

# MPI Corporation 6223.TT

READY FOR THE TEST™

## Presentation Disclaimer

---

The information herein contains forward-looking statements. We have based these forward-looking statements on our current expectations and projections about future events. Although we believe that these expectations and projections are reasonable, such forward-looking statements are inherently subject to risks, uncertainties and assumptions about us, including, among other things: the intensely competitive Semi-conductor, and LED industries and markets; Cyclical nature of the semiconductor industry; Risks associated with global business activities; General economic and political conditions. All financial figures discussed herein are prepared pursuant to IFRS. All audited figures will be publicly announced upon the completion of our audited process.

# MPI Divisions

Since 1995



Probe Card

Since 2001



Photonics Automation

Since 2014



Advanced Semiconductor Test

Since 2015



Thermal Test



Since 2021



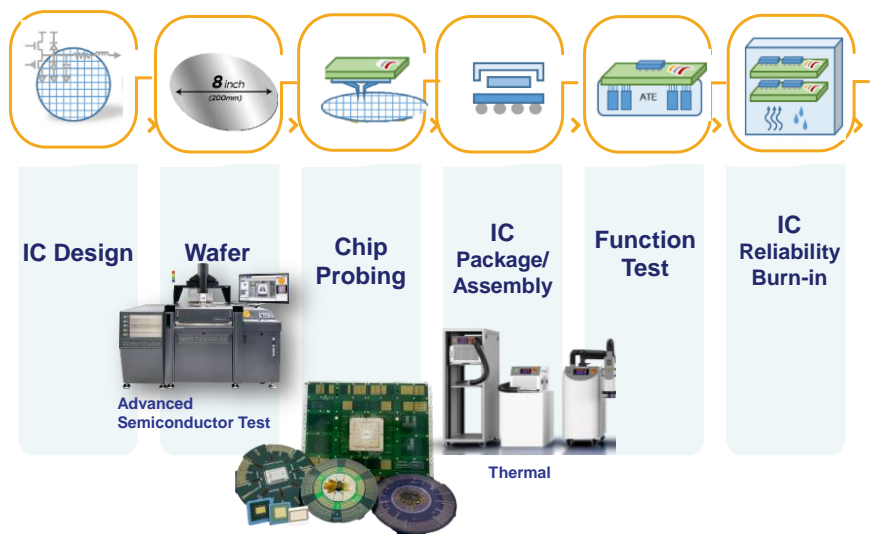
Celadon Systems

# MPI Global Presence



Worldwide				Taiwan			
							
MPI America CA, USA (2017)	MPI Suzhou Jiangsu, CN (2017)	Celadon Systems MN, USA (2021)	Headquarters Hsinchu, TW (2000)	Luzhu Office Kaohsiung, TW (2006)	2 <sup>nd</sup> Production Site Hsinchu, TW (2012)	Xinyu Office Hsinchu, TW (2014)	3 <sup>rd</sup> Production Site Hsinchu, TW (2021)

