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Global Technology

Technology Key Debates - Cycles vs. Super Cycles

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October 16, 2026

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Cycles vs. Super Cycles

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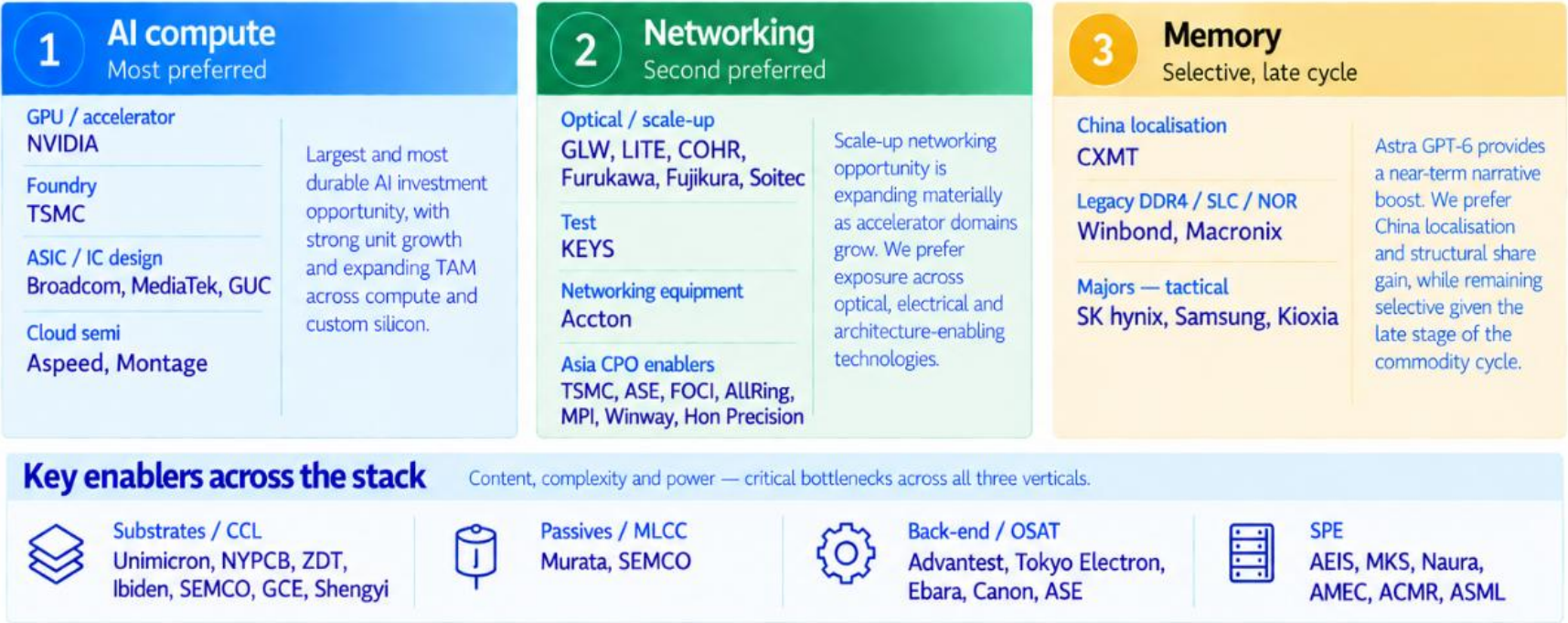
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Positioning through the AI cycle – compute first, networking second, memory selective



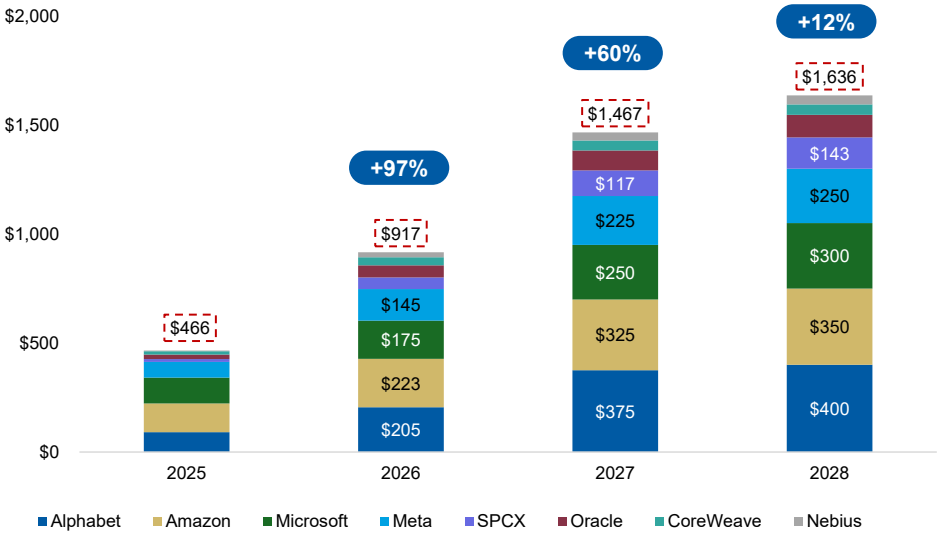
Source: Morgan Stanley Research

AI spending – still rising, but growth is peaking

Cloud capex reaches US\$1.6tn by 2028e, but growth slows from 97% to 12%

Spending by the largest cloud companies

US\$bn | boxes show totals; blue labels show growth vs the previous year



Source: Company data, Morgan Stanley Research estimates.

Note: Amazon = total company capital spending, excluding proceeds from property and equipment sales and incentives. Oracle spending projected using consensus estimates. 2026e–2028e are estimates.

Three things to watch

01 ARR

Is the revenue opportunity accelerating?

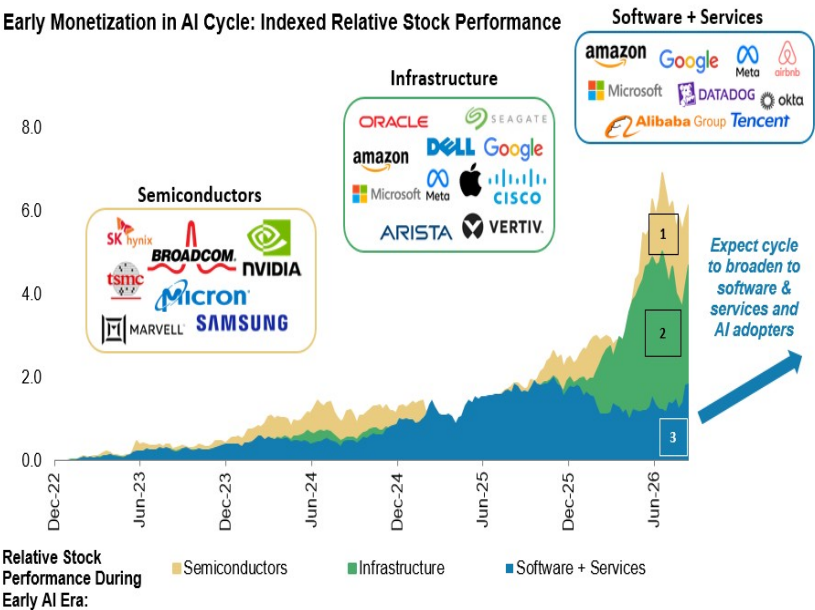
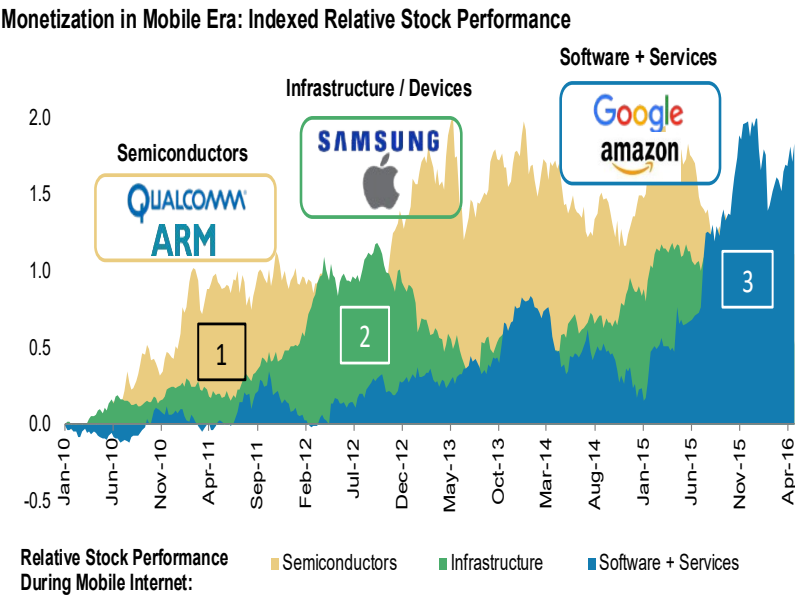
02 Funding

Can capex beyond FCF be funded?

03 LLM intensity

Will all frontier labs continue to stay in the race?

Following the secular playbook – AI leadership should broaden from the maker of AI to the user of AI



Source: Morgan Stanley Research. Note: indexed relative stock performance by segment; mobile internet cycle Jan 2010–Dec 2015, early AI cycle Dec 2022–Jun 2026. Internal working draft — not for distribution.

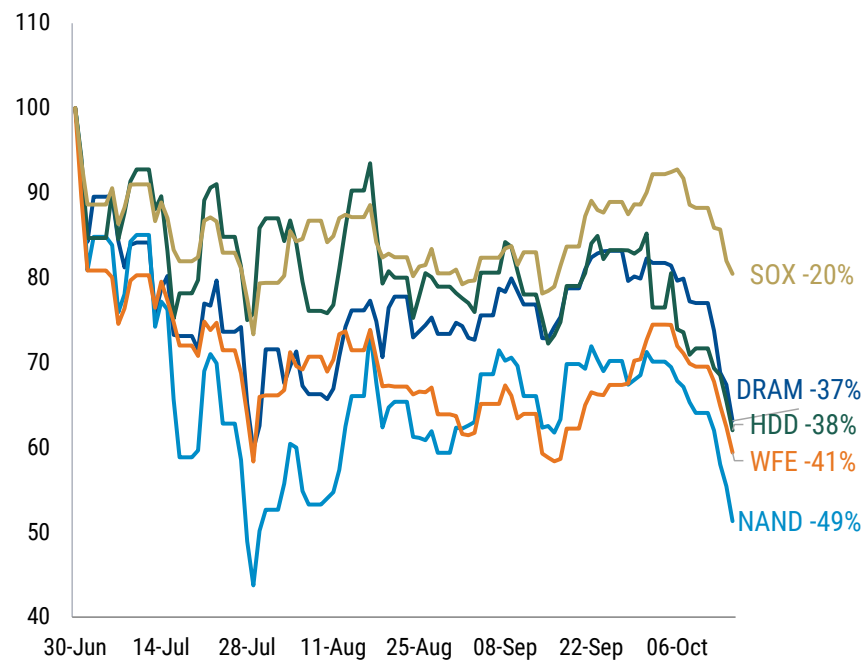
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Rotation within semis since end-June: out of memory and WFE and into AI compute and quality

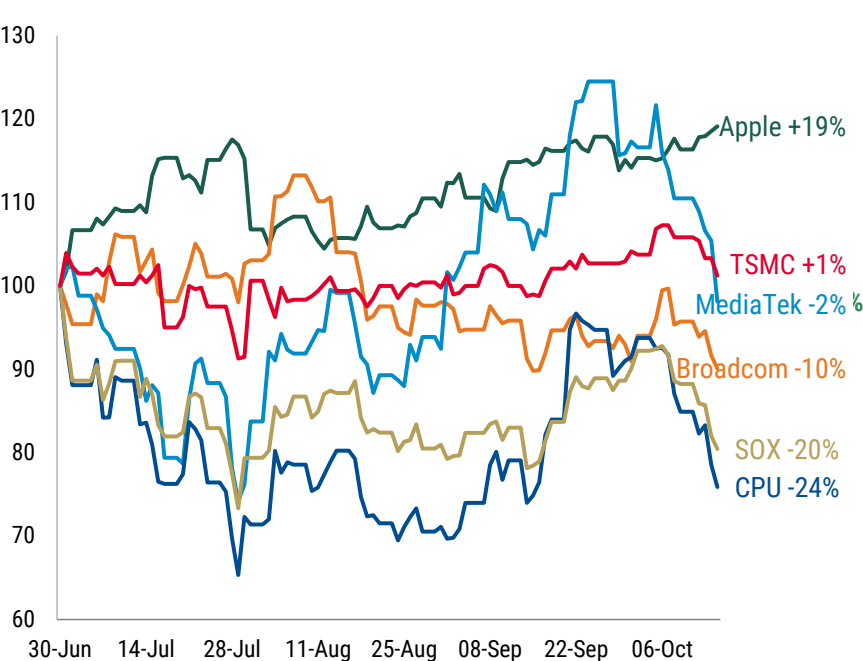
Share price performance, indexed (30-Jun-26 = 100)

Memory and WFE



Source: FactSet

MediaTek, Apple, TSMC and peers



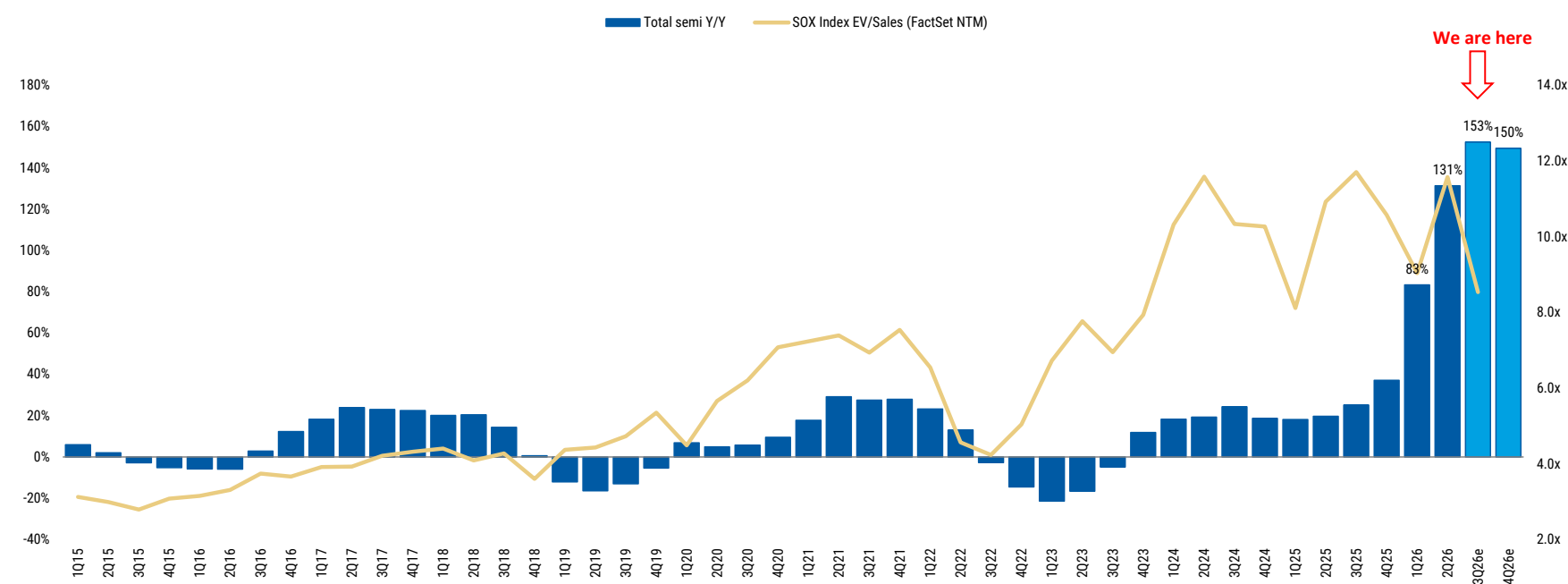
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Global semiconductor revenues – can growth continue to accelerate?

