



SUNON® FIRST CHOICE GLOBALLY
Cooling Solutions

2024 Q4 Operating Results

Sunonwealth Electric Machine Industry Co., Ltd.

2421.TW / 2421 TT

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SUNON Thermal Everywhere

■ Fan ■ Fan tray ■ Heat Pipe ■ Vapor Chamber ■ Heat Sink ■ Cooling Module ■ Cold Plate ■ Liquid Cooling



5G Base Stations



Networking



electric vehicles



Industry Inverter / Drive



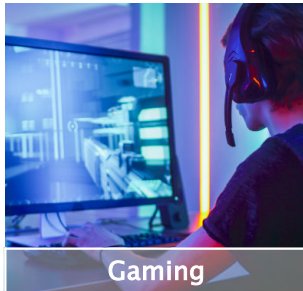
Renewable Energy



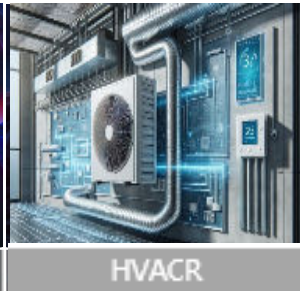
surveillance



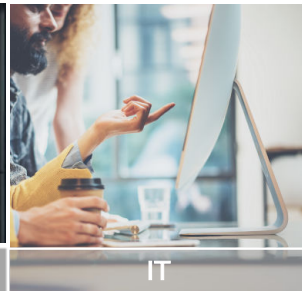
medical



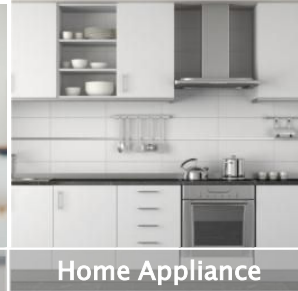
Gaming



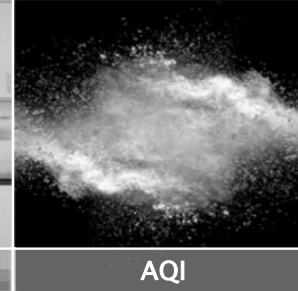
HVACR



IT



Home Appliance



AQI



Air Purifier UVC Solution

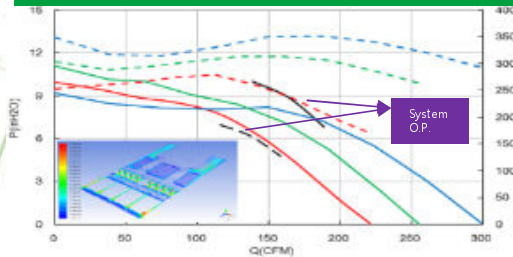


Industrial Ventilation

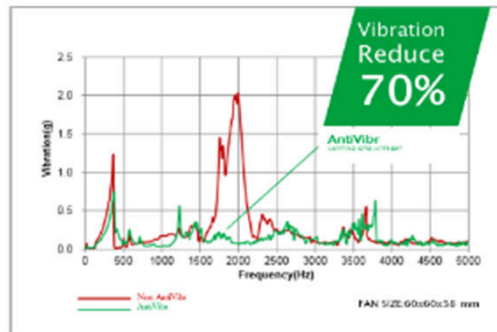
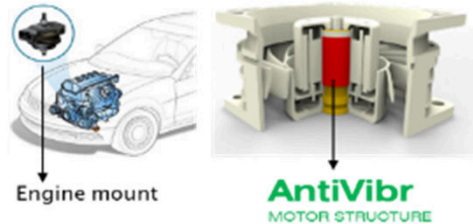
Thermal Technology Keeps Pace With the Times

Future will be supported by powerful computing capacity and the ultra-speed Internet with high reliability, which tests the effectiveness of thermal solutions. The change in the world stimulates thermal technology to update and advance to be suitable for real-time computing systems' needs. Technological advancement in heat dissipation provides the most effective operating temperature management to achieve excellence.

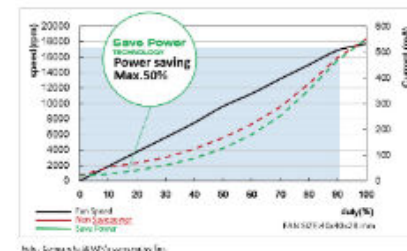
High Fan Efficiency



Low Vibration



Energy Saving

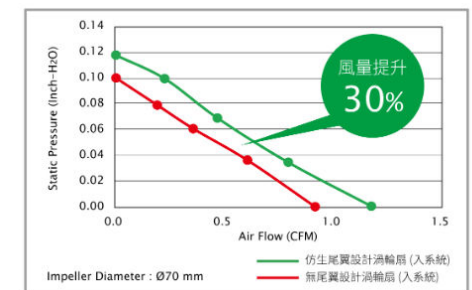
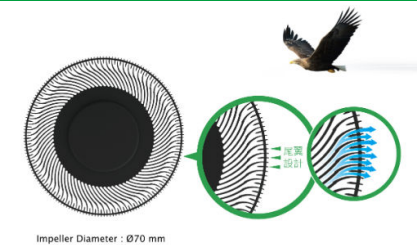


Reliability

- Salt solution: 0.05 % NaCl + 0.35 % ammonia sulphate (Flow is reduced to 20% of a normal ASTM G85 test)
- Chamber temperature: 35° C
- Test cycles first 35 days: 15 min. spray/fog followed of 45 min. drying. 3 day with Salt solution 2 days demineralized water
- Test cycles after 35 days: 30 min. spray/fog followed of 30 min. drying. 3 day with Salt solution 2 days demineralized water
- Test duration: 40 days
- Fans are running during the entire test
- Fans are checked once a day
- If Fan stops:
 1. Try to start fan with finger
 2. "Exercise" with pressurized air
 3. "Dry out" Fan in 45° C oven for 24 Hours.

