

eMemory

Investor Presentation

eMemory Technology Inc.

March, 2018

智慧財產權聲明

本文件內之資訊，包括文字、圖片、圖表、表格或其他檔案等，其所有權利或利益，包括但不限於所有權及智慧財產權，皆屬力旺電子所有，請尊重智慧財產權。本文件之內容包含力旺電子之機密資訊。部分內容可參見 2014 年出版之 **Logic Non-Volatile Memory (The NVM solutions from eMemory)**一書。任何在此之資訊在未經力旺電子書面同意，不得影印、散佈、複製、使用本文件或將其揭露予第三人。

eMemory, NeoBit, NeoFuse, NeoFlash, NeoEE, NeoMTP, NeoROM, EcoBit與NeoPUF皆為力旺電子在台灣或其他國家之商標或服務標章。

投資安全聲明

除簡報內所提供之歷史信息外，簡報事項係屬預測性陳述，受到風險及不確定性因素影響，可能造成實際結果與陳述內容發生不符，這些不確定性因素包括：技術平台是否順利導入利用、IP是否被客戶接受、客戶產品大量量產之能力及時間、產業及市場對半導體產品之供給及需求移轉、終端市場之穩定性及其他風險等。

eMemory – the Embedded IP Expert

- 關於力旺
- 技術介紹
- 財務資訊

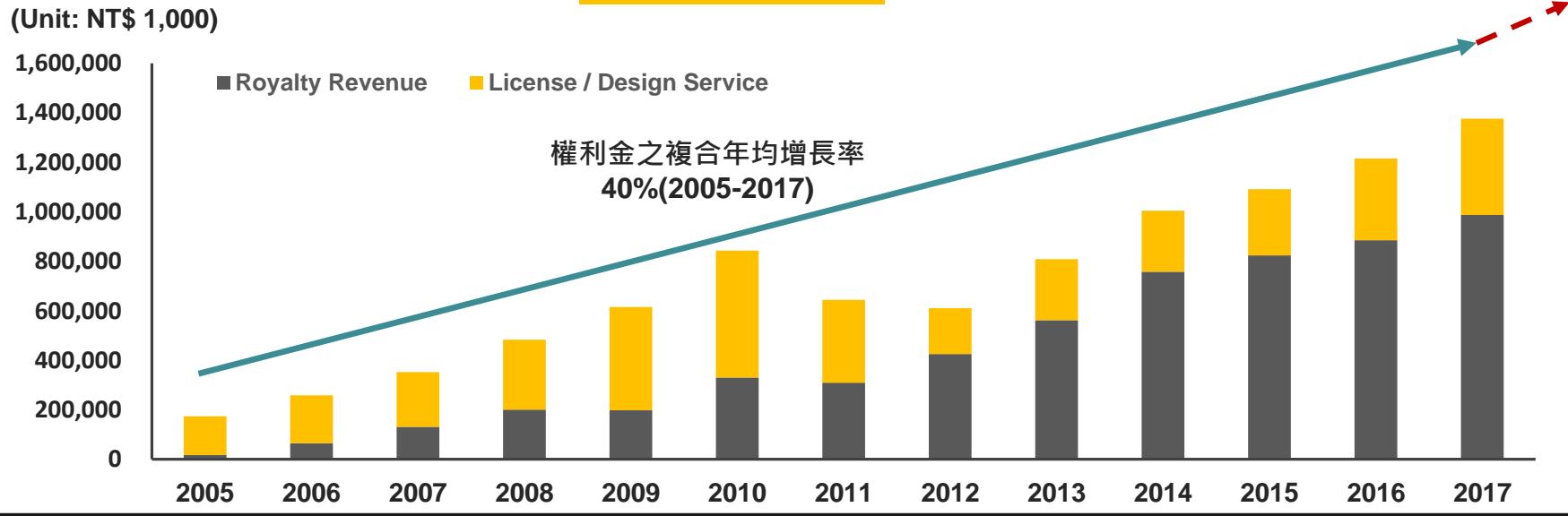
公司簡介

eMemory is the global leader of embedded non-volatile memory IP

力旺之關鍵要素

- 2000年成立，2011年掛牌，總部設在新竹
- 營業毛利率100%，營業淨利率48.6%
- 全球第七大IP供應商
- 超過1,900萬片以上量產晶圓，嵌入使用力旺電子之矽智財
- 取得超過510件專利，另有240項專利申請中
- 238位員工，70%為研發人員
- 全球最大嵌入式非揮發性記憶體供應商
- 自2010起，連續獲得台積電之 Best IP Partner 獎項

