



2024.4Q Earnings Conference

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24th February, 2025

Disclaimer

This presentation contains some forward-looking statements that are subject to substantial risks and uncertainties. Typically, these statements contain words such as “anticipate”, “believe”, “could”, “estimate”, “expect”, “intend”, “plan”, “forecast”, “project”, “predict”, “potential”, “continue”, “may”, “should”, “will”, and “would” or similar words. You should consider these forward-looking statements carefully because such statements are only our expectations or projections about future events, and actual results may differ materially from those expressed or implied by such statements. The forward-looking statements in this presentation include, but are not limited to, growth rates for various markets estimated by third party sources, future products and technology development, widespread market acceptance of the hosted delivery model, future revenue growth and profitability. You should be cautioned that the forward-looking statements are no guarantee of our future performance. The forward-looking statements contained in this presentation are made only as of the date of this presentation and we undertake no obligation to update the forward-looking statements to reflect subsequent events or circumstances, except as required by law.

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- **Corporate Profile**
- **Financial Review**
- **Operation Highlights**
- **Q&A**

CORPORATE PROFILE

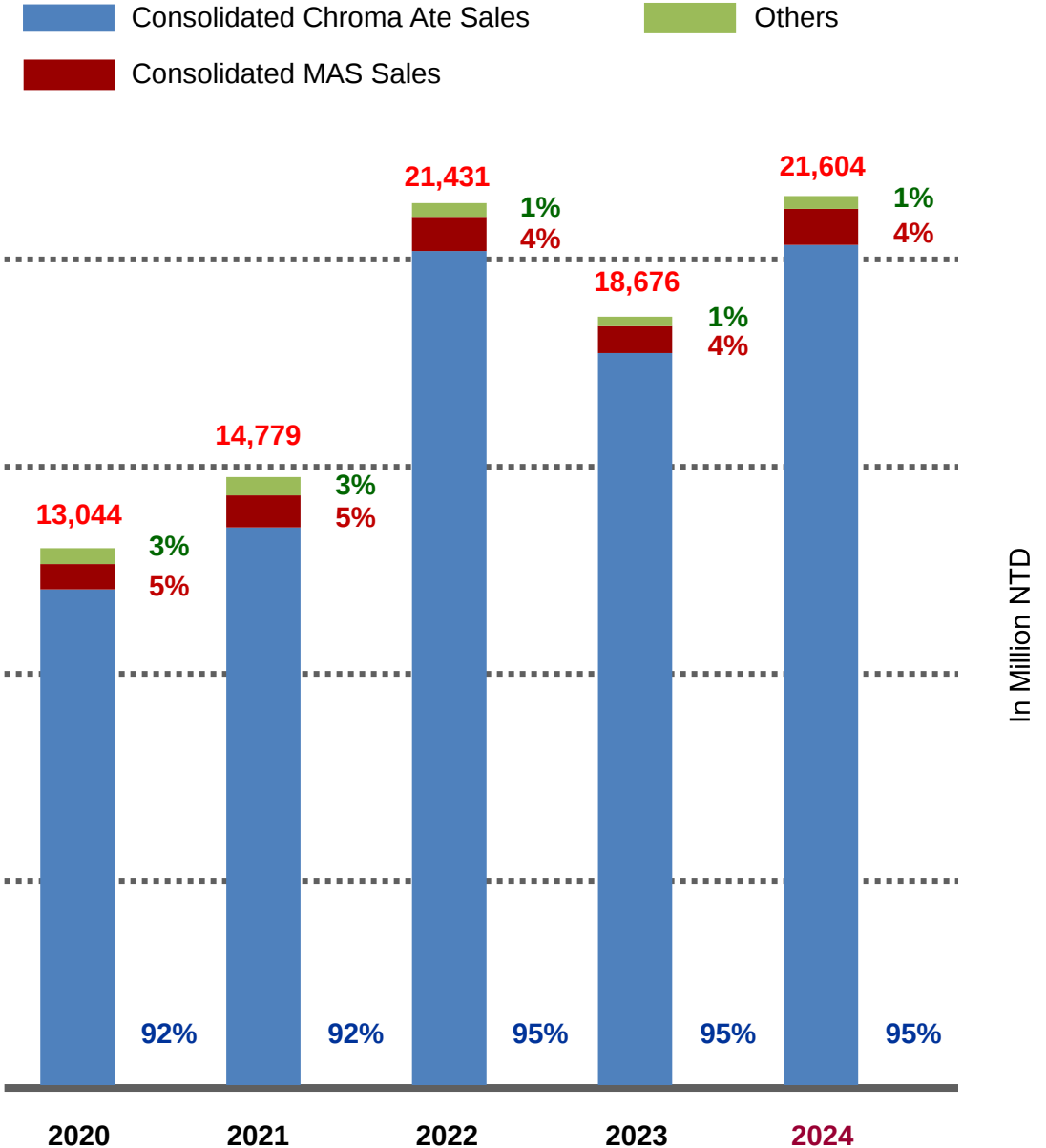


Corporate Profile

- Chroma Group founded in 1984, a world leading own brand and design of high precision test & measurement instruments, automated test systems, intelligent manufacturing systems and test & automation turnkey solutions provider. Businesses cover test and measurement instruments and ATS for electronics, ICT and cleantech various industries.
- Key success: Precision, Reliability, Innovation
- Chroma group consolidated business units of Chroma Ate Inc. and Modular Assembly System (MAS).
- 2024 Consolidated Sales : NT\$ 21.6 billion
- 2024 Net Income: NT\$ 5.3 billion
- Chroma Group total of 3,582 employees (as end of December, 2024)

