



# Q3 2018 Investor Conference

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Nov 9th, 2018

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A hand is shown dropping a coin into a stack of coins. A small plant with three leaves is growing out of the stack. The background is a blurred green and yellow bokeh.

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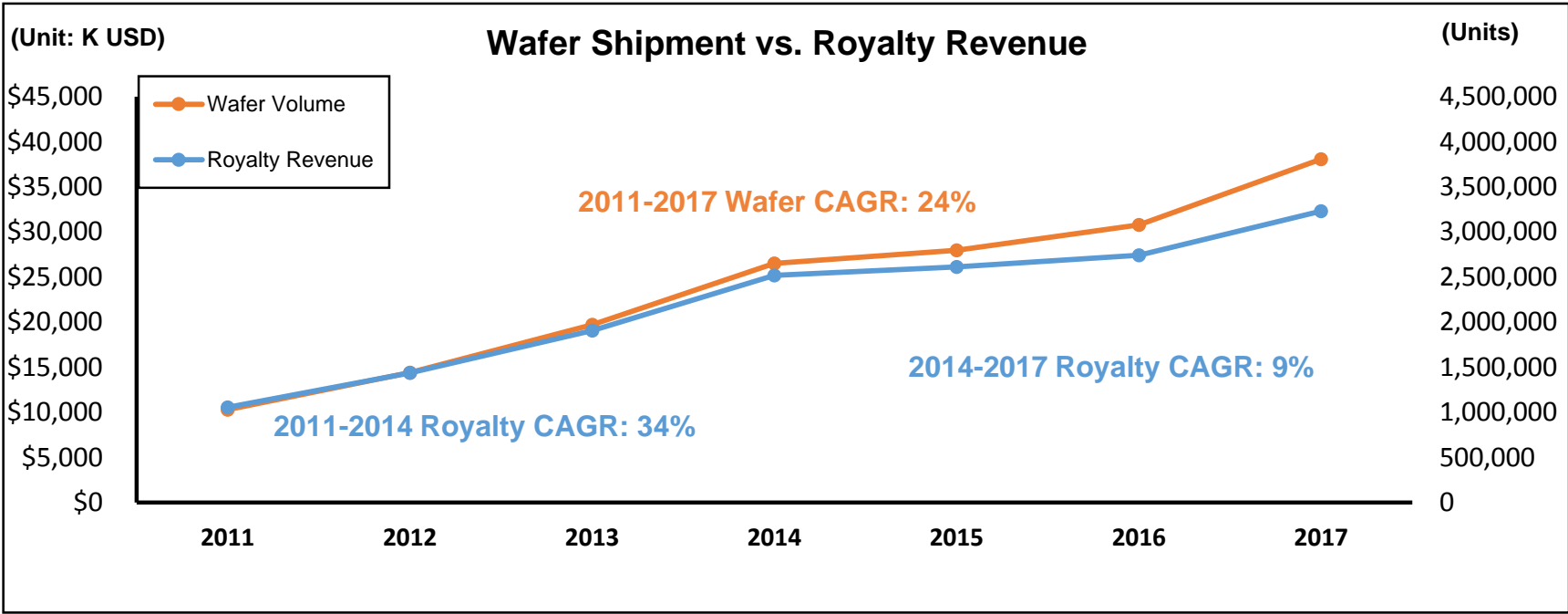


A hand is shown dropping a coin into a stack of coins. A small plant is growing out of the stack. The background is a blurred green and yellow, suggesting a natural setting. The image is framed by a white, torn-paper-like border.

# Review of Operations

# Review of Wafer Shipments and Revenue

While wafer shipments have maintained rapid growth, revenue growth has lagged since 2014



Wafer shipments volume increased at CAGR of 24%, however royalty revenue did not meet such growth, reasons include:

- ✓ Wafer price erosion for mature technology over the years.
- ✓ Migration of customers to 2<sup>nd</sup> tier foundries at lower wafer prices.
- ✓ Slow transition of new technology adoption due to lack of production track record.



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# Our progress over the past 5 years

