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Semiconductor/SPE sector

Raising our 2026–27 WFE market forecasts

We raise our wafer fab equipment (WFE) market growth forecasts for CY2026 from 21% to 28% YoY and for CY2027 from 18% to 29%. We newly estimate a 16% YoY increase in CY2028. Driven by rising and broadening AI-related demand, cloud services providers (CSPs) are further accelerating their investments. We expect total investment by the top four US CSPs to increase 80% YoY in 2026 and 50% in 2027 (see a [report](#) by Samik Chatterjee et al.). Although demand is strong, chipmakers' shortage of cleanrooms had been a concern to some extent for CY2026, but the outlook is improving owing to such factors as creative use of factory space. From 2027 onward, we expect demand to increase as cleanroom expansions get underway in earnest.

- Raising our 2026–27 WFE market forecasts:** The global WFE market remained strong in CY2025, growing 11% YoY, although China, which accounts for 35–40% of the total WFE market, saw a slight YoY decline, reflecting a pullback from the previous year. Our bottom-up forecasts for WFE market growth are now 28% YoY (previously 21%) for CY2026 and 29% (previously 18%) for CY2027, and we introduce our CY2028 forecast of 16% growth (see Figure 21 for details). DRAM and TSMC are the main reasons for the upward revisions. We also raise our forecasts for logic chip and NAND flash memory equipment, albeit to a lesser degree, and view the business environment as generally favorable. As AI workloads shift from training to inference, the demand structure is broadening beyond accelerators, and the weighting of memory chip investment in particular is on an uptrend. We expect the memory chip weighting of CSP investment to rise from the previous single-digit-to-15% range to about 50% in 2026 (see a [global memory chip report](#) by Jay Kwon et al. for details), and we think companies with a high weighting of sales to TSMC and equipment makers with a high memory chip weighting will likely continue to be favored.
- Semiconductor shipments:** Global semiconductor shipments increased 106% YoY in April 2026, marking the 32nd consecutive month of growth since September 2023, and the strongest increase since at least 1994. While volume also grew in the double-digit %, the increase was largely driven by memory chip prices (with both NAND flash memory and DRAM prices seeing triple-digit growth). Even excluding memory chips, the growth was high at 33% YoY. We think AI accelerators (GPUs and ASICs) and HBM continued to drive this strong demand (see a [WSTS report](#) by Gokul Hariharan et al. for details).

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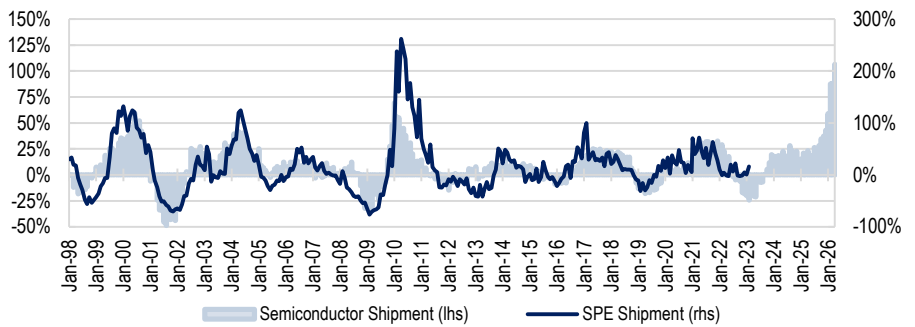
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Sandeep Deshpande	ASML (ASML NA)

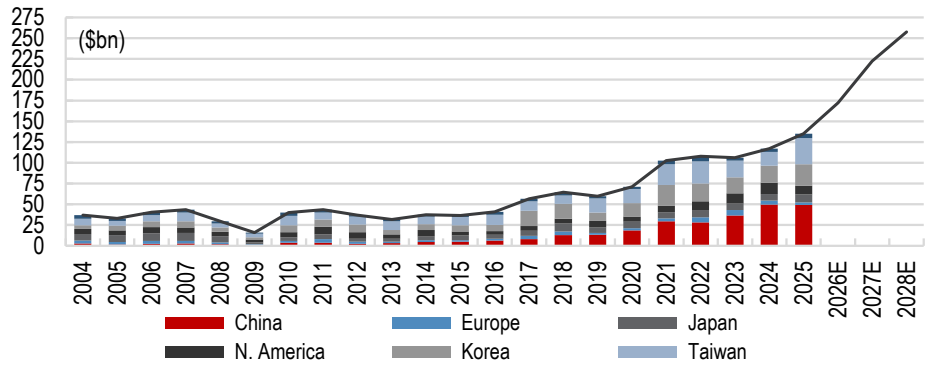
Our global tech team’s main assumptions for end demand are for (1) iPhone sales volume to increase 1.3% YoY in CY2026 and decrease 0.4% in CY2027, (2) notebook PC shipment volume to decrease 8.4% YoY in CY2026 and increase 1.5% in CY2027, (3) server shipments to increase 14.6% YoY in CY2026 and rise 8.3% in CY2027, and (4) smartphone shipment volume to decline 11.3% YoY in CY2026 and decrease 2.6% in CY2027 (see Figure 35 for details). Based on aggregate capex by major semiconductor makers, we forecast the WFE market will grow 28% YoY in CY2026, 29% YoY in CY2027 and 16% YoY in CY2028 (see Figure 21 for details).

Figure 1: Shipment value of semiconductors and SPE (YoY)



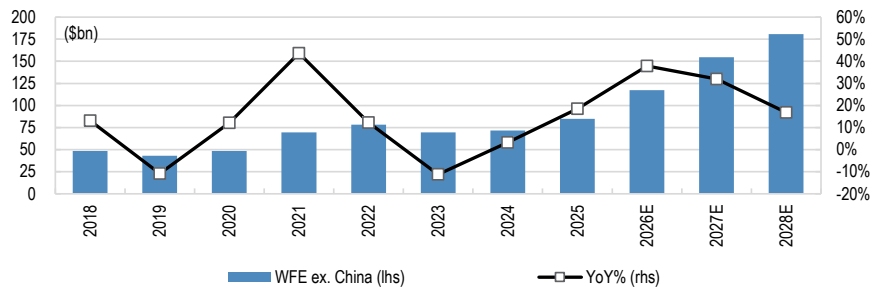
Source: WSTS, SEMI, SEAJ, J.P. Morgan.

Figure 2: SPE shipment trend by region



Source: SEMI, J.P. Morgan estimates.

Figure 3: Global SPE shipment trend excluding China



Source: Gartner®, J.P. Morgan estimates.

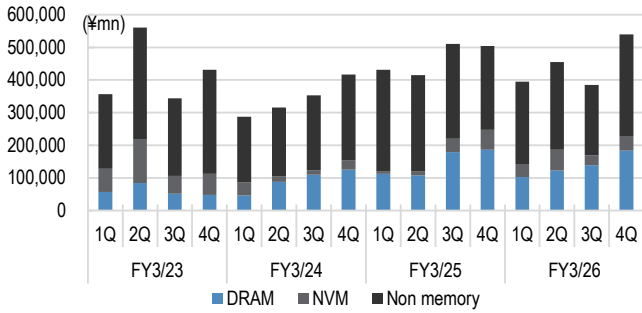
- **CoWoS/advanced packaging:** We expect TSMC's CoWoS production capacity to expand to 115,000 wafers per month at end-2026, 175,000 at end-2027, and 220,000 at end-2028 (previous estimates: 115,000, 145,000, N/A). The accelerated ramp-up of the company's own production capacity and the utilization of OSATs and VIS (for interposer manufacturing) will also likely be an upside factor. CoPoS progress is slower than we expected, and we think TSMC will absorb demand for the time being by extending the life of CoWoS and using larger reticles (up to 14x in 2028). In addition, the pace of CoWoS production capacity expansion will also likely accelerate (TSMC said it plans to expand its CoWoS production capacity at a CAGR of 80%+ in 2022–28). We slightly raise our outlook for Nvidia's CoWoS demand, owing to the strength of the Blackwell GB300, Spectrum X, and Vera CPUs, but are somewhat conservative on Rubin given HBM4 uncertainties. We expect production to ramp up in 3Q 2026 and reach full-scale mass levels in 4Q 2026. We significantly raise our 2027 estimate of AMD's CoWoS demand to reflect the ramp-up of the MI450 and Venice (we assume Venice will be transferred to OSATs by 2027). Google's TPUs are also on an uptrend, and we expect increased CoWoS allocations for both Broadcom and MediaTek. The direction of the TPU v9 architecture is likely to be finalized by year-end between two options: EMIB and CoWoS-L + 3D SoIC. Demand for AWS Trainium (Trn3) remains strong even under supply constraints, and we see upside potential heading into 2027. On the technology front, 3D SoIC adoption will likely expand in 2H 2027 onward. We estimate SoIC capacity of 40,000 wafers per month at end-2027 and 65,000 at end-2028. In addition, CPUs, LPUs, and networks (CPO/NPO) could become new drivers of CoWoS demand; WMCM capacity is likely to expand to 75,000 wafers per month at end-2027 and 90,000 at end-2028; and companies other than Apple could consider similar solutions in 2028 (reference: [May 17 report](#) by Gokul Hariharan et al.)
- **Capex at TSMC:** We expect capex to increase 37% in 2026 to \$56 billion, 16% in 2027 to \$65 billion, and 11% in 2028 to \$72 billion (previous estimates: \$54 billion, \$56 billion, N/A). We think the supply shortage in the area of advanced nodes (N5 and below) will last until 2027 or early 2028 and expect TSMC to accelerate its production capacity expansion. We expect the company's production capacity of N5 and below to grow at a 25% CAGR in 2025–28, with the majority ramping up in 2027–28. For N3, TSMC plans to ramp up three new fabs (Tainan Fab 18 P9, Arizona Phase 2, and JASM's second fab) from 1H 2027 through 2028. For N2, it has a strong pipeline, including iPhone processors, AMD's Venice and MI450, Google's TPUs, and Nvidia's Feynman. We expect capacity expansion centered on Kaohsiung P1-5 and AZ Phase 2 (we estimate ~60,000 wafers per month at end-2026 and ~150,000 at end-2027) (reference: [April 17 report](#) by Gokul Hariharan et al.).
- **Foundry trends:** TSMC reported strong 1Q 2026 revenue of ~\$36 billion (+6% QoQ), with N3/N5 production at over 100% capacity and blended ASP rising 11% YoY. Management raised its 2026 USD revenue growth guidance to over 30% from close to 30% previously. Along with the earnings results announcement in July, management could raise its guidance because of strong demand for networks/CPUs in addition to AI accelerators. We expect the shortage in the area of advanced nodes (N5 and below) to last until 2027 or early 2028 and N3/N2 capacity expansions to accelerate (e.g., for N3 to 213,000 wafers per month at end-2027 and to 237,000 at end-2028 and for N2 to ~150,000 wafers per month at end-2028). On pricing, TSMC raised prices by 6-10% for advanced-node chips in 1Q 2026. We think

discussions on additional price hikes for 2027 (likely to be 5-10% for N3 and below) could begin in 2Q 2026 (reference: [June 10 report](#) by Gokul Hariharan et al.)

- **Memory chip capex:** We expect memory chip industry capex to accelerate over the next three years, driven by a strong improvement in memory chip prices and the likelihood that supply shortages will continue for several years. We estimate total capex over the next three years of \$450 billion, up from our previous estimate of \$300 billion in the end-2025 model. Of the total, we assume DRAM capex of \$364 billion, with EUV procurement and infrastructure development likely the main bottlenecks. We expect WSPM to increase to 2.8 million at end-2028 (+880,000 from end-2025). For NAND flash memory, we assume WSPM of 1.44 million (+165,000) at end-2028 and cumulative capex of \$86 billion over three years. The focus of spending is likely to be on technology transitions, and contributions from greenfield investments will probably come in 2H 2028 onward (reference: [May 29 report](#) by Jay Kwon et al.)
- **Cloud capex:** We raise our capex growth forecasts for the top four US CSPs (Google, Amazon, Microsoft, and Meta) from 63% to 80% in 2026 and from over 40% to 50% in 2027, driven by accelerating investments to expand AI-related data centers and power capacity in North America. In value terms, we expect the largest step-up ever, exceeding +\$250 billion YoY in 2026 and +\$285 billion YoY in 2027, despite a slowdown in growth. Backing this up, planned power capacity in North America exceeded 175 GW at end-1Q 2026 (and we think it is likely to rise to over 205 GW by year-end). We expect installed capacity to increase from 48 GW in 2025 to 65 GW (previously 62 GW) in 2026 and to 85 GW (previously 78 GW) in 2027. We estimate total capex will exceed \$575 billion in 2026 and \$860 billion in 2027, assuming this will be financed by operating cash flows. Until 2023, the top four US CSPs used 25-30% of their operating cash flows to finance capex. We expect this ratio to rise to 82% in 2026 and to 94% in 2027 (reference: [May 26 report](#) by Samik Chatterjee et al.)
- **Summary of TMT conference (US semiconductors/SPE):** The biggest takeaway from the 54th Annual J.P. Morgan Global Technology, Media and Communications Conference held in Boston over May 18-20 was that demand is gaining even more momentum, with almost all companies noting that orders, backlogs, and customer escalations have built up even more in the weeks following their results announcements. In the SPE space, KLAC noted that visibility on demand next year as of now (May) is the highest it has been in over a decade and expects the WFE market to be bigger in 2027 than in 2026. MKSI is also strengthening its structure in anticipation of a WFE market of \$165-180 billion in 2027 onward. In the semiconductor business, AI demand is broadening from a heavy focus on accelerators to the full stack (led by inference), boosting custom silicon growth, an acceleration of advanced packaging, and an extension of the memory chip upcycle (SanDisk indicated pricing conditions are strong owing to supply shortages and long-term contracts lasting until 2027) (reference: [May 21 report](#) by Harlan Sur et al.)
- **SPE:** We raise our WFE market growth forecasts from 21% to 28% YoY for 2026 and from 18% to 29% YoY for 2027, and introduce our estimate of a 16% YoY increase in 2028. With semiconductor demand strengthening further, driven by accelerating CSP investment, we again raise our forecasts, mainly for DRAM and TSMC (see Figure 21 for details), following our [previous update](#) (in March 2026). We also raise our forecasts for logic chip and NAND flash memory equipment, although not by as much as for DRAM and TSMC. It is apparent that companies are

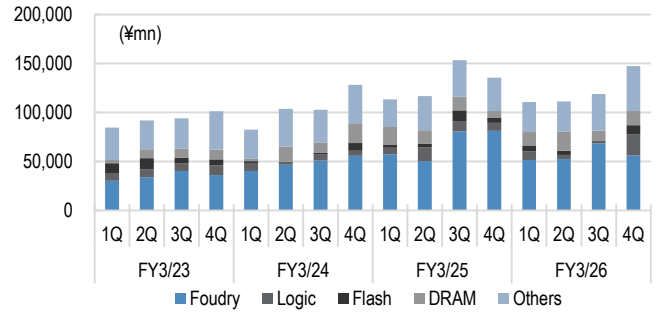
keen on capex. While profitability on memory chips, especially NAND flash memory, is improving significantly thanks to sharp price increases, chip companies are maintaining disciplined investment stances. We thus expect the supply-demand environment to remain tight. Kioxia is considering cleanroom investments in anticipation of increased demand from FY2029 onward but notes that it can meet demand at least through 2028 to early 2029 (bit growth of around 22%) with its existing buildings. Brownfield investments centered on technology transitions are thus likely to be the main focus for the time being. We accordingly expect equipment unit prices to rise along with value added. Our Japan team still expects stocks with a high presence in the DRAM and foundry businesses to be favored. Among Japanese SPE makers, our top pick is Tokyo Electron (8035; Overweight), which has also developed its own pricing measures. In the back-end processing area, we expect Advantest (6857; Overweight) to continue to benefit from high demand.