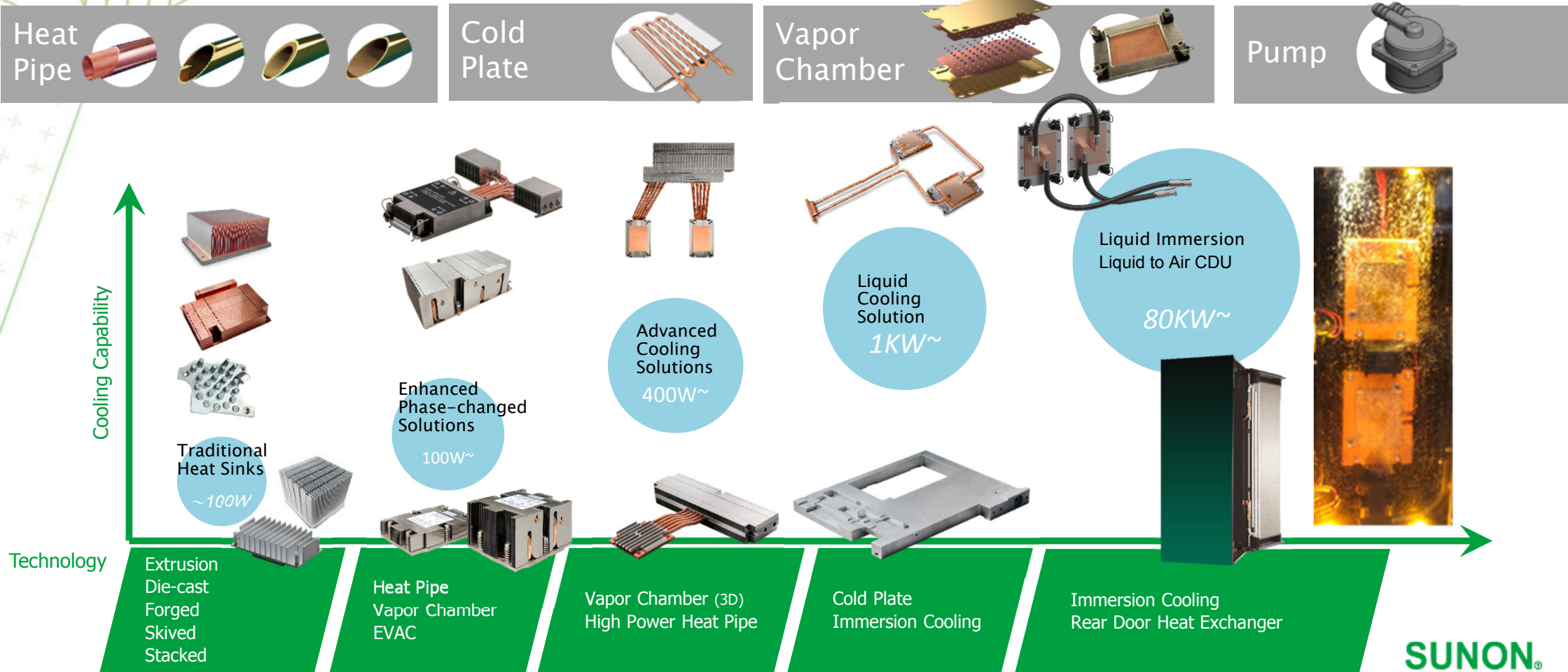


Bionic Blade Design



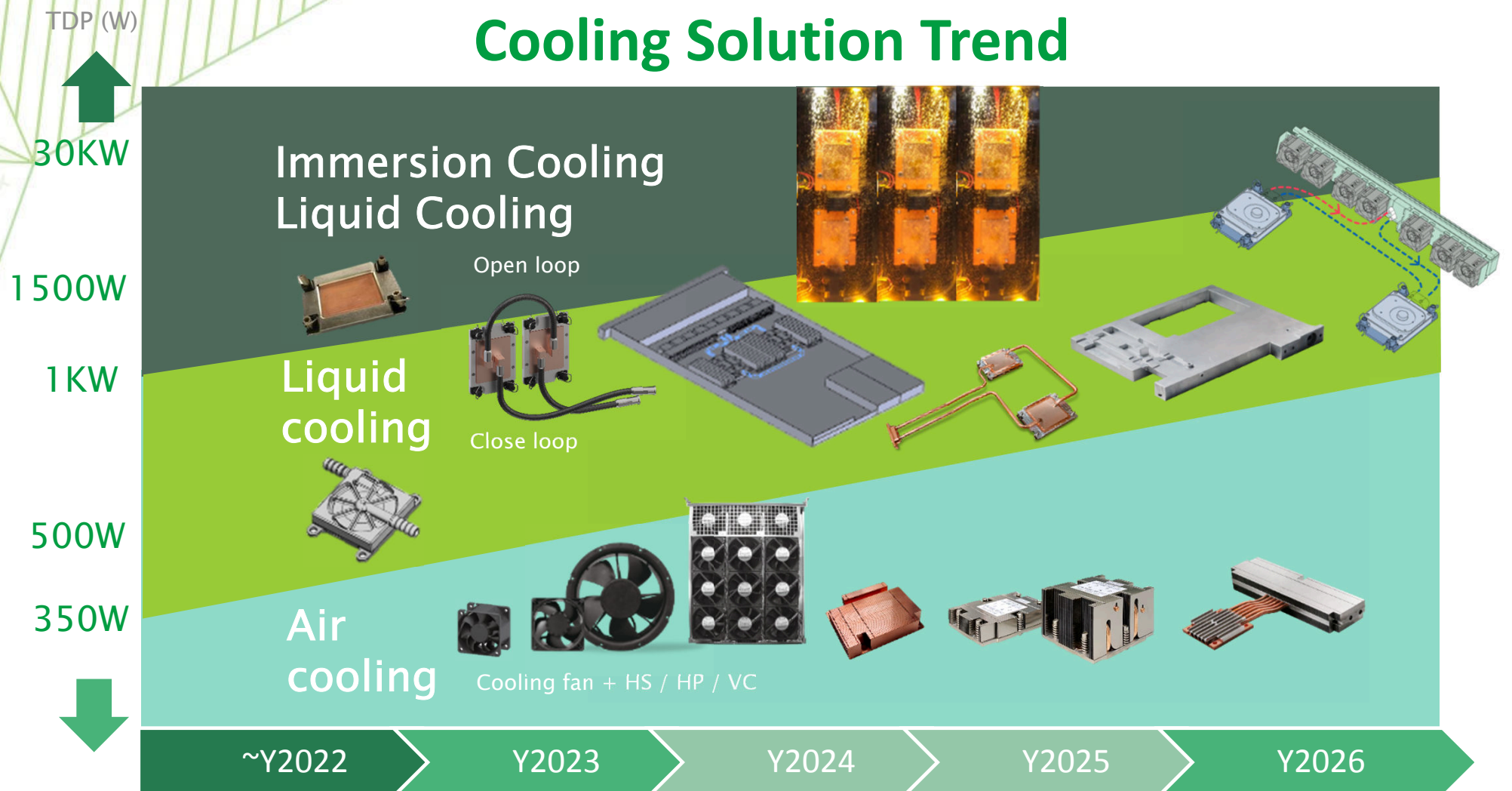
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More Cooling Options



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Cooling Solution Trend



Fan is still the key component for Liquid cooled AI

NVIDIA	Single B200 GB200 NVL72	B200 DGX/HGX	B100 HGX	H200 SXM	H100 SXM
GPU architecture	Blackwell			Hopper	
TDP	1200W	1000W	700W	700W	700W
Cooling	Liquid Cooling	Air Cooling	Air Cooling	Air Cooling	Air Cooling

Estimated # of fans used for GB200 NVL72

Rack: 4cm dual fan*8 each tray, total #18 computer trays;

NV Link Switch: 4cm dual fan*7 each tray, total #9 trays

Power Supplies: at least #50 fans

In-rack system: Up to #257 cooling fans applied

At lease #16 200mm Axial fans installed in RDHx



Picture Source : Internet

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Data Center Thermal Layout

Existed Data Center

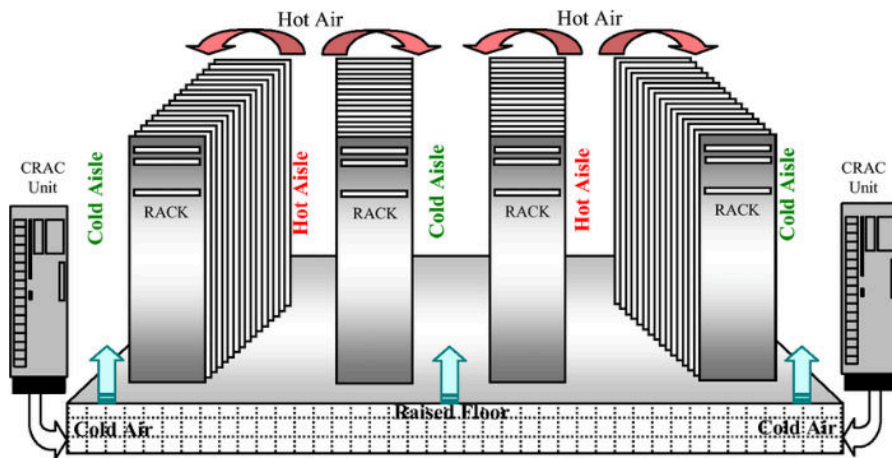
Existed CRAC system (Compute Room Air Conditioner)

Air-cooling

Fan + 3DVC → Hot air

Liquid cooling (Liquid to Air)

Cold Plate → Sidecar/RHDx → Hot air



Layout of racks and CRAC in a data center

New Data Center

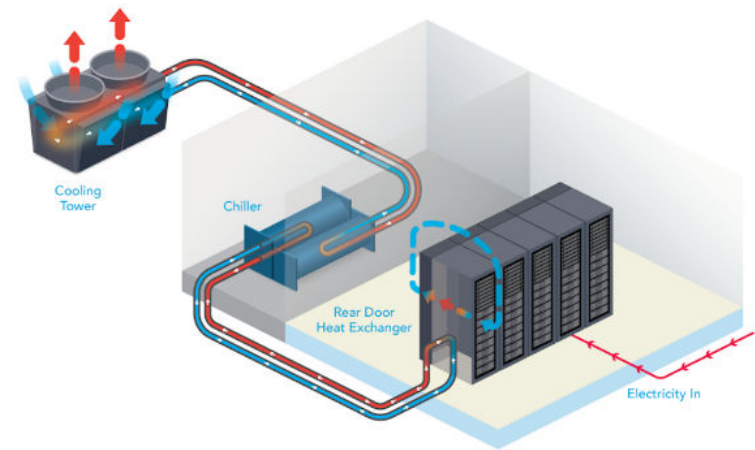
Extra chiller and/or cooling tower

Liquid cooling (Liquid to Liquid)

Cold Plate → Chiller → Hot water

Immersion cooling (Liquid to Liquid)

Boiler/Heatsink → Chiller → Hot liquid



Picture Source : Internet

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Air Cooling vs. Direct Liquid Cooling

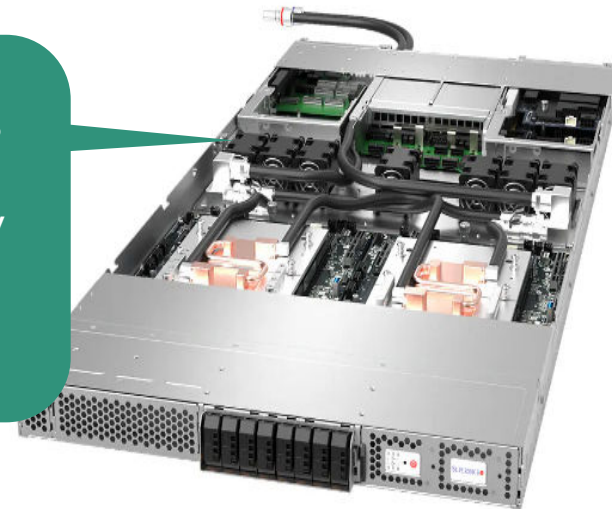
Air Cooling (Fan + 3DVC)

Refer to MGX platform
SMCI model ARS-111GL-NHR



Direct Liquid Cooling (Fan + Cold Plate)

Refer to MGX platform
SMCI model ARS-111GL-DNHR-LCC



For same chassis layout, fan is must needed key component for thermal solution

Picture Source : Internet

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Air Cooling vs. Direct Liquid Cooling

Direct Liquid Cooling (Fan + Cold Plate)

Refer to MGX platform
SMCI model GPU ARS-111GL-DNHR-LCC

Single Chassis Level

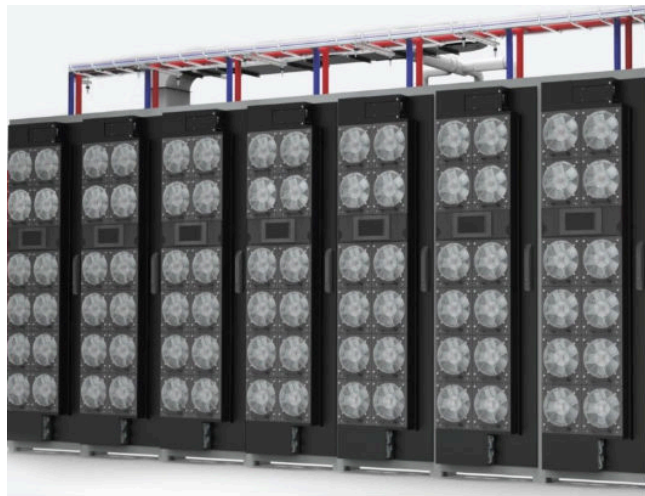


Picture Source : Internet

Rear Door Heat Exchanger

Larger axial fan

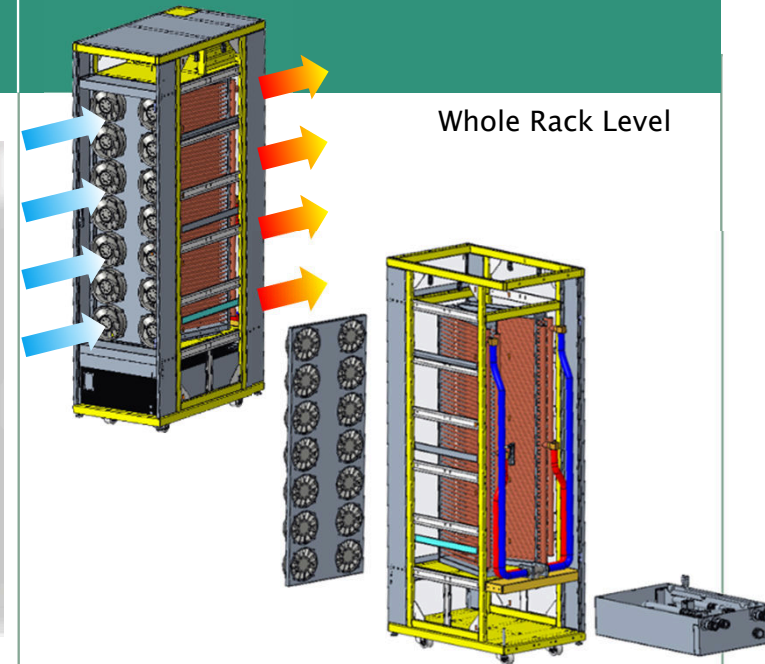
Whole Rack Level



Sidecar

Air Assisted Liquid Cooling
(Larger axial fan)

