



*Compound Semiconductor Solutions  
from RF to Lightwave*

穩懋半導體

# WIN Semiconductors Company Presentation

Mar-Apr 2024



# Safe Harbor Notice



- **This presentation contains certain forward-looking statements that are based on current expectations and are subject to known and unknown risks and uncertainties that could cause actual results to differ materially from those expressed or implied by such statements.**
- **Except as required by law, we undertake no obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise.**

- **Market Outlook**
- **WIN Technologies**
- **Financial Review & Guidance**
- **Q&A**

# MARKET OUTLOOK

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# The Megatrend



## Ubiquitous AI Access



3D Holographic  
Meeting & UI



Teleoperation  
Surgery & Vehicle



Autonomous Vehicle

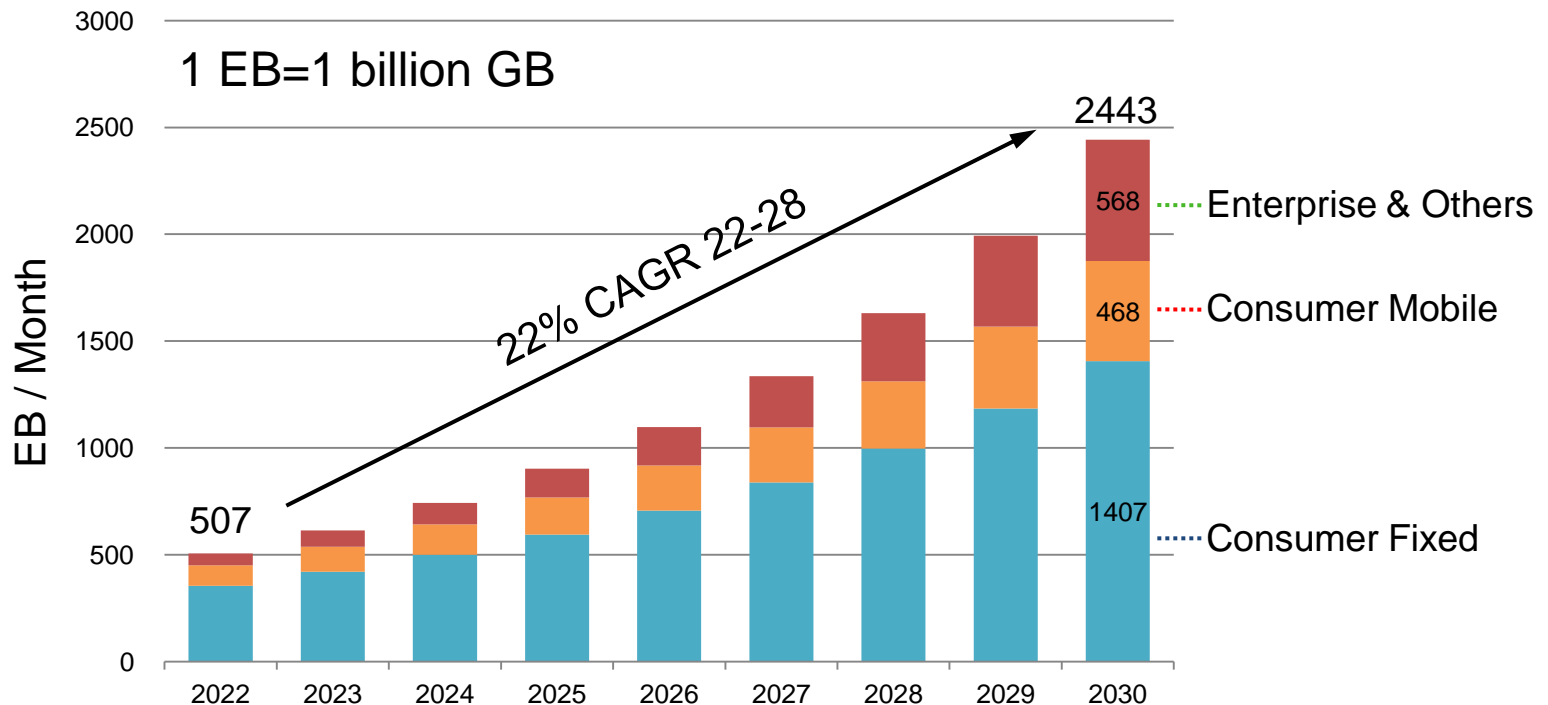


True Smart City  
>10X Devices  
Connected/area

# Rapidly Increased Global Data Traffic

## To increase data transmission capacity:

1. Increase number of devices; and
2. Improve performance of devices (spectrum efficiency)



NOKIA

Source: Nokia.

# Pivotal Elements Toward “Ubiquitous AI Access”



**WIN's cutting-edge III-V foundry technologies  
to provide critical processes toward the AIoT megatrend.**

Wi-Fi 7  
Mobile & Router



B5G  
Mobile & BST



Satellite Comm.  
LEO&GEO



Core/Metro Telecom  
Network



AR / VR / XR



3D Sensing



Biometric Sensors



Automotive  
LiDAR



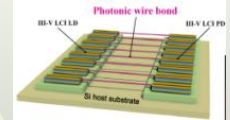
Industrial Robot



Hyper Scale  
DC MMF Optics  
800G/400G



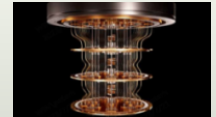
Inter-Chips  
Optical  
Interconnect



Mid and Long-Reach  
SMF Optics  
for AI Server



Quantum  
Computing



**Ultra-high Speed  
Data Transmission**



**Smart Sensing**



**Mass Data  
Computation & Storage**

# WIN TECHNOLOGIES

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# Ultra-High Speed Data Transmission win SEMICONDUCTORS

Driven by massive data generated by vast computing, storage, and sensing devices.

