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Investor Presentation: Greater China Technology Hardware | Asia Pacific

AI Profit Taking Occurred in 3Q26, What's Next?

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MORGAN STANLEY ASIA LIMITED+

Andy Meng, CFA
Equity Analyst
Andy.Meng@morganstanley.com +852 2239-7689

MORGAN STANLEY TAIWAN LIMITED+

Derrick Yang
Equity Analyst
Derrick.Yang@morganstanley.com +886 2 2730-2862

Howard Kao
Equity Analyst
Howard.Kao@morganstanley.com +886 2 2730-2989

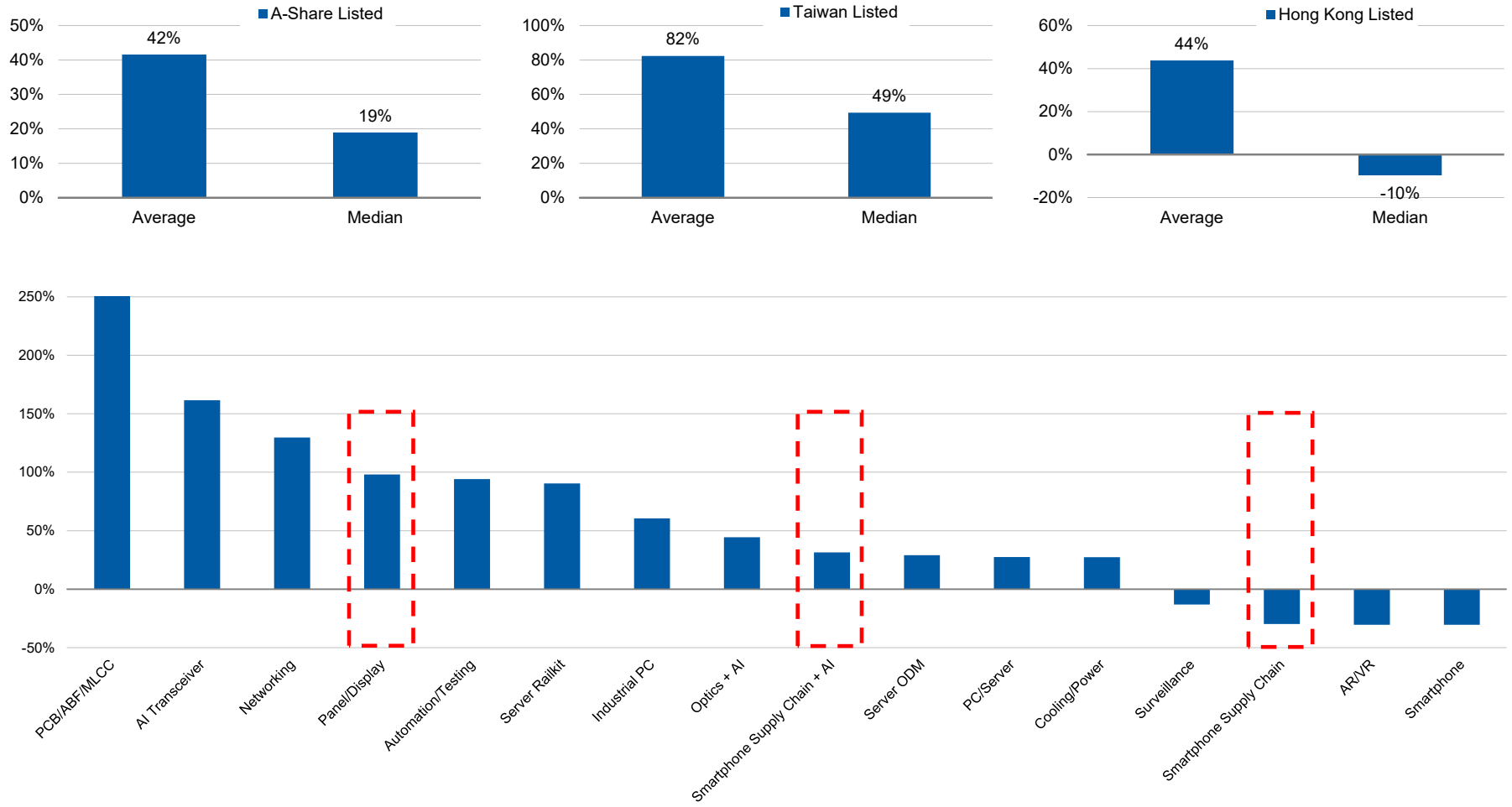
GREATER CHINA TECHNOLOGY HARDWARE
Asia Pacific
Industry View **In-Line**

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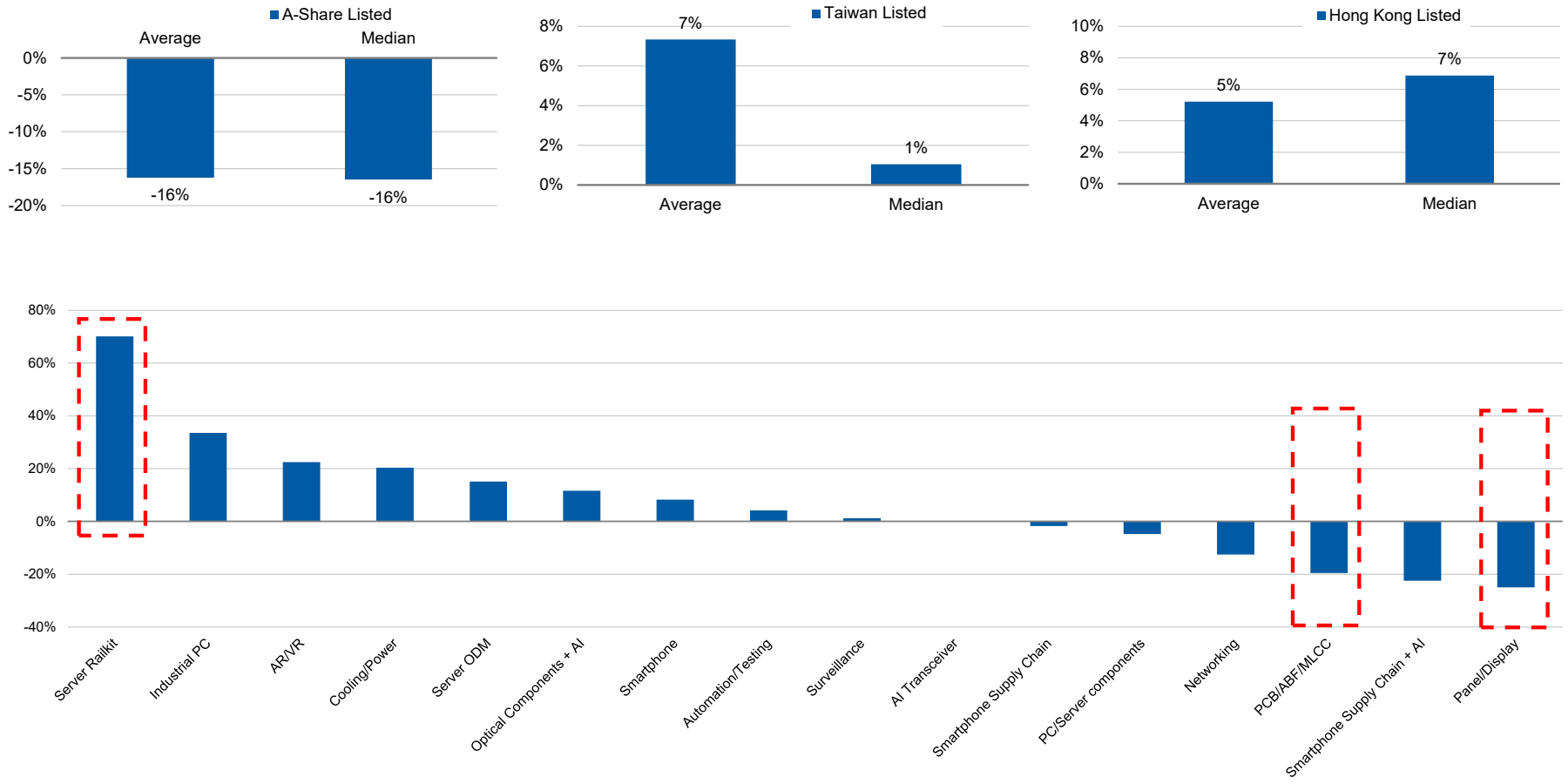
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Highly Divergent 1H26 Performance, with AI Content as the Key Re-rating Catalyst



Source: FactSet, Bloomberg, Morgan Stanley Research.

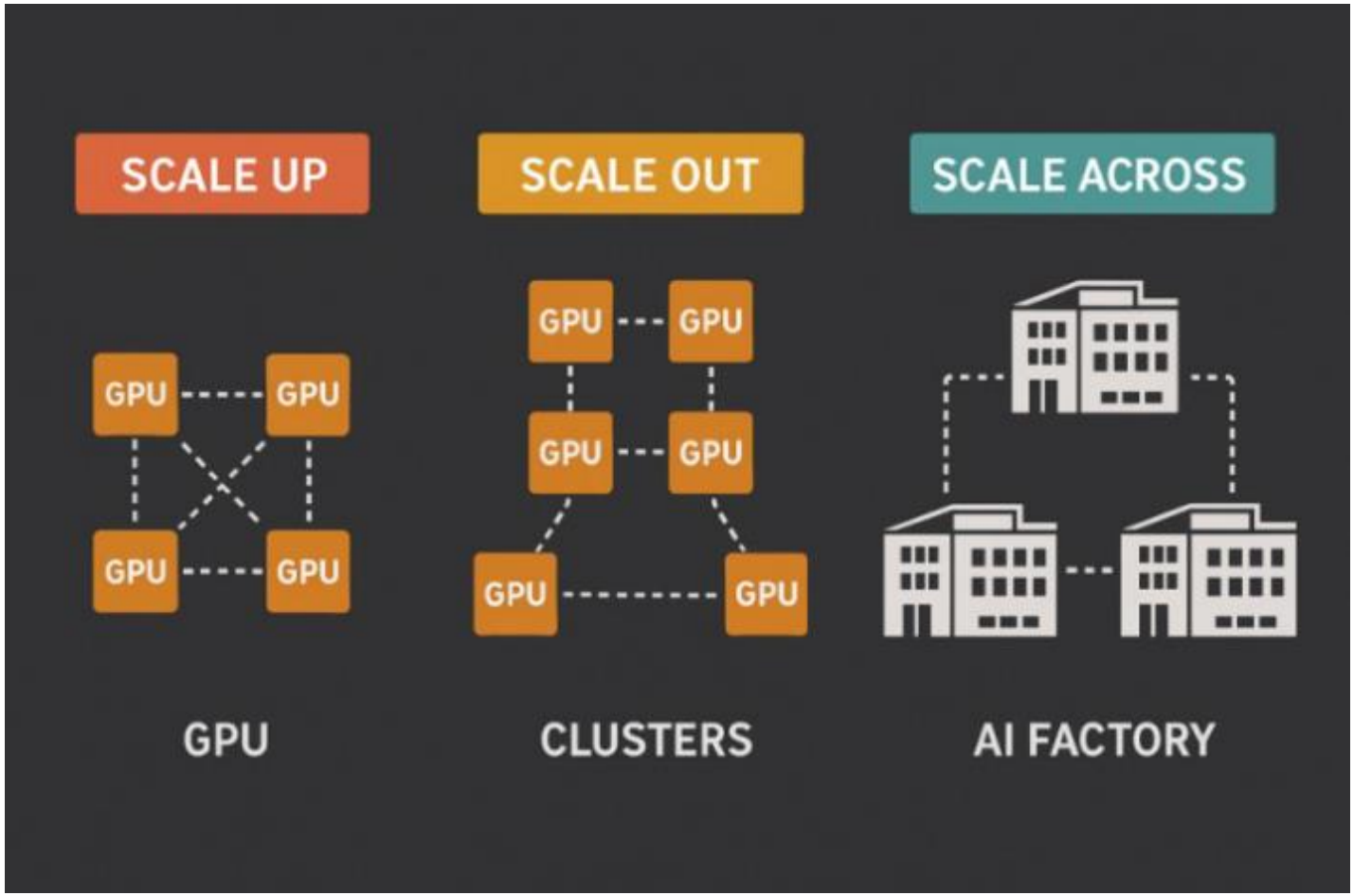
AI Profit Taking Occurred in 3Q26, King Slide, LandMark, Largan & Genius Outperformed



Source: FactSet, Bloomberg, Morgan Stanley Research.

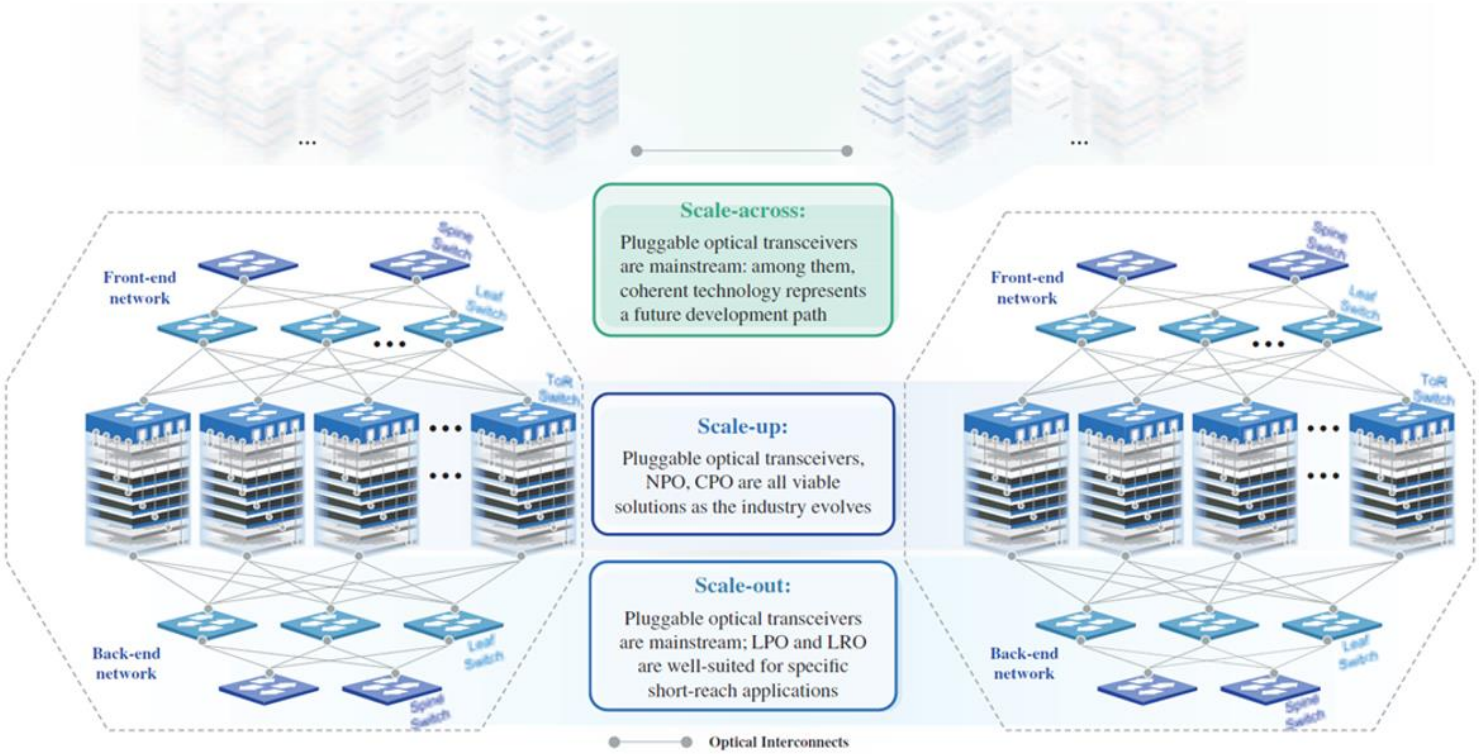
Andy Meng

Scale-up, Scale-out, and Scale-Across



Source: Morgan Stanley Research.

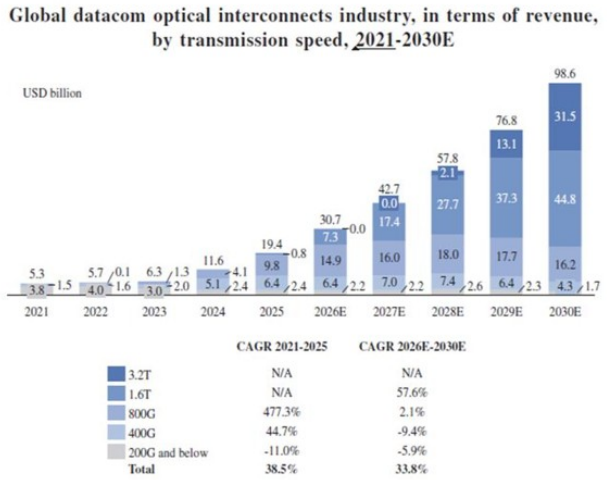
Significant Growth Opportunity from AI factory Build-outs

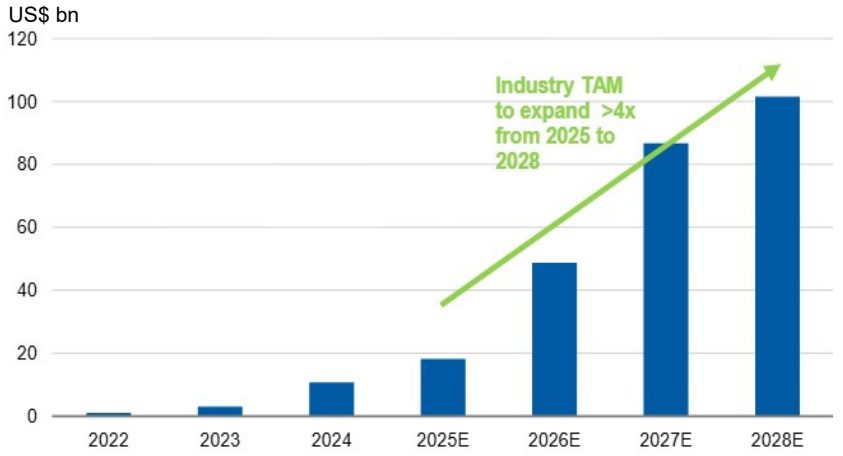


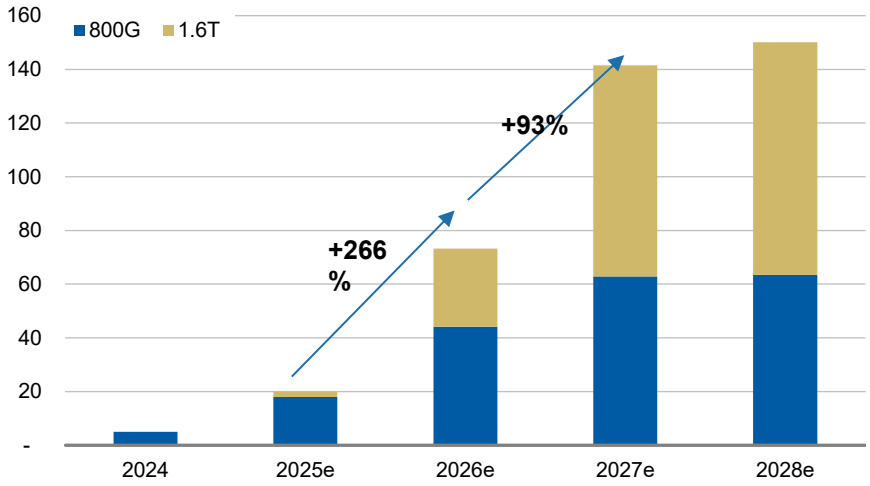
Source: China Insights Consultancy Limited.