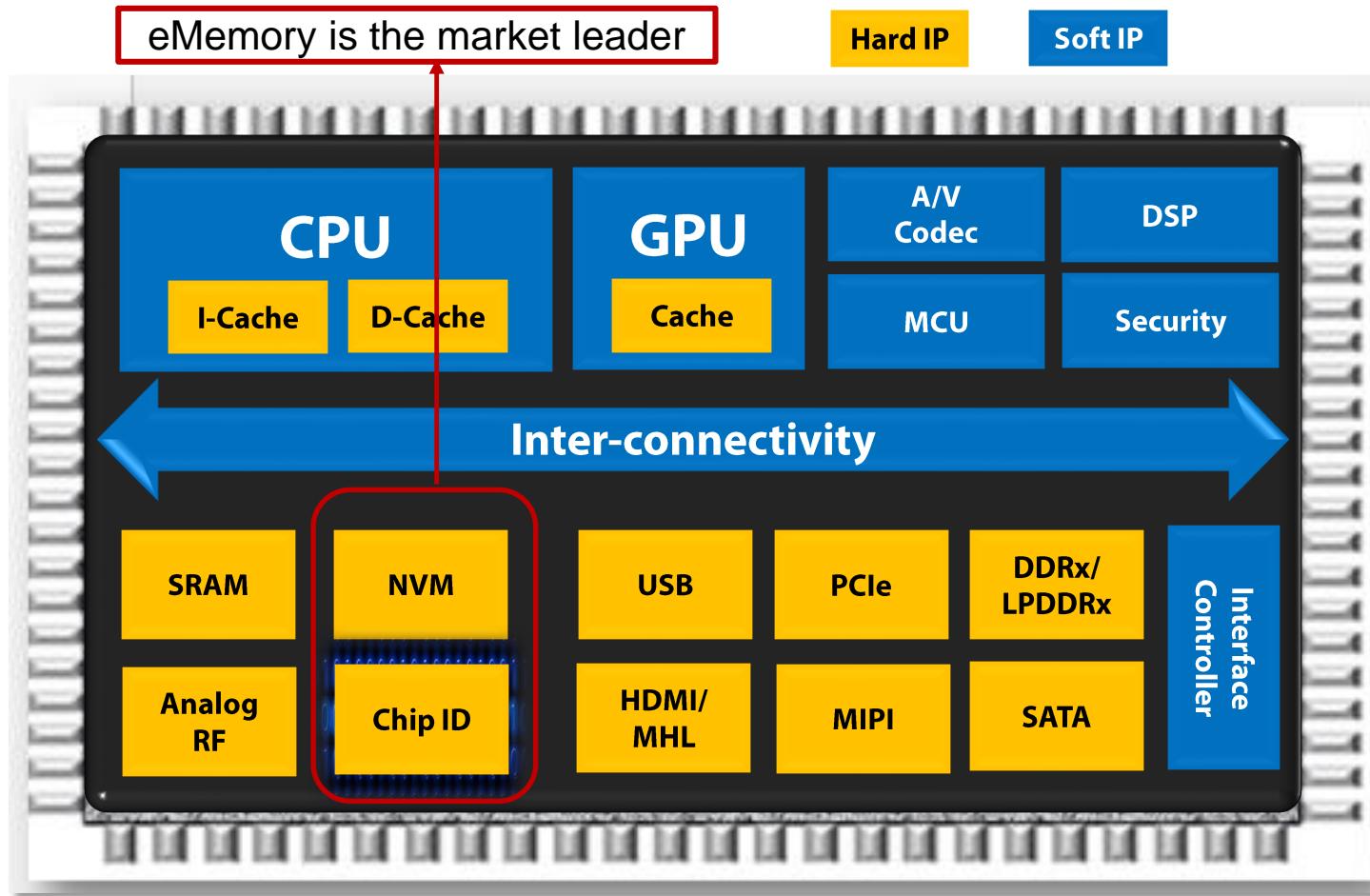
Revenue Trend



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主要的矽智財供應商

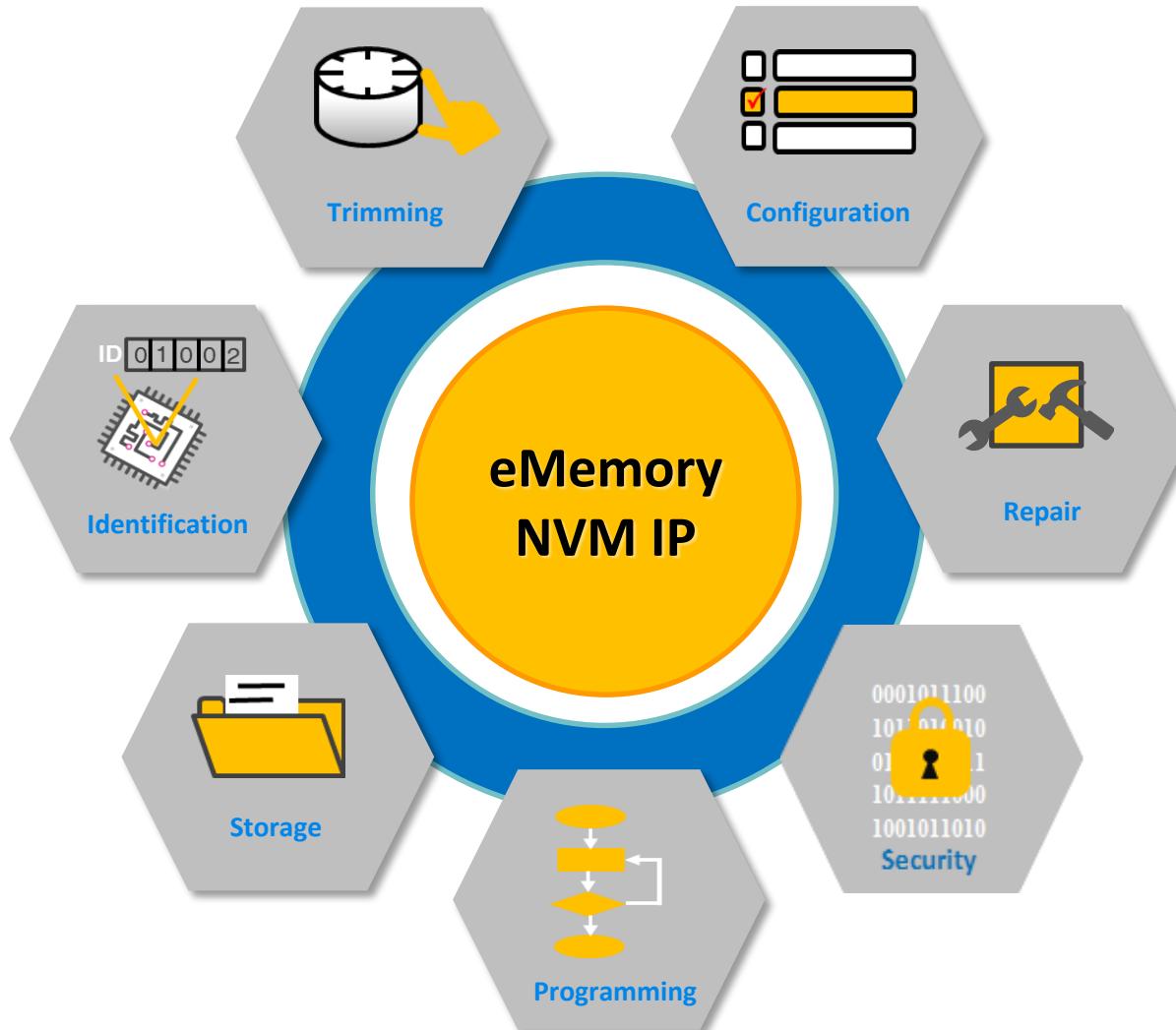
eMemory's embedded Non-Volatile Memory and Chip ID are foundation IP of SoC



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力旺的嵌入式非揮發性記憶體

eMemory's solutions can help customers effectively reduce time and development costs.



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全球客戶

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

Global Customers

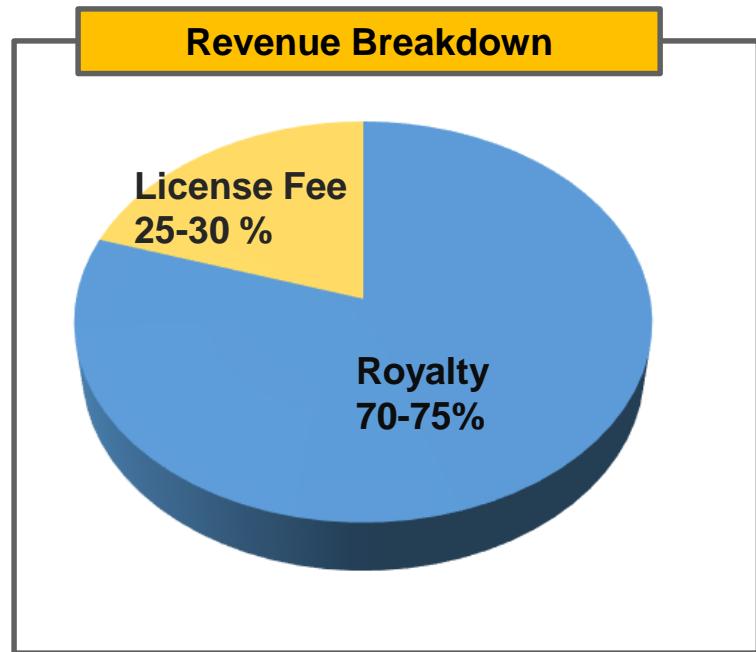
	Foundry	IDM	Fabless
Taiwan	5	0	261
China	8	0	513
North America	1	2	242
Europe	2	1	111
Korea	3	0	71
Japan	4	8	52
Others	1	0	53



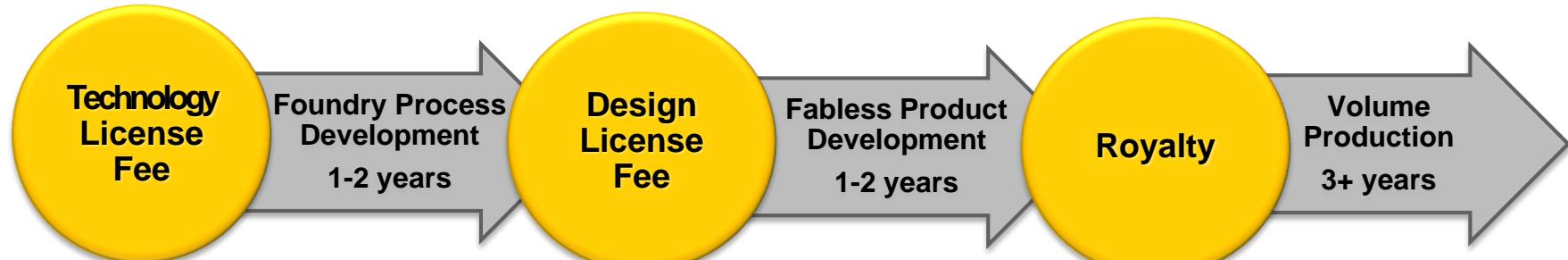
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營運模式

