

Build for Future AI Infrastructure – CPU, GPU, ASIC, Optical, and China Chips

June 4, 2026 05:30 PM GMT

Strong AI Semi Outlook

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

Long-term demand drivers:

- **Chip 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:** DeepSeek has demonstrated cheaper inferencing. Local foundry supply chain also getting more capable for AI GPU production.

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

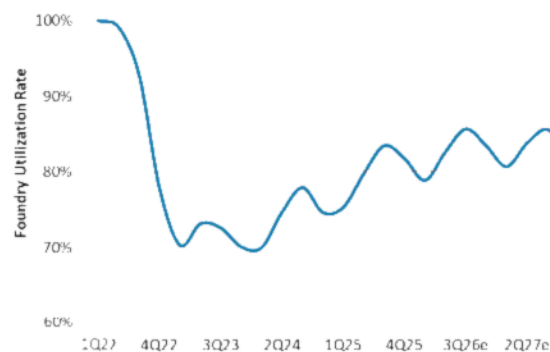
Ticker	Company	Price 6/4/2026	Curr ency	Price Target	Upside/ Downside	Rating	Dividend Yield (%)	FCF Yield (%)	Market Cap (US\$M)	3M Avg. Daily Trading (US\$M)	P/E Ratio (x)			EPS Growth			ROAE			P/B Ratio (x)		
											2025e	2026e	2027e	2025e	2026e	2027e	2025e	2026e	2027e	2025e	2026e	2027e
Foundry																						
2330.TW	TSMC	2,385.0	TWD	2,588.0	9%	O	1.4%	1.8%	1,952,607	2,841.8	36.0	23.1	18.5	46%	56%	25%	35%	41%	38%	11.4	8.2	6.1
2303.TW	UMC	125.0	TWD	138.0	10%	O	5.1%	5.3%	49,829	513.1	37.6	27.8	22.0	-12%	35%	26%	11%	14%	17%	4.2	3.8	3.6
0981.HK	SMC	81.5	HKD	85.0	4%	O	0.0%	-5.0%	53,817	837.7	NM	NM	NM	39%	142%	45%	3%	7%	10%	NM	NM	NM
5347.TWO	Vanguard	163.0	TWD	180.0	10%	E	4.9%	3.1%	9,565	142.6	39.0	29.8	24.1	10%	31%	24%	10%	12%	14%	3.6	3.5	3.3
1347.HK	Hua Hong	156.5	HKD	118.0	-25%	E	0.1%	-4.6%	34,774	420.2	NM	NM	NM	-6%	584%	55%	1%	5%	7%	NM	NM	NM
6770.TW	PSMC	81.0	TWD	88.0	9%	O	0.0%	5.6%	10,803	444.4	NM	NM	NM	40%	-136%	259%	-13%	3%	8%	4.2	1.7	1.4
3105.TWO	WIN Semi	487.5	TWD	300.0	-38%	U	0.5%	-3.8%	2,264	439.3	NM	NM	54.8	121%	59%	40%	4%	6%	9%	5.0	4.8	4.7
8086.TWO	AWSC	159.0	TWD	130.0	-18%	U	1.1%	-3.9%	987	39.1	47.4	25.1	22.3	27%	89%	13%	8%	14%	14%	3.8	3.4	3.0
Mean:							1.6%	-0.2%			43.2	27.5	33.7	33%	108%	61%	7%	13%	14%	5.4	4.3	3.7
Median:							0.8%	-1.0%			38.3	26.5	22.3	33%	58%	33%	6%	10%	12%	4.2	3.7	3.5
Memory																						
603986.SS	Giga Device	529.3	CNY	585.0	11%	O	0.3%	4.1%	49,110	2,051.9	NM	41.3	25.6	50%	417%	62%	9%	37%	42%	NM	12.9	9.2
2408.TW	Nanya Tech	395.0	TWD	380.0	-4%	O	0.0%	13.6%	38,442	1,046.1	NM	6.4	4.9	-359%	NM	NM	4%	74%	53%	7.1	3.3	1.9
2344.TW	Winbond	179.5	TWD	222.0	24%	O	0.0%	16.6%	25,506	743.1	NM	8.8	5.5	523%	NM	NM	4%	64%	59%	7.5	4.6	2.5
8299.TWO	Phison	2,580.0	TWD	2,248.0	-13%	E	1.5%	1.6%	17,757	943.9	65.0	12.9	22.0	11%	402%	-41%	16%	55%	25%	9.4	5.6	5.5
SIMO.O	Silicon Motion	306.6	USD	155.0	-49%	O	1.1%	2.1%	10,300	155.1	96.5	46.9	28.2	6%	106%	66%	13%	24%	32%	12.0	10.1	8.0
2337.TW	Macronix	156.5	TWD	202.0	29%	O	4.6%	17.2%	9,169	663.8	NM	NM	NM	3%	-513%	183%	-7%	28%	53%	6.3	5.1	3.0
Mean:							1.3%	9.2%			80.7	23.3	17.2	39%	103%	67%	7%	47%	44%	8.5	7.0	5.0
Median:							0.7%	8.8%			80.7	12.9	22.0	9%	254%	64%	7%	46%	47%	7.5	5.4	4.2
Backend																						
3711.TW	ASEH	593.0	TWD	558.0	-6%	O	2.2%	6.0%	81,701	348.7	64.3	35.2	22.0	24%	83%	60%	11%	19%	26%	6.9	6.1	5.2
600584.SS	JCET	80.1	CNY	60.0	-38%	E	0.3%	5.7%	19,908	969.5	91.6	55.4	40.1	-3%	65%	38%	5%	8%	11%	4.8	4.6	4.1
601231.SS	USI	45.8	CNY	45.4	-1%	O	1.4%	-7.4%	13,926	288.2	54.8	38.5	26.0	12%	42%	48%	10%	13%	17%	4.8	4.6	3.9
2449.TW	KYEC	322.0	TWD	338.0	5%	O	1.8%	1.6%	12,432	318.2	35.9	32.7	22.3	41%	10%	47%	24%	22%	28%	7.8	6.9	6.7
3363.TWO	FOCI	840.0	TWD	708.0	-16%	O	0.2%	4.8%	2,789	76.8	NM	NM	NM	NM	NM	NM	1%	3%	56%	NM	NM	NM
Mean:							1.4%	1.5%			45.4	35.6	24.1	19%	50%	48%	12%	16%	20%	6.1	5.5	4.7
Median:							1.6%	3.7%			45.4	35.6	24.1	18%	54%	48%	10%	16%	21%	5.9	5.3	4.6
Power Semis/ IDM																						
688396.SS	CR Micro	72.6	CNY	43.0	-41%	U	0.2%	1.6%	13,238	217.3	NM	66.3	46.5	-20%	119%	43%	3%	6%	8%	3.8	3.6	3.4
600460.SS	Silan Micro	35.3	CNY	20.0	-43%	U	0.5%	2.1%	8,165	232.2	147.5	44.4	30.4	81%	232%	46%	3%	10%	13%	4.6	4.2	3.7
603290.SS	StarPower	121.3	CNY	120.0	-1%	E	1.0%	0.0%	N/A	148.1	71.8	77.5	45.5	-26%	-7%	70%	6%	5%	8%	NA	NA	NA
300373.SZ	Yanghe	105.5	CNY	91.0	-14%	O	1.4%	-2.8%	7,914	227.6	45.5	37.1	27.2	26%	23%	36%	13%	15%	17%	5.8	5.1	4.4
Mean:							0.8%	0.2%			88.3	56.3	37.4	15%	92%	49%	6%	9%	12%	4.7	4.3	3.8
Median:							0.7%	0.8%			71.8	55.4	36.0	3%	71%	44%	4%	8%	11%	4.6	4.2	3.7
Semicap/ Equipment/ Materials/ Supply Chain																						
002371.SZ	NAURA	627.0	CNY	818.0	30%	O	0.6%	-0.9%	53,118	832.1	71.3	49.3	33.7	-17%	45%	46%	15%	19%	24%	10.3	8.8	7.3
688012.SS	AMEC	289.4	CNY	550.0	90%	O	0.0%	11.8%	25,251	827.1	NM	47.4	34.7	24%	90%	37%	9%	16%	18%	NM	6.8	6.7
7769.TW	Hon Precision	7,385.0	TWD	10,008.0	36%	O	2.5%	NA	41,952	203.7	NM	57.2	33.2	NA	69%	72%	NA	37%	53%	NM	NM	15.4
6223.TWO	MPI	6,070.0	TWD	7,500.0	24%	O	0.0%	-5.4%	18,780	196.0	NM	88.5	42.3	34%	109%	109%	27%	38%	54%	NM	NM	NM
6515.TW	Winway	8,650.0	TWD	15,000.0	73%	O	0.9%	1.3%	9,765	112.7	NM	NM	42.2	40%	104%	116%	28%	45%	67%	NM	NM	NM
6488.TWO	GlobalWafers	870.0	TWD	790.0	-14%	E	2.7%	1.7%	13,135	129.3	56.9	39.0	26.0	-26%	46%	60%	8%	11%	15%	4.5	4.2	3.8
0522.HK	ASM Pacific	184.0	HKD	188.0	2%	O	1.8%	6.5%	9,355	64.4	NM	50.1	30.0	161%	69%	67%	6%	9%	14%	4.3	4.1	3.8
688234.SS	SiCC	139.1	CNY	112.1	-19%	O	0.6%	NA	9,365	218.8	NM	NM	NM	NM	NM	NM	-3%	1%	3%	9.4	9.3	9.1
ACMR.O	ACM Research	88.9	USD	90.0	1%	O	1.1%	-0.7%	5,830	77.1	64.0	31.3	21.6	-11%	104%	46%	6%	10%	13%	3.0	2.8	2.5
3680.TWO	Gudeng Precision	537.0	TWD	648.0	21%	O	0.0%	-6.1%	1,629	41.0	57.0	27.6	19.5	-24%	106%	42%	8%	15%	19%	4.5	4.0	3.4
6187.TWO	AllRing Tech	1,115.0	TWD	1,580.0	42%	O	2.8%	1.1%	3,388	113.4	72.1	50.6	28.5	6%	42%	78%	21%	27%	39%	NM	NM	NM
Mean:							1.2%	1.0%			64.3	49.0	31.2	21%	78%	66%	12%	21%	29%	6.8	5.7	6.4
Median:							0.9%	1.1%			64.0	49.3	31.6	6%	80%	58%	9%	16%	19%	4.5	4.2	4.7

Valuation Comparison: Fabless, Power Semis, FPGA and Analog

											P/E Ratio (x)			EPS Growth			ROAE			P/B Ratio (x)		
		Price	Curr	Price	Upside/	Dividend	Yield	FCF	Market	3M Avg.												
Ticker	Company	6/4/2026	ency	Target	Downside	Rating	(%)	(%)	Cap (US\$M)	Daily Trading (US\$M)	2025e	2026e	2027e	2025e	2026e	2027e	2025e	2026e	2027e	2025e	2026e	2027e
Fabless																						
AI accelerators																						
688256.SS	Cambricon	1,358.9	RMB	1,342.3	-1%	O	0.0%	NA	79,601	1,952.2	279.0	113.0	77.9	NA	147%	45%	24%	46%	48%	48.4	31.3	20.6
9903.HK	Iluvatar	430.2	HKD	600.0	39%	O	NA	NA	0	52.5	NM	NM	75.5	NA	-81%	-653%	-66%	-7%	24%	0.0	0.0	0.0
688802.SS	MetaX	724.3	RMB	758.0	5%	E	0.0%	NA	40,260	232.0	NM	NM	522.1	NA	-103%	2214%	-11%	0%	4%	22.0	22.0	21.1
Smartphone/Wireless Semis																						
2454.TW	MediaTek	4,430.0	TWD	5,088.0	15%	O	15.7%	0.9%	218,945	996.4	70.7	63.3	33.2	-6%	12%	91%	25%	25%	37%	16.9	14.5	10.2
603501.SS	OmniVision	98.9	CNY	111.0	12%	E	0.5%	2.1%	16,561	358.8	29.7	29.7	20.4	22%	0%	45%	15%	14%	18%	4.2	3.8	3.2
300782.SZ	Maxscend	104.9	CNY	48.00	-54%	U	0.1%	-2.2%	7,776	391.8	NM	NM	55.2	-136%	-485%	85%	-1%	5%	9%	5.6	5.3	4.9
603160.SS	Goodix	55.6	CNY	58.0	4%	U	0.7%	-1.4%	3,557	58.3	30.4	46.6	41.2	39%	-35%	13%	9%	6%	6%	2.7	2.6	2.5
6462.TWO	Egis	118.0	TWD	105.0	-11%	E	1.0%	-16.3%	340	9.2	NM	NM	22.0	-6%	-88%	-462%	-11%	-1%	5%	1.2	1.2	1.1
IP/Design Service																						
3661.TW	Alchip	4,340.0	TWD	5,088.0	17%	O	1.0%	5.1%	11,157	287.2	64.1	28.6	24.1	-14%	124%	19%	14%	28%	28%	NM	NM	NM
301269.SZ	Empyrean Technology	103.6	CNY	95.0	-8%	E	0.1%	NA	7,817	144.1	NM	NM	NM	-44%	283%	136%	1%	4%	10%	NM	NM	NM
3443.TW	GUC	4,400.0	TWD	4,888.0	11%	E	0.8%	4.7%	18,619	288.6	NM	75.7	43.6	9%	108%	73%	31%	50%	58%	NM	NM	NM
6531.TW	AP Memory	1,055.0	TWD	1,555.0	47%	O	1.2%	4.1%	5,391	170.1	NM	59.8	30.7	-20%	128%	95%	10%	22%	35%	13.9	12.0	9.5
PC/Cloud/Display Semis																						
3034.TW	Novatek	489.0	TWD	414.0	-15%	U	6.1%	14.3%	9,396	74.5	18.2	14.1	13.8	-20%	29%	2%	24%	30%	28%	4.4	4.0	3.8
2379.TW	Realtek	624.0	TWD	570.0	-9%	E	4.8%	5.0%	10,053	74.0	21.7	17.6	19.1	-4%	23%	-8%	28%	33%	28%	6.1	5.5	5.3
5269.TW	ASMedia	1,570.0	TWD	1,482.0	-6%	U	4.1%	0.9%	3,701	73.5	21.4	17.1	17.6	43%	25%	-3%	16%	18%	16%	3.2	2.9	2.6
5274.TWO	Aspeed	18,265.0	TWD	23,456.0	28%	O	1.2%	1.3%	21,803	140.3	NM	78.7	55.7	53%	123%	41%	59%	85%	79%	NM	NM	NM
4966.TWO	Parade	756.0	TWD	1,000.0	32%	O	2.9%	1.6%	1,864	47.6	22.1	24.8	15.0	5%	-11%	66%	12%	11%	16%	2.7	2.6	2.3
2458.TW	Elan Micro	162.0	TWD	160.0	-1%	O	4.8%	9.6%	1,465	19.0	19.1	17.9	16.5	-11%	7%	8%	24%	24%	24%	4.5	4.1	3.8
HIMX.O	Himax	24.2	TWD	17.4	-28%	E	2.7%	8.3%	4,124	61.2	100.1	60.8	33.4	-47%	65%	82%	5%	8%	14%	5.1	4.9	4.6
Analog IC																						
6415.TW	Silergy	570.0	TWD	388.0	-32%	U	1.4%	4.8%	6,985	91.3	89.6	56.2	34.6	8%	59%	62%	7%	10%	15%	5.9	5.4	4.8
300661.SZ	SG Micro	113.3	CNY	82.0	-28%	E	0.3%	1.1%	9,757	374.4	123.6	83.1	58.2	-12%	49%	43%	11%	15%	18%	NM	NM	NM
MCU																						
4919.TW	Nuvoton	194.0	TWD	98.0	-49%	U	0.8%	14.5%	2,571	95.4	NM	NM	44.0	-857%	-69%	-457%	-12%	-4%	14%	6.2	6.5	5.6
688018.SS	Espressif	168.6	CNY	175.0	4%	O	1.0%	20.3%	3,896	105.8	53.1	49.1	39.6	47%	8%	24%	15%	12%	14%	NM	NM	NM
FPGA																						
002049.SZ	Unigroup Guoxin	77.3	CNY	57.0	-26%	U	0.4%	1.5%	9,120	286.6	45.7	31.7	24.4	22%	44%	30%	11%	14%	16%	4.8	4.2	3.6
1385.HK	Shanghai Fudan	30.2	HKD	47.3	57%	O	0.1%	0.1%	6,905	30.6	NM	23.4	19.3	-59%	353%	22%	4%	16%	16%	4.0	3.4	2.9
IC distributor																						
3702.TW	WPG	116.5	TWD	160.0	37%	O	7.2%	-27.2%	6,177	53.8	19.6	9.1	9.3	38%	115%	-2%	12%	24%	21%	2.3	1.9	1.8
3036.TW	WT Micro	282.0	TWD	349.0	24%	O	4.4%	-21.4%	11,268	95.1	NM	11.4	10.0	43%	107%	13%	12%	25%	25%	NM	2.7	2.2

