



## Management Report for Fourth Quarter Fiscal 2018

Hsinchu, Taiwan, February 15<sup>th</sup>, 2019 – eMemory Technology Inc. (TPE : 3529) reported financial results for its fiscal quarter ended December 31<sup>st</sup>, 2018.

### Executive Summary

- Q4 2018 revenue was record high up 3.4% sequentially and 26.4% year-on-year. Operating income was down 2.5% quarter-on-quarter due to an increase of one-time employee bonus for 7nm design-in breakthrough, but grew 35.1% year-on-year. EPS was NT\$ 2.20, down 1.3% sequentially and up 41.9% year-on-year. Full year revenue increased 7.3% and operating income grew 11.6%. EPS was NT\$8.13, up 2.9% year over year.
- In 2018, revenue of NeoFuse increased 104.4%, mainly driven by 239.5% growth of royalty which is the result of accumulated tape-outs from prior years in mass production. Royalty revenue of 12" wafers grew 24.3% year-on-year. 8" wafer revenue declined 3.7%, mainly due to wafer price erosion, customers' migration to 12" wafer and new tape outs not in mass production yet.
- We expect 8" wafer revenue pick up momentum due to mass production of two leading US customers' power management related products and underglass fingerprint sensors. 12" wafer royalty increases further in 2019 and beyond.

### Financial Results

(Amounts in thousands of NT dollars)

Q4 2018 Unaudited Financial Summary	Q4 2018	Q3 2018	Q4 2017	Change (QoQ)	Change (YoY)
Revenue	406,752	393,225	321,866	3.4%	26.4%
Gross Margin	100%	100%	100%	-	-
Operating Expenses	222,532	204,342	185,484	8.9%	20.0%
Operating Income	184,220	188,883	136,382	-2.5%	35.1%
Operating Margin	45.3%	48.0%	42.4%	-2.7ppts	2.9ppts
Net Income	163,611	168,572	117,659	-2.9%	39.1%
Net Margin	40.2%	42.9%	36.6%	-2.7ppts	3.6ppts
EPS (Unit: NTD)	2.20	2.23	1.55	-1.3%	41.9%
ROE	34.5%	34.8%	23.6%	-0.3ppts	10.9ppts

(Amounts in thousands of NT dollars)

FY 2018 Unaudited Financial Summary	FY 2018	FY 2017	Change (YoY)
Revenue	1,476,516	1,375,758	7.3%
Gross Margin	100%	100%	-
Operating Expenses	803,781	772,940	4.0%
Operating Income	672,735	602,818	11.6%
Operating Margin	45.6%	43.8%	1.8ppts
Net Income	613,106	598,709	2.4%
Net Margin	41.5%	43.5%	-2.0ppts
EPS (Unit: NTD)	8.13	7.90	2.9%
ROE	32.3%	30.0%	2.3ppts



## Revenue Analysis

(NT \$ Thousand)

	Q4 2018	Q3 2018	Q4 2017	Change (QoQ)	Change (YoY)	FY 2018	FY 2017	Change (YoY)
Licensing	124,726	109,257	78,811	14.2%	58.3%	449,806	388,184	15.9%
Royalty	282,026	283,968	243,055	-0.7%	16.0%	1,026,710	987,574	4.0%
Total	406,752	393,225	321,866	3.4%	26.4%	1,476,516	1,375,758	7.3%

(US \$ Thousand)

	Q4 2018	Q3 2018	Q4 2017	Change (QoQ)	Change (YoY)	FY 2018	FY 2017	Change (YoY)
Licensing	4,061	3,581	2,620	13.4%	55.0%	14,949	12,787	16.9%
Royalty	9,143	9,301	8,066	-1.7%	13.4%	34,116	32,311	5.6%
Total	13,204	12,882	10,686	2.5%	23.6%	49,065	45,098	8.8%

### Royalty revenue analysis by wafer size (8 inch vs 12 inch)

Wafer Size	Q4 2018			FY 2018	
	% of Q4	Change (QoQ)	Change (YoY)	% of FY 2018	Change (YoY)
8 inch	68.1%	15.2%	1.5%	67.4%	-3.7%
12 inch	31.9%	-23.3%	67.0%	32.6%	24.3%

- Quarterly 12 inch wafer revenue declined due to two 12" foundries recognizing royalty in Q1 and Q3, but increased 67% year on year.