Consolidated Sales Breakdown

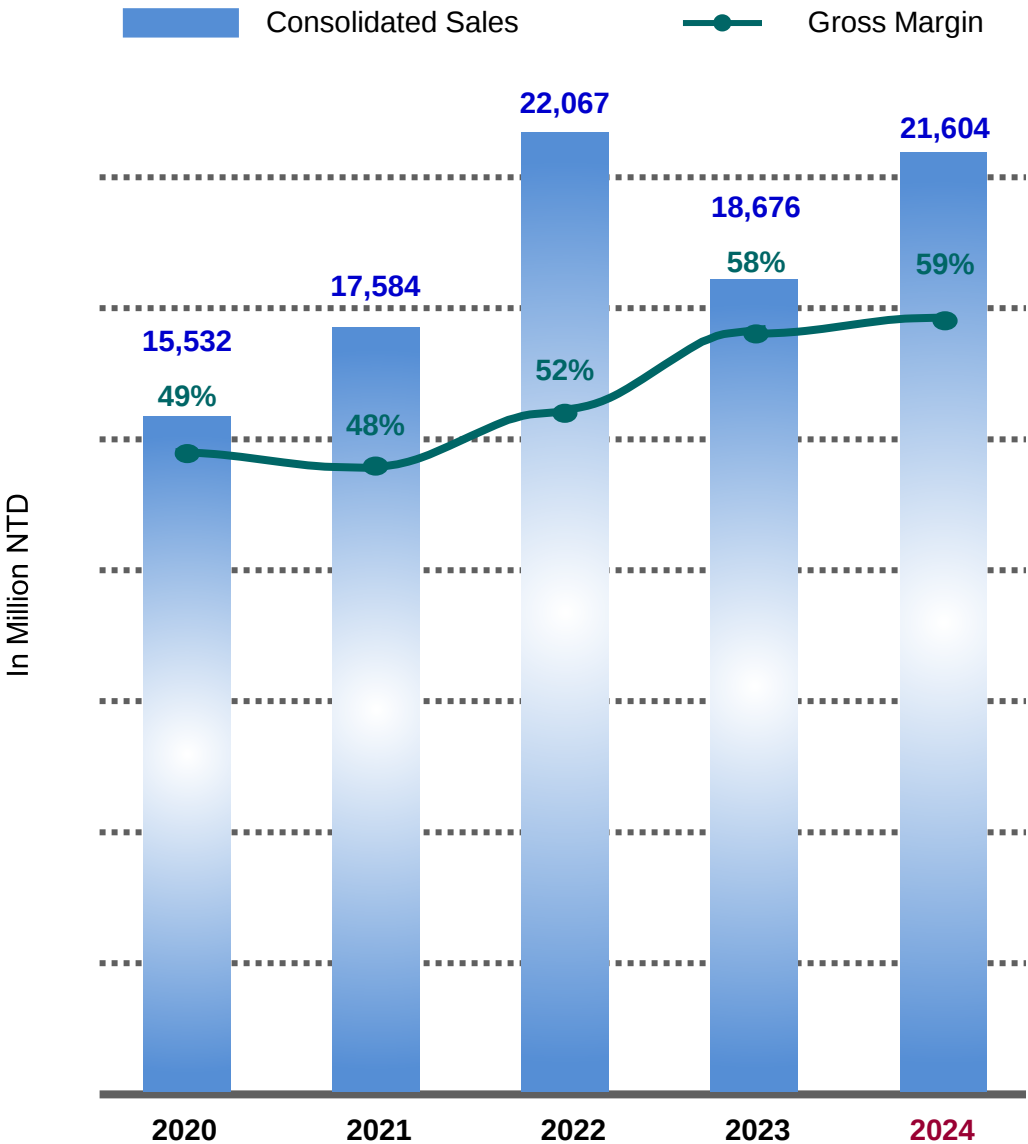
Chroma



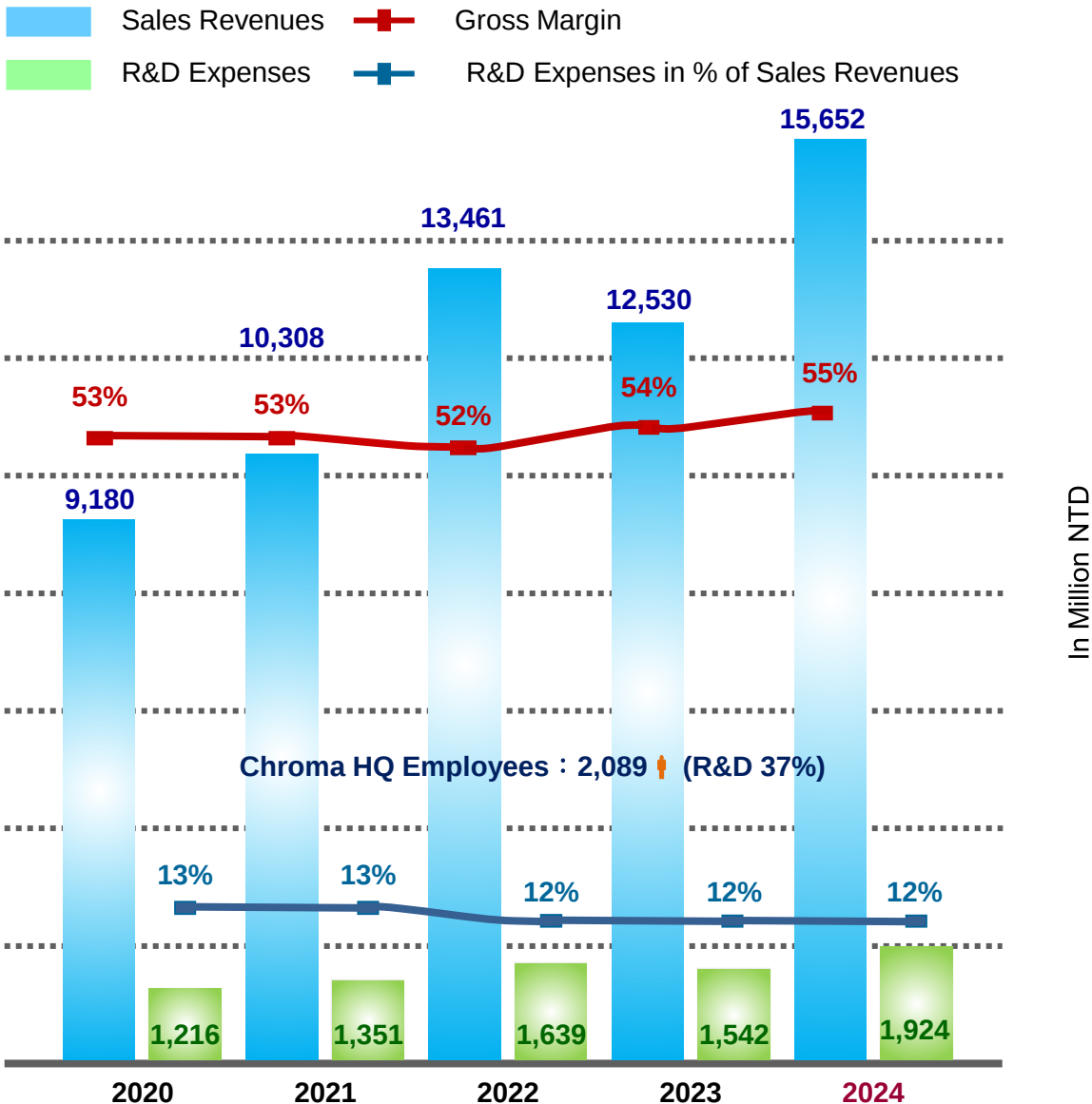
* For period of 2020 ~ 2022 to exclude the Chroma New Material Corp. due to business termination.