Global AI transceiver TAM to expand >4x, 2025-2028

Metric	NVL72 Optical Scale-Out	NVL576 Hybrid	NVL576 Full CPO	Feynman Hybrid 200G	Feynman Full CPO 400G	Feynman Full CPO 200G
Configuration	NVL72	NVL576	NVL576	NVL1152	NVL1152	NVL1152
Total GPUs	72	576	576	1,152	1,152	1,152
Racks	1	8	8	8	8	8
GPUs per rack	72	72	72	144	144	144
Low-latency domain	72	576	576	1,152	1,152	1,152
Scale-up BW/GPU (Tb/s)	N/A	14.4	14.4	28.8	28.8	28.8
Scale-out BW/GPU (Tb/s)	1.6T	1.6T	1.6T	3.2T	3.2T	3.2T
Scale-out oversubscription	2:1	1.5:1	1.5:1	1:1	1:1	1:1
SerDes (Gb/s)	100	200	200	200	400	200
Scale-up medium	Copper	Hybrid	CPO	Hybrid	CPO	CPO
Scale-out medium	Plug/CPO	Plug/CPO	Plug/CPO	CPO	CPO	CPO
Intra-rack OEs (A)	-	-	10,368	-	20,736	41,472
Inter-pod OEs (B)	-	9,072	9,072	36,288	18,144	36,288
Scale-out OEs (C)	144	768	768	2,304	1,152	2,304
Total OEs (pod)	144	9,840	20,208	38,592	40,032	80,064
OEs per rack	144	1,230	2,526	4,824	5,004	10,008
OEs per GPU	2	17	35	34	35	70



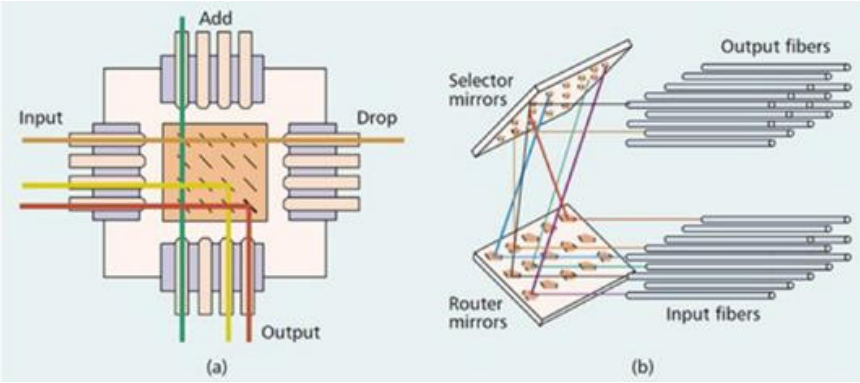




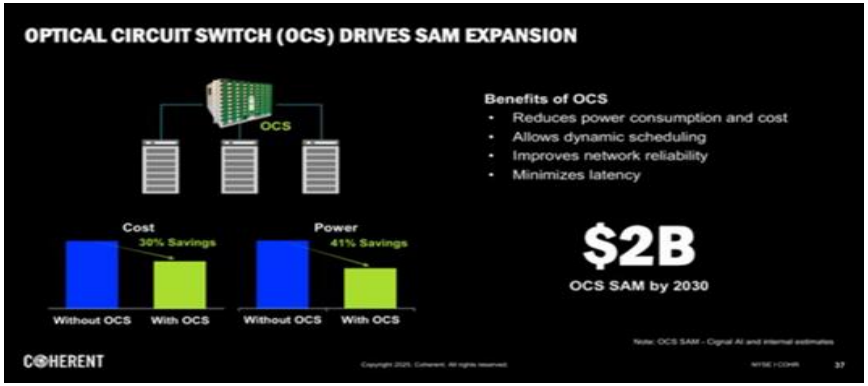
Source: Company data, LightCounting (E) estimates, China Insights Consultancy Limited, Omdia, Morgan Stanley Research (e) estimates.

OCS and NPO could Become Additional Drivers from 2027

OCS Example MEMS Mirrors Forming Circuit Switches



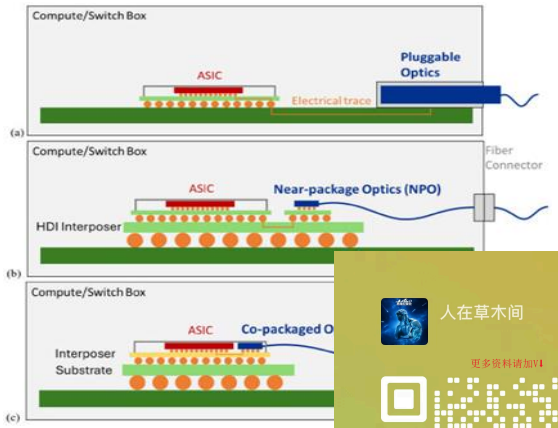
Optical vendors positioning for OCS expansion



Major OCS Solutions in the R&D Pipeline

Vendor	Product	Port Configuration	Technology	Status
Lumentum (LITE)	R300 OCS	300x300	MEMS	Strong market reception
Lumentum (LITE)	R64 OCS	64x64 (Scalable to 72x72)	MEMS	Sampling Q4 2025, GAH2 2026
Coherent (COHR)	OCS Platform	64x64 and 320x320	Liquid Crystal	Shipped to 7 customers as of Nov 2025
FS	DCS - WSeries	8x8, 16x16, 32x32	MEMS	Launched Aug 2025
Huber+Suhner (HUBN)	Polatis OCS	No evidence	No evidence	Major orders received July 2025

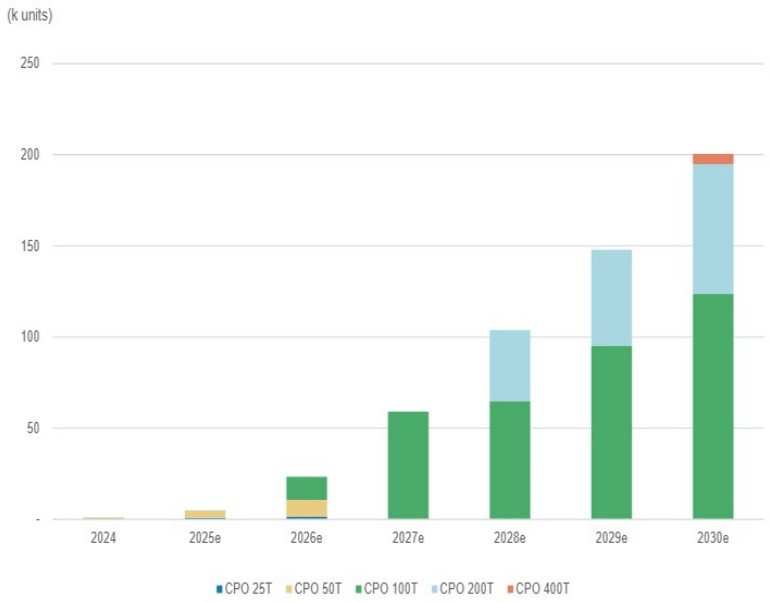
NPO vs. CPO and pluggables



GA = General Availability, Source: researchgate.net, Coherent, Optics Express, company data, Morgan Stanley Research

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更多资料请加V

We Expect Total CPO Switch Shipments to Rise at a 144% CAGR Over 2024-2030

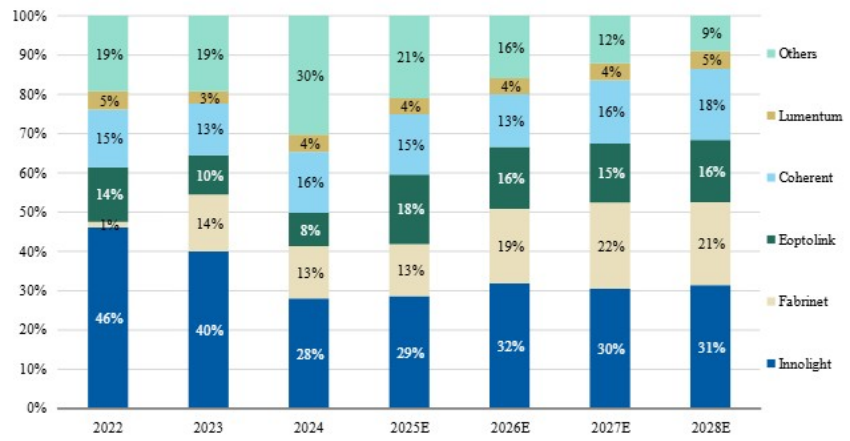




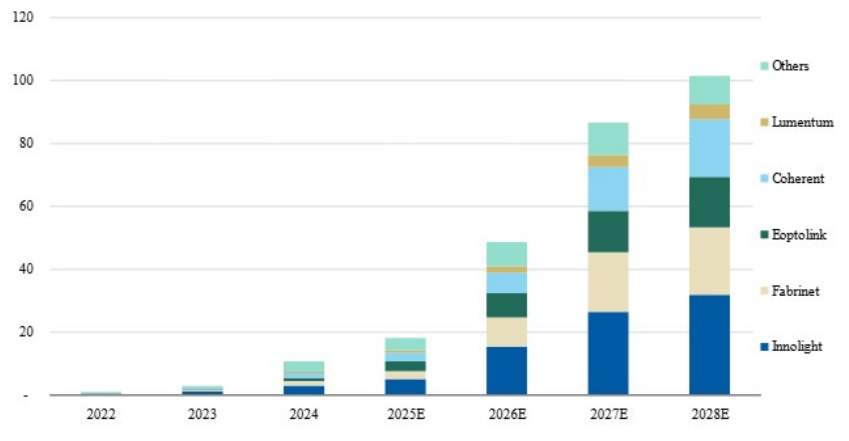
Source: Yole data, WinWay, Morgan Stanley Research (e) estimates.

Market Share Change Unlikely to Cap Absolute Growth in TAM

Global AI transceiver market share changes: Eoptolink and Coherent likely to gain share

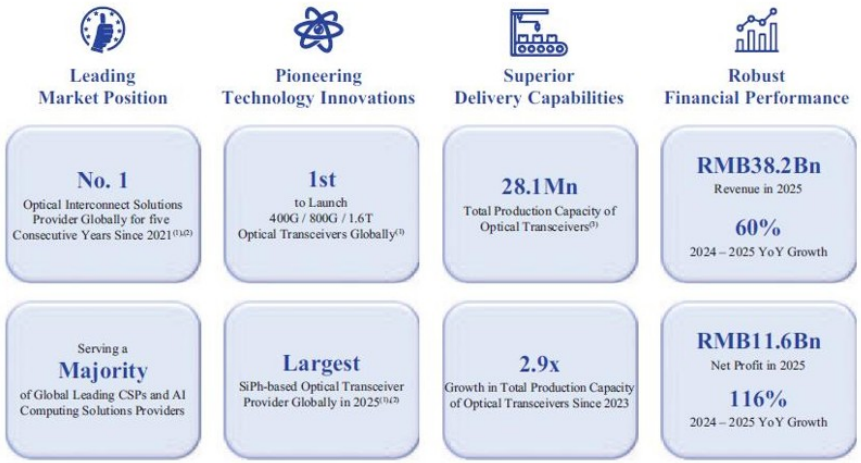


…but each company can enjoy growing TAM (absolute amount)



Source: Unit in US$ bn, Source: Company Data, Omdia, Morgan Stanley Research (E) estimates.

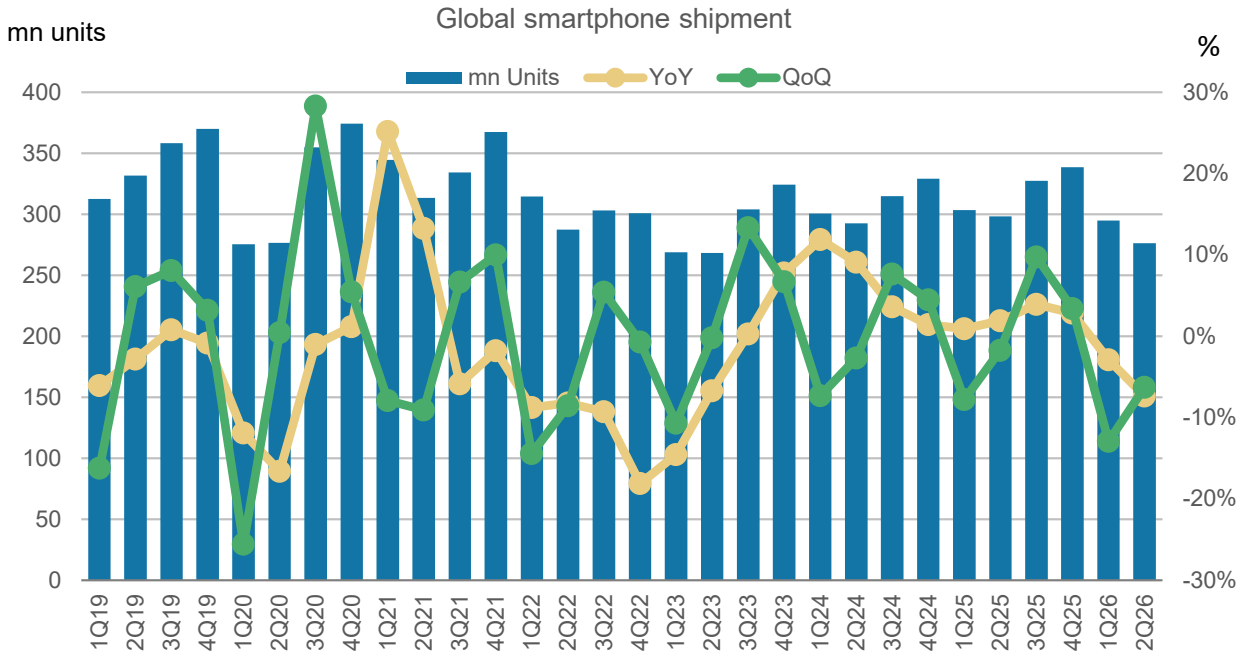
InnoLight: Global leader in the AI transceiver industry



Ranking of Top 10 Transceiver Suppliers				
Rank	2010	2018	2023	2024
1	Finisar	Finisar	**Innolight**	**Innolight**
2	Opnext	**Innolight**	Coherent	Coherent
3	Sumitomo	Hisense	Huawei	Eoptolink
4	Avago	Accelink	Cisco	Huawei
5	Source Photonics	FOIT (Avago)	Accelink	Cisco
6	Fujitsu	Lumentum/Oclaro	Hisense	Accelink
7	JDSU	Acacia	Eoptolink	Hisense
8	Emcore	Intel	HGGenuine	Marvell
9	WTD	AOI	Source Photonics	HGGenuine
10	NeoPhotonics	Sumitomo	Marvell	Source Photonics

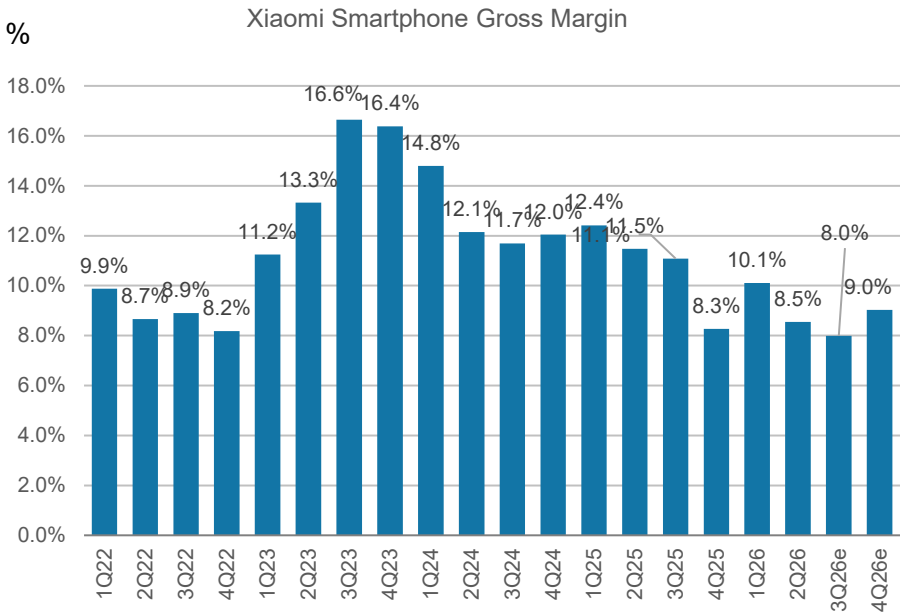
Source: Company data, LightCounting, Morgan Stanley Research. Note: (1) According to CIC; (2) By revenue; (3) As of March 31, 2026

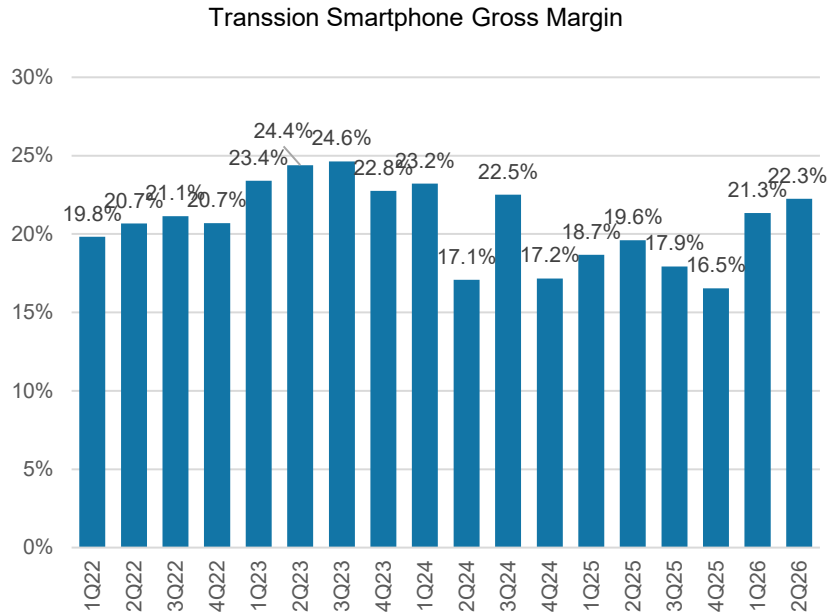
Global Smartphone Shipments Dipped 7% YoY and 6% QoQ in 2Q26



Source: IDC, Morgan Stanley Research.

