

August 5, 2025 12:01 AM GMT

Global Technology

AI Supply Chain: AI capex revised up, while TSMC 2026 CoWoS supply unchanged

After CSPs' earnings, our cloud capex tracker showed MSe expects 2026 cloud capex to increase 31% Y/Y to US\$582bn. However, TSMC's current 2026 CoWoS capacity expansion plan should be sufficient to capture this strong AI capex growth.

CSPs' AI capex continue to be strong: Following last week's megacap earnings reports, our US Hardware analyst [Erik Woodring's Global Cloud Capex Tracker](#) showed MSe expects 2026 cloud capex to increase to US\$582bn, implying 31% Y/Y growth (vs. consensus now only +16% Y/Y). By assuming the AI server capex mix will increase, the implied AI server capex may grow ~70% Y/Y in 2026 (see [Exhibit 1](#)). This underscores our Attractive industry view on both US Semis and Greater China Semis – we see AI demand remaining strong. In AI semis, we are OW Nvidia, Broadcom, TSMC, Samsung, Alchip, MediaTek, Aspeed, Advantest, and KYEC.

China AI chip supply: H2O, MI308, and CM384 dynamics:

- In our [report on reviving AI in China](#), "We would keep near-term expectations in check, given licenses have not yet been issued". The news [BIS Delays Cause NVIDIA Export License Holdups](#) reaffirms this near-term conservatism.
- From our Taiwan's semi supply chain checks, we see Nvidia placed new H2O wafer orders at TSMC, and that should add an additional 200k units of H2O chips on top of the previous 1mn units being produced.
- For AMD, we expected recurring orders for its MI308 for the Chinese market. Our supply chain checks indicate that an additional 50k-100k MI308 chips will come from TSMC's new wafer start, in line with our higher forecasts last week for CoWoS-S consumption at TSMC, moving from 50k to 60k in 2025.
- China continues efforts to boost domestic GPU supply. At the Shanghai WAIC, Huawei showcased its highly expected CM384 A3 server rack prototype (see [Exhibit 13](#)), aiming to compete with Nvidia's GB200 NVL72 server rack (see [Exhibit 12](#) for comparison). Of note, the CM384 is suitable for AI LLM training.

TSMC's end-2026 CoWoS capacity remains at 93kwpm, on our estimate: Our latest update suggest our 93k number won't change versus our [June checks](#), amid AI capex remaining strong. We attribute that to: 1) Blackwell chip output from TSMC is very strong in 2025, while NVL72 server racks are on track with 30k units, see [Exhibit 7](#); 2) The next China version AI GPU B4O is without HBM and doesn't use CoWoS packaging. Total 2026 CoWoS capacity still suggests another 40-50% industry growth for cloud AI semis overall, but we don't rule out some negative reaction to CoWoS equipment stocks, such as AllRing (EW).

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GREATER CHINA TECHNOLOGY SEMICONDUCTORS

Asia Pacific

Industry View

Attractive

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AI capex remains strong into 2026, while TSMC's 2026 CoWoS capacity expansion plan unchanged

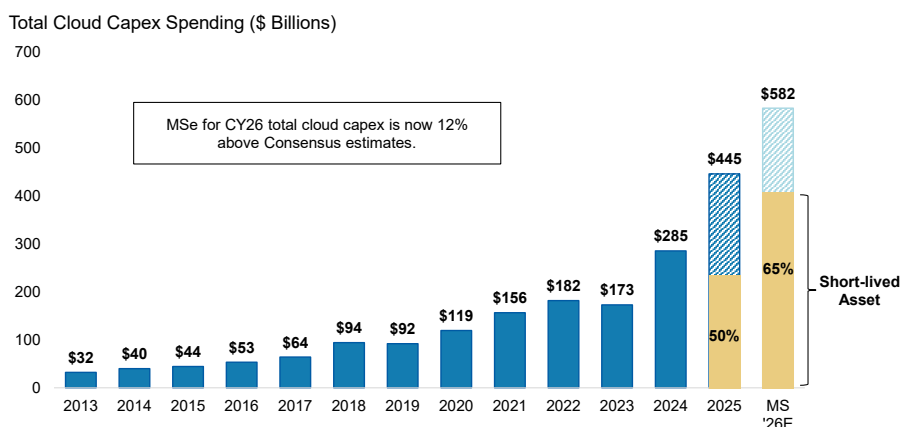
Hyperscalers' Capex Remains Strong into 2026

According to our US Hardware analyst Erik Woodring's Global Cloud Capex Tracker, after last week's megacap earnings reports, 2025's cash capex for the 11 largest global hyperscalers is now tracking at US\$445bn, or 56% Y/Y growth, 12 points, or US\$35bn, higher than entering 2Q earnings season. Positive revisions to Microsoft (covered by Keith Weiss), Amazon (covered by Brian Nowak), and Alphabet (covered by Brian Nowak) capex account for 90%+ of the positive revision this earnings season, while upward revisions at CoreWeave (covered by Keith Weiss), Apple (covered by Erik Woodring), and Meta Platforms (covered by Brian Nowak) account for the remainder.

Erik's report also showed that MSe 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 CY26 cloud capex growth, we believe there is upward pressure to consensus CY26 estimates – MSe is now looking at 31% Y/Y growth in CY26 following 59% Y/Y growth in CY25.

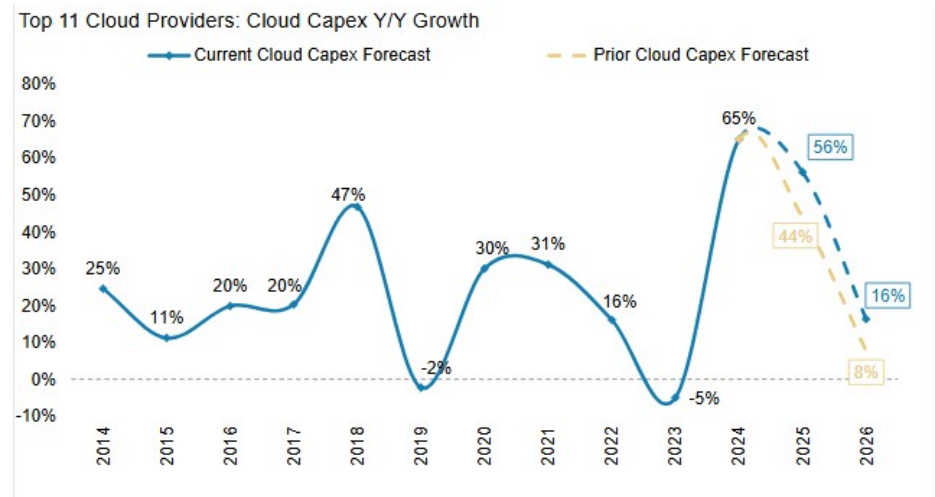
By assuming the AI server capex mix (spending on short-lived assets) to increase, the implied AI server capex may grow ~70% Y/Y in 2026. (see [Exhibit 1](#)). This underscores our Attractive industry view on both US Semis and Greater China Semis – we see AI demand remaining strong. In AI semis, we are OW Nvidia, Broadcom, TSMC, Samsung, Alchip, MediaTek, Aspeed, Advantest, and KYEC.