Broader Semiconductor Cycle

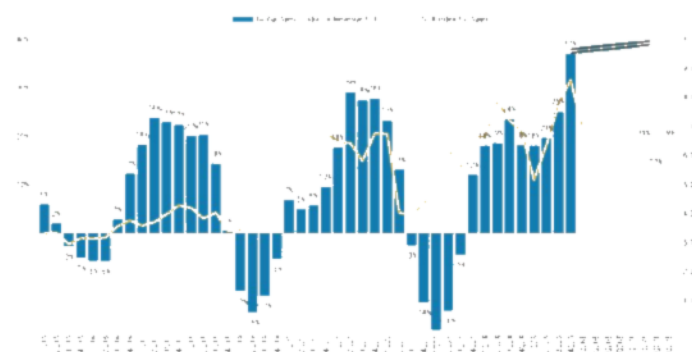
Logic semi foundry utilization could reach 80% in 2H26



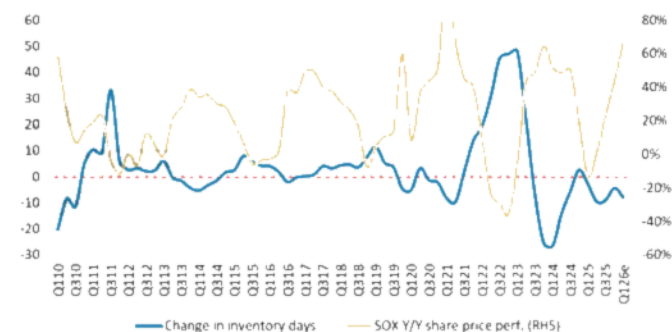
Semi supply chain days of inventory as of 4Q25



Excluding memory and NVIDIA's AI GPU revenue, non-AI semi growth is expected to decline in 2026



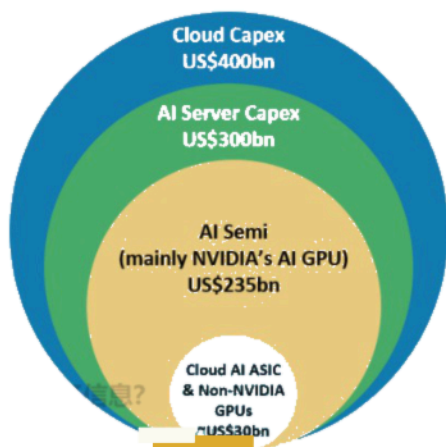
Historically, when inventory days went down, semi stock index went up



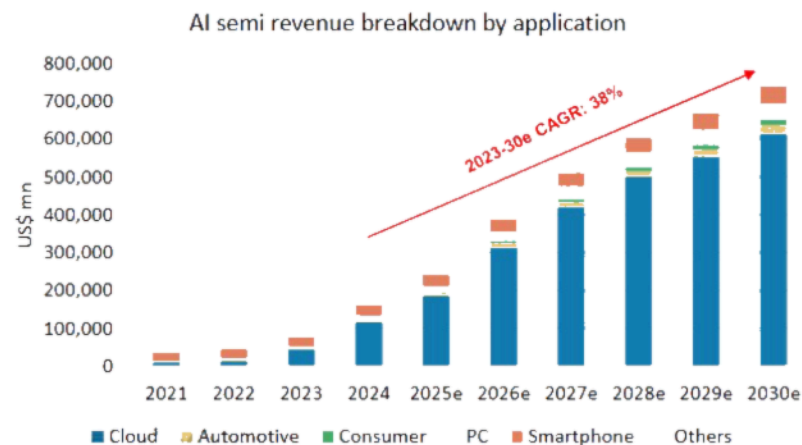
AI Semi Supply Chain and Niche Memory

The Global Semi Industry Market Size May Reach US\$1.5 trillion in 2030, Half from AI Semis

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

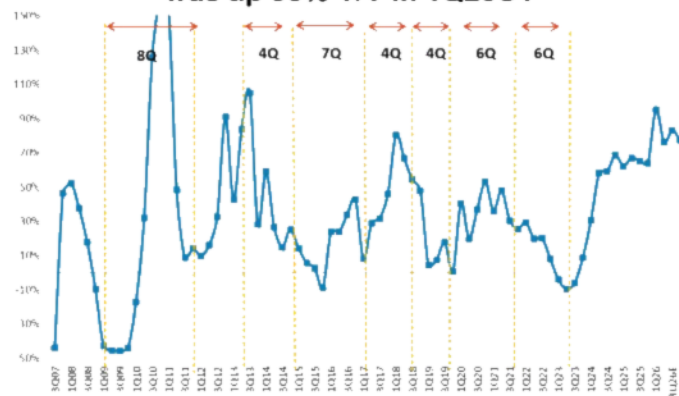


We expect the AI semi TAM to reach nearly US\$753bn by 2030

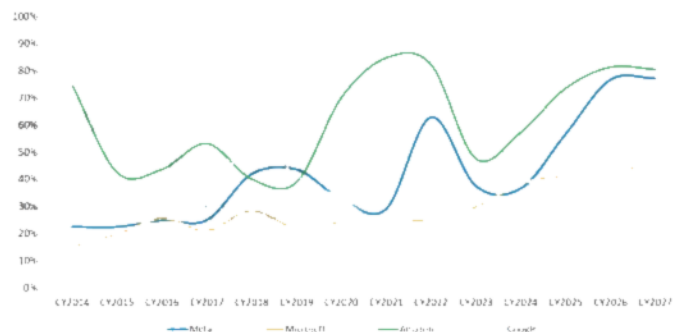


Cloud Semis: Brighter Outlook

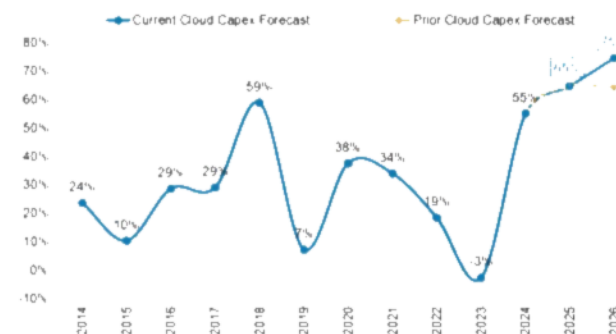
Top 4 CSPs (Amazon, Google, Microsoft and Meta) capex was up 95% Y/Y in 1Q26CY



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



Top 4 Cloud Providers: Cloud Capex Y/Y Growth

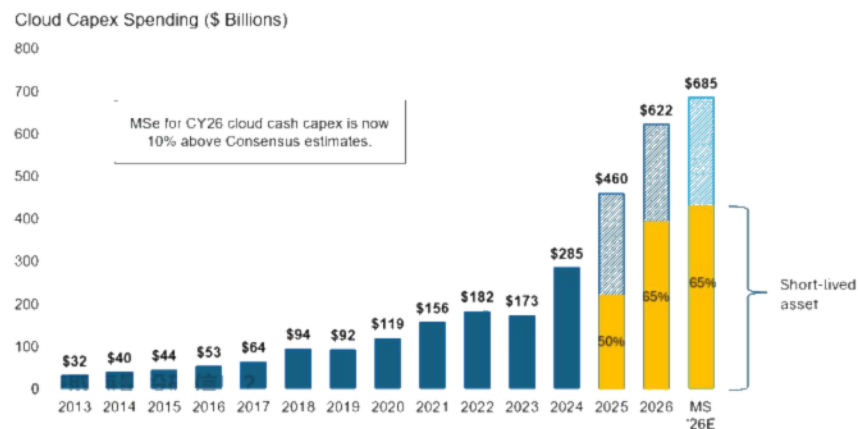


Aspeed earnings revision breadth

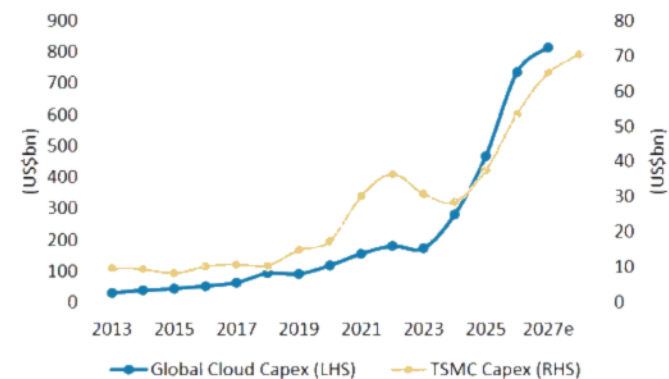


Cloud Capex Remains Robust From Major CSPs

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



Global Cloud Capex vs. TSMC capex

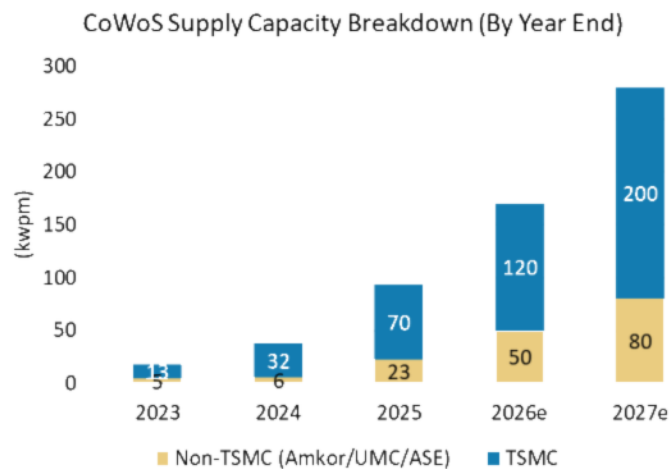


Announced Power Deployment Implications for TSMC

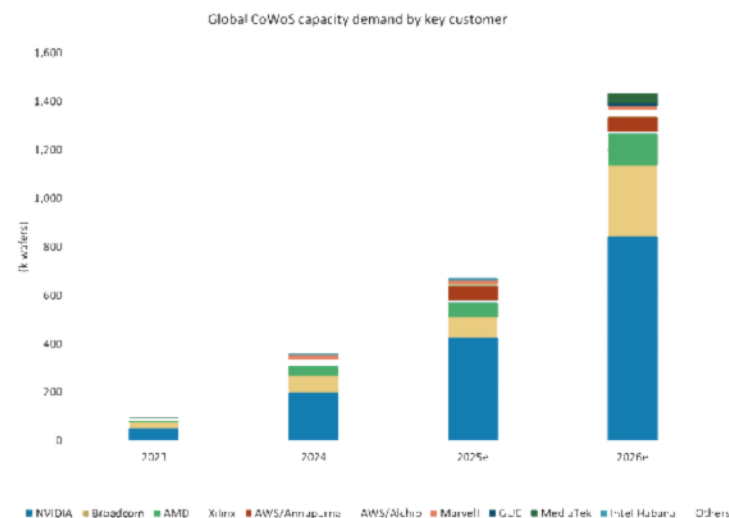
GPU/ASIC Vendor	Announced Power Deployment Implication for TSMC			
	NVIDIA (Top US AI firm)	AMD (Top US AI firm)	Broadcom	AWS (Top US AI firm)
Power Deployed (GW)	10	6	3.5	2
Rack name	Vera Rubin NVL144	Helios	TPU	Trainium3 UltraServers
Power consumption per Rack (kW)	220	220	63	144
Rack Number (k units)	45	27	56	14
Chip Name	Rubin GPU	MI455 GPU	TPUv7 (Ironwood) TPUv8i (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