Figure 4: Tokyo Electron SPE sales



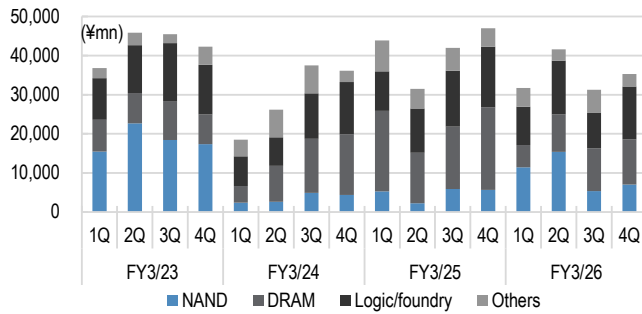
Source: Company reports, J.P. Morgan.

Figure 5: SCREEN HD SPE sales



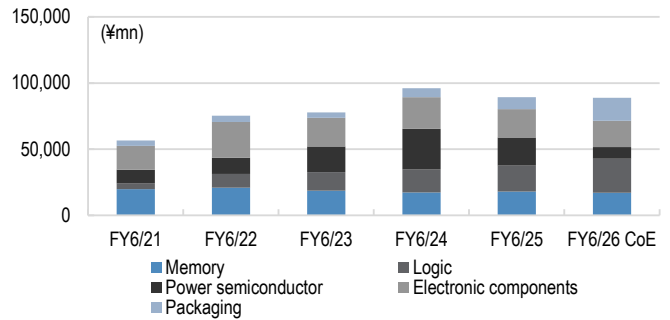
Source: Company reports, J.P. Morgan.

Figure 6: KOKUSAI Electric equipment sales



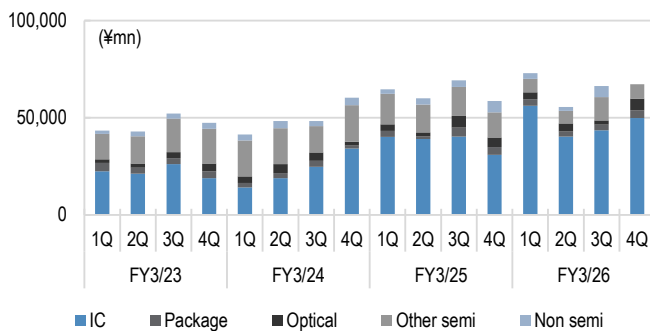
Source: Company reports, J.P. Morgan.

Figure 7: Ulvac semiconductor & electronic device production equipment sales



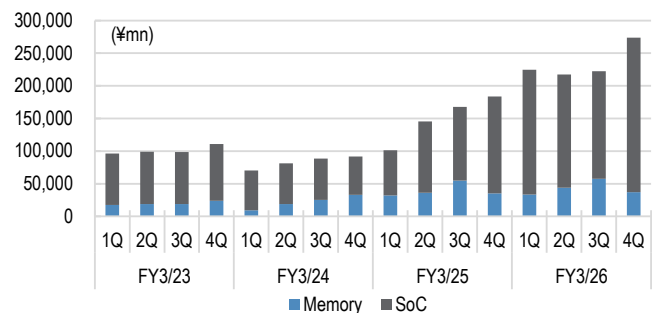
Source: Company reports, J.P. Morgan.

Figure 8: Disco precision processing equipment shipments



Source: Company reports, J.P. Morgan.

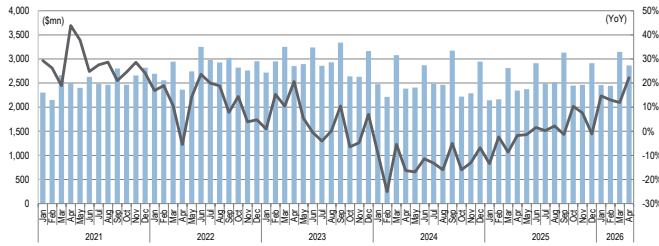
Figure 9: Advantest test system sales



Source: Company reports, J.P. Morgan.

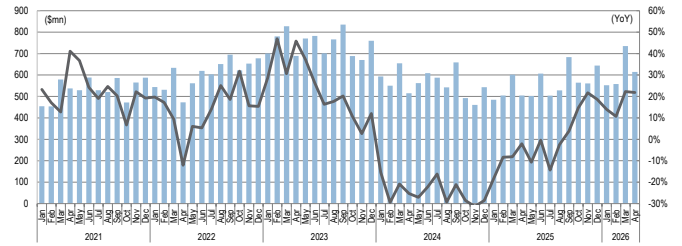
Sector data

Figure 10: Discretes global net billings



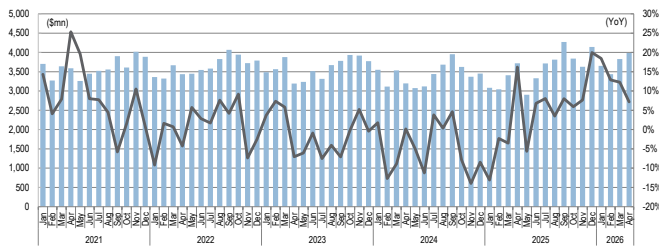
Source: Compiled by J.P. Morgan based on WSTS data.
 Note: Line graph shows YoY.

Figure 11: IGBT (Insulated Gate Bipolar Trans) global net billings



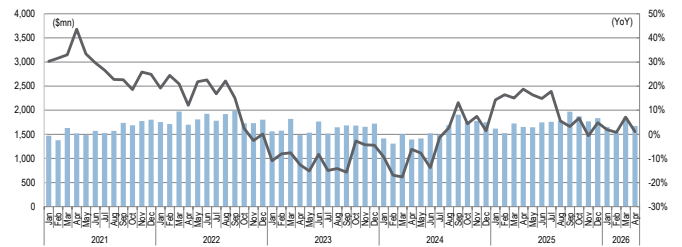
Source: Compiled by J.P. Morgan based on WSTS data.
 Note: Line graph shows YoY.

Figure 12: Optoelectronics global net billings



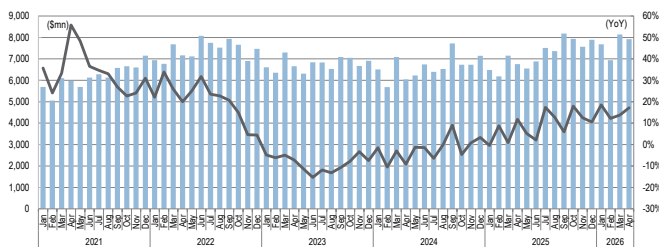
Source: Compiled by J.P. Morgan based on WSTS data.
 Note: Line graph shows YoY.

Figure 13: Sensors & Actuators global net billings



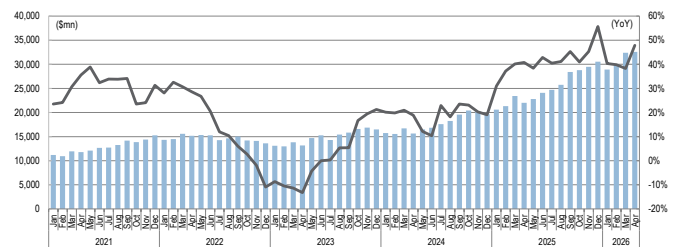
Source: Compiled by J.P. Morgan based on WSTS data.
 Note: Line graph shows YoY.

Figure 14: Analog global net billings



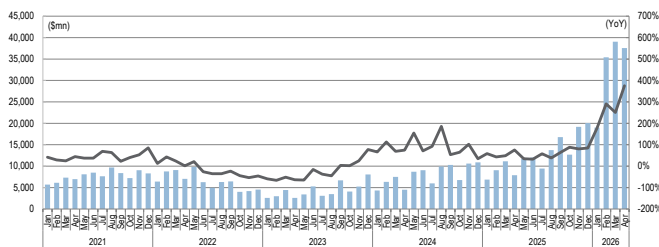
Source: Compiled by J.P. Morgan based on WSTS data.
 Note: Line graph shows YoY.

Figure 15: Logic global net billings



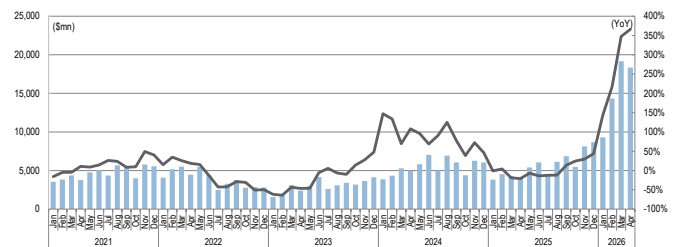
Source: Compiled by J.P. Morgan based on WSTS data.
 Note: Line graph shows YoY.

Figure 16: MOS DRAM global net billings



Source: Compiled by J.P. Morgan based on WSTS data.
 Note: Line graph shows YoY.

Figure 17: NAND Flash Memory global net billings



Source: Compiled by J.P. Morgan based on WSTS data.
 Note: Line graph shows YoY.

Figure 18: Monthly semiconductor shipments

Unit:\$bn	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2026	80.8	101.6	116.2	113.7								
(YoY)	58.9%	87.7%	88.1%	106.4%								
2025	50.8	54.1	61.8	55.1	60.3	64.5	61.6	68.6	78.2	71.5	80.6	84.5
(YoY)	15.2%	20.9%	18.9%	23.4%	18.8%	18.4%	26.4%	22.2%	28.0%	34.5%	37.4%	43.0%
2024	44.1	44.7	52.0	44.6	50.8	54.5	48.7	56.2	61.1	53.2	58.7	59.1
(YoY)	17.8%	17.2%	18.4%	16.6%	22.6%	15.9%	18.1%	28.0%	23.3%	14.7%	22.6%	14.1%
2023	37.5	38.2	43.9	38.3	41.4	47.0	41.2	43.9	49.6	46.3	47.8	51.8
(YoY)	-20.1%	-24.1%	-19.6%	-20.2%	-21.0%	-6.1%	-7.3%	-7.0%	0.3%	5.3%	11.7%	19.4%

Source: WSTS, J.P. Morgan.

Figure 19: Quarterly semiconductor shipments

Unit:\$bn	1Q23	2Q23	3Q23	4Q23	1Q24	2Q24	3Q24	4Q24	1Q25	2Q25	3Q25	4Q25	1Q26
	119.5	126.7	134.7	146.0	140.8	149.9	166.0	170.9	166.7	179.9	208.4	236.6	298.5
(YoY)	-21.3%	-15.8%	-4.5%	12.1%	17.8%	18.3%	23.2%	17.1%	18.4%	20.0%	25.6%	38.5%	79.1%
(QoQ)	-8.2%	6.0%	6.3%	8.4%	-3.5%	6.5%	10.7%	3.0%	-2.5%	7.9%	15.8%	13.6%	26.2%

Source: WSTS, J.P. Morgan.

Figure 20: TSMC sales trend

		FY24				FY25				FY26E				FY23	FY24	FY25	FY26E	FY27E	FY28E
		1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2QE	3QE	4QE						
NT\$b	Sales	592.6	673.5	759.7	868.5	839.3	933.8	989.9	1,046.1	1,134.1	1,262.1	1,394.8	1,529.4	2,161.7	2,894.3	3,809.1	5,320.4	7,023.1	8,190.6
	(YoY)	16.5%	40.1%	39.0%	38.8%	41.6%	38.6%	30.3%	20.5%	35.1%	35.2%	40.9%	46.2%	-4.5%	33.9%	31.6%	39.7%	32.0%	16.6%
	(QoQ)	-5.3%	13.6%	12.8%	14.3%	-3.4%	11.3%	6.0%	5.7%	8.4%	11.3%	10.5%	9.7%						
US\$m	Sales	18,844.6	20,814.3	23,513.3	26,835.0	25,524.8	30,073.8	33,096.6	33,730.7	35,898.4	37,743.9	42,419.9	46,450.0	69,302.1	90,013.1	122,456.5	167,960.5	221,549.9	258,378.9
	(YoY)	12.6%	33.0%	36.3%	36.6%	35.4%	44.5%	40.8%	25.7%	40.6%	25.5%	28.2%	37.7%	-8.6%	29.9%	36.0%	37.2%	31.9%	16.6%
	(QoQ)	-4.1%	10.5%	13.0%	14.1%	-4.9%	17.8%	10.1%	1.9%	6.4%	5.1%	12.4%	9.5%						

Source: Company data, J.P. Morgan estimates (covered by Gokul Hariharan, forecast as of April 16, 2026).