Financial Performance

Consolidated Sales & Gross Margin

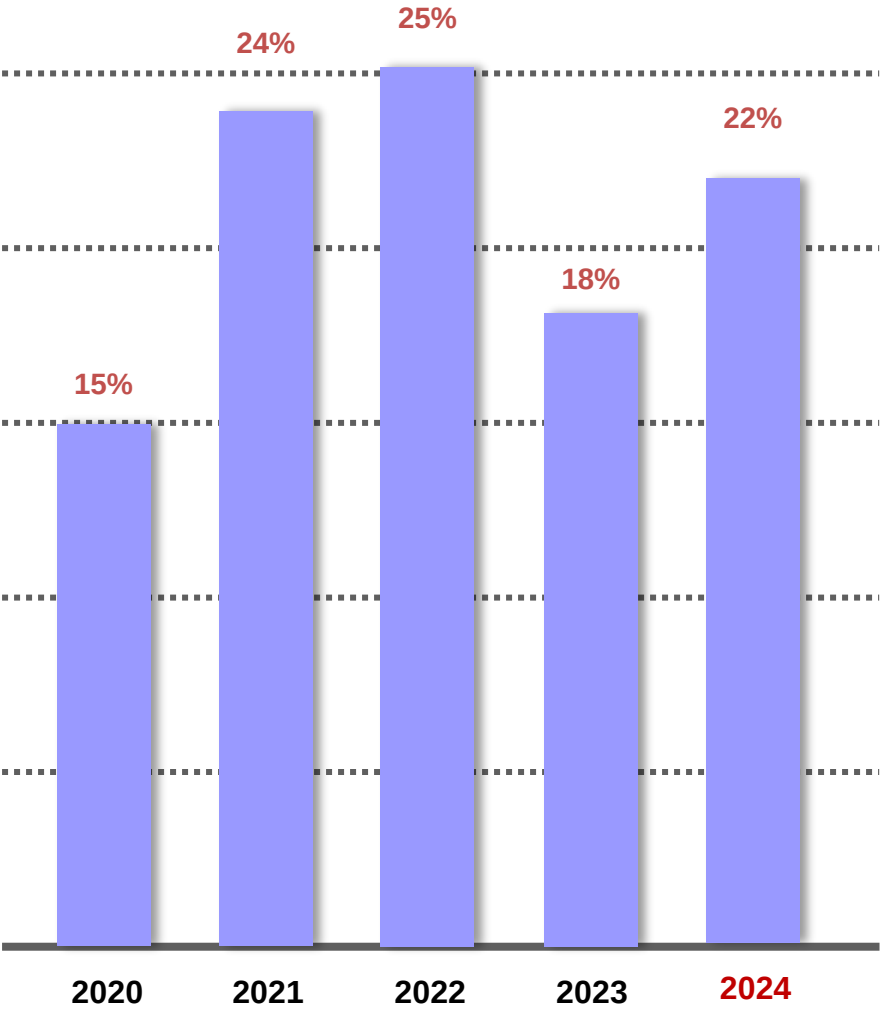


Parent Company Sales / Gross Margin / RD Expenses

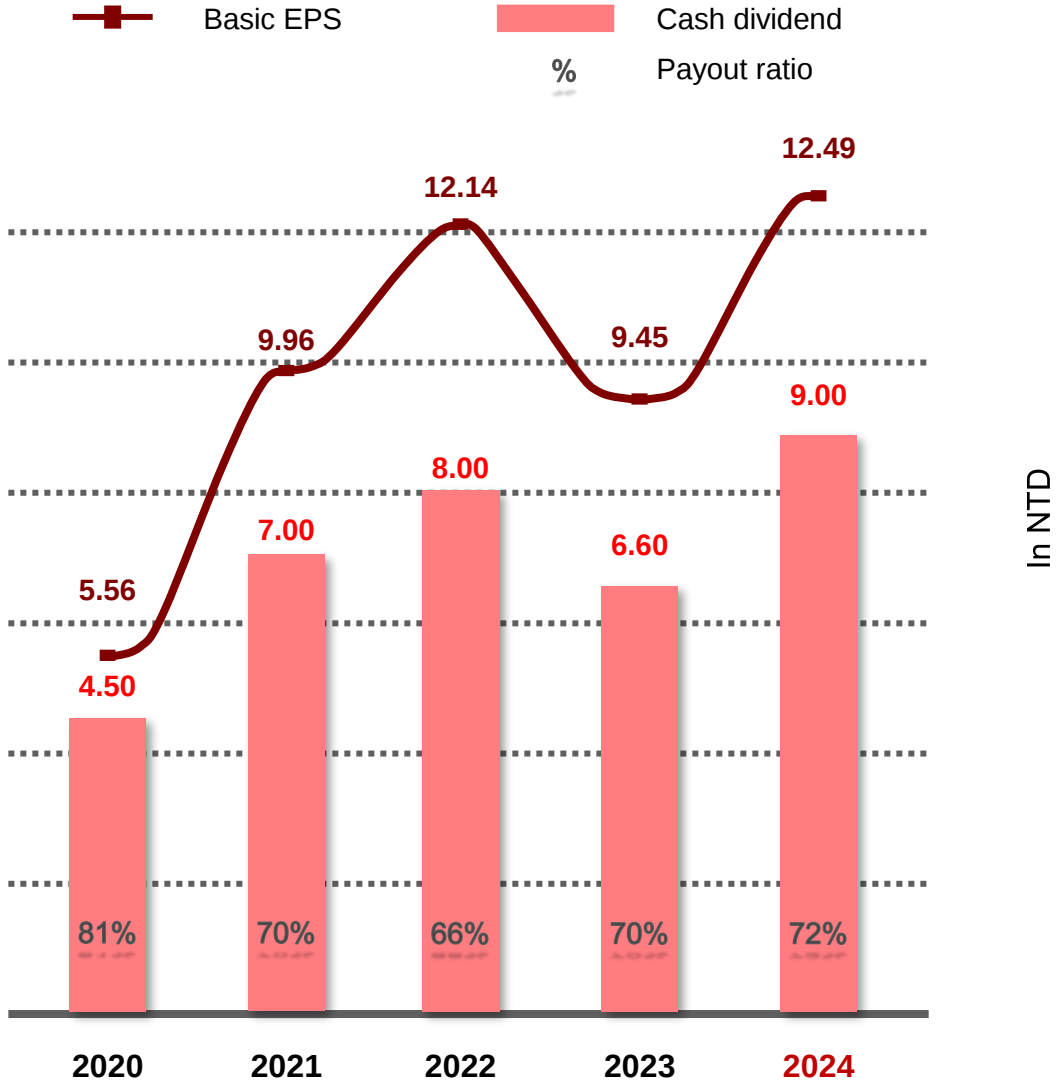


Financial Performance

ROE



Dividend



* Cash dividend for 2024 will be paid out after resolution of AGM

FINANCIAL REVIEW



Year 2024.4Q Condensed Consolidated Income Statement



Condensed Consolidated P&L

(In Million NTD, except for EPS in NTD)

	2024.4Q	%	2024.3Q	%	QoQ %	2023.4Q	%	YoY %
Net Sales	6,039	100%	5,632	100%	7%	5,025	100%	20%
Consolidated Sales of Testing Equipment Business	5,755	95%	5,170	92%	11%	4,913	98%	17%
Consolidated Sales of MAS	211	4%	384	7%	(45%)	44	1%	380%
Others	73	1%	78	1%	(6%)	68	1%	7%
Cost of Goods Sold	(2,432)	(40%)	(2,326)	(41%)	5%	(2,446)	(49%)	(1%)
Gross Profit	3,607	60%	3,306	59%	9%	2,579	51%	40%
Operating Expenses:								
General & Administration	(1,364)	(23%)	(1,290)	(23%)	6%	(1,094)	(22%)	25%
Research & Development	(684)	(11%)	(508)	(9%)	35%	(451)	(9%)	52%
Operating Income	1,559	26%	1,508	27%	3%	1,034	20%	51%
Non-Operating Income (Expenses), net	380	6%	237	4%	60%	(16)	-	n/a
Income (Loss) Before Tax	1,939	32%	1,745	31%	11%	1,018	20%	90%
Income Tax	(403)	(7%)	(295)	(5%)	37%	(193)	(4%)	109%
Net Income	1,536	25%	1,450	26%	6%	825	16%	86%
Net Income (Losses) Attributable To:								
