

# Zhen Ding Technology Holding (4958 TT)

## Fourth Quarter and Full Year of 2024 Investor Conference

March 11<sup>th</sup>, 2025

- 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.



# AGENDA

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## 4Q24 & 2024 Financial Results

Eddie Chiang, Chief Financial Officer

2

## Company Strategy

Charles Shen, Chairman & Group Chief Strategy Officer (Group CSO)

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## Digital Transformation & Empowerment

Chen-Fu Chien, General Manager

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## Operation Planning & Execution

D.J. Lee, Director & Chief Operating Officer

# 4Q24 & 2024 Financial Results

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Eddie Chiang, Chief Financial Officer

# 4Q24 Financial Results

(Unit: NT\$ million, unless otherwise stated)

	4Q24	4Q23	YoY (%)
Revenue	56,133	54,396	+3.2%
Gross Profit	11,471	11,679	-1.8%
<b>Gross Margin</b>	<b>20.4%</b>	<b>21.5%</b>	<b>-1.1ppts</b>
Operating Expense	5,917	5,424	+9.1%
Operating Profit	5,554	6,254	-11.2%
<b>Operating Margin</b>	<b>9.9%</b>	<b>11.5%</b>	<b>-1.6ppts</b>
Non-Operating Income/Expense	2,206	(409)	
Net Income	6,242	5,070	+23.1%
<b>Net Margin</b>	<b>11.1%</b>	<b>9.3%</b>	<b>+1.8ppts</b>
Net Income to Parent	4,363	3,504	+24.5%
<b>EPS (NT\$) <sup>(1)</sup></b>	<b>4.59</b>	<b>3.71</b>	
R&D Expense	3,048	2,866	+6.3%
Depreciation and Amortization	4,655	4,199	+10.8%
Cash Inflow Generated from Operations	20,933	13,239	+58.1%
Cash and Cash Equivalents <sup>(2)</sup>	79,830	65,970	+21.0%
ROE (%) <sup>(3)</sup>	<b>17.4%</b>	<b>15.2%</b>	<b>+2.2ppts</b>

Note: (1) Weighted average shares outstanding as of 2024: 949,394 thousand shares (actual issuance 956,653 thousand shares, with 2,093 thousand shares held in treasury)

(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

# 2024 Financial Results

(Unit: NT\$ million, unless otherwise stated)

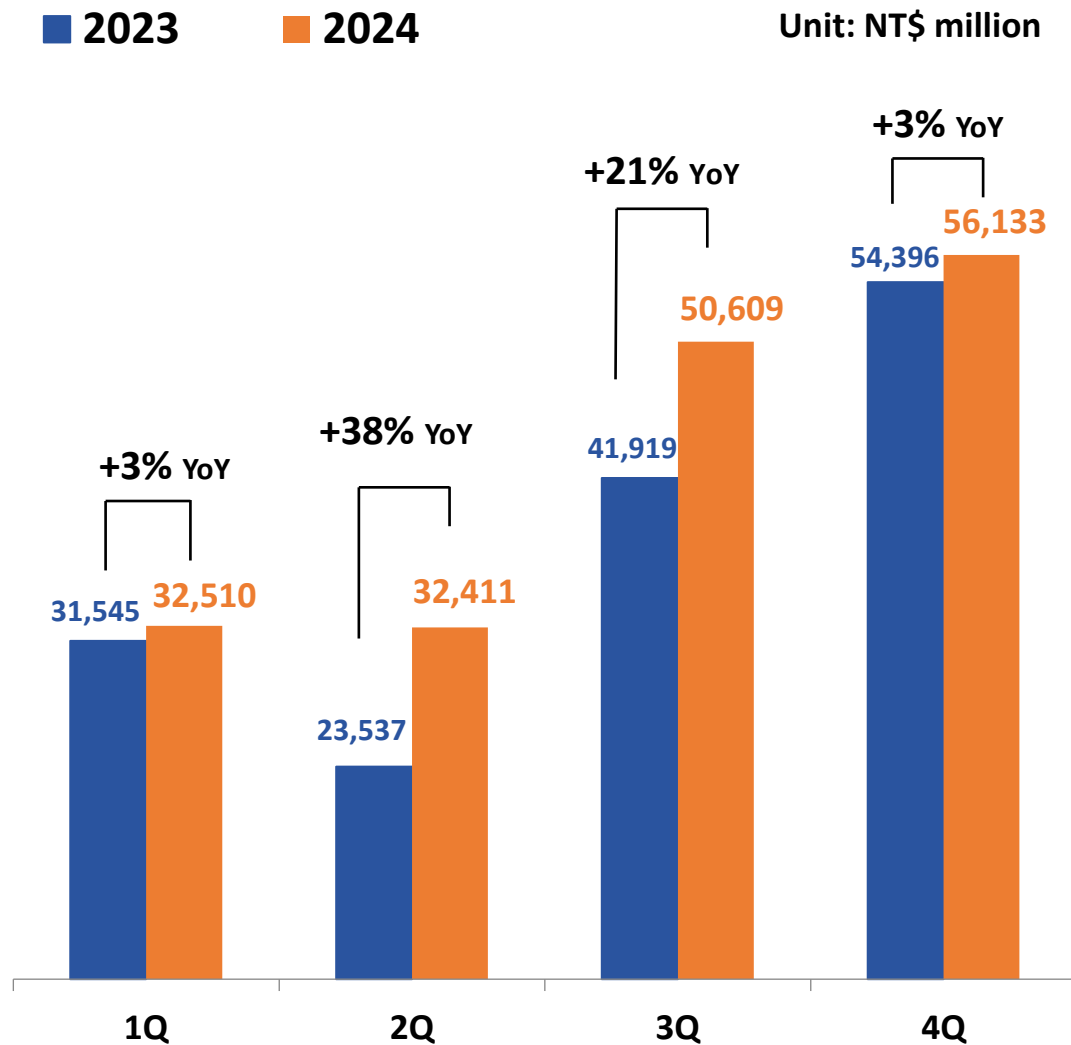
	2024	2023	YoY (%)
Revenue	171,664	151,398	+13.4%
Gross Profit	32,461	27,459	+18.2%
<b>Gross Margin</b>	<b>18.9%</b>	<b>18.1%</b>	<b>+0.8ppts</b>
Operating Expense	20,875	18,300	+14.1%
Operating Profit	11,586	9,160	+26.5%
<b>Operating Margin</b>	<b>6.8%</b>	<b>6.1%</b>	<b>+0.7ppts</b>
Non-Operating Income/Expense	3,459	888	+289.5%
Net Income	13,096	9,432	+38.9%
<b>Net Margin</b>	<b>7.6%</b>	<b>6.2%</b>	<b>+1.4ppts</b>
Net Income to Parent	9,180	6,189	+48.3%
<b>EPS (NT\$) <sup>(1)</sup></b>	<b>9.67</b>	<b>6.55</b>	
R&D Expense	11,715	9,665	+21.2%
Depreciation and Amortization	17,749	16,323	+8.7%
Cash Inflow Generated from Operations	30,385	33,599	-9.6%
Cash and Cash Equivalents <sup>(2)</sup>	79,830	65,970	+21.0%
ROE (%) <sup>(3)</sup>	<b>9.1%</b>	<b>7.1%</b>	<b>+2.0ppts</b>

Note: (1) Weighted average shares outstanding as of 2024: 949,394 thousand shares (actual issuance 956,653 thousand shares, with 2,093 thousand shares held in treasury)