Recurring royalty is the backbone of our business

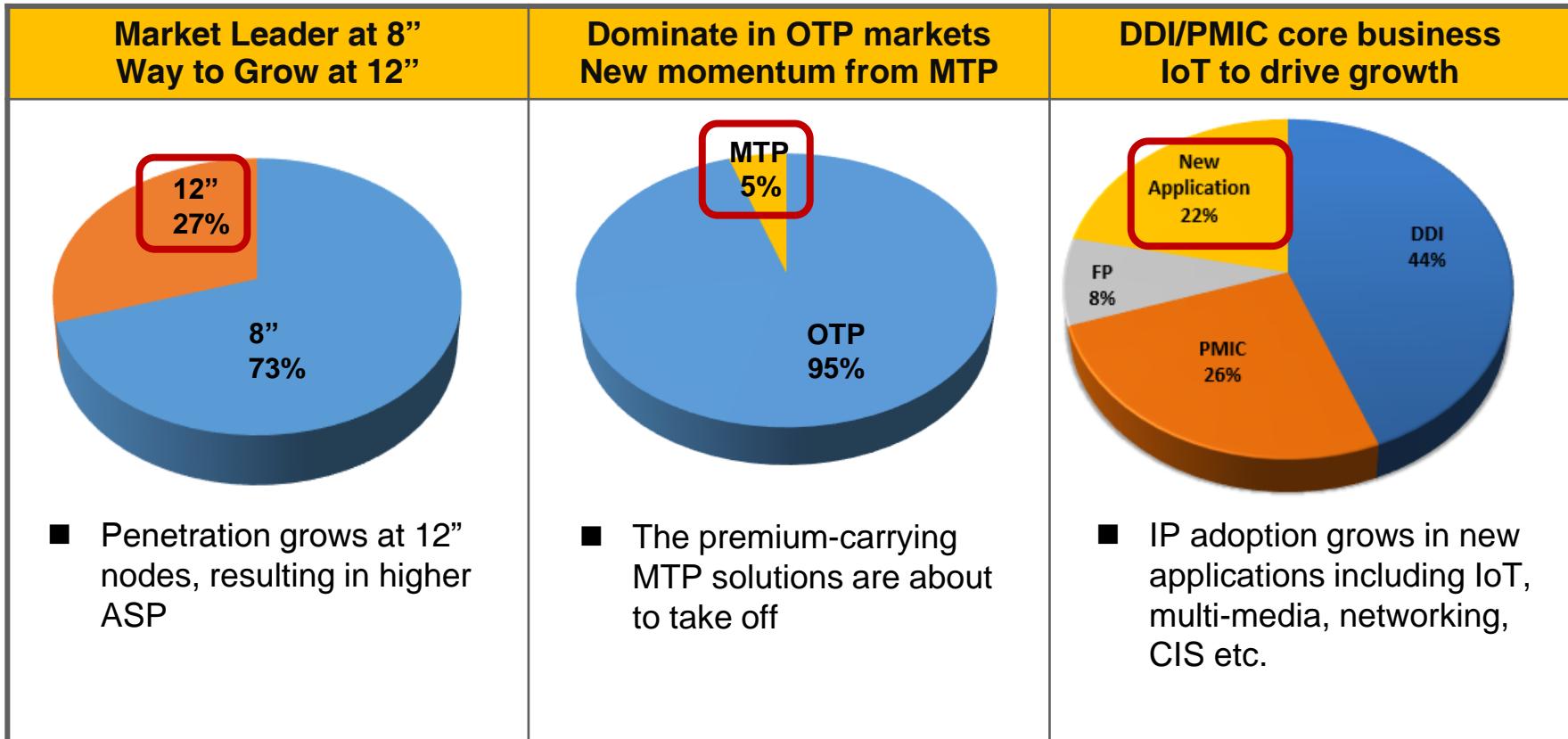


- Royalty rates are based on IP type and wafer price
- Royalty is collected by foundry partners base on wafer volume production
- Royalty revenue is a key growth driver:
More adoption = more volume shipment
More advanced node wafers = Higher ASP per wafer
- Royalty = Wafer Volume * ASP per wafer



成長動能

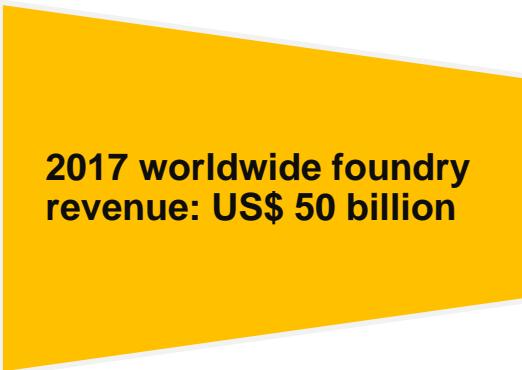
What supports our current growth, What drives our **Future Growth**



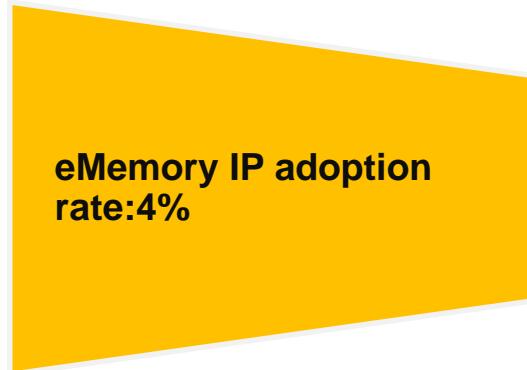
As of 2017

發展前景

Our near-term, medium-term and long-term growth engines



2017 worldwide foundry
revenue: US\$ 50 billion



eMemory IP adoption
rate:4%



Going forward, growth is
driven by more and more
new chip applications

2018-2019	2019-2020	2020-2025
<ul style="list-style-type: none">■ Legacy processes PMIC, FP, 3D sensing, auto, healthcare, security■ Advanced processes STB, DTV, networking, SSD controller, OLED, Bluetooth, TDDI, CIS■ MTP adopted by a leading IDM in consumer and auto applications	<ul style="list-style-type: none">■ Legacy processes Auto, security, MTP■ Advanced processes AP, GPU, CPU,FPGA■ IDM IP adoption in DRAM repair, auto, security	<ul style="list-style-type: none">■ Legacy processes Embedded security for IOT and driveless cars■ Advanced processes Embedded emerging memory■ NeoPUF implementation in blockchain and Fintech to increase revenue streams