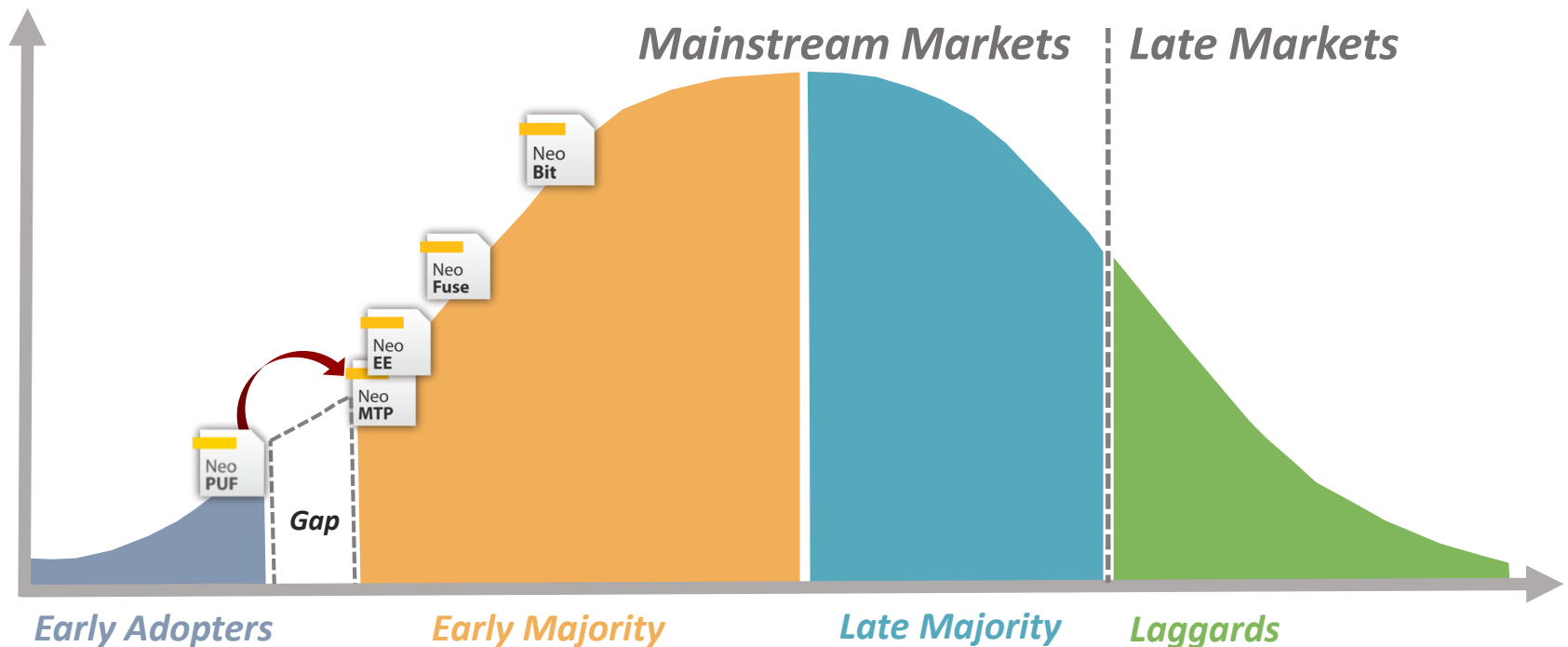
New technologies have become the driving force

## Completed

- ✓ Developed new technologies including NeoFuse, NeoEE, and NeoMTP, that have crossed the chasm for commercialization
- ✓ Developed root of trust security IP - NeoPUF

## In progress

- ✓ Partnering with a large IP company in the co-development of integrated security element IP
- ✓ Co-developing emerging memory with an IDM company



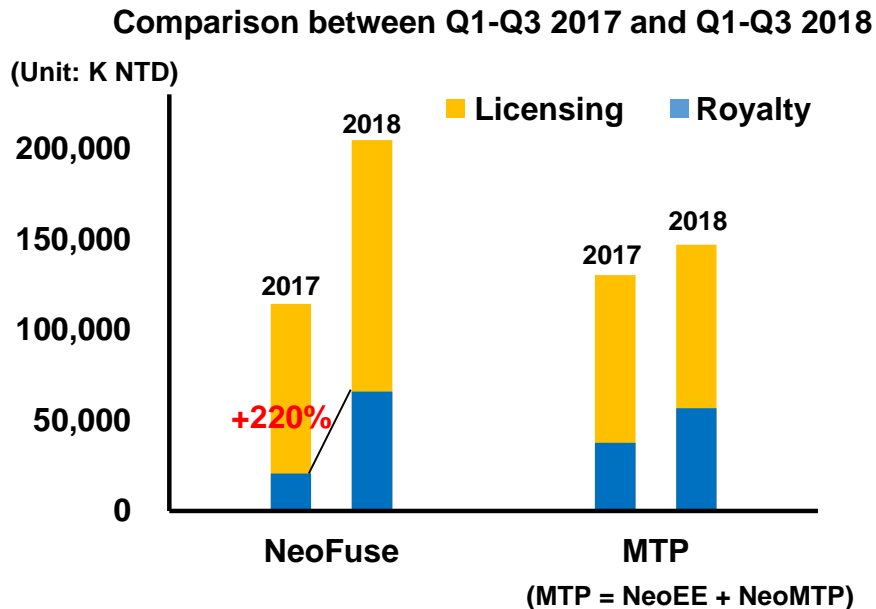
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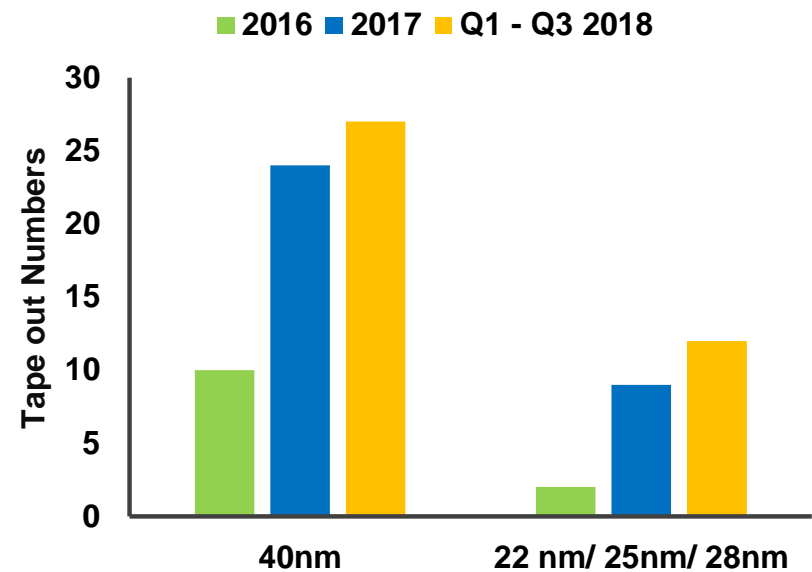
# Previous efforts are paying off