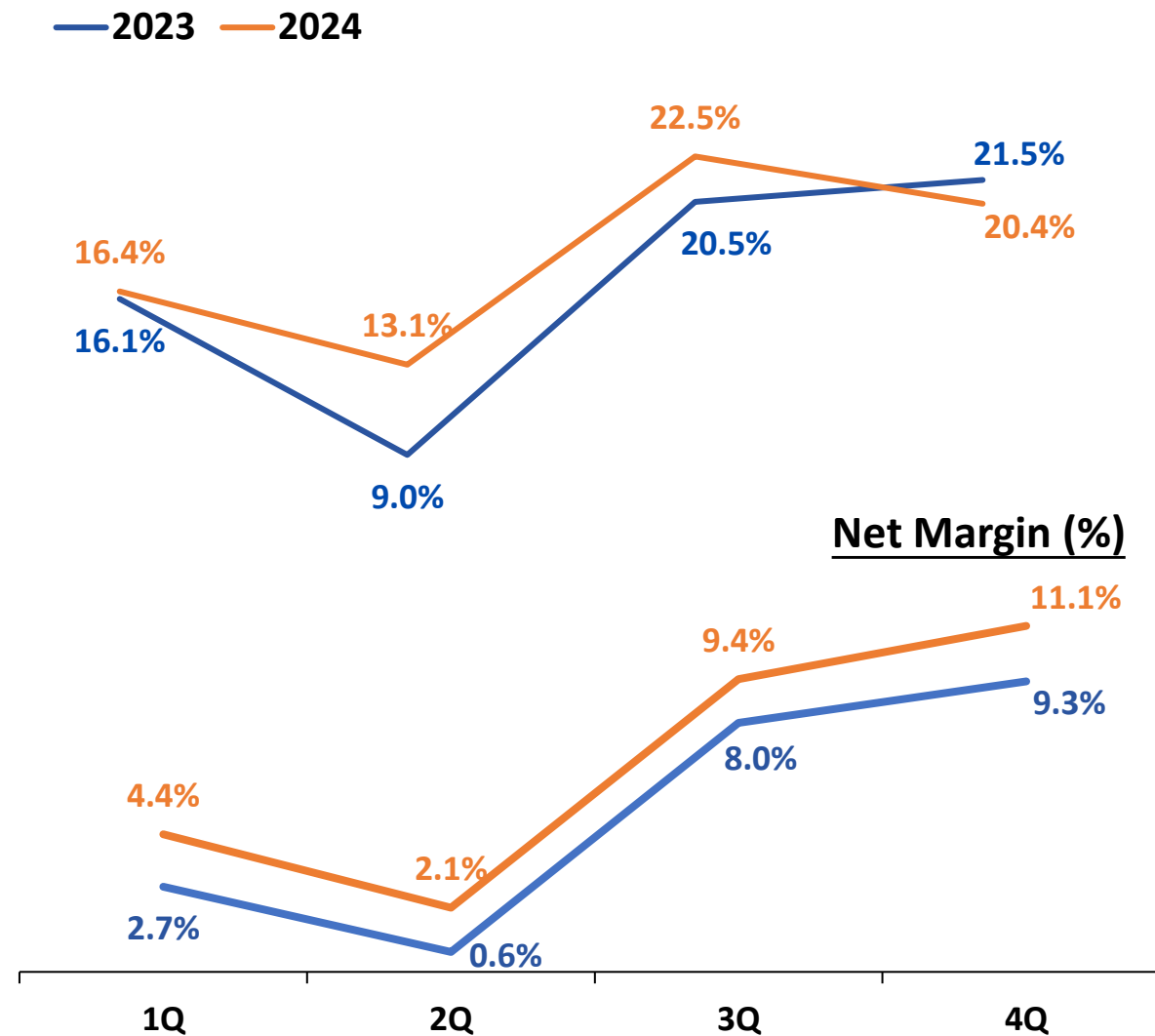
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# Quarterly Operation Results

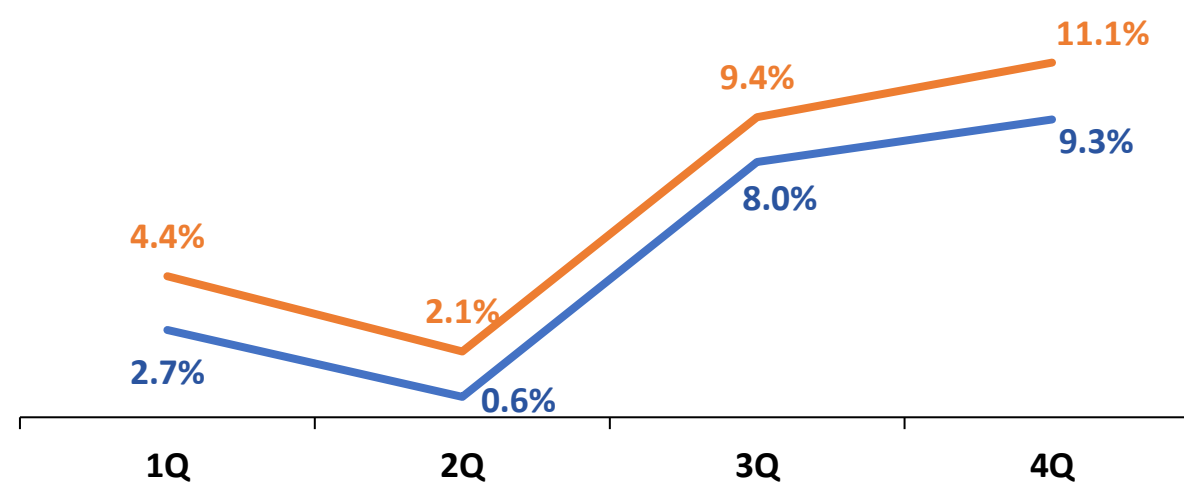
## Revenue



## Gross Margin (%)

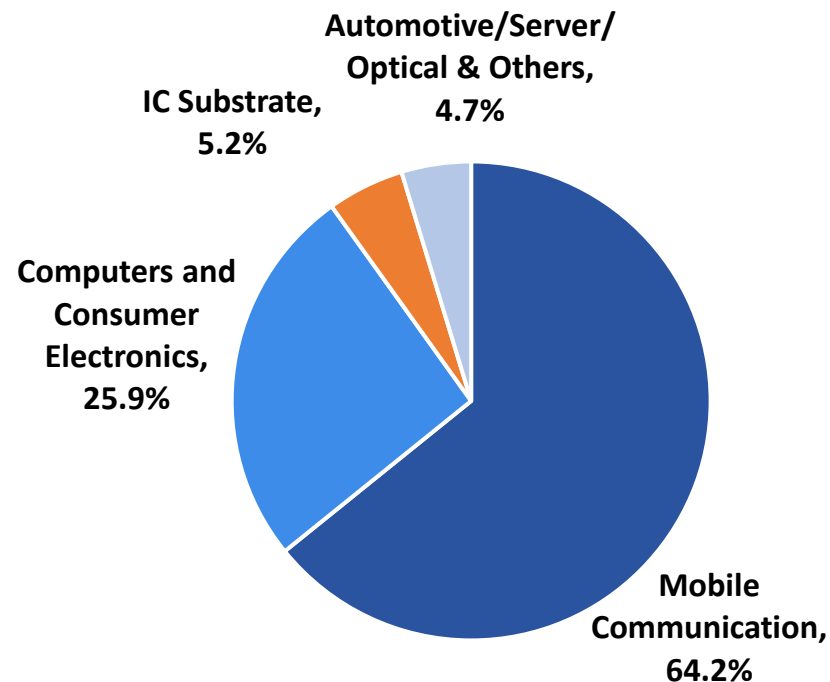


## Net Margin (%)

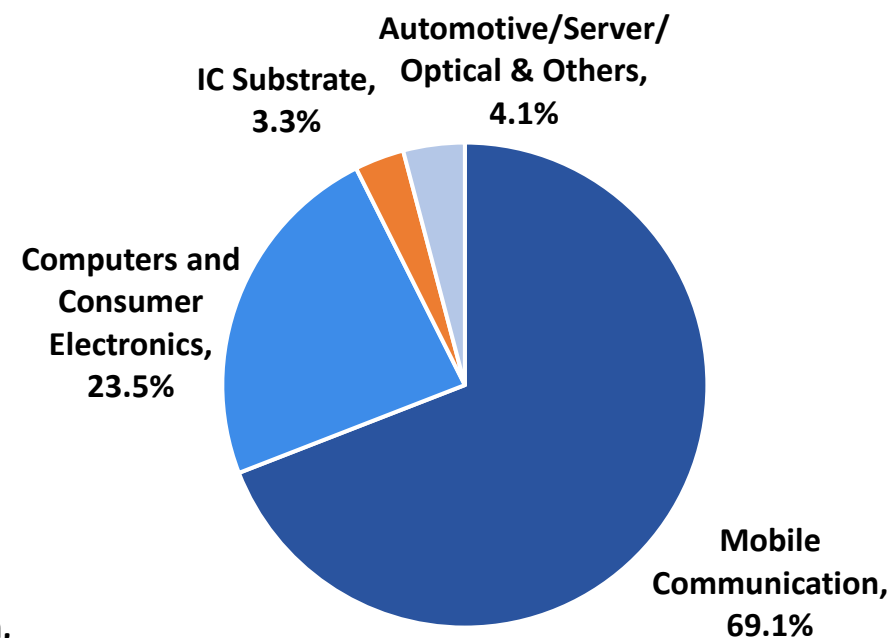


# Revenue Breakdown – By Applications

2024 Revenue NT\$171.7bn



2023 Revenue NT\$151.4bn



Applications	2024 Revenue YoY%
Mobile Communication	5.5%
Computers and Consumer Electronics	24.8%
IC Substrate	75.6%
Automotive/Server/Optical & Others	30.9%



