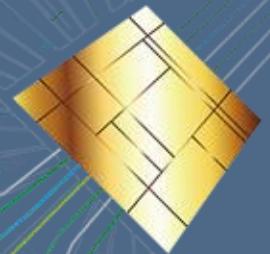


RDC Semiconductor Co., Ltd.

2023.12.13

RDC[®]



Safe Harbor Notice

- **This presentation contains forward-looking statements and is subject to risks and uncertainties. Actual results may differ materially from those contained in the forward-looking statements.**
- **The information provided in this presentation reflects the company's current views about the future; correctness, completeness, or reliability of said views are not explicitly or implicitly expressed or warranted.**
- **The Company is not responsible for updating or amending changes or adjustments made to the contents of this presentation, if such changes or adjustments should occur in the future.**

Contents

- I . **Company Highlights**
- II . **Market Overview**
- III . **Company Products**
- IV . **Financial Statements**
- V . **Future Opportunity**

About RDC

- **Founded** : August 1997
 - **Capital** : ~ NTD \$ 698 Million
 - **IPO** : March 2nd , 2005 (OTC: 3228)
 - **Industry** : Semiconductor IC Design
-

- Over 20 years of developing in-house x86-compatible CPU.
- Over 10 years of long term x86 CPU compatible product delivery commitment for the industrial customers.
- Over millions of processors and controllers have been sold worldwide each year.

x86 CPU (except RDC)

- ◆ Intel
- ◆ AMD
- ◆ Via {Cyrix 、 IDT} < = > Shanghai Zhaoxin
(* Centaur has been sold to Intel)
- ◆ Hygon: AMD authorized USD293 million
(Has been sanctioned by the U.S.)

CPU Applications

CPU

- x86+Windows
- ARM+IOS/Android
- MIPS
- RISC-V

Client

- PC/NB
+peripherals
★AI PC/NB
- Mobile
+peripherals
★AI Mobile

Interface

- Base station
+peripherals
★PCIE Switch

Data Center

- Server-
 - ◆Data Center
 - ◆Edge Server
 - ◆AI Server

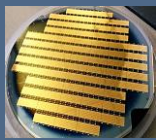
Comparison of x86 Companies

Company Name	Annual Revenue Over The Years (USD)	GM% Over The Years	Annual Revenue 2023 (USD)	2023 GM%	Market Capitalization (USD)
Intel	70-80B	~60%	50-60B	~42%	182.7B
AMD	10-20B	~40%	20-25B	~47%	193.5B
Hygon			500M-1B	~56%	21.6B
RDC				~60%	400M
Total	~100B		~80-85B		

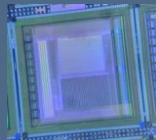
PS: Mainland China contributes nearly 30-40% of Intel and AMD's total revenue in x86 CPU.

RDC x86-64 4-core SoC Status

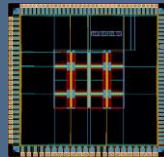
- x86-64bits SoC
 - 28nm/22nm, PCIe Gen3.0, DDR4, ...