TSMC May Expand CoWoS Capacity to 200kwpm by 2027 Given Continual Strong AI Demand

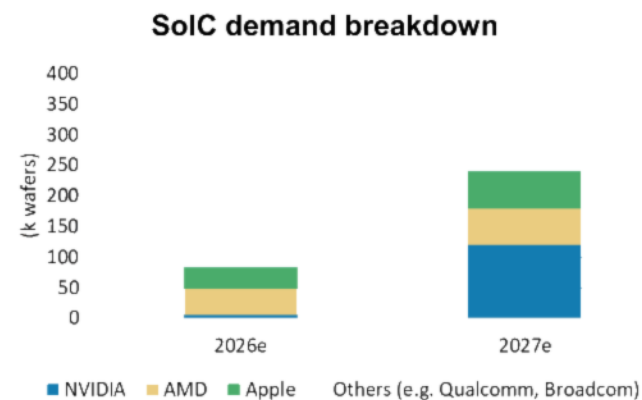
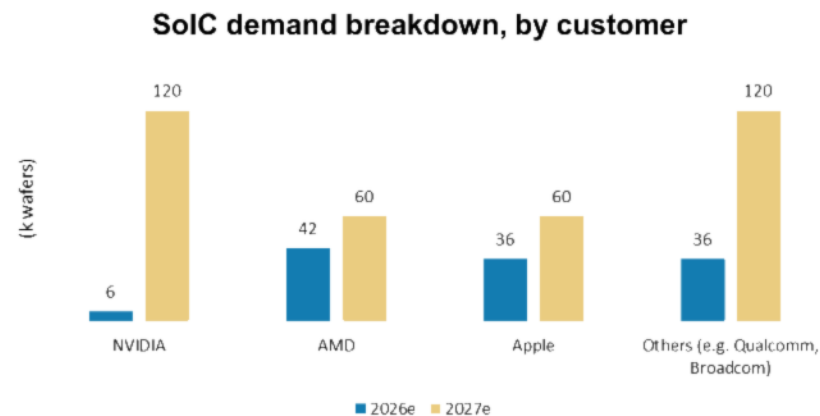
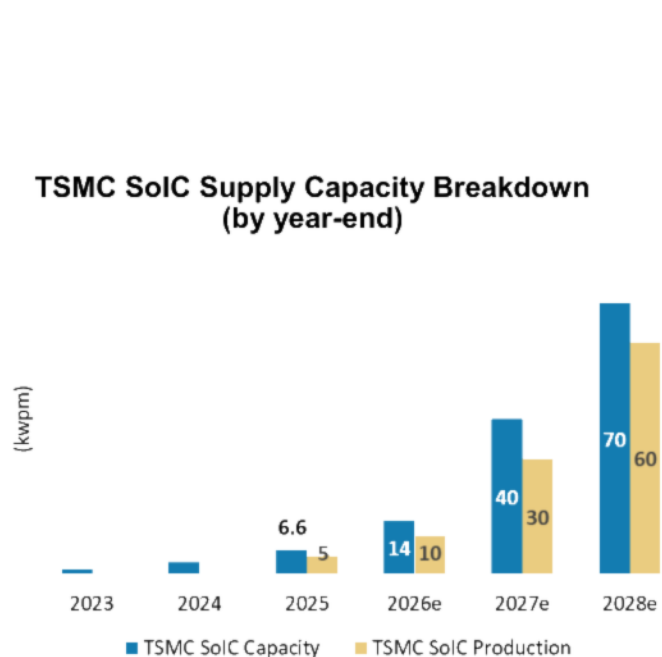
**Global CoWoS capacity expansion
by year-end and by vendor**



Global CoWoS consumption, by customer

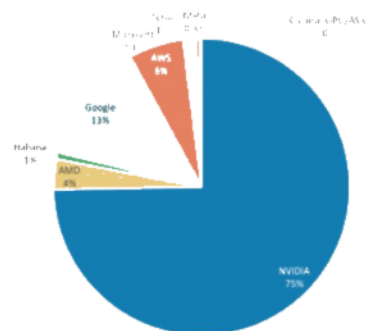


SoIC Expansion Expected to Be a Key Focus Area for TSMC in the Coming Years

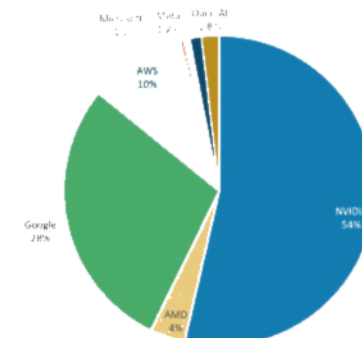


AI Computing Wafer Consumption Could Reach US\$27bn in 2026, with NVIDIA Accounting for the Majority

AI semi wafer consumption, by customer, 2025e



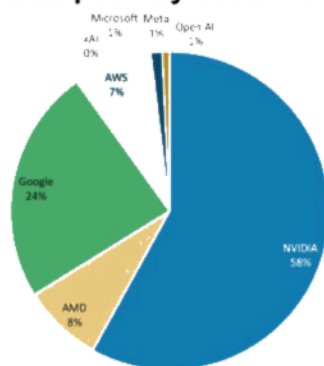
AI semi wafer consumption, by customer, 2026e



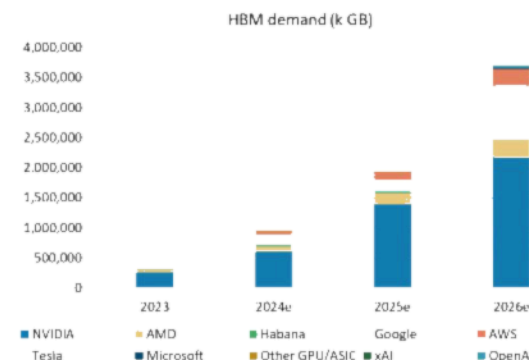
AI chip vendor	Product name	CoWoS capacity allocation (k wafers)	Chips per CoWoS wafer	Implied shipments (k)	Compute die size	Geometry	Compute die units	Wafer consumption (k wafers)	Wafer price (US\$)	Wafer revenue TAM (US\$ mn)
AI GPU (2026e)										
NVIDIA	B300	390	14	5,460	850	4nm	2	433	21,945	9,510
	Vera CPU	90	23	2,070		3nm				
	Spectrum/CPX	60		-						
	Rubin R200	260	8	2,080	850	3nm	2	165	26,000	4,292
AMD	H200	75	27	2,025	814	4nm	1	57	21,945	1,243
	MI300	3	12	36	110	5nm	8	1	18,000	19
	MI350/375	7	12	84	110	3nm	8	2	26,000	64
	MI400	65	10	650	110	2nm	8	32	28,125	886
AI ASIC (2026e)										
Google	TPU v7p (Ironwood; AVGO)	145	16	2,320	700	3nm	2	152	26,000	3,942
	TPU v8i (Sunfish; AVGO)	80	12	960	800	3nm	2	72	26,000	1,864
	TPU v8t (Zebrafish; MediaTek)	40	20	800	800	3nm	2	60	26,000	1,554
AWS	Trainium 3	100	17	1,700	700	3nm	2	91	26,000	2,357
Microsoft	Maia 200	4	29	116	700	3nm	1	3.0	26,000	79
	Maia 300	5	11	55	850	2nm	1	2.9	28,125	82
Open AI	Nexus (Titan 1)	10	13	130	750	3nm	4	18.2	26,000	473
Total		1,479						1,117		27,019

HBM Consumption in 2026e – Up to 32bn Gb

HBM consumption by customer in 2026e



NVIDIA still consumes most HBM supply in 2026e

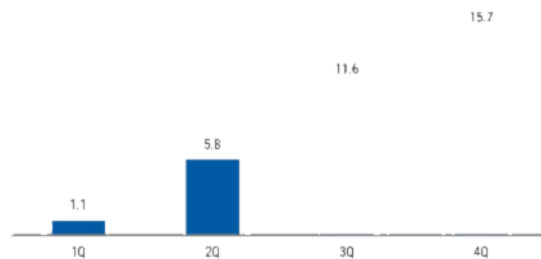


AI chip vendor	Product name	CoWoS capacity allocation (k wafers)	Chips per CoWoS wafer	Implied shipments (k)	HBM chip density (GB)	HBM chip units	Total HBM size (GB)	HBM generation	HBM vendor	Total HBM demand (k GB)
AI GPU (2026e)										
NVIDIA	B300	390	14	5,460	36	8	288	HBM3e 12hi	Hynix/Micron/Samsung	1,572,480
	Vera CPU	90	23	2,070	36	8	288	HBM3e 12hi	Hynix/Micron/Samsung	599,040
	Spectrum/CPX	60	-	-	36	8	288	HBM4	Hynix/Micron/Samsung?	285,525
	Rubin R200	260	8	2,080	24	6	141	HBM3e 8hi	Hynix	6,912
AMD	H200	75	27	2,025	36	8	288	HBM3e 12hi	Samsung/Micron	24,192
	MI300	3	12	36	36	12	432	HBM4	Samsung/Micron	280,800
	MI350/375	7	12	84	36	8	288	HBM3e 12hi	Samsung/Micron	280,800
Google	TPU v7p (Ironwood; AVGO)	145	16	2,320	24	8	192	HBM3e 8hi	Hynix/Samsung	445,440
	TPU v8i (Sunfish; AVGO)	80	12	960	36	8	288	HBM3e 12hi	Hynix/Samsung/Micron	276,480
	TPU v8t (Zebrafish; MediaTek)	40	20	800	36	6	216	HBM3e 12hi	Hynix/Micron	172,800
AWS	Trainium 3	100	17	1,700	36	4	144	HBM3e 12hi	Hynix/Samsung/Micron	244,800
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
Open AI	Nexus (Titan 1)	10	13	130	36	6	216	HBM4	Hynix	28,080
Total		1,479								4,034,885
Total HBM demand (mn Gb)										32,279

NVIDIA GB200/300 Rack Output Estimates

GB200/300 NVL72 Rack Ramp Quarterly Trajectory

GB200/300 NVL72 racks (000s)

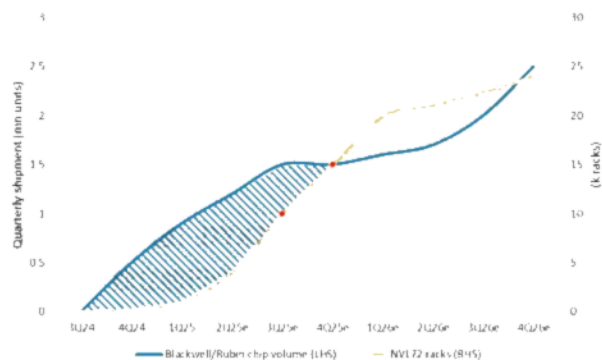


Industry-wide GB200 NVL72 Rack Monthly Output

GB200/300 NVL72 racks (Monthly)

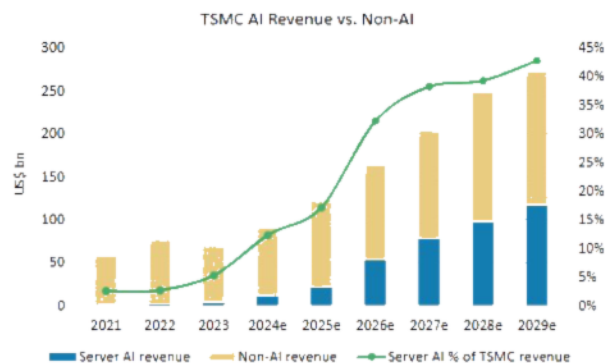


We estimate TSMC produced 5.1mn chips in 2025, with full-year GB200 NVL72 shipments seen reaching 30k

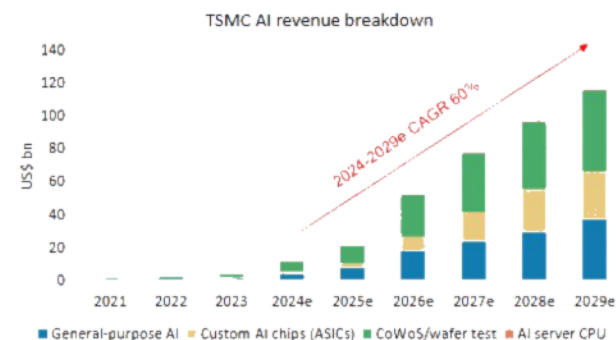


TSMC AI Semis Revenue Could Reach 60% from 2024 to 2029e

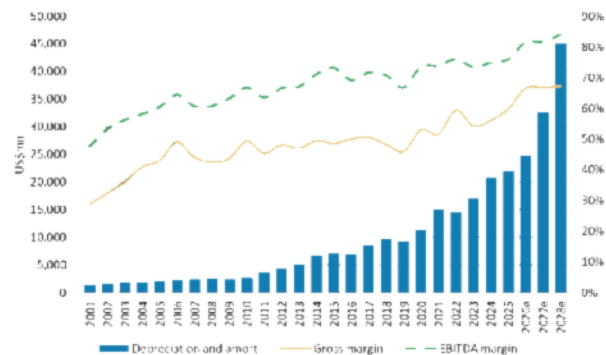
TSMC – AI semis revenue could account for >30% of 2026e revenue