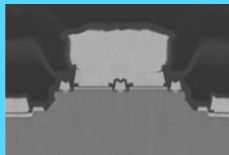


Wi-Fi 7

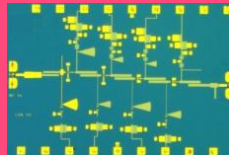
World-Leading

7<sup>th</sup>

Gen. HBT



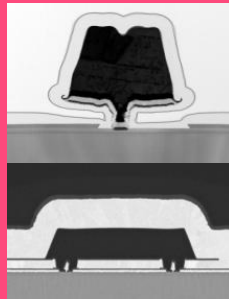
5G/6G



World-Leading

mmWave

pHEMT

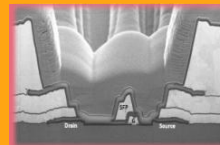


Satellite comm.

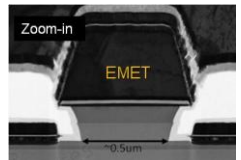
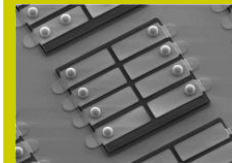


Telecom

World Class  
RF  
GaN HEMT  
technology

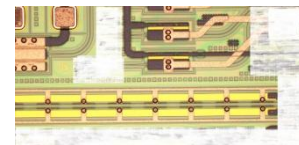
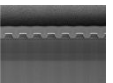


SAW & BAW  
Filters



Reliable InP  
HBT with  
Cutoff Freq.  
 $\geq 300\text{GHz}$

InP-based  
PIC and  
laser sources



# Smart Sensing

Driven by innovative applications toward a safer, environmental friendlier, and more immersive experience lifestyle for people.



**AR / VR / XR**



**3D Sensing  
For  
Mobile devices**



**Biometric  
Sensors**

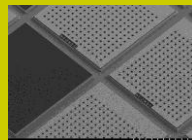
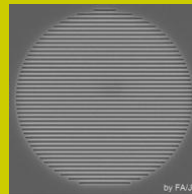
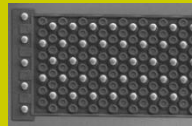


**Automotive  
LiDAR & In-Cabin**

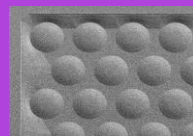
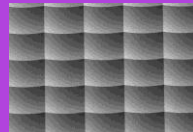


**Industrial**

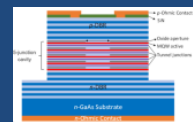
**SWIR/NIR  
VCSEL**



**Back-emitting  
VCSEL  
with Optics**

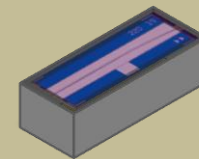
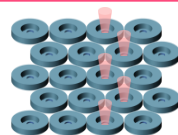


**Multi-junction  
High power  
VCSEL**



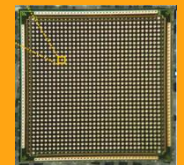
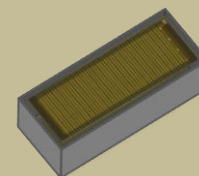
**On-VCSEL  
Optics  
Technology**

**Addressable  
VCSEL  
Array (6")**



**InP-based  
Photodetectors  
(APD & PIN)**

**SWIR EEL**



# Mass Data Computation & Storage

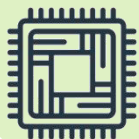
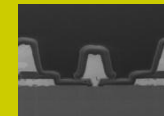
Driven by rapidly increased AI servers in data center and new computation technology.