Exhibit 1: 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. Note: Cloud capex includes capex from Alphabet, Amazon, Microsoft, Meta Platforms, Alibaba, Tencent, Baidu, CoreWeave, Apple, IBM, and Oracle. Forward estimates are consensus est. for the others.

Exhibit 2: Our cloud capex tracker (based on consensus data) now points to 43% Y/Y growth in 2025, up from the prior forecast of +39% Y/Y

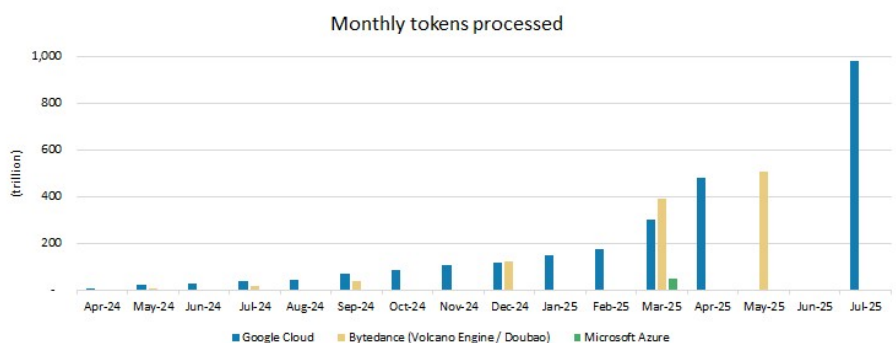


Source: Company data, FactSet, Morgan Stanley Research, irs.gov. Note: Cloud capex includes capex from Amazon, Alphabet, Microsoft, Meta Platforms, Tencent, Baidu, CoreWeave, Apple, IBM, and Oracle. Forward estimates include Morgan Stanley estimates for Tencent and Baidu, consensus for the others.

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 ([Exhibit 3](#)). Google processed over 980 trillion tokens in July, doubling from 480 trillion in May. Bytedance used 508 trillion tokens in May (monthly run-rate), +29% vs. 394 trillion in Dec. 2024. Microsoft processed over 500 trillion tokens through its Foundry APIs in FY25 (year end Jun 2025), up over 7x Y/Y.

Exhibit 3: Monthly tokens processed



Source: Company information, Morgan Stanley Research.

Note: Bytedance numbers represent monthly token use run-rate based on end-of-month daily tokens

Explaining our 2026 TSMC CoWoS allocation changes from last week

In our report [AI Supply Chain: AI Capex, H2O, and TSMC CoWoS Allocation \(28 Jul 2025\)](#), we provided our assumptions for the 2026 TSMC CoWoS capacity allocation by customers for the first time. However, investors wanted to know more details on the

changes we made for each account.

In today's report, [Exhibit 4](#) and [Exhibit 5](#) outline the specifics. On the customer CoWoS demand front, we kept all numbers unchanged except for GUCs. We also note some key industry data for AI ASIC was announced with regards Google's Tensor Processing Units (TPU) and Microsoft's Maia200 chip:

- **MediaTek**, on its recent earnings call, reaffirmed 3nm ASIC could tape out in late 3Q25, while US\$1bn mass production revenue may occur in late 2026. This echoes its CoWoS booking allocation of ~20k for Google TPU ramp up in 2H26 (see [MediaTek results](#)).
- **GUC** indicated Microsoft Maia200 (5nm) already taped out in 2Q25, and should start mass production in 1Q26; we thus modify Maia 200 CoWoS estimates for 2025e and 2026e, as elaborated below. Our checks suggest the tentative tape-out timing of Maia300 (2nm compute die, 3nm I/O die, with HBM4) is 4Q25, while production timing could be in 4Q26 through Marvell's design service.

Exhibit 4: 2026 CoWoS Allocation for key customers

(k wafer)	2023	2024	2025e (new)	2025e (old)	Changes	2026e (new)	2026e (old)	Changes	2023	2024	2025e	2026e
NVIDIA	53	200	425	425		595	580	15	45%	54%	63%	59%
TSMC			390	390		515	550	-35				
CoWoS-L			390	390		510	550	-40				
CoWoS-S			0	0		5	0	5				
CoWoS-R			0	0		0	0					
Non-TSMC			35	35		80	30	50				
Amkor			35	35		60	30	30				
CoWoS-S			20	20		0	0					
CoWoS-R			15	15		60	30	30				
ASE/SPIL			0	0		20	0	20				
CoWoS-S			0	0		0	0					
CoWoS-R			0	0		0	20	-20				
Broadcom	23	68	85	85		150	110	40	20%	18%	13%	15%
TSMC			83	83		145	110	35				
CoWoS-L			0	0		50	30	20				
CoWoS-S			83	83		95	80	15				
ASE/SPIL			2	2		5	0	5				
CoWoS-L			0	0		0	0					
CoWoS-S			2	2		5	0	5				
AMD	7	40	60	50	10	105	59	46	6%	11%	9%	10%
TSMC			60	50	10	80	59	21				
CoWoS-L			0	0		70	49	21				
CoWoS-S			60	50	10	10	10					
ASE/SPIL			0	0		25	0	25				
CoWoS-L			0	0		25	0	25				
CoWoS-S			0	0		0	0					
MediaTek						20	25	-5				2%
AWS + Alchip	9	16	5	5		50	40	10	8%	4%	1%	5%
Intel Habana	0	7	9	9		0	2	-2	0%	2%	1%	0%
Marvell	1	18	75	65	10	55	25	30	1%	5%	11%	5%
GUC	1	1	2	1	1	14	1	13	1%	0%	0%	1%
Others	20	10	19	19		15	25	-10	17%	3%	3%	1%
Total demand	117	370	680	669	11	1,004	877	127	100%	100%	100%	100%

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

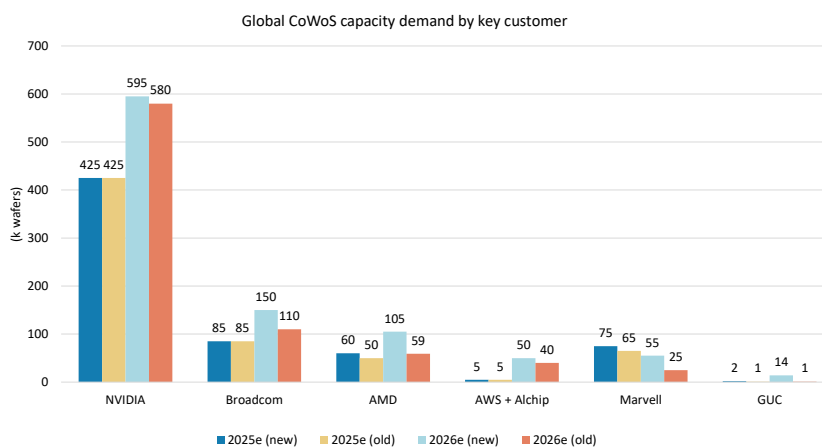
We recap the changes we made last week:

- **NVIDIA:** We raised our total NVIDIA CoWoS consumption assumption from 580k to 595k units in 2026, which is based on our Asia supply chain checks, while we see CoWoS-L bookings at 510k (+31% Y/Y), implying 5.4mn units of chips with 2.4mn units from Rubin. We also see CoWoS-R bookings of around 60k for Amkor, mainly for Vera CPU, GB10, N1X, and auto chips. ASE/SPIL will also handle Vera CPU CoWoS-R at around 20k wafer allocation.
- **AMD:** We see its CoWoS booking of 80k at TSMC for MI355 (10k of CoWoS-S) and MI400 (70k of CoWoS-L) series, while its 25k of Venice CPU adopting CoWoS-L should be fully manufactured at ASE/SPIL, based on our supply chain checks.
- **Broadcom:** For Google TPU, we see 85k of allocation from TSMC and 5k from ASE/SPIL to TPUv7 (Ironwood), implying chip shipments of ~2.3mn. 50k of CoWoS-L is allocated to Meta's MTIA 3 Iris chip, implying 500k units of chip shipments.

Last, on OpenAI, we see CoWoS-S bookings of around 10k for its 3nm Nexus project, suggesting 200k units of chip shipment (all based on our supply chain checks).

- **MediaTek:** The CoWoS booking for Google TPUv8 (3nm project) represent CoWoS bookings of 20k, ramping up in 2H26, and in-line with management's target of US \$1bn revenue contribution during last week's earnings call.
- **AWS + Alchip:** We lift our CoWoS bookings forecast from 40k to 50k units, mainly from the strong ramp-up of Trainium3. We have confidence in our forecast that Alchip will take the Trainium3 XPU project.
- **Marvell:** In 2026, based on our Asia supply chain checks, we see CoWoS-R bookings of around 30k for Trainium2.5 chips, and CoWoS-S bookings of around 25k for Maia300.
- **GUC:** xAI's chip volume is estimated to be 200k units, which equates to CoWoS-S bookings of around 10k. Other other hand, GUC indicated Microsoft Maia200 (5nm) already taped out in 2Q25, and should start mass production in 1Q26. We thus modify the Maia 200 CoWoS estimates for 2025e and 2026e, where we expect Maia 200 to see around 2k of CoWoS bookings in 2025 and 4k of CoWoS bookings in 2026.

Exhibit 5: 2026 CoWoS Allocation for key customers vs. our previous version before our July 29th publication



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

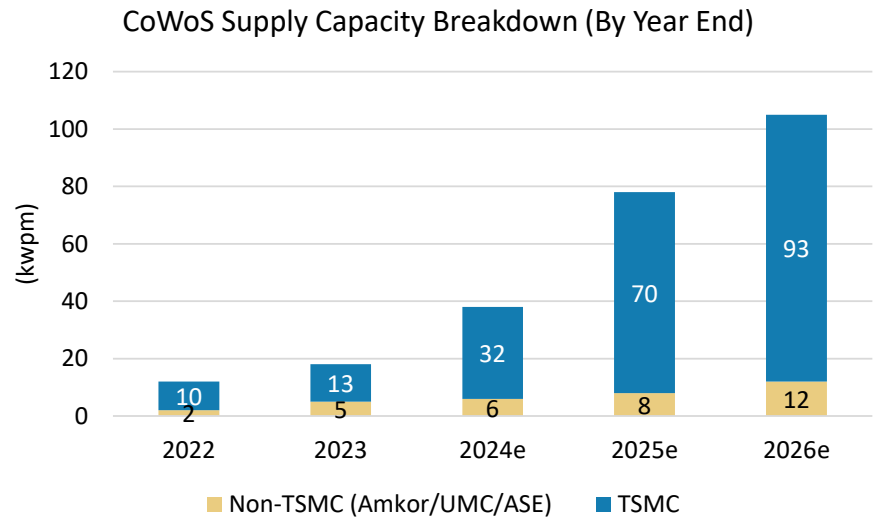
TSMC's 2026 CoWoS capacity expansion remains cautious

In our [Global Semis Field Trip – Key Takeaways \(30 Jun 2025\)](#), we had slightly revised up CoWoS to 90-95k, but that was below some investors' expectations of 115k.

Our latest updates continue to support our roughly 93k number given AI capex remains strong. We would attribute this to: 1) Blackwell chip output from TSMC is very strong in 2025, while NVL72 server racks are on track with 30k units, see [Exhibit 7](#) and [Exhibit 11](#); 2) the next China version AI GPU B40 is without HBM and doesn't use CoWoS packaging. Total 2026 CoWoS capacity still suggests another 40%-50% industry growth for cloud AI semis overall, but we don't rule out some negative reaction for CoWoS equipment stocks, such as Allring (EW) as some investors expected the 2026 expansion to reach 115k (or up

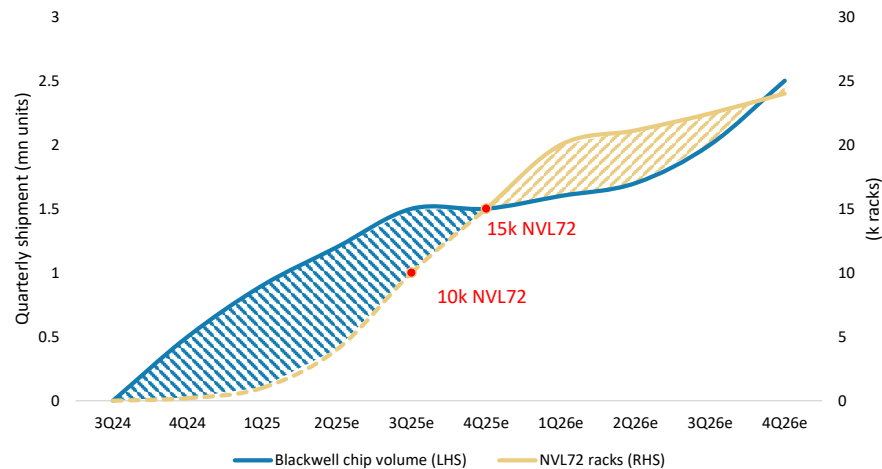
60-70% Y/Y).