Figure 21: Capex estimates for semiconductor companies

CY (US\$m)	2018	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E	2026E (old)	2027E (old)
Logic													
Intel	11,900	14,400	12,759	19,000	26,000	25,750	23,220	17,000	19,000	21,000	24,000	16,000	17,000
Texas Instruments	1,130	925	900	1,700	3,300	5,000	4,820	5,000	2,750	2,900	3,100	3,000	3,500
Others	4,850	4,825	4,930	6,300	8,800	8,000	8,980	8,000	8,500	9,000	9,500	8,500	9,000
Total	17,880	20,150	18,589	27,000	38,100	38,750	37,020	30,000	30,250	32,900	36,600	27,500	29,500
YY % changes	20%	13%	-8%	45%	41%	2%	-4%	-19%	1%	9%	11%	-8%	7%
Foundry													
TSMC	10,460	15,000	17,500	30,040	36,000	30,450	29,800	40,900	56,000	65,000	72,000	54,000	56,000
Samsung Logic	2,500	4,500	7,500	10,100	9,300	11,300	5,900	3,416	10,400	8,600	8,600	5,797	5,507
Globalfoundries	1,150	588	449	1,698	3,059	1,804	625	722	1,310	1,387	1,456	938	1,163
UMC	651	574	1,000	1,713	2,690	2,935	2,756	1,542	1,520	1,620	1,630	1,500	1,500
SMIC	1,800	1,870	5,251	4,500	6,172	7,630	7,664	8,400	8,200	7,000	7,000	7,250	7,000
Hua Hong	239	922	1,087	939	996	907	2,780	1,814	1,741	2,506	2,123	--	--
Others	410	661	240	831	1,285	1,761	1,227	2,315	2,600	1,900	1,200	4,204	2,720
Total	17,211	24,114	33,027	49,820	59,502	56,786	50,751	59,109	81,771	88,013	94,009	73,689	73,890
YY % changes	-21%	40%	37%	51%	19%	-5%	-11%	16%	38%	8%	7%	26%	0%
DRAM													
Samsung	11,819	7,291	9,204	14,008	13,652	16,702	19,083	19,824	30,423	42,143	51,071	25,155	29,821
SK hynix	6,818	7,162	5,204	6,522	8,705	4,294	10,034	17,314	26,409	37,493	45,986	25,084	32,786
Micron Technology	4,400	4,000	3,250	5,000	5,626	3,300	5,500	13,300	23,200	30,800	37,500	17,500	22,700
Others	1,799	1,282	1,741	2,949	5,339	6,553	10,500	8,789	11,400	14,600	17,000	9,800	9,000
Total	24,836	19,735	19,399	28,479	33,323	30,849	45,117	59,226	91,432	125,036	151,557	77,539	94,307
YY % changes	78%	-21%	-2%	47%	17%	-7%	46%	31%	54%	37%	21%	30%	22%
NAND													
Samsung	6,364	6,605	9,494	10,931	9,677	8,798	5,652	5,483	6,223	7,143	8,214	5,669	6,071
SK hynix	7,569	4,632	3,303	4,268	5,733	1,936	1,463	1,548	2,611	3,211	5,418	2,367	2,659
Micron Technology	4,996	3,981	3,500	4,700	5,000	3,000	3,000	3,000	4,300	5,000	7,000	4,100	4,300
Kioxia/SanDisk	5,200	5,500	5,800	5,800	6,000	5,300	2,300	3,450	5,000	5,500	6,100	4,100	4,700
Intel	2,763	2,951	750	650	1,000	770	720	600	0	0	0	500	500
YMTC	3,000	2,180	2,350	2,500	3,500	3,000	2,500	4,000	5,300	6,500	7,500	3,500	3,500
Total	29,891	25,849	25,197	28,849	30,910	22,804	15,634	18,081	23,434	27,354	34,232	20,235	21,731
YY % changes	5%	-14%	-3%	14%	7%	-26%	-31%	16%	30%	17%	25%	10%	7%
Grand Total	89,818	89,849	96,212	134,149	161,835	149,189	148,522	166,416	226,887	273,302	316,398	198,963	219,428
YY % changes	13%	0%	7%	39%	21%	-8%	0%	12%	36%	20%	16%	20%	10%
WFE %Capex	66%	62%	67%	69%	62%	69%	75%	75%	70%	75%	75%	70%	75%
WFE estimates	58,944	55,480	64,905	92,335	101,101	102,820	111,777	124,452	158,800	205,000	237,300	139,300	164,600
YY % changes		-6%	17%	42%	9%	2%	9%	11%	28%	29%	16%	21%	18%

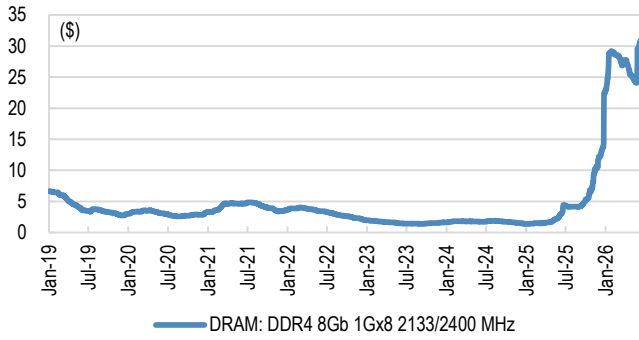
Source: Company data, Gartner®, J.P. Morgan estimates.

Figure 22: Semiconductor shipments, SPE shipments, and SPE ratio trend

CY (US\$mn)	Semiconductor (Global)		SPE (Global)		SPE/Semi Ratio (%)
	Shipment	YoY	Shipment	YoY	
2025	791,694	26.1%	120,826	1.8%	15.3%
2024	627,635	19.1%	118,737	8.6%	18.9%
2023	526,828	-8.1%	109,360	1.7%	20.8%
2022	573,477	3.4%	107,532	4.8%	18.8%
2021	554,677	26.0%	102,641	44.5%	18.5%
2020	440,389	6.8%	71,028	18.9%	16.1%
2019	412,307	-12.0%	59,753	-7.4%	14.5%
2018	468,778	13.7%	64,494	13.8%	13.8%
2017	412,221	21.6%	56,687	38.2%	13.8%
2016	338,931	1.2%	41,007	12.3%	12.1%
2015	335,007	-0.2%	36,527	-2.4%	10.9%
2014	335,843	9.8%	37,410	18.5%	11.1%
2013	305,952	4.9%	31,580	-14.8%	10.3%
2012	291,562	-2.7%	37,078	-14.8%	12.7%
2011	299,521	0.4%	43,526	9.0%	14.5%
2010	298,315	31.8%	39,929	151.1%	13.4%
2009	226,313	-9.0%	15,900	-46.4%	7.0%
2008	248,603	-2.8%	29,664	-31.5%	11.9%
2007	255,645	3.2%	43,316	7.0%	16.9%
2006	247,716	8.9%	40,474	23.1%	16.3%
2005	227,484	6.8%	32,882	-11.3%	14.5%
2004	213,027	28.0%	37,081	67.1%	17.4%
2003	166,426	18.3%	22,189	12.4%	13.3%
2002	140,713	1.3%	19,749	-29.6%	14.0%
2001	138,963	-32.0%	28,038	-41.2%	20.2%
2000	204,394	36.8%	47,680	87.0%	23.3%
1999	149,379	18.9%	25,497	18.4%	17.1%
1998	125,612	-7.4%	21,531	-22.0%	17.1%
1997	135,609	4.2%	27,588	4.7%	20.3%
1996	130,104	-9.9%	26,337	9.6%	20.2%
1995	144,404	41.7%	24,027	65.6%	16.6%
1994	101,879	31.8%	14,507	40.1%	14.2%
1993	77,310	29.1%	10,352	28.3%	13.4%
1992	59,865	9.6%	8,067	-9.3%	13.5%

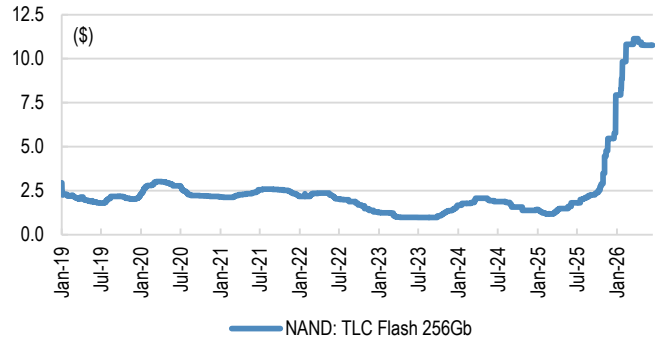
Source: WSTS, SEMI, J.P. Morgan.

Figure 23: DRAM spot price trend



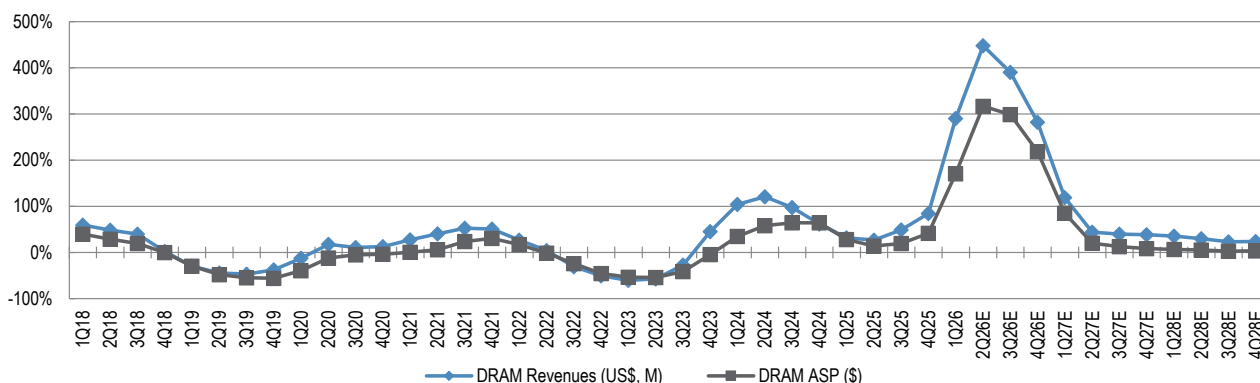
Source: Bloomberg Finance L.P., J.P. Morgan.

Figure 24: NAND spot price trend



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

Figure 25: DRAM quarterly growth rate (YoY)



Source: WSTS, Gartner®, J.P. Morgan estimates.
Note: J.P. Morgan Global Memory Model.

Figure 26: DRAM supply/demand forecasts

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
DRAM Demand (mn units)	8,992	11,166	13,651	15,928	19,376	22,957	23,600	25,776	31,364	37,920	50,226	67,504	81,771
YoY (%)	27%	24%	22%	17%	22%	18%	3%	9%	22%	21%	32%	34%	21%
DRAM Supply (mn units)	9,525	11,410	13,056	15,689	19,248	23,630	23,665	27,258	32,131	38,351	47,138	57,379	71,035
YoY (%)	33%	20%	14%	20%	23%	23%	0%	15%	18%	19%	23%	22%	24%
DRAM ASP (\$)	4.33	6.40	7.69	3.94	3.32	3.84	3.28	1.88	2.90	3.72	12.90	16.02	16.73
YoY (%)	-34%	48%	20%	-49%	-16%	15%	-15%	-43%	54%	28%	246%	24%	4%

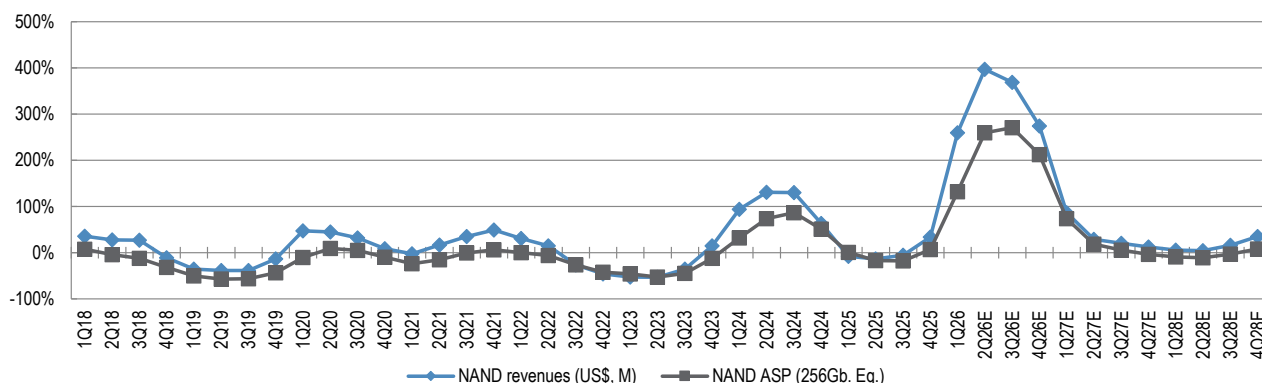
Source: iSuppli, Gartner®, WSTS, J.P. Morgan estimates.
Note: 8GB equivalent for DRAM. J.P. Morgan Global Memory Model.

Figure 27: DRAM (8GB): Quarterly forecasts

	2024				2025				2026				2027				2028			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
DRAM (8GB Eq)																				
Volume (consumption) (WSTS) (mn units)	7,803	8,323	8,276	8,267	8,019	9,254	10,286	10,781	11,581	12,165	12,640	12,933	13,708	14,608	15,728	16,522	17,392	18,018	18,820	19,697
YoY (%)	52%	39%	20%	-1%	3%	11%	24%	30%	44%	31%	23%	20%	18%	20%	24%	28%	27%	23%	20%	19%
Revenue (US\$ mn)	18,811	22,937	25,126	27,890	24,773	29,104	37,352	51,478	96,707	159,479	183,101	196,727	211,843	230,039	256,346	271,976	286,306	298,093	316,341	336,043
YoY (%)	104%	121%	97%	62%	32%	27%	49%	85%	290%	448%	390%	282%	119%	44%	40%	38%	35%	30%	23%	24%
ASP (\$)	2.41	2.76	3.04	3.37	3.09	3.15	3.63	4.77	8.35	13.11	14.49	15.21	15.44	15.75	16.30	16.46	16.46	16.54	16.81	17.06
YoY (%)	35%	58%	64%	64%	28%	14%	20%	42%	170%	317%	299%	219%	85%	20%	13%	8%	7%	5%	3%	4%

Source: iSuppli, Gartner®, WSTS, J.P. Morgan estimates.
Note: J.P. Morgan Global Memory Model.

