



晶心科技股份有限公司

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



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公司簡介

<http://www.andestech.com>



晶心亮點

- 2005年3月設立於台灣新竹科學園區。
- 根基穩健的高科技上市公司。
- 員工人數超過400人；80%為工程師。
- 獲得TSMC 2015年新的 IP OIP Award。
- 晉升為RISC-V國際聯盟(前身為RISC-V基金會) 首席會員。(2020)
- 獲得AI Global Media頒發「2020年最傑出嵌入式處理器IP供應商」。
- 向量處理器核心NX27V獲頒「新竹科學園區優良廠商創新產品獎」(2020)
- EE Awards亞洲金選獎 - 「Taiwan 產品獎」, 「Asia 企業獎」(2021)
- 2023亞太區 前五百大高成長企業



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

重要里程碑

❖ 300+ commercial licensees

- Geographically distributed in Taiwan, China, Korea, Japan, Europe, and USA
- 600+ license agreements signed

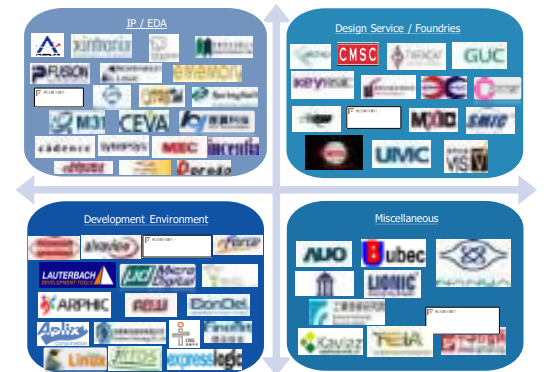
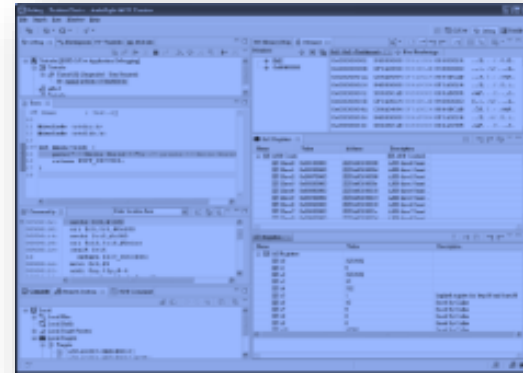
❖ AndeSight™ IDE:

- ~25,000 installations

❖ Eco-system:

