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Asia-Pacific Technology | Asia Pacific

AI Supply Chain: TSMC CoWoS, Meta ASIC, and China GPU

The 2026 CoWoS capacity plan is under supplying, if key customers' demand is real. On the other hand, NVIDIA's RTX Pro 6000 (B40) forecast appears still on track from Chinese customers, suggesting inference demand is strong in China.

TSMC's CoWoS demand upside: We sensed even stronger demand from AI semis at TSMC, for example for 3nm wafer demand from NVIDIA's Rubin GPU in 2H26 (see also our NVIDIA analyst Joe Moore's 22 Sep 2025 report, NVIDIA Corp.: NVIDIA announces large Open AI deal). Joe notes that 10 GW is a large number, and NVIDIA has described that the cost of AI capacity can run $50-60 bn per GW, with $35-40bn of that going to NVIDIA - implying $350-400bn of revenue over an indeterminate period that will start with Vera Rubin in 2H26. We therefore think one of key topics for investors at TSMC's 3Q25 earnings call (link) will be around CoWoS supply in 2026. In our recent AllRing report, we revised up our CoWoS capacity assumption to 100kwpm by 2026, but TSMC's fab AP8 Phase 1 clean room space is ready for an expansion to 110-120k, if the demand is confirmed. Our checks suggest that TSMC's current offering 590k of CoWoS-L wafers in 2026 is still 20% under supplying NVIDIA's demand , based on current forecasts.

Rubin CPX to adopt TSMC's CoWoS-S to embed silicon capacitors: The Rubin CPX has 30PFLOPS of NVFP4 performance along with 128GB of GDDR7. According to our supply chain checks, the Rubin CPX GPU is a single-die package with silicon capacitors, but without HBM. We therefore assume each CoWoS-S wafer can generate around 30 chips, and assume small volume production in 2H26.

AI ASIC volume forecast and industry dynamics

- We introduce our AI ASIC volume model, based on TSMC's CoWoS allocation (see Exhibit 17); AI ASIC volume could near 8mn units in 2027.
- We keep EW on MediaTek, even its 3nm Google TPU will tape out soon. MediaTek's chance to win Meta MTIA v3.5 appears lower now as the advance packaging design is indeed challenging.
- We reiterate OW on Alchip and maintain our 2026 EPS assumption, even though its Trainium3 big volume ramp should be greater in 2Q26 (vs. our original expectation in 1Q26) by focusing on the higher-performance second version Trainium3 (link). Full-year volume is tracking similar to our previous estimates, implying a back-loaded 2026.
- We don't see any increase of Trainium2 (design serviced by Marvell) chip demand in 1H26, even with some schedule delay in Trainiume3 production.
- GUC is likely to enjoy Google Axion CPU volume upside in 2026. We also think it could win Kioxia's SSD controller ASIC project and help with Meta MTIA v5's SoW design (link). We raise our PT to NT$1,580.

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GREATER CHINA TECHNOLOGY SEMICONDUCTORS

Asia Pacific Industry View	**Attractive**

WHAT'S CHANGED

Global Unichip Corp (3443.TW)	From	To
Price Target	NT$1,480.00	**NT$1,580.00**

Morgan Stanley is acting as financial advisor to Wiz, Inc. ("Wiz") in connection with its definitive agreement to be acquired by Google LLC, as announced on March 18, 2025. The proposed transaction is subject to customary closing conditions including regulatory approvals. Wiz has agreed to pay fees to Morgan Stanley for its financial services, including fees that are contingent upon the consummation of the transaction. Please refer to the notes at the end of this report.

Updates on TSMC's 2026 CoWoS Capacity Allocation - Rubin CPX the new growth driver

China GPU updates – Nvidia's AI GPU supply still contributing to China CSP's capex

- Alibaba continues to spend strongly on AI capex; see Alibaba Group Holding: Strengthening China's Best AI Enabler Thesis (28 Sep 2025).
- Our industry checks suggest NVIDIA's Blackwell GPU (including RTX Pro 6000) demand is strong for Chinese customers. RTX Pro 6000 (B40) is tracking 1.5mn to 2mn units for 2H25.
- Our checks also suggest Rubin CPX may replace some RTX Pro 6000 demand in late 2026 for inference compute in China. Again, B40 chips don't need CoWoS-S packaging, but the Rubin CPX does.
- We also see that SMIC is aggressively expanding its 7nm (N+2) node capacity to fullfil the need for domestic GPUs in China and AI ASIC demand; see our China AI tracker report.

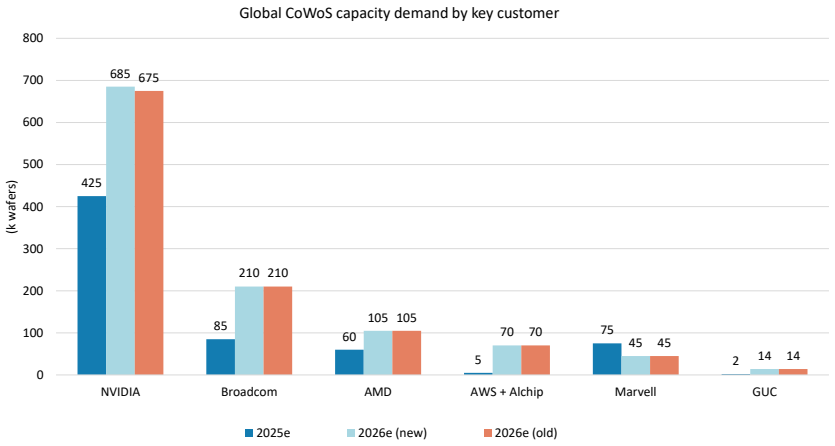
OpenAI capex demand could translate into TSMC CoWoS capacity upside

In Joe Moore's 22 Sep 2025 report, NVIDIA Corp.: NVIDIA announces large Open AI deal, he notes that 10 GW is a large number and that NVIDIA has indicated the cost of AI capacity can run $50-60bn per GW, with $35-40bn of that going to NVIDIA (implying $350-400bn of revenue over an indeterminate period starting with Vera Rubin in 2H26).

According to our Hardware analyst However Kao, the 10GW relating to the NVIDIA OpenAI deal would equate to approximately 30-35k Vera Rubin NVL144 racks and 19-20k Vera Rubin NVL144 CPX-version racks, respectively (link). In our recent AllRing report, we raised our CoWoS capacity assumption to 100kwpm by 2026, but we note that TSMC's fab AP8 Phase 1 clean room space appears ready for expansion to 110-120k if demand is confirmed.

In addition, we have updated NVIDIA's CoWoS capacity to reflect the CPX opportunity. We currently see CPX targeting tape-out in 1H26, with TSMC now allocating around 10k of CoWoS-S capacity for year-end production, according to our supply chain checks. As a result, we now see NVIDIA's CoWoS bookings in aggregate reaching 685k in 2026e. Of that, 605k is supplied by TSMC, with CoWoS-L 590k (unchanged), and CoWoS-S 15k (10k upside); see Exhibit 2 below.

Exhibit 1: Key changes for 2026 CoWoS allocation in a chart



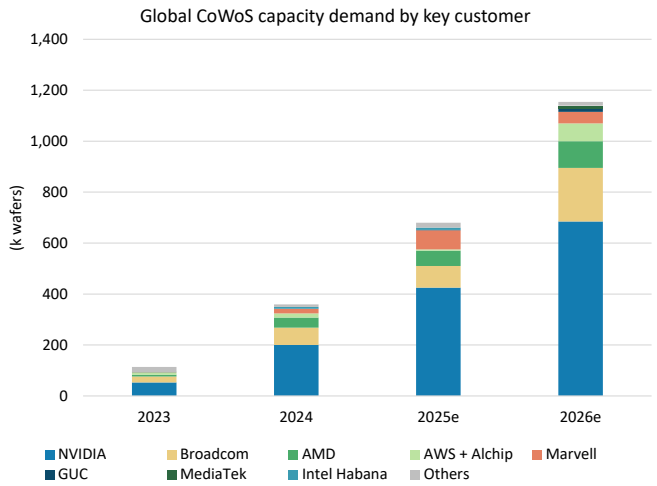
Source: Company data, Morgan Stanley Research (e) estimates; note: estimates are compiled using our Asia-based supply chain checks, and not the US covering analysts.

Exhibit 2: Key changes on 2026 CoWoS allocation tabulated (see numbers marked in red)

(k wafer)	2023	2024	2025e	2026e (new)	2026e (old)	Changes	2023	2024	2025e	2026e
NVIDIA	53	200	425	685	675	10	45%	54%	63%	59%
TSMC			390	605	595	10				
CoWoS-L			390	590	590	0				
CoWoS-S			0	15	5	10				
CoWoS-R			0	0	0					
Non-TSMC			35	80	80					
Amkor			35	60	60					
CoWoS-S			20	0	0					
CoWoS-R			15	60	60					
ASE/SPIL			0	20	20					
CoWoS-S			0	0	0					
CoWoS-R			0	20	20					
Broadcom	23	68	85	210	210		20%	18%	13%	18%
TSMC			83	205	205					
CoWoS-L			0	50	50					
CoWoS-S			83	155	155					
ASE/SPIL			2	5	5					
CoWoS-L			0	0	0					
CoWoS-S			2	5	5					
AMD	7	40	60	105	105		6%	11%	9%	9%
TSMC			60	80	80					
CoWoS-L			0	70	70					
CoWoS-S			60	10	10					
ASE/SPIL			0	25	25					
CoWoS-L			0	25	25					
CoWoS-S			0	0	0					
MediaTek				10	10					1%
AWS + Alchip	9	16	5	70	70		8%	4%	1%	6%
Intel Habana	0	7	9	0	0		0%	2%	1%	0%
Marvell	1	18	75	45	45		1%	5%	11%	4%
GUC	1	1	2	14	14		1%	0%	0%	1%
Others	20	10	19	15	15		17%	3%	3%	1%
Total demand	**117**	**370**	**680**	**1,154**	**1,144**		**100%**	**100%**	**100%**	**100%**

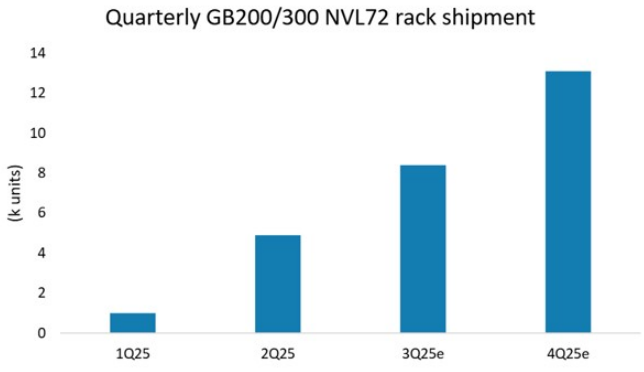
Source: Company data, Morgan Stanley Research (e) estimates; note: estimates are compiled using our Asia supply chain checks

Exhibit 3: Global CoWoS consumption, by customer



Source: Company data, Morgan Stanley Research (e) estimates; note: estimates are compiled using our Asia supply chain checks

Exhibit 4: Our hardware team also estimates around 27.6k of GB200/GB300 server rack shipments in 2025e



