

The image features the word "EMemory" in a bold, orange, lowercase sans-serif font at the top. The background is white with a pattern of light gray wireframe cubes. Some cubes are arranged in a diagonal line from the top left towards the bottom right, while others are scattered or form vertical columns on the right side.

**EMemory**

# **3Q 2017 Investor Conference**

**Nov. 7<sup>th</sup>, 2017**

# IPR Notice

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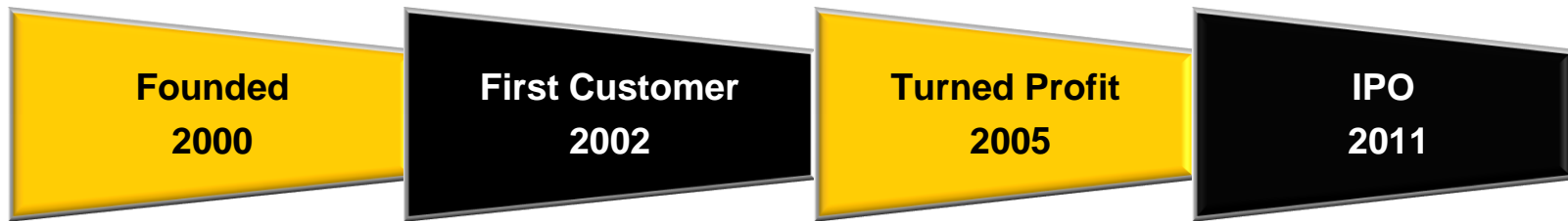
# Cautionary Statement

**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.**

# Outline

- **Business Model**
- **Review of Operations for 3Q 2017**
- **Future Outlook**
- **Q & A**

# About eMemory



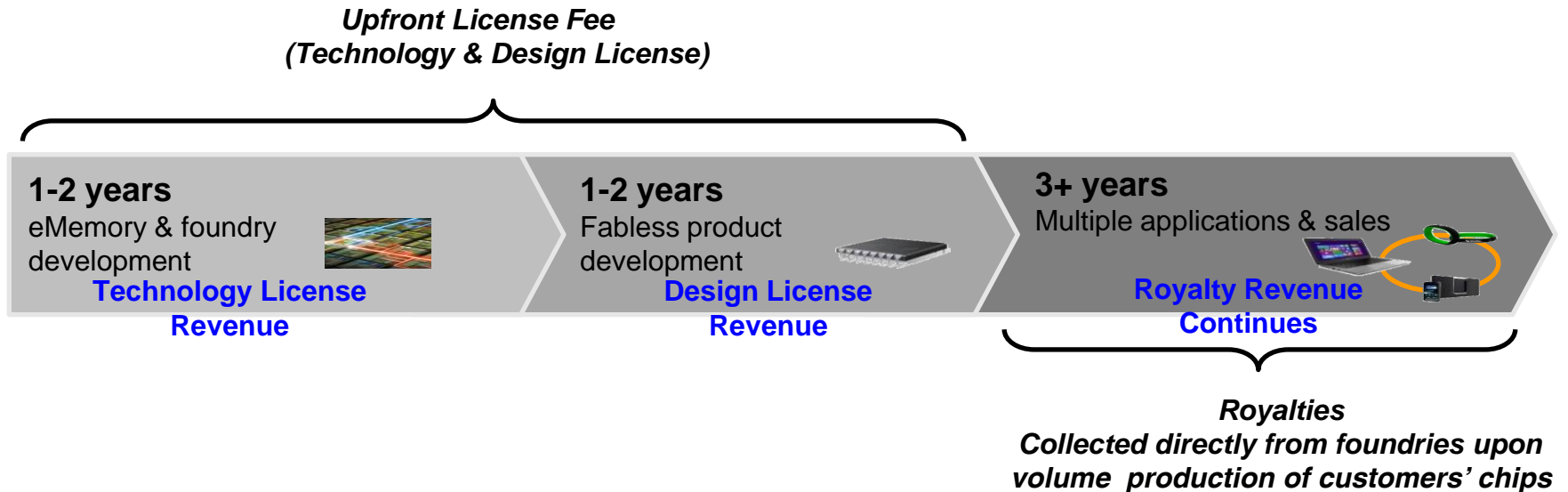
- **Largest Logic Non-Volatile Memory (NVM) IP company**
- **238 employees (166 R&D)\*.**
- **No fundraising from capital markets or bank loans since IPO in 2011.**
- **Over 90% of earnings distributed in cash dividends.**