# Consolidated Balance Sheet and Key Indices

	2024-12-31		2023-12-31		Unit: NT\$ million Change	
	Amount	%	Amount	%	Amount	%
Cash and Cash Equivalents <sup>(2)</sup>	79,830	30.0%	65,970	27.2%	13,860	2.8ppts
Notes & Accounts Receivable	30,959	11.6%	29,503	12.2%	1,455	-0.5ppts
Inventories	17,990	6.8%	15,508	6.4%	2,482	0.4ppts
Property, Plant and Equipment <sup>(3)</sup>	113,462	42.7%	109,965	45.3%	3,497	-2.6ppts
<b>Total Assets</b>	<b>265,993</b>	<b>100.0%</b>	<b>242,932</b>	<b>100.0%</b>	<b>23,218</b>	
Debt	57,051	21.4%	53,130	21.9%	3,922	-0.4ppts
Notes & Accounts Payable	40,858	15.4%	37,853	15.6%	3,004	-0.2ppts
<b>Total Liabilities</b>	<b>113,970</b>	<b>42.8%</b>	<b>108,450</b>	<b>44.7%</b>	<b>5,520</b>	<b>-1.8ppts</b>
<b>Total Equity</b>	<b>152,024</b>	<b>57.2%</b>	<b>134,326</b>	<b>55.3%</b>		

## Key Indices

A/R Turnover Days	63	72	(9)
Inventory Turnover Days	47	52	(5)
Current Ratio (x)	1.91	1.44	0.47
PPE Turnover (x) <sup>(4)</sup>	1.59	1.47	0.12

Note: (1) Weighted average shares outstanding as of 2024: 949,394 thousand shares (actual issuance 956,653 thousand shares, with 2,093 thousand shares held in treasury) (2) Including current financial assets at amortized cost (time deposits, etc.) (3) PPE includes investment property (4) PPE Turnover = annualized net revenue / average net property, plant and equipment

# 2015-2024 Financial Summary

Unit: NT\$ million

Period	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Revenue	85,738	82,393	109,238	117,913	120,068	131,279	155,022	171,356	151,398	171,664
Gross Profit	16,427	12,542	17,833	26,061	27,222	26,584	30,537	39,888	27,459	32,461
Net Income	7,731	3,456	6,772	11,536	12,402	11,508	13,694	20,535	9,432	13,096
Net Income to Parent	7,731	3,456	5,172	8,448	8,685	8,095	9,651	14,197	6,189	9,180
Depreciation & Amortization	4,850	5,295	5,679	6,820	7,955	8,405	11,875	14,638	16,323	17,749
EPS (NT\$)	9.80	4.29	6.43	10.50	9.93	8.90	10.21	15.02	6.55	9.67
DPS (NT\$)	4.50	2.20	3.30	4.46	4.50	4.50	5.00	6.00	3.275	4.80
Payout Ratio (%)	46%	51%	51%	43%	45%	51%	49%	40%	50%	50%
Cash and Cash Equivalents*	31,572	30,241	33,296	49,154	43,071	46,775	35,179	57,599	65,970	79,830
Property, Plant and Equipment	32,074	32,262	36,681	41,913	46,243	68,177	86,073	104,814	109,965	113,462
Capital	8,047	8,047	8,047	8,047	9,022	9,470	9,470	9,470	9,470	9,567
ROE (%)	20.82%	8.59%	14.49%	17.30%	14.72%	11.84%	12.59%	16.67%	7.10%	9.15%
Debt Ratio (%)	53.70%	59.72%	55.33%	44.25%	35.41%	42.56%	42.01%	42.87%	44.67%	42.85%

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

# Company Strategy

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Charles Shen, Chairman & Group CSO

# Business Review and Outlook

1

**2024 revenue increased by 13.4% YoY, exceeding previous expectations and reaching a record high, maintaining as the world's largest PCB manufacturer for the 8th consecutive year:**

Among the four major applications, Mobile Communications, Servers/Automotive/Optical, and IC Substrates all achieved historical highs, while Computers and Consumer Electronics also showed a significant recovery, increasing by 24.8% YoY. Under the “One ZDT” strategy, our product portfolio has become more diversified and balanced. The combined revenue contribution from Servers/Automotive/Optical and IC Substrates increased to 9.9% from 7.4% in the previous year. Overall, our global PCB market share further increased from 7.0% in the previous year to 7.3%.

2

**2025 revenue to reach another record high, with AI-related products accounting for >70% of total revenue:**

Despite uncertainties in the macroeconomic environment, the rapid rise of edge AI devices—including AI smartphones, AI PCs, smart glasses, humanoid robots, and intelligent vehicles—is accelerating upgrades of PCB technologies and changes in product design. Additionally, high-end products in AI servers, optical, and IC substrates will also increase in response to growing customer demand. We expects growth across all four major applications this year, with AI-related products accounting for >70% of consolidated revenue.

3

**Thailand fab is scheduled to enter trial production on May 8th; We plan to invest NT\$10bn in equipment for high-end ABF substrates and RPCB for Kaohsiung AI Park. Contributions of the new fabs will materialize in 2026-2027:**

The first phase of the new fab in Prachinburi will enter trial production on May 8<sup>th</sup>, with small-scale volume production expected in 2H25. Meanwhile, the second-phase fab is scheduled to break ground on May 8th. Currently, we are actively investing resources and developing new products to secure more tier-1 customers once the Thailand capacity comes online. Additionally, we plan to invest NT\$10bn in equipment for high-end ABF substrates and RPCB for Kaohsiung AI Park. We expect that by 2026-2027, the Thailand and Kaohsiung fabs will gradually improve operating efficiency and make an increasing contribution to overall performance.

4

**Appointed Dr. Chen-Fu Chien as General Manager; Chairman & Group CSO, General Manager, and COO will form a well-balanced “iron triangle” team:**

General Manager Chen-Fu Chien will leverage his extensive academic and industry experience to accelerate Zhen Ding's development in five key areas, including smart manufacturing, industrial engineering, AI empowerment, semiconductor industry engagement, and industry-academia collaboration. Moving forward, Zhen Ding's Chairman and Group CSO will focus on business strategy and planning, General Manager will drive digital transformation and empowerment, and Chief Operating Officer will oversee operational management and execution. The three key leaders will form a well-balanced “iron triangle” team, each taking on a vital role to enhance overall operational efficiency and accelerate the company's transformation.

# General Manager Dr. Chen-Fu Chien's Profile



## Education:

- ▶ 1985-1990 Bachelor's Degree with double majors in Industrial Engineering and Electrical Engineering (Phi Tao Phi Honor), National Tsing Hua University (NTHU)
- ▶ 1992-1994 Master's Degree in Industrial Engineering, University of Wisconsin-Madison
- ▶ 1994-1996 Ph.D. in Decision Sciences and Operations Research, University of Wisconsin-Madison