Shareholders of the Parent	1,476	24%	1,426	25%	4%	799	16%	85%
Noncontrolling Interests	60	1%	24	1%	150%	26	-	131%
	\$ 1,536	25%	\$ 1,450	26%	6%	\$ 825	16%	86%
EPS (Basic)	\$ 3.49		\$ 3.39		3%	\$ 1.89		85%
EPS (Diluted)	\$ 3.45		\$ 3.36		3%	\$ 1.87		85%

Year 2024 Condensed Consolidated Income Statement



Condensed Consolidated P&L

(In Million NTD, except for EPS in NTD)

	2024	%	2023	%	YoY %
Net Sales	21,604	100%	18,676	100%	16%
Consolidated Sales of Testing Equipment Business	20,419	95%	17,787	95%	15%
Consolidated Sales of MAS	872	4%	658	4%	33%
Others	313	1%	231	1%	35%
Cost of Goods Sold	(8,858)	(41%)	(7,919)	(42%)	12%
Gross Profit	12,746	59%	10,757	58%	18%
Operating Expenses:					
General & Administration	(5,065)	(23%)	(4,327)	(23%)	17%
Research & Development	(2,199)	(11%)	(1,757)	(10%)	25%
Operating Income	5,482	25%	4,673	25%	17%
Non-Operating Income (Expenses), net	1,226	6%	493	3%	149%
Income (Loss) Before Tax	6,708	31%	5,166	28%	30%
Income Tax	(1,308)	(6%)	(1,070)	(6%)	22%
Net Income	5,400	25%	4,096	22%	32%
Net Income (Losses) Attributable To:					
Shareholders of the Parent	5,264	24%	3,979	21%	32%
Noncontrolling Interests	136	1%	117	1%	16%
	\$ 5,400	25%	\$ 4,096	22%	32%
EPS (Basic)	\$ 12.49		\$ 9.45		32%
EPS (Diluted)	\$ 12.38		\$ 9.37		32%

Balance Sheet Highlights & Financial Ratio

Consolidated (In Million NTD)