Figure 28: NAND quarterly growth rate (YoY)



Source: iSuppli, Gartner®, WSTS, J.P. Morgan estimates.
Note: 256GB equivalent for NAND. J.P. Morgan Global Memory Model.

Figure 29: NAND supply/demand forecasts

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
NAND Demand (mn units)	4,287	5,558	7,269	10,413	14,220	18,797	19,637	21,440	25,746	30,710	37,788	48,916	59,817
YoY (%)	38%	30%	31%	43%	37%	32%	4%	9%	20%	19%	23%	29%	22%
NAND Supply (mn units)	4,192	5,388	7,389	10,785	13,934	19,472	21,432	23,651	27,060	30,982	37,106	44,984	54,407
YoY (%)	45%	29%	37%	46%	29%	40%	10%	10%	14%	14%	20%	21%	21%
NAND ASP (\$)	7.80	8.78	7.71	3.68	3.64	3.33	2.70	1.57	2.50	2.34	7.42	8.69	8.37
YoY (%)	-24%	12%	-12%	-52%	-1%	-8%	-19%	-42%	60%	-6%	217%	17%	-4%

Source: WSTS, Gartner®, J.P. Morgan estimates.
Note: J.P. Morgan Global Memory Model.

Figure 30: NAND (256GB): Quarterly forecasts

	2024				2025				2026				2027				2028			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
NAND (256GB Eq.)																				
Volume (consumption) (WSTS) (mn units)	6,837	7,026	7,058	6,914	6,254	7,317	8,120	8,669	9,683	10,119	10,269	10,394	10,399	10,999	11,737	12,151	12,095	12,895	14,088	15,201
YoY (%)	47%	33%	23%	8%	-9%	4%	15%	25%	55%	38%	26%	20%	7%	9%	14%	17%	16%	17%	20%	25%
Revenue (US\$ mn)	14,819	17,991	19,083	17,799	13,626	15,558	18,077	23,815	49,000	77,319	84,739	89,208	91,482	99,657	102,096	100,410	96,445	103,858	118,567	135,616
YoY (%)	94%	130%	130%	63%	-8%	-14%	-5%	34%	260%	397%	369%	275%	87%	29%	20%	13%	5%	4%	16%	35%
ASP (\$)	2.17	2.56	2.70	2.57	2.18	2.13	2.23	2.75	5.06	7.64	8.25	8.58	8.80	9.06	8.70	8.26	7.97	8.05	8.42	8.92
YoY (%)	32%	74%	87%	51%	1%	-17%	-18%	7%	132%	259%	271%	212%	74%	19%	5%	-4%	-9%	-11%	-3%	8%

Source: iSuppli, Gartner®, WSTS, J.P. Morgan estimates.
Note: J.P. Morgan Global Memory Model.

Figure 31: DRAM (8GB) yearly forecasts

	2018	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
DRAM (8GB Eq.)											
Volume (consumption) (WSTS) (mn units)	12,983	15,149	19,112	23,716	23,470	26,378	32,669	38,340	49,319	60,566	73,927
YoY (%)	12%	17%	26%	24%	-1%	12%	24%	17%	29%	23%	22%
Revenue (US\$ mn)	99,780	59,664	63,522	91,034	76,886	49,536	94,764	142,707	636,015	970,004	1,236,783
YoY (%)	34%	-40%	6%	43%	-16%	-36%	91%	51%	346%	53%	28%
ASP (\$)	7.69	3.94	3.32	3.84	3.28	1.88	2.90	3.72	12.90	16.02	16.73
YoY (%)	20%	-49%	-16%	15%	-15%	-43%	54%	28%	246%	24%	4%

Source: iSuppli, Gartner®, WSTS, J.P. Morgan estimates
Note: J.P. Morgan Global Memory Model.

Figure 32: DRAM (8GB) demand model by use

	2018	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
Volume (Demand; mn units)											
PC DRAM	2,953	3,067	3,448	4,354	4,526	4,675	5,332	5,883	5,374	5,151	5,081
Desktop	510	577	517	629	620	587	617	718	606	584	574
Notebooks	967	1,082	1,510	2,045	1,856	1,827	2,050	2,346	2,055	2,009	2,051
Upgrades + other EDP	1,477	1,408	1,420	1,680	2,050	2,260	2,665	2,819	2,713	2,558	2,456
Server	3,423	3,720	5,964	6,912	7,447	7,804	10,902	14,454	27,309	44,853	58,985
Mobile DRAM	5,312	6,840	7,471	8,844	8,648	9,198	10,683	12,201	11,298	11,193	11,500
Others	1,962	1,999	2,123	2,624	3,103	3,588	4,070	4,526	4,815	5,033	5,269
Total	13,650	15,626	19,007	22,734	23,724	25,265	30,987	37,064	48,796	66,230	80,836
YoY											
PC DRAM	5%	4%	12%	26%	4%	3%	14%	10%	-9%	-4%	-1%
Desktop	1%	13%	-10%	22%	-1%	-5%	5%	16%	-16%	-4%	-2%
Notebooks	5%	12%	40%	35%	-9%	-2%	12%	14%	-12%	-2%	2%
Upgrades + other EDP	7%	-5%	1%	18%	22%	10%	18%	6%	-4%	-6%	-4%
Server	54%	9%	60%	16%	8%	5%	40%	33%	89%	64%	32%
Mobile DRAM	24%	29%	9%	18%	-2%	6%	16%	14%	-7%	-1%	3%
Others	21%	2%	6%	24%	18%	16%	13%	11%	6%	5%	5%
Total	25%	14%	22%	20%	4%	6%	23%	20%	32%	36%	22%
Composition ratio											
PC DRAM	22%	20%	18%	19%	19%	19%	17%	16%	11%	8%	6%
Desktop	4%	4%	3%	3%	3%	2%	2%	2%	1%	1%	1%
Notebooks	7%	7%	8%	9%	8%	7%	7%	6%	4%	3%	3%
Upgrades + other EDP	11%	9%	7%	7%	9%	9%	9%	8%	6%	4%	3%
Server	25%	24%	31%	30%	31%	31%	35%	39%	56%	68%	73%
Mobile DRAM	0%	0%	0%	0%	0%	1%	4%	6%	8%	9%	11%
Others	39%	44%	39%	39%	36%	36%	34%	33%	23%	17%	14%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: iSuppli, Gartner®, WSTS, J.P. Morgan estimates
Note: J.P. Morgan Global Memory Model.

Figure 33: NAND (256GB): Yearly forecasts

	2018	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
NAND (256GB Eq.)											
Volume (consumption) (WSTS) (mn units)	7,212	10,283	13,669	18,570	20,500	22,095	27,836	30,360	40,465	45,287	54,279
YoY (%)	34%	43%	33%	36%	10%	8%	26%	9%	33%	12%	20%
Revenue (US\$ mn)	55,631	37,808	49,792	61,914	55,290	34,652	69,691	71,077	300,265	393,645	454,485
YoY (%)	18%	-32%	32%	24%	-11%	-37%	101%	2%	322%	31%	15%
ASP (\$)	7.71	3.68	3.64	3.33	2.70	1.57	2.50	2.34	7.42	8.69	8.37
YoY (%)	-12%	-52%	-1%	-8%	-19%	-42%	60%	-6%	217%	17%	-4%

Source: iSuppli, Gartner®, WSTS, J.P. Morgan estimates
Note: J.P. Morgan Global Memory Model.

Figure 34: NAND (256GB) demand model by use

	2018	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
Volume (Demand; mn units)											
USB	367	407	422	489	523	550	564	639	652	657	683
Flash cards	503	568	510	538	520	541	529	586	603	620	639
SSDs	2,840	4,576	7,056	9,464	10,240	10,279	13,769	16,335	23,744	34,309	45,460
Enterprise SSD	1,272	1,758	2,939	3,950	4,743	3,194	7,344	8,934	16,082	26,372	37,174
Client SSD/Others	1,568	2,818	4,117	5,514	5,497	7,085	6,424	7,400	7,661	7,937	8,285
Smartphones	2,586	3,472	4,004	5,831	5,961	6,891	7,607	8,761	8,462	8,297	8,281
Tablets	239	325	548	706	723	722	850	926	848	805	812
Feature phones	4	4	5	7	8	8	8	9	8	8	8
Others	559	883	1,147	1,515	1,824	2,021	2,310	2,603	2,832	3,072	3,340
Total	7,099	10,236	13,693	18,550	19,800	21,011	25,636	29,858	37,149	47,769	59,222
YoY											
USB	34%	43%	33%	36%	10%	8%	26%	9%	33%	12%	20%
Flash cards	18%	-32%	32%	24%	-11%	-37%	101%	2%	322%	31%	15%
SSDs	43%	61%	54%	34%	8%	0%	34%	19%	45%	44%	32%
Enterprise SSD											
Client SSD/Others											
Smartphones	44%	34%	15%	46%	2%	16%	10%	15%	-3%	-2%	0%
Tablets	-2%	36%	69%	29%	2%	0%	18%	9%	-8%	-5%	1%
Feature phones	-5%	14%	26%	36%	13%	-4%	3%	9%	-10%	0%	0%
Others	14%	58%	30%	32%	20%	11%	14%	13%	9%	8%	9%
Total	31%	44%	34%	35%	7%	6%	22%	16%	24%	29%	24%
Composition ratio											
USB	5%	4%	3%	3%	3%	3%	2%	2%	2%	1%	1%
Flash cards	7%	6%	4%	3%	3%	3%	2%	2%	2%	1%	1%
SSDs	40%	45%	52%	51%	52%	49%	54%	55%	64%	72%	77%
Enterprise SSD	18%	17%	21%	21%	24%	15%	29%	30%	43%	55%	63%
Client SSD/Others	22%	28%	30%	30%	28%	34%	25%	25%	21%	17%	14%
Smartphones	36%	34%	29%	31%	30%	33%	30%	29%	23%	17%	14%
Tablets	3%	3%	4%	4%	4%	3%	3%	3%	2%	2%	1%
Feature phones	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Others	8%	9%	8%	8%	9%	10%	9%	9%	8%	6%	6%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: iSuppli, Gartner®, WSTS, J.P. Morgan estimates
Note: J.P. Morgan Global Memory Model.

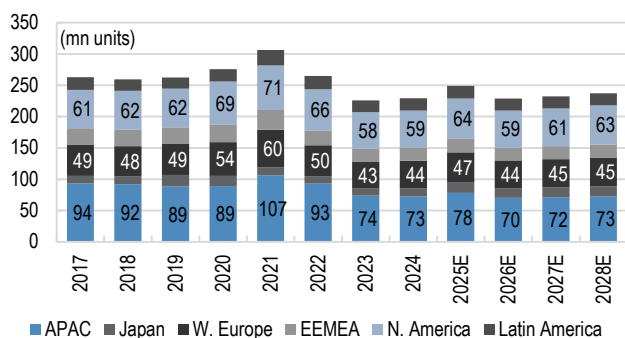
Figure 35: End products: Market assumptions

(mn unit, %)	CY2018	CY2019	CY2020	CY2021	CY2022	CY2023	CY2024	CY2025	CY2026E	CY2027E	CY2028E	Estimated by
Desktop PC	100	100	80	85	76	62	61	67	62	63	64	Albert Hung
YoY	-2.5	0.5	-20.4	6.9	-10.9	-17.9	-2.2	9.8	-7.7	2.0	1.8	
Notebook PC	160	162	196	221	189	163	168	182	167	169	173	Albert Hung
YoY	-0.3	1.3	20.9	13.0	-14.6	-13.5	3.1	8.2	-8.4	1.5	2.2	
Server	13	13	13	13	14	11	12	12	14	15	16	Albert Hung
YoY	13.1	-3.2	1.1	1.9	7.0	-17.9	6.5	0.2	14.6	8.3	5.0	
Automotive	94	90	77	80	79	87	89	92	88	89	89	Akira Kishimoto
YoY	-0.6	-4.2	-14.1	4.0	-1.6	9.8	2.3	3.4	-4.4	1.0	0.5	
iPhone	205	195	201	246	231	228	228	241	244	243	245	Samik Chatterjee
YoY	-5.1	-4.6	2.8	22.4	-5.9	-1.3	-0.2	5.6	1.3	-0.4	0.9	
Apple Watch	25	31	39	40	46	43	40	38	39	39	--	Samik Chatterjee
YoY	39.7	26.8	25.0	1.6	16.7	-6.9	-8.1	-3.2	1.0	1.0	--	
LCD TV	289	287	272	261	263	236	--	--	--	--	--	--
YoY	--	-0.4	-5.4	-3.9	0.6	-10.0	--	--	--	--	--	
OLED TV	3	3	4	7	7	5	--	--	--	--	--	--
YoY	--	11.5	35.8	65.9	0.5	-29.0	--	--	--	--	--	
Smartphone	1,410	1,387	1,265	1,351	1,193	1,142	1,223	1,245	1,104	1,075	--	Samik Chatterjee
YoY	-2.4	-1.7	-8.8	6.9	-11.7	-4.3	7.1	1.8	-11.3	-2.6	--	
DSLR	10.8	8.5	5.3	5.4	5.9	6.0	6.6	7.0	--	--	--	--
YoY	-7.8	-21.4	-37.3	0.9	10.7	1.2	10.2	5.9	--	--	--	

Source: Omdia, CIPA, company data, and J.P. Morgan estimates.

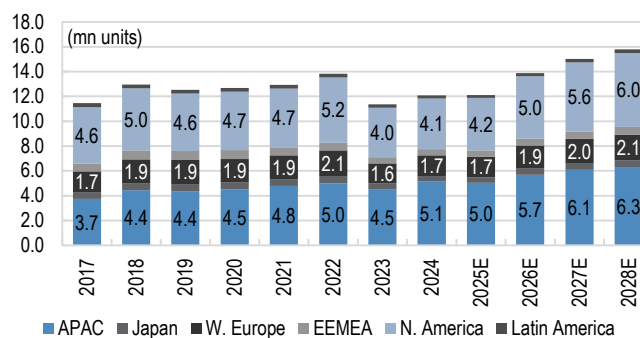
Note: Apple as of May 1, 2026, Smartphone as of March 9, 2026, PC/Server as of January 12, 2026, Automotive as of June 3, 2026.

Figure 36: PC shipments by region



Source: Gartner®, J.P. Morgan estimates.

