



**SUNON®**

FIRST CHOICE GLOBALLY  
Cooling Solutions

# 2024 Q3 Operating Results

Sunonwealth Electric Machine Industry Co., Ltd.

2421.TW / 2421 TT

# Disclaimer

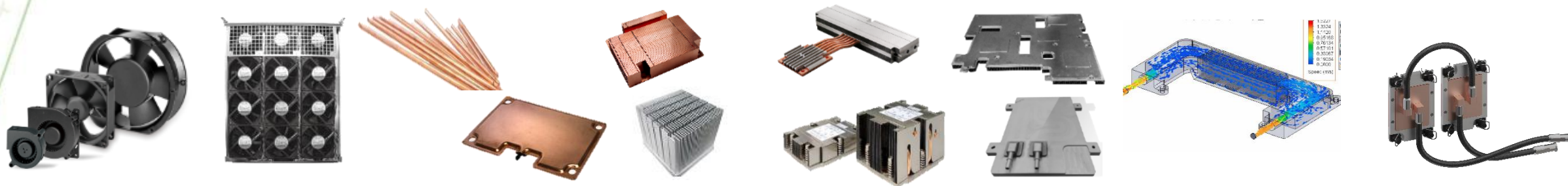
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# SUNON Thermal Everywhere

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



5G Base Stations



Networking



electric vehicles



Industry Inverter / Drive



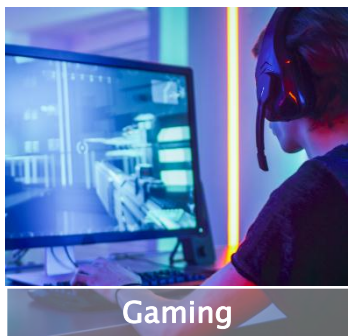
Renewable Energy



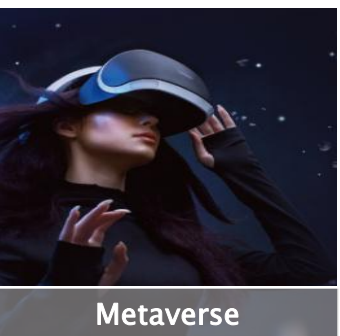
surveillance



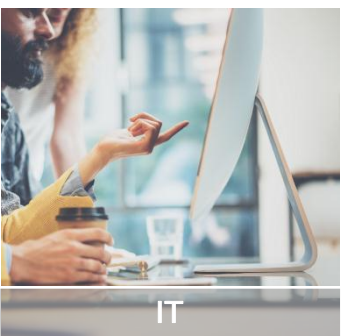
medical



Gaming



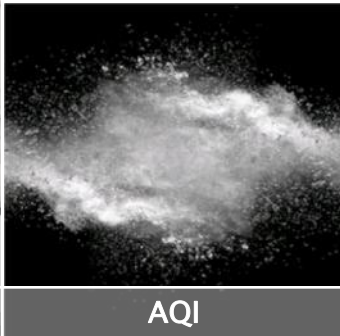
Metaverse



IT



Home Appliance



AQI



Air Purifier UVC Solution



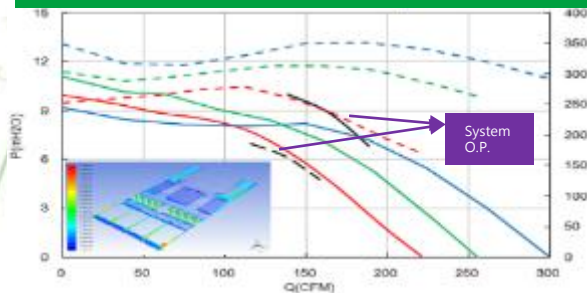
Industrial Ventilation



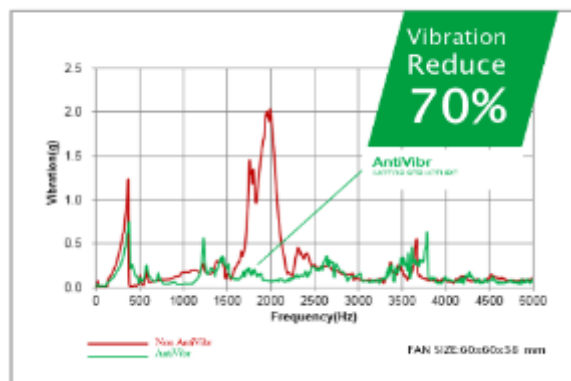
# Thermal Technology Keeps Pace With the Times

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.

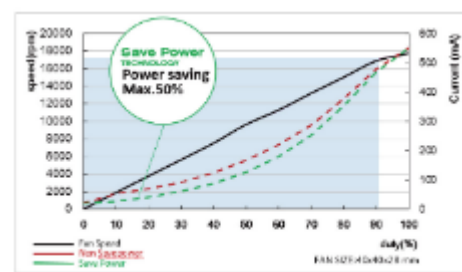
## High Fan Efficiency



## Low Vibration



## Energy Saving

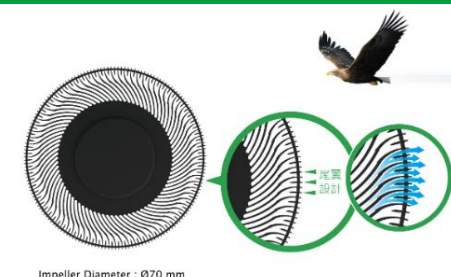


## Reliability

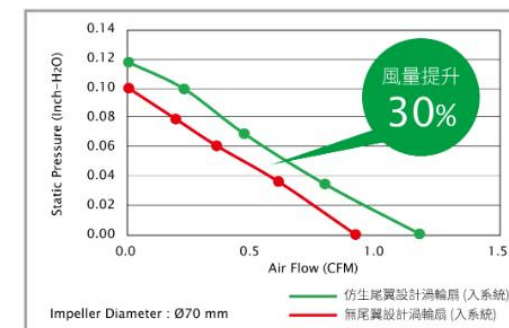
- Salt solution: 0.05 % NaCl + 0.35 % ammonia sulphate (Flow is reduced to 20% of a normal ASTM G85 test)
- Chamber temperature: 35° C
- Test cycles first 35 days: 15 min. spray/fog followed of 45 min. drying. 3 day with Salt solution 2 days demineralized water
- Test cycles after 35 days: 30 min. spray/fog 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. "Extension" with pressurized air
  3. "Dry out" Fan in 45° C oven for 24 Hours.