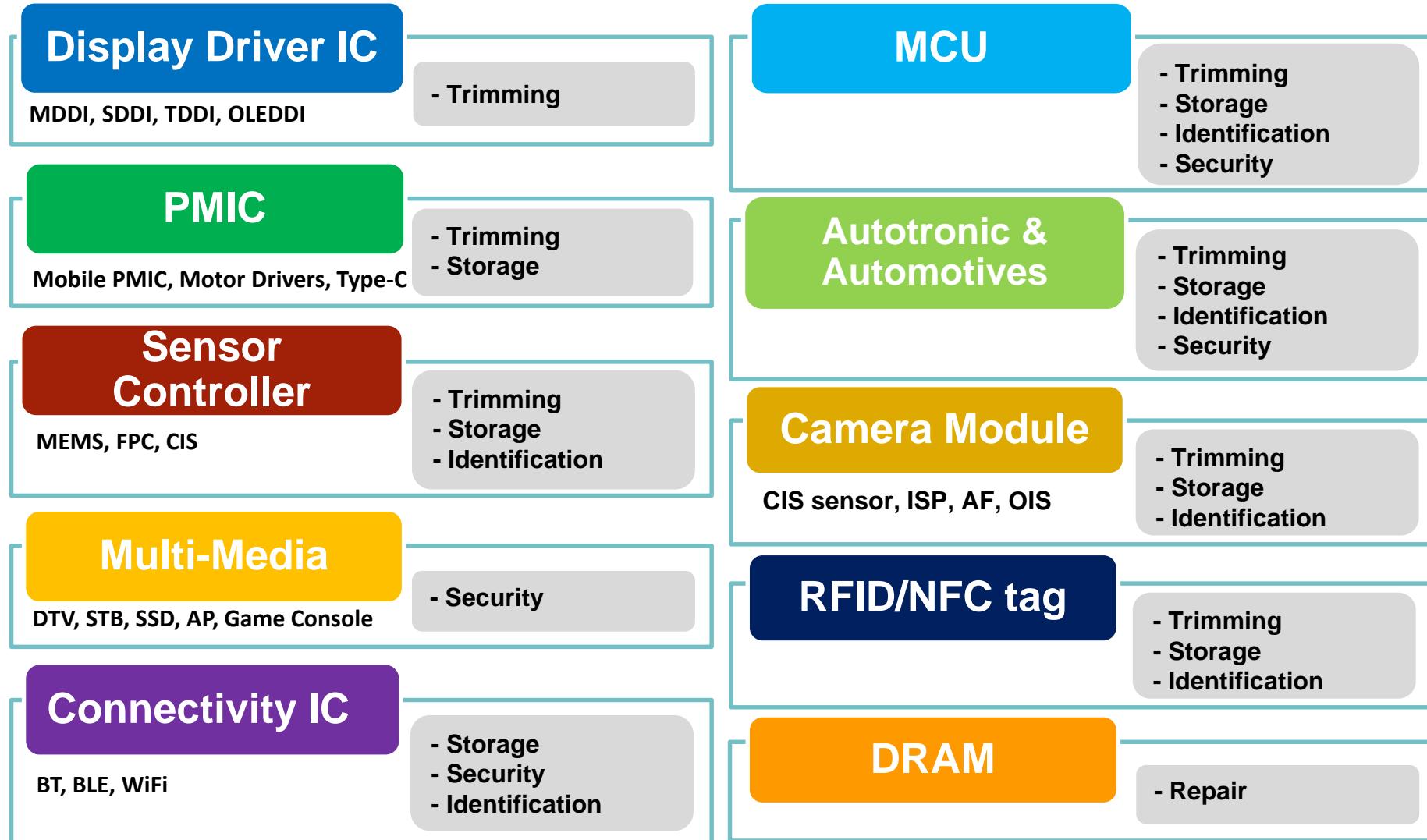
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力旺IP的應用



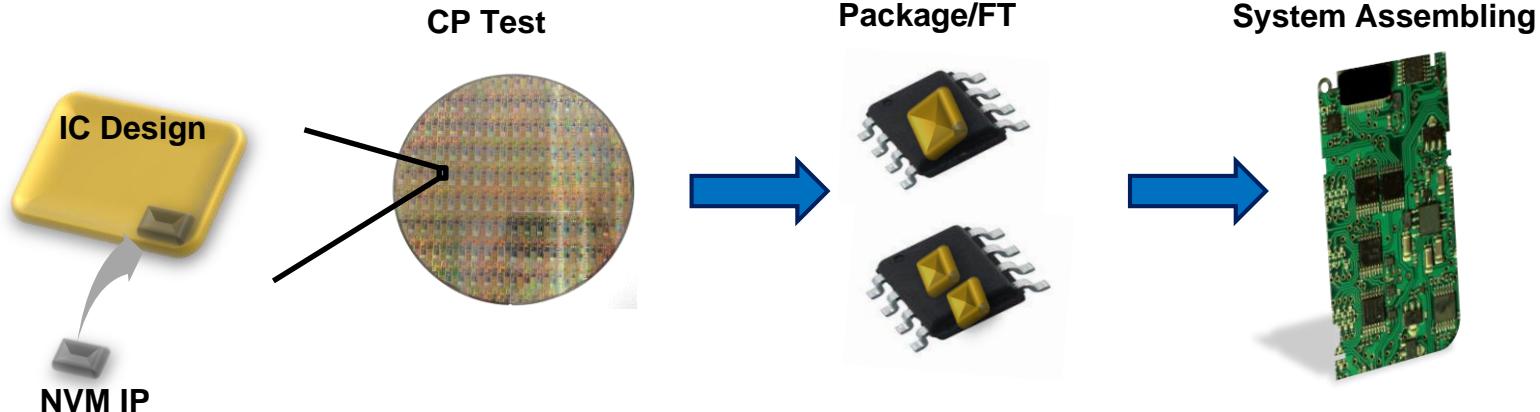
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嵌入式非揮發性記憶體之應用

eMemory's embedded NVM creates value for customers

Cost Reduction

Programmable, Configurable



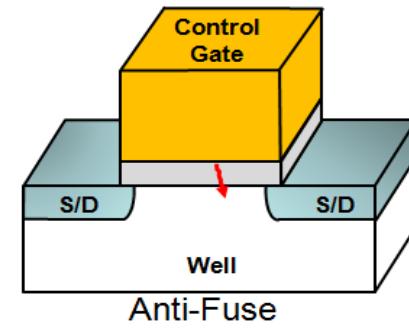
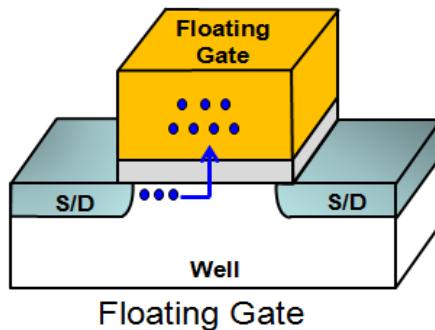
Security