**Hyper Scale  
Data Center  
MMF Optics 800G/400G**

100 Gbps/lane  
VCSEL  
On  
6" wafer

**WIN pHEMT  
LD/Modulator  
Driver IC**



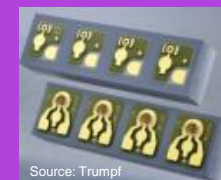
**Inter-Chips  
Optical Interconnect**



**InP-based  
BH DFB LD**

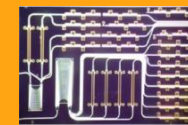


**InP-based  
High-speed  
Photodiodes  
(APD&PIN)**



**Mid and Long-  
Reach  
SMF Optics  
for AI Servers**

**InP-based  
Photonic IC**



**Quantum Computing**



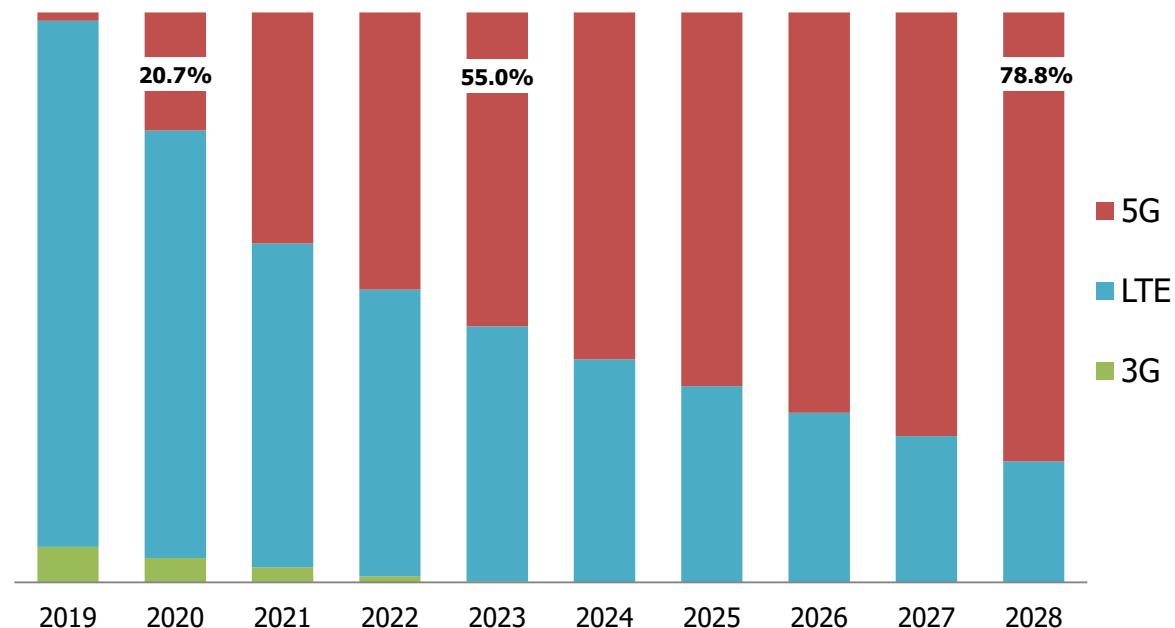
# PA Content Increase in 5G Smartphones

- 5G smartphone shipments surpassed 4G in 2023.
- Higher PA content in 5G smartphones compared to 4G.

Smartphone Market Breakdown by Cellular Standard

PA volume in Smartphone

4G	4 ea
5G	6 ea
	7 ea (+N77)
	8 ea (+N77, N79)

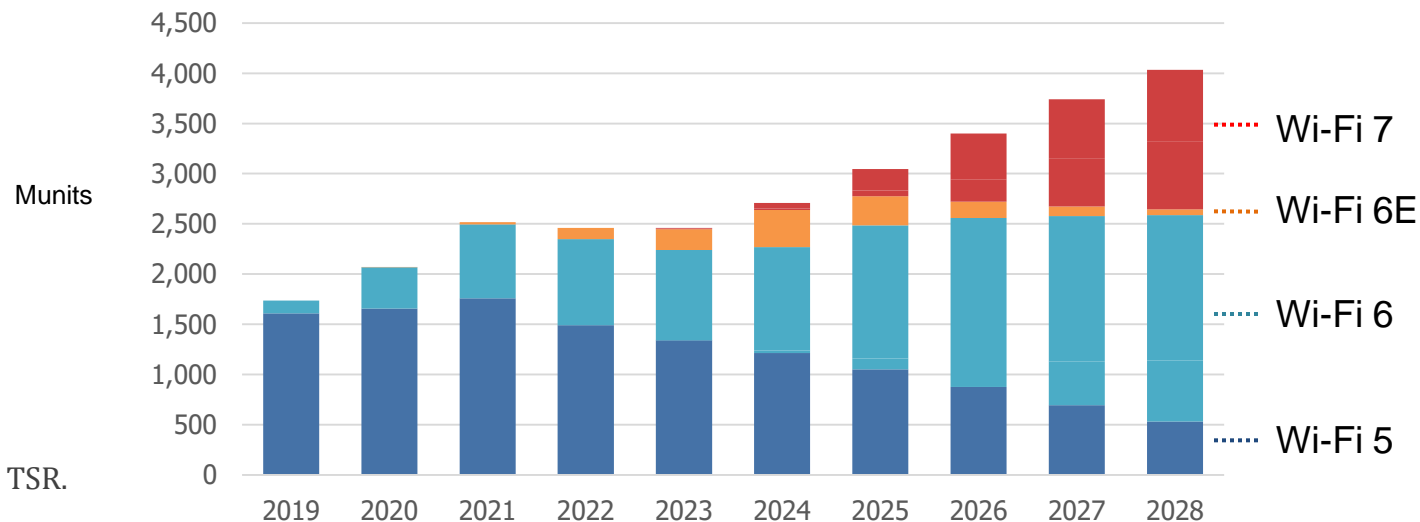


Source: TSR.

# Wi-Fi 7: Content Increase for GaAs-based PA

- Wi-Fi 7 data rate increased by spectrum, channel bandwidth and modulation.
- GaAs provides the best performance for high linearity, high frequency and broadband applications.
- External PA demand will grow with Wi-Fi 7.

