

Zhen Ding Technology Holding (4958 TT)

Investor Presentation

October 30th, 2023

- Zhen Ding Technology Holding's statements of its current expectations are forward looking statements subject to significant risks and uncertainties and actual results may differ materially from those contained in the forward-looking statements.
- Except as required by law, we undertake no obligation to update any forward-looking statement, whether as a result of new information, future events, or otherwise.

Zhen Ding (ZDT) At a Glance



#1

**PCB Manufacturer
Worldwide**

2006 Founded

(Former Foxconn Advanced
Tech, 1978)

Taoyuan, Taiwan

Headquarters

42,425

Employees (2022 Average)



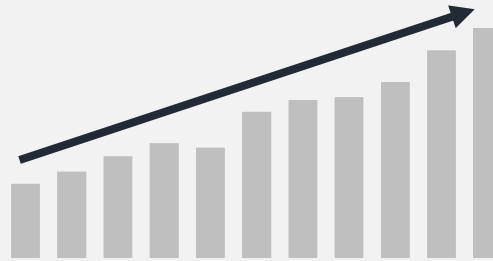
22 Facilities
Located in
Mainland China,
Taiwan, India

NT\$171.4 Bn

Revenue in 2022
(+10.5% YoY)

+12%

2012-2022
Revenue CAGR



1,603

Accumulated Valid Patents

3,445

Patents Applied
(as of Sep 2023)



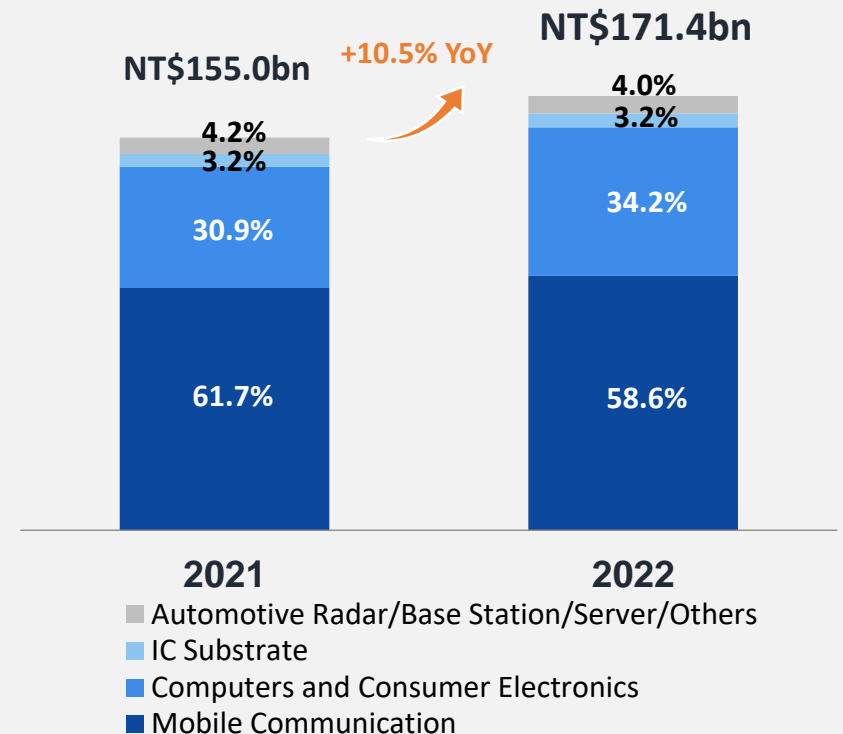
NT\$93.2 Bn

Market Cap as of
September 2023

16.4%

10Y Average ROE

Revenue Breakdown – By Applications





Why Invest in ZDT?

1

World's largest PCB manufacturer with stable long-term growth:

ZDT has become the world's largest PCB manufacturer since 2017. We have achieved a 12% revenue CAGR during 2012-2022.

2

Leverage One ZDT synergies to further widen the market share gap:

With One ZDT as the core strategy, we will continue to drive steady growth by leveraging the synergies from one-stop shopping. Our global PCB market share was 7.0% in 2022, and we aim to increase it to 10% by 2030.

3

Aggressive expansion in IC substrate:

We plan to invest NT\$60 billion capex for IC substrates in 2022-2027. We strive to become one of the top five global IC substrate suppliers by 2030.

4

Global manufacturing footprint:

In addition to the three major manufacturing campuses in Mainland China, we also own manufacturing plants in Taiwan and India, and plan to set up a new plant in Thailand. In the future, we will keep expand our global manufacturing bases to serve diversified customer needs.



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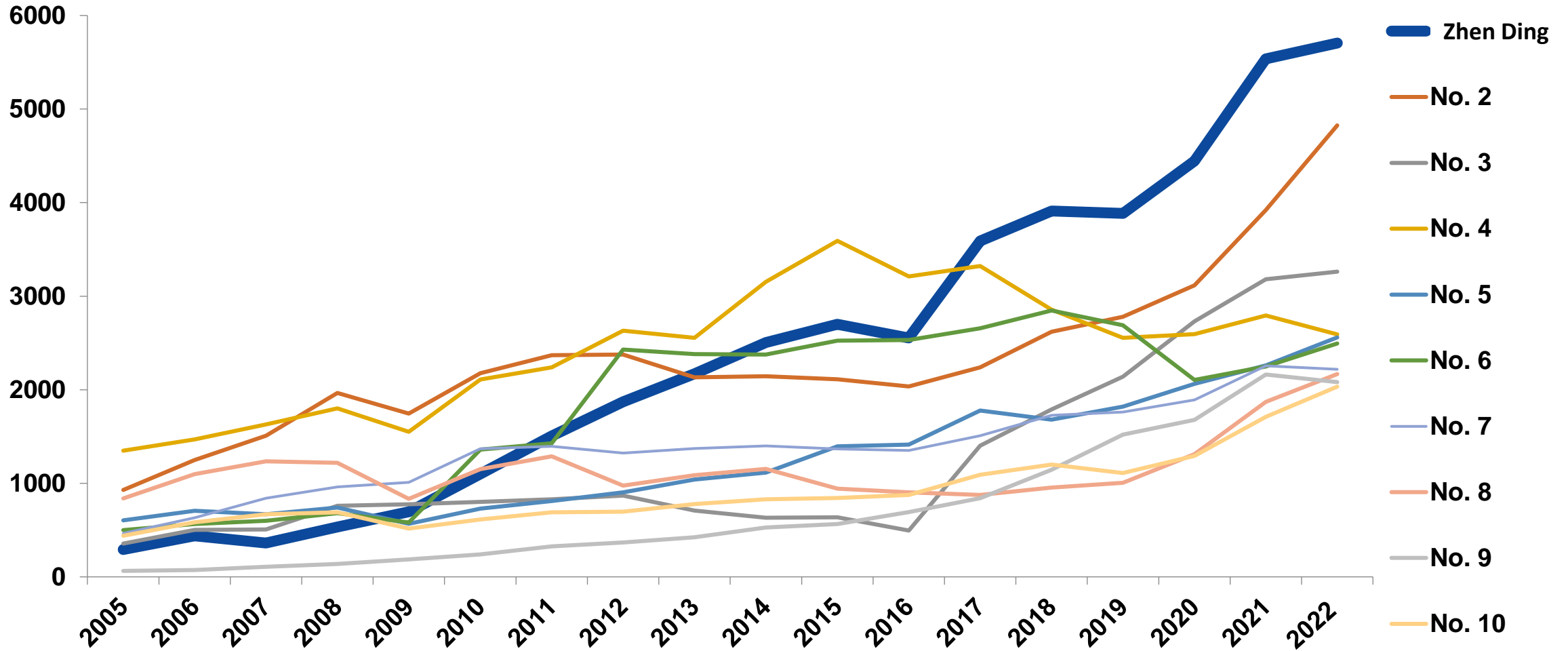
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World's Largest PCB Manufacturer with Stable Long-term Growth

ZDT Has Maintained Robust Revenue Growth

2022 Global Top 10 PCB Companies Revenue Trends

Unit: US\$ million



Source: NT Information; Prismark (2023/09)