NeoFuse is now the driving force for technologies at 40nm and below

## NeoFuse is showing promising potential



## Rapid growth in advanced nodes



- ✓ Revenue contribution from NeoFuse increased significantly from 2017 to 2018
- ✓ The growth in NeoFuse royalty revenue was driven by 2016-17 product tape-outs
- ✓ Product tape-outs in 2018 will bring in additional royalty in 2019 and 2020



# Future Outlook



# Total Coverage in Advanced Nodes

A complete spectrum of solutions is powering eMemory's growth

## ≤55 nm

eMemory has accumulated sufficient production records in 55nm and below, adoption will accelerate.

## 28 nm

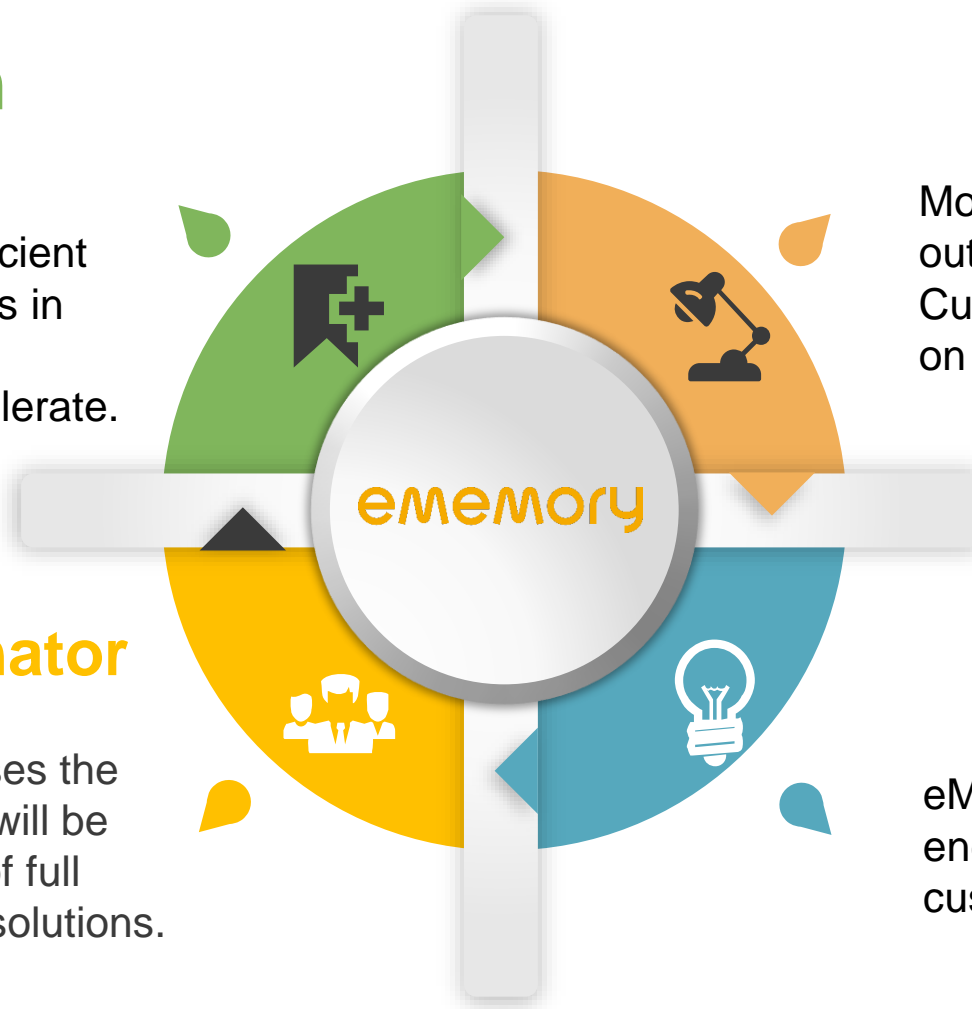
More 28 nm IP tape-outs in 2017 and 2018. Customers will move on to 16/14/12 nm.

## OTP Dominator

After 7nm IP crosses the chasm, eMemory will be the sole provider of full spectrum of OTP solutions.

## 7 nm

eMemory is currently engaging 7 nm customers.