- 500+ partners

❖ 12B+ Accumulative SoC Shipped



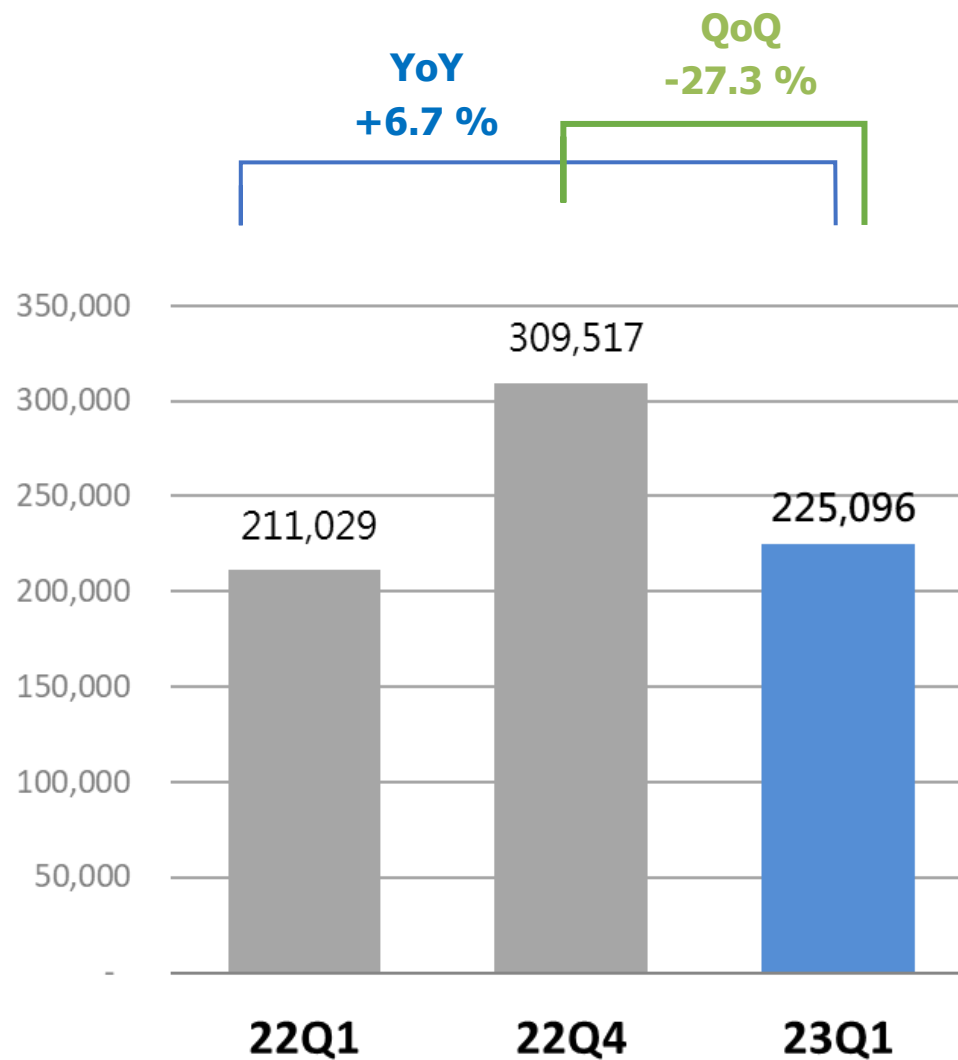


營運成果

<http://www.andestech.com> 

2023年第一季營業收入

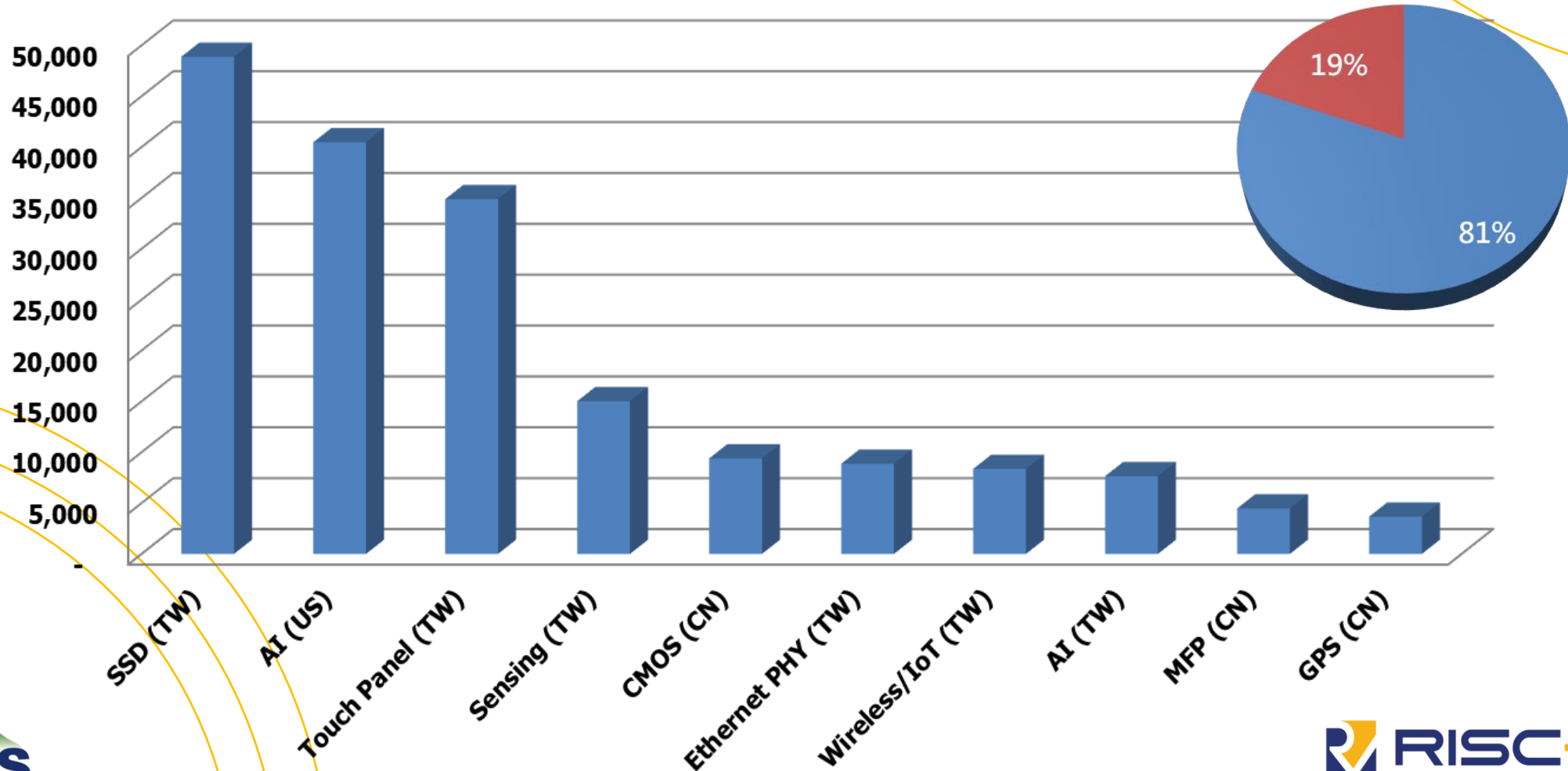
(單位:新台幣千元)



