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Q4 2016 Investor Conference

Feb. 15th , 2017

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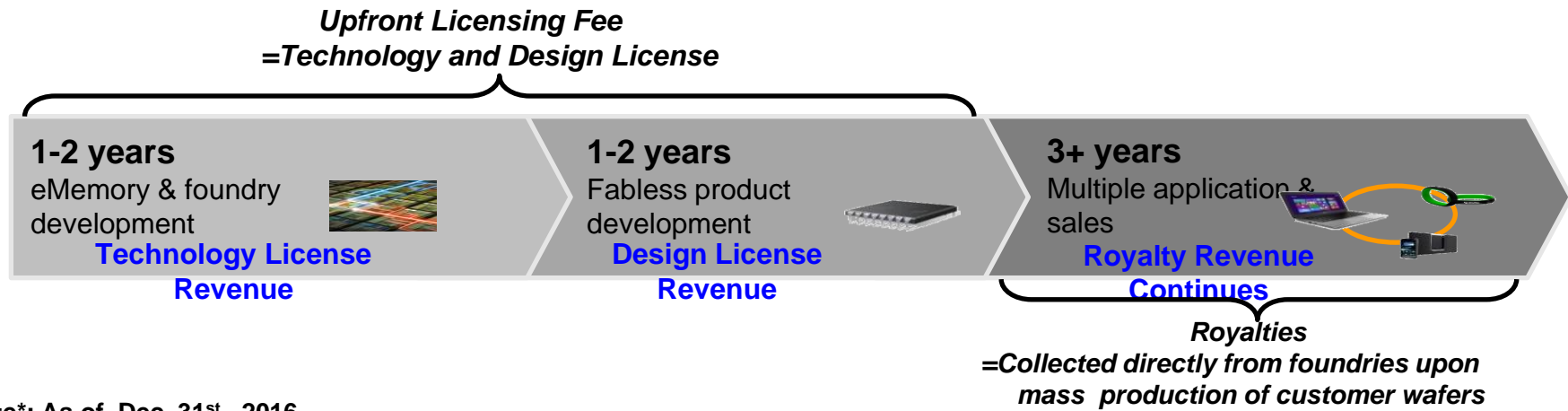ememory

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.

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Outline

- **Business Model**

- **Review of Operations for Q4 2016**

- **Future Outlook**

- **Q & A**

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Business Model

- **Founded in 2000. First customer engaged in 2002. Achieved profitability in 2005 and IPO in 2011. The largest logic non-volatile memory IP company, 232 employees (162 R&D)*.**

- **Since its IPO, the company initiated no new fund raising or bank debt, and has distributed in excess of 100% of earnings in cash dividends.**

- **Growth Indices: 1) No. of on-going technology platforms**
  2) No. of design licenses
  3) Royalty

Upfront Licensing Fee
=Technology and Design License

1-2 years	**1-2 years**	**3+ years**
eMemory & foundry development	Fabless product development	Multiple application & sales
Technology License Revenue	**Design License Revenue**	**Royalty Revenue Continues**

Royalties
=Collected directly from foundries upon mass production of customer wafers

Note*: As of Dec. 31st , 2016

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Worldwide Customers

Foundry

tsmc · UMC · VIS · SilTerra · HG 华虹宏力 · GLOBALFOUNDRIES · SMIC · MagnaChip · Maxchip 鉅晶電子 · ROHM SEMICONDUCTOR · SK hynix · Dongbu HiTek · HeJian · FUJITSU · Powerchip 力晶科技 · CSMC A LEADING ANALOG FOUNDRY · HLMC · asmc Advanced Semiconductor Manufacturing Corporation Limited · Altis

IDM

FUJITSU · OKI · MITSUMI · MITSUBISHI ELECTRIC Changes for the Better · JRC · MAXIM · RICOH · RENESAS · SII · TOSHIBA · ON Semiconductor · NXP

	Taiwan	China	Korea	Japan	North America	Europe	Others
Foundry	5	7	3	3	1	2	1
IDM	0	0	0	8	2	1	0
Fabless	264	496	66	51	226	111	50