Whole Rack Level

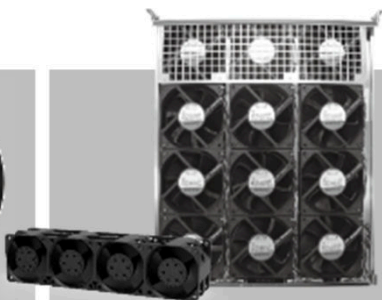


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SUNON Total Thermal Solutions, One-stop Service



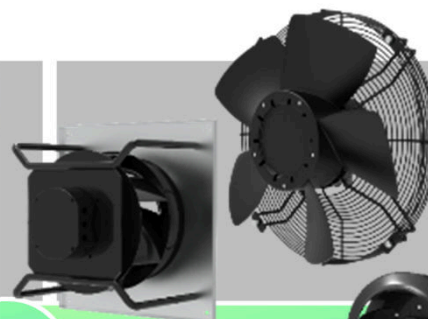
Compact Fans



Fan Tray



Thermal Modules



Large-size Fans



Building Ventilation Fans



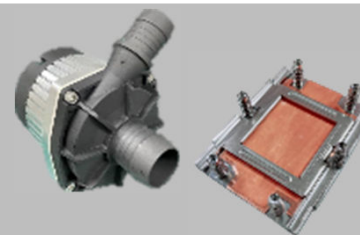
Sidecar CDU / Fan wall



RPU



Two-phase Liquid Cooler

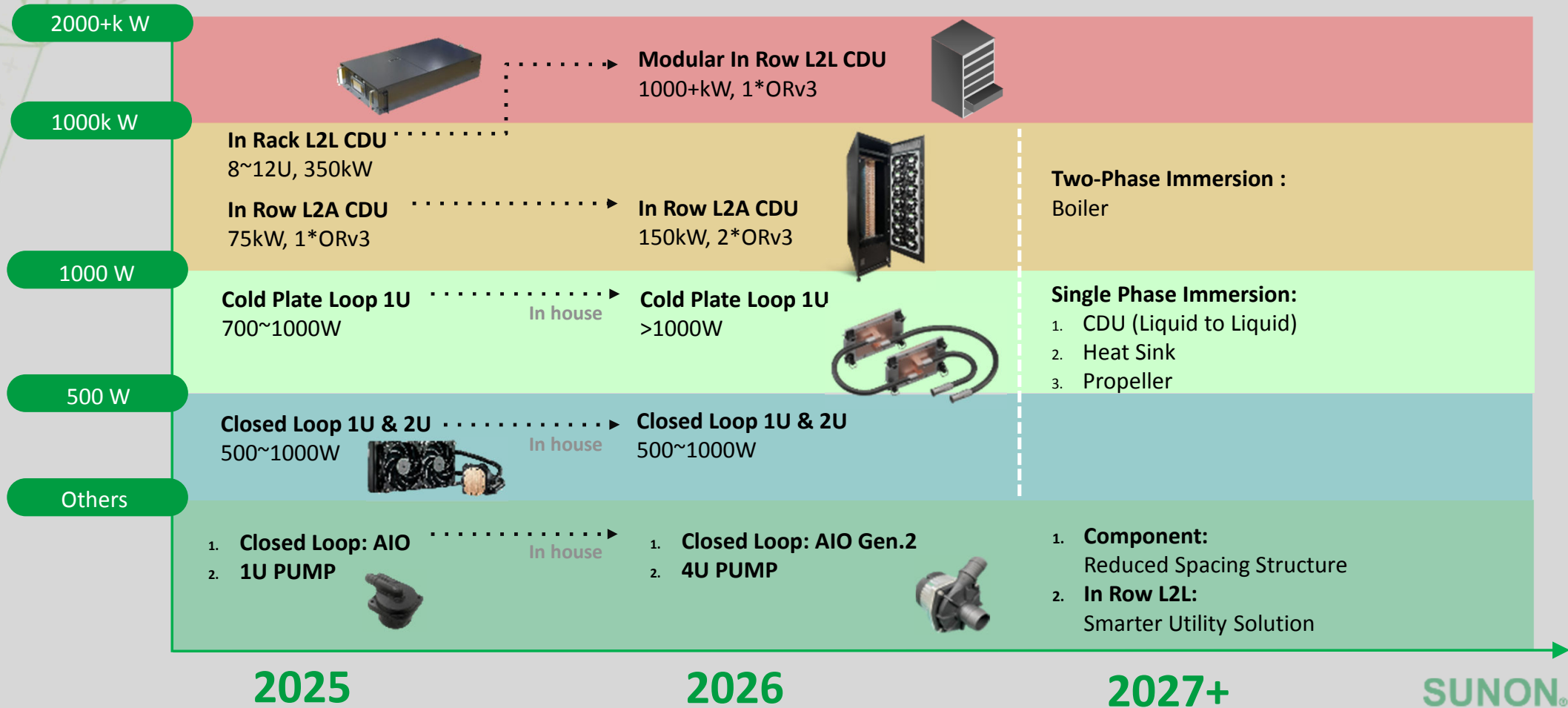


Water pump / Boiler



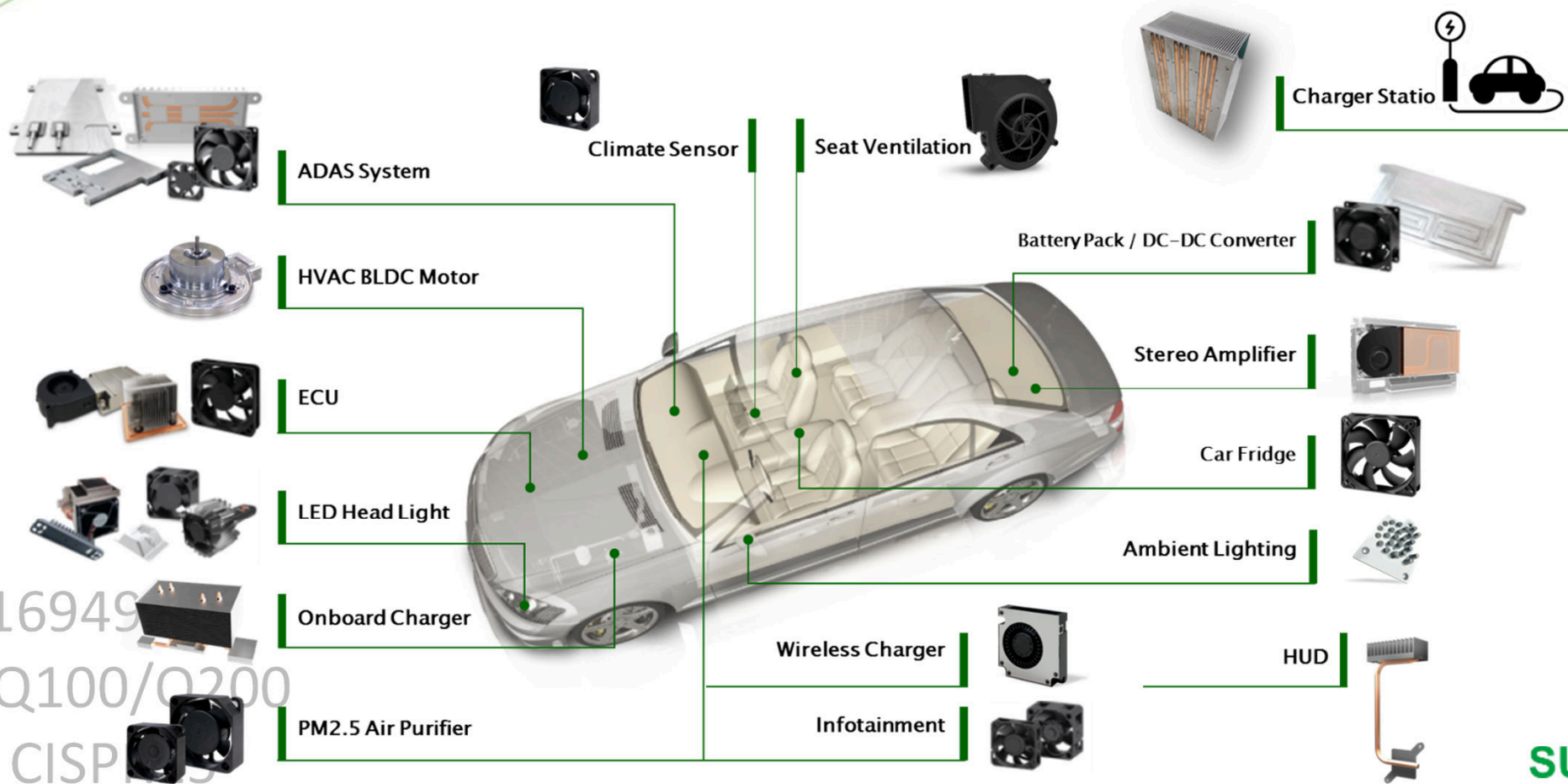
Liquid-cooled Modules

SUNON Liquid & Immersion Cooling Development



Electric Vehicles / Auto Cooling Solution

SUNON has more than 20 years of experience in cooling solutions for the automotive industry, and can provide various cooling fans, cooling modules and liquid cooling products that meet the quality standards of the automotive industry



