Andes Technology Corporation
2017 Investor Conference Report

Driving Innovations™

Stock #: 6533
2018/03/26

Safe Harbor Notice

Except for the historical information contained herein, the matters addressed in this presentation are forward-looking statements that involve certain risks and uncertainties that could cause actual results to differ materially, including but not limited to weather, impact of competitive products and pricing, industry-wide shifts in the supply and demand for semiconductor products, rapid technology change, semiconductor industry cycle, and general economic conditions.

Except as required by law, Andes undertake no obligation to update any forward-looking statement, whether as a result of new information, future events or otherwise.

Agenda

- Overview of Andes Technology Corporation
- Operating Results
- Product Application
- New Products and Ecosystems
- Concluding Remarks

Overview of Andes Technology Corporation

Andes Highlights

- Founded in March 2005 in Hsinchu Science Park, Taiwan, ROC.
- Core RD team from **AMD**, **DEC**, **Intel**, **MIPS**, **nVidia**, and **Sun** veterans.
- Just over 140 people; 80% are engineers.
- EETimes' Silicon 60 **Hot Startups to Watch** (2012)
- **TSMC OIP Award** “Partner of the Year” for New IP (2015)
- A founding member of **RISC-V Foundation** (2016)
- **IPO on Taiwan Stock Exchange** (March 2017)

Andes Mission

- Innovate **performance-efficient** processor solution for **low-power** SoC

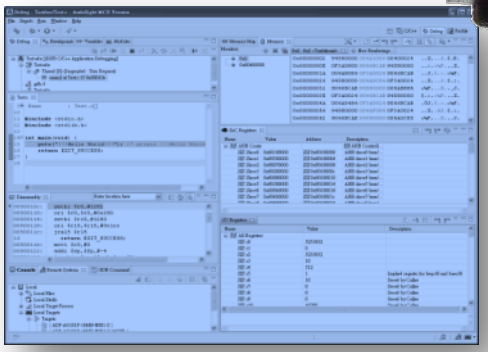
Emerging Opportunities

- **Smart** and **Green** electronic devices
- **Cloud Computing, Artificial Intelligence** and **Internet of Things**

Operating Results

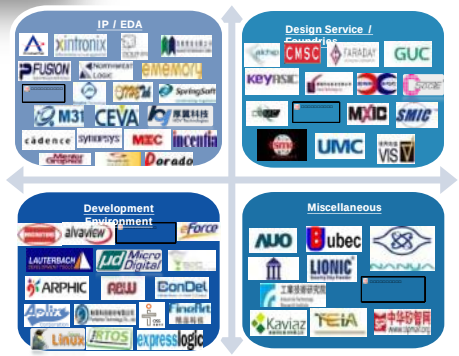
Business Status Overview

- **>145** commercial licensees
  - Geographically distributed in Taiwan, China, Korea, Japan, Europe, and USA.
  - **>204** license agreements signed



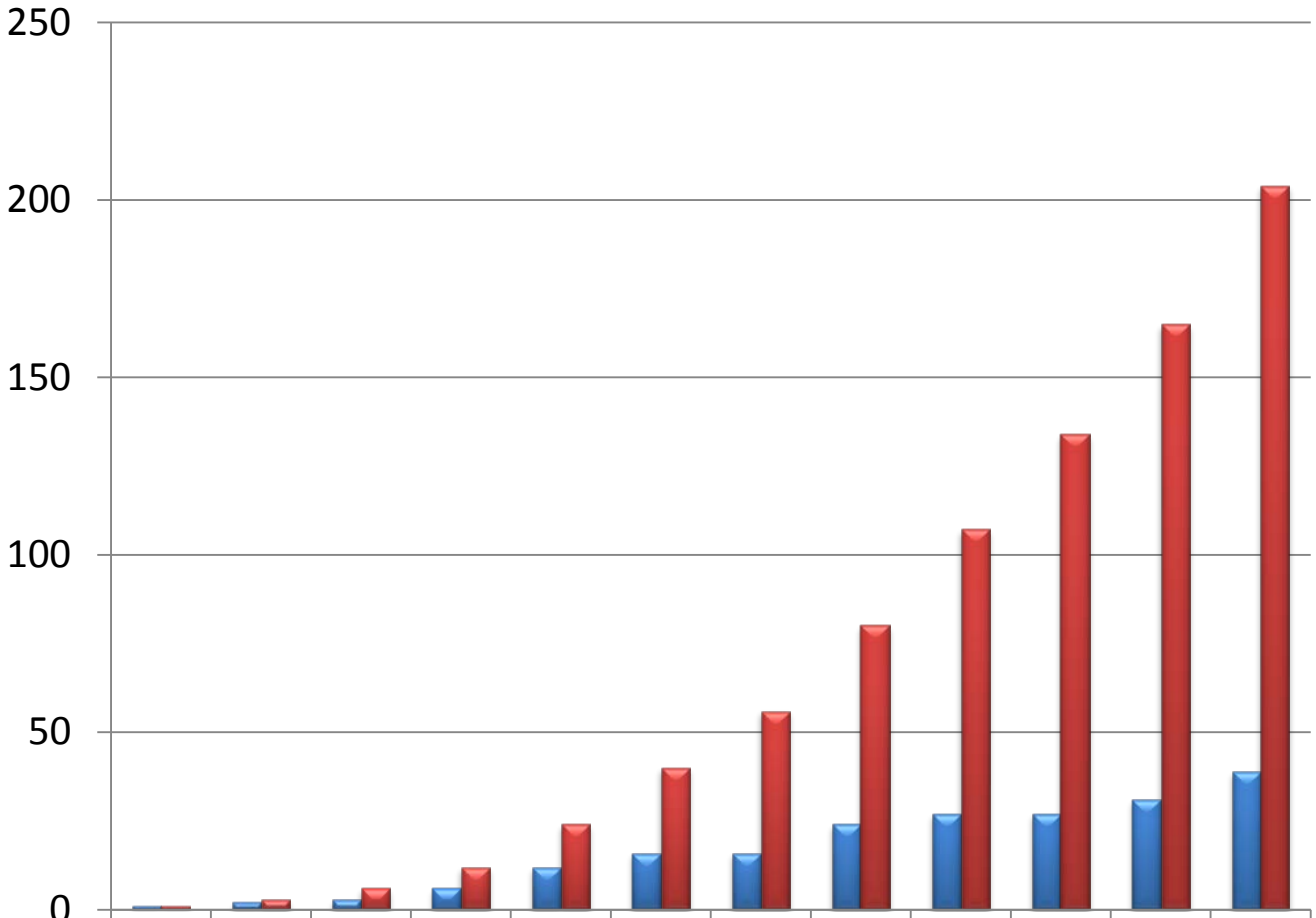
- AndeSight™ IDE:
  - >**11,000** installations

- Eco-system:
  - >**120** partners



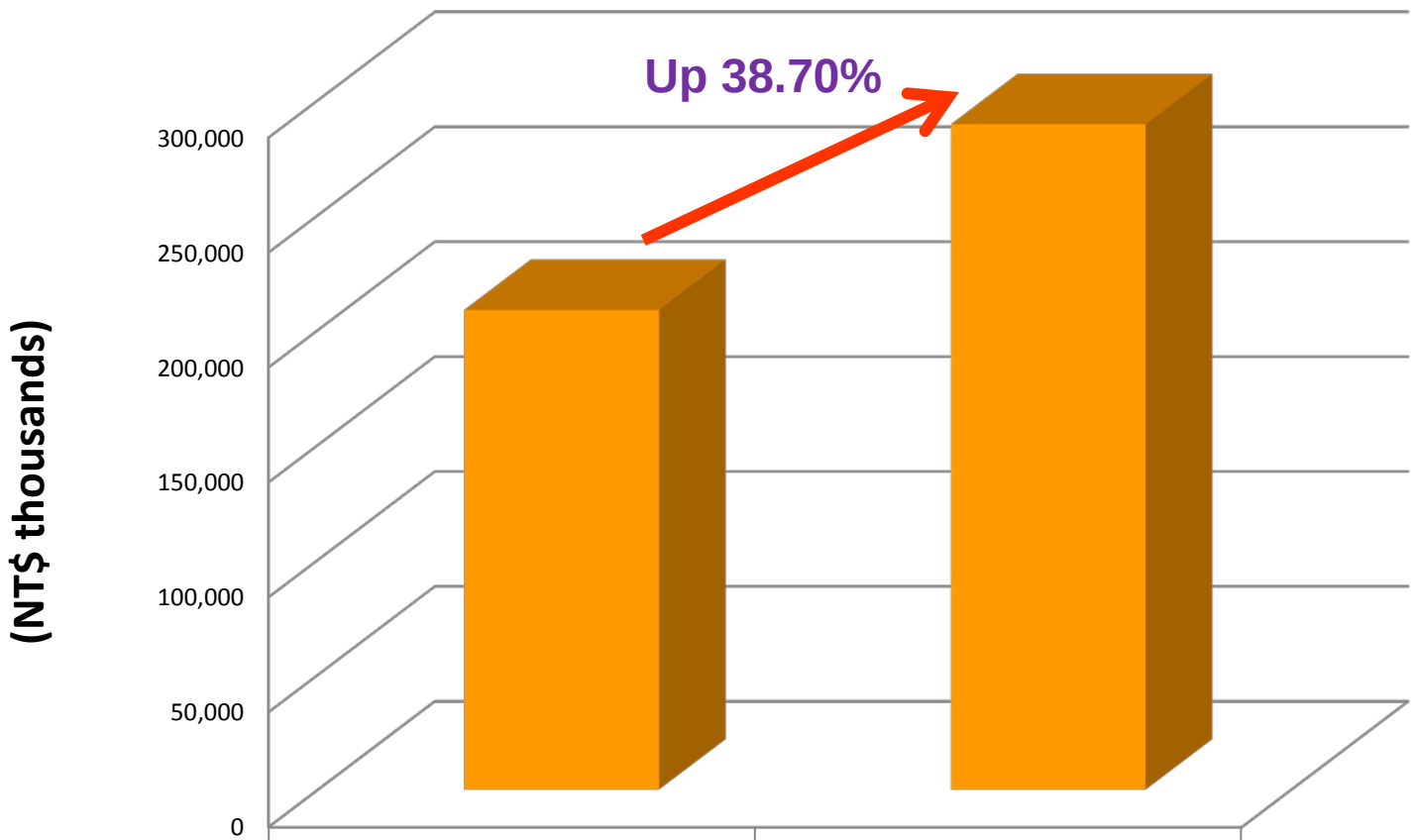
- **2.5B** Accumulative SoC Shipped:
  - (by 2017 end)