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Patent Portfolio

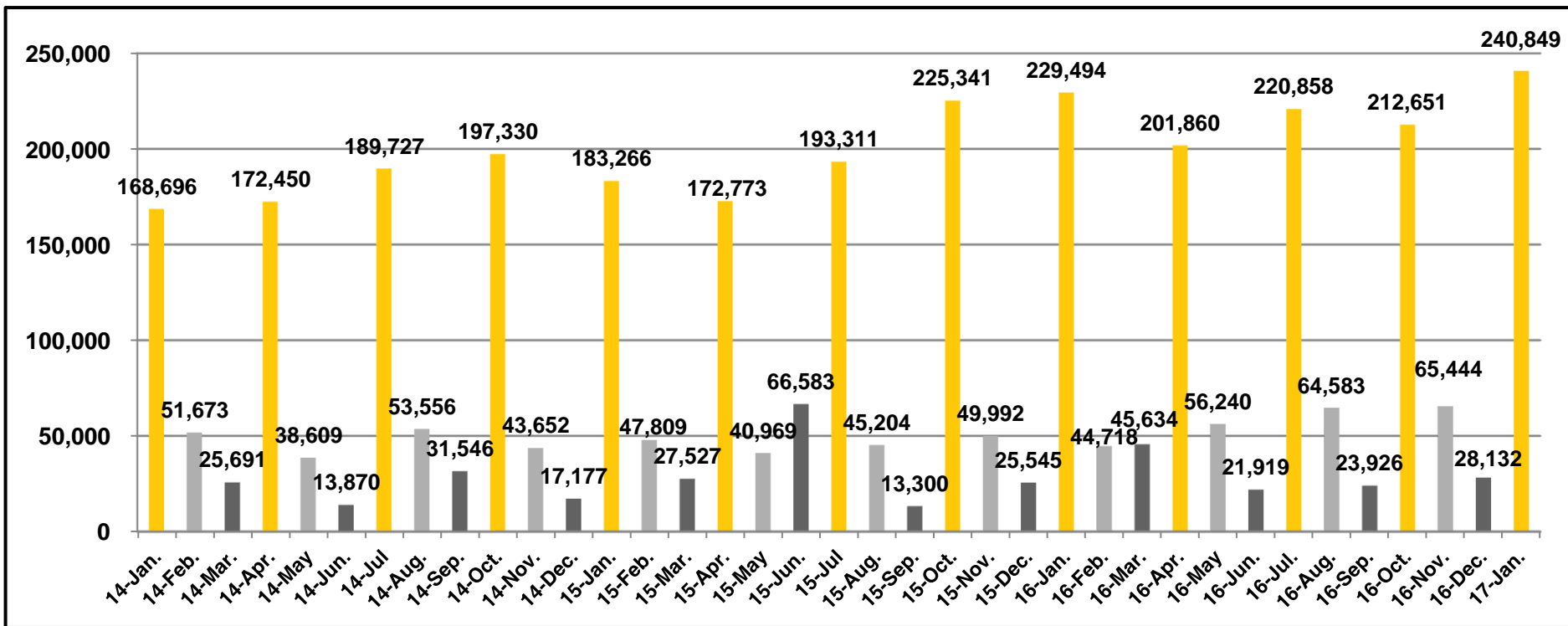|	Q3 16	Q4 16	Diff.
Pending	204	218	+ 14
Issued	371	389	+ 18
Total	575	607	+ 32