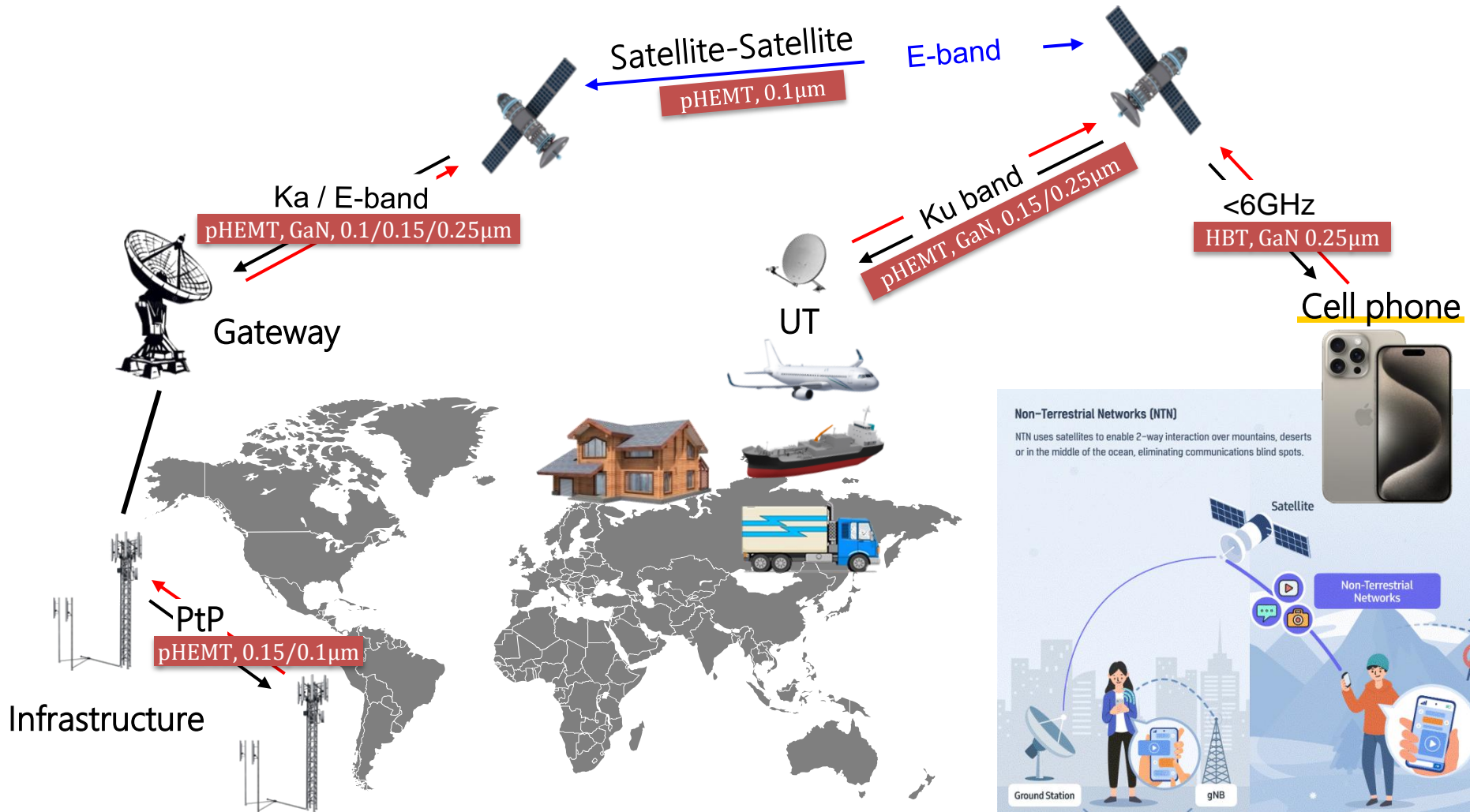
	Wi-Fi 6	Wi-Fi 6E	Wi-Fi 7
Bands	2.4GHz, 5GHz	2.4GHz, 5GHz, 6GHz	2.4GHz, 5GHz, 6GHz
Channel Size	20,40,80, 80+80,160MHz		Up to 320MHz
Modulation	1024-QAM		4096-QAM



Source: TSR.

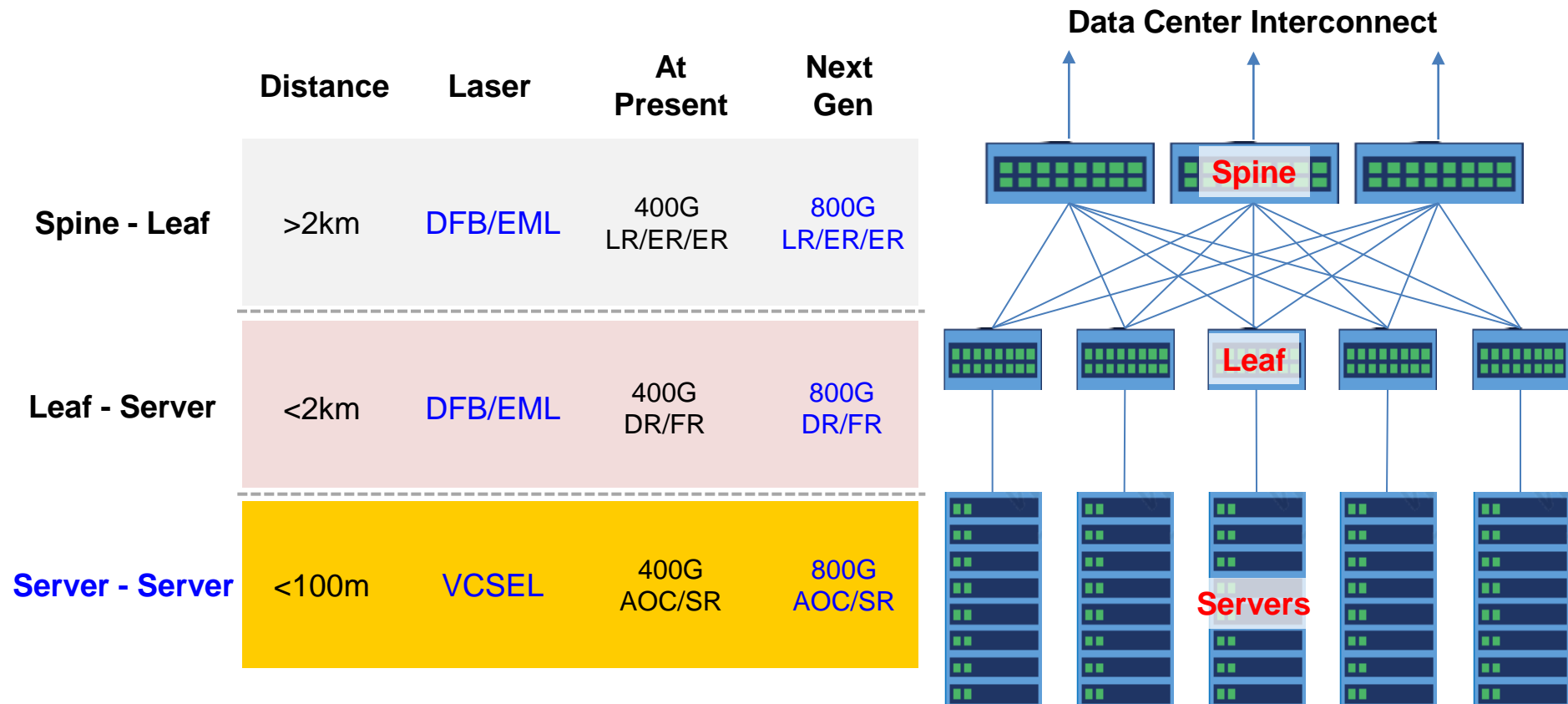
# Satellites Enable Seamless Network

- LEO launch and NTN for direct to cell application deployment.