# Supply Chain Infographic



## Agenda



### Business Contents

- Probe Card
- Photonics Automation
- Thermal & AST



### Financial Statements

**MPI**CORPORATION

# Probe Card

READY FOR THE TEST™

## **MPI**Probe Card

Advanced Wafer Sort Test Solutions

**Vertical / MEMS** Probe Card

**Cantilever** Probe Card



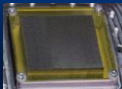
### Features



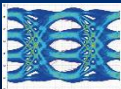
Fine Pitch



MEMS



High Pin Count



High Speed



Substrate



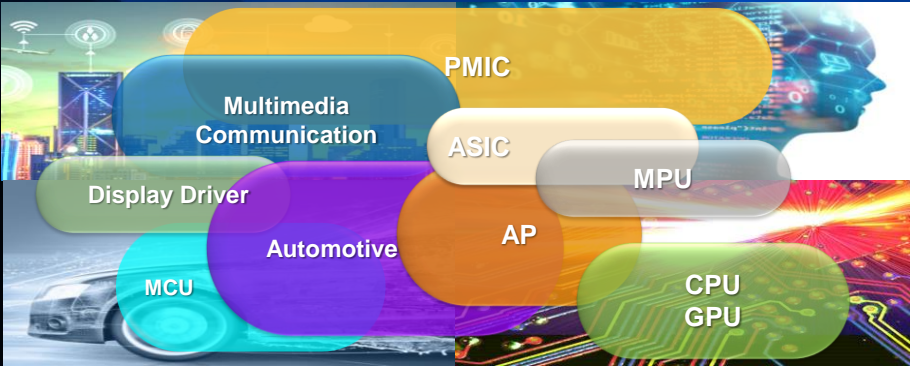
Hand-wired



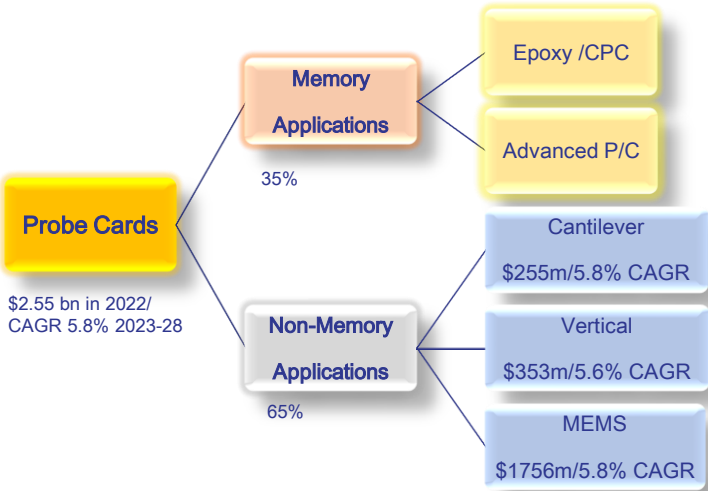
RF

Full range of products for the applications  
*sufficient coverage solutions to IC markets*

Company Confidential C



## Global Probe Card Market Update

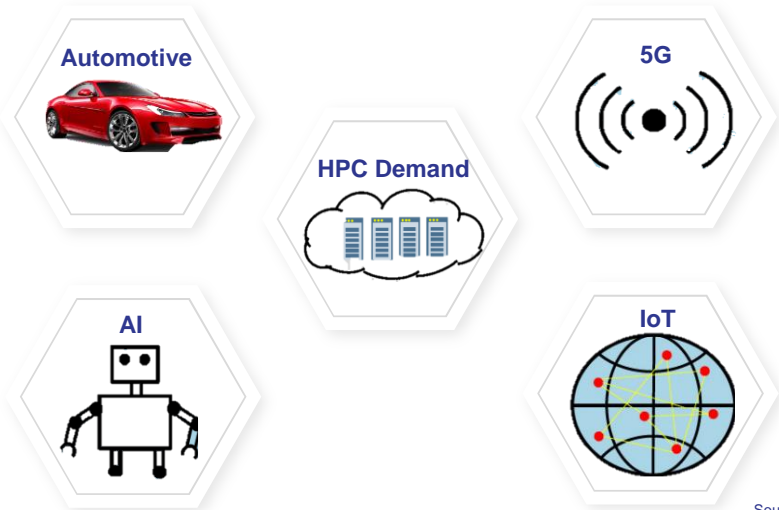


## Top 10 Probe Card Vendors (2017-2022)

(Rank)	2017	2018	2019	2020	2021	2022
FormFactor, Inc. (USA)	1	1	1	1	1	1
Micronics Japan Co., Ltd. (Japan)	2	3	3	3	3	3
Technoprobe (Italy)	3	2	2	2	2	2
Japan Electronic Materials (Japan)	4	4	4	4	4	4
MPI Corporation (Taiwan)	5	5	5	5	5	5
SV TCL (Singapore)	6	6	6	7	8	7
Microfriend (Korea)	7	10	10	10	-	-
Korea Instrument (Korea)	8	7	8	6	7	6
Cascade Microtech (USA)	-	-	-	-	-	-
FEINMETALL (Germany)	11	12	11	14	-	-

