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Investor Presentation | Asia Pacific

Greater China Semis: Focus on AI-related semis – GPU, ASIC, CPU, and Optical Chips

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GREATER CHINA TECHNOLOGY SEMICONDUCTORS

Asia Pacific

Industry View **Attractive**

Refreshed AI Semi Outlook

- Top ideas:
  - **OW:**
    - **AI:** TSMC (Top Pick), SMIC, Aspeed, MediaTek, Alchip, GUC, KYEC, ASE, FOCI, ASMPT, AllRing
    - **Memory (Turning very selective):** Macronix (Top Pick), AP Memory, GigaDevice
    - **China Semis/WFE**: NAURA Tech, AMEC, USI, SMIC
    - **Testing Equipment and Consumables:** Winway, MPI, Hon Precision
  - **EW/UW:** UMC, Vanguard, WIN Semi, OmniVision, ASMedia, Realtek, Phison, Winbond, Nanya Tech

Long-term demand drivers:

- **Tech inflation:** We expect "price elasticity" to affect demand for tech products. Rising wafer, OSAT and memory costs create more margin headwinds for chip designers in 2026.
- **AI cannibalization:** Besides demand weakness (AI to replace some human jobs), we see the semi supply chain also prioritizing AI semis over non-AI semis, e.g., T-Glass and memory shortage.
- **China AI: DeepSeek is triggering inferencing AI demand, but are domestic GPUs sufficient?** DeepSeek has demonstrated cheaper inferencing. However, shipments of NVidia H200, if any, could dilute the domestic GPU supply chain.

Valuation Comparison: Foundry, Back-end, Memory, IDM and Semi Cap

Ticker	Company	Price 4/20/2026	Curr ency	Price Target	Upside/ Downside	Rating	Dividend Yield (%)	FCF Yield (%)	Market Cap (US$M)	3M Avg. Daily Trading (US$M)	P/E Ratio (x)			EPS Growth			ROAE			P/B Ratio (x)		
											2025e	2026e	2027e	2025e	2026e	2027e	2025e	2026e	2027e	2025e	2026e	2027e
Foundry																						
2330.TW	TSMC	2,025.0	TWD	2,588.0	28%	O	1.4%	1.8%	1,657,874	2,528.3	30.6	19.6	15.7	46%	56%	25%	35%	41%	38%	9.7	7.0	5.2
2303.TW	UMC	76.9	TWD	68.0	-12%	E	5.1%	5.3%	30,655	318.3	23.1	21.8	17.0	-12%	6%	28%	11%	11%	14%	2.6	2.5	2.3
0981.HK	SMIC	59.8	HKD	70.0	17%	O	0.0%	-5.0%	53,817	502.9	NM	NM	NM	39%	118%	42%	3%	7%	9%	NM	NM	NM
5347.TWO	Vanguard	139.0	TWD	130.0	-6%	E	5.1%	3.1%	8,157	119.4	33.3	30.9	25.7	10%	8%	21%	11%	12%	14%	3.8	3.8	3.6
1347.HK	Hua Hong	94.5	HKD	88.0	-7%	E	0.1%	-4.6%	20,987	259.3	NM	NM	NM	-6%	636%	24%	1%	6%	7%	NM	NM	NM
6770.TW	PSMC	51.4	TWD	71.0	38%	O	0.0%	5.6%	6,856	492.2	NM	NM	NM	22%	-459%	-74%	-12%	26%	5%	2.7	1.0	1.0
3105.TWO	WIN Semi	592.0	TWD	130.0	-78%	U	0.5%	-3.8%	2,264	304.3	NM	NM	106.7	66%	33%	40%	3%	4%	6%	6.3	6.2	6.2
8086.TWO	AWSC	150.0	TWD	85.0	-43%	U	1.1%	-3.9%	931	30.6	48.7	46.1	43.0	16%	6%	7%	8%	8%	8%	3.6	3.4	3.3
Mean:							**1.7%**	**-0.2%**			**41.0**	**38.5**	**58.4**	**23%**	**50%**	**14%**	**8%**	**14%**	**13%**	**4.8**	**4.0**	**3.6**
Median:							**0.8%**	**-1.0%**			**31.9**	**26.3**	**25.7**	**19%**	**20%**	**25%**	**5%**	**10%**	**8%**	**3.7**	**3.6**	**3.4**
Memory																						
603986.SS	Giga Device	290.5	CNY	348.0	20%	O	0.3%	4.1%	26,957	1,348.6	NM	35.9	22.4	50%	227%	60%	9%	27%	34%	NM	8.4	6.3
2408.TW	Nanya Tech	207.0	TWD	278.0	34%	E	0.0%	13.6%	20,146	803.1	NM	3.9	3.3	-359%	NM	NM	4%	66%	45%	3.7	1.9	1.2
2344.TW	Winbond	85.7	TWD	100.0	17%	E	0.0%	16.6%	12,178	614.7	NM	5.2	4.3	523%	NM	NM	4%	56%	43%	3.8	2.4	1.5
8299.TWO	Phison	1,635.0	TWD	1,800.0	10%	E	1.6%	1.6%	11,253	462.1	38.8	11.7	16.1	18%	233%	-27%	18%	46%	27%	6.6	4.4	4.1
SIMO.O	Silicon Motion	139.7	USD	155.0	11%	O	1.1%	2.1%	4,694	76.6	44.0	21.4	12.8	6%	106%	66%	13%	24%	32%	5.5	4.6	3.7
2337.TW	Macronix	120.5	TWD	202.0	68%	O	4.6%	17.2%	7,060	570.4	NM	NM	NM	3%	-431%	233%	-7%	22%	51%	4.9	4.2	2.5
Mean:							**1.3%**	**9.2%**			**41.4**	**15.6**	**11.8**	**40%**	**34%**	**83%**	**7%**	**40%**	**39%**	**4.9**	**4.3**	**3.2**
Median:							**0.7%**	**8.8%**			**41.4**	**11.7**	**12.8**	**12%**	**166%**	**63%**	**7%**	**37%**	**38%**	**4.9**	**4.3**	**3.1**
Backend																						
3711.TW	ASEH	461.5	TWD	408.0	-12%	O	2.2%	6.0%	63,583	259.0	50.1	30.6	19.9	24%	64%	54%	11%	17%	23%	5.4	4.8	4.2
600584.SS	JCET	44.5	CNY	48.5	9%	E	0.3%	5.7%	11,060	522.9	47.7	29.6	19.8	3%	61%	49%	5%	8%	11%	2.6	2.4	2.1
601231.SS	USI	42.4	CNY	40.1	-5%	O	1.0%	-7.4%	12,894	285.5	50.6	35.8	26.4	12%	41%	36%	10%	13%	16%	4.8	4.4	3.9
2449.TW	KYEC	271.0	TWD	338.0	25%	O	1.8%	1.6%	10,463	199.7	30.3	27.5	18.8	41%	10%	47%	24%	22%	28%	6.6	5.8	4.8
Mean:							**1.3%**	**1.5%**			**40.4**	**31.7**	**22.6**	**20%**	**44%**	**46%**	**13%**	**15%**	**20%**	**4.8**	**4.4**	**3.8**
Median:							**1.4%**	**3.7%**			**40.4**	**31.7**	**22.6**	**18%**	**51%**	**48%**	**11%**	**15%**	**19%**	**5.1**	**4.6**	**4.0**
Power Semis/ IDM																						
688396.SS	CR Micro	51.7	CNY	40.0	-23%	U	0.1%	1.6%	9,419	132.8	NM	40.5	30.1	-20%	155%	35%	3%	7%	8%	2.7	2.6	2.4
600460.SS	Silan Micro	27.4	CNY	20.0	-27%	U	0.1%	2.1%	6,323	195.4	71.3	32.0	21.7	190%	123%	47%	5%	9%	12%	3.2	2.9	2.6
603290.SS	StarPower	102.3	CNY	105.0	3%	O	0.6%	0.0%	#N/A	92.2	40.2	31.1	27.0	12%	29%	15%	9%	10%	11%	NA	NA	NA
300373.SZ	Yangjie	81.8	CNY	88.0	8%	O	1.4%	-2.8%	6,134	181.3	35.3	28.9	21.0	26%	22%	38%	13%	15%	18%	4.5	4.0	3.4
Mean:							**0.6%**	**0.2%**			**48.9**	**33.1**	**24.9**	**52%**	**82%**	**34%**	**7%**	**10%**	**12%**	**3.4**	**3.1**	**2.8**
Median:							**0.4%**	**0.8%**			**40.2**	**31.5**	**24.4**	**19%**	**76%**	**36%**	**7%**	**10%**	**12%**	**3.2**	**2.9**	**2.6**
Semicap / Equipment/ Materials/ Supply Chain																						
002371.SZ	NAURA	471.2	CNY	550.0	17%	O	0.6%	-0.9%	47,437	525.5	41.8	32.4	26.3	7%	29%	23%	20%	25%	25%	9.1	7.4	6.1
688012.SS	AMEC	313.5	CNY	400.0	28%	O	0.0%	11.8%	27,359	508.4	NM	54.6	41.7	21%	82%	31%	10%	15%	17%	NM	7.7	6.5
7769.TW	Hon Precision	4,445.0	CNY	5,000.0	12%	O	2.2%	NA	25,251	173.8	NM	38.3	23.0	NA	52%	66%	NA	34%	47%	NM	NM	9.7
6223.TWO	MPI	5,135.0	CNY	5,800.0	13%	O	0.0%	-5.4%	15,887	146.5	NM	80.2	38.6	34%	95%	108%	27%	35%	50%	NM	NM	NM
6515.TW	Winway	10,795.0	CNY	12,000.0	11%	O	0.9%	1.3%	12,186	104.6	NM	NM	54.8	40%	123%	89%	28%	48%	64%	NM	NM	NM
3036.TW	WT Micro	217.0	CNY	288.0	33%	O	4.4%	-21.4%	8,671	68.4	NM	12.5	9.4	43%	45%	33%	12%	18%	21%	NM	2.1	1.9
6488.TWO	GlobalWafers	551.0	TWD	588.0	7%	O	2.7%	1.7%	8,319	73.3	36.1	22.1	15.9	-26%	63%	39%	8%	12%	16%	2.9	2.6	2.4
0522.HK	ASM Pacific	138.6	HKD	148.0	7%	O	1.8%	6.5%	7,047	38.9	NM	38.2	24.1	161%	67%	59%	6%	9%	13%	3.2	3.1	2.9
3702.TW	WPG	100.5	TWD	121.0	20%	O	7.2%	-27.2%	5,328	34.9	16.9	10.4	10.6	38%	63%	-2%	12%	19%	17%	2.0	1.8	1.7
688234.SS	SICC	97.8	CNY	100.2	2%	O	0.6%	NA	6,586	113.0	NM	NM	NM	NM	NM	NM	-3%	1%	3%	6.6	6.5	6.4
ACMR.O	ACM Research	50.6	USD	68.0	34%	O	1.1%	-0.7%	3,321	70.4	36.5	18.2	13.8	-11%	101%	32%	6%	10%	12%	1.7	1.6	1.4
3680.TWO	Gudeng Precision	473.0	USD	480.0	1%	O	0.9%	-6.1%	1,434	21.0	59.8	22.5	17.8	-36%	165%	26%	6%	16%	17%	3.8	3.3	2.9
6187.TWO	AllRing Tech	1,225.0	USD	1,280.0	4%	O	2.8%	1.1%	3,722	70.2	79.2	60.5	35.6	6%	31%	70%	21%	25%	36%	NM	NM	NM
3363.TWO	FOCI	988.0	TWD	708.0	-28%	O	0.2%	4.8%	3,281	77.9	NM	NM	NM	NM	NM	NM	1%	3%	56%	NM	NM	NM
Mean:							**1.8%**	**-2.9%**			**45.0**	**35.5**	**26.0**	**25%**	**76%**	**48%**	**12%**	**19%**	**28%**	**4.2**	**4.0**	**4.2**
Median:							**1.0%**	**0.2%**			**39.1**	**32.4**	**23.6**	**21%**	**65%**	**36%**	**10%**	**17%**	**19%**	**3.2**	**3.1**	**2.9**

Source: Company data, Morgan Stanley Research. E = Morgan Stanley Research estimates. Note: Data as of April 20, 2026.