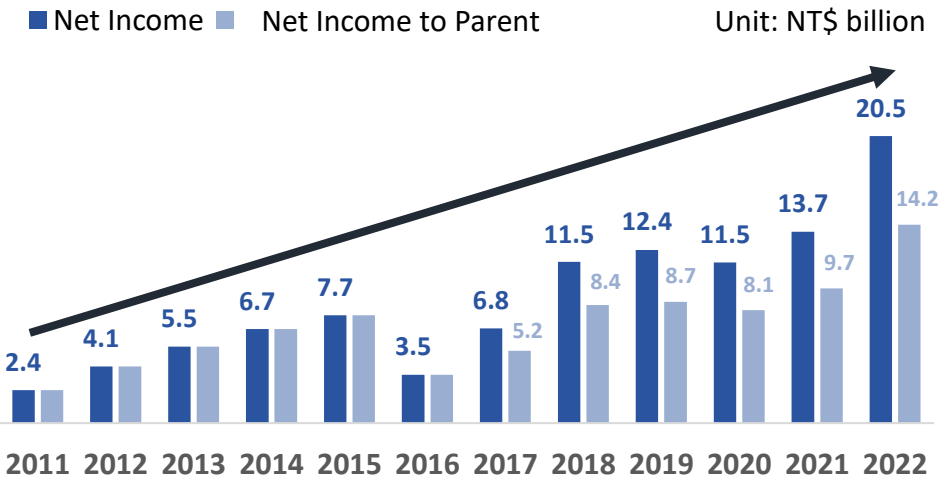
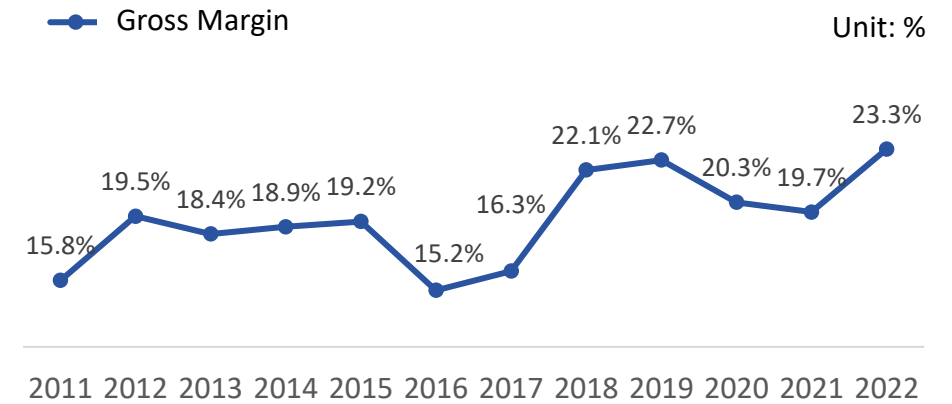
Market Share Gain with Stable Profitability

ZDT: Continued Market Share Gain in the Global PCB Market



Source: Prismark

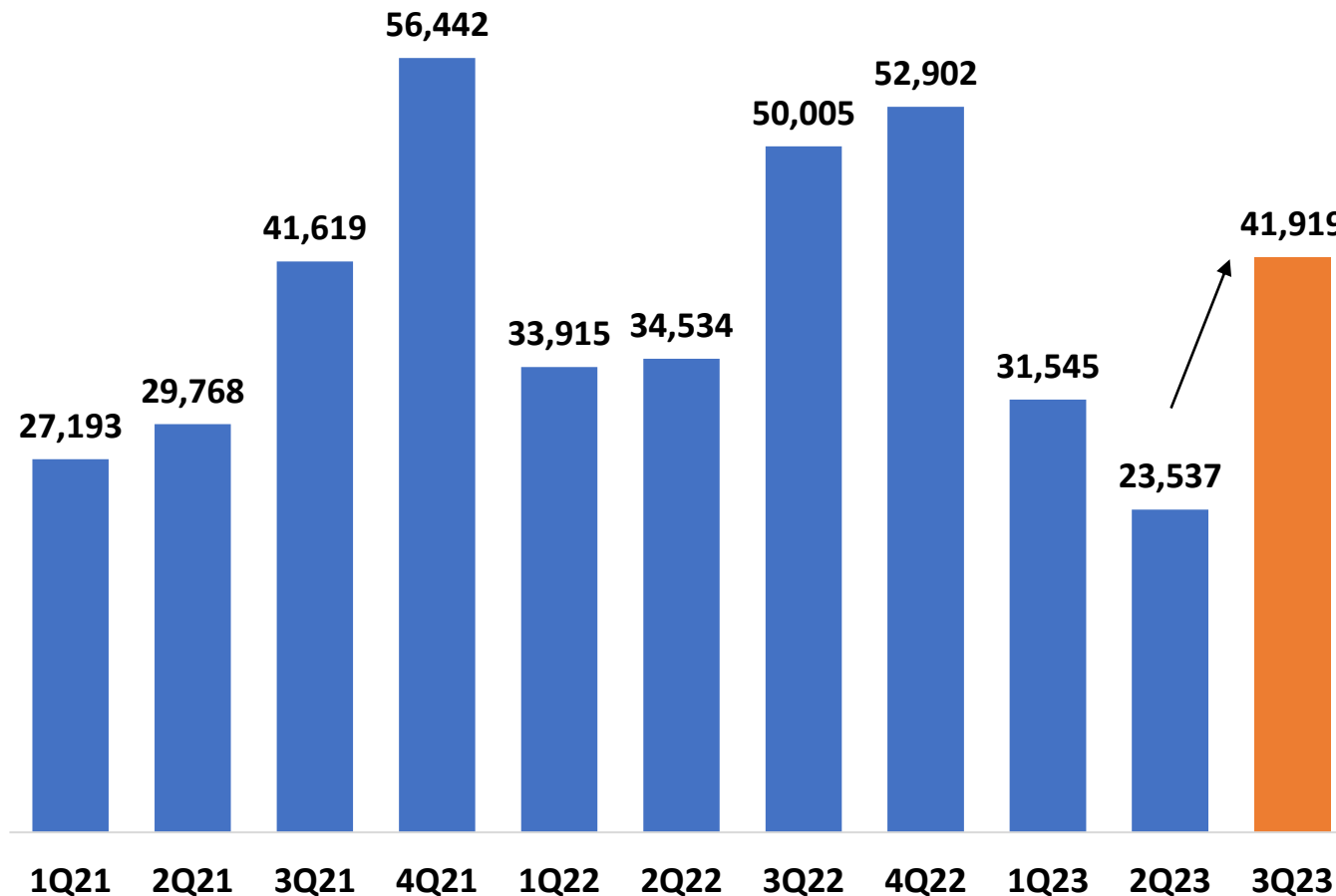
Stable Profitability



Bottomed Out in 1H23; Moderate Recovery in 2H23

ZDT's Quarterly Revenue

Unit: NT\$ million



- **We faced headwinds in 1H23 and focused on product development and operational efficiency optimization:** Affected by weak demand in consumer electronics and customer product transitions, our 1H23 revenue decreased in line with industry trends. However, during this period, we have been focusing on product development and efficiency optimization. These efforts drove a year-on-year increase in gross margin for Mobile Communication products despite the economic downturn in the first half of the year.
- **Expect a moderate recovery in 2H23:** Driven by the preparation of inventories for customers' new products, 3Q23 revenue for Mobile Communication and Computers & Consumer Electronics both increased by over 80% QoQ. Meanwhile, revenue for IC Substrate and Automotive Radar/Base Station/Server also delivered double-digit QoQ growth. That said, our overall utilization rate has maintained at a high level currently, and we expect a moderate recovery in the 2H23.