# Q3 Performance

# Financial Income Statement

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

(Unit: K NTD)

|                           | Q3 2018 | Q2 2018 | Q3 2017 | change<br>(QoQ) | change<br>(YoY) |
|---------------------------|---------|---------|---------|-----------------|-----------------|
| <b>Revenue</b>            | 393,225 | 302,073 | 384,423 | 30.2%           | 2.3%            |
| <b>Gross Margin</b>       | 100%    | 100%    | 100%    | -               | -               |
| <b>Operating Expenses</b> | 204,342 | 183,706 | 205,291 | 11.2%           | -0.5%           |
| <b>Operating Income</b>   | 188,883 | 118,367 | 179,132 | 59.6%           | 5.4%            |
| <b>Operating Margin</b>   | 48.0%   | 39.2%   | 46.6%   | 8.8ppts         | 1.4ppts         |
| <b>Net Income</b>         | 168,572 | 112,193 | 194,062 | 50.3%           | * -13.1%        |
| <b>EPS</b>                | 2.23    | 1.48    | 2.56    | 50.7%           | -12.9%          |
| <b>ROE</b>                | 34.8%   | 23.2%   | 40.2%   | 11.6ppts        | -5.4ppts        |

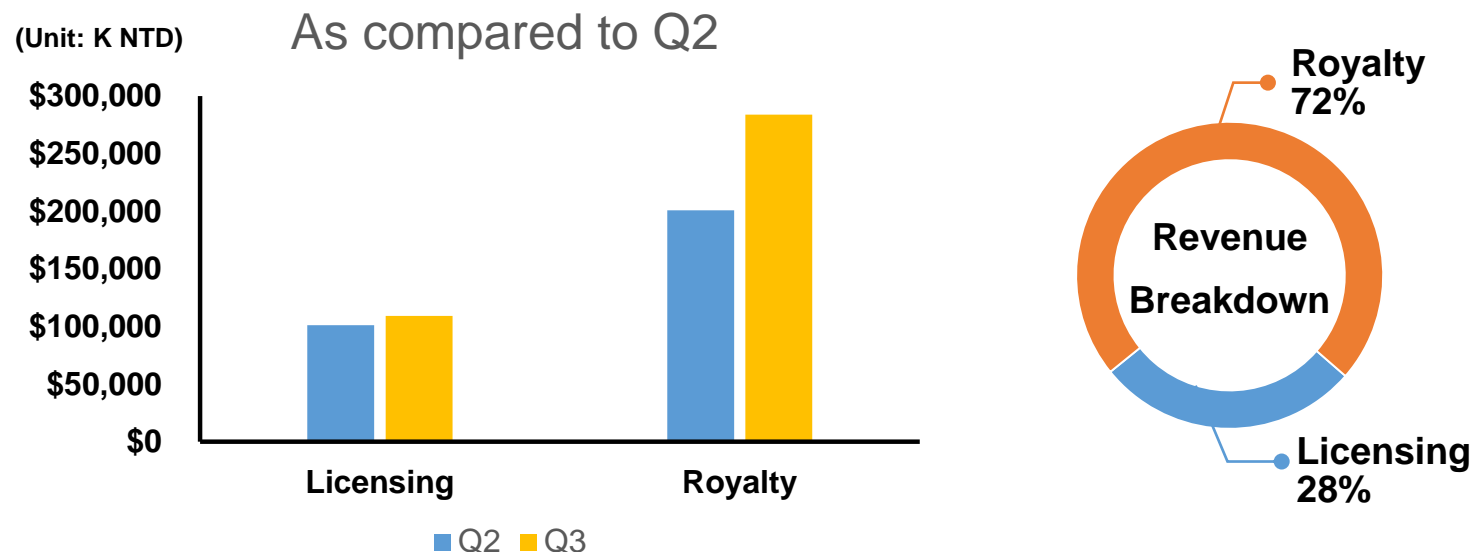
Note: Net Income declined due to non-operating gain in Q3 2017

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# Q3 Revenue Breakdown

Amount in Thousands of NT Dollars, as compared to Q2



Revenue (Unit: K NTD)

|              | Q3 2018        | Q2 2018        | QoQ          | Q3 2017        | YoY         | Q1 – Q3 2018     | Q1 – Q3 2017     | YoY         |
|--------------|----------------|----------------|--------------|----------------|-------------|------------------|------------------|-------------|
| Licensing    | 109,257        | 101,283        | 7.9%         | 101,087        | 8.1%        | 325,080          | 309,373          | 5.1%        |
| Royalty      | 283,968        | 200,790        | 41.4%        | 283,336        | 0.2%        | 744,684          | 744,519          | 0.0%        |
| <b>Total</b> | <b>393,225</b> | <b>302,073</b> | <b>30.2%</b> | <b>384,423</b> | <b>2.3%</b> | <b>1,069,764</b> | <b>1,053,892</b> | <b>1.5%</b> |