Valuation Comparison: Fabless, Power Semis, FPGA and Analog

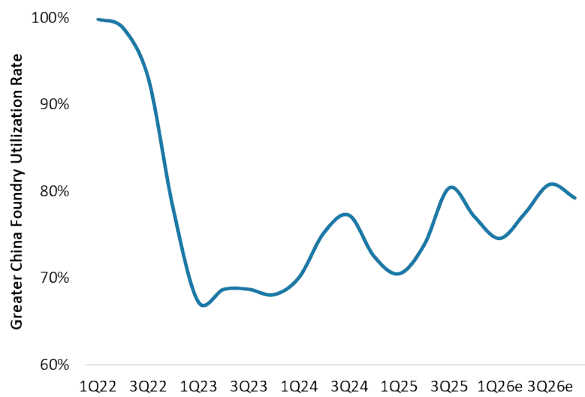
Ticker	Company	Price 4/20/2026	Currency	Price Target	Upside/ Downside	Rating	Dividend Yield (%)	FCF Yield (%)	Market Cap (US$M)	3M Avg. Daily Trading (US$M)	P/E Ratio (x) 2025e	P/E Ratio (x) 2026e	P/E Ratio (x) 2027e	EPS Growth 2025e	EPS Growth 2026e	EPS Growth 2027e	ROAE 2025e	ROAE 2026e	ROAE 2027e	P/B Ratio (x) 2025e	P/B Ratio (x) 2026e	P/B Ratio (x) 2027e
Fabless																						
Smartphone/Wireless Semis																						
2454.TW	MediaTek	1,900.0	TWD	1,988.0	5%	O	7.4%	0.9%	93,904	570.6	30.3	32.4	16.2	-6%	-7%	100%	25%	23%	39%	7.3	7.2	5.4
603501.SS	OmniVision	93.8	CNY	111.0	18%	E	0.5%	2.1%	15,710	240.0	28.2	25.5	19.3	22%	11%	32%	15%	15%	17%	4.0	3.6	3.1
300782.SZ	Maxscend	114.5	CNY	48.00	-58%	U	0.1%	-2.2%	8,490	208.7	NM	NM	60.3	-136%	-485%	85%	-1%	5%	9%	6.1	5.8	5.3
603160.SS	Goodix	69.9	CNY	58.0	-17%	U	0.7%	-1.4%	4,469	55.9	38.3	58.6	51.8	39%	-35%	13%	9%	6%	6%	3.4	3.3	3.2
6462.TWO	Egis	119.0	TWD	105.0	-12%	E	1.0%	-16.3%	343	4.7	NM	NM	22.2	-6%	-88%	-462%	-11%	-1%	5%	1.2	1.2	1.2
IP/Design Service																						
3661.TW	Alchip	3,625.0	TWD	4,388.0	21%	O	1.5%	5.1%	9,319	220.1	55.2	22.2	19.4	-17%	149%	14%	14%	30%	29%	NM	NM	NM
301269.SZ	Empyrean Technology	87.7	CNY	115.0	31%	E	0.1%	NA	6,615	62.3	NM	NM	NM	184%	102%	42%	6%	11%	14%	NM	NM	NM
3443.TW	GUC	3,580.0	TWD	3,288.0	-8%	O	0.7%	4.7%	15,149	231.5	NM	74.6	47.0	9%	72%	59%	31%	42%	49%	NM	NM	NM
6531.TW	AP Memory	682.0	TWD	777.0	14%	O	1.1%	4.1%	3,485	84.0	NM	42.2	25.9	-22%	112%	63%	10%	20%	28%	9.0	7.9	6.7
PC/Cloud/Display Semis																						
3034.TW	Novatek	415.0	TWD	323.0	-22%	U	6.0%	14.3%	7,974	51.4	15.4	17.8	17.3	-20%	-13%	3%	24%	21%	21%	3.8	3.7	3.6
2379.TW	Realtek	538.0	TWD	550.0	2%	E	3.5%	5.0%	8,668	56.9	18.7	16.5	17.0	-4%	13%	-3%	26%	27%	23%	4.7	4.1	3.8
5269.TW	ASMedia	1,260.0	TWD	1,380.0	10%	U	2.9%	0.9%	2,971	45.5	17.9	16.1	14.4	37%	11%	12%	15%	15%	15%	2.5	2.3	2.0
5274.TWO	Aspeed	14,425.0	TWD	15,555.0	8%	O	1.2%	1.3%	17,219	98.7	NM	71.0	50.1	53%	95%	42%	59%	79%	77%	NM	NM	NM
4966.TWO	Parade	532.0	TWD	530.0	0%	E	3.0%	1.6%	1,312	13.7	15.3	16.5	13.0	7%	-7%	27%	12%	10%	12%	1.7	1.7	1.5
2458.TW	Elan Micro	135.0	TWD	160.0	19%	O	4.8%	9.6%	1,221	13.5	16.0	14.9	13.8	-11%	7%	8%	24%	24%	24%	3.7	3.4	3.1
HIMX.O	Himax	11.1	TWD	8.0	-28%	E	2.8%	8.3%	1,893	22.4	43.7	52.7	15.5	-44%	-17%	240%	5%	5%	15%	2.3	2.3	2.1
Analog IC																						
6415.TW	Silergy	365.5	TWD	296.0	-19%	O	1.0%	4.8%	4,479	78.4	56.7	36.0	24.6	9%	58%	46%	7%	10%	13%	3.8	3.5	3.1
300661.SZ	SG Micro	77.6	CNY	75.0	-3%	E	0.3%	1.1%	6,682	249.5	84.6	55.9	42.7	-12%	51%	31%	11%	15%	17%	NM	NM	NM
MCU																						
4919.TW	Nuvoton	141.5	TWD	98.0	-31%	U	0.8%	14.5%	1,876	41.9	NM	NM	32.1	-857%	-69%	-457%	-12%	-4%	14%	4.5	4.7	4.1
688018.SS	Espressif	171.0	CNY	175.0	2%	O	1.0%	20.3%	3,951	65.8	53.8	49.8	40.2	47%	8%	24%	15%	12%	14%	NM	NM	NM
FPGA																						
002049.SZ	Unigroup Guoxin	73.1	CNY	57.0	-22%	U	0.3%	1.5%	8,630	218.5	32.7	25.7	21.7	61%	27%	19%	14%	16%	16%	4.4	3.8	3.3
1385.HK	Shanghai Fudan	44.0	HKD	47.3	7%	O	0.1%	0.1%	6,905	31.7	NM	34.2	28.1	-59%	353%	22%	4%	16%	16%	5.9	5.0	4.3
Mean:							**1.7%**	**3.7%**			**46.5**	**37.7**	**28.4**	**-31%**	**31%**	**3%**	**13%**	**18%**	**21%**	**4.8**	**4.2**	**3.7**
Median:							**1.0%**	**1.8%**			**35.5**	**34.2**	**24.6**	**-5%**	**12%**	**26%**	**13%**	**15%**	**16%**	**4.2**	**3.8**	**3.4**

Source: Company data, Morgan Stanley Research. E = Morgan Stanley Research estimates. Note: Data as of April 20, 2026.

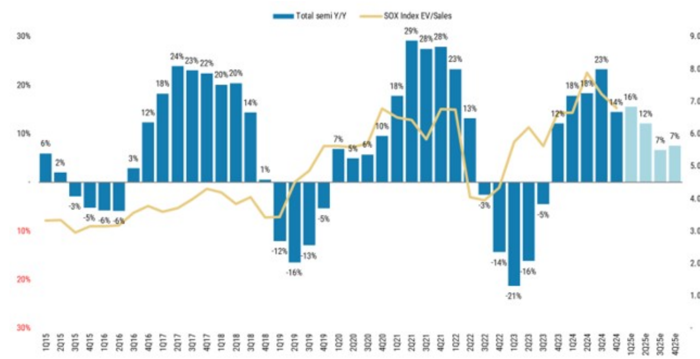
Semi Cycle: Broader Semis vs. Niche Memory

Broader Semiconductor Cycle

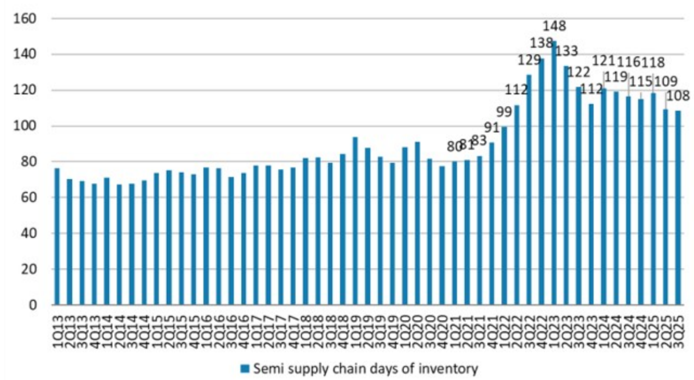
Logic semi foundry utilization at 70-80% in 1H26 – still not fully recovered



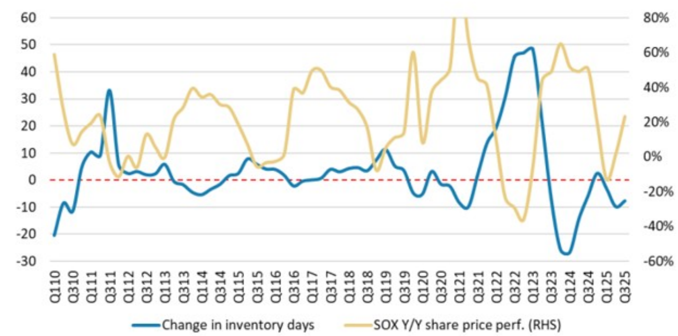
Excluding NVIDIA's AI GPU revenue, non-AI semi growth was slow at only 10% Y/Y in 2024



Semi supply chain days of inventory declined in 3Q25



Historically, when inventory days went down, semi stock index went up



Source: SIA, FactSet, company data, Morgan Stanley Research. E = Morgan Stanley Research estimates.

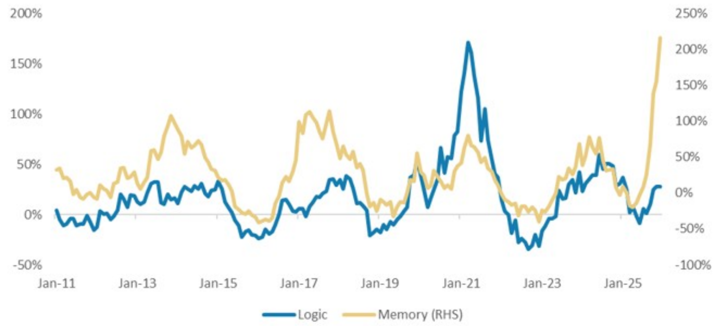
Our Preference Table for Old Memory

	Macronix 2337.TW	AP Memory 6531.TW	GigaDevice 603986.SS	PSMC 6770.TW	Winbond 2344.TW	Nanya Tech 2408.TW
Rating	Overweight	Overweight	Overweight	Overweight	Equal-Weight	Equal-Weight
Trading Currency	TWD	**TWD**	**CNY**	TWD	TWD	**TWD**
Price Target	**202.0**	**777.0**	**348.0**	**71.0**	**100.0**	**230.0**
Current Price	131.0	644.0	289.0	52.6	87.8	210.0
Upside/(Downside) (%)	54%	21%	20%	35%	14%	10%
Market Cap (in USD mm)	7,513.9	3,312.1	28,293.1	6,920.0	11,663.9	20,570.2
Avg Daily Traded Vol (in USD mm)	135.5	48.1	871.0	158.1	281.7	447.8
Street View: Ratings						
Buy/Overweight	90%	100%	92%	40%	78%	75%
Hold/Equal-weight	0%	0%	8%	60%	22%	19%
Sell/Underweight	10%	0%	0%	0%	0%	6%
Bull Case Value	326.0	1,145.0	604.0	113.6	120.0	588.0
Upside (%)	149%	78%	109%	116%	37%	180%
Bear Case Value	119.5	376.0	219.0	35.5	41.4	155.0
Downside (%)	-9%	-42%	-24%	-33%	-53%	-26%
Risk/Reward Skew	17.0	1.9	4.5	3.6	0.7	6.9

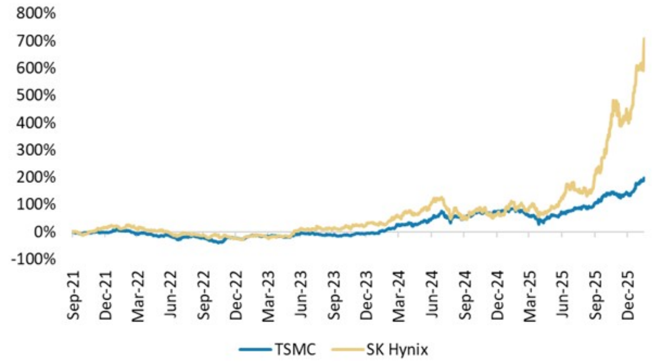
Source: Company data, Morgan Stanley Research estimates; Date: as of April 16th, 2026

Memory Stock Prices Are a Leading Indicator for Logic Semis

Memory share price YoY peak leads logic semis



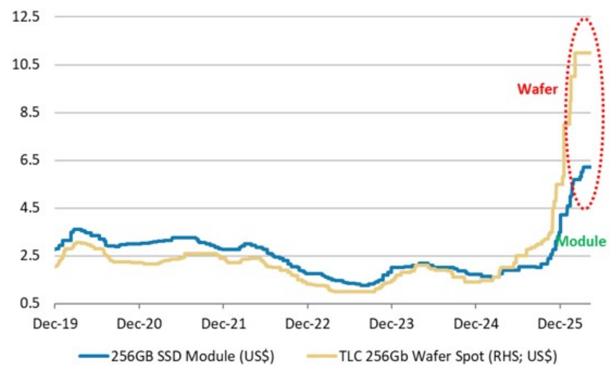
Share price performance over the past three years (TSMC vs. SK hynix)



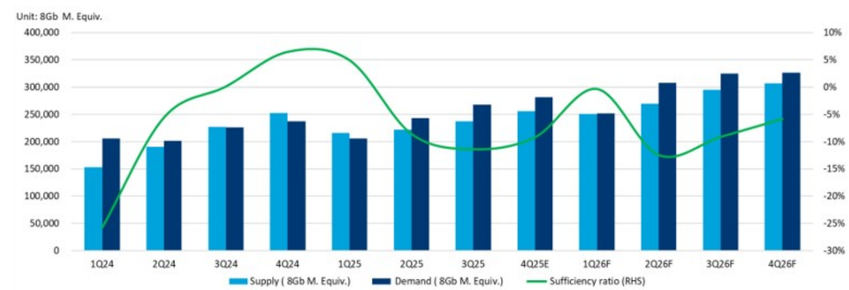
Source: FactSet, company data, Morgan Stanley Research. E = Morgan Stanley Research estimates. Note: Past performance is no guarantee of future results. Results shown do not include transaction costs.

AI Storage Leads to NAND Shortage; We Also Expect NOR Flash Undersupply into 2026

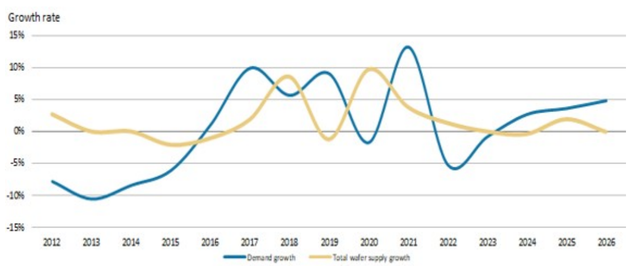
NAND wafer spot pricing and module prices



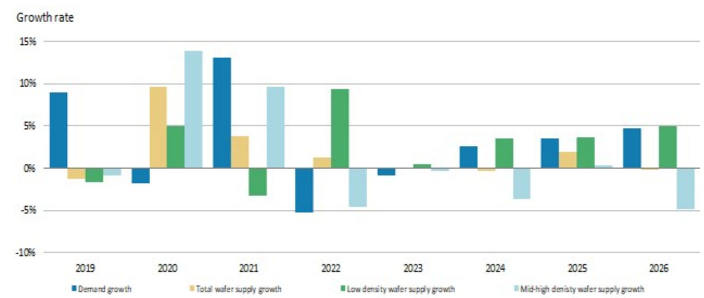
NAND supply and demand model



NOR flash demand and supply growth rates



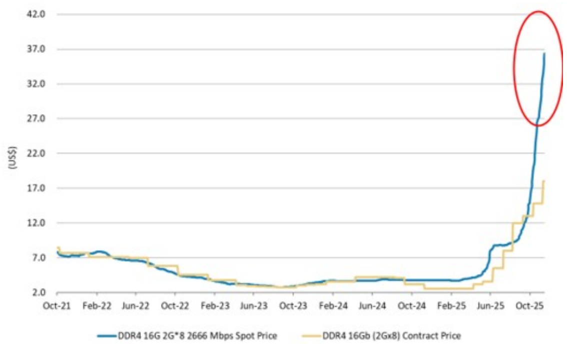
NOR flash demand and supply growth rates



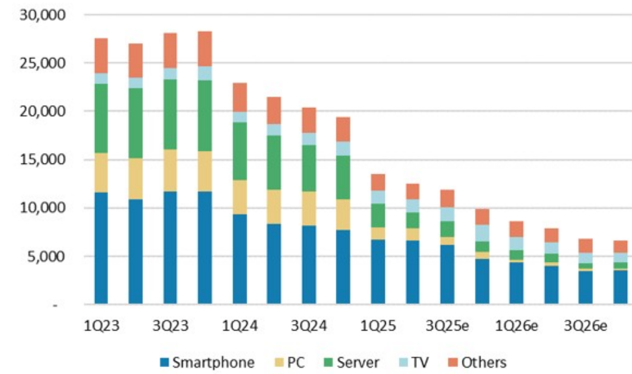
Source: ChinaFlashMarket, Morgan Stanley Research estimates.

