

晶心科技股份有限公司 2017年法人說明會

Driving Innovations™



股票代號: 6533
2018/03/26

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但不限於：天氣、競爭性產品及其定價的影響、產業及市場對半導體產品之供給及需求移轉、新產品大量量產之能力、技術急遽演進、半導體產業景氣以及整體經濟環境之變化。

簡報大綱

- 公司簡介
- 營運成果
- 產品應用
- 新產品及生態系統
- 近期獲獎
- 總結

公司簡介



晶心亮點

- 2005年3月設立於台灣新竹科學園區。
- 核心研發團隊來自於**AMD, DEC, Intel, MIPS, nVidia, and Sun**。
- 員工人數達140人；80%為工程師。
- **EETimes**評為全球60家最具潛力半導體新創公司。(2012)
- 獲得**TSMC 2015年新的 IP OIP Award**。
- **RISC-V**基金會創始成員。(2016)
- 股票於台灣交易所掛牌上市。(2017年 3月)

晶心任務

- 創新架構高效能/低功耗嵌入式處理器。

晶心利基

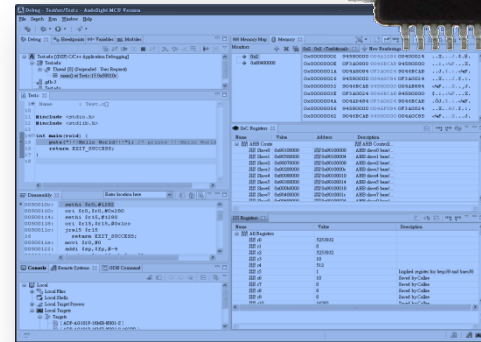
- 智能及環保之電子設備
- 雲端應用,人工智慧及物聯網

營運成果

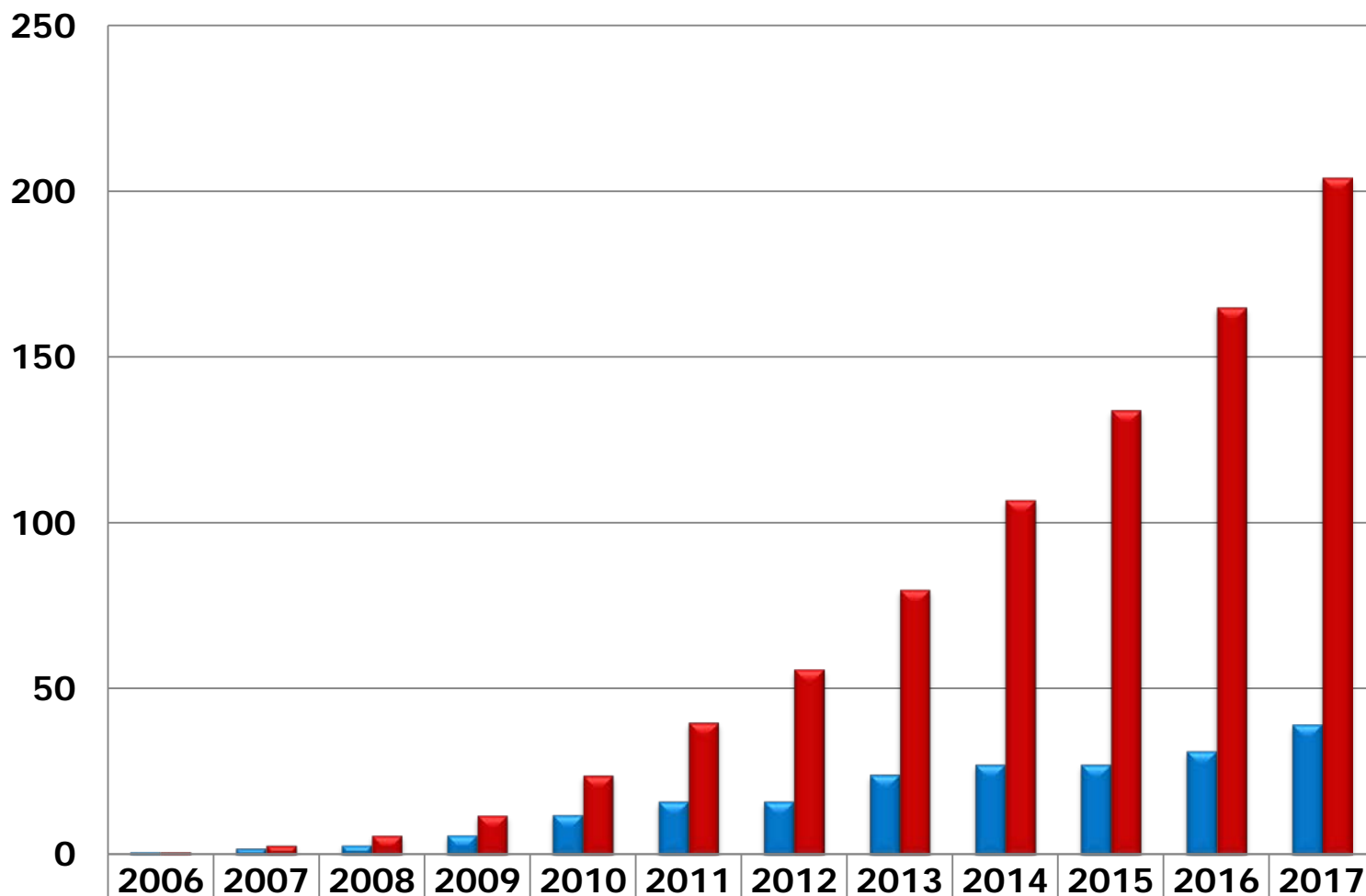
重要里程碑



- 全球授權客戶超過 **145** 家
 - 台灣, 大陸, 韓國, 日本, 歐洲, 及美國
 - 授權合約超過 **204** 份
- AndeSight™ IDE:
 - 安裝次數超過 **11,000**
- 生態系統:
 - 合作夥伴超過 **120** 家
- 嵌入晶心處理器之系統晶片累計出貨量
 - 達 **25** 億顆 (截至2017年底)



IP 授權合約數穩健成長

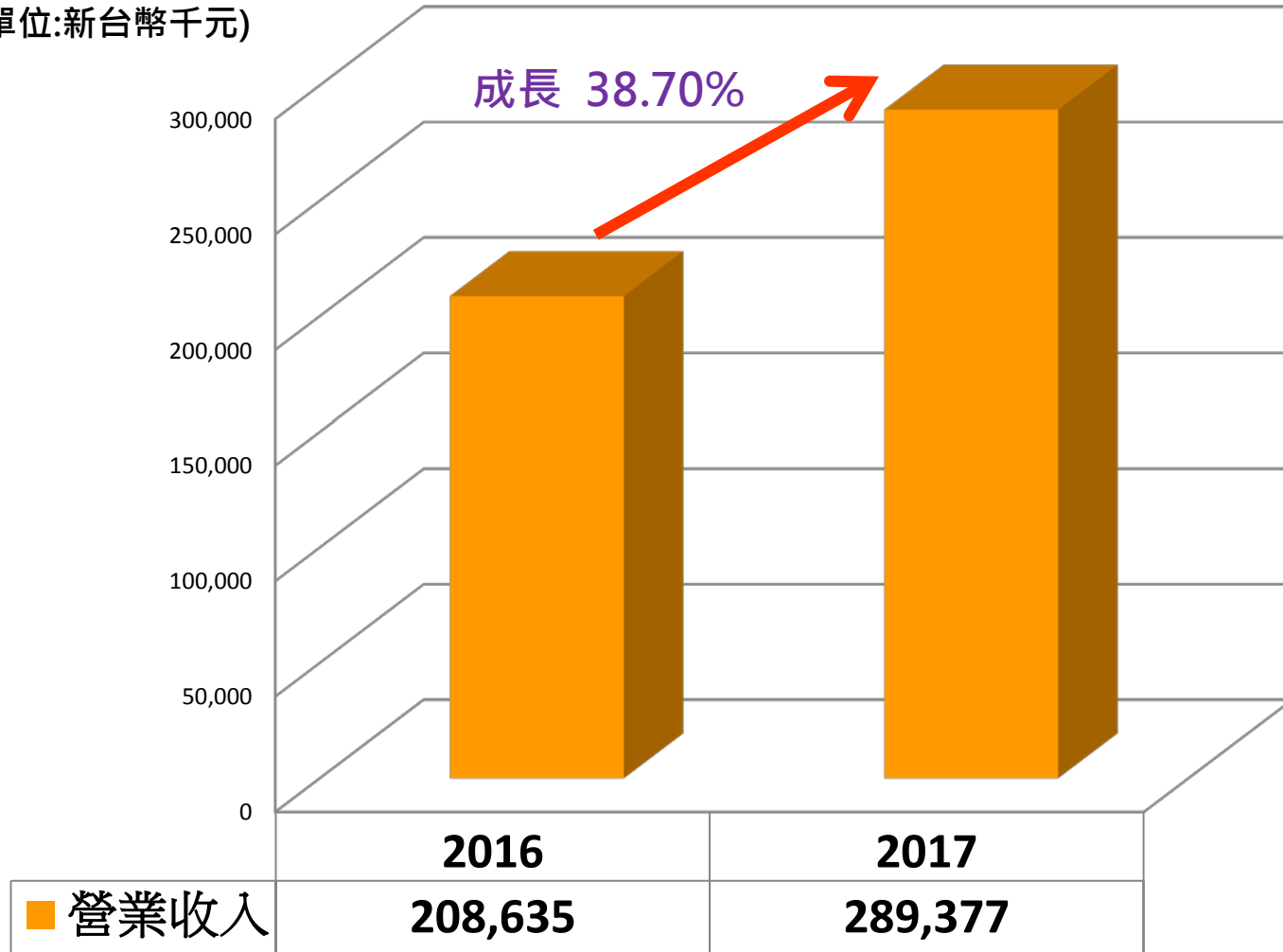


■ IP授權合約數	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
■ 累計IP授權合約數	1	3	6	12	24	40	56	80	107	134	165	204

2017年度營業收入



(單位:新台幣千元)