Agreement Growth Analysis



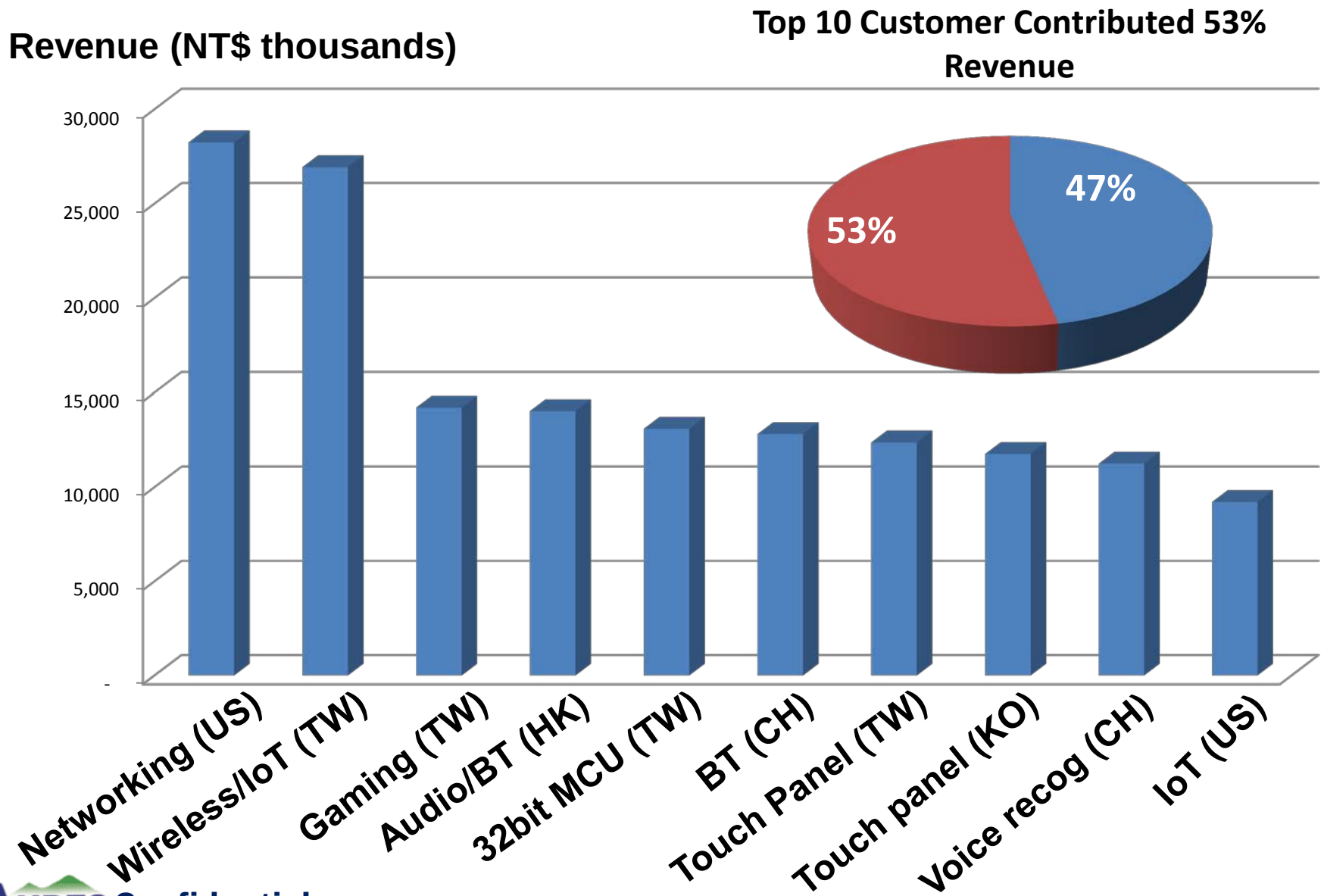
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
IP Agreements	1	2	3	6	12	16	16	24	27	27	31	39
Accumulated IP Agreements	1	3	6	12	24	40	56	80	107	134	165	204

2017 Revenue Analysis



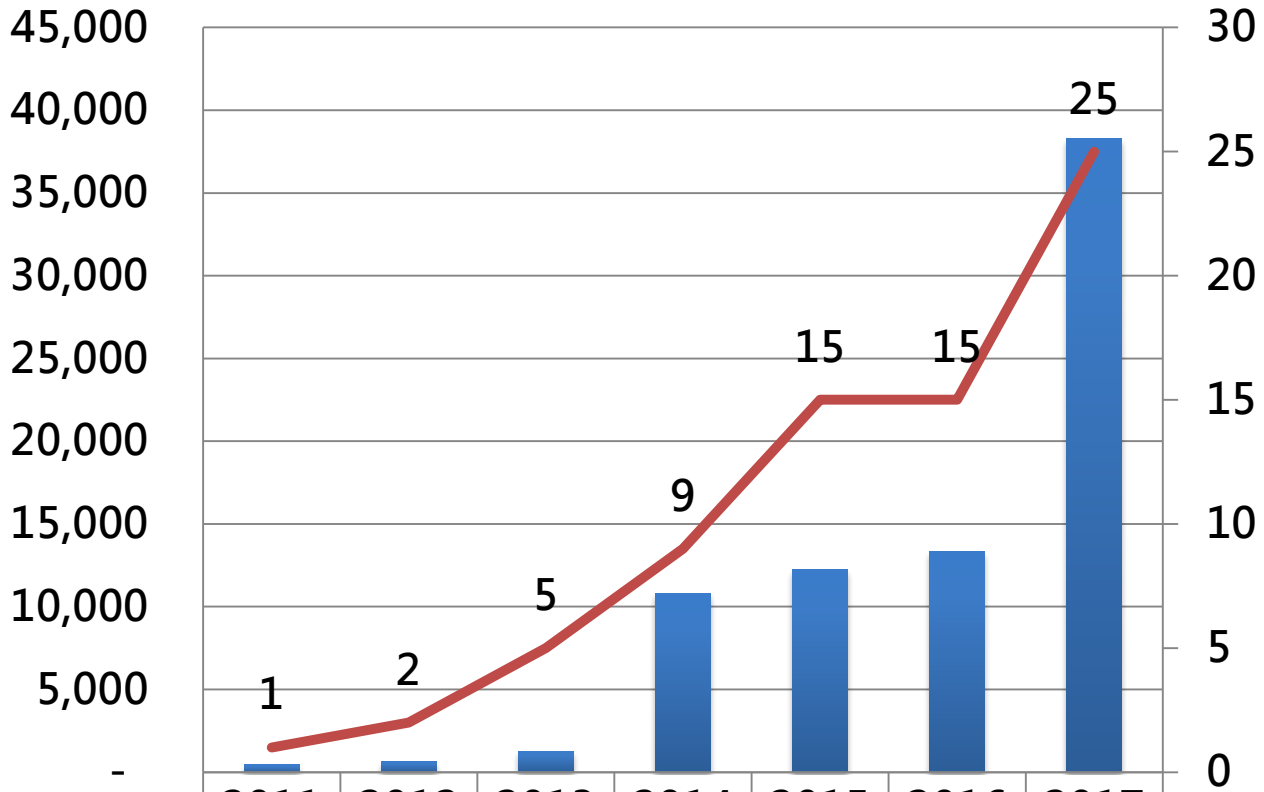
	2016	2017
Revenue	208,635	289,377

2017 Top 10 Customers Analysis by Revenue



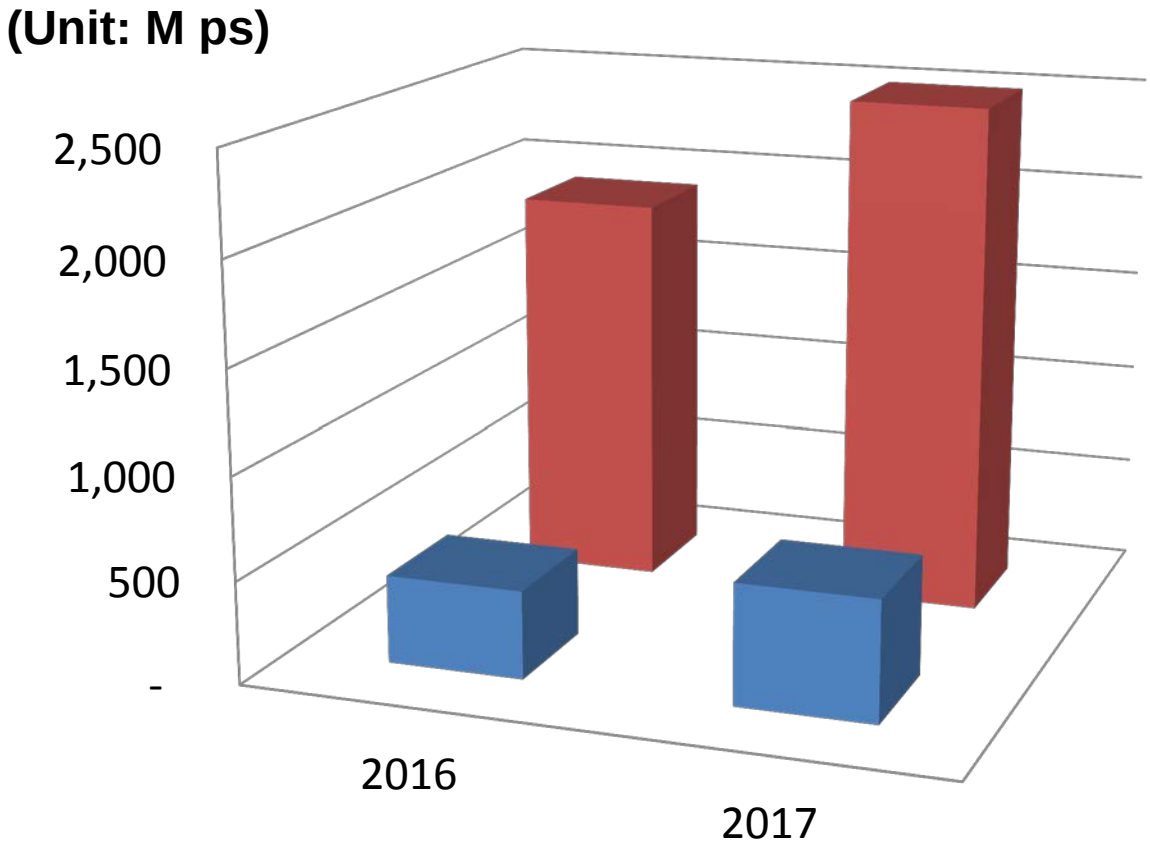
Royalty & Contributors Analysis

(NT$ thousands)