Exhibit 6: Global CoWoS capacity expansion by year end and by vendor – TSMC expanding to 93kwpm by 2026



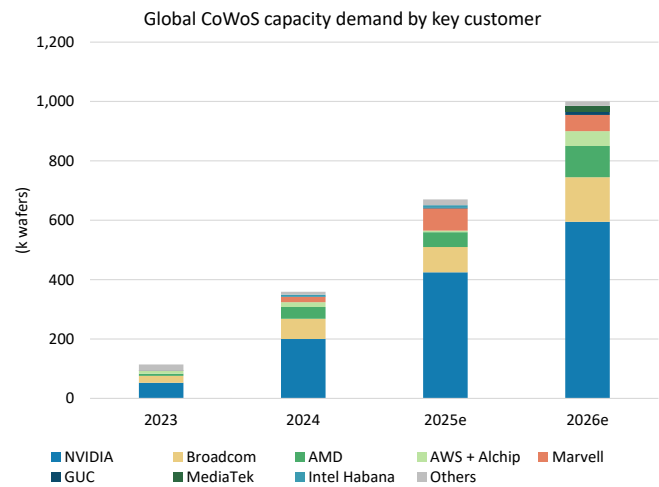
Source: Company data, Morgan Stanley Research (e) estimates

Exhibit 7: TSMC is expected to produce 5.1mn chips in 2025, with full-year GB200 NVL72 shipments expected to reach 30k



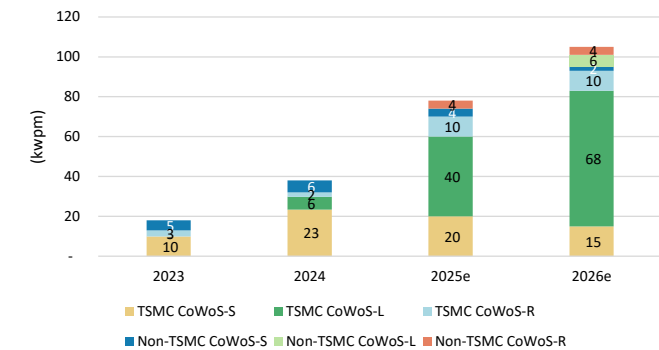
Source: Company data, Morgan Stanley Research (e) estimates. Note: Estimates are compiled using our supply chain checks and may differ from other Morgan Stanley Research estimates

Exhibit 8: Global CoWoS consumption, by customer



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

Exhibit 10: Detailed CoWoS capacity expansion by year end and by vendor



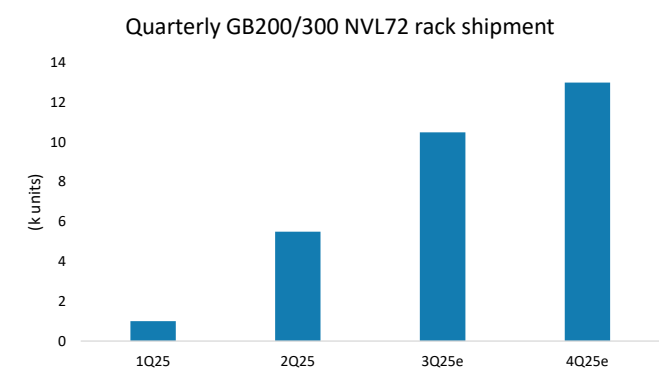
Source: Company data, Morgan Stanley Research (e) estimates

Exhibit 9: Global CoWoS demand Y/Y growth profile

Y/Y	2023	2024e	2025e	2026e
NVIDIA	119%	280%	113%	40%
Broadcom	56%	191%	25%	76%
AMD	485%	470%	50%	75%
AWS + Alchip		71%	(69%)	900%
Intel Habana			29%	(100%)
Marvell	(22%)	1438%	317%	(27%)
GUC		(15%)	300%	600%
Others	23%	(49%)	90%	(21%)
Total demand	95%	216%	84%	48%

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

Exhibit 11: Our hardware team also estimates around 25-30k of GB200/GB300 server rack shipments in 2025e



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

China GPU development - we compared NVIDIA's NVL72 with Huawei's CM384

As the CM384 interconnects more AI processors, its aggregate computing power performance reached 2115-307PFLOPS (FP16 precision), versus NVL72's 180PFLOPS. In terms of networking, NVL72 leverages fifth-generation NVLink, delivering 1.8TB/s of networking bandwidth, whereas Huawei's UBLINK provides 784GB/s, therefore a gap in networking speed remains.

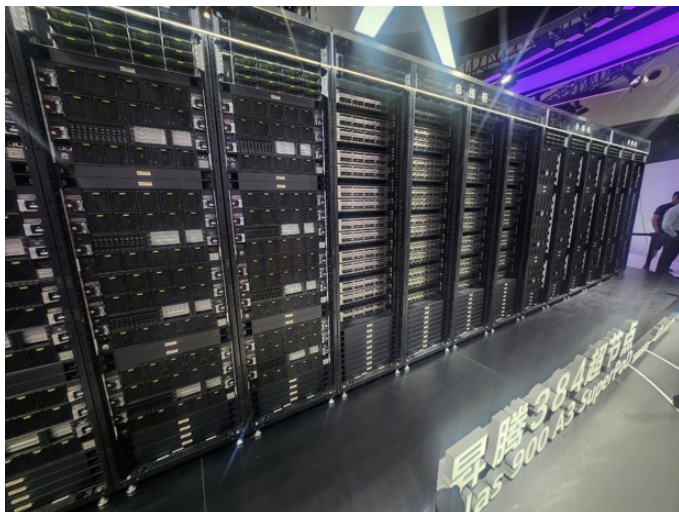
Please see more details in: [Tracking China's Semi Localization: Shanghai WAIC key takeaways – rapid development of China AI semi technology \(29 Jul 2025\)](#).

Exhibit 12: Comparison between NVIDIA's NVL72 and Huawei's CloudMatrix 384

	Nvidia	Huawei
	NVL72	CloudMatrix 384
AI processor	GB200	Ascend 910C
CPU	Nvidia Grace	Huawei Kunpeng 920
FP16/BF16 (PFLOPS)	180	215-307
FP8/Int8 (PFLOPS)	360	430-614
FP4 (TFLOPS)	720	NA
Total memory size (TB)	30	49
Total memory bandwidth (TB/s)	576	1229
Interconnection	NVLink Gen5: 1.8TB/s	UBLINK: 784GB/s
Launch date	March 2024	April 2025

Source: Nvidia, Huawei, Morgan Stanley Research.

We took the following photographs at WAIC, including Huawei's CloudMatrix 384 A3 system and other domestic AI processors from MetaX, Moore Threads and Alibaba T-Head.

Exhibit 13: Huawei CloudMatrix 384 A3 SuperPod

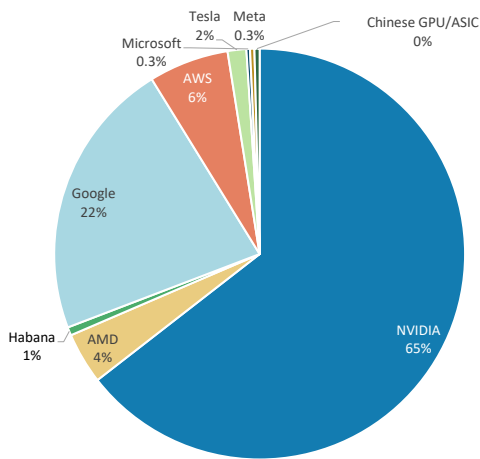
Source: Morgan Stanley Research.

Exhibit 14: Racks of CloudMatrix 384

Source: Morgan Stanley Research.