Secure Data Storage

eFuse Key: Data is easily observed



Invisible Hardware Key : Data is hard to be detected



嵌入式非揮發性記憶體之應用

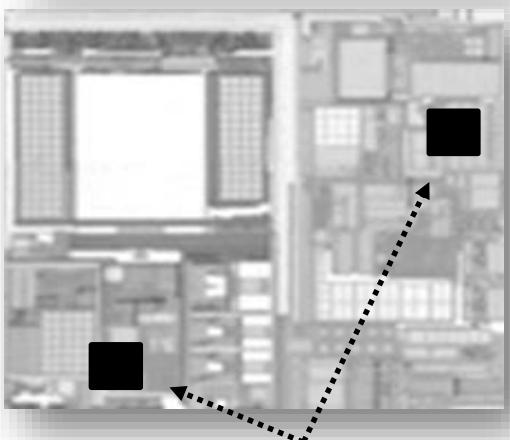
Security

Secure Data Storage

Authorized Product

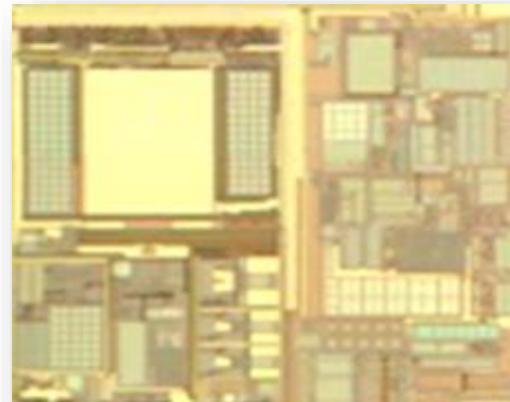


Without protection

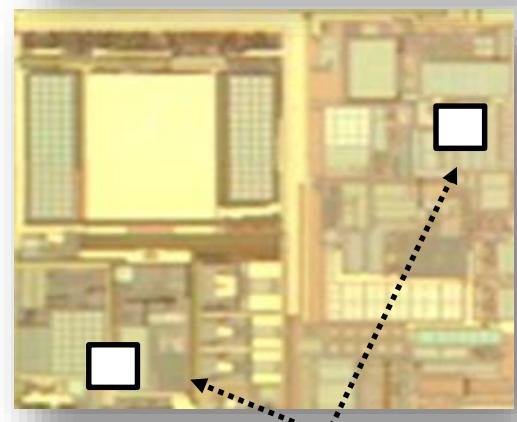


Security IP/Code by Authorized Use

Fake Product



With protection

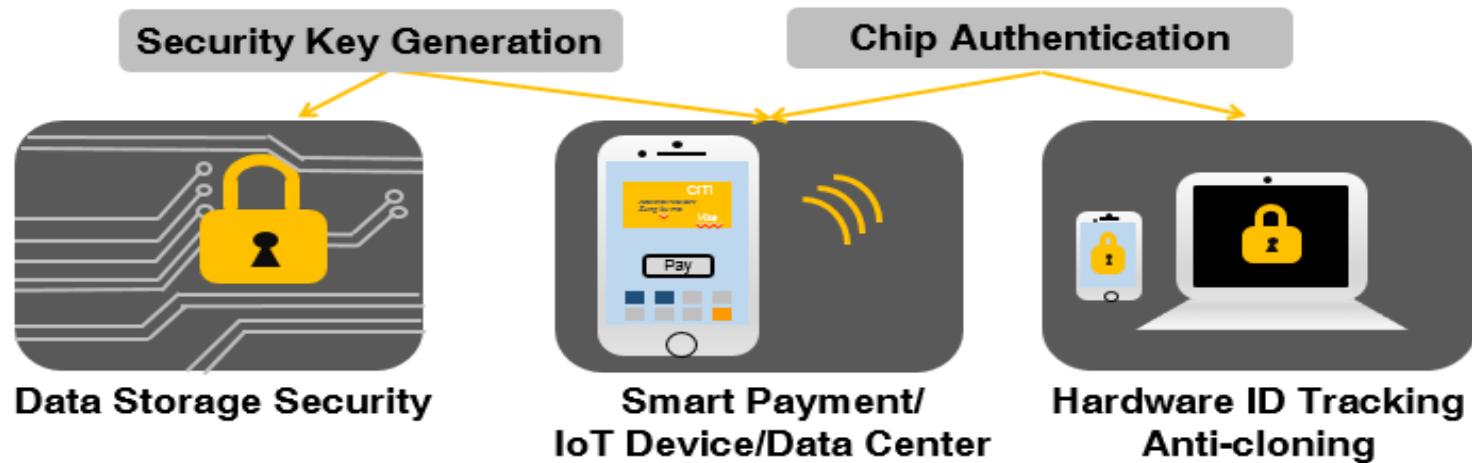


Can NOT Work w/o Security IP/Code

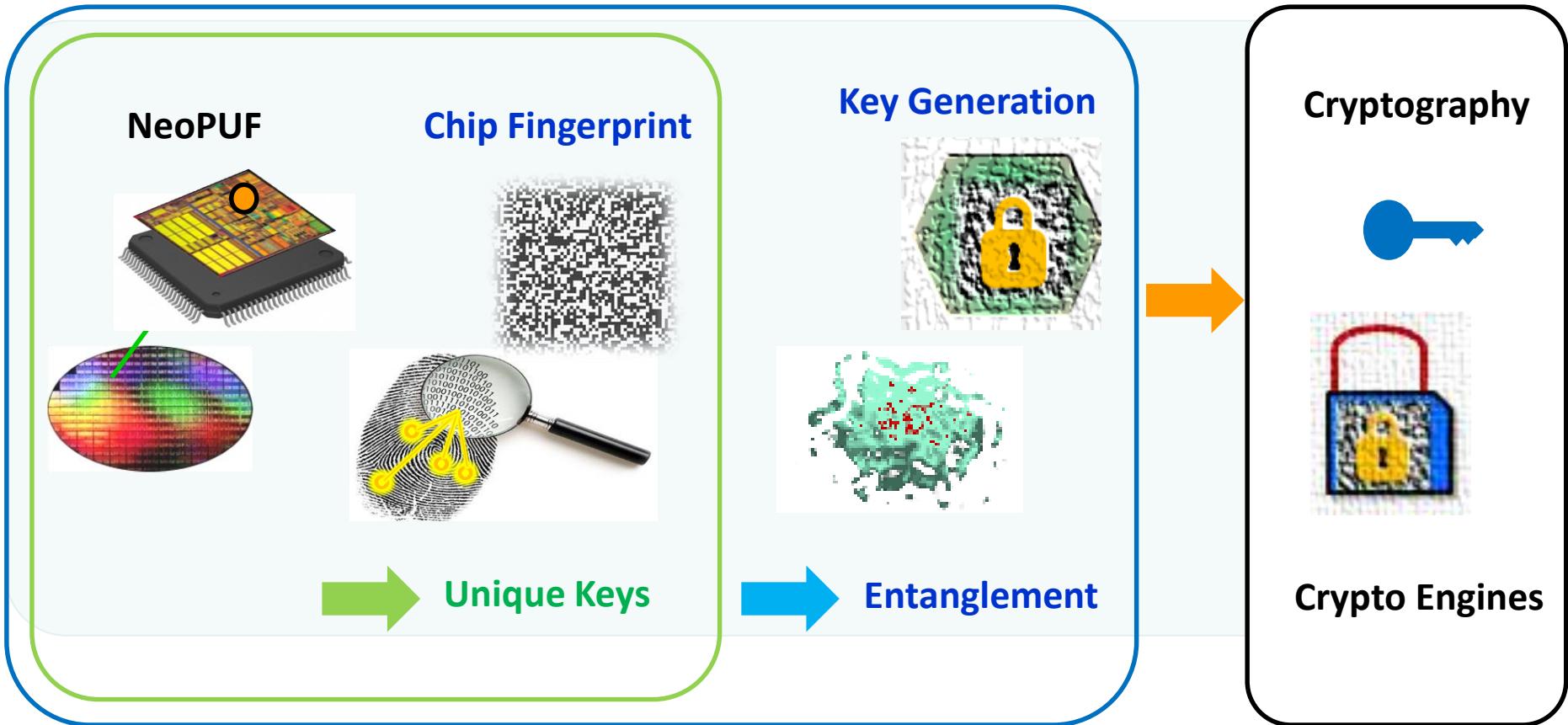
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新技術- NeoPUF Technology