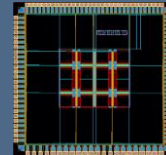
1997



2021



2024



2025



2026

Established

Multi-Core 2/4/8/16/32
32-bits
1.5GHz

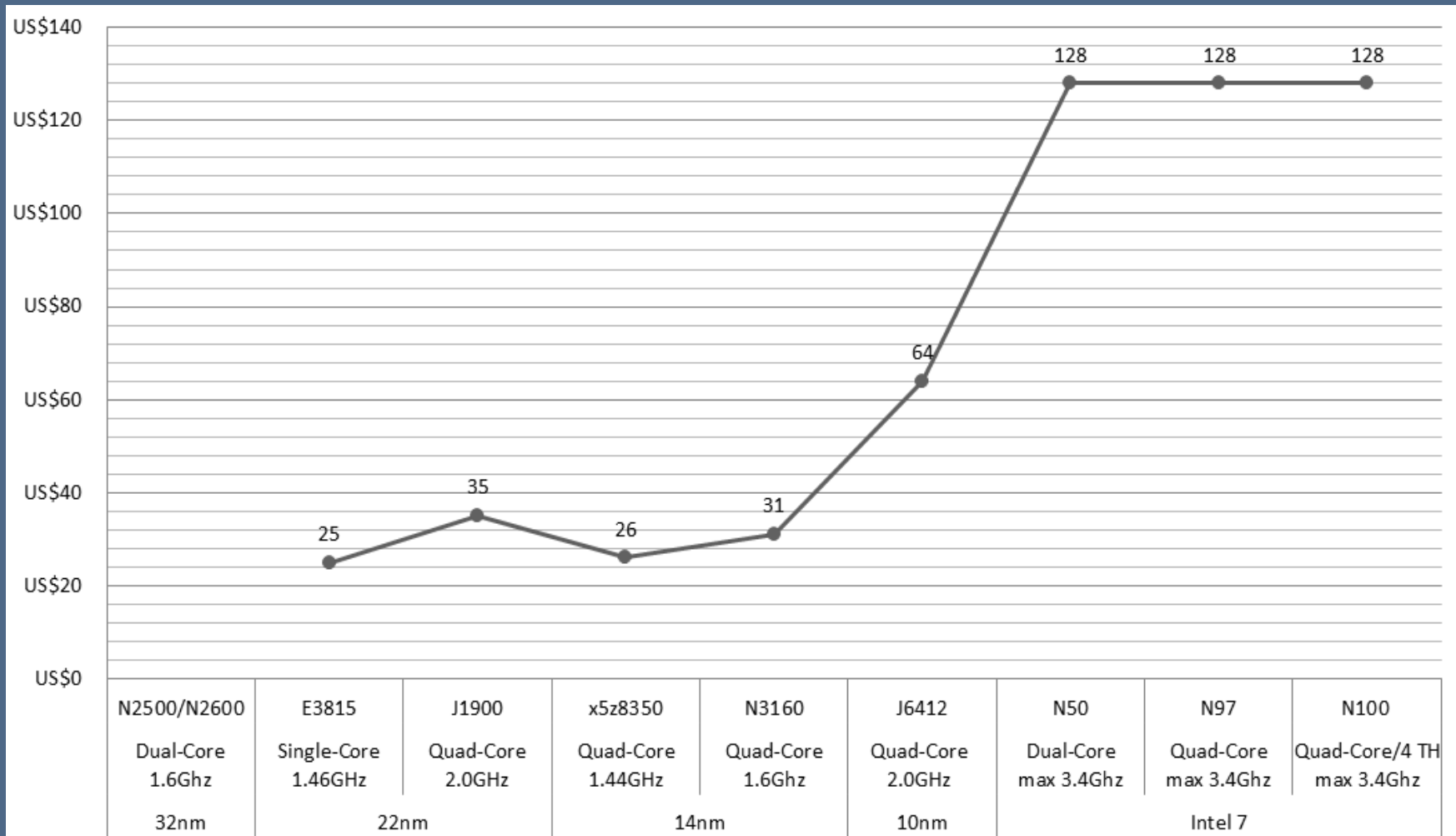
Multi-Core(4)
64-bits
2.0GHz

Multi-Core (16)
64-bits
3.0GHz

Multi-Core (128)
64-bits
3.0GHz

Industrial Control Customers' Status Quo

– Process/Price table



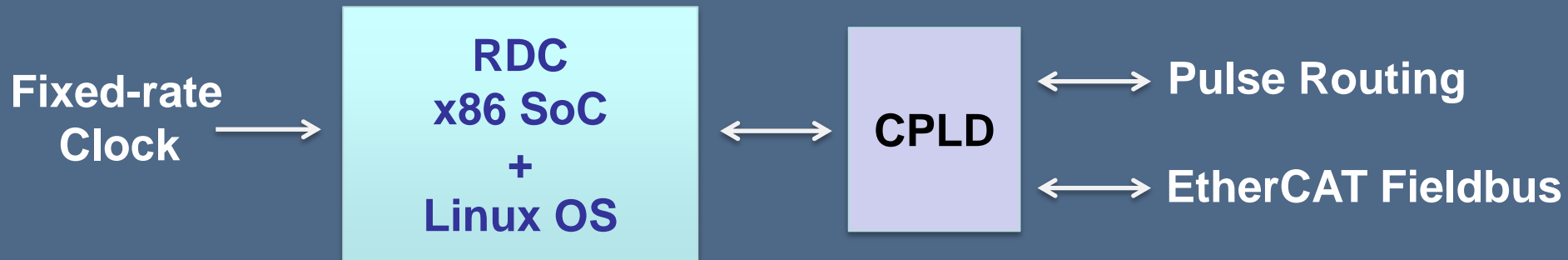
Customer Application Scenarios

- **Servo System: Incremental & Absolute encoders**
- **PLC System:**
 - PAC (Programmable Automation Controller)
 - PLC (Programmable Logic Controller)
- **CNC System:**
 - Controllers of woodworking machine/turning machine/milling machine/injection molding machine/grinding machine/laser processing machine etc.
- **Robot System:**
 - Movement & Handling/Soldering & Welding/Assembly, Spraying/Processing etc.

Note: The other PLC & CNC in China, the robot vendors adopt Intel J1900, J6412 & i5 x86 Solution.

RDC Immediate x86 CPU Solutions

Hardware Solution



RDC Immediate x86 CPU Solutions

Software Support

- BIOS supports priority to clock interrupts
- Driver supports Linux OS/Peripherals

【Goals】

To make the China motion controller manufacturers who adopt Intel J1900, J6412 & i5 x86 CPU successfully switch to RDC x86 platform.

Note: The J6412 with x86 CPU performance which be tested by CPU Benchmarks is 10 times as much as RDC dual-core x86(1GHz).

Reference for China Motion Controller manufacturers

Keep on Intel x86 solution with Advanced Process
(J6412 is 10nm process)

Or

RDC Dual Core x86 Solution (40nm Matured Process Node)
**To satisfy the requirements for China's x86 chipmaking
localization in the future.**