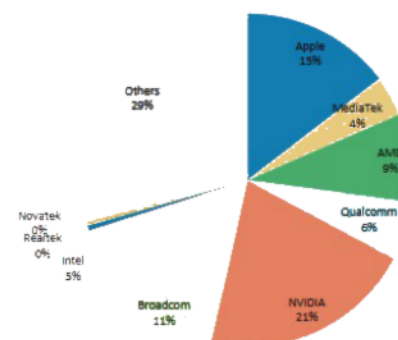
TSMC – AI semis revenue breakdown



TSMC – margin expansion

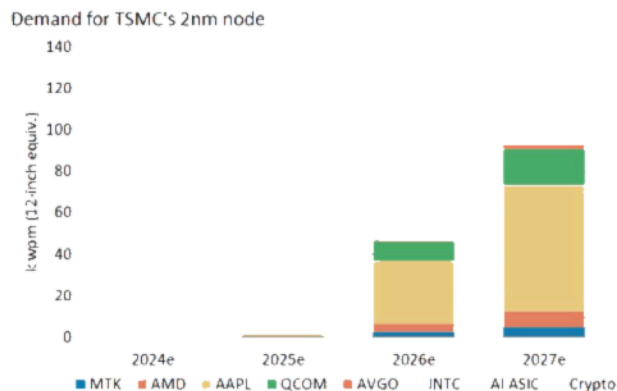


TSMC – 2026e revenue breakdown by customer

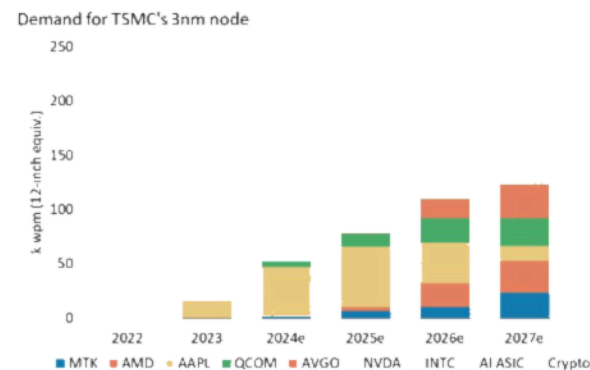


TSMC Leading-edge Wafer Demand Breakdown

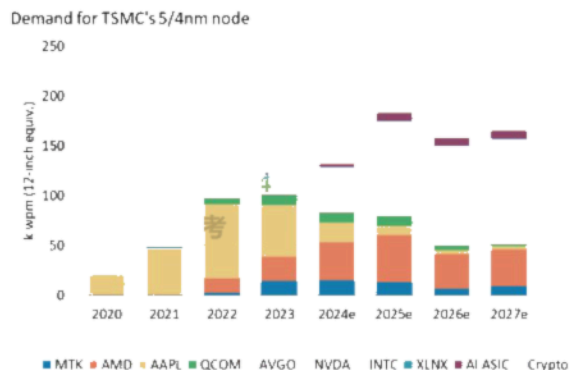
TSMC – 2nm customer demand breakdown



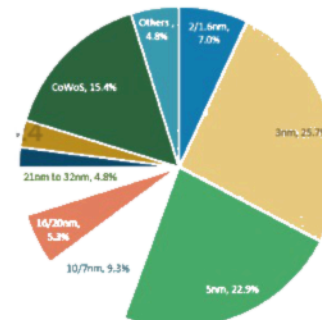
TSMC – 3nm customer demand breakdown



TSMC – 4/5nm customer demand breakdown

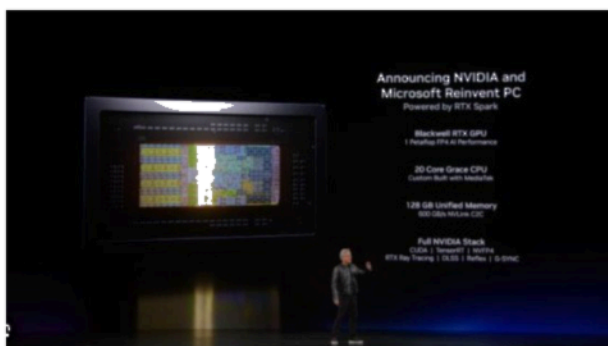


TSMC – 2026e revenue breakdown by nodes and CoWoS

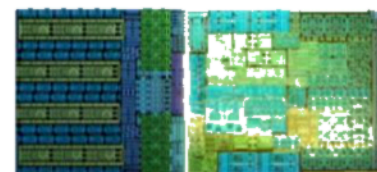


Nvidia/MediaTek New AI PC (RTX Spark) Could Trigger Potential Edge Device Replacement

New AI PC announced by Nvidia (N1X)

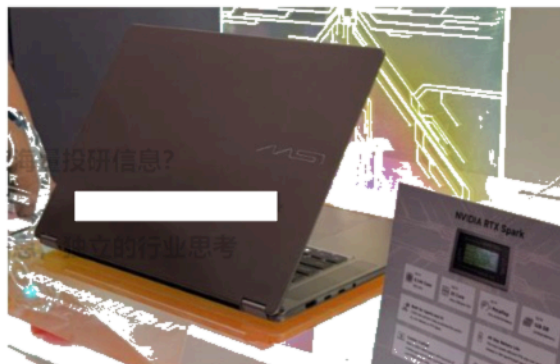


MediaTek provides 20-core customized Grace CPU for N1X



20-Core Grace CPU
Custom Built With MediaTek

RTX Spark (N1X) provided by MSI (available in 3Q26)



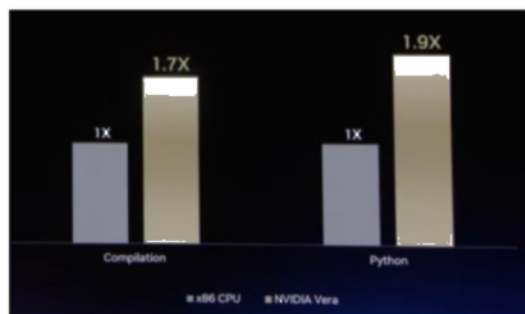
RTX Spark (N1X) provided by ASUS (available in 3Q26)



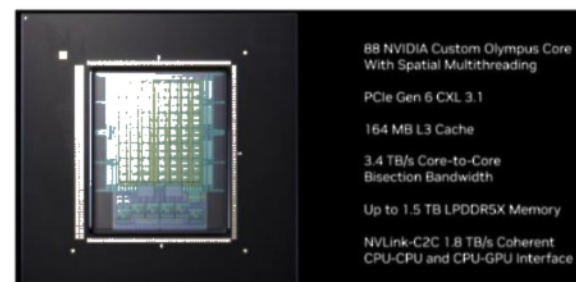
Source: Nvidia, MSI, ASUS

Nvidia Latest Vera CPU Could Support Robust Agentic CPU Demand

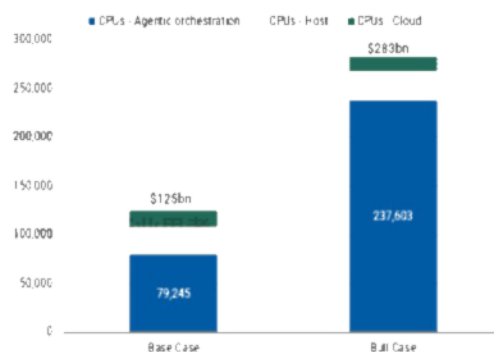
Vera performance could be 1.8x that of highest-performance x86 CPU



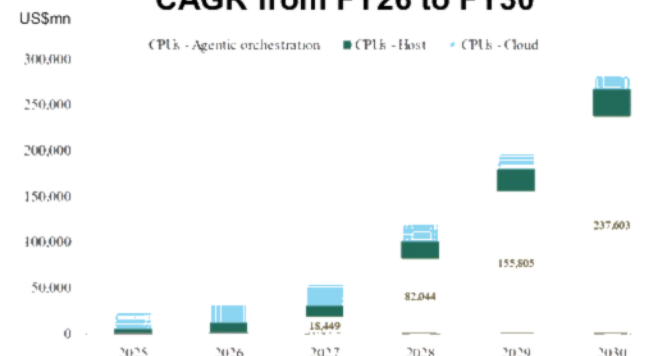
Vera CPU cores are not split across chiplets, enabling faster core-to-core connection



MS bull case implies a \$238bn CPU orchestration TAM

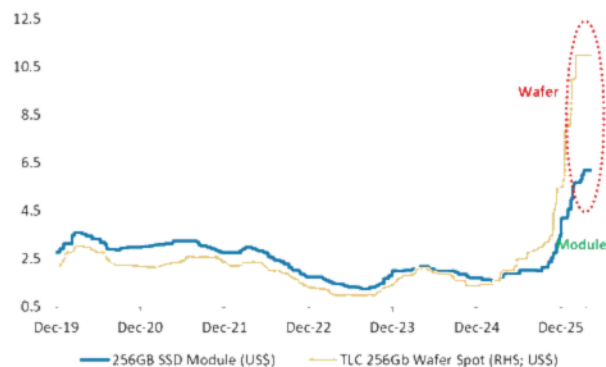


In MS top-down model, we estimate the Agentic CPU TAM will grow at a 251% CAGR from FY26 to FY30

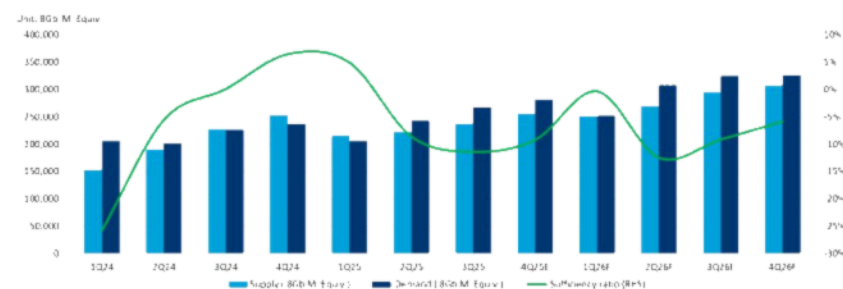


AI Storage Leads to NAND Shortage; We Also Expect NOR Flash Undersupply into 2026

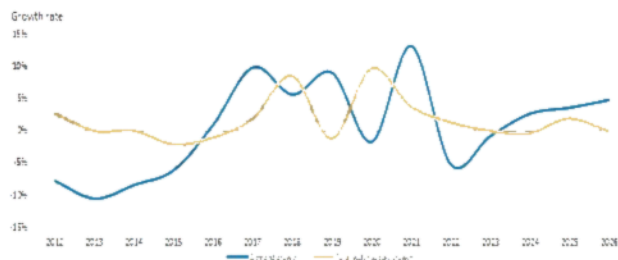
NAND wafer spot pricing and module prices



NAND supply and demand model



NOR flash demand and supply growth rates

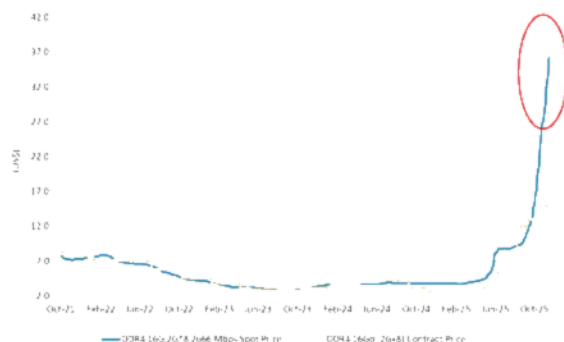


NOR flash demand and supply growth rates



DDR4 Shortage to Persist into 2H26; Spot Price Capped

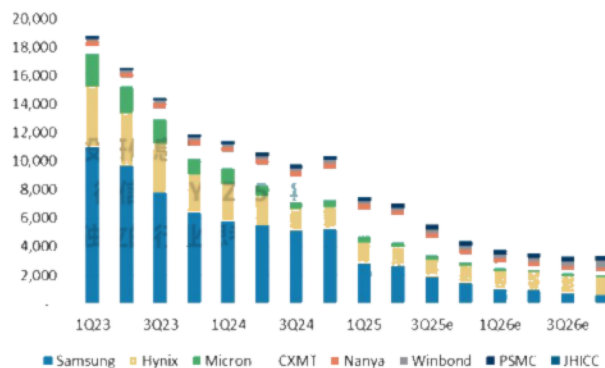
DDR4 16Gb spot vs. contract price



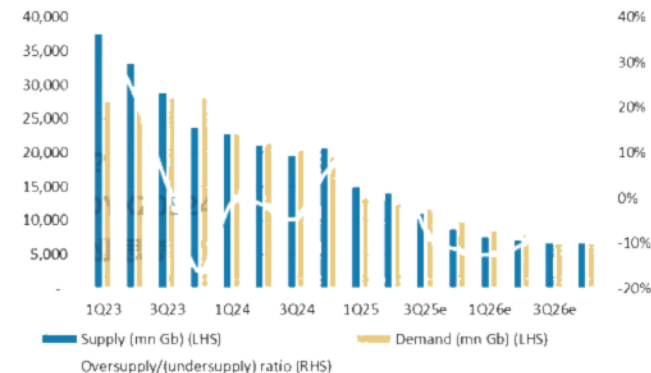
Quarterly demand breakdown, by product (mn Gb)



Quarterly supply breakdown (mn Gb)



Quarterly supply and demand summary



AI ASIC, CPO and Chip Testing



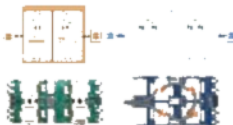
AI Semis: Now and the future – “Prompts”