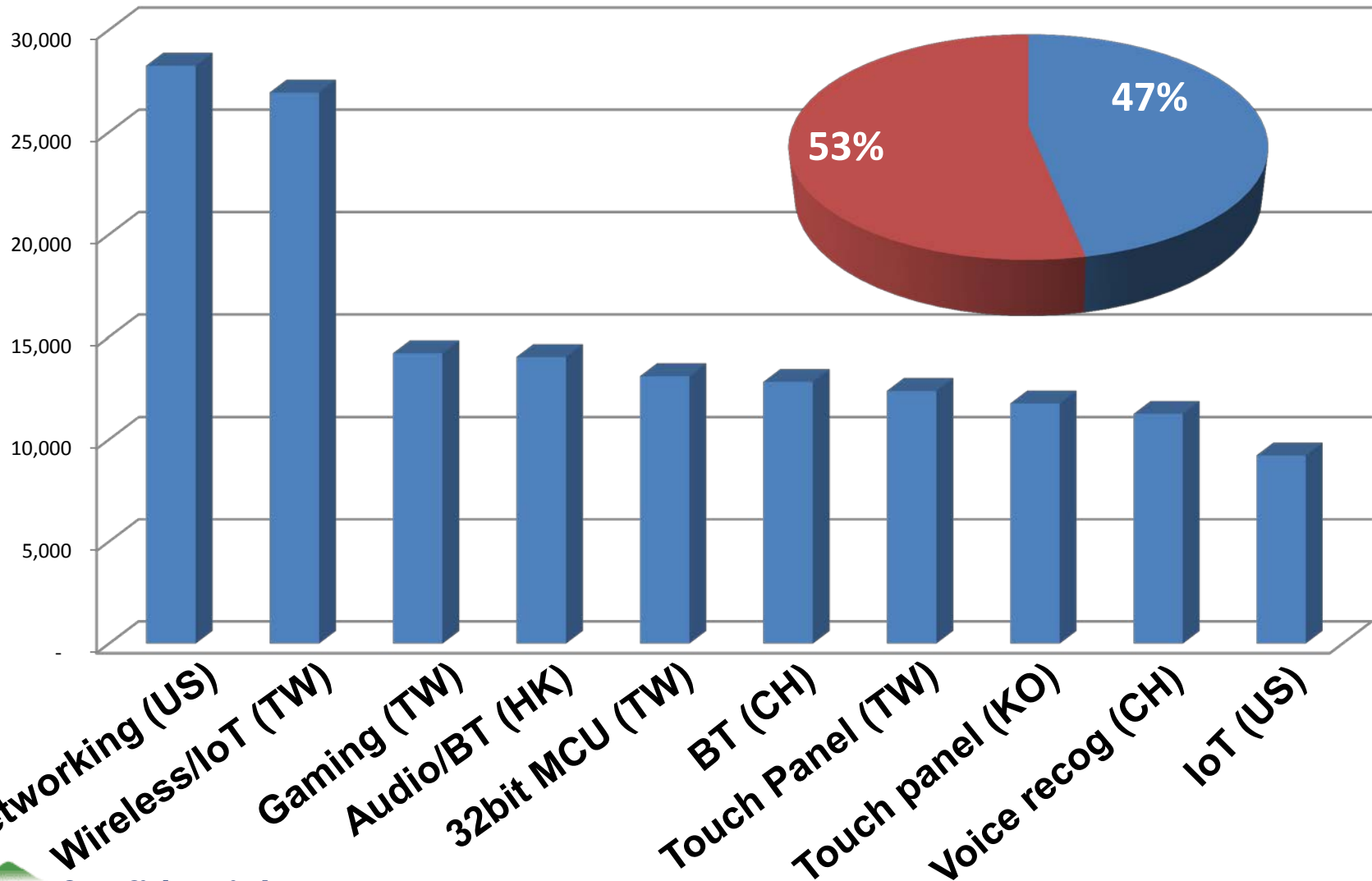


2017 年前十大客戶應用分析



單位: 新台幣千元

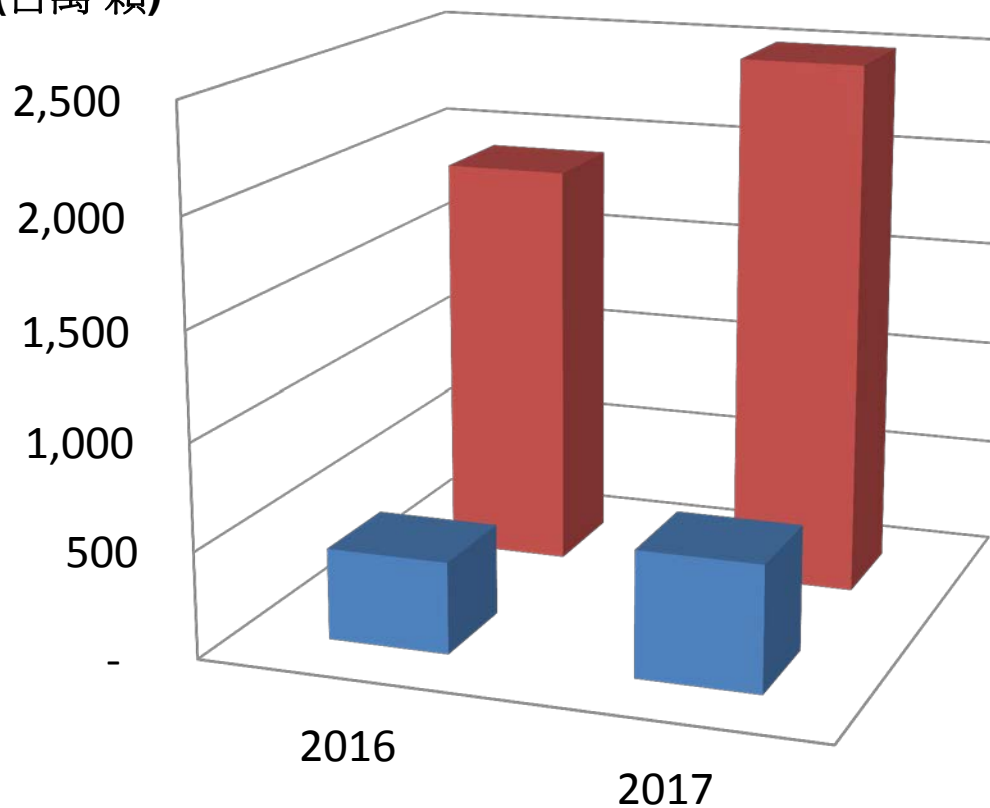
前十大客戶貢獻53%的營收



年度及累積客戶出貨量



(百萬 顆)

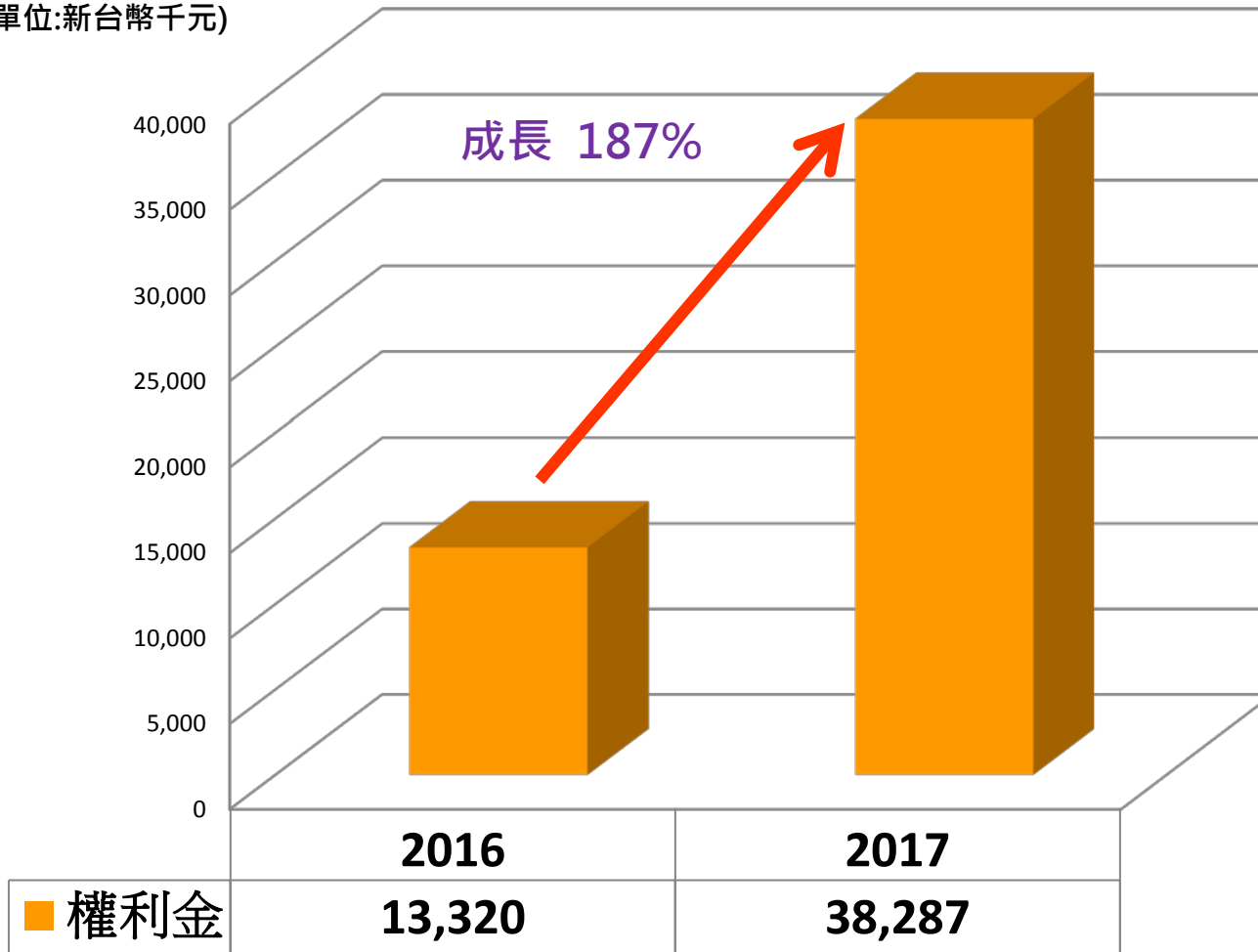


	2016	2017
■ 年度出貨量	430	590
■ 累積出貨量	1,910	2,500

2017年度權利金收入



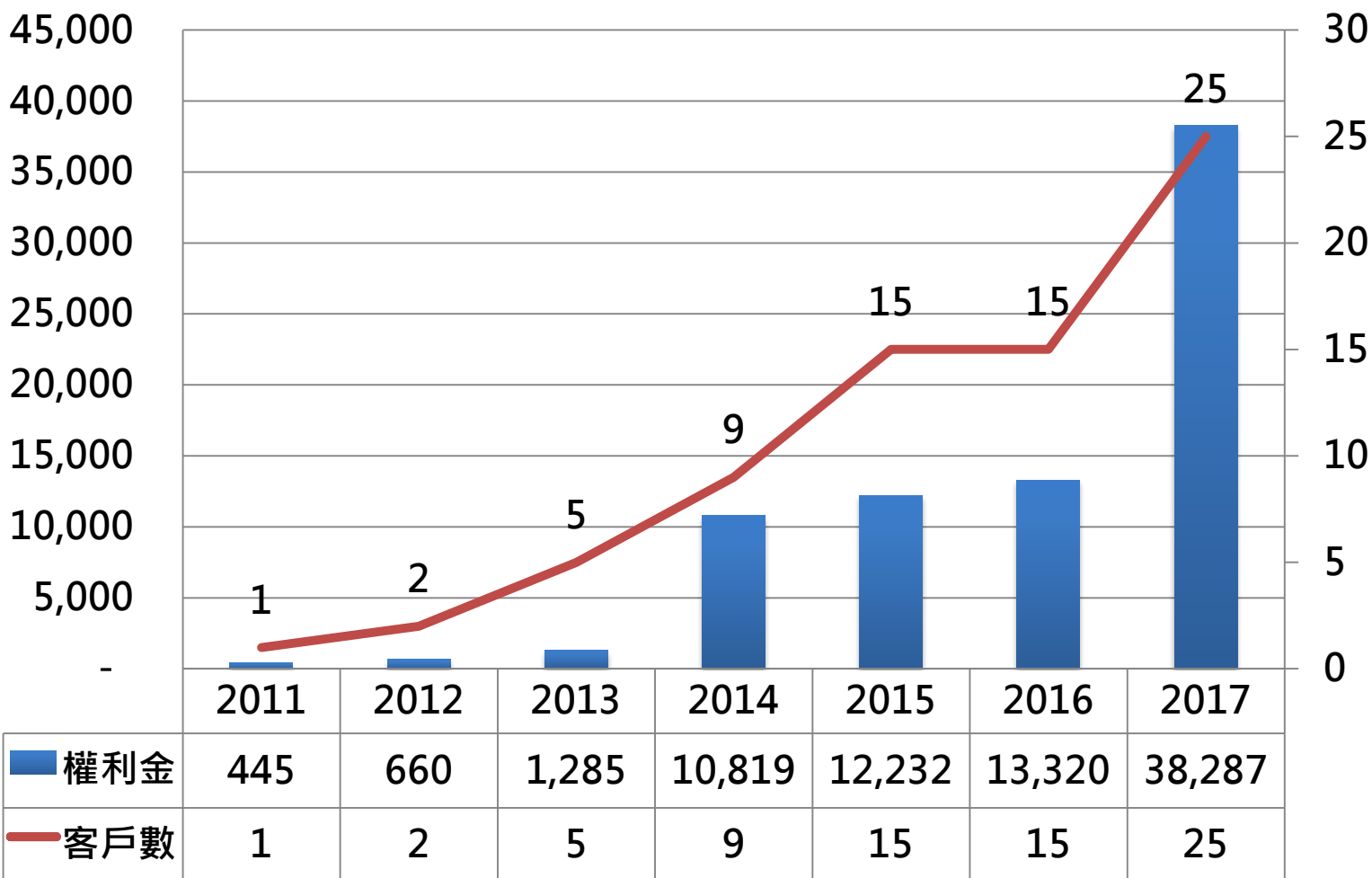
(單位:新台幣千元)