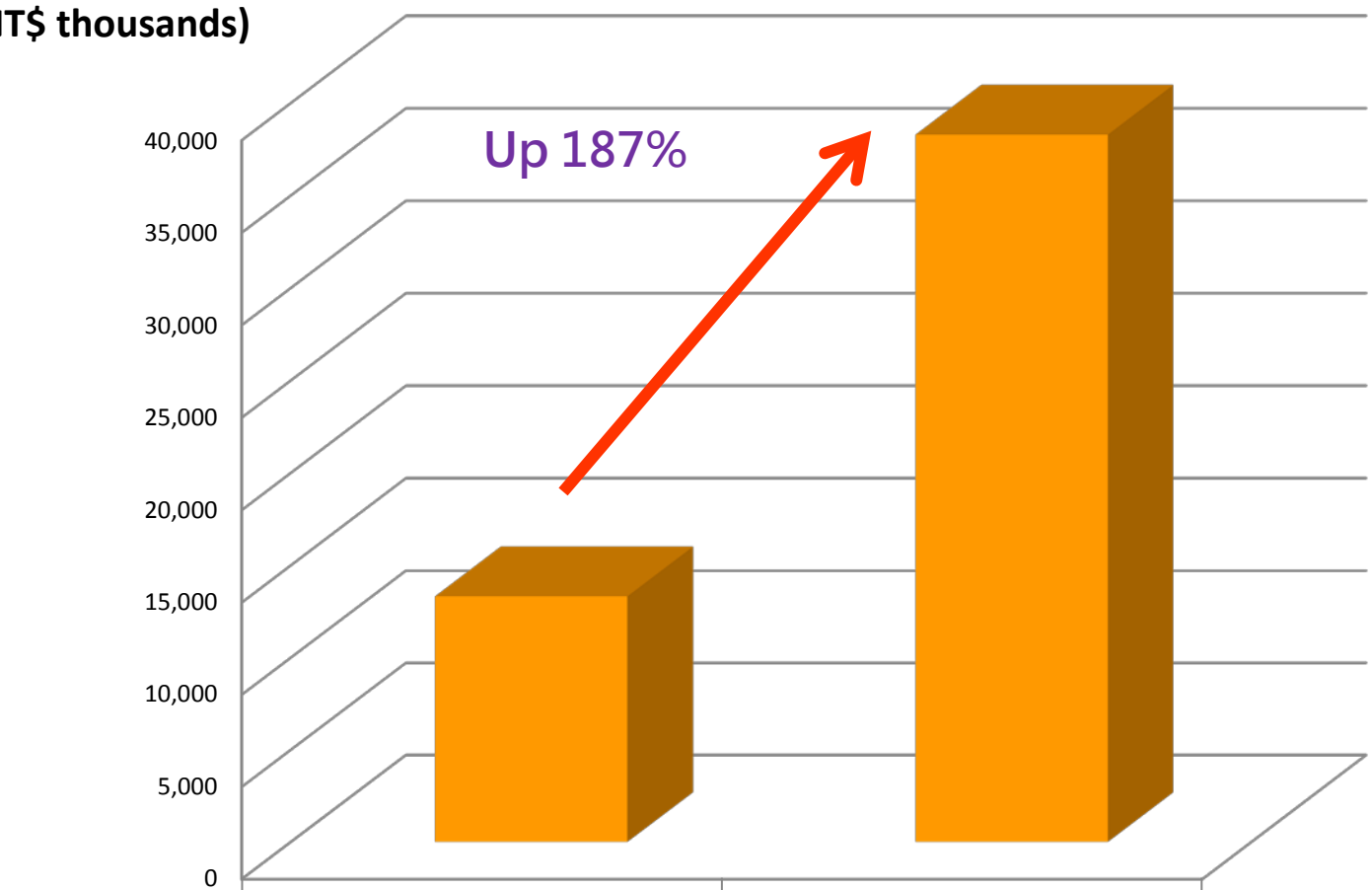
	2011	2012	2013	2014	2015	2016	2017
Royalty	445	660	1,285	10,819	12,232	13,320	38,287
Customer numbers	1	2	5	9	15	15	25

Total Customers Annual and Accumulated Shipment



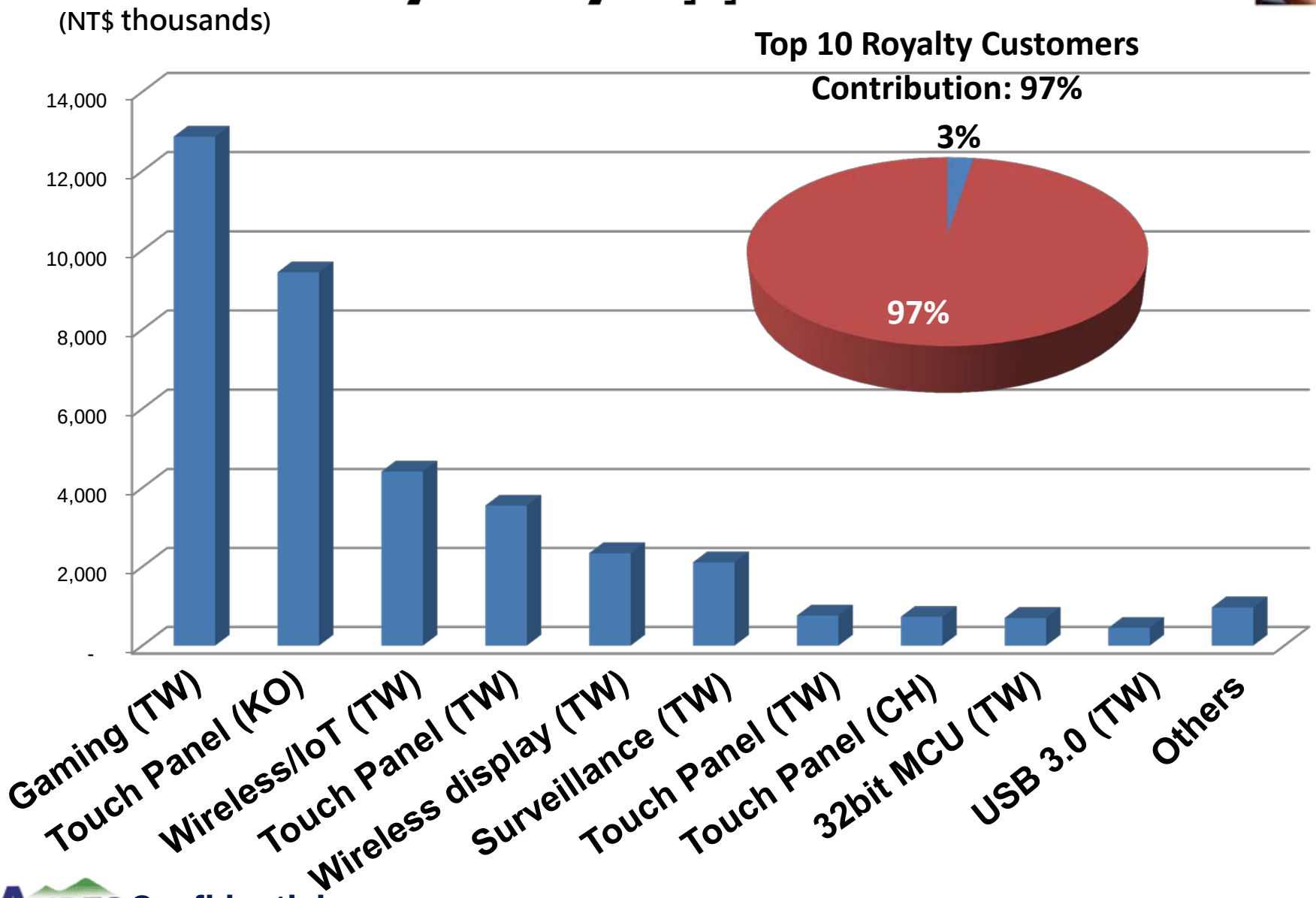
	2016	2017
Annual Shipment	430	590
Accumulated Shipment	1,910	2,500