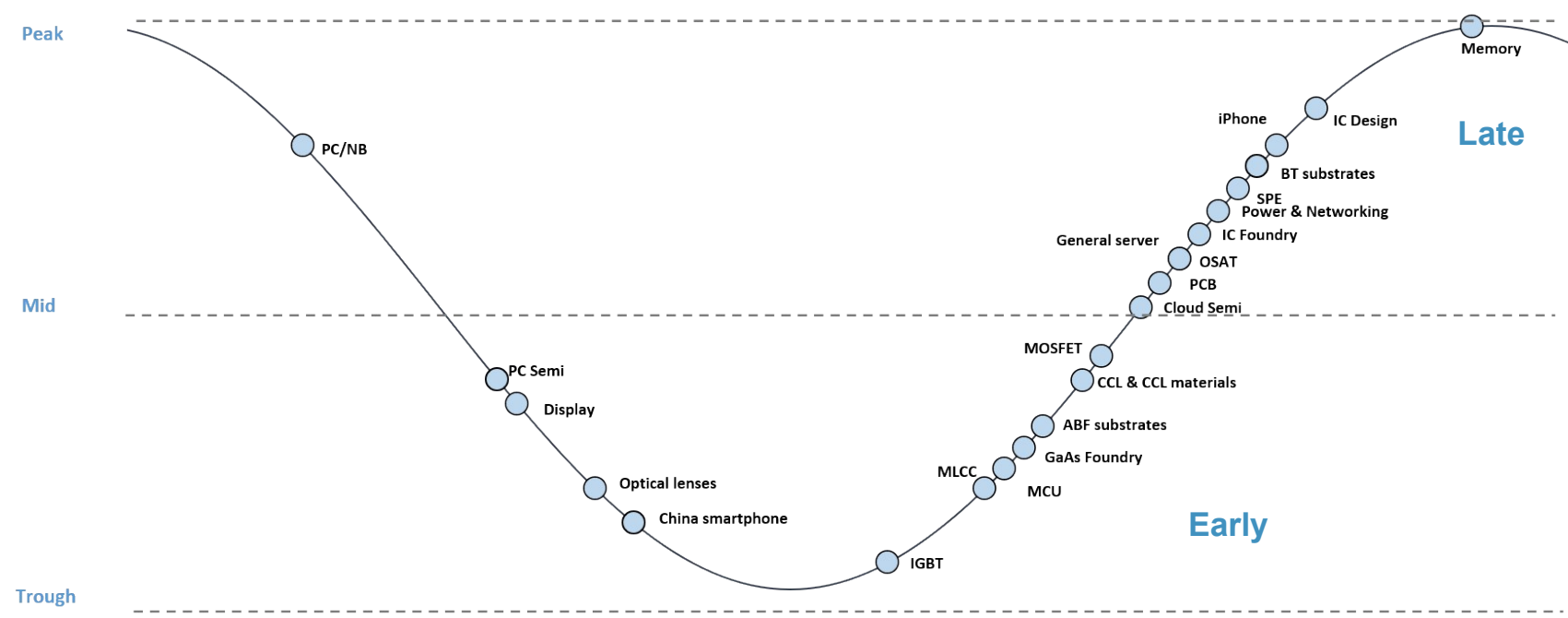
Chip revenue growth vs. chip stock valuation

% y/y (bars, left axis) | x, SOX EV/Sales (line, right axis) | 2026 Q3–Q4 estimates



Source: SIA; FactSet; Morgan Stanley Research. SOX = Philadelphia Semiconductor Index. EV/Sales = enterprise value (share value plus debt, minus cash) divided by the next 12 months of expected sales.

Technology cycles within cycles – first-in, first-out (Y/Y)

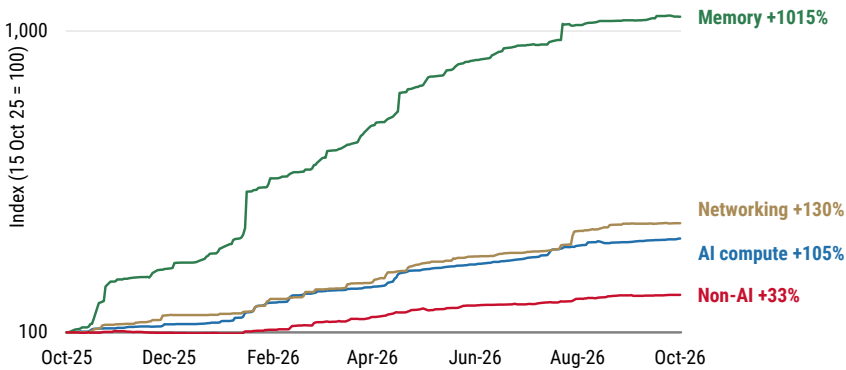


Source: Morgan Stanley Research estimates

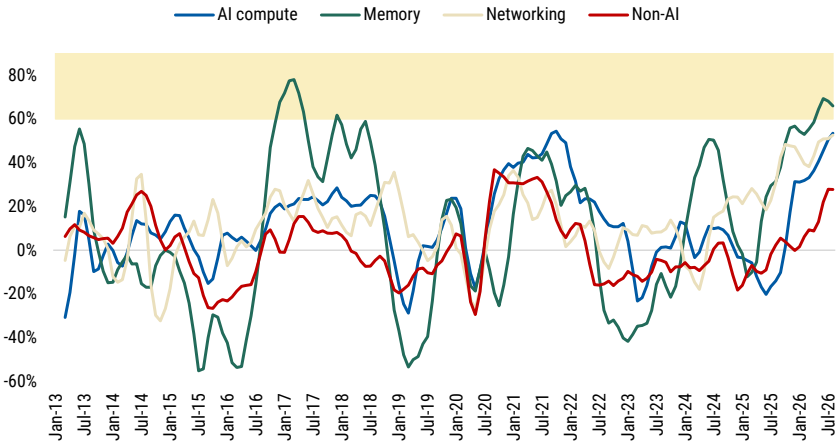
Earnings revisions – divergence

Memory EPS has outpaced this AI cycle, but revision breadth favors compute, networking and non-AI

FY27e EPS index trend by bucket



Earnings revision breadth, 3M average



Source: FactSet, Morgan Stanley Research

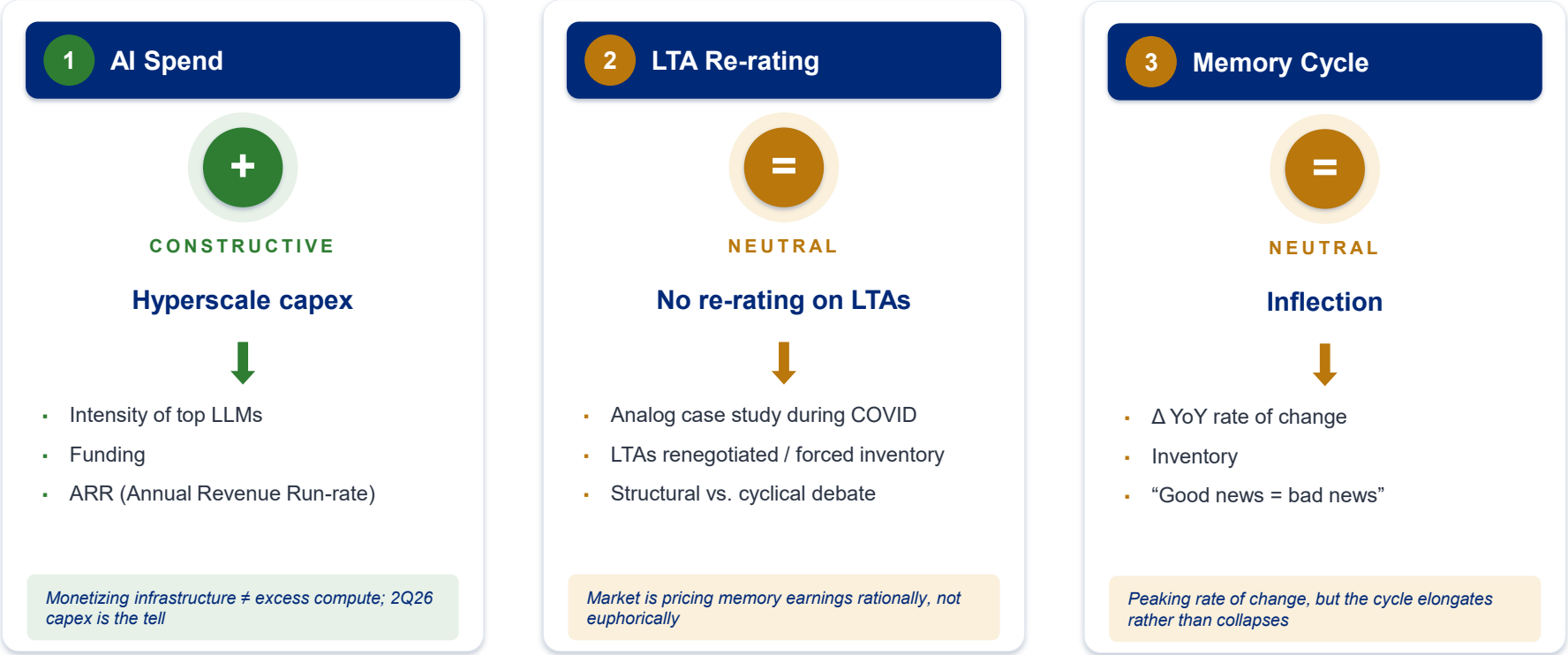
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Memory Update

Memory – Changing tides: three debates framing the cycle

How we frame the memory debate for investors – where the money is being spent, how the market prices LTAs, and where the cycle now sits



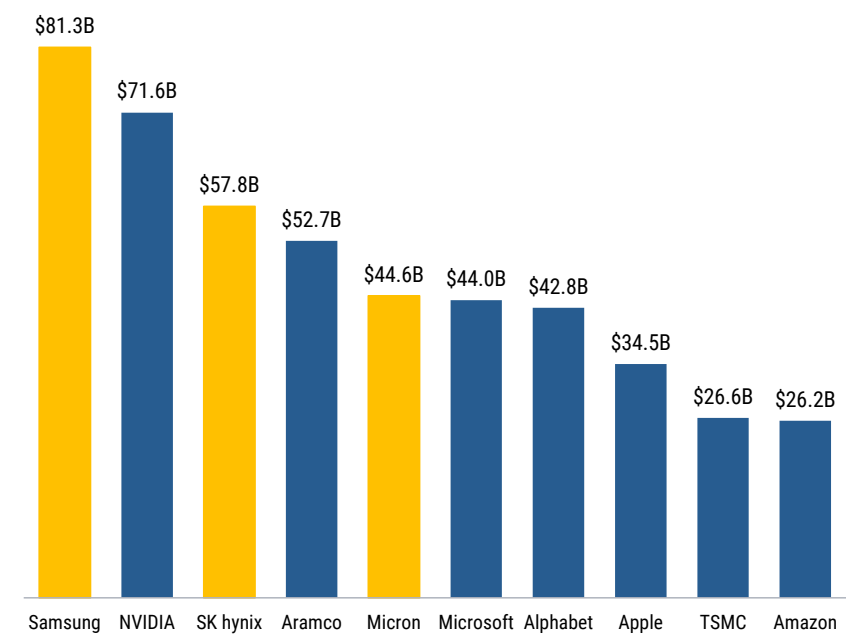
Source: Morgan Stanley Research

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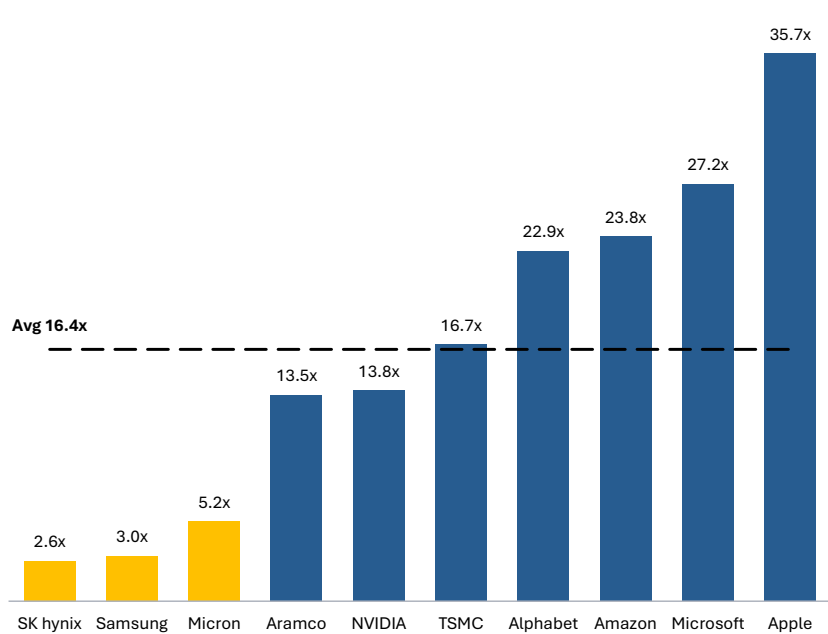
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Samsung – The world’s most profitable company, but the market doesn’t seem to believe in the outer numbers

CY3Q26E operating profit, US\$bn



FY2027E P/E



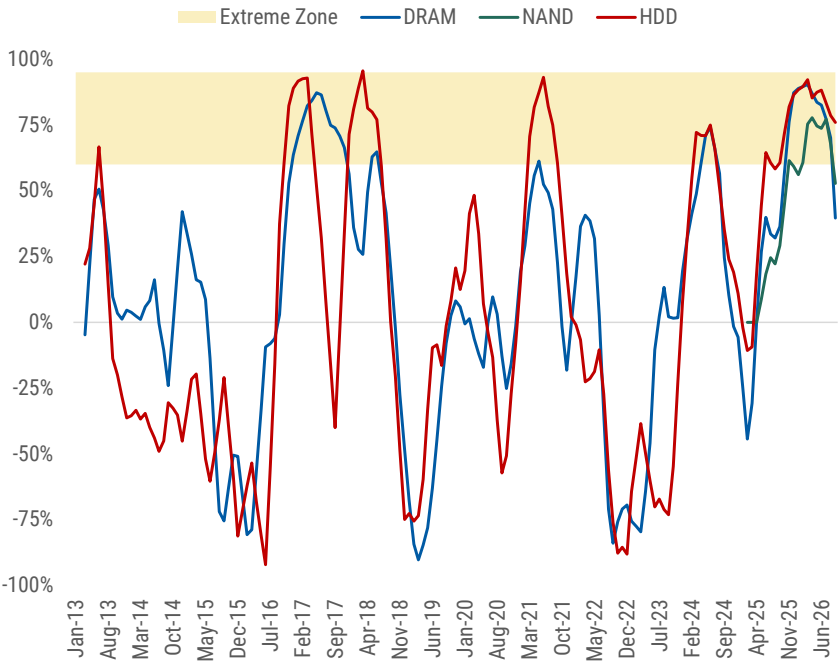
Source: FactSet consensus (mean), Morgan Stanley Research estimates (E)