DDR4 Shortage to Persist into 2H26; while Spot Price Capped

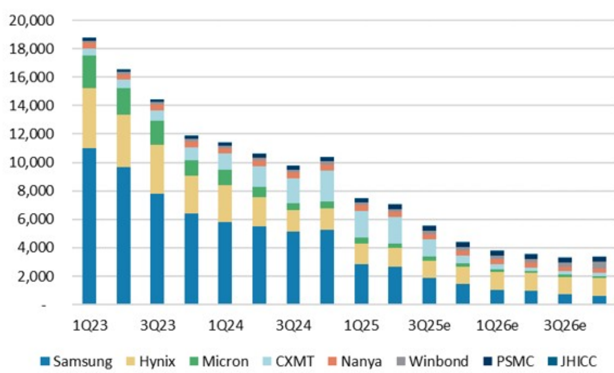
DDR4 16Gb spot vs. contract price



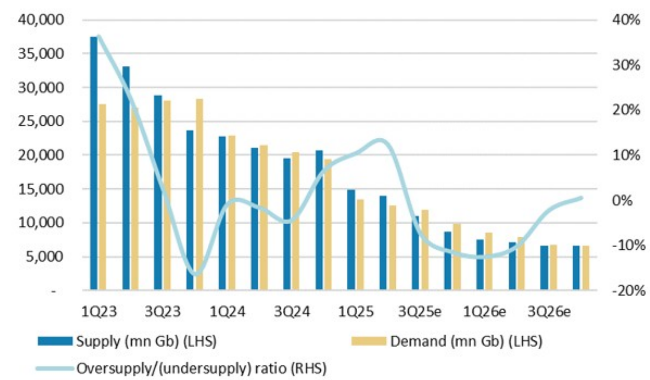
Quarterly demand breakdown, by product (mn Gb)



Quarterly supply breakdown (mn Gb)



Quarterly supply and demand summary

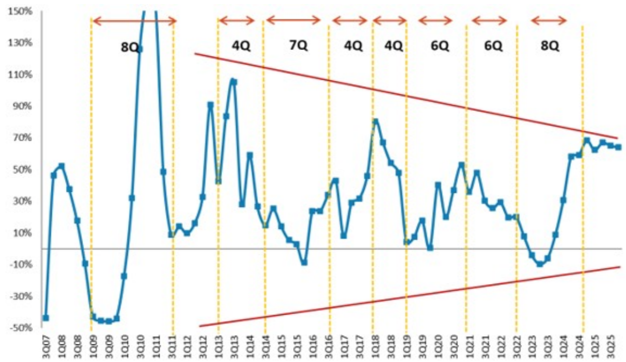


Source: Company data, Morgan Stanley Research. E = Morgan Stanley Research estimates.

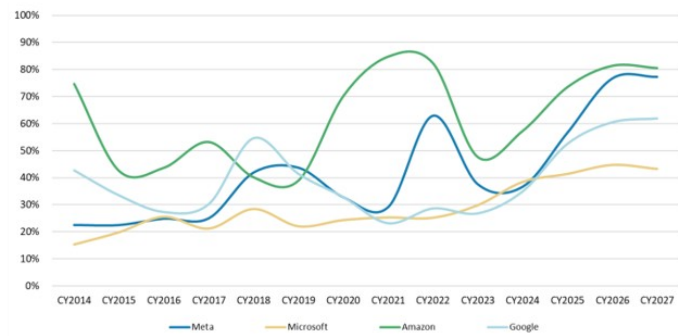
Cloud Semi Updates

Cloud Semis: Brighter Outlook

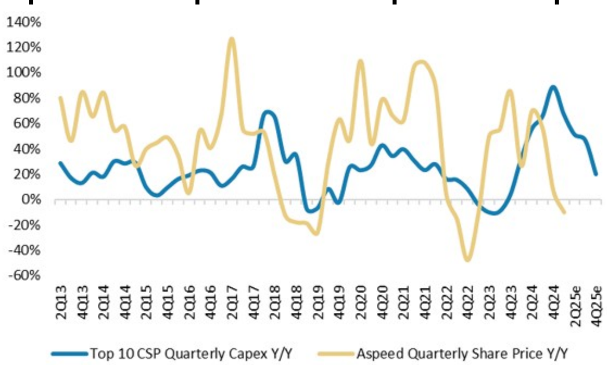
Top 4 CSPs (Amazon, Google, Microsoft and Meta) capex was up 64% Y/Y in 4Q25CY



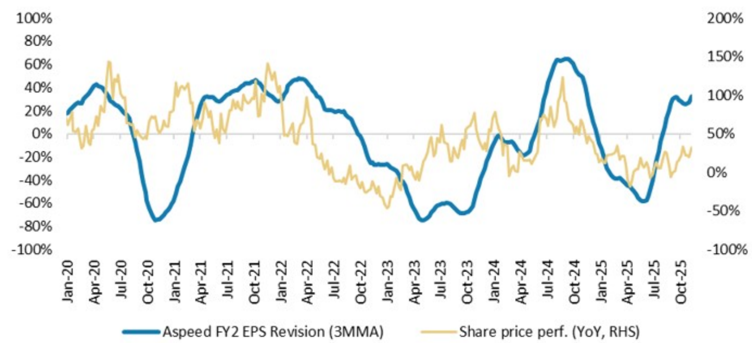
Capex-to-EBITDA ratio should remain stable at around 50%



Top 10 CSP capex Y/Y vs. Aspeed share price



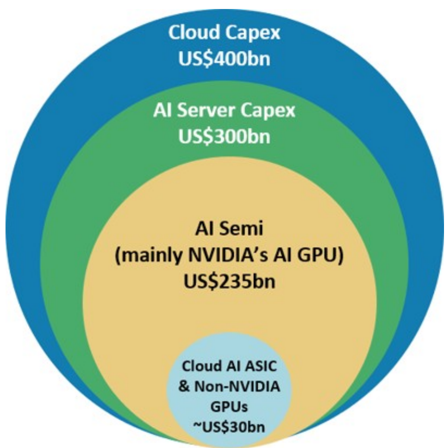
Aspeed earnings revision breadth



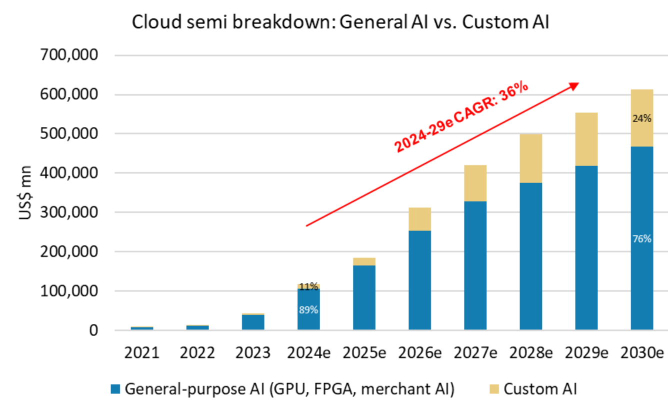
Source: Company data, Morgan Stanley Research. E = Morgan Stanley Research estimates.

Thanks to Cloud AI, the Global Semi Industry Market Size May Reach US$1 trillion in 2030

Our supply chain data-driven bull case assumption is that cloud AI Semi TAM may grow to US$235bn in 2025e



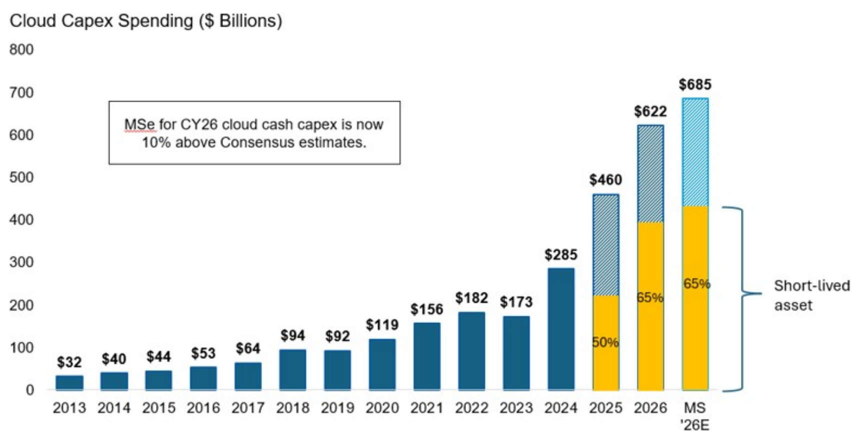
AI semi is major growth driver



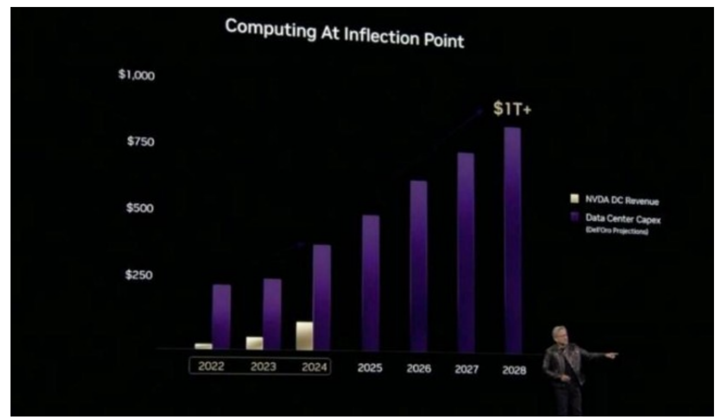
Source: Nvidia, Morgan Stanley Research. e = Morgan Stanley Research estimates. Note: From our Asia Pacific tech team's downstream estimates.

Cloud Capex Remains Robust From Major CSPs

Morgan Stanley cloud capex tracker estimates nearly US$685bn of cloud capex spending in 2026 (Purely Top 10 listed global CSPs; no sovereign AI)



Nvidia CEO shared an estimate of global cloud capex to reach US$1 trillion in 2028 (including sovereign AI)



Source: FactSet, company data, Morgan Stanley Research. E = Morgan Stanley Research estimates. Note: Estimates are top-down and from our US tech team.

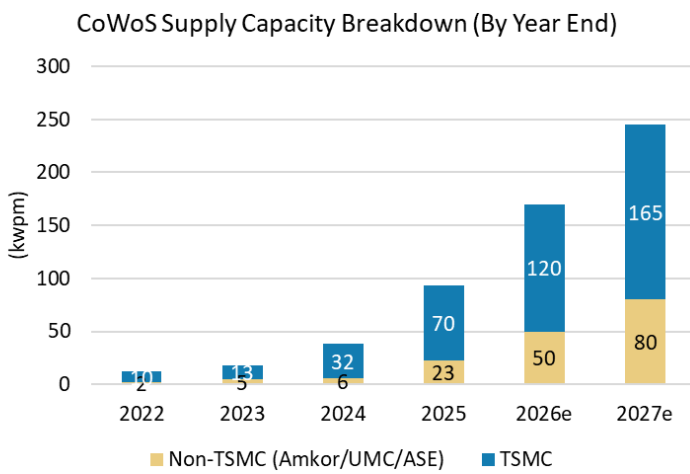
Announced Power Deployment Implications for TSMC

Announced Power Deployment Implication for TSMC				
GPU/ASIC Vendor	NVIDIA (Open AI)	AMD (Open AI)	Broadcom	AWS (OpenAI)
Power Deployed (GW)	10	6	3.5	2
Rack name	Vera Rubin NVL144	Helios	TPU	Trainium3 UltraServers
Power consumption per Rack (kW)	220	220	63	144
Rack Number (k units)	45	27	56	14
Chip Name	Rubin GPU	MI455 GPU	TPUv7 (Ironwood) TPUv8ax (Sunfish)	Trainium3 (4)
Chip Volume (k units)	3,273	1,964	3,571	2,000
Life Cycle for the project	3	3	5	8
Implied life-cycle CoWoS Volume (k wafers)	409	166	260	118
Implied life-cycle 2/3nm wafer Volume (k wafers)	260	95	190	107
2027 annual CoWoS demand (k wafers)	136	55	52	15

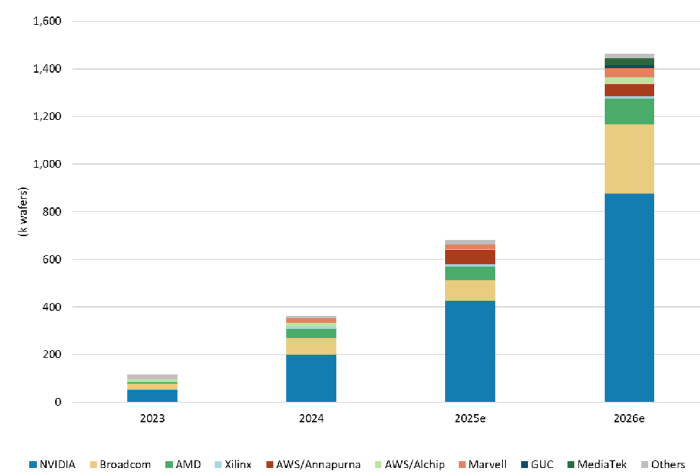
Source: Company data, Morgan Stanley Research; Note: Estimates are compiled using our Asia supply-chain checks. Note: We assume 64 units of TPU chips per rack with TPUv7 and v8ax per chip TDP being ~980W.

TSMC May Expand CoWoS Capacity to 165kwpm By 2027 Given Continual Strong AI Demand

Global CoWoS capacity expansion by year-end and by vendor



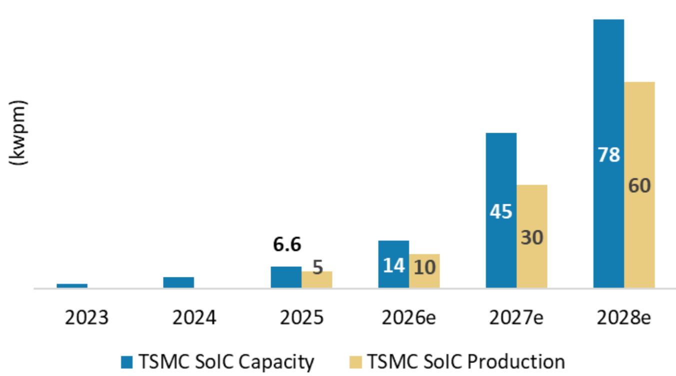
Global CoWoS consumption, by customer



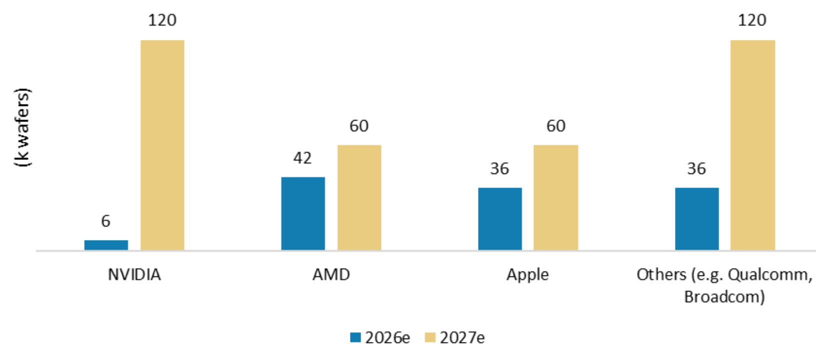
Source: Company data, Morgan Stanley Research. E = Morgan Stanley Research estimates.