Xiaomi and Transsion's Smartphone GPM Trends





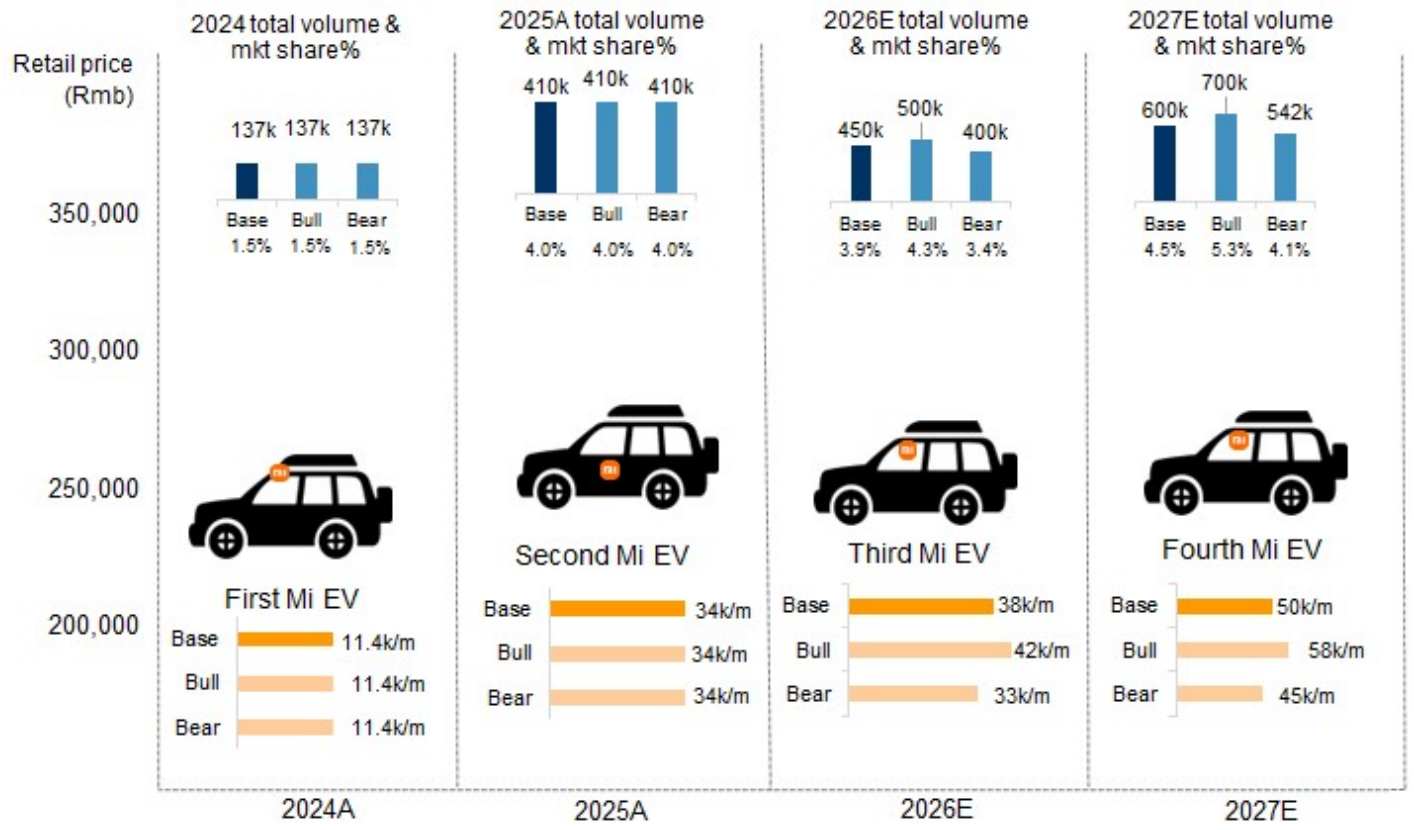
Source: Company data, Morgan Stanley Research (e) estimates.

Xiaomi SkyNomad Officially Launched on Sep 7



Source: Company data

Our Base/Bull/Bear cases for Xiaomi's EV Product Roadmap and Sales Volume Forecasts



Source: Company data, Morgan Stanley Research estimates.

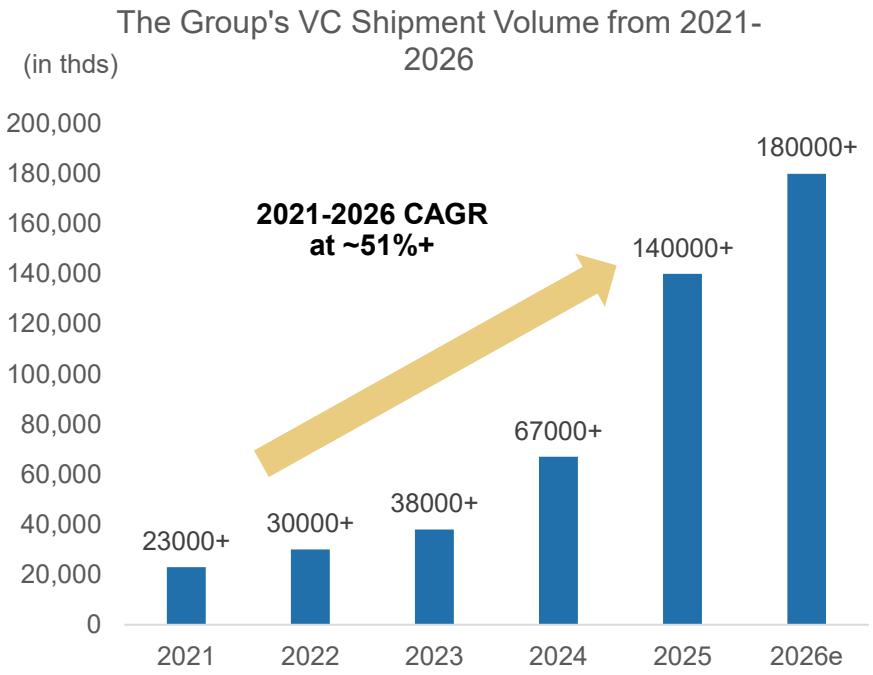
FAU/CPO New Business Became Important Drivers for Largan and Genius

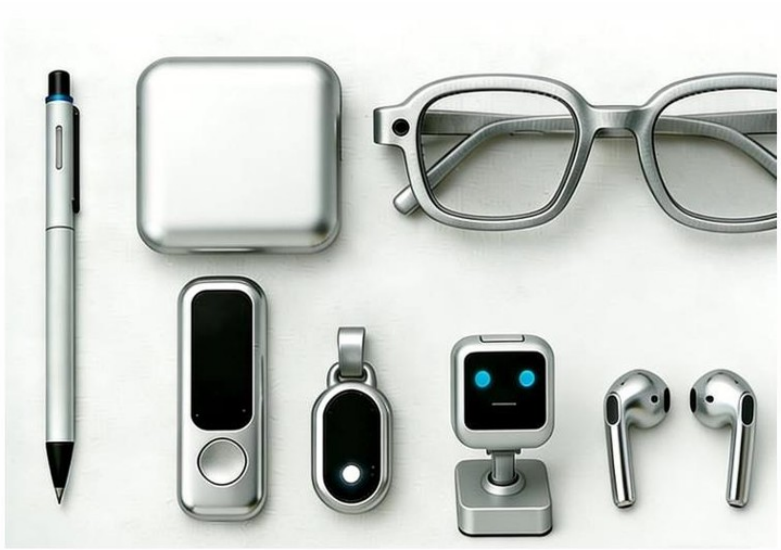
	2026E	2027E	2028E
Optical Engine Volume (mn)	0.39	7.78	48.60
FAU Volume (mn units)	0.39	7.78	48.60
ASP (USD)	100	100	100
Total TAM (US$ mn)	39	778	4,860
Largan's Market Share	0%	5%	40%
FAU Revenue for Largan (US$ mn)	0	39	1,931
Net Margin	n.a.	10%	30%
FAU Earnings for Largan (US$ mn)	n..a	4	579
Assumed Forward P/E			35
Market Cap in USD (mn)			20,278
Market Cap in TWD (mn)			648,889
Per share impact	4,100	4,510	4,961

	2026E	2027E	2028E
Optical Engine Volume (mn)	0.39	7.78	48.60
FAU Volume (mn units)	0.39	7.78	48.60
ASP (USD)	100	100	100
Total TAM (US$ mn)	39	778	4,860
15% Share of Components TAM	6	117	729
Genius's Market Share	0%	5%	30%
FAU Component Revenue for Genius (US$ mn)	0	6	218
Net Margin	n.a.	10%	25%
FAU Component Earnings for Genius (US$ mn)	n..a	1	54
Assumed Forward P/E			25
Market Cap in USD (mn)			1,322
Market Cap in TWD (mn)			42,294
Per share impact	310	341	375

Source: Morgan Stanley Research estimates

AAC: Rapid Vapor Chamber (VC) Growth and Beneficiary of AI Hardware Opportunities



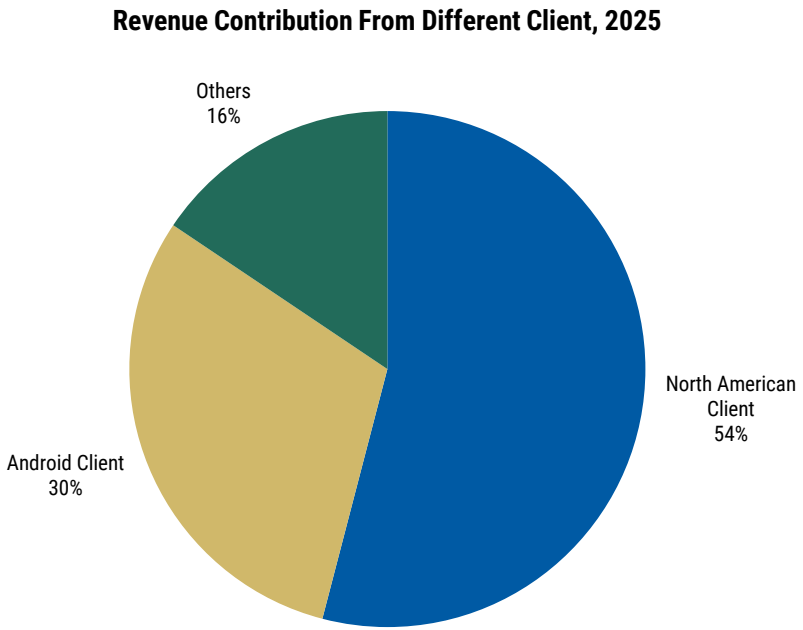


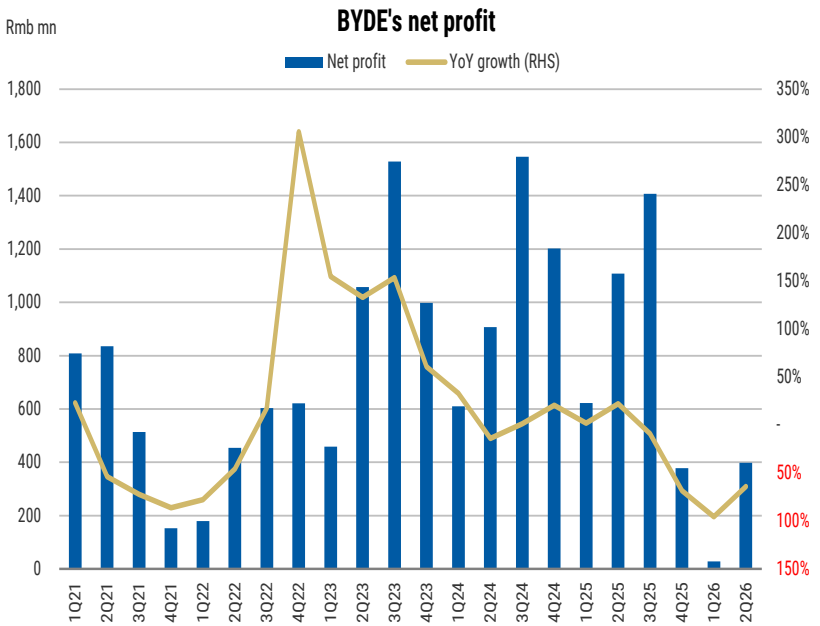
Illustrations of various new forms of AI hardware concepts

(AR glasses, earphone-like devices, pendants, pens, desktop robots, ...)

Source: Company data, Morgan Stanley Research estimates

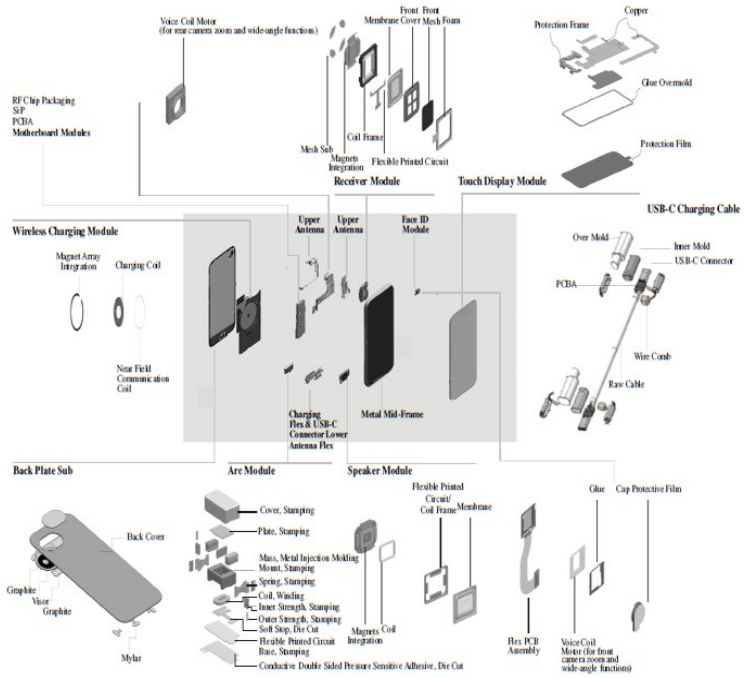
BYDE: Earnings to See Sequential Improvement in 3Q26-4Q26

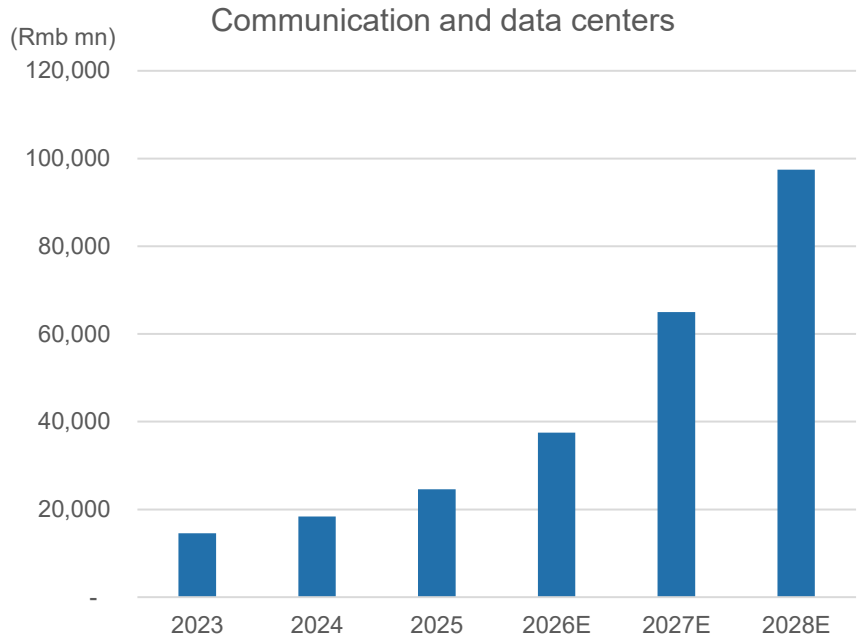




Source: Company data, Morgan Stanley Research.

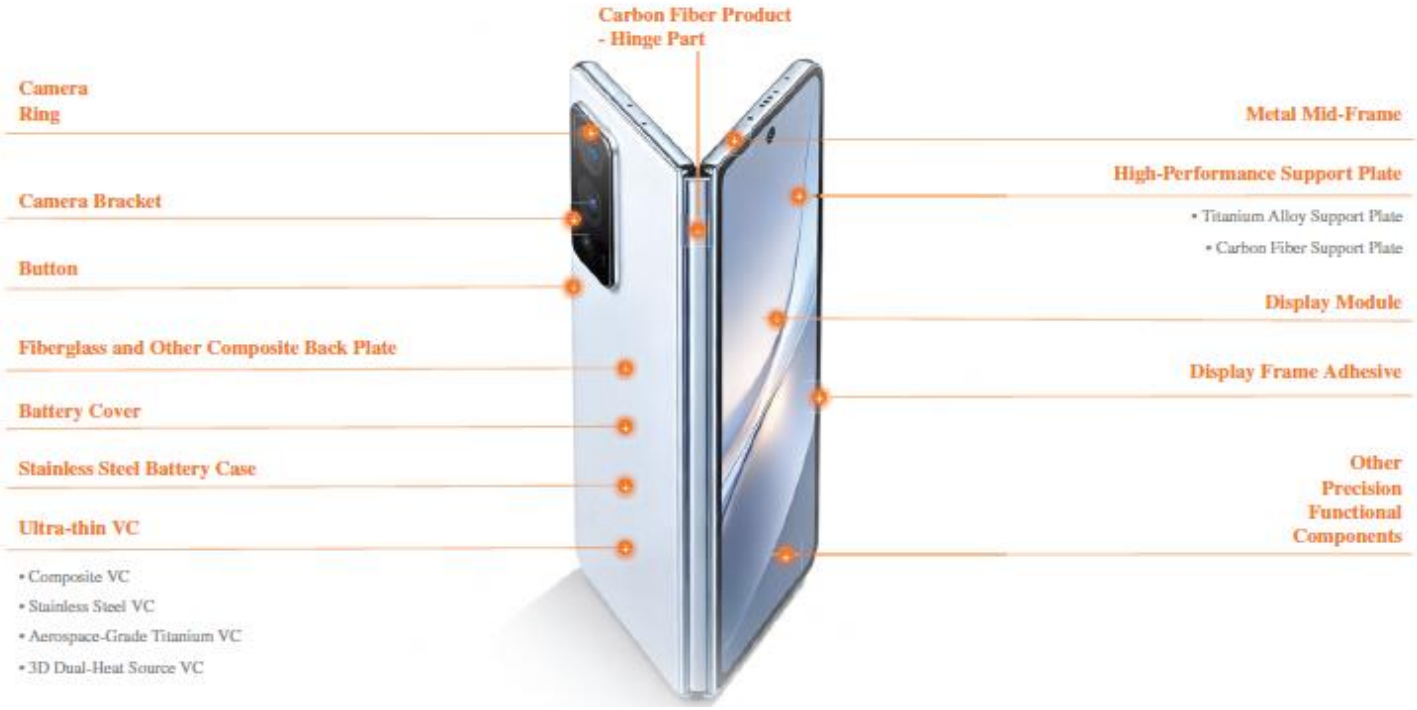
Luxshare: Dual Drivers from Apple and AI Infrastructure





Source: Company data, Morgan Stanley Research estimates.