# Q&A

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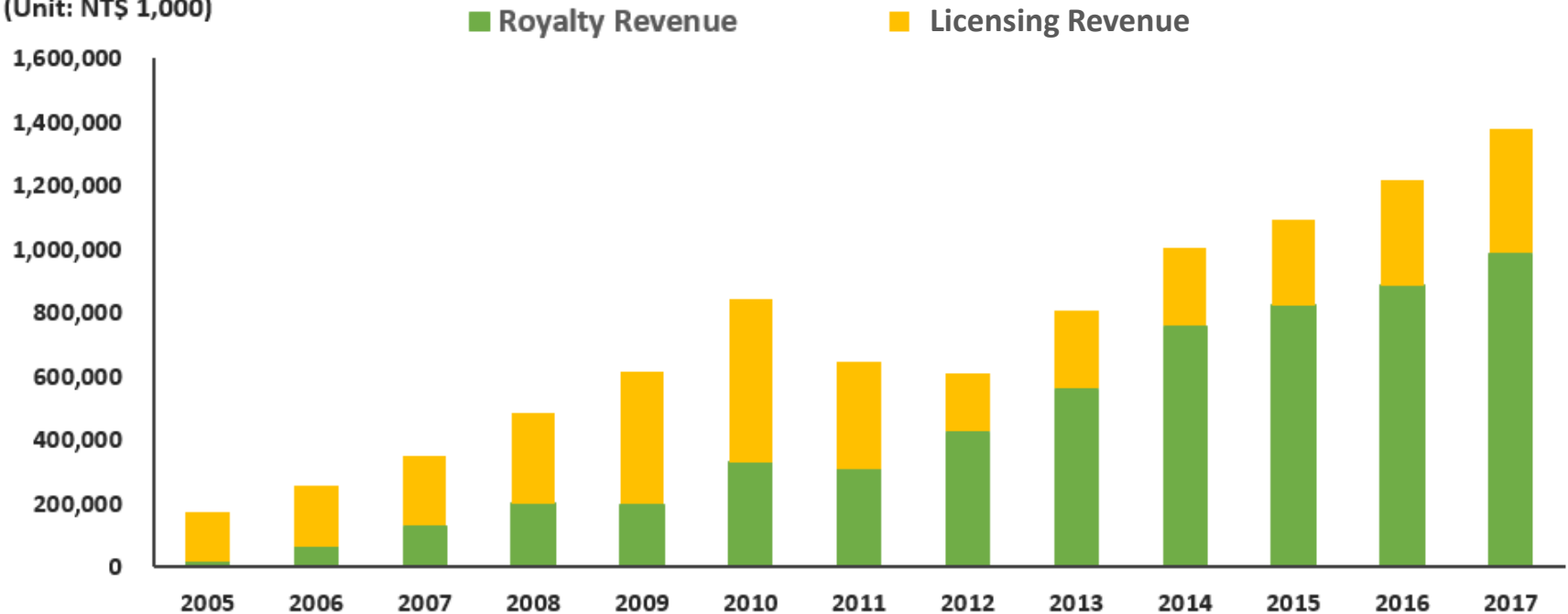
# Appendix

# 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

**580+**  
Patents Issued

236 pending patents. 249  
employees with 70% R&D  
personnel

**Best IP Partner**  
of TSMC

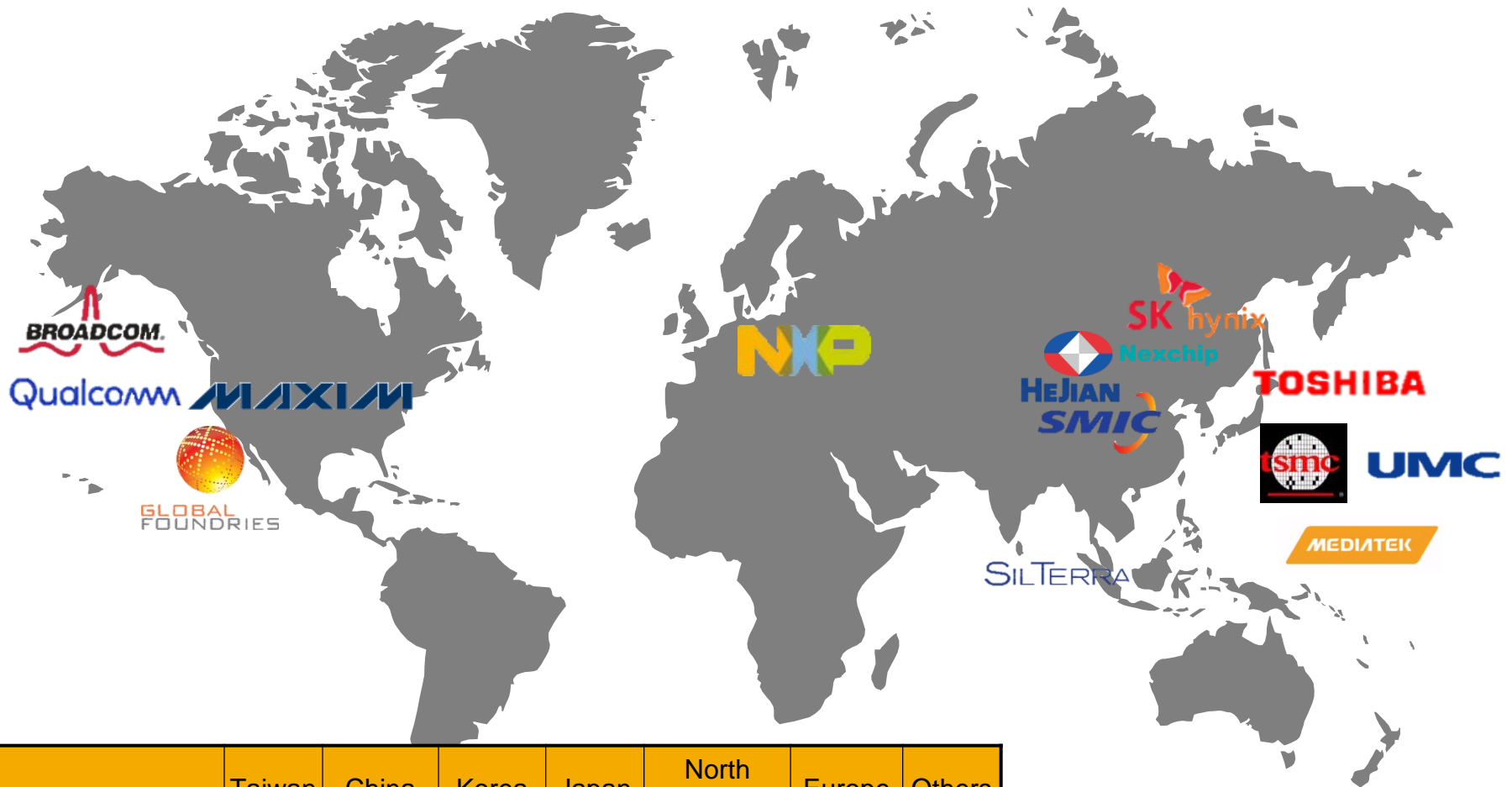
TSMC Best IP Partner Award  
since 2010.

