Semiconductors/Semi Cap Equipment

3Q26 Sector Preview: Constructive Setup Intact as Supply Constraints, AI Momentum, and Cyclical Recovery Support Further Revisions / Continued Equity Outperformance

Semiconductors & Semiconductor Capital Equipment / IT Hardware

Harlan Sur AC
(1-415) 315-6700
harlan.sur@jpmorgan.com

Mayur Ramdhani
(1-212) 622-1664
mayur.ramdhani@jpmorgan.com

Apoorva Kumar
(1-212) 270-0668
apoorva.kumar@jpmorgan.com

Akanksh Chauhan
(1-212) 622-0045
akanksh.chauhan@jpmorgan.com
J.P. Morgan Securities LLC

We are entering the 3Q26 earnings season with a constructive, yet selective, stance on the semis / semicap equipment sector. Fundamentals in our sector have continued to improve over the last 3 months, supported by the same forces that have driven the group's YTD outperformance (SMH up 68%): sustained AI infrastructure investment, persistent supply tightness across the broader semis supply chain, and a broadening cyclical recovery in non-AI end markets. As a result, we expect a majority of our covered companies to deliver solid 3Q results and constructive 4Q/CY27 commentary, extending the beat-and-raise cadence that has defined the group over the past several quarters. However, we think the focus this quarter will be less on demand strength, which is already well understood, and more on supply, including where constraints remain most acute, how long they could persist, and when incremental capacity can realistically begin to alleviate tightness across different parts of the market (e.g., leading-edge foundry, memory, etc). That said, although the overall sector setup remains favorable, the dynamics vary meaningfully across the group, with AI compute, custom silicon, networking, memory, semicap equipment, and analog each facing different supply/demand dynamics, pricing environments, and revision paths. Accordingly, we remain selective across the group, favoring names where AI exposure, supply-constrained growth, pricing power and/or leverage to the broadening cyclical recovery should translate most directly into positive revisions. Our top picks continue to be **AVGO** and **MRVL**, though we would also highlight OW-rated **NVDA** and **AMD** in compute, **MU** and **SNDK** in memory, **TXN** and **ADI** in analog, and **AMAT**, **LRCX**, and **KLAC** in semicap equipment. On the smid-cap side, preferred names include the likes of **ALAB**, **AMKR**, and **MKSI**.

- **GPUs / XPUs: Sustained supply/demand imbalance supports further upside to earnings revisions; custom XPUs and networking the fastest-growing layers of the AI stack; AI monetization increasingly supportive of capex durability...** AI/accelerated compute demand continues to accelerate, with Street-consensus cloud capex for CY26/CY27/CY28 now standing at +97%/+47%/+9% Y/Y as hyperscalers and neoclouds remain structurally supply-constrained and demand visibility continues to extend further into the decade. We expect commentary from NVDA, AMD, AVGO, and MRVL to continue to point to upside to backlog/order visibility heading into CY27, with supply (leading-edge foundry, HBM, advanced packaging, and increasingly power) remaining the gating factor on near-term growth rather than demand. On the AI compute mix, we continue to expect custom XPUs/ASICs to take share of the accelerator TAM (ASIC/XPU rising from ~32% of units in CY25 to ~43% in CY26E and ~56% in CY27E) as hyperscalers scale TCO-advantaged internal programs, with AVGO and MRVL remaining the best-positioned beneficiaries alongside continued leadership from NVDA (merchant GPU) and AMD (MI4xx/MI5xx ramps). Networking has also emerged as one of the fastest-growing layers of the AI stack. Our hardware team's latest industry model points to Server, Ethernet DC Switch, DCI, and

See page 26 for analyst certification and important disclosures.

AI DC Switch markets growing at 31%/36%/43%/42% CAGRs through CY30, with the 800G to 1.6T transition and continued Ethernet share gains in AI DC fabrics the key drivers. On the demand-durability side, AI monetization indicators continue to strengthen - improving backlog metrics, lengthening long-term commitments, and expanding operating profitability in hyperscaler cloud/AI businesses all support the view that AI capex can sustain at these elevated levels through CY28 and beyond. Key risks remain supply-chain capacity gating and the pace of CY27+ capex sustainability, though in our view the balance of risk continues to point to upside vs. current consensus.

- **CPUs: Server CPU demand accelerating on agentic workloads; PC pressured by memory-driven BOM inflation; AMD continuing to take share from INTC across both segments...** The compute setup is bifurcated into the tail end of 2026, with server CPU demand accelerating materially on agentic AI inference workloads, while PCs remain pressured by memory-driven BOM inflation. On server CPU, we anticipate sustained strong TAM growth (CAGR comfortably above 50% through 2030) driven by (1) the proliferation of agentic workflows that lean heavily on CPU compute (context management, workload orchestration, inference serving), and (2) hyperscaler demand for traditional compute alongside accelerators. AMD's EPYC Gen 5 (Turin) alongside now-ramping Gen 6 (Venice) are driving share gains vs. INTC (i.e., we see upside to AMD's 2Q26 ~41% server CPU revenue share, and a 60%+ revenue CAGR over the next several years). On PC, we expect unit shipments to decline HSD%/LDD% Y/Y in CY26 on memory-driven BOM inflation, with an above-seasonal 1H26 pulling forward demand ahead of further memory-driven price hikes. Premium segments (e.g. commercial PCs) remain more resilient on content/share dynamics than units, with AMD Ryzen continuing to outperform INTC in commercial adoption; INTC's 18A ramp and pricing support partially offset further share loss. We expect forward commentary to be constructive for AI-exposed names (NVDA, AMD) and more cautious for consumer-levered names (INTC's PC segment), with memory-driven BOM pressure remaining the key overhang for consumer compute through 2H26 and into 2027.

- **Analog: Demand is improving amidst supply tightness and pricing is emerging as a more visible tailwind, but broad restocking has yet to fully occur; ADI and TXN remain our preferred names...** We expect 3Q results and 4Q guides to be fairly constructive across the analog space, with industrial / A&D / data-center demand continuing to improve, auto holding up through content gains, and channel inventories now leaner across much of the group. However, the macro backdrop has become a bit more uncertain over the last ~90 days, which could keep customers focused on buying to current consumption rather than replenishing their inventories. As a result, we think the key question analog investors should look to answer this earnings season is whether improving order activity, lean channel inventories, and firmer lead times are enough to drive broader replenishment into 2027, or whether demand will continue to remain closer to run-rate consumption. Pricing is the other lever to watch, and we think it will be a more visible tailwind into 2H26 / 2027 given the various pricing actions companies have enacted / announced this year (e.g., ADI rolling out additional increases; TXN implementing select increases in Q4, with broader analog / power / MCU increases planned for next year). This should create room for better revenue / margin performance even if demand continues to normalize gradually. Net-net, we continue to favor ADI and TXN given their broad exposure to end-markets with durable secular demand drivers (industrial, A&D, and data-center-adjacent power).

- **Memory: S-D tightness deepens through CY28; SCA/LTA coverage continuing to compound; HBM pricing reset for CY27; re-rating in the cards on business model transformation...** Within memory, we see three dominant themes: (1) Structural S-D tightness has materially deepened, with MU now explicit that CY27/CY28 both run significantly tighter than CY26, and bit demand "well above" the low-20s%/mid-20s%

DRAM/NAND industry shipment growth guided across both years. Our global team sees ~20%/~19%/~15% shortage in CY26/27/28 even after despec, with accumulated HBM shortage reaching 23 weeks by CY28, and the CY25/26 "squeeze more from existing capacity" tailwind now fading. (2) The SCA/LTA framework is transforming the business model - MU stepped up to 26 SCAs (from 16) covering 35%+ of revenue through 2030, and importantly >75% of FY27 output is already committed, representing unprecedented forward visibility for memory. New SCAs are being signed at current elevated pricing (vs. prior CQ2 cohorts), re-anchoring MU's through-cycle GM floor well above prior-cycle peaks. (3) HBM has entered a new pricing regime - MU locked in CY27 HBM pricing "significantly higher" Y/Y (resetting Jan-1), with the industry's first custom HBM4E win (MU/NVDA NVHBM) representing a key competitive validator, in our view. Layered on top, data center SSD is a significant growth leg, with MU's F4Q26 DC SSD rev of ~$10B (~10x Y/Y) on KV-cache offload + HDD displacement, and SNDK's NBM ("New Business Model") framework capturing the same dynamic. On capital allocation, MU is stepping up both reinvestment (FY27 capex >$55B vs. ~$27B in FY26) and shareholder returns (100% excess cash post 12/9/26 CHIPS anniversary, with a materially larger buyback authorization expected imminently). Despite strong YTD stock performance, we see a continued disconnect between structural business model improvement and valuations, and expect the upcoming earnings cycle to drive further SCA/LTA disclosure across the group - a potential catalyst for a sector-wide re-rating.

- **Semi Cap Equipment: WFE setup remains constructive, but key debate now is whether revenue revisions can continue or whether cleanroom constraints begin limiting demand conversion; KLAC has the best risk/reward amongst the large-cap names…** Our intra-quarter checks with the semicap companies have been fairly constructive, and we continue to see strong demand, extended visibility, and continued urgency around procurement, though we think investors already largely understand the step-up in spending into 2H26 / 2027. As a result, we think the key question this earnings season will revolve around whether companies can continue revising out-quarter revenues ahead of current Street estimates, or whether cleanroom / facility readiness finally starts to slow the conversion of strong demand into shipments and revenue. To level-set expectations, we model WFE growth of +31% Y/Y in 2026, +38% Y/Y in 2027, and +17% Y/Y in 2028, with F/L and DRAM driving the bulk of upside and NAND-related spending remaining more measured. We remain OW the group but prefer KLAC among large caps given its relative underperformance YTD and underappreciated leverage to a 2027 WFE cycle that should broaden beyond capacity additions to include more F/L spending and rising process complexity tied to leading-edge node ramps (e.g., TSMC's N2/N3/A14 and INTC's 18A/14A).

- **EDA / IP: Results should keep the focus on broadening EDA growth alongside AI-driven design complexity, systems-level design, and early agentic AI monetization.** We expect EDA/IP fundamentals to remain constructive through the reporting cycle, supported by rising chip complexity, continued hyperscaler ASIC/XPU activity, 3DIC, and growing demand for high-value interface and memory IP. Demand also looks to be broadening, with improving analog/mature-node design activity adding to AI-driven design starts. As hyperscalers scale their custom silicon programs, we see incremental demand for both EDA tools and IP, with IP moving toward more customized solutions through licensing and royalty-based monetization. We also continue to highlight the shift to system-level design, as multi-physics and 3DIC simulation expand the addressable market. Moreover, recent commentary across the group supports our view that agentic workflows expand the use of core EDA engines rather than cannibalizing them. Net, we expect constructive commentary and solid guidance across EDA/IP, with the key debates centered around agentic AI monetization, custom IP/royalty adoption, and how quickly system-level design and synergy opportunities become incremental to revenues.

