

197 pending patents. 323
employees with 67% R&D
personnel.

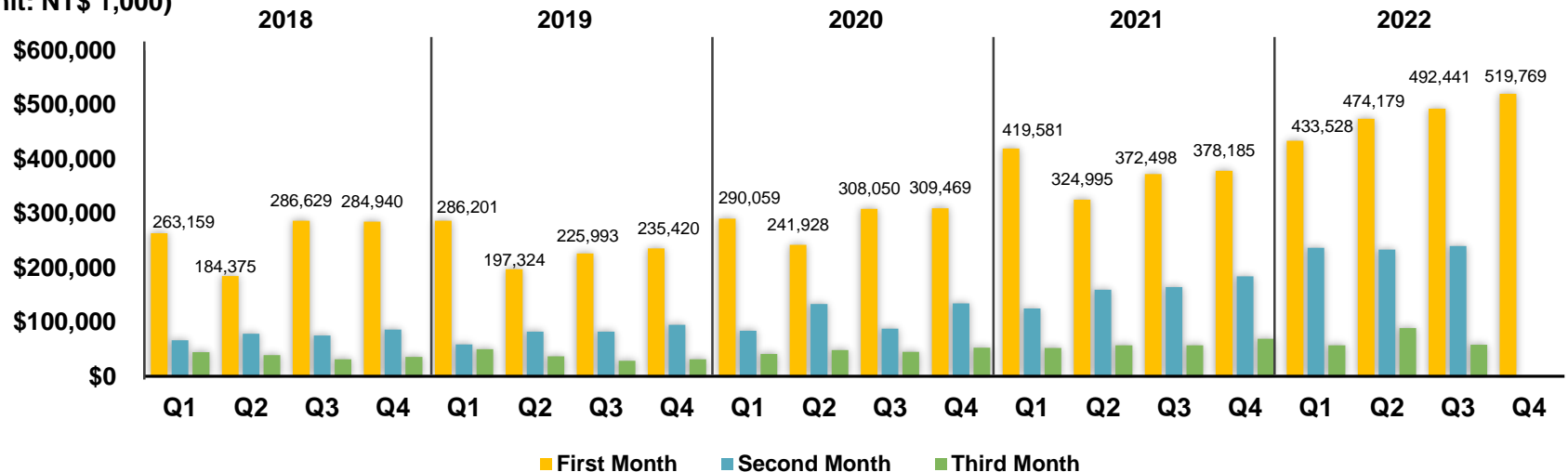
**Best IP Partner
With TSMC**

TSMC Best IP Partner Award
since 2010.

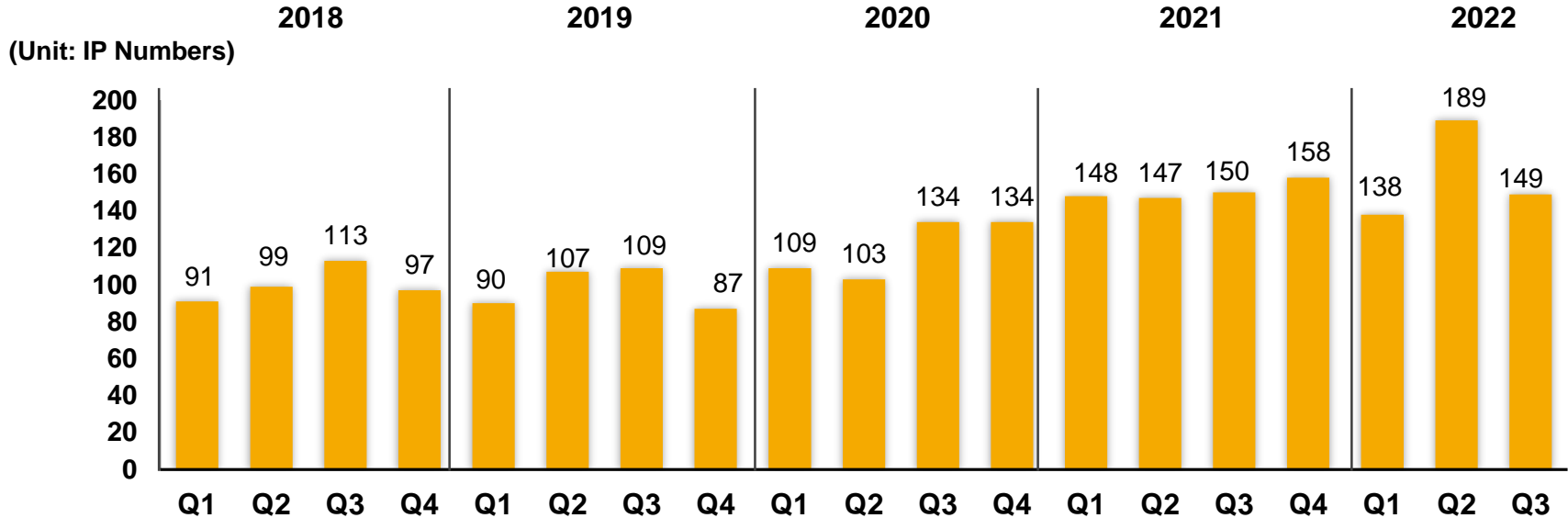
Quarterly Revenue Pattern

- 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.