權利金貢獻分析



(單位:新台幣千元)

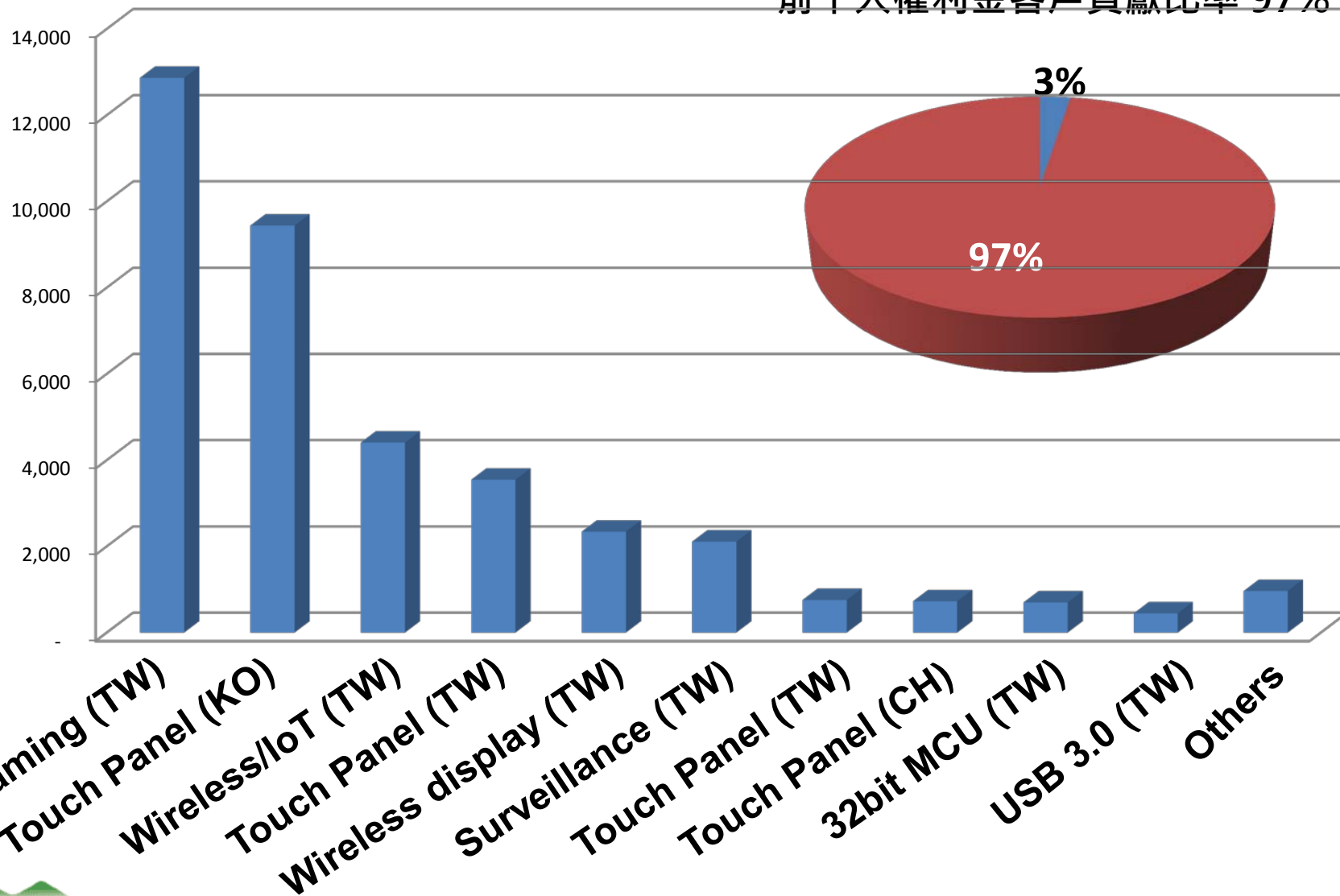


2017年權利金十大客戶應用分析



(單位:新台幣千元)