SoIC Expansion Will Be a Key Focus Area for TSMC in The Coming Years

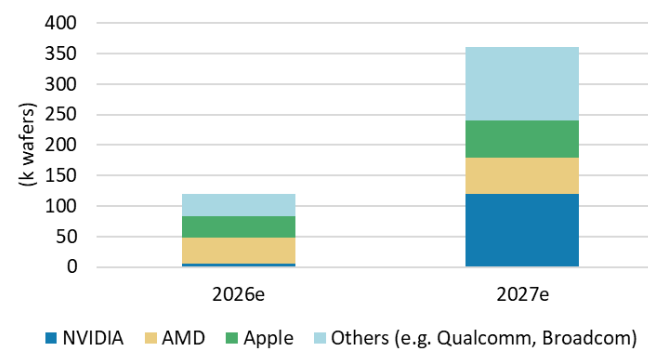
TSMC SoIC Supply Capacity Breakdown (by year-end)



SoIC demand breakdown, by customer



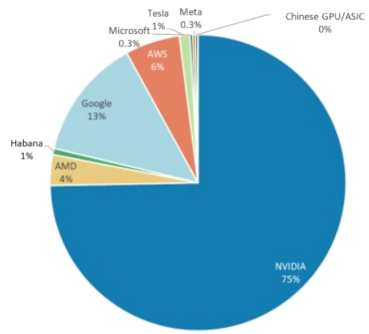
SoIC demand breakdown



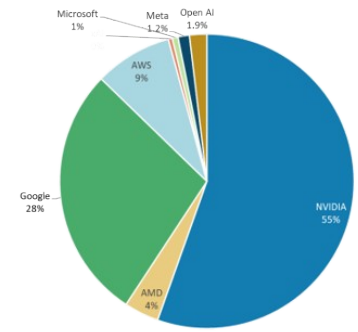
Source: Company data, Morgan Stanley Research. E = Morgan Stanley Research estimates.

AI Computing Wafer Consumption Could be up to US$26bn in 2026 with NVIDIA Accounting For The Majority

AI semi wafer consumption, by customer, 2025e



AI semi wafer consumption, by customer, 2026e

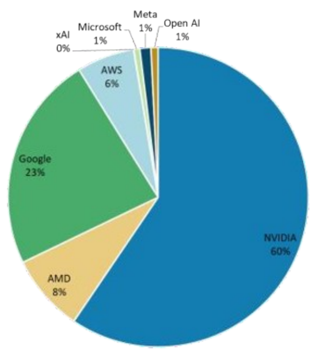


AI chip vendor	Product name	CoWoS capacity allocation (k wafers)	Chips per CoWoS wafer	Implied shipments (k)	Compute die size	Geometry	Compute die units	Wafer consumption (k wafers)	Wafer price (US$)	Wafer revenue TAM (US$ mn)	Backend revenue (US$ mn)
AI GPU (2026e)											
NVIDIA	B300	390	14	5,460	850	4nm	2	433	21,945	9,510	8,241
	Rubin R200	260	8	2,080	850	3nm	2	165	26,000	4,292	5,494
	H200	75	27	2,025	814	4nm	1	57	21,945	1,243	1,275
AMD	MI300	3	12	36	110	5nm	8	1	18,000	19	79
	MI350/375	7	12	84	110	3nm	8	2	26,000	64	194
	MI400	65	10	650	110	2nm	8	32	28,125	886	1,805
AI ASIC (2026e)											
Google	TPU v7p (Ironwood)	145	16	2,320	700	3nm	2	152	26,000	3,942	3,327
	TPU v7e (Sunfish; AVGO)	80	12	960	800	3nm	2	72	26,000	1,864	1,835
	TPU v8 (Zebrafish;MediaTek)	30	20	600	800	3nm	2	45	26,000	1,165	688
AWS	Trainium 2.5	20	16	320	600	5nm	2	12	20,000	237	411
	Trainium 3	80	17	1,360	700	3nm	2	73	26,000	1,886	1,642
xAI		10	20	200	645	4nm	1	5	21,945	107	30
Microsoft	Maia 200	4	29	116	700	3nm	1	3.0	26,000	79	87
	Maia 300	5	11	55	850	2nm	1	2.9	28,125	82	109
Meta	MTIA 3 (Iris)	15	10	150	850	3nm	2	11.9	26,000	310	1
Open AI	Nexus (Titan 1)	10	13	130	750	3nm	4	18.2	26,000	473	1
Total		1,434						1,084		26,159	25,219

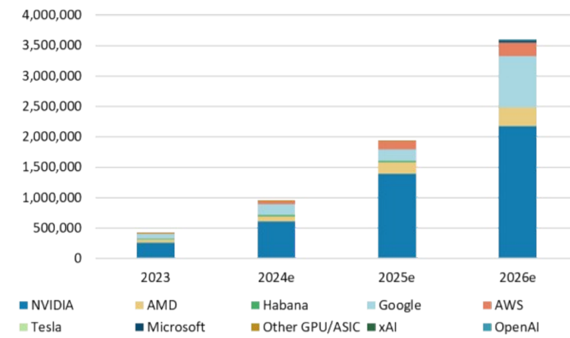
Source: Company data, Morgan Stanley Research. E = Morgan Stanley Research estimates. Note: Estimates are compiled using our supply-chain checks.

HBM Consumption in 2026e – Up to 32bn Gb

HBM consumption by customer in 2026e



NVIDIA still consumes most HBM supply in 2026e

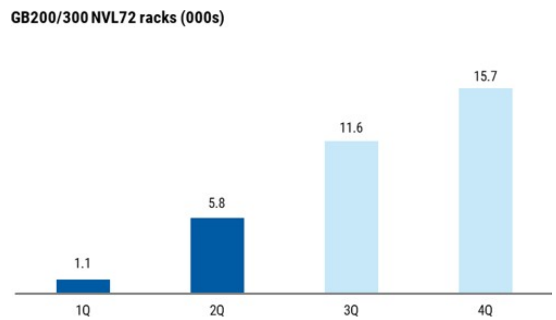


AI chip vendor	Product name	CoWoS capacity allocation (k wafers)	Chips per CoWoS wafer	Implied shipments (k)	HBM chip density (GB)	HBM chip units	Total HBM size (GB)	HBM generation	HBM vendor	Total HBM demand (k GB)
AI GPU (2026e)										
NVIDIA	B300	390	14	5,460	36	8	288	HBM3e 12hi	Hynix/Micron/Samsung	1,572,480
	Rubin R200	260	8	2,080	36	8	288	HBM4	Hynix/Micron/Samsung?	599,040
	H200	75	27	2,025	24	6	141	HBM3e 8hi	Hynix	285,525
AMD	MI300	3	12	36	24	8	192	HBM3	Samsung	6,912
	MI350/375	7	12	84	36	8	288	HBM3e 12hi	Samsung/Micron	24,192
	MI400	65	10	650	36	12	432	HBM4	Samsung/Micron	280,800
AI ASIC (2026e)										
Google	TPU v7p (Ironwood)	145	16	2,320	24	8	192	HBM3e 8hi	Hynix/Samsung	445,440
	TPU v7e (Sunfish; AVGO)	80	12	960	36	8	288	HBM3e 12hi	Hynix/Samsung/Micron	276,480
	TPU v8 (Zebrafish;MediaTek)	30	20	600	36	6	216	HBM3e 12hi	Hynix/Micron	129,600
AWS	Trainium 2.5	20	16	320	24	4	96	HBM3e 8hi	Hynix/Samsung/Micron	30,720
	Trainium 3	80	17	1,360	36	4	144	HBM3e 12hi	Hynix/Samsung/Micron	195,840
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	5	11	55	36	8	288	HBM4	Samsung	15,840
Meta	MTIA 3 (Iris)	15	10	150	36	8	288	HBM3e 12hi	Hynix/Samsung	43,200
Open AI	Nexus (Titan 1)	10	13	130	36	6	216	HBM4	Hynix	28,080
Total		**1,434**								**3,942,725**
								Total HBM demand (mn Gb)		**31,542**

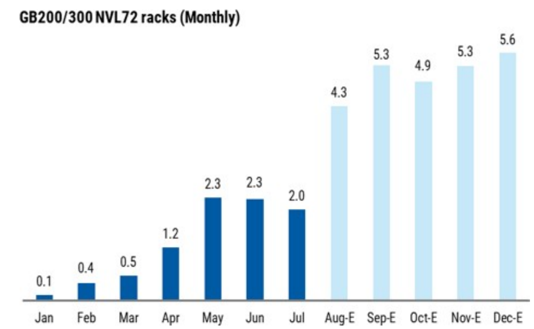
Source: Company data, Morgan Stanley Research. E = Morgan Stanley Research estimates.

NVIDIA GB200/300 Rack Output Estimates

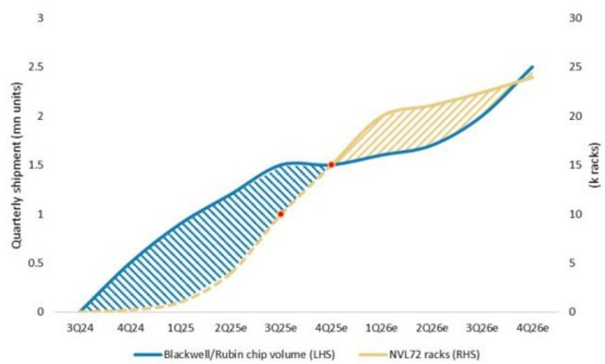
GB200/300 NVL72 Rack Ramp Quarterly Trajectory



Industry-wide GB200 NVL72 Rack Monthly Output



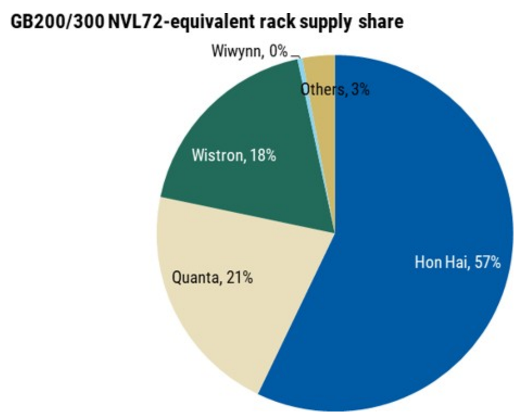
We estimate TSMC produced 5.1mn chips in 2025, with full-year GB200 NVL72 shipments seen reaching 30k



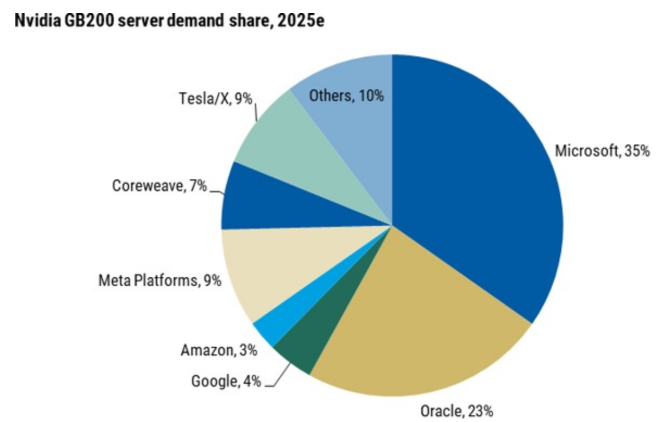
Source: Morgan Stanley Research. E = Morgan Stanley Research estimates. Note: We think the actual rack deliveries to end-customers are lower than the numbers we have here because we include Wistron's computing tray (L10) rack equivalent number (without accounting for rack assembly and test times for L11). Estimates are from our Asia Pacific tech team's downstream estimates.

NVIDIA GB200/300 Server Racks Supply/Demand Assumptions

NVIDIA GB200/300 rack supply share (2025)



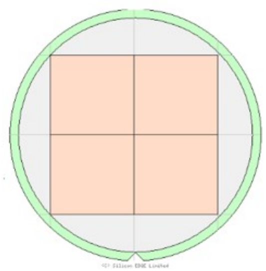
NVIDIA GB200/300 rack demand share (2025)



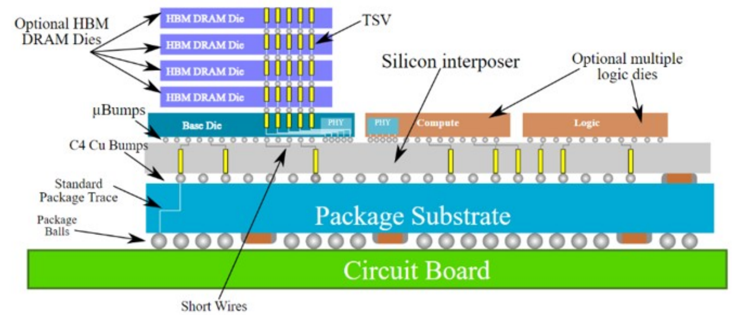
Source: Morgan Stanley Research. E = Morgan Stanley Research estimates. Note: Estimates are from our Asia Pacific tech team's downstream estimates.

What About the Competition Between TSMC CoWoS and Intel EMIB?