Harlan Sur [AC]
(1-415) 315-6700
harlan.sur@jpmorgan.com

J.P.Morgan

Table Of Contents

Monthly Semi Sales Data Suggests Constructive Read-Through for Q3 Top-Line Trends 5
JPM vs. Consensus Estimates (Q3 + Q4) 7
Datacenter / PC Compute 9
Memory and Storage 11
Networking / Comms Infra Semis 13
Consumer / Mobile Devices Semis 14
Automotive Semis 15
Industrial Semis 16
Chip Design Software (EDA/IP) 17
Semiconductor Capital Equipment / WFE 18
Semiconductor Comps Sheet 22
Consolidation in the Semi Industry Likely to Continue and Provide Valuation Support 25

Harlan Sur [AC]
(1-415) 315-6700
harlan.sur@jpmorgan.com

Monthly Semi Sales Data Suggests Constructive Read-Through for Q3 Top-Line Trends

As highlighted in our most recent WSTS note, monthly semiconductor sales through July and August are tracking meaningfully above what seasonal patterns through the first two months of the quarter would suggest. On a QTD basis, total semi sales are up +24% Q/Q and +17% Q/Q ex-memory, both well above historical QTD seasonal norms of +7% Q/Q and +8% Q/Q ex-memory. And although we don't have September data just yet, we'd flag that industry sales tend to seasonally rise in September. When you layer that on top of the already strong growth over the first two months of the quarter, it suggests a fairly strong revenue backdrop heading into Q3 results.

The annual growth trends in the WSTS data illustrate this strength even more clearly, with Y/Y growth in sales, units, and ASPs all accelerating through the first two months of Q3 (Figure 1). Most of the industry's growth this year has admittedly been driven by a stronger memory pricing environment, but we would highlight that ex-memory trends are also shaping up to be very robust, with Y/Y growth in sales, units, and ASPs all meaningfully accelerating in recent months. In our view, this further supports the idea that Q3 reported revenues should screen well across the broader semis group, while also aligning with intra-quarter company commentary across our coverage, which points to continued demand momentum and broad-based pricing increases as capacity constraints tighten supply/demand conditions across the sector.

Figure 1: Semi Sales / Units / ASPs Tracker (Y/Y %)

		Revenues		Units		ASPs	
		Total Semis	Semis (Ex-Memory)	Total Semis	Semis (Ex-Memory)	Total Semis	Semis (Ex-Memory)
	Jan-24	18%	8%	0%	-1%	18%	9%
1Q24	Feb-24	17%	3%	-12%	-13%	33%	19%
	Mar-24	19%	8%	4%	4%	14%	4%
	Apr-24	17%	6%	2%	2%	15%	4%
2Q24	May-24	23%	4%	1%	0%	22%	4%
	Jun-24	16%	3%	3%	4%	13%	-1%
	Jul-24	19%	7%	4%	5%	14%	2%
3Q24	Aug-24	28%	6%	3%	3%	24%	3%
	Sep-24	24%	14%	13%	14%	10%	0%
	Oct-24	16%	9%	10%	11%	5%	-2%
4Q24	Nov-24	23%	7%	11%	12%	11%	-4%
	Dec-24	16%	9%	13%	15%	2%	-6%
	Jan-25	15%	11%	2%	2%	13%	9%
1Q25	Feb-25	21%	19%	18%	19%	2%	-1%
	Mar-25	19%	18%	7%	7%	11%	10%
	Apr-25	23%	22%	11%	11%	10%	10%
2Q25	May-25	19%	18%	12%	12%	6%	6%
	Jun-25	19%	20%	15%	15%	4%	5%
	Jul-25	27%	26%	14%	14%	11%	11%
3Q25	Aug-25	23%	23%	13%	13%	9%	9%
	Sep-25	28%	20%	9%	8%	18%	11%
	Oct-25	33%	24%	10%	9%	21%	14%
4Q25	Nov-25	39%	27%	13%	12%	23%	13%
	Dec-25	43%	28%	5%	5%	35%	22%
	Jan-26	64%	31%	21%	20%	35%	9%
1Q26	Feb-26	92%	29%	13%	12%	71%	15%
	Mar-26	92%	26%	10%	9%	75%	15%
	Apr-26	111%	33%	14%	12%	85%	19%
2Q26	May-26	135%	37%	13%	12%	107%	23%
	Jun-26	144%	40%	9%	7%	125%	31%
	Jul-26	131%	37%	16%	14%	99%	21%
3Q26	Aug-26	156%	45%	19%	16%	116%	25%
	Sep-26						
	Oct-26						
4Q26	Nov-26						
	Dec-26						

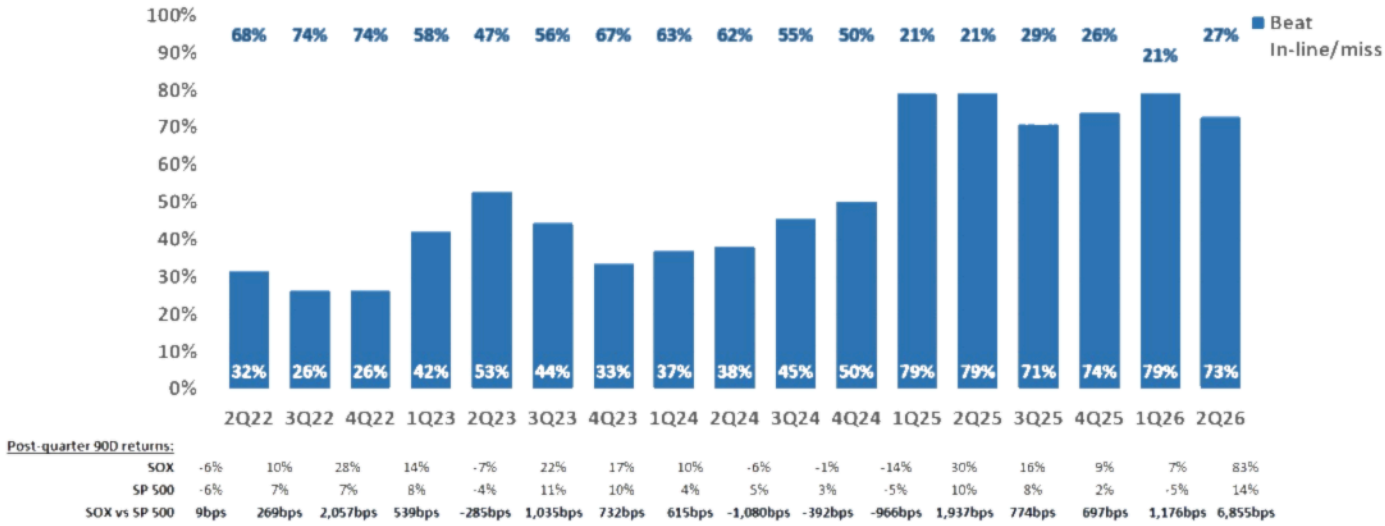
Source: World Semiconductor Trade Statistics (WSTS), J.P. Morgan Research

想要获取微投研信息? 公众号: 微信: 独家的一手信 独立的行业

Harlan Sur [AC]
(1-415) 315-6700
harlan.sur@jpmorgan.com

The positive earnings revision trend accelerated in 1Q25 and has remained solidly above 70% over the past several earnings seasons, measured by the share of our covered semiconductor and semiconductor capital equipment companies with positive revisions. We anticipate this trend will continue into the upcoming earnings season. Recent semiconductor industry data points indicate sustained double-digit Y/Y revenue growth in semiconductor sales, with strength across various subsegments. Overall, we broadly anticipate companies will deliver in-line or slightly better 3Q results while striking a constructive tone around 4Q guidance

Figure 2: Semiconductor Coverage Earnings Revision Trend



Post-quarter 90D returns:

SOX	-6%	10%	28%	14%	-7%	22%	17%	10%	-6%	-1%	-14%	30%	16%	9%	7%	83%
SP 500	-6%	7%	7%	8%	-4%	11%	10%	4%	5%	3%	-5%	10%	8%	2%	-5%	14%
SOX vs SP 500	9bps	269bps	2,057bps	539bps	-285bps	1,035bps	732bps	615bps	-1,080bps	-392bps	-966bps	1,937bps	774bps	697bps	1,176bps	6,855bps

Source: Company reports, Bloomberg Finance L.P.

Harlan Sur [AC]
(1-415) 315-6700
harlan.sur@jpmorgan.com

JPM vs. Consensus Estimates (Q3 + Q4)

As we head into the Q3 earnings season, we highlight our revenue and adjusted EPS estimates vs. consensus estimates below:

Table 1: JPM 3Q26E/4Q26E Revenue Estimates vs Consensus

$ in millions

	C3Q26E			C4Q26E		
Ticker	JPM	Consensus	Δ%	JPM	Consensus	Δ%
ADI	$4,305	$4,312	-0.2%	$4,320	$4,346	-0.6%
ALAB	$550	$550	0.1%	$621	$658	-5.7%
AMAT	$9,115	$10,275	-11.3%	$10,250	$10,848	-5.5%
AMD	$13,030	$12,995	0.3%	$15,715	$16,275	-3.4%
AMKR	$2,031	$2,027	0.2%	$2,075	$2,041	1.7%
ARM	$1,289	$1,377	-6.4%	$1,382	$1,531	-9.8%
AVGO	$34,800	$34,822	-0.1%	$37,006	$37,292	-0.8%
CDNS	$1,610	$1,614	-0.3%	$1,632	$1,649	-1.0%
GFS	$1,885	$1,888	-0.2%	$2,012	$2,001	0.5%
INTC	$16,398	$16,478	-0.5%	$17,233	$16,945	1.7%
KLAC	$3,967	$4,025	-1.5%	$4,344	$4,519	-3.9%
LRCX	$8,100	$8,146	-0.6%	$8,250	$8,551	-3.5%
MCHP	$1,604	$1,606	-0.1%	$1,636	$1,621	0.9%
MRVL	$3,150	$3,155	-0.2%	$3,760	$3,746	0.4%
MTSI	$421	$420	0.1%	$448	$428	4.6%
NVDA	$109,219	$108,836	0.4%	$121,645	$123,583	-1.6%
NXPI	$3,720	$3,751	-0.8%	$3,818	$3,852	-0.9%
ON	$1,703	$1,702	0.1%	$1,751	$1,739	0.7%
QNT	$8	$8	4.7%	$9	$9	-2.8%
QRVO	$904	$917	-1.4%	$982	$938	4.7%
SLAB	$241	$242	-0.5%	$243	$242	0.6%
SNDK	$10,650	$10,627	0.2%	$11,966	$12,027	-0.5%
SNPS	$2,555	$2,560	-0.2%	$2,607	$2,619	-0.5%
SWKS	$1,038	$1,036	0.1%	$1,090	$1,276	-14.6%
SYNA	$320	$316	1.4%	$332	$328	1.1%
TXN	$5,901	$5,904	-0.1%	$5,920	$5,714	3.6%
VSH	$966	$963	0.4%	$988	$986	0.2%

Source: J.P. Morgan estimates and Bloomberg Finance L.P.