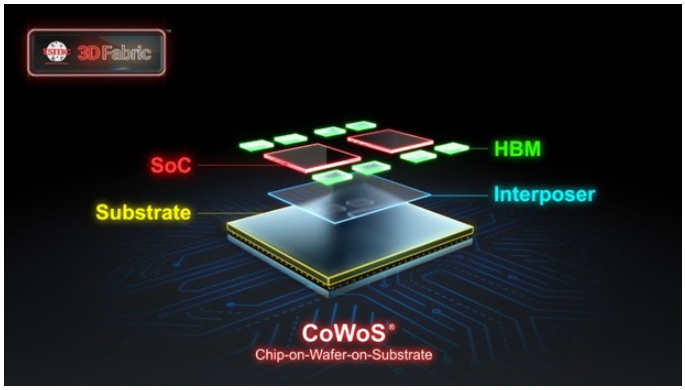
Source: Company data, Morgan Stanley Research (e) estimates; note: estimates are compiled using our Asia supply chain checks

Exhibit 5: Global CoWoS demand Y/Y growth profile

Y/Y	2023	2024e	2025e	2026e
NVIDIA	119%	280%	113%	61%
Broadcom	56%	191%	25%	147%
AMD	485%	470%	50%	75%
AWS + Alchip		71%	(69%)	1300%
Intel Habana			29%	(100%)
Marvell	(22%)	1438%	317%	(40%)
GUC		(15%)	300%	600%
Others	23%	(49%)	90%	(21%)
Total demand	**95%**	**216%**	**84%**	**70%**

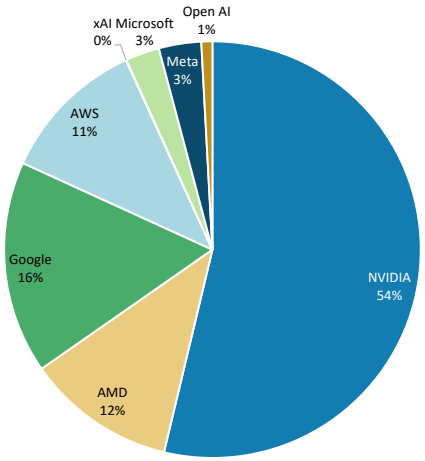
Source: Company data, Morgan Stanley Research (e) estimates; note: estimates are complied using our Asia supply chain checks

Exhibit 6: CoWoS? Chip on Wafer (interposer) on Substrate



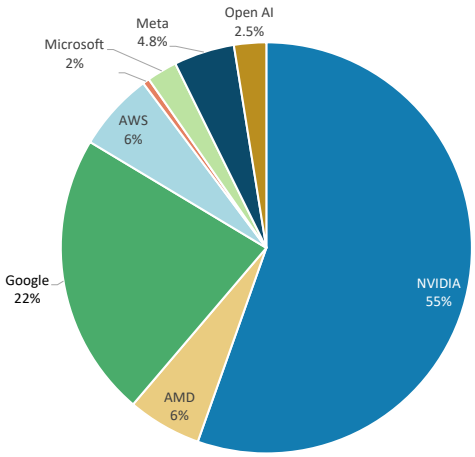
Source: TSMC

Exhibit 7: HBM consumption in 2026e breakdown by customer



Source: Company data, Morgan Stanley Research (e) estimates; note: estimates are complied using our Asia supply chain checks

Exhibit 8: AI computing wafer consumption in 2026e breakdown by customer



Source: Company data, Morgan Stanley Research (e) estimates; note: estimates are complied using our Asia supply chain checks

Exhibit 9:

HBM consumption in 2026e – up to 26bn GB

AI chip vendor	Product name	CoWoS capacity allocation (k wafers)	Chips per CoWoS wafer	Implied shipments (k)	HBM chip density (GB)	HBM chip units	Total HBM size (GB)	HBM generation	HBM vendor	Total HBM demand (k GB)
AI GPU (2026e)										
NVIDIA	B300	235	14	3,290	36	8	288	HBM3e 12hi	Hynix/Micron/Samsung	947,520
	Rubin R200	355	8	2,840	36	8	288	HBM4	Hynix/Micron/Samsung?	817,920
AMD	MI355	10	12	120	36	8	288	HBM3e 12hi	Samsung	34,560
	MI400	80	10	800	36	12	432	HBM4	Samsung	345,600
AI ASIC (2026e)										
Google	TPU v6 (Trillium)	20	20	400	24	4	96	HBM3e 8hi	Samsung/Micron	38,400
	TPU v7 (Ironwood)	120	20	2,400	24	8	192	HBM3e 8hi	Hynix/Samsung	460,800
	TPU v8 (Zebrafish)	10	20	200	36	6	216	HBM3e 12hi	Hynix/Micron	43,200
AWS	Trainium 2.5	20	16	320	24	4	96	HBM3e 8hi	Hynix/Samsung/Micron	30,720
	Trainium 3	70	17	1,190	36	8	288	HBM3e 12hi	Hynix/Samsung/Micron	342,720
xAI		10	20	200	24	6	144	HBM3e 8hi	Samsung?	1,152
Microsoft	Maia 200	4	29	116	16	4	64	HBM3	Samsung	7,424
	Maia 300	25	11	275	36	8	288	HBM4	Samsung?	79,200
Meta	MTIA 3 (Iris)	50	10	500	36	6	216	HBM3e 12hi	Hynix/Samsung	108,000
Open AI	Nexus (Titan 1)	10	13	130	36	6	216	HBM3e 12hi	Hynix/Samsung	28,080
Total		**1,109**								3,285,296
									Total HBM demand (mn Gb)	**26,282**

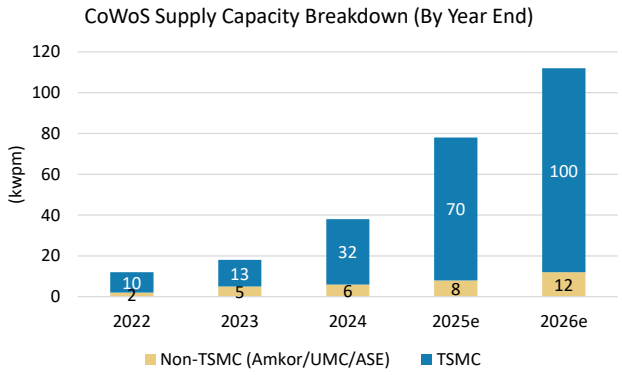
Source: Company data, Morgan Stanley Research (e) estimate. Note: Estimates are compiled using our Asia supply chain checks

Exhibit 10: AI computing wafer consumption in 2026e – up to US$20bn revenue

AI chip vendor	Product name	CoWoS capacity allocation (k wafers)	Chips per CoWoS wafer	Implied shipments (k)	Compute die size	Geometry	Compute die units	Wafer consumption (k wafers)	Wafer price (US$)	Wafer revenue TAM (US$ mn)
AI GPU (2026e)										
NVIDIA	B300	235	14	3,290	850	4nm	2	261	21,945	5,730
	Rubin R200	355	8	2,840	850	3nm	2	225	24,300	5,477
AMD	MI355	10	12	120	110	3nm	8	3	24,300	85
	MI400	80	10	800	110	2nm	8	39	28,125	1,091
AI ASIC (2026e)										
Google	TPU v6 (Trillium)	20	20	400	600	5nm	2	18	19,609	352
	TPU v7 (Ironwood)	120	20	2,400	700	3nm	2	157	24,300	3,812
	TPU v8 (Zebrafish)	10	20	200	800	3nm	2	15	24,300	363
AWS	Trainium 2.5	20	16	320	600	5nm	2	9	20,543	187
	Trainium 3	70	17	1,190	700	3nm	2	41	26,089	1,061
xAI		10	20	200	645	4nm	1	5	21,945	107
Microsoft	Maia 200	4	29	116	700	3nm	1	3.0	24,300	74
	Maia 300	25	11	275	850	2nm	1	14.6	28,125	409
Meta	MTIA 3 (Iris)	50	10	500	850	3nm	2	39.7	24,300	964
Open AI	Nexus (Titan 1)	10	13	130	750	3nm	4	18.2	28,125	512
Total		**1,109**						**849**		**20,224**

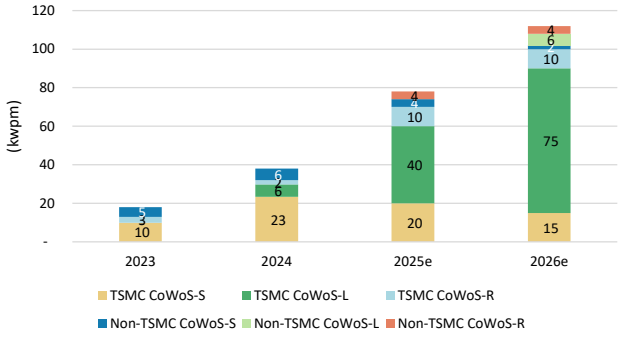
Source: Company data, Morgan Stanley Research (e) estimate. Note: Estimates are compiled using our Asia supply chain checks

Exhibit 11: TSMC and non-TSMC CoWoS capacity



Source: Company data, Morgan Stanley Research (e) estimates; note: estimates are compiled using our Asia supply chain checks

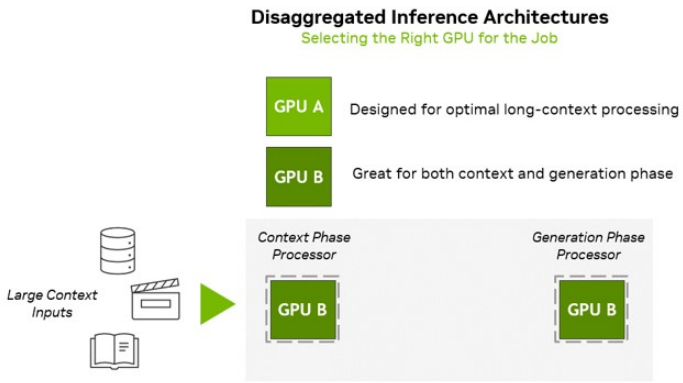
Exhibit 12: Detailed CoWoS capacity expansion by year end and by vendor



Source: Company data, Morgan Stanley Research (e) estimates; note: estimates are compiled using our Asia supply chain checks

What is Nvidia's Rubin CPX? The basic observation of the CPX is that today's LLMs have different stages: Pre-fill and decode. NVIDIA is using this in terms of a Context Phase and a Generation Phase. Transitioning between the two requires moving the key-value or KV cache. Generally, the Context phase (Pre-fill) is compute-limited while the Generation phase is more memory-limited. Since we are in the era of building clusters with hundreds of thousands of GPUs and moving to millions, there is enough workload and scale to start splitting these tasks among two more optimized architectures, rather than just running them through GPUs with massive HBM pools.