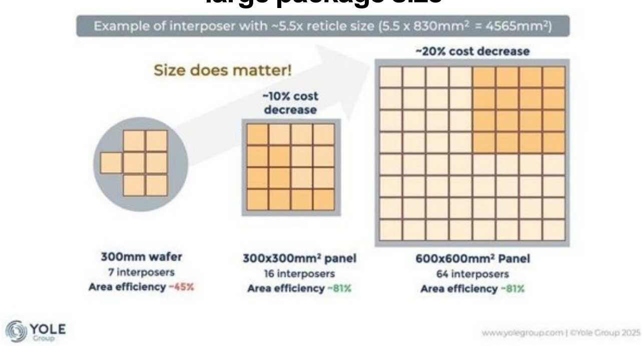
TSMC CoWoS can support up to 9.5x reticles, or four chips per wafer



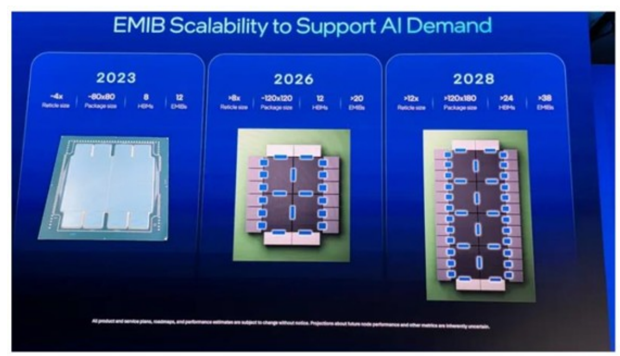
TSMC's CoWoS-S (silicon interposer) packaging architecture



Comparison of WLP and PLP for large package size

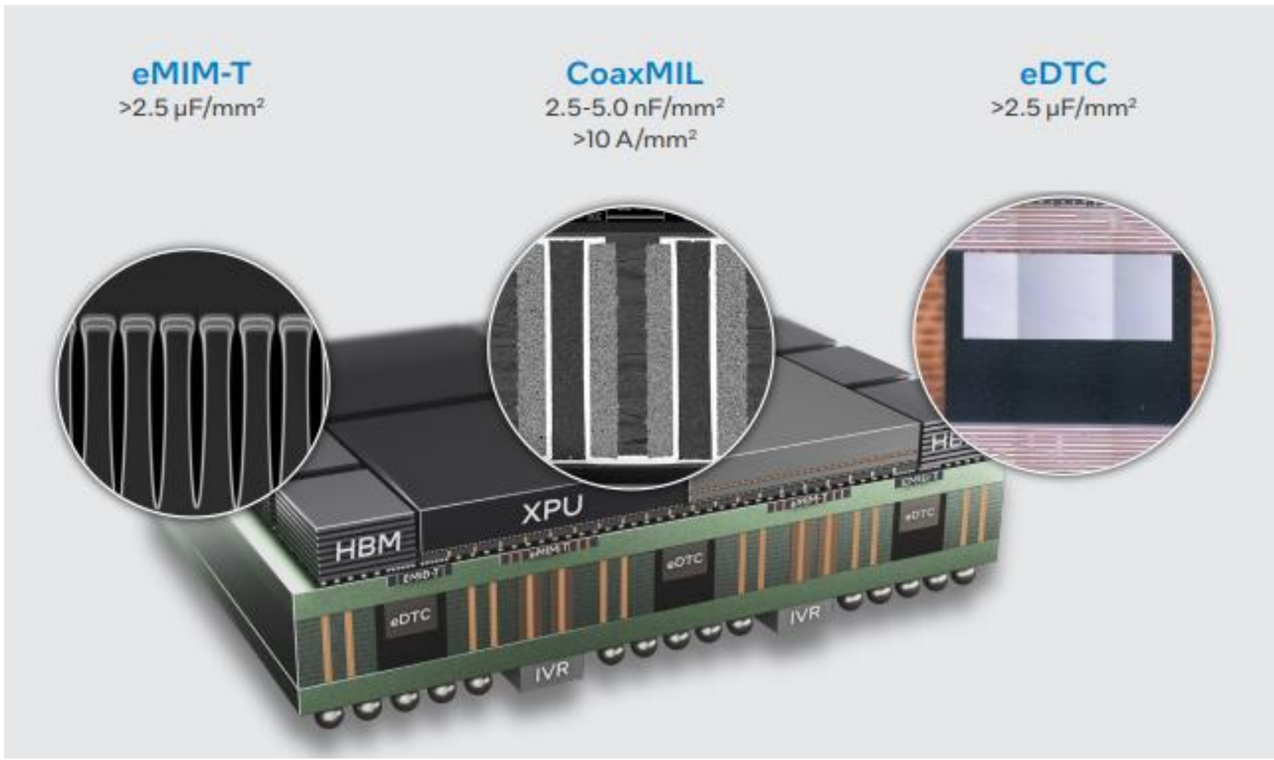


Intel's EMIB can easily support larger chips with more reticles (>12) if its supply chain can execute well



Source: Intel, Yole, Morgan Stanley Research

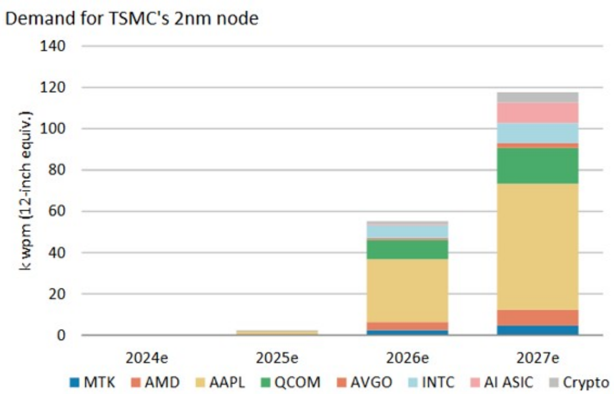
Intel EMIB: AP Memory's Key Growth Driver



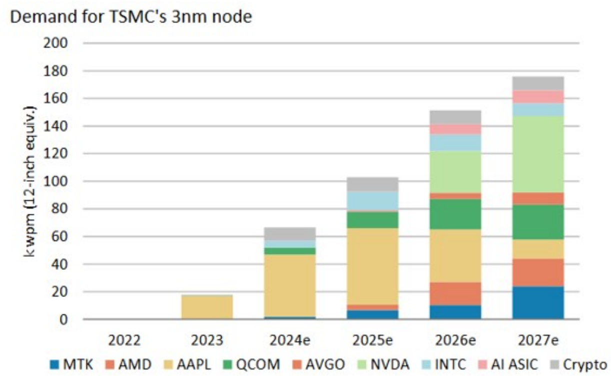
Source: Intel

TSMC Leading-edge Wafer Demand Breakdown

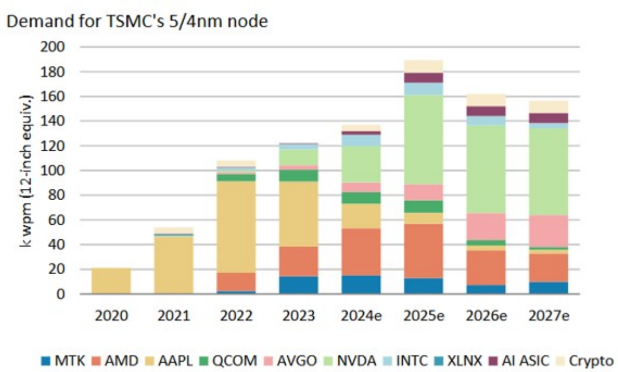
TSMC – 2nm customer demand breakdown



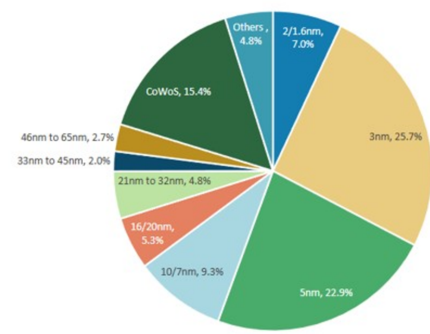
TSMC – 3nm customer demand breakdown



TSMC – 4/5nm customer demand breakdown



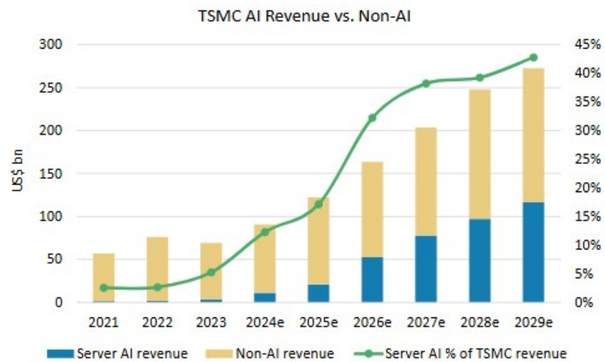
TSMC – 2026e revenue breakdown by nodes and CoWoS



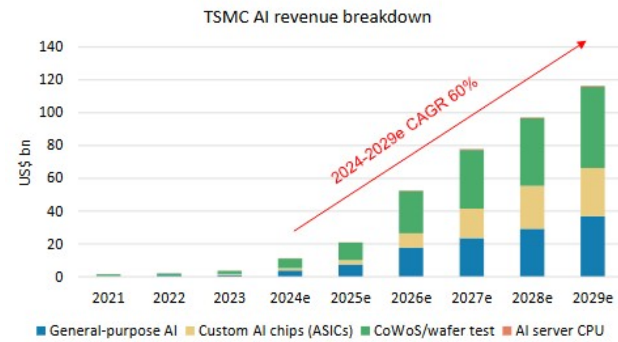
Source: Company data, Morgan Stanley Research (e) estimates

TSMC AI Semis Revenue Could Reach 60% from 2024 to 2029e

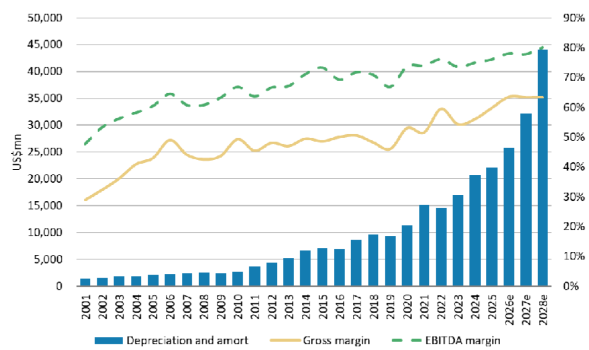
TSMC – AI semis revenue could account for >30% of 2026e revenue



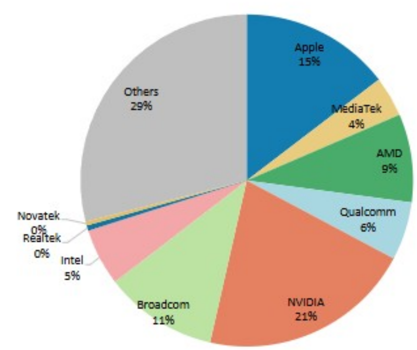
TSMC – AI semis revenue breakdown



TSMC – margin expansion



TSMC – 2026e revenue breakdown by customer



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

AI ASIC

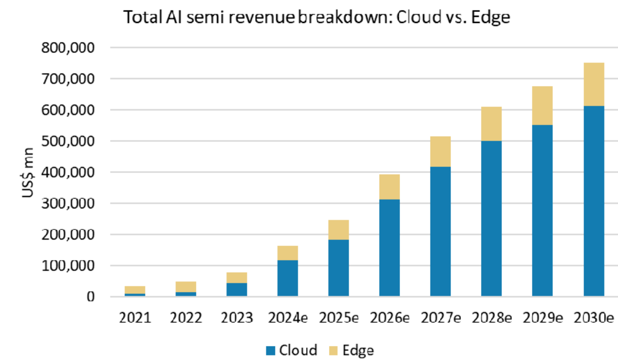
AI Semis: Now and the future – "Prompts"

- Generative AI Demand Driver:
  - Killer apps
  - Competition
  - Sovereign
- Growth limitations:
  1. Budget
  2. Energy -> in the US
  3. Chip Capacity -> in China
  4. Regulation
- Semiconductor solutions:
  - Moore's Law
  - CoWoS/ SoIC
  - HBM
  - CPO
  - Custom chip
  - GaN HVDC 800V
- Growth perspective:
  1. Inference vs. Training AI semis
  2. Edge vs. Cloud AI semis
  3. Custom ASIC vs. AI GPU

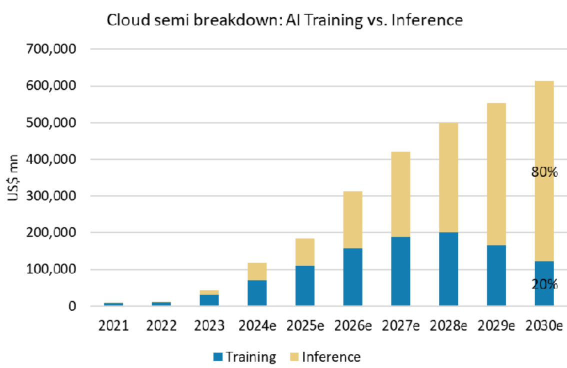
2026 Update: Our Forecasts for AI Semis Toward 2029e and 2030e

- Growth perspective:
  1. Edge AI semis: 22% CAGR, 2023-30
  2. Inference AI semis: 68% CAGR, 2023-30
  3. **Custom AI semis: 65% CAGR**, 2023-30

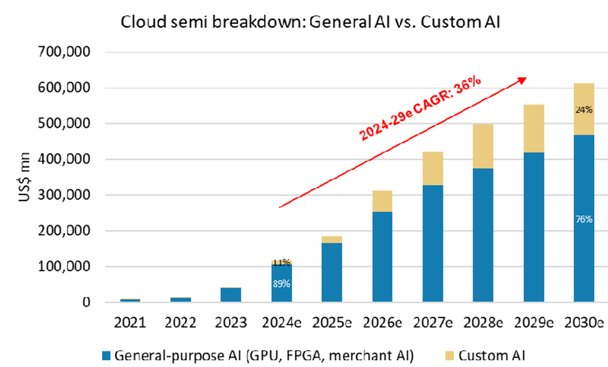
Edge AI semis could grow slightly faster than cloud



Within Cloud AI, Inference AI chips to outgrow training…



… and Custom AI chips to outgrow general purpose



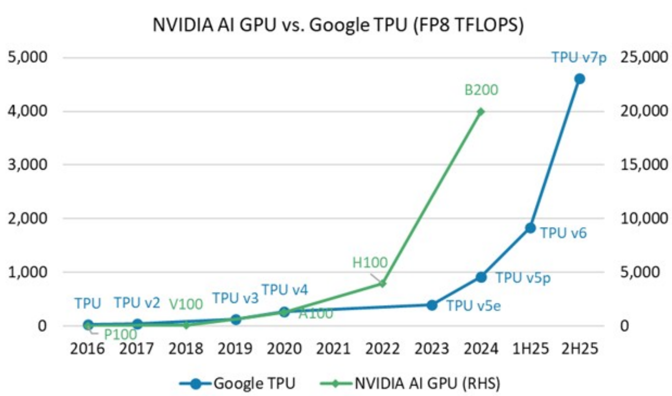
Source: Company data, Gartner, Morgan Stanley Research. E = Morgan Stanley Research estimates.