Note\*: As of Sep. 30<sup>th</sup>, 2017

# Business Model

- Growth Metrics

- › No. of Embedded Platforms
- › No. of Design Licenses
- › Royalty



# Worldwide Customers



## Foundry



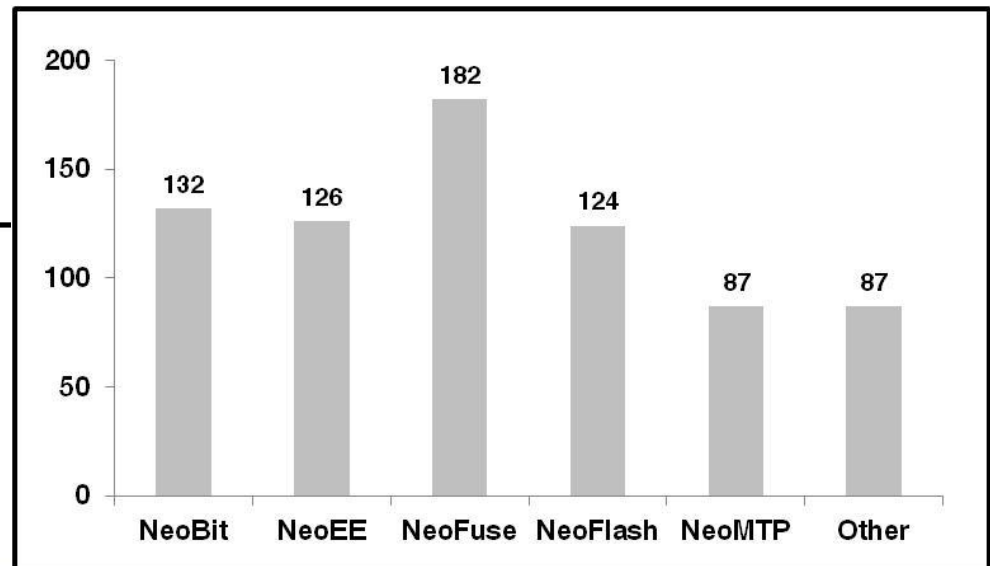
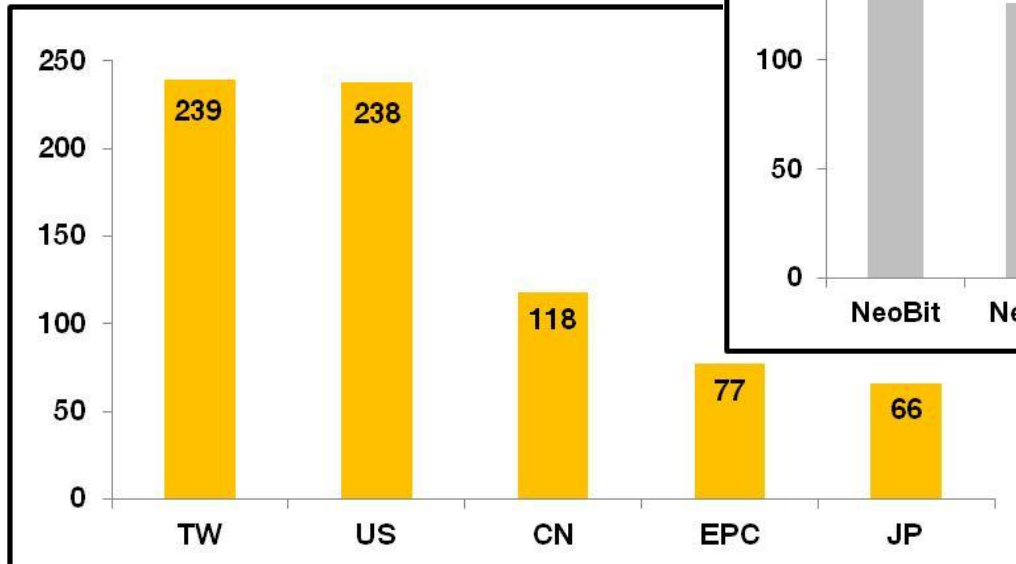
## IDM