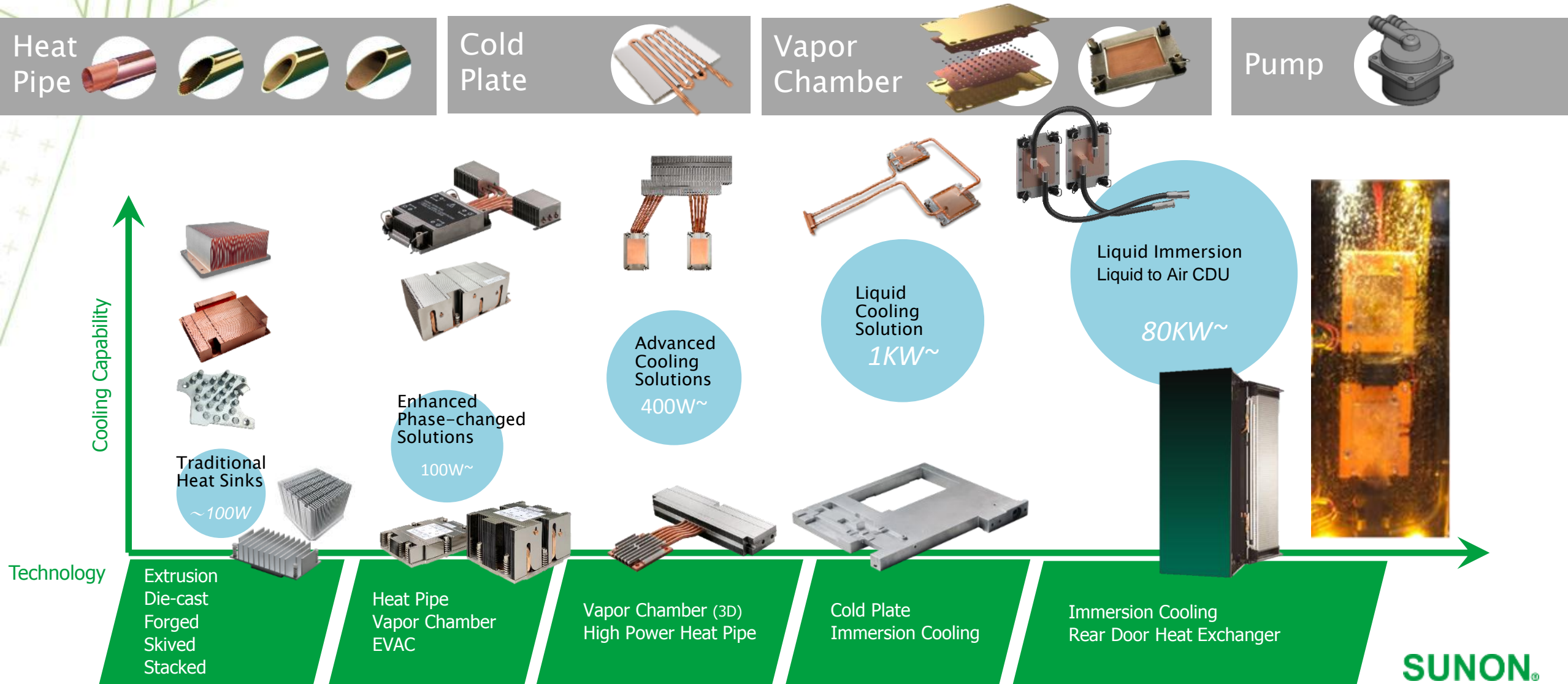
## Bionic Blade Design



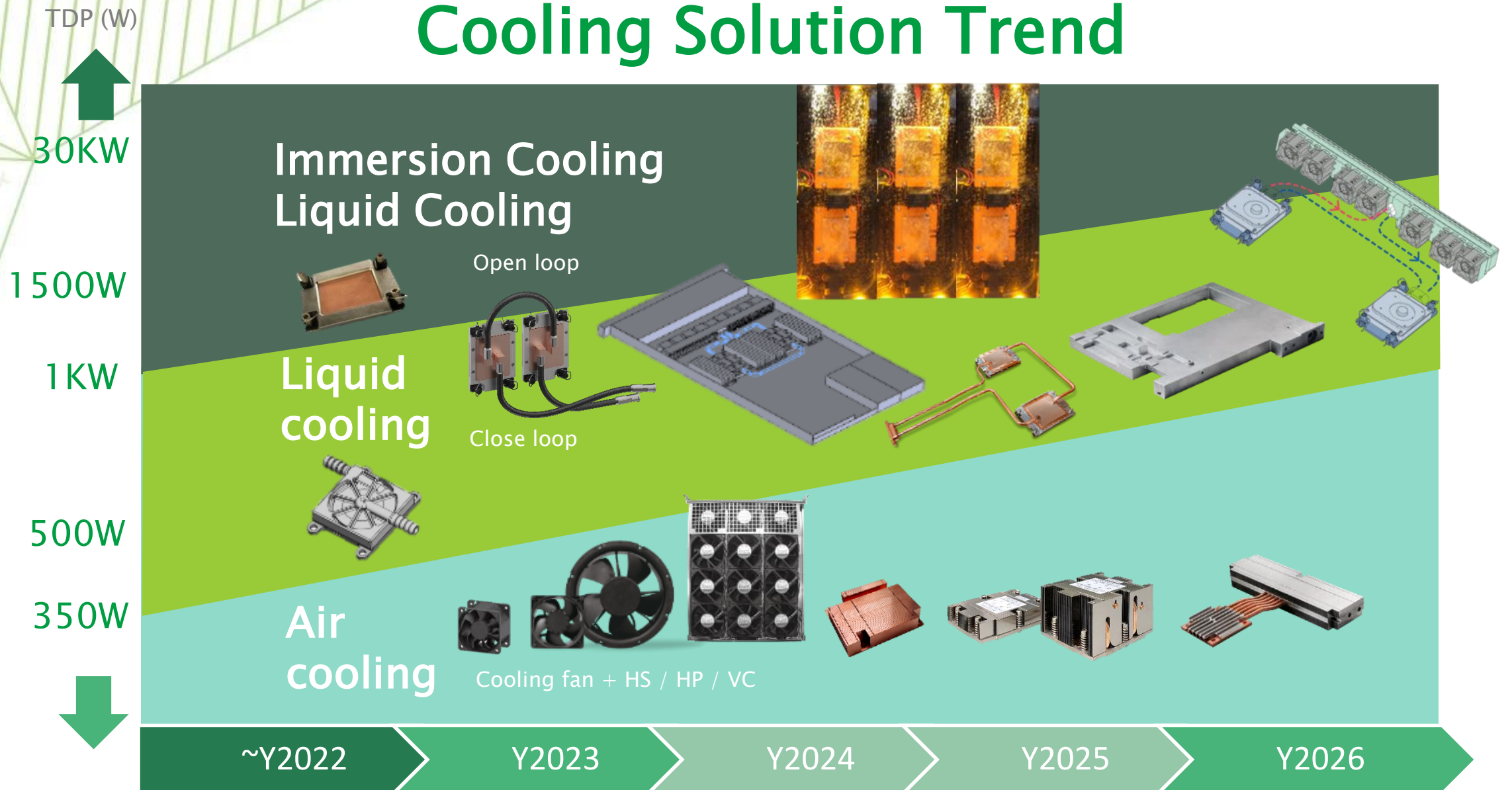
Impeller Diameter : Ø70 mm



# More cooling options



# 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

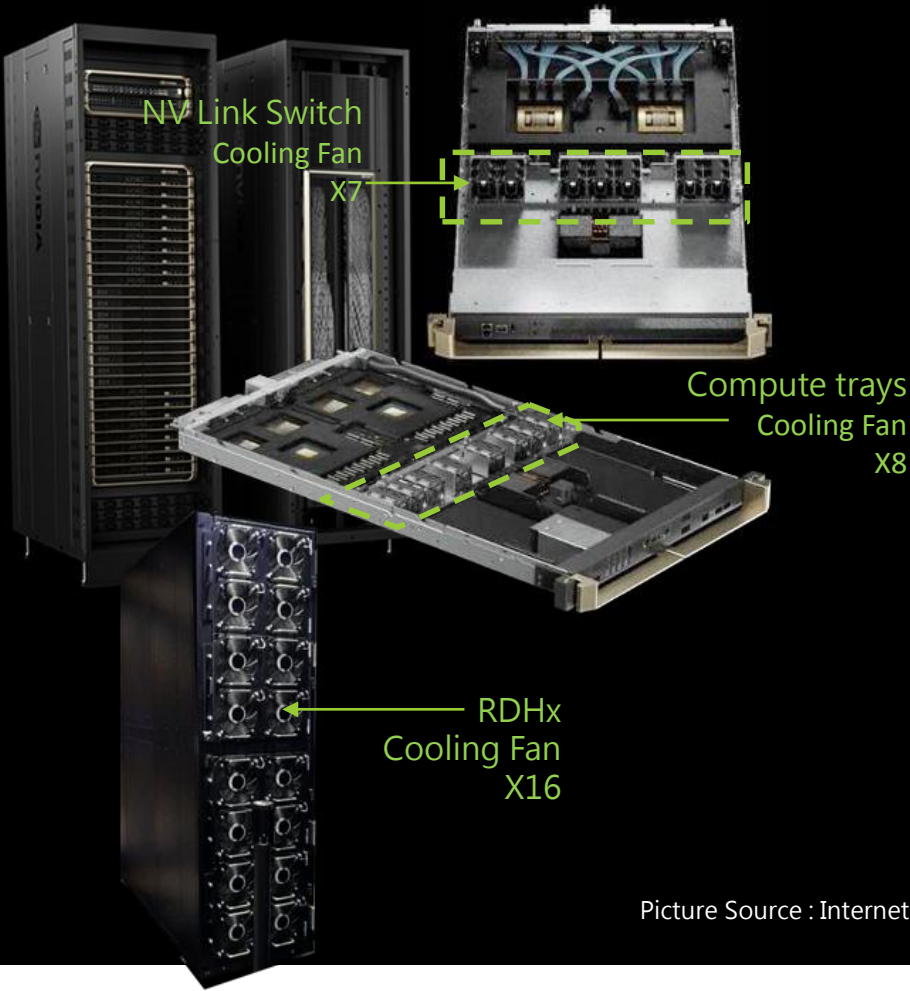
Rack: 6-8cm dual fan\*8 each tray, total #18 computer trays;

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

# Data Center Thermal Layout

## Existed Data Center

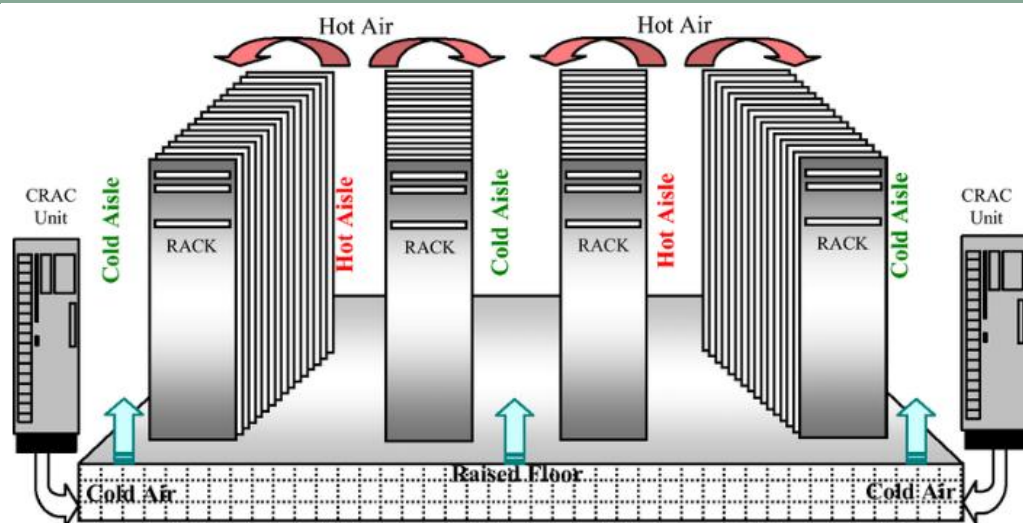
Existed CRAC system (Compute Room Air Conditioner)

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

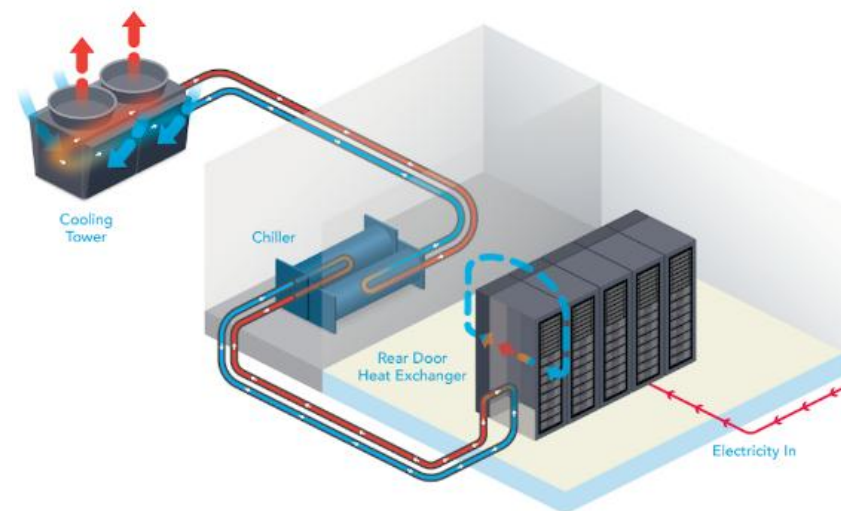
Extra chiller and/or cooling tower

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

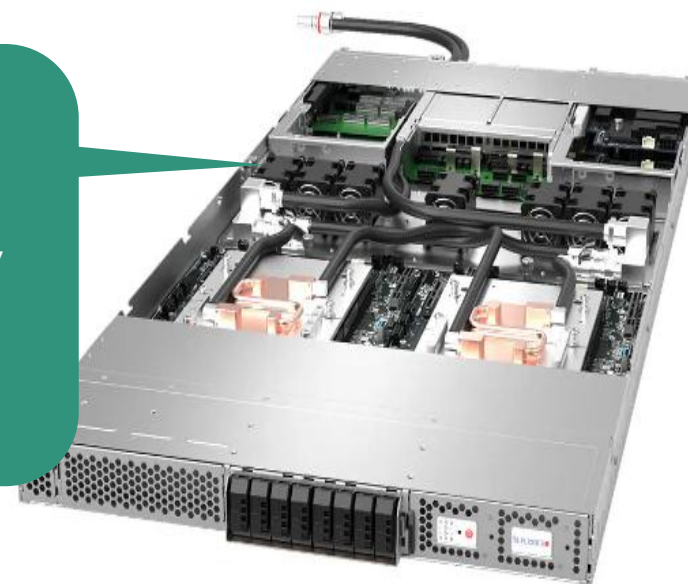
## Air Cooling (Fan + 3DVC)

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



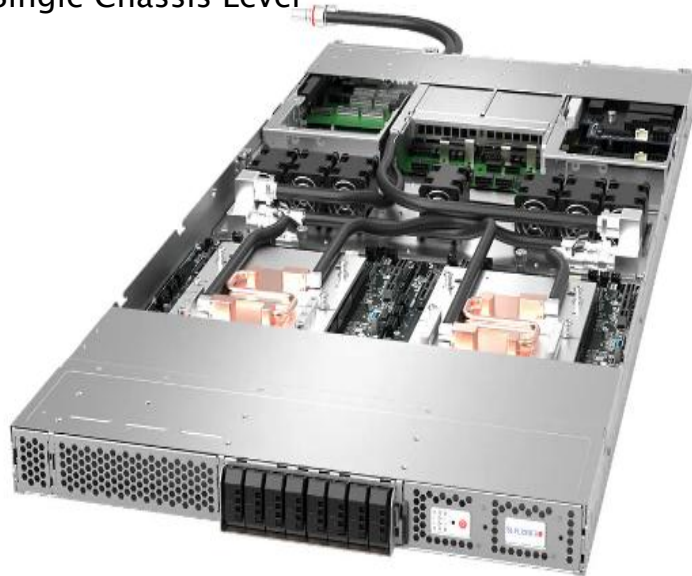
For same chassis layout, fan is must needed key component for thermal solution