Also

**It's the MASTER to make advanced chips without highly
developed technologies.**

RDC HPC Solutions

Microprocessor Report CPU Core Counts

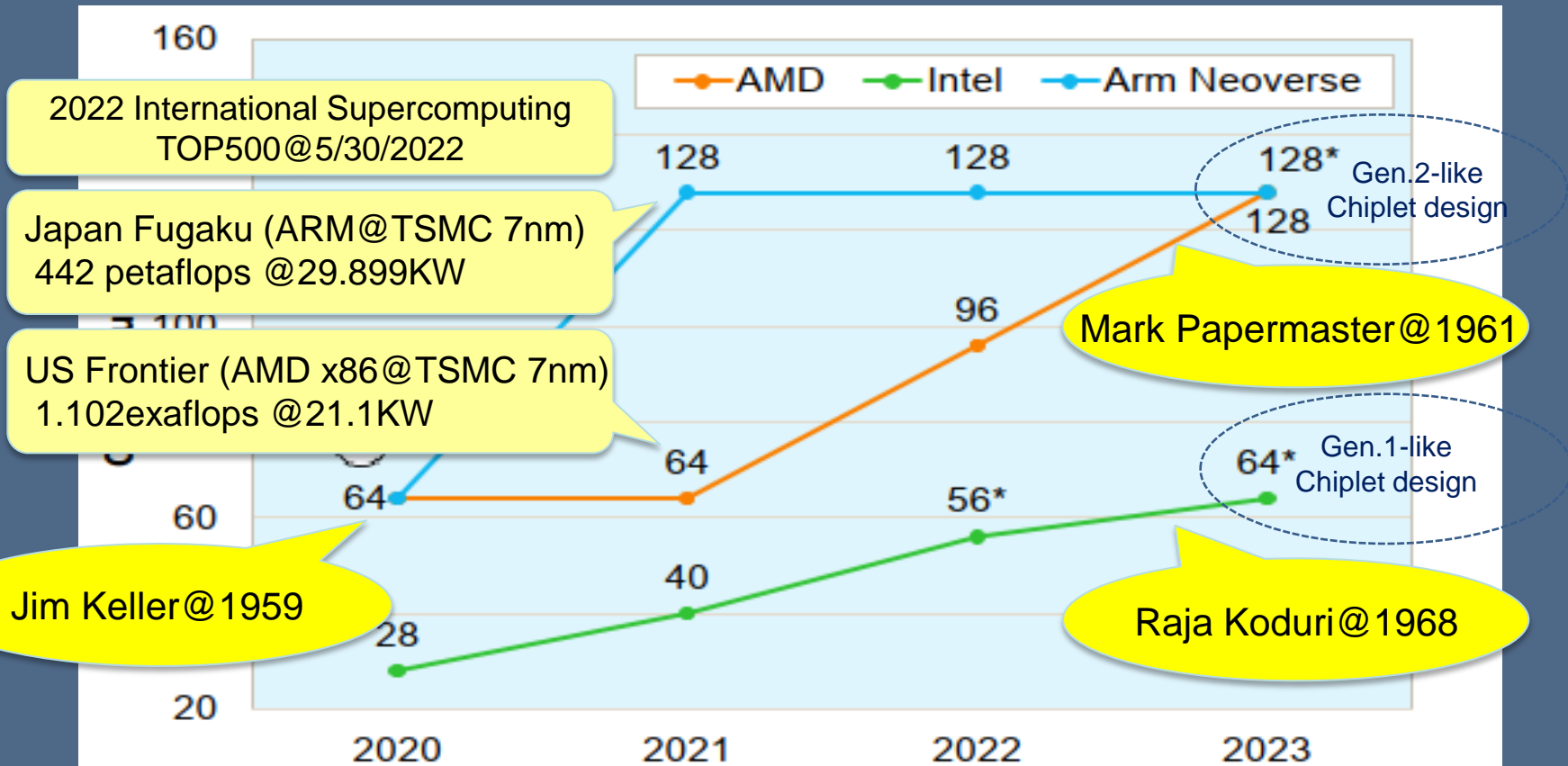


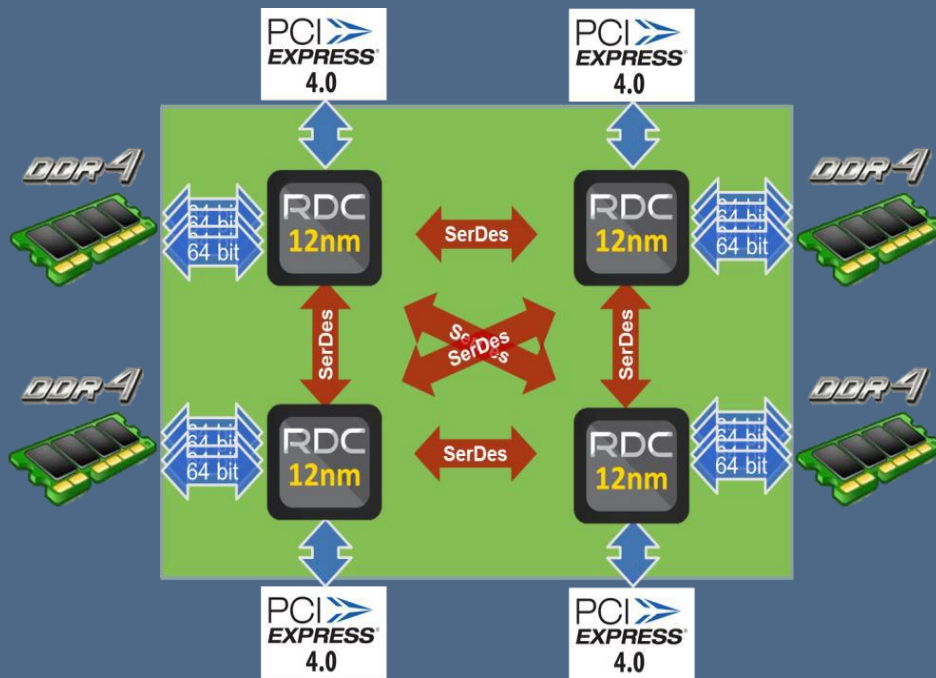
Figure 1. Server-processor core counts. By 2023, Epyc's maximum core count should be twice that of Xeon. (Source: vendors, except *The Linley Group estimate)

Gen.1 vs Gen.2 Chiplet's Architecture

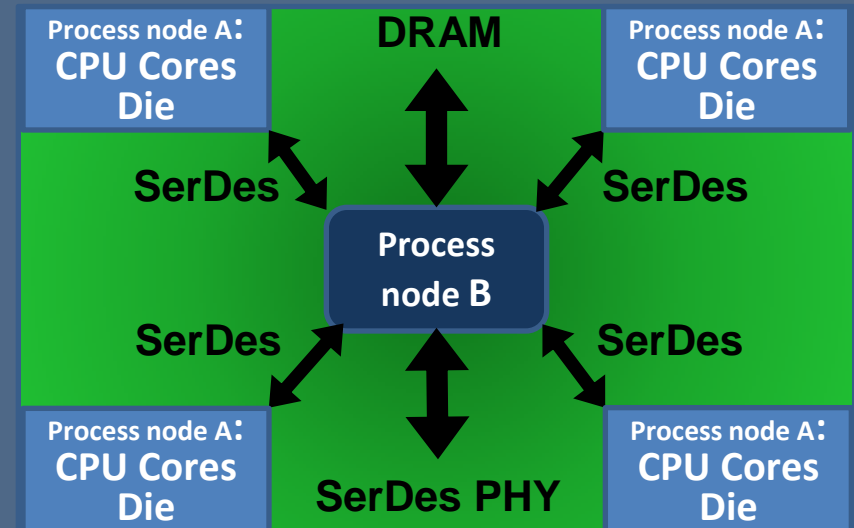
Intel, Apple, NVIDIA
still Gen.1

AMD's change

RDC's Gen.1 Chiplet design



RDC's Gen.2 Chiplet design



upgrade



RDC HPC Solutions


- **Advanced Process Node**
 - Single Die SoC
 - 2.5D chiplet SoC

- **Matured Process Node**
 - Chiplet SoC
 - Dynamic Domino Circuit for High Speed Operation