Note*: As of Dec. 31st, 2016

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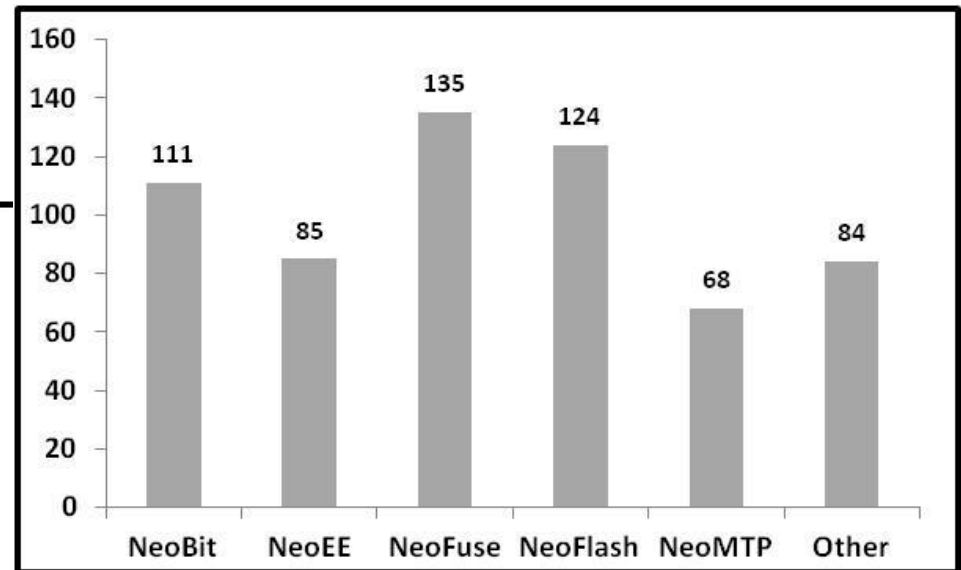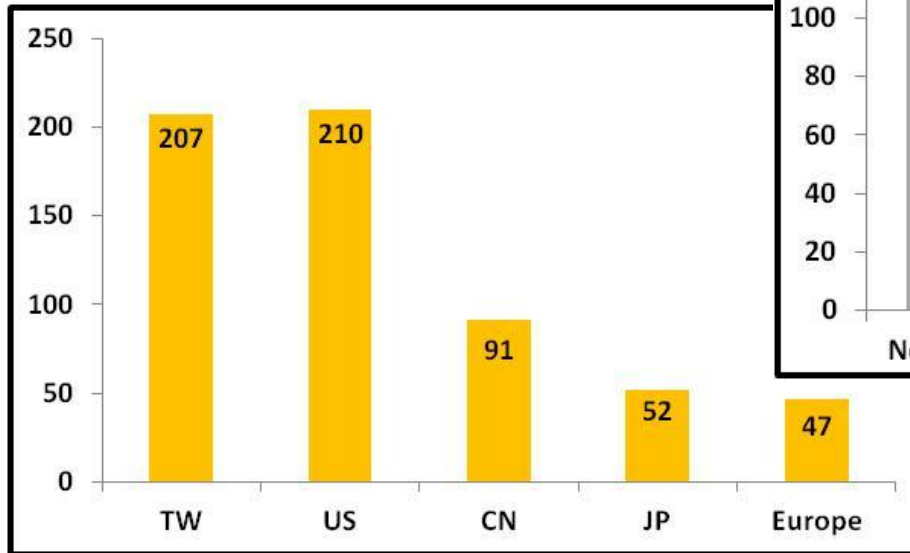
Quarterly Revenue Pattern

- **The quarterly royalty from most of foundries are collected at first month of each quarter and from some other foundries are collected at second month, and none at third month.**

Unit：NTD Thousands

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Q4 Revenue Breakdown

Unit: NTD thousands

	Q4 2016	Q3 2016	QoQ	Q4 2015	YoY	2016	2015	YoY
Licensing	79,684	86,712	-8.10%	69,307	14.97%	330,087	267,512	23.39%
Royalty	226,543	222,655	1.75%	231,571	-2.17%	885,372	824,108	7.43%
Total	306,227	309,367	-1.01%	300,878	1.78%	1,215,459	1,091,620	11.34%

Unit: Number of contracts

		Q4 2016	Q3 2016	2016	2015
Technology Licenses		10	6	43	28
Design Licenses	**NRE**	12	18	56	57
	Usage	73	81	311	349

Financial Income Statement

(Unit: NTD thousands)	Q4 2016	Q4 2015	% change	2016	2015	% change
Revenue	306,227 *	300,878	1.8%	1,215,459 *	1,091,620	11.3%
Gross Margin	100% *	100%	-	100% *	100%	-
Operating Expenses	171,681 *	156,216	9.9%	685,650 *	570,403	20.2%
Operating Margin	43.9% *	48.1%	-4.2ppts	43.6% *	47.7%	-4.1ppts
Net Income	132,361 *	128,090	3.3%	534,917 *	479,111	11.6%
Net Margin	43.2% *	42.6%	+0.6ppts	44.0% *	43.9%	+0.1ppts
EPS (Unit: NTD)	1.75 *	1.69	3.6%	7.06 *	6.32	11.7%
ROE	28.3% *	28.4%	-0.1ppts	28.6% *	26.6%	+2.0ppts

* Unaudited

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Technology License

Year	2013	2014	2015	2016
License number	19	21	28	43

Note: The 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.