## Experience:

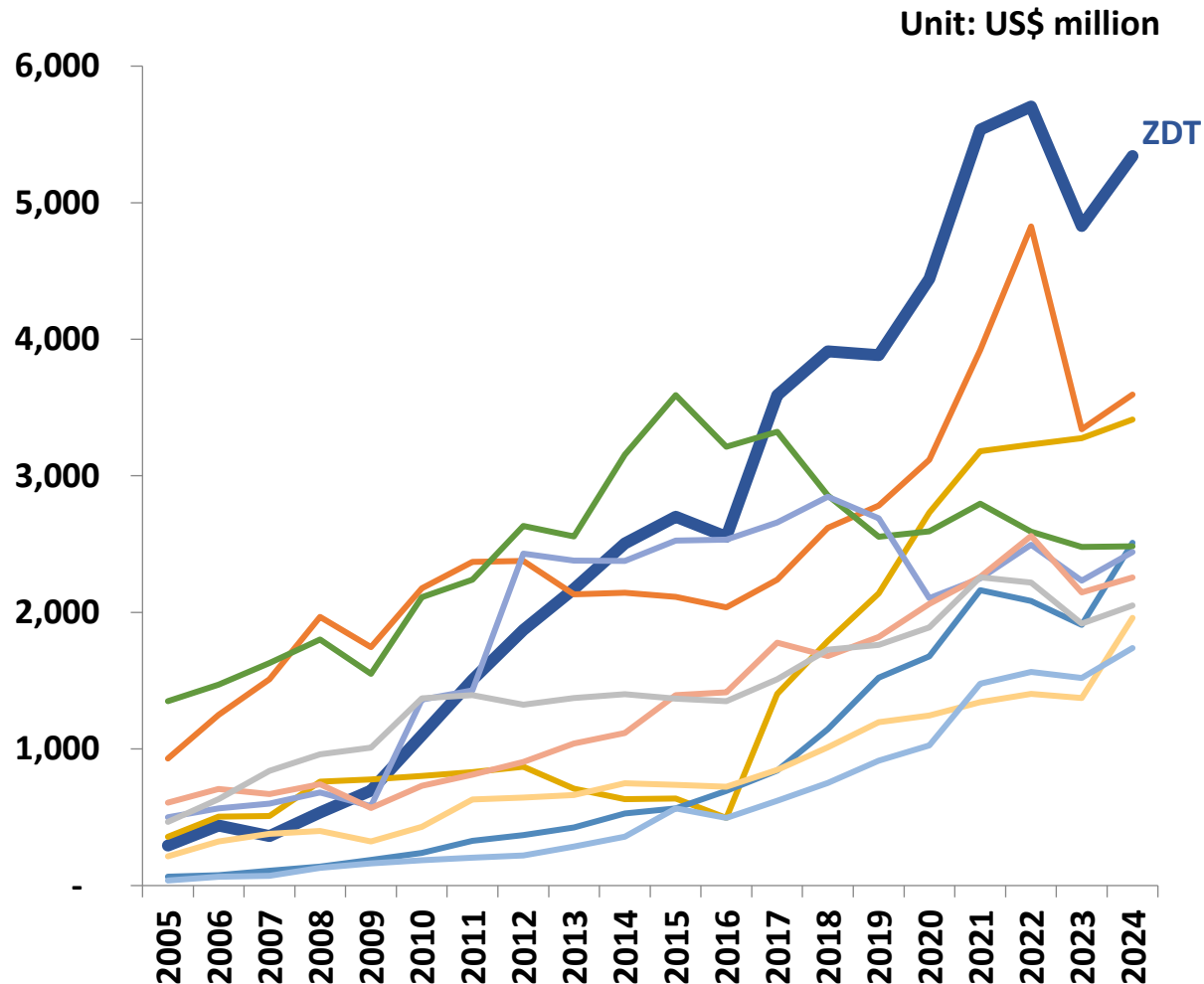
- ▶ 1996-1999 Assistant Professor at the Department of Industrial Engineering and Engineering Management, NTHU
- ▶ 1999-2003 Associate Professor at the Department of Industrial Engineering and Engineering Management, NTHU
- ▶ 2003- Full Professor, Distinguished Professor, and Chair Professor (Lifetime Honor) at the Department of Industrial Engineering and Engineering Management, NTHU
- ▶ 2003-2005 Advisor at TSMC (Manufacturing Technology Center, Industrial Engineering Division)
- ▶ 2005-2008 Deputy Director of the Industrial Engineering Division at TSMC (Secondment)
- ▶ 2008-2010 CEO of the Operations Center for Industry Collaboration at NTHU
- ▶ 2009-2011 Advisor at MediaTek
- ▶ 2012-2014 Chief Secretary at NTHU
- ▶ 2013-2015 Advisor at Delta Electronics
- ▶ 2015-2018 Advisor at AUO
- ▶ 2017-2019 Convener of the Industrial Engineering and Management Division at the Ministry of Science and Technology
- ▶ 2020-2025 Independent Director and Member of the Business Strategy Committee at Zhen Ding
- ▶ 2022-2025 Executive Vice President of NTHU and Secretary-General of the Tsing Hua Alumni Association

## Expertise:

Big Data Analysis, Semiconductor Manufacturing, Smart Manufacturing, Digital Decision, Blue Lakes Strategy, Industrial 3.5

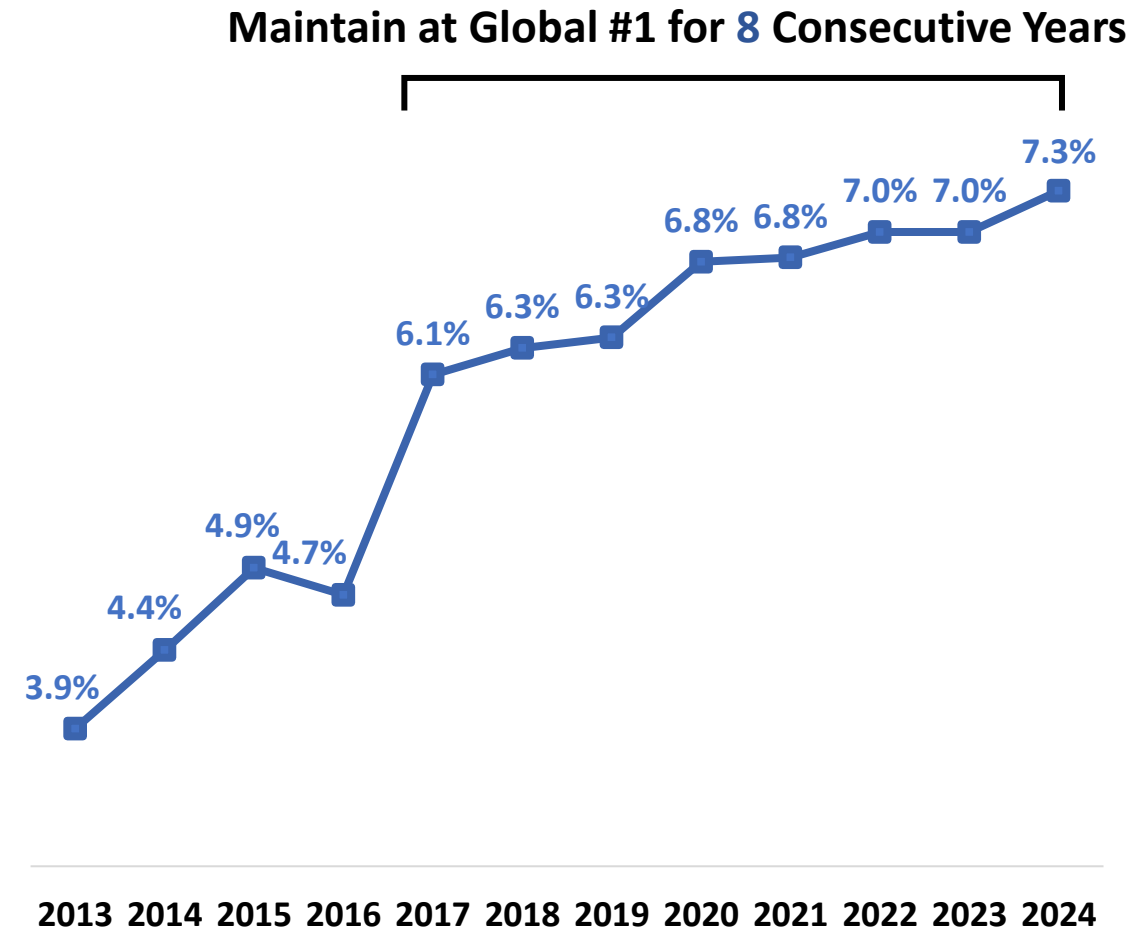
# ZDT Outperforms Industry Average, Maintaining #1 Position

## 2024 Global Top 10 PCB Companies Revenue Trend



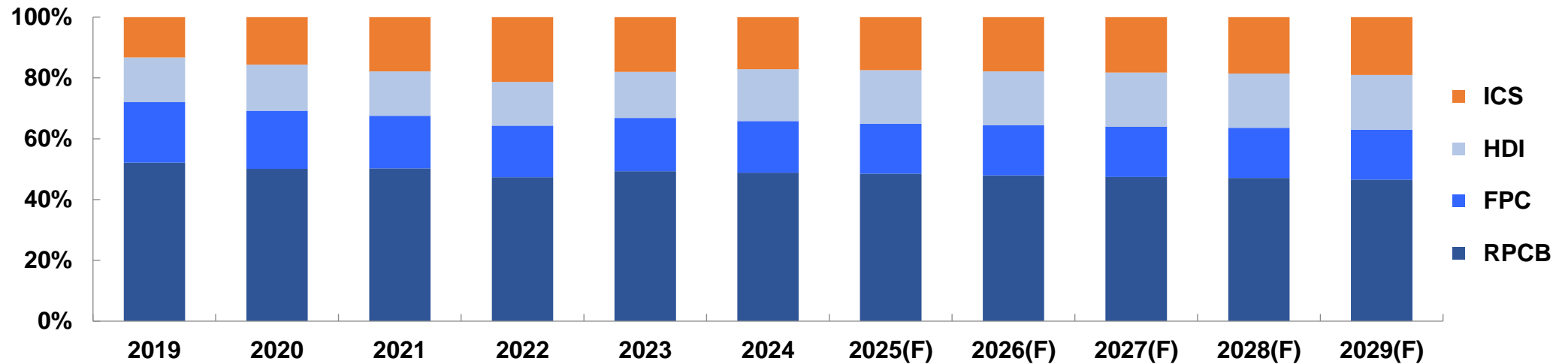
Source: NT Information ; Prismark (2025/03)