Royalty Analysis



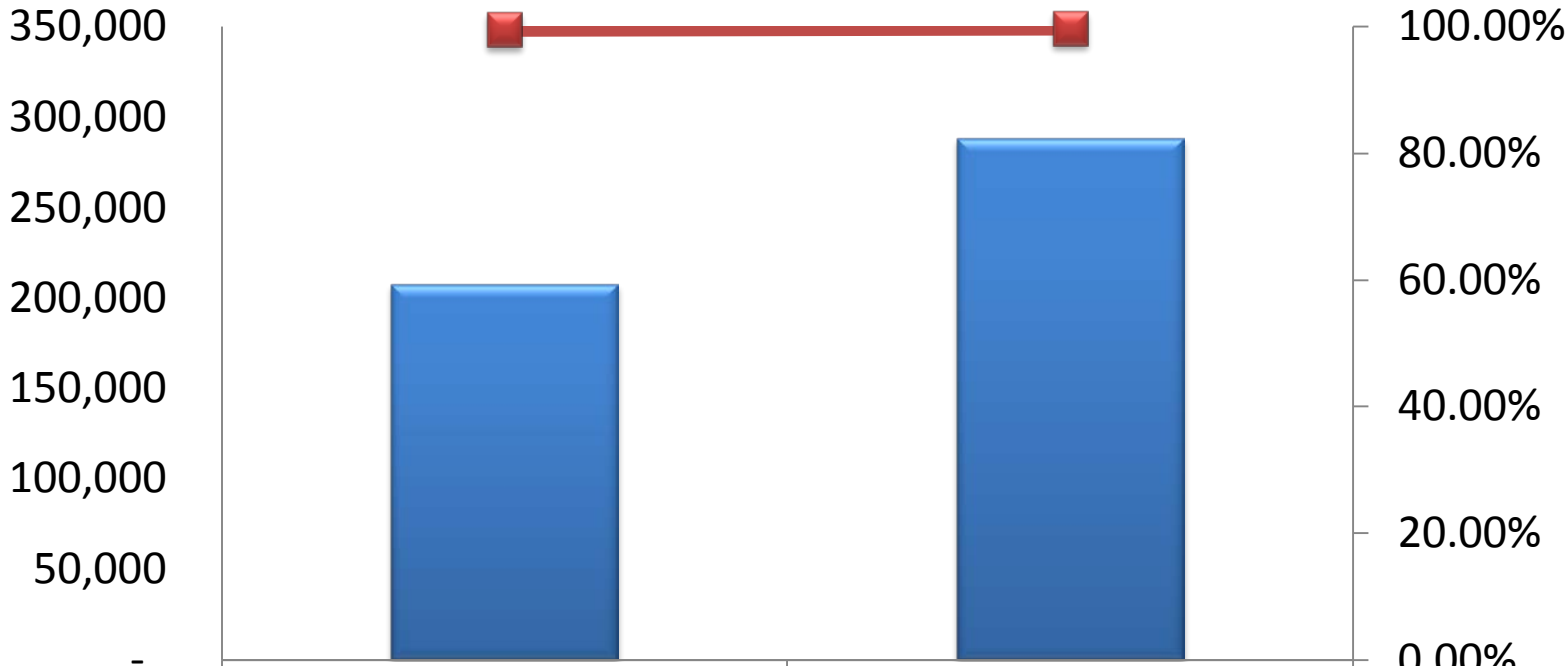
	2016	2017
Royalty	13,320	38,287

2017 Top Ten Royalty Contributors Analysis by Application



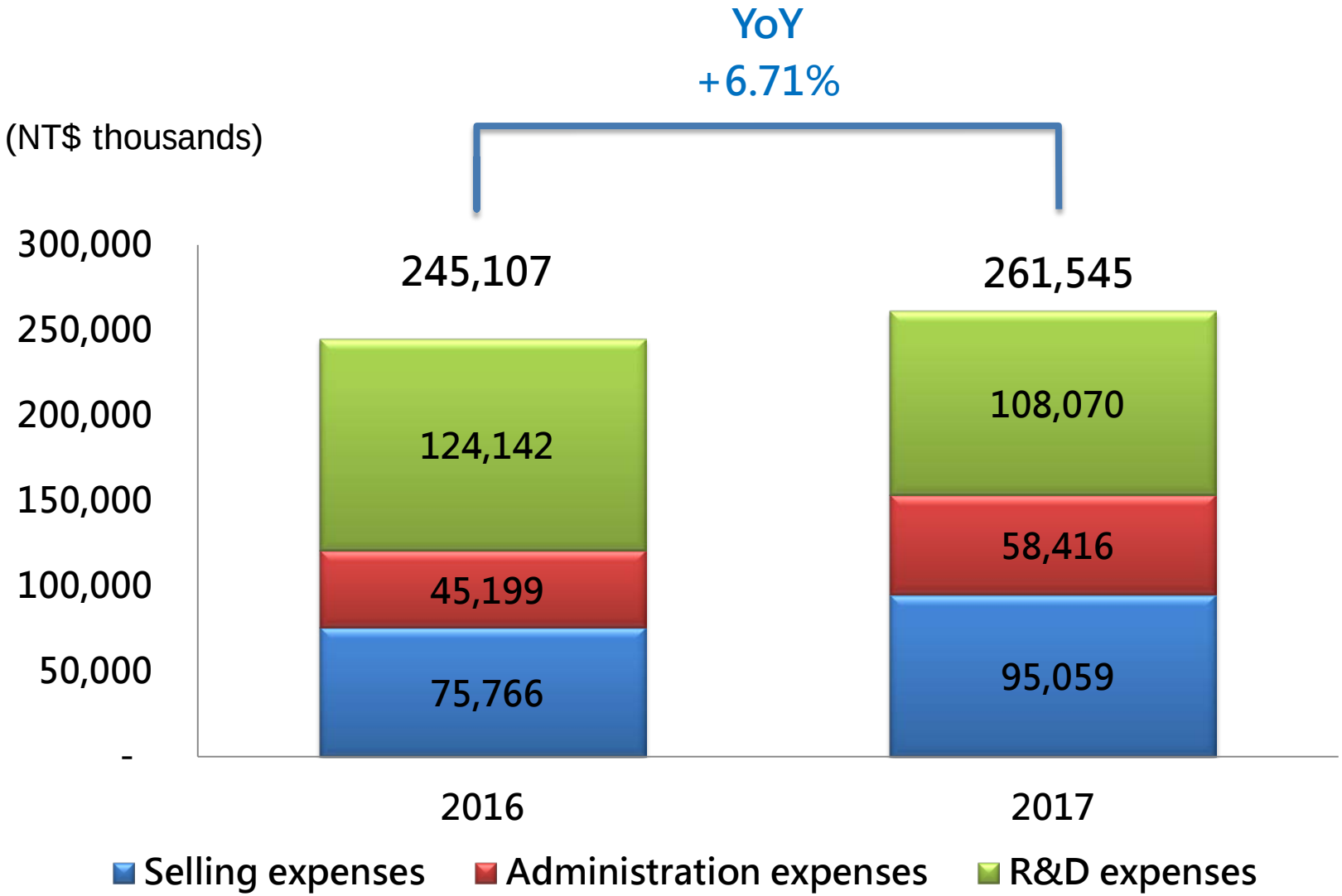
Consolidated Gross Margin

(NT$ thousands)