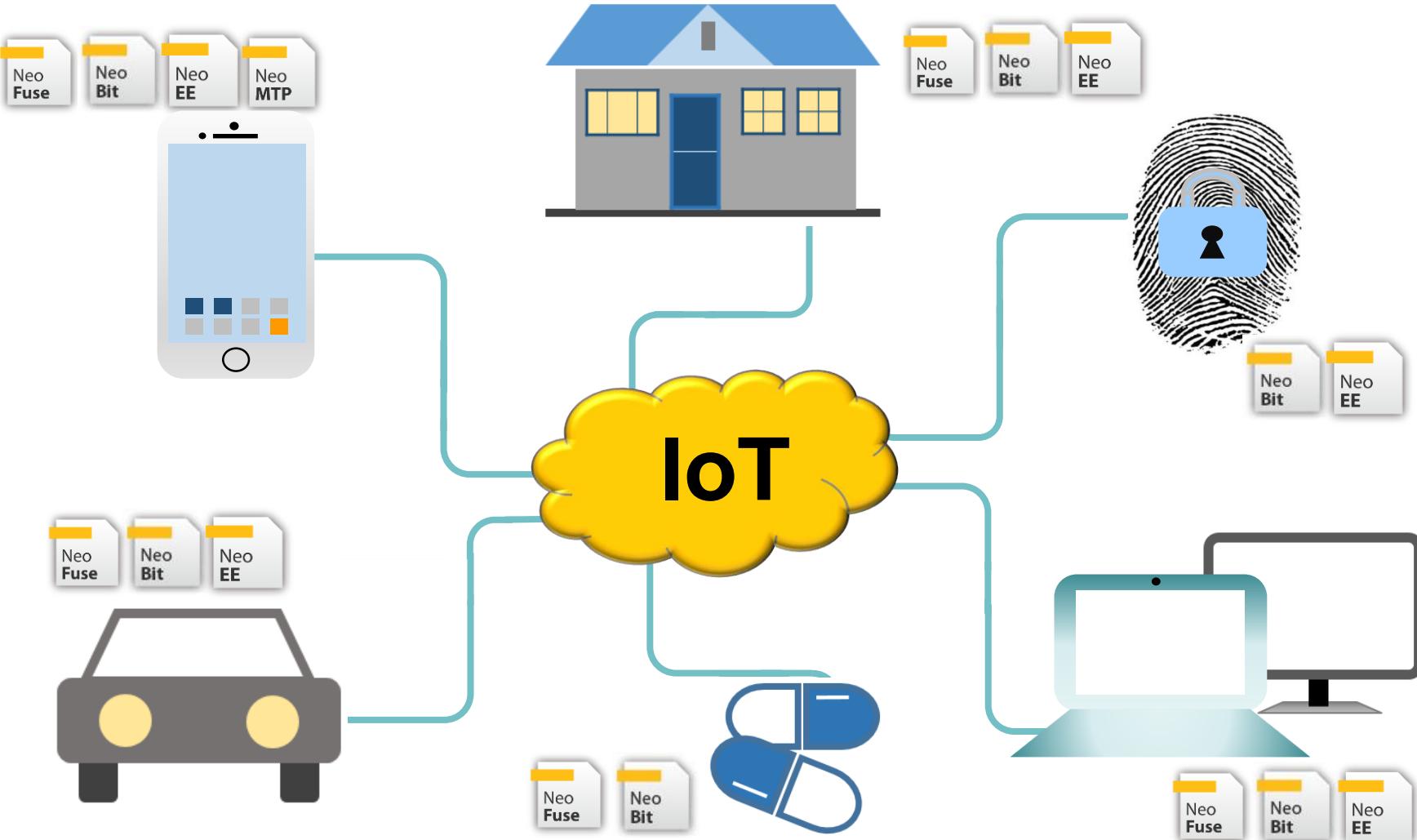
- Authentication & Security Everywhere



Secure HW& SW from Chip-level



力旺IP在IoT中的應用



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第四季各項營收

單位：新台幣仟元

	Q4 2017	Q3 2017	QoQ	Q4 2016	YoY	2017	2016	YoY
授權費	78,811	101,087	-22.04%	79,684	-1.10%	388,184	330,087	17.60%
權利金	243,055	283,336	-14.22%	226,543	7.29%	987,574	885,372	11.54%
合計	321,866	384,423	-16.27%	306,227	5.11%	1,375,758	1,215,459	13.19%

單位：美金仟元

	Q4 2017	Q3 2017	QoQ	Q4 2016	YoY	2017	2016	YoY
授權費	2,620	3,340	-21.56%	2,515	4.17%	12,787	10,256	24.68%
權利金	8,066	9,341	-13.65%	7,170	12.50%	32,311	27,422	17.83%
合計	10,686	12,681	-15.73%	9,685	10.34%	45,098	37,678	19.69%

單位：合約數

	Q4 2017	Q3 2017	2017	2016
技術授權數	3	4	20	43
設計 授權數	NRE 15	23	55	56
使用費	78	87	325	311

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綜合損益表

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

(單位:新台幣仟元)	Q4 2017	Q3 2017	change (QoQ)	2017	2016	change (YoY)
營業收入淨額	321,866	384,423	-16.3%	1,375,758	1,215,459	13.2%
營業毛利率	100%	100%	-	100%	100%	-
營業費用	185,484	205,291	-9.6%	772,940	685,650	12.7%
營業淨利率	42.4%	46.6%	-4.2ppts	43.8%	43.6%	0.2ppts
本期淨利	117,659	194,062	-39.4%	598,709	534,917	11.9%
純益率	36.6%	50.5%	-13.9ppts	43.5%	44.0%	-0.5ppts
每股盈餘 (單位: 新台幣元)	1.55	2.56	-39.5%	7.9	7.06	11.9%
權益報酬率	23.6%	40.2%	-16.6ppts	30.0%	28.6%	1.4ppts

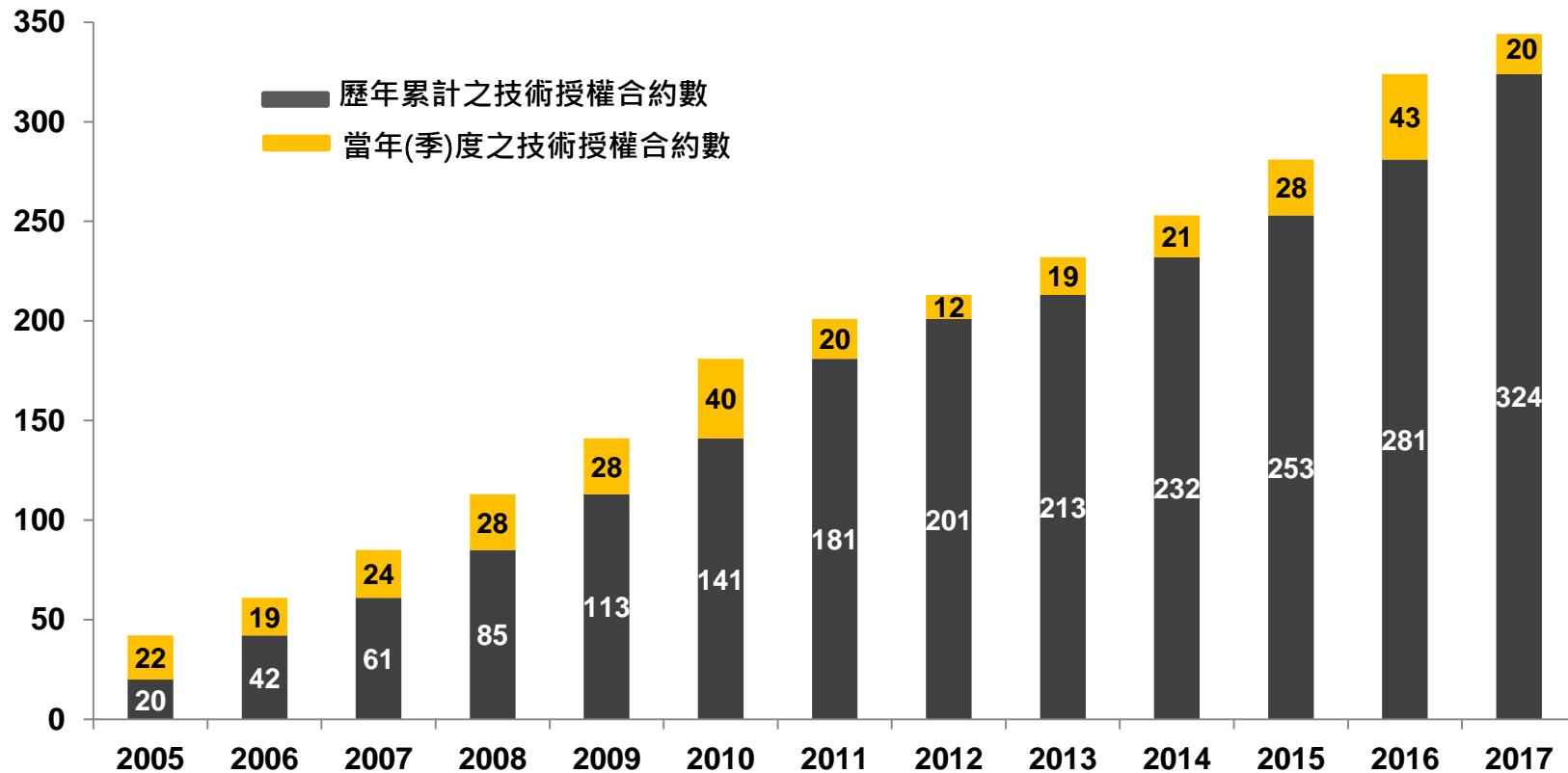
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技術授權合約