Harlan Sur [AC]
(1-415) 315-6700
harlan.sur@jpmorgan.com

Table 2: JPM 3Q26E/4Q26E (Non-GAAP) EPS Estimates vs Consensus

$ in millions

	C3Q26E			C4Q26E		
Ticker	JPM	Consensus	Δ%	JPM	Consensus	Δ%
ADI	$3.87	$3.89	-0.4%	$3.86	$3.88	-0.5%
ALAB	$1.20	$1.19	0.9%	$1.29	$1.43	-9.8%
AMAT	$3.50	$4.06	-13.8%	$4.02	$4.25	-5.4%
AMD	$1.93	$1.95	-1.0%	$2.28	$2.67	-14.6%
AMKR	$0.82	$0.76	7.8%	$0.88	$0.76	15.4%
ARM	$0.45	$0.47	-5.9%	$0.48	$0.55	-12.6%
AVGO	$3.81	$3.83	-0.6%	$4.03	$4.11	-1.9%
CDNS	$2.04	$2.05	-0.3%	$2.00	$2.02	-1.5%
GFS	$0.51	$0.49	3.9%	$0.59	$0.56	5.7%
INTC	$0.40	$0.38	4.0%	$0.46	$0.42	10.4%
KLAC	$1.15	$1.18	-2.9%	$1.31	$1.35	-2.9%
LRCX	$2.15	$2.18	-1.6%	$2.21	$2.32	-4.8%
MCHP	$0.93	$0.93	-0.4%	$0.96	$0.94	1.9%
MRVL	$1.10	$1.11	-0.1%	$1.40	$1.37	2.0%
MTSI	$2.00	$1.94	3.2%	$2.15	$1.97	8.8%
NVDA	$2.48	$2.48	0.1%	$2.68	$2.74	-2.0%
NXPI	$4.09	$4.12	-0.8%	$4.28	$4.31	-0.7%
ON	$0.87	$0.87	0.2%	$0.99	$0.96	2.7%
QNT	-$0.36	-$0.51	-29.7%	-$0.38	-$0.51	-25.3%
QRVO	$2.14	$2.10	1.7%	$2.49	$2.15	15.6%
SLAB	$0.83	$0.86	-2.9%	$0.81	$0.81	0.4%
SNDK	$49.81	$45.95	8.4%	$56.93	$52.19	9.1%
SNPS	$4.13	$4.12	0.3%	$4.25	$4.44	-4.4%
SWKS	$1.28	$1.28	0.3%	$1.36	$1.38	-1.6%
SYNA	$1.36	$1.26	7.8%	$1.46	$1.37	6.9%
TXN	$2.43	$2.44	-0.4%	$2.43	$2.30	5.7%
VSH	$0.27	$0.28	-3.6%	$0.30	$0.32	-7.8%

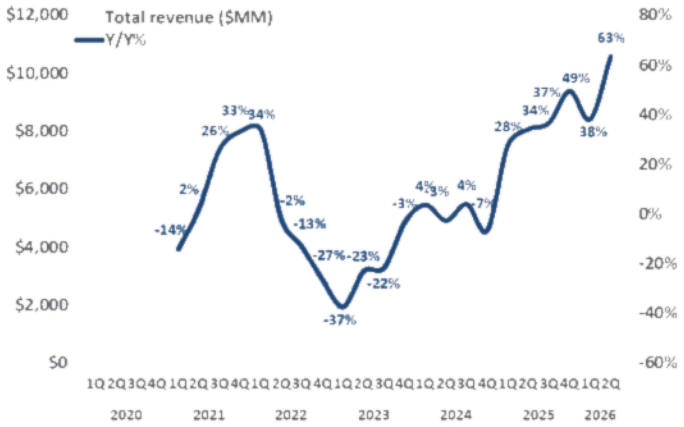
Source: J.P. Morgan estimates and Bloomberg Finance L.P.

Harlan Sur [AC]
(1-415) 315-6700
harlan.sur@jpmorgan.com

Datacenter / PC Compute

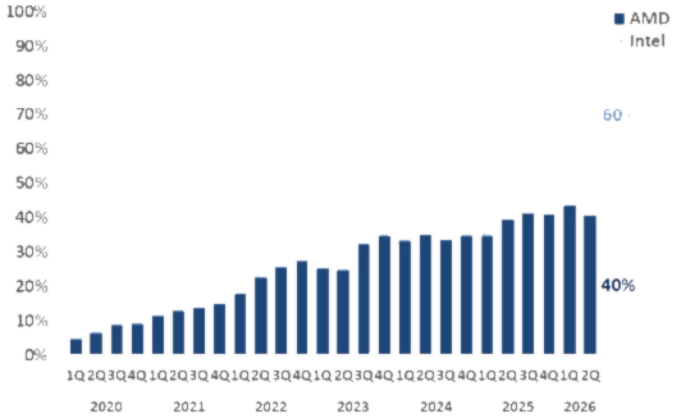
For **server CPU**, we see demand accelerating materially on agentic AI inference workloads driving traditional compute attach (context management, workload orchestration, inference serving). AMD's EPYC Gen 5 ("Turin") alongside now-ramping Gen 6 ("Venice") driving share gains vs. INTC (i.e., we see upside to AMD's ~41% x86 server CPU revenue share in 2Q26), with server CPU revenue growth for AMD set to outpace the overall TAM over the next several years (we see 60%+ CAGR for AMD relative to mid-50s% TAM growth through 2030). For PC, we expect unit shipments to decline HSD%/LDD% Y/Y in CY26 on memory-driven BOM inflation, with above-seasonal 1H26 pull-forward setting up softer 2H dynamics. Premium segments and commercial PCs remain more resilient; AMD Ryzen continues to outperform INTC in commercial adoption, and INTC's 18A ramp + pricing support partially offset further share loss. Looking into 4Q, we expect broadly constructive commentary on the outlook for datacenter, with greater caution consumer-levered compute given memory-driven cost pressure.

Figure 3: x86 Server CPU quarterly revenue



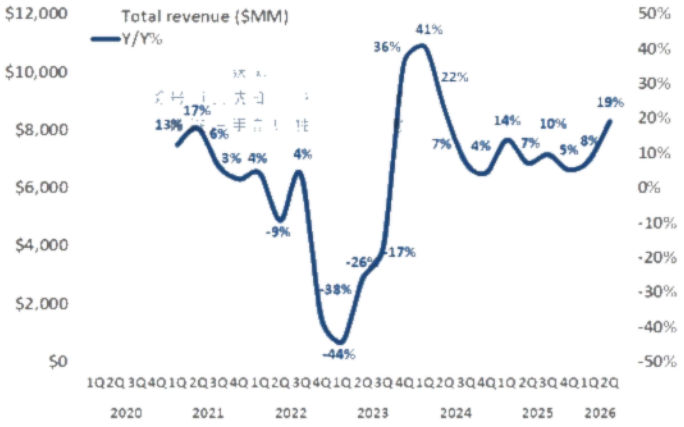
Source: IDC, J.P. Morgan estimates

Figure 4: x86 Server CPU quarterly revenue share



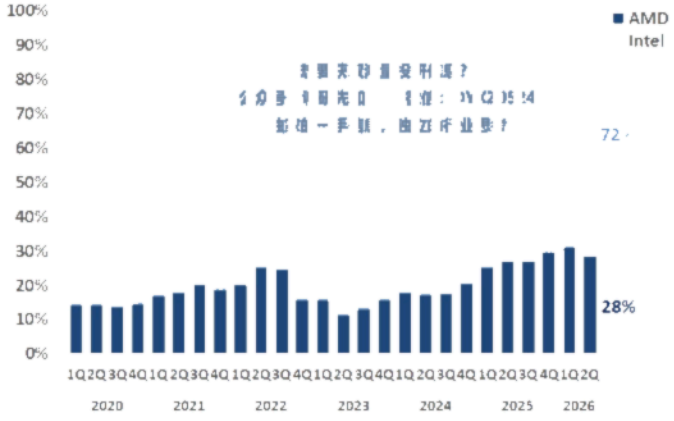
Source: IDC, J.P. Morgan estimates

Figure 5: x86 Client/PC CPU quarterly revenue



Source: IDC, J.P. Morgan estimates

Figure 6: x86 Client/PC quarterly revenue share

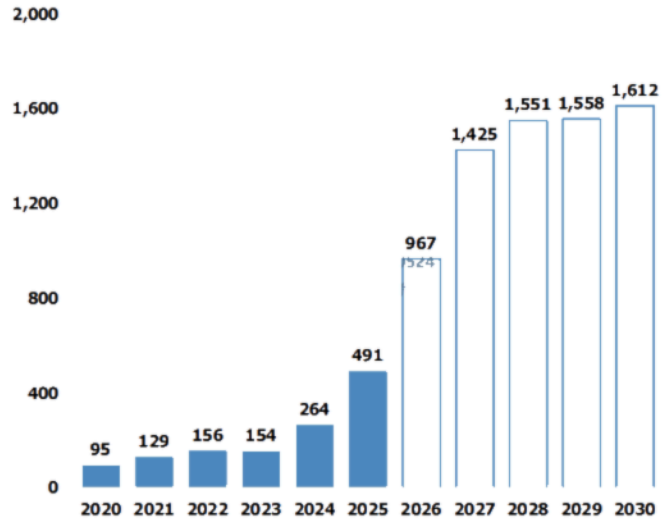


Source: IDC, J.P. Morgan estimates

On **AI/accelerated compute**, infrastructure demand continues to outstrip supply, with consensus cloud (hyperscaler + neocloud) capex for CY26/CY27/CY28 now at $950B/ $1.42T/$1.55T (+97%/+47%/+9% Y/Y; Figure 7) and visibility continuing to push further into the decade on the strength of multi-year hyperscaler commitments and backlog build. The sustainability debate has shifted from whether AI demand is real to whether supply (leading-edge foundry, HBM, advanced packaging, and increasingly power) can keep pace. Even as hyperscalers continue to add capacity, both industry and company checks continue to indicate that near-term supply is insufficient to meet demand across GPUs, ASICs, HBM, and advanced packaging, with GPU rental pricing dynamics and lengthening order books at NVDA, AVGO, and MRVL all pointing to the same conclusion. We expect commentary from the leading compute providers to continue to point to upside to CY27 (and beyond) order visibility, with sovereign AI, AI-native cloud, and enterprise demand continuing to broaden the demand base.

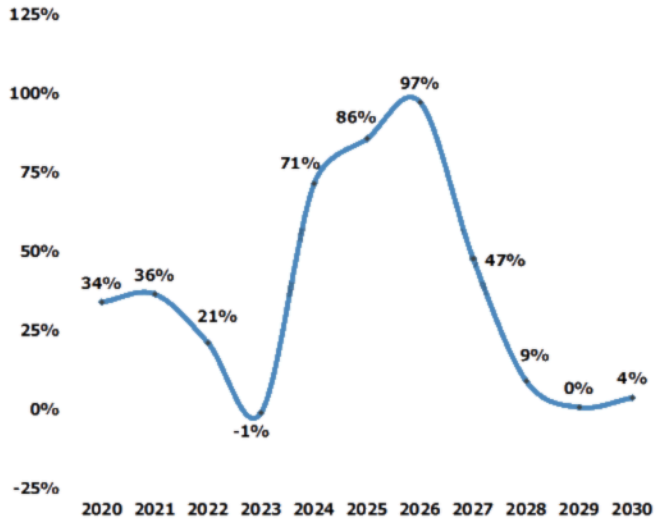
The AI compute mix continues to evolve toward heterogeneity, with custom XPUs gaining share of the accelerator TAM (XPUs rising from ~32% of units in CY25 to ~42% in CY26E and ~53% in CY27E) as hyperscalers scale TCO-advantaged internal programs. AVGO and MRVL remain the best-positioned custom silicon beneficiaries, with AVGO continuing to add XPU customers and lengthen multi-year XPU commitments across its hyperscaler base, while MRVL's custom ASIC and optical franchises continue to scale on strong design win momentum. On the merchant GPU side, NVDA continues to execute on the Vera Rubin ramp with POs secured from every major hyperscaler/AI cloud/system OEM, while AMD continues to execute on the MI4xx roadmap and Helios platform ramp. AI monetization indicators have also continued to strengthen - improving backlog metrics, lengthening customer commitments, and expanding operating profitability in cloud/AI businesses all support the view that AI capex can sustain at elevated levels through CY28 and beyond.