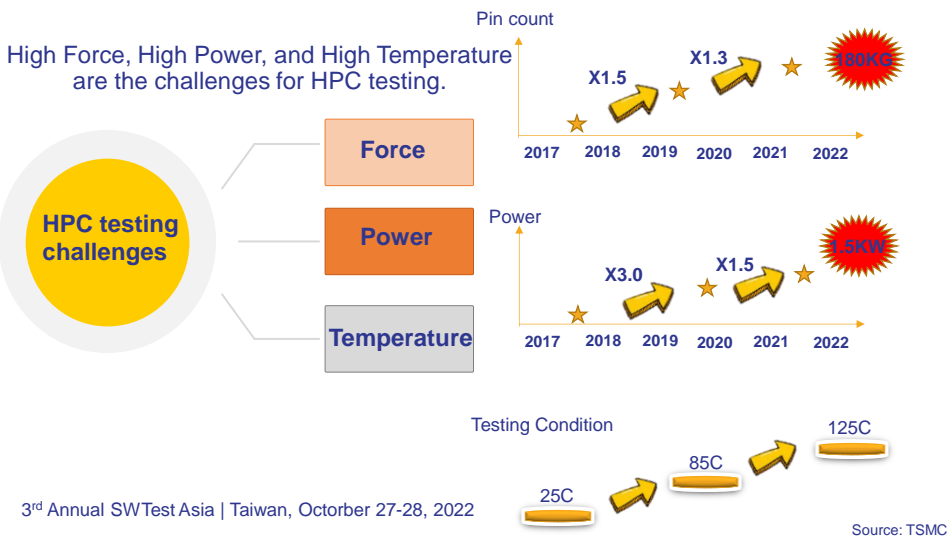
## HPC Demand

The demand of HPC ( High Performance Computing ) growth rapidly.



Source: TSMC

# HPC Challenges



# Interface Technical Complexity Check in

Complexity Trends are on pace to be at 2022 targets( 1 Cycle) or in some cases beyond

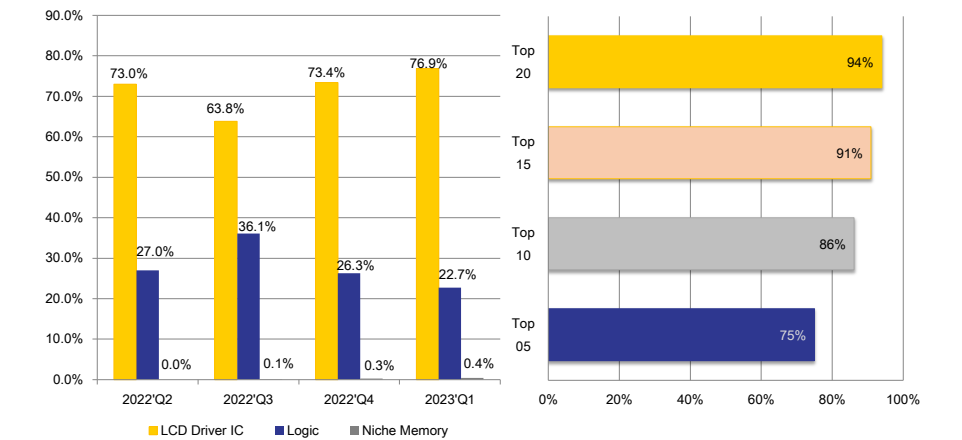
“2x4 Scaling”=2xPins, 2xPerformance, every 4 years