2023年第一季前十大客戶之應用分析

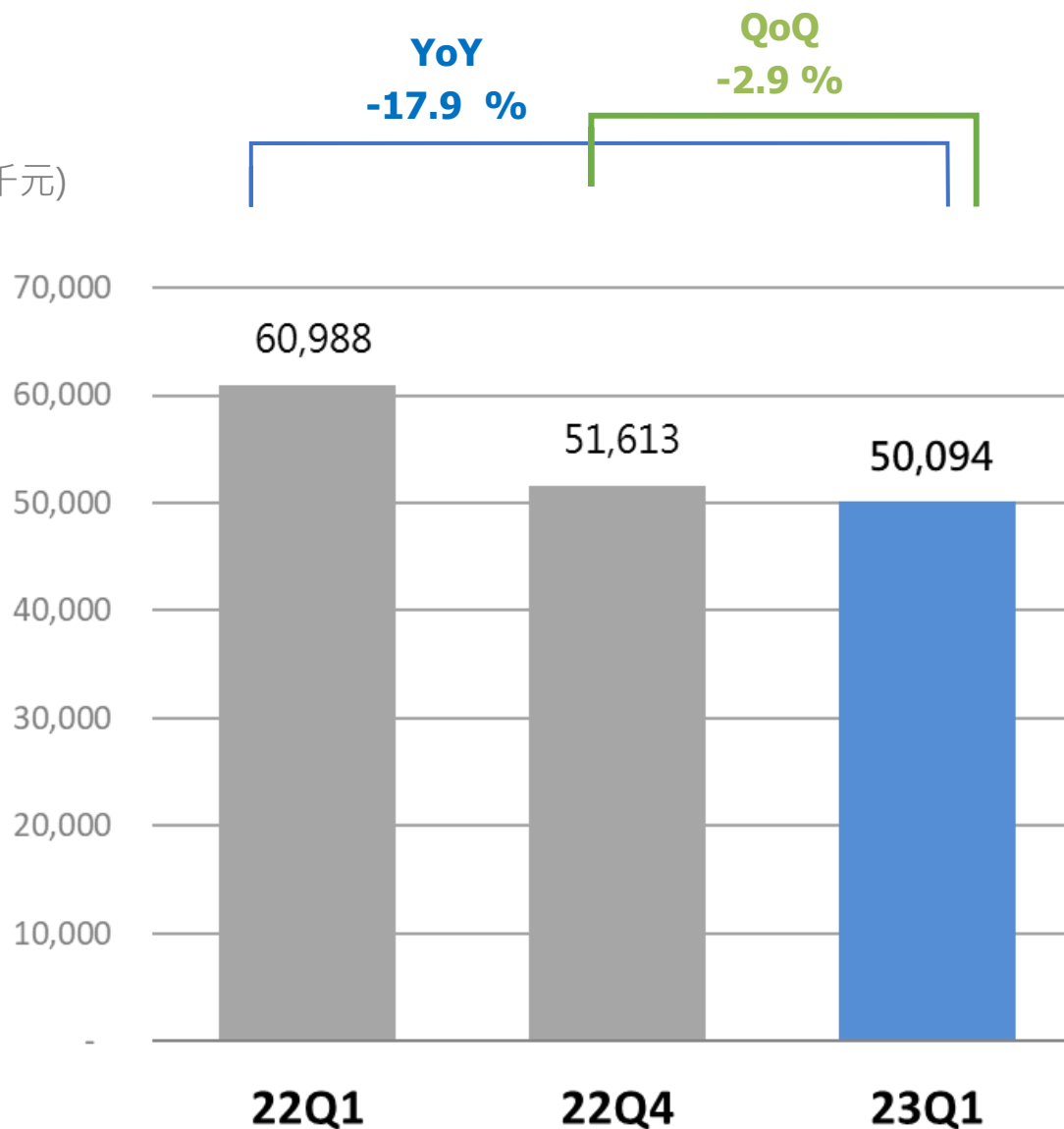
前十大客戶貢獻81%的營收

單位: 新台幣千元



2023年第一季度權利金收入

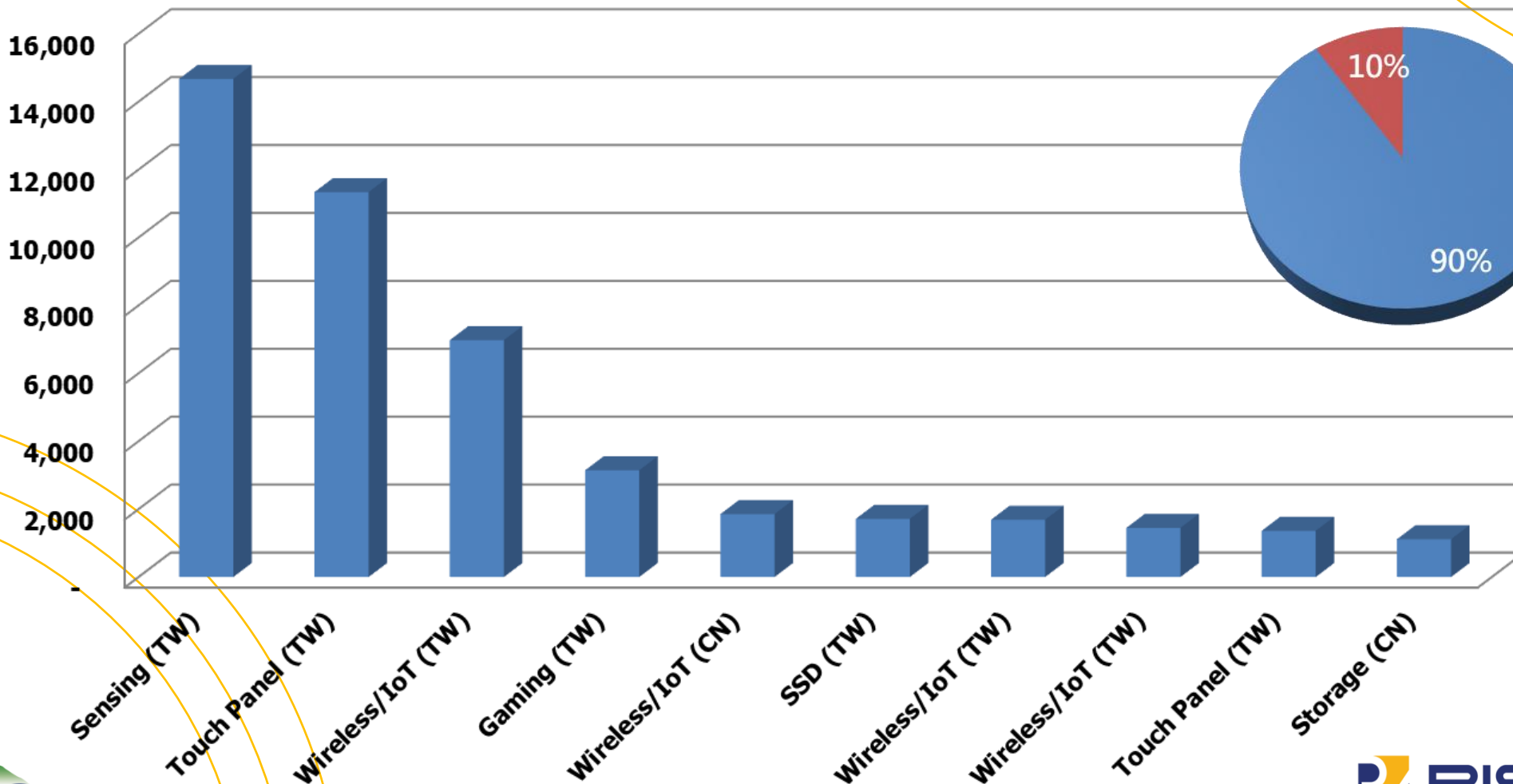
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2023年第一季權利金應用分析