# 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

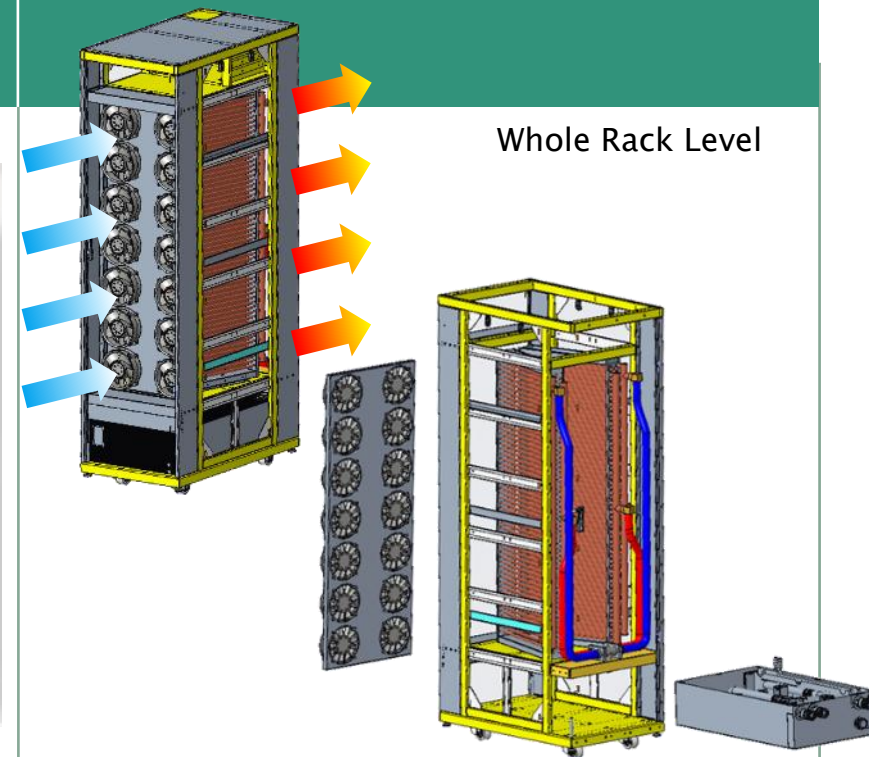
Larger axial fan

Whole Rack Level



## Sidecar

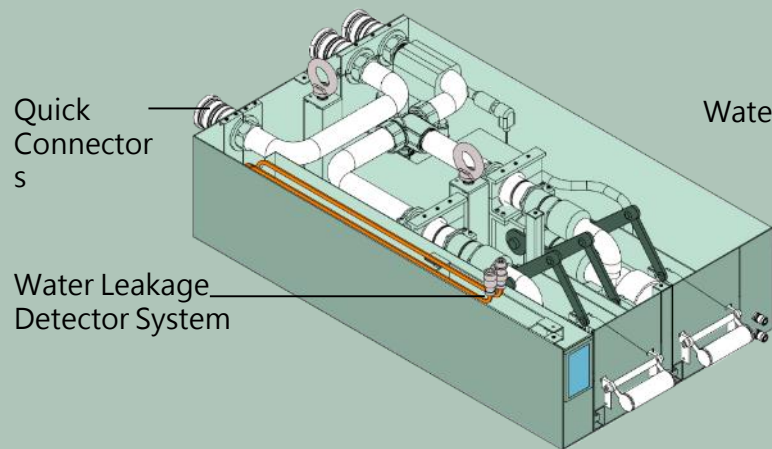
Air Assisted Liquid Cooling  
(Larger axial fan)



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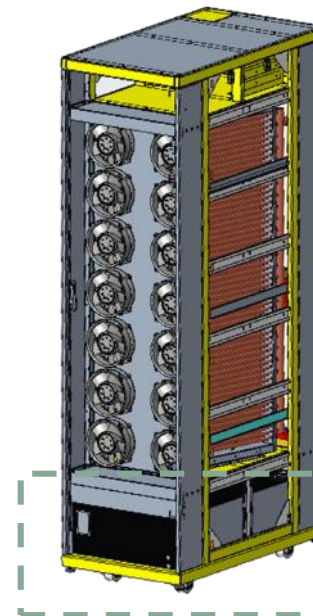
# Pump Business for Liquid to Air Cooling

SUNON RPU (80~120LPM)  
Reservoir and Pumping Unit



Picture Source : Internet

SUNON RPU  
Reservoir and Pumping Unit



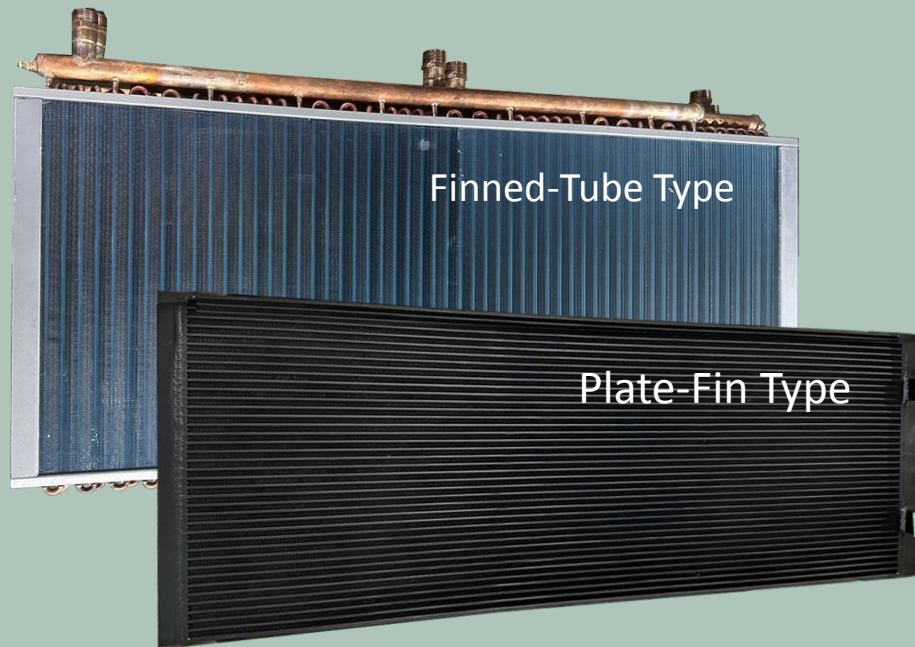
Sidecar  
Air Assisted Liquid Cooling  
(4U RPU)

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# Heat Exchanger Business for Liquid to Air Cooling

SUNON  
Liquid Cooling Heat Exchanger

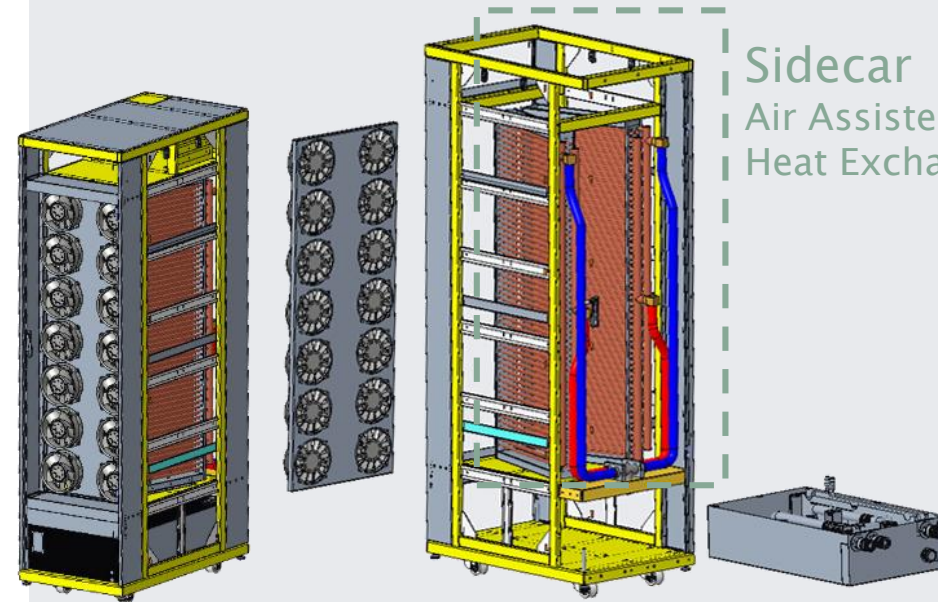


Rear Door  
Heat Exchanger

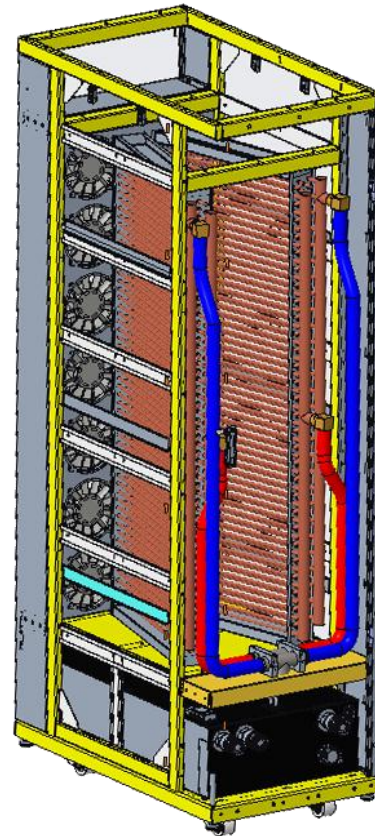
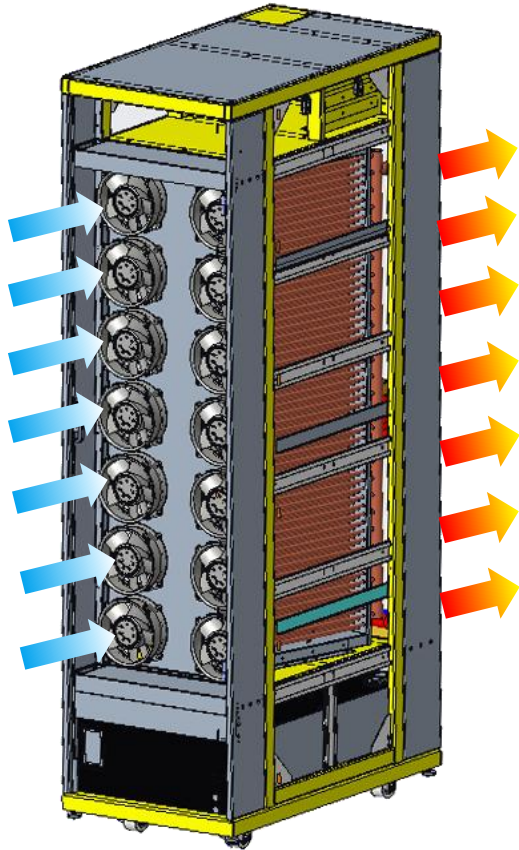