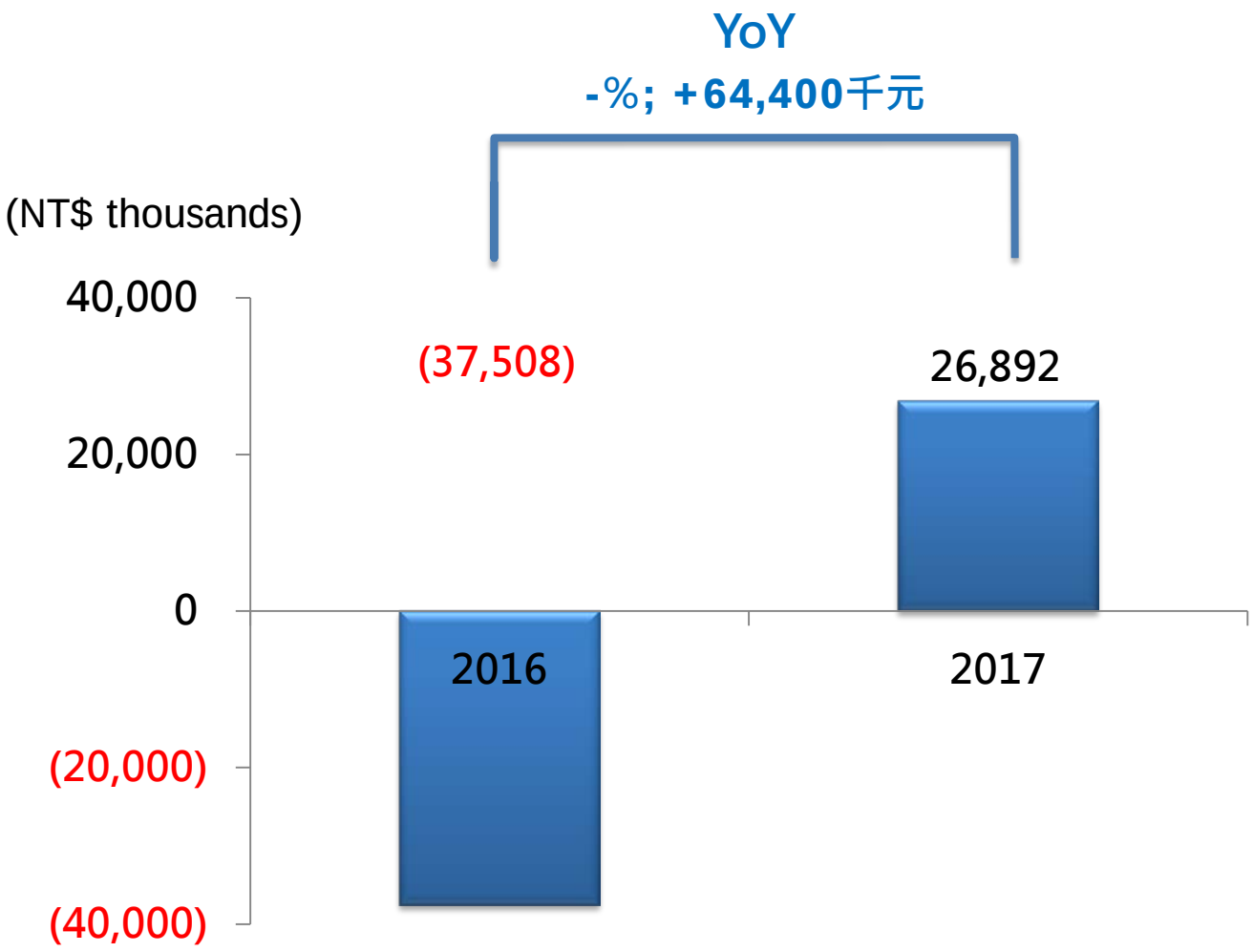


	2016	2017
Gross Profit	207,599	288,437
Gross Margin	99.50%	99.68%

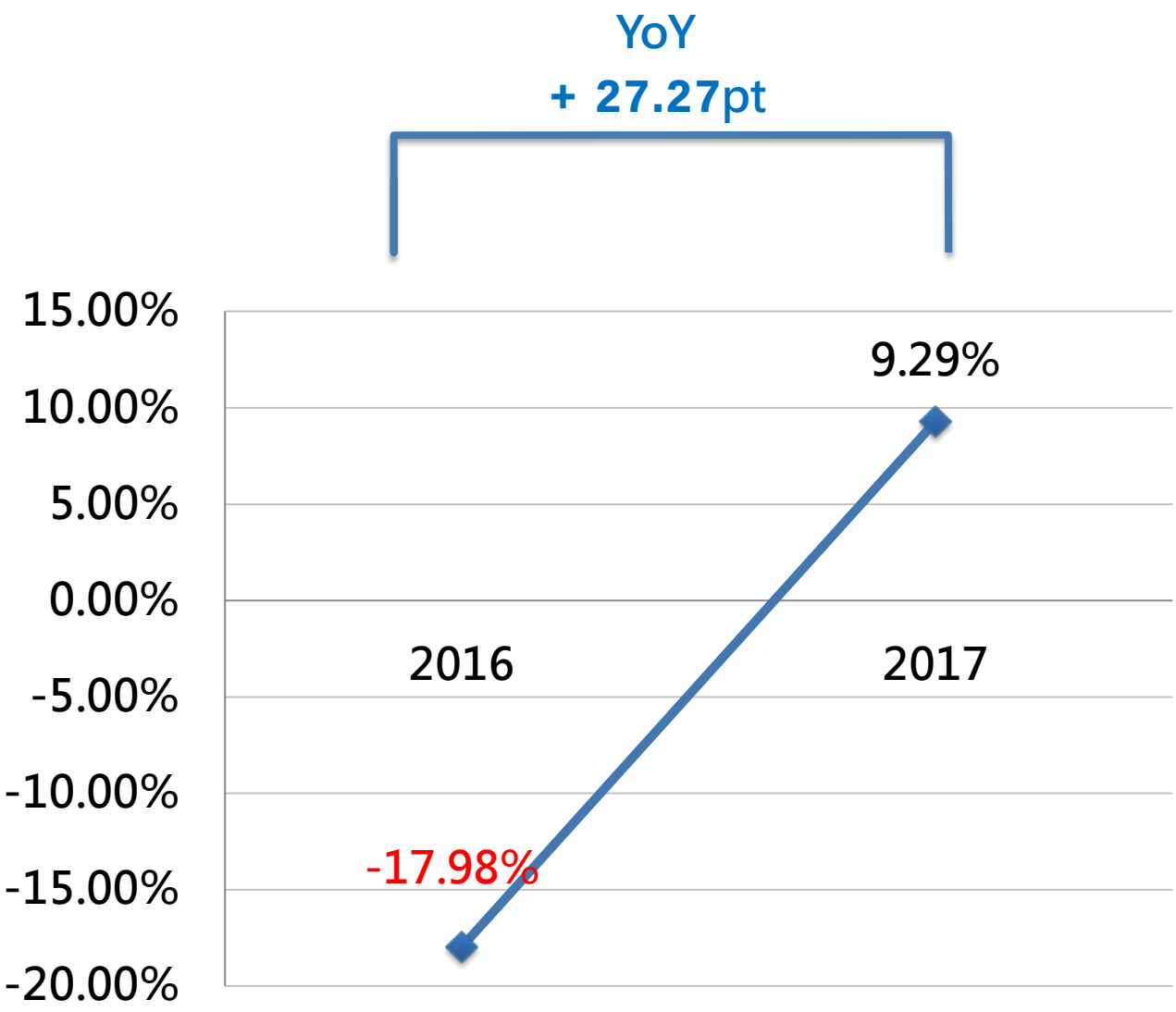
Consolidated Operating Expenses



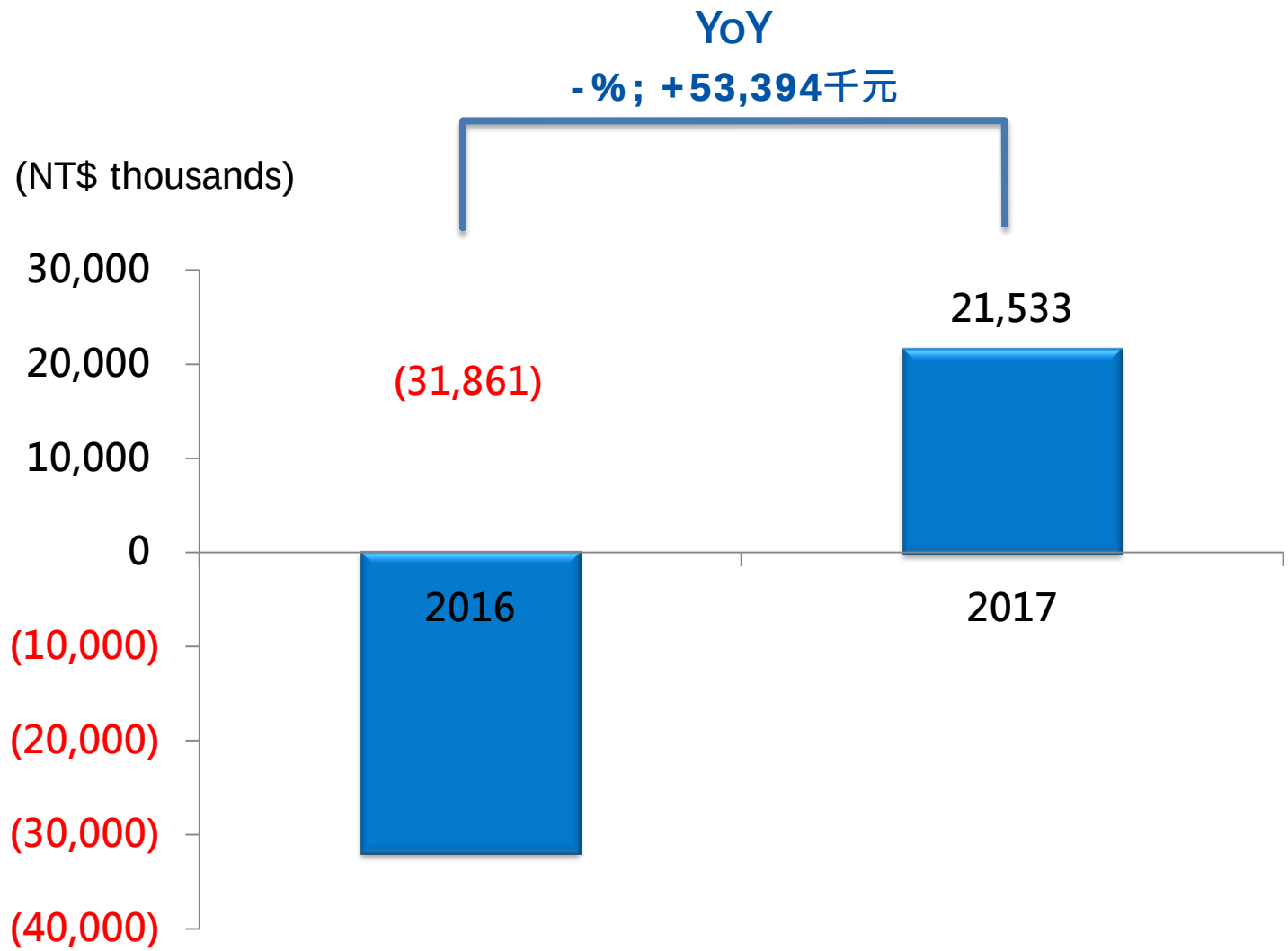
Consolidated Operating Income



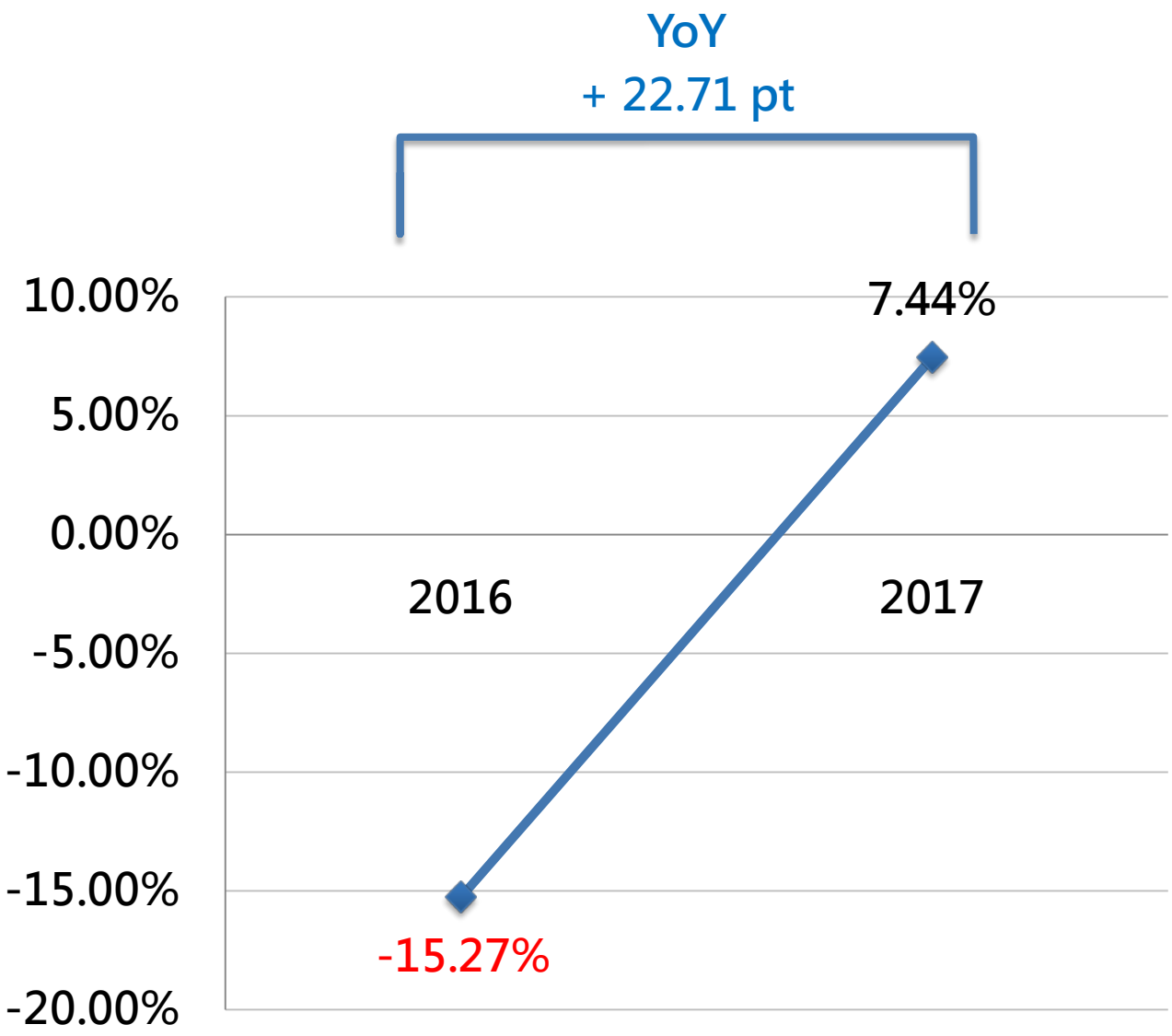
Consolidated Operating Margin