	Taiwan	China	Korea	Japan	North America	Europe	Others
Foundry	5	8	3	4	1	2	1
IDM	0	0	0	8	2	1	0
Fabless	261	513	71	52	242	111	53

# Patent Portfolio

	2Q 17	3Q 17	Change
Pending	232	252	+ 20
Issued	453	486	+ 33
<b>Total</b>	<b>685</b>	<b>738</b>	<b>+ 53</b>

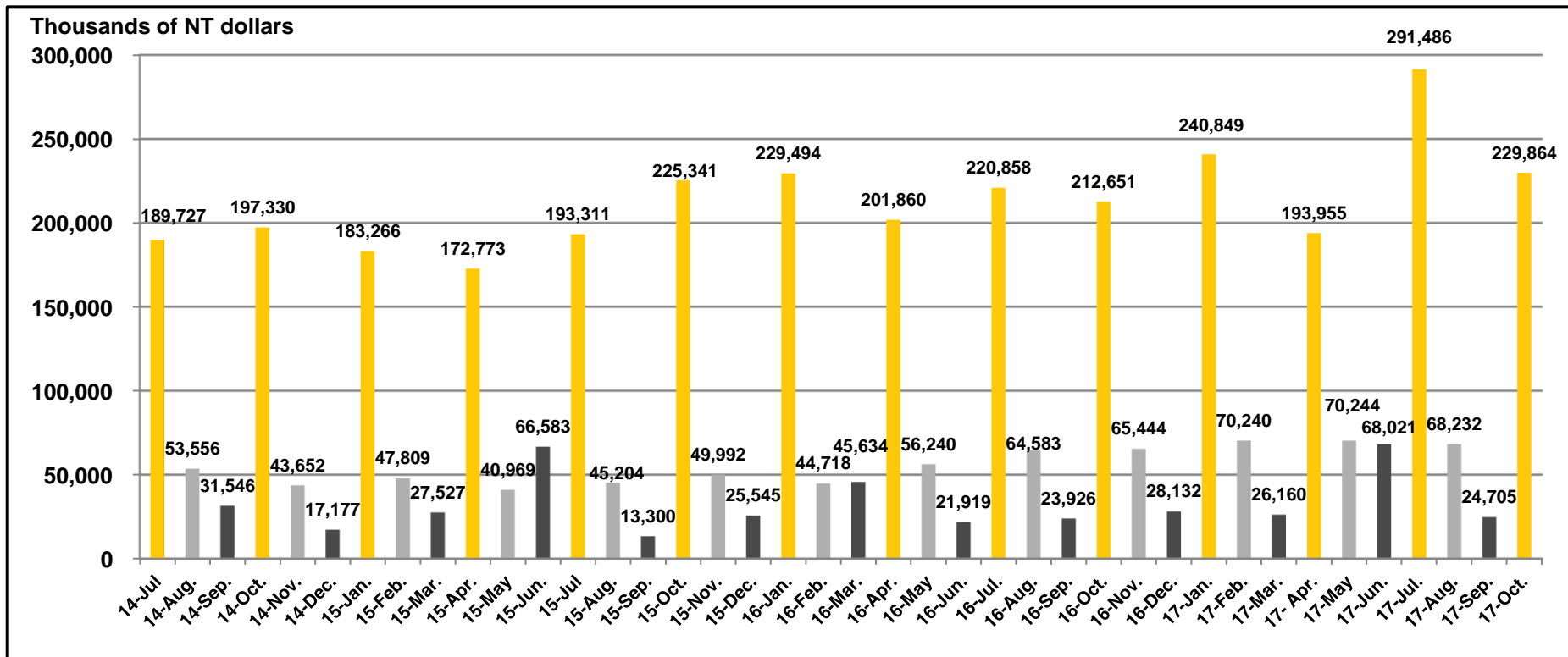


Note: As of Sep. 30<sup>th</sup>, 2017



# Quarterly Revenue Pattern

- 1st month: Receive **License Fees** of the month and **Royalty** from most foundries on previous quarter's wafer shipments
- 2<sup>nd</sup> month: Receive **License Fees** of the month and **Royalty** from other foundries
- 3<sup>rd</sup> month: **License Fees Only**.