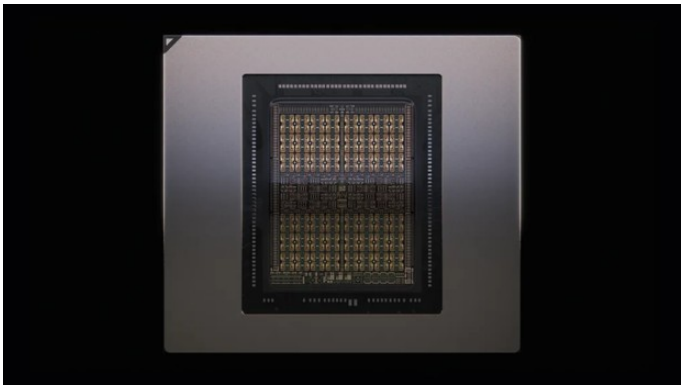
Exhibit 13: Optimizing inference by aligning GPU capabilities with context and generation workloads



Source: NVIDIA

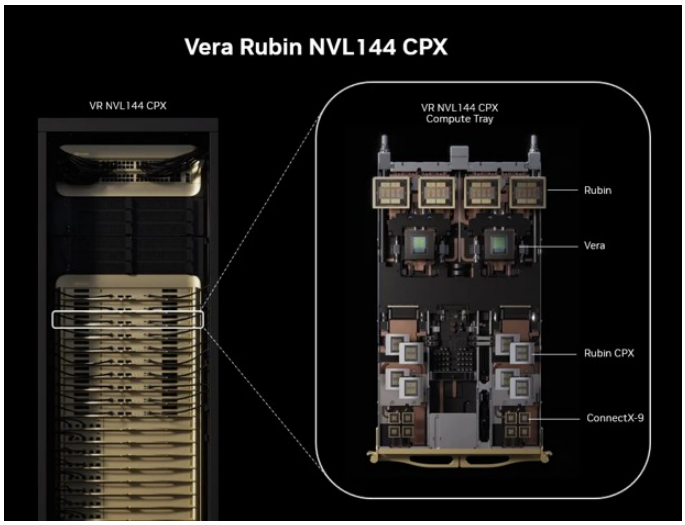
NVIDIA indicated that the Rubin CPX GPU is designed to enhance long-context performance, complementing existing infrastructure while delivering scalable efficiency and maximizing ROI in context-aware inference deployments. Rubin CPX, built with the Rubin architecture, delivers breakthrough performance for the compute-intensive context phase of inference. It features 30 petaFLOPs of NVFP4 compute, 128 GB of GDDR7 memory, hardware support for video decoding and encoding, and 3x attention acceleration (compared to NVIDIA GB300 NVL72). NVIDIA also indicated that at scale, the platform can deliver 30x to 50x return on investment, translating to as much as US$5B in revenue from a US$100M capex investment—setting a new benchmark for inference economics.

Exhibit 14: CPX chip: Single die architecture leveraging GDDR7, with CoWoS-S packaging



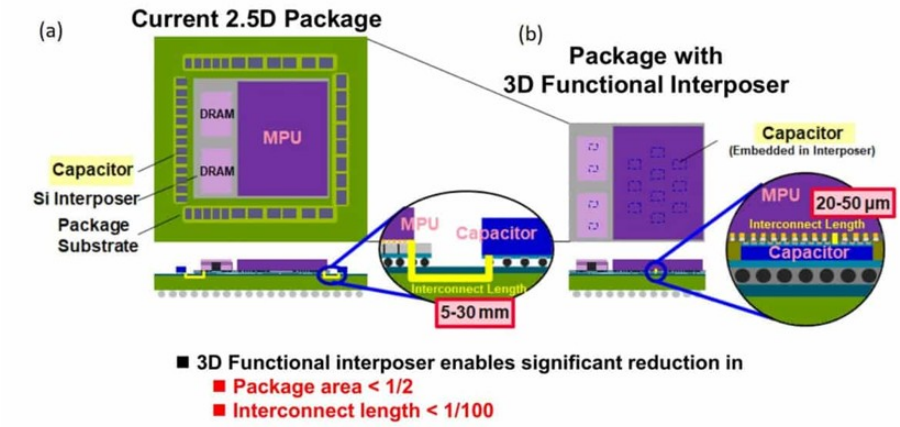
Source: NVIDIA

Exhibit 15: NVIDIA disclosed its Vera Rubin NVL144 CPX rack and tray featuring Rubin Context GPUs (Rubin CPX), Rubin GPUs, and Vera CPUs



Source: NVIDIA

Exhibit 16:
CPX also includes IPD to help improve package area and interconnect length

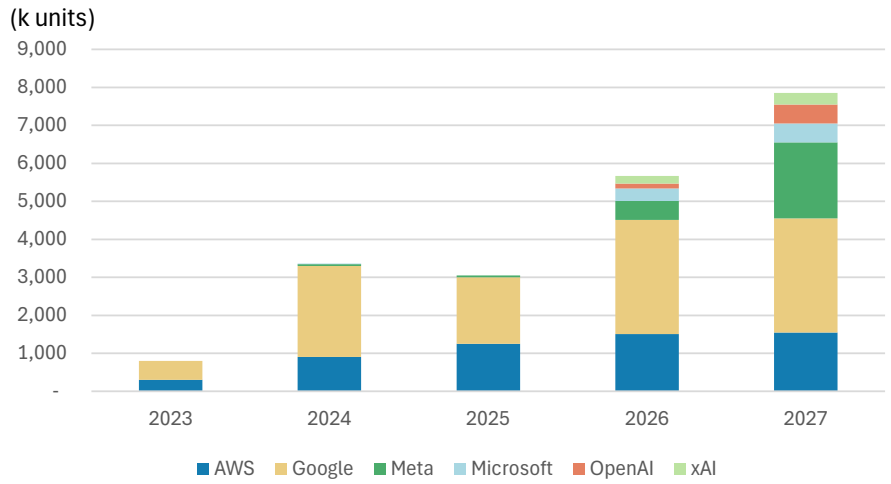


Source: TSMC

AI ASIC industry outlook: volume ramp and project allocations

We introduce our AI ASIC volume model, based on TSMC's CoWoS allocation. AI ASIC chip volume could reach 5.7mn units in 2026 and 8mn units in 2027. Google and AWS are the two major players for AI ASIC, although Meta could catch up quickly in 2027 with its MTIA v3 chip.

Exhibit 17: ASIC volume forecast by major companies



Source: Morgan Stanley Research estimates

Exhibit 18: Trainium volume forecast

k Units	2023	2024	2025	2026	2027	2028
Trainium1/Inferentia2	300	600	30			
Trainium2		300	1,200	320		
Trainium3			20	1,190	1,500	250
Trainium4					50	1,300
Total	**300**	**900**	**1,250**	**1,510**	**1,550**	**1,550**

Source: Morgan Stanley Research estimates

Exhibit 19: TPU volume forecast

k Units	2023	2024	2025	2026	2027	2028
v5	500	2,400	250			
v6 (Trillium)			1,000	300		
v7 (Ironwood, by Broadcom)			500	2,500	1,200	
v8 (N; 3nm, by MediaTek)				200	1,000	200
N+1 (2nm)					800	2,200
N+2 (2nm)						800
Total	**500**	**2,400**	**1,750**	**3,000**	**3,000**	**3,200**

Source: Morgan Stanley Research estimates

Exhibit 20: MTIA volume forecast

k Units	2023	2024	2025	2026	2027	2028
MTIA 1		50				
MTIA 2 (Athena)			50			
MTIA 3 (Iris)				500	1,500	
MTIA 3.5 (Arke)					500	1,600
MTIA 4 (Olympus; pushed out)						
Total	**0**	**50**	**50**	**500**	**2,000**	**1,600**

Source: Morgan Stanley Research estimates

Exhibit 21: Maia volume forecast

k Units	2023	2024	2025	2026	2027	2028
Maia100		10				
Maia200			-	80		
Maia300				250	500	
Total	**-**	**10**	**-**	**330**	**500**	

Source: Morgan Stanley Research estimates

KYEC (OW) benefits from the growing AI ASIC testing service

In our latest analysis, we include TPU into our KYEC test timetable, please refer to Exhibit 22 Exhibit 22 . Overall, AI-related revenue may still contribute 25-30% in 2025 and then 30-35% in 2026. In addition, from our latest checks, the final test time of B-series XPU from its largest customers is also recovering back to the 1,000s, suggesting smooth capacity ramp up at KYEC and the need for maintaining chip performance/yield through

testing, which has been a major investor debate. Most of the Advantest testers have been delivered and installed from May to September, thus we expect a more significant revenue contribution from XPU starting in 4Q25. Further, the XPU with GDDR7 will also likely start testing in 3Q25 based on our checks. Overall revenue from the largest customer should be more than 40% of KYEC's total revenue in 2H25, we estimate.

Exhibit 22: Major XPU testing time for KYEC

	1Q24	2Q24	3Q24	4Q24	1Q25	2Q25	3Q25	4Q25		2024	2025	2026
Units (k)												
H-series	800	1,000	1,400	1,200	650	200	250	-		4,400	1,100	
B-series with GDDR7	-	-	-	-	-	-	600	1,400		-	2,000	5,000
B-series with HBM	-	-	-	400	1,000	1,100	1,300	1,600		400	5,000	3,000
R-series												2,400
Google TPU										2,380	1,750	3,000
Test time (assume Hopper testing time for ~6 mins)												
H-series (k mins)	4,667	5,833	8,167	7,000	3,792	1,167	1,458	-		25,667	6,417	-
H-series test time (seconds)	350	350	350	350	350	350	350	350				
B-series with GDDR7 (k mins)							3,500	8,167		-	11,667	29,167
B-series with GDDR7 test time (seconds)							350	350				
B-series with HBM (k mins)	-	-	-	4,667	11,667	13,750	19,500	26,667		4,667	71,583	50,000
B-series with HBM test time (seconds)				700	700	750	900	1,000				
R-series (k mins)												56,000
R-series test time (seconds)												1,400
Google TPU (k mins)										3,967	4,792	14,667
Google TPU blended test time (seconds)										100	164	293
Test hour rate (for the largest customer including burn-in)	***180***	***180***	***180***	***190***	***190***	***180***	***180***	***180***				
Test hour rate (for TPU with self-bought testers)										***200***	***200***	***200***
Largest customer revenue to KYEC (US$ mn)	14.0	17.5	24.5	36.9	49.0	44.8	73.4	104.5		92.9	271.6	406.9
% of KYEC MSe Revenue	7%	8%	11%	16%	21%	16%	24%	31%		11%	24%	27%
TPU revenue to KYEC (US$ mn)										13.2	16.0	48.9
% of KYEC MSe Revenue										1.5%	1.4%	3.2%

Source: Company data, Morgan Stanley Research estimates

1. Alchip (OW) Trainium3 revenue forecast in 2026 should be fine amid back loaded shipment

As we highlighted in Alchip Technologies Ltd: Read-across from Marvell's Recent Results (2 Sep 2025), although Alchip has secured Trainium3 and even Trainium4 projects, the COT (Customer Own Tool) business model may create some uncertainty for Alchip's turnkey service revenue growth.

Our recent foundry supply chain checks suggest Alchip's Trainium3 volume ramp should be more in 2Q26 by focusing on the second version Trainium3, which was just taped out this July to deliver higher performance. We expect Alchip to recognize some production revenue of the first version (taped out this February) which is for system prototype 1Q26. We see full year Trainium3 volume tracking similar to 1.2mn units in 2026, and around 600k units of that is handled by Alchip. That should still generate around US$1.8bn revenue to Alchip in 2026, amid a back-loaded 2H26, and hence we maintain our 2025 EPS assumption and reiterate OW on Alchip.