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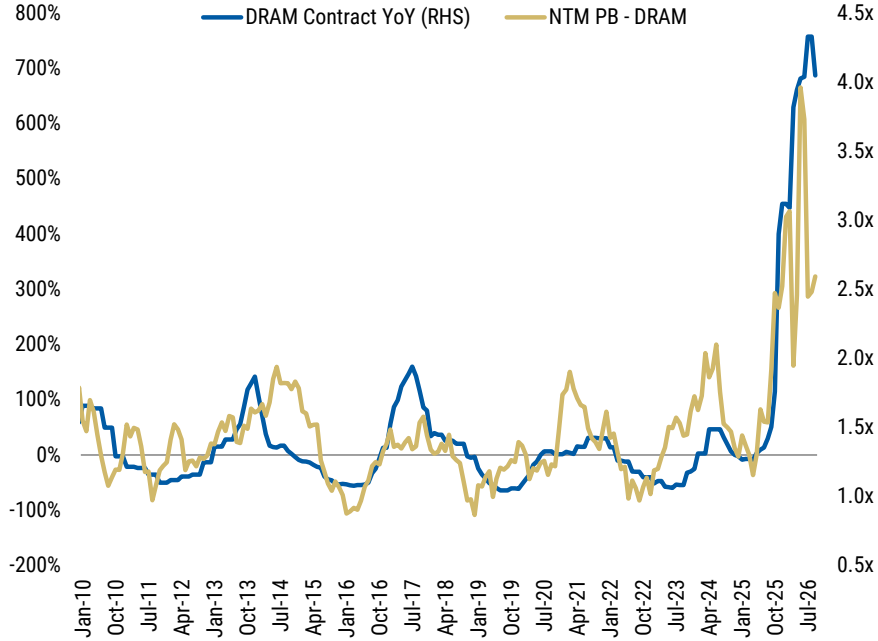
Memory earnings revisions breadth is rolling over and multiple de-rating

Memory EPS revisions breadth, 3M avg

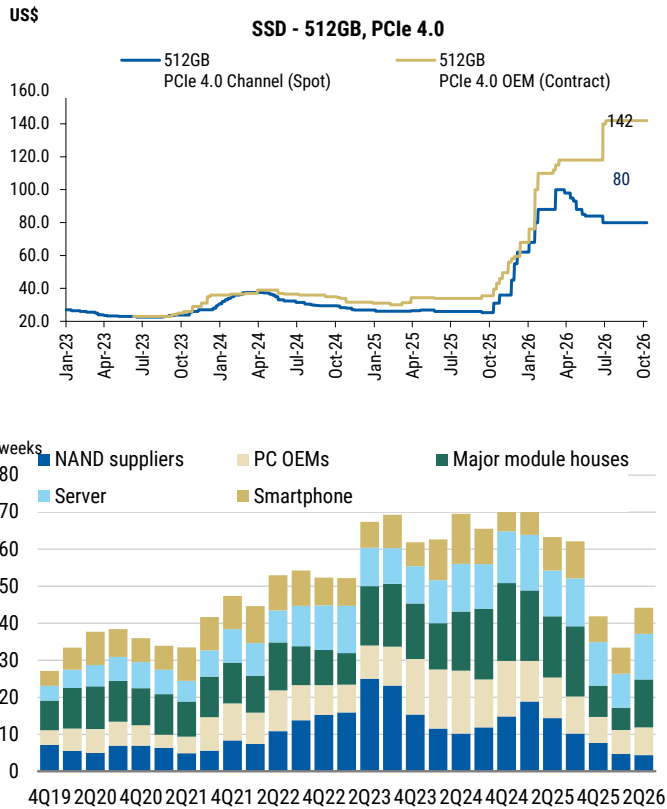
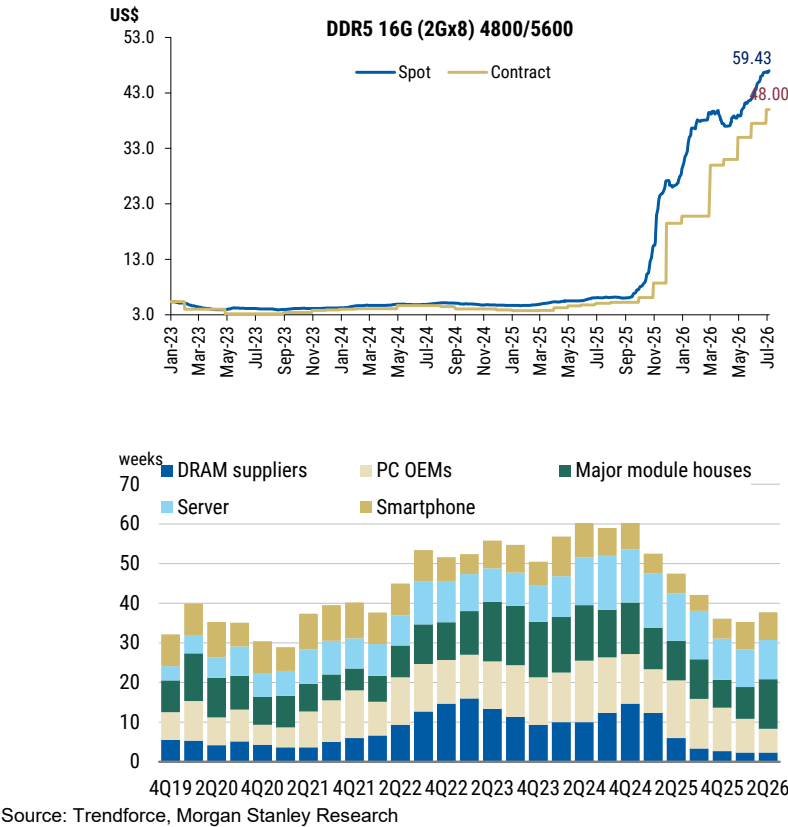


Source: Trendforce, Morgan Stanley Research

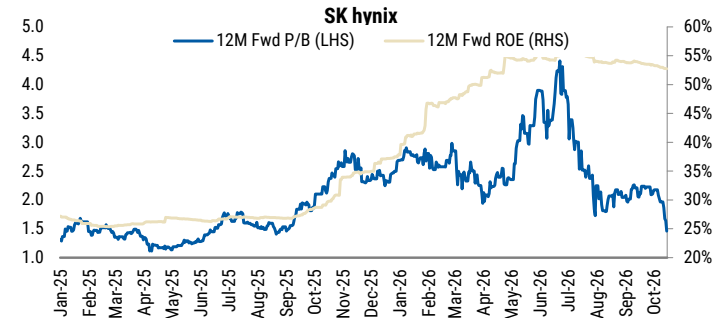
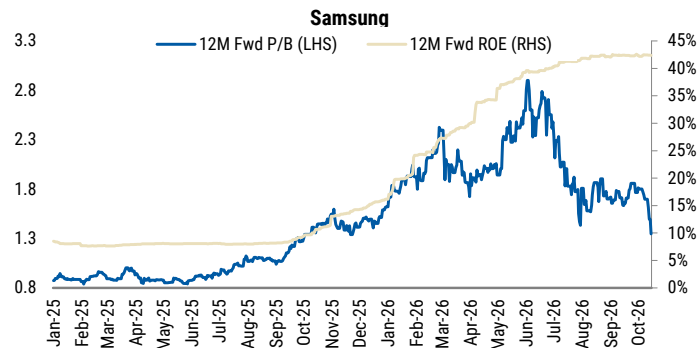
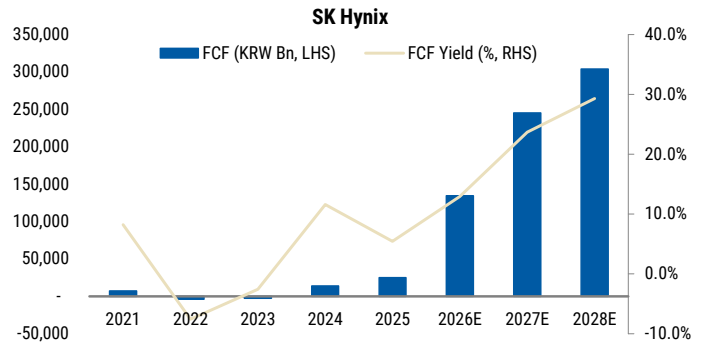
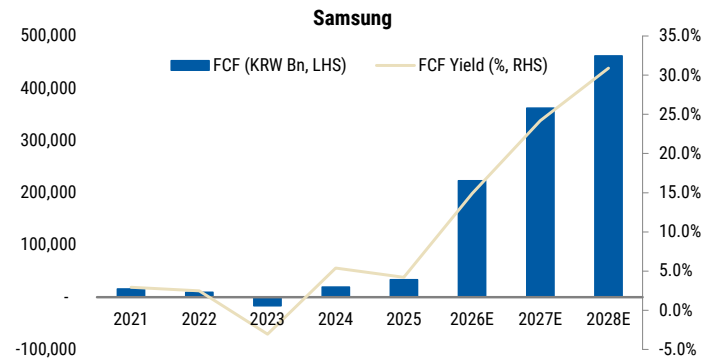
DRAM contract price YoY vs. DRAM NTM P/B



Pricing moderating and inventory inflecting higher



LTAs drive higher FCF but no re-rating



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

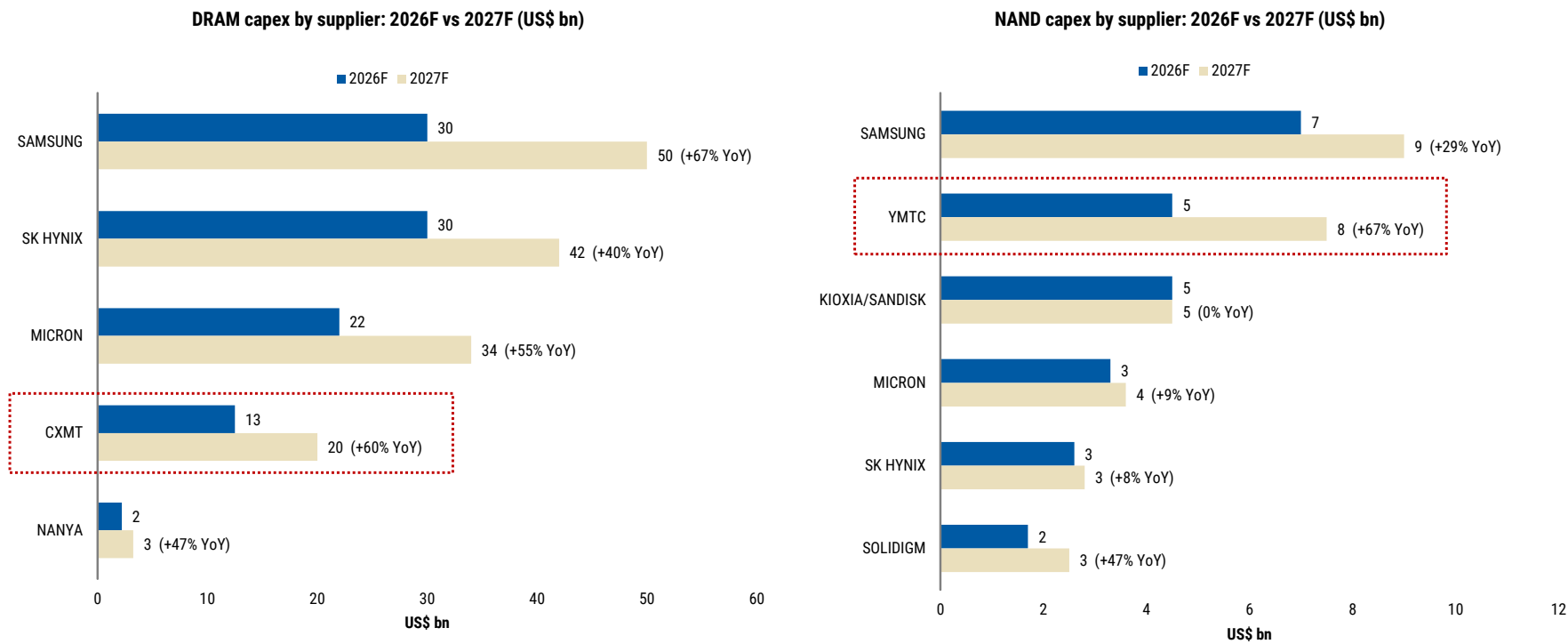
Memory leadership – how can incumbents react to China’s advance?

US to Japan to Korea: China’s share of global memory revenue is rising from a low base as localisation accelerates



Source: TrendForce, Morgan Stanley Research

China is spending to be self-sufficient – CXMT and YMTC lift 2027F capex by 60–67%



Source: TrendForce, Morgan Stanley Research

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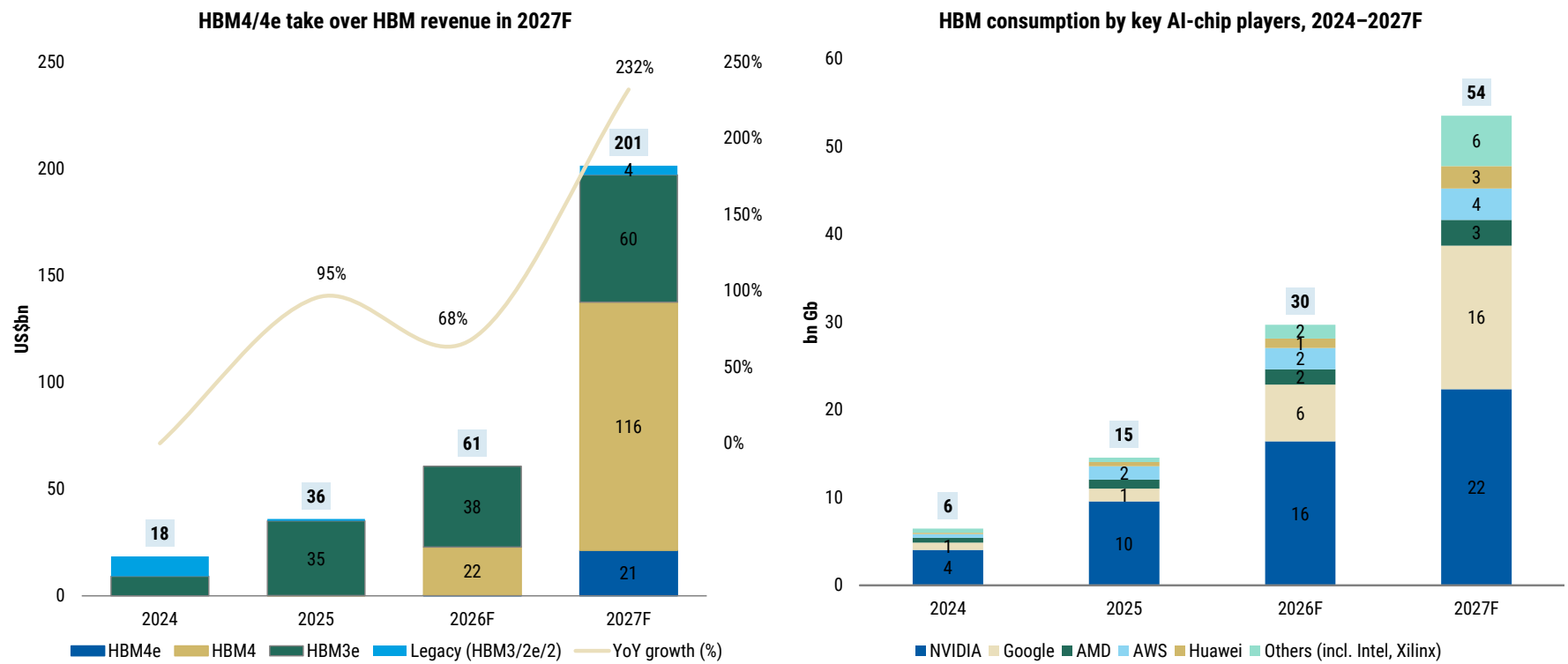
NAND: YMTC supply vs. demand scenario analysis

- **Capacity:** YMTC is building Fab4 and Fab5 (~100kwpm each); dedicating all five announced fabs to NAND could take it to ~24% of global NAND share.
- **Base case:** non-AI NAND demand +5% YoY and AI SSD demand +30–60% YoY in 2028, vs. YMTC capacity of 310kwpm (base) to 470kwpm (max).
- **Bottom line:** NAND stays tight into 2028 if AI capex keeps growing and YMTC stays disciplined; faster greenfield expansion is the key oversupply risk.