RDC HPC Solutions

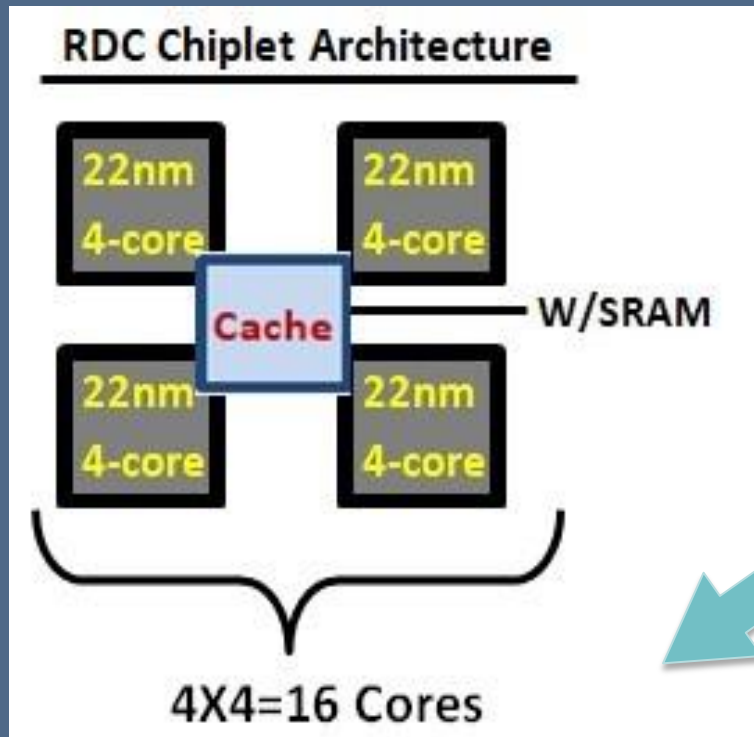
RDC Dynamic Circuit

	28nm	22nm	16/14/12nm	7/6nm
Performance	1	1.3	1.5	1.7-1.8
	 Dynamic circuit techniques adopted			
	1.4-fold increase		x1	x1
	1.4	1.8	1.5	1.7-1.8

Note 1: RDC obtained two Dynamic Circuit related US invention patents on 21-Sep.-2021 and 12-Oct.-2021.

Note 2: Data listed are RDC internal evaluation data and only used to assist in explaining the contents of the form.

RDC Chiplet Architecture



VS 6nm w/16 Cores

- **Pros:** Performance Similarity
- **Cons:** Increased power consumption on RDC Chiplet Architecture

Note: Data listed are RDC internal evaluation data and only used to assist in explaining the contents of the form.

Automotive Chip Design (x86 Architecture)

Contents

- **Mobileye's Chip Design & Architecture**
- **Tesla: The embedded System Design & Architecture**
- **RDC's Multicore Chiplet-based Architecture Design**
- **Intelligent cobot multicore x86 CPUs Chip Design & Architecture**
- **No. 1 of Supercomputing Top 500 for Multicore x86 CPUs Chip Design & Architecture**
- **Conclusion**



Source: Microprocessor Report, Jan.2022

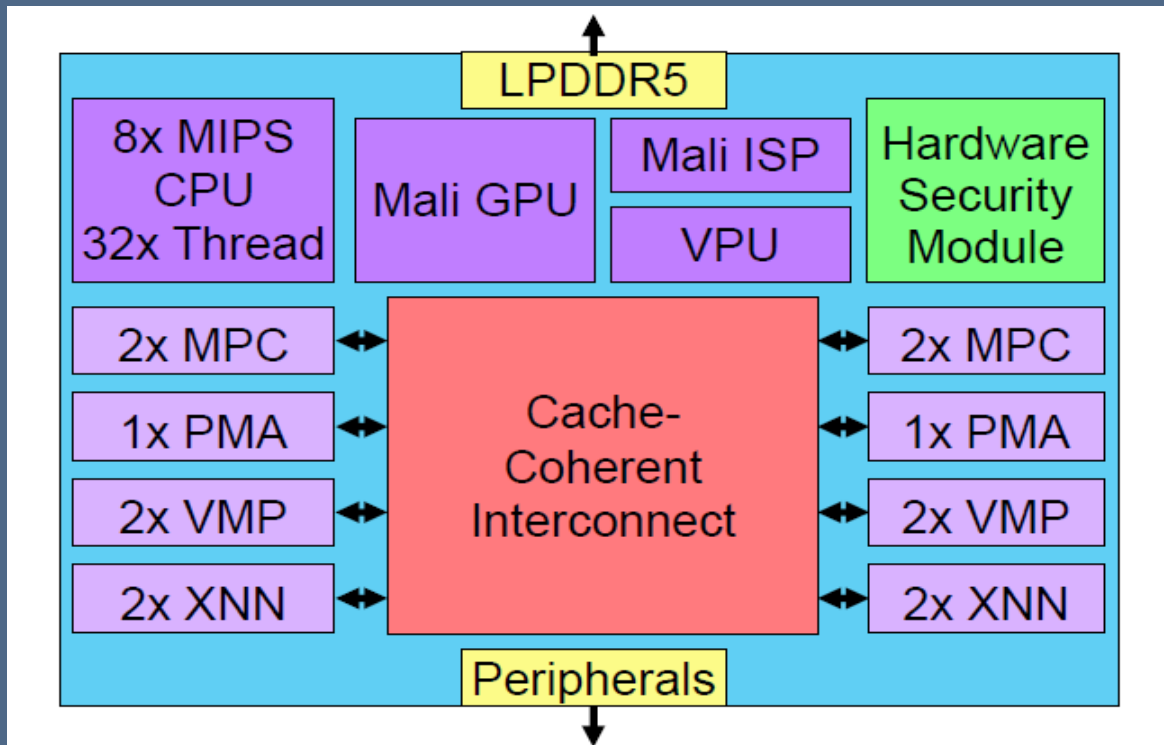


Figure 1. Mobileye EyeQ6H. MPC=multithread processing cluster; PMA=programmable macro array; VMP=vector micro-code processor; XNN=neural-network inference engine. The new processor integrates fewer computer-vision and neural-network accelerators than its predecessor, but the company says they'll deliver more than twice the throughput for INT8 operations despite consuming just 25% more power.