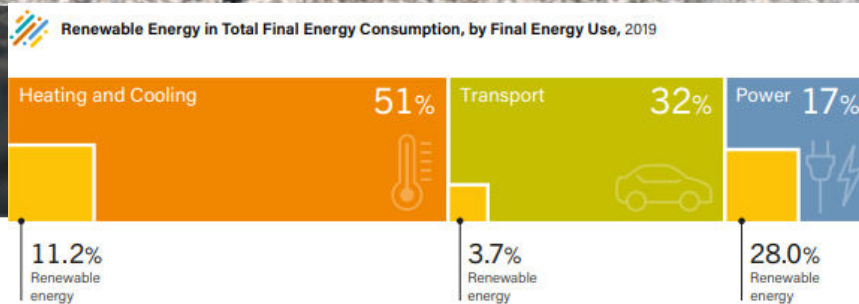
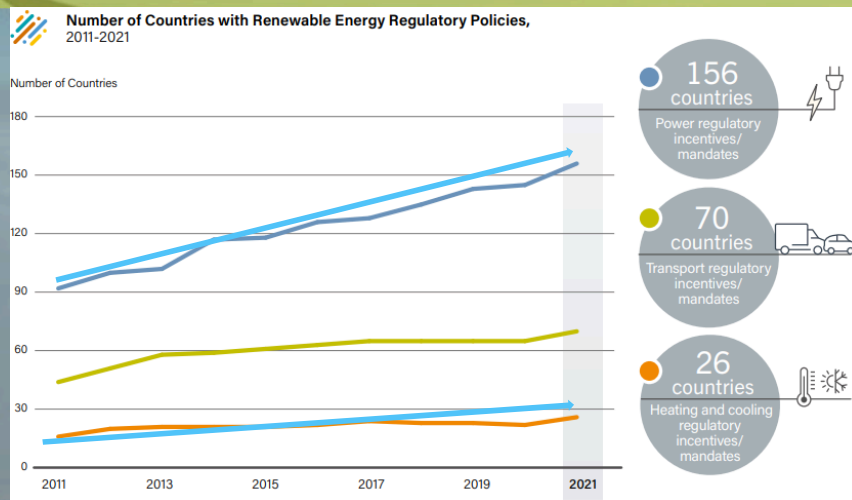
IATF16949
AEC Q100/Q200
EMC CISPR

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Net zero emissions by 2050

Energy Transition Energy Transition Business Opportunities

Having an excellent thermal system is the key to stably maintain the operation of energy storage systems. Selecting an optimal thermal solution ensures the operation stability and high system effectiveness, and it also minimizes unnecessary maintenance costs.



Source: <https://reurl.cc/NR85xk>

PV inverters
Enclosure cabinet equipment
EV charging systems

Energy storage systems
Battery containers,
packs and racks

SUNON®

Renewable Energy Cooling Solution

SUNON is an important partner of global high-quality energy system cooling solutions, providing a full range of cooling solutions.

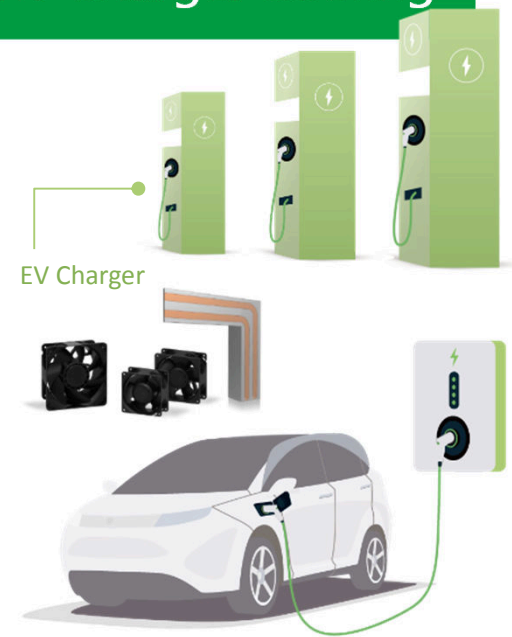
PV Inverter Cooling



ESS Cooling



EV Charger Cooling



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Established

1980



Employees

8420



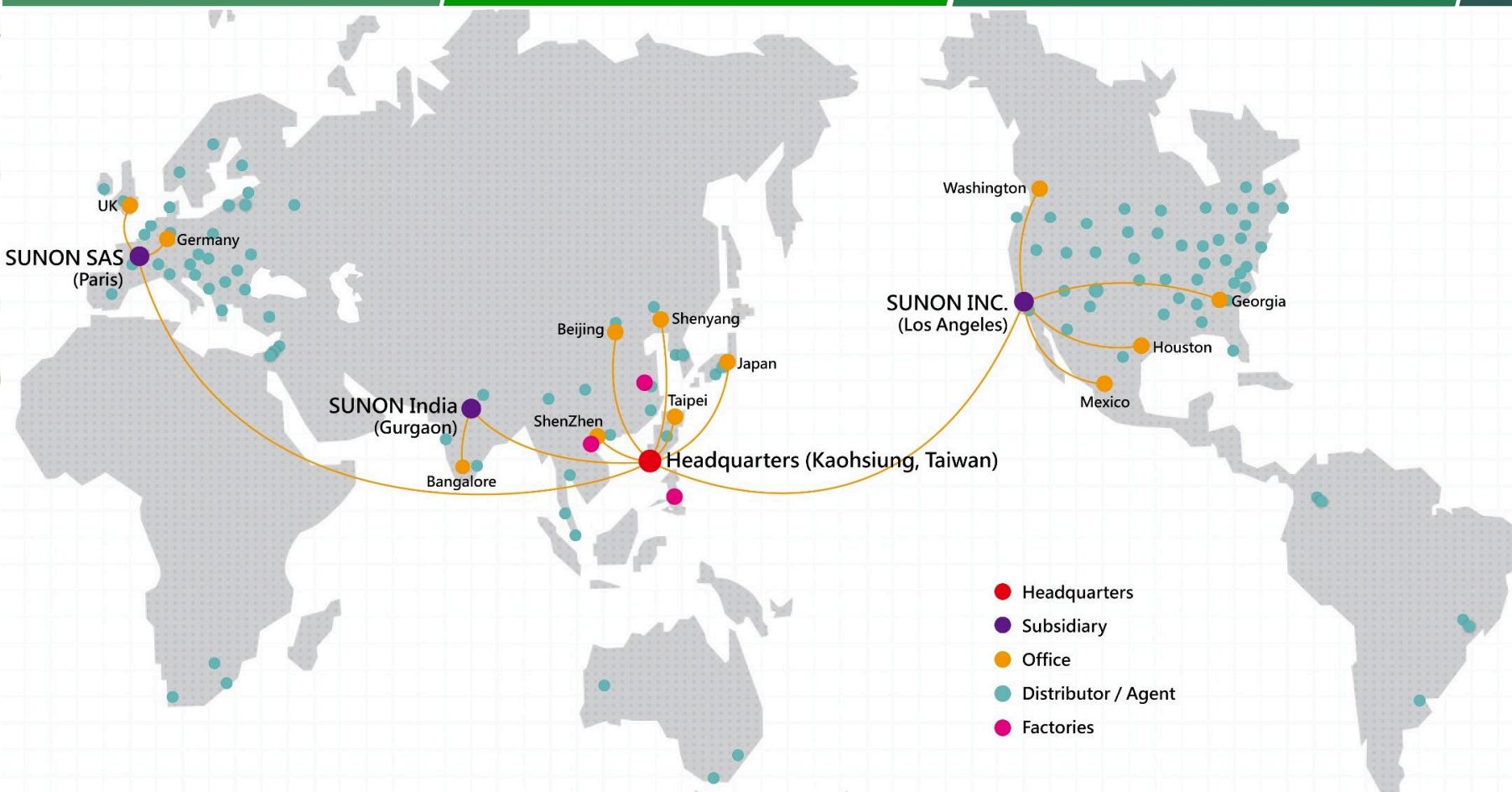
Turnover (NTD)

14.6_B



Factories

5



14

Subsidiary & Office

122

Distributor & Agent

1000+

Sales & Service sites

SUNON®

Sufficient Capability

production bases
Cooling Fans
19 M pcs/ month
Cooling Module
2.68 M pcs/month



Kaohsiung, Taiwan
1M pcs /month



Beihai, Guangxi
(A Building 、 B Building)
Fans 7.2M pcs/month



Beihai, Guangxi
(C Building)
Fans 2.7M pcs/month



Kunshan, Jiangsu
5.3 M pcs/month(FAN)
2.5 M pcs/month(CM)



Bataan, Philippines
2.8 M pcs/month
180 K pcs/month(CM)

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EGS Performance Highlights

Society

- Average employee training hours exceeded **48 hours** per year.
- Production bases in Taiwan and China have both passed ISO 45001 certification.
- Provided **care to 9,867 households** in the "Support and Care Campaign" from 2018 to 2023.

Environment

- Implemented **greenhouse gas inventory across** the entire group, and passed **third-party external verification**.
- The solar power generation of the Guangxing plant has exceeded **680,000 kWh**.
- Continuously passed IECQ QC 080000 certification each year.