Balance Sheet Highlights

	<u>2024. Dec</u>	<u>2023. Dec</u>	+ / - %
Cash & Short Term Investments	5,040	4,794	5%
Inventory	5,458	4,675	17%
Short Term Debt	1,417	2,136	- 34%
Long Term Debt	2,108	990	113%
Shareholders Equity	25,450	22,517	13%
Total Assets	37,308	33,482	11%
Inventory Turnover (Day)	209	217	
AR Turnover (Day)	87	87	
AP Turnover (Day)	118	128	
Net Debt to Equity (%)	Net Cash	Net Cash	
ROE (%) ●	22%	18%	
ROA (%) ●	15%	12%	

Cash Position

	<u>2024</u>	<u>2023</u>	<u>YoY</u>
EBITDA	7,528	5,973	26%
Cash Flow from Operation	4,784	3,408	40%
Free Cash Flow ●●	2,893	2,014	44%

● All ROE + ROA has been annualized.

●● Free Cash Flow = Net Cash Provided by Operating Activities + (Net Cash used by Investing Activities)

OPERATION HIGHLIGHT

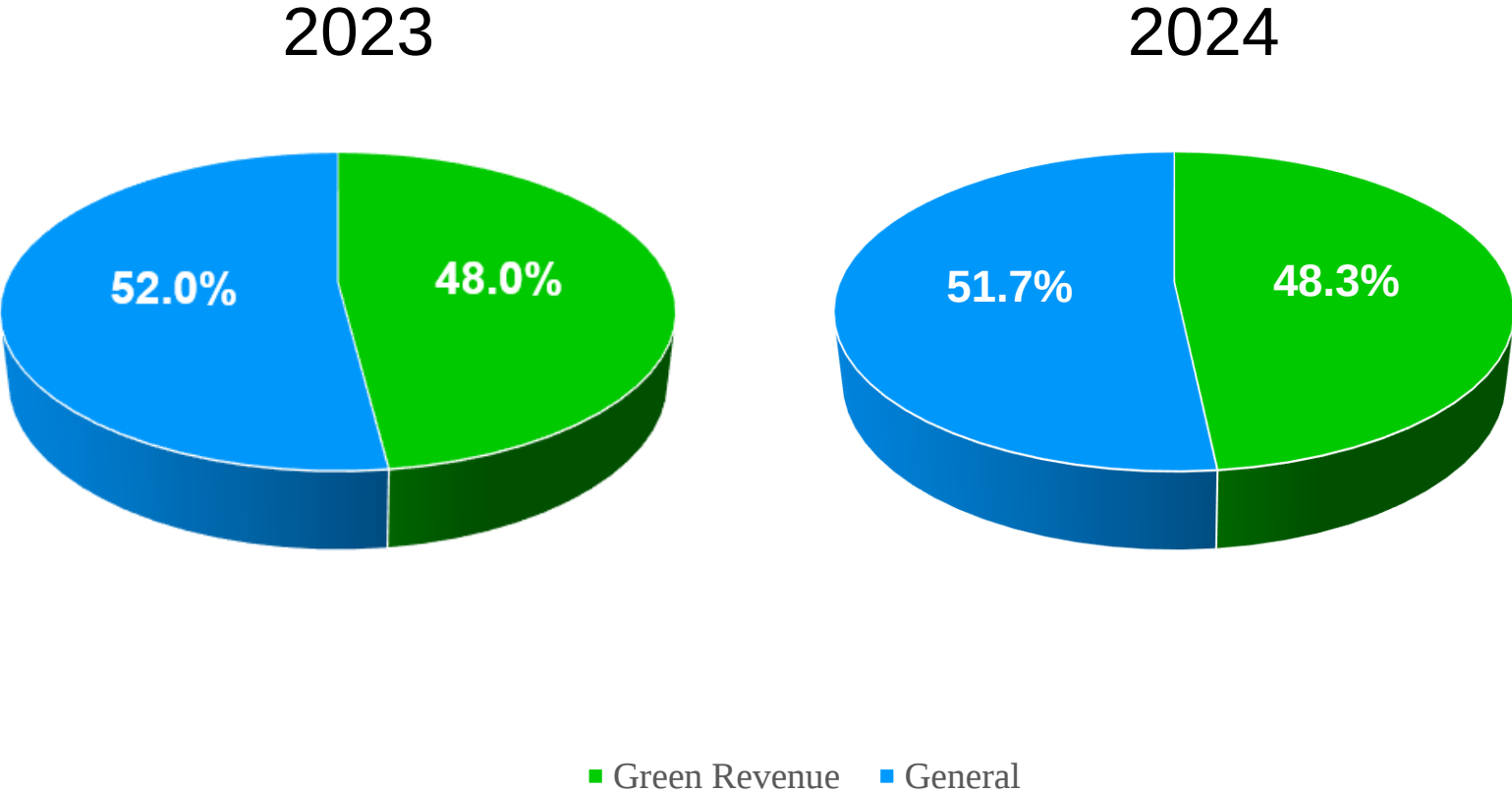


2024.4Q & Annual Product Mix and Consolidated Sales Breakdown

(Unit: Million NTD)

	2024.4Q	%	QoQ	YoY	2024	%	YoY	2023	%
Test Instruments & Automatic Testing System (ATS)	1,687	40%	(3%)	12%	6,825	44%	(16%)	8,078	64%
Semiconductor / Photonics Test Solutions	2,086	50%	14%	141%	6,974	45%	135%	2,963	24%
Turnkey Solutions	146	3%	39%	(15%)	685	4%	51%	454	4%
Service & Others	275	7%	(15%)	(25%)	1,168	7%	13%	1,035	8%
Total of Parent Company Sales	4,195	100%	5%	45%	15,652	100%	25%	12,530	100%
+ Sales from Overseas Operations & Related Subsidiaries	1,560		31%	(22%)	4,767		(9%)	5,257	
Chroma Consolidated Testing Equipment Business	5,755	95%	11%	17%	20,419	95%	15%	17,787	95%
MAS	211	4%	(45%)	380%	872	4%	33%	658	4%
Other Subsidiaries	73	1%	(6%)	7%	313	1%	35%	231	1%
Consolidated Sales	6,039	100%	7%	20%	21,604	100%	16%	18,676	100%