AI SSD demand growth % YoY in 2028		30%	40%	50%	60%
YMTC Capacity kwpm in 2028e	310	-1%	-2%	-4%	-6%
	330	0%	-1%	-3%	-4%
	350	2%	0%	-2%	-3%
	370	3%	1%	-1%	-2%
	390	4%	2%	1%	-1%
	410	5%	4%	2%	0%
	430	7%	5%	3%	1%
	450	8%	6%	4%	3%
	470	9%	7%	5%	4%

Source: FactSet, Morgan Stanley Research estimates (e)

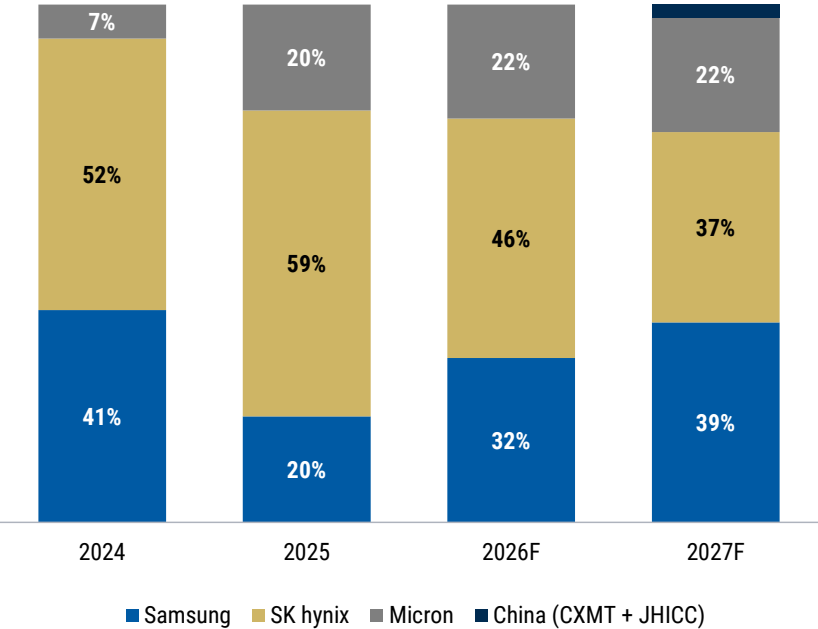
HBM revenue is set to triple to ~US\$200bn in 2027



Source: TrendForce (F = forecasts), Morgan Stanley Research

Samsung is set to regain HBM share leadership in 2027; HBM4 ASP more than double

HBM market share by shipment (bit), 2024–2027F



HBM ASP per Gb by generation, 2024–2027F

US\$ per Gb	2024	2025	2026F	2027F	2027 YoY
HBM2e (8hi)	\$1.29	\$1.30			
HBM3 (12hi)	\$1.38	\$1.38			
HBM3e (12hi)	\$1.74	\$1.80	\$1.65		
HBM3e (16hi, avg.)		\$2.05	\$1.65	\$2.65	+61%
HBM4 (12hi, avg.)		\$2.05	\$2.05	\$4.30	+110%
HBM4e (12hi, avg.)				\$5.50	

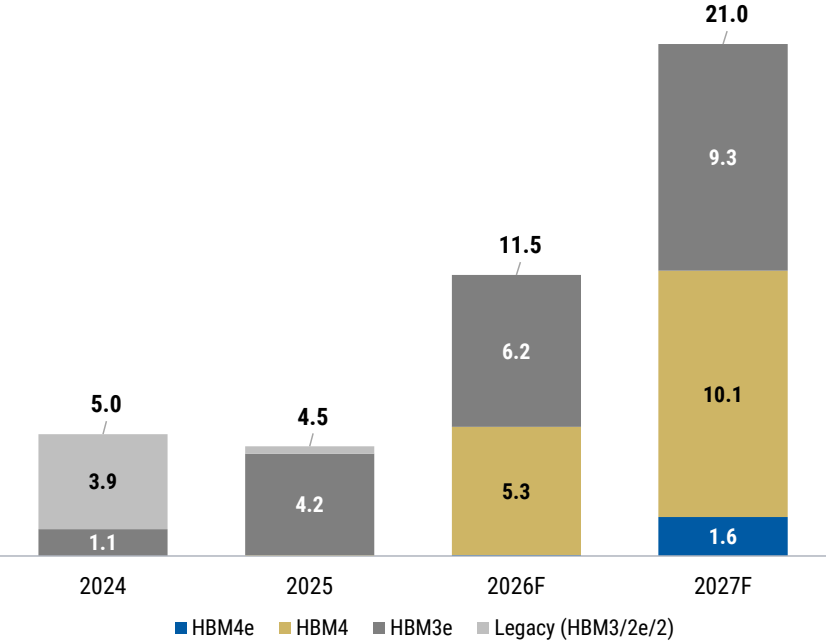
Source: TrendForce (F = forecasts), Morgan Stanley Research

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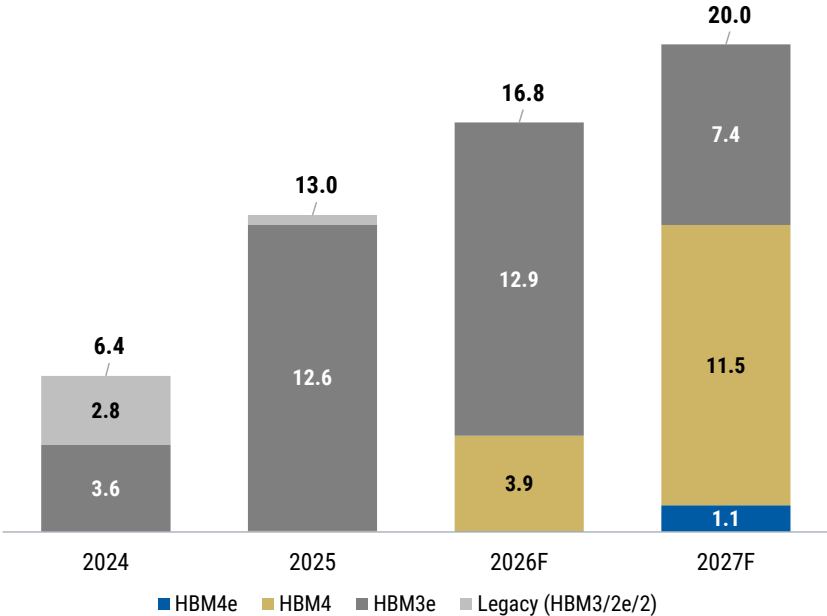
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HBM bit shipments by generation: Samsung vs. SK hynix

Samsung: HBM4/4e reach 56% of bits in 2027F (bn Gb)



SK hynix: HBM4/4e jump to 63% of bits in 2027F (bn Gb)



Source: TrendForce (F = forecasts), Morgan Stanley Research

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HBM technology roadmap

Generation	HBM2	HBM2e	HBM3	HBM3e	HBM4	HBM4e
Release	2018	2020	2022	2024	2026F	2027F
Suppliers	Samsung SK hynix	Samsung SK hynix Micron CXMT JHICC	Samsung SK hynix	Samsung SK hynix Micron CXMT	Samsung SK hynix Micron	Samsung SK hynix Micron
DRAM node	20nm	1Y/1Z	1Z	1α/1β	1β/1C	1C/1γ
Core die density	8Gb	16Gb	16Gb	24Gb	24Gb	32Gb
Stack height (layers)	4/8	4/8	8/12	8/12/16	8/12	8/12
Capacity per stack (GB)	4/8	8/16	16/24	24/36/48	24/36	32/48
Pin speed (Gbps)	2.0–2.4	3.2–3.6	5.6–6.4	8.0–9.8	8–12	11–16
I/O width (bits)	1,024	1,024	1,024	1,024	2,048	2,048
Peak bandwidth per stack (TB/s)	0.31	0.46	0.82	1.25	3.07	4.10

Source: TrendForce (F = forecasts), Morgan Stanley Research

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DRAM cell architectures: 6F², 4F² and 3D-DRAM

Cell footprint



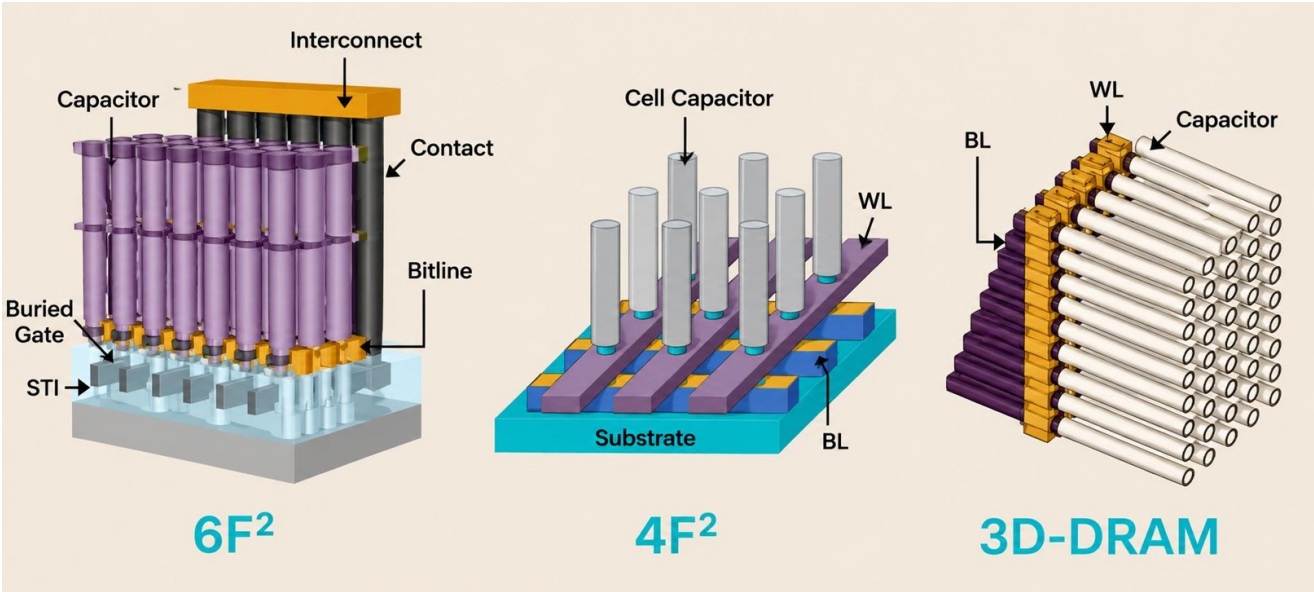
6F²
3F × 2F



4F²
2F × 2F

–33%

cell area at the same F



Note: F = minimum feature size. Source: Techinvestments, Morgan Stanley Research

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Rise of the AI Agent

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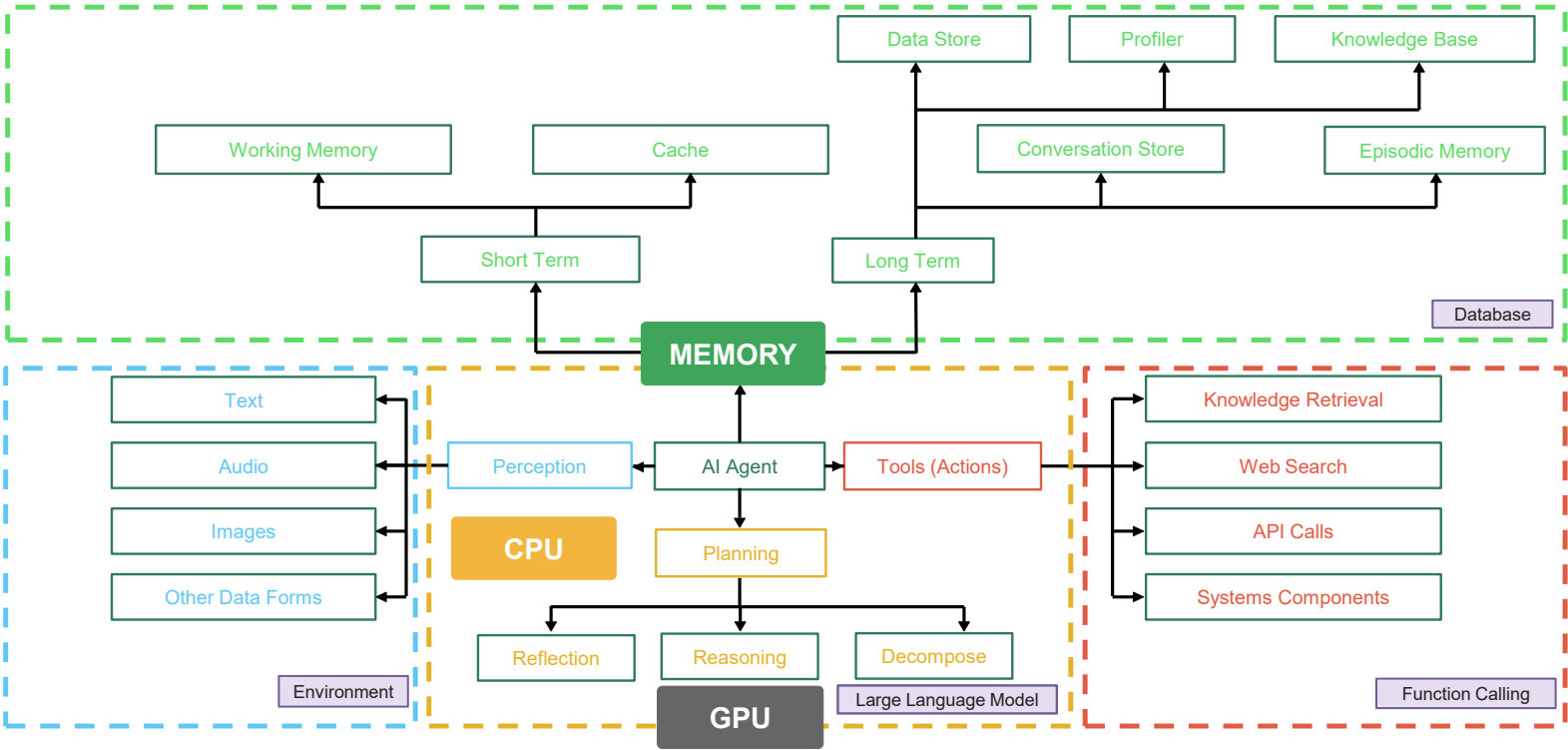
AI transitions from ‘generation’ to ‘autonomous’ action in agentic AI