Lingyi: Higher Content Value from New iPhone



Source: Company data, Morgan Stanley Research.

Crystal-Optech: Three New Capex Projects for CPO/NPO Opportunities

Crystal-Optech is leveraging its core competencies in optics, thin-film coating, and precision manufacturing to build exposure across multiple critical layers of the CPO ecosystem, including:

1. **Silicon Lens**
2. **TGV Glass Substrate**
3. **WDM Filters**

AI Optical Infrastructure Development Pipeline

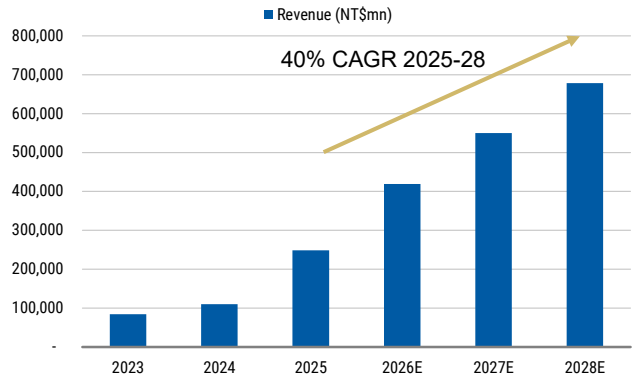
Technology Platform	Role in CPO / Optical Interconnect Architecture	Strategic Significance	Current Status
Silicon Lens (CPO)	Core optical coupling component within CPO optical engines	Enables high-density optical signal transmission for 800G/1.6T modules and future AI cluster interconnects	Under Development
TGV Glass Substrate	Advanced photoelectric packaging substrate platform	Supports optical-electrical integration and positions the company to participate in the CPO packaging supply chain	Under Development
WDM Filter	High-precision wavelength management component for optical communications	Expands exposure to high-end optical networking applications through narrow-band filter technology	Under Development

Source: Company data, Morgan Stanley Research.

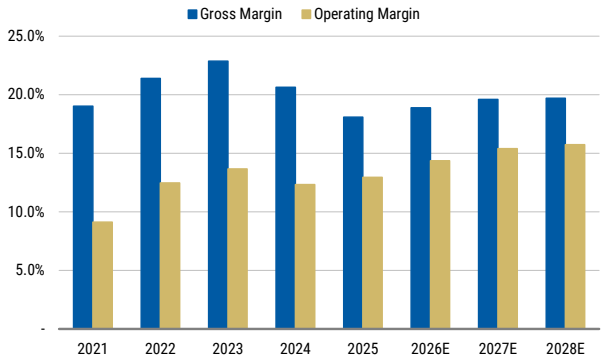
Derrick Yang

Accton: Dual Drivers from Network Switches and AI Accelerator Modules

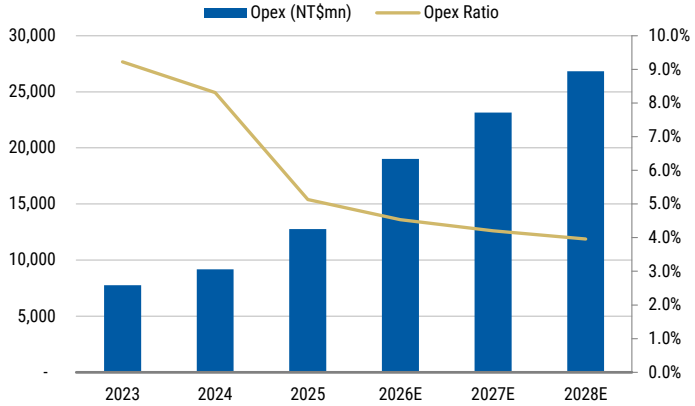
Overall Revenue Forecasts



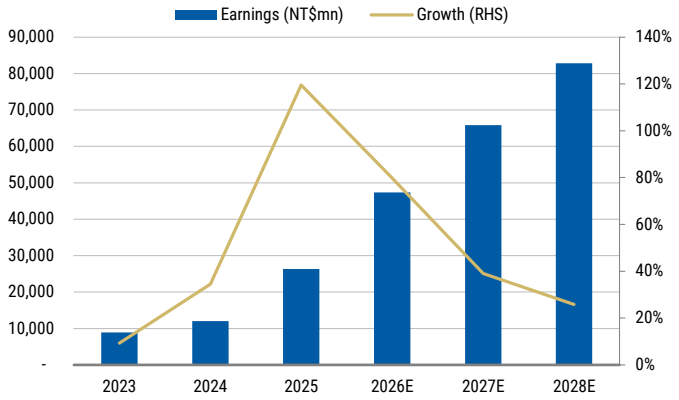
Margin Trend



Operating Expense Trend



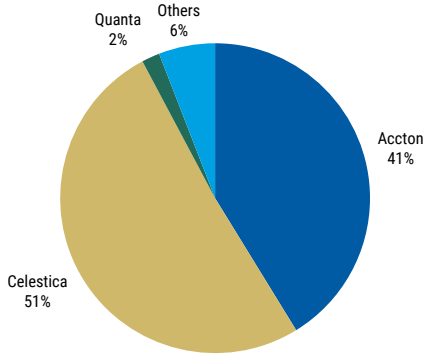
Earnings Forecasts



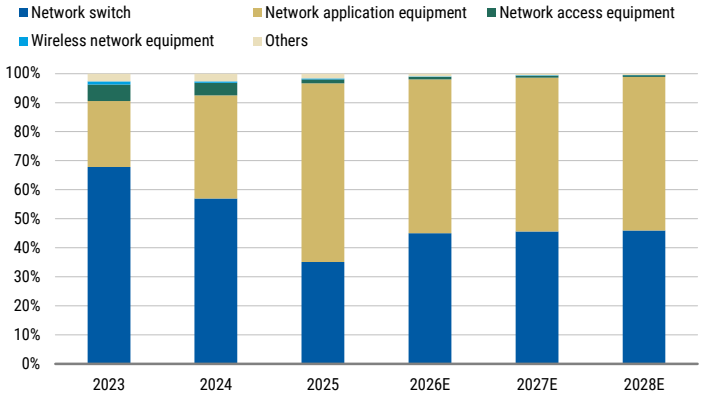
Source: Company data, Morgan Stanley Research (e) estimates.

Accton: Dual Drivers from Network Switches and AI Accelerator Modules

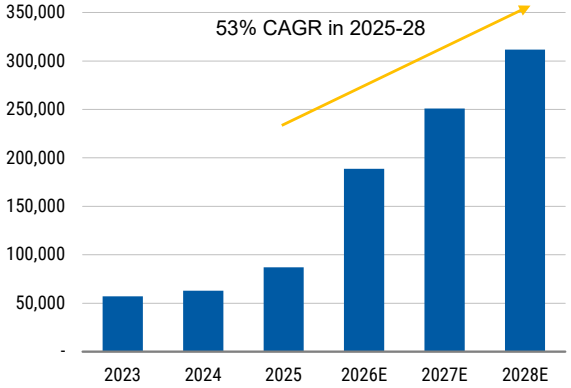
ODM Direct Market Share for Switches (2025)



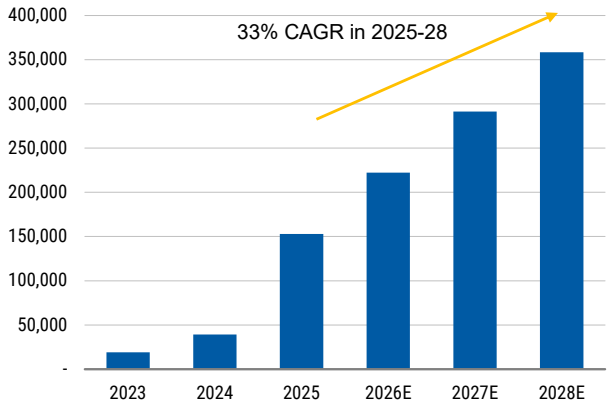
Revenue Breakdown



Network Switch Revenue Forecasts



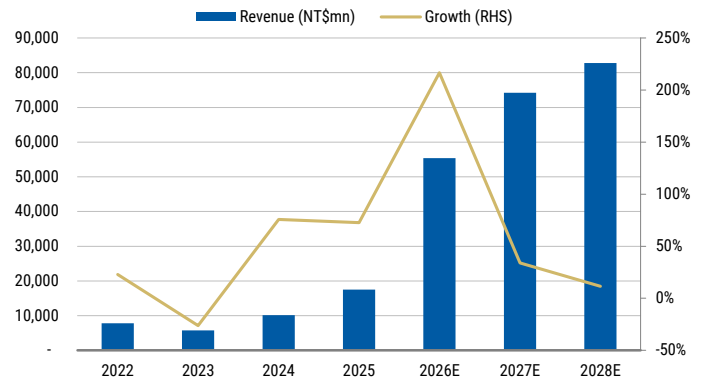
Networking Application Revenue Forecasts



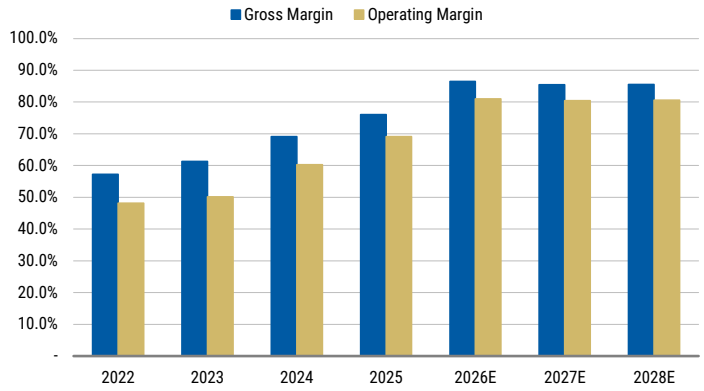
Source: Company data, IDC, Morgan Stanley Research (e) estimates.

King Slide: Favorable Dynamics for Server Rail Kit

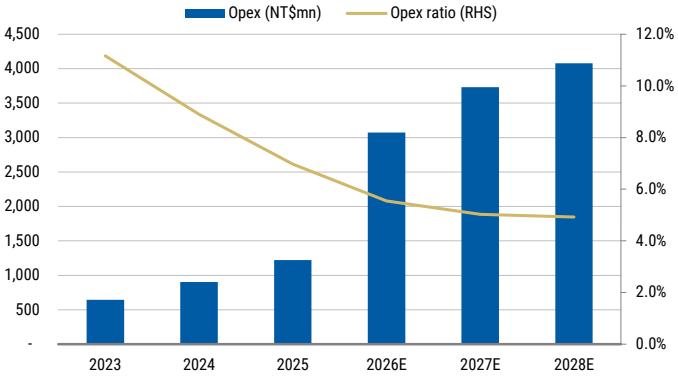
68% Revenue CAGR over 2025-28E



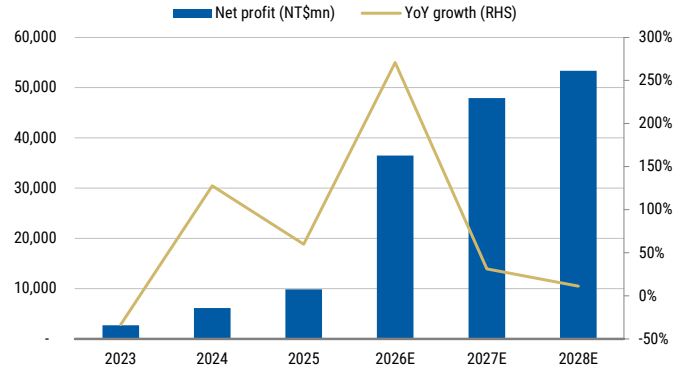
Margin Trend



Operating Expense Trend



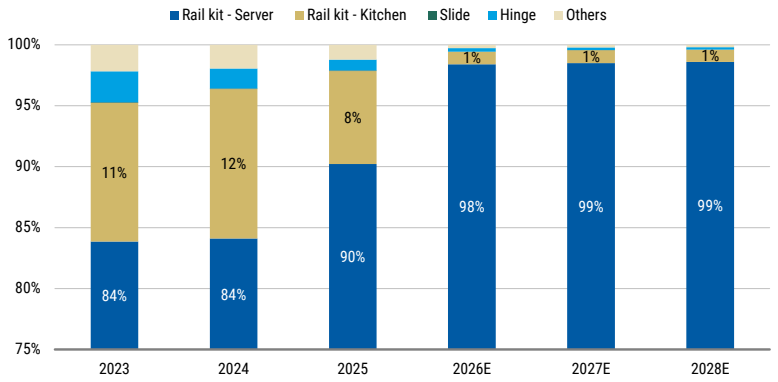
76% Earnings CAGR over 2025-28E



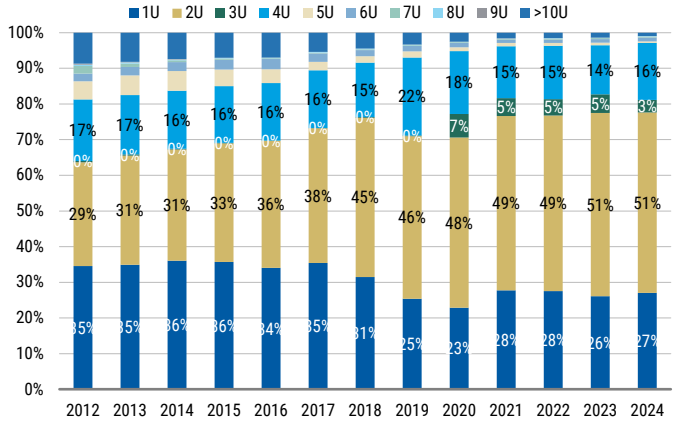
Source: Company data, Morgan Stanley Research (e) estimates.

King Slide: Favorable Dynamics for Server Rail Kit

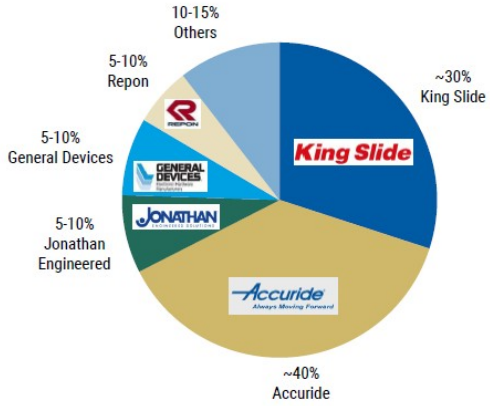
Revenue Breakdown by Product



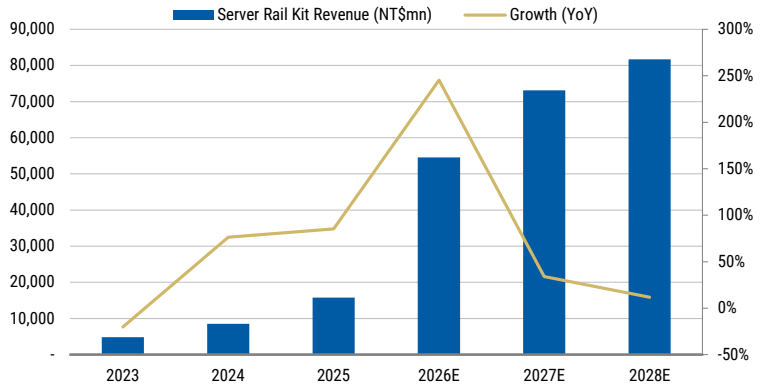
Global Rack Server Shipments, by Size



Server Rail Kit Market Share Breakdown



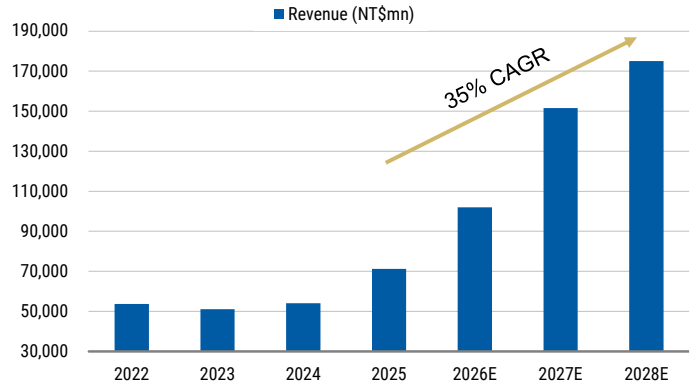
Server Rail Kit Revenue Trend



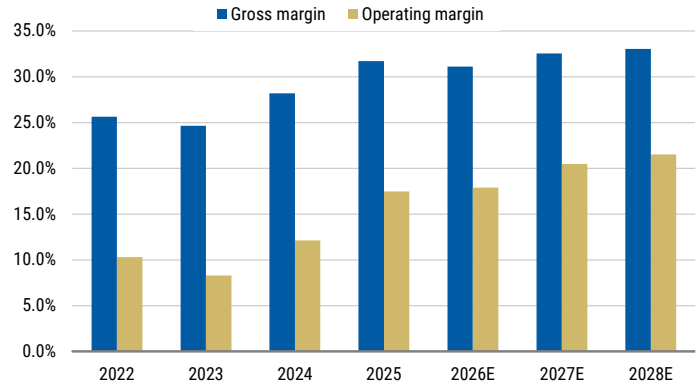
Source: Company data, IDC, Morgan Stanley Research (e) estimates.