2. MediaTek's (EW) chance to win Meta's MTIA project is getting lower

In our note, MediaTek: 5G SoC margin concern and AI ASIC uncertainty keep us EW (29 Sep 2025), we noted our belief that the chance for MediaTek to win the MTIA project is getting lower given Broadcom's strong technological capability and Marvell's aggressive

price competition. Now we expect the chance for MediaTek to win is lower. Alongside severe competition for smartphones in 2026, we suggest investors to stay on the sidelines regarding MediaTek's stock, despite the Google TPU will tape-out soon.

3. GUC (OW) could see revenue upside from Google Axion CPU in 2026

On the contrary, we are seeing revenue upside for GUC given the strong demand of Google CPU. We currently expect Google CPU to consume around 10k of front-end wafers at TSMC and could contribute around US$250mn to GUC's total revenue (or around 400-500k chip units). Although the margin is likely to be diluted given Google CPU is a low margin project (roughly mid-single digit), we think it is positive that GUC has larger project sizes or commitments from CSP customers. Meanwhile, GUC could win Kioxia's SSD controller ASIC project, and help on Meta MTIA v5's SoW design (link).

Exhibit 23: ASIC design mapping table

	Alchip	Global Unichip	Broadcomm	Marvell	TSMC direct	Samsung direct	SMIC direct	MediaTek	Socionext	Intel direct	VeriSilicon
AWS – Annapurna	Inferentia2/Tranium1 (7nm) Trainium3 (3nm)			Trainium2/Trainium2.5 (5nm)	Graviton 1 (16nm) Graviton 2 (7nm) Graviton 3 Nitro Networking Chip					AI fabric chips (I&A) Xeon 6 (3nm)	
Amazon – Lab 126	Kindle processor Echo processor (12nm)	Echo processor (5nm)									
Google		Security Chip *Axion2 CPU (3nm)* *Axion3 CPU (IP Only)*	TPU v1/TPU v2 TPU v3/TPU v4 TPU v5/TPU v6e *(Trillium)* *TPU v7p (Ironwood; 3nm)* *TPU v7e (3nm)*	Maple CPU (5nm) *Axion3 CPU (?nm)*	Axion1 CPU (5nm) Tensor (3nm)	Tensor (7nm) Tensor (5nm)		TPU v3 *TPU v8p (3nm)* *TPU v8e (3nm)*			
Microsoft		Maia 100 (5nm) *Cobalt 100 (5nm)* Maia 200 (3nm)		Maia 200 enhancement (3nm)				Azure IoT XBox Bluray			
Meta	Oculus ASIC MTIA v4?	MTIA v4 (CoWoS) MTIA v5 (SoW)	MTIA v1 MTIA v2 MTIA v3 MTIA v3.5 MTIA v4?	Switch Networking AI Networking MTIA v4?				Oculus ASIC MTIA v4?	CPU (3nm)?		
Apple			Custom Networking Chip								
Sony	TV ASIC Smartphone ISP	DSC ASIC						PS5 South Bridge			
Tesla/xAI	D1/Dojo (7nm)	AI accelerator xAI (5nm) xAI (3nm)			D1/Dojo (7nm) D2/Dojo (5nm) AI5 (3nm)	Autopilot 3.0/FSD 1 (14nm) Autopilot 4.0/FSD 2 (7nm) AI6 (2nm)					
Li Auto	ADAS High-end (5nm) ADAS Low-end (5nm)										ADAS
GM – Cruise									5nm		
Intel – Habana	Gaudi 1 (16nm) Gaudi 2/Goya 2 (7nm) Gaudi 3/Goya 3 (5nm)	Goya 1 (16nm)									
OpenAI			AI Custom Chip								
Baidu					Kunlun 1 (14nm) Kunlun 3 (5nm)						
Alibaba – T-head		Generation 1			Hanguan						
Tencent					Zixiao (12nm)						
ByteDance			AI accelerator (7nm) *5nm?*					AI accelerator (3nm)			AI accelerator
Nvidia								GB10 N1X		x86 CPU	

Source: Morgan Stanley Research

Global AI capex: Remains strong after Oracle's print

Oracle to consume more chips in 2026

Oracle announced a big revenue backlog (link), and that served as a positive catalyst for NVIDIA and its supply chain stocks, such as TSMC and KYEC. The positive outlook also aligns with our previous supply chain checks. The Stargate Project was announced in Jan. 2025, a joint venture between OpenAI, Softbank and Oracle to develop physical and digital infrastructure to support next gen AI. From our supply chain checks in Asia-Pacific, we are now seeing more evidence of engagement by Stargate with the supply chain, especially in server racks. Based on feedback, one 4.5GW datacenter could be fulfilled with 28k GB200 NVL72 racks, at least.

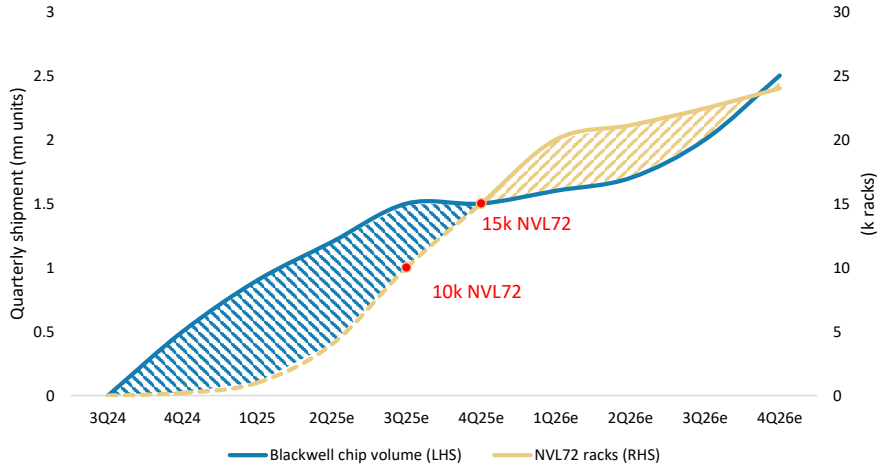
The strong consumption of Blackwell chips into 1H26 will further reduce chip inventory risk to the AI semi supply chain, in our view. The 28k GB200 NVL72 racks equate to around 2mn units of chip consumption.

Exhibit 24: Comments from Oracle's 2Q25CY Commentary

Company	Date	C2Q25 Cloud Capex Quotes
Oracle	9/9/2025	*" Given our RPO growth, I now expect fiscal year 2026 CapEx will be around $35 billion....the vast majority of our CapEx investments are for* ***revenue-generating equipment that is going into the data centers and not from land or buildings****."* *" We have signed significant cloud contracts with the who's who of AI, including OpenAI, xAI, Meta, NVIDIA, AMD and many others."* *" We now expect Oracle Cloud Infrastructure will grow 77% to $18 billion this fiscal year, and then increase to $32 billion, $73 billion, $114 billion, and $144 billion over the following four years."* *" Several world-class AI companies have chosen Oracle to build large-scale GPU-centric data centers to train their AI models. That's because Oracle builds gigawatt scale data centers that are faster and more cost-efficient at training AI models than anyone else in the world."* *" Oracle is aggressively pursuing the AI – and we're not doing badly in the AI training market, by the way, but inferencing is bigger. Oracle is aggressively pursuing the inferencing market as well as the AI training market. We think we are in a pretty good position to be a winner in the inferencing market, because Oracle is by far the world's largest custodian of high-value private enterprise data."*

Source: Factset, Morgan Stanley Research

Exhibit 25: TSMC is expected to produce 5.1mn chips in 2025, which could be fully digested in 1H26 based on Oracle's announced strong AI sever build in 2026



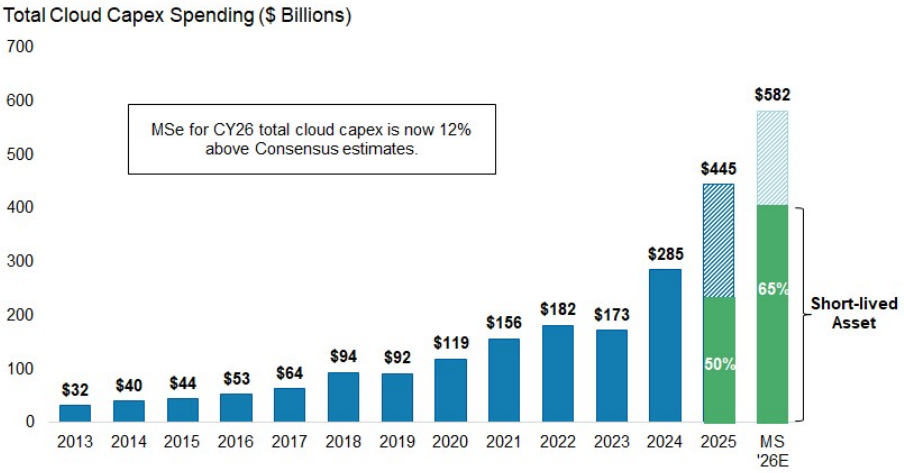
Source: Company data, Morgan Stanley Research (e) estimates. Note: Estimates are compiled using our supply chain checks and may differ from other Morgan Stanley Research estimates

Hyperscalers' Capex Remains Strong into 2026

According to our US hardware analyst Erik Woodring's Global Cloud Capex Tracker, MS expects 2026 cloud capex to increase to US$582bn, implying 31% Y/Y growth (vs. consensus now only +16% Y/Y). While consensus estimates indicate a 40-point deceleration in 2026 cloud capex growth, we believe there is upward pressure to consensus 2026 estimates – Morgan Stanley is now looking at 31% Y/Y growth in 2026 following 59% Y/Y growth in 2025.

Assuming the AI server capex mix (spending on short-lived assets) increases, implied AI server capex may grow ~70% Y/Y in 2026 (see Exhibit 26). This underscores our Attractive industry view on Greater China Semis – we see AI demand remaining strong. In AI semis, we are OW TSMC, Samsung, Alchip, MediaTek, Aspeed and KYEC.

Exhibit 26: By assuming an increase in AI server capex mix, the implied AI server capex may grow 70% Y/Y in 2026, based on MSe

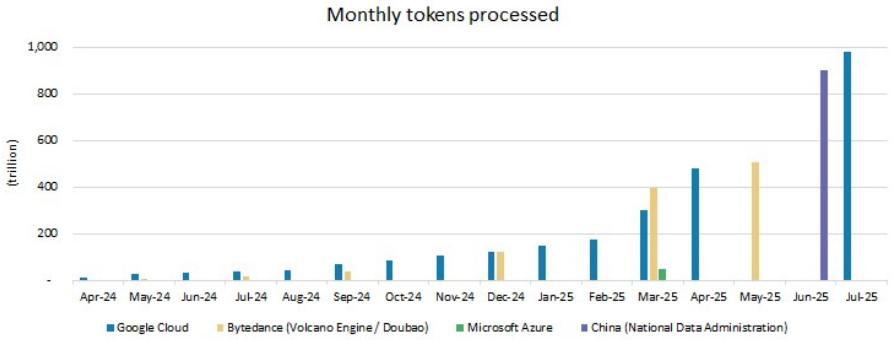


Source: Company data, FactSet, Morgan Stanley Research estimates (short-lived assets are MSe). Note: Cloud capex includes announced capex from Alphabet, Amazon, Microsoft, Meta Platforms, Alibaba, Tencent, Baidu, CoreWeave, Apple, IBM, and Oracle. ORCL forecasts are not updated post latest earnings. Forward estimates are consensus est. for the others.