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# Q3 Revenue Breakdown

Thousands of NT dollars

K NTD	Q3 2017	Q2 2017	QoQ	Q3 2016	YoY	Q1 – Q3 2017	Q1 – Q3 2016	YoY
Licensing	101,087	134,140	-24.6%	86,712	16.6%	309,373	250,403	23.6%
Royalty	283,336	198,080	43.0%	222,655	27.3%	744,519	658,829	13.0%
Total	384,423	332,220	15.7%	309,367	24.3%	1,053,892	909,232	15.9%

Number of Licenses

		Q3 2017	Q2 2017	2016	2015
Technology Licenses		4	8	43	28
Design Licenses	NRE	23	13	56	57
	Usage	87	77	311	349

# Financial Income Statement

Amount in Thousands of NT Dollars, except margins/EPS/ROE

	Q3 2017	Q2 2017	Q3 2016	change (QoQ)	change (YoY)
Revenue	384,423	332,220	309,367	15.7%	24.3%
Gross Margin	100%	100%	100%	-	-
Operating Expenses	205,291	188,562	173,605	8.9%	18.3%
Operating Margin	46.6%	43.2%	43.9%	3.4ppts	2.7ppts
Net Income	194,062	135,610	130,299	43.1%	48.9%
Net Margin	50.5%	40.8%	42.1%	9.7ppts	8.4ppts
EPS	2.56	1.79	1.72	43.0%	48.8%
ROE	40.2%	29.6%	28.9%	10.6ppts	11.3ppts

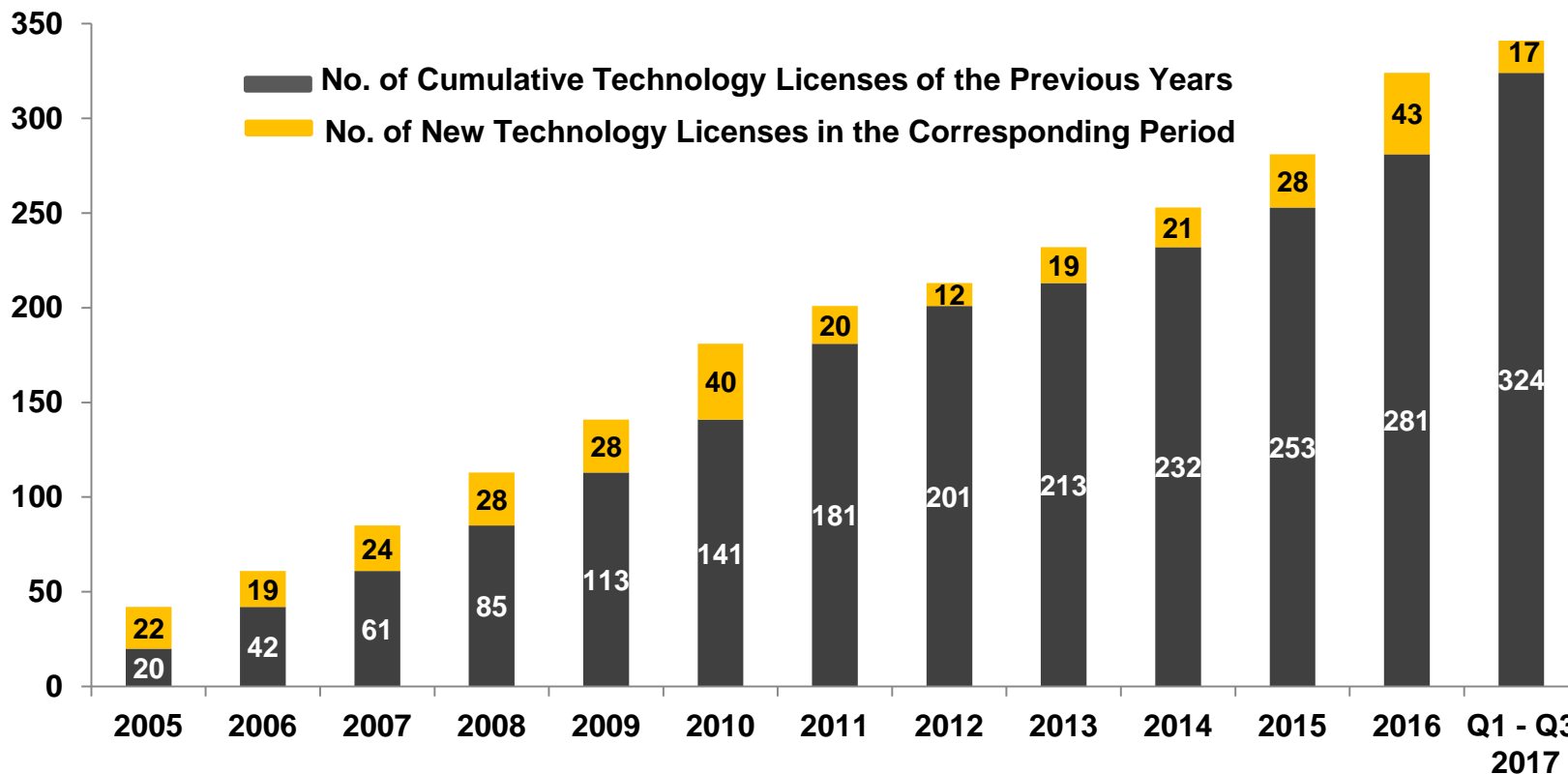
Note : Revenue amount in US dollars, QoQ growth of 15.5% and YoY growth of 30.4%.