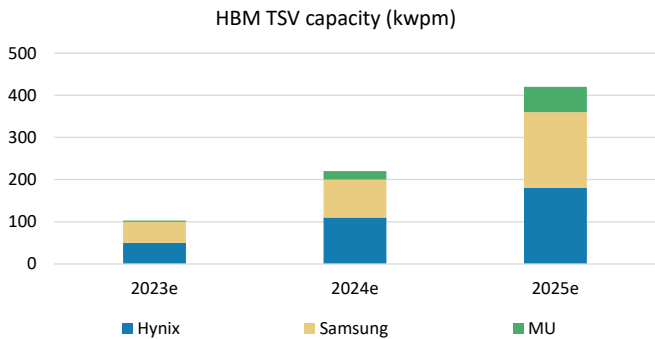
2025 AI semi foundry wafer revenue and HBM demand calculation

Exhibit 15: Leading-edge wafer consumption, by customer, 2025e



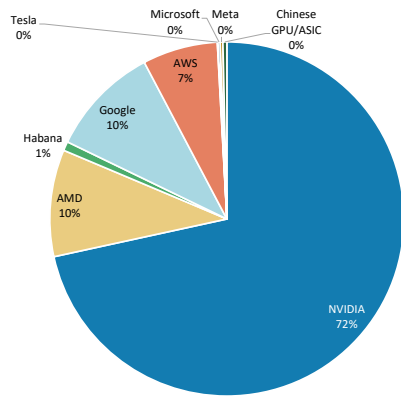
Source: Company data, Morgan Stanley Research (e) estimates; note: estimates are compiled using our Asia supply chain checks

Exhibit 17: HBM TSV capacity appears set to double in 2025



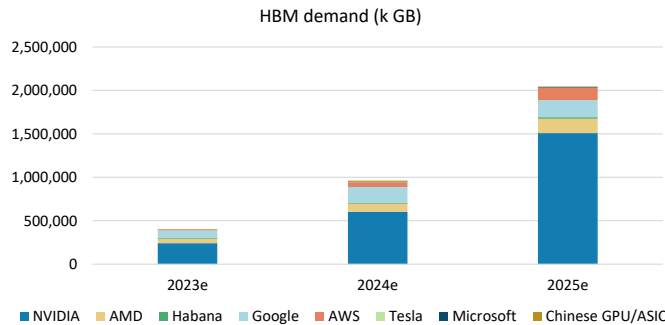
Source: TrendForce, Morgan Stanley Research (e) estimates

Exhibit 16: HBM consumption in 2025e – NVIDIA seen as largest customer



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

Exhibit 18: We expect 2025 HBM demand to be nearly double 2024's level



Source: TrendForce, Morgan Stanley Research (e) estimates

Exhibit 19:

AI computing wafer consumption in 2025e – up to US\$14.5bn 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 (2025e)										
NVIDIA	H200/H20	20	27	540	814	4nm	1	15	20,900	316
	B200	160	14	2,240	850	4nm	2	178	20,900	3,716
	B300A	28	27	745	850	4nm	1	30	20,900	618
	B300	202	14	2,834	850	4nm	2	225	20,900	4,700
AMD	MI300/MI308	15	12	180	110	5nm	8	5	25,200	132
	MI325	20	12	240	110	5nm	8	7	25,200	176
	MI355	25	12	300	110	3nm	8	9	32,004	279
Habana	Gaudi 3	9	14	126	750	5nm	2	5	20,000	95
AI ASIC (2025e)										
Google	TPU v5 training (v5p)	10	25	250	600	5nm	1	6	25,200	143
	TPU v6 inferencing (v6e)	60	30	1,800	600	3nm	2	82	32,004	2,613
	TPU v6 training (v6p)	15	20	300	600	3nm	2	14	32,004	436
AWS	Trainium 2	40	16	640	600	5nm	2	24	22,000	521
	Trainium 2.5	35	16	560	600	5nm	2	16	22,000	351
	Trainium 3	5	17	85	700	3nm	1	1	27,940	41
Tesla	Dojo 1	NA	NA	200	645	7nm	1	3	15,400	54
	FSD	NA	NA	1,600	300	7nm	1	10	15,400	160
Microsoft	Maia 200	2	29	58	700	3nm	1	1.5	26,400	41
Meta	MTIA 2	2.5	20	50	600	5nm	2	2.3	22,000	50
Chinese GPU/ASIC	Chinese GPU/ASIC	5.5	20	110	1,000	7nm	1	3	18,700	59
Total		655						636		14,499

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

Exhibit 20: HBM consumption in 2025e – up to 16bn 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 (2025e)										
NVIDIA	H200/H20	20	27	540	24	6	141	HBM3e	MU/Samsung	76,140
	B200	160	14	2,240	24	8	192	HBM3e	Hynix/Micron/Samsung	430,080
	B300A	28	27	745	24	4	96	HBM3e	Hynix/Micron	71,539
	B300	202	14	2,834	36	8	288	HBM3e 12hi	Hynix/Micron/Samsung	816,077
AMD	MI300/MI308	15	12	180	24	8	192	HBM3	Samsung	34,560
	MI325	20	12	240	36	8	288	HBM3e 12hi	Samsung	69,120
	MI355	25	12	300	36	8	288	HBM3e 12hi	Samsung	86,400
Habana	Gaudi 3	9	14	126	16	8	128	HBM2e	Samsung	16,128
AI ASIC (2025e)										
Google	TPU v5 training (v5p)	10	25	250	16	6	96	HBM2e	Samsung	24,000
	TPU v6 inferencing (v6e)	60	30	1,800	16	4	64	HBM3	Samsung/Micron	115,200
	TPU v6 training (v6p)	15	20	300	24	8	192	HBM3	Hynix/Samsung/Micron	57,600
AWS	Trainium 2	40	16	640	24	4	96	HBM3e	Samsung	61,440
	Trainium 2.5	35	16	560	24	4	96	HBM3e 8hi	Hynix/Samsung/Micron	53,760
	Trainium 3	5	17	85	36	6	216	HBM3e 12hi	Hynix/Samsung/Micron	18,360
Tesla	Dojo 1	NA	NA	200	32	5	160	HBM2e/HMB3	Samsung	1,280
	FSD	NA	NA	1,600	NA	NA	NA	NA	NA	-
Microsoft	Maia 200	2	29	58	16	4	64	HBM3	Samsung	3,712
Meta	MTIA 2	2.5	20	50	24	6	96	HBM3e 8hi	Hynix	4,800
Chinese GPU/ASIC	Chinese GPU/ASIC	5.5	20	110	16	4	64	NA	Samsung	7,040
Total		655								1,947,236
Total HBM demand (mn Gb)										15,578

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

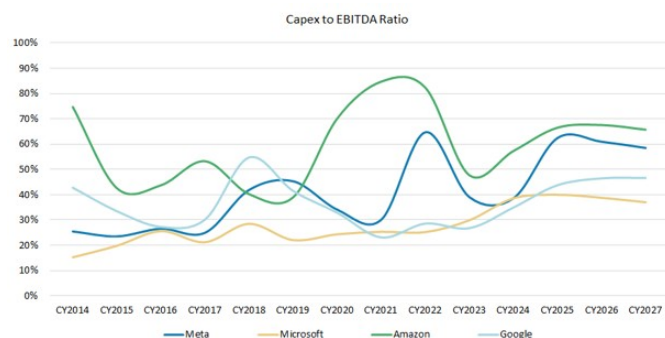
Global AI Capex Update

We think cash flow analysis could support our expectations of an ongoing rise in capex from large cloud service providers. Morgan Stanley forecasts that the top four US hyperscalers will generate US\$550bn in operating cash flow in 2025. Thus, we believe these companies have the ability to keep investing in data centers for AI purposes.