Monthly tokens processed by major CSPs suggest that AI inference demand is growing

We see growing AI inference demand, as evidenced by the rapidly growing number of tokens processed by major CSPs. China's token consumption reached 30trn daily as of end June 2025 (monthly run-rate was 900trn), +300x vs. 0.1trn daily at the beginning of 2024 (as reported by the National Data Administration of China). Google processed over 980trn tokens in July 2025, doubling from 480trn in May 2025. Bytedance's token consumption reached 16.4trn daily as of end May 2025 (monthly run-rate was 508trn), +29% vs. 12.7trn daily as of end March 2025. Microsoft processed over 500trn tokens through its Foundry APIs in F2025 (year end June 2025), up over 7x Y/Y.

Exhibit 27: Monthly tokens processed

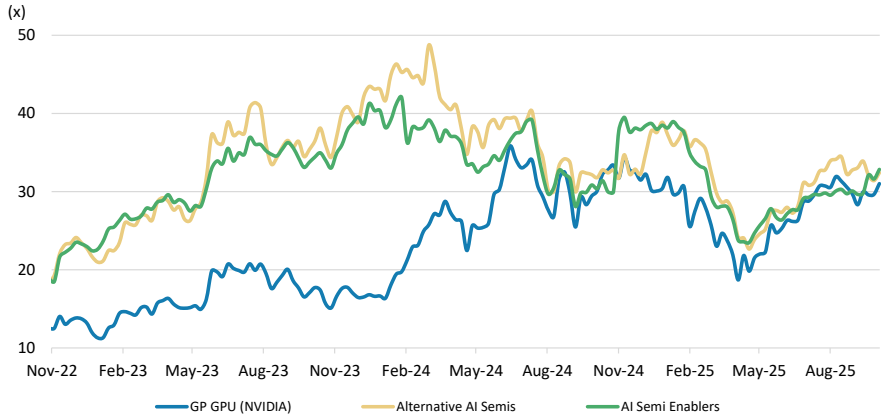


Source: Company information, Morgan Stanley Research. Note: Bytedance and China numbers represent monthly token use run-rate based on end-of-month daily tokens

AI semis – Stock Implications, P/E Multiples, Revenue Exposure

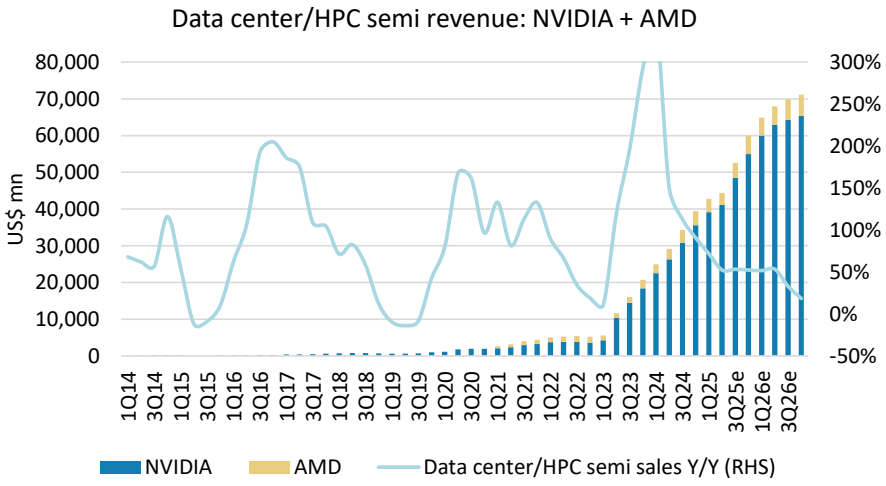
- In Asia semis, we are OW TSMC, KYEC, ASE, Samsung and Aspeed.
- We are also positive on Asia ASIC design service Alchip and GUC, and CPO suppliers FOCI and Himax.

Exhibit 28: P/E multiple trend of AI semis



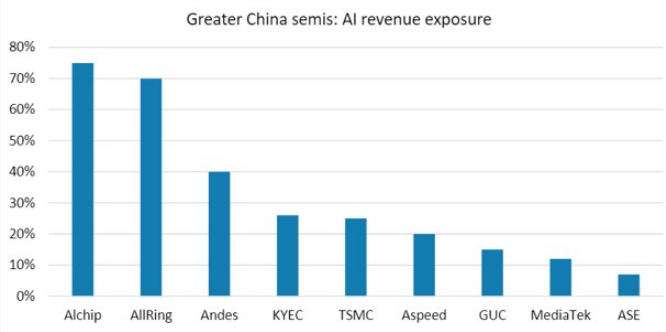
Alternative AI semis group: AMD, Alchip, Andes, Marvell, Broadcom. AI semi enablers group: TSMC, Synopsys, Cadence, ASML, BESI, Ibiden, KYEC, Advantest. Source: Company data, Morgan Stanley Research.

Exhibit 29: We continue to see AI chip quarterly revenue increasing



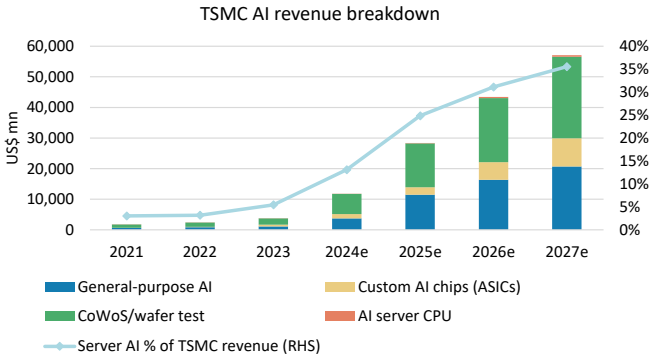
Source: Company data, Refinitiv, Morgan Stanley Research (e) estimates

Exhibit 30: Greater China AI semi revenue exposure as of 2025e



Source: Morgan Stanley Research (e) estimates

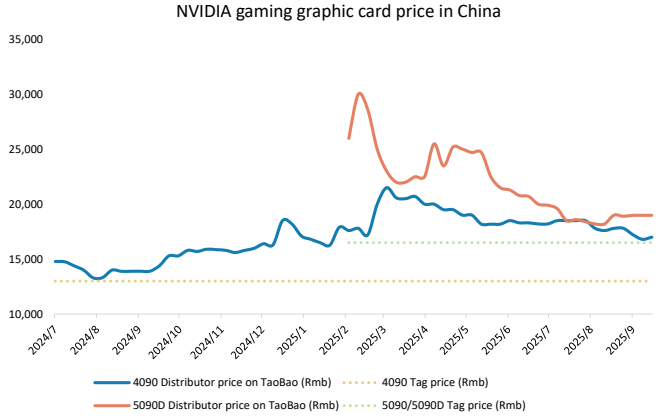
Exhibit 31: AI accounts for a mid-teens share of TSMC's 2024 total revenue and 25% of TSMC's 2025e total revenue



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

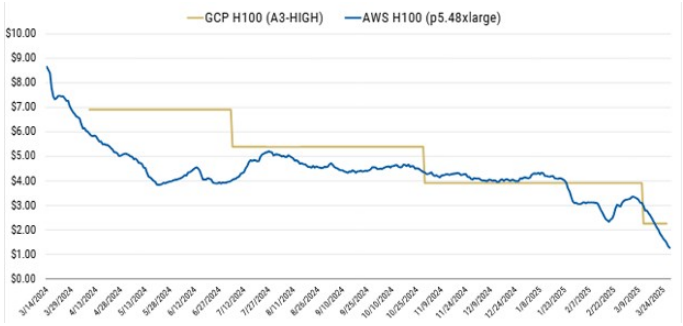
AI GPU and ASIC Rental Price Tracker

Exhibit 32: Retail price of NVIDIA 4090 and 5090 graphic cards down slightly, although China's AI inference demand is still very strong



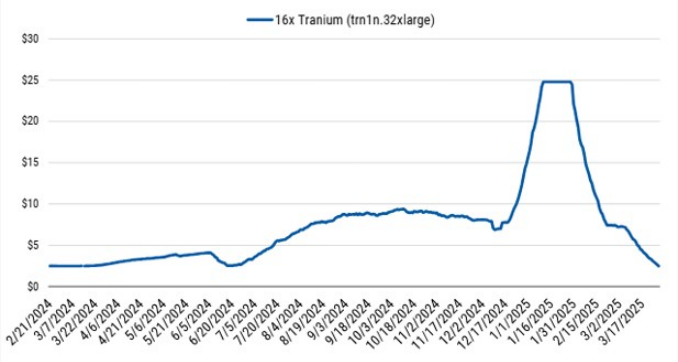
Source: TaoBao, Morgan Stanley Research

Exhibit 33: AI GPU H100 per GPU per hour as of end-March



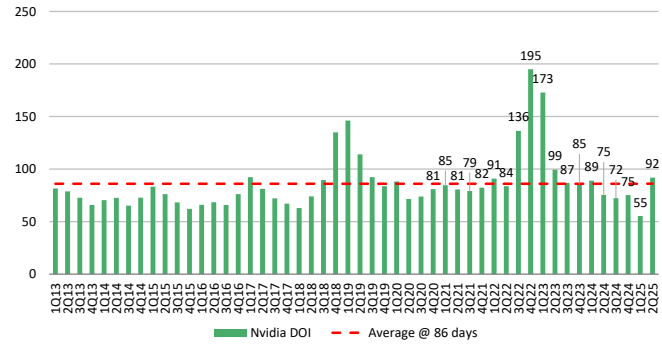
Source: Company data, Morgan Stanley Research

Exhibit 34: AI ASIC equivalent computing power – 16x Inferentia 2 per hour



Source: Company data, Morgan Stanley Research

Exhibit 35: NVIDIA's inventory days/level



Source: Company data, Refinitiv, Morgan Stanley Research

GUC: Estimate revision summary

We raise our 2025-27 EPS estimates by 4% to 8%: We fine-tune our 2025 revenue forecast given stronger-than-expected NRE revenue in 3Q25. Google CPU volume could be larger than our previous expectation, according to our checks, suggesting stronger turnkey revenue for both 2026 and 2027. However, 2026 and 2027 margins are also hit by lower margins from the Google project. We therefore revise up our 2026e and 2027e earnings by 7-8%.