# Technology Licensing

## Number of Licenses

Year	2014	2015	2016	Q1- Q3 2017
License	21	28	43	17

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 Technologies Under Development

- New technologies being developed for **108** platforms by Q3 17.
- **21** for NeoBit, **42** for NeoFuse, **19** for NeoEE, and **26** for NeoMTP.

	7/10nm	12/14/16nm	28nm	40nm	55/65nm	80/90nm	0.11~ 0.13um	0.15~ 0.18um	>0.25 um
NeoBit	-	-	-	-	-	-	9	12	-
NeoFuse	3	3	7	5	10	7	3	4	-
NeoEE	-	-	-	-	-	-	2	17	-
NeoMTP	-	-	-	1	1	2	7	15	-

Note: As for Sep. 30<sup>th</sup>, 2017

# Technology Developments by Processes

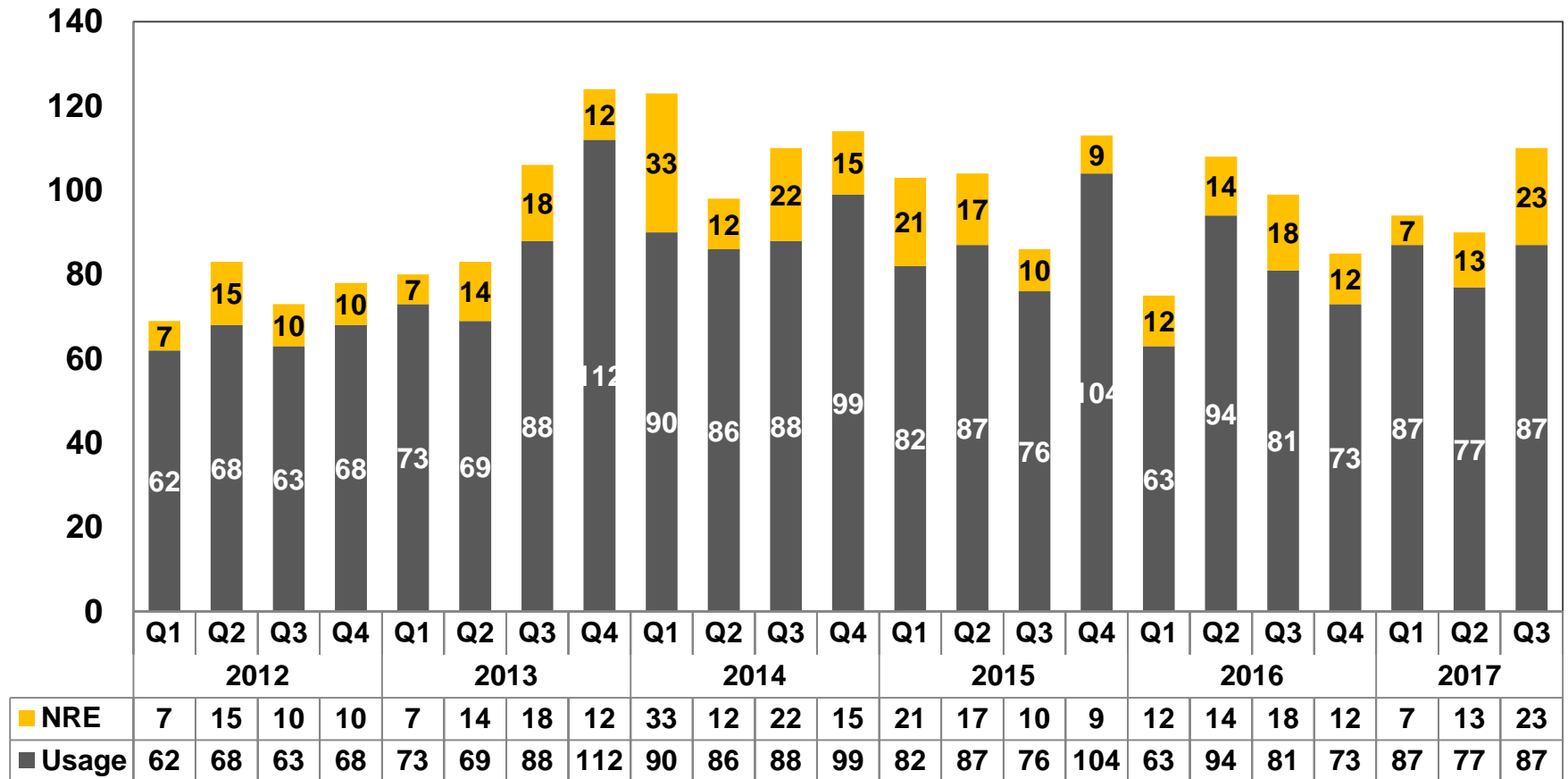
12" Fabs	Production	Development	NVM Type	Process Type
7/10nm	0	3	OTP	FF
12/14/16nm	2	3	OTP	FF+
28nm	9	7	OTP	LP/HPM, HLP/HPM, LPS
40nm	8	6	OTP, MTP	HV-DDI, LP, eFlash
55/65nm	14	11	OTP, MTP	LP, HV-DDI, HV-OLED, DRAM, CIS, eFlash
80/90nm	6	6	OTP, MTP	HV-DDI, HV-OLED, LP, eFlash
0.13/0.11um	9	1	OTP	HV-DDI, BCD, Generic
0.18um	1	0	OTP	BCD
<b>Total</b>	<b>49</b>	<b>37</b>		