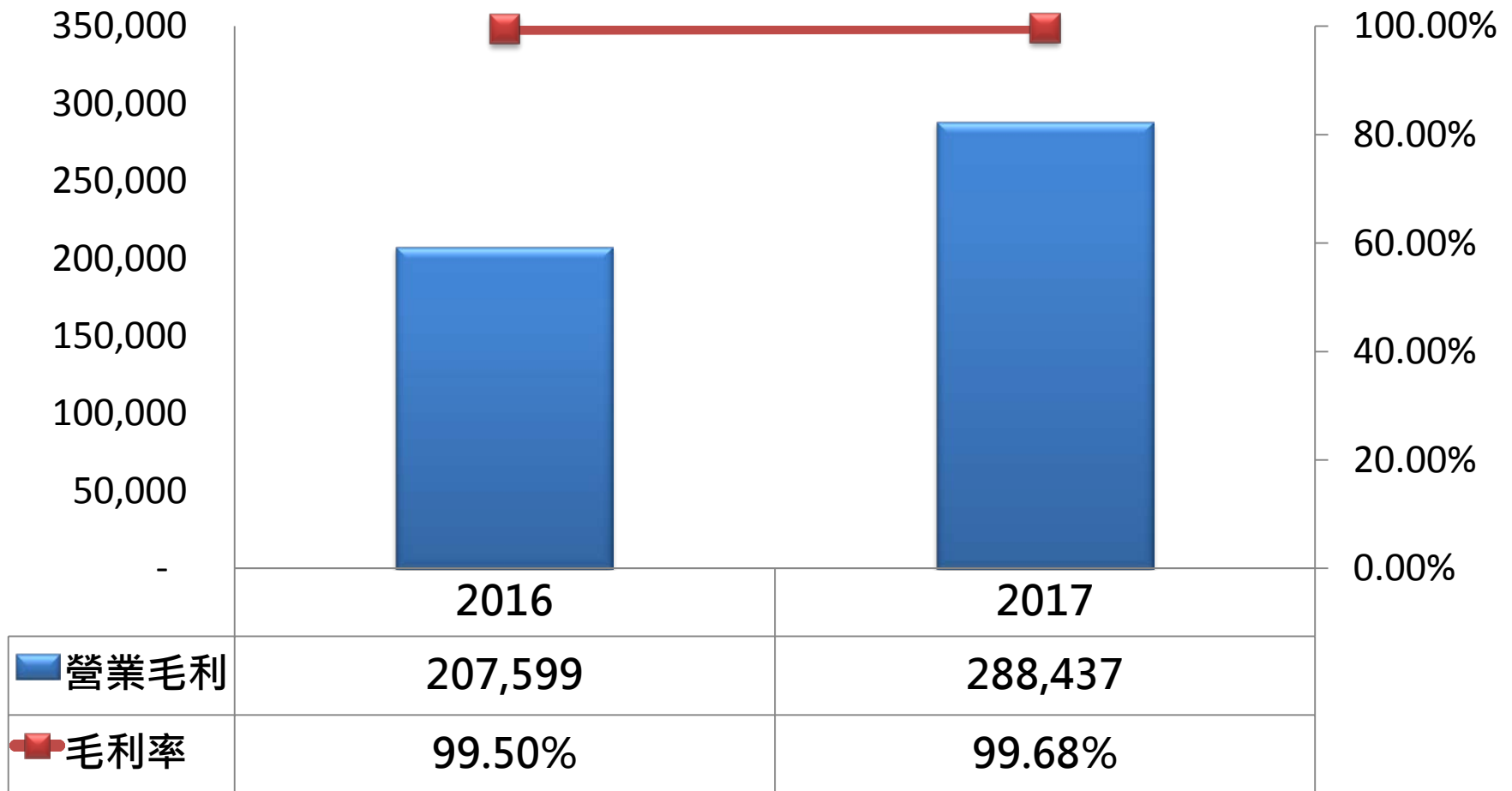
前十大權利金客戶貢獻比率 97%



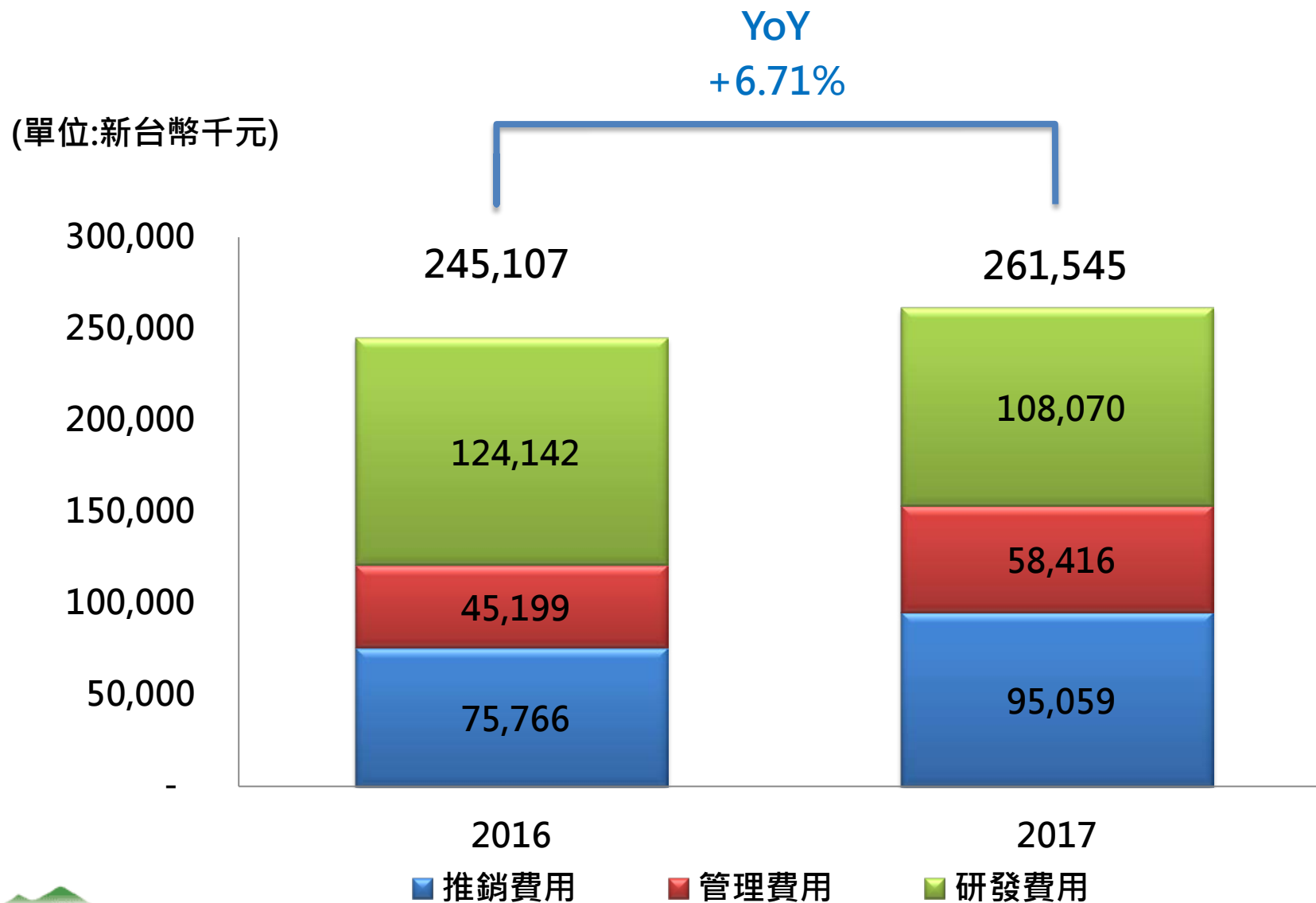
營業毛利與毛利率



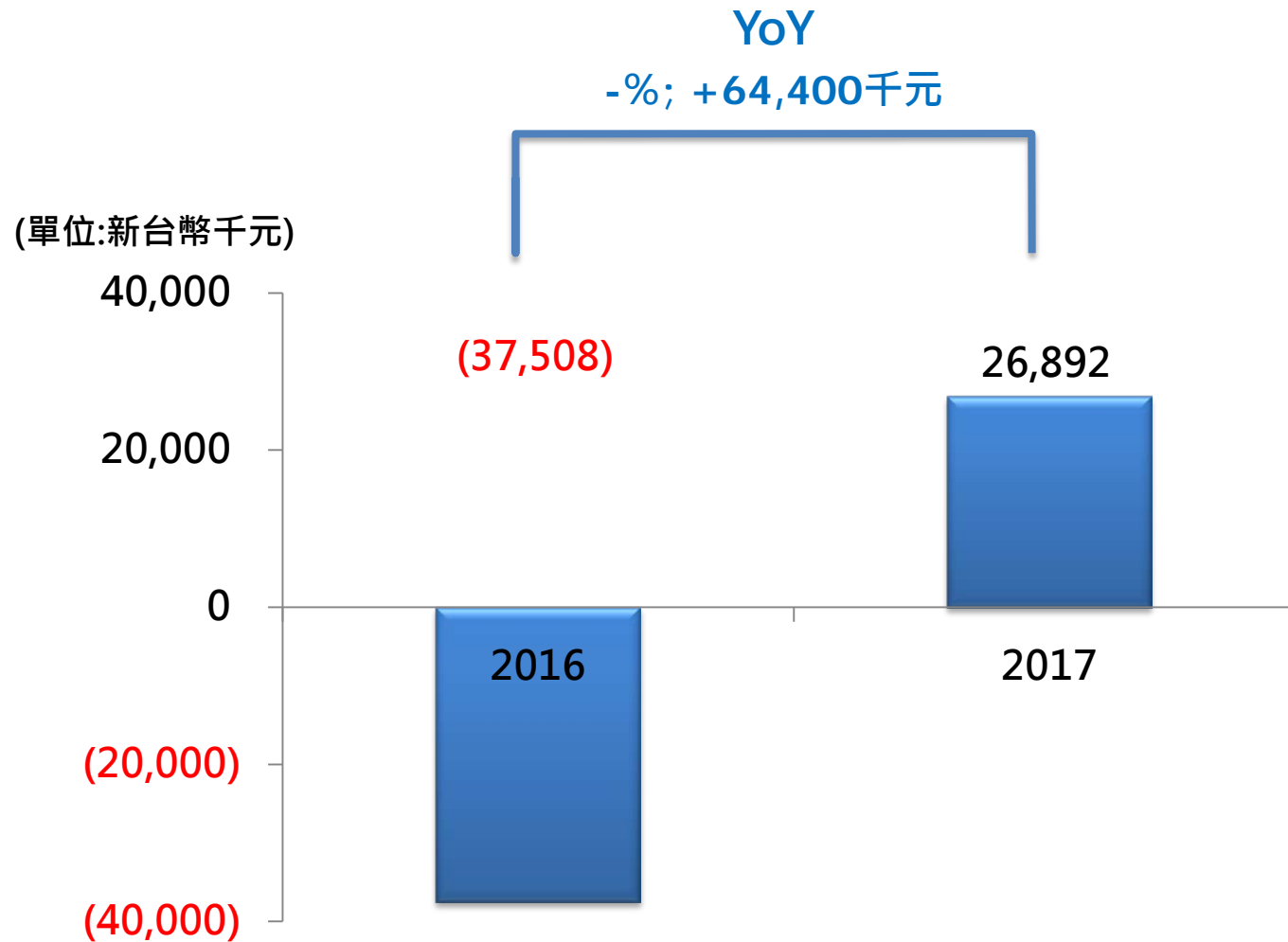
(單位:新台幣千元)