# Strong Demand on Laser and Driver IC From AI Data Centers

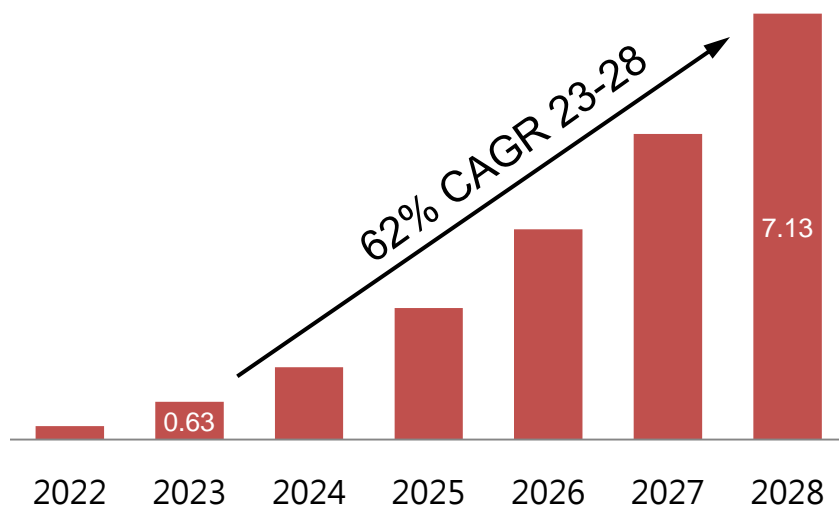
- Driven by rapidly increased AI servers demand, The high speed and short range solution from VCSEL keep penetrating into DCI applications.



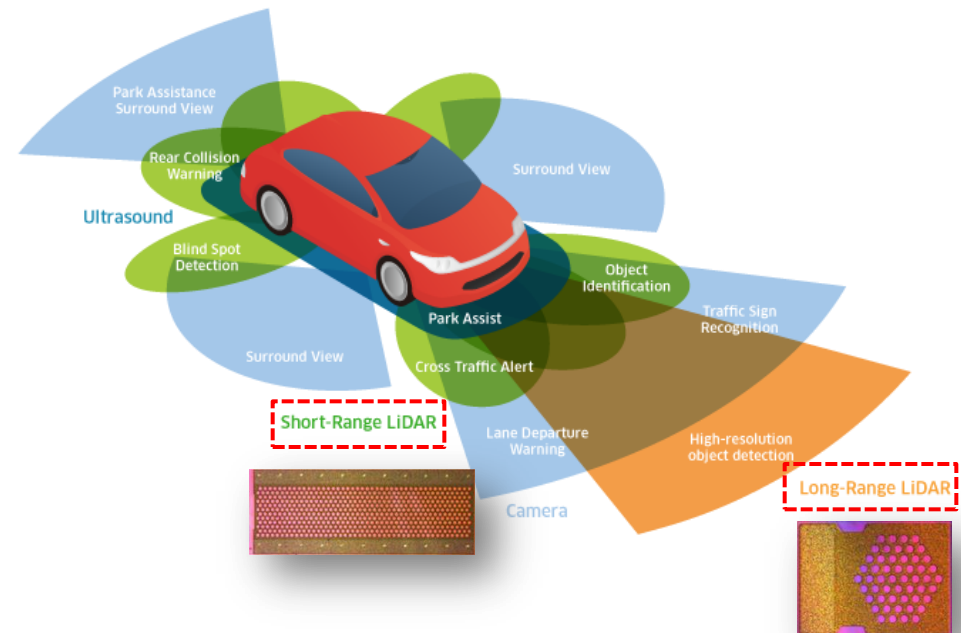
# Laser Light Sources for Automotive Use Will be the Next Big Wave: LiDAR and DMS/OMS

- Market report estimates a strong CAGR of 62% for automotive LiDAR application.
- Hybrid and pure solid-state LiDAR are becoming the mainstream technology. Semiconductor laser as the LiDAR light source will be beneficial from this technology trend.
- Both GaAs VCSEL and InP EEL are the strong contenders each with its own merits.

LiDAR Market by shipment in M units



Source: YOLE.



# WIN's Strategy



Serve market-leading customers with our most comprehensive world-leading and proven III-V manufacturing technologies in the fast growing markets along the megatrend.