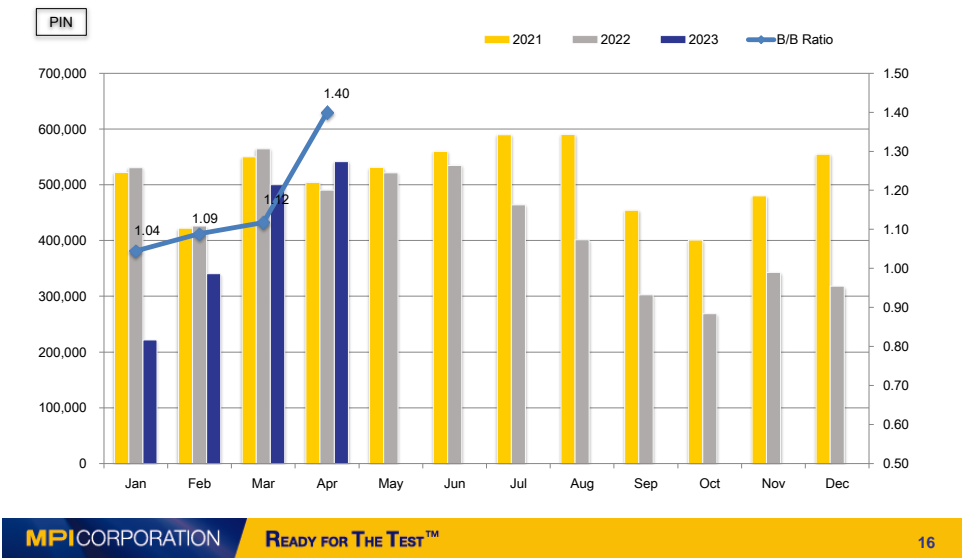
		2018	2022	2026
		Level 4	Level 5	Level 6
Pin Density	Pin Pitch	90um	70um	50um
	Total Contact Force	80kg	150kg	250kg
I/O Speed	Digital	32Gpbs	64Gpbs	128Gpbs
	RF/mmWave	< 12 GHz	29 GHz	+60 GHz
Device Power	Main Power	900 mV	750mV	625mV
	Single Rail	35A	50A	100A
	Impedance	2.2 mOhm	1.4 mOhm	0.8 mOhm
Thermal	Self Heating	75 W		
	Operating Range	0 to +80C	0 to +105C	-20 to +125C
Most Expensive Probe Card		\$400K*	>\$500K	>\$700K