Figure 7: Annual Cloud Capex ($B)



Note: Our capex dataset accounts for several cloud/neocloud operators including: Amazon, Google, Microsoft, Meta, Oracle, CoreWeave, Nebius, IREN, and SpaceX; All forward estimates are based on median consensus estimates
Source: J.P. Morgan Cloud Capex Dataset, Bloomberg Finance L.P.

Figure 8: Y/Y Change in Cloud Capex (%)



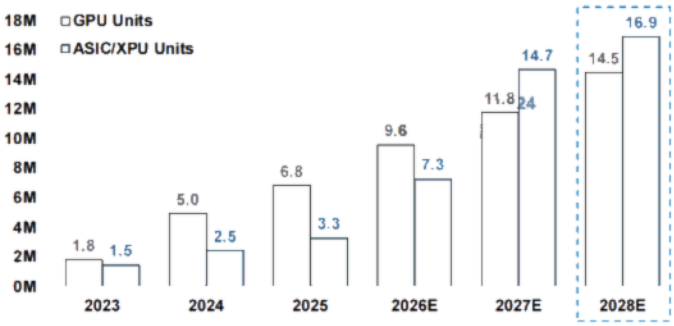
Note: Our capex dataset accounts for several cloud/neocloud operators including: Amazon, Google, Microsoft, Meta, Oracle, CoreWeave, Nebius, IREN, and SpaceX; All forward estimates are based on median consensus estimates
Source: J.P. Morgan Cloud Capex Dataset, Bloomberg Finance L.P.

Figure 9: AI accelerator annual unit shipment estimates

AI accelerators units (MM)	2023	2024	2025	2026E	2027E	2028E
NVIDIA GPUs	1.7	4.5	6.2	8.9	10.3	12.2
AMD GPUs	0.1	0.5	0.7	0.7	1.5	2.3
Google TPUs	1.2	1.7	1.8	4.6	9.5	11.4
AWS Inferentia + Tranium	0.3	0.8	1.5	2.2	3.6	3.7
Meta MTIA	0.0	0.0	0.0	0.2	0.8	1.1
Microsoft MAIA	0.0	0.0	0.0	0.2	0.8	0.8
Total	**3.3**	**7.4**	**10.1**	**16.8**	**26.4**	**31.4**
Growth Y/Y%		*128%*	*36%*	*67%*	*57%*	*19%*
GPU % total units	55%	67%	68%	57%	44%	46%
ASIC/XPU % total units	45%	33%	32%	43%	56%	54%

Source: Company reports, J.P. Morgan research

Figure 10: GPU vs AI ASIC/GPU unit shipments



Source: Company reports, J.P. Morgan research

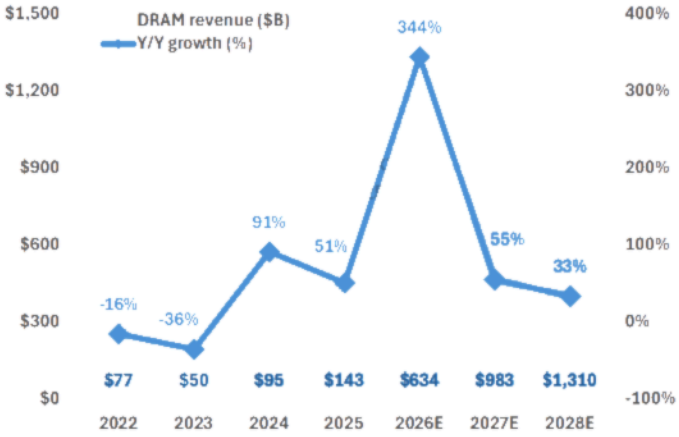
Refer to our global team's most recent Global Memory Update for a more detailed discussion of our memory sector forecasts.

Memory and Storage

The setup for memory is meaningfully stronger than 90 days ago, with the structural S-D imbalance deepening and business model transformation gaining pace. On demand, accelerating hyperscaler/AI capex (JPM models Top-4 US hyperscaler DC capex +85% Y/Y in CY26, +70%+ in CY27), rising HBM content per AI accelerator, and agentic AI inference workloads (leaning heavily on both HBM-attached GPU memory and CPU-attached DRAM) continue to drive demand well above supply, while server CPU demand has emerged as a meaningful incremental vector with agentic workloads requiring materially higher DRAM attach. On supply, structural constraints (slower node migrations, HBM trade-ratio drag (~3:1 moving to ~4:1 on HBM4E), extended cleanroom lead times, and the fading of the CY25/26 "squeeze more from existing capacity" tailwind) are capping bit shipment growth in the low-20s% range for DRAM and mid-20s% for NAND through CY27/28. Per our global memory team, this results in sustained S-D shortage of ~20%/~19%/~15% in CY26/27/28E, with accumulated HBM shortage reaching 23 weeks by CY28 and industry HBM TAM at ~$160B/~$280B in CY27/28 (from ~$64B in CY26). On despec, we think this reflects customer unit-shipment optimization amid tight supply rather than demand softening; aggregate content is still growing Y/Y, with diminishing-returns dynamics implying limited further headroom.

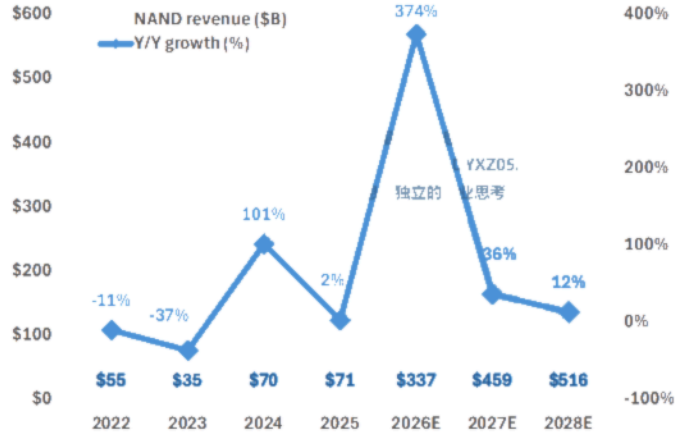
The SCA/LTA framework is transforming the memory business model - MU stepped up to 26 SCAs (from 16) covering 35%+ of revenue through 2030, with $150B RPO and $32B of customer cash commitments. Notably, >75% of FY27 output is already committed, marking unprecedented forward visibility for memory. New SCAs are being signed at current elevated pricing (vs. prior CQ2 cohorts), re-anchoring MU's through-cycle GM floor well above prior-cycle peaks (~62% GM reference). Similarly, we expect SNDK and the Korean memory vendors to announce progress on LTAs.

Figure 11: DRAM TAM Forecast



Source: Company reports, J.P. Morgan estimates.

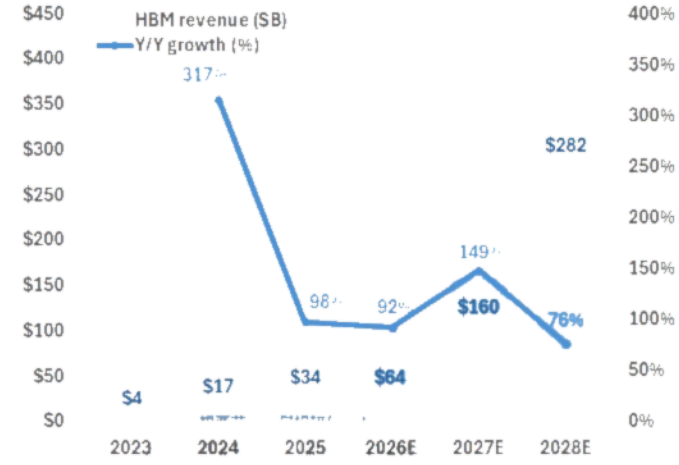
Figure 12: NAND TAM Forecast



Source: Company reports, J.P. Morgan estimates.

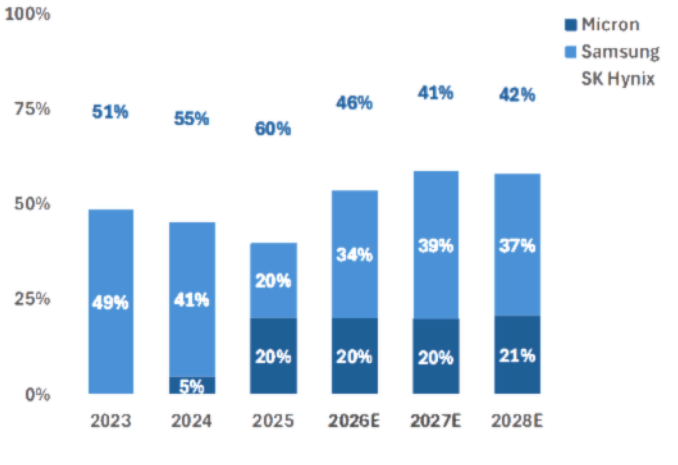
HBM enters a new pricing regime for CY27, with the vast majority of CY27 HBM bit supply committed at "significantly higher" Y/Y pricing (resetting Jan-1), narrowing the GM gap with conventional DRAM. We forecast blended HBM pricing +54%/+25% Y/Y in CY27/CY28. XPU-driven HBM demand continues to converge with GPU-driven demand as hyperscaler custom XPU volumes scale (~35% of bit demand in CY26, going to ~50% of demand in CY27, per JPMe).

Figure 13: HBM TAM Forecast



Source: Company reports, J.P. Morgan estimates.

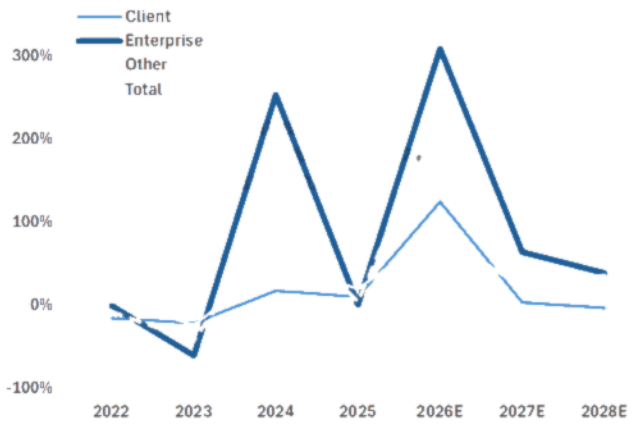
Figure 14: HBM Market Share Forecast



Source: Company reports, J.P. Morgan estimates.