# Key Takeaways



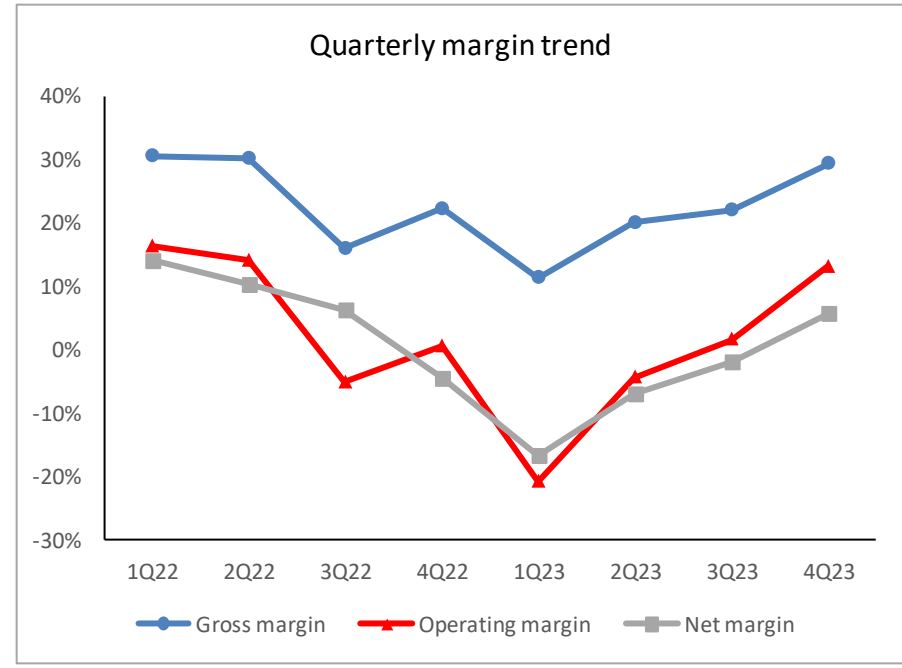
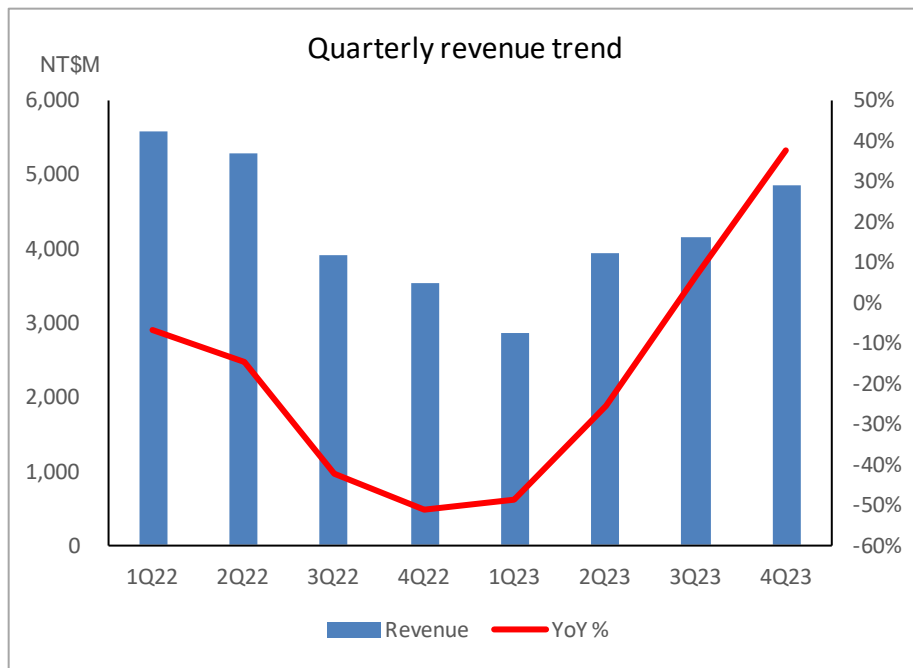
- WIN, as the global leading III-V foundry company, provides critical process technologies to meet the AIoT megatrend.
- WIN possesses the broadest technology portfolio to serve major markets in wireless communication links, AI data center optical links, automotive LiDAR and broad range of 3D sensing emerging applications.
- Highlight growth momentum from 5G PA content increase, Wi-Fi 7 adoption, satellite communication links, AI datacenter O/E interface, and automotive LiDAR etc.
- WIN devotes to serve market-leading customers with our world-leading technologies in the fast growing markets along the megatrend.

# FINANCIAL REVIEW & GUIDANCE

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# Revenue & Margin Trend

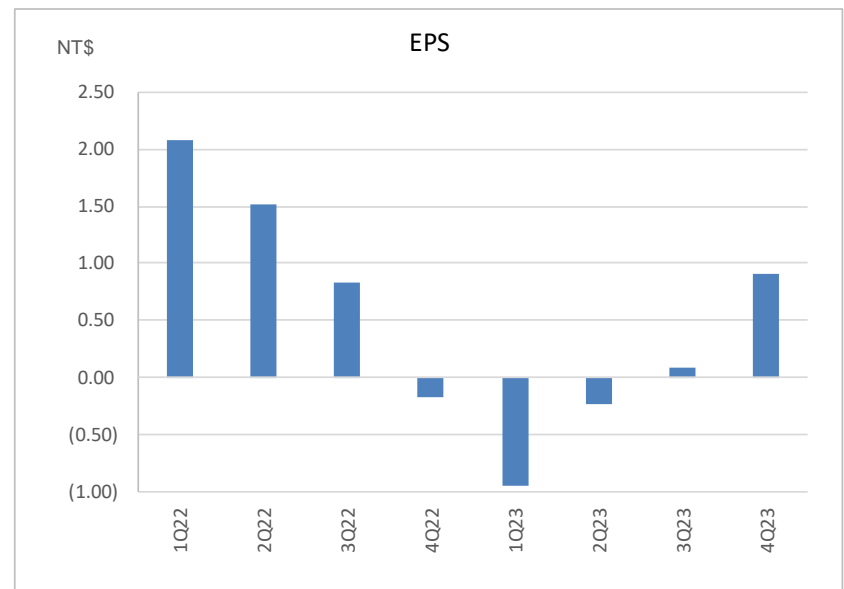
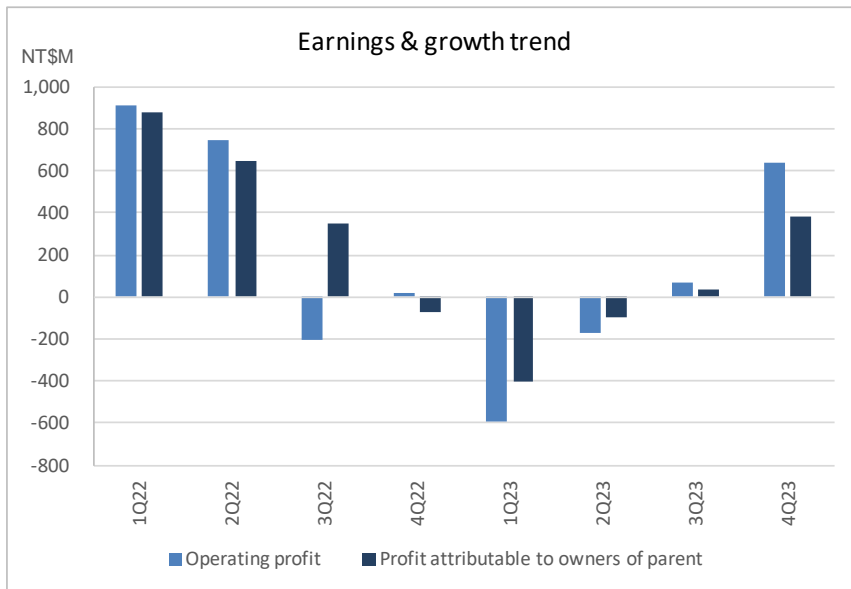
- 4Q23 revenue was NT\$4.9b, up 17% QoQ and 38% YoY.
- In 4Q23, driven by the increase in capacity utilization, gross margin increased by 7.3pp sequentially to 29.4% and operating margin increased by 11.4pp to 13.1%.