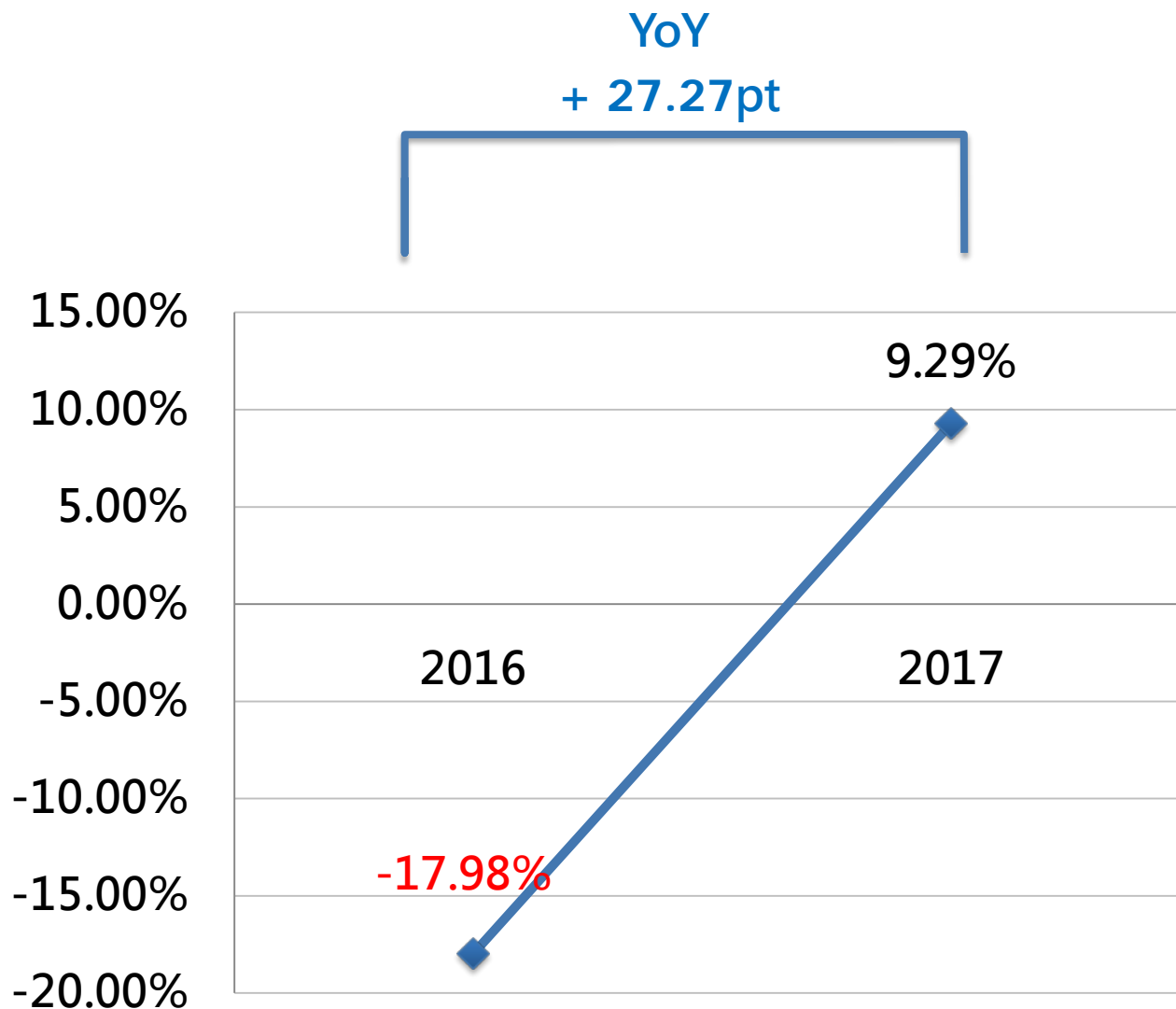
營業費用



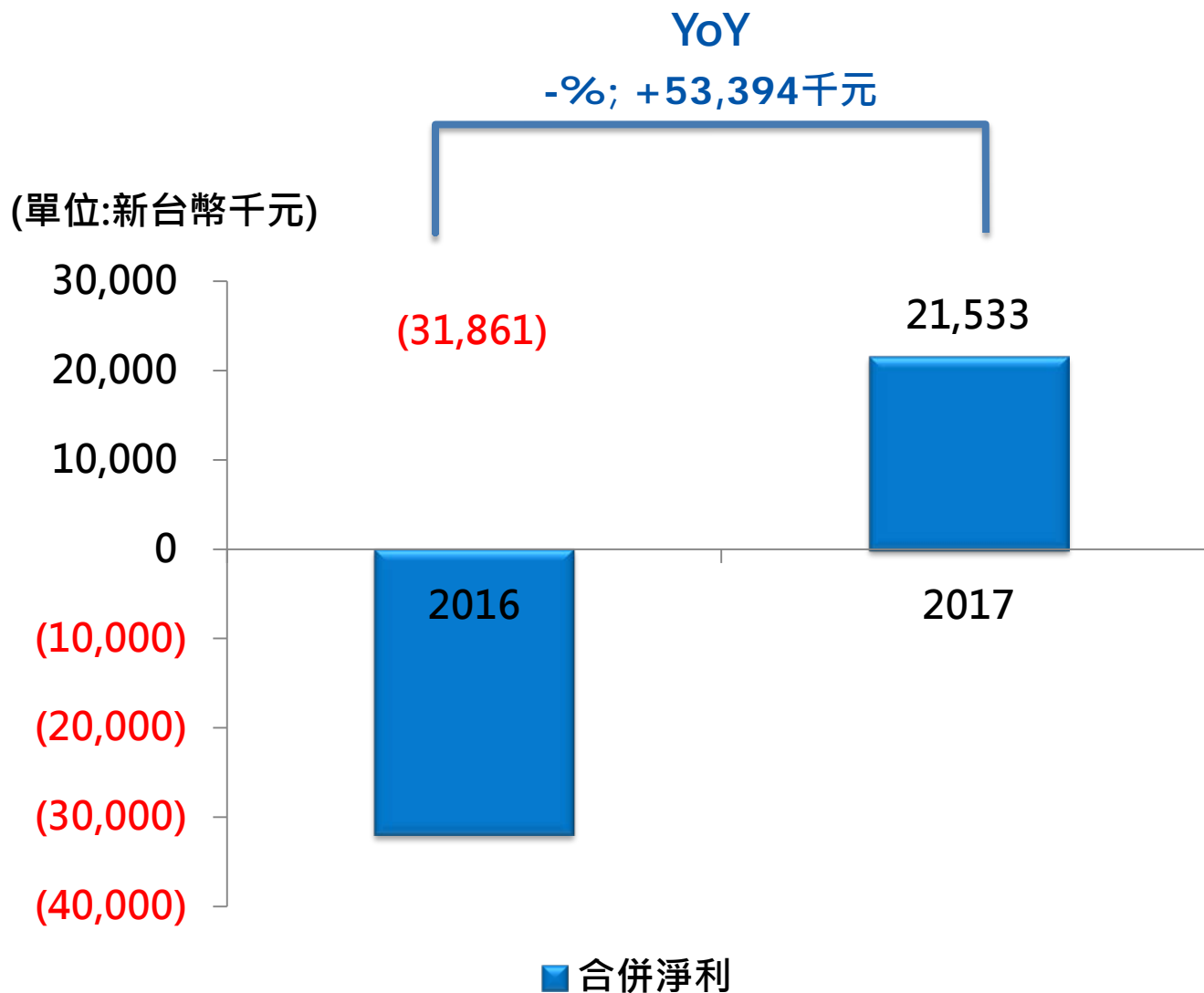
營業利益



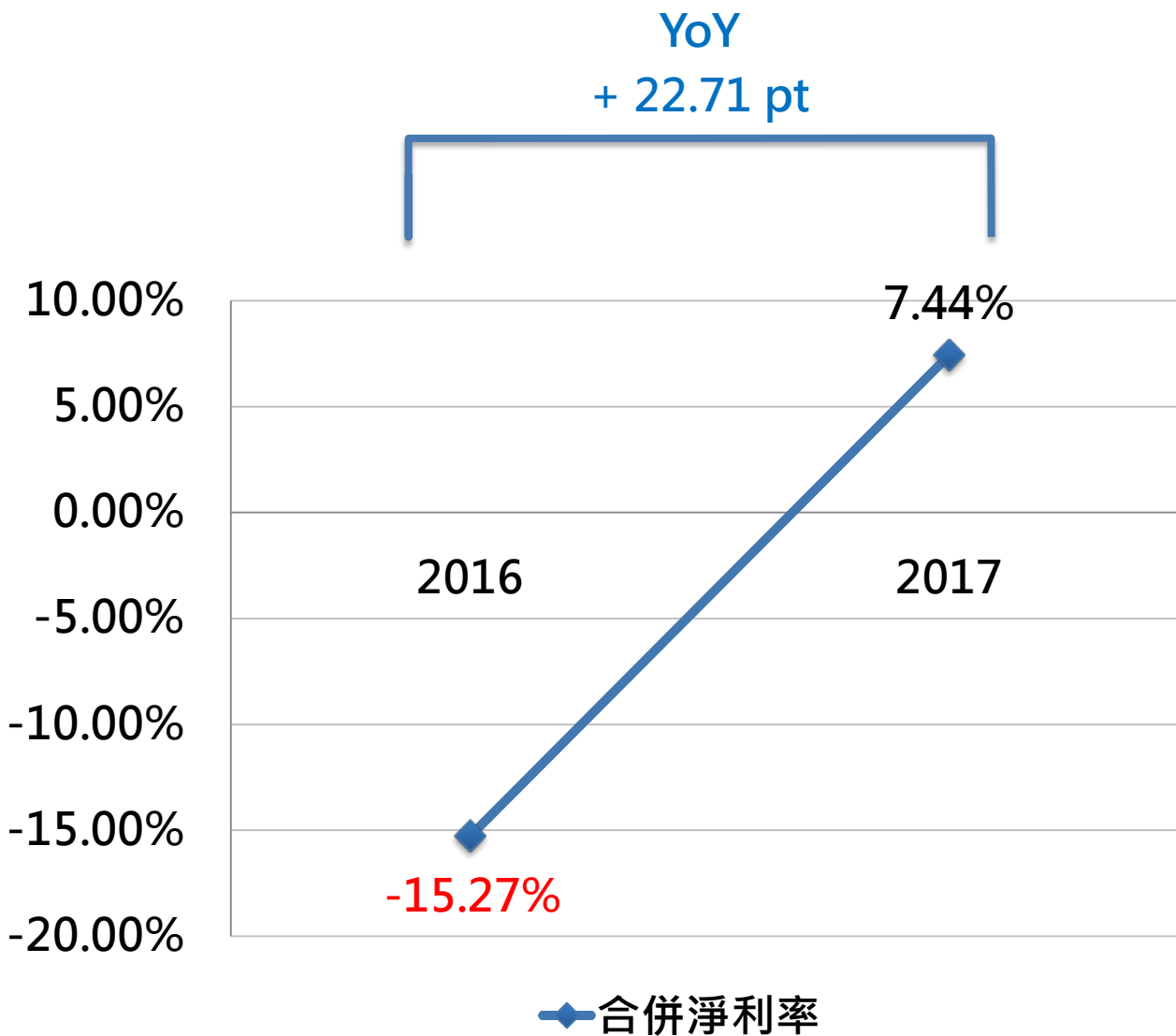
營業利益率



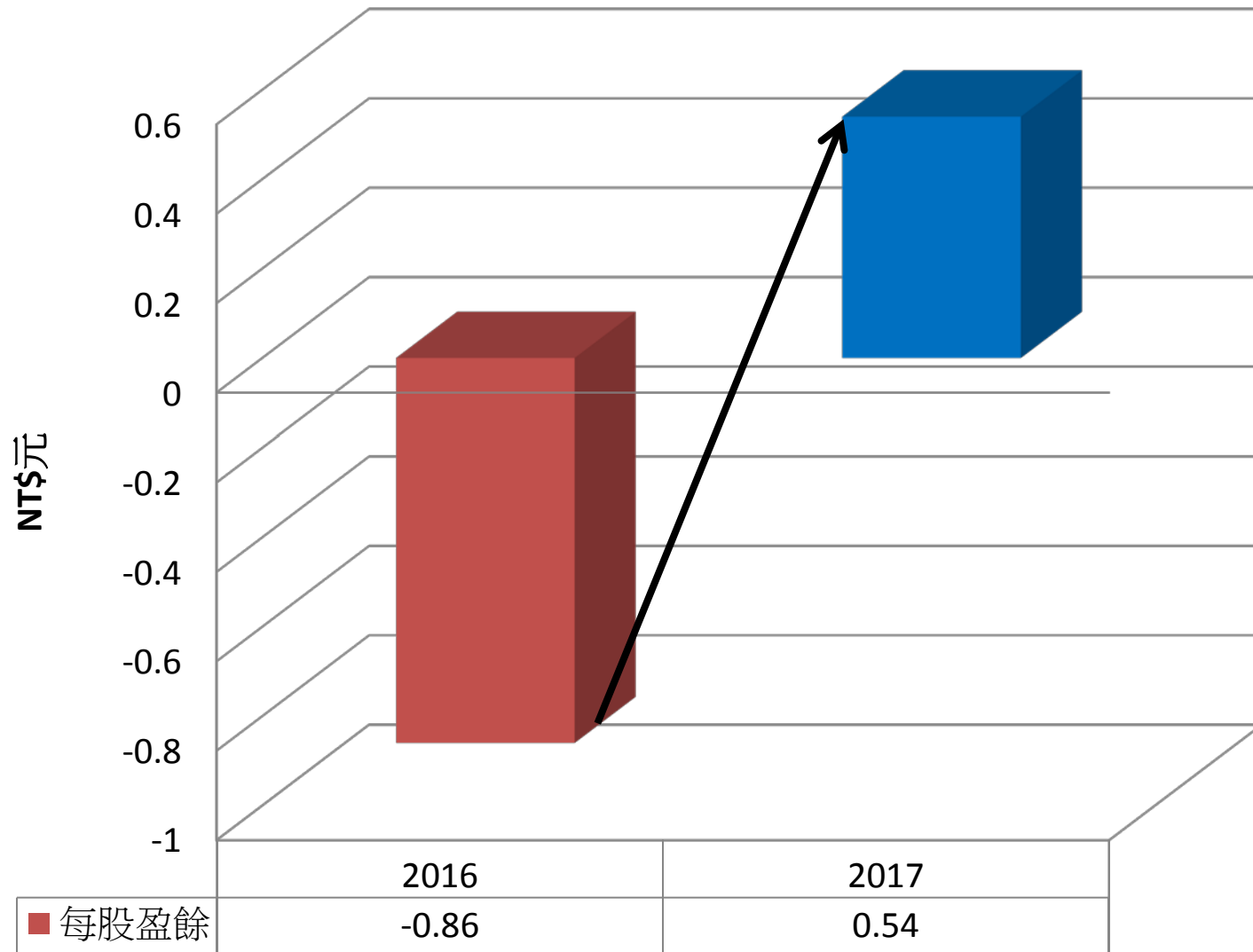
合併淨利



合併淨利率



每股盈餘

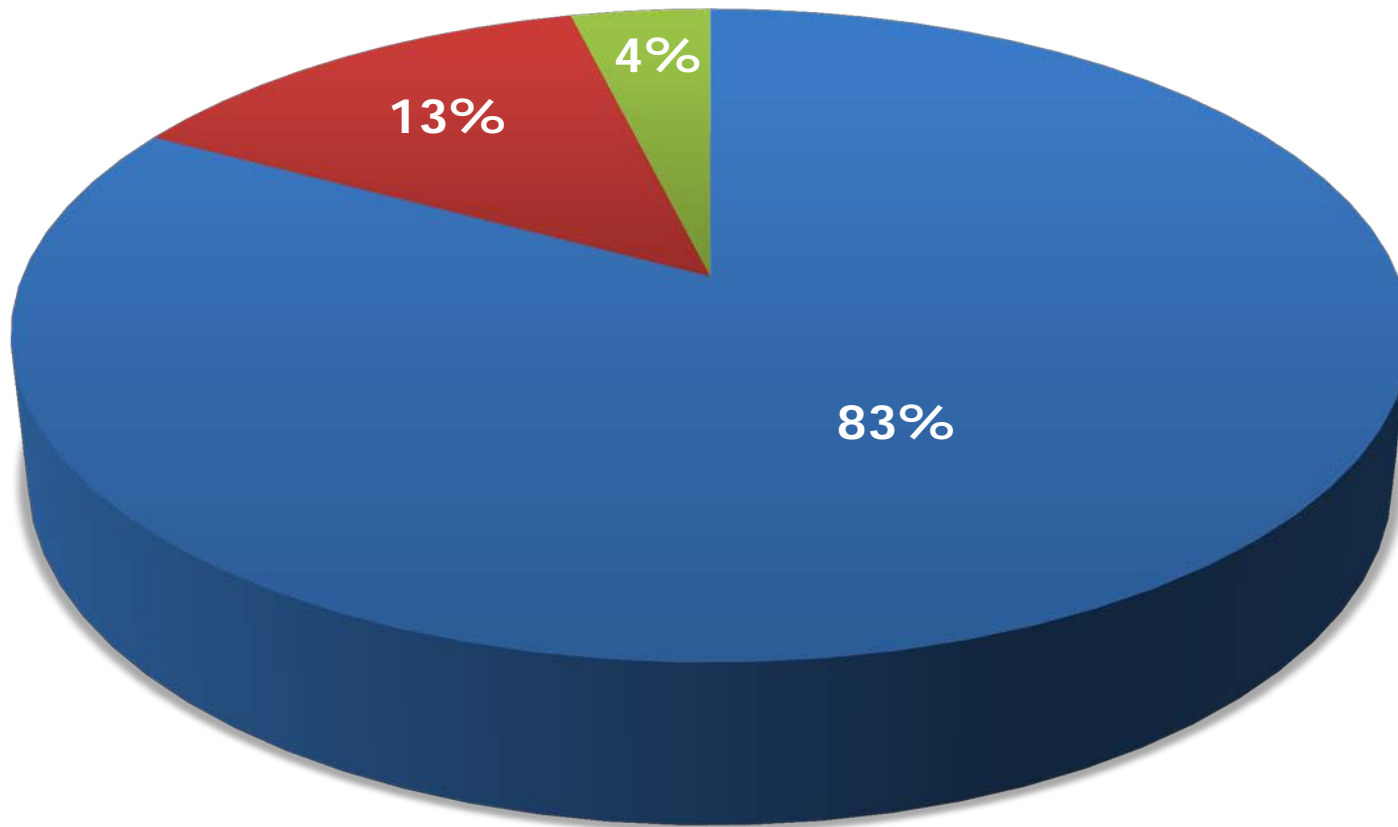


2017年度銷售分析-收入模式

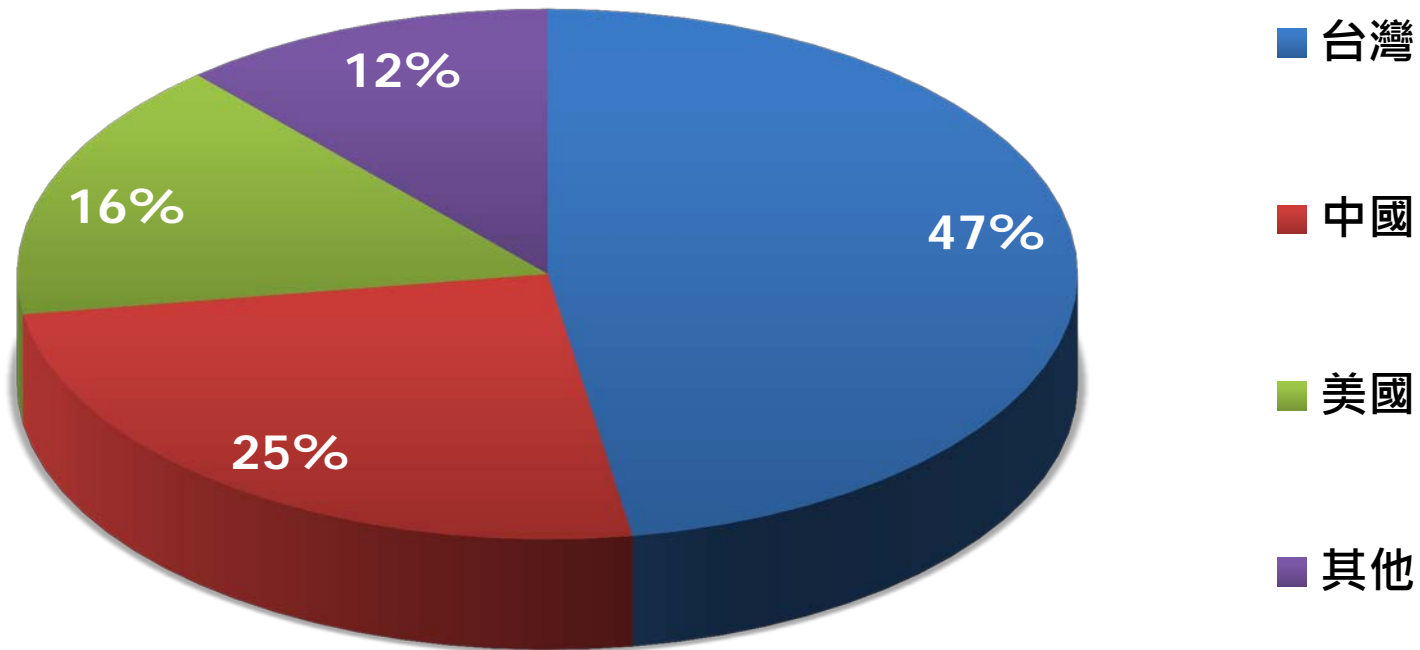


(2017/01-12 新合約數: 39)