Figure 37: Server shipments by region



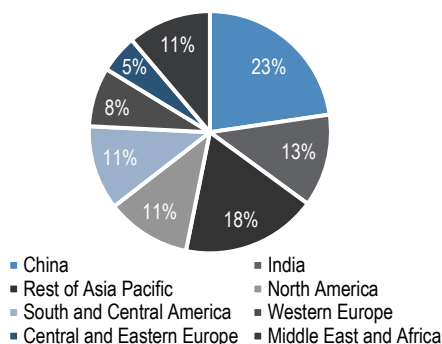
Source: Gartner®, J.P. Morgan estimates.

Figure 38: Smartphone volume trend by region

Millions of units	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026E	2027E
China	439.2	390.8	360.8	330.3	332.9	287.3	272.5	284.6	282.3	254.1	238.8
India	122.7	140.1	158.3	144.7	161.5	151.6	148.6	155.9	154.2	137.3	140.3
Rest of Asia Pacific	211.4	221.2	214.5	217.4	234.5	210.9	193.4	220.1	225.8	197.8	189.8
North America	180.1	166.7	159.4	151.0	163.1	148.9	135.2	136.6	141.2	129.9	127.3
South and Central America	125.5	115.2	110.2	107.6	129.4	116.5	118.9	137.0	140.5	125.9	119.6
Western Europe	119.4	121.0	119.8	126.2	114.0	104.7	94.2	99.0	98.7	88.3	84.8
Central and Eastern Europe	94.1	92.4	92.5	86.0	87.6	70.4	67.9	66.8	63.5	56.8	55.7
Middle East and Africa	152.1	162.2	171.0	101.7	128.3	103.0	111.2	123.1	139.3	114.2	118.8
Total	1,444.5	1,409.7	1,386.5	1,264.7	1,351.4	1,193.4	1,141.9	1,223.2	1,245.5	1,104.3	1,075.1
Y/Y Growth											
China	-7.7%	-11.0%	-8%	-8%	1%	-14%	-5%	4%	-1%	-10%	-6%
India	22.0%	14.2%	13%	-9%	12%	-6%	-2%	5%	-1%	-11%	2%
Rest of Asia Pacific	11.5%	4.7%	-3%	1%	8%	-10%	-8%	14%	3%	-12%	-4%
North America	2.2%	-7.5%	-4%	-5%	8%	-9%	-9%	1%	3%	-8%	-2%
South and Central America	8.3%	-8.2%	-4%	-2%	20%	-10%	2%	15%	3%	-10%	-5%
Western Europe	5.8%	1.4%	-1%	5%	-10%	-8%	-10%	5%	0%	-10%	-4%
Central and Eastern Europe	2.8%	-1.8%	0%	-7%	2%	-20%	-4%	-2%	-5%	-11%	-2%
Middle East and Africa	10.3%	6.7%	5%	-41%	26%	-20%	8%	11%	13%	-18%	4%
Total	3.2%	-2.4%	-2%	-9%	7%	-12%	-4%	7%	2%	-11%	-3%

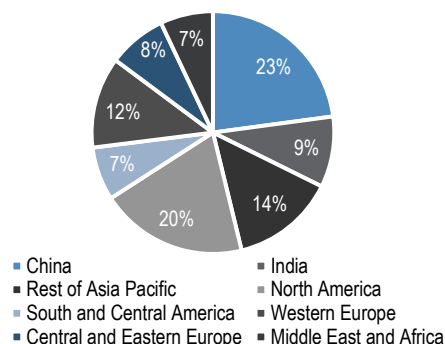
Source: Omdia, J.P. Morgan estimates
Note: J.P. Morgan smartphone model.

Figure 39: Smartphone shipment volume by region (2024, volume)



Source: Omdia, J.P. Morgan.

Figure 40: Smartphone market value mix by region (2024, value)



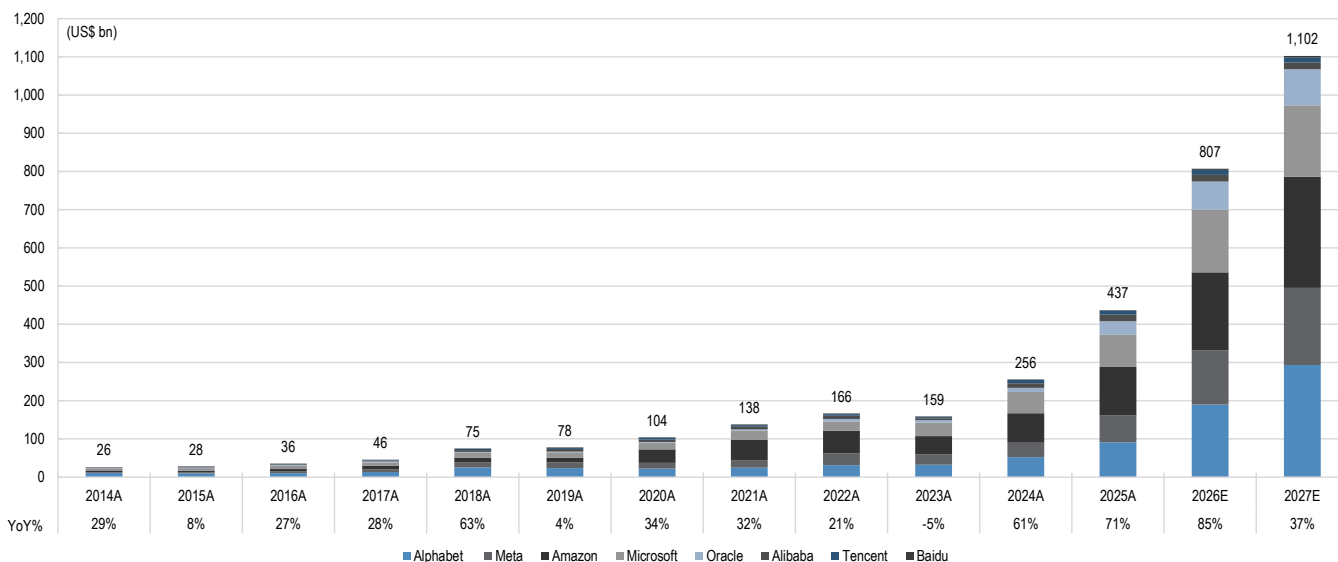
Source: IDC, Omdia, J.P. Morgan.

Figure 41: iPhone forecasts

FY (US\$ mn)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025E	2026E	2027E	2028E
Revenue	136,700	141,319	164,888	142,381	137,781	191,973	205,489	200,583	201,183	209,586	252,268	265,406	257,742
YoY (%)	-11.8%	3.4%	16.7%	-13.6%	-3.2%	39.3%	7.0%	-2.4%	0.3%	4.2%	20.4%	5.2%	-2.9%
Units ('000s)	211,884	216,756	217,722	189,537	189,989	241,460	242,790	223,500	229,461	233,399	253,698	244,250	246,190
YoY (%)	-8.4%	2.3%	0.4%	-12.9%	0.2%	27.1%	0.6%	-7.9%	2.7%	1.7%	8.7%	-3.7%	0.8%
ASP (\$)	645	652	757	751	725	795	846	897	877	898	994	1,087	1,047
YoY (%)	-3.8%	1.1%	16.2%	-0.8%	-3.5%	9.6%	6.5%	6.0%	-2.3%	2.4%	10.7%	9.3%	-3.7%

Source: Company data, J.P. Morgan estimates (Apple covered by Samik Chatterjee, forecasts as of May 1, 2026).
Note: Apple's fiscal year ends in September, fiscal year basis.

Figure 42: 8CSP (top 8 cloud service providers) capex forecasts



Source: Company data, J.P. Morgan estimates (Alphabet, Meta, Amazon covered by Doug Anmuth, Microsoft, Oracle covered by Arti Vula, Alibaba, Tencent, Baidu covered by Alex Yao).
Note: Estimates as of June, 2026.

Figure 43: 8CSP (top 8 cloud service providers) capex forecasts

\$bn	Alphabet	Meta	Amazon	Microsoft	Oracle	Alibaba	Tencent	Baidu	Total	YoY
2014A	10.96	1.83	4.89	5.29	0.73	1.25	0.70	0.78	26.43	29%
2015A	9.93	2.52	4.59	6.55	1.61	1.73	0.87	0.83	28.62	8%
2016A	10.21	4.49	6.74	9.11	1.60	2.64	1.26	0.63	36.69	28%
2017A	13.18	6.73	10.06	8.70	2.04	4.42	1.79	0.71	47.62	30%
2018A	25.14	13.98	11.32	14.22	1.47	7.50	2.98	1.33	77.94	64%
2019A	23.55	15.10	12.69	13.55	1.59	6.57	3.30	0.93	77.28	-1%
2020A	22.28	15.12	35.05	17.59	1.83	6.26	4.94	0.74	103.80	34%
2021A	24.64	18.57	55.40	23.22	3.12	8.27	4.54	1.69	139.44	34%
2022A	31.49	31.19	58.32	24.77	6.68	5.10	3.37	1.23	162.14	16%
2023A	32.25	27.05	48.13	35.20	6.94	4.65	2.96	1.58	158.76	-2%
2024A	52.54	37.26	77.66	55.55	10.75	11.94	8.74	1.13	255.56	61%
2025A	91.45	69.69	128.32	83.09	35.48	17.10	11.02	1.68	437.83	71%
2026E	190.02	142.05	204.22	163.89	73.50	17.46	13.00	2.93	807.09	84%
2027E	293.44	202.14	290.66	186.81	94.56	17.85	13.64	3.07	1,102.17	37%

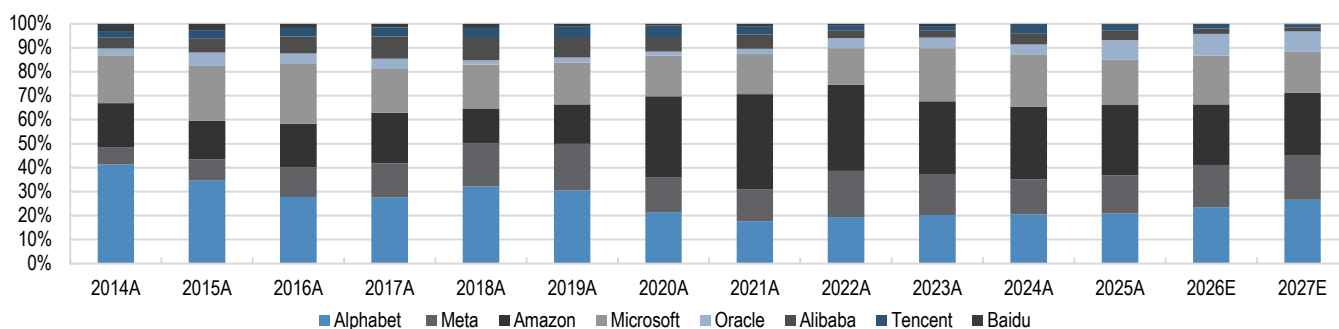
Source: Company data, J.P. Morgan estimates (Alphabet, Meta, Amazon covered by Doug Anmuth; Microsoft, Oracle covered by Arti Vula; Alibaba, Tencent, Baidu covered by Alex Yao).
Note: Estimates as of June, 2026.

Figure 44: CSP (cloud service providers) capex forecasts

\$bn	Alphabet	Meta	Amazon	Microsoft	Oracle	Total	YoY
2022Q1A	9.79	5.32	13.74	5.34	1.10	34.18	29%
2022Q2A	6.83	7.53	14.10	6.87	1.42	35.33	20%
2022Q3A	7.28	9.36	15.04	6.28	1.72	37.96	20%
2022Q4A	7.60	8.99	15.44	6.27	2.43	38.30	12%
2022A	31.49	31.19	58.32	24.77	6.68	145.76	20%
2023Q1A	6.29	6.82	13.07	6.61	2.63	32.79	-4%
2023Q2A	6.89	6.13	10.41	8.94	1.91	32.38	-8%
2023Q3A	8.06	6.50	11.30	9.92	1.31	35.77	-6%
2023Q4A	11.02	7.59	13.35	9.74	1.08	41.70	9%
2023A	32.25	27.05	48.13	35.20	6.94	142.63	-2%
2024Q1A	12.01	6.40	13.94	10.95	1.67	43.30	32%
2024Q2A	13.19	8.17	16.39	13.87	2.80	51.63	59%
2024Q3A	13.06	8.26	21.28	14.92	2.30	57.52	61%
2024Q4A	14.28	14.43	26.05	15.80	3.97	70.56	69%
2024A	52.54	37.26	77.66	55.55	10.75	223.00	56%
2025Q1A	17.20	12.94	24.26	16.75	5.86	71.14	64%
2025Q2A	22.45	16.54	31.37	17.08	9.08	87.43	69%
2025Q3A	23.95	18.83	34.23	19.39	8.50	96.40	68%
2025Q4A	27.85	21.38	38.47	29.88	12.03	117.58	67%
2025A	91.45	69.69	128.32	83.09	35.48	372.55	67%
2026E	190.02	142.05	204.22	163.89	73.50	700.19	88%
2027E	293.44	202.14	290.66	186.81	94.56	973.05	39%

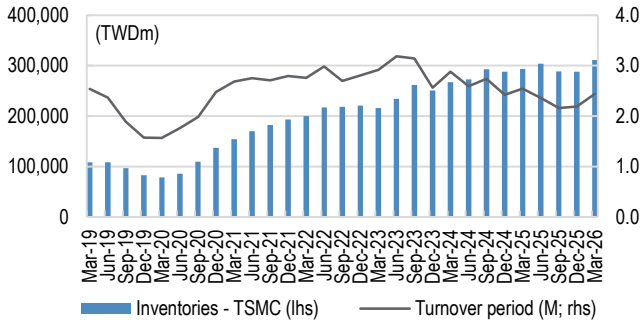
Source: Company data, J.P. Morgan estimates (Alphabet, Meta, Amazon covered by Doug Anmuth; Microsoft, Oracle covered by Arti Vula).
Note: Estimates as of June, 2026.