Source: Company.

# Earnings Trend

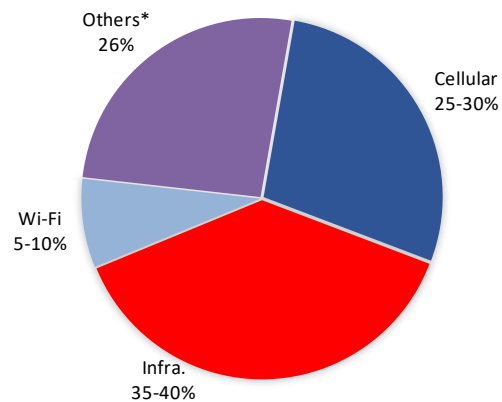
- In 4Q23, with better capacity utilization, net profit attributable to the parent company was NT\$385m, compared to NT\$34m in 3Q23. EPS came in at NT\$0.91 for 4Q23, compared to NT\$0.08 in 3Q23.



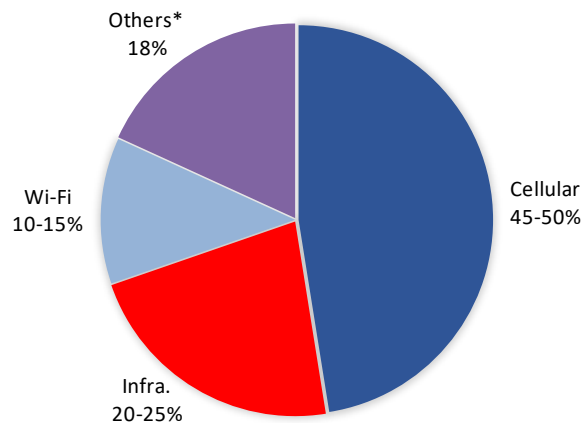
Source: Company.

# Product Mix

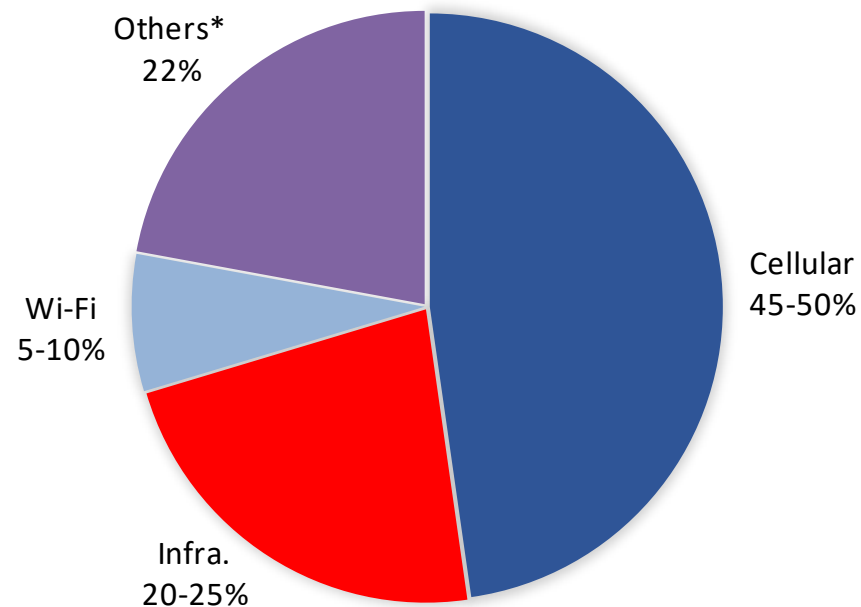
**4Q22**



**3Q23**



**4Q23**



\* Others: Revenue not attributable to main product segments and additional revenue being consolidated in accordance with IFRS.

Source: company.

- **We expect 1Q24 revenue to decline low-teens QoQ.**
- **We expect 1Q24 gross margin to be around the level of mid-twenties.**

# **APPENDIX - FINANCIAL SUMMARY**

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# Consolidated Statements of Comprehensive Income - Quarterly