- In year 2024, Chroma total consolidated sales revenues of continuously operating businesses hit record high, reached 21.6 billion NTD, which presented a growth of 16% YoY. The Parent Company sales also hit record high reached 15.6 billion, presented a growth of 25% YoY. Semiconductor sector was the major growth driver, presented an increase of 135% YoY.
- Year 2025 Business Outlook:
 - ✓ The growth driver in 2025 will be mainly coming from semiconductor / photonics sector.
 - ✓ Qualified Metrology equipment for Advanced Packaging will start generating meaningful sales revenues from 2025.
 - ✓ AI / HPC, new Auto / Gaming chips and capacity ramp from ASIC makers are key drivers for SLT demand.
 - ✓ The Test Instruments & ATS for power testing solutions start to bottom up.
 - ✓ New designed Turnkey Solution for AR glasses has been launched from second half of last year, and will continue to deliver in 2025.



Note: Revenues are classified according to FTSE Russell’s Green Revenues Classification System (GRCS).

Technology & Solution Milestones

High Precision Test Solutions

3650-S2



- 768pin
- 12 slots
- 15kVA
- Floating
- LB electronics
- IC: SiC/Power/logic

3380 MXADO



NEW

Designed for High Quality Audio Testing

- 8 WG and 8 WD channels
- 6Vpp audioband
- High-performance bandwidth: 100kHz (WG) and 22kHz (WD)

Applications:

- Wired/wireless/Bluetooth audio devices, headphones, speakers

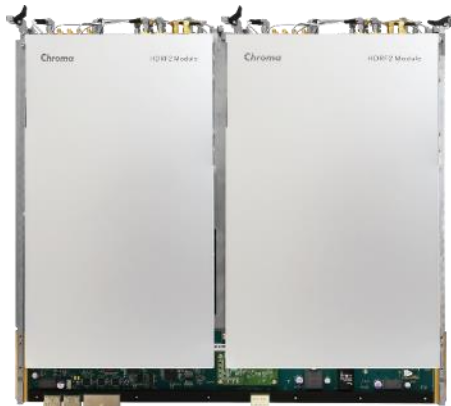


2023

2024

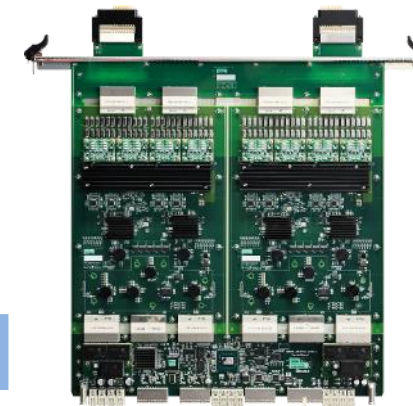
2025

3680 HDRF2



- Internally Integrated
- One-touch engagement
- 4 Vector Signal Transceivers
- 32 RF ports
- 6Ghz Software Defined Radio
- 200Mhz bandwidth
- Supports various protocols: Bluetooth 5.2, Wi-Fi 6, LoRa, GPS

3650-S2 HTMU



NEW

Advanced Performance for Timing Test

- 16 channels
- High precision with nSec-level accuracy
- Supports multiple testing modes

Applications:

- PMIC, industrial control chips, logic chips



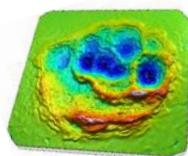
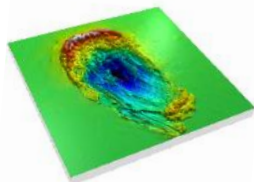
IC: SiC / Power / Logic / Wireless

7980

2D/3D Metrology Measurement System

2D/3D Metrology

- XY / Z Resolution: 30nm / 0.05nm
- Sensor: **BLiS Technology**
- Light Source: Multiple Light Sources
- Applications:
 - ✓ Probe Mark
 - ✓ 3D Surface Profile

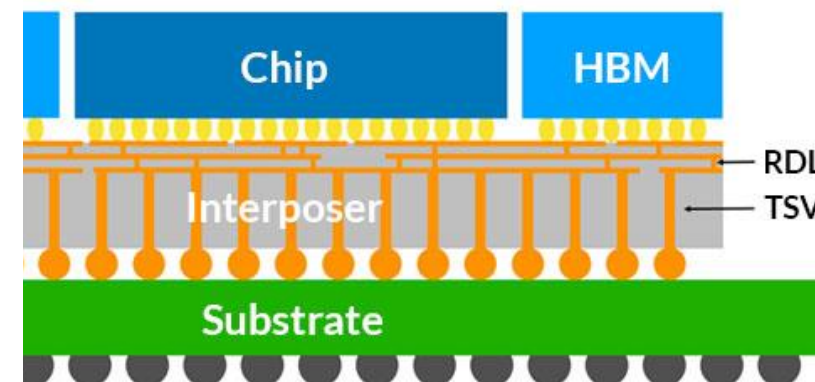
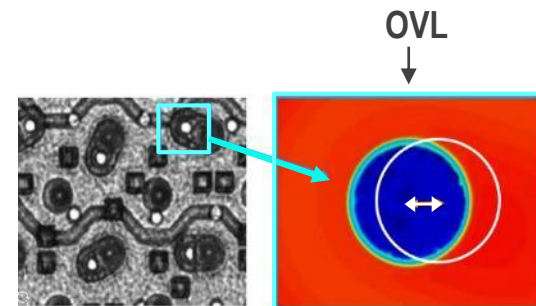


7981

2D/3D Metrology Measurement System

2D/3D Metrology

- XY / Z Resolution: 30nm / 0.05nm
- Sensor: **BLiS Technology**
- Light Source: Multiple Light Sources
- Applications:
 - ✓ RDL: $\geq 2 \mu\text{m}$, AR3
 - ✓ TSV: $\geq 5 \mu\text{m}$, AR15
 - ✓ OVL $\leq 0.2 \mu\text{m}$
 - ✓ 8", 12" Si Wafers



Advanced Packaging: InFO, CoWoS, 3D IC

BLiS: Broadband Light integrated System
Muti-Sensors with different functions are integrated.