We also look at depreciation as a percentage of total expenses. In past years, given the heavy investment in data centers, depreciation in data center customers' total expenses rose substantially (from 3-7% in 2012 to 5-10% in 2023). We expect depreciation to continue to grow amid rising capex from the top four US hyperscalers, up to 10-14% in 2025e.

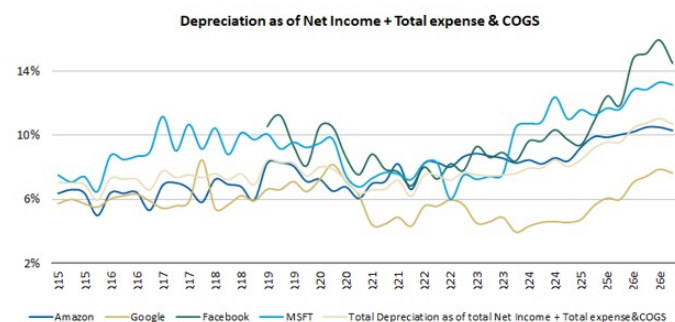
We also see average AI capex/EBITDA at around 50% in 2025, while we think hyperscalers' pockets are still deep enough for further spending.

Exhibit 21: Capex to EBITDA ratio should remain stable at around 50%



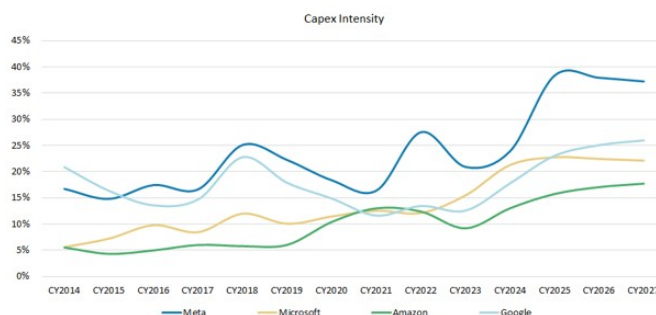
Source: Company data, Morgan Stanley Research (E) estimates

Exhibit 23: Depreciation has become a bigger portion of expenses in recent years



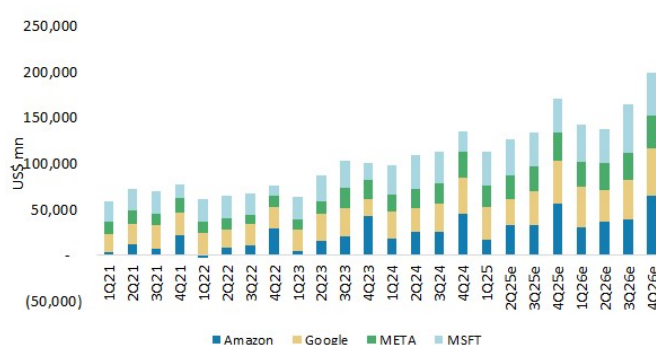
Source: Company data, Morgan Stanley Research (e) estimates

Exhibit 22: Capex intensity remains stable among the top four US hyperscalers



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

Exhibit 24: Rising operating cash flow could continue to support growth in hyperscaler capex



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

Exhibit 25: Top 4 CSPs (Amazon, Google, Microsoft, and Meta): capex +67% Y/Y in 2Q25

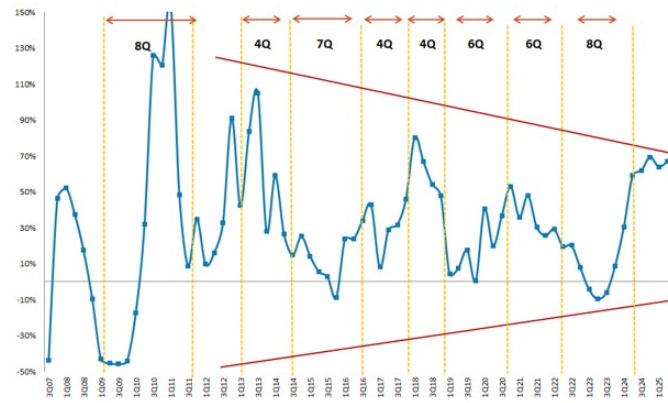
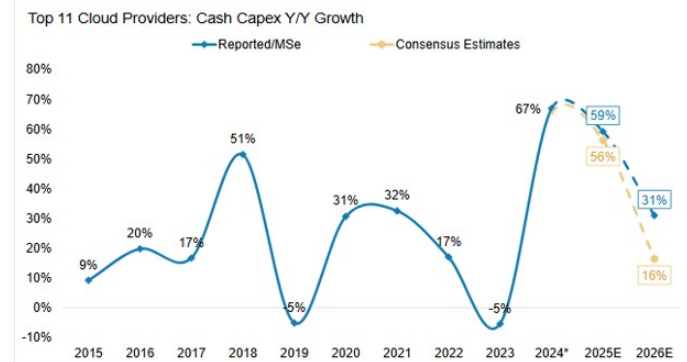
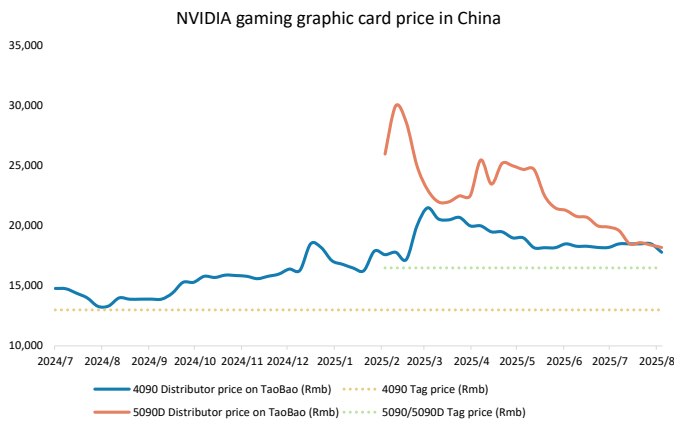


Exhibit 26: While Consensus estimates now point to a 40-point deceleration in CY26 cloud capex growth, we believe there is upward pressure to consensus CY26 estimates – MSE is now looking at 31% Y/Y growth in CY26 following 59% Y/Y growth in CY25...