Figure 45: 8CSP (top 8 cloud service providers) capex breakdown



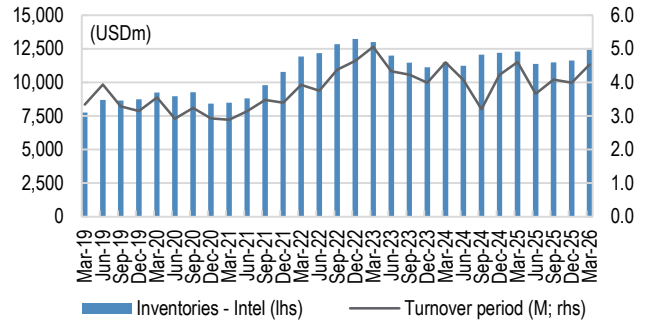
Source: Company data, J.P. Morgan estimates (Alphabet, Meta, Amazon covered by Doug Anmuth, Microsoft, Oracle covered by Arti Vula, Alibaba, Tencent, Baidu covered by Alex Yao).
Note: Estimates as of June, 2026.

Figure 46: Inventory trend (TSMC)



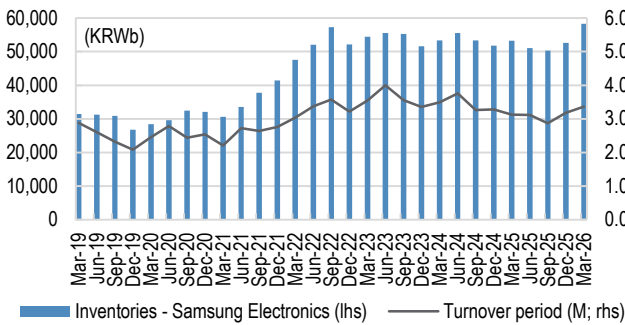
Source: Company reports, J.P. Morgan.

Figure 47: Inventory trend (Intel)



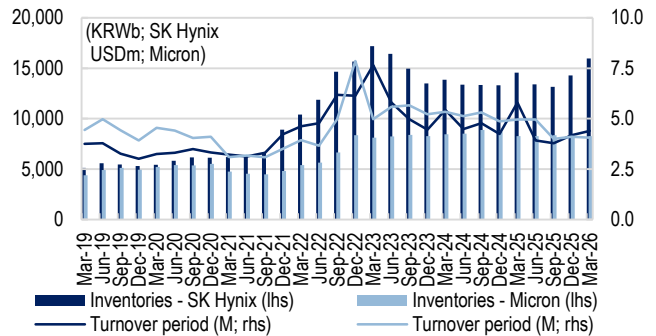
Source: Company reports, J.P. Morgan.

Figure 48: Inventory trend (Samsung Electronics)



Source: Company reports, J.P. Morgan.

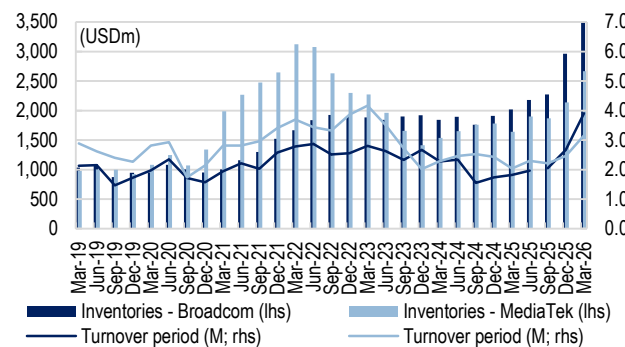
Figure 49: Inventory trend (SK Hynix, Micron)



Source: Company reports, J.P. Morgan.

Note: Micron's quarterly period ends in Feb./May/Aug./Nov.

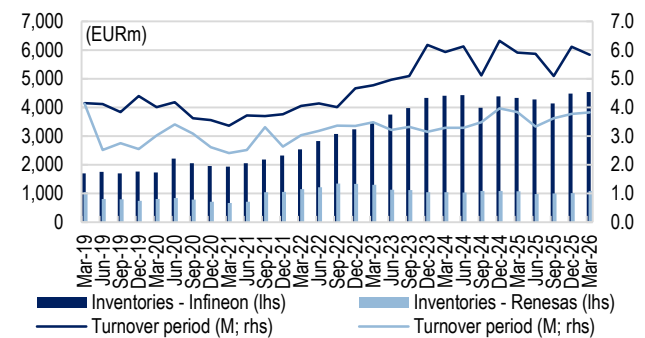
Figure 50: Inventory trend (Broadcom, MediaTek)



Source: Company reports, J.P. Morgan.

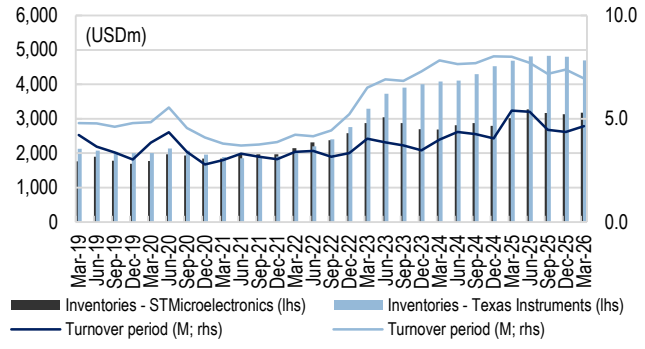
Note: Broadcom's quarterly period ends in Jan./Apr./July/Oct.

Figure 51: Inventory trend (Infineon, Renesas Electronics)



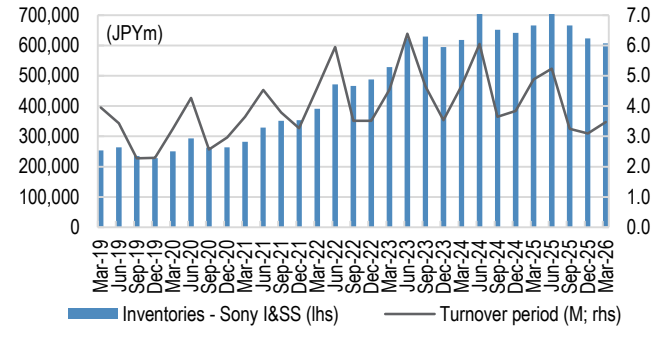
Source: Company reports, J.P. Morgan.

Figure 52: Inventory trend (Texas Instruments, STMicroelectronics)



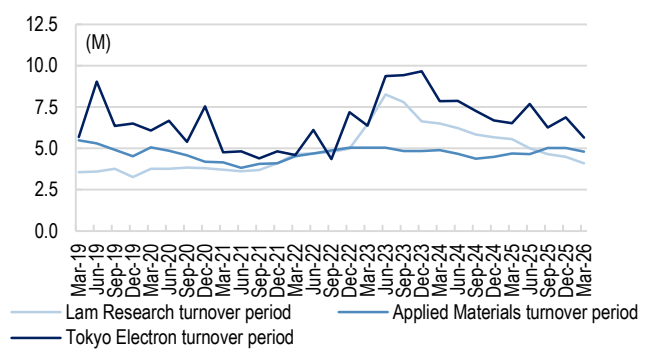
Source: Company reports, J.P. Morgan.

Figure 53: Inventory trend (Sony Group Semi business)



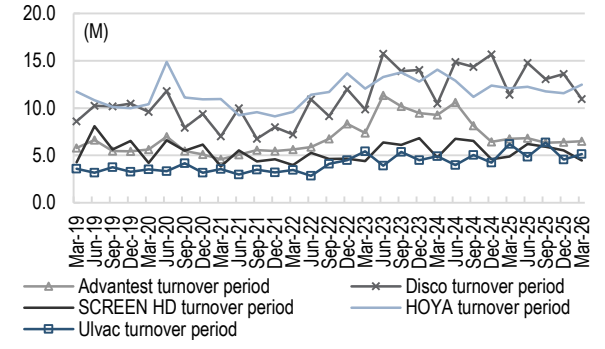
Source: Company reports, J.P. Morgan.
Note: Inventory turnover period is calculated based on sales.

Figure 54: Inventory trend (Lam Research, AMAT, TEL)



Source: Company reports, J.P. Morgan.

Figure 55: Inventory trend (Advantest, Disco, SCREEN HD, HOYA, Ulvac)



Source: Company reports, J.P. Morgan.

Figure 56: DRAM wafer capacity (300mm)

DRAM wafer output (12" eq., 300mm, K wspm)	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
SK hynix	354	354	363	386	338	405	518	558	621	705
Samsung	483	495	574	689	570	604	635	690	760	870
Micron	324	324	325	325	288	301	305	308	358	451
Nanya	69	70	70	69	63	60	61	62	66	72
Winbond	27	27	27	25	23	26	26	32	35	35
Powerchip	50	45	45	40	34	38	40	40	40	40
CXMT	13	28	48	74	88	168	245	293	360	445
Total DRAM capacity	1,318	1,343	1,451	1,607	1,402	1,601	1,830	1,982	2,241	2,618

Sequential change (%)	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
SK hynix	6%	0%	2%	7%	-13%	20%	28%	8%	11%	13%
Samsung	2%	3%	16%	20%	-17%	6%	5%	9%	10%	14%
Micron	7%	0%	0%	0%	-12%	5%	1%	1%	16%	26%
Nanya	2%	2%	-1%	-1%	-9%	-4%	2%	2%	6%	9%
Winbond	45%	0%	0%	-9%	-7%	14%	1%	21%	10%	0%
Powerchip	121%	-10%	0%	-11%	-15%	10%	7%	0%	0%	0%
CXMT	1150%	120%	73%	55%	19%	91%	46%	19%	23%	24%
Total	8%	2%	8%	11%	-13%	14%	14%	8%	13%	17%

Capacity share (%)	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
SK hynix	27%	26%	25%	24%	24%	25%	28%	28%	28%	27%
Samsung	37%	37%	40%	43%	41%	38%	35%	35%	34%	33%
Micron	25%	24%	22%	20%	21%	19%	17%	16%	16%	17%
Nanya	5%	5%	5%	4%	4%	4%	3%	3%	3%	3%
Winbond	2%	2%	2%	2%	2%	2%	1%	2%	2%	1%
Powerchip	4%	3%	3%	2%	2%	2%	2%	2%	2%	2%
CXMT	1%	2%	3%	5%	6%	10%	13%	15%	16%	17%
Total capacity	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

HBM capacity (k wspm)	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
Samsung					51	99	145	188	245	308
SK hynix					46	99	158	205	260	335
Micron					4	16	49	83	128	180
Total					101	214	351	475	633	823
HBM as % of total WSPM					7%	13%	19%	24%	28%	31%

Source: IHS, company data, J.P. Morgan estimates
Note: J.P. Morgan Global Memory Model.

Figure 57: NAND wafer capacity (300mm)

Wafer capacity (12" Eq. 300mm, K wspm)										
	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
SK hynix	207	201	230	248	159	168	163	165	165	173
Samsung	424	458	570	629	463	423	395	393	395	395
Micron	184	179	175	164	110	109	104	108	113	123
Kioxia	498	518	610	601	429	401	395	415	430	430
Intel	61	63	60	59	45	50	52	55	55	60
YMTC	17	35	64	81	63	108	148	160	194	220
Total	1,391	1,452	1,709	1,781	1,268	1,258	1,256	1,295	1,351	1,400

Sequential change (%)										
	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
SK hynix	-2%	-3%	14%	8%	-36%	6%	-3%	2%	0%	5%
Samsung	-5%	8%	25%	10%	-26%	-9%	-7%	-1%	1%	0%
Micron	-10%	-3%	-2%	-6%	-33%	-1%	-5%	4%	5%	9%
Kioxia	-8%	4%	18%	-1%	-29%	-6%	-2%	5%	4%	0%
Intel	23%	2%	-4%	-2%	-23%	11%	4%	6%	0%	9%
YMTC	282%	101%	83%	27%	-23%	72%	37%	8%	21%	14%
Total	-5%	4%	18%	4%	-29%	-1%	0%	3%	4%	4%

Capacity share (%)										
	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
SK hynix	15%	14%	13%	14%	13%	13%	13%	13%	12%	12%
Samsung	30%	32%	33%	35%	36%	34%	31%	30%	29%	28%
Micron	13%	12%	10%	9%	9%	9%	8%	8%	8%	9%
Kioxia	36%	36%	36%	34%	34%	32%	31%	32%	32%	31%
Intel	4%	4%	4%	3%	4%	4%	4%	4%	4%	4%
YMTC	1%	2%	4%	5%	5%	9%	12%	12%	14%	16%

Bit shipment share (%)										
	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
SK hynix	11%	12%	14%	19%	21%	18%	17%	17%	17%	16%
Samsung	37%	35%	35%	32%	34%	34%	29%	28%	27%	27%
Micron	12%	11%	11%	10%	11%	11%	12%	12%	11%	11%
Kioxia/SanDisk	35%	35%	34%	31%	31%	30%	31%	31%	30%	30%
Intel	5%	5%	4%	5%	0%	0%	0%	0%	0%	0%
YMTC	5%	6%	7%	8%	4%	8%	12%	12%	14%	16%

Source: IHS, company data, J.P. Morgan estimates
Note: J.P. Morgan Global Memory Model.

Figure 58: Samsung Electronics capex breakdown estimates

(Wtrn)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
Won/US\$	1,053	1,126	1,159	1,130	1,100	1,166	1,180	1,144	1,292	1,307	1,364	1,422	1,446	1,400	1,400
Semiconductor	13.5	14.7	12.7	27.0	23.5	22.7	32.9	43.0	45.3	51.8	43.7	40.8	68.0	81.0	95.0
Memory	7.0	6.5	4.5	6.8	13.0	8.5	10.7	16.0	17.8	21.9	26.0	28.2	44.0	59.0	71.5
DRAM	3.5	4.7	5.5	13.5	7.0	7.7	11.2	12.5	12.5	11.5	7.7	7.8	9.0	10.0	11.5
NAND	3.0	3.5	2.7	6.7	3.5	6.5	11.0	14.5	15.0	18.4	10.0	4.8	15.0	12.0	12.0
System LSI	3.7	4.8	9.4	13.9	3.9	1.8	4.2	2.9	2.6	2.4	4.7	3.2	2.7	3.2	3.4
Display	1.5	1.3	0.5	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LCD	2.2	3.5	8.9	13.4	3.5	1.7	4.2	2.9	2.6	2.4	4.7	3.2	2.7	3.2	3.4
OLED	4.3	5.4	1.6	1.4	1.5	0.7	0.3	1.0	1.2	2.6	2.1	2.2	3.0	2.9	3.5
DX	0.6	1.0	0.5	0.5	0.6	0.2	0.2	0.3	0.4	0.9	0.9	1.4	2.0	2.2	2.4
Others	22.0	25.9	24.1	42.8	29.6	25.4	37.6	47.1	49.4	57.6	51.4	47.5	75.7	89.3	104.3
Total (W in trillion)	22.0	25.9	24.1	42.8	29.6	25.4	37.6	47.1	49.4	57.6	51.4	47.5	75.7	89.3	104.3
Total (US\$ in billion)	20.9	23.0	20.8	37.9	26.9	21.8	31.9	41.2	38.3	44.1	37.7	33.4	52.3	63.8	74.5
YoY%	-1%	10%	-9%	82%	-29%	-19%	46%	29%	-7%	15%	-14%	-11%	57%	22%	42%

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

Note: Samsung Electronics is covered by Jay Kwon. Based on [report](#) published on May 17, 2026.