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# Worldwide Customers

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

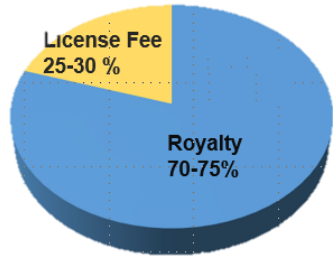


|         | Taiwan | China | Korea | Japan | North America | Europe | Others |
|---------|--------|-------|-------|-------|---------------|--------|--------|
| Foundry | 5      | 8     | 3     | 4     | 1             | 2      | 1      |
| IDM     | 0      | 0     | 0     | 8     | 2             | 1      | 0      |
| Fabless | 261    | 592   | 71    | 52    | 242           | 111    | 53     |

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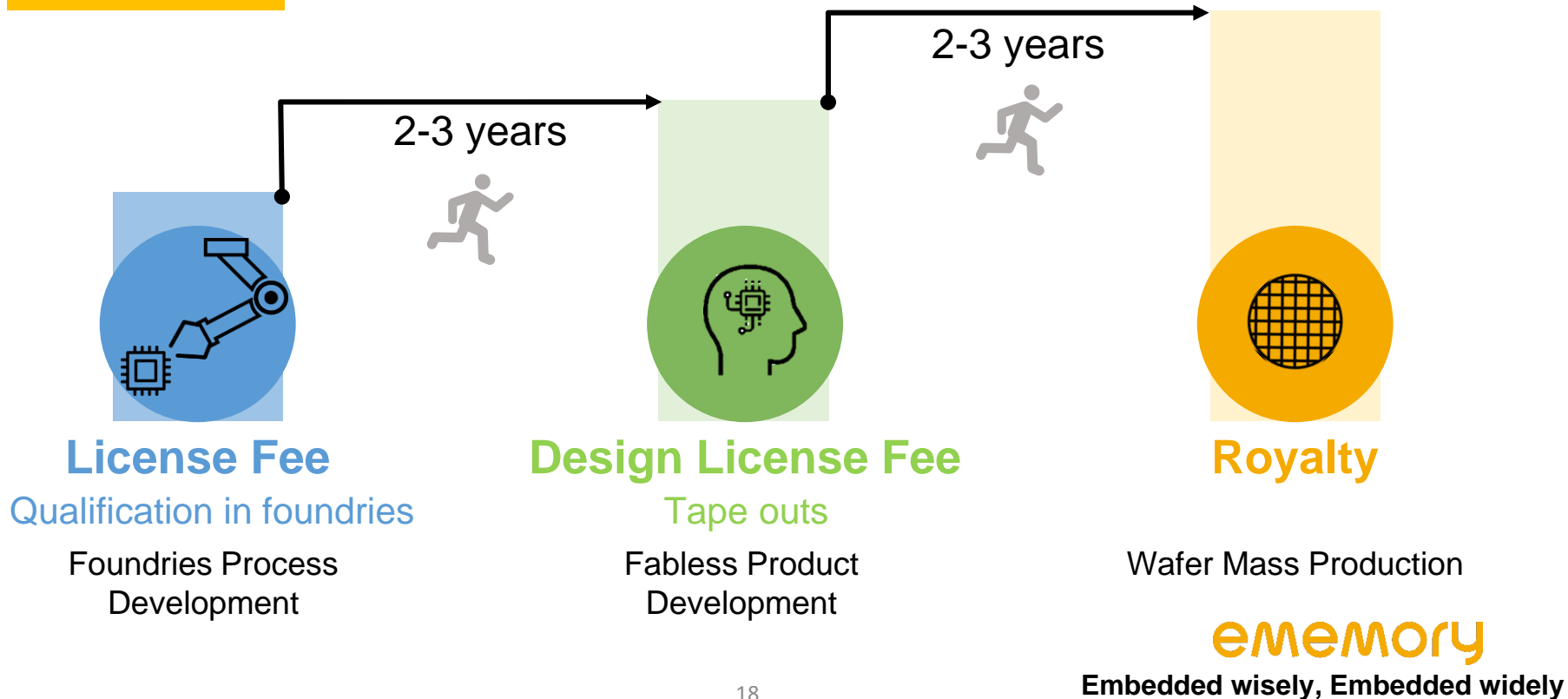
# Business Model