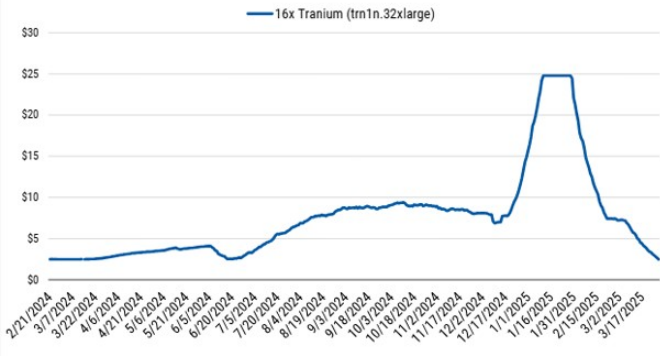
AI GPU and ASIC rental price tracker

Exhibit 27: Retail price of NVIDIA 4090 and 5090 graphic cards down slightly, although China's AI inference demand is still very strong



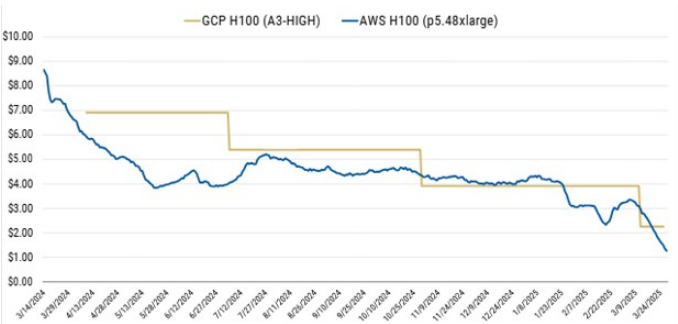
Source: TaoBao, Morgan Stanley Research

Exhibit 29: AI ASIC equivalent computing power - 16x Inferentia 2 per hour



Source: Company data, Morgan Stanley Research

Exhibit 28: AI GPU H100 per GPU per hour as of end-March

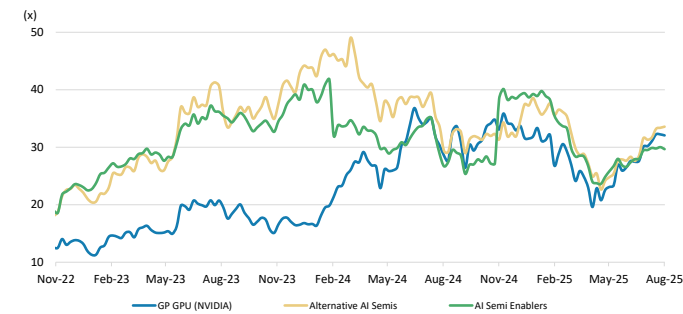


Source: Company data, Morgan Stanley Research

AI semis – P/E multiples, revenue exposure, sales tracker

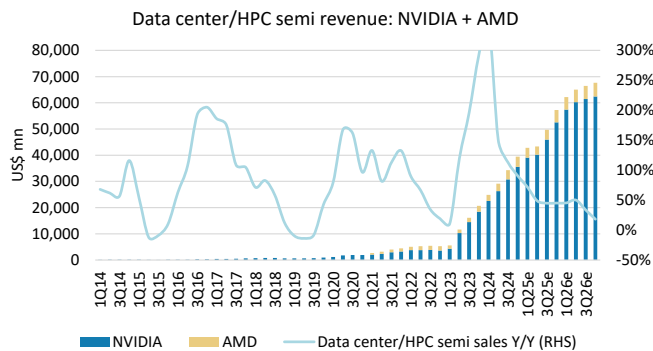
Major AI GPU vendors – NVIDIA sales and inventory trends

Exhibit 30: P/E multiple trend of AI semis



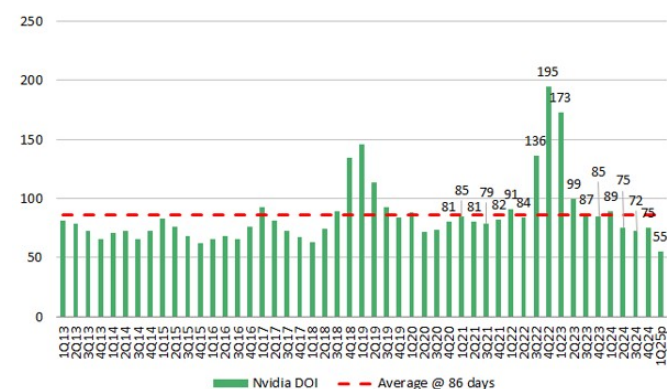
Alternative AI semis group: AMD, Alchip, Andes, Marvell, Broadcom. AI semi enablers group: TSMC, Synopsys, Cadence, ASML, BESi, Ibiden, KYEC, Advantest.
Source: Company data, Morgan Stanley Research.

Exhibit 32: We continue to see AI chip quarterly revenue increasing



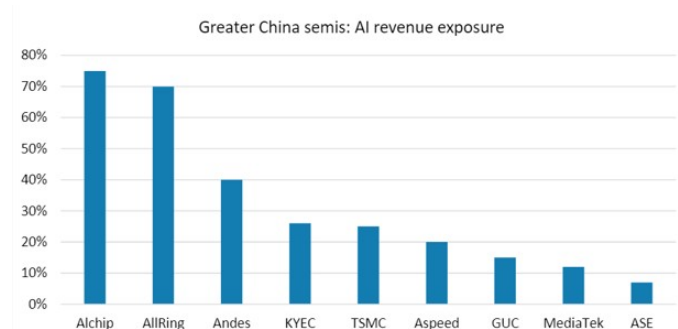
Source: Company data, Refinitiv, Morgan Stanley Research (e) estimates

Exhibit 34: NVIDIA's inventory days/level



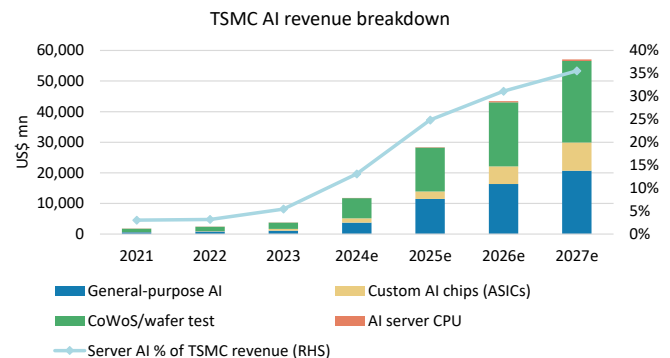
Source: Company data, Refinitiv, Morgan Stanley Research

Exhibit 31: Greater China AI semi revenue exposure as of 2025e



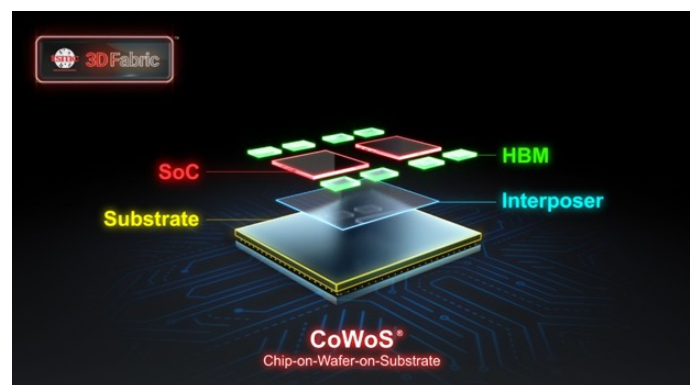
Source: Morgan Stanley Research (e) estimates