Governance

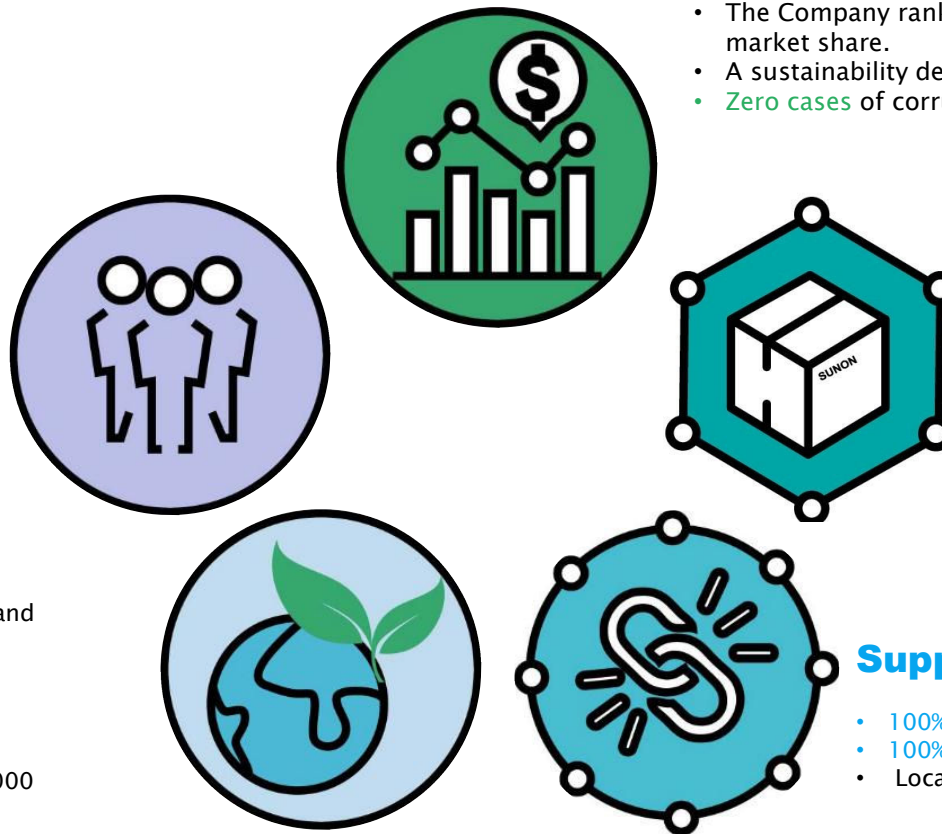
- Net income reached **13.33 billion NTD**, a 22.5% increase from 2022.
- The Company ranks among the **top 3 leading brands** in terms of market share.
- A sustainability development committee has been established.
- **Zero cases** of corruption.

Products

- **Saved 532 million kWh** of electricity with product R&D. Reduced GHG emissions by 260,000 MTCO₂e.
- **100.0% pass** rate of hazardous substance inspection for three consecutive years from 2021 to 2023.
- Obtained **3,394 invention patents**.

Supply Chain

- **100%** pass rates for new suppliers audits .
- **100%** pass rates for annual supplier audits.
- Local procurement rates exceed **74%**.