單位：合約數

Year	2014	2015	2016	2017
License	21	28	43	20

註: 與晶圓廠簽訂的技術授權合約所含的技術製程及授權金視合約內容而定，無特別季節性因素。



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目前正在建構的技術製程平台

- New technologies being developed for **106** platforms by Q4 17.
- **18** for NeoBit, **40** for NeoFuse, **3** for NeoPUF, **18** for NeoEE, and **27** for NeoMTP.

	7/10nm	12/14/16nm	28nm	40nm	55/65nm	80/90nm	0.11~0.13um	0.15~0.18um
NeoBit	-	-	-	-	1	-	7	10
NeoFuse	3	3	10	4	8	7	1	4
NeoPUF	-	-	1	-	2	-	-	-
NeoEE	-	-	-	-	-	-	2	16
NeoMTP	-	-	-	1	2	2	7	15

註: 截至 2017/12/31

力旺IP的應用

12"												8"			
7nm	10nm	12/14/16nm	28nm	40nm	55/65nm	80/90nm	110/130nm	160/180nm	250nm	350nm					

NeoBit



NeoFuse



NeoFlash



NeoEE



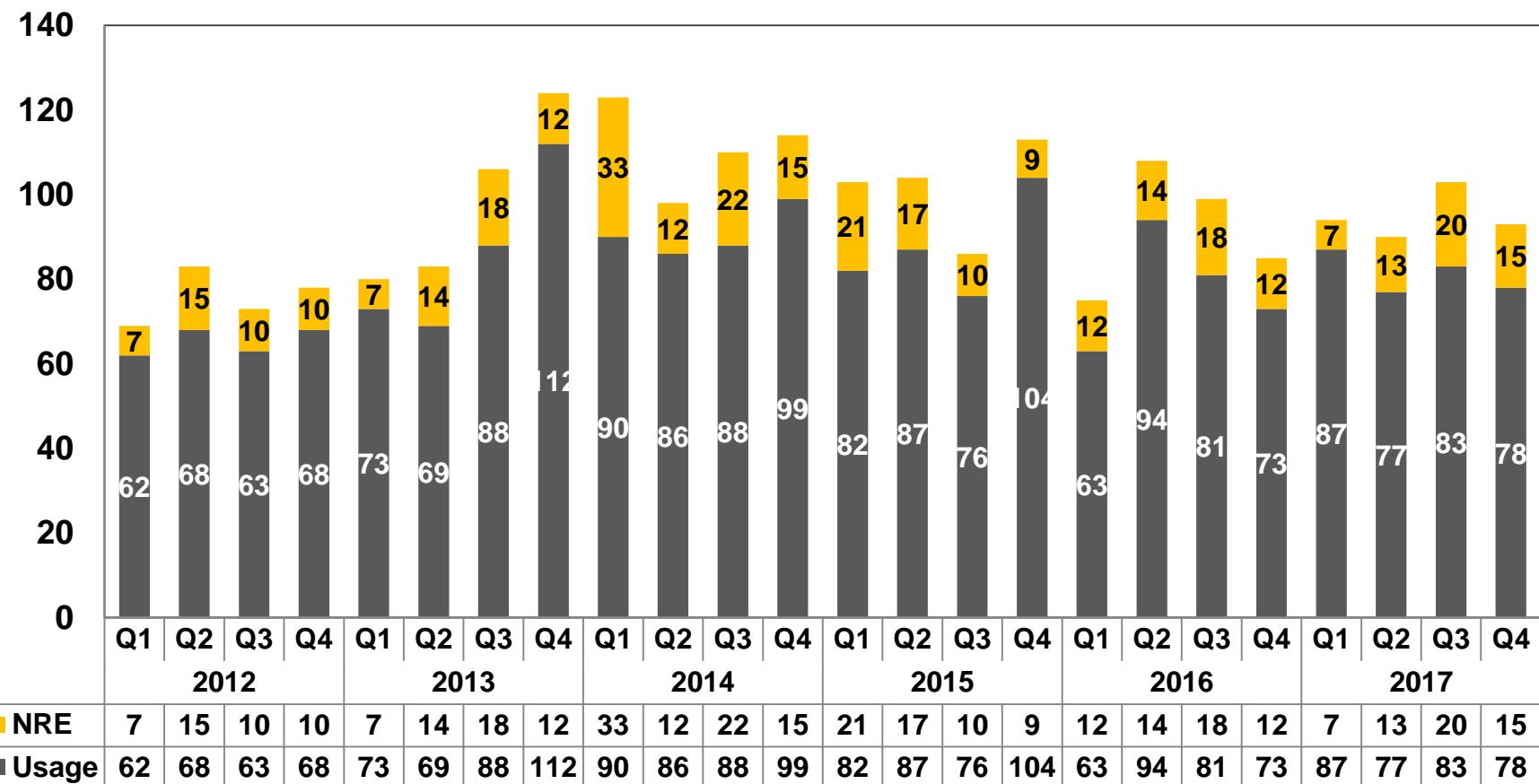
NeoMTP



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每季設計授權數 (New Tape-Out)