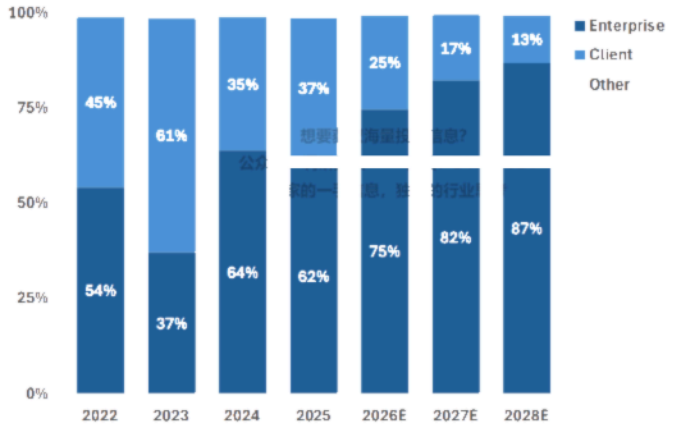
Data center SSD has emerged as a materially larger growth leg than previously expected. MU's F4Q26 DC SSD revenue of ~$10B (10x Y/Y, two-thirds of NAND) marks a step-change in NAND profitability, driven by KV-cache offload, HDD displacement, and MU's Gen5/Gen6 SSD leadership. SNDK's NBM framework captures the same dynamic, with NAND vendors broadly benefiting as hyperscalers accelerate SSD attach.

Figure 15: SSD Y/Y Revenue Growth by Segment



Source: Company reports, J.P. Morgan estimates.

Figure 16: SSD Revenue Share by Segment



Source: Company reports, J.P. Morgan estimates.

Memory stocks have outperformed YTD, but we continue to see a disconnect between structural business model improvement and valuations. We expect the 3Q26 cycle to drive further SCA/LTA disclosure, continued positive revisions, and incremental data points on S-D tightness - all supportive of a re-rating for the group.

Networking / Comms Infra Semis

While it likely goes without saying, the current wave of data center investment has driven a surge in interest across nearly every layer of the AI infrastructure stack, especially in critical areas like networking. Hyperscalers are pushing towards larger, denser, and more power-intensive compute clusters, which shifts the bottleneck from simply adding more compute to ensuring that the compute can communicate efficiently and at scale. This is why we view networking / communications infrastructure as one of the cleanest stories within the broader semis landscape, with demand broadening across high-speed ethernet switching, optical DSPs, retimers/AECs, CPO/NPO, scale-up / scale-out fabrics, and now, XPU-attach. With that in mind, we continue to favor companies like AVGO, MRVL, and ALAB, all of which are poised to benefit as AI connectivity requirements broaden.

- **AVGO**: AVGO is probably the best positioned name within networking given the breadth of its portfolio and its exposure to multiple parts of the networking story (i.e., Tomahawk ethernet switching, Jericho routing, optical DSPs, etc.). This breadth is what underpins AVGO's #1 share position in hyperscaler switching/ routing silicon (~70%), and gives the company a strong starting point as networking requirements become more demanding. AI networking has been a bright spot for the company YTD, with AI networking revenues rising more than 2.5x Y/Y during the most recent quarter and management noting that the business should grow as fast as XPUs over the next few years (driven by Tomahawk 6/7 ramping in C2H26/C27, Tomahawk Ultra, PCIe switching, optical DSPs). However, we think this part of the AVGO story has been underappreciated this year, with much of the debate around the stock centering around competitive displacement concerns in custom silicon / XPUs. And while we understand why that debate exists (and why it's so important), we think it unfairly overshadows the fact that AVGO's networking franchise remains

a strong source of potential upside to the company's broader AI revenues.

- **MRVL**: MRVL's networking story has also changed a great deal over the past few months, with the company's Investor Day this past week reinforcing that MRVL is no longer just an optical DSP / custom silicon story, but rather a broader AI infrastructure platform with meaningful connectivity exposure. MRVL's opportunity now extends well beyond 800G DSPs and the 1.6T transition into scale-up optics, NPO / CPO, scale-out / scale-up switching, and XPU-attach. The magnitude of this opportunity is also much larger than many investors had expected, with management guiding interconnect revenues to potentially reach ~$37.5B by 2030 at the Investor Day. The scale-out switching business is also tracking to grow well north of $1B next year, driven by the Teralynx 51.2T ramp, with scale-up networking across ESUN, UALink, and NVLink representing another multi-billion-dollar opportunity. In our model, we forecast optical interconnect revenues to grow +84% Y/Y this year and +82% Y/Y in 2027, reflecting strong 800G DSP demand, the volume ramp of 1.6T, and early contributions from scale-up optics and NPO / CPO.
- **ALAB**: Unlike AVGO or MRVL, ALAB's story is less about breadth across the entire networking stack and more about high-speed connectivity inside the server / rack. As AI clusters scale, each accelerator needs more surrounding connectivity content to support higher bandwidth, lower latency, and more complex fabric architectures, and that plays directly into ALAB's portfolio (via Aries retimers, Scorpio fabric switches, Taurus AECs, etc.). Recent results have shown strong momentum across AI connectivity, with PCIe 6 products already representing more than 50% of revenues and Scorpio X-Series moving into volume production. Looking ahead, we think ALAB remains well positioned to continue posting strong results, especially as 800G deployments expand and the industry begins moving toward 1.6T / 3.2T connectivity, since the step-up in bandwidth should drive greater demand for in-rack connectivity, signal integrity, and fabric-switching content.

Consumer / Mobile Devices Semis

IDC's updated 2026 global smartphone shipment forecast now calls for a -16.7% Y/Y decline (vs. -13.9% a quarter ago, implying a market closer to ~1.0B units), with pressure concentrated in sub-$100 devices (-60% Y/Y in 2Q26) and emerging-market shipments (-20%+ Y/Y). This pressure is expected to intensify meaningfully in 2H26, with total shipments declining -27% Y/Y as NAND/DRAM costs run +300%+ Y/Y and OEMs absorb elevated memory bills. Despite the unit declines, IDC still expects revenue TAM to grow +6% Y/Y, with market ASPs raised to ~$581 from ~$550 - a mix shift that reflects both the OEM push to higher-content/premium devices and the pass-through of memory cost inflation to end-consumer pricing. Memory costs are expected to remain elevated through 2028, and we see this as the key overhang for the segment through the forecast period, with potential consolidation among smaller Android OEMs likely as supply stabilizes. In our view, the combination of lower industry units and a growing revenue TAM continues to favor scaled premium OEMs and their key semi suppliers, while sub-$300 Android exposure remains a key risk.

Apple remains the primary beneficiary of the current mix shift. IDC expects iOS shipments to decline only -1.3% Y/Y (vs. -24.3% for Android), with iOS share reaching a record 23.6% of global units, reflecting Apple's limited exposure to the entry tier, scale/supplier relationships that provide relatively better memory access, and its ability

to raise ASPs by less than the market (JPM models iPhone ASPs +10.5%/+12.4% in FY26/27 vs. market +28%). We also expect the foldable iPhone launch to be a meaningful incremental driver next fiscal year (JPM models 7.5M Apple foldable units in CY26, 13.2M in CY27), with potential upside to IDC's broader foldable market forecast of ~22.9M units in 2026. We expect semi suppliers with high-end iPhone content exposure (AVGO on connectivity/custom silicon, SWKS on RF) to continue to benefit from the premium content/share dynamic.

For Q3, we expect smartphone/consumer-exposed semi names to deliver generally in-line results with cautious forward commentary given continued memory-driven BOM pressure. Names with high-end iPhone content exposure (AVGO) and limited entry-tier/mid-tier Android exposure should remain better positioned on content/share dynamics than units, while names with higher exposure to sub-$300 Android face continued headwinds. We also expect any incremental color on the SWKS integration, synergy capture pace, and combined-co end-market diversification trajectory to be a key focus.

Automotive Semis

Our view on the automotive semiconductor market remains generally mixed heading into 3Q26 earnings. The market is clearly healthier than it was at this point last year, and the inventory correction appears to be largely behind the group, but company commentary through this year suggests that the recovery is being driven more by content gains and regional pockets of strength as opposed to a broad-based rebound in vehicle production. In fact, looking back at 2Q26 results, most companies attributed strength in their auto businesses to company- or technology-specific drivers. For example, TXN cited strength in China EVs/hybrids and electrification, NXPI pointed to SDV, electrification, radar, and connectivity rather than cyclical restocking, ON highlighted China auto revenue up 13% in 1H26, and ADI noted benefitting from ADAS, infotainment, and EV BMS content. That said, we remain cautious on auto semis into Q3 because the underlying unit backdrop remains sluggish. The current macro backdrop does not help either with higher interest rates, higher fuel prices, and the latest S&P Mobility data suggesting that global light vehicle production volumes will decline -2% Y/Y in 3Q26 (incrementally worse vs. expectations back in July; Figure 19). This does not necessarily mean that automotive semiconductor revenues will be down this quarter (since content gains could still offset weakness in units), but it does create a more difficult backdrop for companies with strong exposure to auto to outperform, in our view.

On the supply side, inventories are certainly healthier than they were a year ago, but the main debate now is whether lean inventories are translating into actual restocking. For example, in C2Q, TXN indicated that it was seeing restocking among its automotive customers, while NXPI took the opposite view and attributed growth to content expansion and architecture changes rather than inventory replenishment. That said, even without broad-based restocking, lean inventories and improving content-driven demand are beginning to create pockets of supply tightness, with auto-exposed companies pointing to extending lead times across their broader business (NXPI noted lead times above 16 weeks for a meaningful portion of its portfolio, while ON said average lead times extended from ~27 weeks to ~32 weeks last quarter).

Thus, as we head into 3Q results, we think the key debate will center on whether content growth can remain strong enough to offset a still-muted production backdrop. At the same time, we would flag that the potential for upside is less likely given declining global light-vehicle production and a more pressured macro backdrop. Hence, on a relative basis, we continue to prefer analog companies with greater exposure to higher-growth and/or cleaner end-markets, such as industrial, A&D, and data center (e.g., TXN and ADI), rather than names heavily levered to auto (e.g., NXPI, ON).

Figure 17: Quarterly Global Light Vehicle Production Volumes (Y/Y %)



Note: Refer to our Auto Team's 3Q26 Sector Preview for more downstream details on the automotive end-market
Source: S&P Global Mobility, J.P. Morgan Research

Industrial Semis

Our view on the industrial semiconductor market is more constructive, and we continue to view industrial as a cleaner recovery than automotive. Unlike auto, where growth is still heavily dependent on content gains offsetting weak units, industrial appears to be benefiting from both cyclical normalization and secular demand drivers across energy infrastructure, A&D, and data-center-adjacent power demand. Remember, industrial commentary coming out of C2Q results was generally constructive, with most companies signaling that the recovery would continue into C3Q.

- **TXN** pointed to broad-based demand strength across industrial and noted that the business remains below prior peak levels, suggesting additional room for cyclical normalization into 2H26.
- **ADI** guided for above-seasonal industrial growth in the October quarter following a broad-based July-quarter recovery, with all industrial subsegments up Q/Q and Y/Y.
- **NXPI** guided Industrial & IoT to grow high-30% Y/Y and mid-single digits sequentially in C3Q, following 38% Y/Y growth in C2Q.
- **MCHP**described industrial as ahead of automotive in the recovery sequence and

still in the early stages, implying further room for normalization.