Source:Teradyne Source:VLSI Research

# Product Mix of CPC (Cantilever)

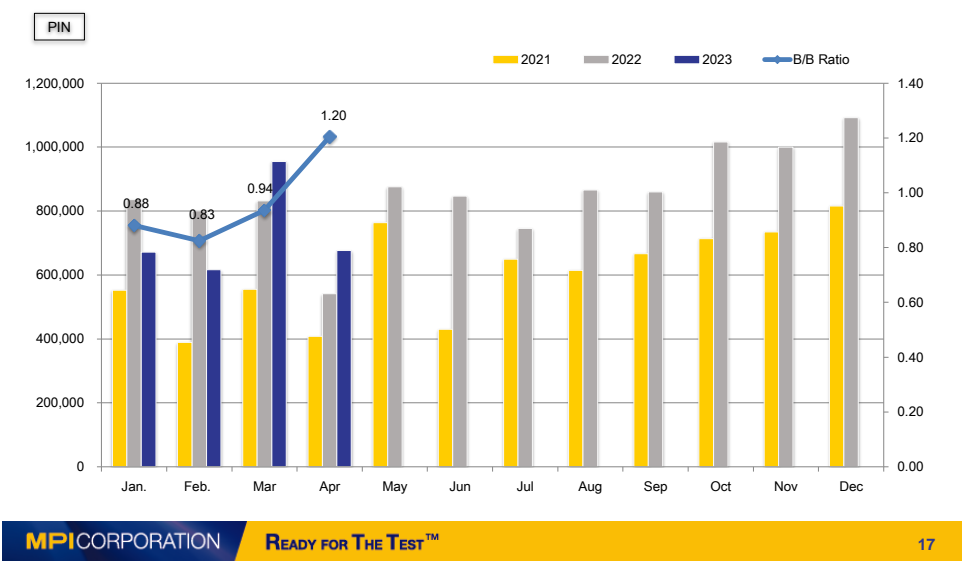


# CPC Pin-Shipment\_2023

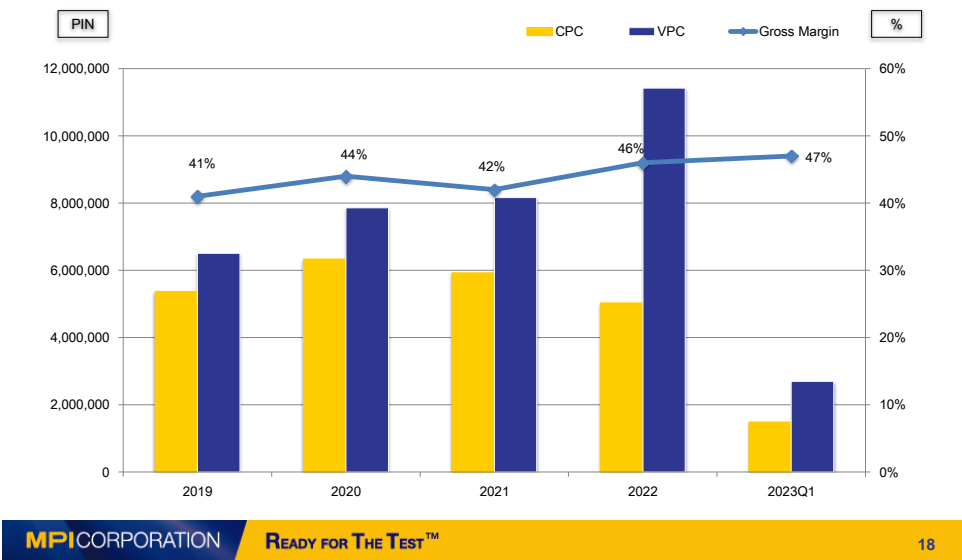




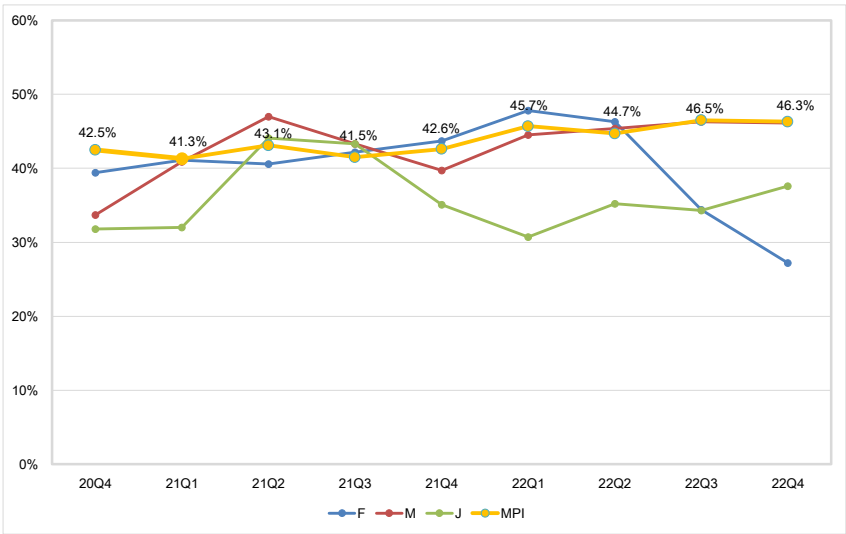
# VPC Pin-Shipment\_2023



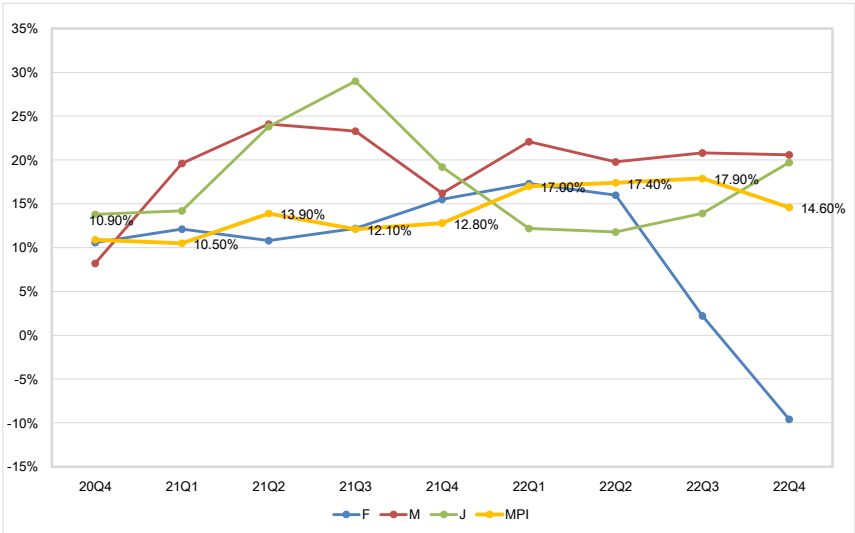
# CPC and VPC Yearly Status



# Gross Margin Between Global Peers



# Operating Margin Between Global Peers



# MPI Probe Card

Company Confidential C

## Our Customer

The MPI is committing more than 800 customers globally to contribute to industrial development as well as providing testing industry advanced technology needs.



21

MPI CORPORATION

# Photonics Automation

READY FOR THE TEST™

# Product Portfolio and Capability



- **High Power VCSEL Wafer Testing**  
Wafer / Board Prober Development  
Testing methodology Development

➤ **High Power VCSEL PKG Testing**  
PKG Handler Development  
Testing methodology Development
- **VCSEL / Photo-Detector Testing**  
Wafer / Board Prober Development  
Testing methodology Development

➤ **RF Character**  
Wafer Level RF Testing Integration

➤ **SiPh Die/PKG Platform**  
SiPh Handler Development
- **uLED Mass Production Methodology**  
Wafer prober for large quantity die testing method

➤ **Panel testing platform development**  
Panel / Panel in-process testing platform

23