### Revenue analysis by technology

Technology	Q4 2018								
	Total Revenue			Licensing Revenue			Royalty Revenue		
	% of Q4 Revenue	Change (QoQ)	Change (YoY)	% of Q4 Licensing	Change (QoQ)	Change (YoY)	% of Q4 Royalty	Change (QoQ)	Change (YoY)
NeoBit	58.8%	-9.4%	-3.5%	23.8%	-19.3%	-10.1%	74.3%	-7.8%	-2.5%
NeoFuse	29.6%	63.1%	168.4%	48.2%	57.4%	111.5%	21.4%	69.1%	266.8%
NeoPUF	0.6%	-	-	2.1%	-	-	-	-	-
NeoEE	6.6%	-25.0%	102.3%	12.8%	-2.1%	132.2%	3.9%	-44.0%	70.3%
NeoMTP	4.4%	-9.7%	12.3%	13.1%	-9.0%	55.7%	0.4%	-17.7%	-76.3%

Technology	FY 2018					
	Total Revenue		Licensing Revenue		Royalty Revenue	
	% of FY2018 Revenue	Change (YoY)	% of FY2018 Licensing	Change (YoY)	% of FY2018 Royalty	Change (YoY)
NeoBit	64.8%	-9.5%	30.2%	-15.6%	80.0%	-8.4%
NeoFuse	22.0%	104.4%	43.0%	60.8%	12.8%	239.5%
NeoPUF	0.2%	-	0.6%	-	-	-
NeoEE	8.4%	33.5%	12.6%	6.4%	6.6%	69.8%
NeoMTP	4.6%	1.8%	13.6%	14.1%	0.6%	-49.3%

- NeoBit : OTP technology covers from 0.35um to 55nm. Applications : DDI, PMIC, fingerprint, sensors, MCU, and etc.
- NeoFuse : OTP technology covers mainly from 55nm to 7nm. Applications : DRAM, AP, game console, FPGA, DTV, OLED driver, set-top Box, surveillance, CIS, SSD controller, Connectivity IC, auto sensors, and etc.
- NeoPUF : OTP technology covers mainly from 0.11um to 7nm. Applications : FPGA, Security MCU, IoT, Cartridge, and etc.
- NeoEE : MTP technology covers from 0.3um to 0.11um, allowing up to 100K rewritable times with zero additional masking layers. Applications : Fingerprint, MCU, P-gamma, OIS, RFID, and etc.
- NeoMTP : MTP technology covers from 0.18um to 55nm, offering high density memory with 1K rewritable times with zero additional masking layers. Applications : Wireless chargers, type c, smart PMIC, MCU, touch panel controller, gauge IC, and etc.

## Key Business Developments

### Licensing

- Technology License
  - 7 licensing contracts were signed with five different foundries (2 NeoBit, 3 NeoFuse, 1 NeoEE, and 1 NeoMTP) during the quarter.
  - As of December 31<sup>st</sup>, 2018, we have technologies under development for adoption on 92 different process platforms, ranging from 0.18um to 7nm.

### Development of Key Technology on 12-inch Nodes

	7/10nm	12/14/16nm	28nm	40nm	55/65nm	80/90nm	Total
Qualified	-	3	15	10	19	10	57
Developing	2	2	14	8	12	6	44

- Design License
  - A total of 108 product tape-outs in the fourth quarter of 2018.
    - 1 tape-out at 7nm for advance SoC.
    - 5 tape-outs at 22nm/28nm for multi-media and SSD controller.
    - 15 tape-outs at 40nm for OLED driver, LCD driver, blue tooth, SSD controller,



TDDI, and network IC.

- 9 tape-outs at 55nm/65nm for LCD driver, MCU, TDDI, network IC, and sensor-related.
  - 6 tape-outs at 80nm/90nm for OLED driver, LCD driver, and TDDI.
  - 10 tape-outs at 0.11um/0.13um for PMIC, LCD driver, HDMI, audio, and etc.
  - 60 tape-outs at 0.15um/0.18um for PMIC, LCD driver, MCU, fingerprint, sensor-related, motor driver, network IC, and etc.
  - 2 tape-outs under 0.25um for sensor-related application.
- As of December 31<sup>st</sup>, 2018, eMemory's cumulative number of design licenses increased to 4,339, a direct result of our ongoing effort in expanding and diversifying our technologies for adoption in a wide range of applications.