Temperature-forcing Systems



- -40°C~ +150°C @Tc
- Up to 1,200W power dissipation



- -70°C~ +150°C @Tc
- Up to 1,000W power dissipation



- -40°C~ +150°C @Tc
- Up to 2,900W power dissipation



Hybrid Tri-temp Test Handler



- 3x3~120x120mm
- -70 ~ +150°C @Tc, up to 1.2kw dissipation
- 500 kgf contact
- TSD (Tj) available

Model 3110 Gen2

ENG Single Site Test Module



- 3x3~120x120mm
- -40 ~ +150°C @Tc, up to 1.8kw dissipation
- 500 kgf contact
- TSD (Tj) available

Model 3210

FT & SLT Hybrid Test System



- 5x5~120x120mm
- 4~24 sites
- -40 ~ +150°C @Tc, up to 1.5kw/site dissipation
- 500 kgf/site contact
- TSD (Tj) available
- Warpage detection
- OHT integration

Model 3200

Test requirement trend:

- Higher frequency
- Thinner die thickness
- Smaller die size and pad pitch

Frequency: <220MHz
Die thickness: >7.6μm
Die size: >0.7mmX0.6mm

Frequency: 300MHz
Die thickness: 5.5μm
Die size: 0.5mmX0.5mm

2023

2024

2025

Crystal Wafer Probing System



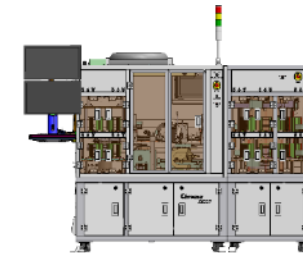
Model 58216
(250B VNA)
Frequency: 220MHz
Min. die pitch: 0.4mm

In-process Wafer Inspection System



Model 7945
Depth of focus at 2X mag.: 90μm
Min. die size: 0.075mmX0.075mm

Crystal Wafer Frequency Sorter



NEW

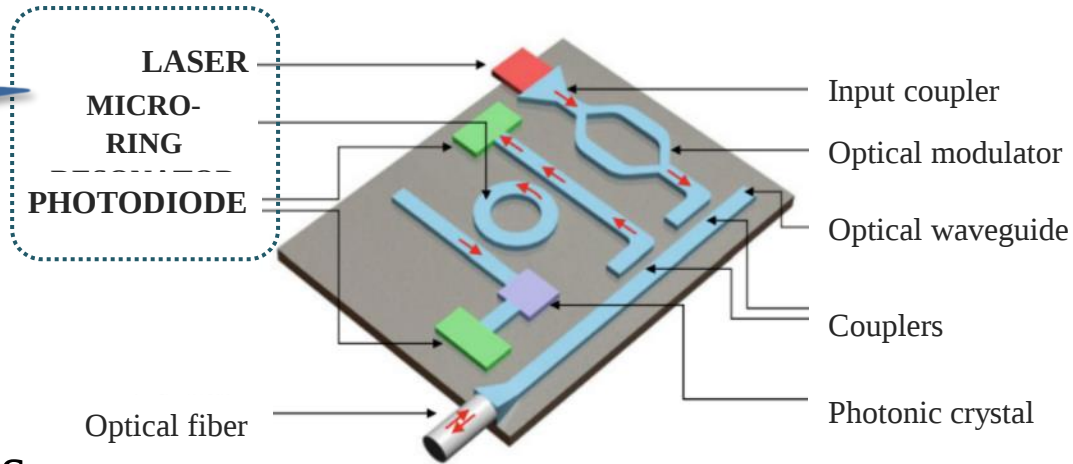
Model 58217
Frequency :300 MHz
Hardware Bin Number: 10 bins



Consumer/Automotive Sensing, LiDAR



Active SiPh Device
Burn-In



DUT: **SiPh Device**

Reliability Test Series

58604 Series

- 125 °C / 200 °C
- $\pm 7\text{ V} / \pm 7.5\text{ V}$
- $\pm 500\text{ mA}$
- 1,792 channels
- 1 nA meas. Res.



58606 Series

- 200 °C
- $\pm 80\text{ V}$
- $\pm 2\text{ mA}$
- 1,792 channels



SiPh Electrical Test

**Optical &
Thermal Rack**

Model
+ 58604C

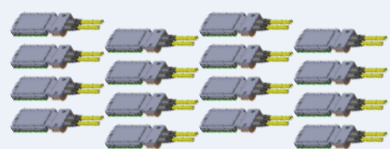
Light-feeding
with Laser Source
Module



Co-Packaged Optics (CPO) Assembly & Sorting Solution

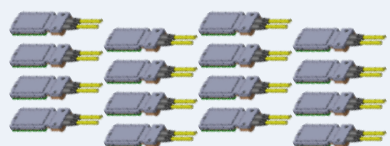
INPUT

Optical Engines



ASIC

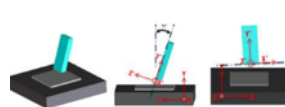
Optical Engines



ASIC

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•
•

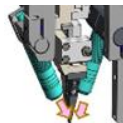
Fiber Array Unit



FAU & EPIC Alignment



Gel Dispensing



UV Curing



Binning



Model 58623

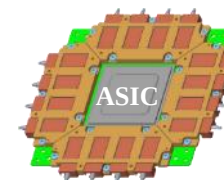
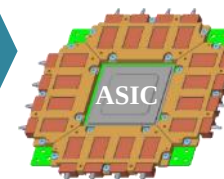
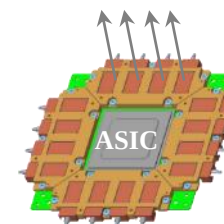
Photonics IC Assembly and Sorting System