- 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

CSPs Still Need Custom Chips Even with NVIDIA Providing Powerful AI GPUs

Global CSP cloud AI custom chips

Google TPU entering 6th generation



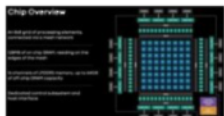
AWS AI training solution Trainium



AWS AI training solution Inferentia



Meta MTIA v1 with RISC-V cores



Habana developed the Gaudi chip



Tesla is introducing Dojos



Latest evidence of AI ASIC: AWS Trainium3



Trainium Forecasts from MS Asia Research team

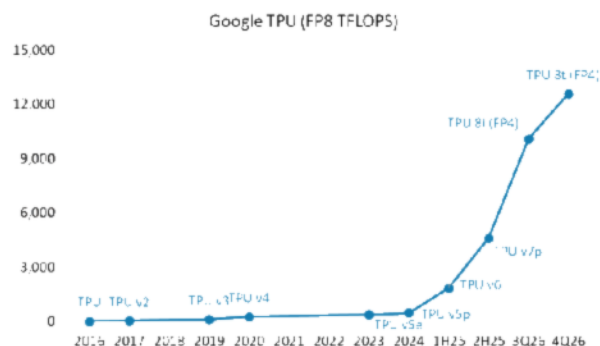
k Units	2023	2024	2025e	2026e	2027e	2028e
Trainium 1/Inferentia2	300	600	30			
Trainium2		300	1,520			
Trainium3			20	1,600	1,200	-
Trainium4					600	2,000
Total	300	900	1,570	1,600	1,800	2,000

More ASIC Projects Are Coming, According to Each CSP Plan

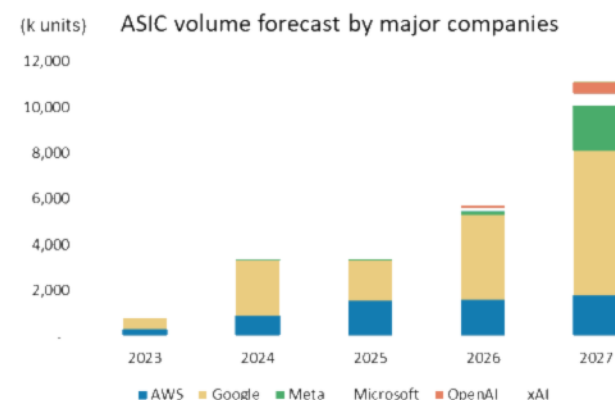
TPU Forecasts from MS Asia Research team

k Units	2023	2024	2025e	2026e	2027e	2028e
v5	500	2,400	250			
v6 (Trillium)			1,000			
v7 (Ironwood, by Broadcom)			500	2,300	500	
v8i (Sunfish; 3nm, by Broadcom)				900	3,000	2,500
v8t (Zebrafish; 3nm, by MediaTek)				500	2,500	1,000
v9 (Humufish; 2nm, by MediaTek)					150	2,500
v9a (Merope; 2nm, by US design service)						unknown
v10 (Icefish; 1.4nm, by MediaTek)						unknown
Total	500	2,400	1,750	3,700	6,150	>6000

Google TPU performance is growing rapidly

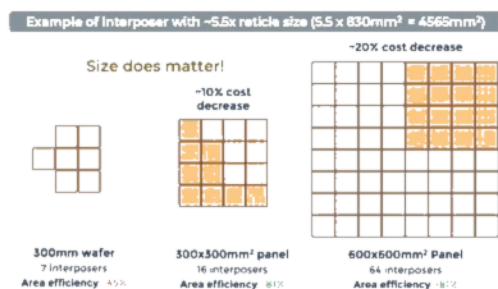


ASIC volume forecast by major companies



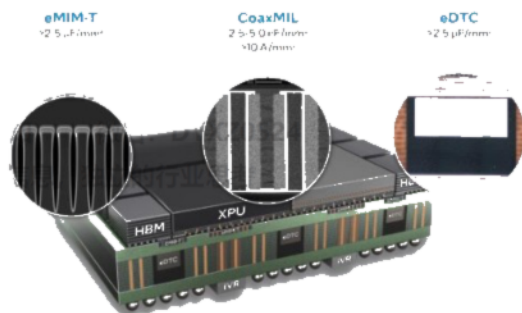
What About the Competition Between TSMC CoWoS and Intel EMIB?

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

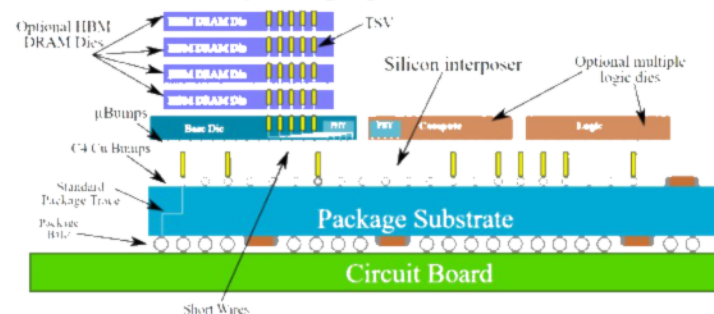


YOLO

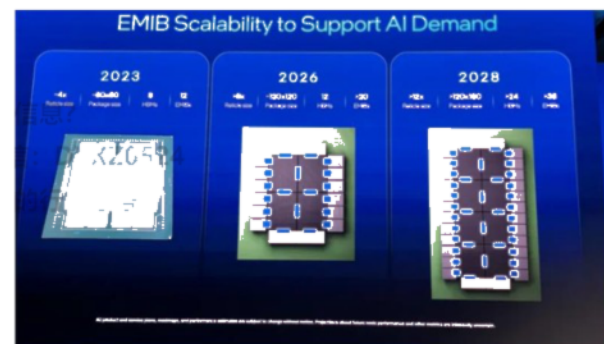
Intel EMIB eDTC: APMemory's technology



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

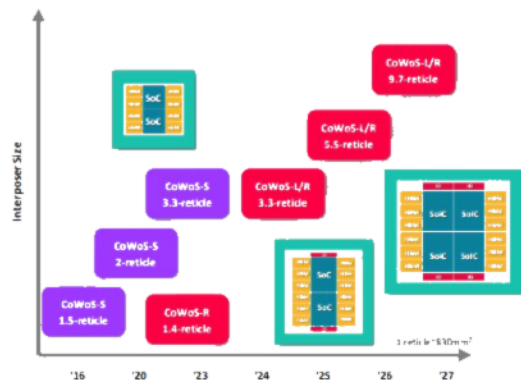


**Intel's EMIB can easily support larger chips with more
reticles (>12) if its supply chain can execute well**

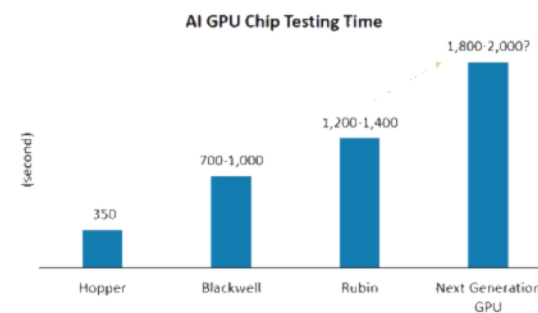


Larger Package Sizes Are Emerging as a Key Industry Trend

TSMC's roadmap for interposer size



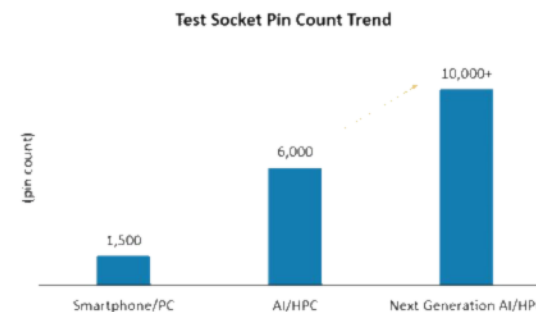
Chip testing time continuing to trend up



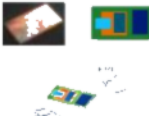
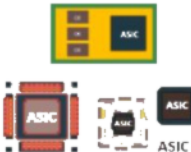
Testing equipment market is expected to grow at 35% CAGR during 2024-27e



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



New Evolution for Testing Equipment and Components: CPO

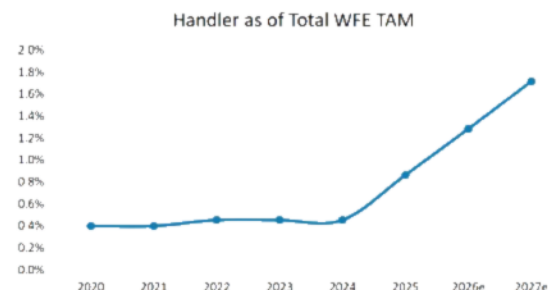
Test Insertion	Insertion 1	Insertion 2	Insertion 3	Insertion 4		Insertion 5 (potential)
				Insertion 4O	Insertion 4E	
Test content	Electronic IC (EIC) & Photonic IC (PIC)	EIC die to PIC wafer (after SoIC)	Optical engine (die-to-die)	CPO package (ASIC+OE) Optical Testing	CPO package (ASIC+OE) Electrical Testing (2025-2026) Optical+Electrical Testing (starting 2027e)	CPO package (ASIC+OE) SLT?
Testing surface						
Key Product timeline	2025-2026 Scale-out CPO switch (Spectrum+Quantum) products 2027e onward: Scale-out CPO switch (Spectrum+Quantum) + Scale-up CPO switch products					
Testing details	EI & opt. OC, (power, loss, dark current etc.)	E/O, O/E, O/D, high speed, S-parameters	Full calibration/DC, high-speed functional, optical loopback, alternatively: S-parameters	Optical Light Transmission Testing, optical loopback	BER testing, signal testing	Full system functional validation
Testing service provider	Foundry (Wafer-level) TSMC	Foundry (Wafer-level) TSMC	OSAT (Die/package level) SPIL (ASE Group)	OSAT (Die/package level) SPIL (ASE Group)	OSAT (Die/package level) SPIL (ASE Group)	OSAT (Die/package level) SPIL (ASE Group)
Equipment and Consumable Vendor	PIC ATE tester: 1) Advantest + TEL + Formfactor 2) Chroma (under qualification) EIC tester: 1) Teradyne + TEL EIC Probe card: FormFactor	Wafer level testing: 1) Ficontec + Formfactor + Teradyne 2) Advantest + MPI	Die-to-die probe: 1. TEL 2. MPI Optical engine E/O tester+laser reliability test+ELS source test head: Chroma Optical and Electrical Test Socket: Winway	CPO switch tester: Chroma Coaxial socket/Hypersocket: Winway	ATE tester: 1) Advantest (under qualification) 2) Teradyne FT Handler+ELS source test head+optical alignment stage: Hon Precision Coaxial socket/Hypersocket: Winway	CPO SLT tester: Chroma (under qualification) Coaxial socket/Hypersocket: Winway

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

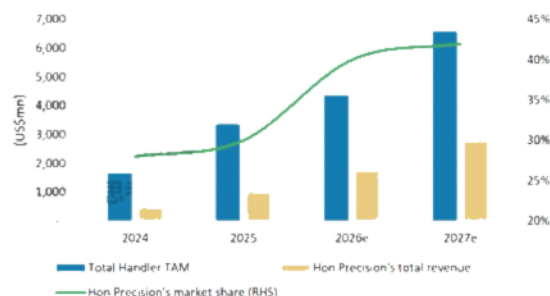
We expect the overall handler market to increase from US\$436mn in 2023 to US\$6.6bn in 2027e



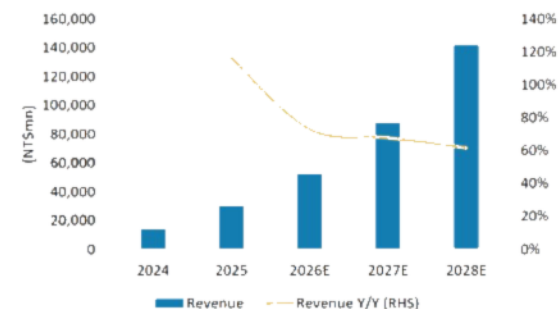
We expect handlers to account for 1.7% of global WFE TAM in 2027e, vs 0.4% in 2020