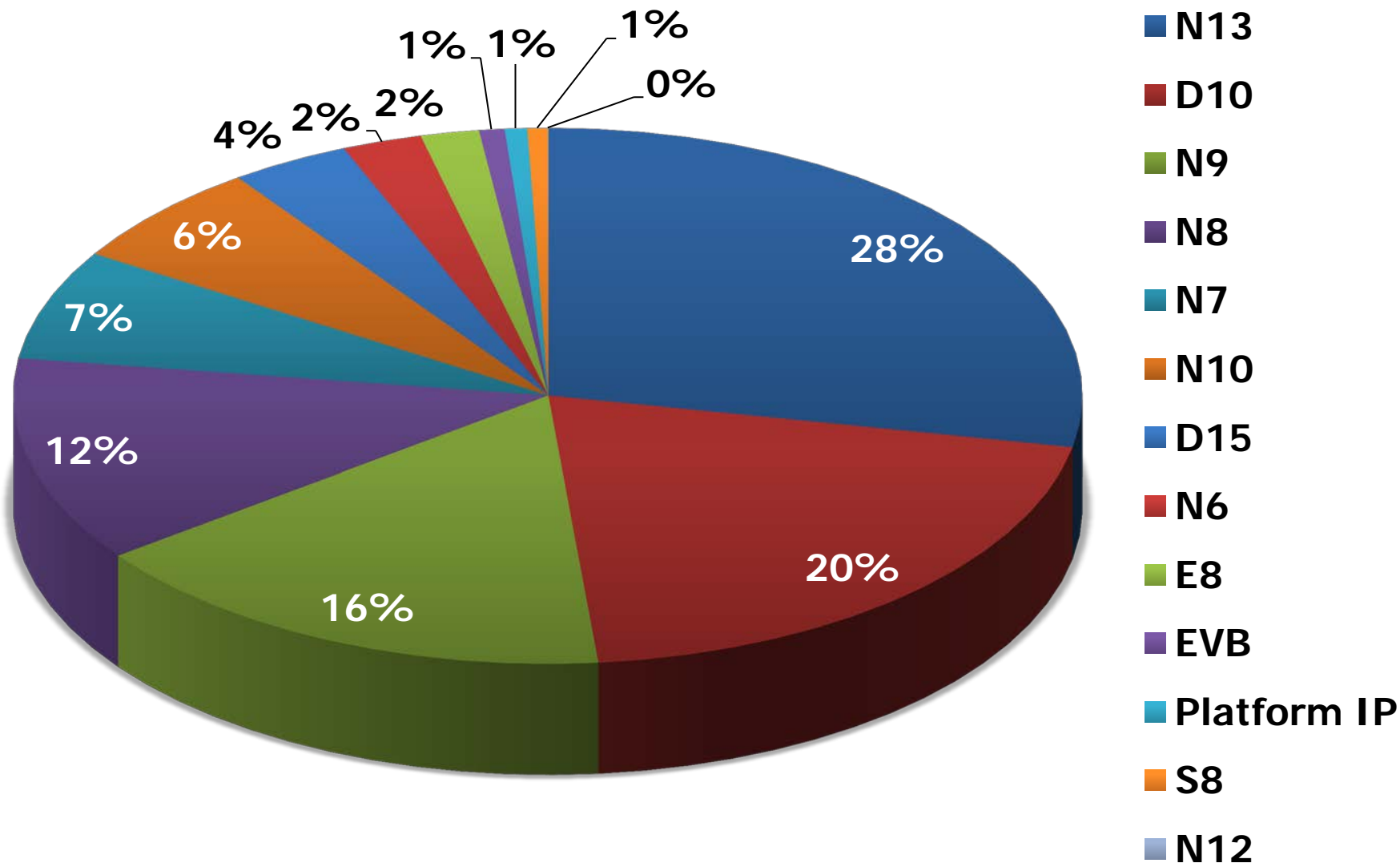
■ 矽智財授權收入 ■ 技術權利金收入 ■ 矽智財維護服務收入及其他



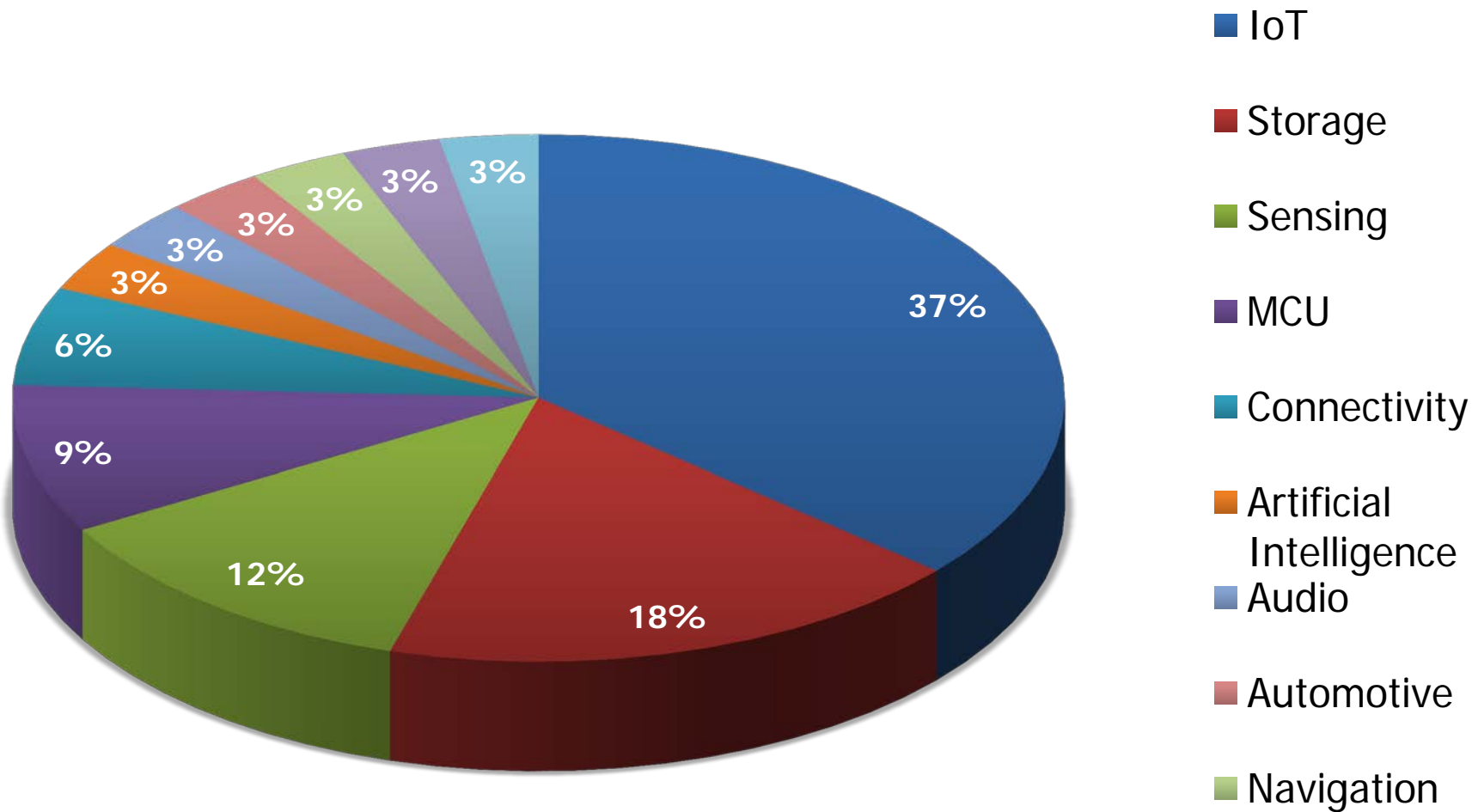
2017年度銷售分析-地區別



2017年度銷售分析-產品別



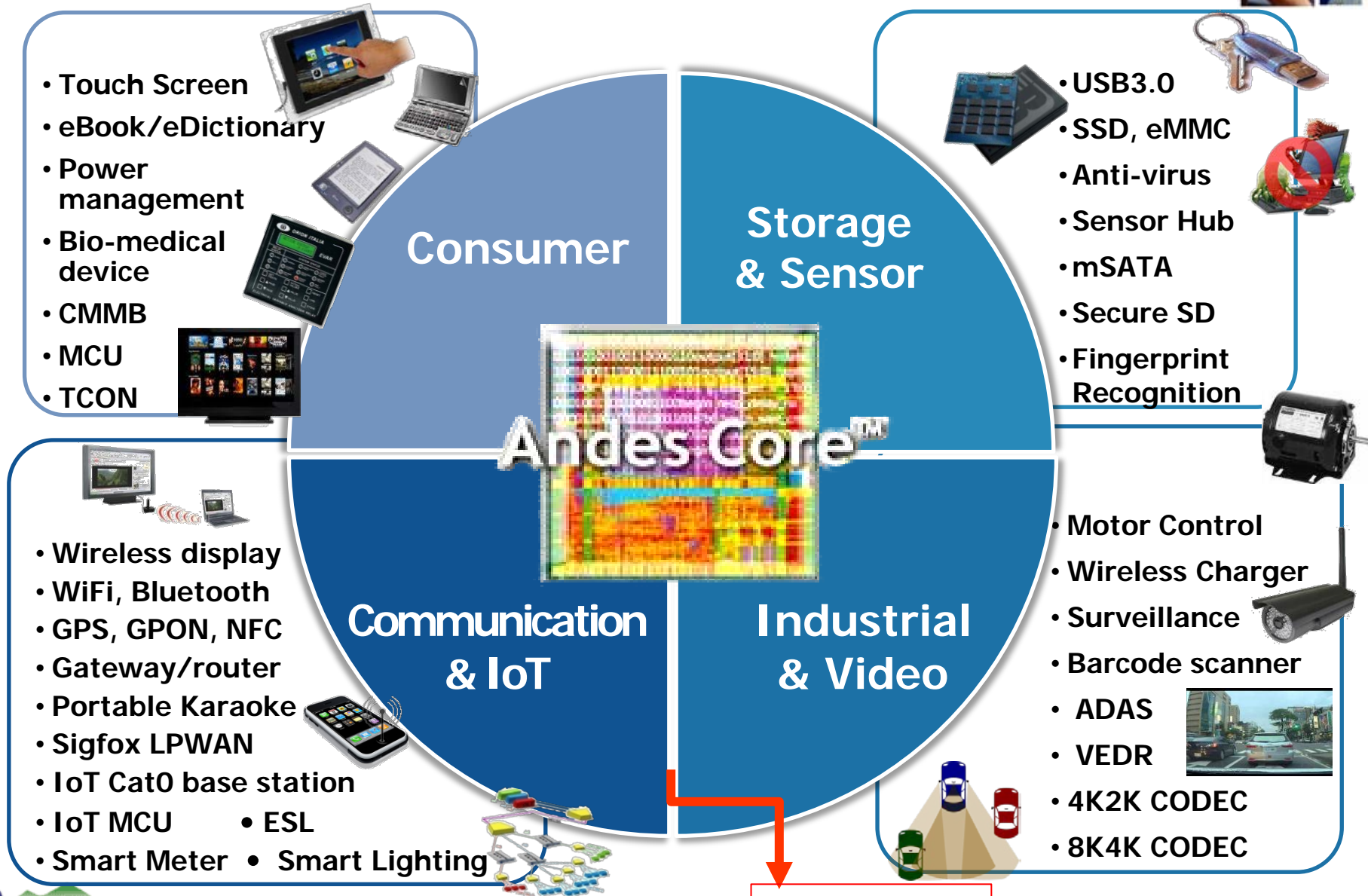
2017年度銷售分析-客戶應用



*Based on agreement number

產品應用

豐富多樣的客戶應用



and more....