8" Fabs	Development	NVM Type	Process Type
90nm	3	OTP	HV-DDI, LL
0.13/0.11um	20	OTP, MTP	HV-DDI, BCD, LP, RF, CIS, LL, Green
0.18/0.16/0.152um	48	OTP, MTP	Generic, LP, LL, MR, HV, Green, BCD
0.25um	0	OTP, MTP	BCD
0.35um	0	OTP	UHV
<b>Total</b>	<b>71</b>		

Note: As of Sep. 30<sup>th</sup>, 2017

# Design Licensing (New Tape-Out)

- A total **294** NTO in Q1-Q3 2017 (**367**@2016, **406**@2015, **445**@2014, **393**@2013)

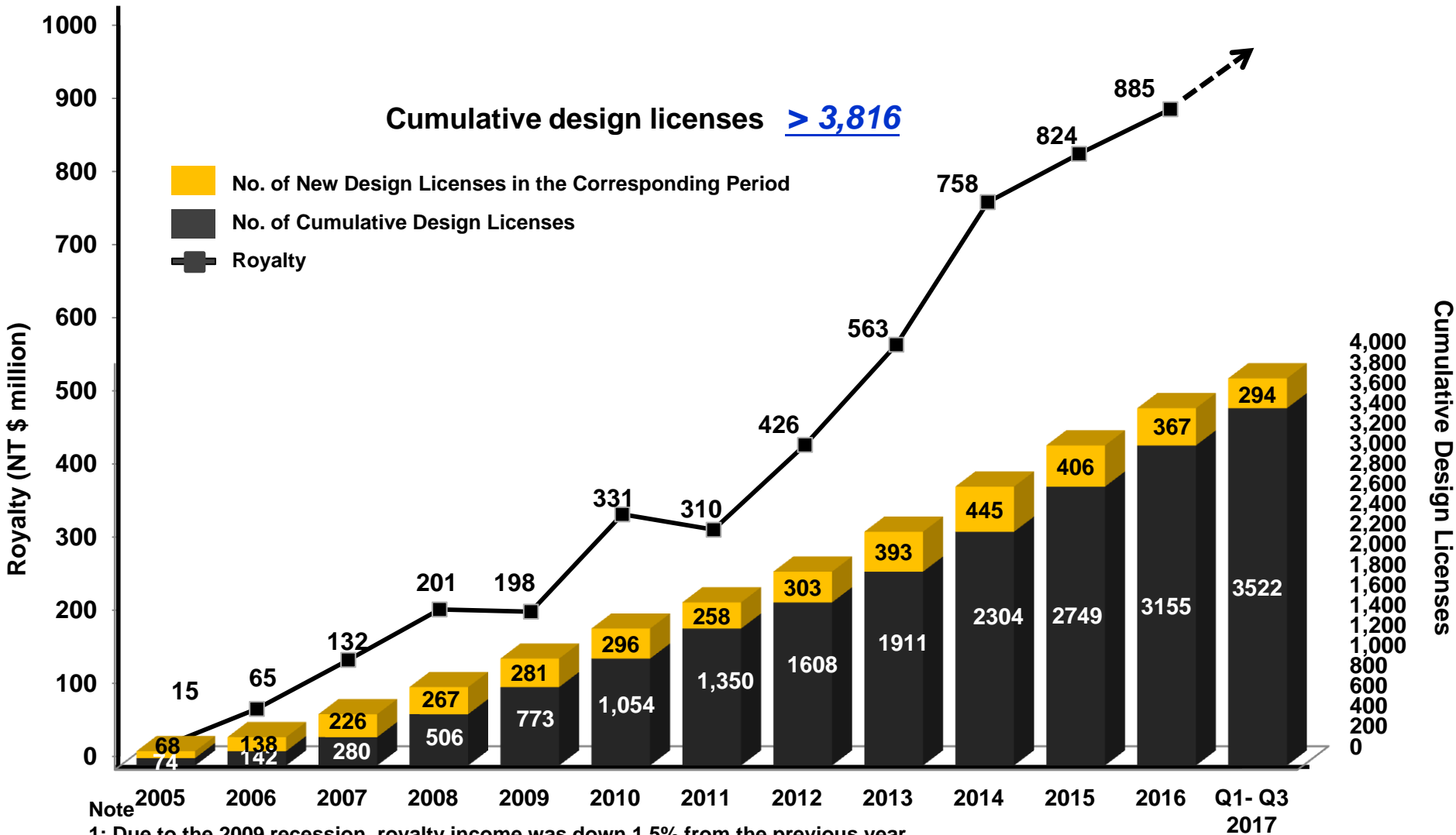


Note\*: As the applications of MCU at several foundries have gradually entered mass