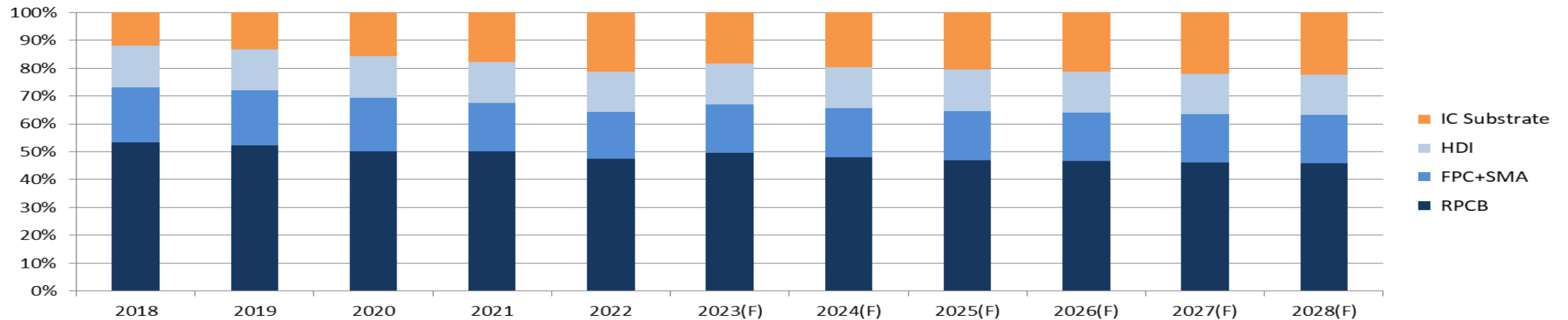
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Leverage One ZDT Synergies to Further Widen the Market Share Gap

Aim to Reach 10% Global PCB Market Share by 2030

All PCB Segments Will Resume Growth Next Year



Unit: US\$ million

Product	Item	2018	2019	2020	2021	2022	2023(F)	2024(F)	2025(F)	2026(F)	2027(F)	2028(F)	2023-2028 CAGR
RPCB	Value	33,225	31,969	32,674	40,641	38,720	34,542	34,986	36,576	39,025	41,768	42,486	4.20%
	%	53.20%	52.10%	50.10%	50.20%	47.40%	49.69%	47.98%	47.04%	46.61%	46.23%	45.97%	
FPC+SMA	Value	12,395	12,195	12,483	14,058	13,842	12,032	12,813	13,644	14,530	15,473	15,860	5.70%
	%	19.90%	19.90%	19.10%	17.40%	16.90%	17.31%	17.57%	17.55%	17.35%	17.13%	17.16%	
HDI	Value	9,222	9,008	9,874	11,811	11,763	10,131	10,795	11,503	12,257	13,061	13,361	5.70%
	%	14.80%	14.70%	15.10%	14.60%	14.40%	14.57%	14.80%	14.80%	14.64%	14.46%	14.46%	
IC Substrate	Value	7,554	8,139	10,188	14,410	17,415	12,809	14,327	16,024	17,923	20,046	20,720	10.10%
	%	12.10%	13.30%	15.60%	17.80%	21.30%	18.43%	19.65%	20.61%	21.40%	22.19%	22.42%	
Total		62,396	61,311	65,219	80,920	81,740	69,514	72,921	77,747	83,735	90,348	92,427	5.90%
YoY Change (%)		6.04%	-1.74%	6.37%	24.07%	1.01%	-14.96%	4.90%	6.62%	7.70%	7.90%	2.30%	

Source : Prismark (2023/10) *Forecast Data is calculated based on Prismark's estimation

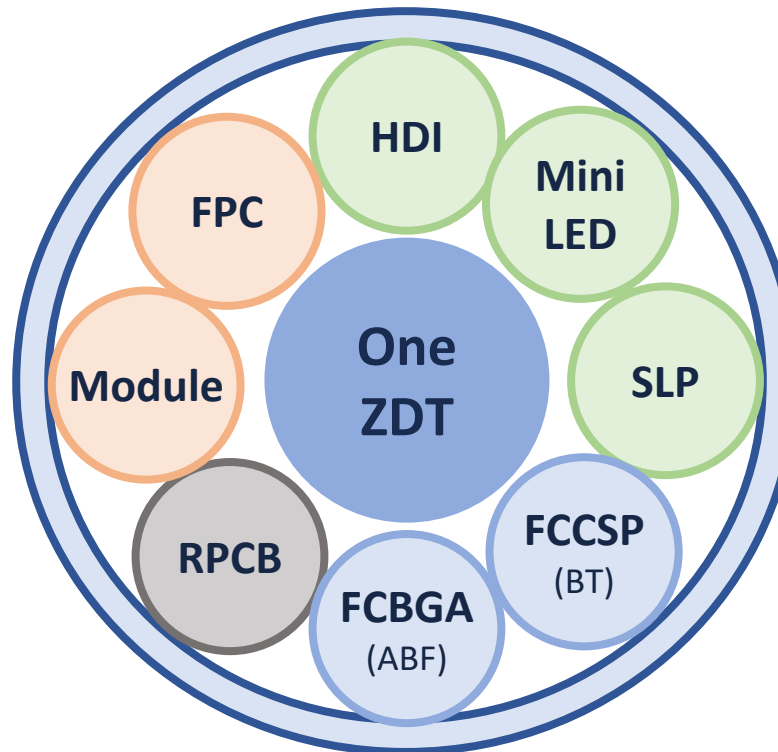
One ZDT : One Stop Shopping Synergies

FPC (+Module)

- 5G Applications
- AR/VR Metaverse
- New Energy
- Intelligent Vehicles
- Next-gen Display

RPCB(+Base Station + Automotive PCB + Server)

- High Performance Computing
- 5G Base Station
- Next-gen Radar PCB
- Intelligent Vehicles
- High-end Server & AI



HDI(+SLP+Mini LED)

- Advanced HDI, SLP
- NB 、Automotive HDI
- 5G AiP 、SiP
- AR/VR Metaverse
- Mini LED/Micro LED

IC Substrate (FCCSP+FCBGA)

- 5G Chips
- Cloud HPC
- Server & AI
- AR/VR Metaverse
- Intelligent Vehicles

Supply chain management is getting more complex. Customers focus on supply chain integration, instead of seeking the lowest cost through division.

Our One ZDT Growth Strategy

Keep creating One ZDT synergies

Product

Offer complete product lines for diversified applications. Co-develop products with customers and provide them best product solutions

Manufacture

Multiple manufacturing sites to fulfill clients' needs, offering flexibility in adjusting capacity

Management

Introduce smart management system into each fab in phases to optimize production efficiency and yield

Talent

Develop comprehensive talent training and promotion programs. Flexibly assign outstanding talents to help develop new business units

Develop new application markets with customers

ADAS



Cloud Datacenter

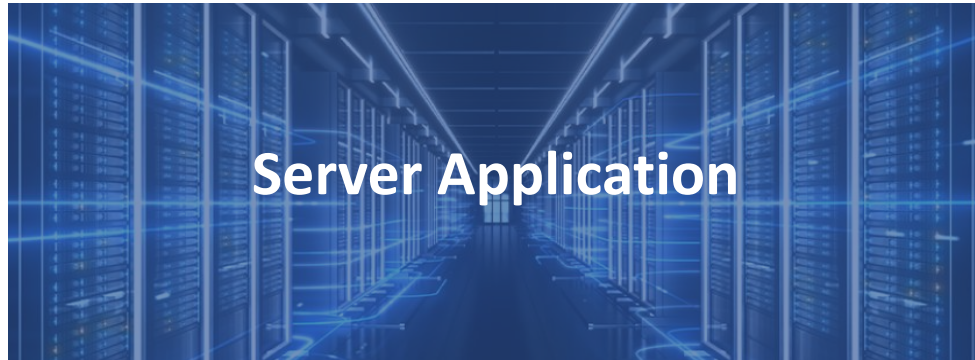


Low-earth-orbit Satellite



Metaverse





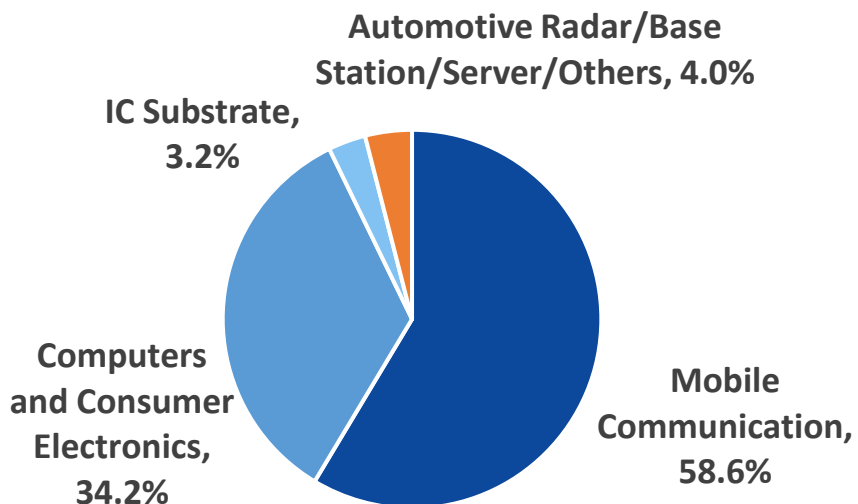
- Based on current customer orders and those in development, ZDT aims to achieve **double-digit** revenue CAGR for server applications over the next five years.
- Growth Strategy:
 - Increase the order allocation at existing customers
 - Offer products for new server platforms of all three major architectures
 - In response to the China+1 customer demand, we certifies the Huai'an and BoardTek fabs simultaneously, and will transfer the technology to the Thailand fab in the future.
 - Gradually upgrade product portfolio and expand product applications from servers to storage/switch, and develop high-end GPU products.