- **ON** was more measured at the headline level, expecting industrial to be relatively flat sequentially in 3Q, though the company pointed to strength in energy infrastructure, medical, factory automation, and energy storage, with ESS revenues expected to grow ~40% Y/Y in 2026.

Collectively, the message from C2Q was that industrial demand is recovering, but not uniformly. The strongest areas appear to be energy infrastructure, A&D, automated test, factory automation, medical, and data-center-adjacent power, while broader industrial demand is still normalizing after a prolonged period of customer inventory digestion. Since most companies already signaled continued improvement into C3Q, we think investors will focus more on whether the recovery is broadening beyond the strongest pockets and whether demand is becoming more durable across the broader industrial base. Against that backdrop, we would reiterate our preference for broad-based analog names with stronger relative exposure to industrial, A&D, and data center demand (e.g., TXN, ADI, and MCHP).

Chip Design Software (EDA/IP)

We expect EDA/IP fundamentals to remain strong heading into the upcoming reporting cycle, with both CDNS and SNPS positioned to deliver constructive results and commentary. Rising chip and system complexity, XPU/ASIC program activity, and 3DIC advanced packaging adoption should continue to drive higher EDA intensity per design start and support widening demand for interface/memory IP. We also continue to highlight the shift from chip-level to system-level design, as multi-physics and 3DIC simulation highlight thermal/mechanical constraints earlier in the design process, driving TAM expansion. Moreover, we see the AI debate transitioning from whether AI will cannibalize EDA, to the amount of incremental TAM AI can unlock, along with the pace and pricing structure of monetization, as recent commentary from both CDNS and SNPS supports our view that agentic workflows are more likely to expand, rather than compress, the EDA market.

- **CDNS:** Similar to Synopsys, we expect 3Q results and forward commentary to reflect continued momentum across AI-driven chip design, improving analog/mature chip activity, and deepening foundry engagements. Backlog exited 2Q at a record $8.1B and 3Q revenue is now guided to ~$1.61B and EPS to ~$2.04, while FY26 is guided to ~$6.3B in revenue and ~$8.10 in EPS. The key debate for CDNS heading into 3Q centers on two themes. First, the company's evolving foundry positioning, where we expect investors to watch whether the recent multi-year agreement with Intel, as well as the deepening Samsung foundry collaboration, point to a competitive landscape shifting in CDNS's favor with near-term share gains and revenue uplift, or whether the impact accrues over multiple years instead. Second, CDNS's framing on agentic AI remains that AI agents should expand the TAM opportunity through more frequent use of core EDA engines (similar to commentary from SNPS), but the guide currently assumes no sudden uplift from agentic AI, and we expect investors to watch for commentary or updates on agentic conversion into usage-based revenue. We are modeling 3Q revenue of $1.61B and EPS of $2.04, versus consensus of $1.61B and $2.05, respectively.
- **SNPS:** For Synopsys, we expect continued EDA acceleration and further proof points on agentic AI and custom IP monetization. The F4Q setup is anchored by the

strategic framework laid out at the company's September 30th investor day (link), where management outlined a silicon-to-systems platform spanning RTL, digital/analog design, multi-die packaging, and full system simulation, while now targeting a blended ~15% FY26-FY30E revenue CAGR and ~50% non-GAAP OPM by FY30E (vs. ~41.5% guided for FY26E), implying ~$35 of earnings power by FY30E. On agentic AI, the introduction of the autopilot platform and "agent engineers" is capable of driving 5-10x more tool calls, while the OpenAI GPT-SNPS arrangement improves the long-term monetization outlook, although we believe it is ideally suited to smaller design teams with limited resources and meaningful revenue contribution still appears more likely in FY27 and beyond. On IP, SNPS is moving toward Application Optimized IP (AOIP) with a licensing/royalty monetization model, demonstrated by the $1B multi-year agreement with Amazon, with the initially disclosed $1B figure only reflecting licensing fees, as royalties will be captured separately, making any color on incremental pipeline conversion beyond Amazon a likely area of investor focus into the print. Ansys synergy capture also continues to run ahead of schedule, with the $400M cost-synergy target now expected to be completed in FY27, one year ahead of plan. Meanwhile, the first Multiphysics Fusion revenue synergy is expected in FY27, with a >$100M run rate exiting FY27, while the $400M revenue synergy target is held at FY29. We are modeling F4Q revenue of $2.61B and EPS of $4.25, versus consensus of $2.62B and $4.44, respectively.

Net, we expect constructive commentary and solid guidance across the EDA space, with the key investor debates centered on the pace of agentic AI monetization, the trajectory of custom IP/royalty adoption (particularly at SNPS following the Amazon AOIP disclosure), and the degree to which improving foundry positioning at Intel and Samsung should translate into incremental share gains for CDNS. We continue to favor both SNPS & CDNS as core EDA holdings.

Semiconductor Capital Equipment / WFE

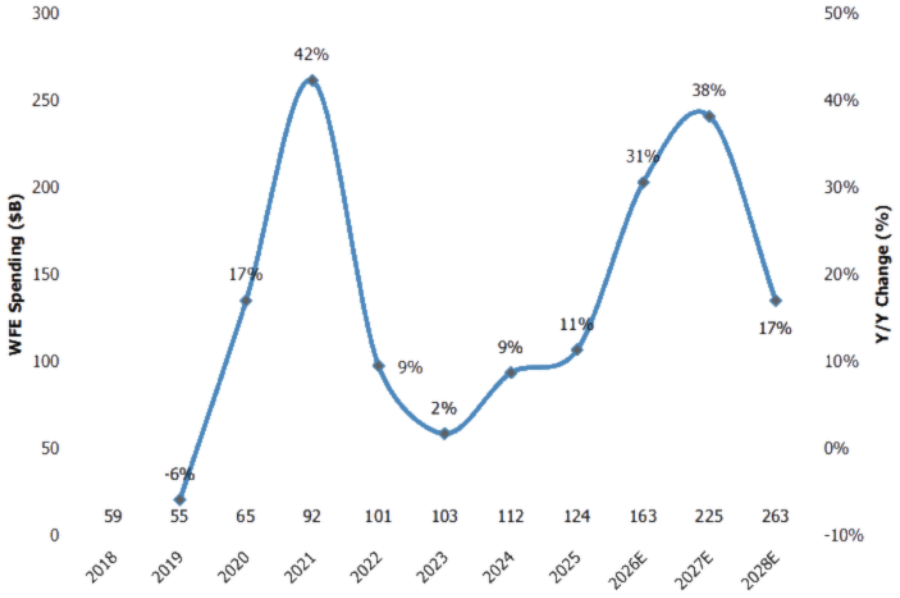
Read our full WFE update writeup from Sep-26 here

When it comes to semicap equipment, not much has changed in terms of our outlook. WFE fundamentals continue to skew positive, with many of our intra-quarter checks (with LRCX and AMAT) pointing to strong tool demand, extended orderbook visibility, and, perhaps most importantly, a continued sense of urgency amongst customers around WFE tool procurement given ongoing supply constraints and elongated lead times. That being said, we think these demand dynamics are very well understood at this point, with most investors expecting WFE spending to step up in the back half of this year and further acceleration into 2027 (as more greenfield/brownfield fabs come online). As a result, **we expect the key debate this earnings season to be less about whether WFE improves and more about whether companies can continue revising out-quarter revenues ahead of current Street estimates or whether cleanroom constraints will finally start limiting the pace at which demand converts into shipments and revenue upside**.

We would also expect investors to focus on how management teams frame 2027 WFE, even if they stop short of providing explicit quantitative guidance. And for context, note that semicap companies historically provide formal out-year WFE guidance in Q4, and so we do not expect a fully worked-out 2027 framework just yet. Nonetheless, we think qualitative commentary around customer urgency, new fab construction, and

strengthening order visibility will be appreciated by investors and could support upward revisions to market expectations for 2027 WFE. To level-set expectations, we model WFE to grow +31% Y/Y in 2026 to $163B, accelerate to +38% Y/Y growth in 2027 to $225B, and then moderate to +17% Y/Y growth in 2028 to $263B (Figure 20).

Figure 18: Wafer Fab Equipment Forecast



Note: Data excludes wafer bonders and other wafer-level packaging equipment
Source: Gartner and J.P. Morgan estimates. Data excludes wafer bonders and other wafer-level packaging equipment

While we did raise our WFE estimates back in September, our views on the underlying moving pieces remain largely the same, with foundry/logic and DRAM driving the bulk of the upside this upcycle and NAND-related WFE remaining more measured.

- **Foundry / Logic:** In F/L, most of the incremental WFE spending over the next 2-3 years should come from TSMC, given its ongoing capacity buildouts and the continued tightness in wafer supply across the industry. Our global team's most recent channel checks suggest that the company continues to accelerate its N2 + N3 buildout plans, with several fab expansions happening over the next 2-3 years (Figure 21). This gives us even more confidence in there being an upward bias to current Street estimates for TSMC capex and we would flag that our global team recently raised its capex estimates for the company to $64B / $86B / $100B in 2026 / 2027 / 2028 (3Q26 TSMC Preview). Outside of TSMC, we think INTC and Terafab are the two potential sources of incremental F/L WFE upside, though the timing and magnitude of spending across the two remains less certain. For INTC, we think the key watch items are **(1)** the company's tone around capex and whether it continues to incrementally improve; and **(2)** customer traction on 18A/14A, as stronger traction would likely necessitate greater F/L-related WFE spending. For Terafab, the scale of the proposed buildout suggests the opportunity could be meaningful, but we would need to see more concrete evidence around project timing, cleanroom readiness, and tool procurement before embedding a more meaningful contribution into our WFE estimates.