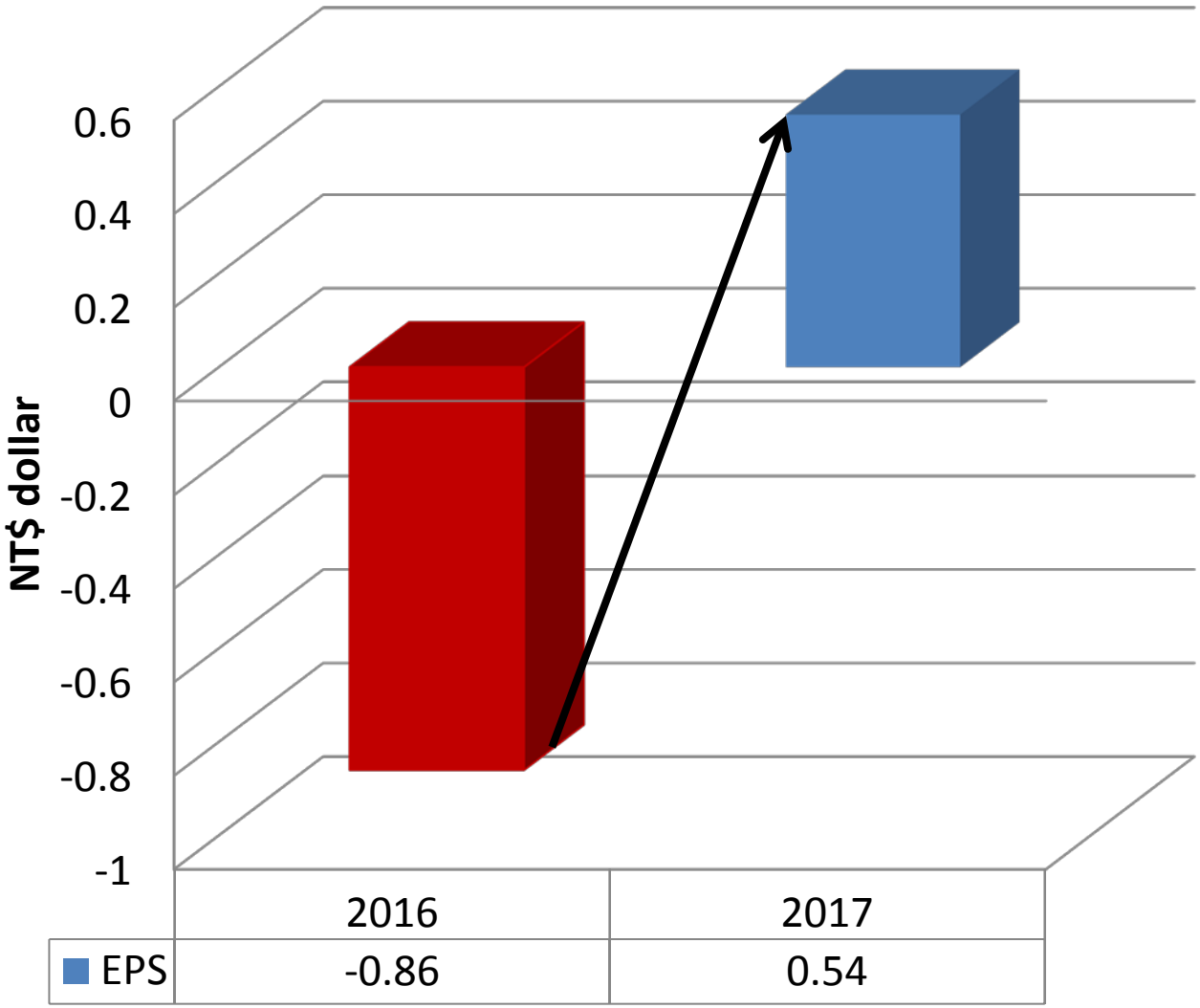
Consolidated Operating Income



Consolidated Net Profit Margin

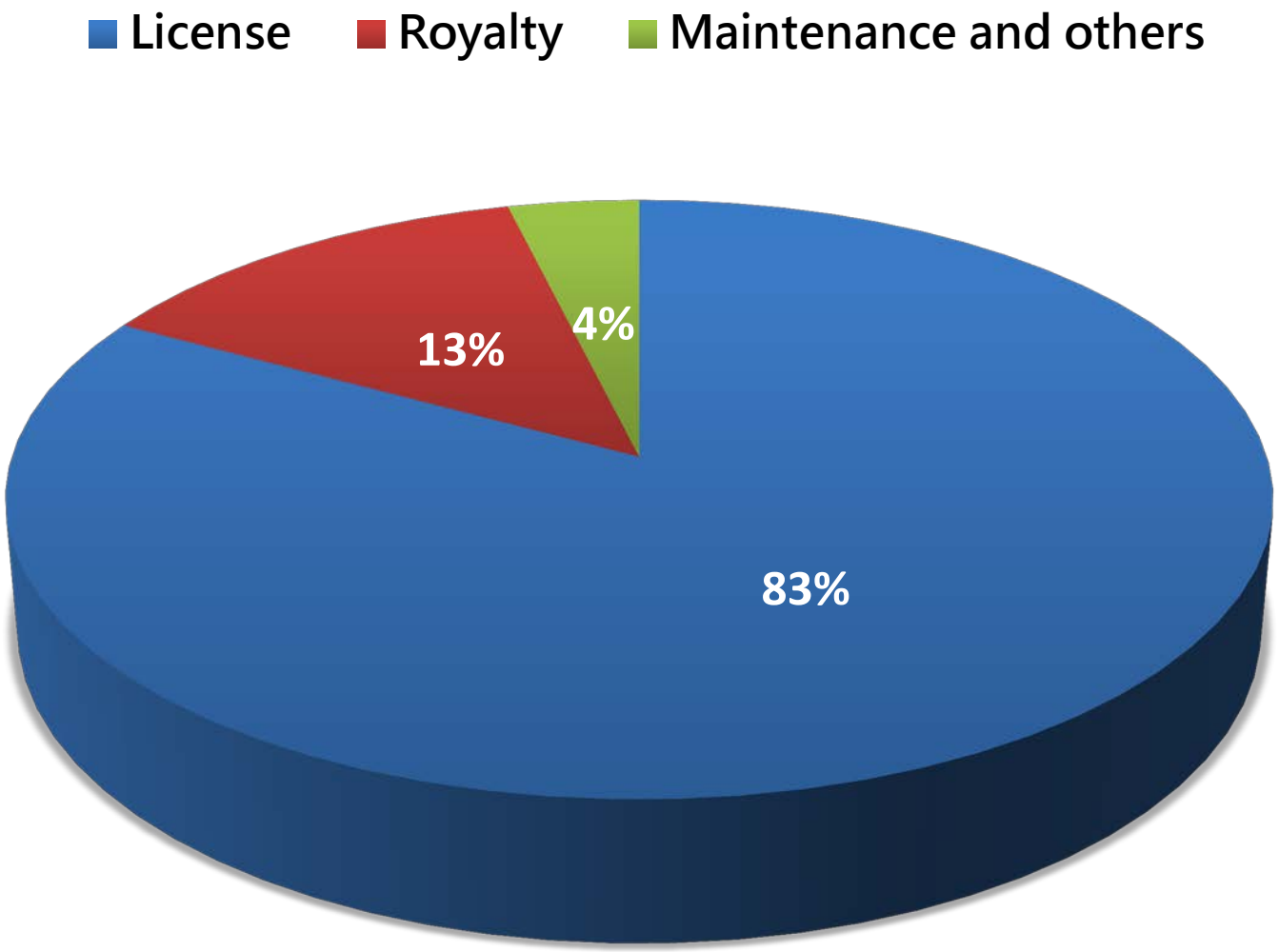


Consolidated Earnings Per Share

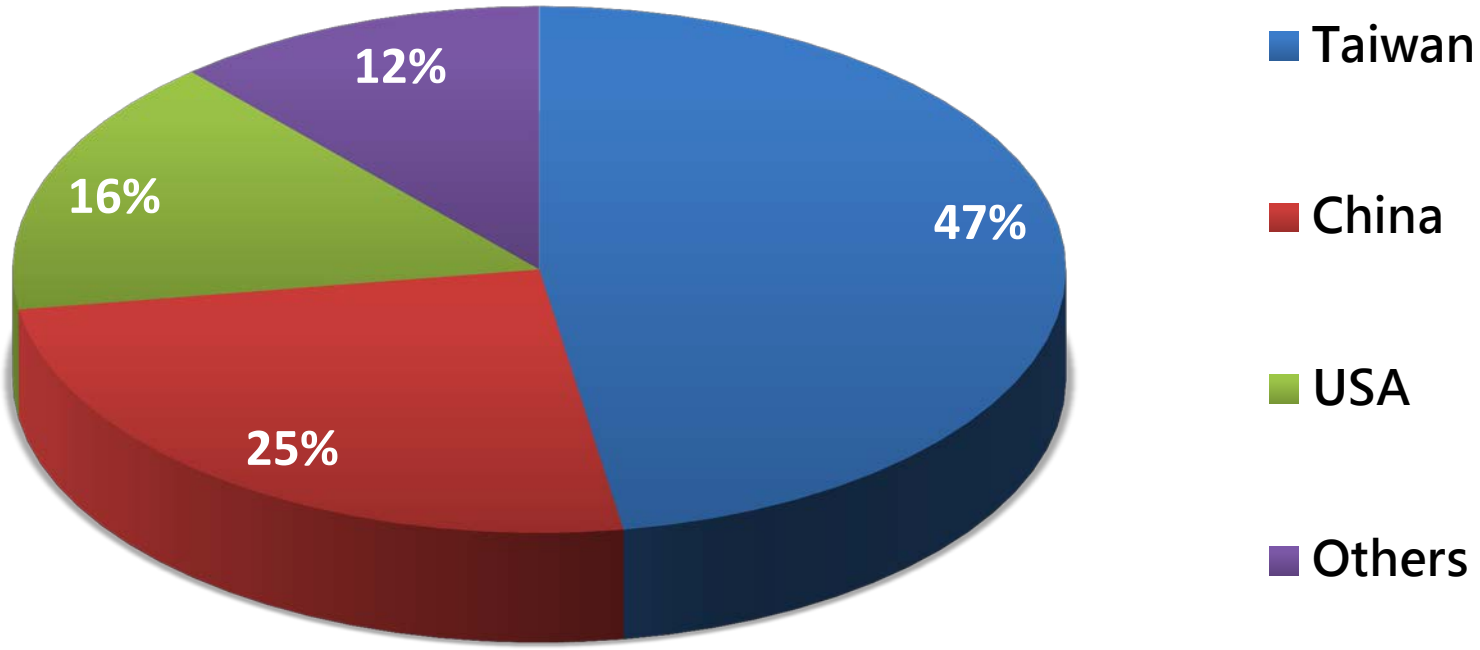


Revenue Analysis by Payment Model

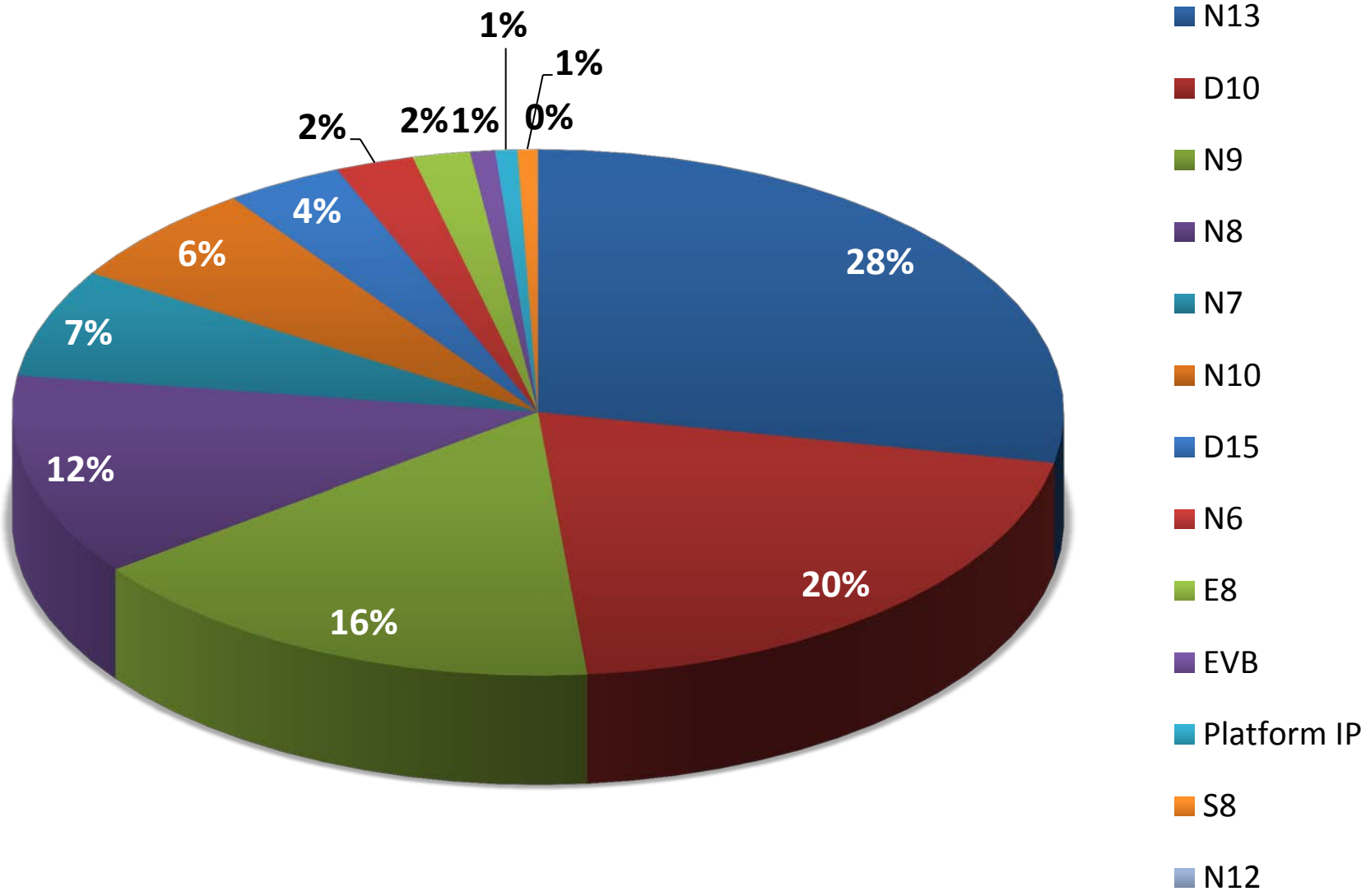
(2017/01-12 New Agreements: 39)