Legend:
- Accumulated process platform number in previous year
- Process platform number in the corresponding year

Data by year:
- 2004: 5 (accumulated), 15 (corresponding)
- 2005: 20, 22
- 2006: 42, 19
- 2007: 61, 24
- 2008: 85, 28
- 2009: 113, 28
- 2010: 141, 40
- 2011: 181, 20
- 2012: 201, 12
- 2013: 213, 19
- 2014: 232, 21
- 2015: 253, 28
- 2016: 281, 43

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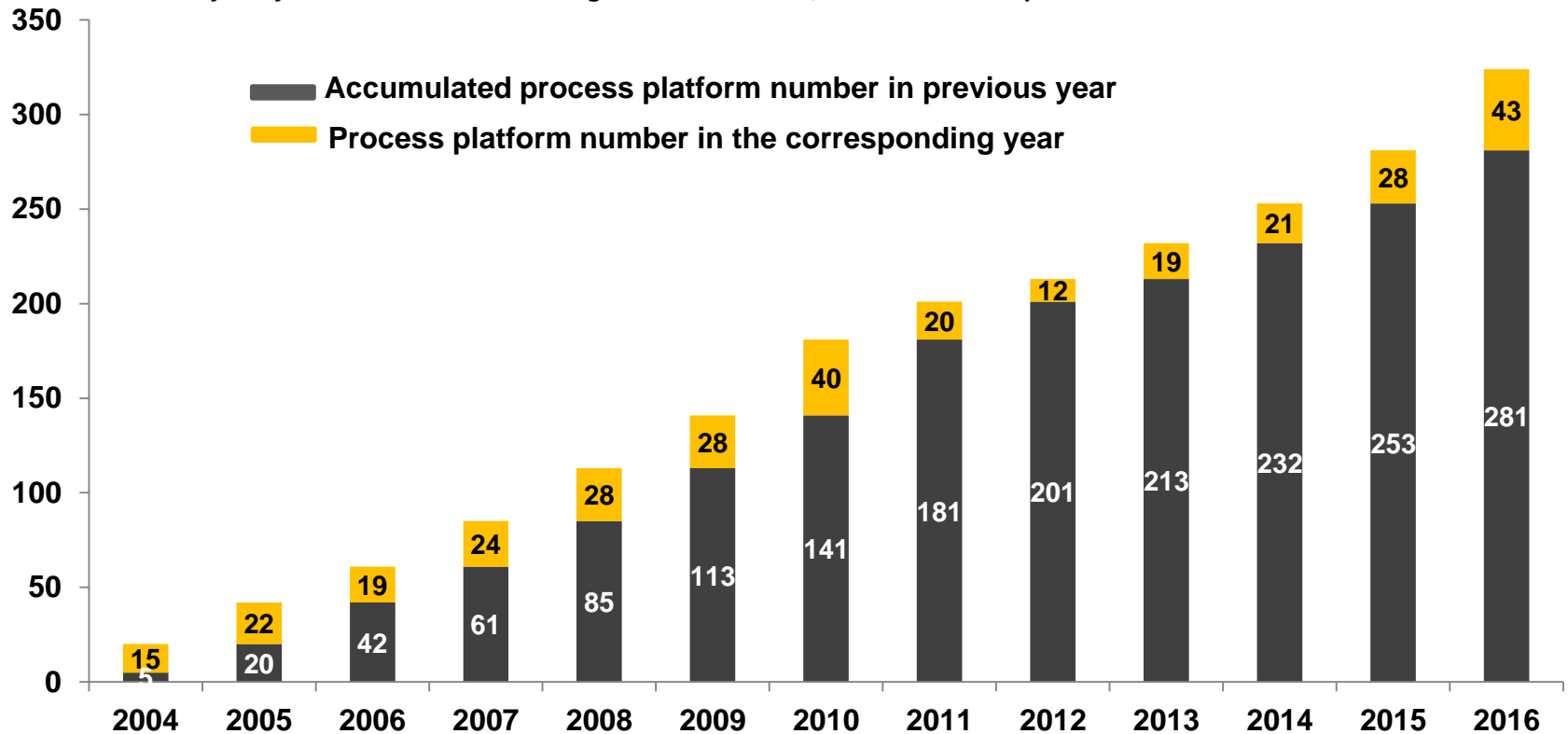
Current Technology Development Platforms