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

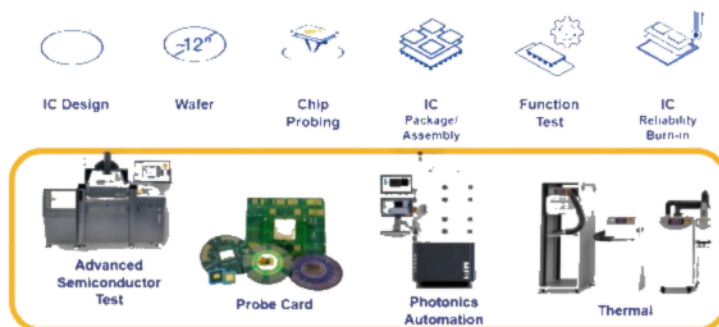


We expect Hon Precision's revenue to expand at a 67% CAGR, 2025-28e

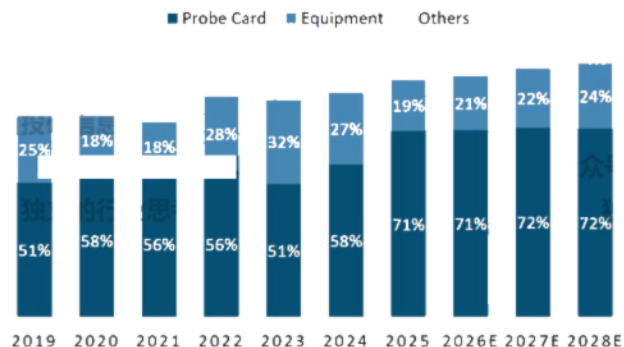


MPI: Probe Card Technology Leader with CPO Optionality; OW

MPI's product in chip manufacturing and test process

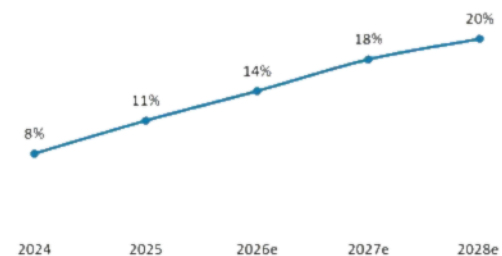


Probe card to remain the key focus, with CPO equipment acting as driving force



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

MPI's Market Share in Total Probe Card Market

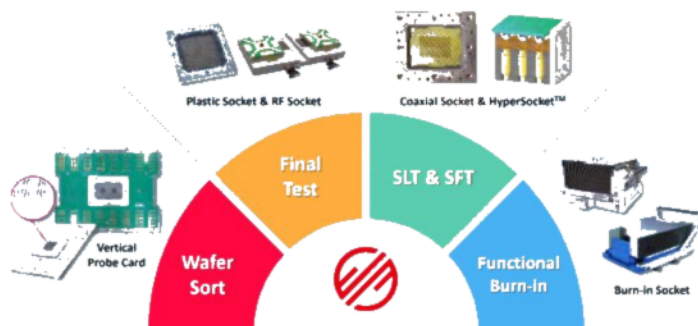


We expect MPI's EPS to rise at a 94% CAGR, 2025-28e



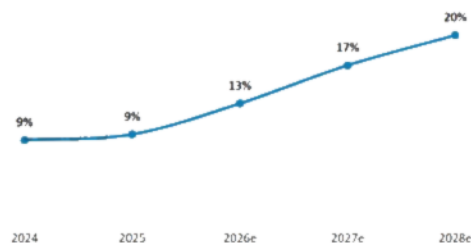
WinWay: Socket Leader Leveraging AI Packaging Complexity; OW

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



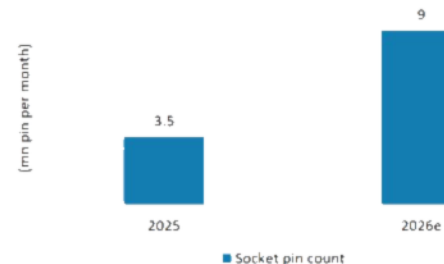
We expect WinWay's market share to grow from 8.6% in 2024 to 20% in 2028e

Winway's Market Share in Total Socket Market

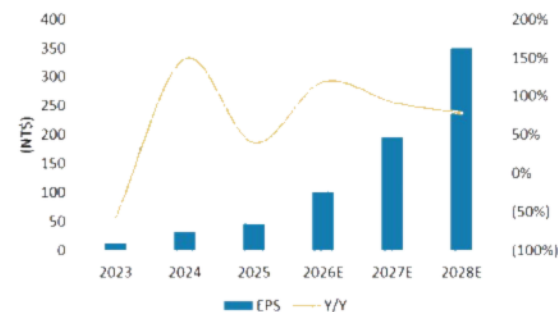


WinWay to expand its pin capacity from 3.5mn per month in 2025 to 9mn per month in 2026

Winway's Monthly Pin Capacity



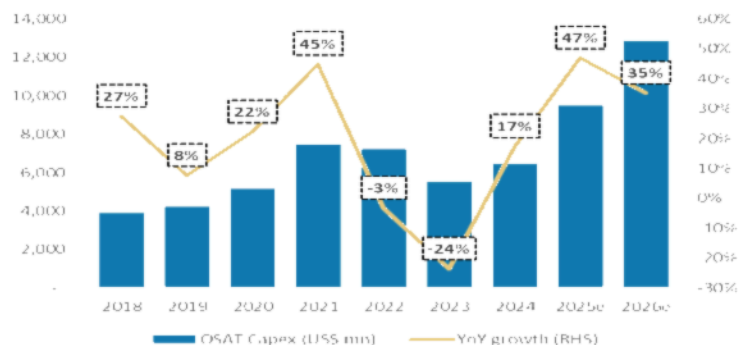
We expect WinWay's EPS to rise at 95% CAGR, 2025-28e



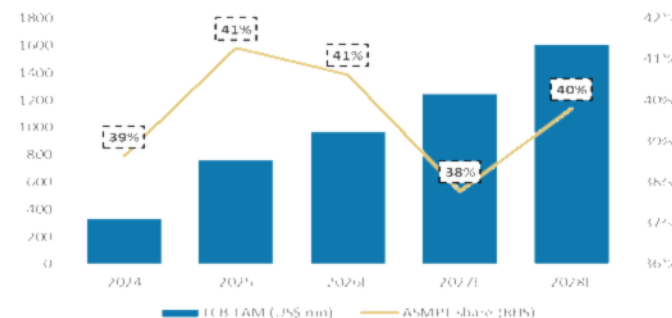
China Semis:
OSAT, Compound, MCU, and AI GPU

Positive on back-end equipment (ASMPT) while Neutral on China OSAT

OSAT capex expected to grow ~35% in 2026 driven by both mainstream semi and advanced packaging



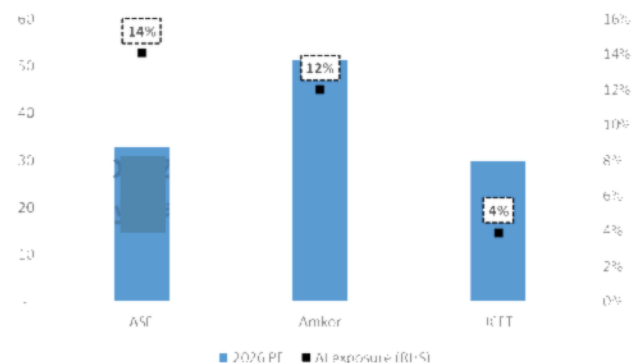
We expect ASMPT's share in TCB to be ~40% in 2028



ASMPT Equipment Matrix – CPO Assembly Flow

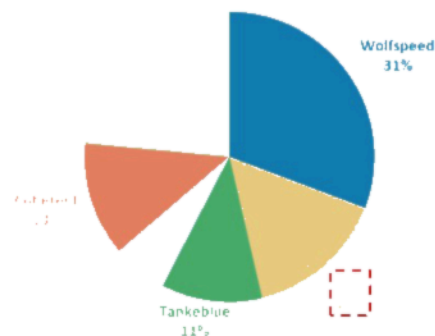
CPO Assembly Step	Process Technology	ASMPT Equipment	Precision
LD on PIC (Laser Diode Attach)	Eutectic Bonding	NANO	< 0.5 μm
μLens on PIC (Microlens Attach)	C2W (Chip to Wafer)	NANO	0.2 μm
EIC on PIC (Electronic IC Attach)	TCB / Mass Reflow / Hybrid Bonding	FIREBIRD / NOVA Pro / LITHOBOLT	0.2 – 1 μm
FAU on PIC (Fiber Array Unit Attach)	High-Precision Bonding	NOVA / NANO	< 1 μm
OE on Substrate (Optical Engine Attach)	TCB / Mass Reflow	FIREBIRD XD / NUCLEUS XD	1 μm

JCET's AI exposure the lowest vs. its peers

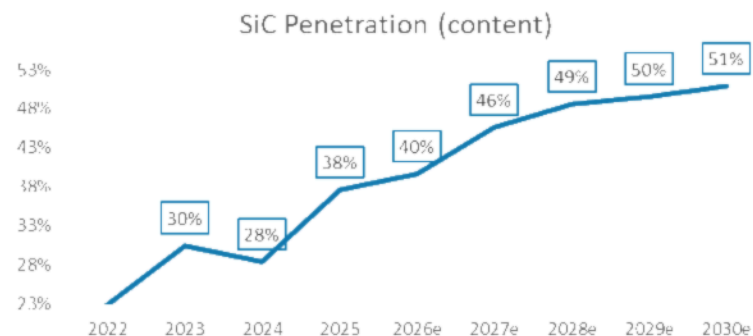


Prefer SiC over GaN: SICC (OW) and InnoScience (EW)

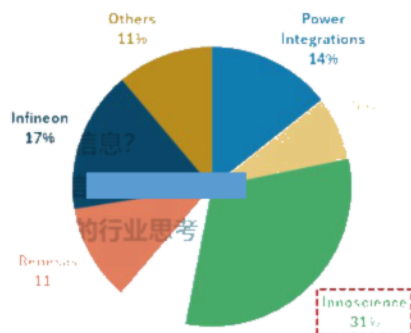
SICC market share rise in SiC substrate market (2025)



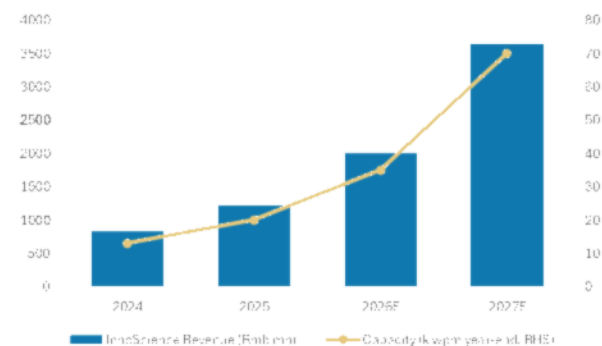
We expect SiC penetration to exceed 50% by 2030



InnoScience dominate the GaN market with TAM ~US\$584mn in 2025

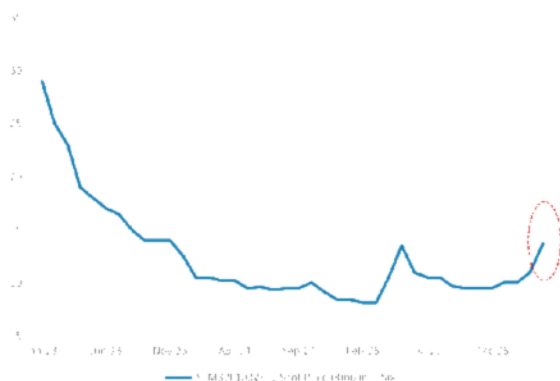


Significant capacity expansion to support strong revenue growth but depreciation may weigh on profitability

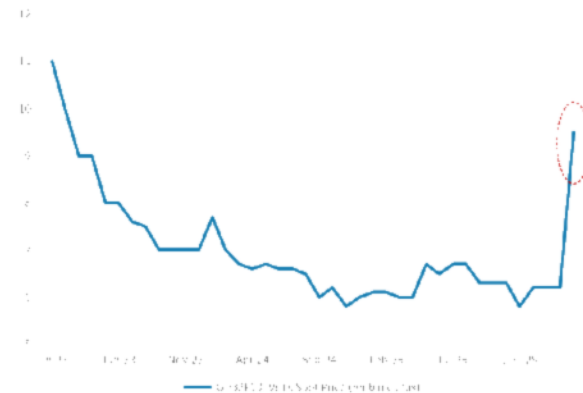


MCU: Bottoming but Not Out

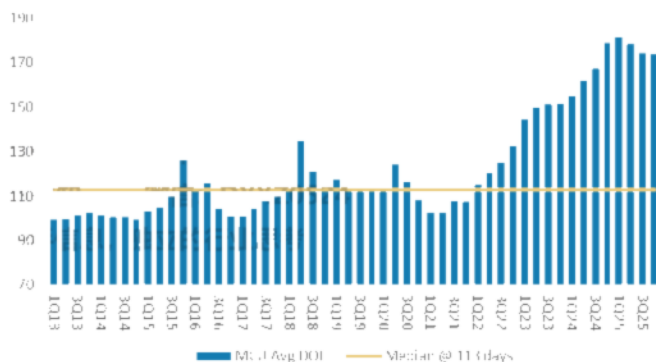
STM32F103VET6 spot market price trend



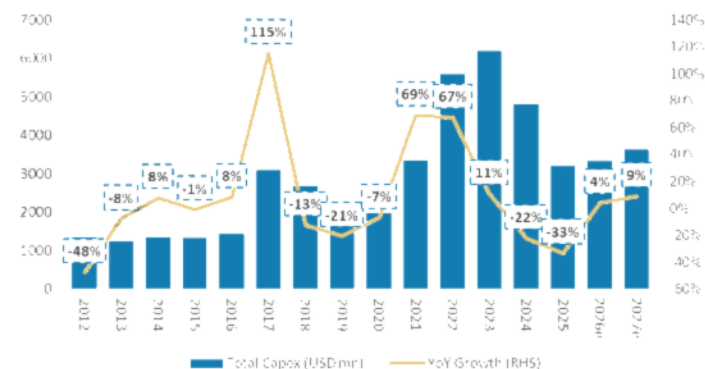
GD32F103VET6 spot market price trend



Inventory days for producers peaked in 1Q25 and was flat in 4Q25

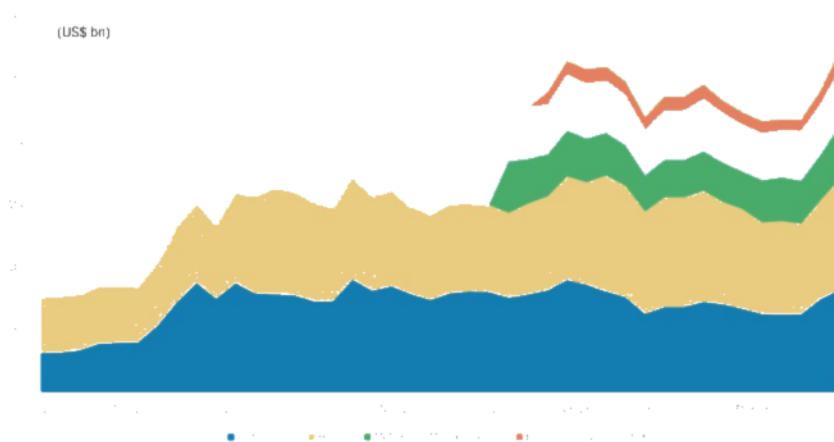


Leading MCU companies' capex declined for 2 years and is showing slight growth in 2026