More ASIC Projects Are Coming, According to Each CSP Plan

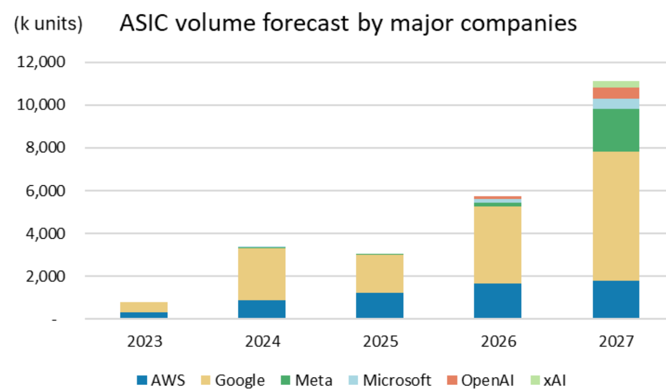
TPU Forecasts from MS Asia Research team

k Units	2023	2024	2025e	2026e	2027e	2028e
v5	500	2,400	250			
v6 (Trillium)			1,000			
v7 (Ironwood/Sunfish, by Broadcom)			500	3,200	3,500	3,500
v8 (Zebrafish; 3nm, by MediaTek)				400	2,500	2,500
v9 (Pumafish; 2nm, by Broadcom)						500
v10 (Humufish; 2nm, by MediaTek)						500
Total	**500**	**2,400**	**1,750**	**3,600**	**6,000**	**7,000**

Google TPU keeping pace with Nvidia GPU



ASIC volume forecast by major companies

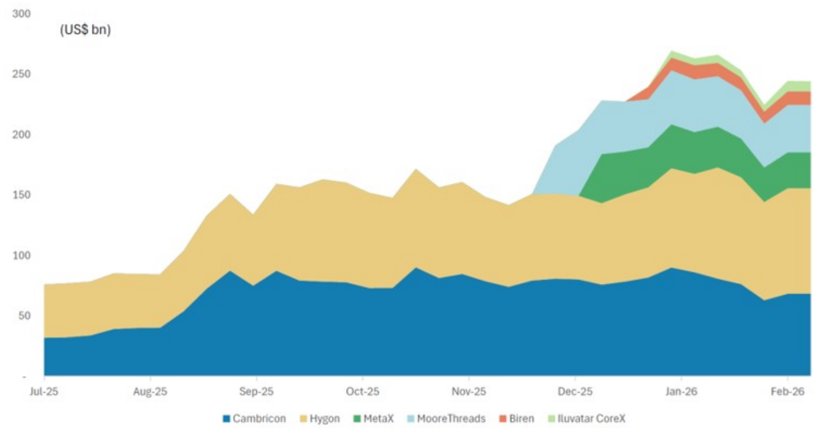


Source: Company data, Morgan Stanley Research estimates

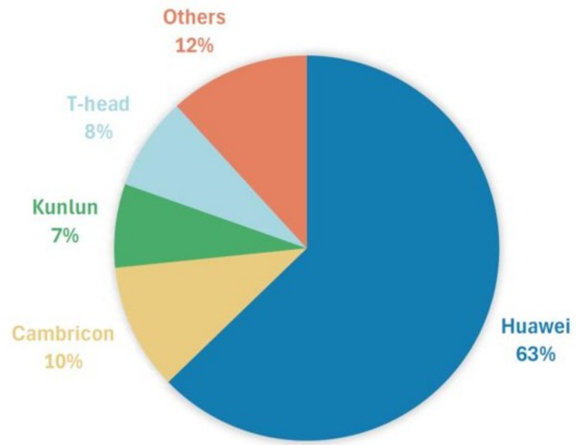
China AI GPUs – Building a Localized AI Compute Ecosystem

Growing Market Size and Share of Domestic AI Semis

China AI GPU market cap growing, with more IPOs to come



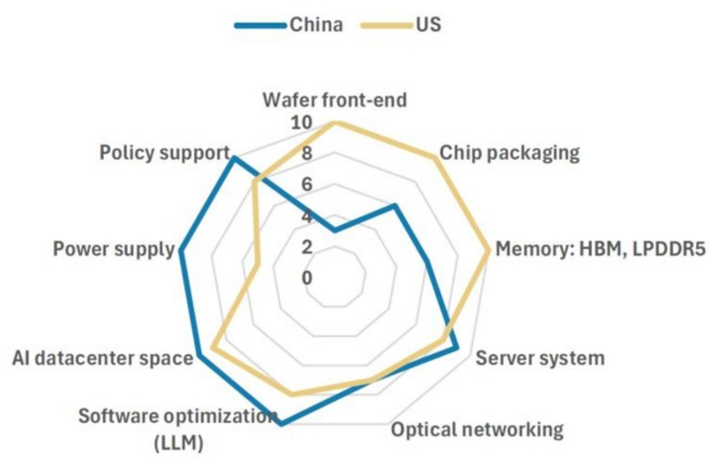
China domestic AI GPU market, 2026e



Source: Bloomberg, company data, Morgan Stanley Research. E = Morgan Stanley Research estimates.

China's Infrastructure Strength Narrows Perceived Technology Gap

Nine factors comparison between US and China AI – Chip, System, Infrastructure

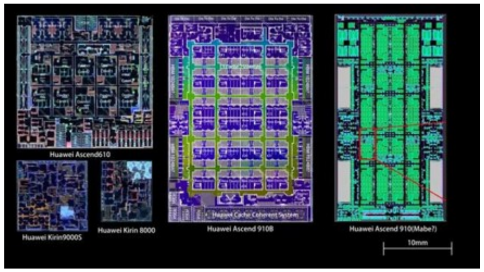


Step 1: If one compute die is not powerful, package more dies into a single chip.

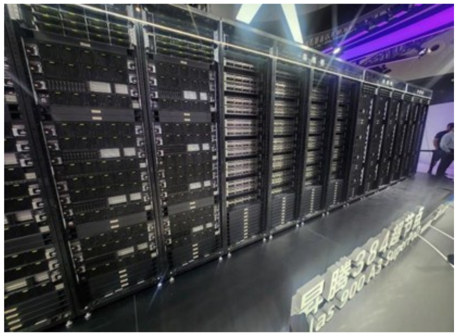
Step 2: If one chip is not powerful enough, build larger racks and clusters.

Step 3: If one fab is not sufficient, expand manufacturing capacity.

Die shot of Huawei's AI chips



Huawei CloudMatrix 384 A3 SuperPod



Source: Morgan Stanley Research.

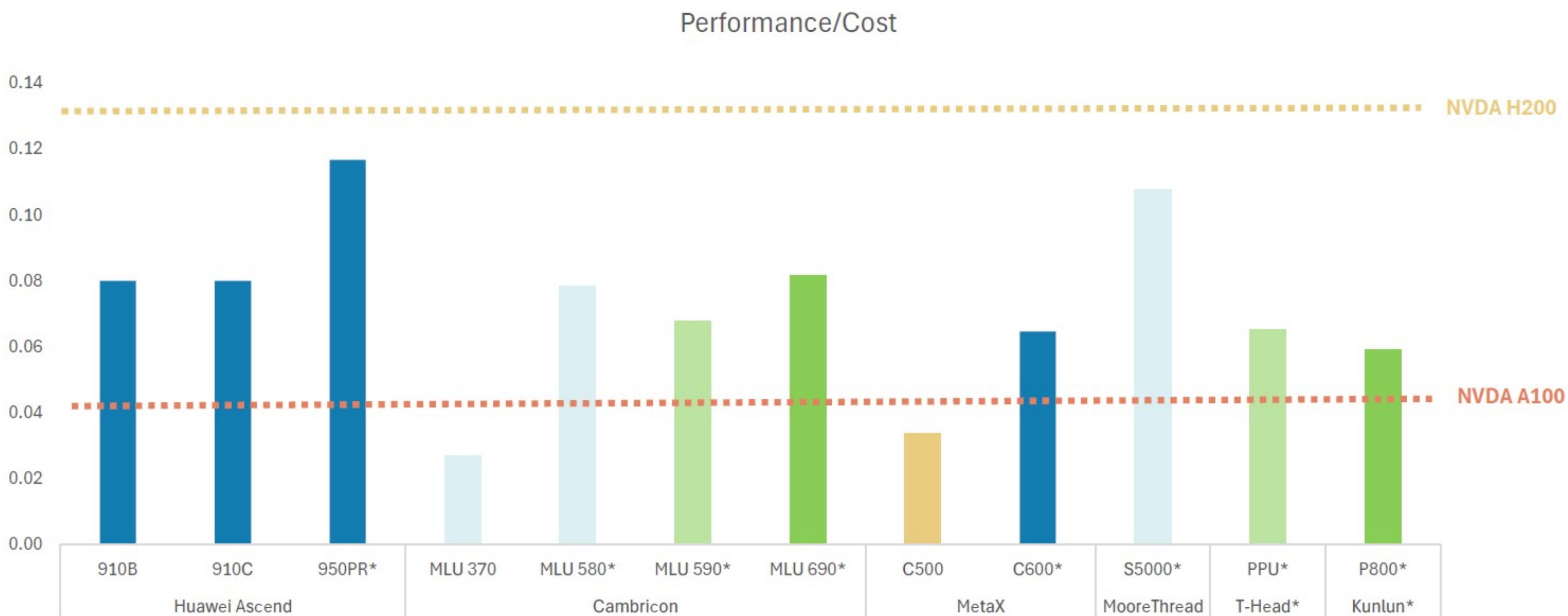
China AI Accelerator Landscape – the "10 Dragons"

Company	Ticker	GPU Product	Node	GPGPU/ASIC	Foundry sourcing viability	Sovereign background	Affiliated design house	AI inference performance
HUAWEI	Private	950, 910C, 910B	7nm	ASIC	✓	✓	X	↗
Cambricon 寒武纪	688256-SS	MLU series	7nm	ASIC	✓	X	X	↗
HYGON	688041-SS	DCU	7nm	GPGPU	✓	✓	X	→
METAX 沐曦	688802-SH	MXC series; MXG series	7nm/12nm	GPGPU	✓	X	X	→
摩尔线程 MOORE THREADS	688795-SH	MUSA MTT S5000, S4000	7nm/12nm	GPGPU	▲	X	X	→
壁仞科技 BIREN TECHNOLOGY	6082-HK	BR100	7nm/12nm	GPGPU	▲	X	X	↘
天数智芯 Iluvatar CoreX	9903-HK	TianGai-100 series, Zhikai-100 Series	7nm	GPGPU	✓	X	X	→
T-HEAD	Currently under H-share listing counseling process	Hangguang 800, PPU	12nm	GPGPU	✓	X	✓	↗
昆仑芯 KUNLUNXIN	Currently under H-share listing counseling process	R and P series	6nm	ASIC	▲	X	✓	→
Enflame 燧原科技	Currently under A-share listing counseling process	S60, I20, L600	12nm	ASIC	▲	X	✓	↘

Source: Company data, Morgan Stanley Research. Note: Morgan Stanley does not cover any of the above listed companies.

Domestic Chips Deliver Stronger Performance per Dollar due to Materially Lower Pricing

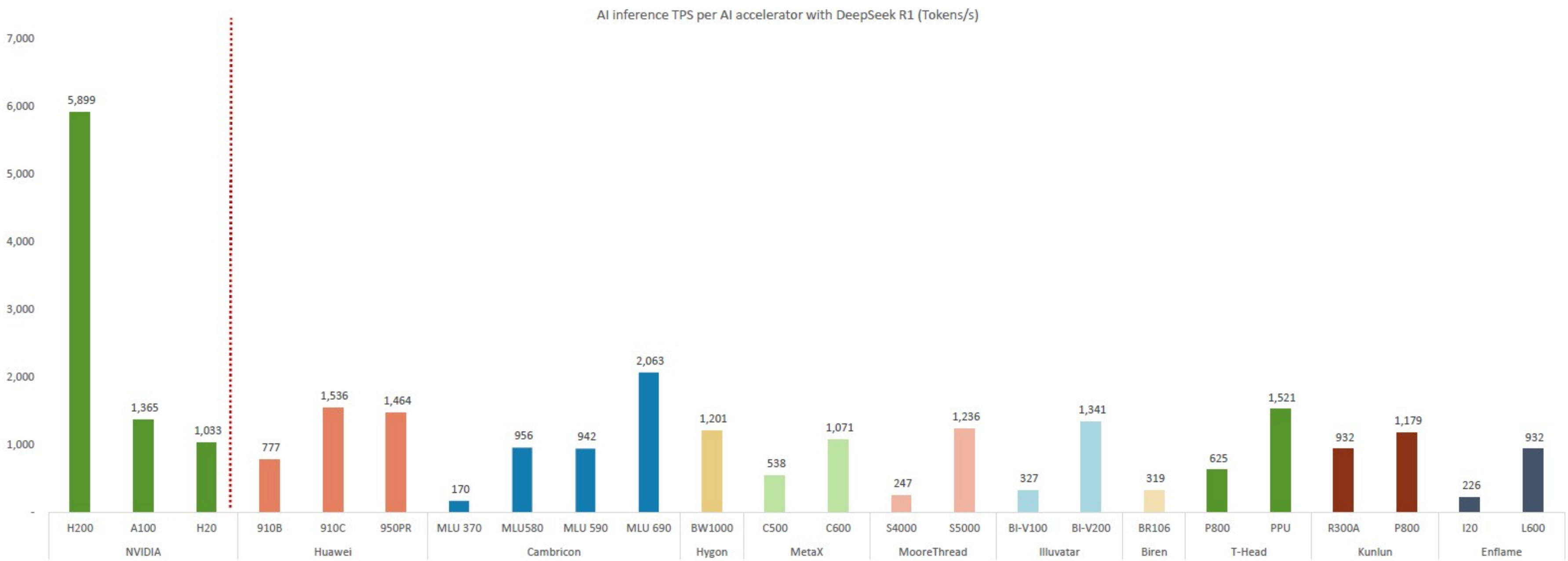
Performance/cost comparison



** = Based on Morgan Stanley estimates. Source : Company data, Morgan Stanley Research*

TPS (Tokens Output per Second) – Performance Analysis

TPS (tokens per second) analysis for China AI accelerators



*Source: Company data, Morgan Stanley Research estimates (*Our assumptions include AI LLM: DeepSeek R1; Input token: 1,024; Output token: 1,024; Number of active experts: 9 out of 257; Model size: 671GB; Model layer: 61; Batch size: 1; Computing power: FP8, and if FP8 is not available, we will use FP16).*

Our Key TPS Formulas

$$processing\ time = decode\ time + prefill\ time$$

$$prefill\ time = prefill\ computing\ time + prefill\ communication\ time$$

$$decode\ time = \frac{num\ of\ active\ experts}{num\ of\ total\ experts} \times (decode\ computing\ time + decode\ communication\ time) \times KV$$

$$prefill\ computing\ time = \frac{num\ of\ input\ tokens \times num\ of\ active\ parameters}{computing\ power \times UTR} \times \frac{1}{1000}$$

$$prefill\ communication\ time = \frac{2 \times num\ of\ parameters}{memory\ bandwidth}$$

