



2023.2Q Earnings Conference

Paul Ying, CFO

Leo Huang, Chairman & CEO

31st July, 2023

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

FINANCIAL REVIEW



Year 2023.2Q Condensed Consolidated Income Statement

Condensed Consolidated P&L

(In Million NTD, except for EPS in NTD)

	2023.2Q	%	2023.1Q	%	QoQ %	2022.2Q	%	YoY %
Net Sales	4,416	100%	4,388	100%	1%	4,935	100%	(11%)
Consolidated Sales of Testing Equipment Business	4,198	95%	4,049	92%	4%	4,644	94%	(10%)
Consolidated Sales of MAS	167	4%	283	7%	(41%)	188	4%	(11%)
Consolidated Sales of New Material	0	0%	0	0%	-	17	-	n/a
Others	51	1%	56	1%	(9%)	86	2%	(41%)
Cost of Goods Sold	(1,666)	(38%)	(1,722)	(39%)	(3%)	(2,033)	(41%)	(18%)
Gross Profit	2,750	62%	2,666	61%	3%	2,902	59%	(5%)
Operating Expenses:								
General & Administration	(1,103)	(25%)	(1,042)	(24%)	6%	(1,093)	(22%)	1%
Research & Development	(433)	(10%)	(437)	(10%)	-	(443)	(9%)	(2%)
Operating Income	1,214	27%	1,187	27%	2%	1,366	28%	(11%)
Non-Operating Income (Expenses), net	144	3%	59	1%	144%	695	14%	(79%)
Income (Loss) Before Tax	1,358	30%	1,246	28%	9%	2,061	42%	(34%)
Income Tax	(304)	(6%)	(283)	(6%)	7%	(376)	(8%)	(19%)
Net Income	1,054	24%	963	22%	9%	1,685	34%	(37%)
Other Comprehensive Income (Losses)	(11)	-	(36)	(1%)	(69%)	161	3%	n/a
Comprehensive Income	\$ 1,043	24%	\$ 927	21%	13%	\$ 1,846	37%	(43%)
Net Income (Losses) Attributable To:								
Shareholders of the Parent	1,018	23%	937	21%	9%	1,660	34%	(39%)
Noncontrolling Interests	36	1%	26	1%	38%	25	-	44%
	\$ 1,054	24%	\$ 963	22%	9%	\$ 1,685	34%	(37%)
EPS (Basic)	\$ 2.42		\$ 2.23		9%	\$ 3.95		(39%)
EPS (Diluted)	\$ 2.42		\$ 2.19		11%	\$ 3.92		(38%)

2022/2Q included the gain from disposal of investment (ADLINK) of NTD 414 million plus revert the gain from disposal of property to ADLINK of NTD 90m.

Year 2023.1H Condensed Consolidated Income Statement



Condensed Consolidated P&L

(In Million NTD, except for EPS in NTD)

	2023.1H	%	2022.1H	%	YoY %
Net Sales	8,804	100%	9,334	100%	(6%)
Consolidated Sales of Testing Equipment Business	8,247	94%	8,118	87%	2%
Consolidated Sales of MAS	450	5%	409	4%	10%
Consolidated Sales of New Material	0	0%	635	7%	n/a
Others	107	1%	172	2%	(38%)
Cost of Goods Sold	(3,388)	(38%)	(4,247)	(45%)	(20%)
Gross Profit	5,416	62%	5,087	55%	6%
Operating Expenses:					
General & Administration	(2,145)	(24%)	(2,039)	(22%)	5%
Research & Development	(870)	(10%)	(844)	(9%)	3%
Operating Income	2,401	28%	2,204	24%	9%
Non-Operating Income (Expenses), net	203	2%	862	9%	(76%)
Income (Loss) Before Tax	2,604	30%	3,066	33%	(15%)
Income Tax	(587)	(7%)	(522)	(6%)	12%
Net Income	2,017	23%	2,544	27%	(21%)
Other Comprehensive Income (Losses)	(48)	(1%)	450	5%	n/a
Comprehensive Income	\$ 1,969	22%	\$ 2,994	32%	(34%)
Net Income (Losses) Attributable To:					
Shareholders of the Parent	1,955	22%	2,512	27%	(22%)
Noncontrolling Interests	62	1%	32	-	94%
	\$ 2,017	23%	\$ 2,544	27%	(21%)
EPS (Basic)	\$ 4.65		\$ 5.98		(22%)
EPS (Diluted)	\$ 4.61		\$ 5.94		(22%)