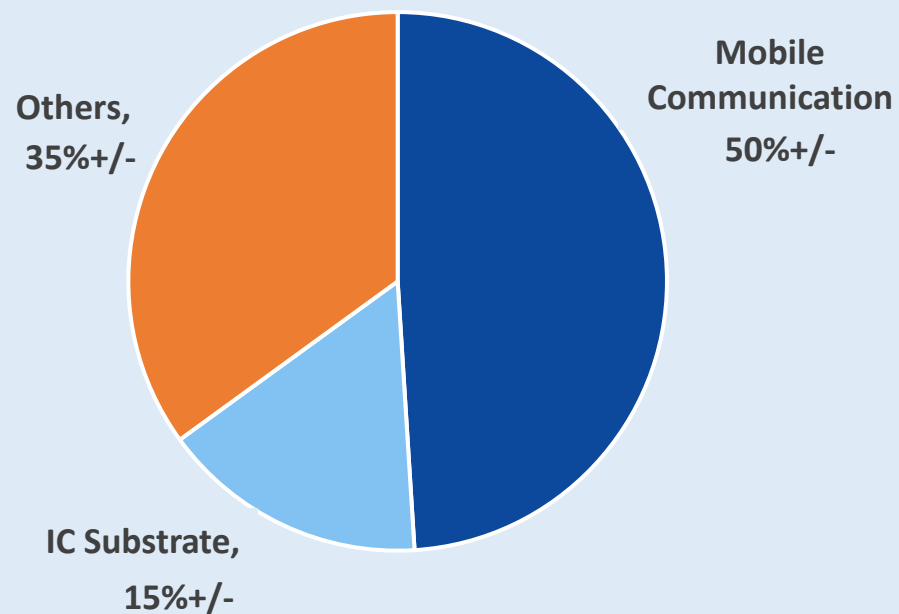
- ZDT aims to be a key promoter of automotive autonomy, intelligence, and electrification. Leveraging a 40% market share in millimeter-wave radar shipments and the experience in mass-producing high-end automotive PCBs, ZDT aims to achieve **double-digit** revenue CAGR for automotive PCBs over the next five years.
- Growth Strategy:
 - Develop advanced applications for ADAS (4D millimeter-wave imaging) radar PCBs and high-end communication modules
 - Offer products for advanced ADAS Domain Control Unit and establish strategic partnerships with the world's top three companies
 - Increase the order allocation at existing customers for the FPC of EV batteries
 - Add new capacity in Thailand and onboard global customers

Aim to Reach 10% Global PCB Market Share by 2030

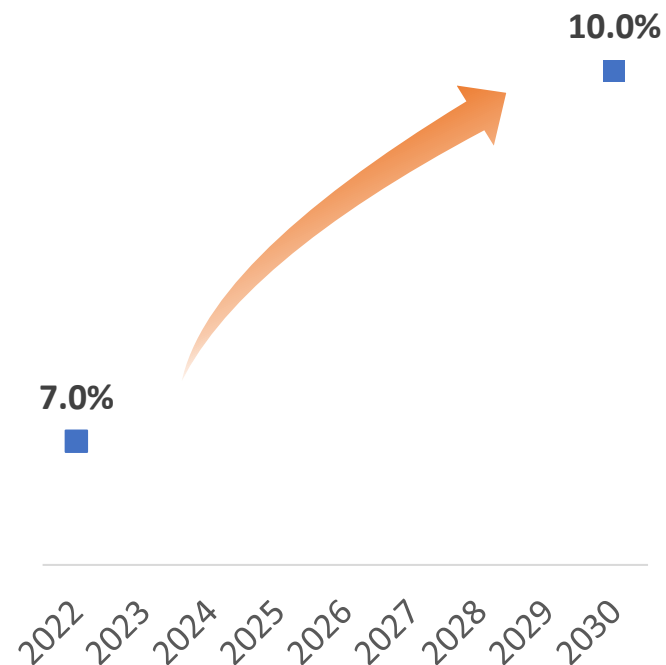
2022 Revenue by Application



2027 Target Revenue by Application



Aim to Reach 10% Global Market Share by 2030





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Aggressive Expansion in IC Substrate

Aim to Become One of the Top Five in the World by 2030

1

Inventories for most BT customers have returned to roughly normal levels; ABF may start to recover at the end of the year:

- Most BT customers' inventory days have returned to roughly normal levels, and we have made progress in winning important memory customers. As a result, we are optimistic about the recovery of the BT business.
- The ABF market continues to perform well in certain applications such as AI and HPC. Overall industry may start to recover at year-end.

2

Reflecting the industry's supply and demand dynamics, the development of the IC substrate industry is expected to be delayed by 1.5 years from previous expectation:

- The long-term prospects of the semiconductor industry remain promising. Leading companies such as TSMC and Intel continue to expand their production capacities.
- In terms of IC substrates, in the mid-to low-end market, there are many new entrants, and production capacity is largely concentrated in mainland China, lacking the ability and experience to expand internationally to serve global customers. In the mid-to high-end market, despite the fluctuations in the near term, the industry may still be in shortage in the mid-to long-term.

3

Receiving certifications from international customers:

- The semiconductor industry is predominantly reliant on international clients. We have been successfully obtaining certifications from international customers, including those from the United States, Europe, Japan, and China. Customers have shown a high level of recognition for our new smart fab.

4

Focusing on developing high density and fine line products:

- For ABF substrates, we have collaborated with customers to develop high-end substrates for Chiplet. Currently, we are shipping products with 18-20 layers and a maximum body size of 92mm x 92mm to customers. Within just 6 months, our yield has improved to on par with Tier 1 ABF substrate suppliers. We plan to further advance our products to over 20 layers and over 100mm x 100mm body size in the future.
- For BT substrates, we can offer fine-line 6/8um Embedded Trace Substrate (ETS), and the yield is also on par with Tier 1 players.

AI

**High-speed
Computing**

**Data
Transmission**

AI applications require high-speed computing capabilities and the integration of fast read-write memory.