Picture Source : Internet

Sidecar  
Air Assisted Liquid Cooling  
Heat Exchanger



# Rack-level Liquid Cooling Products



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60~80kW AALC

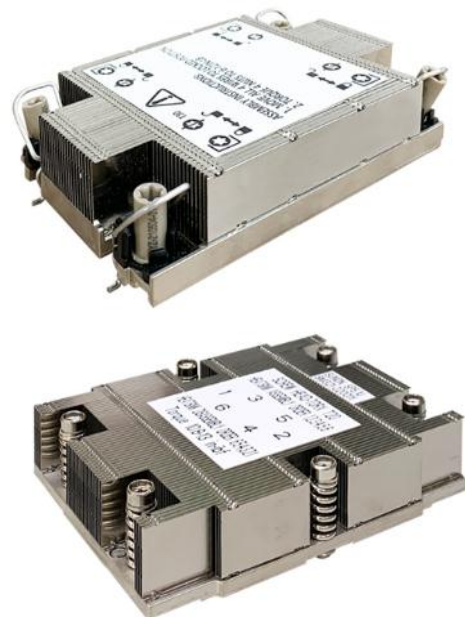
Air Assisted Liquid Cooling  
Sidecar

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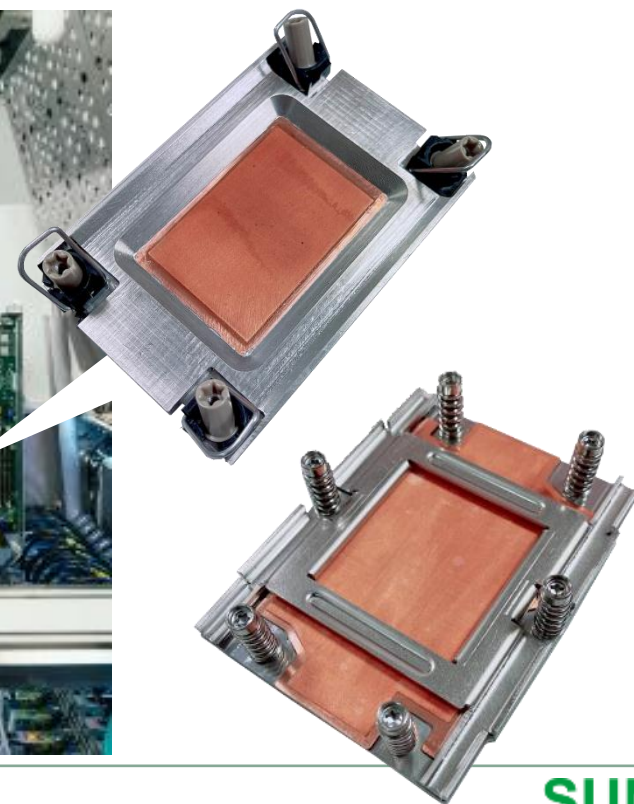
# Cooler Business for Immersion Cooling

## SUNON Heatsink single-phase immersion cooling



Picture Source : Internet

## SUNON Boiler two-phase immersion cooling

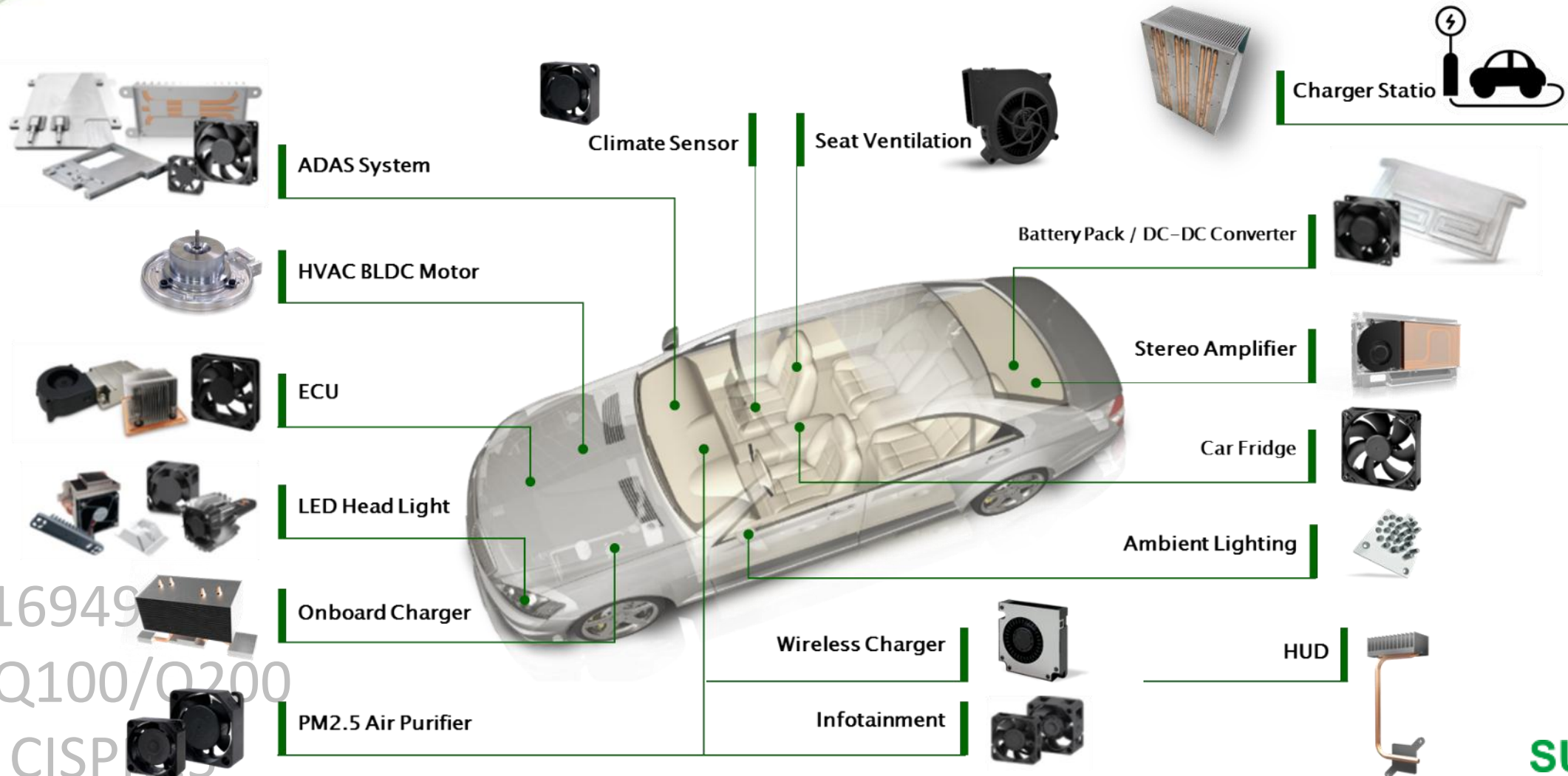


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# Electric Vehicles / Auto Cooling Solution

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



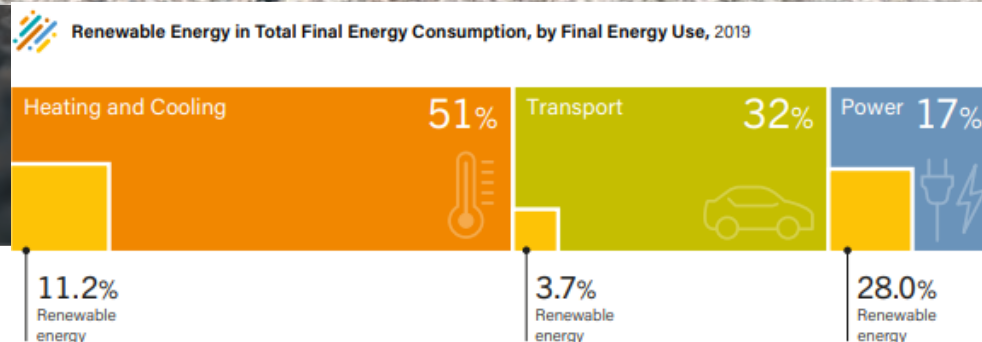
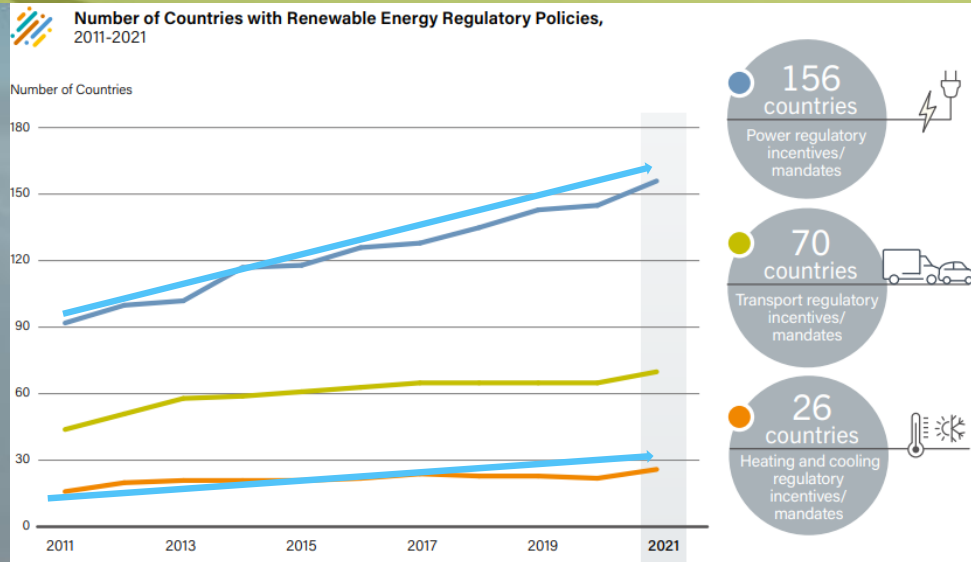
IATF16949  
AEC Q100/Q200  
EMC CISPR13

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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

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# Renewable Energy Cooling Solution