Balance Sheet Highlights & Financial Ratio

Consolidated (In Million NTD)

Balance Sheet Highlights

	<u>2023. June</u>	<u>2022. Dec</u>	<u>+ / - %</u>
Cash & Short Term Investments	5,356	6,685	- 20%
Inventory	5,252	4,753	10%
Short Term Debt	953	2,024	- 53%
Long Term Debt	508	1,165	- 56%
Shareholders Equity	20,487	21,873	- 6%
Total Assets	33,371	33,828	- 1%
Inventory Turnover (Day)	266	148	
AR Turnover (Day)	82	72	
AP Turnover (Day)	137	101	
Net Debt to Equity (%)	Net Cash	Net Cash	
ROE (%) ●	19%	25%	
ROA (%) ●	12%	16%	

Cash Position

	<u>2023.1H</u>	<u>2022.1H</u>	<u>YoY</u>
EBITDA	2,978	3,421	(13%)
Cash Flow from Operation	1,105	1,951	(43%)
Free Cash Flow ●●	457	2,069	n/a

● All ROE + ROA has been annualized.

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

OPERATION HIGHLIGHT



2023.2Q & 1H Annual Product Mix and Consolidated Sales Breakdown

(Unit: Million NTD)

	2023.2Q	%	QoQ	YoY	2023.1H	%	YoY	2022	%
Test Instruments & Automatic Testing System (ATS)	2,318	70%	-	44%	4,640	73%	46%	7,052	52%
Semiconductor / Photonics Test Solutions	631	19%	63%	(57%)	1,026	16%	(56%)	4,523	34%
Turnkey Solutions	145	4%	101%	(48%)	217	4%	(52%)	578	4%
Service & Others	248	7%	10%	(33%)	475	7%	(24%)	1,308	10%
Total of Parent Company Sales	3,342	100%	11%	(10%)	6,358	100%	(3%)	13,461	100%
+ Sales from Overseas Operations & Related Subsidiaries	856		(17%)	(7%)	1,889		23%	6,808	
Chroma Consolidated Testing Equipment Business	4,198	95%	4%	(10%)	8,247	94%	2%	20,269	92%
MAS	167	4%	(41%)	(11%)	450	5%	10%	830	4%
Other Subsidiaries	51	1%	(9%)	(41%)	107	1%	(38%)	333	1%
Consolidated Sales (Continued Business Units)	4,416	100%	1%	(10%)	8,804	100%	1%	21,432	97%
New Material – Discontinued Business	0	-	n/a	n/a	0	-	n/a	635	3%
Consolidated Sales	4,416	100%	1%	(11%)	8,804	100%	(6%)	22,067	100%

- In the first half of year 2023, Chroma total consolidated sales revenues reached 8.8 billion NTD, presented a decline of 6% YoY. The consolidated testing equipment business reached 8.2 billion NTD, presented a growth of 2%. The major contribution was coming from Testing Instruments & ATS, particularly the demand from EV and ESS.
- Year 2023.2H Business Outlook:
 - ✓ Increasing demand of SLT testers contributed from AI - related and HPC applications.
 - ✓ The growth of Test Instruments & ATS for power testing solutions in 2H will be slowing down compared to 1H due to China EV market consolidation. Nevertheless, EV battery cell projects will start delivery in 2H as scheduled.
 - ✓ China Semiconductor remained slow. However, the Semiconductor / Photonics sector in 2H will be outperformed compared to 1H.