Bizlink: Share Gains in AI Deployment Powering Growth

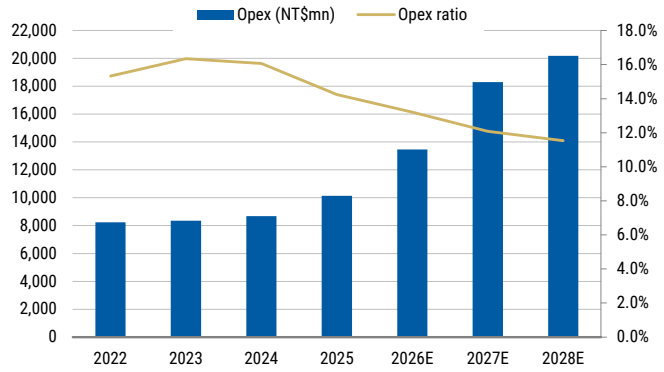
Overall Revenue Trend



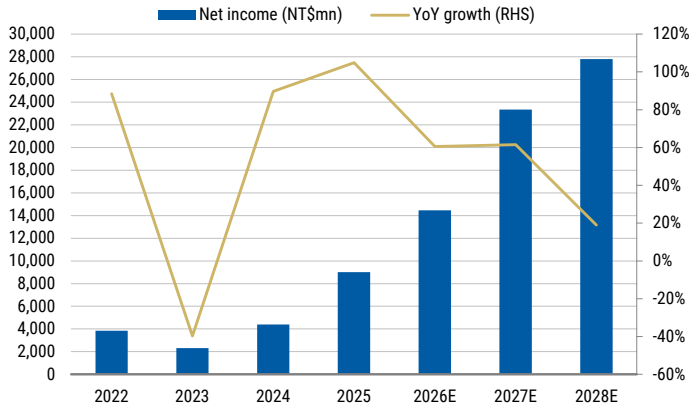
Margin Trend



Operating Expense Trend



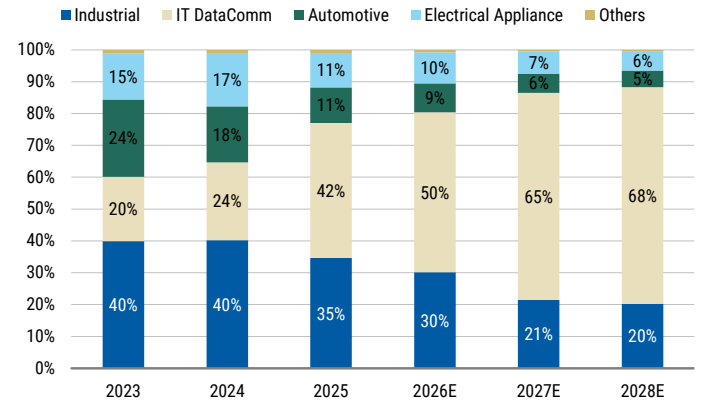
46% Earnings CAGR over 2025-28E



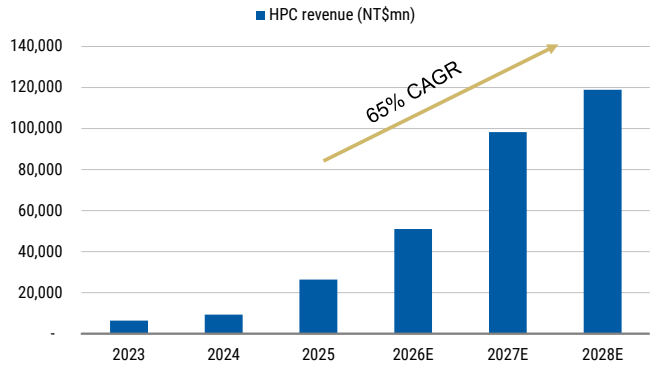
Source: Company data, Morgan Stanley Research (e) estimates.

Bizlink: Share Gains in AI Deployment Powering Growth

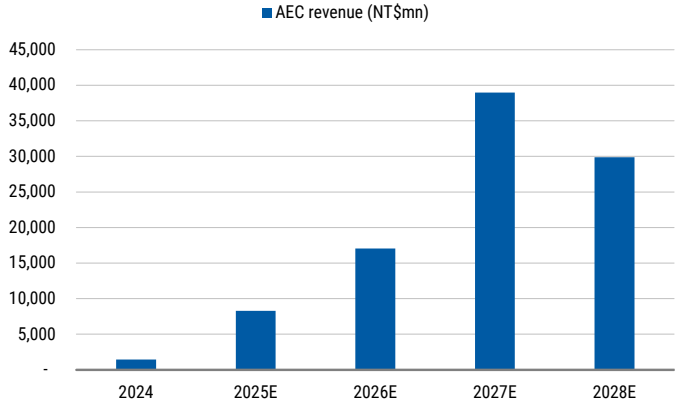
Revenue Breakdown, by Segment



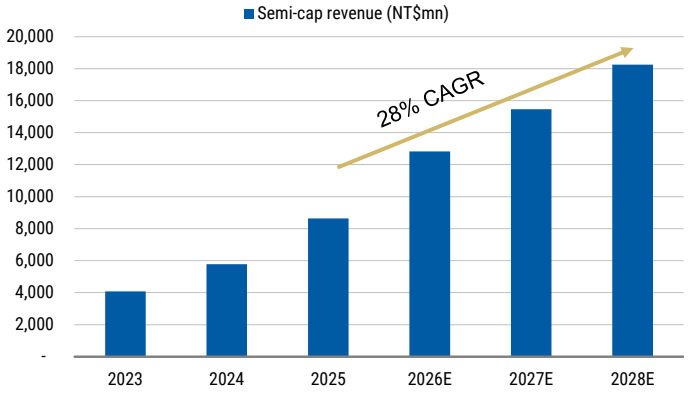
Datacenter/HPC Revenue Trend



Annual AEC Revenue Trend



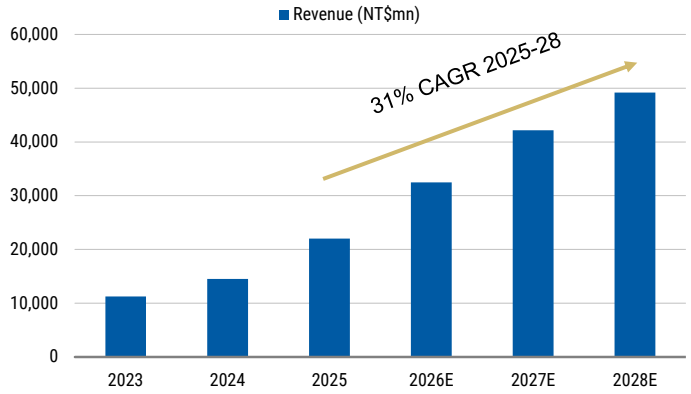
Semi-capital Equipment Annual Revenue Trend



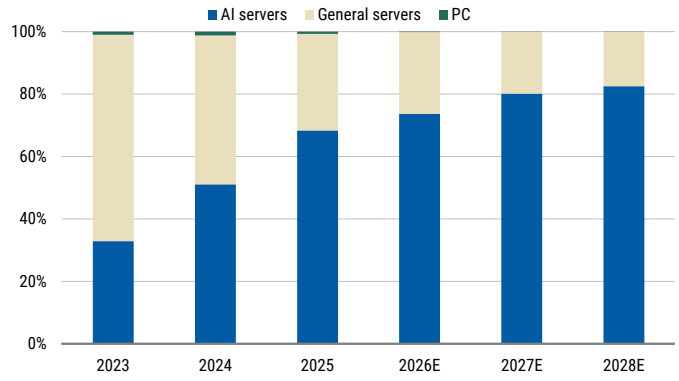
Source: Company data, Morgan Stanley Research (e) estimates.

Chenbro: Market Growth and Share Gains to Support Optimistic 2026 Outlook

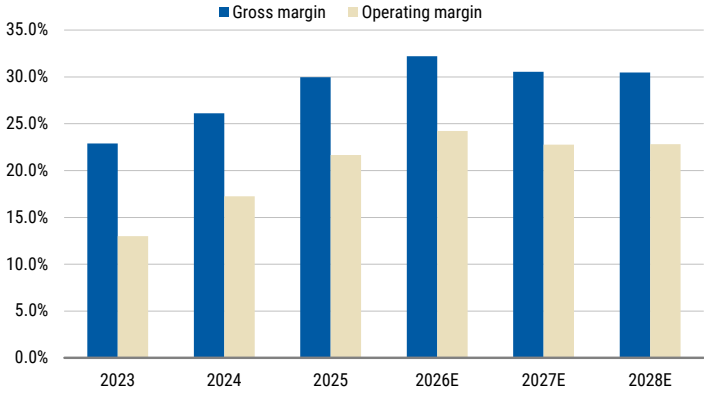
Annual Revenue Trend



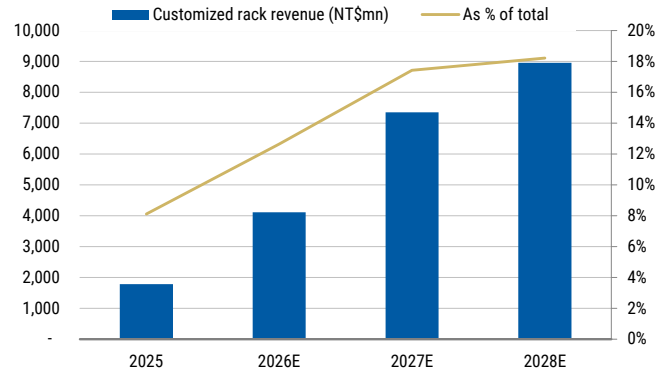
Revenue Breakdown



Margin Trend



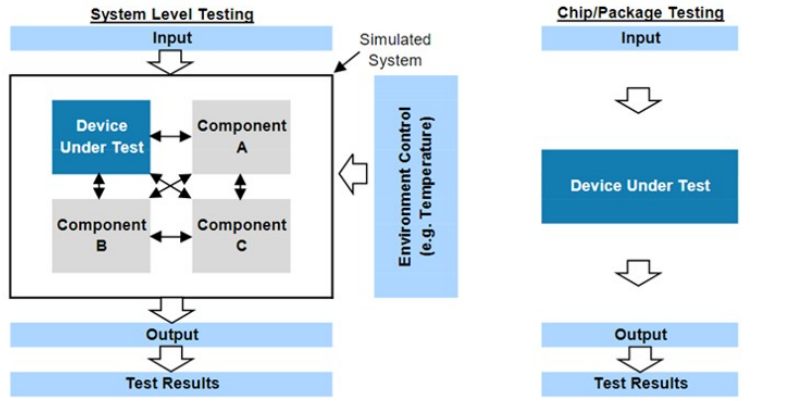
Customized Rack Revenue Contribution



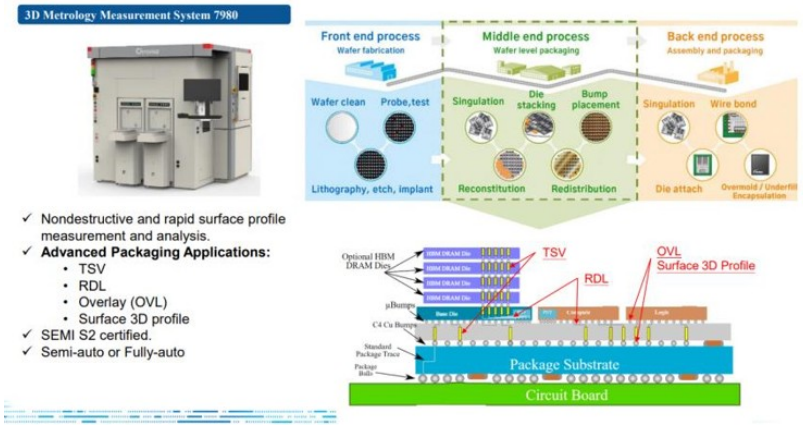
Source: Company data, Morgan Stanley Research (e) estimates

Chroma: Fueled by Multiple AI Drivers

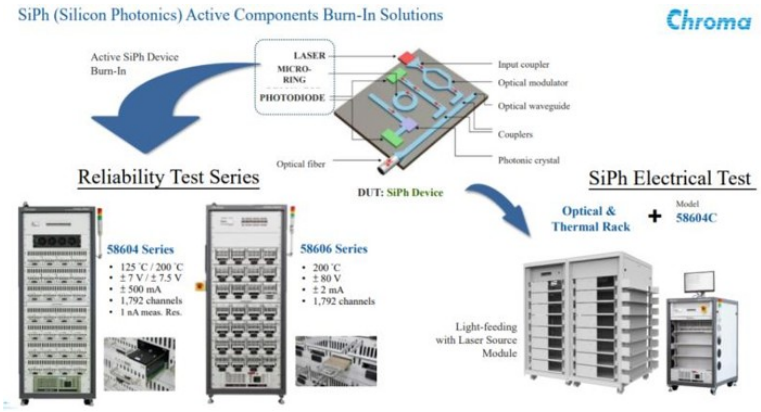
System-level Testing vs. Chip/Package Testing



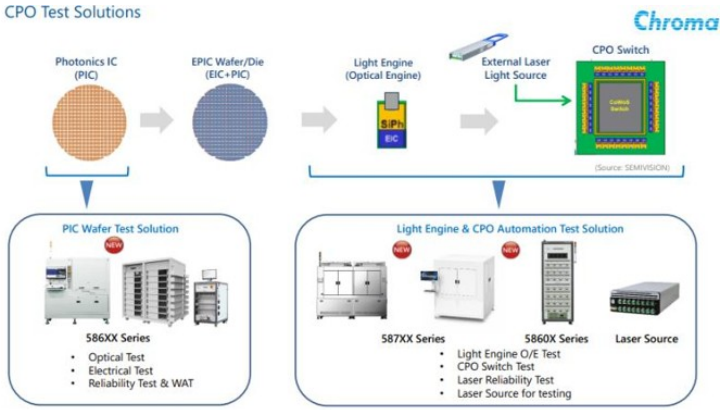
Offerings for Metrology in Advanced Packaging



Offerings in Silicon Photonics



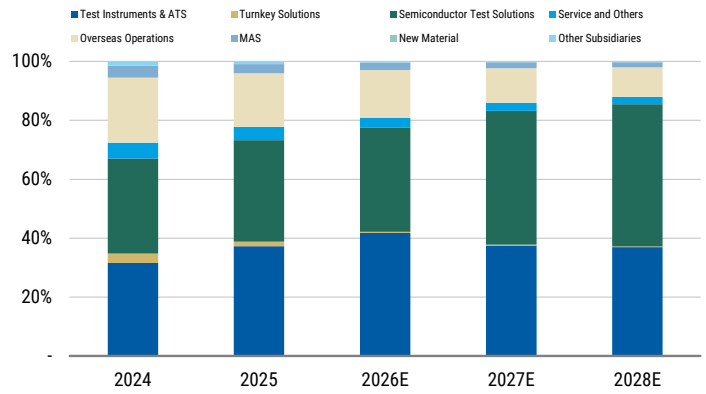
Offerings in CPO Testing Solutions



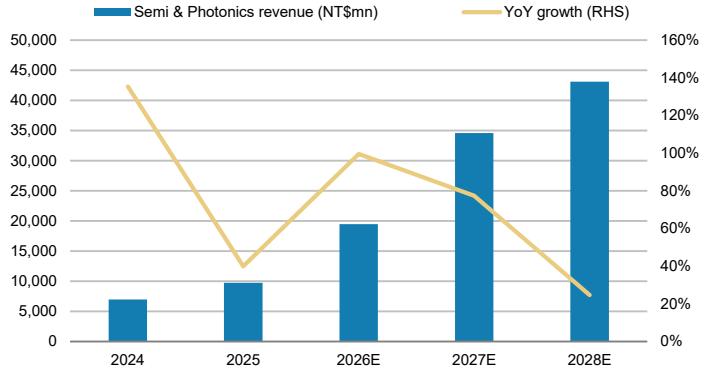
Source: Chroma, Morgan Stanley Research.

Chroma: Fueled by Multiple AI Drivers

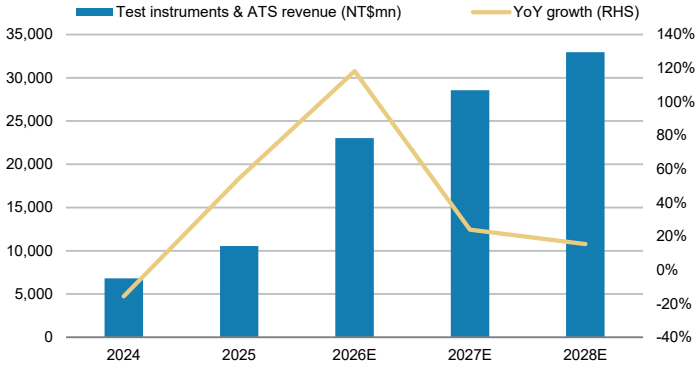
Revenue Breakdown by Segment



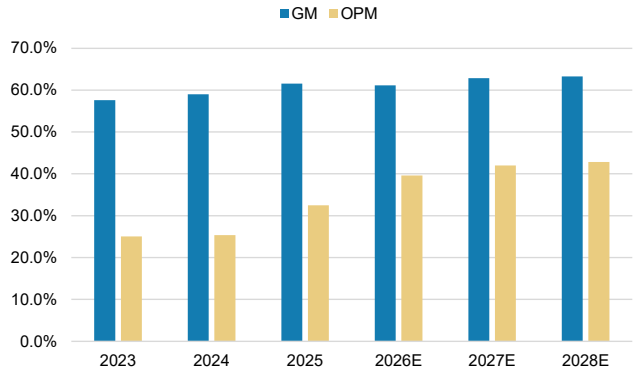
Semi & Photonics Revenue Trend



Testing Instruments & ATS Revenue Trend



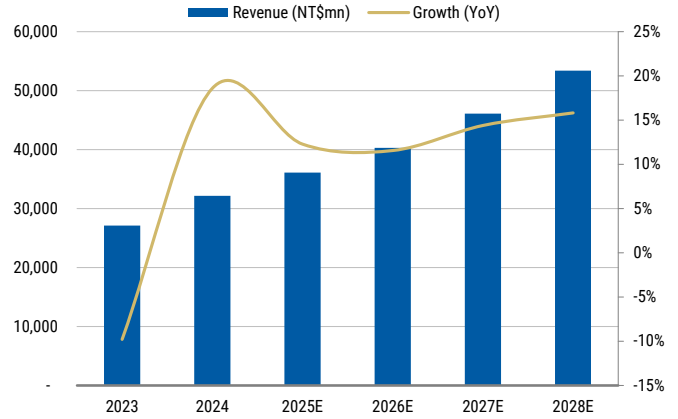
Margin Trend



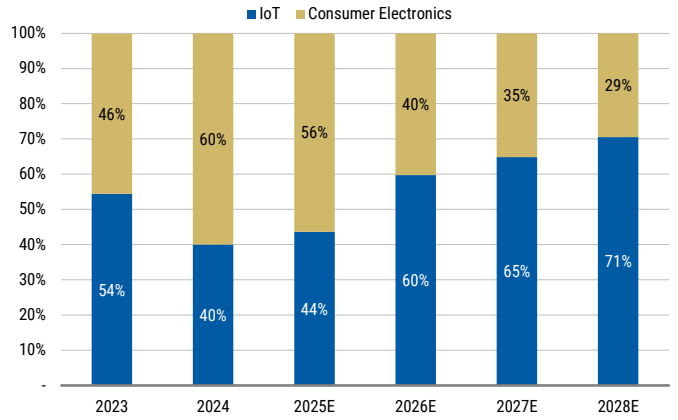
Source: Company data, Morgan Stanley Research estimates