Tesla: The embedded System Design & Architecture

Smart Cockpit

NVIDIA Tegra x1 (ARM Solution) @2012



Intel Atom (Apollo Lake) x86 quad core 2.0 GHz @2017



AMD Ryzen + Navi 23 GPU @2021
Smart cockpit with stronger function (PC Chip adopted)

Tesla: The embedded System Design & Architecture

ADAS

Mobileye Eye0.3 * Blackbox Solution :
Vague Responsibilities & Unclear Data ownership



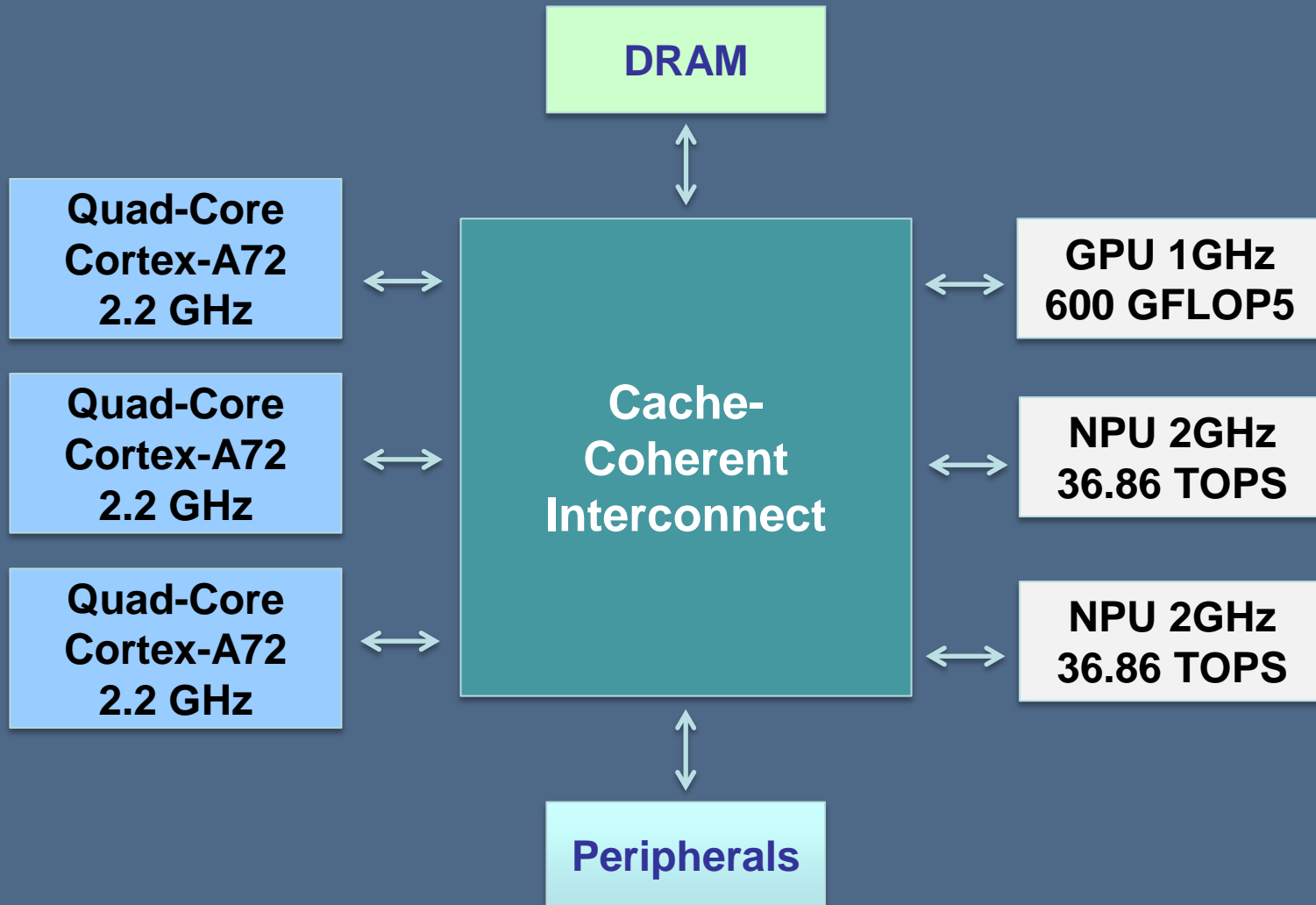
NVIDIA Drive (ARM Solution) * Platform Solution :
The Worst fit Algorithm with Chip