Exhibit 36: GUC: Estimate revision summary

NT$ mn	New '25e	Old '25e	Diff.	New '26e	Old '26e	Diff.	New '27e	Old '27e	Diff.
Net sales	30,230	28,330	7%	42,690	39,163	9%	51,198	45,519	12%
NRE	*8,325*	*7,855*	*6%*	*10,075*	*10,154*	*-1%*	*11,282*	*11,992*	*-6%*
Turnkey	*21,485*	*19,999*	*7%*	*32,166*	*28,451*	*13%*	*39,469*	*32,971*	*20%*
Others (IP)	*421*	*476*	*-12%*	*448*	*558*	*-20%*	*447*	*556*	*-20%*
Gross profit	8,796	8,586	2%	10,967	10,464	5%	12,529	11,970	5%
Operating profit	4,664	4,479	4%	6,051	5,590	8%	7,589	7,092	7%
Pretax Income	4,786	4,601	4%	6,279	5,818	8%	7,817	7,319	7%
Net income	4,050	3,893	4%	5,337	4,945	8%	6,644	6,222	7%
Reported EPS	**30.03**	**28.86**	**4%**	**39.57**	**36.67**	**8%**	**49.27**	**46.13**	**7%**
Margins									
Gross margin	29.1%	30.3%		25.7%	26.7%		24.5%	26.3%	
Opex ratio	13.7%	14.5%		11.5%	12.4%		9.6%	10.7%	
Operating margin	15.4%	15.8%		14.2%	14.3%		14.8%	15.6%	
Net margin	13.4%	13.7%		12.5%	12.6%		13.0%	13.7%	

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

Exhibit 37: GUC: Quarterly financials

(NT$ mn)	1Q25	2Q25	3Q25e	4Q25e	1Q26e	2Q26e	3Q26e	4Q26e	2022	2023	2024	2025e	2026e	2027e
Total revenues	**7,024**	**6,105**	**8,613**	**8,489**	**9,540**	**10,388**	**11,068**	**11,693**	**24,040**	**26,241**	**25,044**	**30,230**	**42,690**	**51,198**
Q/Q Change	*16.6%*	*-13.1%*	*41.1%*	*-1.4%*	*12.4%*	*8.9%*	*6.5%*	*5.6%*						
Y/Y Change	*23.4%*	*-9.2%*	*30.3%*	*41.0%*	*35.8%*	*70.2%*	*28.5%*	*37.7%*	*59.1%*	*9.2%*	*-4.6%*	*20.7%*	*41.2%*	*19.9%*
Cost of Sales	**5,051**	**4,071**	**6,023**	**6,290**	**7,045**	**7,740**	**8,248**	**8,690**	**15,705**	**18,265**	**16,937**	**21,435**	**31,723**	**38,669**
Percent of Revenues	*71.9%*	*66.7%*	*69.9%*	*74.1%*	*73.8%*	*74.5%*	*74.5%*	*74.3%*	*65.3%*	*69.6%*	*67.6%*	*70.9%*	*74.3%*	*75.5%*
Gross Profit	**1,973**	**2,034**	**2,590**	**2,199**	**2,496**	**2,648**	**2,820**	**3,003**	**8,335**	**7,976**	**8,108**	**8,796**	**10,967**	**12,529**
Gross Margin	***28.1%***	***33.3%***	***30.1%***	***25.9%***	***26.2%***	***25.5%***	***25.5%***	***25.7%***	***34.7%***	***30.4%***	***32.4%***	***29.1%***	***25.7%***	***24.5%***
Total Opex	**878**	**1,090**	**1,048**	**1,115**	**1,177**	**1,188**	**1,247**	**1,303**	**4,236**	**4,007**	**4,305**	**4,132**	**4,915**	**4,940**
Percent of Revenues	*12.5%*	*17.9%*	*12.2%*	*13.1%*	*12.3%*	*11.4%*	*11.3%*	*11.1%*	*17.6%*	*15.3%*	*17.2%*	*13.7%*	*11.5%*	*9.6%*
R&D	800	837	787	837	864	884	919	980	3,290	3,116	3,223	3,261	3,647	3,647
Percent of Revenues	*11.4%*	*13.7%*	*9.1%*	*9.9%*	*9.1%*	*8.5%*	*8.3%*	*8.4%*	*13.7%*	*11.9%*	*12.9%*	*10.8%*	*8.5%*	*7.1%*
General & Adm Exp.	-18	159	149	159	170	175	190	205	565	497	674	450	740	740
Percent of Revenues	*-0.3%*	*2.6%*	*1.7%*	*1.9%*	*1.8%*	*1.7%*	*1.7%*	*1.8%*	*2.3%*	*1.9%*	*2.7%*	*1.5%*	*1.7%*	*1.4%*
Selling Expenses	97	94	112	119	143	129	138	119	381	394	407	421	529	553
Percent of Revenues	1.4%	1.5%	1.3%	1.4%	1.5%	1.2%	1.2%	1.0%	1.6%	1.5%	1.6%	1.4%	1.2%	1.1%
Operating Income	**1,095**	**944**	**1,542**	**1,084**	**1,319**	**1,460**	**1,573**	**1,700**	**4,099**	**3,969**	**3,803**	**4,664**	**6,051**	**7,589**
Operating Margin	*15.6%*	*15.5%*	*17.9%*	*12.8%*	*13.8%*	*14.1%*	*14.2%*	*14.5%*	*17.1%*	*15.1%*	*15.2%*	*15.4%*	*14.2%*	*14.8%*
Total Non-operating Income (loss)	**48**	**-15**	**44**	**44**	**44**	**94**	**44**	**44**	**246**	**187**	**260**	**122**	**228**	**228**
Profit Before Taxes	**1,143**	**929**	**1,586**	**1,128**	**1,363**	**1,554**	**1,618**	**1,744**	**4,345**	**4,155**	**4,062**	**4,786**	**6,279**	**7,817**
Percent of Revenues	*16.3%*	*15.2%*	*18.4%*	*13.3%*	*14.3%*	*15.0%*	*14.6%*	*14.9%*	*18.1%*	*15.8%*	*16.2%*	*15.8%*	*14.7%*	*15.3%*
Taxes	**181**	**147**	**238**	**169**	**204**	**233**	**243**	**262**	**634**	**647**	**612**	**736**	**942**	**1,173**
Tax Rate	15.9%	15.9%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	14.6%	15.6%	15.1%	15.4%	15.0%	15.0%
Minor interest	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Net Income to Parent	**961**	**782**	**1,348**	**959**	**1,159**	**1,321**	**1,375**	**1,483**	**3,710**	**4,099**	**3,451**	**4,050**	**5,337**	**6,644**
Percent of Revenues	*13.7%*	*12.8%*	*15.7%*	*11.3%*	*12.1%*	*12.7%*	*12.4%*	*12.7%*	*15.4%*	*15.6%*	*13.8%*	*13.4%*	*12.5%*	*13.0%*
Reported Basic EPS (NT$, TW GAAP)	**7.13**	**5.80**	**10.00**	**7.11**	**8.59**	**9.79**	**10.19**	**10.99**	**27.47**	**26.02**	**25.63**	**30.03**	**39.57**	**49.27**
Y/Y Change	*45%*	*-14%*	*30%*	*13%*	*21%*	*69%*	*2%*	*55%*	*153%*	*-5%*	*-2%*	*17%*	*32%*	*24%*

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

Price target raised from NT$1,480 to NT$1,580

We continue to derive our price target from our base case scenario value via a residual income model, as our price target change is mostly due to the 2027e earnings revision. All of our other key assumptions are unchanged, including a cost of equity of 9.2% (a beta of 1.2, a risk premium of 6%, and a risk-free rate of 2%), a intermediate growth rate of 16%, and a terminal growth rate of 5.0%.

Our bull and bear case values are also raised by ~7% to NT$2,150 and NT$980, respectively.

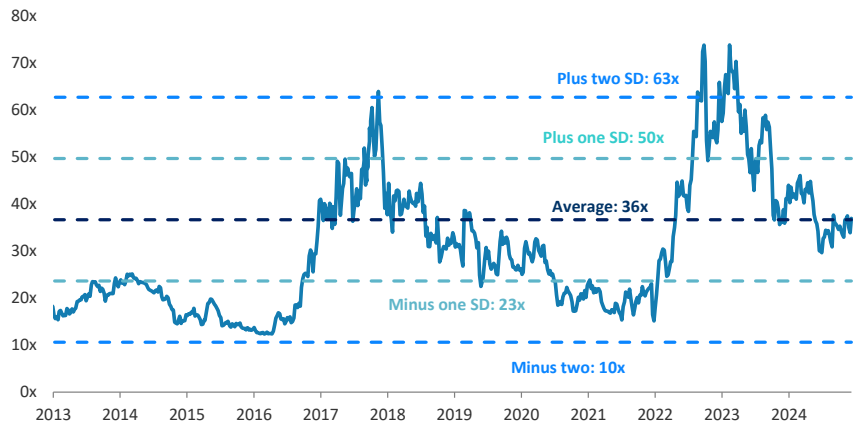
Exhibit 38: GUC: Residual income model

NT$million	2025e	2026e	2027e	2028e	2029e	2030e	2031e	2032e	2033e	2034e	2035e	2036e
Total Equity	**13,468**	**16,607**	**19,427**	**22,699**	**26,494**	**30,896**	**36,002**	**41,926**	**48,797**	**56,768**	**66,014**	**76,739**
Net Profit	**4,050**	**5,337**	**6,644**	**7,708**	**8,941**	**10,371**	**12,031**	**13,956**	**16,189**	**18,779**	**21,783**	**25,269**
ROAE	**32.7%**	**35.5%**	**36.9%**	**36.6%**	**36.4%**	**36.1%**	**36.0%**	**35.8%**	**35.7%**	**35.6%**	**35.5%**	**35.4%**
Residual Income	2,655	3,541	4,597	5,322	6,163	7,138	8,270	9,583	11,105	12,872	14,920	17,297
Spread	**23.5%**	**26.3%**	**27.7%**	**27.4%**	**27.2%**	**26.9%**	**26.8%**	**26.6%**	**26.5%**	**26.4%**	**26.3%**	**26.2%**
Ending Equity Capital	13,468											
PV of Forecast Period	47,678											
PV of Continuing Value	150,397											
Equity Value	**211,543**											
No. of Shares	134											
Projected Price	**1,580**											

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

Our price target of NT$1,580 implies 40x our 2026 EPS estimate, lower than plus-one standard deviation from GUC's historical NTM P/E since 2013. We maintain our view that the design service market should proliferate with AI ASIC outgrowing AI GPU in the long term, and therefore believe a stock re-rating would be justified with project wins likely to come. Despite the slower recovery of non-AI business, we continue to like GUC's growing exposure to cloud AI semis (including AI accelerators, AI server CPU, and BMC chips).

Exhibit 39: GUC: NTM rolling P/E



Source: Company data, Factset, Morgan Stanley Research estimates

Risk Reward – Global Unichip Corp (3443.TW)

Crypto projects and increasing AI business; risk-reward still favorable

PRICE TARGET NT$1,580.00

Base case, residual income model. Key assumptions: a cost of equity of 9.2%, an intermediate growth rate of 16% and a terminal growth rate of 5%.

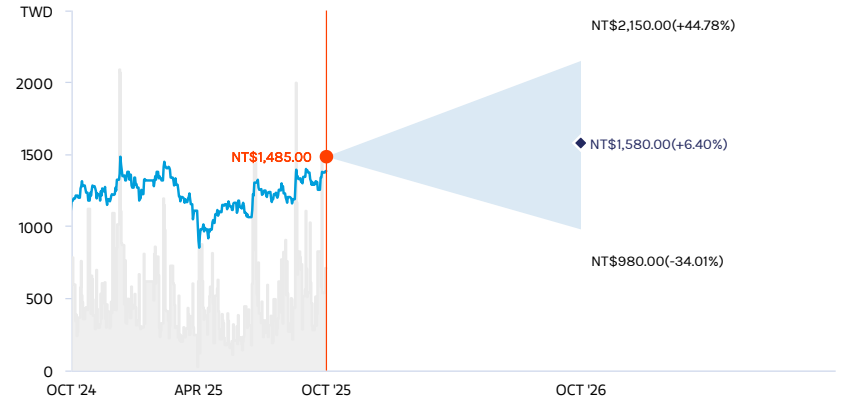
Consensus Price Target Distribution NT$1,000.00 — NT$1,407.20 — NT$1,700.00

MS PT

◆ Mean ◆ Morgan Stanley Estimates

Source: Refinitiv, Morgan Stanley Research

RISK REWARD CHART



Key: Historical Stock Performance ● Current Stock Price ◆ Price Target

Source: Refinitiv, Morgan Stanley Research

OVERWEIGHT THESIS

- Our OW rating on GUC reflects growing crypto mining chip demand.
- GUC has reiterated that AI semis will make up 15-20% of revenue this year. Despite the slower recovery of non-AI business, we like GUC's growing exposure to cloud AI semis (including AI accelerators, AI server CPU, BMC, and HBM chips).
- Our price target implies 40x our 2026e EPS, lower than +1 SD from GUC's average P/E during the past five years.
- We maintain our view that the design service market should proliferate with AI ASIC outgrowing AI GPU in the long term, and therefore believe a re-rating is justified with potential project wins to come.