Recurring royalty is the backbone of our business



**Revenue  
Breakdown**

- ✓ 70-75% revenue are from royalty, based on wafer production
- ✓ More adoption = more wafer shipments
- ✓ More advanced node wafers = higher wafer ASP

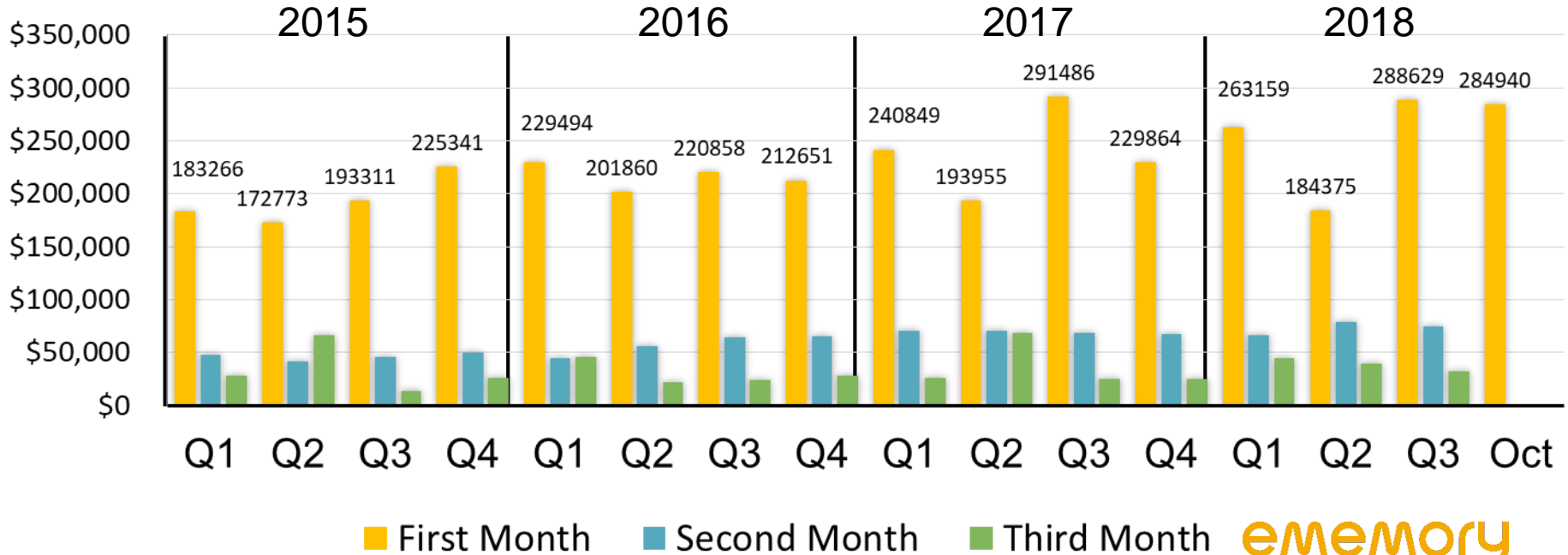


# Quarterly Revenue Pattern

eMemory's revenues are usually received in the first month of each quarter

- ✓ 1<sup>st</sup> 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: Receive **License Fees** of the month only.
- ✓ Two foundries pay royalty semiannually in Jan and July.