Figure 59: ASML: Stepper sales estimates

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E	
Orders by Units															
High NA EUV									10	2	2	2	4	14	
EUV	5	13	21	20	45	24	78	74	53	37	74	80	80	80	
Immersion, new	71	70	119	83	79	93	144	203	126	127	134	100	105	105	
Dry, new	71	54	94	108	92	164	394	234	148	181	168	190	160	160	
Refurbs	18	20	21	30	19	22	40	32	23	22	46	40	40	40	
Total	165	157	255	241	235	303	657	553	352	369	424	414	399		
Revenue by Units															
High NA EUV				10	10	10	10	10	10	10	10	10	10	10	
EUV	1	5	11	18	26	31	42	40	53	42	44	61	90	105	
Immersion, new	71	74	86	86	82	68	81	81	125	129	131	127	200	210	
ArF dry			14	72	72	72	72	72	72	72	72	72	72	72	
KrF			71	202	202	202	202	202	202	202	202	202	202	202	
i-line	25	18	26	81	81	81	81	81	81	81	81	81	81	81	
DUV units	143	136	171	206	203	227	267	305	396	374	279	325	537	565	
Total	169	159	198	224	229	258	309	345	449	418	327	390	633	680	
ASP on Units Revenued (EUR mn)															
High NA EUV					€ 0.0	€ 0.0	€ 0.0	€ 0.0	€ 0.0	€ 0.0	€ 0.0	€ 377.5	€ 390.0	€ 390.0	€ 400.0
EUV	€ 68.0	€ 65.8	€ 99.3	€ 104.8	€ 107.6	€ 145.0	€ 149.2	€ 177.0	€ 171.50	€ 185.3	€ 230.5	€ 220.8	€ 240.0	€ 250.0	
Immersion, new	€ 45.9	€ 47.1	€ 46.4	€ 56.0	€ 57.5	€ 57.5	€ 61.7	€ 64.6	€ 72.5	€ 75.1	€ 78.0	€ 81.5	€ 75.0	€ 75.0	
ArF dry				€ 17.8	€ 17.8	€ 17.8	€ 19.9	€ 22.2	€ 24.0	€ 27.6	€ 30.6	€ 28.0	€ 28.5	€ 28.5	
KrF				€ 11.2	€ 10.5	€ 10.2	€ 9.9	€ 11.2	€ 11.9	€ 13.0	€ 13.5	€ 13.3	€ 13.5	€ 13.5	
i-line				€ 3.2	€ 4.1	€ 4.0	€ 4.1	€ 3.9	€ 4.0	€ 6.1	€ 4.5	€ 4.9	€ 4.9	€ 4.9	
DUV units				€ 33.2	€ 34.2	€ 27.7	€ 28.8	€ 29.0	€ 30.9	€ 34.3	€ 43.1	€ 40.1	€ 37.0	€ 37.0	
Average ASP, New Systems Only	€ 28.5	€ 31.9	€ 34.6	€ 35.4	€ 38.1	€ 38.7	€ 42.5	€ 42.9	€ 47.5	€ 50.7	€ 72.4	€ 71.9	€ 68.5	€ 75.3	
Revenue Breakdown (EUR mn)															
High NA EUV						€ 0	€ 0	€ 0	€ 0	€ 580	€ 1,510	€ 1,560	€ 2,340	€ 4,000	
EUV	€ 68	€ 329	€ 1,092	€ 1,886	€ 2,797	€ 4,494	€ 6,267	€ 7,079	€ 9,090	€ 7,783	€ 10,142	€ 13,469	€ 21,600	€ 26,250	
Immersion, new	€ 3,257	€ 3,483	€ 3,993	€ 4,812	€ 4,711	€ 3,913	€ 5,001	€ 5,232	€ 9,057	€ 9,689	€ 10,222	€ 10,354	€ 15,000	€ 15,750	
ArF dry				€ 285	€ 393	€ 392	€ 437	€ 620	€ 769	€ 772	€ 489	€ 867	€ 1,881	€ 2,052	
KrF				€ 872	€ 683	€ 1,049	€ 1,303	€ 1,684	€ 2,198	€ 1,979	€ 1,057	€ 1,568	€ 2,579	€ 2,727	
i-line				€ 83	€ 138	€ 135	€ 137	€ 177	€ 219	€ 396	€ 245	€ 241	€ 394	€ 399	
DUV total	€ 4,041	€ 4,168	€ 4,863	€ 5,969	€ 5,787	€ 5,354	€ 6,741	€ 7,536	€ 12,243	€ 12,836	€ 12,013	€ 13,030	€ 19,854	€ 20,928	
Refurbs	€ 128	€ 73	€ 142	€ 0	€ 0	€ 0	€ 0	€ 0	€ 0	€ 0	€ 0	€ 0	€ 0	€ 0	
Service	€ 2,050	€ 2,224	€ 2,679	€ 2,685	€ 2,824	€ 3,662	€ 4,958	€ 5,743	€ 5,620	€ 6,494	€ 8,193	€ 9,788	€ 10,600	€ 11,500	
HMI + Metrology + Other inspection tools			€ 277	€ 321	€ 288	€ 334	€ 508	€ 638	€ 606	€ 570	€ 810	€ 946	€ 1,040	€ 1,092	
Total Revenue	€ 10,328	€ 10,962	€ 13,916	€ 10,944	€ 11,834	€ 13,978	€ 18,611	€ 21,174	€ 27,559	€ 28,263	€ 32,667	€ 38,793	€ 55,434	€ 63,770	
YoY %	7%	6%	27%	-21%	8%	18%	33%	14%	30%	3%	16%	19%	43%	15%	

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

Note: ASML is covered by Sandeep Deshpande. Based on [report](#) on June 3, 2026.

Figure 60: Global SPE shipment trend by category

CY (\$mn)	Mask	YoY	Wafer Mfg.	YoY	Wafer Process	YoY	Assemble	YoY	Test	YoY	Fab	YoY	Total	YoY
2011	1,113	36.4%	107	19.5%	34,345	14.8%	3,338	-14.0%	3,772	-9.1%	852	-21.1%	43,526	9.0%
2012	1,262	13.4%	87	-18.5%	28,340	-17.5%	3,051	-8.6%	3,541	-6.1%	796	-6.5%	37,078	-14.8%
2013	682	-46.0%	53	-38.8%	25,183	-11.1%	2,288	-25.0%	2,691	-24.0%	683	-14.2%	31,580	-14.8%
2014	802	17.6%	58	8.6%	29,165	15.8%	3,071	34.2%	3,555	32.1%	760	11.2%	37,410	18.5%
2015	963	20.1%	61	5.4%	28,796	-1.3%	2,504	-18.4%	3,328	-6.4%	875	15.1%	36,527	-2.4%
2016	734	-23.7%	64	5.0%	32,545	13.0%	2,993	19.5%	3,690	10.9%	981	12.2%	41,007	12.3%
2017	953	29.9%	68	6.2%	45,508	39.8%	3,881	29.7%	4,697	27.3%	1,580	61.0%	56,687	38.2%
2018	1,054	10.6%	110	61.1%	52,155	14.6%	4,014	3.4%	5,633	19.9%	1,529	-3.2%	64,494	13.8%
2019	1,336	26.7%	122	11.5%	48,575	-6.9%	2,859	-28.8%	5,008	-11.1%	1,456	-4.7%	59,356	-8.0%
2020	1,559	16.7%	130	6.7%	58,140	19.7%	3,761	31.6%	6,004	19.9%	1,434	-1.5%	71,028	19.7%
2021	1,548	-0.7%	138	5.6%	83,814	44.2%	7,175	90.8%	7,829	30.4%	2,137	49.0%	102,641	44.5%
2022	2,144	38.5%	235	70.4%	89,941	7.3%	5,845	-18.5%	7,504	-4.2%	1,863	-12.8%	107,532	4.8%

Source: SEMI, J.P. Morgan.

Figure 61: SPE shipment trend by geographic location

CY (\$mn)	Japan	YoY	N. America	YoY	Europe	YoY	Korea	YoY	Taiwan	YoY	China	YoY	Others	YoY	Shipment	YoY
2011	5,807	30.8%	9,256	60.9%	4,215	80.4%	8,655	0.3%	8,525	-24.2%	3,654	-0.7%	3,414	-11.1%	43,526	9.0%
2012	3,367	-42.0%	8,159	-11.9%	2,523	-40.2%	8,920	3.1%	9,539	11.9%	2,487	-31.9%	2,084	-39.0%	37,078	-14.8%
2013	3,380	0.4%	5,255	-35.6%	1,913	-24.2%	5,130	-42.5%	10,568	10.8%	3,267	31.3%	2,068	-0.7%	31,580	-14.8%
2014	4,177	23.6%	8,185	55.7%	2,383	24.6%	6,743	31.4%	9,392	-11.1%	4,370	33.8%	2,161	4.5%	37,410	18.5%
2015	5,486	31.3%	5,121	-37.4%	1,944	-18.4%	7,467	10.7%	9,636	2.6%	4,904	12.2%	1,971	-8.8%	36,527	-2.4%
2016	4,633	-15.5%	4,475	-12.6%	2,171	11.7%	7,610	1.9%	12,150	26.1%	6,428	31.1%	3,540	79.6%	41,007	12.3%
2017	6,453	39.3%	5,621	25.6%	3,657	68.4%	18,068	137.4%	11,492	-5.4%	8,208	27.7%	3,189	-9.9%	56,687	38.2%
2018	9,466	46.7%	5,818	3.5%	4,218	15.4%	17,727	-1.9%	10,127	-11.9%	13,109	59.7%	4,028	26.3%	64,494	13.8%
2019	6,275	-33.7%	8,148	40.0%	2,275	-46.1%	9,969	-43.8%	17,116	69.0%	13,451	2.6%	2,519	-37.5%	59,753	-7.4%
2020	7,565	20.6%	6,463	-20.7%	2,621	15.2%	16,046	61.0%	17,100	-0.1%	18,734	39.3%	2,498	-0.8%	71,028	18.9%
2021	7,839	3.6%	7,598	17.6%	3,209	22.4%	24,992	55.7%	24,959	46.0%	29,618	58.1%	4,420	76.9%	102,641	44.5%
2022	8,349	6.5%	10,432	37.3%	6,235	94.3%	21,485	-14.0%	26,850	7.6%	28,207	-4.8%	5,974	35.2%	107,532	4.8%

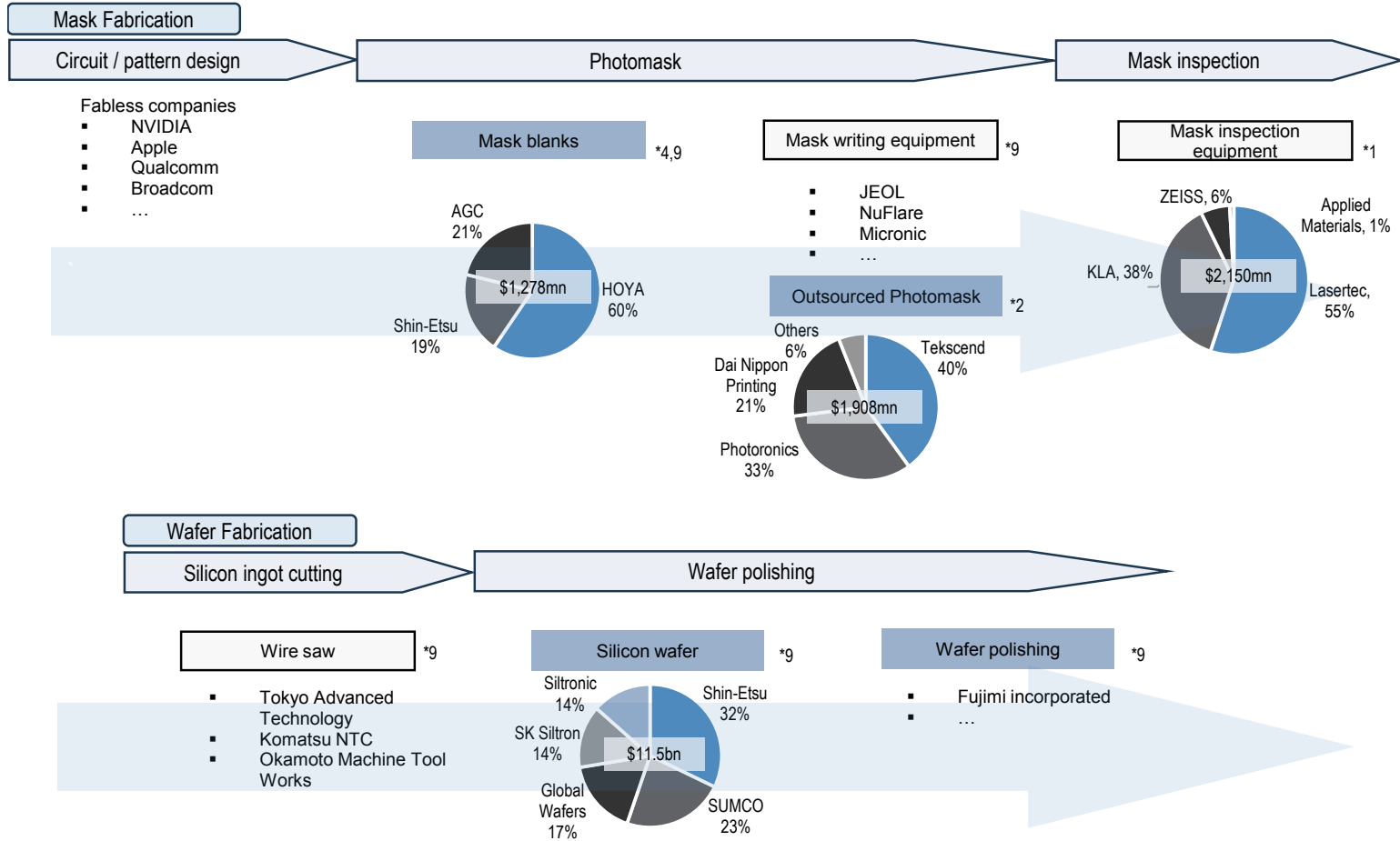
Source: SEMI, J.P. Morgan.