Institutional Investor

2023 ASIA (EX-JAPAN) EXECUTIVE TEAM

MOST HONORED COMPANY

Best CEO, 2nd Place (Rest of Asia Overall)

Best CFO, 1st Place (Rest of Asia Overall)

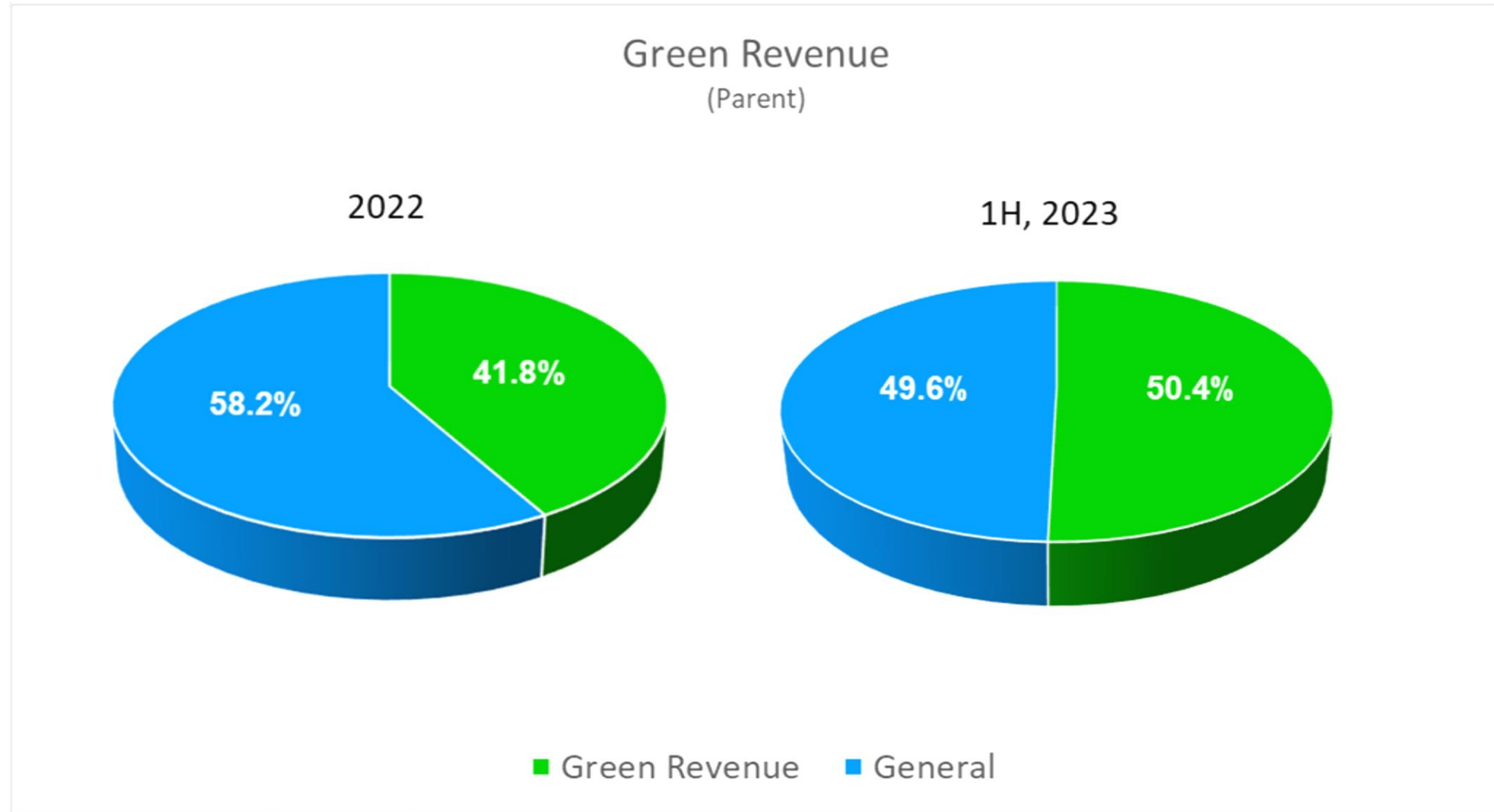
Best CFO, 3rd Place (Small & MidCap) Technology Hardware