E Ink: Lack of Catalyst in Near Term

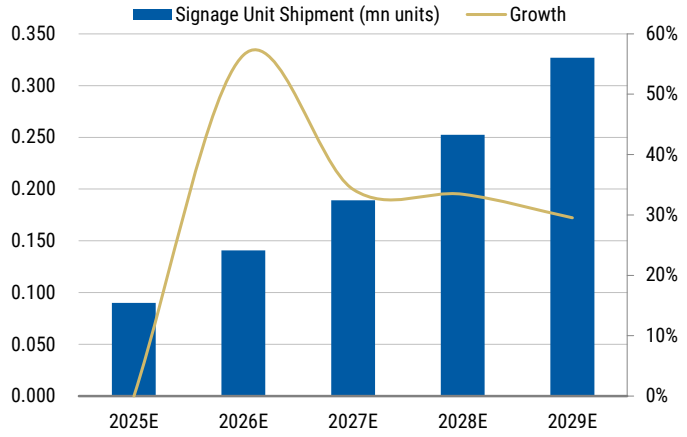
14% Revenue CAGR over 2025-28E



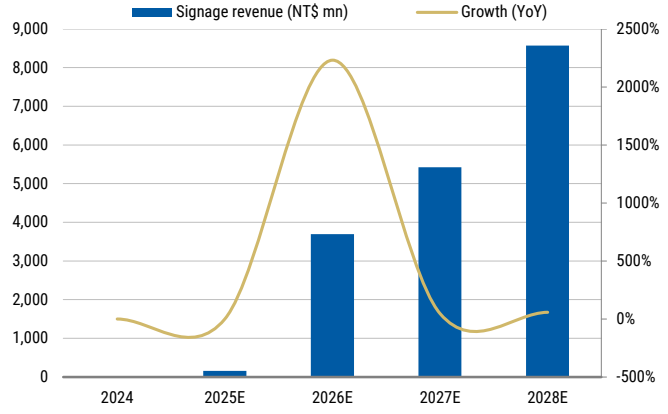
Revenue Breakdown by Segment



E-paper Signage Shipment Forecasts



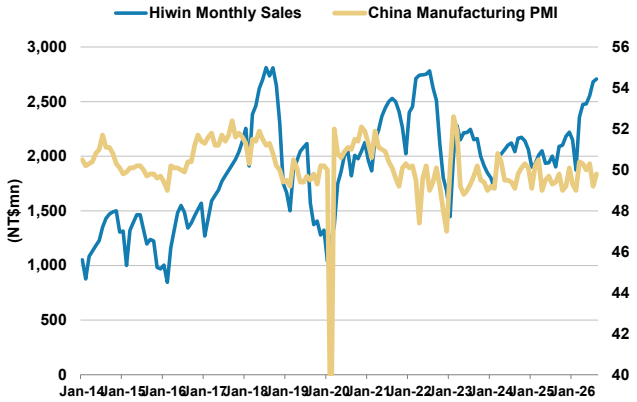
Signage Revenue Trend



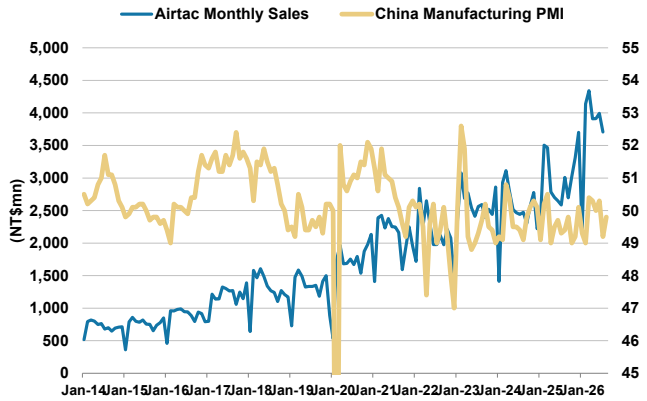
Source: Company data, FactSet consensus, TEJ, Morgan Stanley Research (e) estimates.

Automation

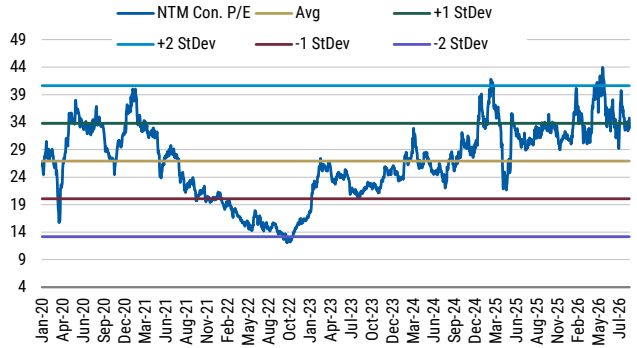
Hiwin Monthly Sales vs. China Manufacturing PMI



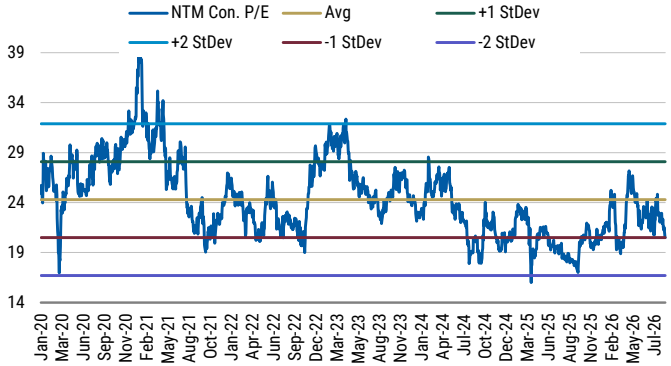
AirTAC Monthly Sales vs. China Manufacturing PMI



Hiwin NTM P/E



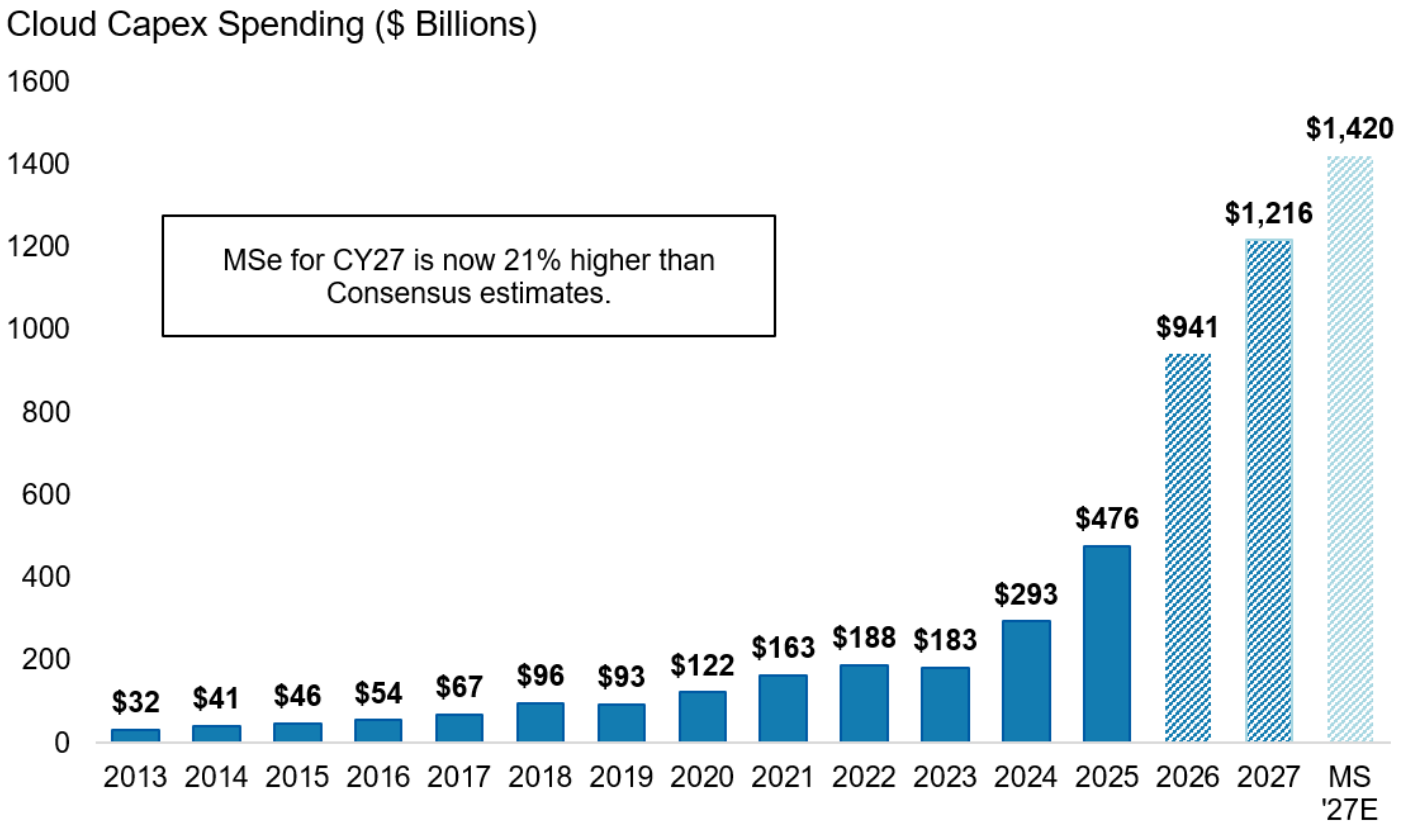
AirTAC NTM P/E



Source: NBS, company data, FactSet consensus, Morgan Stanley Research.

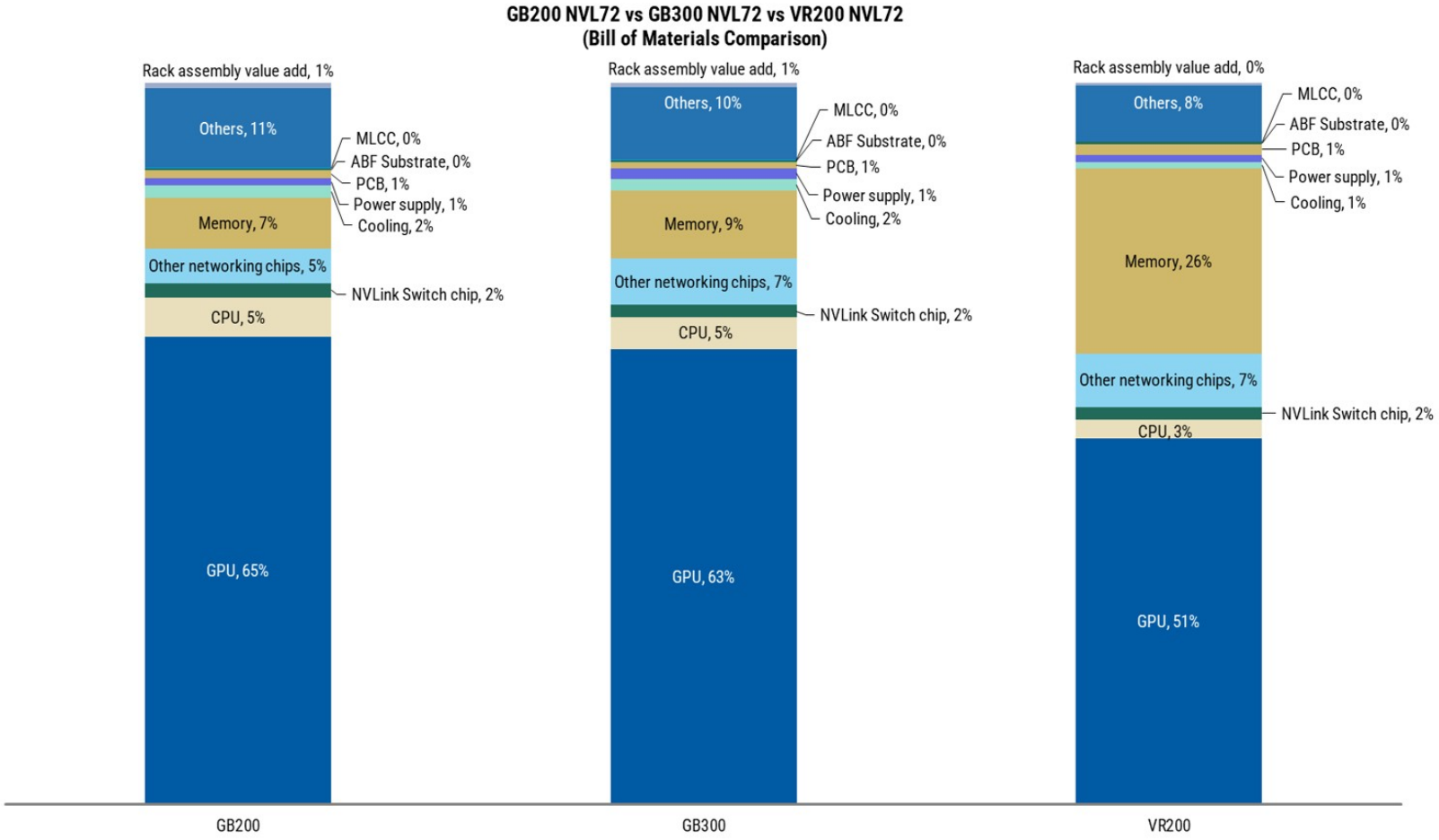
Howard Kao

AI Server Momentum Remains Strong



Source: IDC, Morgan Stanley Research estimates.

Owing to Recent Increase in Memory Prices, Memory Will Become 25%+ of Rubin BOM



Source: Morgan Stanley Research estimates.

We Estimate a Single VR200 NVL72 Rack Will Cost Hyperscalers ~US$7.8mn

Nvidia NVL72 Bill of Materials	GB300	VR200	Diff.
GPU	$2,520,000	$3,960,000	57%
CPU	$180,000	$180,000	0%
NVLink Switch chip	$64,800	$144,000	122%
Other networking chips	$261,000	$576,000	121%
Memory	$373,939	$2,001,600	435%
Cooling	$64,610	$72,080	12%
Power supply	$57,600	$76,000	32%
PCB	$35,100	$116,730	233%
ABF Substrate	$11,160	$20,340	82%
MLCC	$1,530	$4,320	182%
Others	$402,412	$623,278	55%
Rack assembly value add	$22,400	$28,800	29%
Total	**$3,994,551**	**$7,803,148**	**95%**

Source: Morgan Stanley Research estimates.

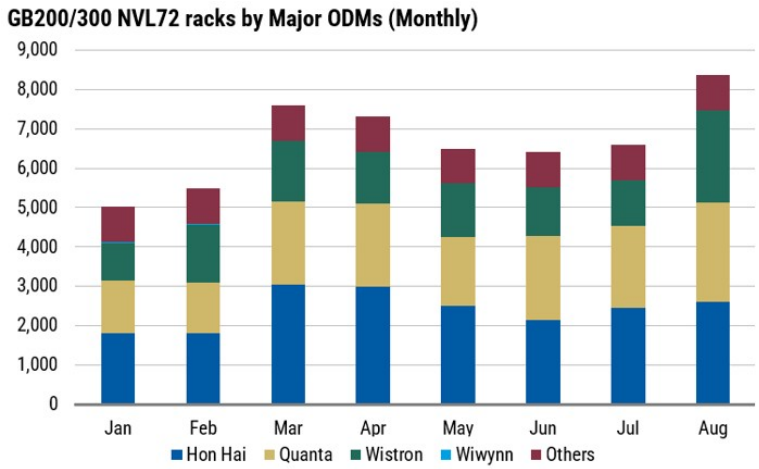
Our Bottom-up Analysis Shows ODM Value-added per Rack Will Increase ~38% for VR200

ODM Value-Add per rack	GB300	VR200
Compute Board Assembly/Test	$12,096	$16,200
Compute Tray Assembly/Test	$28,800	$32,400
Switch Board Assembly/Test	$2,475	$3,150
Switch Tray Assembly/Test	$2,700	$3,150
Rack Assembly/Test	$22,400	$28,800
BF DPU Assembly/Test	$1,170	$1,170
CX/Orchid Module Assembly/Test	$0	$3,600
Other peripheral boards	$3,150	$1,260
Cooling components	$12,922	$14,416
Others	$22,500	$45,500
Total ODM Value-Add	**$108,213**	**$149,646**

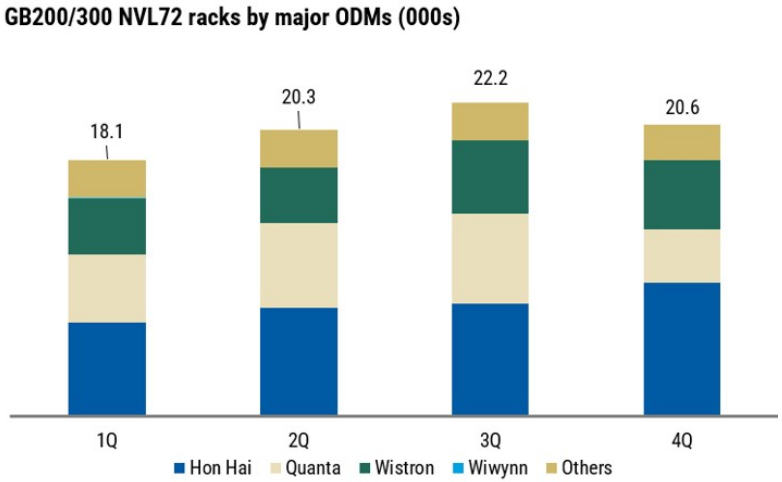
Source: Morgan Stanley Research estimates.

We Forecast 2026 GB200/300 Racks To Be 80-90K

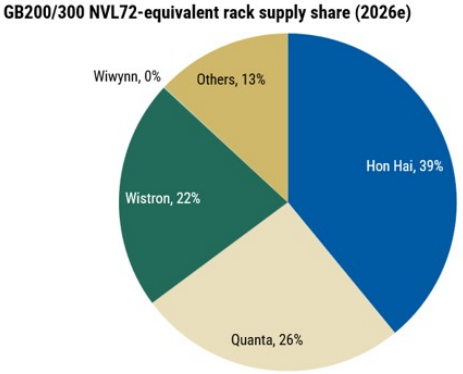
GB200/300 NVL72-equivalent Monthly Rack Output (2026e)



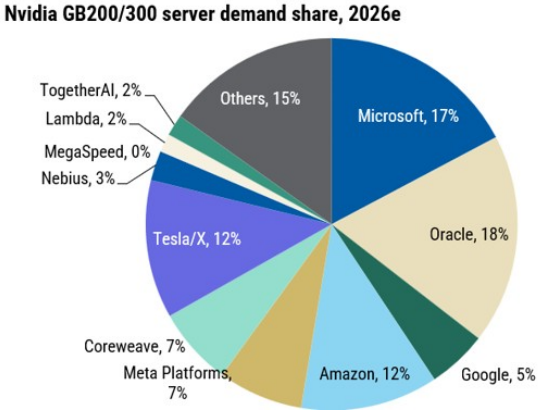
GB200/300 NVL72-equivalent Quarterly Rack Output (2026e)



GB200/300 Rack Supply Share by Major ODMs (2026e)



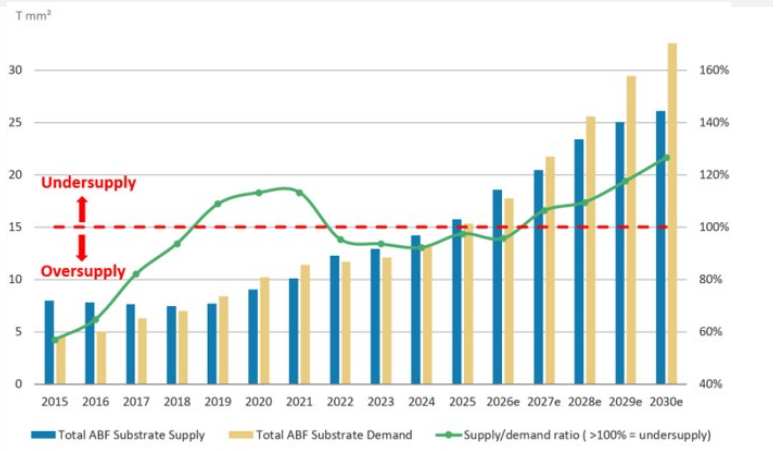
GB200/300 Rack Demand Share (2026e)



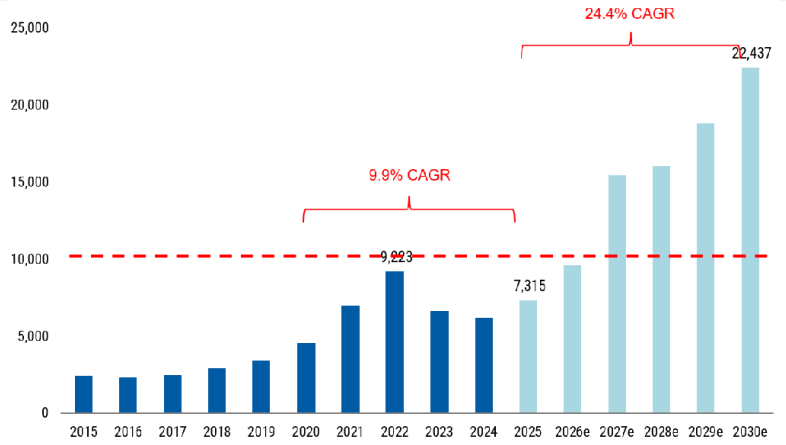
Source: Morgan Stanley Research estimates.