(Unit: NT\$ 1,000)



Quarterly Number of New Tape-outs



Worldwide Customers

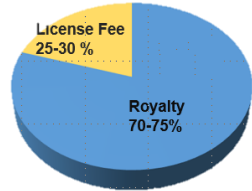
- Our IP solutions are adopted by leading foundries, IDMs and fables worldwide

Country	Foundry	IDM	Fabless
Taiwan	4	1	316
China	9	0	1030
Korea	4	0	94
Japan	4	7	75
North America	1	1	332
Europe	2	1	204
Others	1	0	115

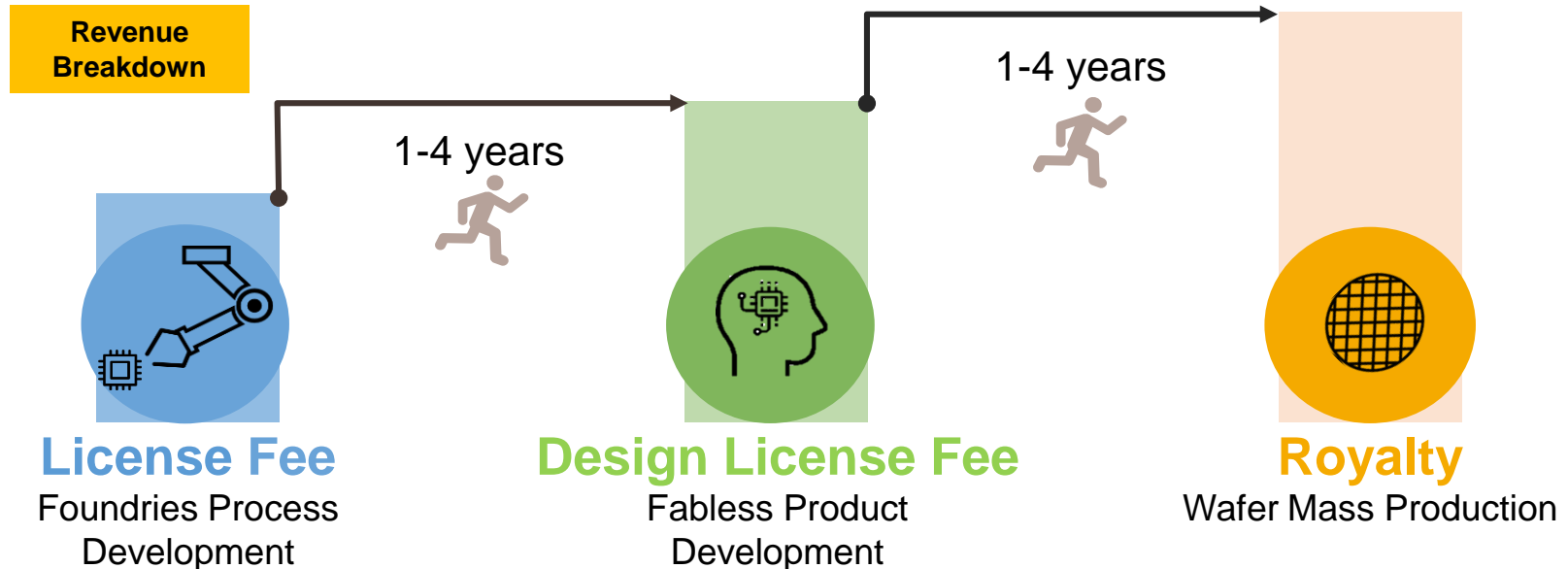


Business Model

- Recurring royalty is the backbone of our business



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

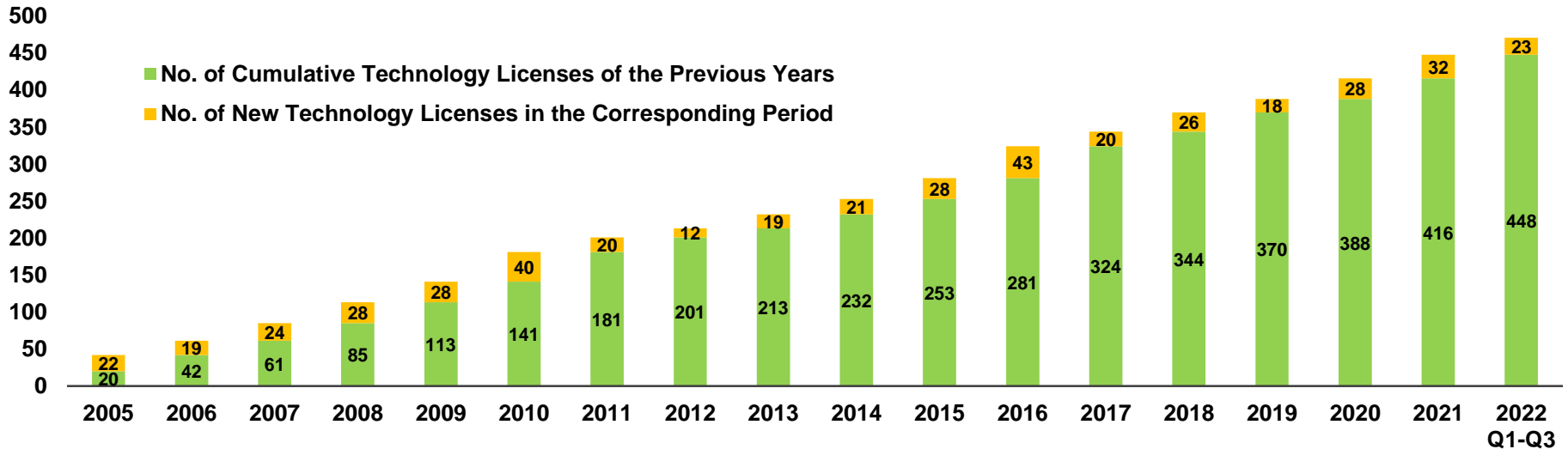


Technology Licenses

Number of Licenses

Year	2016	2017	2018	2019	2020	2021	2022 Q1-Q3
License	43	20	26	18	28	32	23

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.



New Technology Under Development

- New technologies are being developed for 130 platforms by Q3 2022.
- 4 licensing contracts were signed.

Technology	4/5nm	6/7nm	12/16nm	22/28nm	40nm	55/65nm	80/90nm	0.11~ 0.13um	0.15~ 0.18um	>0.25um
NeoBit	-	-	-	-	-	2	1	12	13	1
NeoFuse	2	1	6	8	5	17	8	2	3	-
PUF-Based	2	-	1	1	1	1	-	-	-	-
MTP	-	-	-	3	1	6	5	9	19	-

Note: As of September 30th, 2022

Technology Development

- Developments by process nodes

12" Fabs	Production	Development	IP Type	Process Type