Chip Solution

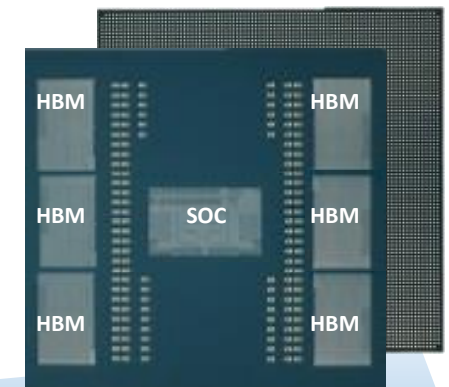
**Single SOC
(System on Chip)**

Larger die size, more complicated manufacturing process, and higher costs






Chiplet

Chiplet packaging increases efficiency

Chiplet Substrate



IC Substrate Technology

High Layer Counts	Large Body Size	Micro-drilling	Fine Line	Surface Finish Process
 18~20 Layers	 90x90 ~ 95x95mm	 40~60 um	 9~15 um	 Low roughness, high cohesion

**Zhen Ding's
IC Substrate**

Intelligence



DCU

- Autopilot DCU
- Cockpit DCU

Sensor

- mmWave Radar
- Laser Radar
- Camera

Chip

Autopilot AI Chip
Smart Cockpit Chip
DCU Chip

CMOS
Storage Chip
ADAS Chip

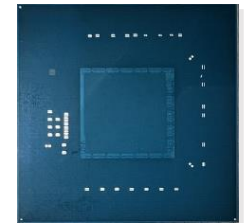


Packaging

FCBGA
CSP

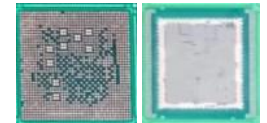
ZDT's IC Substrate

FCBGA



4~18L
17x17~75x75mm

FCCSP



2~4L
7x7~27x27mm

WBCSP



2~4L
7x7~27x27mm

Connectivity



Communication Module

Remote Communication Box

Internet of Vehicle

- 5G Module

Smart Cockpit Chip



CSP

Information



Display System

- HUD
- AR/VR
- NFC

Smart Cockpit Chip
Storage Chip



FCBGA
CSP

The Four New Fabs to Drive Future Growth



Qinghuangdao BT Substrate Fab:
FC-CSP/WB-CSP/Memory



Shenzhen ABF Substrate Fab: FCBGA



Kaohsiung Luzhu Science Park:
FPC and Advanced Module Production Line

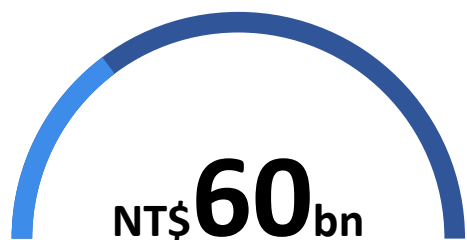


Huai'an Park 3: High-end HDI/MSAP

IC Substrate Capacity Expansion Plan

		2023				2024				2025				2026			
		1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
SZ ABF Substrate Plant (Two Fabs’ floor area in total: 170,000 m²)	Fab 1 (Mid to high-end products)	Installation															
		Sample certification															
		Mass production, target yield: comparable to tier 1 peers										Full utilization, target yield: comparable to tier 1 peers					
	Fab 2 (High end products)										Installation						
										Sample certification							
											Mass production						
QHD BT Substrate Plant (Two Fab’s floor area in total: 60,000 m²)	Fab 1	Industry Leading Quality															
	Fab 2	Mass Production			Utilization at 60%+			Utilization at 80%+									

IC Substrate Goals



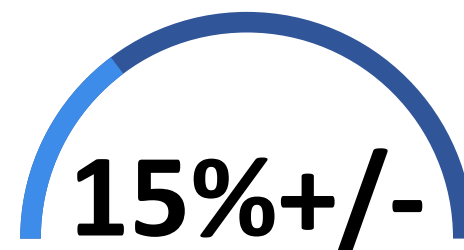
IC Substrate Capex:

Plan to invest NT\$60bn
from 2022~2027



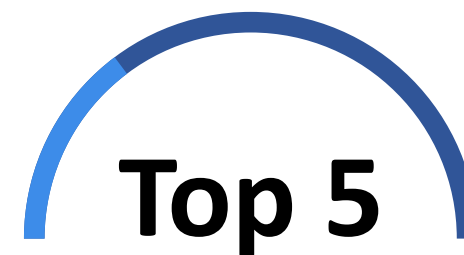
IC Substrate Revenue:

2023~2027 Revenue
CAGR >50%



IC Substrate Revenue:

Account for 15 %+/- of
company's consolidated
revenue in 2027



IC Substrate Market Share:

Aim to become one of the
global top 5 companies in the
IC substrate market in 2030



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Global Manufacturing Footprint

Five Major Global Manufacturing Campuses

Multiple manufacturing campuses to fulfill clients' needs

China Qinghuangdao



Qinghuangdao Park
(FPC & advanced module
/SLP High end HDI)



BT Substrate Park
**Phase 1: mass
production in 2022**

China Huai'an



Huai'an Park 1
(RPCB/HDI)



Huai'an Park 2
(FPC & advanced
module/HDI/ Mini LED)



Huai'an Park 3
(High-end HDI/MSAP)
**Mass production
in 2023**

Taiwan



Kaohsiung Park
(FPC and advanced
module)
**To enter mass
production in 2024**



Taoyuan Boardtek Park
(PCB for networking, HPC,
automotive related
applications)

China Shenzhen



Shenzhen Park 1
((FPC and advanced
module/HDI)



Shenzhen Park 2
(FPC and advanced
module)



ABF Substrate Park
**Phase 1: mass
production in 2023**

India

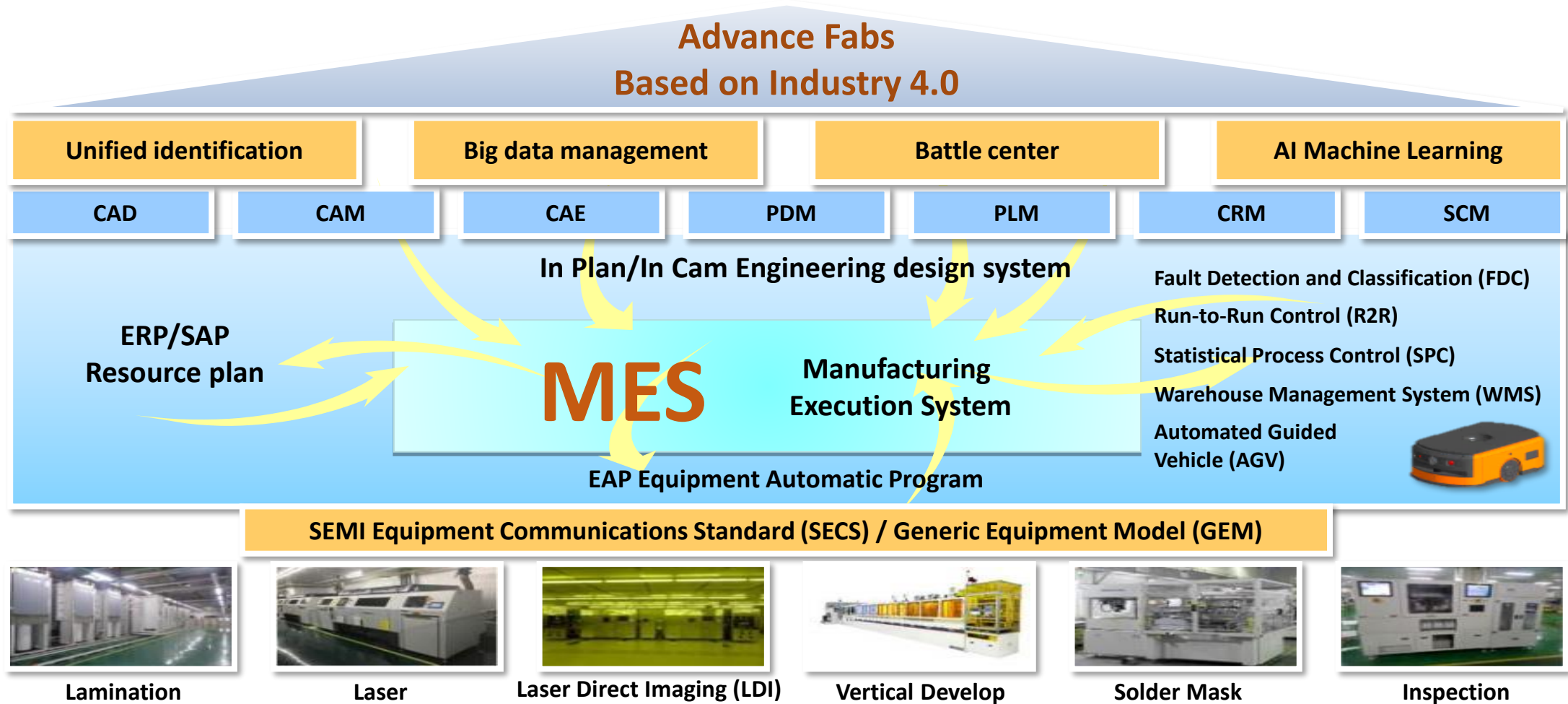


Chennai Park
(FPC and advanced
module)



Strategic Collaboration with Local Partner

- In response to customer demands and to expand the group's global footprint.
- Location will be in Prachinburi Province, Thailand.
- The groundbreaking ceremony is scheduled on December 12th, 2023. Phase 1 investment amount totaled US\$250 million.
- Plan to enter trail production in 1H25.