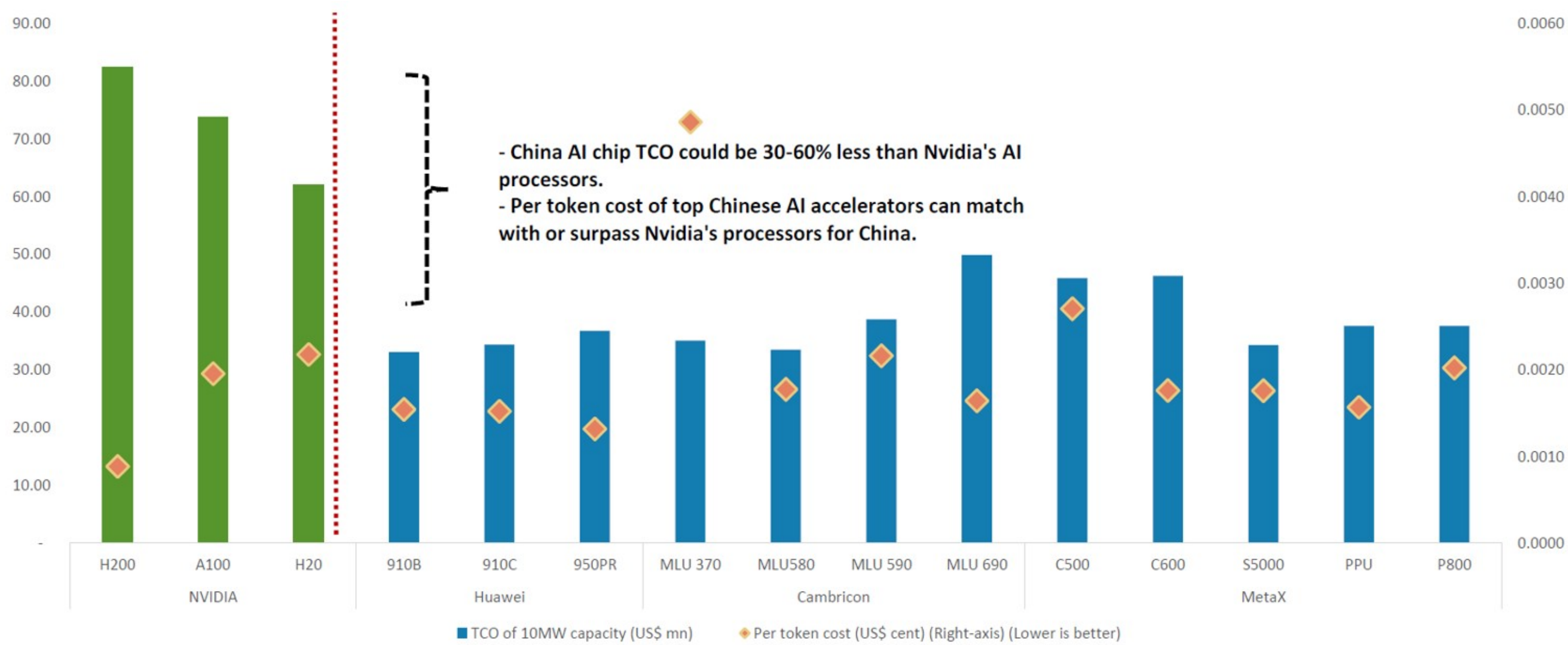
$$decode\ computing\ time = \frac{num\ of\ output\ tokens \times num\ of\ active\ parameters}{computing\ power\ \times UTR} \times \frac{1}{1000}$$

$$decode\ communication\ time = \frac{2 \times num\ of\ parameters}{network\ bandwidth}$$

Source : Morgan Stanley Research

Inference Economics: TCO and Cost per Token

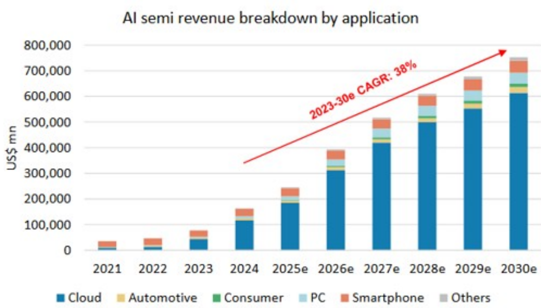
Domestic chips have lower TCO and comparable per token cost (AI LLM inference) vs. NVIDIA's processors for China



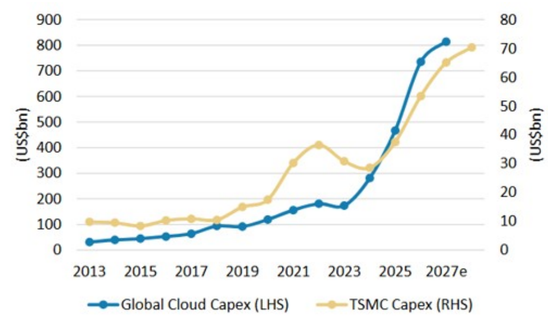
Source : Company data, Morgan Stanley Research estimates.

Sizing the AI and the Global Semi Capex TAM

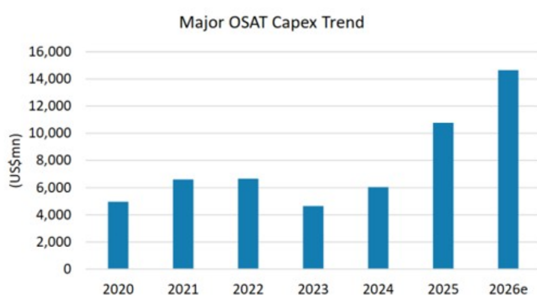
We expect the AI semi TAM to reach nearly US$753bn by 2030



Global Cloud Capex vs. TSMC capex



Global OSAT capex to grow to ~US$14bn in 2026e

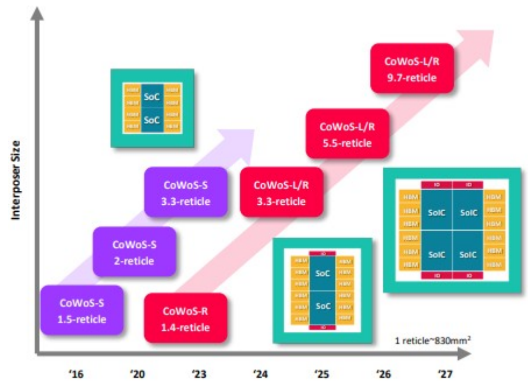


Testing equipment market is expected to grow at 35% CAGR during 2024-27e

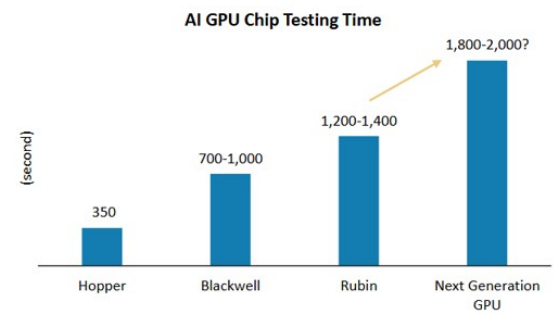
Source: Company data, Gartner, Morgan Stanley Research. e = Morgan Stanley Research estimates.

Larger Package Sizes are Emerging as a Key Industry Trend

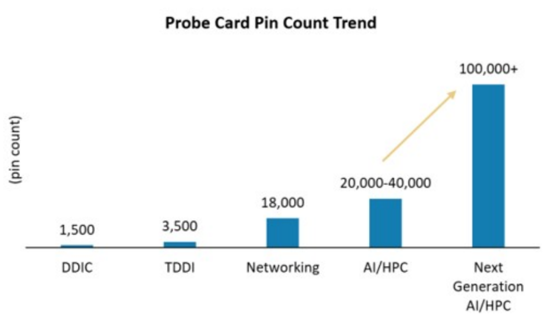
TSMC's roadmap for interposer size



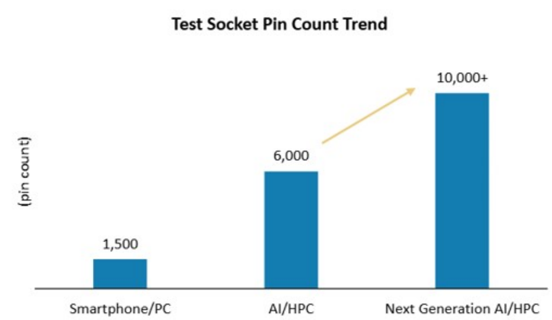
Chip testing time continuing to trend up



AI/HPC probe cards require higher pin counts vs. traditional consumer tech applications



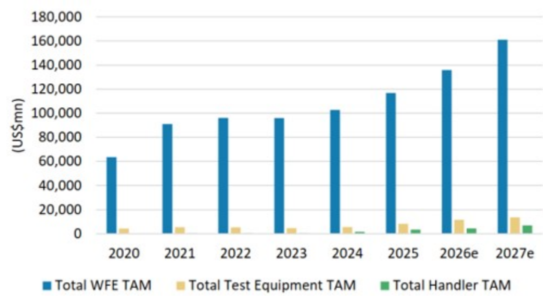
AI/HPC test socket needs higher pin counts vs. traditional consumer tech applications



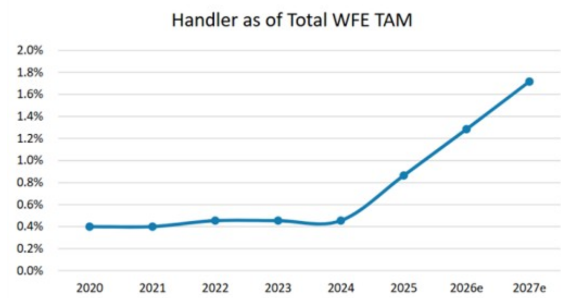
Source: Company data, Morgan Stanley Research

Sizing the Semi Test Equipment and Consumable Market

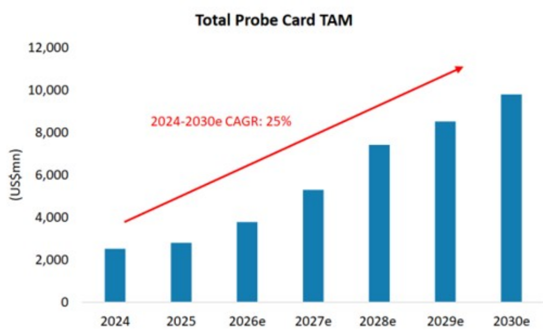
The overall handler market is set to increase from US$436mn in 2023 to US$6.6bn in 2027e



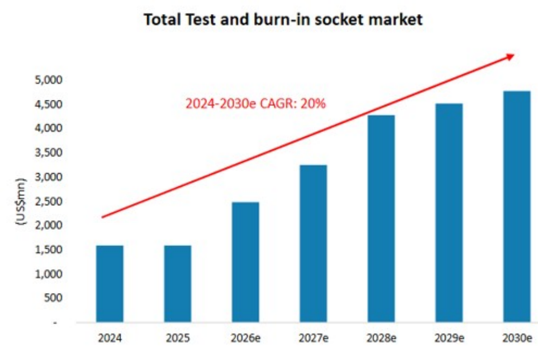
We expect handlers to account for 1.7% of global WFE TAM in 2027e, vs 0.4% in 2020



We expect the probe card market to rise at a 25% CAGR, 2024-30e



We project the testing and burn-in socket to grow at 20% CAGR to US$4,775mn in 2030e,



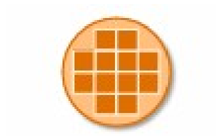
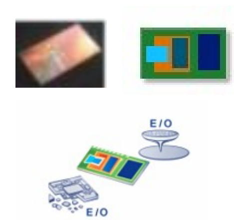
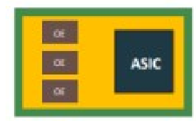
Source: Company data, Yole, Morgan Stanley Research. e = Morgan Stanley Research estimates.

Mapping the Roles of Hon Precision, WinWay and MPI in the Semi Supply Chain

	Wafer Manufacturing	Wafer-level Packaging	Chip Testing: Burn-in and Final Test	Chip Testing: SLT	System Assembly/Module
Testing surface	Wafer Manufacturing, Wafer Testing, Dicing / Die Sorting, **Probe card**	Wafer-level Packaging, Molding	**Burn-in Socket**, **Handler**	**ATC**, **Coldplate**, **Testing Socket**	**System Module**
Manufacture	TSMC	TSMC, OSAT (ASE, SPIL & Amkor)	OSAT (ASE, KYEC, PTI, Sigurd)	OSAT (ASE, KYEC, PTI, Sigurd)	Hon Hai, Winstron and Quanta
Equipment	Wet Etching: GPTC, Scientech Wafer Testing: TEL, TSK Dicing: E&R, Everprecision Die Sorting: GMM	GPM, GPTC, AllRing, APT	**Hon Precision**, Advantest, Teradyne	**Hon Precision**, Chroma	Cooling equipment: AVC, Auras
Material Kit/Jig	**Probe Card: MPI, Winway, Technoprobe**	PCB: GCE, WUS HDI substrate: Unimicron	**Socket: Winway**		

Source : Company data, Morgan Stanley Research

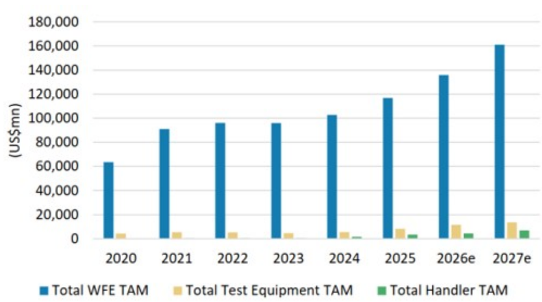
New Evolution for Testing Equipment and Components: CPO

Test Insertion Test content	Insertion 1 Electronic IC (EIC) & Photonic IC (PIC)	Insertion 2 EIC die to PIC wafer (after SoIC)	Insertion 3 Optical engine (die-to-die)	Insertion 4 (>3) CPO package (ASIC+OE)
Testing surface				
Testing surface	El. & opt. DC, (power, loss, dark current etc.)	E/O, O/E, O/O, high speed, S-parameters	Full calibration/DC, high-speed functional, optical loopback, alternatively: S-parameters	Full system functional validation, optical loopback
Testing service provider	Foundry (Wafer-level) TSMC	Foundry (Wafer-level) TSMC	OSAT (Die/chip level) SPIL	OSAT (Die/chip level) SPIL
Equipment and Consumable Vendor	PIC ATE tester: 1) Advantest + TEL + Formfactor 2) Chroma (underqualification) EIC tester: 1) Teradyne + TEL	Wafer level testing: 1)Ficontec +Formfactor +Teradyne 2) Chroma 3) Advantest+TEL+Formfactor 4) Advantest+ **MPI**	Die-to-die prober: 1. TEL 2. MPI Optical engine E/O tester+laser reliability test+ELS source test head: Chroma **Optical and Electrical Test Socket: Winway**	ATE tester: 1) Advantest (under qualification) 2)Teradyne **FT Handler+ELS source test head+optical alignmnet stage : Hon Precision** CPO switch tester: Chroma **Coaxial socket/Hypersocket: Winway**