- **Total (As of Dec.) : 104**

- **19 for NeoBit, 43 for NeoFuse, 22 for NeoEE, and 20 for NeoMTP.**

	7/10nm	14/16nm	28nm	40nm	55/65nm	80/90nm	0.11~0.13um	0.15~0.18um	>0.25 um
NeoBit	-	-	-	-	-	-	6	13	
NeoFuse	2	3	8	6	10	5	6	3	-
NeoFlash	-	-	-	-	-	-	-	-	-
NeoEE	-	-	-	-	-	-	5	17	-
NeoMTP	-	-	-	-	1	2	5	12	-

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Current Technology Development Platforms

12" Fabs	Production	Development	NVM Type	Process Type
7/10nm	0	2	OTP	FF
14/16nm	1	3	OTP	FF+
28nm	6	8	OTP	LP/HPM, HLP/HPM, LPS
40nm	4	6	OTP, MTP	HV-DDI, LP
55/65nm	14	11	OTP, MTP, Flash	LP, HV-DDI, HV-OLED, DRAM, CIS
80/90nm	6	7	OTP, MTP	HV-DDI, HV-OLED, LP
0.13/0.11um	8	2	OTP, Flash	HV-DDI, BCD, Generic
0.18um	1	0	OTP	BCD

8" Fabs	Development	NVM Type	Process Type
0.13/0.11um	20	OTP, MTP, Flash	HV-DDI, BCD, LP, RF, CIS, LL
0.18/0.16/0.152um	45	OTP, MTP	Generic, LP, LL, MR, HV, Green, BCD
0.25um	0	OTP, MTP	BCD
0.35um	0	OTP	UHV

Note*: As of Dec. 31st, 2016

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Quarterly Design Licensing (New Tape Out)

- Total 367 NTO as of 2016(406@2015,445@2014, 393@2013, 303@2012)