THE THREE PILLARS



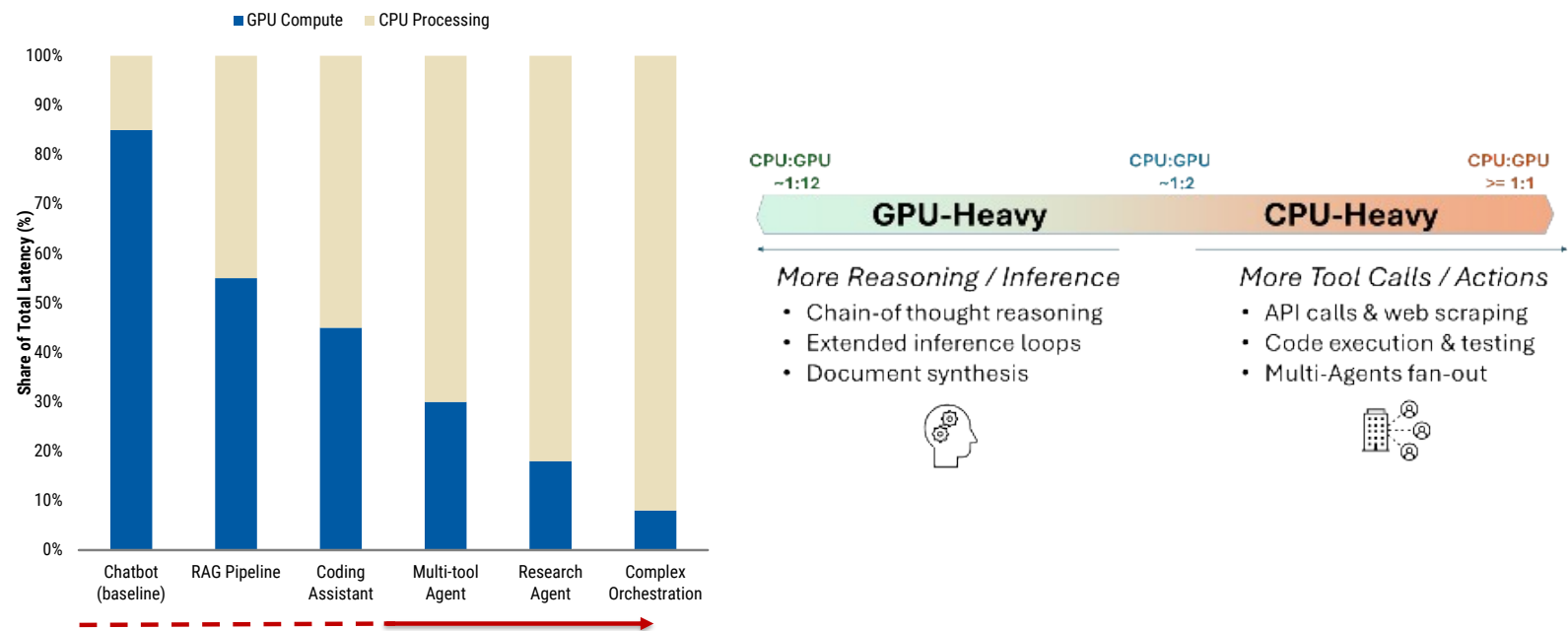
Source: Morgan Stanley Research

AI agent architecture – CPU orchestration, memory and GPU execution



Source: Mongo DB.

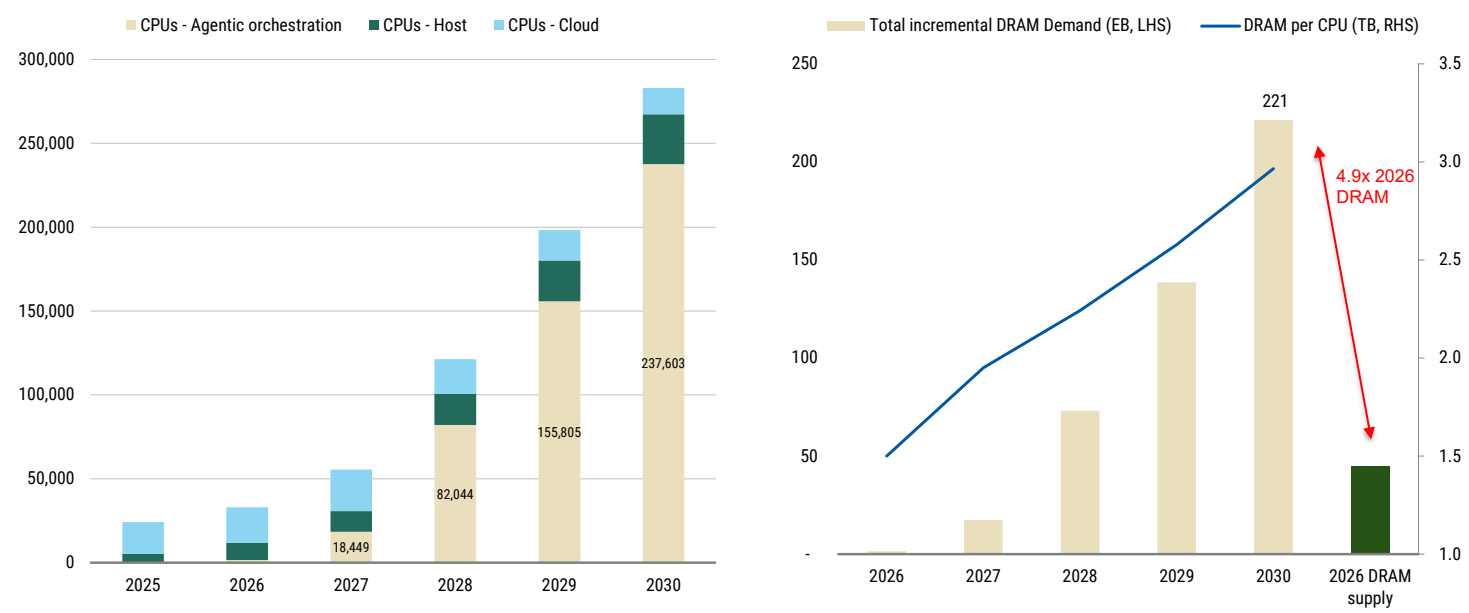
CPU is the new bottleneck in agentic AI



Source: Morgan Stanley Research, Georgia Tech and Intel paper. Note: Per-workload splits are our own directional estimates, not measured benchmarks.

Agentic AI opportunity – sizing the CPU and memory TAM

Agentic AI could add up to US\$238bn CPU opportunity and 221EB of DRAM demand by 2030 under our bull case scenario



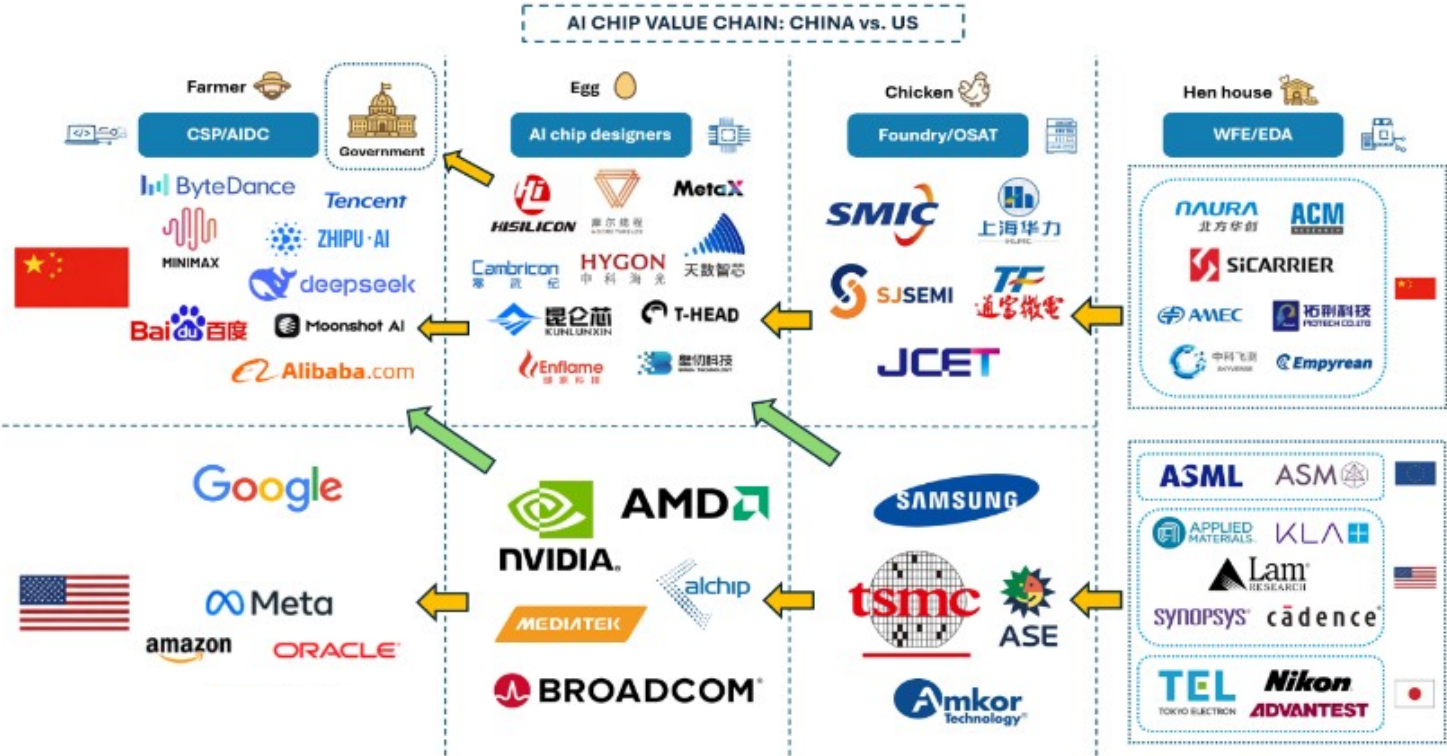
Source: Morgan Stanley Research estimates

Exposure to the AI agent theme

Global Exposure Across the Stack ? Names by exposure					
CPU • NVDA • Intel • AMD • Arm	DRAM • Samsung • Hynix • Micron	NAND • Kioxia • SanDisk	HDD • Seagate • WDC • TDK	FOUNDRY • TSMC	IC-design • GUC • Egis
PCB/Substrate/CCL & Materials • SEMCO • Unimicron • NYPCB • Ibiden • Nittobo • MEC			BMC, CPU & Memory interface • Aspeed • Renesas • Montage • WPG • AP Memory		
MLCC & CPU socket • Murata • TDK • Yageo • FIT Hon Teng • Lotes		ODM • Wiwynn • Hon Hai	SPE • ASML • ASMi • AMAT • Besi • KLAC • Tokyo Electron • Ulvac • Wonik		

Source: Morgan Stanley Research

AI chip value chain – China vs. the US – a decoupling of AI compute



Source: Morgan Stanley Research

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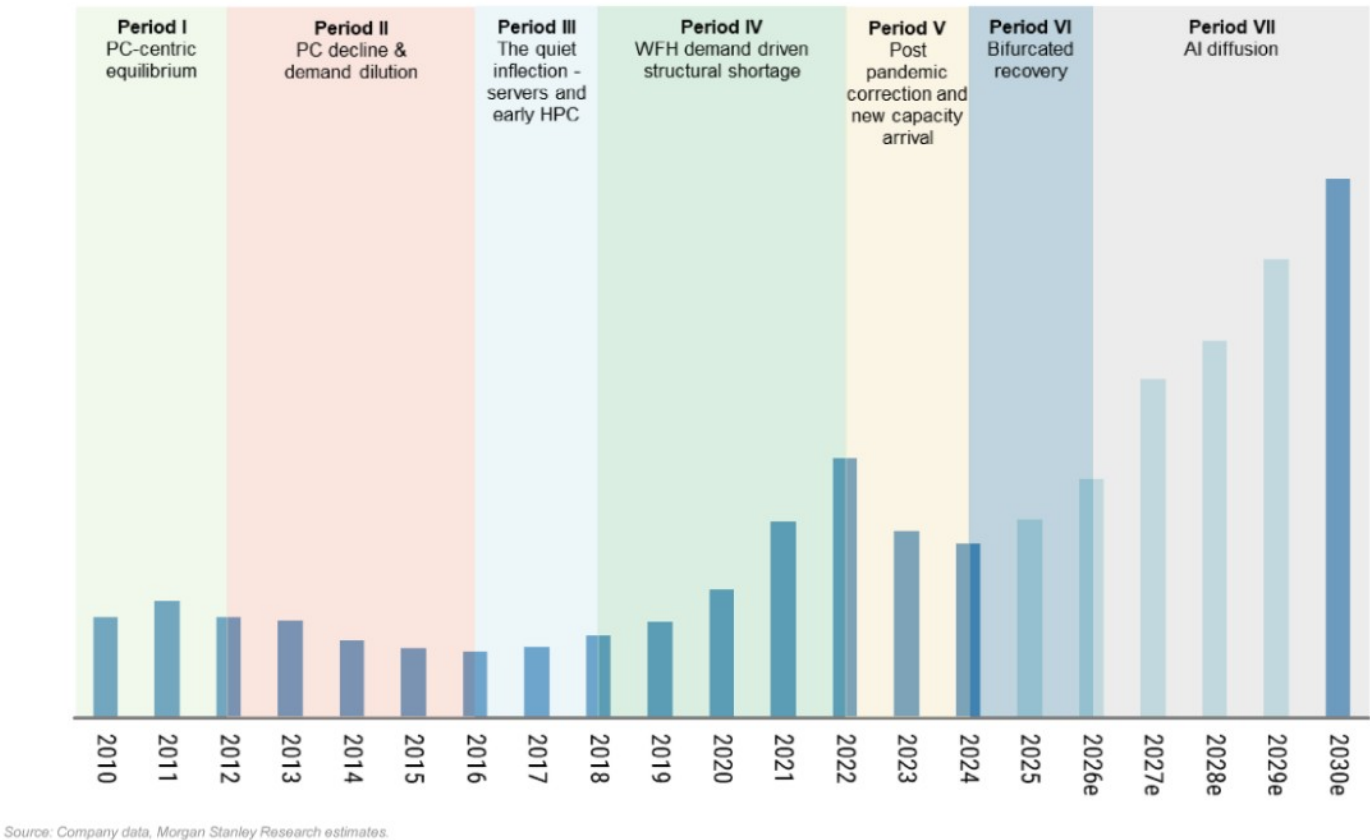
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ABF and MLCC – Mid-Cycle & Early Cycle

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ABF Substrates: We are entering the AI diffusion era

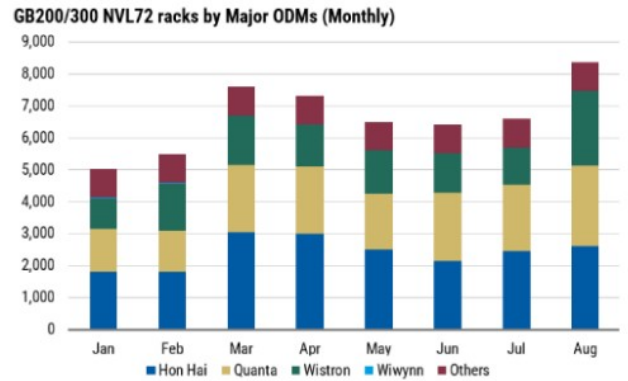


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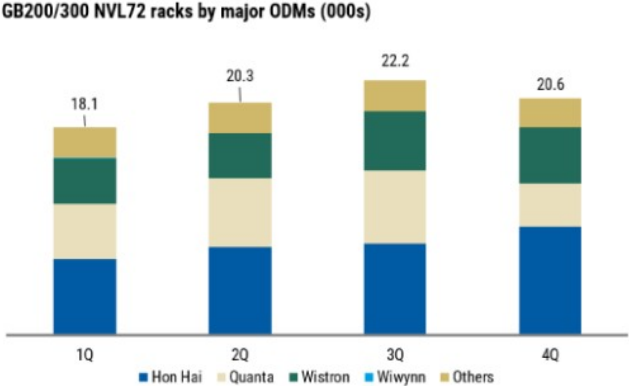
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We forecast 2026 GB200/300 racks to be 80-90k