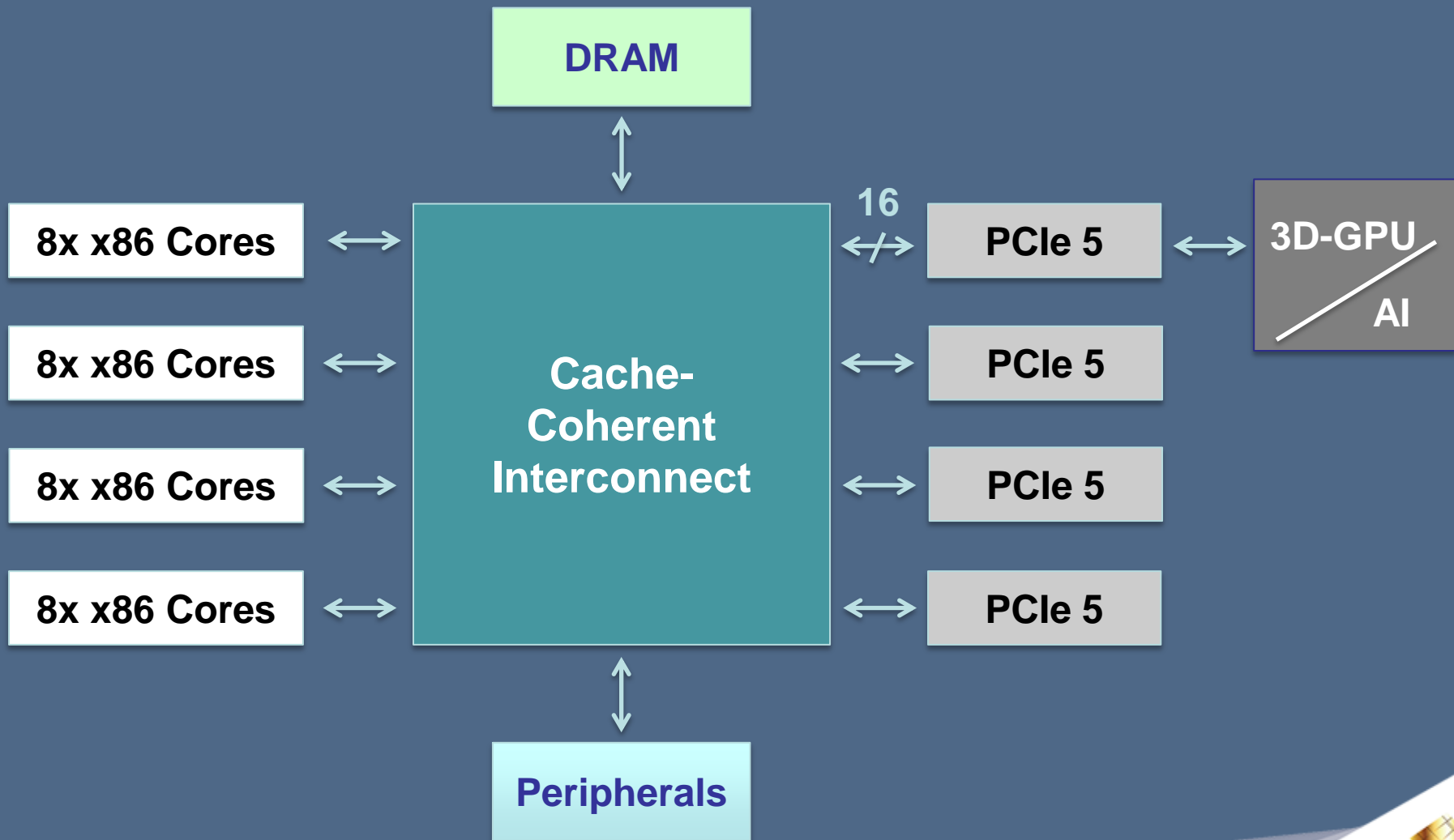
Self-Develop Chip (ARM Solution) * Full Self-Driving Externally
***Be unused x86-Is Business Problem not Technical Problem**

*SONY-PS4 & Microsoft Xbox both contain AMD's x86 ASIC chips.