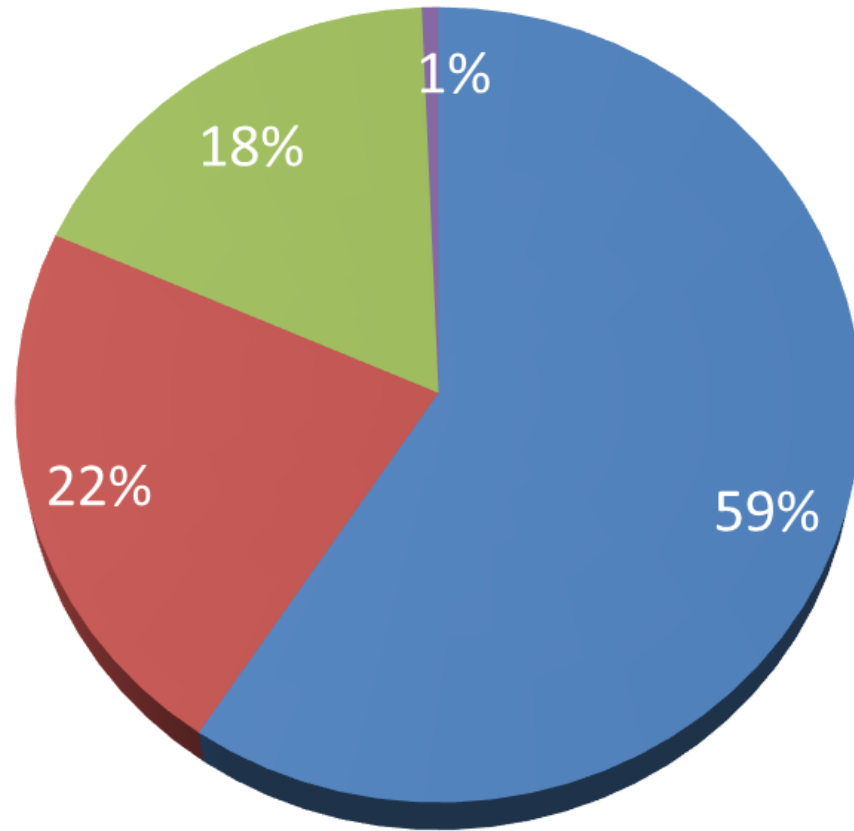
單位: 新台幣千元

前十大權利金客戶貢獻比率 90%



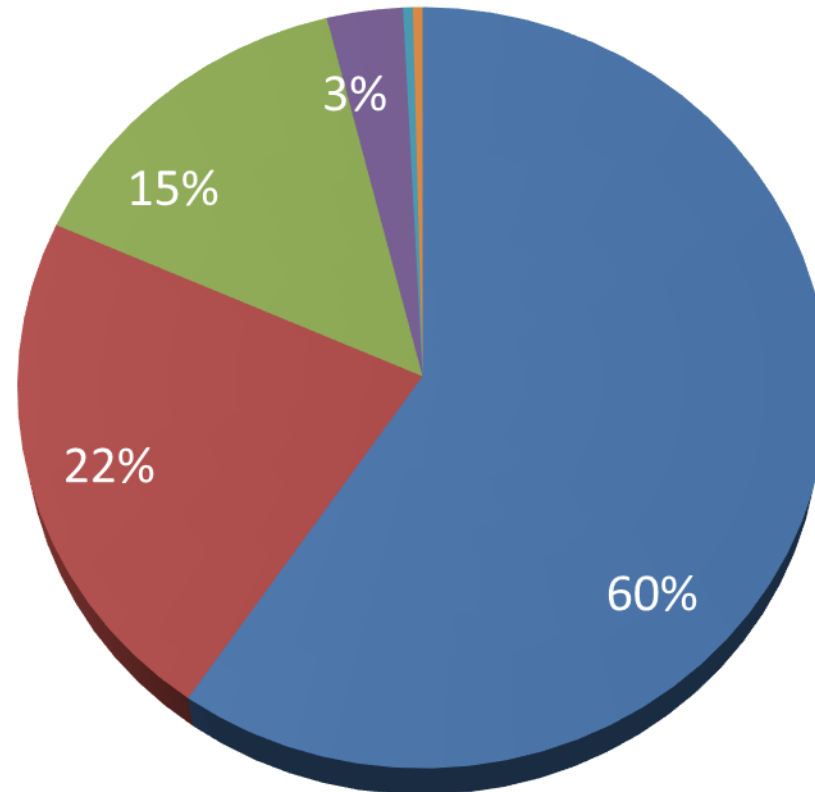
2023年第一季 銷售分析-收入模式

■ 矽智財授權收入 ■ 權利金收入 ■ 維護服務收入 ■ 其他收入

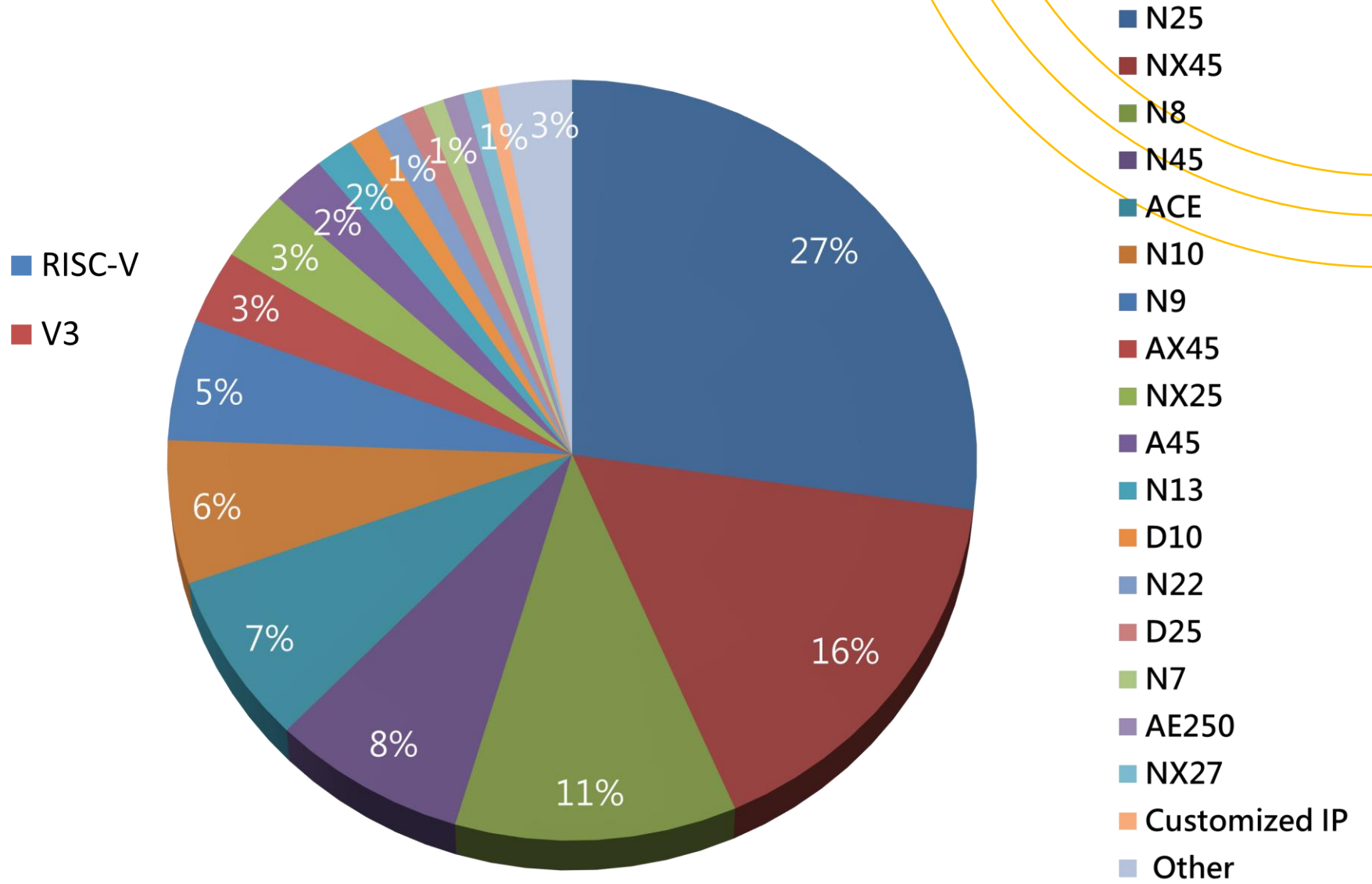