Exhibit 33: 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

Exhibit 35: What is CoWoS? Chip on Wafer (interposer) on Substrate



Source: TSMC

Key featured reports on the AI supply chain

Global Technology: AI Supply Chain: AI Capex, H2O, and TSMC CoWoS Allocation (28 Jul 2025)

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

Key Upstream AI supply chain companies

Global Unichip Corp: Full-year revenue growth outlook unchanged; OW (3 Aug 2025)

ASE Technology Holding Co. Ltd.: Capex uptick from strong AI demand; Reit OW (31 Jul 2025)

Aspeed Technology: Read-across to Aspeed from Meta's and Microsoft's 2Q25CY Earnings Calls (31 Jul 2025)

MediaTek: AI ASIC project on track to contribute US\$1bn in 2026; reiterate OW (30 Jul 2025)

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Industry : S. Korea Technology



Stock Rating History: 8/1/20 : 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

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INDUSTRY COVERAGE: Greater China Technology Semiconductors

COMPANY (TICKER)	RATING (AS OF)	PRICE* (08/04/2025)
Charlie Chan		
ACM Research Inc (ACMR.O)	O (03/07/2023)	US\$30.74
Advanced Micro-Fabrication Equipment Inc (688012.SS)	O (11/06/2023)	Rmb195.80
Advanced Wireless Semiconductor Co (8086.TWO)	U (07/14/2025)	NT\$103.00
Alchip Technologies Ltd (3661.TW)	O (05/14/2021)	NT\$3,755.00
Andes Technology Corp (6533.TW)	O (08/04/2022)	NT\$277.50
ASE Technology Holding Co. Ltd. (3711.TW)	O (09/15/2024)	NT\$147.50
Global Unichip Corp (3443.TW)	O (07/27/2024)	NT\$1,250.00
GlobalWafers Co Ltd (6488.TWO)	E (02/22/2023)	NT\$342.00
Gudeng Precision (3680.TWO)	E (07/16/2025)	NT\$307.00
Hua Hong Semiconductor Ltd (1347.HK)	E (05/09/2025)	HK\$42.88
King Yuan Electronics Co Ltd (2449.TW)	O (03/03/2023)	NT\$117.50
M31 Technology Corp (6643.TWO)	E (09/23/2024)	NT\$503.00
Maxscend Microelectronics Co Ltd (300782.SZ)	U (01/11/2021)	Rmb75.00
MediaTek (2454.TW)	O (09/12/2023)	NT\$1,330.00
Nanya Technology Corp. (2408.TW)	E (05/15/2025)	NT\$43.75
NAURA Technology Group Co Ltd (002371.SZ)	O (11/06/2023)	Rmb328.26
OmniVision Integrated Circuits Group Inc (603501.SS)	O (05/09/2025)	Rmb119.40
Phison Electronics Corp (8299.TWO)	O (03/11/2025)	NT\$525.00
SG Micro Corp. (300661.SZ)	O (06/17/2024)	Rmb76.12
Silergy Corp. (6415.TW)	O (02/13/2025)	NT\$328.00
SMIC (0981.HK)	E (04/09/2025)	HK\$51.50
TSMC (2330.TW)	O (02/07/2022)	NT\$1,135.00
UMC (2303.TW)	E (10/28/2024)	NT\$41.20
Vanguard International Semiconductor (5347.TWO)	U (08/05/2024)	NT\$95.00
WIN Semiconductors Corp (3105.TWO)	U (07/14/2025)	NT\$85.50

Daisy Dai, CFA

ASMP T Ltd (0522.HK)	O (07/24/2025)	HK\$67.55
China Resources Microelectronics Limited (688396.SS)	E (06/19/2025)	Rmb46.70
Elan Microelectronics Corp (2458.TW)	E (04/08/2025)	NT\$127.50
Empyrean Technology Co Ltd (301269.SZ)	E (01/17/2025)	Rmb108.92
Hangzhou Silan Microelectronics Co. Ltd. (600460.SS)	E (04/09/2024)	Rmb26.09
JCET Group Co Ltd (600584.SS)	U (09/25/2024)	Rmb34.72
Shanghai Anlogic Infotech Co Ltd (688107.SS)	E (05/14/2024)	Rmb29.52
Shanghai Fudan Microelectronics (1385.HK)	O (03/07/2025)	HK\$33.02
SICC Co Ltd (688234.SS)	O (09/18/2023)	Rmb59.80
StarPower Semiconductor Ltd (603290.SS)	O (03/01/2022)	Rmb84.96
Unigroup Guoxin Microelectronics Co Ltd (002049.SZ)	U (01/10/2023)	Rmb73.98
Universal Scientific Ind. (Shanghai) (601231.SS)	E (10/23/2024)	Rmb15.68
Yangjie Technology (300373.SZ)	O (06/10/2022)	Rmb54.72
Daniel Yen, CFA		
AP Memory Technology Corp (6531.TW)	O (07/11/2025)	NT\$347.00
ASMedia Technology Inc (5269.TW)	E (04/08/2025)	NT\$1,870.00
Aspeed Technology (5274.TWO)	O (06/09/2025)	NT\$4,620.00
Egis Technology Inc (6462.TWO)	E (03/26/2024)	NT\$127.00
Espressif Systems (688018.SS)	O (05/15/2023)	Rmb161.30
GigaDevice Semiconductor Beijing Inc (603986.SS)	O (05/15/2025)	Rmb118.84
Macronix International Co Ltd (2337.TW)	U (10/19/2021)	NT\$18.45
Montage Technology Co Ltd (688008.SS)	++	Rmb84.16
Novatek (3034.TW)	O (03/18/2024)	NT\$472.00
Nuvoton Technology Corporation (4919.TW)	O (10/29/2024)	NT\$65.00
Parade Technologies Ltd (4966.TWO)	U (06/04/2024)	NT\$642.00
Powerchip Semiconductor Manufacturing Co (6770.TW)	E (06/13/2024)	NT\$14.95
Realtek Semiconductor (2379.TW)	O (06/19/2025)	NT\$545.00
Shenzhen Goodix Technology Co Ltd (603160.SS)	U (07/14/2025)	Rmb75.25
Sino Wealth Electronic (300327.SZ)	U (03/31/2025)	Rmb25.59
Winbond Electronics Corp (2344.TW)	O (03/11/2025)	NT\$17.35
WPG Holdings (3702.TW)	E (11/16/2023)	NT\$67.70
Duan Liu		
Dosilicon Co Ltd (688110.SS)	U (09/06/2024)	Rmb68.88
Shenzhen Longsys Electronics Co Ltd (301308.SZ)	O (03/11/2025)	Rmb88.30
Tiffany Yeh		
AllRing Tech Co. (6187.TWO)	E (05/13/2025)	NT\$366.00
FOCI Fiber Optic Communications Inc (3363.TWO)	O (01/15/2025)	NT\$302.00
Himax Technologies Inc (HIMX.O)	O (05/09/2025)	US\$8.68
Silicon Motion (SIMO.O)	O (05/06/2024)	US\$76.51

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* Historical prices are not split adjusted.