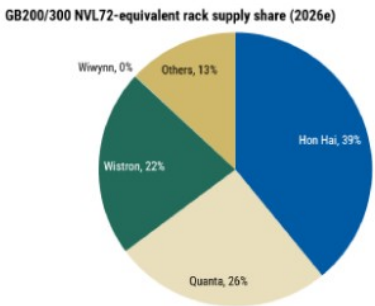
GB200/300 NVL72-equivalent Monthly Rack Output (2026e)



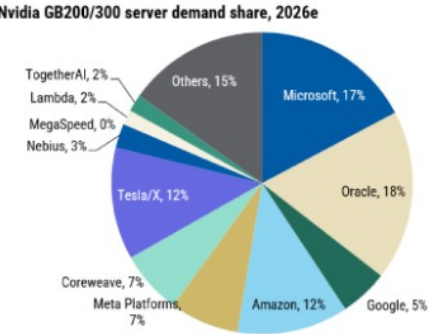
GB200/300 NVL72-equivalent Quarterly Rack Output (2026e)



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



GB200/300 Rack Demand Share (2026e)

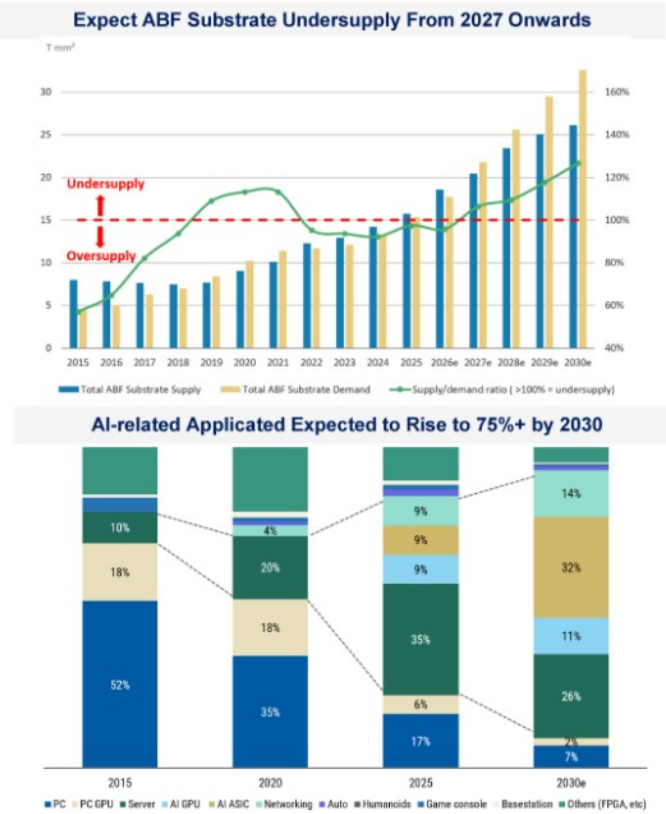


Source: Morgan Stanley Research estimates.

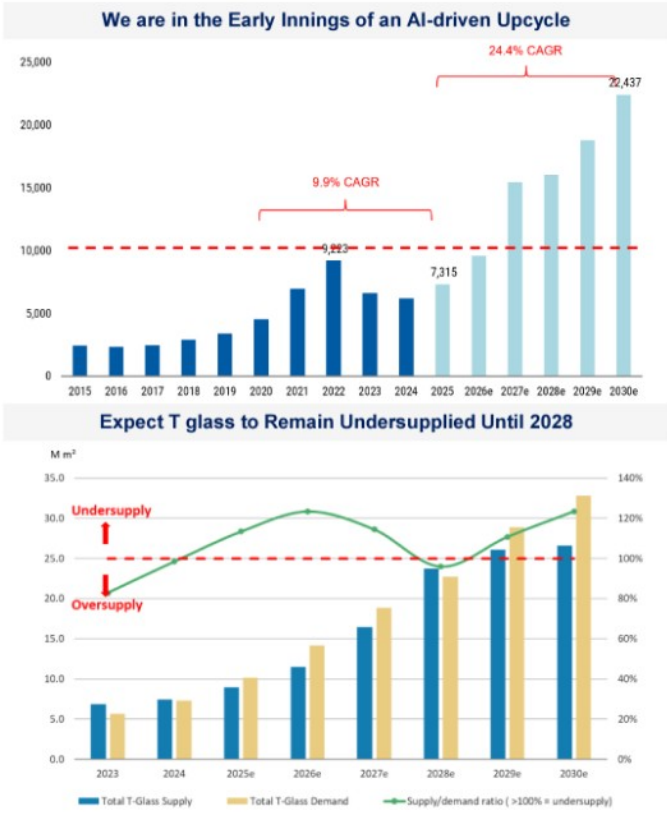
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ABF Substrates: Undersupply from 2027



Source: Morgan Stanley Research.

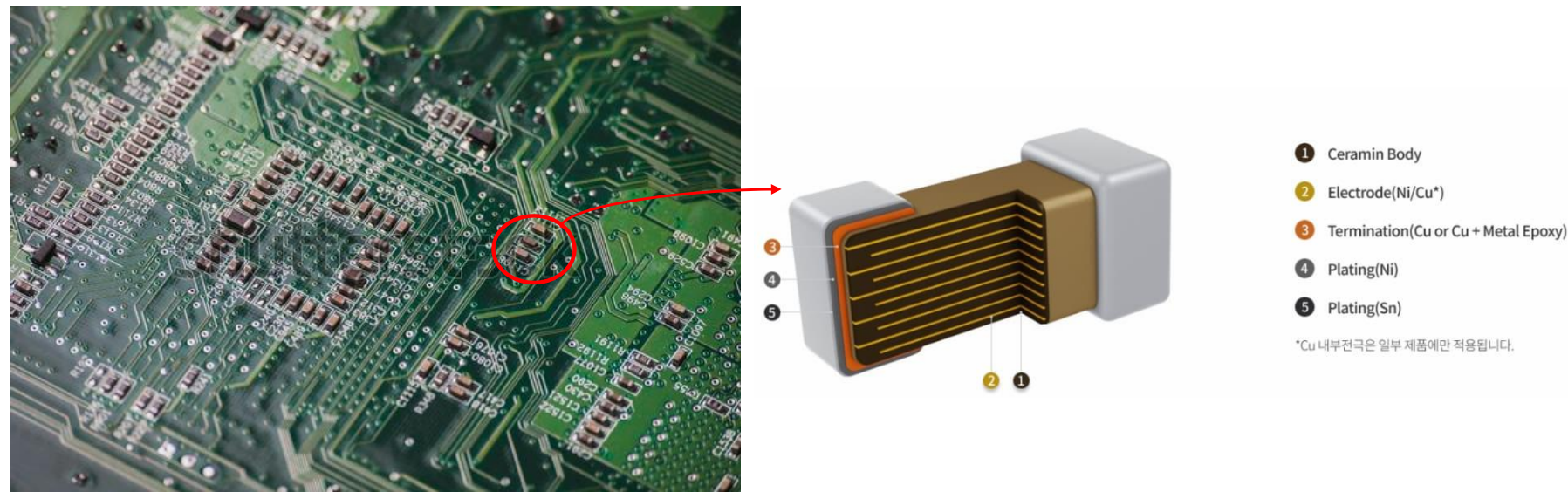


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MLCCs: Tiny but mighty

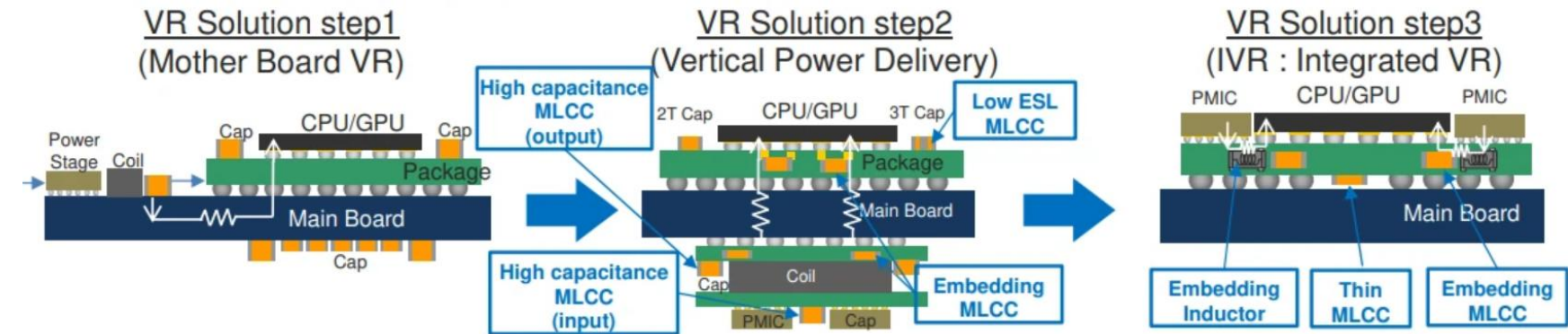
MLCCs (Multi-Layer Ceramic Capacitors) are essential passive components used for power stabilization, noise filtering, and signal integrity



Source: Shutterstock, Samsung Electro-Mechanics

AI servers require more MLCCs as power delivery architectures evolve

New server designs require higher-capacitance, lower-ESL, and embedded MLCC solutions positioned closer to CPUs and GPUs



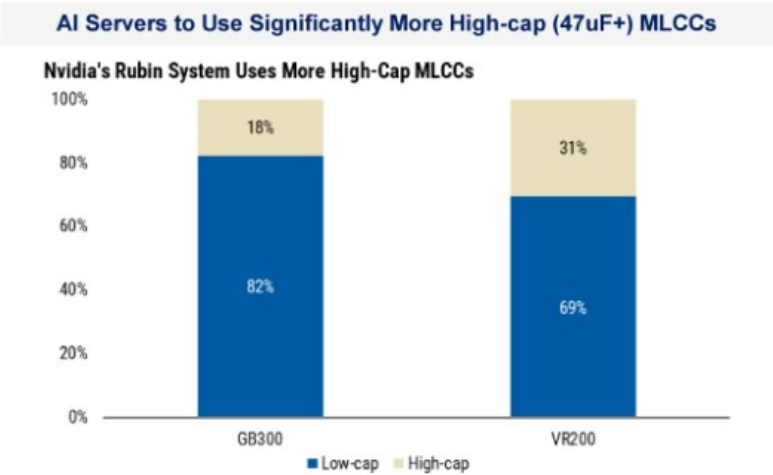
Source: Taiyo Yuden

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VR200 MLCC content is 180%+ higher compared to GB300

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



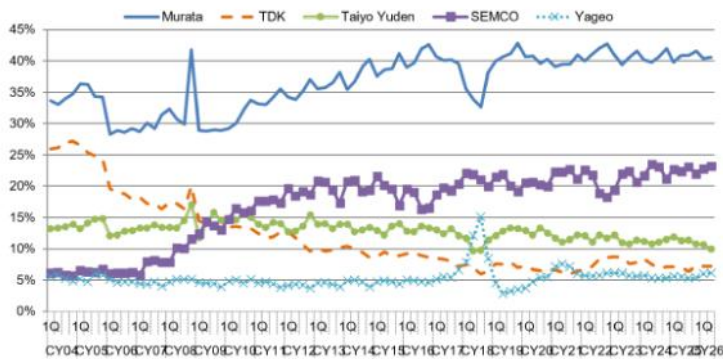
Source: Morgan Stanley Asia Pacific Research estimates based on supply chain checks. Note: High-cap refers to 47uF+ MLCCs.

The MLCC industry is highly consolidated – top 5 account for 87% of global MLCC market

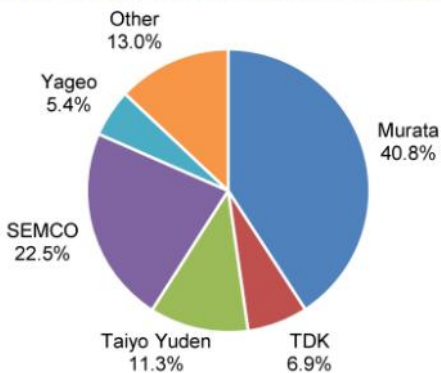
■ MLCC market forecasts

Base Case	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026e	2027e	2028e	2029e	2030e	2031e
Total worldwide shipment quantity (Bil pcs)	1,504	1,480	1,640	2,050	2,029	2,167	2,293	2,605	2,735	3,080	3,480	3,828	3,254	3,695	4,446	3,572	3,187	3,386	3,773	4,037	4,360	4,709	5,086	5,493	5,932
YoY (%)	14.9%	-1.6%	10.8%	24.9%	-1.0%	6.8%	5.8%	13.6%	5.0%	12.6%	13.0%	10.0%	-15.0%	13.5%	20.3%	-19.7%	-10.8%	6.2%	11.4%	7.0%	8.0%	8.0%	8.0%	8.0%	8.0%
CAGR (1991-)	14.9%	13.8%	13.7%	14.2%	13.4%	13.1%	12.8%	12.8%	12.5%	12.5%	12.5%	12.4%	11.3%	11.4%	11.6%	10.5%	9.7%	9.6%	9.7%	9.6%	9.6%	9.5%	9.5%	9.4%	9.4%
ASP in worldwide shipment (Cent)	0.47	0.42	0.36	0.38	0.39	0.36	0.33	0.30	0.29	0.26	0.27	0.37	0.39	0.38	0.39	0.40	0.40	0.39	0.39	0.46	0.56	0.61	0.66	0.72	0.75
YoY (%)	-0.2%	-10.1%	-14.0%	6.8%	1.2%	-7.7%	-7.2%	-10.6%	-4.1%	-7.2%	3.8%	34.3%	4.6%	-2.8%	4.7%	2.0%	-1.0%	-1.0%	-1.0%	17.9%	22.6%	8.0%	9.0%	8.2%	4.6%
CAGR (1991-)	-8.6%	-8.7%	-9.0%	-8.2%	-7.8%	-7.8%	-7.7%	-7.9%	-7.7%	-7.7%	-7.3%	-6.0%	-5.6%	-5.5%	-5.2%	-5.0%	-4.9%	-4.8%	-4.6%	-4.1%	-3.4%	-3.1%	-2.8%	-2.5%	-2.4%
Total worldwide shipment value (Bil \$)	7.00	6.19	5.90	7.87	7.89	7.77	7.63	7.75	7.80	8.15	9.56	14.13	12.56	13.86	17.47	14.32	12.64	13.30	14.67	18.51	24.52	28.60	33.68	39.37	44.45
YoY (%)	14.6%	-11.6%	-4.7%	33.4%	0.2%	-1.5%	-1.8%	1.6%	0.7%	4.5%	17.3%	47.7%	-11.1%	10.3%	26.0%	-18.1%	-11.7%	5.2%	10.3%	26.2%	32.4%	16.7%	17.8%	16.9%	12.9%
CAGR (1991-)	5.0%	4.0%	3.5%	4.8%	4.6%	4.3%	4.0%	3.9%	3.8%	3.8%	4.3%	5.7%	5.0%	5.2%	5.8%	5.0%	4.4%	4.4%	4.6%	5.1%	5.8%	6.1%	6.4%	6.6%	6.8%