Best IR Professional, 3rd Place (Rest of Asia Overall)

Best IR Professional, 3rd Place (Small & MidCap) Technology Hardware

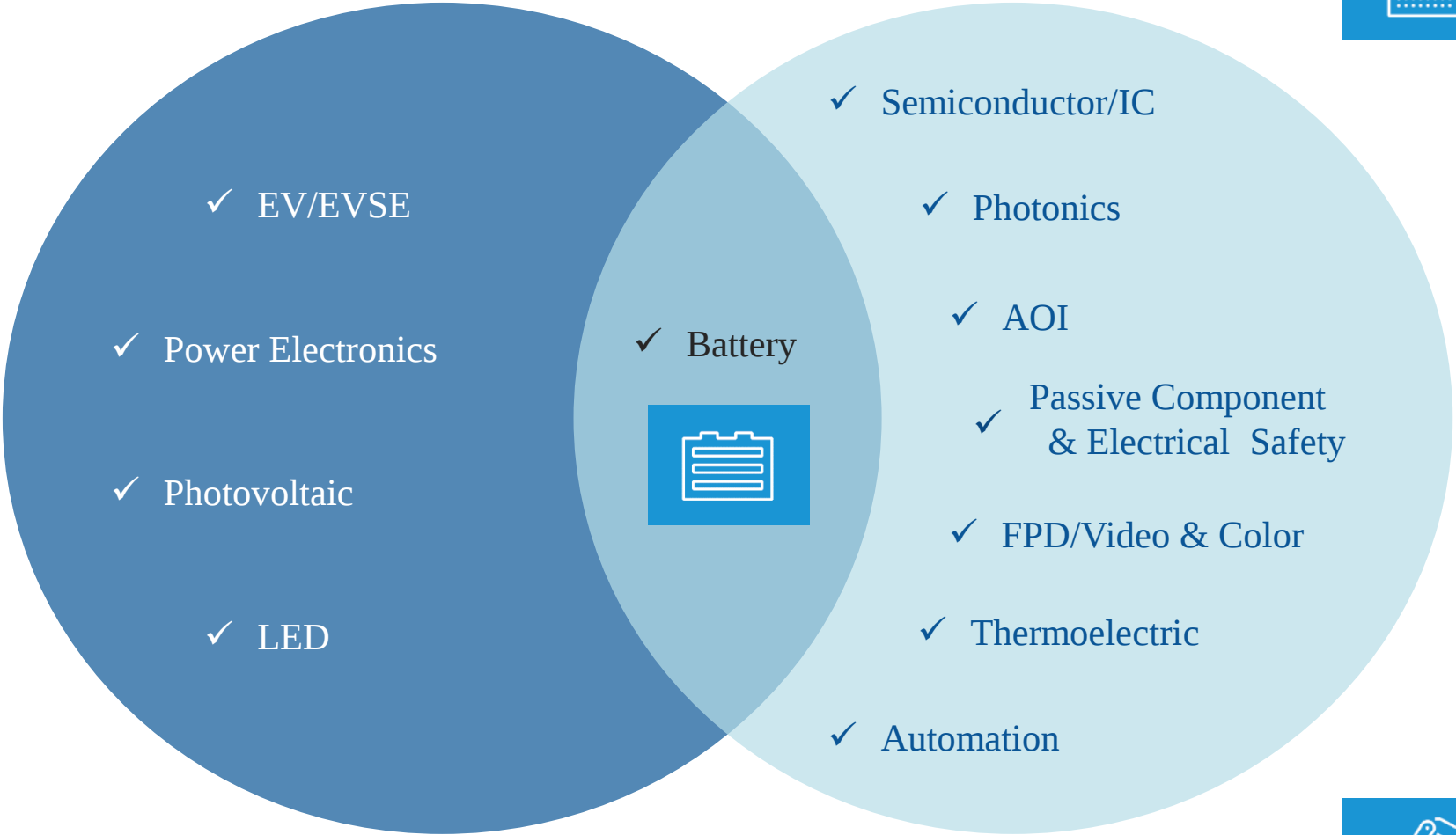
IR Team, 3rd Place (Small & MidCap) Technology Hardware