# Development Plan by Application



Optical Sensing	Optical Communications	Micro Display
<div>➤ Focus on Sensing VCSEL Testing</div> <div>➤ Production Wafer Prober in Low Temperature</div> <div>➤ High Power Measurement Tool and Technology Development</div> <div>➤ Flip Chip Wafer VCSEL testing Solution</div> <div>➤ Package / Hybrid Device testing tool</div>	<div>➤ Focus on VCSEL/Photodetector Testing</div> <div>➤ Wafer Prober for Dark / Responsivity / Capacity measurement</div> <div>➤ RF Measurement Capability Development</div> <div>➤ SiPh package testing approaching</div>	<div>➤ Lab and production wafer testing tool development</div> <div>➤ Contacting Accuracy Improvement</div> <div>➤ Innovative testing methodology</div> <div>➤ Optical measurement in production methodology</div>



Thermal/AST

READY FOR THE TEST™

# MPI Thermal

Hot and Cold Air Flow  
Environmental Temperature Test

-100°C +300°C

ThermalAir Series

Temperature Testing Systems



Applications & Industry Segments

  
Semiconductor

  
Automotive

  
Aerospace

  
Telecommunications

  
Fiber Optic

  
Electronics

  
Sensors

  
Advanced Technology

# MPI Advanced Semiconductor Test

Engineering Probe Systems  
and  
RF Probe Products



50 – 300 mm

26 – 110 GHz

Applications & Industry Segments

							
Device Characterization	High Power	RF & mmW	Design Validation	Failure Analysis	Wafer Level Reliability	Silicon Photonics	Laser Cutter