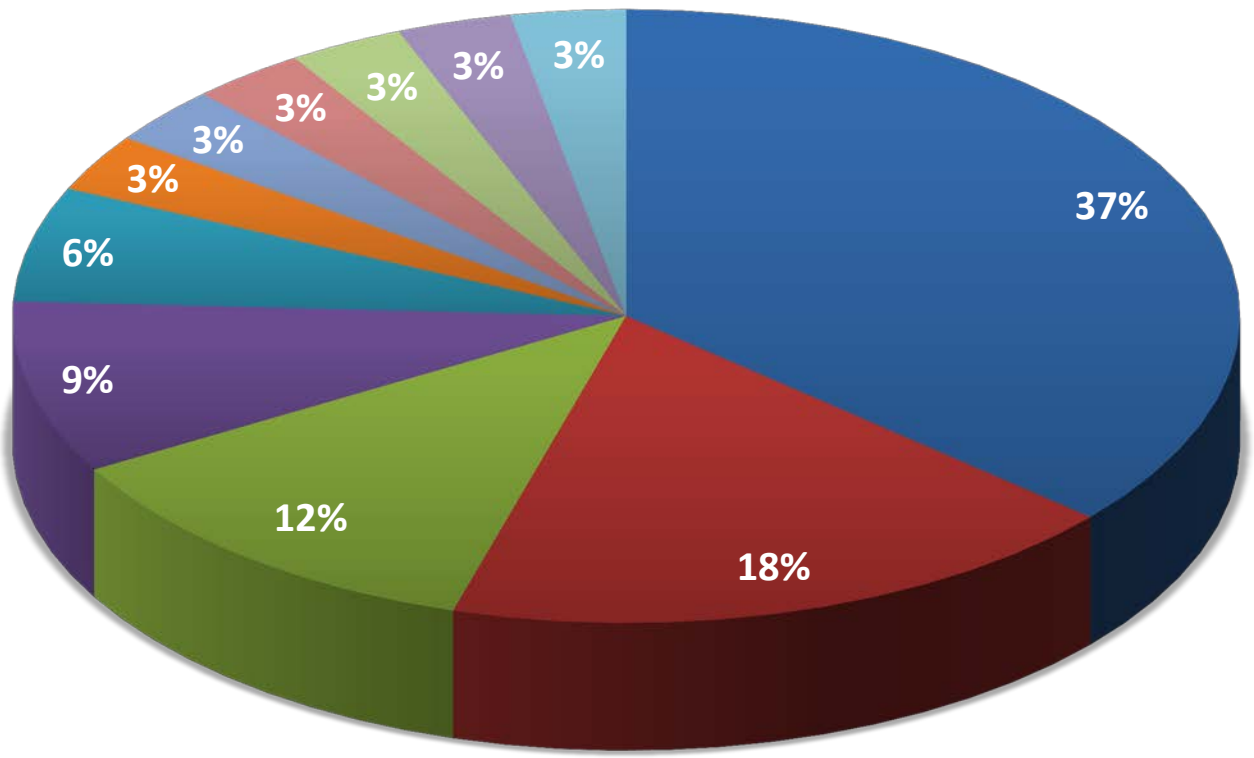
Revenue Analysis by Region



Revenue Analysis by Product



Customer Application Analysis



- IoT
- Storage
- Sensing
- MCU
- Connectivity
- Artificial Intelligence
- Audio
- Automotive
- Navigation
- Networking
- Others

*Based on 2017 agreements number

Product Application

Rich Customers' Applications

Consumer

- Touch Screen
- eBook / eDictionary
- Power management
- Bio-medical device
- CMMB
- MCU
- TCON

Storage & Sensor

- USB3.0
- SSD, eMMC
- Anti-virus
- Sensor Hub
- mSATA
- Secure SD
- Fingerprint Recognition

Communication & IoT

- Wireless display
- WiFi, Bluetooth
- GPS, GPON, NFC
- Gateway / router
- Portable Karaoke
- Sigfox LPWAN
- IoT Cat0 base station
- IoT MCU
- ESL
- Smart Meter
- Smart Lighting

Industrial & Video

- Motor Control
- Wireless Charger
- Surveillance
- Barcode scanner
- ADAS
- VEDR
- 4K2K CODEC
- 8K4K CODEC

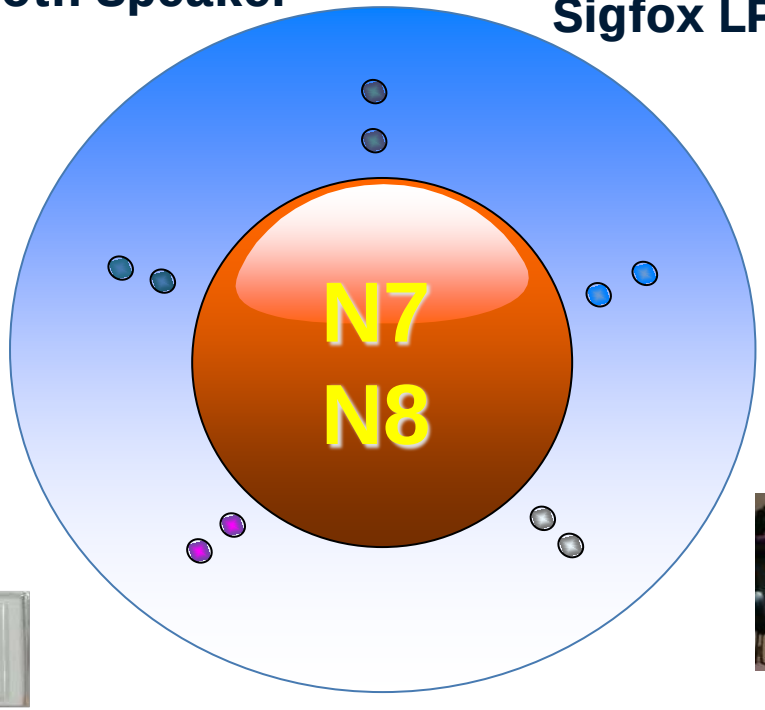
and more…..

IoT Application -1

Bluetooth Speaker

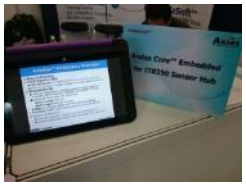
Sigfox LPWAN

Healthcare device



Wearable device

Electronic price tags

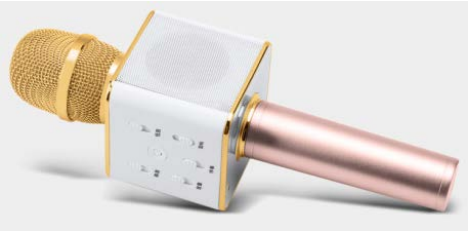


Sensor Hub

IoT Application -2

Wearable devices

Drone



Portable Karaoke

N9
D10

WiFi / GPS / FM / Bluetooth combo

GPS / Beido in shared bikes

Contactless payment (NFC)

Automotive Applications

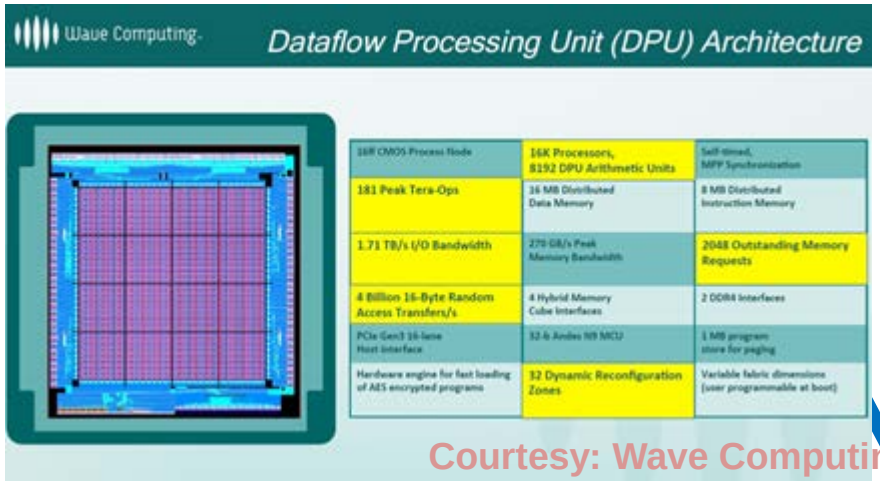
- **N13**
  - Calibration of AVM (Around View Monitoring) in NISSAN New X-Trial

Andes Core™

- **N10**
  - CAR Event Recorder
  - ADAS

- **D10**
  - ADAS

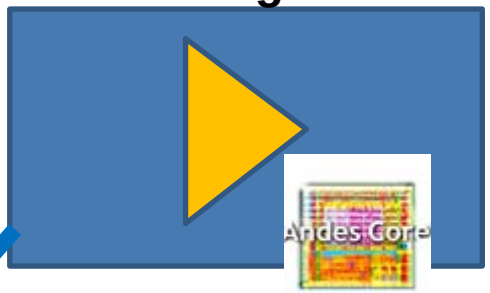
AI Applications



Courtesy: Wave Computing

◆ **N9**
Dataflow Processing

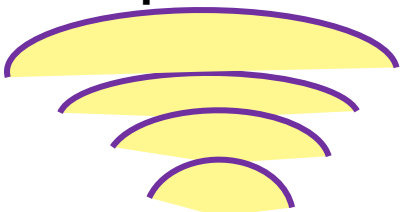
◆ **D15F**
Video recognition



Andes Embedded™

◆ **D10**
Voice Recognition

◆ **N9**
AI companion

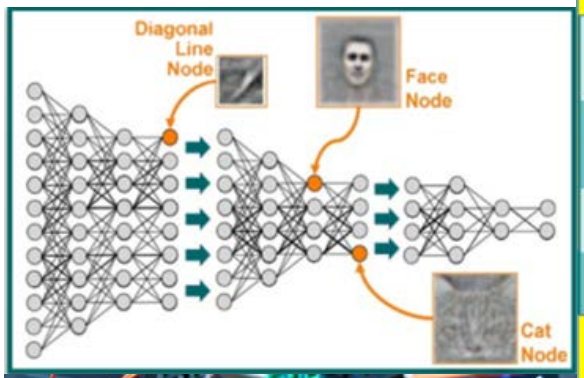


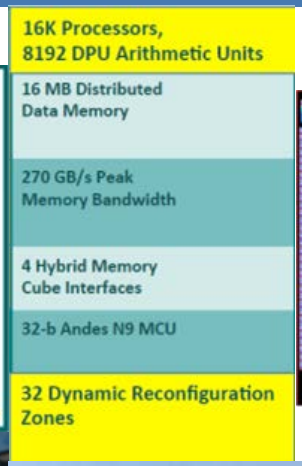
ANDES TECHNOLOGY

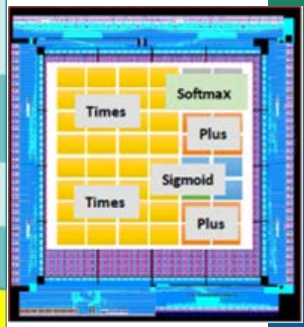
SoC for WiFi in AI Companion

Emerging Applications

- AI
  - Deep Learning
- Next generation TV
- Network Engine
  - Router
- Drone
- Robot
- ...
- Many new applications are emerging







New Products and Ecosystems

New AndesCore™ Revealed in 2017

New Cores Announced/Released in 2017

Performance

- Protocol Processing
- Gateway
- Storage

N25
NX25

D15(F)
N15(F)

- DSP
- FPU

N13

- Switch
- Router

D10(F)
N10(F)