## ZDT Maintains a Leading Market Share in the PCB Industry



Source: Prismark

# All PCB Segments will Continue to Grow in 2025



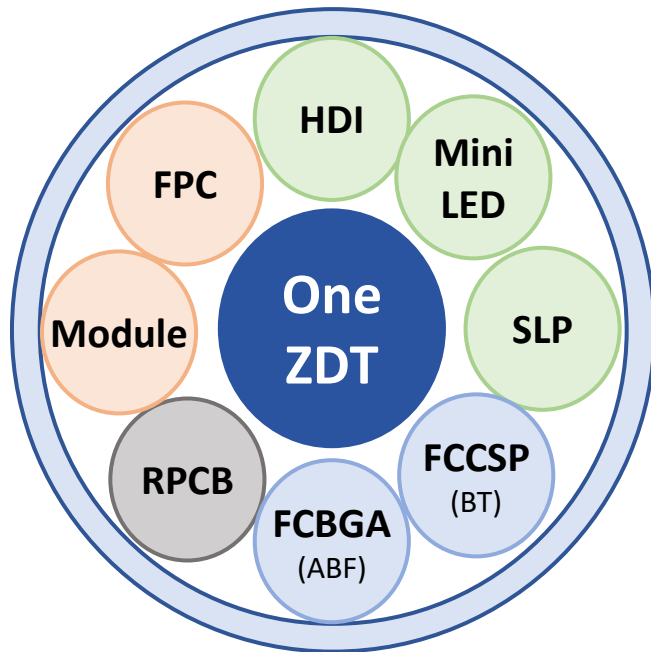
Product	Item	2019	2020	2021	2022	2023	2024	2025(F)	2026(F)	2027(F)	2028(F)	2029(F)	2024-2029 CAGR
RPCB	Value	31,969	32,674	40,641	38,720	34,292	35,941	38,091	39,471	40,823	42,679	44,022	4.1%
	%	52.1%	50.1%	50.2%	47.4%	49.3%	48.9%	48.5%	48.0%	47.4%	47.1%	46.5%	
FPC	Value	12,195	12,483	14,058	13,842	12,191	12,504	12,960	13,579	14,227	14,906	15,617	4.5%
	%	19.9%	19.1%	17.4%	16.9%	17.5%	17.0%	16.5%	16.5%	16.5%	16.5%	16.5%	
HDI	Value	9,008	9,874	11,811	11,763	10,536	12,518	13,815	14,558	15,342	16,167	17,037	6.4%
	%	14.7%	15.1%	14.6%	14.4%	15.2%	17.0%	17.6%	17.7%	17.8%	17.9%	18.0%	
ICS	Value	8,139	10,188	14,410	17,415	12,498	12,602	13,696	14,661	15,695	16,801	17,985	7.4%
	%	13.3%	15.6%	17.8%	21.3%	18.0%	17.1%	17.4%	17.8%	18.2%	18.6%	19.0%	
Total		61,311	65,219	80,920	81,740	69,517	73,565	78,562	82,269	86,087	90,553	94,661	5.2%
YoY Change (%)		-1.7%	6.4%	24.1%	1.0%	-15.0%	5.8%	6.8%	4.7%	4.6%	5.2%	4.5%	

Source : Prismark(2025/3) ; 2026~28's data is calculated based on Prismark's estimation

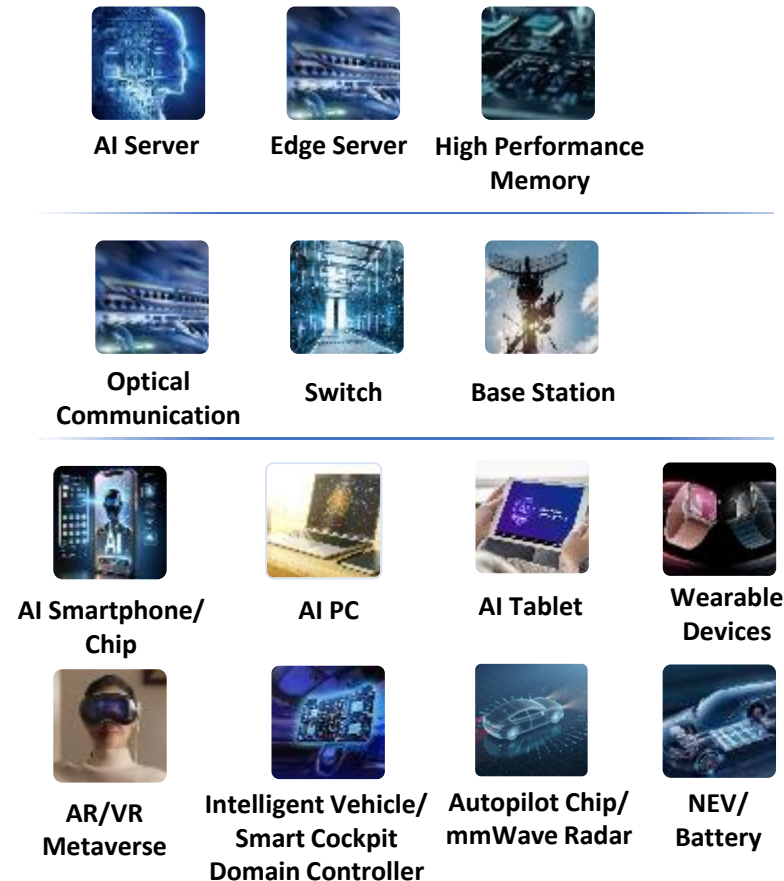
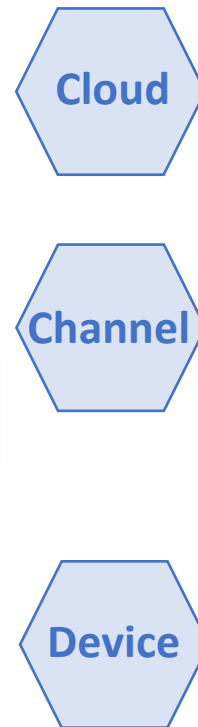


# One ZDT: We Offer A Full Range of PCBs for AI

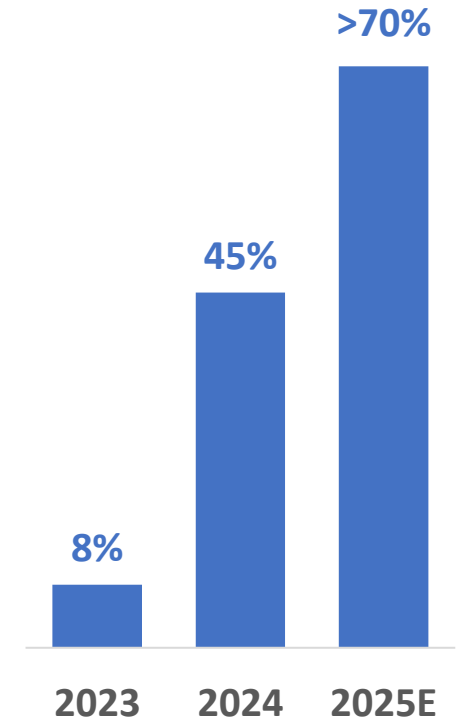
From AI Edge Devices to AI Servers – AI Increases Design Complexity for PCBs  
ZDT Offers the Most Comprehensive and Advanced PCBs for All Kinds of AI Applications



AI



ZDT: Revenue Contribution from AI Related Products



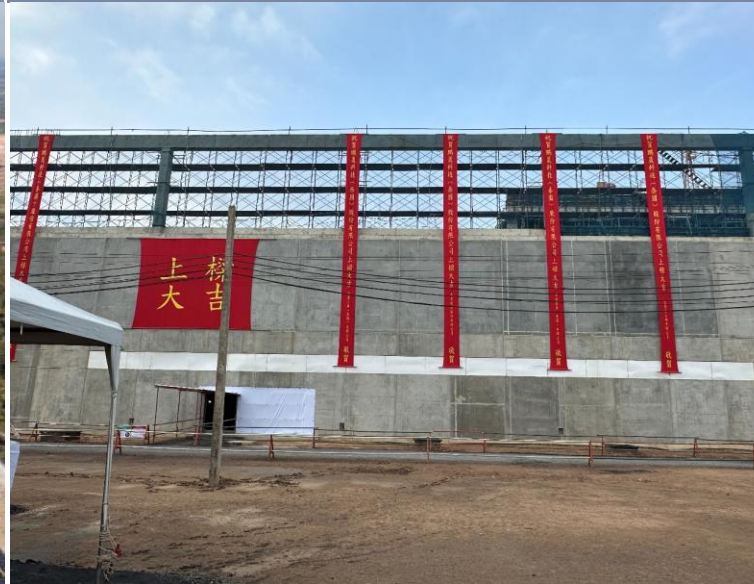


# The Construction of Thailand Fab is Progressing According to Plan, with Trial Production Scheduled on May 8th

(Dec. 2023) Thailand Prachinburi Park (Phase I)



(2024/8/26) Beam-Raising Ceremony



(Feb. 2025) Thailand Park Current Status



- The phase 1 of the new fab in Prachinburi, Thailand, began equipment installation in February, with trial production scheduled for May 8th and small-scale volume production expected in the second half of the year. Meanwhile, the phase 2 fab is scheduled to break ground on May 8th.
- Phase 1 capacity will focus on high-end server, automotive, and optical applications, providing high-end RPCB and HDI products.
- We are actively investing resources and developing new products to secure more tier-1 customers once the Thailand capacity comes online.