- Auto FAU miniMT plug in/out
- Auto Passive + Active alignment
- Auto gel dispensing + UV curing
- Auto Binning

* Tier-1 High throughput solution in the market

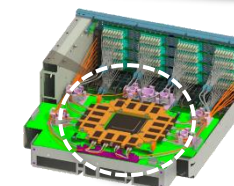
OUTPUT

Optical Engines



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•
•

Switch



CPO modules
deployed in switches



Rack



Data Center

Technology & Solution Milestones

High Power Test Solutions

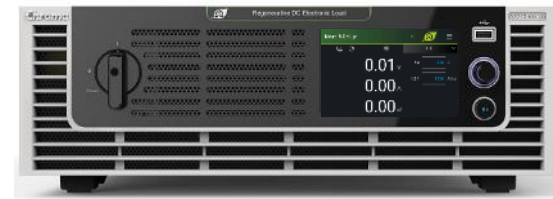
Regenerative AC Load



Model 63800R Series

- Programmable AC Load with energy regen
- High Power Density: 15kW/3UH, Eff:90%
- 9kW-15kW, 350VLN

Regenerative DC Load



Model 63700 Series

- Programmable DC Load with energy regen
- High Power Density: 18kW/3UH, Eff:93%
- 18kW, 600/1200/1800V

2022

2023

2024

2025

Regenerative Grid Simulator



Model 61800-100HV

- High power AC source with energy regen
- Optional regen AC Load
- Parallel up to 1MVA
- 105kVA, 500VLN-800VLN

Bidirectional DC Power Supply

Model 62000D-HL Series

- 8x Wide Range Output Dual Output Range
 - High range: 2000V/480A/360kW
 - Low range: 650V/1440A/360kW
- High power density
- Battery & Fuel Cell & Solar array simulation



High Power xEV Cell Test Solution



Battery Reliability Test System
Model 17010H

- 6V, 300A,
- 600A (peak current)

High Power xEV Cell Test Solution



Battery Reliability Test System
Model 17010H

- 6V, 200A
- 300A (peak current)



2023

2024

2025

Auxiliary Measurement Solution



Multi-channel voltage/temperature
Data Logger
Model A172013/A172014

DVA Cell Test Solution



Ultra-high precision CDC
Prog. Charge/Discharge Tester
Model 17208M-5-12C

- 5V, 12A

Battery Cell/Lithium-ion Capacitor/Super Capacitor

Regenerative Battery Pack Test System



Model 17020E

- 10kW, 60V
- 10kW, 100V
- 10kW, 200V

Applications:

- E-Scooter battery pack
- E-vehicle battery module



Regenerative Battery Pack Test System



Model 17040

- 300kW 1000V 750A
- 360kW 1000V 900A
- 500kW 1000V 1200A
- 600kW 1000V 1500A

Applications:

- E-vehicle battery pack
- ESS battery pack

Regenerative Battery Pack Test System

Model 17040E

- 200kW 1700V 400A
- 200kW 850V 600A

Applications:

- E-vehicle battery pack
- ESS battery pack



Turnkey Solution

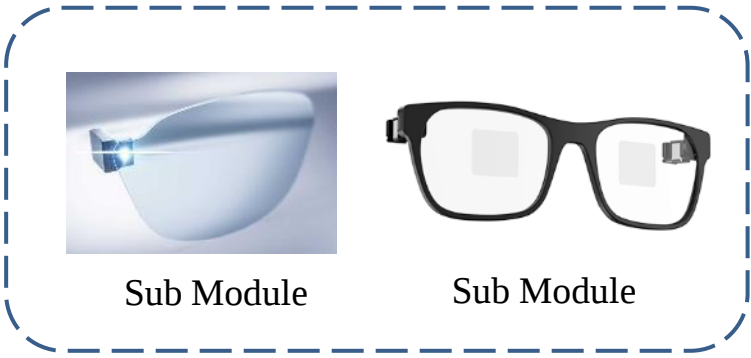
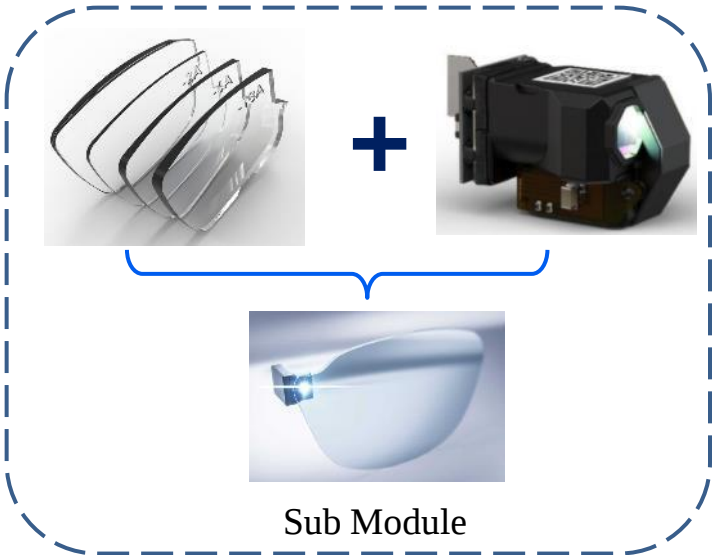
NED Test and Automation Turnkey Solution



Waveguide



Light Engine



Waveguide/Eyepiece
IQ Test System



- Model 5742-F
- OMM: PA Alignment
 - Projector: Light Source Simulation
 - **Auto Rx lens Changer**



Projector
IQ Test System



- Model 5742-B
- Auto Contact
 - OMM: BS **AA Alignment**



Precision Assembly/
Testing System



- Model 5742-A
- OMM: PA/AA **Alignment**
 - **Precision Assembly**



Sub Module
IQ Test System



- Model 5742-C
- OMM: PA Alignment
 - Projector: Light Source Simulation
 - Auto Rx lens Changer



Note: All the above equipment apply **Chroma Colorimeter** to proceed **Image Quality Test**



Thank You