Consensus Rating Distribution

68%	Overweight
16%	Equal-weight
16%	Underweight

● MS Rating

Source: Refinitiv, Morgan Stanley Research

Risk Reward Themes

New Data Era:	*Positive*
Pricing Power:	*Negative*
Secular Growth:	*Positive*

View descriptions of Risk Rewards Themes here

BULL CASE NT$2,150.00

55x 2026e EPS

Multiple leading-edge NRE projects successfully translate into volume production with healthy margin profiles. Many AI chipsets or other projects start to proliferate with substantial end demand, with customers' interest in migrating to more advanced nodes. Networking switch demand is stronger than expected, while SSD controller project contributions are sustainable into 2025. 3/5nm turnkey revenue growth is stronger than expected in 2025 and beyond.

BASE CASE NT$1,580.00

40x 2026e EPS

Networking switch turnkey projects volume remains stable, while SSD controller project contribution declines in 2024 and 2025. A few new leading-edge turnkey projects start to show decent shipments. TSMC's leading-edge tape-out numbers increase steadily, while some "turnkey 2/3" (TK2 and TK3) projects contribute to NRE and turnkey revenue. CSP (AI) revenue contribution should be the major growth driver for 2026 and 2027.

BEAR CASE NT$980.00

25x 2026e EPS

AI chipsets and other projects lack concrete end demand, resulting in delayed tape-outs. TSMC's leading-edge tape-out numbers decrease or some customers turn directly to TSMC. BMC and SSD project losses arise from customers' in-sourcing. Fiercer-than-expected talent competition leads to higher opex to retain R&D engineers. High volume turnkey projects carry lower than expected gross margin.

Risk Reward – Global Unichip Corp (3443.TW)

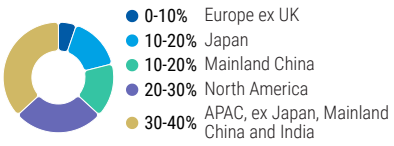
KEY EARNINGS INPUTS

Drivers	2024	2025e	2026e	2027e
NRE revenue Y/Y (%)	24.7	(1.3)	21.0	12.0
Turnkey revenue Y/Y (%)	(14.9)	32.9	49.7	22.7
Turnkey revenue (NT$, mn)	16,161	21,485	32,166	39,469
Turnkey revenue contribution (%)	64.5	71.1	75.3	77.1

INVESTMENT DRIVERS

- ASIC/ASSP industry demand
- Technology migration to more advanced nodes
- New projects driven by China's semi localization efforts

GLOBAL REVENUE EXPOSURE



Source: Morgan Stanley Research Estimate
View explanation of regional hierarchies here

MS ALPHA MODELS

3/5 MOST — 3 Month Horizon

Source: Refinitiv, FactSet, Morgan Stanley Research; 1 is the highest favored Quintile and 5 is the least favored Quintile

RISKS TO PT/RATING

RISKS TO UPSIDE

- 5nm, 3nm and advanced packaging customers decide to accelerate tape-outs.
- AI and other high-growth projects gain substantial customer traction.
- 5nm turnkey momentum is stronger than expected.

RISKS TO DOWNSIDE

- AI and other high-growth projects lose significant customer traction.
- Customers' inventory correction is longer than expected.
- 5nm and below ASIC projects contribution is lower than expected.

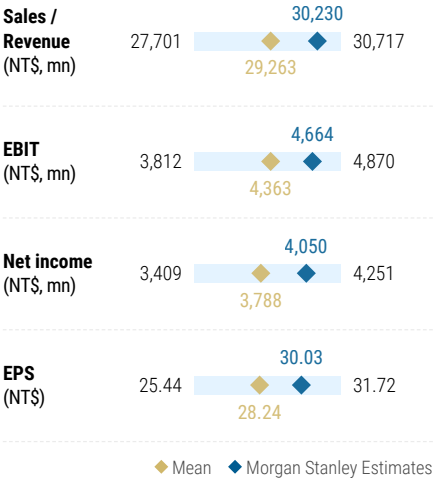
OWNERSHIP POSITIONING

Inst. Owners, % Active 56.8%

Source: Refinitiv, Morgan Stanley Research

MS ESTIMATES VS. CONSENSUS

FY Dec 2025e



Source: Refinitiv, Morgan Stanley Research

GUC: Financial summary

Income Statement

NT$mn (Years End Dec)	2024	2025e	2026e	2027e
Net sales	25,044	30,230	42,690	51,198
COGS	(16,937)	(21,435)	(31,723)	(38,669)
Gross profit	8,108	8,796	10,967	12,529
Operating expenses	(4,305)	(4,132)	(4,915)	(4,940)
Operating income	**3,803**	**4,664**	**6,051**	**7,589**
Non-operating income	260	122	228	228
Pre-tax income	4,062	4,786	6,279	7,817
Income tax	612	736	942	1,173
Minority Interest	0	0	0	0
Reported net Income	**3,451**	**4,050**	**5,337**	**6,644**
Adj.wtd.avg.shrs(m)	134	134	134	134
Reported EPS (NT$)	**25.63**	**30.03**	**39.57**	**49.27**
Modelware EPS (NT$)	**25.63**	**30.03**	**39.57**	**49.27**

Balance Sheet

NT$mn (Years End Dec)	2024	2025e	2026e	2027e
Cash	10,427	9,443	11,313	15,023
Mkt Securities	2,980	2,980	2,980	2,980
AR/NR	2,007	2,412	3,406	4,085
Inventory	2,794	5,995	7,296	7,347
Other	6,271	6,271	6,271	6,271
Current Assets	**24,480**	**27,101**	**31,266**	**35,707**
Long-term investments	0	0	0	0
Fixed assets	942	942	942	942
Deffered assets	37	37	37	37
Other assets	850	850	850	850
Total Assets	**26,309**	**28,930**	**33,096**	**37,536**
S/T borrowings	0	0	0	0
AP/NP	1,691	2,138	3,165	3,858
Other ST liabilities	12,977	12,977	12,977	12,977
LT debt	73	73	73	73
Other LT liabilities	273	273	273	273
Common shares	1,340	1,340	1,340	1,340
Total Liabilities	**15,015**	**15,462**	**16,489**	**17,182**
Additional capital	1,812	1,812	1,812	1,812
Retained earning	8,145	10,319	13,458	17,205
Other shareholders' equity	(3)	(3)	(3)	(3)
Total Equity	**11,294**	**13,468**	**16,607**	**20,354**
Total Liab. & Shrhldr's Equity	**26,309**	**28,930**	**33,096**	**37,536**

E = Morgan Stanley Research Estimates

Source: Morgan Stanley Research, Company Data

Cash Flow Statement

NT$mn (Years End Dec)	2024	2025e	2026e	2027e
Cashflow from Operations	**6,242**	**1,139**	**4,315**	**6,854**
Net profits	3,451	4,050	5,337	6,644
Depreciation	247	247	247	247
Working Capital Change	1,925	(3,158)	(1,269)	(37)
Other adjustments	619	0	0	0
Cashflow from Investing	**(1,522)**	**(247)**	**(247)**	**(247)**
Capex	(471)	(247)	(247)	(247)
Change of LT Investment	0	0	0	0
Change of ST Investment	(850)	0	0	0
Other adjustments	(201)	0	0	0
Cashflow from financing	**(1,962)**	**(1,876)**	**(2,198)**	**(2,897)**
Increase in L/T debt	(40)	0	0	0
Increase in S/T debt	0	0	0	0
Cash Dividend Paid	(1,876)	(1,876)	(2,198)	(2,897)
Dir& Emp Bonus Paid	0	0	0	0
Issuance of stock	0	0	0	0
Other adjustments	(46)	0	0	0
Exchange rate adjustment	31	0	0	0
Net change in cash	**2,790**	**-984**	**1,870**	**3,710**

Financial Ratios

	2024	2025e	2026e	2027e
Growth(%)				
Turnover	-4.6	20.7	41.2	19.9
Operating profits	-4.2	22.6	29.8	25.4
Pretax profits	-2.2	17.8	31.2	24.5
Net profits	-15.8	17.4	31.8	24.5
EPS	-1.5	17.2	31.8	24.5
Margins (%)				
Gross Margin	32.4	29.1	25.7	24.5
Operating Margin	15.2	15.4	14.2	14.8
Pretax Margin	16.2	15.8	14.7	15.3
Net Profit	13.8	13.4	12.5	13.0
Return (%)				
ROAE	32.9	32.7	35.5	36.0
ROAA	14.6	14.7	17.2	18.8
Gearing (%)				
Net Debt/Equity	(92.3)	(70.1)	(68.1)	(73.8)
Liabilities/Equity	132.9	114.8	99.3	84.4
Ratios (X)				
Current ratio	1.7	1.8	1.9	2.1
Quick ratio	0.8	0.8	0.9	1.1
Others				
AR/NR Turnover (days)	29	29	29	29
Inventory Turnover (days)	82	72	62	52
AP Turnover (days)	36	36	36	36
Cash Conversion (days)	75	65	55	45

Key featured reports on the AI supply chain

Asia-Pacific Technology: AI Supply Chain: Oracle capex, OpenAI ASIC, SEMICON Taiwan (16 Sep 2025)

AllRing Tech Co.: Fundamentals Bottoming Out with 2026 CoWoS Capacity Showing Upside; Lift to OW (23 Sep 2025)

Global Technology: AI Supply Chain: AI capex revised up, while TSMC 2026 CoWoS supply unchanged (5 Aug 2025)

Global Technology: AI Supply Chain: AI Capex, H20, and TSMC CoWoS Allocation (28 Jul 2025)

Global Technology: AI Supply Chain: Semis Field Trip – Key Takeaways (30 Jun 2025)

Global Technology: AI Supply Chain: AI ASIC dynamics: Trainium and TPU (16 Jun 2025)

Global Technology: AI Supply Chain: Server Racks Catching Up, What's Next? (2 Jun 2025)

Foundation

Global Technology: Supply-chain Reorientation (24 Jul 2025)

Global Technology: China – AI: The Sleeping Giant Awakens (13 May 2025)

Global Technology: AI Cloud Capex in the Spotlight (26 Feb 2025)

Global Semiconductors: AI ASIC 2.0: Potential winners (15 Dec 2024)

Global Technology: Global Technology – Dawn of the AI Smartphone Era: Edge AI – Apple Intelligence Fuels Innovation – More Charts, Fewer Words (17 Jul 2024)