Figure 19: TSMC Capacity Expansion Plans

Fab	Node	Timeline
Front-End Wafer Fabs		
Tainan (Fab 18 P9)	N3	1H27
Kaohsiung (Fab 22 P1-P5)	N2	2027-29
US AZ (Fab 21 P2)	N3	2H27
Japan Kumamoto (Fab 23 P2)	N3	2H28
Baoshan (Fab 20 P1-P4)	N2 / A16 + R&D	2025 onwards, with further expansion in 2027-28
Kaohsiung (Fab 22 P6-P8)	A16	2028 and beyond
Taichung (Fab 25 - P1-P8/P9)	A14 / A10	2028 and beyond
US AZ (Fab 21 P3)	N2 / A16	Late 2028 - 1H29
Tainan (likely Fab 18 P10-P12)	N2 and A16 likely	Pending land approval
Back-End Facilities		
Chiayi (AP7)	WMCM, SoIC	2025-2028
Miaoli (AP6)	SoIC, CoWoS	2025-2027
Tainan (AP8)	CoWoS-L	2026-27

Source: J.P. Morgan Research, Company Filings

- **DRAM**: For DRAM, we continue to see spending increasing across all three of the major memory vendors, as favorable memory economics, continued tightness in HBM supply, and expectations of a multi-year DRAM shortage incentivize suppliers to add capacity. Near-term spending will likely remain driven by HBM-related conversions, but we do expect greenfield capacity ramps beginning in 2027 / 2028 to start meaningfully layering into the WFE spending outlooks companies provide this quarter (i.e., spending related to projects such as ID1, ID2, etc.). In aggregate, we forecast DRAM capex to total ~$413B over 2026-2028 (up from ~$368B prior) and view DRAM as one of the cleaner sources of WFE upside given that spending appears broad-based across all of the major suppliers rather than concentrated at any single vendor. Heading into earnings, we think the key items to watch for as it relates to DRAM WFE are: **(1)** whether memory companies continue to sound constructive on DRAM/HBM supply-demand and pricing; **(2)** whether greenfield fab timing is being pulled forward or pushed out; and **(3)** whether semicap companies are seeing stronger order visibility tied to DRAM capacity expansions.
- **NAND**: As for NAND, we expect WFE spending to be much more measured, at least relative to F/L and DRAM, with spending continuing to be driven by technology migrations, conversions, and higher-layer-count transitions rather than meaningful greenfield capacity additions. Conceptually, we think NAND remains a lower priority use of incremental memory capex for the major suppliers, as DRAM continues to offer stronger economics and a more immediate strategic need given AI-related demand. Nonetheless, we do expect NAND WFE to improve over the next several years as utilization/pricing continues to recover and suppliers move forward with more complex 3D NAND architectures (300/400L+), which should drive higher etch/deposition intensity even without major greenfield capacity expansions. As for watch items heading into earnings, we think the main items are: **(1)** whether suppliers sound more constructive on NAND supply-demand, pricing, and utilization; **(2)** whether technology migration / layer-transition activity is accelerating; and **(3)** whether there is any evidence that greenfield NAND capacity plans are being pulled forward from the 2028/2029 timeframe.

Harlan Sur [AC]
(1-415) 315-6700
harlan.sur@jpmorgan.com

J.P.Morgan

Stock Picks:

Although we are OW the entire semicap complex, we believe KLAC currently has the most attractive risk/reward amongst the large-caps given its relative underperformance YTD, what we believe to be an underappreciated exposure to F/L-led WFE spending in 2027, and broader potential for upward revisions to consensus revenue estimates.

KLAC shares are up ~66% YTD, and while that may seem strong on an absolute basis, the stock has lagged meaningfully behind large-cap semicap peers such as LRCX (+91%) and AMAT (+102%), as well as process-control peers such as ONTO (+91%). There are various reasons for KLAC's underperformance, but at a high level, the market has rewarded the names most directly exposed to the current memory capex spending, while giving KLAC less credit since its process-control portfolio tends to benefit more from new node ramps, yield learning, and growing process complexity (whereas the current WFE upcycle is primarily being driven by capacity additions). We think this dynamic should begin to shift in KLAC's favor heading into 2027, as F/L starts representing a larger share of incremental WFE growth next year and as cyclical growth broadens beyond capacity additions alone to include more process complexity, where KLAC's process-control portfolio should become increasingly relevant. As this happens, we see there being room for consensus revenue estimates to move higher and for KLAC to close some of the relative performance gap versus peers.

Harlan Sur AC
(1-415) 315-6700
harlan.sur@jpmorgan.com

Semiconductor Comps Sheet

Figure 20: Processors / Computing Peer Group

Company	Co Ticker	Price 10/8/26	Mkt Cap ($m)	EV ($m)	Non-GAAP EPS ($) 2025	2026	2027	2025-27 CAGR	PE Multiple 2025	2026	2027	Sales ($m) 2025	2026	2027	2025-27 CAGR	PS Multiple 2025	2026	2027
Processors / Computing																		
NVIDIA Corporation	NVDA	$230.48	5,529,986	5,469,477	4.78	9.30	15.81	*82%*	48.2x	24.8x	14.6x	215,938	410,255	702,888	*80%*	25.6x	13.5x	7.9x
Broadcom Inc	AVGO	$360.14	1,727,147	1,762,591	7.27	13.70	21.48	*72%*	49.5x	26.3x	16.8x	68,282	123,893	195,106	*69%*	25.3x	13.9x	8.9x
Advanced Micro Devices	AMD	$620.68	998,789	989,954	4.17	7.65	15.56	*93%*	148.8x	81.1x	39.9x	34,639	51,106	88,945	*60%*	28.8x	19.5x	11.2x
Intel Corporation	INTC	$107.08	556,756	584,757	0.41	1.51	2.10	*126%*	261.2x	70.8x	51.0x	52,853	63,127	72,586	*17%*	10.5x	8.8x	7.7x
Marvell Technologies	MRVL	$274.66	239,898	241,251	2.85	4.21	7.35	*61%*	96.4x	65.2x	37.4x	8,195	12,060	19,659	*55%*	29.3x	19.9x	12.2x
Cerebras Systems	CBRS	$167.92	39,099	32,665	--	-0.45	1.28	*N/M*	N/M	N/M	131.3x	510	887	2,931	*N/M*	76.7x	44.1x	13.3x
Average									**120.8x**	**53.6x**	**48.5x**					**32.7x**	**20.0x**	**10.2x**
Median									**96.4x**	**65.2x**	**38.6x**					**27.2x**	**16.7x**	**10.0x**

Source: Bloomberg Finance L.P., J.P. Morgan Research

Figure 21: Analog / Broadbased Peer Group

Company	Co Ticker	Price 10/8/26	Mkt Cap ($m)	EV ($m)	Non-GAAP EPS ($) 2025	2026	2027	2025-27 CAGR	PE Multiple 2025	2026	2027	Sales ($m) 2025	2026	2027	2025-27 CAGR	PS Multiple 2025	2026	2027
Analog / Broadbased																		
Texas Instruments	TXN	$288.20	259,216	266,267	5.90	8.82	10.66	*34%*	48.9x	32.7x	27.0x	17,682	21,906	25,036	*19%*	14.7x	11.8x	10.4x
Analog Devices	ADI	$405.93	195,304	202,101	8.62	14.30	17.46	*42%*	47.1x	28.4x	23.3x	11,757	16,304	19,074	*27%*	16.6x	12.0x	10.2x
NXP Semiconductor	NXPI	$231.07	57,008	65,124	11.82	15.09	18.18	*24%*	19.5x	15.3x	12.7x	12,269	14,283	15,919	*14%*	4.6x	4.0x	3.6x
Microchip Technology	MCHP	$75.52	40,565	47,177	1.17	3.20	4.39	*94%*	64.5x	23.6x	17.2x	4,372	6,023	7,240	*29%*	9.3x	6.7x	5.6x
ON Semiconductor Corp	ON	$79.41	29,917	30,002	2.35	3.21	4.55	*39%*	33.8x	24.7x	17.5x	5,995	6,558	7,421	*11%*	5.0x	4.6x	4.0x
MACOM Technology Solutions	MTSI	$322.21	24,997	24,705	3.71	6.40	8.64	*53%*	86.8x	50.3x	37.3x	1,021	1,480	1,856	*35%*	24.5x	16.9x	13.5x
Vishay Intertechnology Inc.	VSH	$34.56	5,244	5,039	-0.05	0.84	1.85	*N/M*	N/M	41.1x	18.7x	3,069	3,676	4,295	*18%*	1.7x	1.4x	1.2x
Average									**50.1x**	**30.9x**	**21.9x**					**10.9x**	**8.2x**	**6.9x**
Median									**48.0x**	**28.4x**	**18.7x**					**9.3x**	**6.7x**	**5.6x**

Source: Bloomberg Finance L.P., J.P. Morgan Research

Figure 22: Networking / DC / IoT Peer Group

Company	Co Ticker	Price 10/8/26	Mkt Cap ($m)	EV ($m)	Non-GAAP EPS ($) 2025	2026	2027	2025-27 CAGR	PE Multiple 2025	2026	2027	Sales ($m) 2025	2026	2027	2025-27 CAGR	PS Multiple 2025	2026	2027
Networking / Data Center / IoT																		
Astera Labs	ALAB	$347.05	59,328	58,120	1.84	4.03	6.52	*88%*	188.6x	86.2x	53.2x	852	1,909	3,103	*91%*	69.6x	31.1x	19.1x
Lattice Semiconductor	LSCC	$124.98	17,619	17,484	1.06	2.14	3.17	*73%*	117.9x	58.5x	39.4x	523	920	1,336	*60%*	33.7x	19.1x	13.2x
Skyworks	SWKS	$80.75	18,051	17,919	5.87	4.89	5.37	*-4%*	13.8x	16.5x	15.0x	4,054	4,190	4,741	*8%*	4.5x	4.3x	3.8x
Silicon Laboratories Inc.	SLAB	$221.75	7,401	7,004	0.91	2.90	4.42	*121%*	243.7x	76.4x	50.1x	785	926	1,083	*17%*	9.4x	8.0x	6.8x
Synaptics	SYNA	$119.08	4,740	5,175	4.21	4.94	5.90	*18%*	28.3x	24.1x	20.2x	1,144	1,246	1,351	*9%*	4.1x	3.8x	3.5x
Average									**118.4x**	**52.3x**	**35.6x**					**24.3x**	**13.3x**	**9.3x**
Median									**117.9x**	**58.5x**	**39.4x**					**9.4x**	**8.0x**	**6.8x**

Source: Bloomberg Finance L.P., J.P. Morgan Research

Harlan Sur AC
(1-415) 315-6700
harlan.sur@jpmorgan.com

Figure 23: Memory / Storage Peer Group

Company	Co Ticker	Price 10/8/26	Mkt Cap ($m)	EV ($m)	Non-GAAP EPS ($) 2025	2026	2027	2025-27 CAGR	PE Multiple 2025	2026	2027	Sales ($m) 2025	2026	2027	2025-27 CAGR	PS Multiple 2025	2026	2027
Memory / Storage																		
Micron Technology	MU	$1,035.84	1,168,500	1,100,226	11.28	107.36	187.08	*307%*	91.8x	9.6x	5.5x	42,312	178,278	293,858	*164%*	27.6x	6.6x	4.0x
Samsung Electronics	005930	$195.07	1,141,366	1,042,994	5.01	33.41	55.76	*234%*	39.0x	5.8x	3.5x	234,591	511,446	729,417	*76%*	4.9x	2.2x	1.6x
SK Hynix	000660	$1,251.57	915,014	872,506	43.72	265.63	364.80	*189%*	28.6x	4.7x	3.4x	68,330	247,543	400,214	*142%*	13.4x	3.7x	2.3x
SanDisk	SNDK	$1,609.46	230,591	224,253	7.41	161.00	239.96	*469%*	217.2x	10.0x	6.7x	8,929	37,600	54,783	*148%*	25.8x	6.1x	4.2x
Western Digital Corporation	WDC	$393.31	148,060	147,876	6.93	15.11	26.95	*97%*	56.8x	26.0x	14.6x	10,734	15,790	22,790	*46%*	13.8x	9.4x	6.5x
Seagate Technology Holdings	STX	$774.83	177,615	179,809	10.21	25.62	46.76	*114%*	75.9x	30.2x	16.6x	10,058	15,332	22,437	*49%*	17.7x	11.6x	7.9x
Average									**84.9x**	**14.4x**	**8.4x**					**17.2x**	**6.6x**	**4.4x**
Median									**66.3x**	**9.8x**	**6.1x**					**15.7x**	**6.3x**	**4.1x**