High Power

High Precision



High Precision Test Solutions

MPVI



40A pulse
2ch
VI

HVVI



$\pm 750V$
4ch
VI

HDDPS2



$\pm 24V$
64ch
VI-like

3650-S2



NEW

768pin
12 slots
15kVA
Floating
LB electronics
Mechanical



2016

2020

2022

2023

LPC128



Chroma ASIC
1Gbps
512MW
128ch

HCDPS



32A
4ch

HDAVO



HR/HS mode
AWG/DIG
8ch

HDVI



-40-70V
32ch
VI

3680



2048 pin SoC Test
1Gbps Pattern Rate
512A High Current
2048 Parallel Sites Testing

Precision

Temperature-forcing Systems



- ✓ 40°C~ 150°C @Tc
- ✓ Up to 1.2 kW power dissipation



- ✓ -40°C~ 150°C @Tc
- ✓ Up to 1.8 kW power dissipation



- ✓ -70°C~ 150°C @Tc
- ✓ Up to 800W power dissipation



Single Site Test Handler



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

Model 3110 Gen2

Automatic System Function Tester



- ✓ 3x3~70x70mm
- ✓ -40~+150°C @Tc, 1.2kw/site dissipation
- ✓ 150 kgf/site contact
- ✓ TSD (Tj) available
- ✓ OTA integration

Model 3260

FT & SLT Hybrid Test System



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

Model 3200

3D Metrology Measurement System

2D+3D Metrology

- XY / Z Resolution: 30nm / 0.05nm
- Sensor: Optical module & WLI module
- Light Source: Multiple Light Sources

2D+3D Metrology

- XY / Z Resolution: 30nm / 0.05nm
- Sensor: BLiS
- Light Source: Multiple Light Sources
- Applications:
 - RDL: $\geq 2\ \mu\text{m}$, AR3
 - TSV: $\geq 5\ \mu\text{m}$, AR15
 - OVl $\leq 0.2\ \mu\text{m}$