物聯網應用 - 1



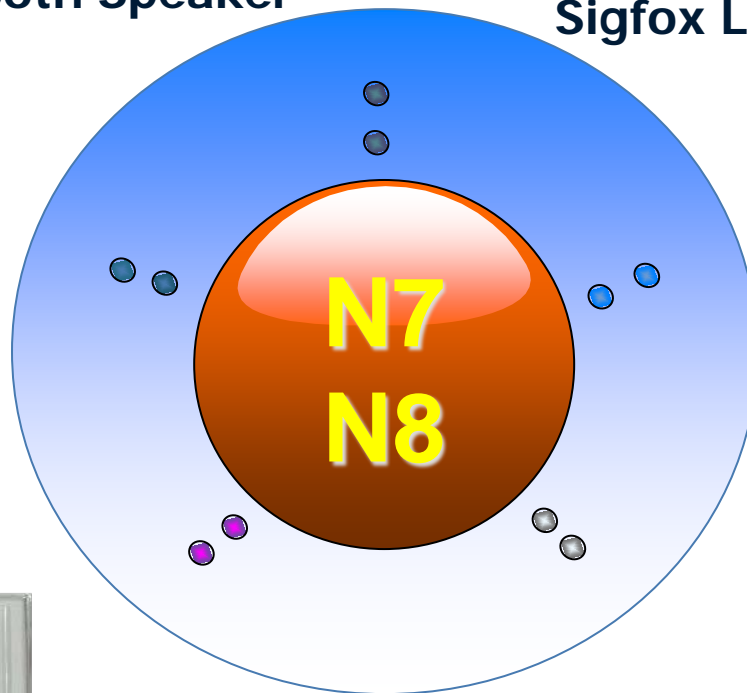
Bluetooth Speaker



Sigfox LPWAN



Healthcare device



Wearable device



Electronic price tags



Sensor Hub

物聯網應用 - 2



Wearable devices



Drone



Portable Karaoke



**WiFi/GPS/FM/Bluetooth
combo**



GPS/Beidou in shared bikes



**Contactless payment
(NFC)**



汽車電子應用



◆ N13

◆ 汽車環車監控系統 (AVM)
in NISSAN New X-Trial



◆ N10

◆ 行車紀錄器
◆ 先進駕駛輔助系統(ADAS)

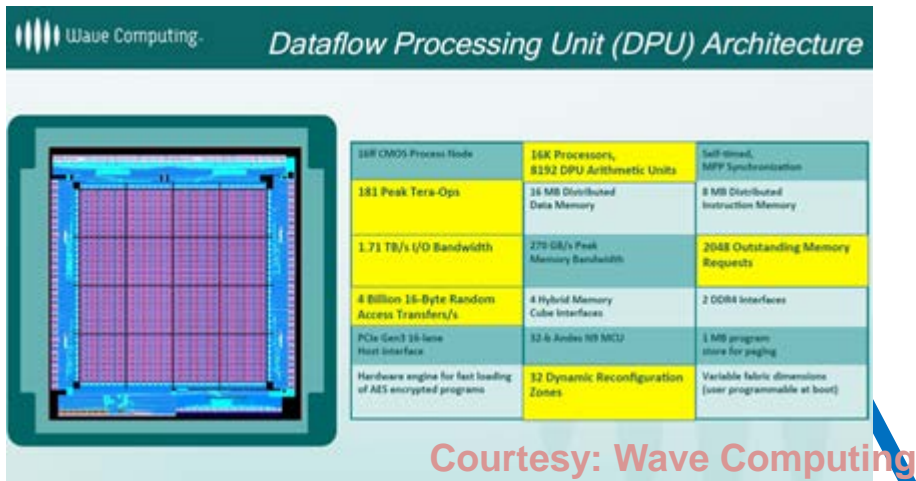


◆ D10

◆ ADAS

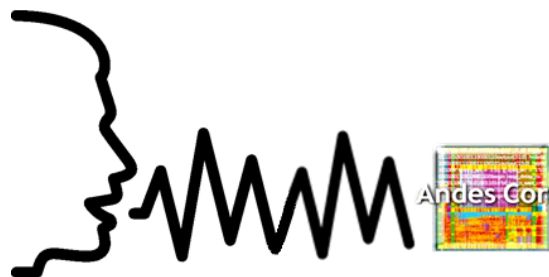


AI人工智慧應用



◆ N9
Dataflow Processing

◆ D10
語音辨識



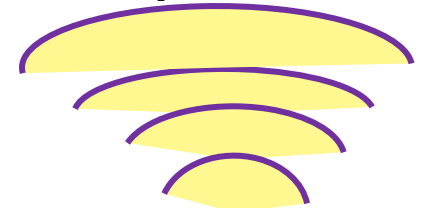
Andes
Embedded™



◆ D15F
影像辨識



◆ N9
AI companion



SoC for WiFi in AI
Companion

更多、更新的應用正在發生



❖ 人工智慧

■ 深度學習

❖ 下世代電視

❖ 下世代網路引擎

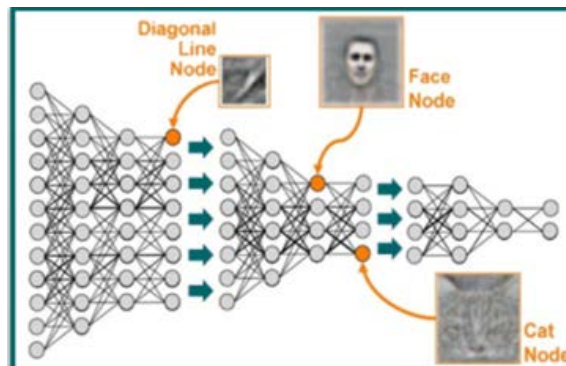
■ 路由器

❖ 無人機飛控

❖ 機器人

❖ ...

❖ 由百種應用邁向千種應用的歷程



16K Processors,
8192 DPU Arithmetic Units

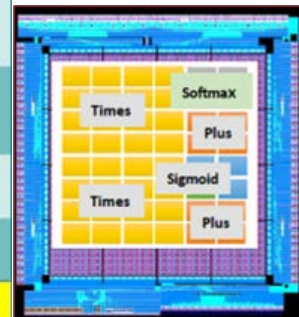
16 MB Distributed
Data Memory

270 GB/s Peak
Memory Bandwidth

4 Hybrid Memory
Cube Interfaces

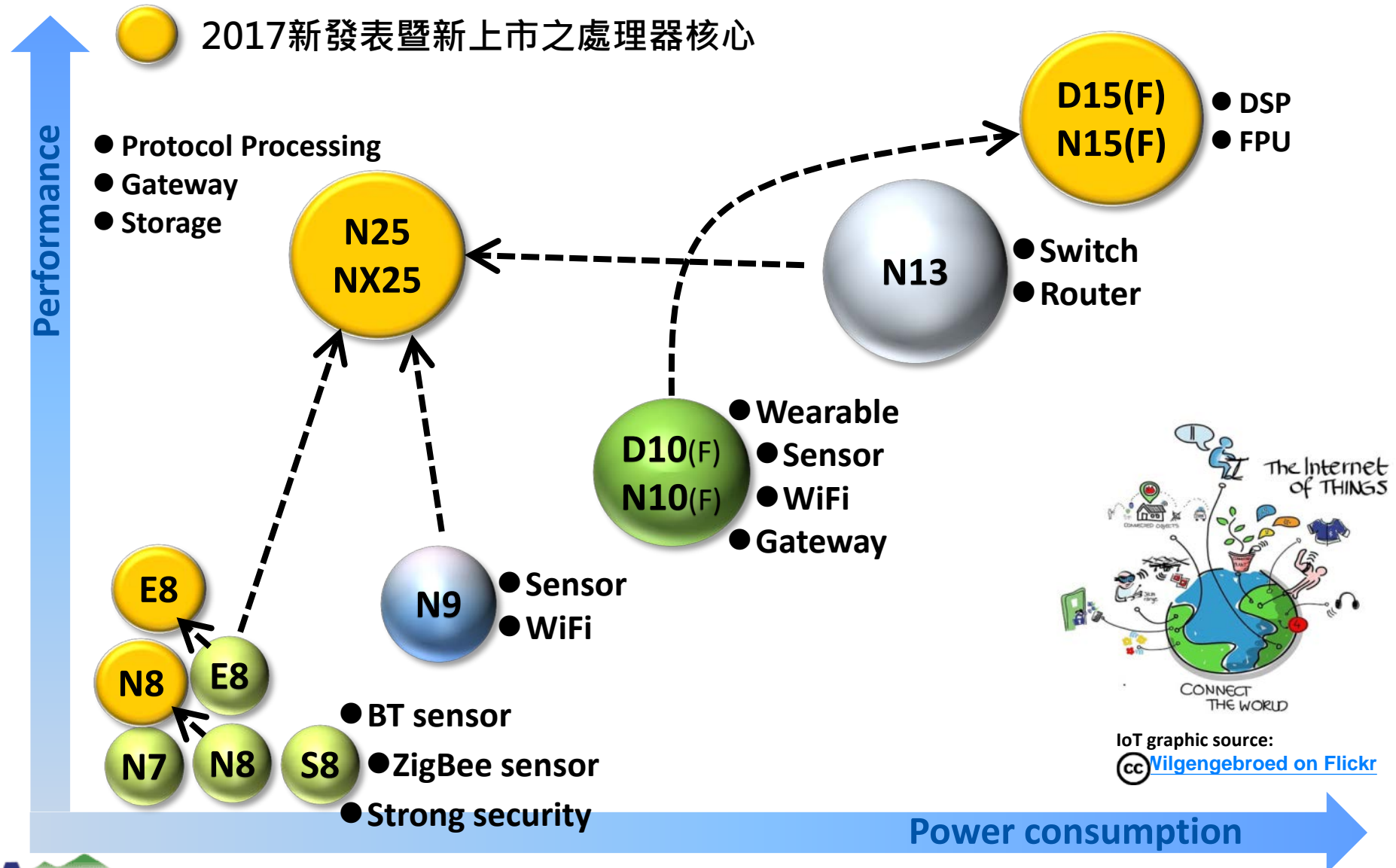
32-b Andes N9 MCU

32 Dynamic Reconfiguration
Zones



新產品及生態系統

2017新上市之 AndesCore™



AndesCore™ V5 家族



Under developing

Ultra
Performance

StackSafe™

CoDense™

PowerBrake

Next
Generation
V5 (V5m with
adv. features)

To Release

Extensible
Instructions

E25*
V5m, 32-bit
5-stage, 1GHz
Custom Inst.

EX25*
V5m, 64-bit
5-stage, 1GHz
Custom Inst.