■ Global share of the top 5 ceramic capacitor firms (USD base)



■ Global share of the top 5 ceramic capacitor firms (USD base, CY25)

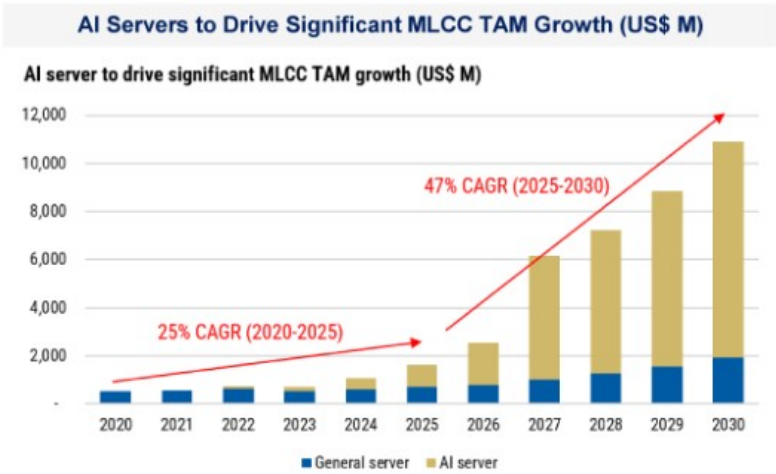
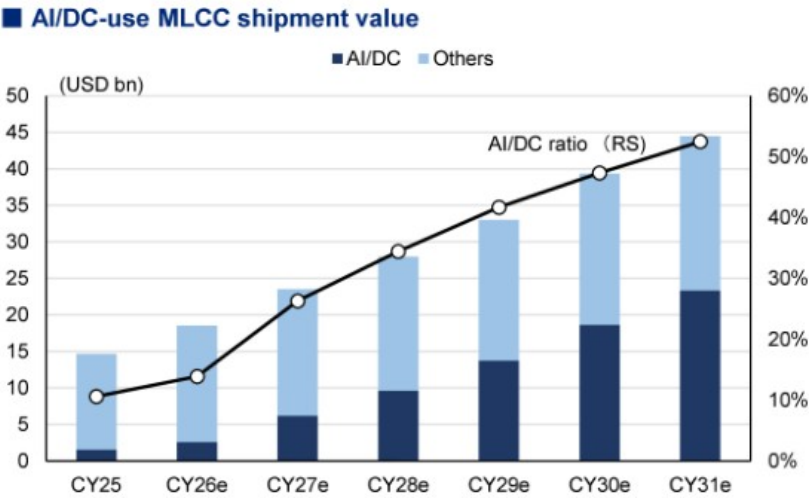


Note: e = Morgan Stanley Research estimates
Source: Company data, Morgan Stanley Research

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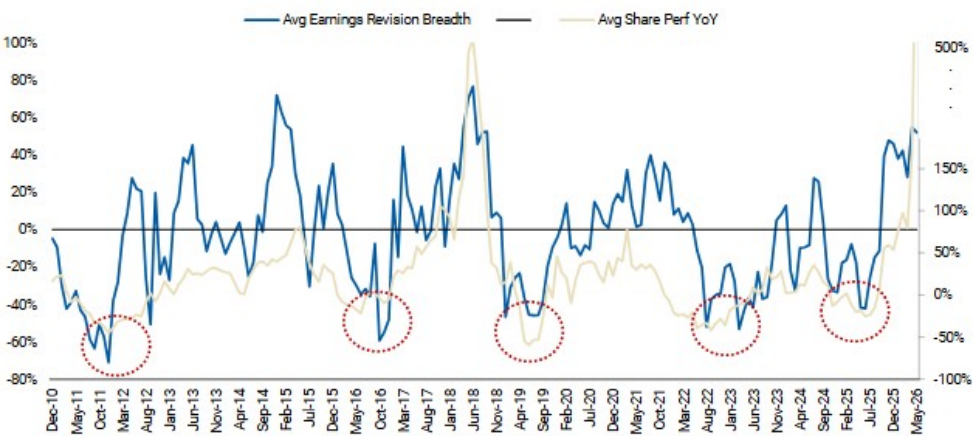
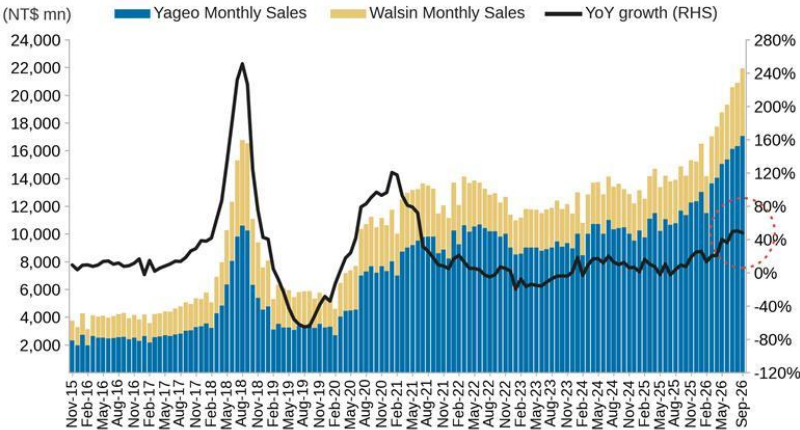
AI is emerging as a key growth driver for the MLCC industry



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

MLCC fundamentals are inflecting

Monthly sales growth among key Taiwan MLCC suppliers has recently turned positive. Earnings revision breadth has improved meaningfully in recent months



Source: FactSet, Morgan Stanley Research

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Valuation comparison

Company name	Ticker	MS	Share Price	YTD Perf	Price Target	Upside	Mkt Cap	P/E		P/B		EV/EBITDA		ROE		Div Yield		Coverage
			(Local Curr)	(%)	(Local Curr)	(%)	(\$ mn)	2026E	2027E	2026E	2027E	2026E	2027E	2026E	2027E	2026E	2027E	Analyst
Foundry																		
TSMC	2330.TW	OW	2,490.00	60.6%	3,088.00	24%	2,007,047 USD	21.6 e	16.3 e	8.2 e	5.8 e	14.7 e	10.8 e	55.2% e	50.5% e	1.1% e	1.4% e	Chan, Charlie
UMC	2303.TW	OW	142.00	188.3%	188.00	32%	55,730 USD	20.2 e	20.0 e	4.1 e	3.9 e	12.5 e	9.3 e	23.2% e	20.2% e	3.7% e	3.8% e	Chan, Charlie
SMIC	0981.HK	OW	54.30 HKD	(24.0%)	85.00 HKD	57%	48,764	35.8 e	21.7 e	2.4 e	2.2 e	11.1 e	9.9 e	7.2% e	11.1% e	0.0% e	0.0% e	Chan, Charlie
Vanguard International Semiconductor	5347.TWO	EW	176.00	91.1%	180.00	2%	10,168 USD	32.2 e	26.0 e	3.8 e	3.6 e	18.2 e	15.5 e	12.2% e	14.7% e	2.5% e	2.3% e	Chan, Charlie
Hua Hong Semiconductor Ltd	1347.HK	EW	83.05 HKD	11.8%	128.00 HKD	54%	18,183	56.3 e	32.0 e	2.3 e	2.0 e	18.4 e	15.4 e	4.9% e	7.3% e	0.1% e	0.4% e	Chan, Charlie
Powerchip Semiconductor Manufacturing Co	6770.TW	OW	71.00	79.5%	111.00	56%	9,244 USD	50.9 e	12.7 e	1.6 e	1.3 e	10.1 e	2.5 e	7.6% e	13.0% e	NA	NA	Yen, Daniel
WIN Semiconductors Corp	3105.TWO	EW	557.00	204.4%	600.00	8%	7,339 USD	64.5 e	49.3 e	5.3 e	5.2 e	38.1 e	24.1 e	8.8% e	10.8% e	0.4% e	1.2% e	Chan, Charlie
Advanced Wireless Semiconductor Co	8086.TWO	UW	141.00	32.4%	130.00	-8%	863 USD	22.3 e	19.7 e	3.0 e	2.7 e	9.7 e	8.4 e	15.2% e	15.2% e	0.8% e	0.8% e	Chan, Charlie
Mean								38.0	24.7	3.8	3.3			16.8%	17.8%	1.2%	1.4%	
Median								34.0	20.9	3.4	3.1			10.5%	13.8%	0.8%	1.2%	
Memory																		
Samsung Electronics	005930.KS	OW	232,000.00	93.5%	381,000.00	64%	1,247,732 USD	5.6 e	3.5 e	2.5 e	1.5 e	3.3 e	1.6 e	72.2% e	70.9% e	3.4% e	2.7% e	Kim, Shawn
SK hynix	000660.KS	OW	1,419,000.00	118.0%	2,600,000.00	83%	754,140 USD	3.9 e	3.1 e	2.6 e	1.4 e	2.9 e	1.2 e	213.5% e	83.8% e	0.3% e	0.1% e	Kim, Shawn
GigaDevice Semiconductor Beijing Inc	603986.SS	OW	292.56	36.6%	750.00	156%	29,173 USD	8.4 e	6.5 e	4.8 e	3.0 e	5.9 e	4.1 e	126.6% e	73.4% e	3.6% e	4.6% e	Yen, Daniel
Nanya Technology Corp.	2408.TW	OW	480.50	149.0%	600.00	25%	46,039 USD	6.3 e	3.6 e	2.9 e	1.5 e	3.7 e	1.3 e	151.0% e	90.5% e	0.0% e	0.0% e	Chan, Charlie
Winbond Electronics Corp	2344.TW	OW	165.00	99.8%	288.00	75%	21,441 USD	6.6 e	3.3 e	3.4 e	1.7 e	4.5 e	1.7 e	103.8% e	101.8% e	0.0% e	0.0% e	Yen, Daniel
Phison Electronics Corp	8299.TWO	EW	1,965.00	35.5%	2,588.00	32%	12,459 USD	5.3 e	14.9 e	2.9 e	3.2 e	3.6 e	11.1 e	136.7% e	21.1% e	10.4% e	3.7% e	Chan, Charlie
Silicon Motion	SIMO.O	OW	246.63	166.1%	400.00	62%	8,456	21.5 e	11.9 e	6.8 e	4.8 e	16.1 e	9.0 e	47.0% e	57.3% e	0.6% e	2.2% e	Yeh, Tiffany
Macronix International Co Ltd	2337.TW	OW	110.00	178.8%	220.00	100%	6,172 USD	4.7 e	1.8 e	2.3 e	1.0 e	3.4 e	0.6 e	101.2% e	135.2% e	1.6% e	1.6% e	Yen, Daniel
KIOXIA Holdings	285A.T	OW	14,690.00	322.3%	37,000.00	152%	154,057 USD	4.9 e	4.2 e	4.7 e	2.4 e	2.7 e	1.8 e	356.4% e	113.3% e	2.0% e	3.4% e	Yoshikawa, Kazuo
Mean								7.5	5.9	3.7	2.3			145.4%	83.0%	2.4%	2.0%	
Median								5.6	3.6	2.9	1.7			126.6%	83.8%	1.6%	2.2%	
Backend																		
ASE Technology Holding Co. Ltd.	3711.TW	OW	747.00	198.2%	858.00	15%	104,794 USD	40.6 e	22.7 e	7.8 e	6.4 e	19.0 e	11.3 e	21.8% e	33.8% e	0.7% e	0.7% e	Chan, Charlie
JCET Group Co Ltd	600584.SS	OW	58.65	59.5%	90.20	54%	15,680 USD	39.9 e	28.6 e	3.3 e	3.0 e	12.8 e	11.4 e	8.8% e	11.4% e	0.4% e	0.5% e	Dai, Daisy
Universal Scientific Ind. (Shanghai)	601231.SS	OW	21.59	(28.0%)	39.30	82%	7,705 USD	21.1 e	14.2 e	2.2 e	2.0 e	10.3 e	7.2 e	11.8% e	16.3% e	1.7% e	2.6% e	Dai, Daisy
King Yuan Electronics Co Ltd	2449.TW	OW	296.50	25.8%	348.00	17%	11,334 USD	32.7 e	21.7 e	6.6 e	5.6 e	14.8 e	9.4 e	22.5% e	31.2% e	1.6% e	3.3% e	Wang, Lucas
HD Hyundai Electric Co Ltd	267260.KS	OW	543,000.00	(29.8%)	1,500,000.00	176%	14,596 USD	19.6 e	14.2 e	8.0 e	5.9 e	13.8 e	10.1 e	49.2% e	56.1% e	2.1% e	2.6% e	Kim, Ryan
Fadu Inc	440110.KQ	OW	66,200.00	211.5%	150,000.00	127%	2,372 USD	65.2 e	31.0 e	NM	93.9 e	54.9 e	24.2 e		NM	0.0% e	0.0% e	Kim, Ryan
Leeno Industrial Inc.	058470.KQ	OW	76,000.00	26.0%	77,000.00	1%	4,319 USD	39.0 e	35.8 e	7.6 e	6.7 e	30.5 e	27.1 e	22.5% e	21.4% e	0.9% e	1.1% e	Kim, Ryan
Hanmi Semiconductor Co. Ltd.	042700.KS	UW	217,500.00	70.7%	200,000.00	-8%	15,564 USD	71.6 e	61.9 e	25.2 e	19.9 e	62.8 e	50.7 e	40.8% e	40.7% e	0.8% e	0.6% e	Kim, Ryan
Mean								41.2	28.8	8.7	17.9			33.3%	30.1%	1.0%	1.4%	
Median								39.4	25.6	7.6	6.1			22.5%	31.2%	0.9%	0.9%	
Semicap/Equipment/Materials/Supply Chain																		
NAURA Technology Group Co Ltd	002371.SZ	OW	586.81	27.8%	788.00	34%	63,571 USD	53.7 e	33.1 e	8.5 e	7.0 e	54.8 e	34.0 e	18.1% e	25.7% e	0.4% e	0.6% e	Zhao, Henry
Advanced Micro-Fabrication Equipment Inc	688012.SS	OW	295.05	61.2%	428.00	45%	42,073 USD	49.3 e	42.9 e	9.3 e	8.2 e	108.4 e	49.2 e	23.2% e	23.8% e	0.0% e	0.0% e	Zhao, Henry
GlobalWafers Co Ltd	6488.TWO	EW	1,020.00	151.2%	900.00	-12%	13,865 USD	43.1 e	28.7 e	5.0 e	4.5 e	26.5 e	15.0 e	12.1% e	17.3% e	1.1% e	1.4% e	Chan, Charlie
ASMPT Ltd	0522.HK	OW	149.10	93.4%	248.00	66%	7,554 USD	33.9 e	21.8 e	3.5 e	3.2 e	15.1 e	10.6 e	10.7% e	15.8% e	1.3% e	2.3% e	Dai, Daisy
WPG Holdings	3702.TW	OW	118.50	103.6%	160.00	35%	6,451 USD	9.2 e	9.5 e	2.0 e	1.9 e	9.0 e	9.3 e	26.3% e	21.6% e	7.9% e	7.7% e	Yen, Daniel
SICC Co Ltd	688234.SS	OW	91.09	2.5%	127.10	40%	6,595 USD	636.2 e	216.4 e	6.1 e	5.9 e	70.9 e	62.0 e	1.0% e	2.8% e	0.0% e	0.0% e	Dai, Daisy
ACM Research Inc	ACMR.O	OW	64.83	64.3%	115.00	77%	3,835	22.9 e	16.7 e	2.3 e	2.1 e	14.2 e	9.3 e	10.5% e	13.2% e	0.6% e	1.3% e	Zhao, Henry
Gudeng Precision	3680.TWO	OW	549.00	54.2%	648.00	18%	1,639 USD	28.2 e	20.0 e	4.0 e	3.5 e	29.8 e	19.9 e	16.4% e	20.2% e	0.4% e	0.9% e	Chan, Charlie
Applied Materials Inc.	AMAT.O	EW	464.24	80.6%	563.00	21%	374,198	36.4 e	23.7 e	13.3 e	10.2 e	30.7 e	19.2 e	50.0% e	55.3% e	0.4% e	0.5% e	Brett, Shane
ASML Holding NV	ASML.AS	OW	1,509.60	63.8%	1,700.00	13%	672,825 USD	36.8 e	27.1 e	20.6 e	12.8 e	30.3 e	22.9 e	81.4% e	74.7% e	0.4% e	0.4% e	Simpson, Lee
Wonik IPS Co Ltd	240810.KQ	OW	121,500.00	78.9%	160,000.00	32%	4,447 USD	31.4 e	22.0 e	5.4 e	4.4 e	22.5 e	15.6 e	20.0% e	24.4% e	0.5% e	0.7% e	Kim, Ryan
Advantest	6857.T	OW	40,380.00	105.7%	45,000.00	11%	184,796 USD	41.6 e	25.4 e	24.0 e	14.3 e	30.4 e	17.5 e	88.6% e	94.6% e	0.3% e	0.5% e	Tamura, Suzanne
DISCO	6146.T	OW	58,100.00	20.6%	67,000.00	15%	39,787 USD	29.0 e	23.5 e	8.8 e	7.2 e	19.4 e	15.5 e	37.0% e	37.5% e	1.4% e	1.7% e	Tamura, Suzanne
Camtek	CAMT.O	EW	142.78	34.3%	152.00	6%	7,256	44.8 e	31.0 e	8.9 e	6.8 e	41.3 e	26.2 e	26.6% e	29.2% e	0.0% e	0.0% e	Brett, Shane
KLA Corp	KLAC.O	OW	184.00	51.4%	227.00	23%	242,714	82.4 e	32.5 e	62.7 e	27.3 e	63.9 e	25.8 e	102.9% e	116.3% e	0.1% e	0.1% e	Brett, Shane
Lam Research Corp	LROX.O	OW	301.11	75.9%	385.00	28%	378,589	79.4 e	30.0 e	43.7 e	19.8 e	62.0 e	24.1 e	74.4% e	100.5% e	0.2% e	0.4% e	Brett, Shane
MKS Inc.	MKSI.O	OW	247.56	54.9%	345.00	39%	17,998	19.1 e	12.6 e	5.6 e	4.2 e	13.1 e	9.2 e	34.5% e	41.8% e	0.4% e	0.4% e	Brett, Shane
Nova Ltd	NVMI.O	EW	342.29	4.2%	461.00	35%	11,792	32.4 e	24.2 e	7.1 e	5.5 e	27.8 e	19.6 e	27.6% e	29.4% e	0.0% e	0.0% e	Brett, Shane
Teradyne Inc	TER.O	EW	380.29	96.5%	397.00	4%	60,438	41.1 e	31.9 e	15.8 e	12.3 e	32.3 e	25.1 e	52.1% e	48.7% e	0.1% e	0.2% e	Brett, Shane
Mean								70.8	35.4	13.5	8.5			37.6%	41.7%	0.8%	1.0%	
Median								36.8	25.4	8.5	6.8			26.6%	29.2%	0.4%	0.5%	