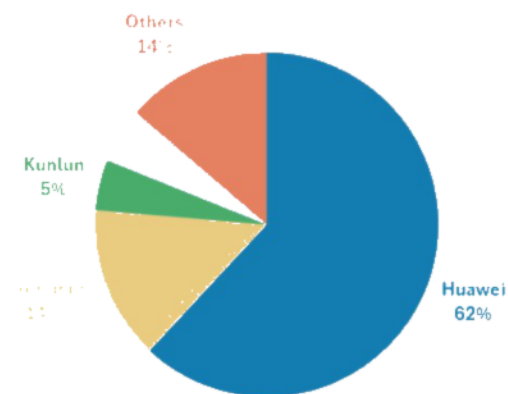


Growing Market Size and Share of Domestic AI Semis

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

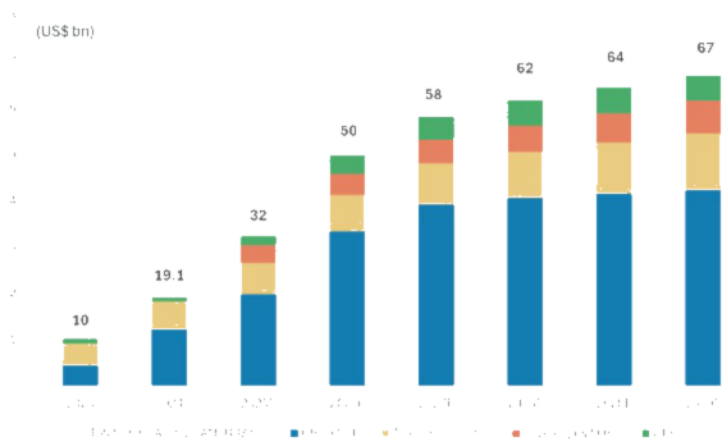


Domestic AI accelerator market share in 2026e

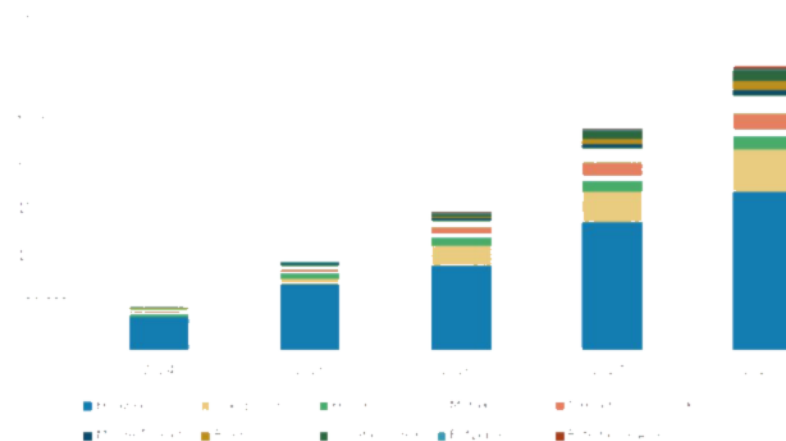


We Expect China AI GPU TAM to Grow to US\$67bn by 2030e

We expect China AI chip TAM to grow to US\$67bn by 2030

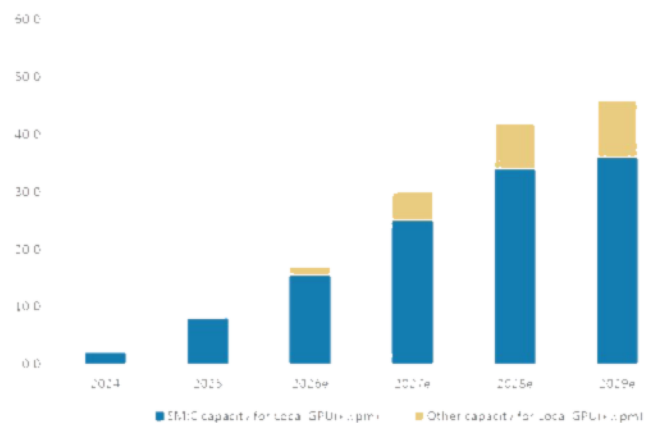


AI accelerators' revenue trend

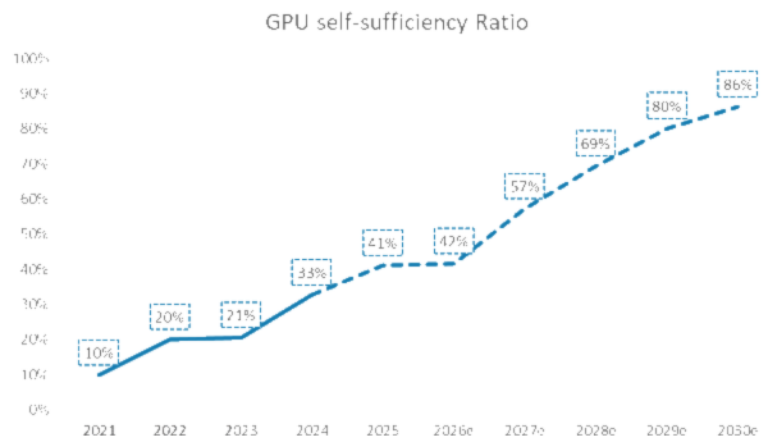


China's Advanced Node Capacity Expansion to Fulfill Local AI GPU Production Demand

Chinese advanced node capacity may support US\$58 AI accelerator revenue in 2030



We expect China AI chip self-sufficiency to reach 86% in 2030e (US\$58bn / US\$67bn)

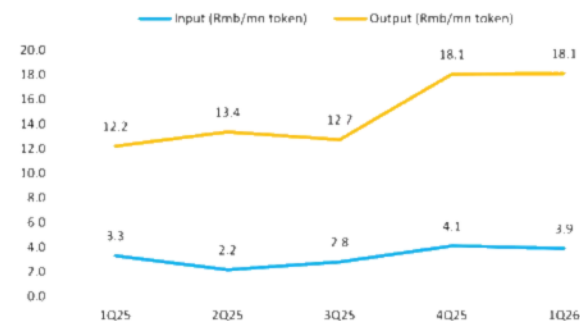


Near-term market tracker for China AI GPU demand

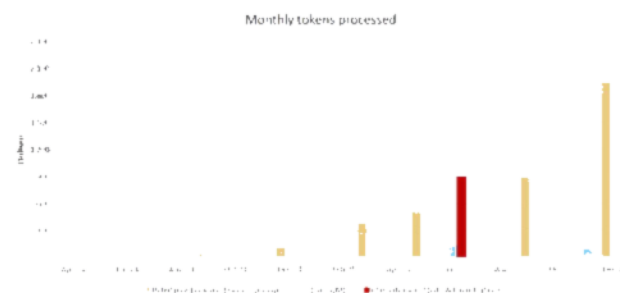
Nvidia's 5090 price keeps rising in China



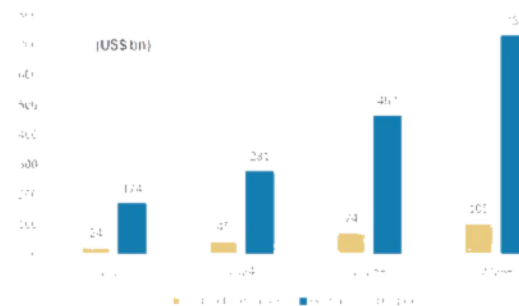
Average token price for China's mainstream AI LLMs



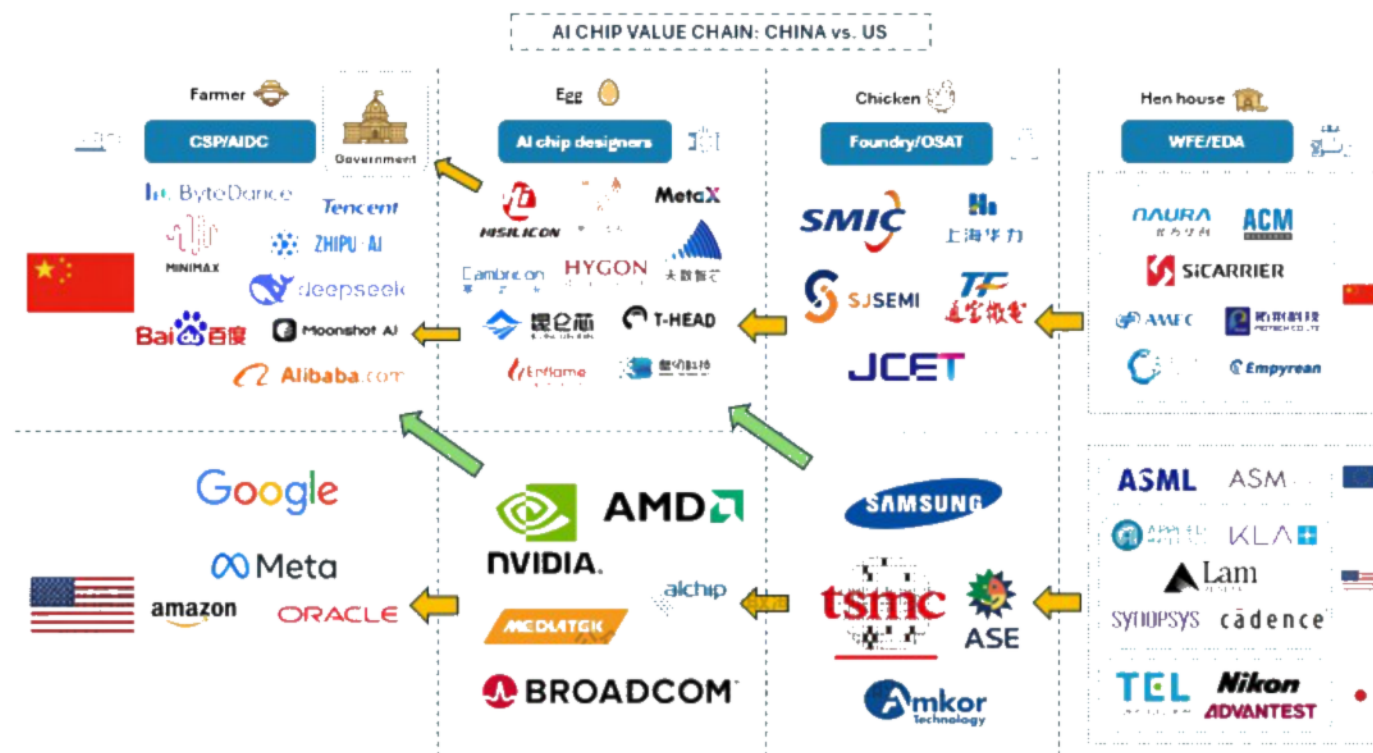
Surge in ByteDance (Volcano Engine/Doubao) tokens indicates high AI demand



China cloud vs. global cloud capex trend



AI Chip Value Chain – China vs. the US – a Decoupling of AI Compute



Downloaded from <http://ajphaphysocpharm.sagepub.com/> at 11:01 11 November 2014

Downloaded from <http://ajphaphysocpharm.sagepub.com/> at 11:01 11 November 2014

Human: GlassMatrix 334 A3 SuperDad



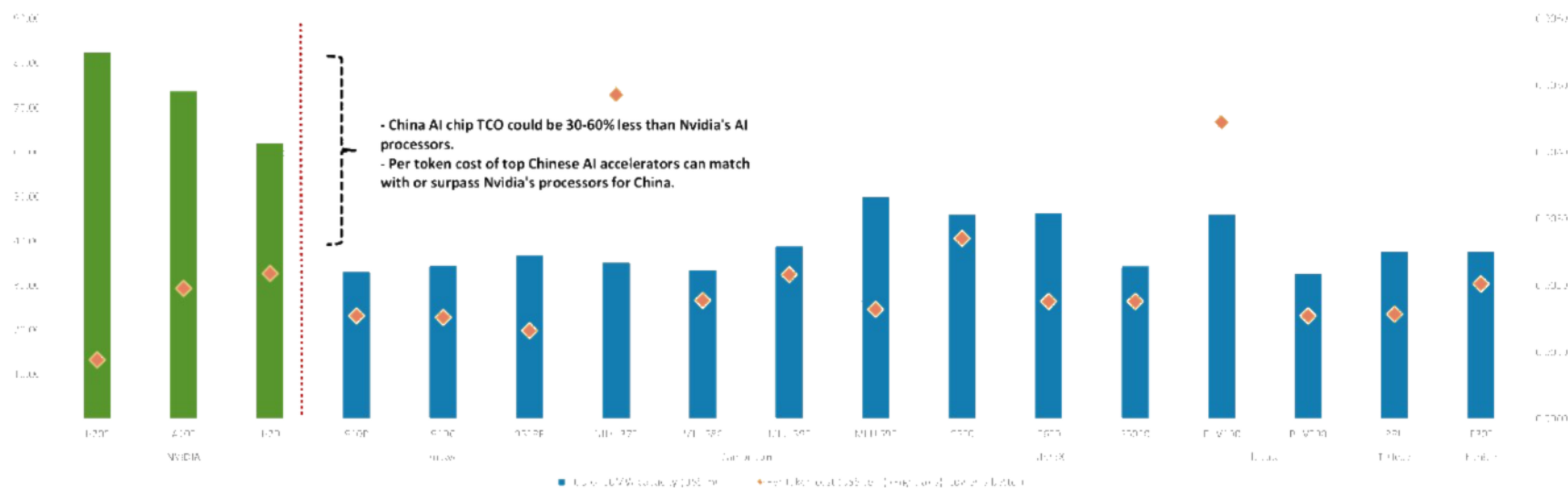
Step 1: If we cannot find it, let's move forward to the next step.