I/D Local
Memories

I/D Caches

Branch
Prediction

Released

Modern
Architecture

N25
V5m, 32-bit
5-stage, 1GHz
Compact

NX25
V5m, 64-bit,
5-stage, 1GHz
Compact

64-bit
AXI/AHB

ECC

◆ 28HPC Rvt library, slow silicon, 0.81V, 0C, with I/O constraints; * Available early 2018

AndesCore™ 競爭優勢



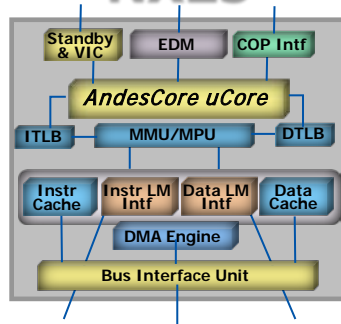
AndesCore™	AndesCore/ Competitor	Competitors
	Power Efficiency ¹ (DMIPS/mW)	
<u>N7</u>	+42%	Cortex-M0+
<u>N8</u>	+43%	Cortex-M3
<u>N9</u>	+43%	Cortex-M3
<u>D10</u>	+48%	Cortex-M4
<u>N13</u>	+185%	Cortex-A5
<u>N13</u>	+45%	Cortex-R4
<u>D15F</u>	+121%	Cortex-M7

1. Power Efficiency is DMIPS/MHz divided by power consumption (mW/MHz) when running Dhrystone.

64位元架構及生態系統



Processor IP's AndeCore™ NX25

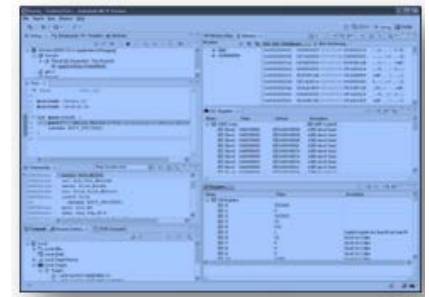


Processor Architecture AndeStar™ V5, V5m

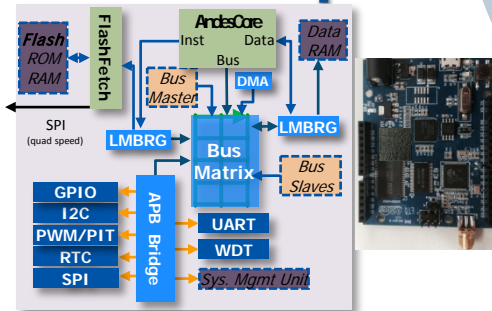
```

smw.adm $r1, [$sp], $r5, 0x0
smw.adm $sp, [$sp], $sp, 0x2
addi    $sp, $sp, -8
sethi   $r1, 0x50a
lwi     $r1, [$r1+#0x98]
mov55   $r2, $r0
mov55   $r0, $r1
lwi     $r1, [$r1+#0x8]
addi    $r3, $sp, 12
    
```

Development Tools AndeSight™



Development Platforms AndeShape™



AndeStar™
Embedded™

SW Stacks AndeSoft™



生態系統: Andes 與 Knect.me



Knect.me 生態系統

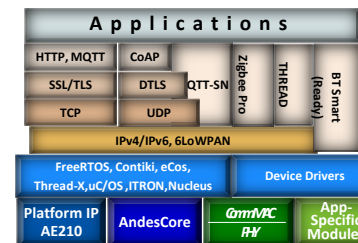
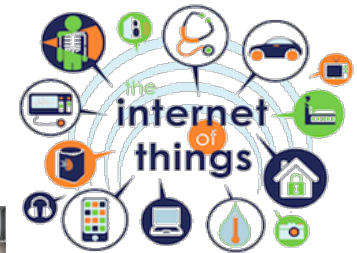
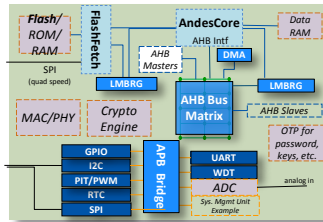


❖ 建立 knect.me 生態系統協助物聯網發展

- to **knect** solutions - Silicon IP's, SW stacks, tools, applications, systems and products

❖ Includes:

- SoC IP Platforms
- Software Stack
- Development Boards
- Development Tools



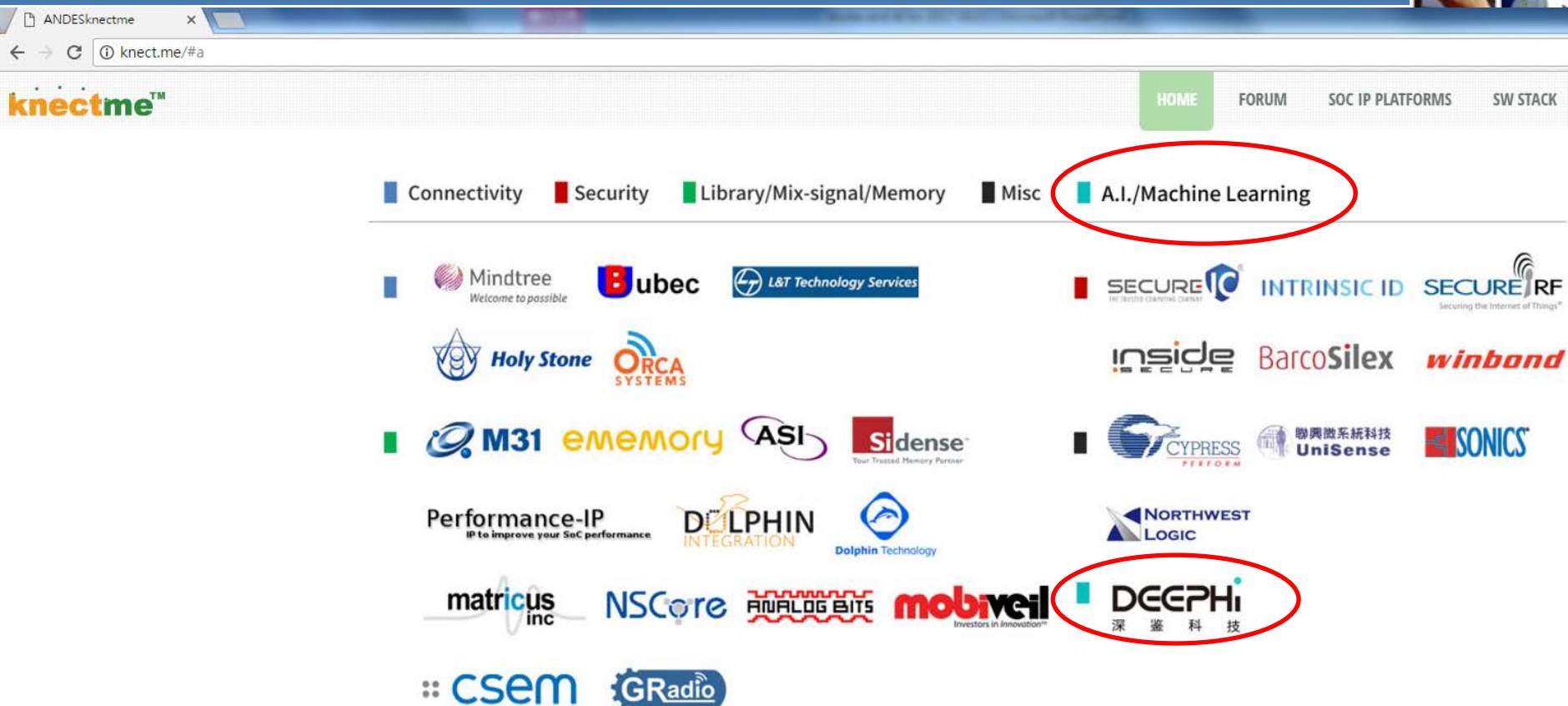
❖ To Form a IoT League

- to **knect** chip vendors, partners, application developers, system vendors

knectme™



增加 A.I. 至 Knect.me 生態系統



What is "IoT League"? We invite Andes' customers to provide products information which contains AndesCore. IoT League can enhance exposure and reputation in IoT domain. Various applications can help Andes' customers to attract more and more users to adopt their IoT products.

Companies in alphabetical order



近期獲獎

引領物聯網潮流



► “2017 Top25最佳物聯網解決方案提供公司” — APAC CIOOutlook Magazine

Andes Technology Corporation: Delivers High Performance/Low Power 32/64-bit Processor IP

Embedded processor brings up the bottom line operations of a device by adding flexibility and optimizing the cost. The Hsinchu, Taiwan-based Andes Technology Corporation stands as a distinguished and fastest growing embedded processor intellectual property supplier, which is congested with a multitude of IoT solution providers and newest technologies. With over twelve years of experience in proffering processors based on Andes instruction set architecture, having toolchains available for AndesCore™ based software development and debugging, porting operating system to Andes Cores, bringing software stacks to support various applications including especially IoT, developing platforms for Andes Core embedded SoC, and strengthening help and support to SoC design teams from varied sectors, Andes has become the choice of customers around the world. Being an intellectual property supplier, the company provides digital IP, complete infrastructure, and ecosystems for SoC design engineers to use.

Since enterprises have become highly reliant on digital technologies to automate their business functions, they also need to ensure a proficient SoC solution supplied by the semiconductor industry to be integrated into their organizations for better scalability, flexibility, and power saving. “We see ourselves as a tier-one supplier in embedded processor intellectual property industry and it is our responsibility to enable customers to design high-quality SoCs,” states Frankwell Lin, President, Andes Technology Corporation. To address it, Andes developed a spectrum of innovative products that include the patented AndeStar™ Instruction Set Architecture, the leading performance-efficient AndesCore™ Processors, the flexible pre-integrated and pre-verified AndeShape™ Platforms IP solution, the intuitive AndeSight™ Software Integrated Development Environment (IDE), and the comprehensive AndeSoft™ Software Stacks. “Software development easily consumes more than 70 percent man-months of a typical SoC project. To alleviate it, we design into the AndeSight IDE, a



Frankwell Lin,
President



comprehensive list of functionalities that include an optimizing compiler, a debugger, a linker script editor, RTOS-awareness support, a profiler, a flash programmer, and a virtual SoC platform that enables rapid performance evaluation and early software development. With those, it helps customers to efficiently develop, debug, and optimize their software to achieve aggressive project schedule, for meeting their business objectives,” said Lin.

Andes Technology proffers high performance/low power 32/64-bit processors that increase the processing speed of embedded applications invariably

Migrating from one design to another design and designing a unique architecture are the major concerns of IC design houses in the current era. Bolstered by proficient engineers and significant experience, Andes empowers its customers to customize their products and

proffers mechanisms, namely Andes Customer Extension (ACE) and ACE COPILOT tools, that enable customers to design unique instructions that can hook into Andes instruction set architecture quickly, hence resulting customer's unique processor and SoC, bringing benefits of lower power, better security, and higher computing efficiency. Besides, the company has an ecosystem where it brings together more than one hundred third party companies to help customers use hassle-free IP, tools, software stacks in developing application orient system chips.

Having technical support engineers in China, Taiwan, and the United States, Andes Technology offers round the clock support and optimizes their time to market with quality design. Being a committed company to its customers, Andes Technology ensures that its customers are also well trained to deploy and work with Andes configurable embedded processors developing environment. To help customers obtain in-depth knowledge and consulting services on its product lines, the company proffers training courses for engineers.

Andes Technology's initiative towards this allows its customers to design their own SoC with the highest quality and faster time to market. In the recent past, the company has also collaborated with

eMemory, Intrinsic ID, Inside Secure, Secure IC, Secure RF, and Winbond to ensure appropriate security features can be easier embedded into customers' IoT products. Those companies are part of another Andes-initiated ecosystem Kneet me™, a website and community specially created for IoT, where it collaborates with third-party companies to help common customers develop high-quality connected products. Kneet me™ offers comprehensive IoT solutions, including SoC IP Platforms, Arduino-compatible development boards, development tools and IoT software stack, to help speed up SoC developments for IoT applications. It also hosts the IoT League for customers to showcase their IoT products and for interested device makers to find the right SoC for their next projects.

The company's new products such as N15 and D15, which further empower its customers with more computing power and less power consumption, and NX25—which extends application's data addressability to over 4 GB and is the most power-efficient 64-bit processor in the industry, have already made their way into the market. With a visionary aspect from the beginning, Andes Technology has designed its products and further eyes to innovate, adapt new-fangled technologies to provide the best ROI to customers. ■■

Andes Technology Corporation

Recognized as



The Annual listing of 25 Most Promising
IoT Solution Providers in APAC

Joe Philip
Managing Editor

榮獲亞洲科學園區協會卓越獎



➤ "2017 ASPA Excellence Prize" — Asian Science Park Association



總結

晶心科技擴大產品陣線,強化生態系統



- ❖ 晶心科技已於第四季推出全新V5架構處理器核心N25/NX25,將應用於網通,深度學習,高階儲存產品等新興領域
- ❖ 晶心科技積極參與 RISC-V 基金會科技與社群發展,與RISC-V 生態系統互助,將RISC-V推成全球SoC主流核心,借力使力,奮發成為世界級領導公司
- ❖ 晶心科技多項計畫已進入發展階段, 提升公司無形資產與企業價值

謝謝指教



Andes Core™

www.andestech.com

問與答