Unit: NTD Million	4Q'22	3Q'23	4Q'23 (unaudited)	QoQ	YoY
<b>Net revenue</b>	<b>3,531</b>	<b>4,165</b>	<b>4,868</b>	<b>+17%</b>	<b>+38%</b>
Gross profit	786	919	1,433	+56%	+82%
<i>Gross margin (%)</i>	<i>22.2%</i>	<i>22.1%</i>	<i>29.4%</i>		
Operating expenses	(765)	(849)	(794)	-7%	+4%
<i>Operating expenses rate (%)</i>	<i>-22%</i>	<i>-20%</i>	<i>-16%</i>		
<b>Operating income</b>	<b>21</b>	<b>70</b>	<b>639</b>	<b>+812%</b>	<b>+2991%</b>
<i>Operating margin (%)</i>	<i>0.6%</i>	<i>1.7%</i>	<i>13.1%</i>		
Non-operating incomes and expenses	(154)	(114)	(357)		
Income (Loss) before income tax	(133)	(44)	282	—	—
Income tax expense	(28)	(37)	(5)		
<b>Net income (loss)</b>	<b>(161)</b>	<b>(81)</b>	<b>278</b>	<b>—</b>	<b>—</b>
<i>Net margin (%)</i>	<i>-4.6%</i>	<i>-1.9%</i>	<i>5.7%</i>		
Other comprehensive income, net	27	871	212		
<b>Comprehensive income</b>	<b>(134)</b>	<b>790</b>	<b>490</b>	<b>-38%</b>	<b>—</b>
<b>Profit (loss) attributable to owners of parent</b>	<b>(76)</b>	<b>34</b>	<b>385</b>	<b>+1031%</b>	<b>—</b>
<b>EPS (NT\$)</b>	<b>(0.18)</b>	<b>0.08</b>	<b>0.91</b>	<b>+1038%</b>	<b>—</b>
ROE(%)	-1%	0.4%	5%		
Approx. Utilization (%)	30%	50%	60%		
Depreciation	1,017	1,182	1,190		
CAPEX	916	1,880	252		

# Consolidated Statements of Comprehensive Income - YTD

Unit: NTD Million	2022Y	2023Y (unaudited)	YoY
<b>Net revenue</b>	<b>18,334</b>	<b>15,836</b>	<b>-14%</b>
Gross profit	4,725	3,469	-27%
<i>Gross margin (%)</i>	<i>25.8%</i>	<i>21.9%</i>	
Operating expenses	(3,241)	(3,525)	+9%
<i>Operating expenses rate (%)</i>	<i>-18%</i>	<i>-22%</i>	
<b>Operating income (loss)</b>	<b>1,484</b>	<b>(56)</b>	<b>-</b>
<i>Operating margin (%)</i>	<i>8.1%</i>	<i>-0.4%</i>	
Non-operating incomes and expenses	342	(623)	
Income (Loss) before income tax	1,826	(679)	-
Income tax (expense) income	(411)	121	
<b>Net income (loss)</b>	<b>1,414</b>	<b>(558)</b>	<b>-</b>
<i>Net margin (%)</i>	<i>7.7%</i>	<i>-3.5%</i>	
Other comprehensive income, net	84	1,762	
<b>Comprehensive income</b>	<b>1,498</b>	<b>1,204</b>	<b>-20%</b>
<b>Profit (loss) attributable to owners of parent</b>	<b>1,802</b>	<b>(80)</b>	<b>-</b>
<b>EPS (NT\$)</b>	<b>4.25</b>	<b>(0.19)</b>	<b>-</b>
ROE(%)	5%	-0.2%	
Approx. Utilization (%)	50%	45%	
Depreciation	4,164	4,621	
CAPEX	7,124	3,209	

# Non-operating Items

Unit: NTD Million	4Q'22	4Q'23 (unaudited)	2022Y	2023Y (unaudited)
Foreign exchange gains (losses)	(255)	(68)	254	(846)
Gains (losses) on disposals of property, plant and equipment	(226)	(1)	(190)	(19)
Gains on repurchase of bonds payable	241	104	601	817
Gain (losses) on financial assets (liabilities) at fair value through profit or loss, net	(17)	(90)	(577)	(63)
Share of gains (losses) of associates and joint ventures accounted for using equity method	106	44	320	39
Finance costs	(95)	(181)	(341)	(665)
Others	92	(164)	276	115
<b>Total</b>	<b>(154)</b>	<b>(357)</b>	<b>342</b>	<b>(623)</b>

# Consolidated Balance Sheets

(Unit: NTD Million)	Major Item	2022/12/31		2023/9/30		2023/12/31 (unaudited)	
		\$	%	\$	%	\$	%
	Cash and cash equivalents	10,380	15%	6,352	10%	10,326	15%
	Current financial assets at fair value through profit or loss	121	0.2%	143	0.2%	143	0.2%
	Notes and accounts receivable, net	917	1%	1,206	2%	1,149	2%
	Inventories	5,420	8%	5,157	8%	5,111	7%
	Long-term investments	14,376	21%	15,643	24%	16,061	23%
	Net property, plant and equipment	34,360	50%	33,964	51%	32,738	47%
	<b>Total Assets</b>	<b>69,128</b>	<b>100%</b>	<b>66,081</b>	<b>100%</b>	<b>69,168</b>	<b>100%</b>
	Current liabilities	6,247		13,740		12,724	
	Current portion of bonds payable	-		5,272		4,744	
	Current portion of long-term borrowings	1,731		3,518		2,997	
	Bonds payable	10,670		-		-	
	Long-term borrowings	15,870		16,398		20,030	
	<b>Total Liabilities</b>	<b>33,939</b>	<b>49%</b>	<b>31,224</b>	<b>47%</b>	<b>33,819</b>	<b>49%</b>
	Common stock	4,239		4,239		4,239	
	Total equity attributable to owners of parent	33,329		33,323		33,955	
	<b>Total Equity</b>	<b>35,190</b>	<b>51%</b>	<b>34,857</b>	<b>53%</b>	<b>35,349</b>	<b>51%</b>
	Book value per share (NT\$) <sup>1</sup>	78.62		78.60		80.09	
	<b>Key Indices</b>						
	Current ratio ( <i>Current assets / Current liabilities</i> )	276%		97%		135%	
	Debt ratio ( <i>Total liabilities / Total assets</i> )	49%		47%		49%	

<sup>1</sup> Book value per share = total equity attributable to owners of parent / number of common shares

# Q & A

For more information regarding WIN  
[www.winfoundry.com](http://www.winfoundry.com)

For all inquiries, suggestions, and comments  
[ir@winfoundry.com](mailto:ir@winfoundry.com)



*Compound Semiconductor Solutions  
from RF to Lightwave*

穩懋半導體