- Wearable
- Sensor
- WiFi
- Gateway

N9

- Sensor
- WiFi

E8

N8

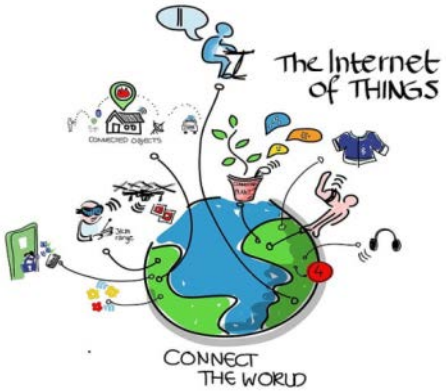
E8

N7

N8

S8

- BT sensor
- ZigBee sensor
- Strong security



IoT graphic source:
Wilgengebroed on Flickr

Power consumption

AndesCore™ V5 Families

RISC-V

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

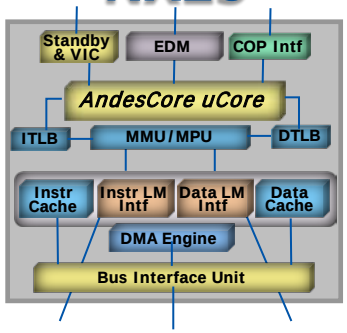
Summary of AndesCores vs. Competitors

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

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

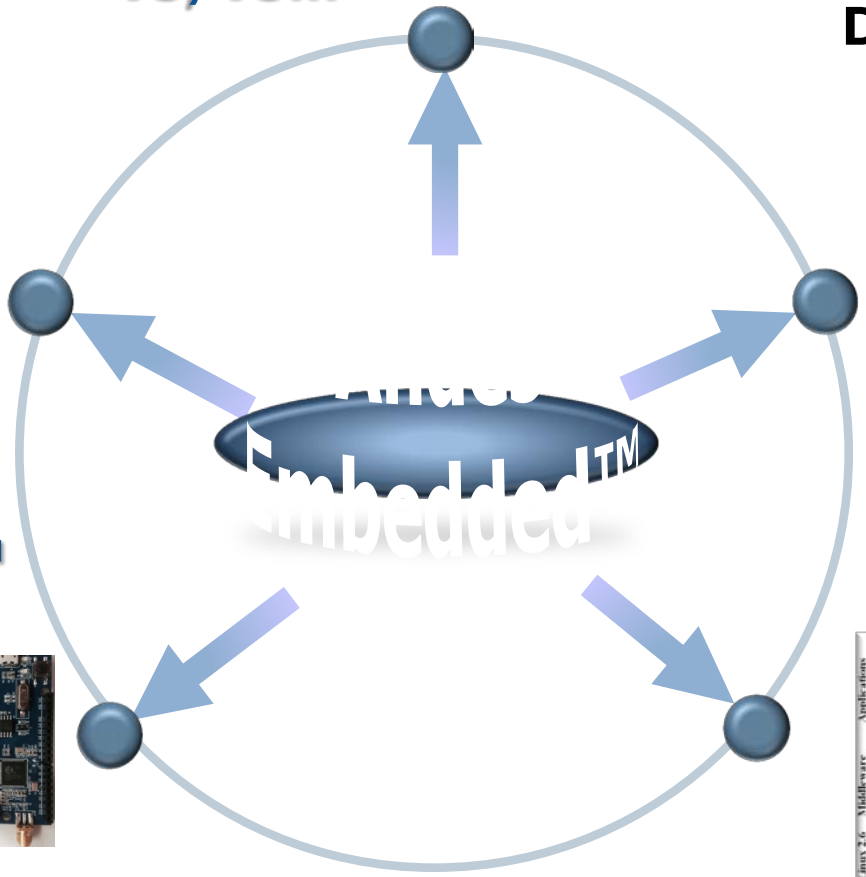
64 Bit Infrastructure and Eco-System

Processor IP's
AndesCore™ NX25

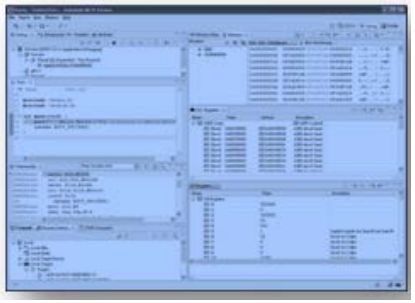


Processor Architecture
AndeStar™ V5, V5m

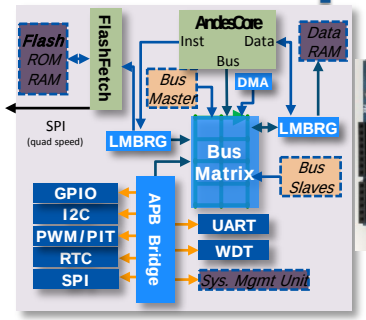
```
smw.adm  $r1,[$sp],$r5,0x0
smw.adm  $sp,[$sp],$sp,0x2
addi     $sp,$sp,-8
sethi    $r1,0x50a
lwi      $r1,[$r1+#0x98]
mov55    $r2,$r0
mov55    $r0,$r1
lwi      $r1,[$r1+#0x8]
addi     $r3,$sp,12
```



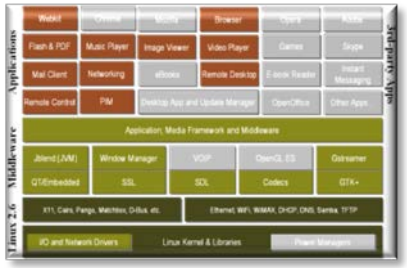
Development Tools
AndeSight™



Development Platforms
AndeShape™



SW Stacks
AndeSoft™



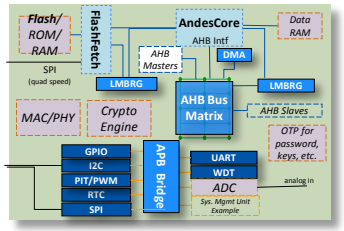
Two Ecosystems: Andes and Knect.me

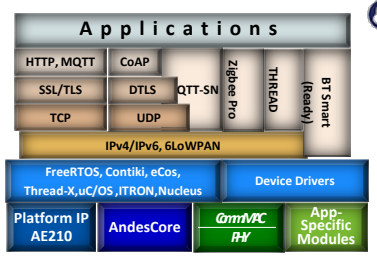
ANDES TECHNOLOGY

knectme™

Knect.me Ecosystem

- **Built up Ecosystem *knect.me* to help IoT Developing**
  - 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™

Added A.I. to Knect.me Ecosystem

ANDESknectme

knect.me/#a

knectme™

HOME | FORUM | SOC IP PLATFORMS | SW STACK

Connectivity | Security | Library/Mix-signal/Memory | Misc | A.I./Machine Learning

Mindtree – Welcome to possible
Bubec
L&T Technology Services
Holy Stone
ORCA SYSTEMS
M31
ememory
ASI
Sidense – Your Trusted Memory Partner
Performance-IP – IP to improve your SoC performance
DOLPHIN INTEGRATION
Dolphin Technology
matricus inc
NSCore
ANALOG BITS
mobiveil – Investors in Innovation
csem
GRadio

SECURE IC
INTRINSIC ID
SECURE RF – Securing the Internet of Things
inside SECURE
BarcoSilex
winbond
CYPRESS – PERFORM
聯興微系統科技 UniSense
SONICS
NORTHWEST LOGIC
DEEPHi 深鉴科技

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

AIROHA
HYCON TECHNOLOGY
ITE TECH.INC.
M2Communication
Weltrend
Wave Computing

Andes Awarded

Leader of IoT Solutions Providers

▶ "Top 25 IOT Solutions Providers 2017

— APAC CIOOutlook Magazine

APAC CIOOutlook TOP 25 IoT SOLUTION PROVIDERS - 2017

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 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.

Frankwell Lin, President

> 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 Knect.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. Knect.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

APAC CIOOutlook TOP 25 IoT SOLUTION PROVIDERS - 2017

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

Joe Phillip
Managing Editor

Asian Science Park Excellence Prize

- ”2017 ASPA Excellence Prize”

— Asian Science Park Association

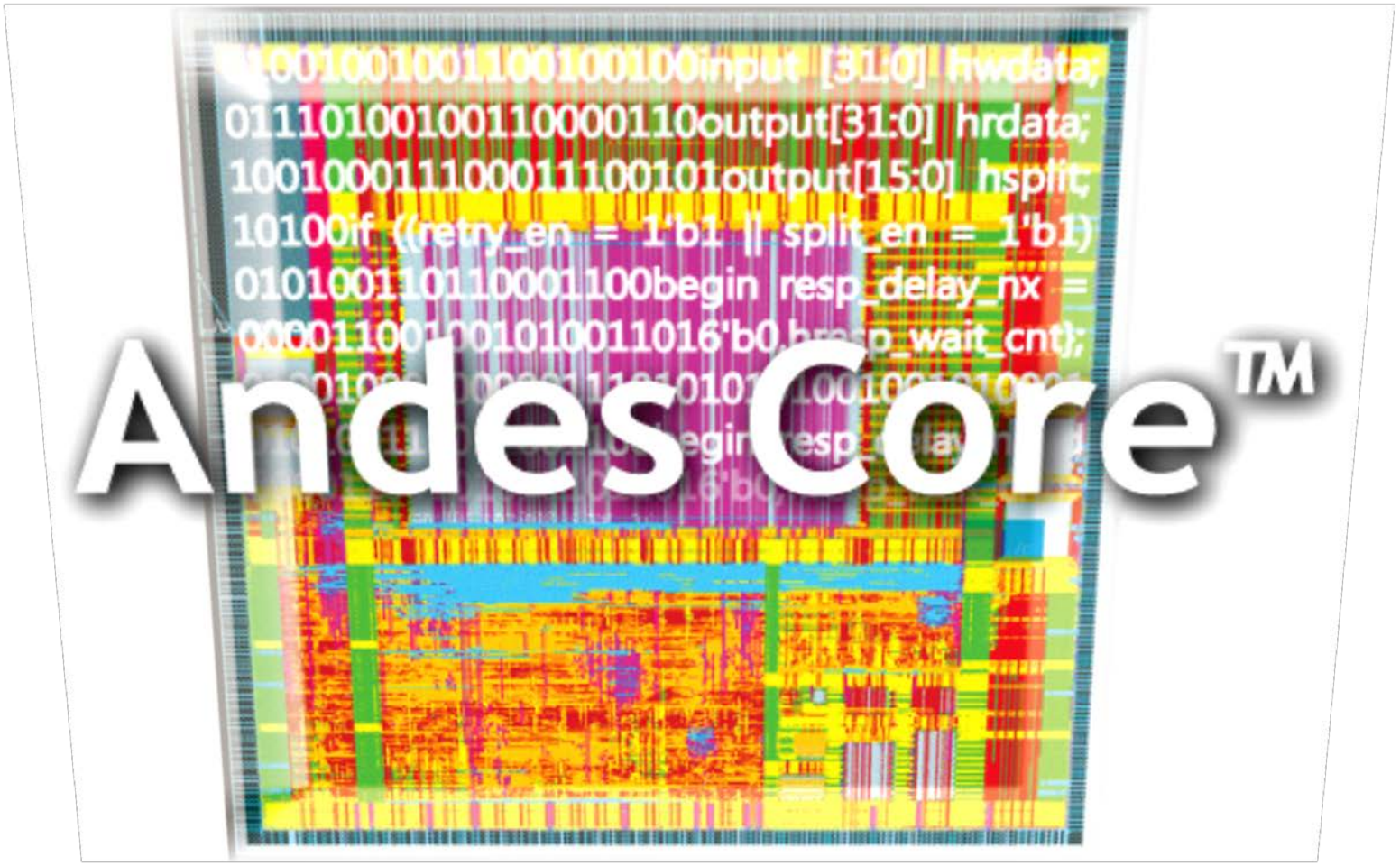
Concluding Remarks

ANDES TECHNOLOGY

Andes: Even Better Value in Future

- Andes revealed new AndeStar™ V5 architecture processor cores N25/NX25 IP, to be applied in networking, deep learning/AI, high end storage, etc. emerging application
- Andes aggressively involved in RISC-V Foundation new technology and clusters development, contributing and leveraging RISC-V eco-system, promoting RISC-V to mainstream SoC, targeting to become world leader of embedding technology
- Andes has proven its strength, core competence and value, now it is in another transition turning point

Thank You!



www.andestech.com

Q&A