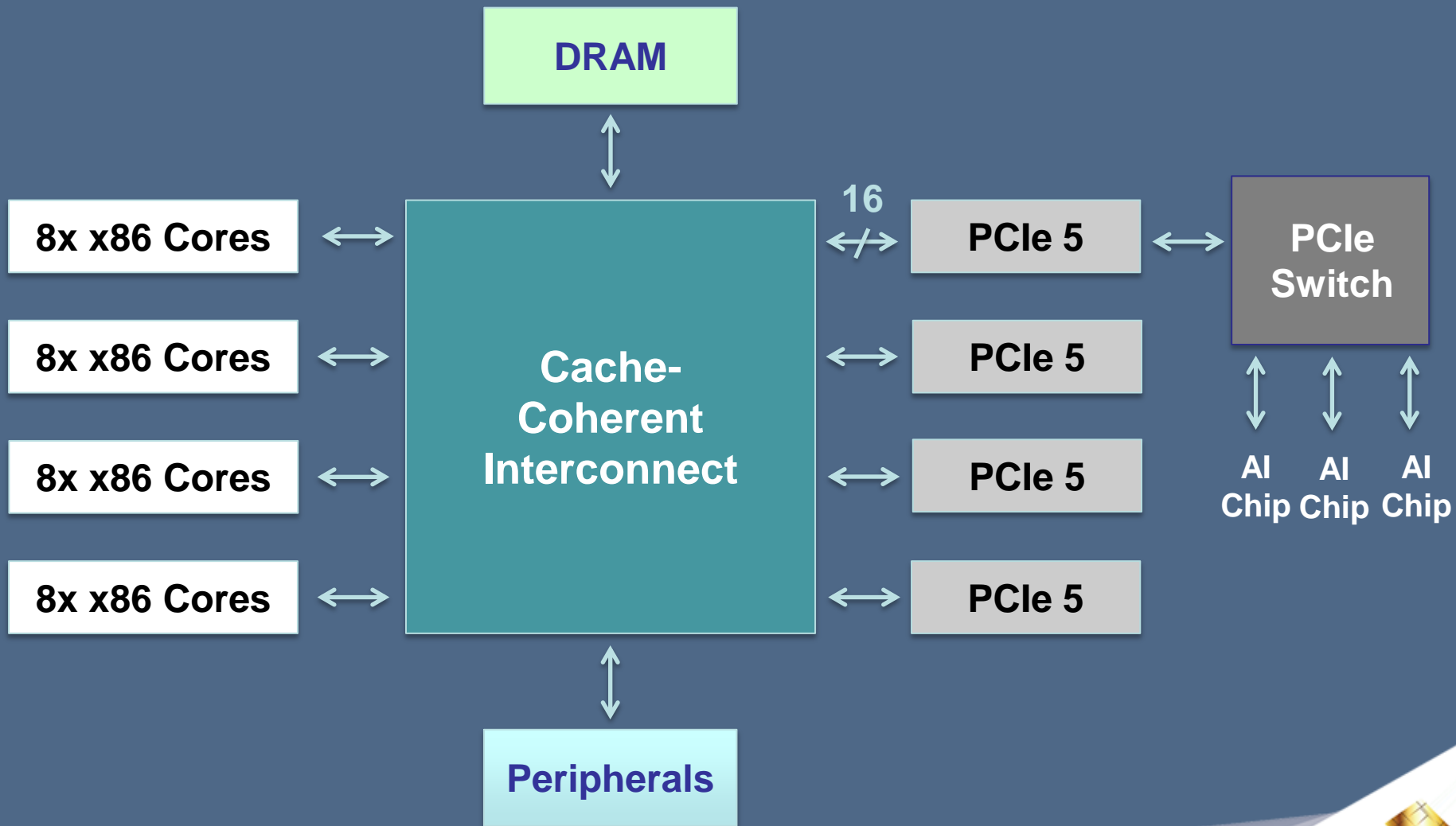
Tesla FSD Chip Architecture



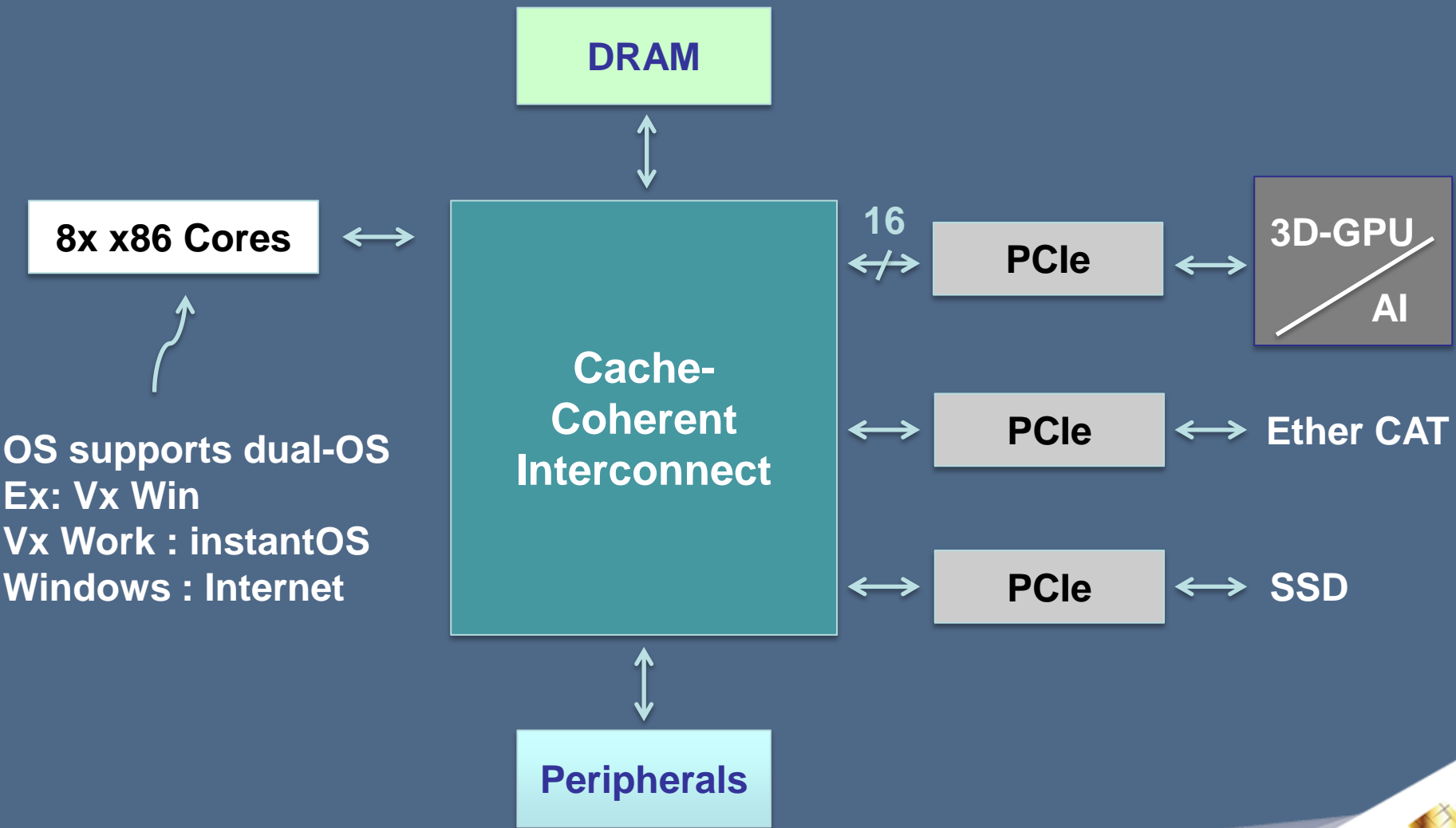
RDC's Multicore Chiplet-based Architecture