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

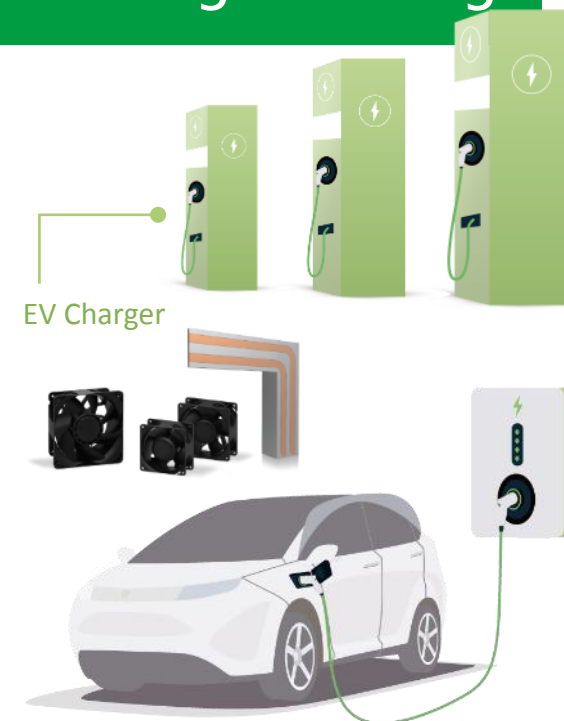
## PV Inverter Cooling



## ESS Cooling



## EV Charger Cooling



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Established  
**1980**



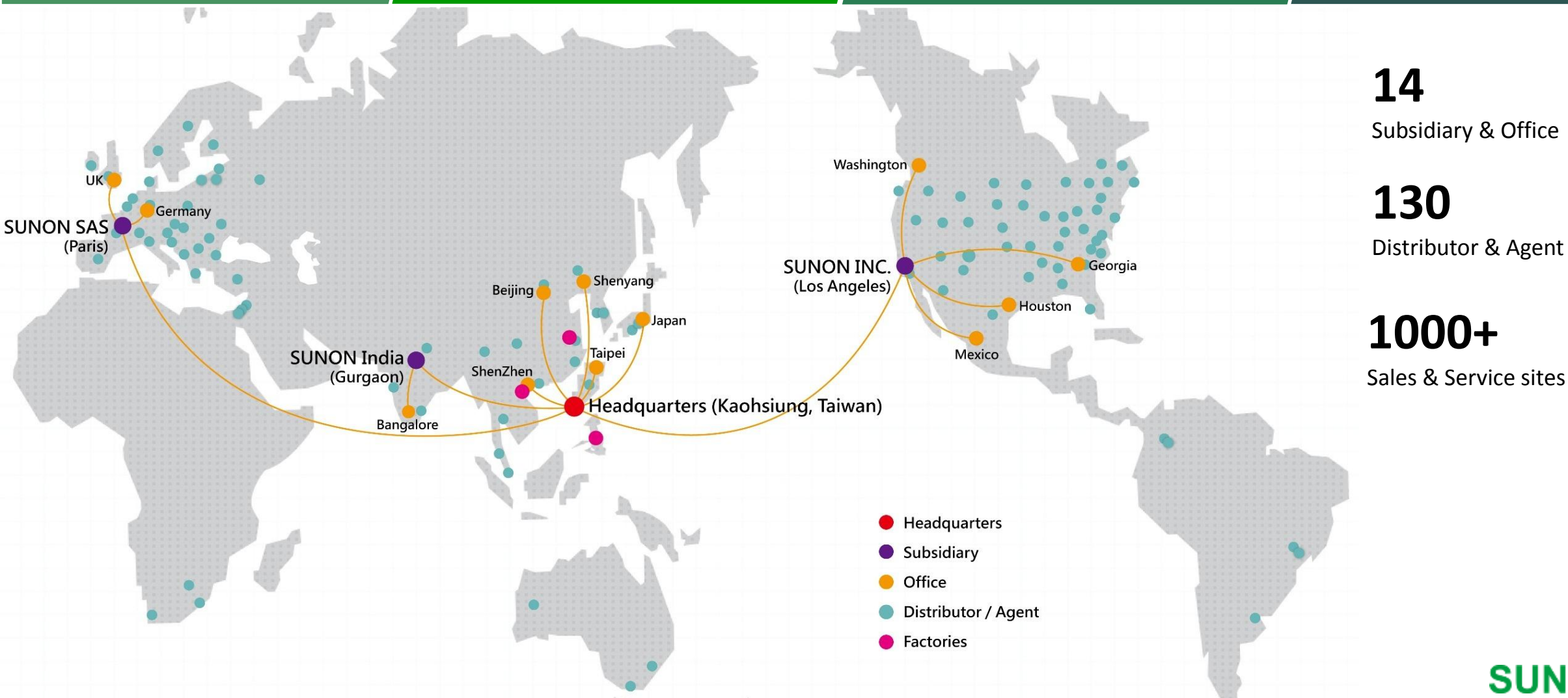
Employees  
**8420**



Turnover (USD)  
**414.1 M**



Factories  
**5**



**14**  
Subsidiary & Office

**130**  
Distributor & Agent

**1000+**  
Sales & Service sites

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# 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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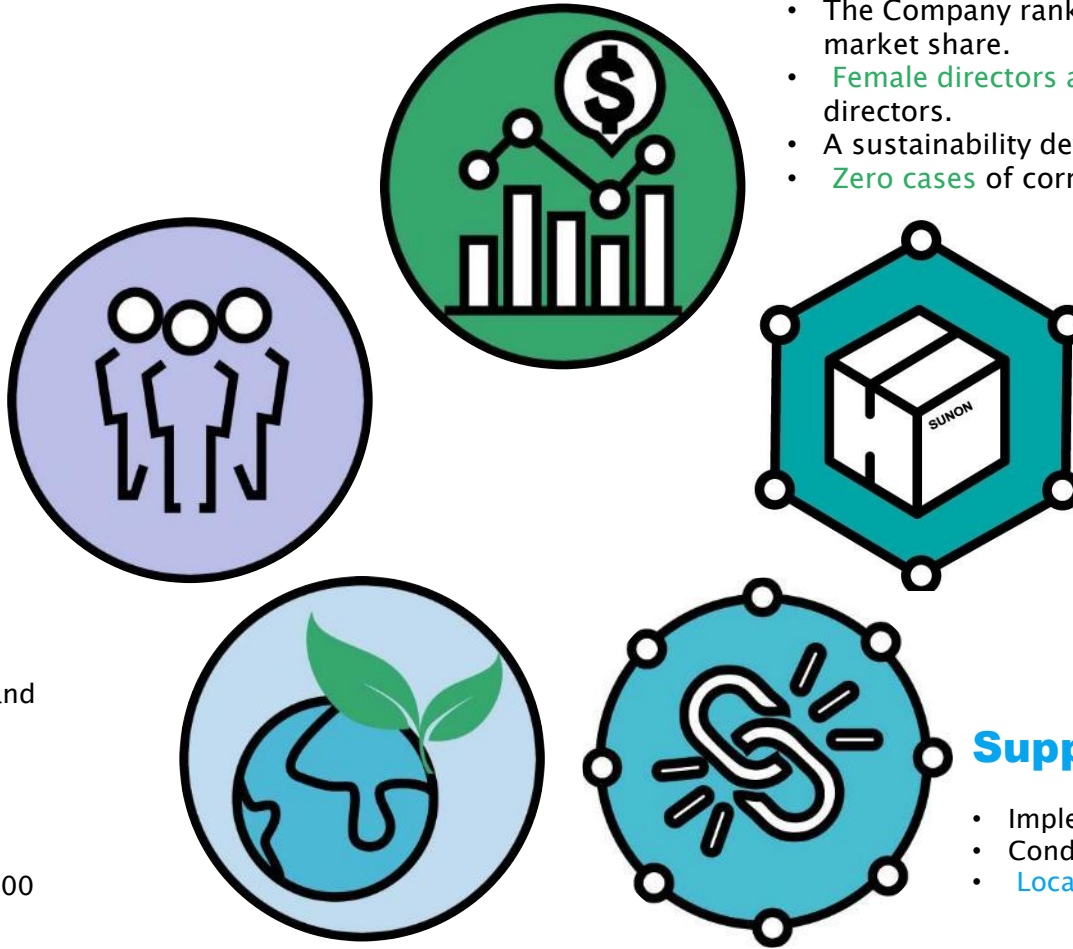
# EGS Performance Highlights

## Society

- Average employee training hours exceeded **66.8 hours** per year.
- Production bases in Taiwan and China have both passed ISO 45001 certification.
- Provided **care to 8,060 households** in the "Support and Care Campaign" from 2018 to 2022.

## 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 **455,000 kWh**.
- Continuously passed IECQ QC 080000 certification each year.



## Governance

- Consolidated revenue reached **14.063 billion NTD**, a 3.7% increase from 2021.
- The Company ranks among the **top 3 leading brands** in terms of market share.
- **Female directors account for 1/3** of the seats on the board of directors.
- A sustainability development committee has been established.
- **Zero cases** of corruption.

## Products

- **Saved 318 million kWh** of electricity with product R&D. Reduced GHG emissions by 160,000 MTCO2e.
- **100.0% pass** rate of hazardous substance inspection for three consecutive years from 2020 to 2022.
- Obtained **3,332 invention patents**.

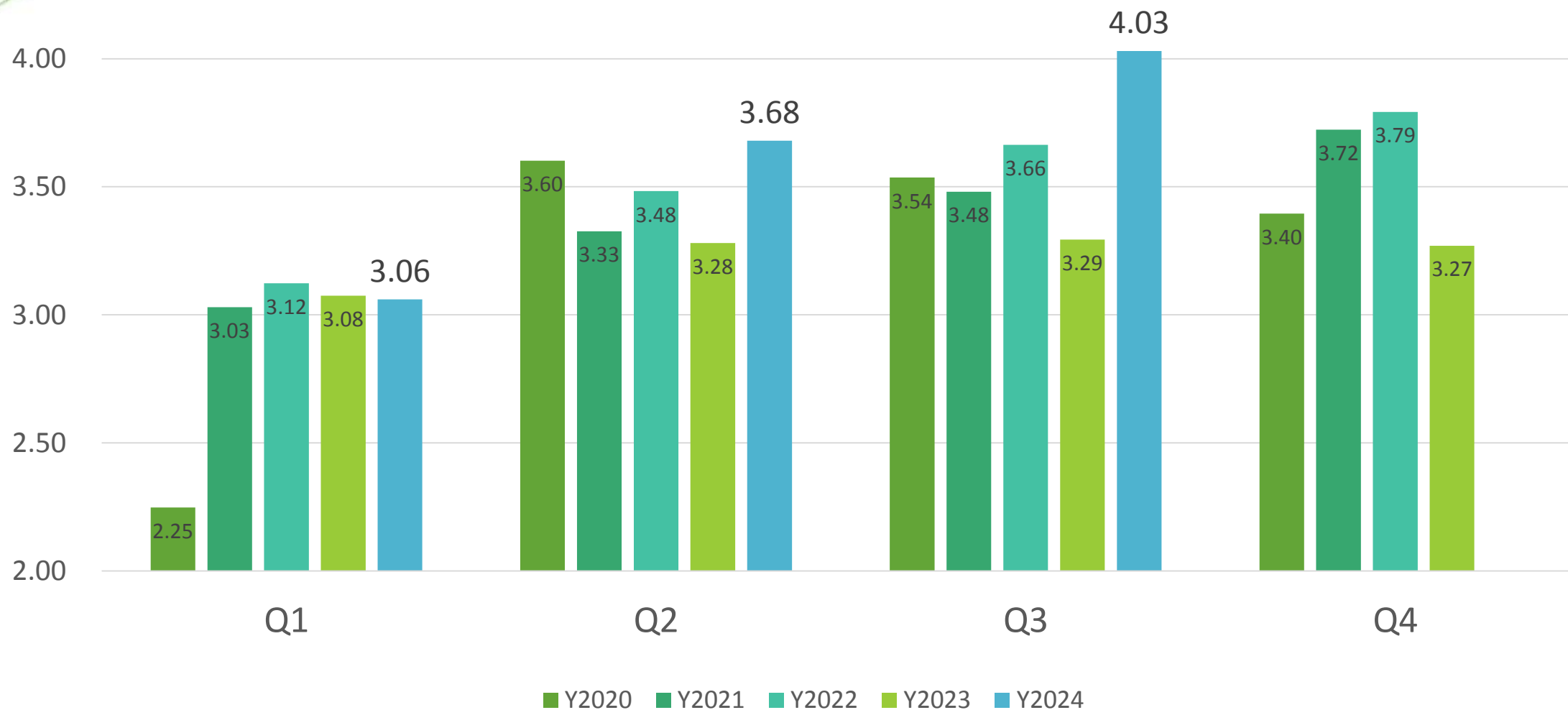
## Supply Chain

- Implemented audits for new suppliers.
- Conducted annual supplier audits.
- **Local procurement rates exceed 90%**.