Global Technology: AI PCs To Usher In The Next Leg Of PC Market Growth (21 May, 2024)

Global Semiconductors: Windows on Arm AI PC – This Time is for Real (7 May 2024)

Key Upstream AI supply chain companies

FOCI Fiber Optic Communications Inc: Strong Traditional Business + Smooth CPO Progress = OW (13 Aug 2025)

Alchip Technologies Ltd: Even more positive tone on 2nm project from today's earnings call; OW (13 Aug 2025)

Greater China Semiconductors: Cloud Semis: Positive feedback from OCP (12 Aug 2025)

King Yuan Electronics Co Ltd: Key takeaways from post-2Q25 results virtual NDR (12 Aug 2025)

Alchip Technologies Ltd: Better visibility for 3nm/2nm projects, reiterate OW into print (12 Aug 2025)

King Yuan Electronics Co Ltd: Raising capex again on strong AI demand; OW (10 Aug 2025)

AllRing Tech Co.: Disappointing 2H Outlook; EW (8 Aug 2025)

AP Memory Technology Corp: Strong sales to continue with interposer ramp; OW (5 Aug

2025)

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Risk Reward Reference links

1. View explanation of Options Probabilities methodology - Options_Probabilities_Exhibit_Link.pdf

2. View descriptions of Risk Rewards Themes - RR_Themes_Exhibit_Link.pdf

3. View explanation of regional hierarchies - GEG_Exhibit_Link.pdf

4. View explanation of Theme/Exposure methodology - ESG_Sustainable_Solutions_External_Link.pdf

5. View explanation of HERS methodology - ESG_HERS_External_Link.pdf

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(as of September 30, 2025)

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	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	1499	41%	389	46%	26%	702	41%
Equal-weight/Hold	1618	44%	375	44%	23%	782	45%
Not-Rated/Hold	4	0%	1	0%	25%	1	0%
Underweight/Sell	577	16%	88	10%	15%	234	14%
Total	3,698		853			1719	

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.

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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.

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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.

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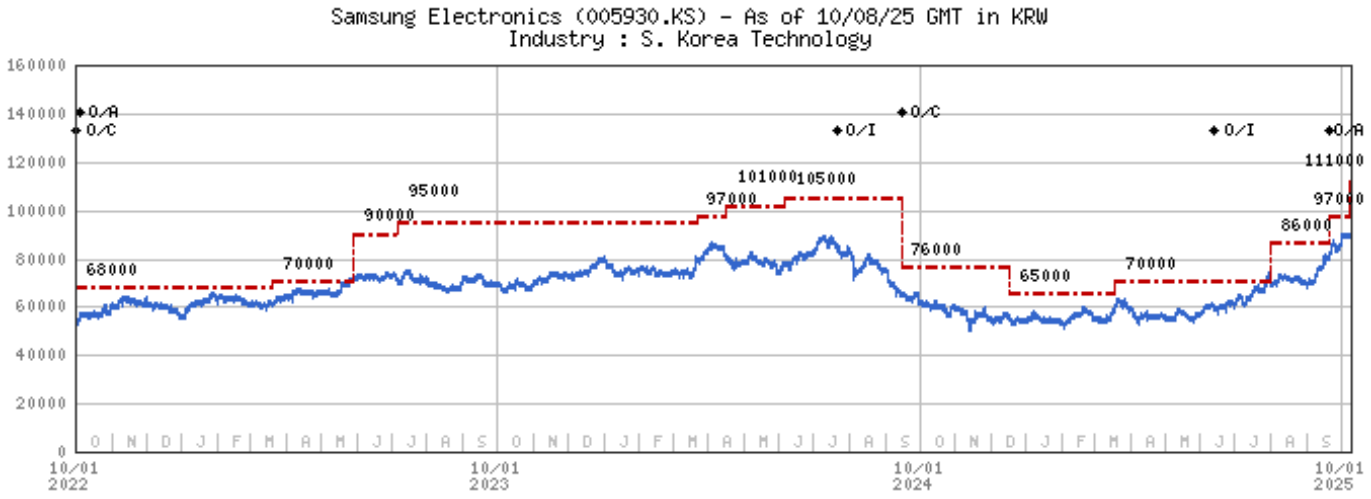
Stock Price, Price Target and Rating History (See Rating Definitions)



Stock Rating History: 10/1/20 : O/A; 7/19/21 : O/I; 8/12/21 : O/C; 10/4/22 : O/A; 7/21/24 : O/I; 9/15/24 : O/C; 6/13/25 : O/I; 9/21/25 : O/A

Price Target History: 9/11/20 : 73000; 11/27/20 : 88000; 1/12/21 : 110000; 2/25/21 : 115000; 5/18/21 : 93000; 6/8/21 : 98000; 8/12/21 : 89000; 9/15/21 : 95000; 12/3/21 : 97000; 3/18/22 : 95000; 4/28/22 : 85000; 6/10/22 : 80000; 7/5/22 : 75000; 7/22/22 : 70000; 9/17/22 : 68000; 3/21/23 : 70000; 5/30/23 : 90000; 7/7/23 : 95000; 3/22/24 : 97000; 4/16/24 : 101000; 6/6/24 : 105000; 9/15/24 : 76000; 12/18/24 : 65000; 3/19/25 : 70000; 8/1/25 : 86000; 9/21/25 : 97000; 10/8/25 : 111000

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target -- No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) Stock Price (Covered by Current Analyst)
Stock and Industry Ratings (abbreviations below) appear as ◆ Stock Rating/Industry View
Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)
Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

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INDUSTRY COVERAGE: Greater China Technology Semiconductors

COMPANY (TICKER)	RATING (AS OF)	PRICE* (10/08/2025)
Charlie Chan		
ACM Research Inc (ACMR.O)	O (03/07/2023)	US$40.46
Advanced Micro-Fabrication Equipment Inc (688012.SS)	O (11/06/2023)	Rmb298.99
Advanced Wireless Semiconductor Co (8086.TWO)	U (07/14/2025)	NT$115.00
Alchip Technologies Ltd (3661.TW)	O (05/14/2021)	NT$3,445.00
Andes Technology Corp (6533.TW)	O (08/04/2022)	NT$289.50
ASE Technology Holding Co. Ltd. (3711.TW)	O (09/15/2024)	NT$174.50
Global Unichip Corp (3443.TW)	O (07/27/2024)	NT$1,485.00
GlobalWafers Co Ltd (6488.TWO)	O (09/19/2025)	NT$510.00
Gudeng Precision (3680.TWO)	E (07/16/2025)	NT$343.00
Hua Hong Semiconductor Ltd (1347.HK)	E (05/09/2025)	HK$91.05
King Yuan Electronics Co Ltd (2449.TW)	O (03/03/2023)	NT$174.00
Maxscend Microelectronics Co Ltd (300782.SZ)	U (01/11/2021)	Rmb83.12
MediaTek (2454.TW)	E (09/23/2025)	NT$1,335.00
Nanya Technology Corp. (2408.TW)	O (09/18/2025)	NT$90.80
NAURA Technology Group Co Ltd (002371.SZ)	O (11/06/2023)	Rmb452.36
OmniVision Integrated Circuits Group Inc (603501.SS)	O (05/09/2025)	Rmb151.17
Phison Electronics Corp (8299.TWO)	O (03/11/2025)	NT$855.00
SG Micro Corp. (300661.SZ)	O (06/17/2024)	Rmb83.29
Silergy Corp. (6415.TW)	O (02/13/2025)	NT$253.00
SMIC (0981.HK)	E (04/09/2025)	HK$89.50
TSMC (2330.TW)	O (02/07/2022)	NT$1,415.00
UMC (2303.TW)	E (10/28/2024)	NT$44.95
Vanguard International Semiconductor (5347.TWO)	U (08/05/2024)	NT$103.00
WIN Semiconductors Corp (3105.TWO)	U (07/14/2025)	NT$99.00

Daisy Dai, CFA

ASMPT Ltd (0522.HK)	O (07/24/2025)	HK$90.10
China Resources Microelectronics Limited (688396.SS)	E (06/19/2025)	Rmb55.55
Elan Microelectronics Corp (2458.TW)	O (10/03/2025)	NT$133.00
Empyrean Technology Co Ltd (301269.SZ)	E (01/17/2025)	Rmb126.30
Hangzhou Silan Microelectronics Co. Ltd. (600460.SS)	U (08/25/2025)	Rmb31.44
JCET Group Co Ltd (600584.SS)	U (09/25/2024)	Rmb44.09
Shanghai Anlogic Infotech Co Ltd (688107.SS)	E (05/14/2024)	Rmb32.28
Shanghai Fudan Microelectronics (1385.HK)	O (03/07/2025)	HK$47.42
SICC Co Ltd (688234.SS)	E (09/03/2025)	Rmb82.16
StarPower Semiconductor Ltd (603290.SS)	O (03/01/2022)	Rmb110.00
Unigroup Guoxin Microelectronics Co Ltd (002049.SZ)	U (01/10/2023)	Rmb90.31
Universal Scientific Ind. (Shanghai) (601231.SS)	E (10/23/2024)	Rmb21.87
Yangjie Technology (300373.SZ)	O (06/10/2022)	Rmb69.44
Daniel Yen, CFA		
AP Memory Technology Corp (6531.TW)	O (07/11/2025)	NT$398.50
ASMedia Technology Inc (5269.TW)	U (10/03/2025)	NT$1,495.00
Aspeed Technology (5274.TWO)	O (06/09/2025)	NT$5,640.00
Egis Technology Inc (6462.TWO)	E (03/26/2024)	NT$119.50
Espressif Systems (688018.SS)	O (05/15/2023)	Rmb216.86
GigaDevice Semiconductor Beijing Inc (603986.SS)	O (05/15/2025)	Rmb213.30
Macronix International Co Ltd (2337.TW)	O (09/18/2025)	NT$26.85
Montage Technology Co Ltd (688008.SS)	++	Rmb154.80
Novatek (3034.TW)	O (03/18/2024)	NT$425.00
Nuvoton Technology Corporation (4919.TW)	E (08/06/2025)	NT$62.40
Parade Technologies Ltd (4966.TWO)	O (10/03/2025)	NT$777.00
Powerchip Semiconductor Manufacturing Co (6770.TW)	E (06/13/2024)	NT$31.00
Realtek Semiconductor (2379.TW)	O (06/19/2025)	NT$549.00
Shenzhen Goodix Technology Co Ltd (603160.SS)	U (07/14/2025)	Rmb82.61
Sino Wealth Electronic (300327.SZ)	U (03/31/2025)	Rmb27.22
Winbond Electronics Corp (2344.TW)	O (03/11/2025)	NT$41.25
WPG Holdings (3702.TW)	E (11/16/2023)	NT$64.60
Duan Liu		
Dosilicon Co Ltd (688110.SS)	U (09/06/2024)	Rmb106.90
Shenzhen Longsys Electronics Co Ltd (301308.SZ)	O (03/11/2025)	Rmb178.03
Tiffany Yeh		
AllRing Tech Co. (6187.TWO)	O (09/23/2025)	NT$376.00
FOCI Fiber Optic Communications Inc (3363.TWO)	O (01/15/2025)	NT$371.00
Himax Technologies Inc (HIMX.O)	O (05/09/2025)	US$8.99
Silicon Motion (SIMO.O)	O (05/06/2024)	US$94.45

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