RDC's AI x86 CPUs Chip Architecture



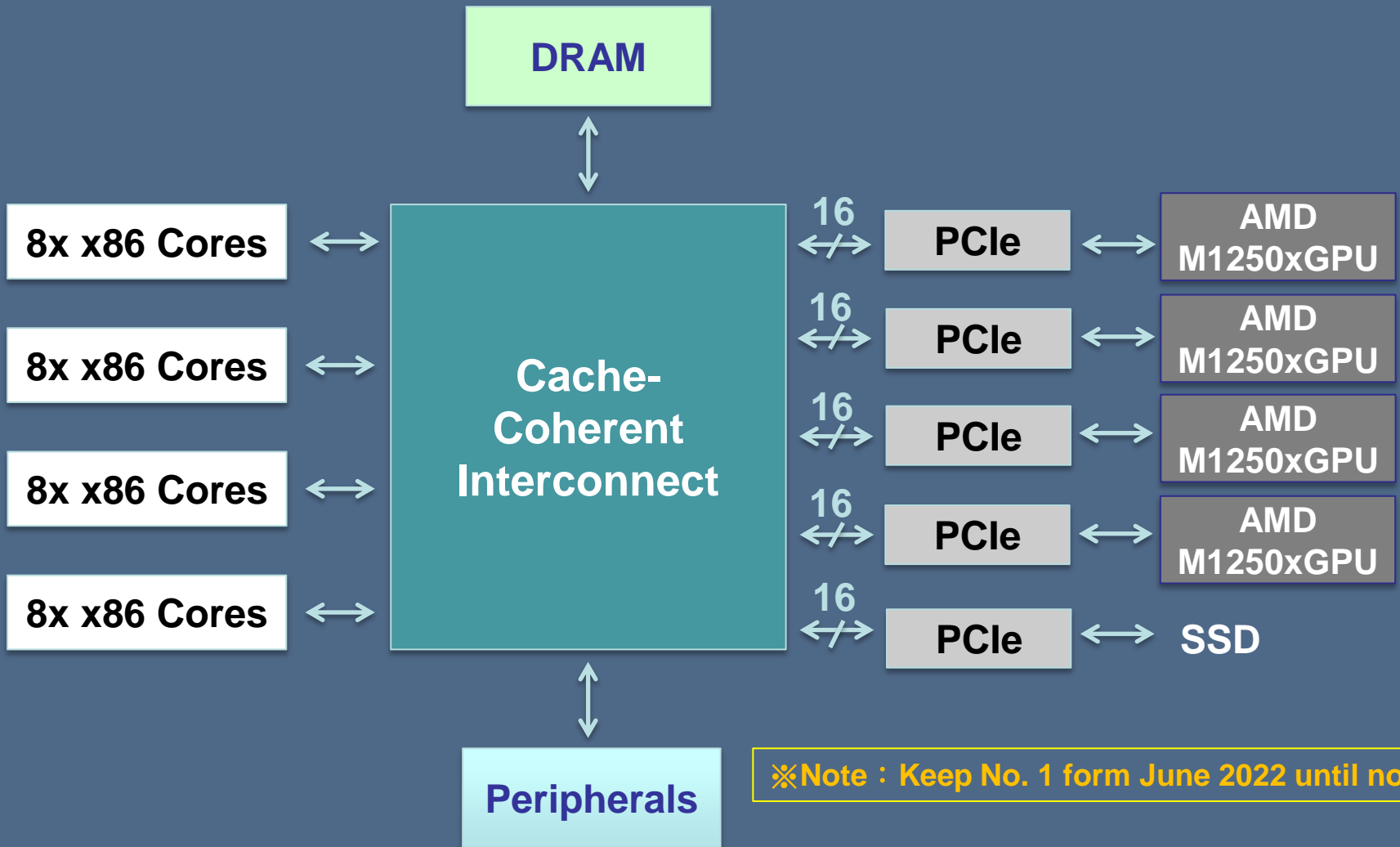
Intelligent Cobot Multicore x86 CPUs Chip Architecture



OS supports dual-OS
Ex: Vx Win
Vx Work : instantOS
Windows : Internet



No. 1 of Supercomputing Top 500 for Multicore x86 CPUs Chip Design & Architecture



Income Statement

Unit: NT\$ thousands (except EPS)

Item	Q1 2023	Q2 2023	Q3 2023	Q1~Q3 2023
Net Sales	76,582	77,141	75,348	229,071
Gross Profit	51,332	48,302	49,927	149,561
Operating Expense	74,433	72,966	79,818	227,217
Operating Income(loss)	(23,101)	(24,664)	(29,891)	(77,656)
Income before tax	(23,450)	(21,963)	(25,664)	(71,077)
Net Income(loss)	(24,682)	(22,971)	(25,664)	(73,317)
EPS	(0.36)	(0.34)	(0.37)	(1.05)

Balance Sheet

Unit: NT\$ thousands

Item	2023/9/30	2023/6/30	2023/3/31
Total Asset	749,144	771,999	779,934
Cash & Equivalents	74,387	76,441	93,909
Inventories	161,893	162,060	167,839
Property, plant and equipment	186,147	178,175	187,640
Intangible Assets	185,835	203,656	221,806
Total Liabilities	107,494	105,594	83,779
Total Equity	641,650	666,405	696,155

Competitive Advantage In Application Market (I)

- **Embedded application** differentiates from Intel/AMD with **x86 compatibility and customized design service.**
- - Intel/AMD focus on high performance and high power consumption.
- Reduced/No supplies of **low-mid range CPU in the future, which can be fulfilled by RDC.**

Competitive advantage in application market (II)

➤ x86 HPC Market

- TSMC **HPC revenue surpassed mobile phones.**
- TSMC HPC current clients: (US-based mainly)
Intel, AMD & NVIDIA
- RDC 2nd generation chiplet architecture fulfills EU, China & Southeast Asia's non-advanced manufacturing requirements of x86 self-developed HPC chips.

Future Opportunity

1. 64-bit 4 cores: Industrial Automation/IPC/PC,NB
2. 64-bit 16 cores: Industrial Automation/IPC/PC,NB
3. 64-bit 128 cores: edge server/data center/AI server
4. PCIe Switch
5. 5G base station
6. x86 SoC ASIC

x86 SoC ASIC Directions

- The worldwide industry with x86 SoC ASIC :
Intel (US), AMD (US) & RDC (TW)
- Master core of x86 CPU SoC IP
- AMD x86 CPU SoC is SONY & Microsoft Gaming's ASIC platform
- Company's resources are limited; We are cooperative partners with ASIC company, not competitive relationship.
E.g., ARM's cooperative business model with ASIC companies.

Q & A

Thank You!



RDC®