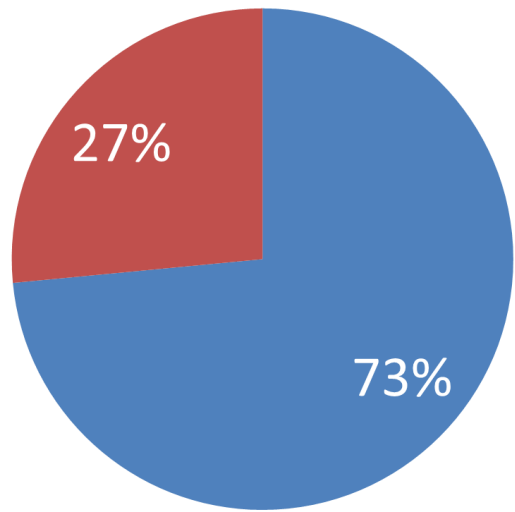


2023年第一季 銷售分析-地區別

■ Taiwan ■ USA ■ China ■ Korea ■ Europe ■ Japan

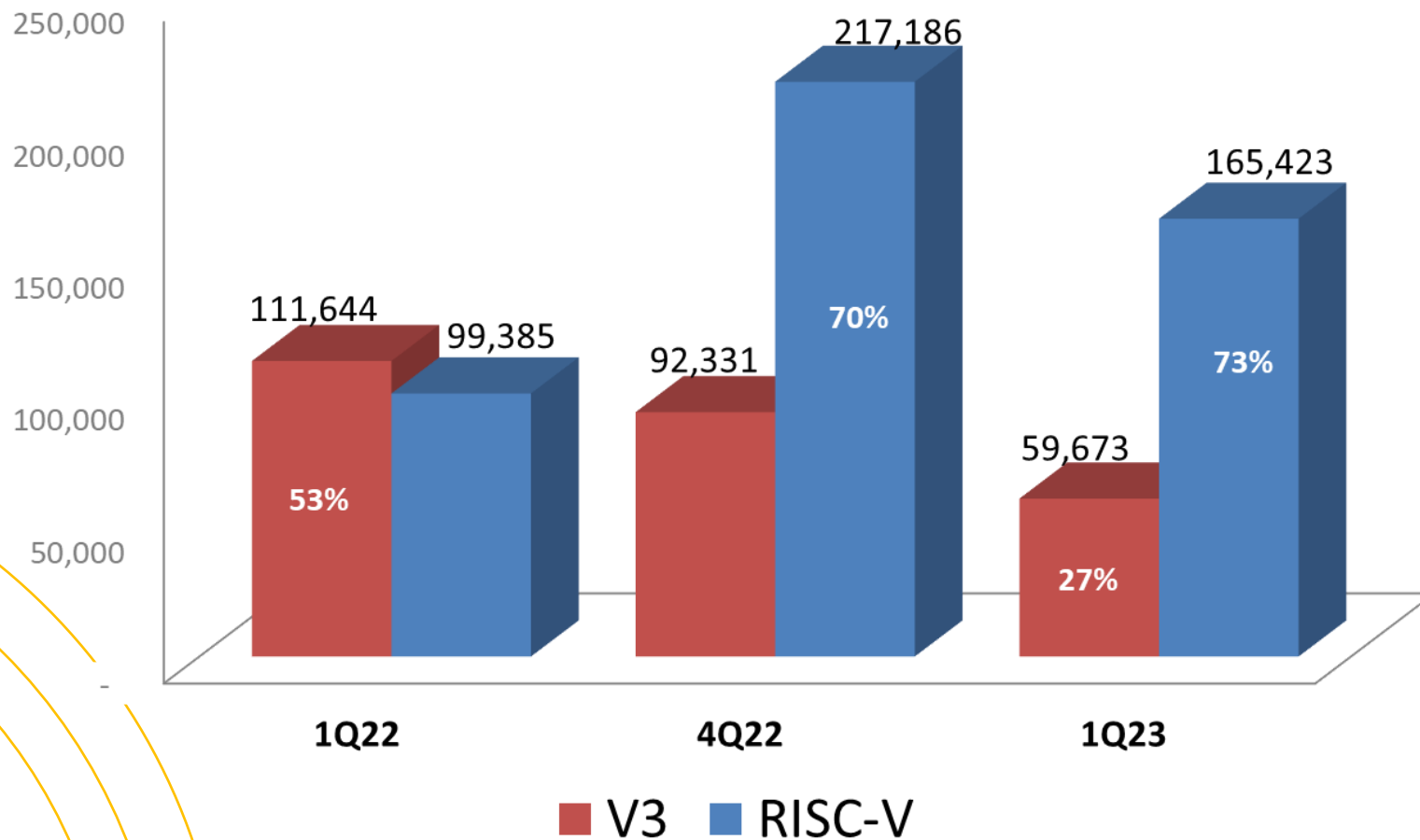


2023年第一季 銷售分析-產品別



2023年第一季 銷售分析- RISC-V

(單位:新台幣千元)