## MPI's Ideation

### ■ To Combine Two Very Unique Values

#### ■ The MPI Corporation

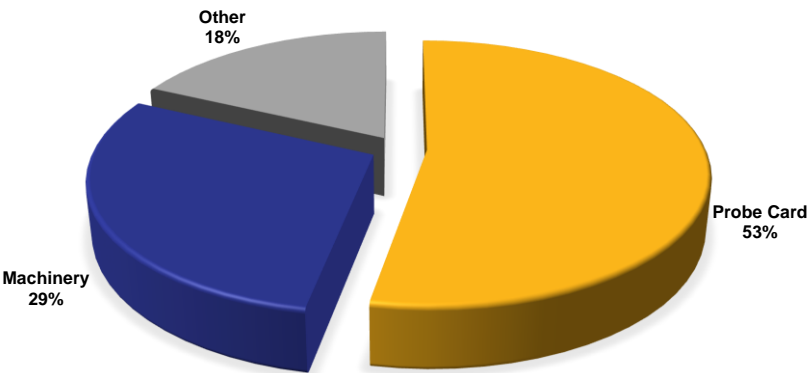
- Operational Excellence – High quality, on time
- Production Test Experience – 24/7 systems reliability
- Customer Centric – Highest value without compromise

#### ■ Management & Market Expertise

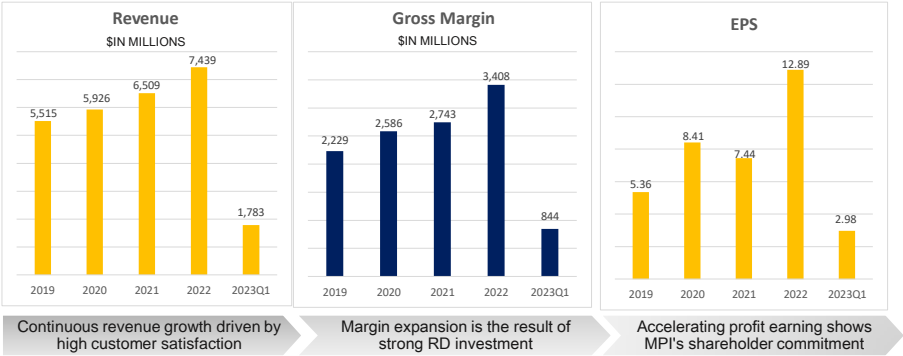
- More than 50 years together in Device Modeling, RF & mmW, WLR, High-Power, Failure Analysis, Thermal solutions...
- Visionary and Innovative Ideas
- Worldwide Partner Relationships

# Financial Statements

## 1Q23 Shipment Breakdown



# Solid Performance





## Balance Sheet Highlight

NT\$Million	2023' 1Q		2022' 1Q	
Cash and Cash Equivalents	2,385	22%	1,307	13%
Fixed Assets	4,481	41%	4,408	44%
Total Assets	10,959	100%	10,035	100%
LT Debt	996	9%	1,113	11%
Shareholders' Equity	7,204	66%	6,376	64%
EBITDA	333	18%	366	21%

\*EBITDA=operating income + depreciation & amortization expenses

## Income Statement

NT\$Million	1Q2023		1Q2022	
Net Sales	1,783,537	100%	1,720,155	100%
Cost of Goods Sold	939,346	53%	934,315	54%
Gross Profit	844,191	47%	785,840	46%
Operating Expense	517,648	29%	492,651	29%
Operating Income	326,543	18%	293,189	17%
Investment Income & Others	6,864		73,674	
Net Income (before tax)	279,721	15%	306,230	18%
EPS	2.98		3.25	

**MPI**CORPORATION



**Thank You**



<http://www.mpi-corporation.com>

**READY FOR THE TEST™**