Source: Bloomberg Finance L.P., J.P. Morgan Research

Figure 24: Chip Design Software Peer Group

Company	Co Ticker	Price 10/8/26	Mkt Cap ($m)	EV ($m)	Non-GAAP EPS ($) 2025	2026	2027	2025-27 CAGR	PE Multiple 2025	2026	2027	Sales ($m) 2025	2026	2027	2025-27 CAGR	PS Multiple 2025	2026	2027
Chip Design Automation Software																		
Arm Holdings	ARM	$275.29	284,270	280,846	1.72	2.08	2.83	*28%*	160.1x	132.6x	97.4x	4,671	5,687	7,601	*28%*	60.9x	50.0x	37.4x
Cadence Design Systems	CDNS	$348.84	96,812	98,023	7.14	8.14	9.52	*16%*	48.9x	42.8x	36.6x	5,297	6,322	7,161	*16%*	18.3x	15.3x	13.5x
Synopsys	SNPS	$497.75	97,167	104,400	13.73	15.82	19.82	*20%*	36.3x	31.5x	25.1x	8,008	9,932	11,295	*19%*	12.1x	9.8x	8.6x
Average									**81.7x**	**69.0x**	**53.0x**					**30.4x**	**25.0x**	**19.8x**
Median									**48.9x**	**42.8x**	**36.6x**					**18.3x**	**15.3x**	**13.5x**

Source: Bloomberg Finance L.P., J.P. Morgan Research

Figure 25: Foundry / OSAT Peer Group

Company	Co Ticker	Price 10/8/26	Mkt Cap ($m)	EV ($m)	Non-GAAP EPS ($) 2025	2026	2027	2025-27 CAGR	PE Multiple 2025	2026	2027	Sales ($m) 2025	2026	2027	2025-27 CAGR	PS Multiple 2025	2026	2027
Foundries & OSATs																		
TSMC	TSM	$79.84	2,071,276	1,995,569	2.13	3.41	4.52	*46%*	37.4x	23.4x	17.7x	122,600	171,789	232,937	*38%*	16.9x	12.1x	8.9x
GFS	GFS	$49.36	26,217	24,587	1.72	1.91	2.55	*22%*	28.7x	25.8x	19.4x	6,791	7,309	8,237	*10%*	3.9x	3.6x	3.2x
Amkor Technology	AMKR	$51.00	12,189	12,387	1.51	2.56	2.83	*37%*	33.8x	20.0x	18.0x	6,708	7,651	8,669	*14%*	1.8x	1.6x	1.4x
Average									**33.3x**	**23.1x**	**18.3x**					**7.5x**	**5.7x**	**4.5x**
Median									**33.8x**	**23.4x**	**18.0x**					**3.9x**	**3.6x**	**3.2x**

Source: Bloomberg Finance L.P., J.P. Morgan Research

人在草木间
更多资料请加V

Harlan Sur AC
(1-415) 315-6700
harlan.sur@jpmorgan.com

Figure 26: Semiconductor Capital Equipment Peer Group

Company	Co Ticker	Price 10/8/26	Mkt Cap ($m)	EV ($m)	Non-GAAP EPS ($) 2025	2026	2027	2025-27 CAGR	PE Multiple 2025	2026	2027	Sales ($m) 2025	2026	2027	2025-27 CAGR	PS Multiple 2025	2026	2027
Semiconductor Capital Equipment																		
Applied Materials	AMAT	$509.57	402,870	400,983	9.42	14.67	20.21	*46%*	54.1x	34.7x	25.2x	28,214	38,148	49,357	*32%*	14.3x	10.6x	8.2x
Lam Research Corporation	LRCX	$320.59	400,005	398,548	4.90	7.78	10.62	*47%*	65.4x	41.2x	30.2x	20,561	29,261	37,756	*36%*	19.5x	13.7x	10.6x
KLA Corporation	KLAC	$196.72	256,292	257,542	3.63	4.53	6.24	*31%*	54.2x	43.5x	31.5x	12,745	15,617	20,062	*25%*	20.1x	16.4x	12.8x
MKS Inc.	MKSI	$260.38	17,766	21,410	7.88	13.15	17.54	*49%*	33.0x	19.8x	14.8x	3,930	5,085	6,076	*24%*	4.5x	3.5x	2.9x
Entegris Inc	ENTG	$162.19	25,142	28,348	2.75	3.92	5.14	*37%*	59.0x	41.4x	31.6x	3,197	3,578	4,049	*13%*	7.9x	7.0x	6.2x
ONTO Innovation	ONTO	$292.67	14,377	13,754	4.94	8.13	11.73	*54%*	59.2x	36.0x	25.0x	1,005	1,440	1,859	*36%*	14.3x	10.0x	7.7x
Advanced Energy Industries	AEIS	$284.24	11,475	11,456	6.41	11.22	15.14	*54%*	44.3x	25.3x	18.8x	1,799	2,424	2,983	*29%*	6.4x	4.7x	3.8x
Ultra Clean Holdings	UCTT	$67.58	3,055	3,652	1.05	3.11	6.63	*151%*	64.4x	21.7x	10.2x	2,054	2,720	3,889	*38%*	1.5x	1.1x	0.8x
Average									**54.2x**	**33.0x**	**23.4x**					**11.0x**	**8.4x**	**6.6x**
Median									**56.6x**	**35.4x**	**25.1x**					**11.1x**	**8.5x**	**7.0x**

Source: Bloomberg Finance L.P., J.P. Morgan Research

Figure 27: Quantum Computing Peer Group

Company	Co Ticker	Price 10/8/26	Mkt Cap ($m)	EV ($m)	Non-GAAP EPS ($) 2025	2026	2027	2025-27 CAGR	PE Multiple 2025	2026	2027	Sales ($m) 2025	2026	2027	2025-27 CAGR	PS Multiple 2025	2026	2027
Quantum Computing																		
IonQ	IONQ	$39.45	15,777	13,725	-1.21	-1.40	-1.47	*-10%*		*N/M*		130	444	772	*144%*	121.3x	35.6x	20.4x
Quantinuum Inc.	QNT	$41.52	12,263	12,776	-0.66	-1.78	-1.94	*N/M*				31	30	61	*40%*	396.5x	406.5x	201.6x
Average										***N/M***						**258.9x**	**221.0x**	**111.0x**
Median										***N/M***						**258.9x**	**221.0x**	**111.0x**

Source: Bloomberg Finance L.P., J.P. Morgan Research

Harlan Sur AC
(1-415) 315-6700
harlan.sur@jpmorgan.com

Consolidation in the Semi Industry Likely to Continue and Provide Valuation Support

Based on Bloomberg data and company reports, semi and semicap deal volume stands at ~$47B in 2025, ~$30B in 2024, ~$25B in 2023, ~$18B in 2022, ~$41B in 2021, ~$88B in 2020, ~$31B in 2019, ~$48B in 2018, ~$140B in 2017, and ~$141B in 2016. In our view, deal/M&A activity will be a key component of capital allocation and supportive of valuations in 2026 and beyond.

Table 3: We Expect More M&A in the Long Term as Industry Consolidation Should Continue to Support Valuations

Date	Buyer	Target	Deal Value ($M)
9/28/2026	AMD	World Labs Technologies	8,200
9/9/2026	Analog Devices	Aivf Semiconductor	1,350
9/3/2026	NVIDIA Corp	Hugging Face	11,900
6/25/2026	ON Semiconductor Corp	Synaptics	5,227
6/16/2026	Space Exploration Technologies	Anysphere	60,000
6/9/2026	NVIDIA Corp	Kumo.ai	400
5/19/2026	Analog Devices	Empower Semiconductor	1,500
4/30/2026	Applied Materials	TEL NEXX	120
4/14/2026	Credo Technology	DustPhotonics	846
2/4/2026	Texas Instruments	Silicon Labs	7,174
2/4/2026	SiTime Corp	Renesas Electronics timing division	2,965
2/3/2026	Infineon Technologies	ams-OSRAM non-optical analog mixed signal sensor business	673
1/26/2026	IonQ Inc	SkyWater Technology	1,733
1/6/2026	Marvell Technology Inc	XConn Technologies	540
12/2/2025	Marvell Technology Inc	Celestial AI Inc	3,358
10/27/2025	Skyworks Solutions Inc	Qorvo Inc	10,072
10/1/2025	Veeco Instruments Inc	Axcelis Technologies Inc	1,848
7/25/2025	STMicroelectronics NV	NXP Semiconductors NV (MEMS sensor business)	900
6/9/2025	Alphawave IP Group PLC	QUALCOMM Inc	2,085
4/14/2025	Silver Lake Management	Altera (Intel's FPGA business)	4,463
4/8/2025	Infineon Technologies	Marvell Automotive ethernet business	2,500
3/2/2025	ON Semiconductor Corp.	Allegro MicroSystems Inc	6,500
1/15/2025	ASMedia Technology Inc	Techpoint	390
2/10/2025	NXP Semiconductors	Kinara.ai	307
1/7/2025	NXP Semiconductors	Ttech Auto AG	625
12/9/2024	Onsemi	Qorvo (Silicon Carbide JFET)	115
8/19/2024	AMD	ZT Systems	4,900
2/15/2024	Renesas Electronics	Altium	5,900
1/11/2024	Renesas Electronics	Transphorm	339
8/22/2023	Macom	Wolfspeed's RF division	125
8/7/2023	Renesas Electronics	Sequans	230
3/3/2023	Infineon Technologies	Gan Systems	880
8/15/2022	Navitas Semiconductor	GeneSic Semiconductor	227
5/26/2022	Broadcom	Vmware	61,000
5/5/2022	MaxLinear	Silicon Motion	3551
4/4/2022	AMD	Pensando	1900
3/14/2022	Alphawave IP	OpenFive (SiFive)	210
2/15/2022	Intel	Tower Semiconductor	5400
2/14/2022	Murata	Resonant	296
12/15/2021	Entegris Inc	CMC Materials	6500
9/20/2021	Thomas Lee Partners	Brooks Automation (Semiconductor Solutions)	3000
8/30/2021	Synaptics	DSP Group	421
8/25/2021	ON Semiconductor	GT Advanced Technologies	N/A
8/3/2021	Marvell Technology Group Ltd	Innovium	1100
6/30/2021	Texas Instruments	Micron Lehi Fab	900
5/10/2021	MKS Instruments	Photon Control	387
4/21/2021	Skyworks	Silicon Labs' Infrastructure and Automotive Business	2750
2/8/2021	Renesas	Dialog Semiconductor	5900
1/13/2021	Qualcomm	NUVIA	1,400
10/28/2020	Marvell Technology Group Ltd	Inphi	8,200
10/27/2020	Advanced Micro Devices	Xilinx	35,000
9/13/2020	NVIDIA Corp.	ARM Ltd.	40,000
7/13/2020	Analog Devices	Maxim Integrated	21,300
7/7/2020	Synaptics Inc.	Broadcom's Wireless IoT Connectivity Business	250
4/6/2020	MaxLinear	Intel's Connected Home Business	150
2/20/2020	Dialog Semiconductor	Adesto Technologies	358

Source: Bloomberg Finance L.P. and company data.