產品應用

<http://www.andestech.com>



晶心RISC-V已應用在邊緣到雲端運算的SoC

❖ Edge to Cloud

- ADAS
- AIoT
- Blockchain
- FPGA
- MCU
- Multimedia
- Security
- Wireless (BT/WiFi)
- Datacenter/server AI accelerators
- SSD: enterprise (& consumer)
- 5G macro/small cells

❖ 40nm to 3nm

❖ Many in AI



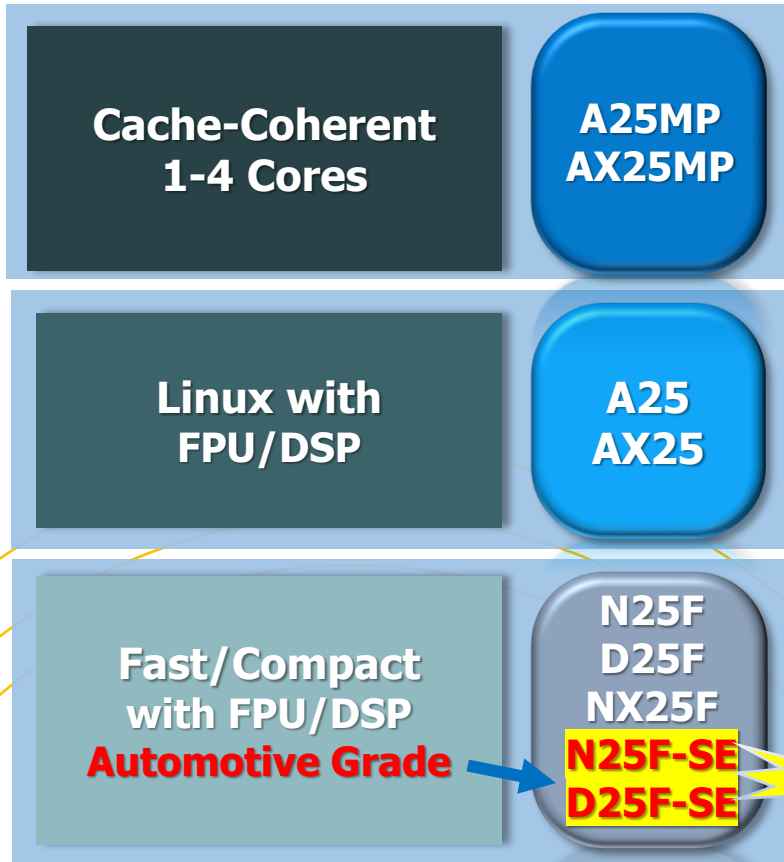


新產品及生態系統

<http://www.andestech.com> 

晶心RISC-V產品路線圖

RV32/RV64



5-stage (1.1 GHz)

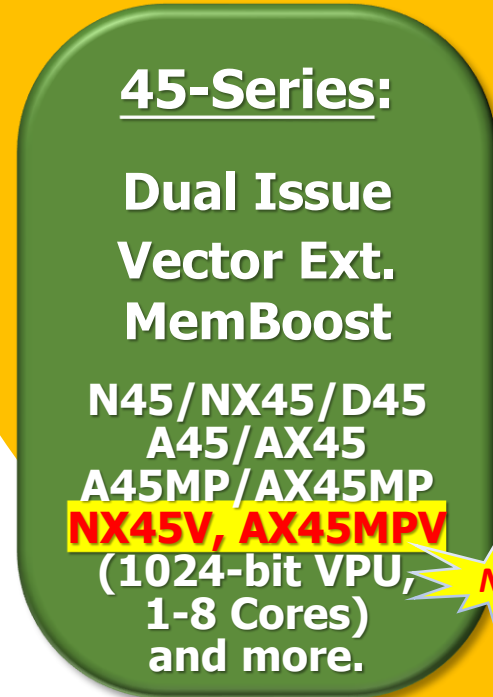


Vector Ext.



5-stage (1.1 GHz)

Superscalar



8-stage (1.2 GHz)

Out of Order



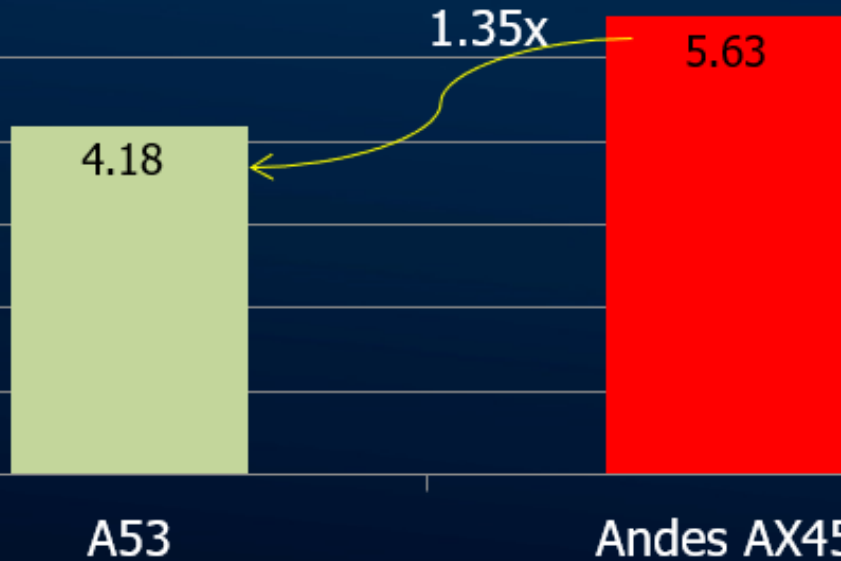
13-stage

Leading positions:

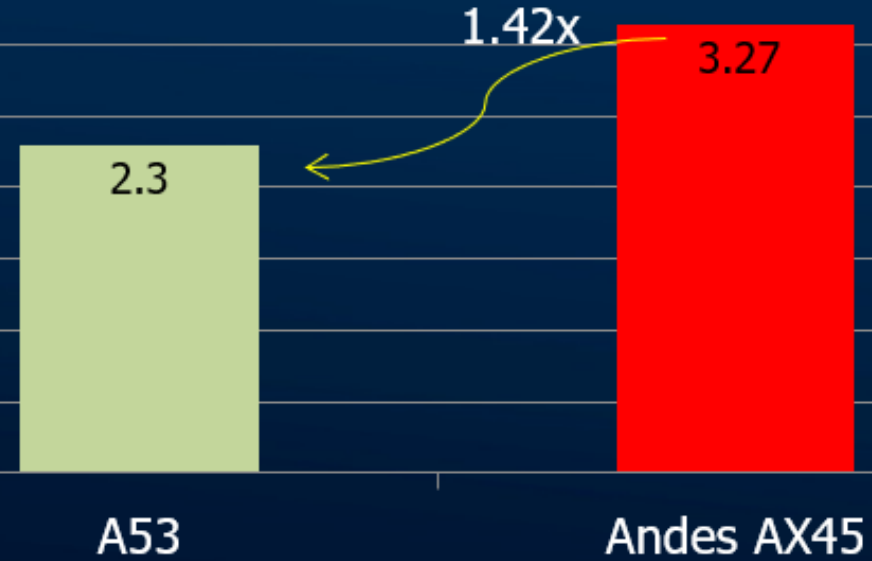
- ❖ The 1st company offering commercial RVP DSP CPU
- ❖ The 1st company offering the most updated spec of commercial RVV vector processor
- ❖ The 1st RISC-V core certified with ISO 26262 full compliance
- ❖ Tools for RISC-V custom extension: ACE

AX45 Can Do More (vs. 64bit A-series)

Coremark/MHz



Dhrystone/MHz



■ A53

- 8-stage In-Order Dual Issue
- **Widely adopted by industries in many applications**

■ AX45

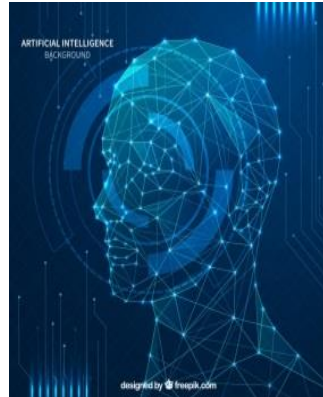
- 8-stage In-Order Dual Issue
- **Performance is better!**
 - Coremark/MHz: 1.35x
 - Dhrystone/MHz: 1.42x

27, 45, 60系列產品的目標市場

■ AI/Deep Learning

■ AR/VR

■ 5G



■ Video Surveillance

■ ADAS



■ Networking



■ V2X (Vehicle to Everything)



■ IVI (In-Vehicle-Infotainment)



■ Storage



Metaverse, HPC and more...

The Andes AX60 Processor Series



■ A new generation of AndesCore™

- Advanced Performance 13-stage Out-of-Order Superscalar Multicore
- Latest RISC-V Architecture
- Supported by Andes Long-term Roadmap
 - AX65 as the first member of the AX60 series
 - More products based on the AX60 micro-architecture planned, including for automotive functional safety

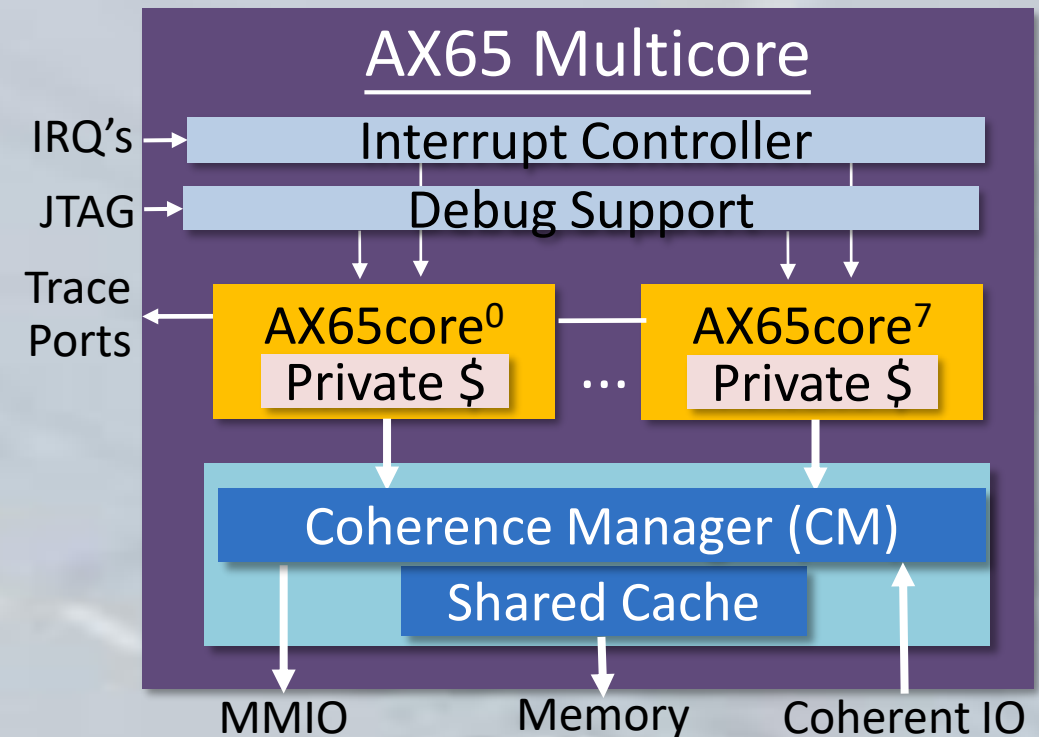
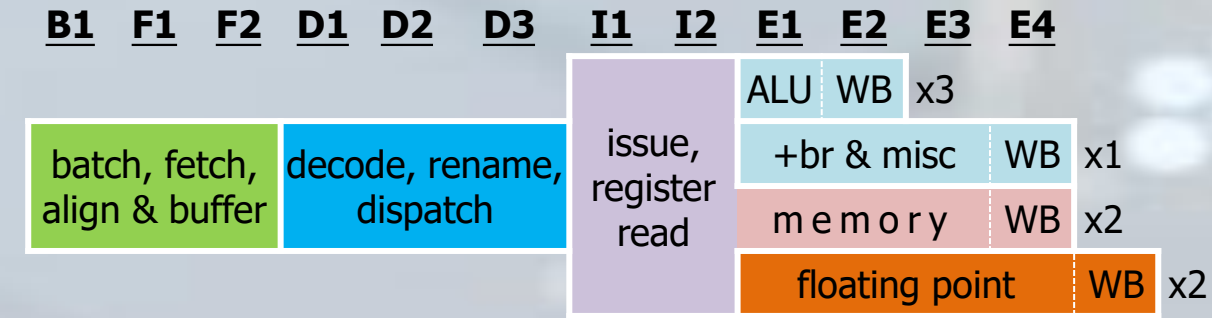
■ AndesCore™ AX65