	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	2012				2013				2014				2015				2016			
NRE	7	15	10	10	7	14	18	12	33	12	22	15	21	17	10	9	12	14	18	12
Usage	62	68	63	68	73	69	88	112	90	86	88	99	82	87	76	104	63	94	81	73
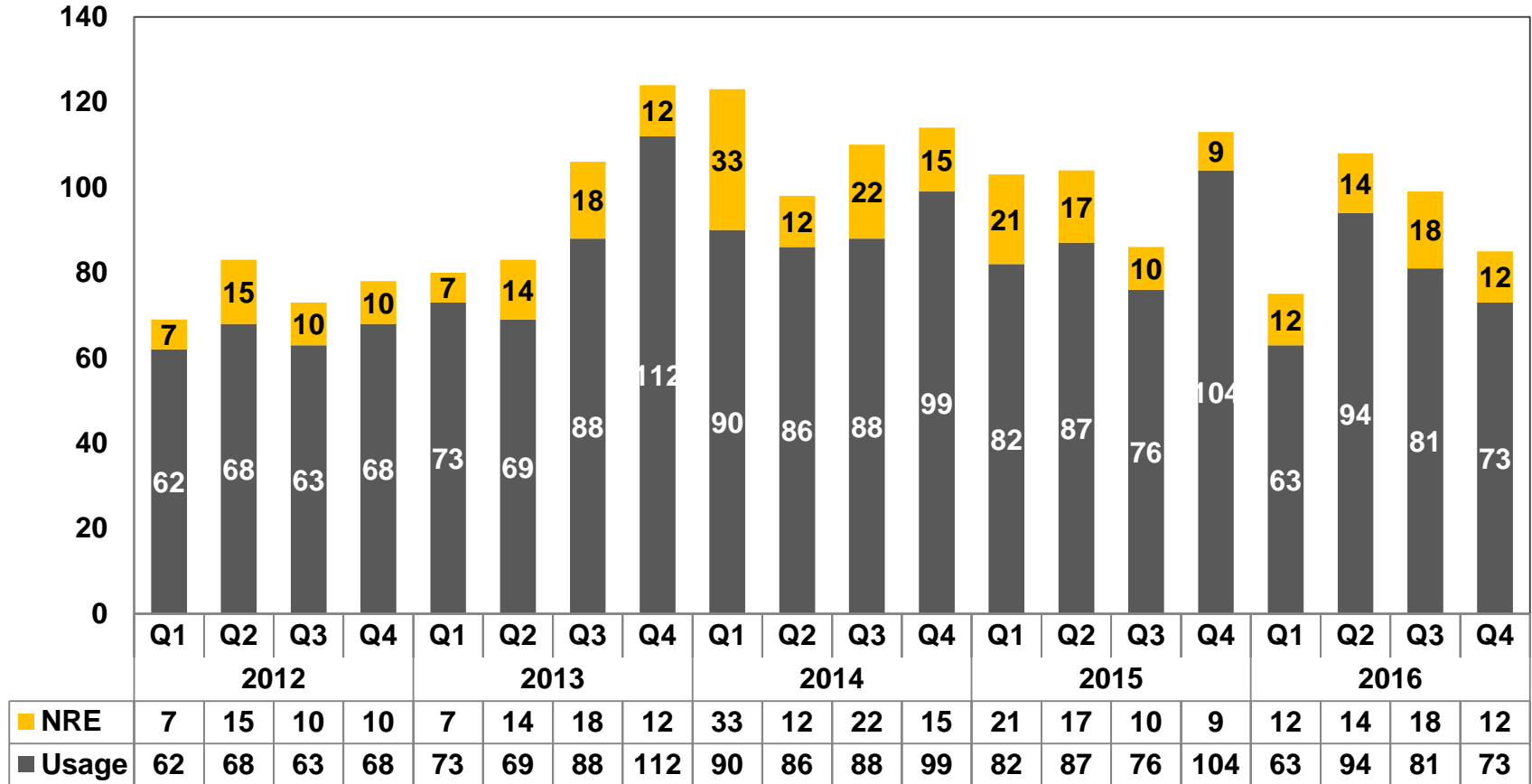
Note*: As the applications of MCU at several foundries have gradually entered mass production, and the business model of the main foundry partner which provides green process has shifted to — eMemroy licenses IP cell to the foundry for it to provide direct design service to customers — as the result, 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.

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Cumulative Licenses Drive Future Royalties

Cumulative design licenses > 3,522

Legend:
- Design licenses in the corresponding year
- Cumulative design licenses
- Royalty

Y-axis (left): Royalty (NT $ million)
Y-axis (right): Cumulative Design Licenses

Royalty values by year:
- 2005: 15
- 2006: 65
- 2007: 132
- 2008: 201
- 2009: 198
- 2010: 331
- 2011: 310
- 2012: 426
- 2013: 563
- 2014: 758
- 2015: 824
- 2016: 885