production, and the business model of the main foundry partner which provides green process has shifted to — eMemory licenses IP cell to the foundry for it to provide direct design service to customers — as the result, the new tape out number of MCU has been affected, but the royalty coming from IP cell usage continues to roll in.

In summary, even the new tape out number of MCU is lower than before; the corresponding wafer output and royalty continue to grow.



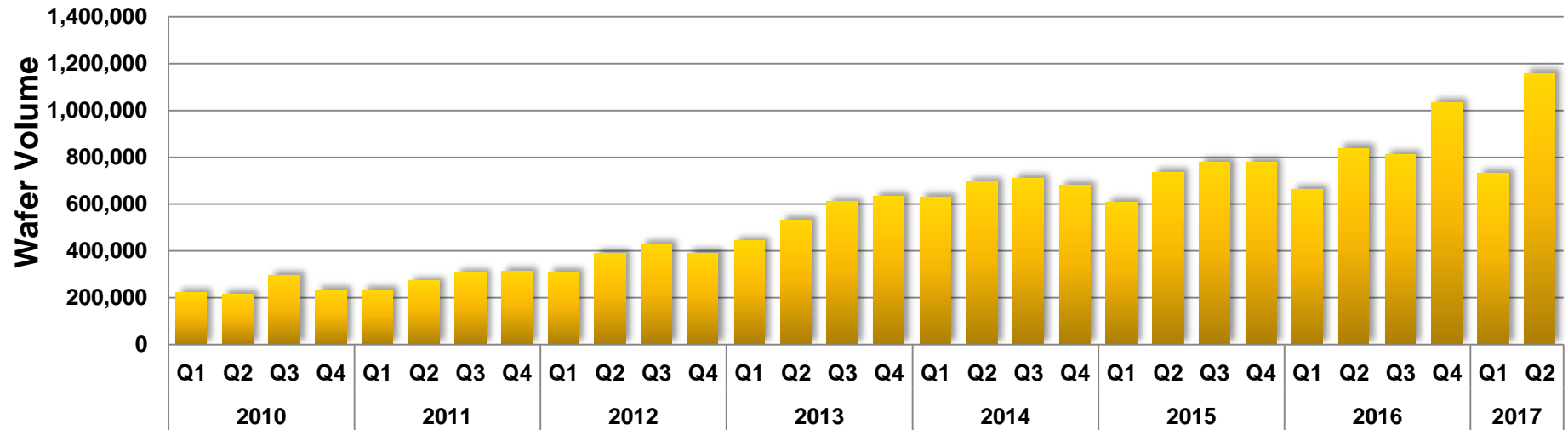
# Cumulative Licenses Drive Future Royalties