Figure 62: SPE shipment trends

(#bn)	Japan-based SPE			Japan-based FPD Equipment		
	Shipment	YoY	MoM	Shipment	YoY	MoM
2021	3,076.8	37.1%		516.4	25.2%	
2022	3,851.7	25.2%		435.4	-15.7%	
2023	3,608.9	-6.3%		300.1	-31.1%	
2024	4,435.6	22.9%		303.9	1.3%	
2025	4,214.4	-5.0%		308.4	1.5%	
Jan-22	306.3	69.4%	1.0%	44.0	-1.2%	13.6%
Feb-22	294.0	56.8%	-4.0%	43.9	-6.1%	-0.2%
Mar-22	314.9	30.8%	7.1%	35.6	-26.3%	-18.8%
Apr-22	306.2	8.6%	-2.8%	29.6	-43.2%	-16.9%
May-22	307.7	0.8%	0.5%	26.7	-41.7%	-9.6%
Jun-22	284.6	14.1%	-7.5%	24.7	-46.7%	-7.7%
Jul-22	320.6	31.8%	12.6%	29.6	-30.5%	20.2%
Aug-22	347.4	38.5%	8.4%	45.6	5.9%	54.0%
Sep-22	380.9	36.1%	9.7%	49.2	24.0%	7.9%
Oct-22	347.1	27.6%	-8.9%	45.6	24.7%	-7.4%
Nov-22	335.5	19.1%	-3.3%	33.6	5.4%	-26.3%
Dec-22	306.6	1.1%	-8.6%	27.3	-29.5%	-18.8%
Jan-23	299.8	-2.1%	-2.2%	24.5	-44.2%	-10.1%
Feb-23	294.5	0.2%	-1.8%	24.3	-44.6%	-0.9%
Mar-23	337.0	7.0%	14.4%	41.5	16.7%	70.9%
Apr-23	336.2	9.8%	-0.3%	41.6	40.5%	0.0%
May-23	315.7	2.6%	-6.1%	37.5	40.5%	-9.7%
Jun-23	260.9	-8.3%	-17.4%	21.2	-14.1%	-43.6%
Jul-23	281.6	-12.2%	7.9%	19.4	-34.4%	-8.2%
Aug-23	287.8	-17.1%	2.2%	17.7	-61.2%	-9.0%
Sep-23	299.5	-21.4%	4.1%	13.7	-72.1%	-22.5%
Oct-23	289.2	-16.7%	-3.4%	14.5	-68.3%	5.4%
Nov-23	300.2	-10.5%	3.8%	16.9	-49.6%	17.0%
Dec-23	306.4	-0.1%	2.1%	27.2	-0.2%	60.9%
Jan-24	314.9	5.0%	2.8%	28.3	15.4%	3.9%
Feb-24	317.4	7.8%	0.8%	28.8	18.5%	1.8%
Mar-24	365.7	8.5%	15.2%	23.8	-42.7%	-17.4%
Apr-24	389.1	15.7%	6.4%	27.5	-33.8%	15.7%
May-24	401.0	27.0%	3.0%	28.6	-23.9%	3.8%
Jun-24	344.0	31.8%	-14.2%	33.8	59.6%	18.3%
Jul-24	348.1	23.6%	1.2%	31.2	60.3%	-7.8%
Aug-24	351.1	22.0%	0.9%	31.6	78.3%	1.3%
Sep-24	369.6	23.4%	5.3%	24.4	77.5%	-22.8%
Oct-24	385.7	33.4%	4.4%	23.7	64.0%	-2.7%
Nov-24	405.8	35.2%	5.2%	25.0	47.9%	5.6%
Dec-24	443.4	44.7%	9.3%	29.5	8.3%	17.8%
Jan-25	416.8	32.4%	-6.0%	29.5	4.3%	0.1%
Feb-25	412.1	29.8%	-1.1%	29.2	1.4%	-1.0%
Mar-25	432.4	18.2%	4.9%	25.3	6.3%	-13.4%
Apr-25	447.0	14.9%	3.4%	26.5	-3.6%	4.9%
May-25	446.3	11.3%	-0.2%	27.9	-2.2%	5.3%
Jun-25	404.6	17.6%	-9.3%	35.0	3.5%	25.1%
Jul-25	410.9	18.1%	1.6%	36.9	18.5%	5.6%
Aug-25	405.8	15.6%	-1.3%	32.7	3.7%	-11.4%
Sep-25	424.6	14.9%	4.6%	30.3	24.6%	-7.3%
Oct-25	413.9	7.3%	-2.5%	27.8	17.1%	-8.5%

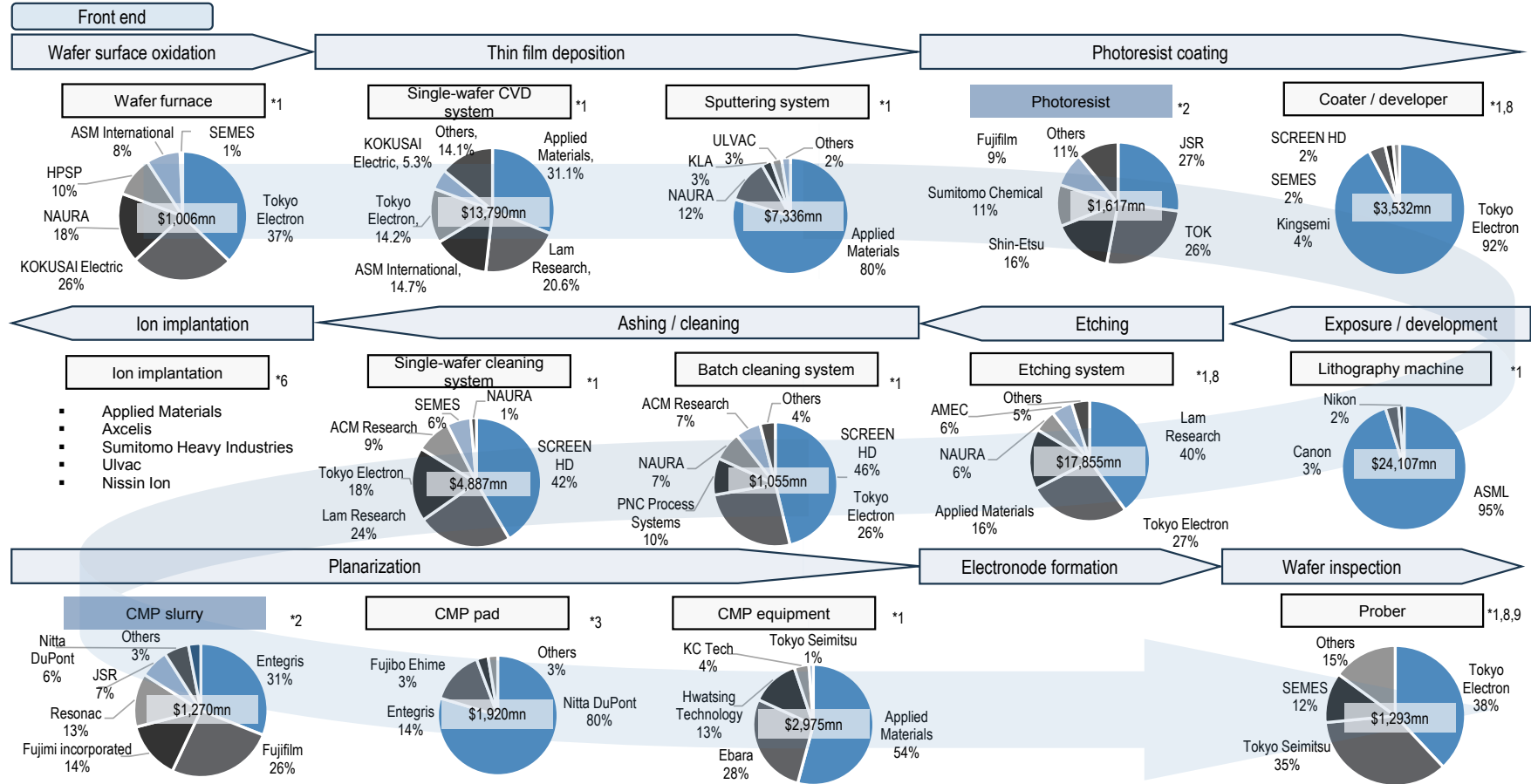
Source: SEAJ, J.P. Morgan.
Note: Preliminary figures for April 2026.

Figure 63: Wafer and mask fabrication (before the front-end process) SPE and material makers



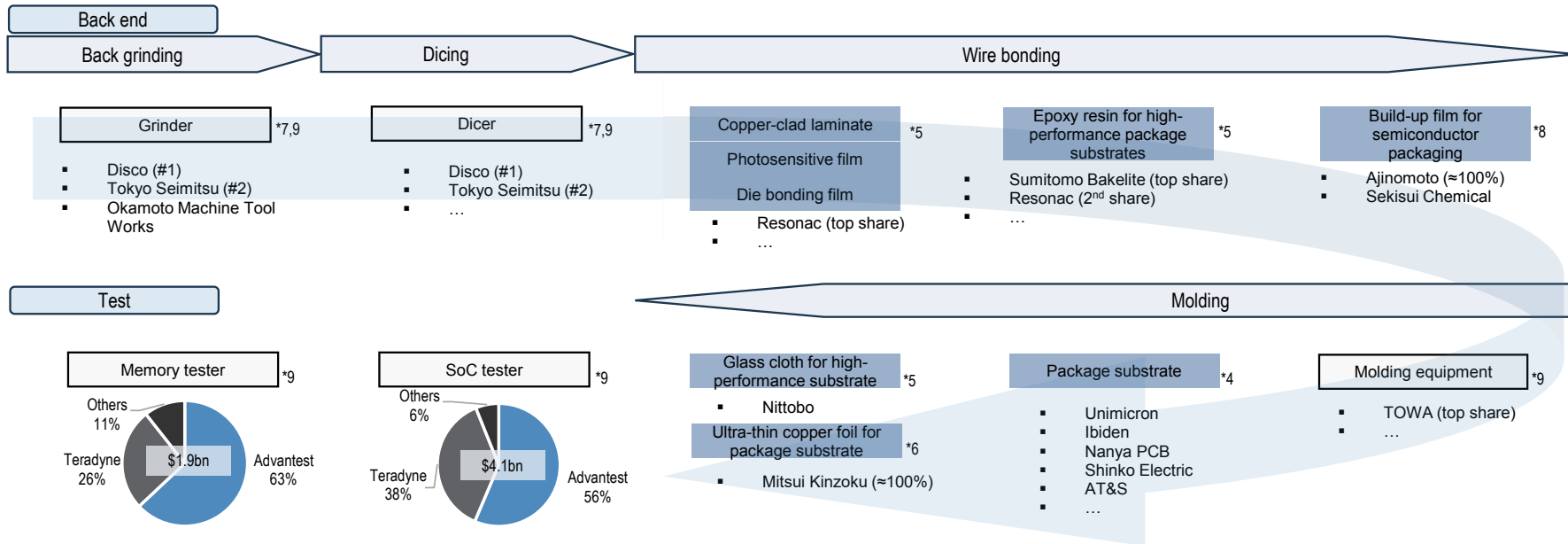
Source: *1: Gartner®(2025), *2: Electronic Device Industry Newspaper (2025), *3: Fuji Keizai (2024), *4: The Nikkei (2024), *5: Chemical Industry Daily (2024), *6: Nikkan Kogyo Shimbun (2024), *7: Nikkei Sangyo Shimbun (2024), *8: Company reports, *9: J.P. Morgan.
Note: Market share estimates are J.P. Morgan estimates as of CY2024.

Figure 64: Front-end process SPE and material makers



Source: *1: Gartner©(2025), *2: Electronic Device Industry Newspaper (2025), *3: Fuji Keizai (2024), *4: The Nikkei (2024), *5: Chemical Industry Daily (2024), *6: Nikkan Kogyo Shimbum (2024), *7: Nikkei Sangyo Shimbum (2024), *8: Company reports, *9: J.P. Morgan.
Note: Market share for CMP slurry and CPM pad on CY2023 estimates, while others are based on J.P. Morgan CY2024 actual estimates.

Figure 65: Back-end process SPE, material makers and inspection equipment makers



Source: *1: Gartner®(2025), *2: Electronic Device Industry Newspaper (2025), *3: Fuji Keizai (2024), *4: The Nikkei (2024), *5: Chemical Industry Daily (2024), *6: Nikkan Kogyo Shimbun (2024), *7: Nikkei Sangyo Shimbun (2024), *8: Company reports, *9: J.P. Morgan.
Note: Market share estimates are J.P. Morgan estimates as of CY2024.

Companies Discussed in This Report (all prices in this report as of market close on 17 June 2026, unless otherwise indicated) AMEC - A(688012.SS/Rmb351.00/OW), ASML(ASML.AS/€1,591.20[16 June 2026]/OW), ASMPT Ltd (0522)(0522.HK/HK \$194.40[16 June 2026]/OW), Advantest (6857)(6857.T/¥30,060/OW), Grand Process Technology(3131.TW/NT\$3,245.00/OW), Hon. Precision(7769.TW/NT\$7,330.00/OW), KLA Corporation(KLAC/\$237.33[16 June 2026]/OW), NAURA - A(002371.SZ/Rmb704.22/OW), Tokyo Electron (8035)(8035.T/¥72,640/OW)

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