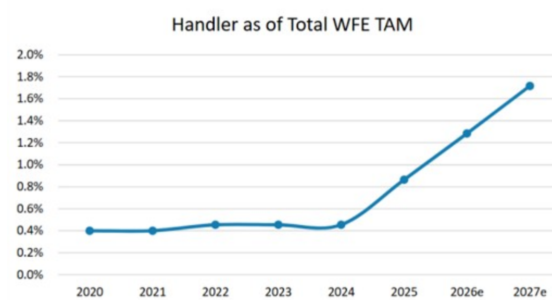
Source : Company data, Morgan Stanley Research

Hon Precision: Key Beneficiary of the Structural Trend Toward Longer Testing Times; OW

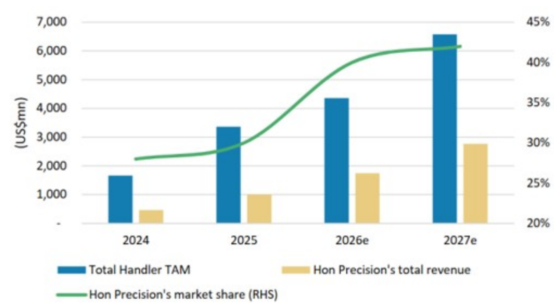
We expect the overall handler market to increase from US$436mn in 2023 to US$6.6bn in 2027e



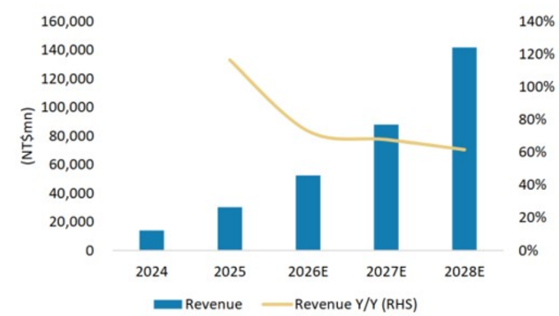
We expect handlers to account for 1.7% of global WFE TAM in 2027e, vs 0.4% in 2020



Hon Precision to grow its total handler market share from 28% in 2024 to 42% by 2027e



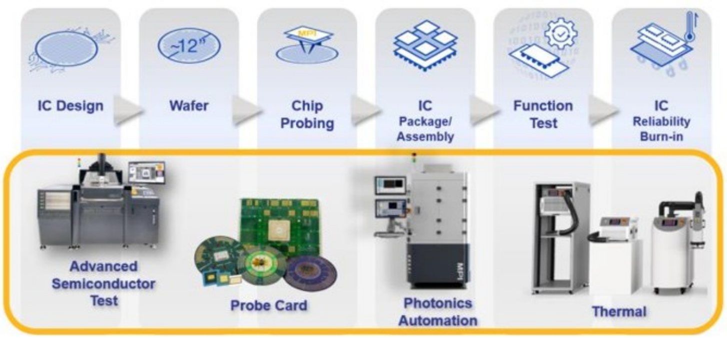
We expect Hon Precision's revenue to expand at a 67% CAGR, 2025-28e



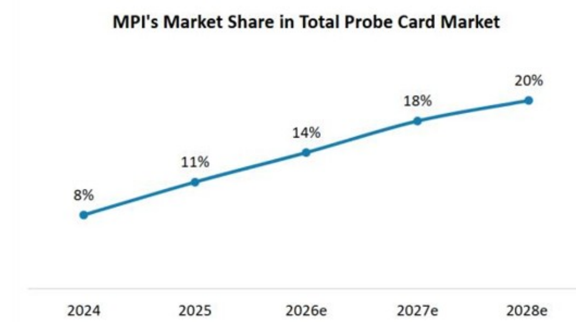
Source: Company data, Morgan Stanley Research. e = Morgan Stanley Research estimates.

MPI: Probe Card Technology Leader with CPO Optionality; OW

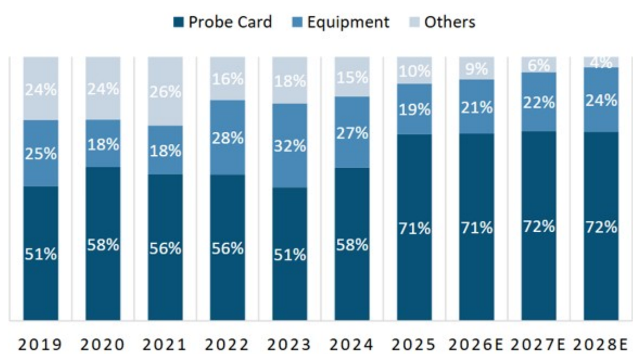
MPI's product in chip manufacturing and test process



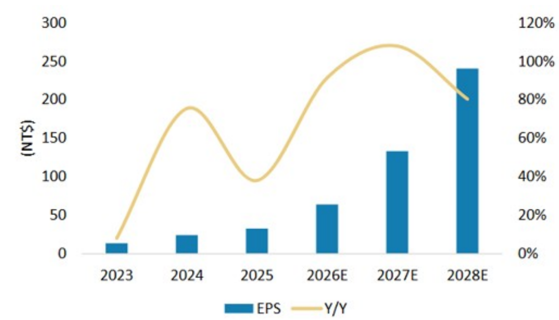
We expect MPI's probe card market share to grow from 8% in 2024 to 20% by 2028e



Probe card to remain the key focus, with CPO equipment acting as driving force



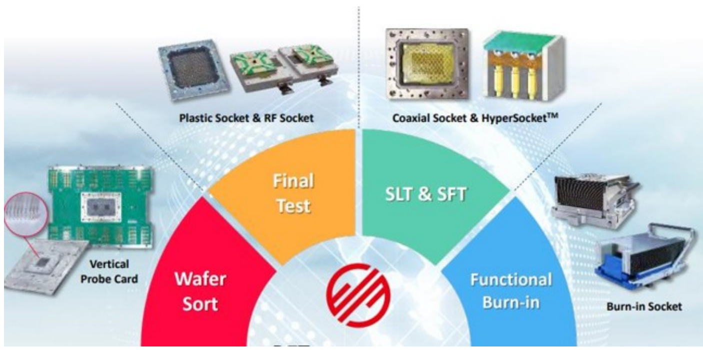
We expect MPI's EPS to rise at a 94% CAGR, 2025-28e



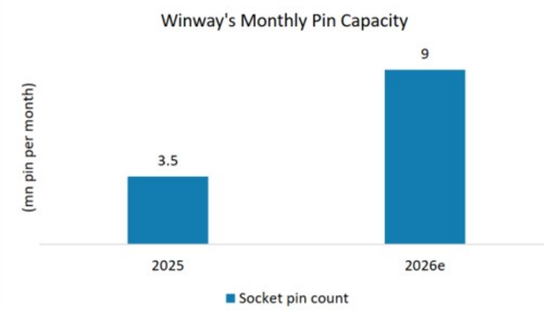
Source: Company data, Morgan Stanley Research. e = Morgan Stanley Research estimates.

WinWay: Socket Leader Leveraging AI Packaging Complexity; OW

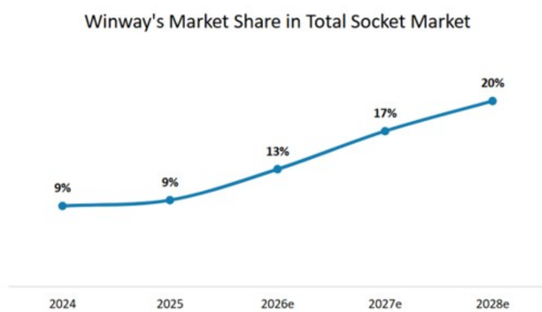
WinWay's total solution of probe card and socket enables vertical integration strategy



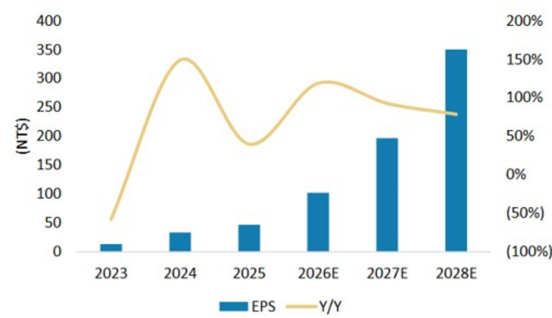
WinWay to expand its pin capacity from 3.5mn per month in 2025 to 9mn per month in 2026



We expect WinWay's market share to grow from 8.6% in 2024 to 20% in 2028e



We expect WinWay's EPS to rise at 95% CAGR, 2025-28e



Source: Company data, Morgan Stanley Research. e = Morgan Stanley Research estimates.

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(as of March 31, 2026)

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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	1534	42%	461	50%	30%	698	43%
Equal-weight/Hold	1573	43%	372	40%	24%	716	44%
Not-Rated/Hold	4	0%	1	0%	25%	1	0%
Underweight/Sell	568	15%	89	10%	16%	209	13%
Total	3,679		923			1624	

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.

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INDUSTRY COVERAGE: Greater China Technology Semiconductors

COMPANY (TICKER)	RATING (AS OF)	PRICE* (04/20/2026)
Charlie Chan		
ACM Research Inc (ACMR.O)	O (03/07/2023)	US$50.61
Advanced Micro-Fabrication Equipment Inc (688012.SS)	O (11/06/2023)	Rmb313.54
Advanced Wireless Semiconductor Co (8086.TWO)	U (07/14/2025)	NT$150.00
Alchip Technologies Ltd (3661.TW)	O (05/14/2021)	NT$3,625.00
ASE Technology Holding Co. Ltd. (3711.TW)	O (09/15/2024)	NT$461.50
Global Unichip Corp (3443.TW)	O (07/27/2024)	NT$3,580.00
GlobalWafers Co Ltd (6488.TWO)	O (09/19/2025)	NT$551.00
Gudeng Precision (3680.TWO)	O (11/25/2025)	NT$473.00
Hua Hong Semiconductor Ltd (1347.HK)	E (03/12/2026)	HK$94.45
King Yuan Electronics Co Ltd (2449.TW)	O (03/03/2023)	NT$271.00
Maxscend Microelectronics Co Ltd (300782.SZ)	U (01/11/2021)	Rmb114.48
MediaTek (2454.TW)	O (11/28/2025)	NT$1,900.00
Nanya Technology Corp. (2408.TW)	E (03/20/2026)	NT$207.00
NAURA Technology Group Co Ltd (002371.SZ)	O (11/06/2023)	Rmb471.23
OmniVision Integrated Circuits Group Inc (603501.SS)	E (11/17/2025)	Rmb93.78
Phison Electronics Corp (8299.TWO)	E (02/25/2026)	NT$1,635.00
SG Micro Corp. (300661.SZ)	E (11/03/2025)	Rmb77.56
Silergy Corp. (6415.TW)	O (02/13/2025)	NT$365.50
SMIC (0981.HK)	O (10/21/2025)	HK$59.80
TSMC (2330.TW)	O (02/07/2022)	NT$2,025.00
UMC (2303.TW)	E (04/20/2026)	NT$76.90
Vanguard International Semiconductor (5347.TWO)	E (01/14/2026)	NT$139.00
WIN Semiconductors Corp (3105.TWO)	U (07/14/2025)	NT$592.00
Daisy Dai, CFA		
ASMPT Ltd (0522.HK)	O (07/24/2025)	HK$138.60
China Resources Microelectronics Limited (688396.SS)	U (03/02/2026)	Rmb51.65
Elan Microelectronics Corp (2458.TW)	O (10/03/2025)	NT$135.00
Empyrean Technology Co Ltd (301269.SZ)	E (01/17/2025)	Rmb87.70
Hangzhou Silan Microelectronics Co. Ltd. (600460.SS)	U (08/25/2025)	Rmb27.35
Innoscience (2577.HK)	E (10/13/2025)	HK$60.00

JCET Group Co Ltd (600584.SS)	E (01/16/2026)	Rmb44.49
Shanghai Fudan Microelectronics (1385.HK)	O (03/07/2025)	HK$44.04
SICC Co Ltd (688234.SS)	O (03/20/2026)	Rmb97.82
StarPower Semiconductor Ltd (603290.SS)	O (03/01/2022)	Rmb102.34
Unigroup Guoxin Microelectronics Co Ltd (002049.SZ)	U (01/10/2023)	Rmb73.12
Universal Scientific Ind. (Shanghai) (601231.SS)	O (11/05/2025)	Rmb42.37
Yangjie Technology (300373.SZ)	O (06/10/2022)	Rmb81.78
Daniel Yen, CFA		
AP Memory Technology Corp (6531.TW)	O (07/11/2025)	NT$682.00
ASMedia Technology Inc (5269.TW)	U (10/03/2025)	NT$1,260.00
Aspeed Technology (5274.TWO)	O (06/09/2025)	NT$14,425.00
Egis Technology Inc (6462.TWO)	E (01/28/2026)	NT$119.00
Espressif Systems (688018.SS)	O (05/15/2023)	Rmb171.00
GigaDevice Semiconductor Beijing Inc (603986.SS)	O (05/15/2025)	Rmb290.54
Macronix International Co Ltd (2337.TW)	O (09/18/2025)	NT$120.50
Montage Technology Co Ltd (6809.HK)	O (03/18/2026)	HK$205.00
Montage Technology Co Ltd (688008.SS)	O (03/18/2026)	Rmb154.66
Novatek (3034.TW)	U (02/04/2026)	NT$415.00
Nuvoton Technology Corporation (4919.TW)	U (11/10/2025)	NT$141.50
Parade Technologies Ltd (4966.TWO)	E (01/30/2026)	NT$532.00
Powerchip Semiconductor Manufacturing Co (6770.TW)	O (10/27/2025)	NT$51.40
Realtek Semiconductor (2379.TW)	E (01/30/2026)	NT$538.00
Shenzhen Goodix Technology Co Ltd (603160.SS)	U (07/14/2025)	Rmb69.87
Winbond Electronics Corp (2344.TW)	E (03/20/2026)	NT$85.70
WPG Holdings (3702.TW)	O (03/16/2026)	NT$100.50
WT Microelectronics Co. Ltd. (3036.TW)	O (01/27/2026)	NT$217.00
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Dosilicon Co Ltd (688110.SS)	U (09/06/2024)	Rmb119.07
Shenzhen Longsys Electronics Co Ltd (301308.SZ)	E (02/25/2026)	Rmb375.21
Tiffany Yeh		
AllRing Tech Co. (6187.TWO)	O (09/23/2025)	NT$1,225.00
FOCI Fiber Optic Communications Inc (3363.TWO)	O (01/15/2025)	NT$988.00
Himax Technologies Inc (HIMX.O)	E (02/04/2026)	US$11.10
Hon Precision (7769.TW)	O (04/17/2026)	NT$4,445.00
MPI Corporation (6223.TWO)	O (04/17/2026)	NT$5,135.00
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Winway Technology Co Ltd (6515.TW)	O (04/17/2026)	NT$10,795.00

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