Unit: K NTD



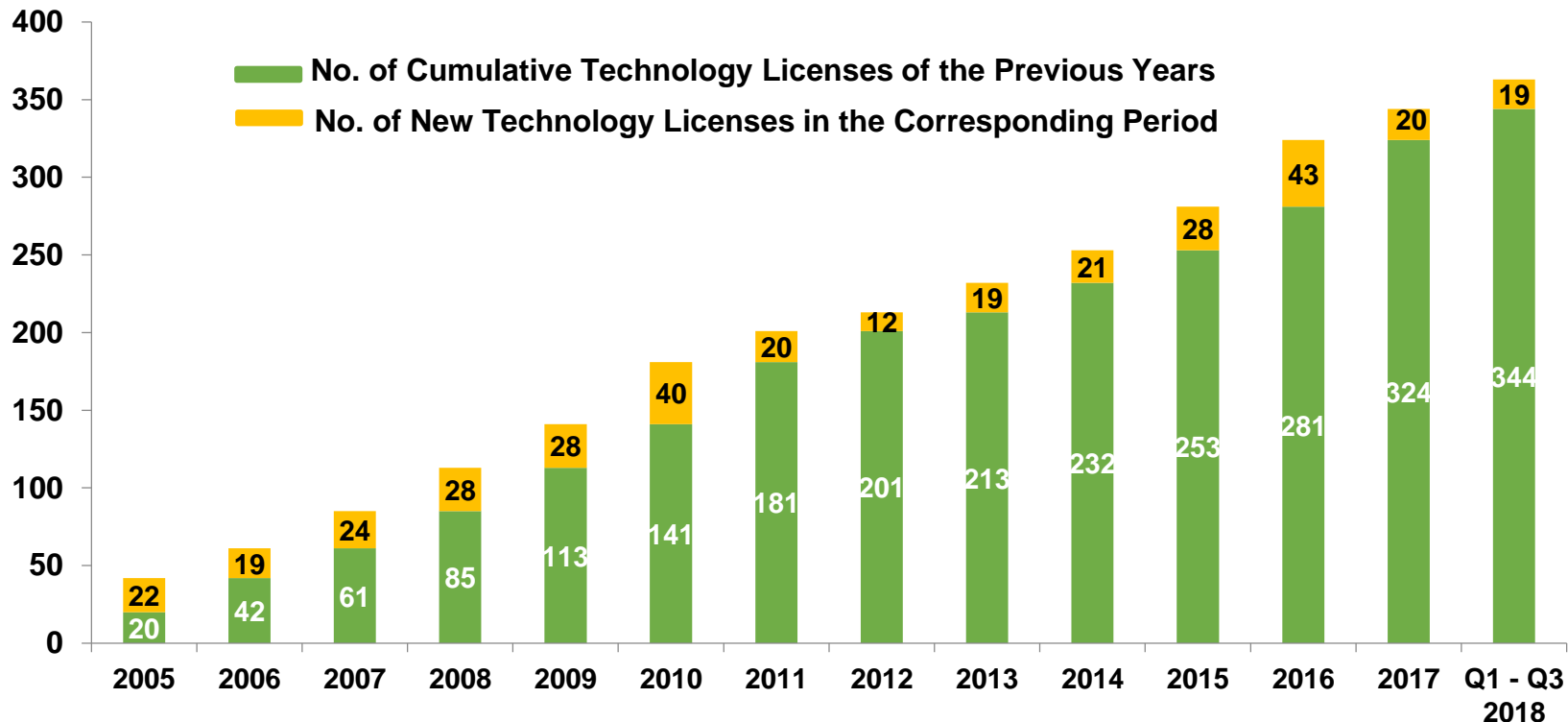
# Technology Licenses

## Cumulative technology licenses

### Number of Licenses

| Year     | 2015 | 2016 | 2017 | Q1-Q3 2018 |
|----------|------|------|------|------------|
| Licenses | 28   | 43   | 20   | 19         |

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.



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# New Technology under Development

Products in different process nodes

- New technologies under development for **98** platforms as of Q3 2018
- **15** for NeoBit, **48** for NeoFuse, **5** for NeoPUF, **10** for NeoEE, and **20** for NeoMTP

|                | 7/10nm | 12/14/16nm | 22/28nm | 40nm | 55/65nm | 80/90nm | 0.11~<br>0.13um | 0.15~<br>0.18um |
|----------------|--------|------------|---------|------|---------|---------|-----------------|-----------------|
| <b>NeoBit</b>  | -      | -          | -       | -    | 1       | 1       | 7               | 6               |
| <b>NeoFuse</b> | 2      | 4          | 13      | 6    | 7       | 11      | 3               | 2               |
| <b>NeoPUF</b>  | -      | -          | 2       | 1    | 2       | -       | -               | -               |
| <b>NeoEE</b>   | -      | -          | -       | -    | -       | 1       | 2               | 7               |
| <b>NeoMTP</b>  | -      | -          | -       | -    | 2       | 1       | 8               | 9               |

As of Sep 30<sup>th</sup>, 2018

# Technology Development

Development by process nodes

| 12" Fabs     | Production | Development | IP Type          | Process Type                     |
|--------------|------------|-------------|------------------|----------------------------------|
| 7/10nm       | 0          | 2           | OTP              | FF                               |
| 12/14/16nm   | 2          | 4           | OTP              | FF+                              |
| 22/28nm      | 12         | 15          | NeoPUF, OTP      | LP/HPM, HLP/HPM, LPS, DRAM       |
| 40nm         | 10         | 7           | OTP, MTP         | HV-DDI, LP, eFlash               |
| 55/65nm      | 19         | 12          | NeoPUF, OTP, MTP | LP, HV-DDI, HV-OLED, CIS, eFlash |
| 80/90nm      | 8          | 9           | OTP, MTP         | HV-DDI, HV-OLED, LP, eFlash      |
| 0.13/0.11um  | 11         | 7           | OTP, MTP         | HV-DDI, BCD, Generic             |
| 0.18um       | 1          | 0           | OTP              | BCD                              |
| <b>Total</b> | <b>63</b>  | <b>56</b>   |                  |                                  |

| 8" Fabs           | Development | IP Type  | Process Type                        |
|-------------------|-------------|----------|-------------------------------------|
| 90nm              | 5           | OTP      | HV-DDI, LL                          |
| 0.13/0.11um       | 13          | OTP, MTP | HV-DDI, BCD, LP, RF, CIS, LL, Green |
| 0.18/0.16/0.152um | 24          | OTP, MTP | Generic, LP, LL, MR, HV, Green, BCD |
| 0.25um            | 0           | OTP, MTP | BCD                                 |
| 0.35um            | 0           | OTP      | UHV                                 |
| <b>Total</b>      | <b>42</b>   |          |                                     |

Note: As of Sep. 30<sup>th</sup>, 2018

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**THANKS**

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