Source: Company data, Morgan Stanley Research (e) estimates. Note: Data as of Oct 13, 2026; NM = not meaningful.

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Valuation Comparison

Company name	Ticker	MS	Share Price	YTD Perf	Price Target	Upside	Mkt Cap	P/E		P/B		EV/EBITDA		ROE		Div Yield		Coverage
			(Local Curr)	(%)	(Local Curr)	(%)	(\$ mn)	2026E	2027E	2026E	2027E	2026E	2027E	2026E	2027E	2026E	2027E	Analyst
PC/Server ODM/OEM																		
Hon Hai Precision	2317.TW	OW	234.00	1.5%	310.00	32%	100,565 USD	14.3 e	11.8 e	1.6 e	1.5 e	6.5 e	5.6 e	11.7% e	13.3% e	4.1% e	5.0% e	Kao, Howard
Quanta Computer Inc.	2382.TW	OW	325.50	19.7%	385.00	18%	38,970 USD	13.2 e	11.3 e	4.0 e	3.3 e	10.7 e	9.0 e	37.2% e	35.8% e	3.5% e	3.8% e	Kao, Howard
Wistron Corporation	3231.TW	OW	197.00	30.9%	275.00	40%	20,412 USD	12.8 e	9.1 e	2.2 e	1.9 e	3.9 e	2.7 e	20.0% e	24.4% e	1.9% e	2.8% e	Kao, Howard
Wiwynn Corp	6669.TW	OW	2,490.00	65.6%	842.57	-66%	NA	NA	NA	NA	NA	NA	NA	53.3% e	52.8% e	NA	NA	Kao, Howard
Pegatron Corporation	4938.TW	EW	82.20	19.8%	85.00	3%	6,661 USD	15.2 e	10.8 e	0.8 e	0.8 e	4.6 e	3.6 e	5.8% e	7.6% e	0.0% e	0.0% e	Kao, Howard
Compal Electronics	2324.TW	UW	36.00	18.4%	23.00	-36%	4,989 USD	18.2 e	16.2 e	1.0 e	1.0 e	6.7 e	6.4 e	5.9% e	6.4% e	2.4% e	3.4% e	Kao, Howard
Acer Inc.	2353.TW	UW	29.60	12.1%	21.00	-29%	2,829 USD	19.2 e	18.4 e	1.2 e	1.1 e	11.2 e	10.4 e	4.7% e	6.3% e	4.5% e	0.0% e	Kao, Howard
Asustek Computer Inc.	2357.TW	UW	700.00	27.7%	570.00	-19%	16,118 USD	11.8 e	12.2 e	1.7 e	1.7 e	9.2 e	9.8 e	15.2% e	14.1% e	5.9% e	5.7% e	Kao, Howard
Giga-Byte Technology Co. Ltd.	2376.TW	EW	325.00	30.3%	375.00	15%	6,395 USD	10.0 e	10.9 e	3.0 e	2.9 e	6.9 e	7.9 e	35.5% e	27.4% e	4.6% e	8.2% e	Kao, Howard
CDW Corporation	CDW.O	OW	134.34	(1.4%)	170.00	27%	17,269	14.7 e	12.8 e	6.1 e	4.9 e	10.0 e	9.1 e	44.4% e	47.0% e	1.9% e	2.0% e	Woodring, Erik
Dell Technologies Inc.	DELL.N	EW	391.38	210.9%	477.00	22%	255,390	11.1	18.9 e	NM	408.2 e	6.1	11.6 e	NM	NM	1.9%	0.7% e	Woodring, Erik
Hewlett Packard Enterprise	HPE.N	EW	45.13	87.9%	71.00	57%	65,498	13.1 e	10.8 e	2.4 e	2.1 e	8.9 e	7.2 e	20.1% e	21.7% e	1.3% e	1.3% e	Woodring, Erik
HP Inc.	HPQ.N	UW	24.14	8.3%	19.00	-21%	22,212	8.2 e	9.1 e	322.8 e	137.8 e	4.3 e	4.3 e	NM	3,597.7% e	5.0% e	5.3% e	Woodring, Erik
Logitech International SA	LOGI.O	UW	100.29	0.1%	88.00	-12%	14,532	15.8	17.7 e	6.0	6.2 e	11.5	12.5 e	40.3%	36.5% e	1.7%	1.7% e	Woodring, Erik
NetApp Inc	NTAP.O	UW	159.69	49.1%	137.00	-14%	31,938	13.6 e	18.1 e	16.4 e	18.9 e	9.2 e	12.3 e	157.2% e	129.6% e	1.9% e	1.3% e	Woodring, Erik
Lenovo	0992.HK	OW	32.36 HKD	249.5%	46.00 HKD	42%	49,588	8.0	18.5 e	1.9	5.4 e	3.4	7.4 e	28.7%	36.9% e	6.4%	2.5% e	Kao, Howard
Mean								13.3	13.8	26.5	39.8			34.3%	270.5%	3.1%	2.9%	
Median								13.2	12.2	2.3	2.9			24.4%	27.4%	2.4%	2.5%	
Smartphone/iPhone																		
Apple, Inc.	AAPL.O	OW	319.97	17.7%	360.00	13%	4,698,557	36.2 e	32.0 e	42.2 e	30.0 e	27.1 e	23.8 e	176.6% e	131.2% e	0.3% e	0.4% e	Woodring, Erik
Unimicron	3037.TW	OW	949.00	331.4%	1,465.00	54%	45,158 USD	63.9 e	28.3 e	11.5 e	8.7 e	32.8 e	17.4 e	21.4% e	40.7% e	0.2% e	0.7% e	Kao, Howard
Nan Ya PCB	8046.TW	OW	1,050.00	335.7%	1,550.00	48%	21,460 USD	67.1 e	31.8 e	12.4 e	9.8 e	38.1 e	21.3 e	21.9% e	38.9% e	0.2% e	1.0% e	Kao, Howard
Wiwynn Corp	6669.TW	OW	2,490.00	65.6%	842.57	-66%	NA	NA	NA	NA	NA	NA	NA	53.3% e	52.8% e	NA	NA	Kao, Howard
Accton Technology Corporation	2345.TW	OW	2,100.00	77.2%	3,500.00	67%	37,118 USD	25.1 e	18.1 e	12.5 e	8.2 e	17.3 e	12.1 e	81.2% e	69.2% e	0.9% e	1.3% e	Yang, Derrick
Giga-Byte Technology Co. Ltd.	2376.TW	EW	325.00	30.3%	375.00	15%	6,395 USD	10.0 e	10.9 e	3.0 e	2.9 e	6.9 e	7.9 e	35.5% e	27.4% e	4.6% e	8.2% e	Kao, Howard
King Slide Works Co. Ltd.	2059.TW	OW	7,890.00	110.4%	6,650.00	-16%	23,309 USD	47.0 e	40.7 e	19.5 e	14.7 e	37.4 e	30.9 e	57.0% e	47.9% e	0.7% e	0.8% e	Yang, Derrick
Largan Precision	3008.TW	OW	6,660.00	166.9%	4,836.00	-27%	28,253 USD	38.0 e	36.5 e	4.1 e	3.7 e	23.1 e	21.3 e	12.3% e	11.4% e	1.2% e	1.3% e	Meng, Andy
Mean								41.0	28.3	15.0	11.1			57.4%	52.4%	1.2%	2.0%	
Median								38.0	31.8	12.4	8.7			44.4%	44.3%	0.7%	1.0%	
Substrates																		
Samsung Electro-Mechanics	009150.KS	OW	1,454,000.00	470.2%	2,620,000.00	80%	81,718 USD	64.9 e	25.6 e	10.2 e	7.4 e	30.3 e	15.2 e	18.4% e	39.9% e	0.2% e	0.2% e	Kim, Shawn
Gold Circuit Electronics Ltd.	2368.TW	OW	1,120.00	63.0%	1,450.00	29%	18,298 USD	25.9 e	15.9 e	11.1 e	7.5 e	18.1 e	10.9 e	63.7% e	69.8% e	0.9% e	2.0% e	Kao, Howard
Unimicron	3037.TW	OW	949.00	331.4%	1,465.00	54%	45,158 USD	63.9 e	28.3 e	11.5 e	8.7 e	32.8 e	17.4 e	21.4% e	40.7% e	0.2% e	0.7% e	Kao, Howard
Nan Ya PCB	8046.TW	OW	1,050.00	335.7%	1,550.00	48%	21,460 USD	67.1 e	31.8 e	12.4 e	9.8 e	38.1 e	21.3 e	21.9% e	38.9% e	0.2% e	1.0% e	Kao, Howard
Yageo Corp.	2327.TW	OW	699.00	202.6%	1,515.00		43,271 USD	33.9 e	19.9 e	6.6 e	5.4 e	22.4 e	13.3 e	24.3% e	33.0% e	0.9% e	1.8% e	Kao, Howard
Murata Manufacturing	6981.T	OW	7,620.00	134.8%	12,500.00	64%	88,785 USD	41.1 e	28.0 e	4.9 e	4.5 e	21.7 e	16.2 e	12.3% e	17.3% e	0.9% e	1.0% e	Sato, Shoji
Taiyo Yuden	6976.T	UW	11,035.00	211.7%	12,500.00	13%	9,356 USD	49.3 e	32.4 e	4.2 e	3.8 e	16.7 e	12.7 e	9.0% e	12.9% e	0.9% e	1.0% e	Sato, Shoji
Ibiden	4062.T	OW	22,200.00	229.8%	27,500.00	24%	39,673 USD	71.1 e	47.6 e	9.8 e	8.2 e	28.3 e	20.6 e	16.7% e	21.7% e	0.2% e	0.2% e	Sato, Shoji
LG Innotek	011070.KS	EW	668,000.00	146.5%	265,000.00	-60%	10,686 USD	25.8 e	23.2 e	2.5 e	2.3 e	8.5 e	8.1 e	10.8% e	10.9% e	0.3% e	0.3% e	Kim, Shawn
Zhen Ding	4958.TW	++	501.00	252.8%		++	16,955 USD	++	++	++	++	++	++	++	++	++	++	Kao, Howard
Mean								49.2	28.1	8.1	6.4			22.1%	31.7%	0.5%	0.9%	
Median								49.3	28.0	9.8	7.4			18.4%	33.0%	0.3%	1.0%	
Other South Korea Technology																		
LG Display	034220.KS	EW	10,410.00	(11.9%)	16,800.00	61%	3,518 USD	10.4 e	6.2 e	0.8 e	0.7 e	2.1 e	1.8 e	7.8% e	12.2% e	0.0% e	0.0% e	Kim, Shawn
LG Electronics	066570.KS	EW	179,000.00	94.8%	95,000.00	-47%	21,788 USD	16.1 e	15.7 e	1.3 e	1.2 e	4.1 e	3.8 e	9.0% e	8.5% e	0.3% e	0.3% e	Kim, Shawn
Samsung SDI	006400.KS	OW	434,500.00	61.2%	580,000.00	33%	23,668 USD	113.0 e	39.5 e	1.6 e	1.5 e	14.3 e	10.1 e	1.4% e	4.1% e	0.0% e	0.0% e	Shin, Young Suk
Mean								46.5	20.5	1.2	1.2			6.1%	8.3%	0.1%	0.1%	
Median								1.0	15.7	2.1	1.2			0.5%	8.5%	0.0%	0.0%	

Source: Company data, Morgan Stanley Research (e) estimates. Note: Data as of Oct 13, 2026. ++ Stock Rating, Price Target, or Estimates for this company have been removed from consideration in this report because, under applicable law and/or Morgan Stanley policy, Morgan Stanley may be precluded from issuing such information with respect to this company at this time.

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