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Net Zero

Carbon Reduction

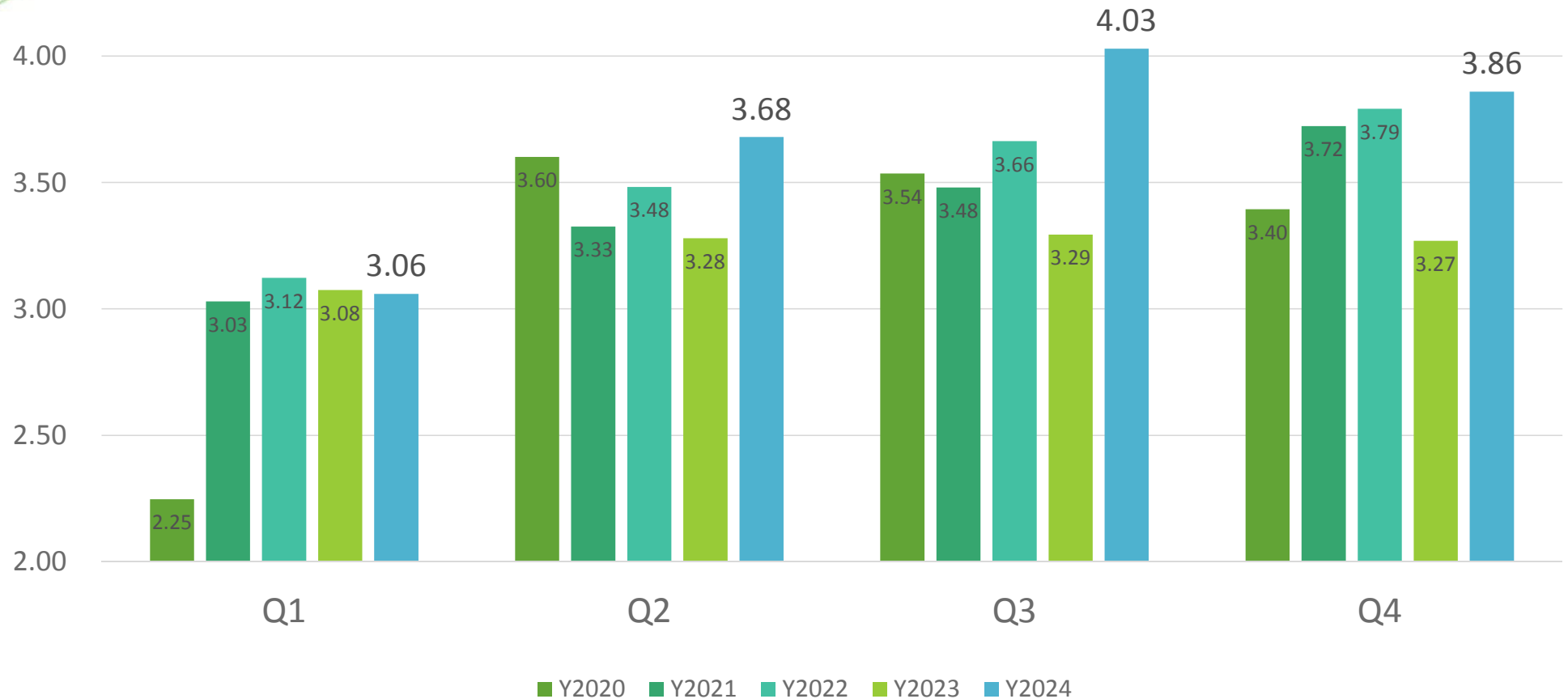
2030  50%
2050 **NET ZERO**



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Quarterly Revenue

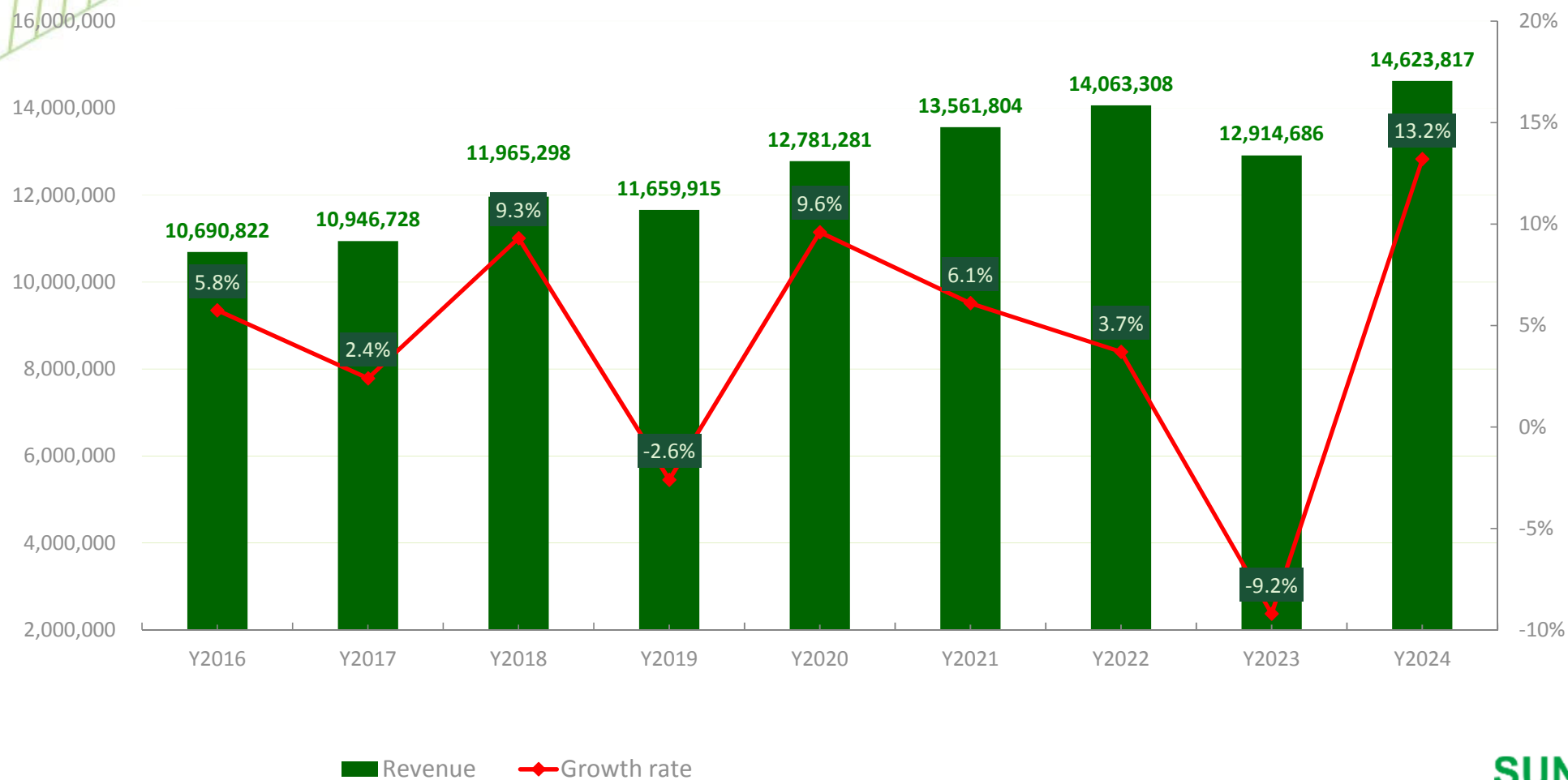
In B. NT



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Revenue Performance

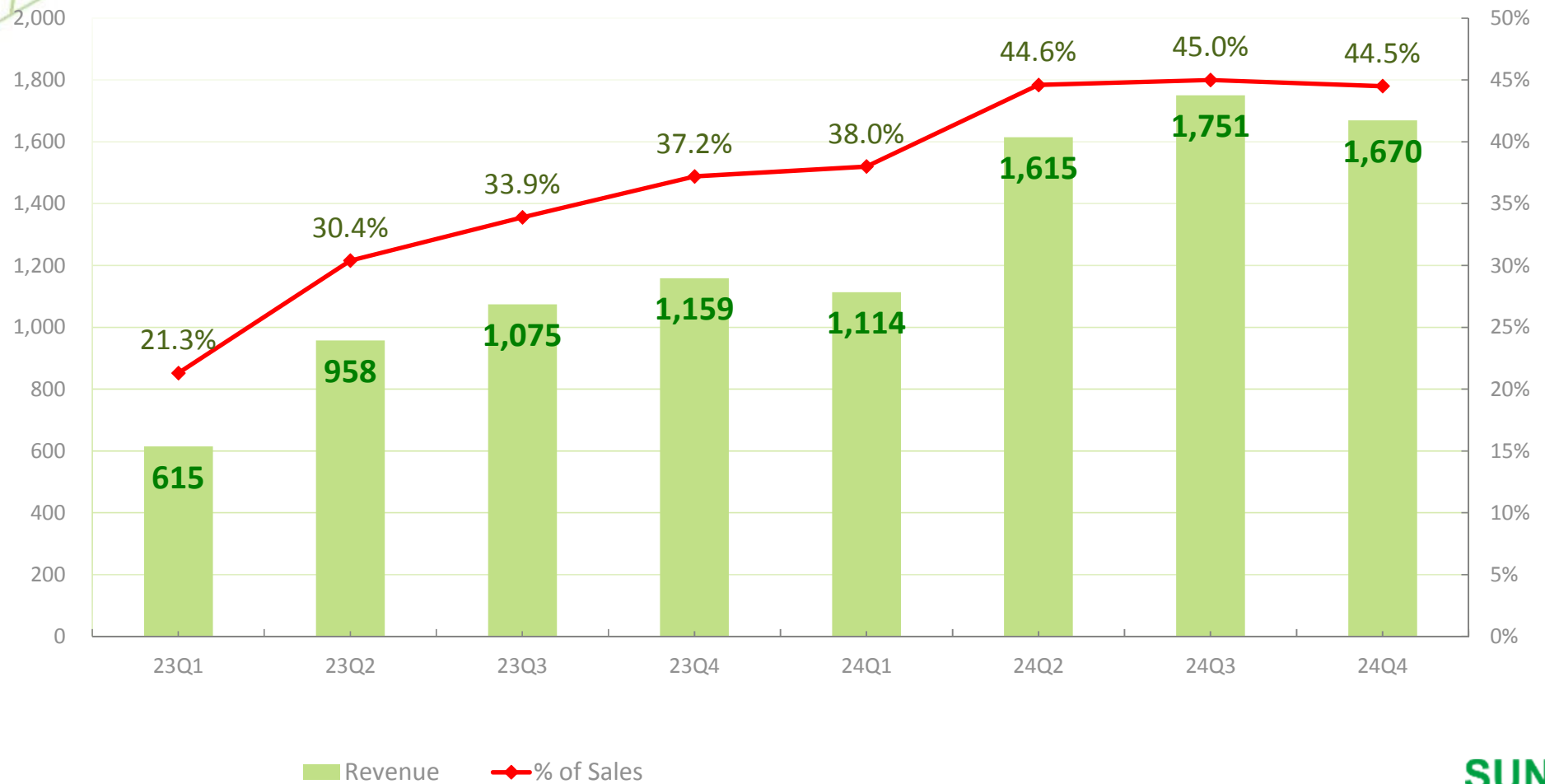
UNIT: NTD (K)



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Quarterly Revenue in Server

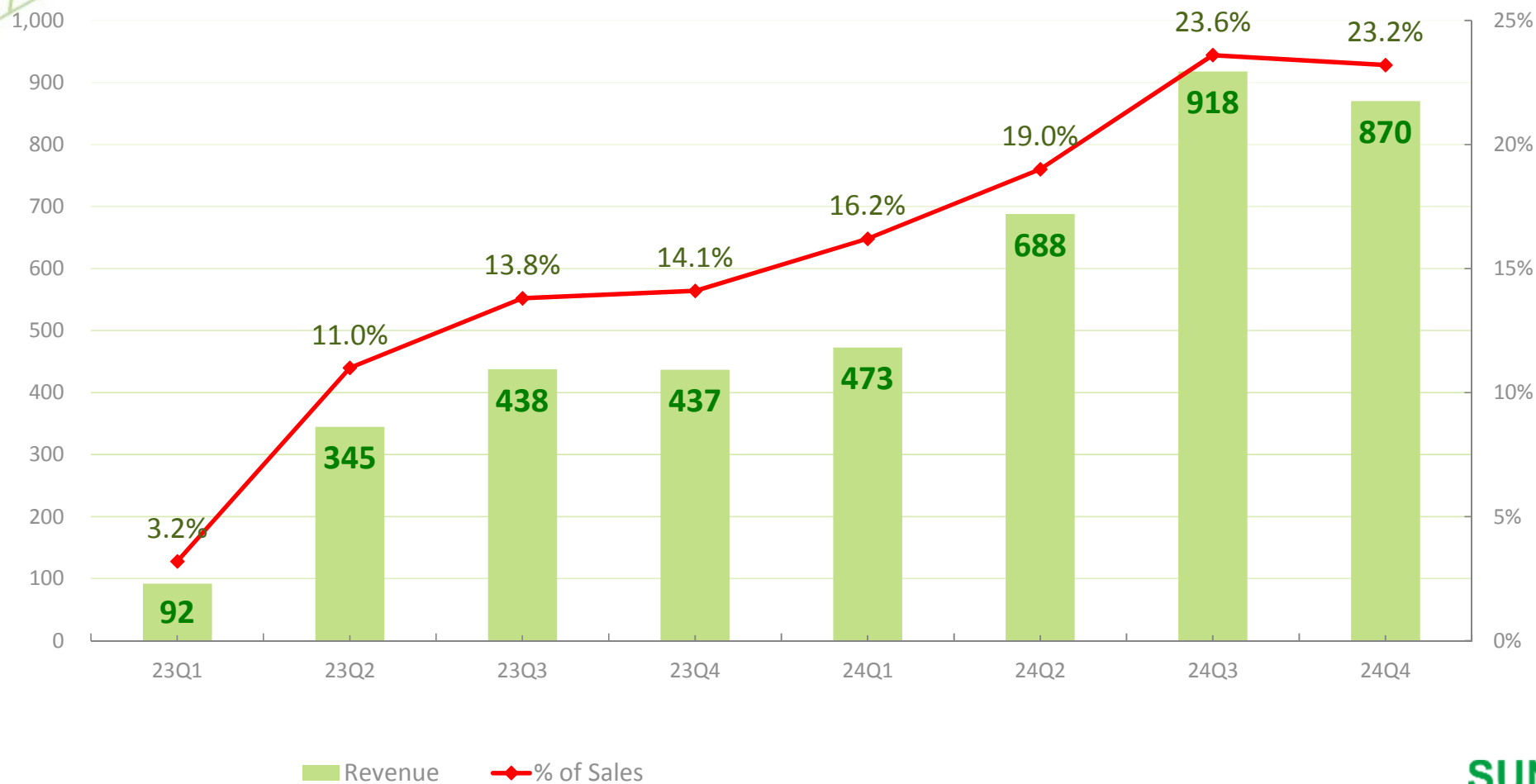
UNIT: NTD (M)



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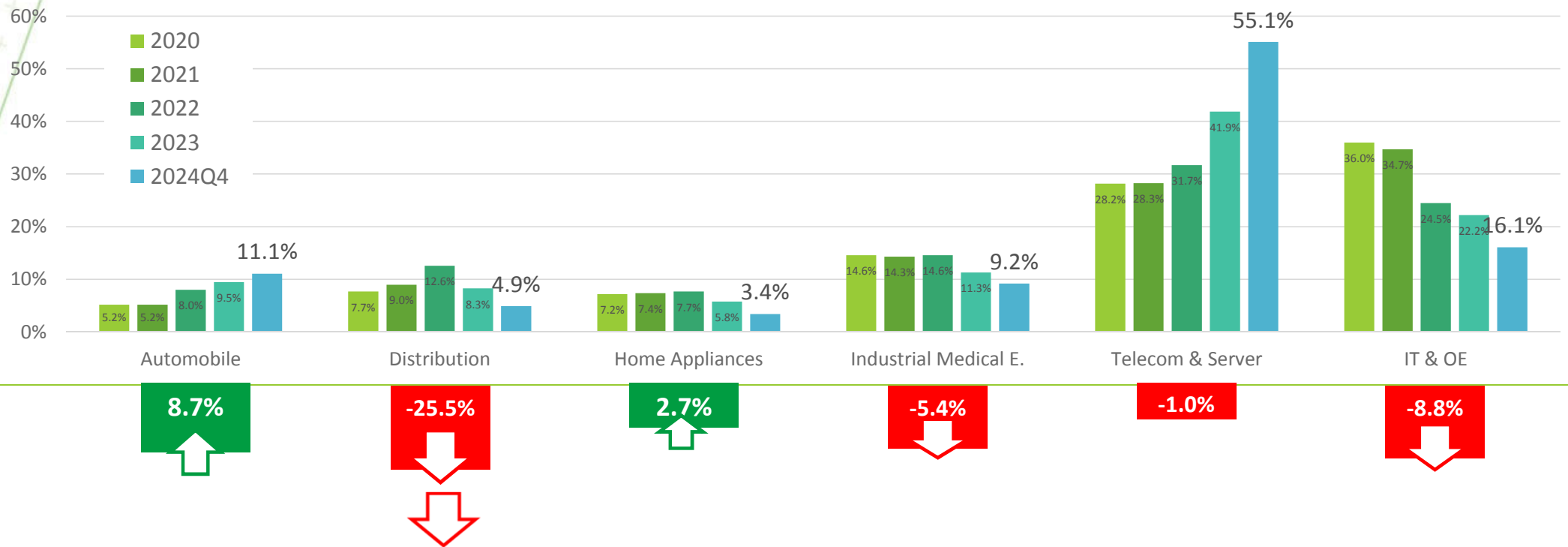
Quarterly Revenue in AI Server