Q1m 2: If one ship is not manufactured correctly, built for one make and platform

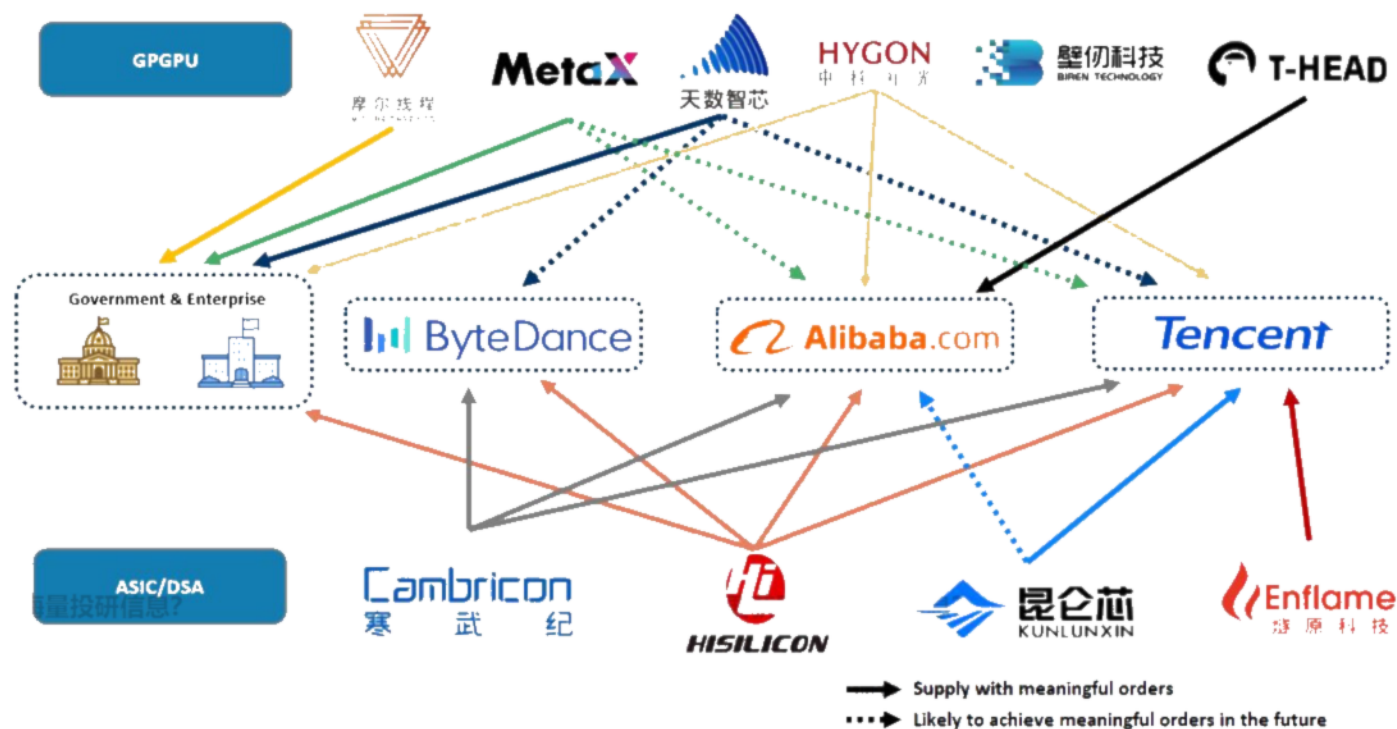
On 2016-05-16, 6:41:11 PM, "Gerrit" <gerrit@openjdk.org> wrote:

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

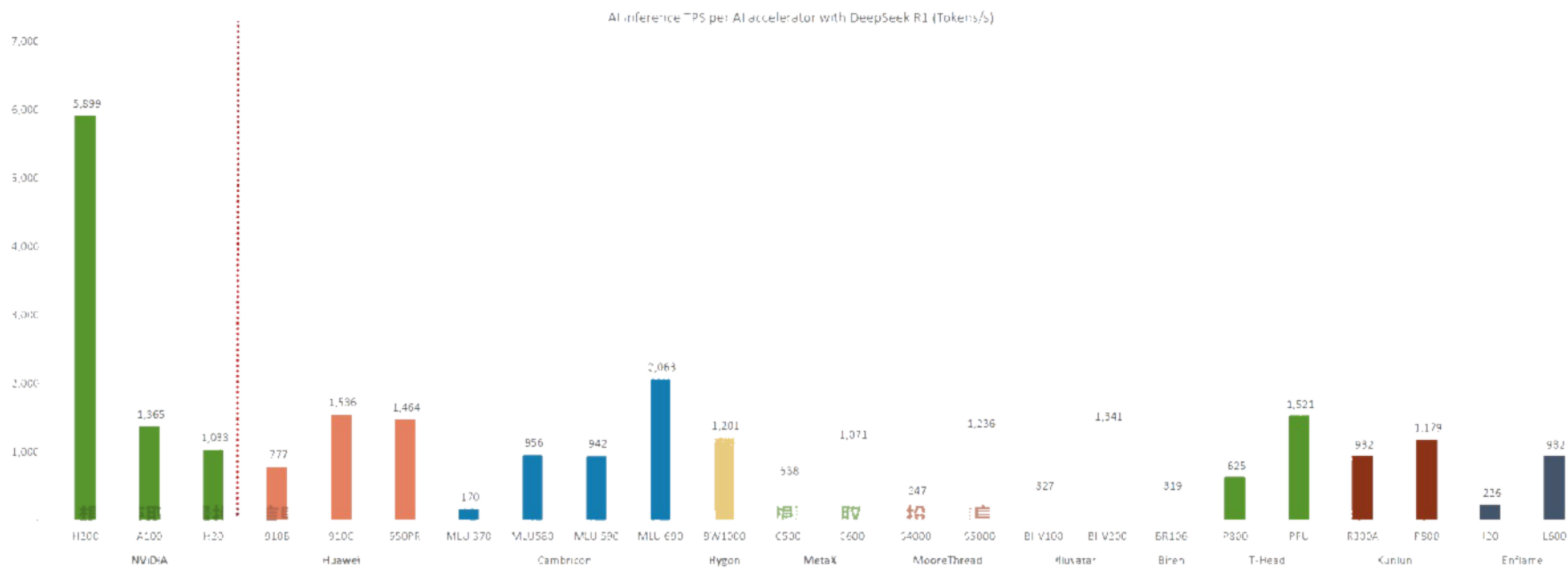


Order placement and potential orders for domestic AI accelerators developers



TPS (Tokens Output per Second) – Performance Analysis

TPS (tokens per second) analysis for China AI accelerators



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



Comparison among Cambricon, MetaX and Iluvatar

			
Ticker	688256-SH	688802-SH	9903-HK
Product	MLU 220/270/370/580/590/690 (AI Training + inference)	C Series (AI training + inference) N Series (AI Inference) G Series (Graphic rendering)	Tiangai 100/150/200/300 (AI training + inference) Zhikai 100 (AI inference)
GPGPU/ASIC	ASIC	GPGPU	GPGPU
Chip suppliers			
Process node for latest products	7nm/N+2	12nm/N+1	7nm
Secured orders from major CSPs	✓	✗	✓
Sovereign fund as major shareholder	✗	✓	✗
Per token cost performance	↑	→	→
2025 Revenue (Rmb mn)	CNY 6,497	CNY 1,644	CNY 1,034
Profitability	✓	✗	✗

Cambricon: Leading in inference performance and customer anchoring; OW

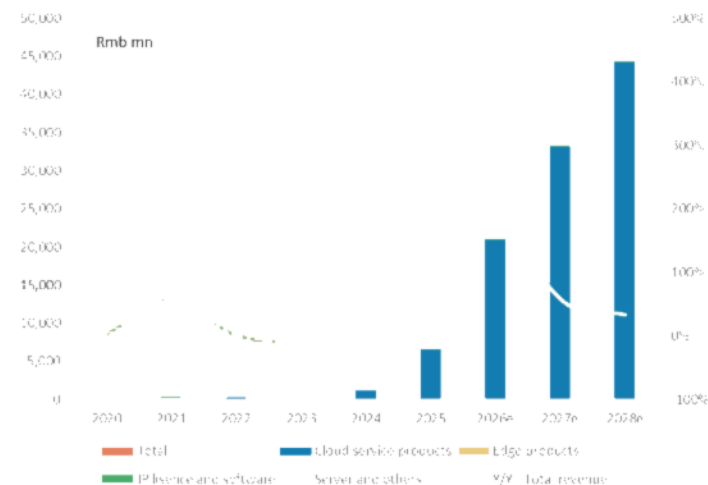
Cambricon's products and specs

	Product	Type	Manufacture	Node	Computing power (TFLOPS/TOPS)			Memory type	Memory size (GB)	Memory bandwidth (GB/s)	Chip-to-chip networking bandwidth (GB/s)	TDP (W)
					FP16 (TFLOPS)	FP8 (TFLOPS)	Int8 (TOPS)					
AI Training	MLU 370	DSA	TSMC	7nm	96		X	X	LPDDR5	48	614	200
	MLU 580*	DSA	SMIC	12nm	280	560		X	HBM3	96	1,500	425
	MLU 590*	DSA	TSMC	7nm	315	630		X	HBM3	96	1,600	425
	MLU 690*	DSA	SMIC	7nm	700	1,400		X	HBM3	96	2,400	1,200
Edge AI	MLU 220	DSA	TSMC	16nm	X	X		16	LPDDR4	8	400	X

Cambricon's supply chain and customers

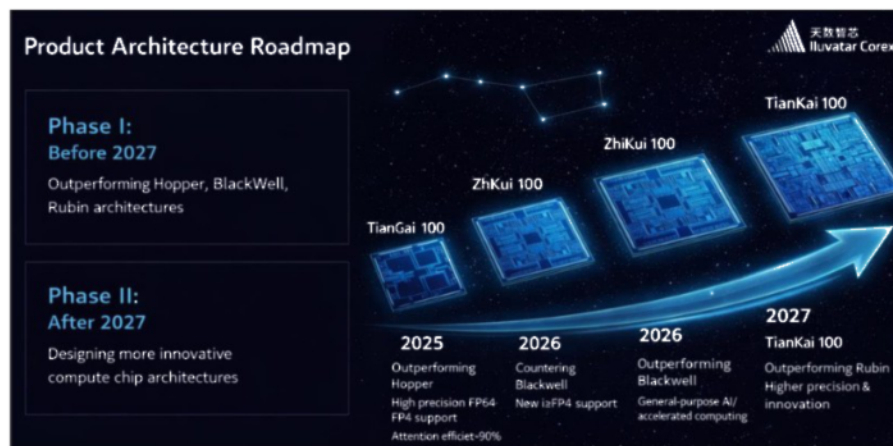


We expect Cambricon's revenue to expand at a 90% CAGR, 2025-28e

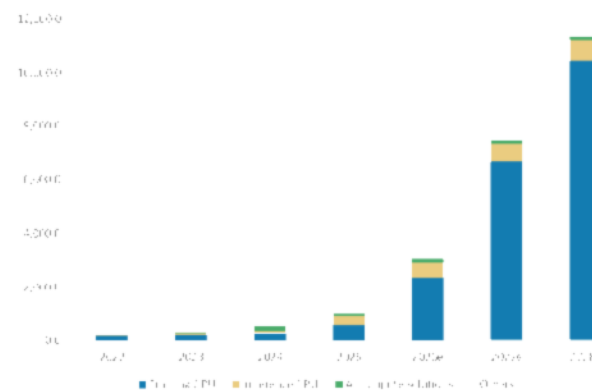


Iluvatar: Leveraging supply chain resilience with strong order visibility; OW

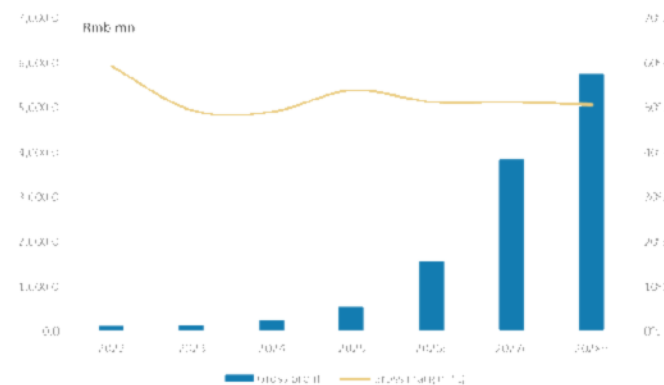
Aggressive product roadmap for Iluvatar



We expect Iluvatar's revenue to expand at a 122% CAGR, 2025-28e



We expect Iluvatar's GM to be mild



financial advisor to ASMPT Limited ("ASMPT") in relation to its assessment of strategic options for its SMT Solutions Segment (the "Assessment"), as announced on January 21, 2026. There is no assurance that the Assessment will result in a transaction, nor as financial services. Please refer to the notes at the end of the report.

This report references U.S. Executive Order 14032 and/or entities or securities that are designated thereunder. U.S. persons may be prohibited from buying certain securities of entities named in this report. Readers are solely responsible for ensuring that their investment activities are carried out in compliance with applicable laws.

This report references export controls and/or entities that may be subject to export control restrictions. Readers are solely responsible for ensuring that their investment or trade activities are carried out in compliance with applicable laws.

This report references U.S. Executive Order 14105 and/or entities that may be in scope of such order. U.S. persons may be prohibited from engaging in certain transactions or otherwise require certain other transactions be notified to the U.S. Department of Treasury. Readers are solely responsible for ensuring that their investment or trade activities are carried out in compliance with applicable laws.