ABF Substrates: Undersupply From 2027

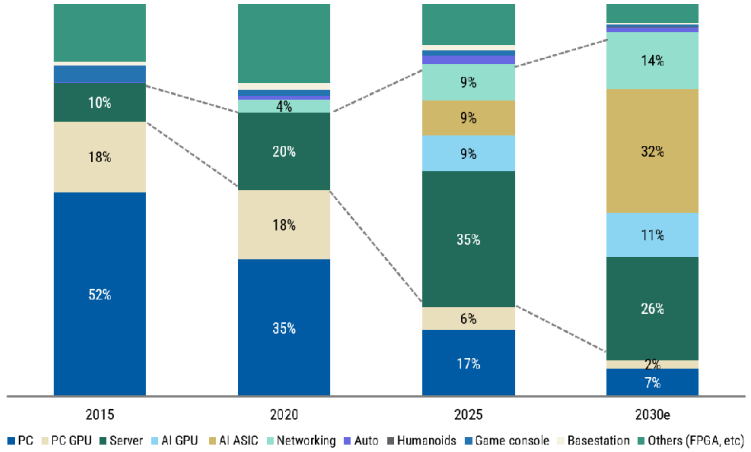
Expect ABF Substrate Undersupply From 2027 Onwards



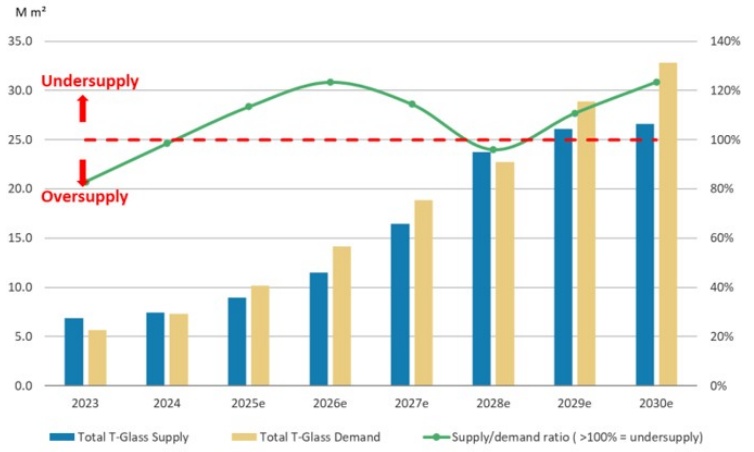
We are in the Early Innings of an AI-driven Upcycle



AI-related Applicated Expected to Rise to 75%+ by 2030



Expect T glass to Remain Undersupplied Until 2028



Source: Prismark, Morgan Stanley Research (e) estimates.

Optical Transceivers: PCB beneficiaries of AI Interconnect Build-out

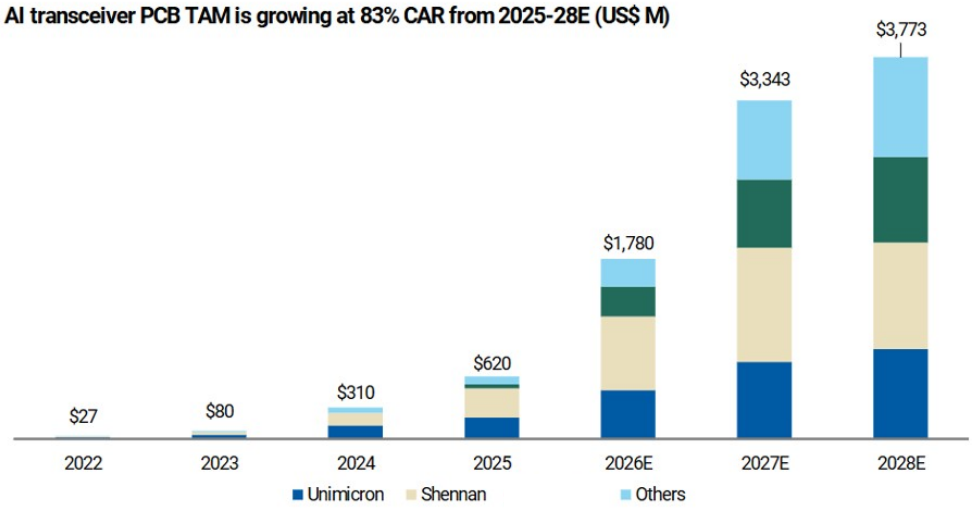
	400G	800G	1.6T	3.2T
Layers	10-12L 2-3 press HDI	12-14L, 4-8L mSAP or HDI	14-16L 6-10L mSAP	mSAP
Process	HDI	HDI or mSAP	mSAP	SAP (IC substrate)
CCL Spec	M6	M7(LDK1) / M7+ (LDK2)	M7+ / M8 (LDK2)	M8+ (M8.5) ?
ASP (US$)	$5-15	$15-25	$20-30	$50+ ?
GM Est.	20-30%	30-40%	40-50%+	60%+ ?
Suppliers	Unmicron, Shennan, WUS, other smaller suppliers.	Unimicron, Shennan, WUS, Compeq, etc.	Unimicron, Shennan, Compeq, WUS, etc.	Unimicron, Shennan, etc.

(mn units)

New Estimates	2026E	2027E	2028E
800G	44	63	64
1.6T	29	79	87
3.2T	0	0	8
Total	**73**	**141**	**158**

Previous Estimates	2026E	2027E	2028E
800G	34	48	54
1.6T	19	24	27
3.2T	0	0	5
Total	**53**	**71**	**85**

Pct. of change	2026E	2027E	2028E
800G	29%	31%	19%
1.6T	52%	233%	226%
3.2T	--	--	60%
Total	38%	98%	86%



Source: Company data, Morgan Stanley Research (e) estimates.

Our 3Q26 NB Build Estimate is 27.3mn Units (-10% q/q, -20% y/y)

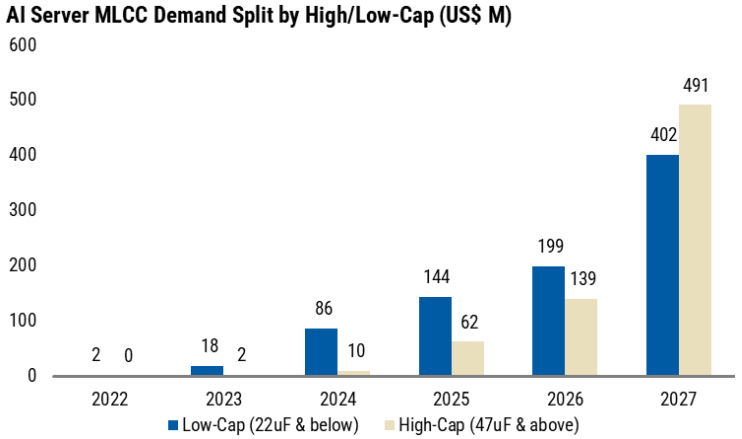
Shipment (unit: k)	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25E	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26	Jul-26	Jul-26E	Diff.	Aug-26
Quanta	2,800	3,100	4,900	3,300	3,800	5,000	4,000	4,100	4,600	3,500	3,500	3,900	2,700	2,000	5,300	3,500	3,500	4,500	2,800	3,500	-20%	3,100
Wistron	1,500	1,500	1,900	1,700	1,800	2,400	2,000	2,200	2,200	2,100	2,200	2,600	1,700	1,600	2,800	1,800	1,700	2,000	1,600	2,200	-27%	1,600
Others	1,500	1,600	1,900	1,700	1,800	2,100	1,700	1,800	1,900	1,600	1,700	2,000	1,700	1,500	2,200	1,500	1,500	2,400	1,600	1,500	7%	1,600
Compal	2,000	2,100	2,900	2,200	2,400	2,500	2,300	2,300	2,500	2,100	2,300	2,400	1,600	1,500	2,800	1,800	2,000	2,400	1,800	1,800	0%	2,100
Pegatron	610	575	700	610	775	990	750	825	825	775	710	925	700	425	675	525	575	650	400	550	-27%	600
Total	8,410	8,875	12,300	9,510	10,575	12,990	10,750	11,225	12,025	10,075	10,410	11,825	8,400	7,025	13,775	9,125	9,275	11,950	8,200	8,550	-4%	9,000
MoM %																						
Quanta	-35%	11%	58%	-33%	15%	32%	-20%	2%	12%	-24%	0%	11%	-31%	-26%	165%	-34%	0%	29%	-38%	-29%		11%
Wistron	-17%	0%	27%	-11%	6%	33%	-17%	10%	0%	-5%	5%	18%	-35%	-6%	75%	-36%	-6%	18%	-20%	-25%		0%
Others	-25%	7%	19%	-11%	6%	17%	-19%	6%	6%	-16%	6%	18%	-15%	-12%	47%	-32%	0%	60%	-33%	-38%		0%
Compal	-13%	5%	38%	-24%	9%	4%	-8%	0%	9%	-16%	10%	4%	-33%	-6%	87%	-36%	11%	20%	-25%	-25%		17%
Pegatron	-19%	-6%	22%	-13%	27%	28%	-24%	10%	0%	-6%	-8%	30%	-24%	-39%	59%	-22%	10%	13%	-38%	-15%		50%
Total	-25%	6%	39%	-23%	11%	23%	-17%	4%	7%	-16%	3%	14%	-29%	-16%	96%	-34%	2%	29%	-31%	-28%		10%
YoY%																						
Quanta	-3%	7%	4%	3%	-5%	11%	18%	-5%	-6%	9%	-3%	-9%	-4%	-35%	8%	6%	-8%	-10%	-30%	-20%		-24%
Wistron	15%	7%	0%	6%	6%	33%	25%	29%	16%	17%	29%	44%	13%	7%	47%	6%	-6%	-17%	-20%	-25%		-27%
Others	0%	23%	12%	13%	6%	24%	0%	6%	6%	-6%	0%	0%	13%	-6%	16%	-12%	-17%	14%	-6%	-12%		-11%
Compal	-9%	-9%	-3%	-21%	-17%	-17%	-8%	-21%	-14%	-25%	-15%	4%	-20%	-29%	-3%	-18%	-17%	-4%	-22%	-22%		-9%
Pegatron	16%	53%	8%	16%	6%	28%	-3%	-6%	0%	35%	14%	23%	15%	-26%	-4%	-14%	-26%	-34%	-47%	-27%		-27%
Total	0%	7%	3%	-1%	-4%	10%	8%	-2%	-2%	0%	1%	6%	0%	-21%	12%	-4%	-12%	-8%	-24%	-20%		-20%

Shipment (unit: k)	1Q24	2Q24	3Q24	4Q24	1Q25	2Q25	3Q25	4Q25	1Q26	2Q26	3Q26E	3Q26E	Diff.
Quanta	10,500	11,700	12,600	11,100	10,800	12,100	12,700	10,900	10,000	11,500	9,500	11,000	-14%
Wistron	4,600	5,100	5,200	5,300	4,900	5,900	6,400	6,900	6,100	5,500	4,800	4,700	2%
Others	4,500	4,900	5,200	5,400	5,000	5,600	5,400	5,300	5,400	5,400	4,900	5,000	-2%
Compal	7,500	8,700	8,300	7,800	7,000	7,100	7,100	6,800	5,900	6,200	6,400	6,400	0%
Pegatron	1,550	2,030	2,475	1,950	1,885	2,375	2,400	2,410	1,800	1,750	1,700	1,800	-6%
Total	28,650	32,430	33,775	31,550	29,585	33,075	34,000	32,310	29,200	30,350	27,300	28,900	-6%
QoQ %													
Quanta	1%	11%	8%	-12%	-3%	12%	5%	-14%	-8%	15%	-17%	-4%	
Wistron	-13%	11%	2%	2%	-8%	20%	8%	8%	-12%	-10%	-13%	-15%	
Others	0%	9%	6%	4%	-7%	12%	-4%	-2%	2%	0%	-9%	-7%	
Compal	-10%	16%	-5%	-6%	-10%	1%	0%	-4%	-13%	5%	3%	3%	
Pegatron	-6%	31%	22%	-21%	-3%	26%	1%	0%	-25%	-3%	-3%	3%	
Total	-5%	13%	4%	-7%	-6%	12%	3%	-5%	-10%	4%	-10%	-5%	
YoY%													
Quanta	-3%	-7%	-4%	7%	3%	3%	1%	-2%	-7%	-5%	-25%	-13%	
Wistron	18%	11%	0%	0%	7%	16%	23%	30%	24%	-7%	-25%	-27%	
Others	2%	0%	6%	20%	11%	14%	4%	-2%	8%	-4%	-9%	-7%	
Compal	-1%	0%	-11%	-6%	-7%	-18%	-14%	-13%	-16%	-13%	-10%	-10%	
Pegatron	-9%	-2%	-1%	18%	22%	17%	-3%	24%	-5%	-26%	-29%	-25%	
Total	1%	-1%	-4%	5%	3%	2%	1%	2%	-1%	-8%	-20%	-15%	

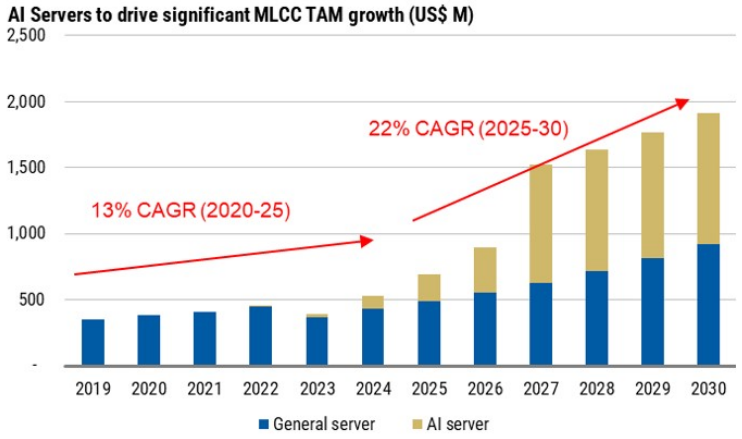
Source: IDC, Morgan Stanley Research (e) estimates.

Cloud and Edge AI to Add ~US$1B TAM to the Overall MLCC Market by 2027

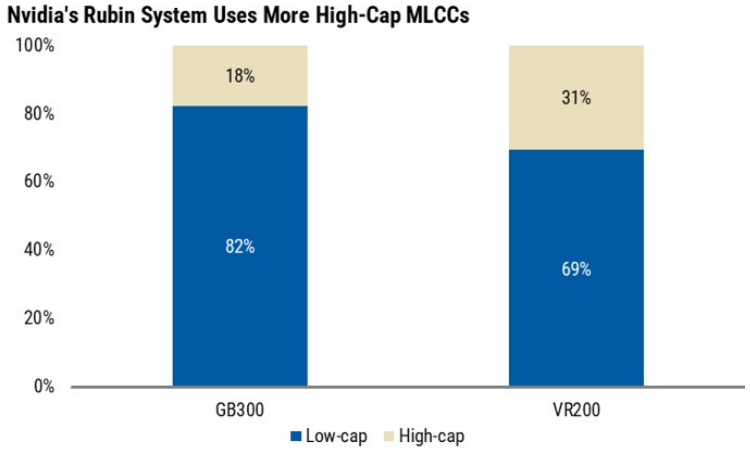
Cloud AI to Drive ~US$1B TAM by 2026 (US$ bn)



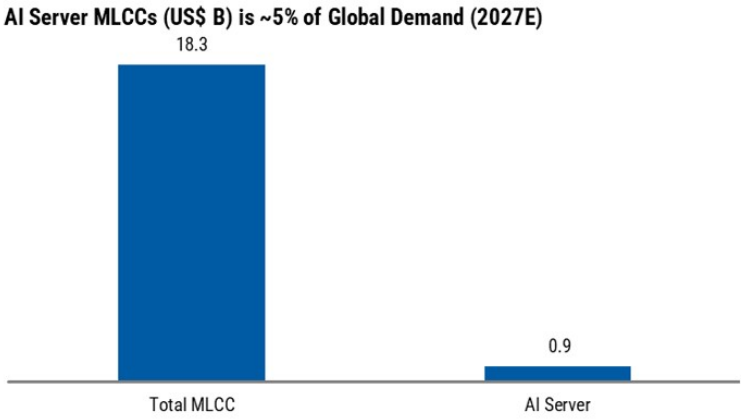
AI Servers to Drive Significant MLCC TAM Growth (US$ M)



AI Servers to Use Significantly More High-cap (47uF+) MLCCs



AI Server MLCC is ~3% of Global Units but ~5% of Global Value



Source: IDC, Morgan Stanley Research estimates.