UNIT: NTD (M)

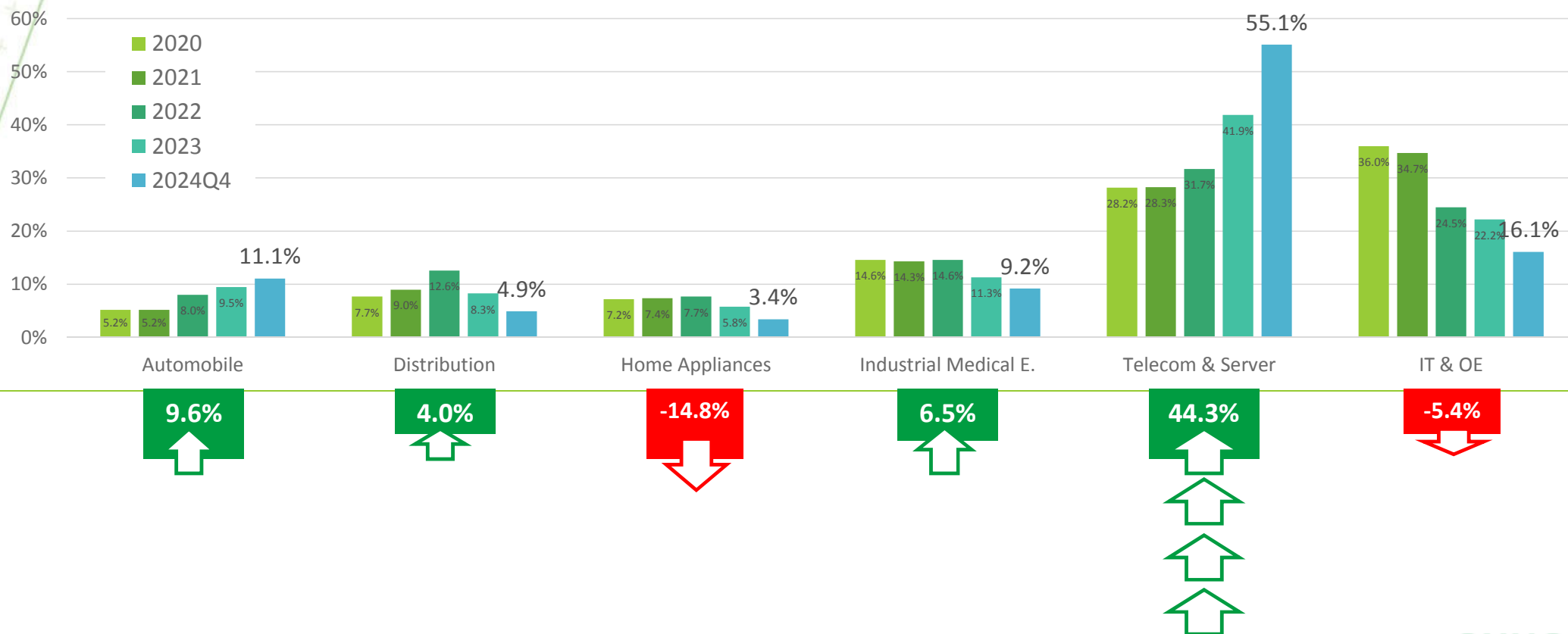


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Products Application & QoQ Growth

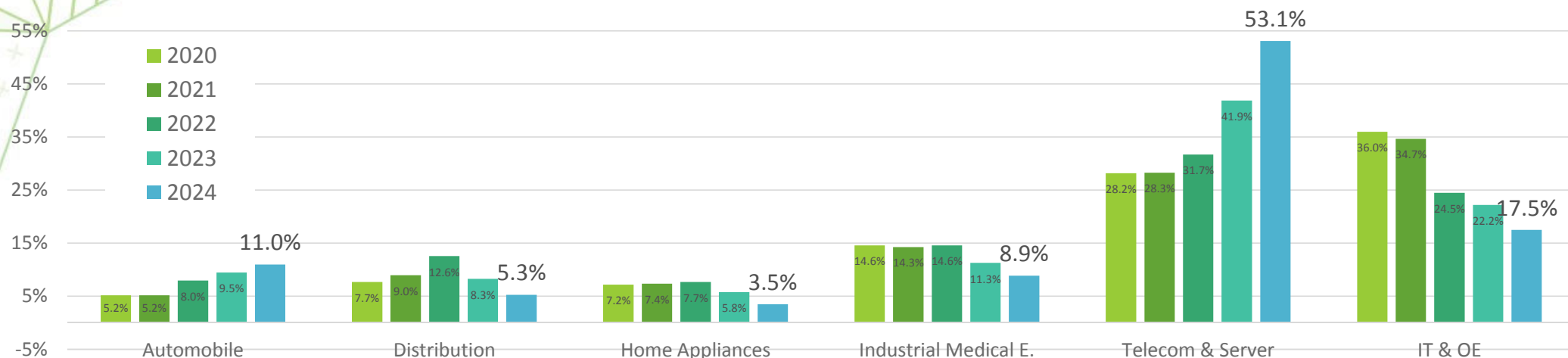


Products Application & YoY Growth

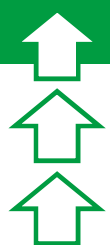


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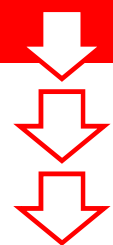
Products Application & YoY Growth



33.6%



-25.8%



-29.1%



-9.3%



45.8%



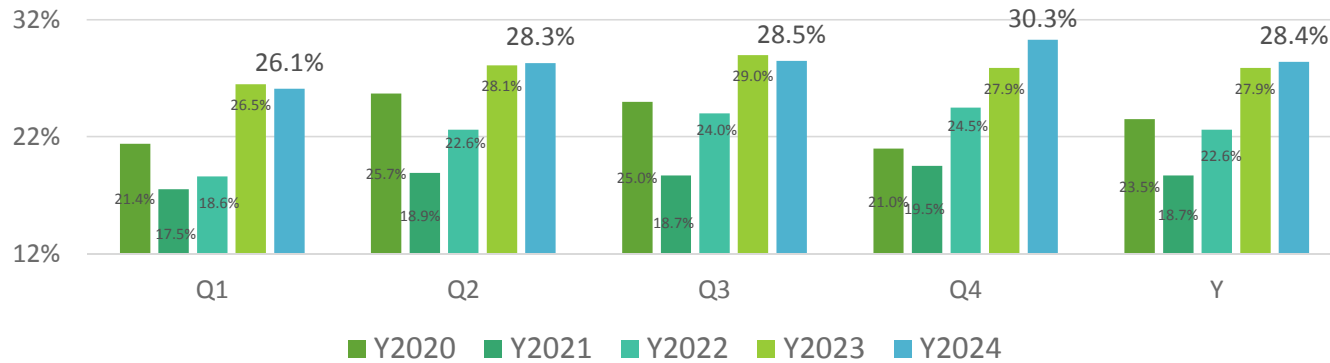
-9.2%



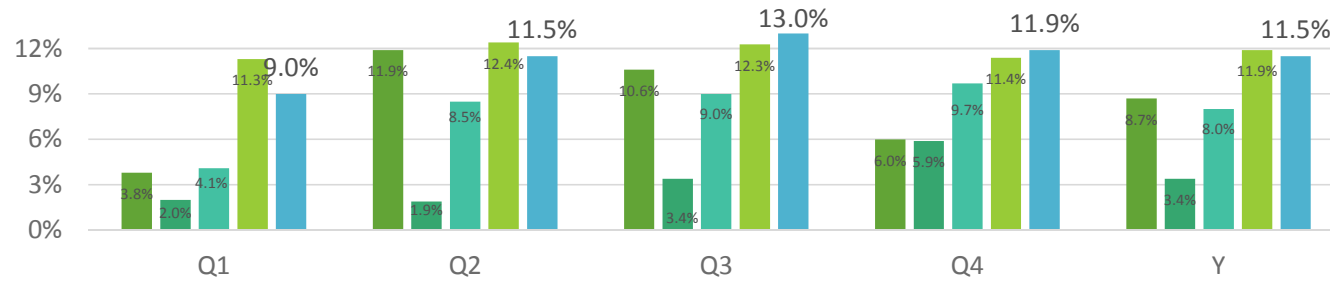
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Profit Margin