Under the One ZDT strategy, we have been introducing smart manufacturing into each plant step by step. Currently, Huai'an Park 3 is the 9th smart fab. These fabs have significant improvements in yields and efficiency.



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Commitment to EPS + ESG Blueprint

ESG Evaluation Results

► Corporate Governance Evaluation Ranking

Ranked between 6% to 20% in the 2023 Corporate Governance Evaluation for listed companies, **re-selected for inclusion in the TWSE Corporate Governance 100 Index.**

► Sustainalytics ESG Risk Rating

Zhen Ding's Sustainalytics ESG Risk Ratings improved from 17.8 to 15.6, classified as **low risk.**

► S&P Global ESG Rating

In 2022, Zhen Ding's S&P ESG Score improved to 71 and was **selected as a member of the S&P Global Sustainability Yearbook.**

► FTSE Russell ESG Rating

In December 2022, Zhen Ding's FTSE Russell ESG Rating improved from 3.6 to 4.3 (out of 5), and ranked in the **3rd place among all listed companies in Taiwan.**

ESG Highlights and Achievements

► Greenhouse Gas Emissions and Energy Management

In 2022, greenhouse gas emissions (scope 1 and scope 2) per unit revenue **decreased by 35%** compared to 2013.

Renewable energy usage in 2022 increased **16-fold** compared to the previous year.

► Water Resource Management

In 2022, water consumption per unit revenue **decreased by 40%** compared to 2013.

In 2022, wastewater reuse rate reached **50.5%** °.

► Circular Economy and Green Procurement

Collaborative promotion of metal recycling with suppliers and customers. **90%** of Solder paste used are recycled. Total amount of potassium gold cyanide recycled reaches **42%** of the consumption.

► Board of Directors Structure

In 2023, after reelection, percentage of independent directors reached **57%**, while female directors account for **14%**.



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1H23 Financial Results

1H23 Results Highlights

1

The unfavorable macro environment and weak end demand have led to an industry-wide overcapacity. This combined with pricing pressure from customers resulted in a 19.5% year-on-year decline in revenue for the first half of the year.

2

We remain optimistic about future industry trends, including IC substrates, and continue to invest in R&D and capex. For 1H23:

- R&D expenses were NT\$4.24bn, increasing by NT\$0.74bn compared with 1H22, reflecting a growth of 21%.
- Capex was NT\$14.7bn, approximately at the same level of 1H22.
- Depreciation and amortization expenses were NT\$8.0billion, increasing by NT\$1.05bn compared with 1H22, reflecting a growth of 15%.

3

Our financial position remains robust. As of June 30, 2023:

- Net cash stood at NT\$12.5bn, increasing by NT\$7.0bn compared with the same period last year.
- Debt ratio was 43.9%, approximately at the same level as the same period last year.

1H23 Financial Results

	(Unit: NT\$ million, unless otherwise stated)		
	1H23	1H22	YoY (%)
Revenue	55,082	68,450	-19.5%
Gross Profit	7,198	12,990	-44.6%
Gross Margin	13.1%	19.0%	-5.9ppts
Operating Expense	7,867	7,303	+7.7%
Operating Profit	(669)	5,686	
Operating Margin	-1.2%	8.3%	-9.5ppts
Non-Operating Income/Expense	1,075	1,651	-34.9%
Net Income	1,013	6,506	-84.4%
Net Margin	1.8%	9.5%	-7.7ppts
Net Income to Parent	414	4,507	-90.8%
EPS (NT\$) ⁽¹⁾	0.44	4.77	
Cash Inflow Generated from Operations	15,216	21,443	-29.0%
Capital Expenditures	14,684	15,246	-3.7%
Cash and Cash Equivalents ⁽²⁾	59,916	44,480	+34.7%
ROE(%) ⁽³⁾	1.6%	11.2%	-9.6ppts

Note : (1) Weighted average shares outstanding as of 1H23: 944,956 thousand shares

(2) Including current financial assets at amortized cost (time deposits, etc.)

(3) ROE is annualized data calculated based on the average of equity attributable to owners of parent