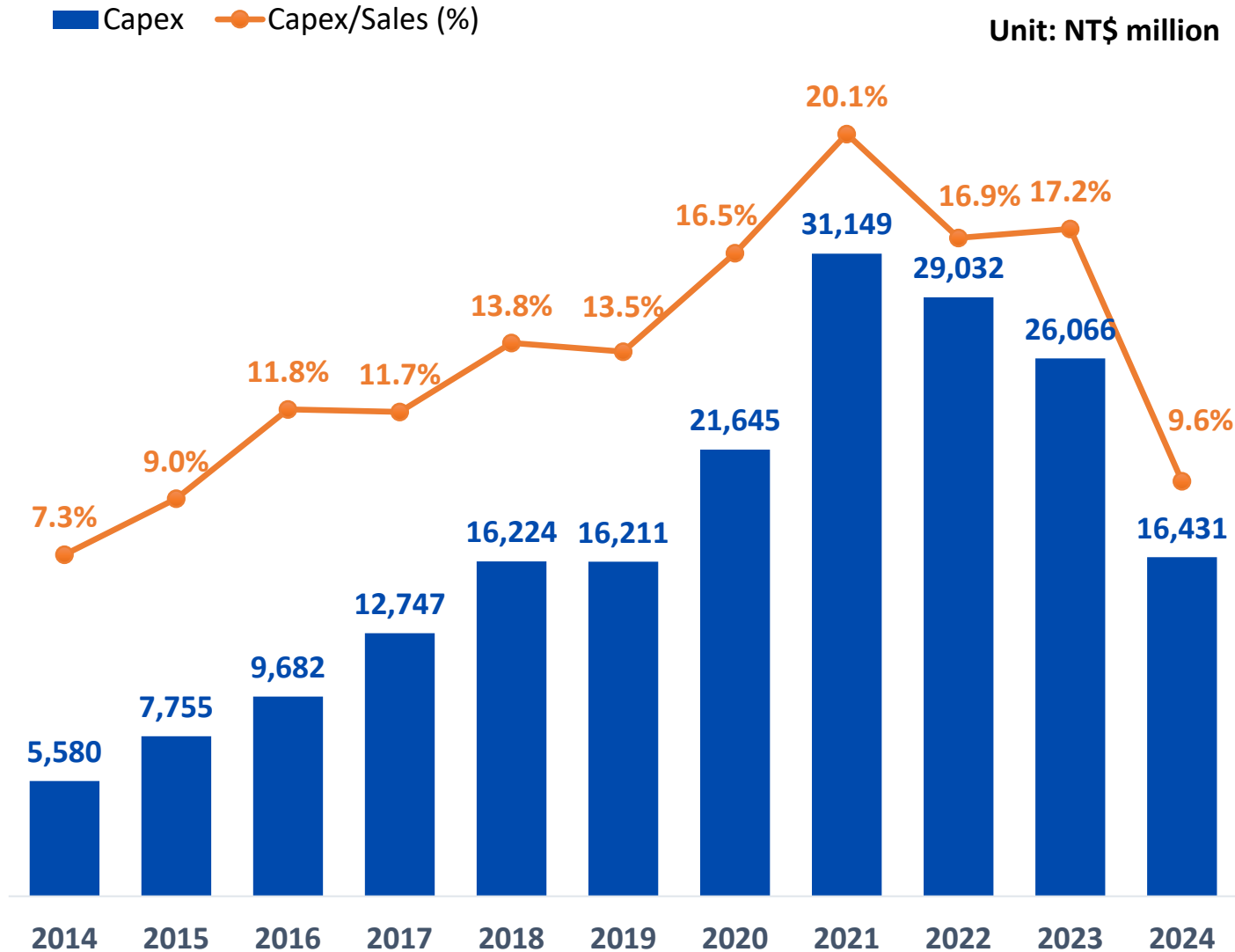




The Kaohsiung AI Park will be Zhen Ding's key R&D and manufacturing site for AI related products, with a focus on providing high-end products.

- IC Substrates: We have announced an investment of NT\$8bn in equipment to establish a full-process FCBGA mass production facility for advanced packaging.
- High-Layer-Count and High-Density Interconnect (HLC+HDI) PCBs: We have announced an investment of NT\$2bn in equipment to build production capacity.
- Flexible Printed Circuit (FPC): The facility has entered trial production.

# Continued Capacity Expansion, Pursuing Stable Growth



- As the world's largest PCB manufacturer, we position ourselves as a growth-oriented company, continuously adopting our “Early Deployment” strategy to proactively build the capacity to meet customers’ needs.
- This year, we will invest in capacity expansion in both Mainland China and overseas. In Mainland China, we will expand capacity for automotive and energy storage FPCs and collaborate with customers to build up high-end capacity to de-bottlenecks. For overseas, we are progressing as planned with the construction of our Kaohsiung and Thailand fabs, laying a solid foundation for long-term growth.

# EPS + ESG – Improvement of ESG Ratings

## ► Corporate Governance Evaluation Ranking

Ranked between 6% to 20% in the 2024 Corporate Governance Evaluation for listed companies and **selected for inclusion in the TWSE Corporate Governance 100 Index.**

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## ► S&P Global ESG Rating

In 2024, our S&P ESG Score improved to 78 and was **selected as the only PCB company in the S&P Global Sustainability Yearbook** for the third consecutive year.

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## ► Sustainalytics ESG Risk Rating

Our latest Sustainalytics ESG Risk Ratings was 15.7, classified as **low risk.**

## ► ISS ESG Rating

ISS has upgraded our ESG Rating from "C" to "C+," granting Zhen Ding **"Prime" status.**

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## ► CDP

In 2024, we received an **'A' leadership** rating for water security, marking a one-notch improvement from last year. Additionally, we achieved a 'B' rating from CDP for climate change

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## ► FTSE Russell ESG Rating

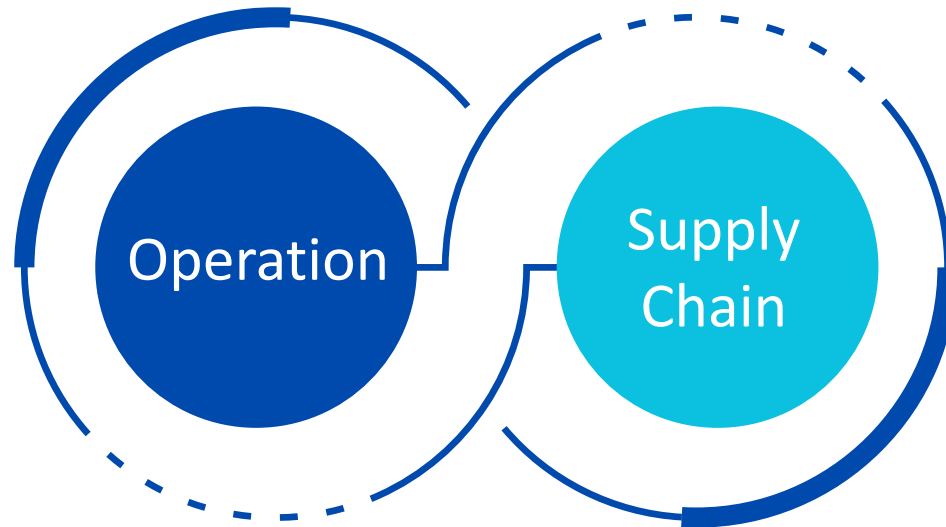
Our FTSE Russell ESG Rating reached 4.4 (out of 5) and ranked in the **5th place among all listed companies in Taiwan.**

# Digital Transformation & Empowerment

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Chen-Fu Chien, General Manager