BLiS technology

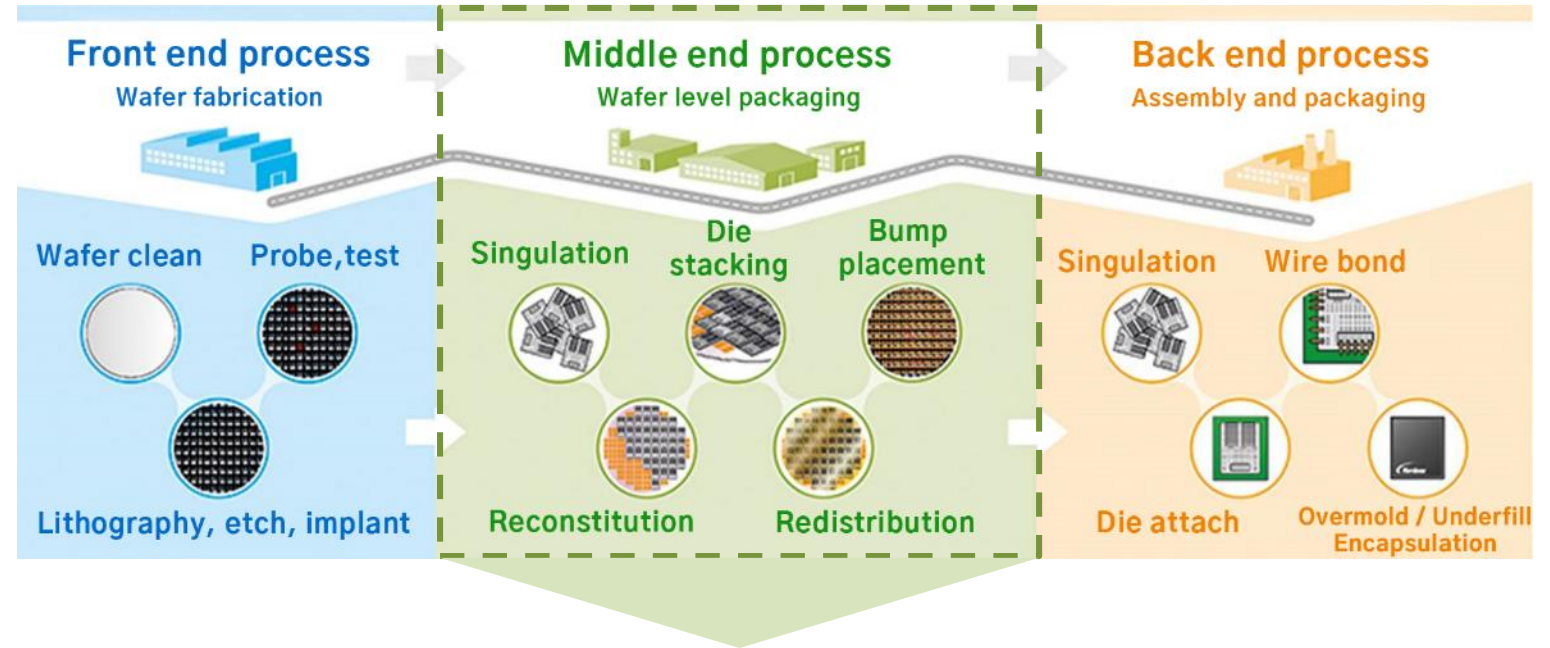


Model 7980

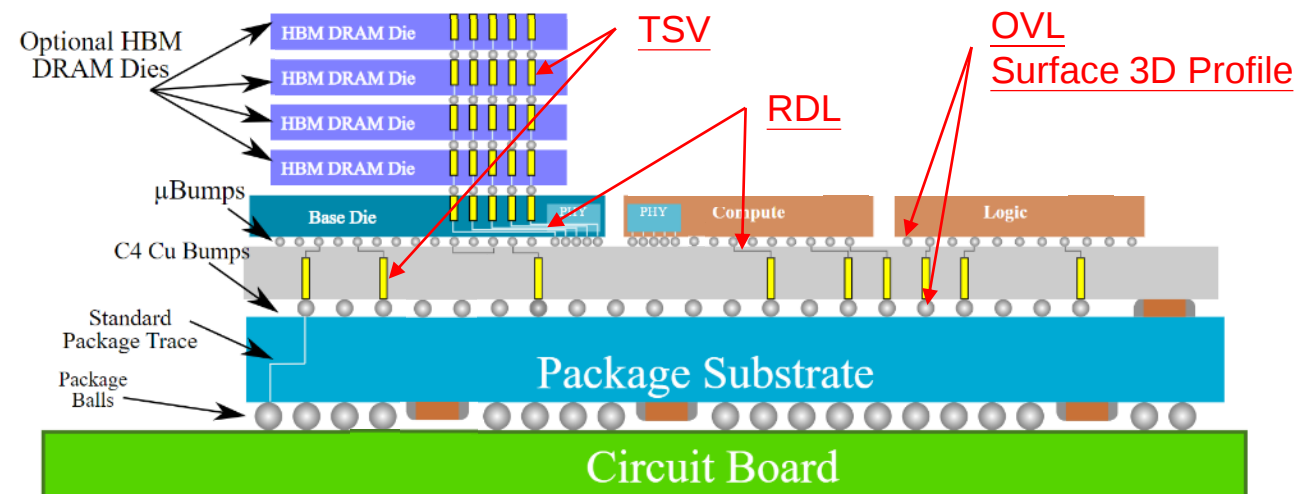


BLiS: Broadband Light integrated System
Muti-Sensors with different functions are integrated.