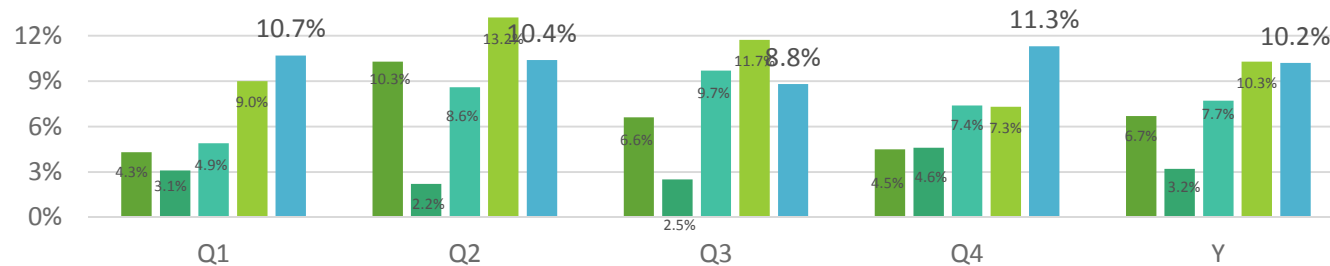
Gross Margin



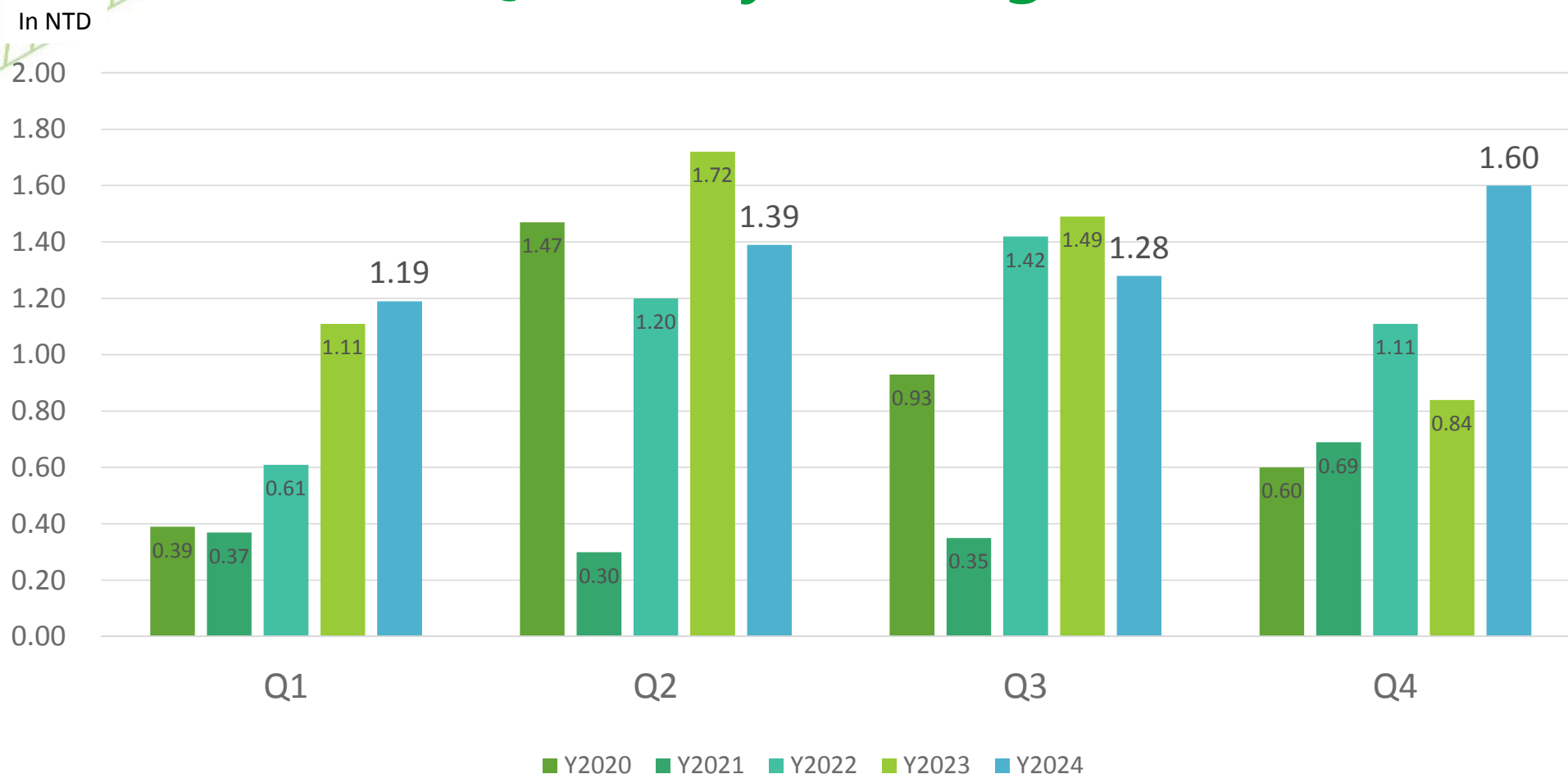
Operating Margin



Net Margin



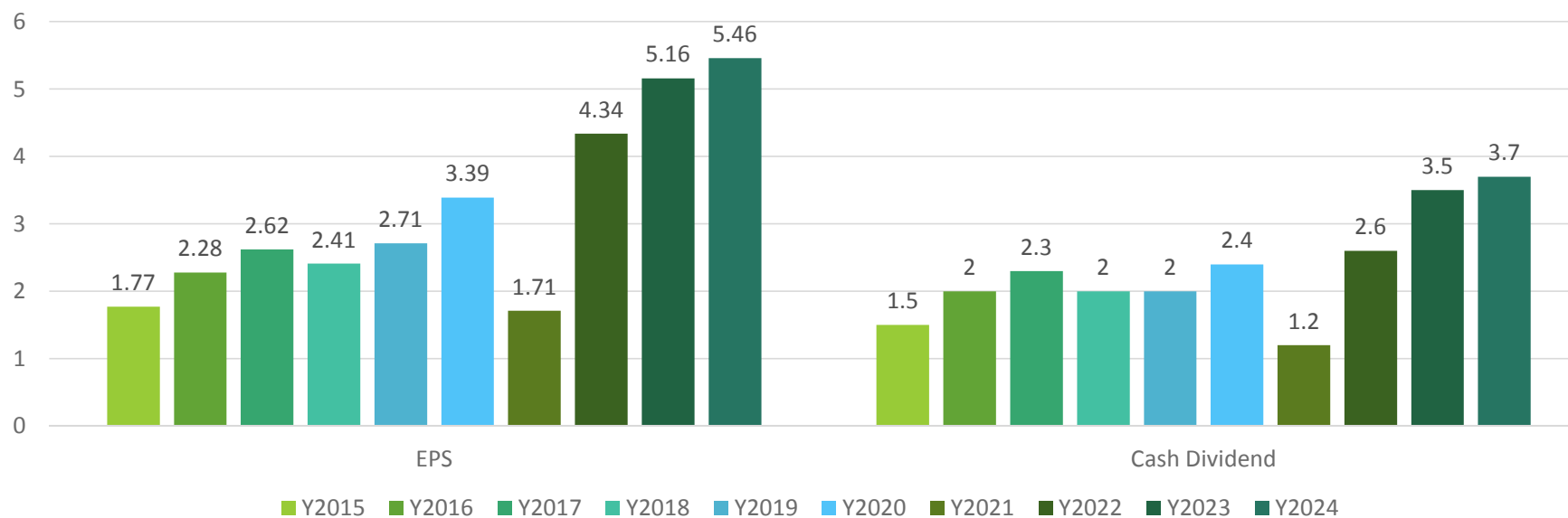
Quarterly Earning



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Earning & Cash Dividend

UNIT: NTD



	Y2015	Y2016	Y2017	Y2018	Y2019	Y2020	Y2021	Y2022	Y2023	Y2024
Payout Ratio	85%	88%	88%	83%	74%	68%	70%	60%	68%	68%

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Appendix I

CONSOLIDATED BALANCE SHEETS							
NT\$ M	2021.12.31	2022.12.31	2023.12.31	2024.12.31	2022	Change(%) 2023	2024
TOTAL ASSETS	11517	12,192	12,615	14,998	5.9%	3.5%	18.9%
Cash	1912	2,457	4,031	4,678	28.5%	64.1%	16.1%
A/R, N/R	3459	3,414	3,079	4,103	-1.3%	-9.8%	33.3%
Inventories	2508	2,651	2,052	2,181	5.7%	-22.6%	6.3%
PP&E	2059	2,273	2,171	2,461	10.4%	-4.5%	13.4%
TOTAL LIABILITIES	7150	6,989	5,396	7,078	-2.3%	-22.8%	31.2%
Short-term loans	1950	1,288	458	928	-33.9%	-64.4%	102.6%
A/P	2926	3,179	2,737	3,435	8.6%	-13.9%	25.5%
Long-term loans	524	287	213	478	-45.2%	-25.8%	124.4%
TOTAL EQUITY	4367	5,203	7,219	7,920	19.1%	38.7%	9.7%
Days sales outstanding	90	89	92	90			
Days sales of inventory	70	86	92	74			
Current Ratio	1.34	1.43	2.03	1.88			

Appendix II

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

NT\$ M	2021	2022	2023	2024	YOY(%)		
					2022	2023	2024
OPERATING REVENUES	13,562	14,063	12,915	14,624	3.7%	-8.2%	13.2%
GROSS PROFIT	2,536	3,171	3,601	4,157	25.0%	13.6%	15.4%
OPERATING EXPENSES	2,072	2,049	2,071	2,480	-1.1%	1.1%	19.7%
INCOME FROM OPERATIONS	464	1,122	1,530	1,677	141.8%	36.4%	9.6%
NON-OPERATING INCOME AND EXPENSES	121	304	221	305	151.2%	-27.3%	38.0%
INCOME BEFORE INCOME TAX	585	1,426	1,751	1,982	143.8%	22.8%	13.2%
NET INCOME attribute to owners	429	1,089	1,334	1,492	153.8%	22.5%	11.8%
EPS (NT\$)	1.71	4.34	5.16	5.46			
Gross Margin	18.7%	22.5%	27.9%	28.4%			
Operating Margin	3.4%	8.0%	11.8%	11.5%			
Net Margin(*)	3.2%	7.7%	10.3%	10.2%			

(*)Net Margin=Net Income attribute to owners / Revenue



Thanks
for Your Attention !



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