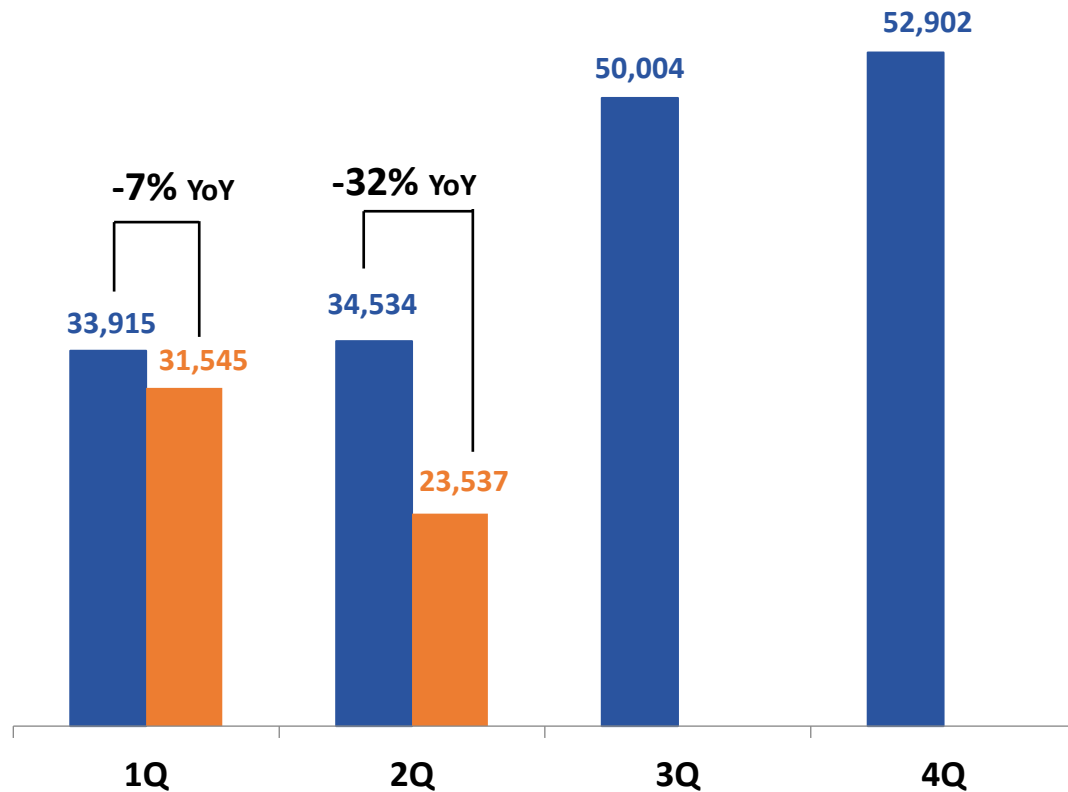
Quarterly Operation Results

Revenue

■ 2022

■ 2023

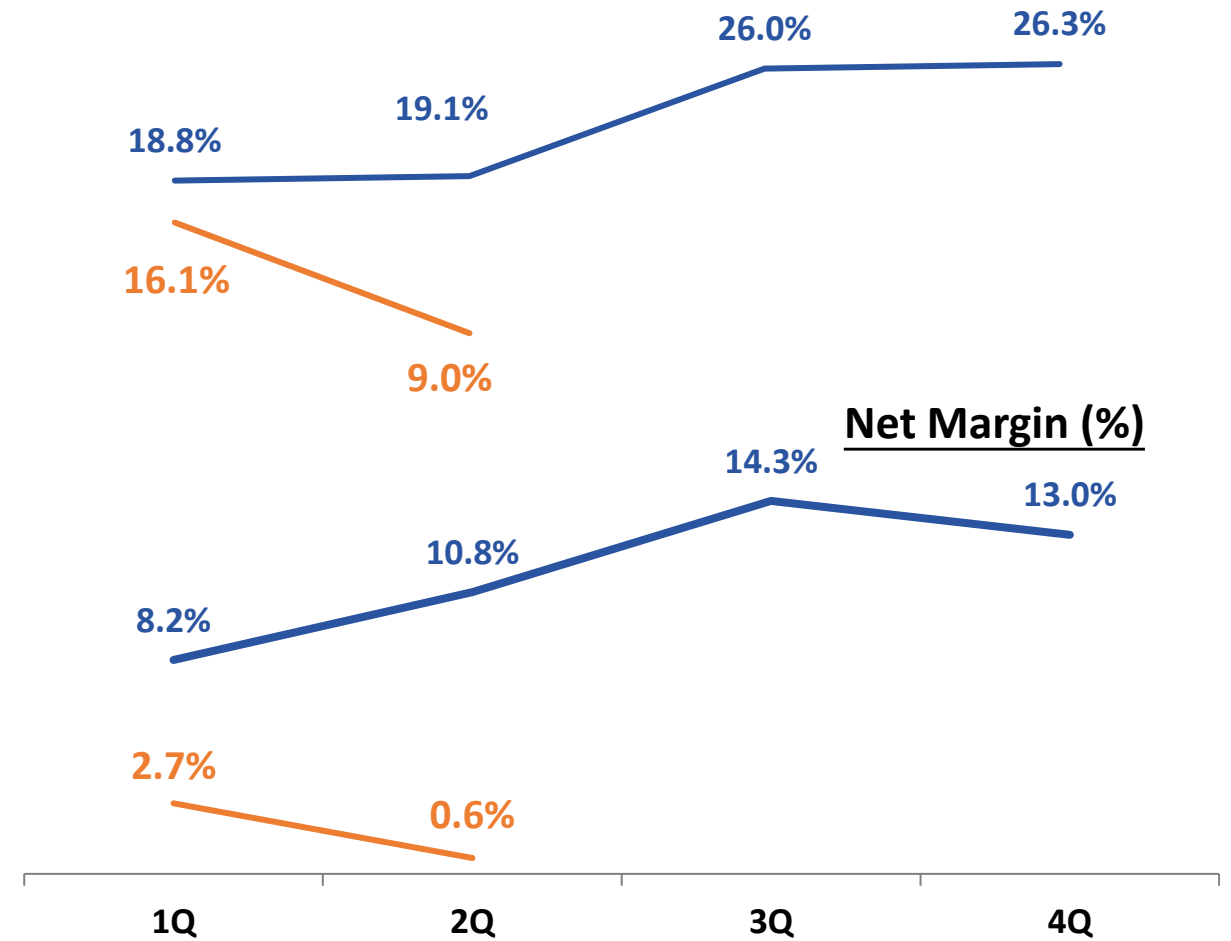
Unit: NT\$ million



Gross Margin (%)

— 2022

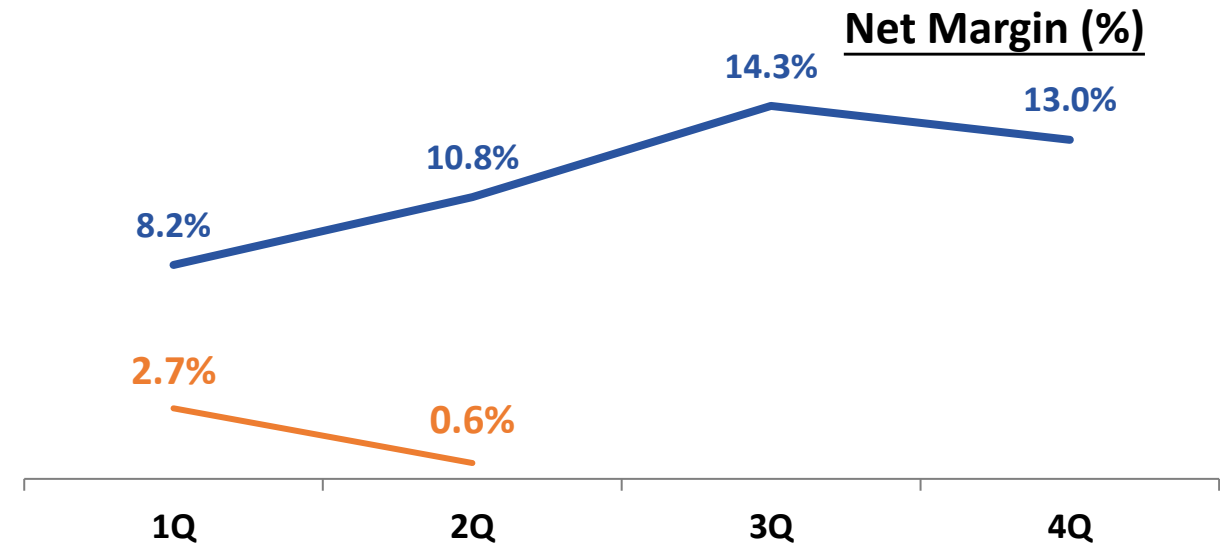
— 2023



Net Margin (%)