Design licenses in the corresponding year / Cumulative design licenses by year:
- 2005: 68 / (base)
- 2006: 138 / 142
- 2007: 226 / 280
- 2008: 267 / 506
- 2009: 281 / 773
- 2010: 296 / 1,054
- 2011: 258 / 1,350
- 2012: 303 / 1608
- 2013: 393 / 1911
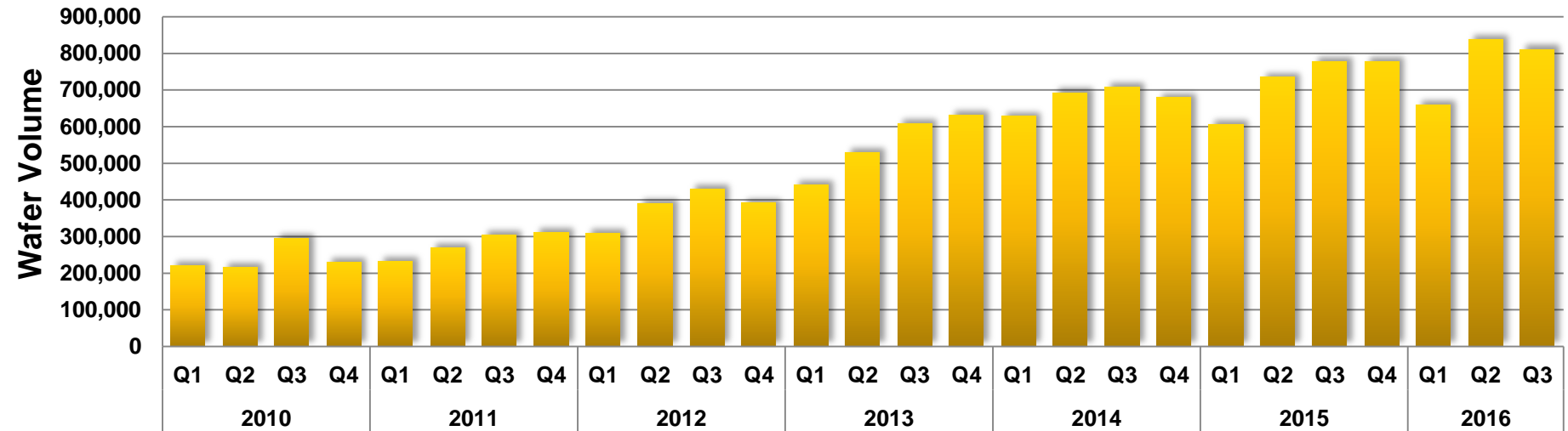- 2014: 445 / 2304
- 2015: 406 / 2749
- 2016: 367 / 3155

note 1: Due to the 2009 recession, royalty income was down annually 1.5%.
note 2: Pre-payment of royalty fees by a single customer contributed to 2010 annual growth of 67%,
   causing a drop of 6.3% in the following year, 2011.
note 3: CAGR for 2009-2013 was 30%.

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Wafer Production Volume

embedded eMemory IP in T Company ($revenue); * % of Process node in T company total revenue in Q4 2016

	Process node	*% of T	Q4 16	Q3 16	2016	2015
8"	0.25/0.35	2%	26.80%	26.44%	28.15%	33.49%
	0.15/0.18	10%	10.93%	13.07%	12.43%	8.73%
	0.11/0.13	2%	58.06%	40.96%	42.61%	29%
12"	90nm	5%	14.8%	3.83%	12.50%	19.85%
	65nm	11%	3.9%	3.85%	3.59%	0.55%
	40/45nm	12%	0	0	0.00%	0%
	28nm	24%	0.70%	0.61%	0.55%	0.05%
	16/20nm	33%	0%	0	0.00%	0%
8"		15%	18.60%	20.1%	18.86%	16.64%
12"		85%	1.56%	0.87%	1.44%	1.87%
Total		100%	4.12%	3.95%	4.27%	4.76%

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Outlook for 2017

- **In license revenues ：**
  - › **Strong demand for building advanced process and MTP platform in worldwide foundry partners will increase technology license and design license revenues.**

- **In royalty revenues：**
  - › **8" wafer royalty will grow further due to multiple fingerprint customers are ramping up production and more customers will start volume production later this year.**
  - › **PMIC related royalty will increase due to new chips in fast charger 、wireless charger, and our largest US customer ramping up their new generation of PMIC in second half of 2017.**
  - › **Automotive platforms have been successfully built and customers already start small volume production**

Outlook for 2017

› For 12" wafer royalty, the volume production of TDDI, OLED, STB/ DTV, CIS and security have continuously increased.

› We had first 16nm tape-out in 2016. The 10nm IP have been successfully verified and 7nm test chip is expected to tape out in Feb. All these will increase our penetration rate in 12" fab.

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.

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Q & A

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