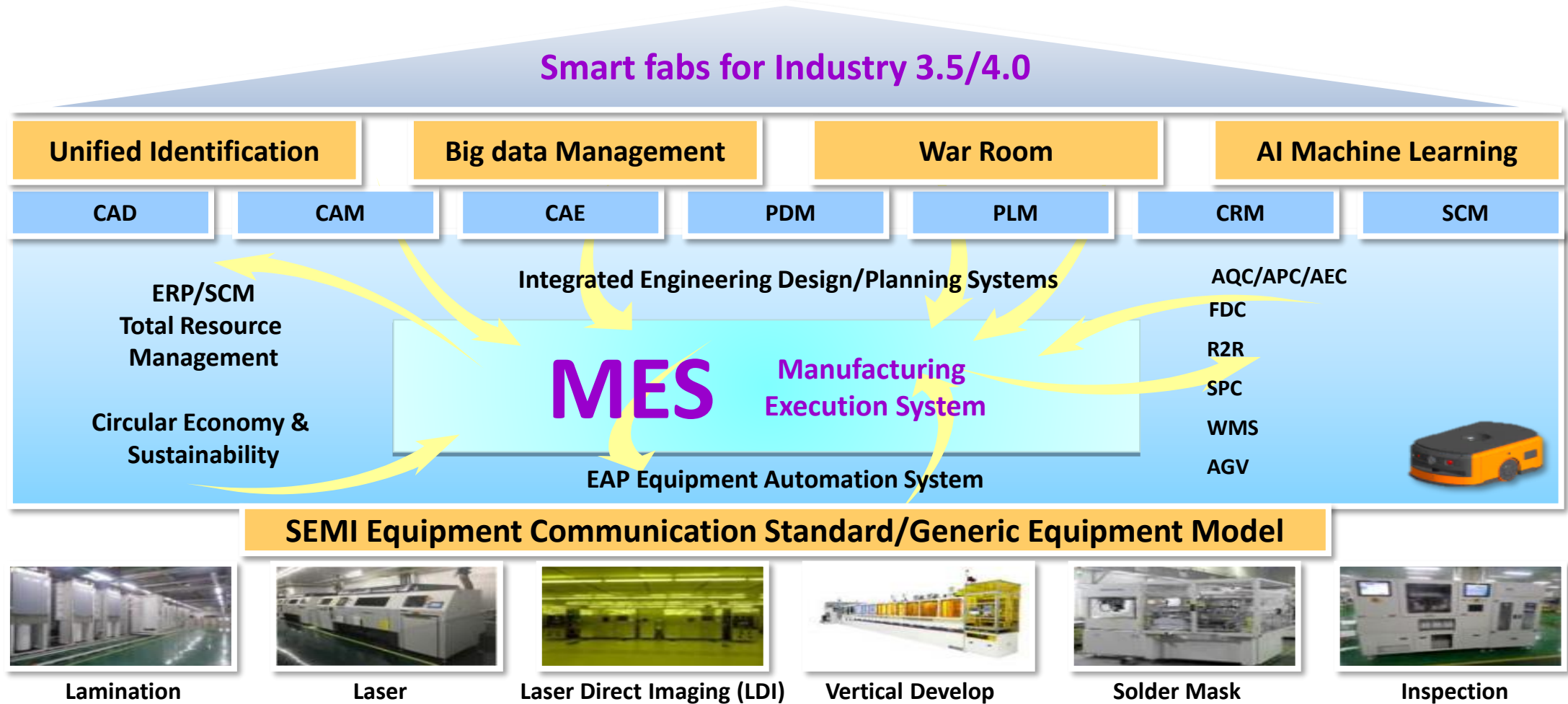
- 1 Digital Transformation
- 2 Smart Manufacturing
- 3 AI Empowerment



- 1 Semiconductor Supply Chain Engagement
- 2 Industry-Academia Collaboration
- 3 Senior Talent Recruitment and Development



# Through Smart Fabs, Zhen Ding Strives to Be an Essential Partner to the Semiconductor Industry



# Introduce Smart Manufacturing and Digital Transformation into Each Fab Step by Step to Drive Manufacturing Excellence

Under the One ZDT strategy, smart management has been implemented in phases across different fabs. By the end of 2024, 9 new fabs had adopted smart management, while 6 existing fabs had been upgraded. The implementation of smart management has resulted in significant improvements in both yield and efficiency. Currently, among Zhen Ding's 29 fabs, 4 new fabs are under construction, 1 is undergoing an upgrade, and 9 older fabs are pending improvement.



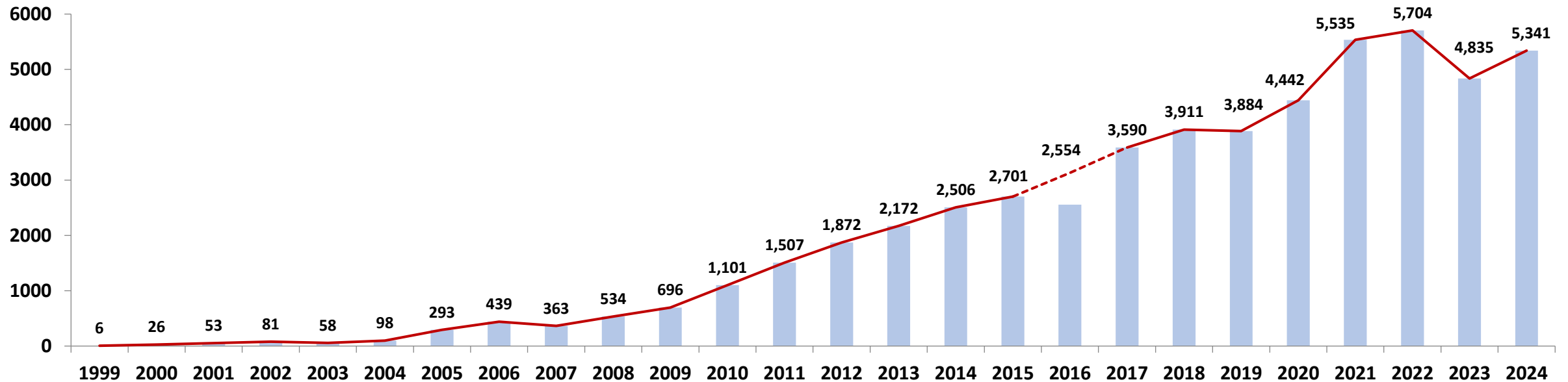


# Aim to Continuously Increase Per Capita Productivity

- By enhancing operational efficiency through digital transformation and smart fabs, Zhen Ding's goal is to achieve continuous revenue growth by 2030 while optimizing workforce management to ensure a steady increase in per capita productivity.

Zhen Ding's Consolidated Revenue Trend

Unit: US\$ million



Unit: US\$ Million; Ppl

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Revenue	6	26	53	81	58	98	293	439	363	534	696	1,101	1,507	1,872	2,172	2,506	2,701	2,554	3,590	3,911	3,884	4,442	5,535	5,704	4,835	5,341
Employee number	/	/	/	/	/	3,396	4,605	8,805	13,006	17,009	18,142	22,983	23,034	25,392	27,820	33,212	37,801	39,943	40,622	38,588	35,953	40,521	44,330	42,425	41,478	49,149

\* Annual average number of employees



# Operation Planning & Execution

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**D.J. Lee, Director & Chief Operating Officer**

1

**In 2025, revenue from servers, automotive, and optical will continue to grow. Within the server segment, AI servers will be the primary growth driver:**

We have successfully expanded from general-purpose servers into AI servers. With the expertise in key manufacturing processes, we have secured stable AI server orders to drive revenue growth. Currently, we are actively expanding collaborations with customers on projects for Intel, AMD, and ASIC-based architectures. In alignment with the AI ASIC product development plans of our two major cloud customers, we offer comprehensive PCB solutions while accelerate our global production footprint.

2

**For optical communications, we offer high-end products to gain more market share:**

After passing customer qualifications last year, our optical products entered mass production, with revenue contributions expected to gradually increase. This year, we are focusing on high-end 800G/1.6T mSAP designs, aiming to secure more customers and orders, while 3.2T products have also entered the R&D and design phase. As AI continues to evolve, the demand for high-end products is primarily driven by mSAP technology. This trend is expected to sustain strong growth over the next 3 to 5 years.

3

**For automotive, our deployment on autonomous driving and electrification will drive growth:**

Zhen Ding is actively expanding its presence in high-end high-layer-count HDI products for autonomous driving, with ADAS domain control motherboards and high-end sensors entering mass production. For electrification, shipments of battery-related products continue to grow. For automotive connectivity, we are working closely with customer to develop products, with high-end SLP applications emerging. Starting in 2H25, customers will begin qualifying the Thailand fab, addressing their need for diversified manufacturing bases.

# IC Substrate Business Update

1

**IC substrate revenue grew by 75.6% YoY in 2024, with the growth rate far exceeding the industry average:**

- Our IC substrate capacity is strategically focused on high-end products. Our ABF substrates benefited from strong demand for Chiplet and 2.5D advanced packaging products, leading to a significant increase in capacity utilization, and our revenue for BT substrates also delivered steady growth. Overall, the growth of our IC substrate business far exceeded the industry average.

2

**IC substrates to remain the fastest-growing segment among four major applications in 2025:**

- While the overall ABF substrate market is experiencing a slow price recovery, the rapid development of AI, high-performance computing, and advanced packaging technologies continues to drive demand for high-end ABF substrates, particularly for large-size (70mm × 70mm and above) and high-layer-count (16 layers and above) products. We continue developing ABF substrates for new technology platforms, which may contribute to revenue in the second half of the year once customer qualification is completed, and our capacity utilization rate is expected to improve further compared to last year.