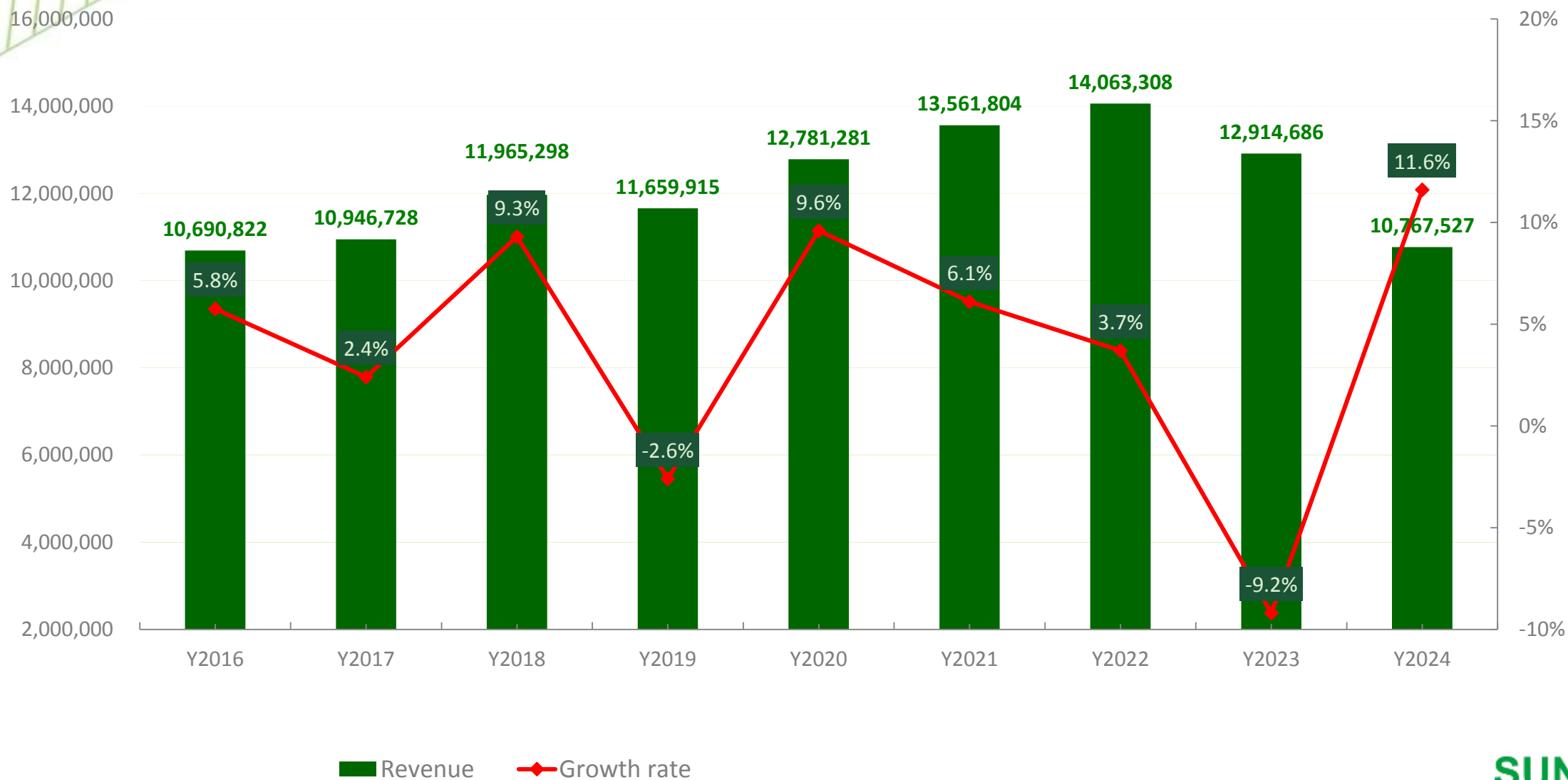
# Quarterly Revenue

In B. NT



# Revenue Performance

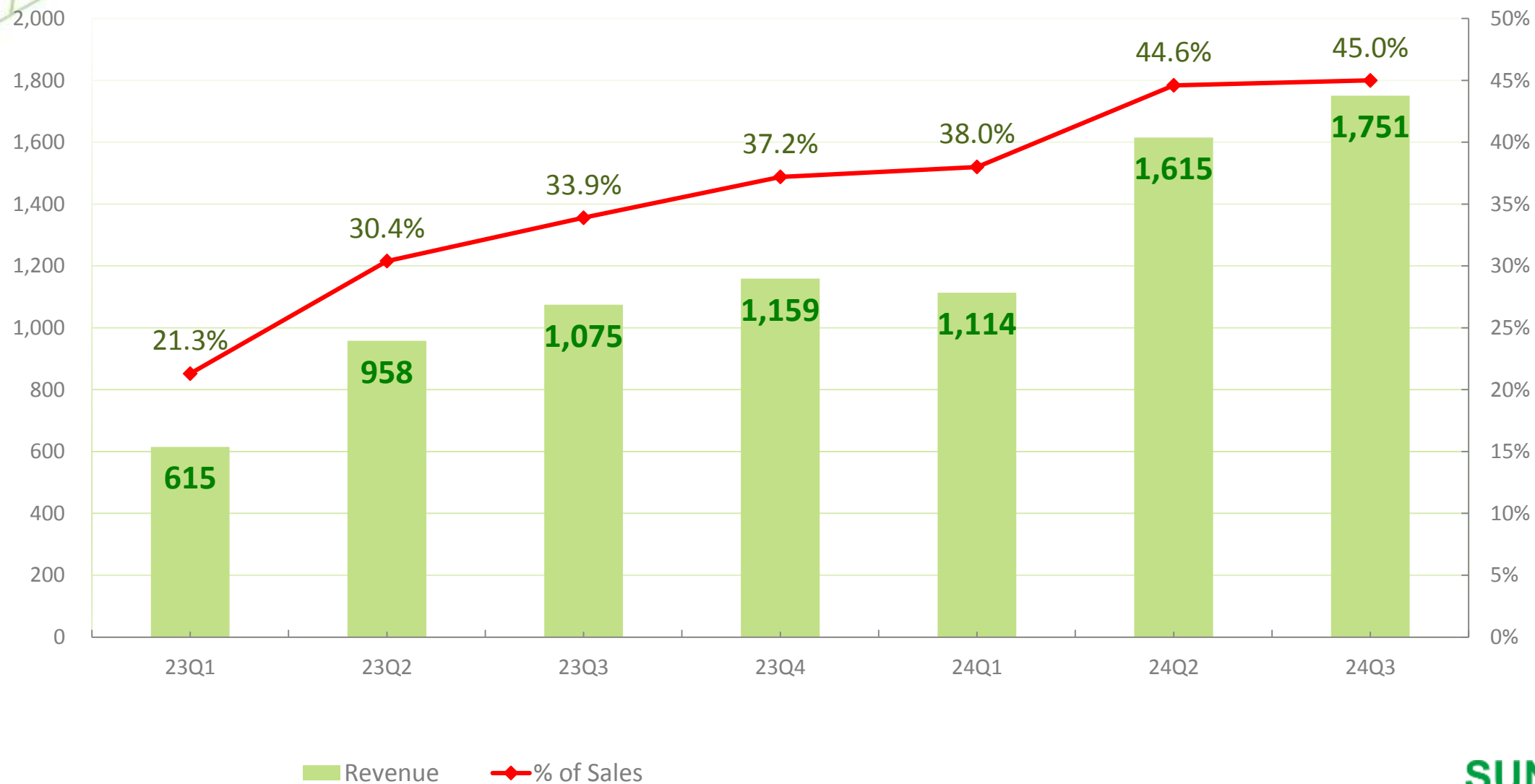
單位: NT 千元



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# Quarterly Revenue in Server

UNIT: NTD (M)