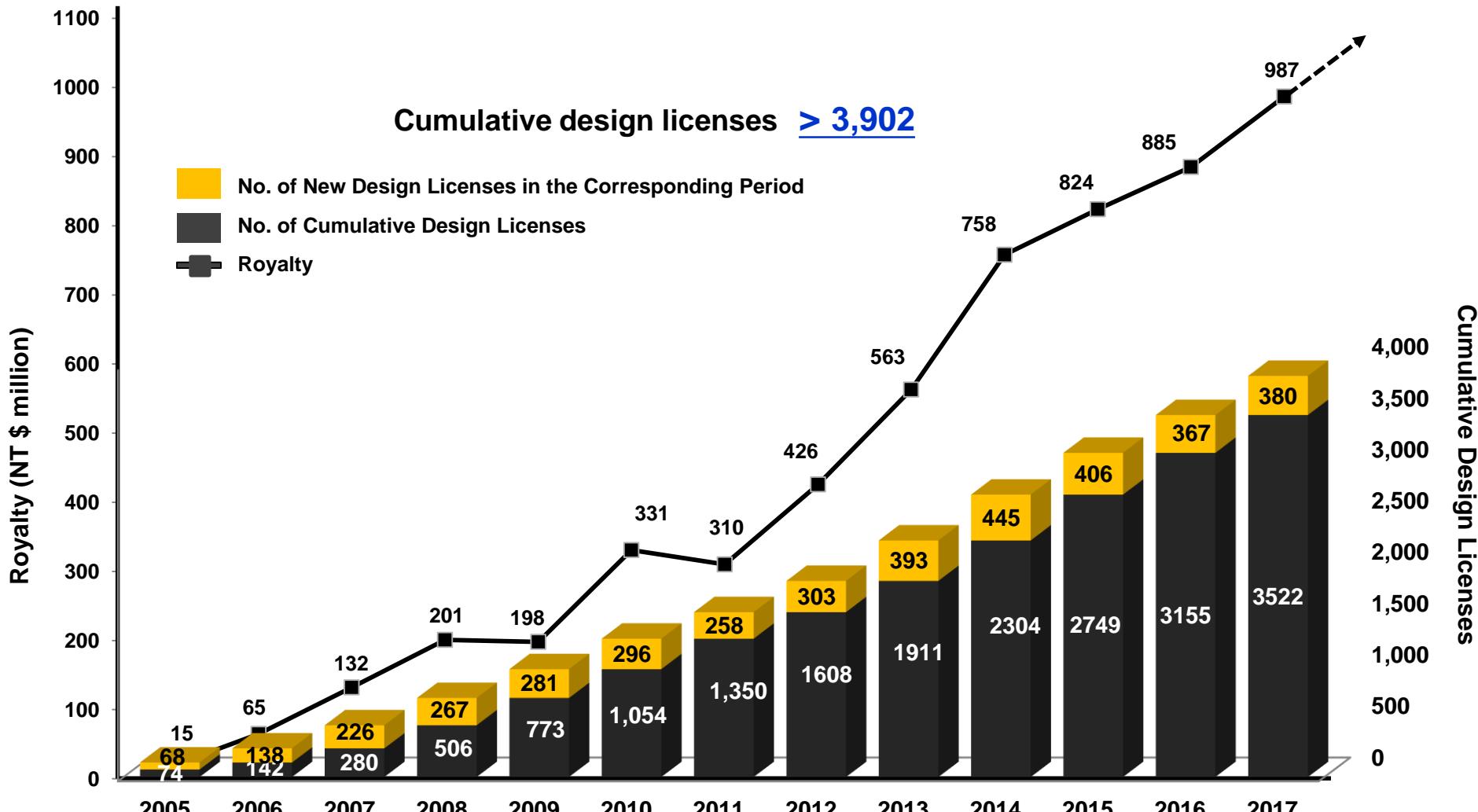
- A total 380 NTO in 2017 (367@2016, 406@2015, 445@2014, 393@2013)



註：客戶在各代工廠的諸多MCU NTO已陸續進入量產，加上與主要Green process代工廠的商業模式調整為直接license IP cell 紿代工廠，由代工廠提供設計服務給客戶，造成tape out 數減少，但仍對使用IP cell 的晶片支付權利金。雖然MCU的NTO數量有明顯減少，但是相關的晶圓產出和權利金收入還是持續增加。

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權利金取決於過去累積的設計授權數



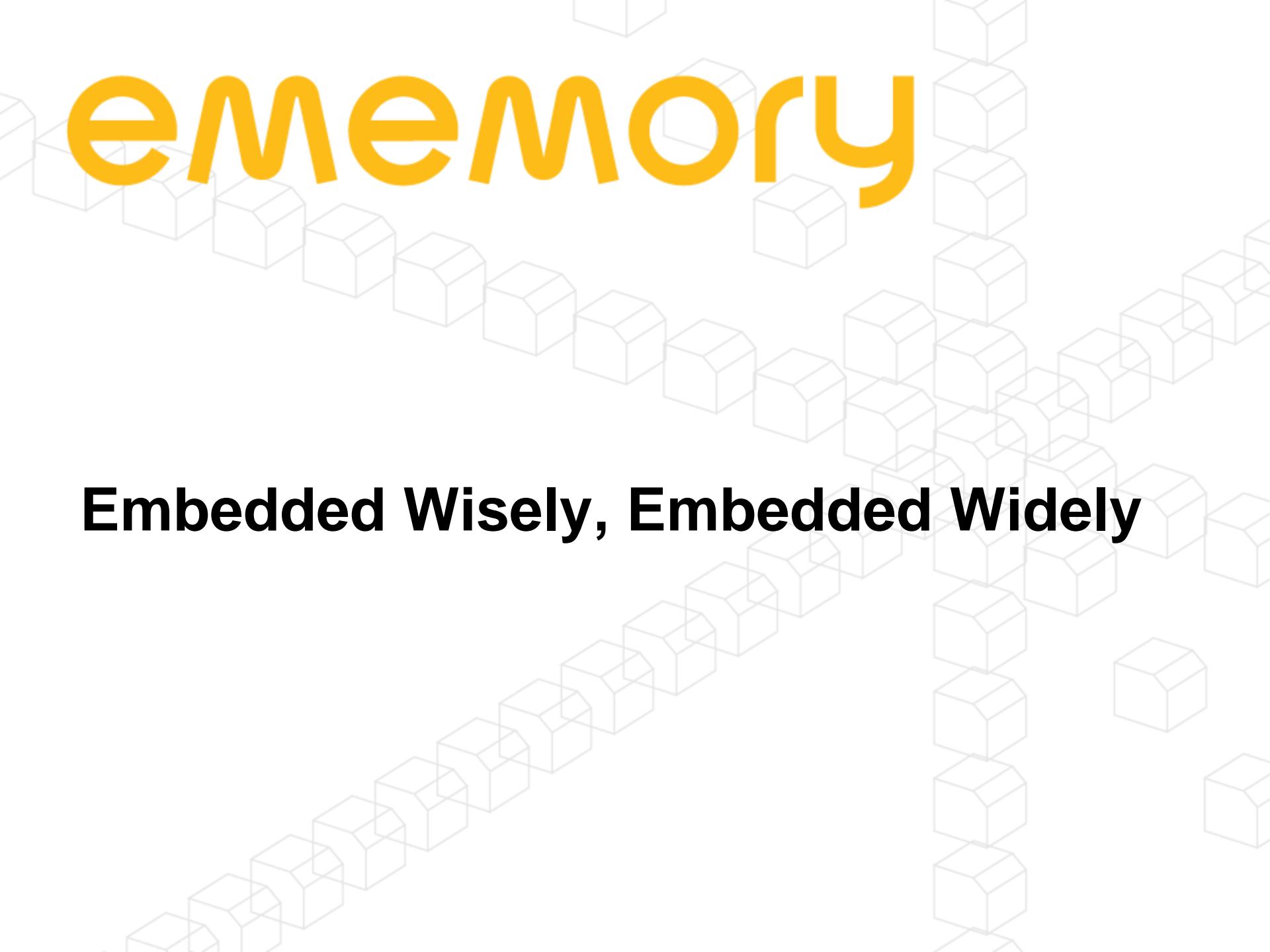
註1. 2009年因整體半導體景氣衰退，權利金年衰退1.5%。

註2. 2011年因2010年單一客戶預付權利金，導致2010年成長67%，2011年年衰退6.3%。

註3. 2009-2013年權利金年複合成長率為30%。

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Embedded Wisely, Embedded Widely