- Offering performance surpassing CA72
- > 2.5 GHz, > 2x per-GHz performance of AX45MP
- Engaging with early customers

AndesCore AX65: 1st Member of AX60-Series



- 64-bit, RV64GCBK
- 8-core Multiprocessor
- 13-stage OoO Pipeline
- 128-entry Reorder Buffer (ROB)
- 4-wide Frontend Decoder
- 8 Execution Pipeline engines
- 2-level Branch Target Buffer (BTB)
- TAGE-L Branch Predictor
- 1024-entry 4-way L2 TLBs
- 64 KB, 4-way Private I/D Caches
- 8 MB, 16-way Shared Cache
- 256-bit AXI4, MMIO and IOCP Buses



Andes is *Driving* Innovations in Automotive



with Industry's 1st RISC-V ISO 26262 Fully Compliant Core, N25F-SE

In-Cabin Radar



Radio	Radar Subsystem N25F-SE	Host Controller N25F-SE
	Memory	Peripheral

CMOS Sensor

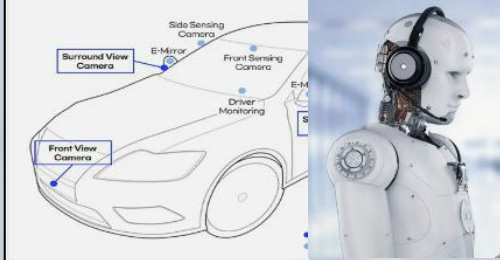
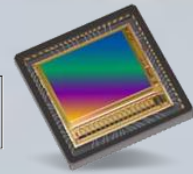

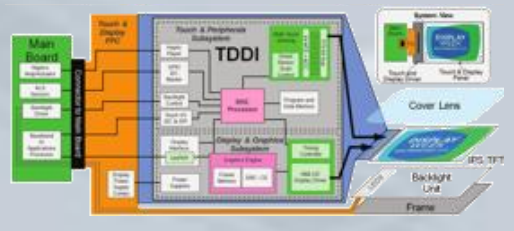



Diagram illustrating the integration of CMOS sensors in an automotive system, showing components like Camera, Radar, and Host Controller.

Auto TDDI

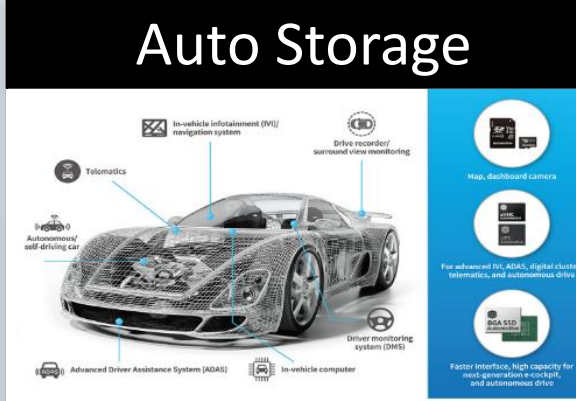
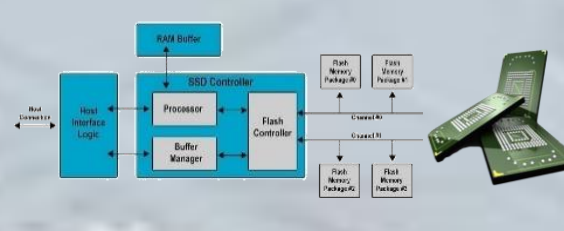



Auto MCU




芯片	芯片	芯片
MCU	RISC-V CPU 0	MCU
MCU	RISC-V CPU 1	MCU
MCU	RISC-V CPU 2	MCU
MCU	RISC-V CPU 3	MCU
MCU	RISC-V CPU 4	MCU
MCU	RISC-V CPU 5	MCU
MCU	RISC-V CPU 6	MCU
MCU	RISC-V CPU 7	MCU
MCU	RISC-V CPU 8	MCU
MCU	RISC-V CPU 9	MCU
MCU	RISC-V CPU 10	MCU
MCU	RISC-V CPU 11	MCU
MCU	RISC-V CPU 12	MCU
MCU	RISC-V CPU 13	MCU
MCU	RISC-V CPU 14	MCU
MCU	RISC-V CPU 15	MCU
MCU	RISC-V CPU 16	MCU
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MCU	RISC-V CPU 21	MCU
MCU	RISC-V CPU 22	MCU
MCU	RISC-V CPU 23	MCU
MCU	RISC-V CPU 24	MCU
MCU	RISC-V CPU 25	MCU
MCU	RISC-V CPU 26	MCU
MCU	RISC-V CPU 27	MCU
MCU	RISC-V CPU 28	MCU
MCU	RISC-V CPU 29	MCU
MCU	RISC-V CPU 30	MCU
MCU	RISC-V CPU 31	MCU

Auto Storage

Thank You

<http://www.andestech.com>

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N25F-SE Industry First ISO 26262 Full Compliance RISC-V Processor



- ISO 26262 Certification for Development Process: ASIL-D
 - In Dec. 2020, Andes certified by SGS-TÜV Saar GmbH
- ISO-9001 QMS achieved and maintained since 2010
- ISO 26262 Edition 2018 ASIL B Compliant Certification for N25F-SE
 - ISO 26262-2,4,5,8,9
 - Covers all the sections applicable to CPU core