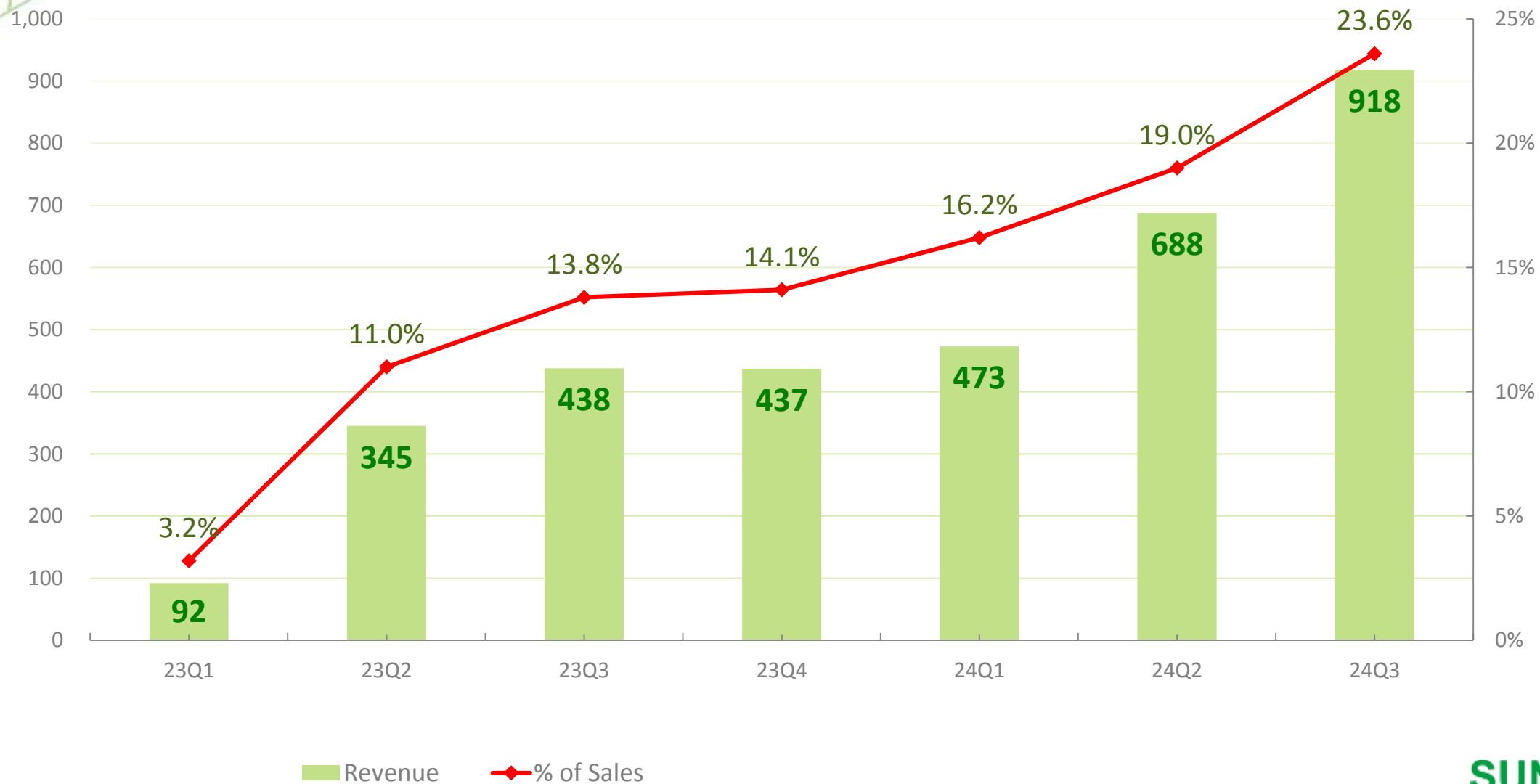


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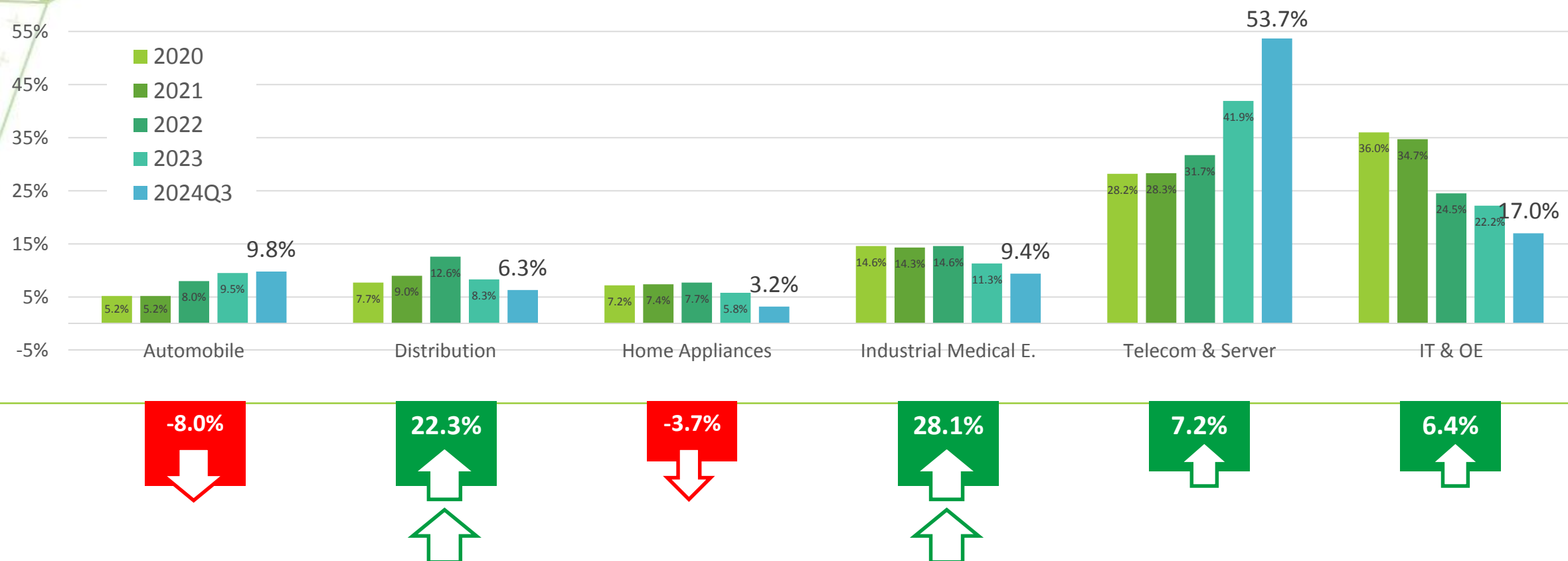
# Quarterly Revenue in AI Server

UNIT: NTD (M)

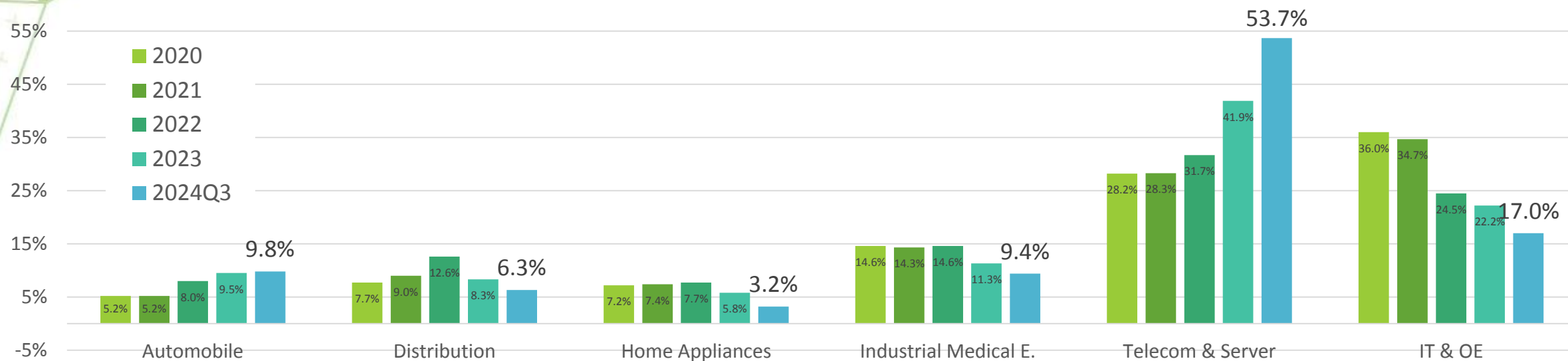


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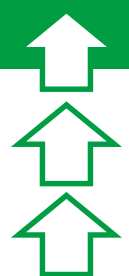
# Products Application & QoQ Growth



# Products Application & YoY Growth



36.6%



23.5%



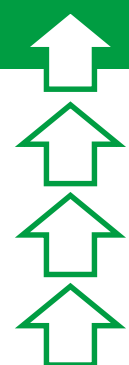
-22.9%



21.2%



45.9%



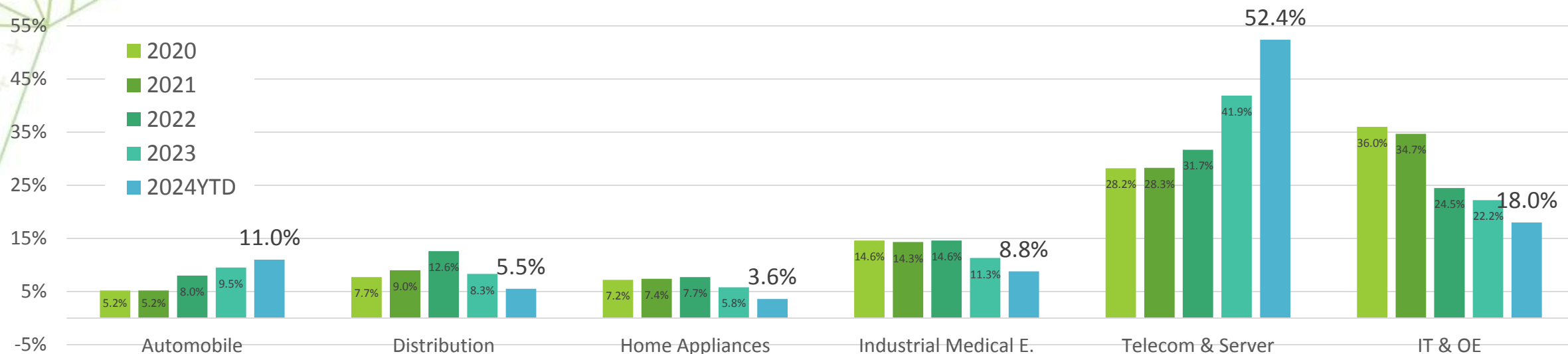
-12.9%



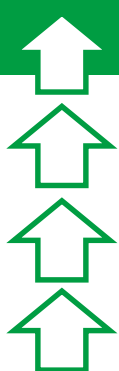
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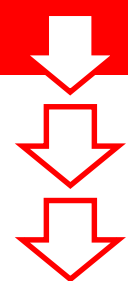
# Products Application & YoY Growth



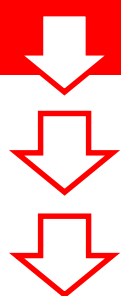
45.1%



-32.0%



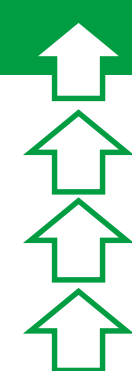
-32.9%



-14.1%



46.3%



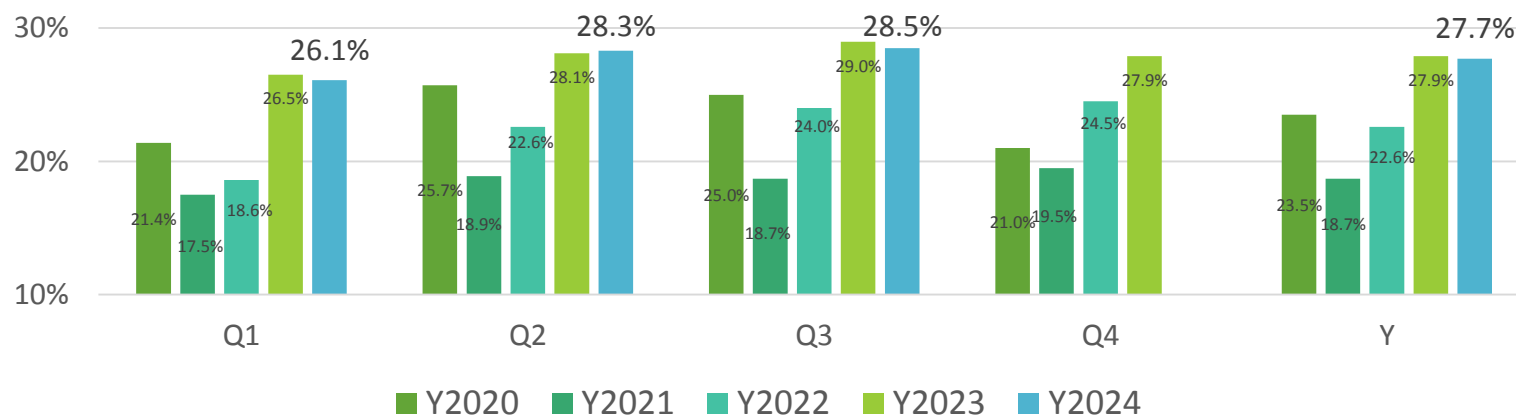
-10.4%



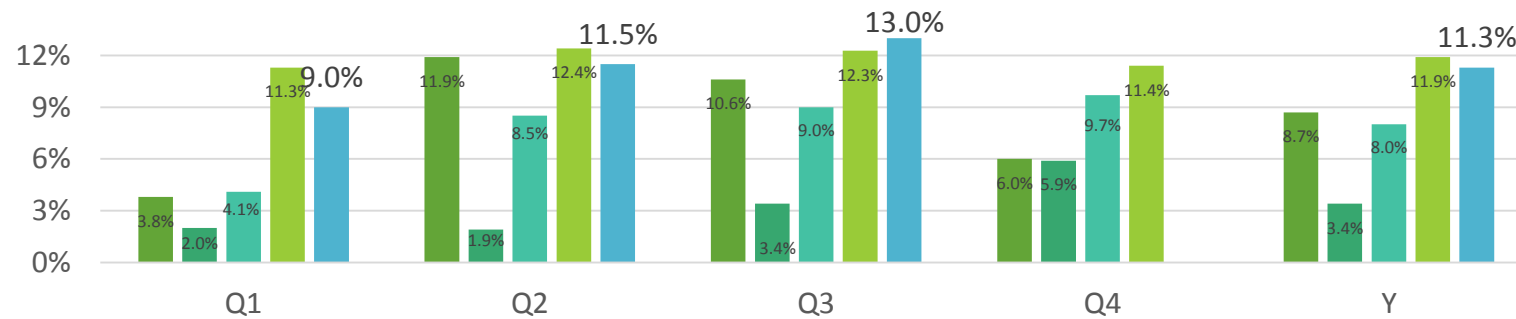
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# Profit Margin