4/5nm	0	4	OTP, PUF	FF
6/7nm	4	1	OTP, PUF	FF, FF+
12/16nm	6	7	OTP, PUF	FF, FF+, FFC, FFC+, LPP
22/28nm	43	12	OTP, PUF, MTP	LP/ULP/ULL, HPC/HPC+, HV-OLED, DRAM, SOI, ReRAM, MRAM, E-Flash
40nm	21	7	OTP, PUF, MTP	LP/ULP, E-Flash, HV-DDI/OLED, ReRAM
55/65nm	36	26	OTP, PUF, MTP	LP/ULP, E-Flash, HV-DDI/OLED, DRAM, CIS, BCD, PM
80/90nm	22	11	OTP, MTP	HV-DDI/OLED, LP, Generic, BCD, CIS
0.11/0.13um	20	2	OTP, MTP	HV-DDI, BCD, Generic
0.15/0.18um	1	12	OTP, MTP	BCD, Generic
Total	153	82		

8" Fabs	Production	Development	IP Type	Process Type
80/90nm	9	3	OTP	HV-DDI, LL, BCD
0.11/0.13um	75	21	OTP, MTP, PUF	HV/HV-MR, BCD, LP/LL, CIS, Green, Flash, SOI, Generic
0.152/0.16/0.18um	223	23	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	413	48		

Note: As of September 30th, 2022

A hand is shown dropping a coin into a stack of coins. A small green plant with three leaves is growing out of the stack. The background is a warm, golden-brown color with a white brushstroke effect on the left side.

THANKS

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For more information, please visit:

eMemory Website: <https://www.ememory.com.tw/>

PUFsecurity Website: <https://www.pufsecurity.com/>