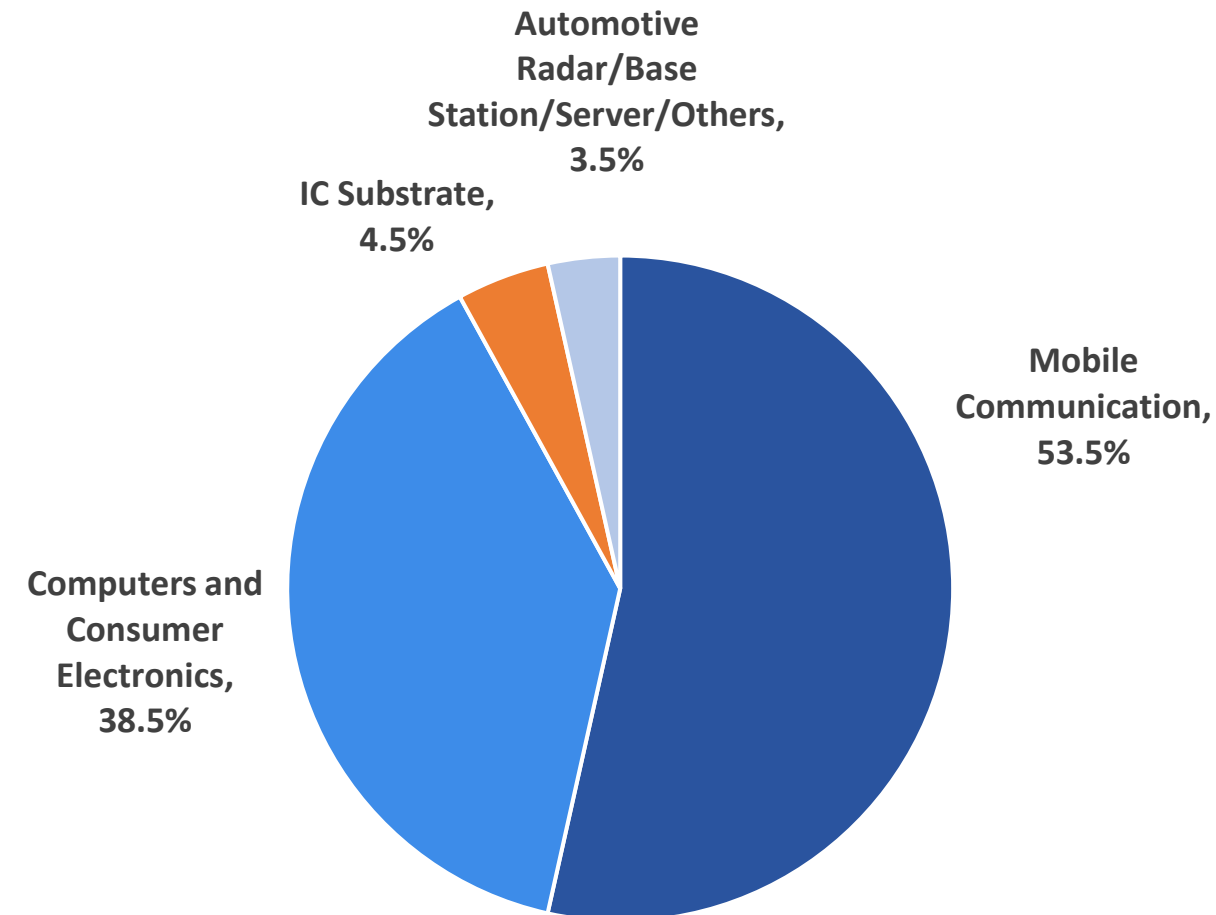
— 2022

— 2023

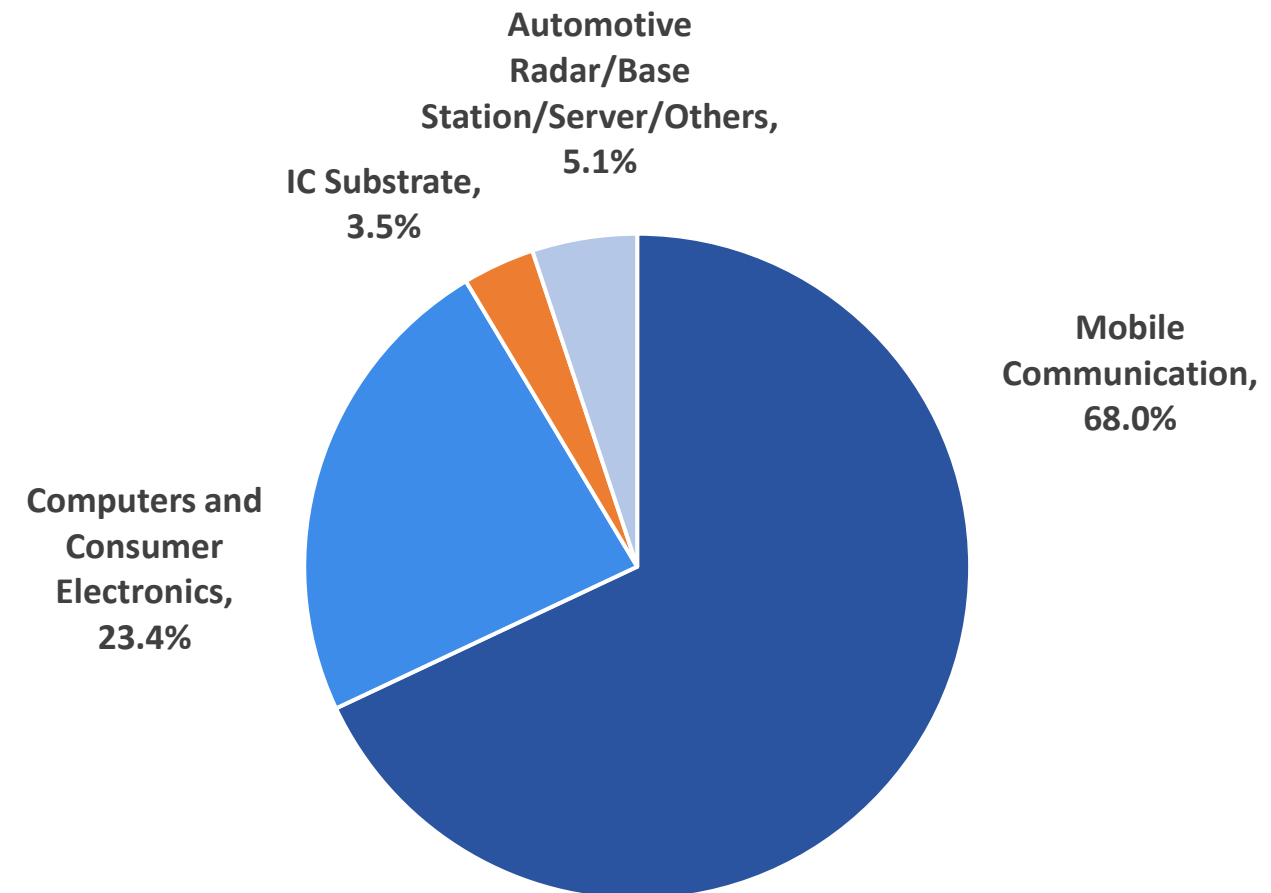


Revenue Breakdown – By Applications

1H2022 Revenue NT\$68.5bn



1H2023 Revenue NT\$55.1bn



Consolidated Balance Sheet and Key Indices

	2023-6-30		2022-6-30		Unit: NT\$ million Change	
	Amount	%	Amount	%	Amount	%
Cash and Cash Equivalents ⁽²⁾	59,916	26.8%	44,480	21.5%	15,436	+5.3ppts
Notes & Accounts Receivable	17,496	7.5%	24,951	12.1%	(7,455)	-4.6ppts
Inventories	13,784	5.9%	20,941	10.1%	(7,157)	-4.2ppts
Property, Plant and Equipment ⁽³⁾	108,559	48.5%	96,597	46.7%	11,962	+1.8ppts
Total Assets	223,833	100.0%	206,793	100.0%	17,040	
Debt	47,455	21.2%	39,019	18.9%	8,436	+2.3ppts
Notes & Accounts Payable	35,325	15.8%	37,136	18.0%	(1,811)	-2.2ppts
Total Liabilities	98,219	43.9%	88,242	42.7%	9,977	
Total Equity	125,615	56.1%	118,551	57.3%		

Key Indices

A/R Turnover Days	78	83	(5)
Inventory Turnover Days	66	67	(1)
Current Ratio (x)	1.30	1.43	(0.13)
PPE Turnover (x) ⁽⁴⁾	1.03	1.50	(0.47)

Note : (1) Weighted average shares outstanding as of June 30, 2023 : 944,956 thousand shares (2) Including current financial assets at amortized cost (time deposits, etc.)

(3) Property, Plant and Equipment includes investment property (4) PPE Turnover = annualized net revenue / average net property, plant and equipment

2011-2022 Financial Summary

Unit: NT\$ million

Period	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Revenue	44,280	55,369	64,483	75,954	85,738	82,393	109,238	117,913	120,068	131,279	155,022	171,356
Gross Profit	6,993	10,775	11,894	14,323	16,427	12,542	17,833	26,061	27,222	26,584	30,537	39,888
Net Income	2,356	4,056	5,471	6,735	7,731	3,456	6,772	11,536	12,402	11,508	13,694	20,535
Net Income to Parent	2,356	4,056	5,471	6,735	7,731	3,456	5,172	8,448	8,685	8,095	9,651	14,197
Depreciation & Amortization	3,008	3,375	3,742	4,293	4,850	5,295	5,679	6,820	7,955	8,405	11,875	14,638
EPS (NT\$)	3.30	5.49	7.41	9.12	9.80	4.29	6.43	10.50	9.93	8.90	10.21	15.02
DPS (NT\$)	1.50	2.50	3.00	3.67	4.50	2.20	3.30	4.46	4.50	4.50	5.00	6.00
Payout Ratio (%)	45.5%	45.5%	40.5%	40.2%	45.9%	51.3%	51.3%	42.5%	45.3%	50.6%	49.0%	40.0%
Cash and Cash Equivalents*	4,084	8,756	10,016	23,482	31,572	30,241	33,296	49,154	43,071	46,775	35,179	57,599
Property, Plant and Equipment	27,097	26,637	27,843	30,073	32,074	32,262	36,681	41,913	46,243	68,177	86,073	104,814
Capital	6,699	7,034	7,386	7,386	8,047	8,047	8,047	8,047	9,022	9,470	9,470	9,470
ROE (%)	15.34%	21.27%	23.77%	23.33%	20.82%	8.59%	14.49%	17.30%	14.72%	11.84%	12.59%	16.67%
Debt Ratio (%)	67.03%	66.28%	64.06%	62.54%	53.70%	59.72%	55.33%	44.25%	35.41%	42.56%	42.01%	42.87%

* Including current financial assets at amortized cost (time deposits, etc.)



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