Our 3Q26 iPhone Build Estimate is 54mn Units (+4% q/q, -2% y/y)

mn units	1Q22	2Q22	3Q22	4Q22	2022	1Q23	2Q23	3Q23	4Q23	2023	1Q24	2Q24	3Q24	4Q24	2024	1Q25	2Q25	3Q25	4Q25	2025	1Q26	2Q26e	3Q26e
iPhone Sell-in																							
iPhone SE3 / SE 5G / 16e / 17e	3.0	13.0	6.0	2.0	24.0	1.0	2.5	5.0	3.0	11.5	1.0	2.0	5.0	3.0	11.0	4.0	9.0	4.0	1.0	18.0	2.0	10.0	8.0
iPhone XR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
iPhone 11	1.0	1.0	0.5	0.5	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
iPhone 12 mini (5.4")	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
iPhone 12 (6.1")	2.0	1.0	1.0	0.5	4.5	0.5	0.5	-	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
iPhone 12 Pro (6.1")	1.0	0.5	0.5	0.5	2.5	0.5	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
iPhone 12 Pro Max (6.7")	1.0	0.5	0.5	0.5	2.5	0.5	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
iPhone 13 mini (5.4")	5.0	2.0	2.0	1.0	10.0	1.0	0.5	-	-	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-
iPhone 13 (6.1")	16.0	11.5	8.0	3.0	38.5	1.0	0.5	-	-	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-
iPhone 13 Pro (6.1")	13.0	8.0	6.0	3.5	30.5	1.0	2.0	1.0	-	4.0	0.5	0.5	-	-	1.0	-	-	-	-	-	-	-	-
iPhone 13 Pro Max (6.7")	12.0	7.5	5.0	4.0	28.5	2.0	2.0	1.0	-	5.0	0.5	0.5	-	-	1.0	-	-	-	-	-	-	-	-
iPhone 14 (6.1")			6.5	13.0	19.5	7.0	4.0	5.0	2.0	18.0	1.0	0.5	-	-	1.5	-	-	-	-	-	-	-	-
iPhone 14 Plus (6.7")			2.0	13.5	15.5	5.0	3.0	1.0	1.0	10.0	1.0	0.5	-	-	1.5	-	-	-	-	-	-	-	-
iPhone 14 Pro (6.1")			6.0	16.0	22.0	15.0	12.0	7.0	3.0	37.0	2.0	2.0	1.0	1.0	6.0	1.0	1.0	1.0	-	3.0	-	-	-
iPhone 14 Pro Max (6.7")			6.0	19.0	25.0	19.5	14.0	9.0	4.0	46.5	2.0	2.0	1.0	1.0	6.0	1.0	1.0	1.0	-	3.0	-	-	-
iPhone 15 (6.1")								6.0	12.0	18.0	6.0	5.0	4.0	1.0	16.0	1.0	0.5	0.5	0.5	2.5	-	-	-
iPhone 15 Plus (6.7")								5.0	10.0	15.0	4.0	3.0	1.0	1.0	9.0	1.0	0.5	0.5	0.5	2.5	-	-	-
iPhone 15 Pro (6.1")								8.0	16.0	24.0	12.0	10.0	8.5	2.0	32.5	2.0	2.0	2.0	1.0	7.0	1.0	1.0	-
iPhone 15 Pro Max (6.7")								2.0	24.0	26.0	18.0	13.0	10.5	3.0	44.5	3.0	3.0	2.0	1.0	9.0	1.0	1.0	-
iPhone 16 (6.1")											-	-	6.0	12.0	18.0	5.0	4.0	4.0	1.0	14.0	2.0	2.0	1.0
iPhone 16 Plus (6.7")											-	-	5.0	6.0	11.0	4.0	3.0	1.0	-	8.0	-	-	-
iPhone 16 Pro (6.3")											-	-	8.0	17.0	25.0	11.5	9.5	4.0	2.0	27.0	2.0	2.0	2.0
iPhone 16 Pro Max (6.9")											-	-	4.0	26.0	30.0	16.5	13.0	10.0	4.0	43.5	5.0	3.0	2.0
iPhone 17 (6.1")											-	-	-	-	-	-	-	6.0	16.0	22.0	10.0	8.0	6.0
iPhone Air (6.7")											-	-	-	-	-	-	-	4.0	4.0	8.0	-	-	-
iPhone 17 Pro (6.3")											-	-	-	-	-	-	-	8.0	22.0	30.0	18.0	13.0	9.0
iPhone 17 Pro Max (6.9")											-	-	-	-	-	-	-	7.0	23.0	30.0	15.0	12.0	9.0
iPhone 18 Pro (6.3")																							8.0
iPhone 18 Pro Max (6.9")																							8.0
iPhone Fold																							1.0
Total	**54.0**	**45.0**	**50.0**	**77.0**	**226.0**	**54.0**	**41.0**	**50.0**	**75.0**	**220.0**	**48.0**	**39.0**	**54.0**	**73.0**	**214.0**	**50.0**	**46.5**	**55.0**	**76.0**	**227.5**	**56.0**	**52.0**	**54.0**
YoY	*7%*	*1%*	*0%*	*-9%*	*-2%*	*0%*	*-9%*	*0%*	*-3%*	*-3%*	*-11%*	*-5%*	*8%*	*-3%*	*-3%*	*4%*	*19%*	*2%*	*4%*	*6%*	*12%*	*12%*	*-2%*
QoQ	*-36%*	*-17%*	*11%*	*54%*		*-30%*	*-24%*	*22%*	*50%*		*-36%*	*-19%*	*38%*	*35%*		*-32%*	*-7%*	*18%*	*38%*		*-26%*	*-7%*	*4%*

- For full-year 2026, our supply-chain checks suggest total iPhone build volume could rise in the low to mid single digits y/y.
- For foldable iPhone model in 2H26, we continue to expect 7-8M iPhone Fold builds in 2H26 (no change) .

Source: Company data, Morgan Stanley Research (e) estimates.

NVIDIA GPU ABF/CCL/PCB Roadmap

NVIDIA	H100	H200	B200	GB200 NVL72	GB300 NVL72	VR200 NVL144	VR300
ABF Substrate							
Substrate size	55mm x 58mm	55mm x 58mm	73mm x 81mm	73mm x 81mm	73mm x 81mm	83mm x 97mm	83mm x 97mm
Layer count	12L	12L	14L	14L	14L	18L	18L
Supplier	Ibiden	Ibiden	Ibiden/Unimicron	Ibiden/Unimicron	Ibiden/Unimicron	Ibiden/Unimicron	Ibiden/Unimicron
OCP Accelerator Module (OAM)							
CCL Spec.	Very low-loss (M6)	Very low-loss (M6)	Ultra low-loss (M7)	Extreme low-loss (M8) + Low-loss (M4)	Extreme low-loss (M8) + Low-loss (M4)	Extreme low-loss (M8) + Low-loss (M4)	Extreme low-loss (M8) + Low-loss (M4) ?
CCL supplier	EMC	EMC	Doosan	Doosan	Doosan	Doosan	Doosan, ?
PCB Size	152mm x 80.5mm	152mm x 80.5mm	170mm x 86.5mm	305.5mm x 222mm	305.5mm x 222mm	320.8mm x 233.1mm	?
PCB Spec.	18L HDI (5+8+5)	18L HDI (5+8+5)	20L HDI (5+10+5)	22L HDI (5+12+5)	22L HDI (5+12+5)	26L HDI (6+14+6)	?
PCB Supplier	UMTC, TTM, WUS	UMTC, TTM, WUS	UMTC, TTM, WUS, VGT	VGT, UMTC	VGT, UMTC	VGT, UMTC, ZDT, etc.	VGT, UMTC, ZDT, ?
Universal Baseboard (UBB)							
CCL Spec.	Ultra low-loss (M7)	Ultra low-loss (M7)	Extreme low-loss (M8) + Low-loss (M4)	NA	NA	NA	NA
CCL supplier	EMC, Doosan	EMC, Doosan	Doosan, EMC	NA	NA	NA	NA
PCB Spec.	24L PTH	24L PTH	18L PTH	NA	NA	NA	NA
PCB Supplier	WUS, TTM, ISU	WUS, TTM, ISU	WUS, TTM, ISU, UMTC	NA	NA	NA	NA
Switch board							
CCL Spec.	Ultra low-loss (M7)	Ultra low-loss (M7)	Ultra low-loss (M7), Extreme low-loss (M8)	Extreme low-loss (M8) + Standard loss (M2)	Extreme low-loss (M8) + Standard loss (M2)	Extreme low-loss (M8)	M9Q or hybrid PTFE ?
CCL supplier	EMC, TUC	EMC, TUC	EMC, TUC, Doosan	EMC, Shengyi	EMC, Shengyi	EMC, Shengyi	EMC+Taiflex, Shengyi, ?
PCB Spec.	26-28L	26-28L	28-30L	24L PTH	24L PTH	32L PTH	?
PCB Supplier	WUS, TTM, ISU, GCE	WUS, TTM, ISU, GCE	WUS, TTM, ISU, GCE	WUS, TTM, UMTC, VGT	WUS, TTM, UMTC, VGT	WUS, TTM, UMTC, VGT	WUS, VGT, SCC, ?
Motherboard							
CCL Spec.	Very low-loss (M6)	Very low-loss (M6)	Very low-loss (M6)	NA	NA	NA	NA
CCL supplier	EMC, TUC, ITEQ, Panasonic	EMC, TUC, ITEQ, Panasonic	EMC, TUC, ITEQ, Panasonic	NA	NA	NA	NA
PCB Spec.	16-18L	16-18L	16-20L	NA	NA	NA	NA
PCB Supplier	GCE, WUS, TTM, ISU, Tripod	GCE, WUS, TTM, ISU, Tripod	GCE, WUS, TTM, ISU, Tripod	NA	NA	NA	NA
Midplane (in-tray)							
CCL Spec.						M8	M8? M9?
CCL supplier						EMC	EMC, ?
PCB Spec.						44L PTH	36L PTH?
PCB Supplier						WUS, TTM, Kinwong, VGT, etc.	WUS, TTM, Kinwong, VGT, ?

Source: Morgan Stanley Research.

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Global Stock Ratings Distribution

(as of August 31, 2026)

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For disclosure purposes only (in accordance with FINRA requirements), we include the category headings of Buy, Hold, and Sell alongside our ratings of Overweight, Equal-weight, Not-Rated and Underweight. Morgan Stanley does not assign ratings of Buy, Hold or Sell to the stocks we cover. Overweight, Equal-weight, Not-Rated and Underweight are not the equivalent of buy, hold, and sell but represent recommended relative weightings (see definitions below). To satisfy regulatory requirements, we correspond Overweight, our most positive stock rating, with a buy recommendation; we correspond Equal-weight and Not-Rated to hold and Underweight to sell recommendations, respectively.

	Coverage Universe		Investment Banking Clients (IBC)			Other Material Investment Services Clients (MISC)	
Stock Rating Category	Count	% of Total	Count	% of Total IBC	% of Rating Category	Count	% of Total Other MISC
Overweight/Buy	1555	42%	450	48%	29%	767	44%
Equal-weight/Hold	1577	43%	395	42%	25%	770	44%
Not-Rated/Hold	3	0%	1	0%	33%	1	0%
Underweight/Sell	559	15%	93	10%	17%	216	12%
Total	3,694		939			1754	

Data include common stock and ADRs currently assigned ratings. Investment Banking Clients are companies from whom Morgan Stanley received investment banking compensation in the last 12 months. Due to rounding off of decimals, the percentages provided in the "% of total" column may not add up to exactly 100 percent.

Analyst Stock Ratings

Overweight (O). The stock's total return is expected to exceed the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Equal-weight (E). The stock's total return is expected to be in line with the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Not-Rated (NR). Currently the analyst does not have adequate conviction about the stock's total return relative to the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Underweight (U). The stock's total return is expected to be below the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Unless otherwise specified, the time frame for price targets included in Morgan Stanley Research is 12 to 18 months.

Analyst Industry Views

Attractive (A): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be attractive vs. the relevant broad market benchmark, as indicated below.

In-Line (I): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be in line with the relevant broad market benchmark, as indicated below.
Cautious (C): The analyst views the performance of his or her industry coverage universe over the next 12-18 months with caution vs. the relevant broad market benchmark, as indicated below.
Benchmarks for each region are as follows: North America - S&P 500; Latin America - relevant MSCI country index or MSCI Latin America Index; Europe - MSCI Europe; Japan - TOPIX; Asia - relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

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INDUSTRY COVERAGE: Greater China Technology Hardware

COMPANY (TICKER)	RATING (AS OF)	PRICE* (09/11/2026)
Andy Meng, CFA		
AAC Technologies Holdings (2018.HK)	O (01/29/2024)	HK$42.00
Accelink Technologies Co. Ltd. (002281.SZ)	U (05/12/2022)	Rmb177.36
BYD Electronics (0285.HK)	O (04/28/2023)	HK$23.86
China TransInfo Technology Co Ltd (002373.SZ)	E (07/18/2023)	Rmb7.42
Dahua Technology Co. Ltd. (002236.SZ)	E (12/12/2024)	Rmb15.92
Eoptolink Technology Inc Ltd (300502.SZ)	O (02/27/2026)	Rmb423.00
Genius Electronic Optical Co. Ltd. (3406.TW)	U (09/10/2026)	NT$1,060.00
GoerTek Inc (002241.SZ)	E (08/14/2026)	Rmb22.24
Gosuncn Technology Group Co Ltd (300098.SZ)	U (11/07/2022)	Rmb4.38
HIKVision Digital Technology (002415.SZ)	E (12/12/2024)	Rmb33.25
Largan Precision (3008.TW)	E (09/10/2026)	NT$6,660.00
LianChuang Electronic Technology Co Ltd (002036.SZ)	U (06/12/2024)	Rmb6.33
Lingyi Itech Guangdong Co (002600.SZ)	U (04/23/2025)	Rmb13.10
Lingyi Itech Guangdong Co (1688.HK)	O (08/14/2026)	HK$6.47
Luxshare Precision Industry Co., Ltd. (2475.HK)	O (08/14/2026)	HK$59.00
Luxshare Precision Industry Co., Ltd. (002475.SZ)	O (10/24/2016)	Rmb55.39
OFILM Group Co Ltd (002456.SZ)	U (06/12/2024)	Rmb7.00
Q Technology (Group) Company Ltd (1478.HK)	U (03/23/2026)	HK$5.45
Quectel Wireless Solutions Co Ltd (603236.SS)	E (10/09/2024)	Rmb58.91
Shanghai Conant Optical Co Ltd (2276.HK)	O (04/10/2026)	HK$42.54
Shenzhen Transsion Holdings Co Ltd (688036.SS)	E (03/23/2026)	Rmb52.73
Sunny Optical (2382.HK)	E (03/23/2026)	HK$69.10
Suzhou TFC Optical Communication Co Ltd. (300394.SZ)	E (11/06/2025)	Rmb261.96
Wingtech Technology Co Ltd (600745.SS)	U (05/18/2026)	Rmb17.13
Xiaomi Corp (1810.HK)	O (04/14/2021)	HK$26.36
Yangtze Optical Fibre and Cable JSC Ltd (601869.SS)	U (10/13/2021)	Rmb473.99
Yangtze Optical Fibre and Cable JSC Ltd (6869.HK)	O (07/15/2026)	HK$183.50
Yongxin Optics Co Ltd (603297.SS)	E (11/15/2022)	Rmb102.68
Zhejiang Crystal-Optech Co Ltd (002273.SZ)	O (11/15/2022)	Rmb24.67

Zhongji Innolight Co Ltd (300308.SZ)	O (09/07/2026)	Rmb926.00
Zhongji Innolight Co Ltd (3308.HK)	O (09/07/2026)	HK$1,170.00
ZTE Corporation (0763.HK)	O (06/04/2026)	HK$22.98
ZTE Corporation (000063.SZ)	E (06/04/2026)	Rmb32.17
Derrick Yang		
Accton Technology Corporation (2345.TW)	O (06/06/2024)	NT$1,885.00
Advantech (2395.TW)	O (01/20/2021)	NT$674.00
AirTAC International (1590.TW)	O (04/16/2025)	NT$1,285.00
Asia Vital Components Co. Ltd. (3017.TW)	O (07/30/2024)	NT$3,370.00
AU Optronics (2409.TW)	E (02/10/2026)	NT$30.20
Auras Technology Co Ltd (3324.TWO)	E (05/04/2023)	NT$1,360.00
Bizlink (3665.TW)	O (03/10/2025)	NT$1,875.00
BOE Technology (000725.SZ)	O (09/06/2019)	Rmb5.33
Chenbro (8210.TW)	O (07/23/2025)	NT$900.00
Chroma Ate Inc. (2360.TW)	O (10/05/2021)	NT$2,160.00
Delta Electronics Inc. (2308.TW)	O (07/13/2017)	NT$1,620.00
E Ink Holdings Inc. (8069.TWO)	E (08/10/2026)	NT$146.00
Ennostar Inc (3714.TW)	U (09/23/2022)	NT$61.70
Fositek Corp (6805.TW)	O (06/25/2025)	NT$2,150.00
Hiwin Technologies Corp. (2049.TW)	O (03/30/2026)	NT$359.00
Innolux (3481.TW)	E (04/07/2025)	NT$47.70
King Slide Works Co. Ltd. (2059.TW)	O (11/08/2023)	NT$12,080.00
Lens Technology (300433.SZ)	E (07/22/2020)	Rmb33.27
Lite-On Technology (2301.TW)	E (01/15/2025)	NT$277.00
TCL Corp. (000100.SZ)	E (04/07/2025)	Rmb4.64
Tianma Microelectronics (000050.SZ)	U (01/24/2018)	Rmb6.45
Wuhan Jingce Electronic Group Co Ltd (300567.SZ)	E (11/26/2021)	Rmb189.80
Howard Kao		
Acer Inc. (2353.TW)	U (04/23/2025)	NT$31.10
Asustek Computer Inc. (2357.TW)	U (11/16/2025)	NT$924.00
Catcher Technology (2474.TW)	U (11/17/2025)	NT$204.00
Compal Electronics (2324.TW)	U (04/23/2025)	NT$37.80
FIT Hon Teng Ltd (6088.HK)	O (11/03/2025)	HK$5.28
Foxconn Industrial Internet Co. Ltd. (601138.SS)	O (07/10/2019)	Rmb64.07
Giga-Byte Technology Co. Ltd. (2376.TW)	E (11/16/2025)	NT$349.00
Gold Circuit Electronics Ltd. (2368.TW)	O (10/06/2022)	NT$1,030.00
Hon Hai Precision (2317.TW)	O (03/15/2024)	NT$248.00
Inspur Electronic Information (000977.SZ)	E (08/28/2023)	Rmb70.54
LandMark Optoelectronics Corporation (3081.TWO)	E (03/26/2026)	NT$2,810.00
Lenovo (0992.HK)	O (07/10/2026)	HK$31.30

Lotes Co. Ltd. (3533.TW)	E (05/12/2025)	NT$1,580.00
Nan Ya PCB (8046.TW)	O (02/23/2026)	NT$1,080.00
Pegatron Corporation (4938.TW)	E (03/25/2026)	NT$91.00
Quanta Computer Inc. (2382.TW)	O (05/01/2023)	NT$336.50
Shengyi Technology Co Ltd. (600183.SS)	E (05/26/2022)	Rmb148.43
Shennan Circuits Co Ltd (002916.SZ)	E (08/24/2023)	Rmb396.68
Unimicron (3037.TW)	O (02/23/2026)	NT$977.00
Visual Photonics Epitaxy Co Ltd (2455.TW)	E (09/11/2023)	NT$515.00
Wistron Corporation (3231.TW)	O (07/12/2023)	NT$185.50
Wiwynn Corp (6669.TW)	O (11/10/2025)	NT$2,310.00
Yageo Corp. (2327.TW)	O (10/28/2025)	NT$544.00
Zhen Ding (4958.TW)	++	NT$495.00

Stock Ratings are subject to change. Please see latest research for each company.
* Historical prices are not split adjusted.

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