## 2019 Outlook

### License

- Technology license: Strong customer demand continues to drive license activities among foundries partners from legacy process to most advance node. In addition, expanding our IPs into IDMs and DRAM Fabs brings more licenses.
- Design license: Increasing accumulated IPs in library, more new customized designs and higher ASP of design license fee of NeoFuse continue to drive design licenses growth.

### Royalty

- 8 inch royalty: Royalty will grow due to mass production of two leading US customers power management related products and underglass fingerprint sensors. We will continue to deploy our technology into automotive, healthcare, IOT beyond smartphone application. All these applications require our OTP and MTP to trim analog function and parameters setting.
- 12 inch royalty: The royalty will grow from more new applications, including Network IC, DTV, STB, SSD controller, Bluetooth, OLED driver, TDDI, smart meters, surveillance and DRAM. As these product wafer price is higher than our average, we expect the increase of royalty from 12" wafer will be more significant.

## Future technology development

- Continue developing 7nm and 5nm technology platforms.
- Work with leading IDMs on emerging memory MRAM and ReRAM.
- Partnership with largest processor IP company to embed NeoFuse and NeoPUF as root of trust into secure processor.
- Establish NeoPUF based security IP platform.

## Financial Review

### Gross margin

Gross margin remained the same at 100%.

### Operating expenses and operating margin

- Total operating expenses for the quarter was NT\$ 222.53 million and represented 54.7%



of total revenue, down from 57.6% of total revenue in the prior year.

- Full year 2018 operating expense was NT\$ 803.78 million and represented 54.4% of total revenue, down from 56.2% of total revenue in the prior year.
- Operating expenses increased 8.9% sequentially and 20% year-over-year. The sequential increase was primarily due to an increase of employee bonus for 7nm customer design-win.
- As a result, operating margin for the quarter was 45.3%, down 2.7 percentage points quarter on quarter but up 2.9 percentage points compared to Q4 2017.
- Full year 2018 operating margin was 45.6%, up 1.8 percentage points from the prior year.

#### Non-operating income and income tax expense

- Non-operating income for Q4 2018 increased 1,674.0% from Q4 2017 by realizing a NT\$1.23 million gain as a more favorable foreign exchange rate. Non-operating income decreased 5.8% sequentially to NT\$ 3.14 million. The reason was that the Company repurchased treasury stocks, therefore, reduced interest income during Q4 2018.
- The fourth quarter effective tax rate was 12.7%.

#### Net Income and EPS

- Net income for the quarter was NT\$ 163.61 million, decreased 2.9% sequentially and increased 39.1% year-on-year.
- Earnings per share was NT\$ 2.20 in Q4 2018. Full-year 2018 earnings per share was NT\$ 8.13, up 2.9% from NT\$ 7.90 in 2017.

#### Current assets and current liabilities

- As of December 31st, 2018, cash decreased NT\$ 361.68 million from December 31, 2017 to NT\$ 1,302.00 million due to shares buyback. Total current assets including cash was NT\$ 1,483.61 million.
- Total current liabilities increased NT\$ 33.63 million from December 31, 2017.
- Net working capital was NT\$1,133.83 million and current ratio was 4.2x.

#### Cash flows

- At the end of 2018, net cash generated from operating activities totaled NT\$ 635.42 million, including NT\$ 698.83 million from income before income tax, NT \$50.60 million from depreciation and amortization, and NT\$ 114.01 million used in other operating activities, which included tax payment of NT\$ 75.90 million.
- Net cash used in investing activities was NT\$ 28.26 million at the end of 2018, primarily relate to capital expenditures and acquisition of intangible assets.
- At the end of 2018, net cash used in financing activities was NT\$ 969.71, mainly attributable to dividend payments and share repurchases.
- As a result, cash decreased by NT\$ 361.68 million to NT\$ 1,302.00 million from December 31st, 2017 to December 31st, 2018.

#### Employee

- As of December 31st, 2018, eMemory had 250 full-time employees, which included 175 R&D engineers



### **Cautionary Statement**

This report 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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**-Financial Statements To Follow-**