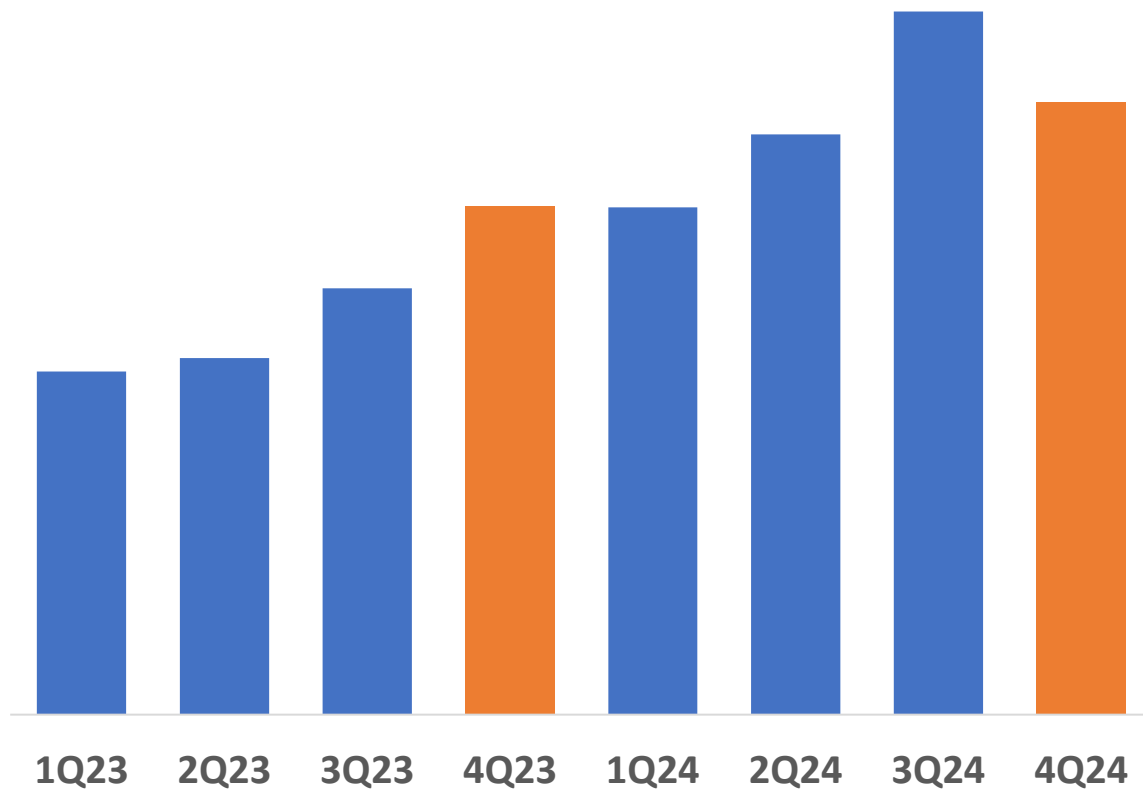
3

**To establish an IC substrate production site at Kaohsiung AI Park, leveraging the Smart Fab 2.0 concept:**

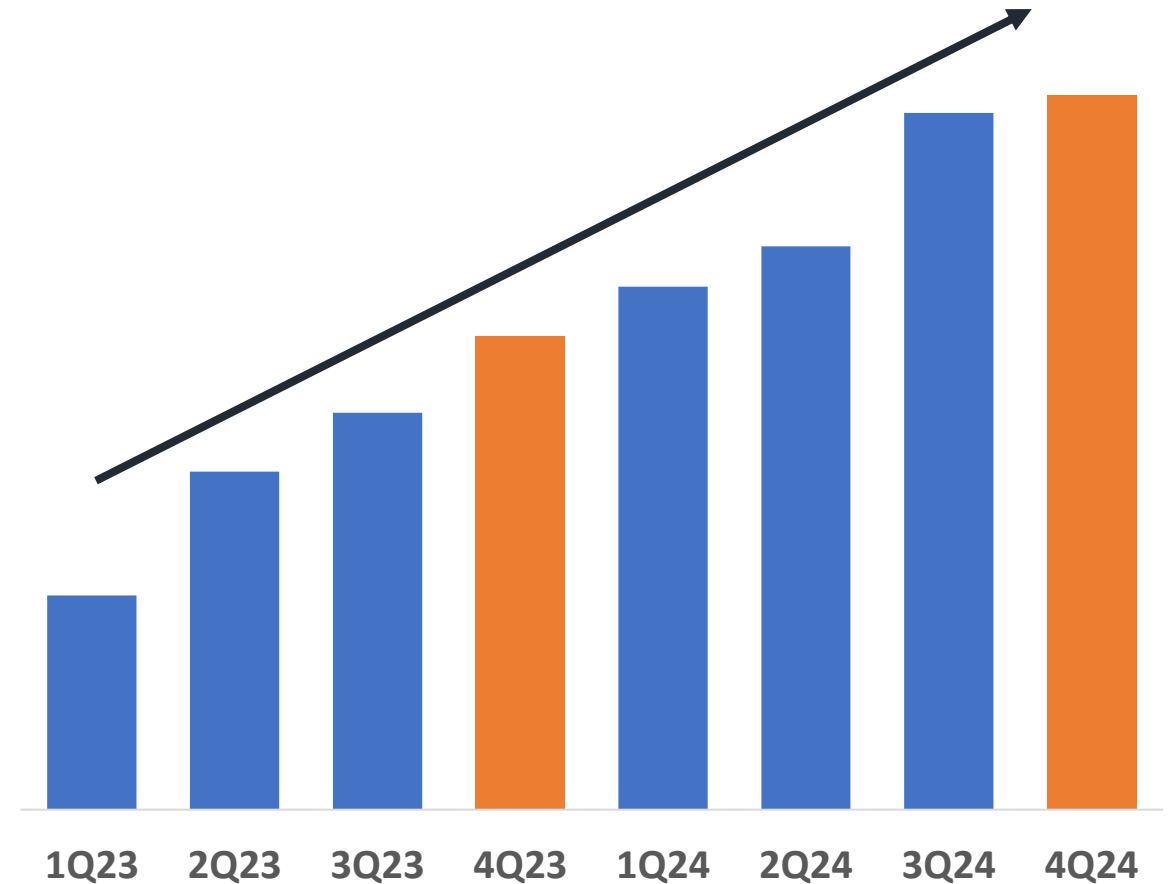
- To meet future customer demand for high-end products, we plan to build a full-process advanced packaging FCBGA mass production facility at the Kaohsiung AI Park. It is expected to develop FCBGA full-process production equipment and internal buried process production equipment, creating an advanced IC substrate production base.

# “One ZDT” Achieved Desired Results, with Continued Growth in Server/Automotive and IC substrates

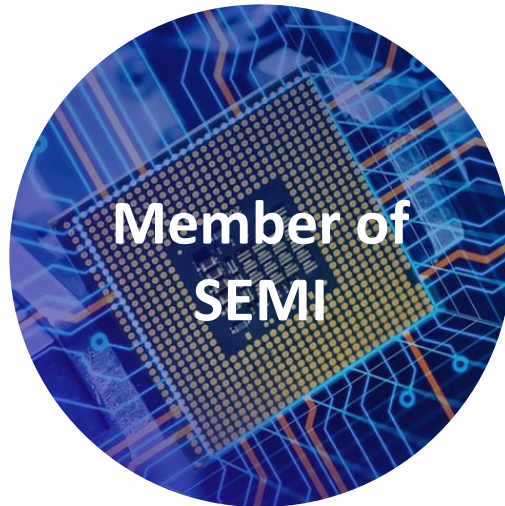
ZDT’s Revenue for Server/Automotive/Optical  
Continues Delivering Double-digit Growth



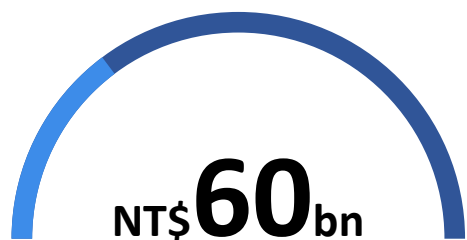
ZDT’s Revenue for IC Substrates Continues  
Setting a New Quarterly Record



**Zhen Ding has been actively engaging with semiconductor industry organizations and collaborating closely with the supply chain to explore market opportunities in emerging technologies.**



# IC Substrate Goals



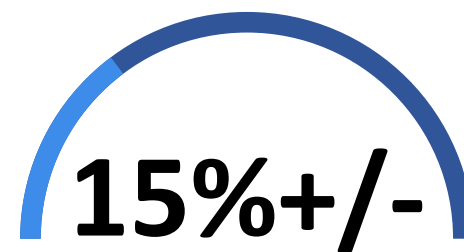
## IC Substrate Capex:

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



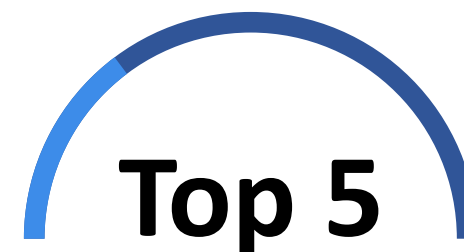
## IC Substrate Revenue:

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



# Q&A

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Zhen Ding Tech. Holding

THANK YOU