3D Metrology Measurement System 7980



- ✓ Nondestructive and rapid surface profile measurement and analysis.
- ✓ **Advanced Packaging Applications:**
 - TSV
 - RDL
 - Overlay (OVL)
 - Surface 3D profile
- ✓ SEMI S2 certified.
- ✓ Semi-auto or Fully-auto



NEW

In-Process Wafer Chip Inspection System



Model 7940

Parallel computing
Defect size $2\mu\text{m}$
WPH: 15 wafers/hour



Model 7945

- ✓ Large die size
 - die size up to 20mm
- ✓ High throughput
 - WPH: 27 wafers/hour
- ✓ Shared auto wafer loader
 - 1 loader support maximum 2 inspectors
- ✓ AI classification



2020

2022

2023

LED/ PD/ VCSEL/ Discrete power device

Wide Band Gap SEMI/ Quartz Element

DUT: Photo-coupler

- Built-in AC hipot test & PD detection functions
- PD detection range: 1pC~2000pC
- AC voltage output: 0.1kVac~10kVac



19501-K
Partial Discharge Tester

2020

DUT: IGBT

- Built-in hipot test & PD detection functions
- PD detection range 1 pC~6000pC
- Voltage output : 0.1kVac ~ 5kVac



19501
Partial Discharge Tester

2023



Bidirectional DC Source



Bidirectional: Source & Load with energy regen
High Power Density: 6-18kW/3UH, Eff:92%
Model 62000D Series 100V-1800V, 540A

Regenerative AC Load



NEW

Programmable AC Load with energy regen
High Power Density: 15kW/3UH, Eff:90%
Model 63800R Series 9kW-15kW, 350VLN



2019

2021

2022

2023



Regenerative Grid Simulator

High power AC source with energy regen
Optional regen AC Load
Parallel up to 300kVA
Model 61800 Series 30kVA-60kVA, 400VLN



Regenerative Grid Simulator

High power AC source with energy regen
Optional regen AC Load
Parallel up to 1MVA
Model 61800-100HV 105kVA, 500VLN-800VLN

E-Propulsion Test System Model 1210 for E-Scooter, EV and E-Bus

- 250kW/500Nm/15,000rpm
- 370kW/426Nm/25,000rpm



BMS Power HIL Testbed Model 8630 for EV and ESS

- 1200V/500A and 5V/5A
- 1200V/600A and 5V/5A



2020

2021

2022

2023

2024

Battery Pack Power HIL Testbed Model 8610 for EV and ESS

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



OBC and DC-DC Converter Power HIL Testbed Model 8620 for EV and ESS

- 11kW/400V/40A
- 3.3kW/12V/300A
- 22kW/800V/75A
- 6.6kW/12V/550A



High Power Test Solution – Battery Module/Pack Test System

Test Solution for E-Scooter Battery pack E-vehicle Battery Module

- Regenerative Battery Pack
Test Solution Model 17020E
- 10kW60V • 10kW200V
- 10kW100V



New Generation Developing

2020

2021

2022

2023

2024

Test Solution for E-vehicle, ESS Battery Pack

- Regenerative Battery Pack
Test Solution Model 17040
- 300kW 1000V 750A
- 360kW 1000V 900A
- 500kW 1000V 1200A
- 600kW 1000V 1500A



Test Solution for E-vehicle, ESS Battery Pack

- Regenerative Battery Pack
Test Solution Model 17040E
- 200kW 1700V 400A
- 200kW 850V 800A



Test Solution for ESS, E-boat Battery Pack,

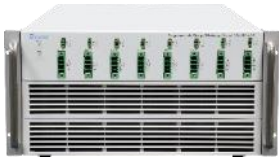
- Regenerative Battery Pack
Test Solution Model 17040E
- Up to 1.6MW/1700V/6400A

NEW



Battery Module/ Pack

Large Cell Test Solution



Linear type high power CDC
Prog. Charge/Discharge Tester
Model 17208M-6-60
6V, 60A

High Power xEV Cell Test Solution



High power CDC with energy regen
Battery Reliability Test System
Model 17010H
6V, 300A,
600A (peak current)

DVA Cell Test Solution



NEW



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

Small Cell Test Solution



Linear type CDC
Prog. Charge/Discharge Tester
Model 17216 series
6V, 6A/12A

xEV Cell Solution



Energy regen CDC
Prog. Charge/Discharge Tester
Model 17212M-6-100S
6V, 100A

Auxiliary Measurement Solution



NEW



Multi-Channel Voltage/Temperature
Data Logger
Model A172013 / A172014



Thank You