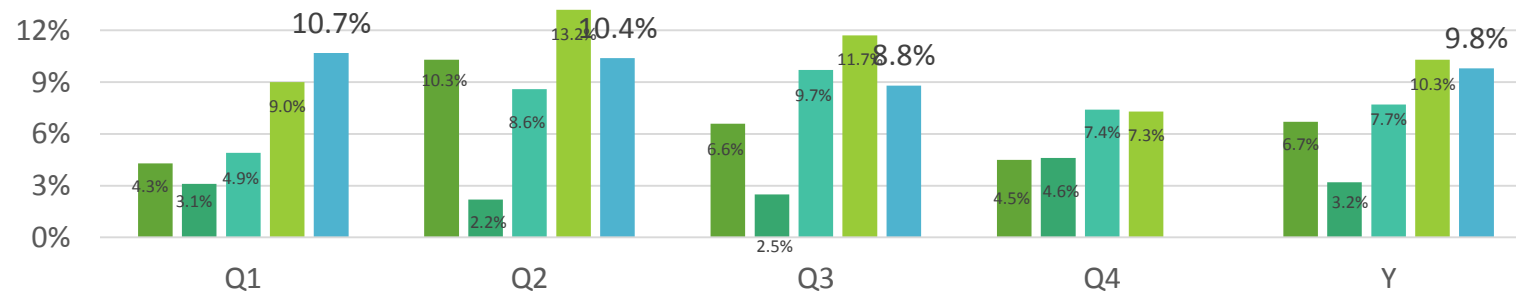
## Gross Margin



## Operating Margin



## Net Margin



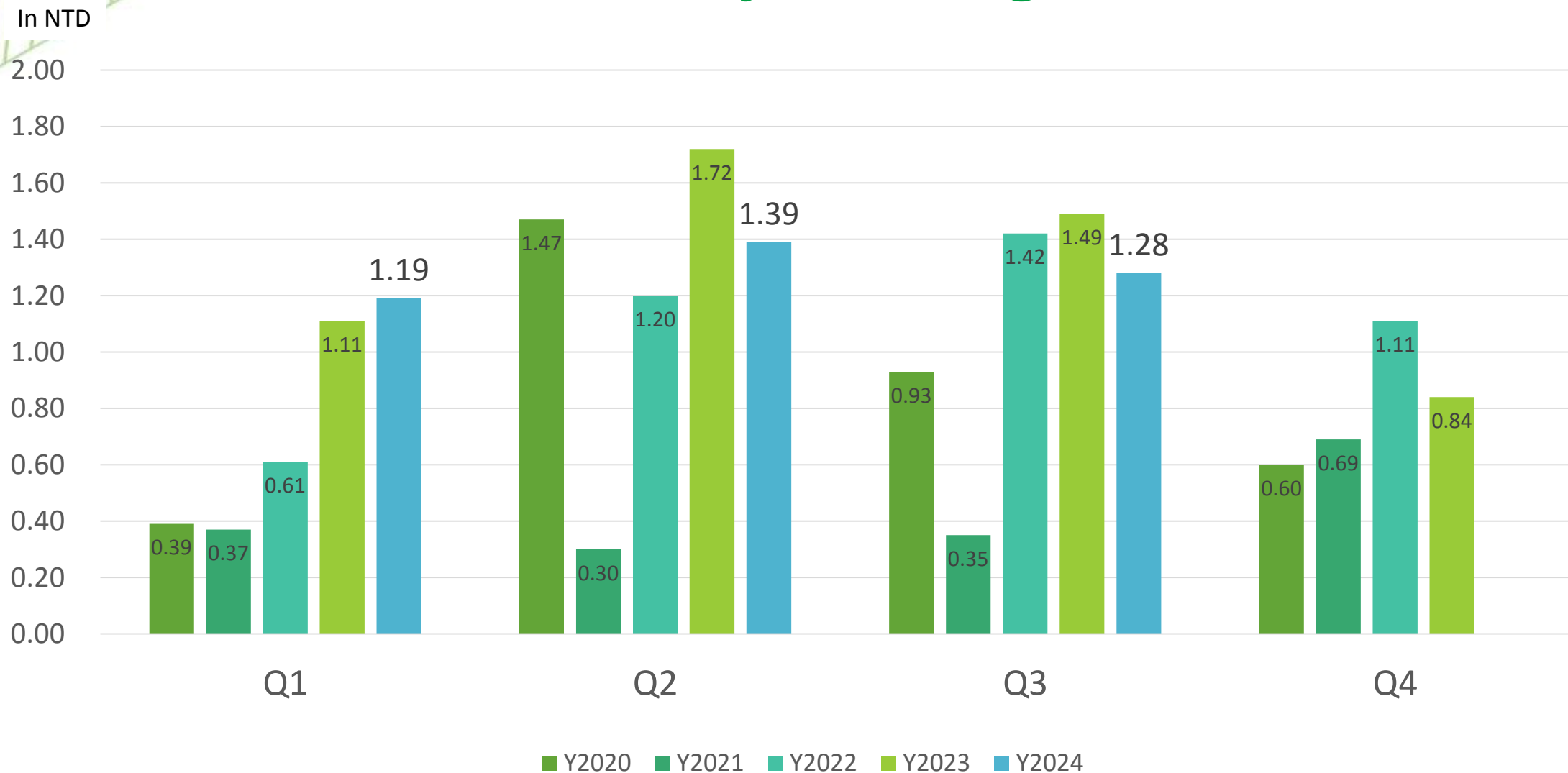
# Non Operation I&E

UNIT: NTD

Exchange G/L	24Q3	23Q3	Diff.	EPS eq.
	(99,875,301)	87,854,438	(187,729,739)	(0.69)
	24Q3	24Q2	Diff.	
	(99,875,301)	38,379,005	(138,254,306)	(0.51)
	24Q1-Q3	23Q1-Q3	Diff.	
	38,131,616	183,740,592	(145,608,976)	(0.53)

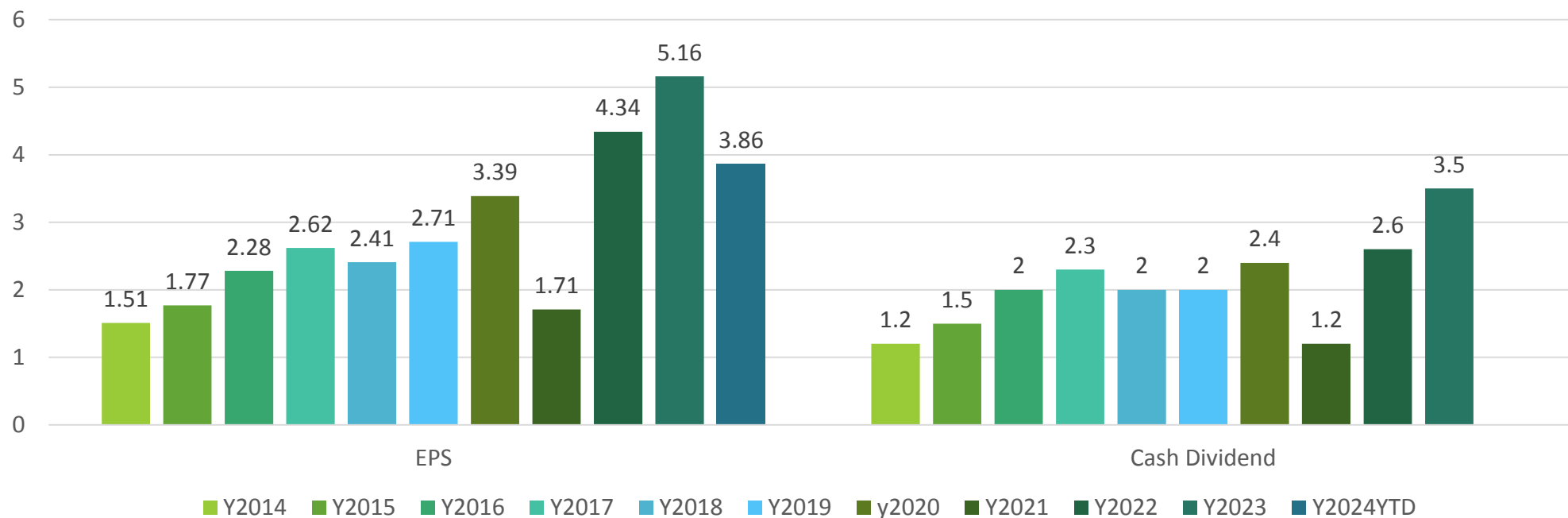


# Quarterly Earning



# Earning & Cash Dividend

UNIT: NTD



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Payout R.	81.97%	79.47%	84.75%	87.72%	87.79%	82.99%	73.80%	70.80%	70.18%	60.00%	67.80%

# Appendix I

CONSOLIDATED BALANCE SHEETS					
NT\$ M	2024.9.30	2023.12.31	2023.9.30	Change(%)	
				vs. 2023.12.31	vs. 2023.9.30
<b>TOTAL ASSETS</b>	<b>14,113</b>	<b>12,615</b>	<b>13,019</b>	<b>11.9%</b>	<b>8.4%</b>
Cash	3,998	4,031	3,829	-0.8%	4.4%
A/R, N/R	4,137	3,079	3,510	34.4%	17.9%
Inventories	2,091	2,052	2,107	1.9%	-0.8%
PP&E	2,363	2,171	2,221	8.8%	6.4%
<b>TOTAL LIABILITIES</b>	<b>6,661</b>	<b>5,396</b>	<b>5,974</b>	<b>23.4%</b>	<b>11.5%</b>
Short-term loans	1,079	458	938	135.6%	15.0%
A/P	3,171	2,737	2,771	15.9%	14.4%
Long-term loans	506	213	280	137.6%	80.7%
<b>TOTAL EQUITY</b>	<b>7,452</b>	<b>7,219</b>	<b>7,045</b>	<b>3.2%</b>	<b>5.8%</b>
Days sales outstanding	92	92	98		
Days sales of inventory	73	92	94		
Current Ratio	1.87	2.03	1.92		



# Appendix II

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME						
NT\$ M	2024 Q3	2023 Q3	2024 YTD	2023 YTD	YOY(%)	
					2024Q3	2024YTD
OPERATING REVENUES	4,031	3,294	10,768	9,649	22.4%	11.6%
GROSS PROFIT	1,148	954	2,987	2,691	20.3%	11.0%
OPERATING EXPENSES	626	550	1,770	1,532	13.8%	15.5%
INCOME FROM OPERATIONS	522	404	1,217	1,159	29.2%	5.0%
NON-OPERATING INCOME AND EXPENSES	-70	118	204	266	-159.3%	-23.3%
INCOME BEFORE INCOME TAX	452	522	1,420	1,425	-13.4%	-0.4%
NET INCOME attribute to owners	349	386	1,055	1,096	-9.6%	-3.7%
EPS (NT\$)	1.28	1.49	3.86	4.32		
Gross Margin	28.5%	29.0%	27.7%	27.9%		
Operating Margin	13.0%	12.3%	11.3%	12.0%		
Net Margin(*)	8.8%	11.7%	9.8%	11.4%		

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



# Thanks

for Your Attention !



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