Note

- 1: Due to the 2009 recession, royalty income was down 1.5% from the previous year.
- 2: Prepaid royalty from a single customer contributed to 2010 annual growth of 67%, followed by a drop of 6.3% in 2011.
- 3: CAGR for 2009-2013 was 30%.

# Wafer Production Volume



eMemory IP's Penetration Rates in T Company (in US \$ revenue)

	Process node	*% of T	Q3 17	Q2 17	2016	2015
8"	0.25/0.35	2%	34.06%	44.84%	28.15%	33.49%
	0.15/0.16/0.18	10%	7.93%	7.36%	12.43%	8.73%
	0.11/0.13	3%	55.97%	58.76%	42.61%	29%
12"	80/90nm	5%	13.88%	12.73%	12.50%	19.85%
	55/65nm	10%	2.22%	4.73%	3.59%	0.55%
	40/45nm	12%	0.12%	0%	0%	0%
	28nm	23%	0.01%	0.18%	0.55%	0.05%
	16/20nm	24%	0%	0%	0%	0%
	10nm	10%	0%	0%	-	-
8"		16%	20.34%	21.77%	18.86%	16.64%
12"		84%	1.13%	1.43%	1.44%	1.87%
<b>Total</b>		<b>100%</b>	<b>4.20%</b>	<b>5.07%</b>	<b>4.27%</b>	<b>4.76%</b>

\* T company's Q3 2017 revenues broken down by process nodes, the royalty was recognized in eMemory's Oct. revenue.

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# Outlook for Q4 and beyond

- **Key drivers to licensing revenue:**
  - › We are establishing partnerships with more foundries worldwide on various process nodes.
  - › Our growing IP library will boost design license revenue.
- **Key drivers to royalty revenue :**
  - 8-inch processes
    - › **PMIC royalty is to pick up strongly with content increase in new smartphones, such as Type C and Wireless Charger. This segment will also grow on the change of business terms with US largest chipmaker from one-time fee to royalty-based.**
    - › Our MTP has been adopted by a European IDM and ready for production.

# Outlook for Q4 and beyond

- › Face ID related IC has been taped out in the third quarter.
- › Automotive customers have started volume production this year.

## 12-inch processes

- › The trend continues for DDI migrating to TDDI and OLED. Our 12-inch royalty will benefit from increasing TDDI and OLED applications.
- › There are more tape-outs at 28nm for STB, Multimedia and Network-related applications. These products will contribute to our royalty in 2018 and beyond.
- › Our NeoFuse solution will be adopted in 25nm DRAM for memory repair function and will contribute to royalty growth in the future.

# Outlook for Q4 and beyond

- **R&D developments**

- › **Our NeoFuse IP has been verified successfully at 7nm process in the major foundry.**
- › **We continue to develop 7/12/14nm and 22nm SOI with major foundries.**
- › **We have started emerging memory development with a major US IDM.**
- › **Our security IP NeoPUF has been proven at a major foundry and has the first customer tape-out product this year.**

# Key Growth Drivers

## Growth in application per mobile devices

- More chip applications per smartphone/tablet product.

## Growth into more markets

- From consumer electronics and mobile devices to wearable devices.
- Adding new NVM product lines further enable more product applications.

## Growth in advanced technology

- Higher royalty per wafer is contributed from more advanced technology nodes.

## Great IoT era

- Embedded Logic NVM will be a must.

# Q & A



The background of the slide is a light gray pattern of 3D cubes. Some cubes are solid, while others are hollow wireframes. They are arranged in various orientations and positions, creating a sense of depth and a grid-like structure.

# eMemory

**Embedded Wisely, Embedded Widely**