

Memory Semis Monthly

May '25 Edition: Demand pull-in in 2Q, low 2H25 visibility

Equities

Global
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Maintaining DDR contract pricing forecasts, lowering NAND a touch

2Q25 guidance from Samsung and SK Hynix reflects some degree of demand pull-in, in particular from smartphone and PC customers. Both Samsung and SK Hynix guided for 2Q25 DRAM bit growth in the low teens % QoQ. For NAND, Samsung indicated mid teens % bit growth QoQ in 2Q, and SK Hynix over 20%. Regarding contract pricing, we maintain our forecast for DDR contract pricing to increase 5% QoQ in 2Q25, with LPDDR5 sustaining stronger momentum relative to DDR5 and DDR4/LPDDR4. For NAND contract ASPs, we lower our forecast for 2Q to +3% QoQ growth (was +5%). While momentum remains relatively positive for embedded NAND flash, SSD price increases are meeting more pushback from customers. Regarding 2H25, memory vendors have lower-than-normal visibility considering tariff uncertainty. We continue to see NAND flash demand as more likely to face de-specing (or arbitraging down to lower content by customers - essentially the same thing). Hence we forecast NAND contract pricing down 3% QoQ in 3Q25, before possibly stabilising in 2Q26. As for DDR, we forecast contract pricing up 2% QoQ in 3Q25 before coming down 5% QoQ in 4Q25, and also stabilising by 2Q26.

Memory inventories down at customers, still on high side for NAND at suppliers

Customers' memory inventories have come down somewhat faster than expected as demand pull-in started in 1Q25. We estimate that for DRAM, inventories at smartphone customers stand at 10 weeks, 12 weeks for PC OEMs, and 13 weeks for hyperscalers. For NAND flash, we estimate inventories at smartphone OEMs are c. 9 weeks, and 11 weeks for SSDs. Finished products inventories though appears to be uneven. NAND flash finished product inventories stood at 10.5 weeks at SK Hynix at the end of March (forward), 7.5 weeks at Samsung. As for DRAM, Samsung's finished product inventories were also 7.5 weeks, while for SK Hynix they stood at 5.5 weeks (incl .HBM), although at a very low 2 weeks for DDR5.

Revising down HBM bit demand forecasts by 5% for 2025 and 2026 combined

We recently revised down our CoWoS capacity forecasts at TSMC to 70k wpm end of '25, and 100k end of '26E (see note from Sunny Lin: [link](#)). We also adjusted down slightly our Nvidia AI accelerator estimates (see note from Tim Arcuri: [link](#)). On the back of this, we slightly revise down our HBM bit end-demand forecast to 18.9bn Gb in 2025 (was 20.3bn), or +105% YoY growth. For 2026, we lower our estimate to 29.1bn (was 30.3bn) or 54% up YoY. We expect demand from ASIC vendors to outgrow the GPU segment, which could lead ASICs to account for 54% of total HBM bit demand in 2026, vs. 41% in 2025, and Nvidia 40% vs. 52% in 2025.

SK Hynix and MU remain our top picks within Memory

Tariff-related uncertainty regarding 2H25 and 2026 end-demand is set to remain an overhang for now. But supply growth remains limited, and memory stocks have already de-rated to a fair degree. We continue to prefer SK Hynix and MU over Samsung and Nanya Tech (all Buy-rated).

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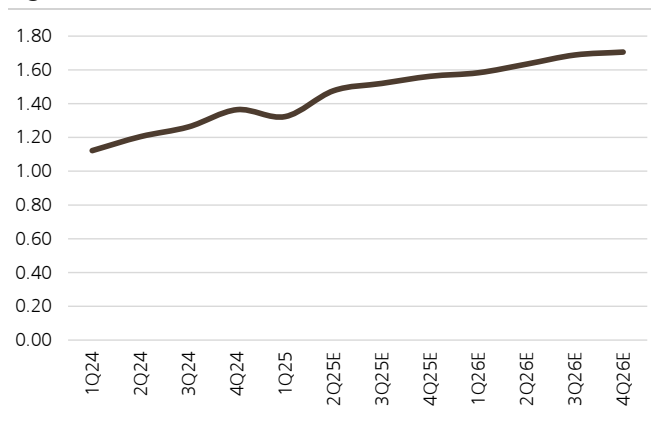
KEY CHARTS

Figure 1: HBM demand forecast by GPU/Accelerator

	HBM Gen.	HBM Content (GB)				2023	2024	1Q25E	2Q25E	3Q25E	4Q25E	2025E	1Q26E	2Q26E	3Q26E	4Q26E	2026E
		2023	2024	2025E	2026E												
NVIDIA																	
A100	HBM2E	80	120			40,006	16,100										
H100	HBM3	80	120	141		87,965	271,527										
H200	HBM3E		141	141			198,894	36,919	11,593	6,775	1,471	56,758					
H20	HBM3		96	96	96		48,087	19,336				19,336					
B200 (8Hi)	HBM3E		192	192	192				78,062	66,420	30,056	229,838					
GB200 (2x GPU - 8 Hi)	HBM3E		384	384	384					118,080	80,148	498,747	37,048				37,048
B300A (12Hi)	HBM3E		144	144	144					10,655	16,531	27,185	18,061	18,242	14,423	4,200	54,926
B300 (12Hi)	HBM3E		288	288	288					35,977	66,122	102,100	90,303	72,969	43,269	28,558	235,099
GB300 (2x GPU - 12 Hi)	HBM3E		576	576	576					64,759	180,334	245,093	283,414	287,012	226,646	141,110	938,182
R200 (12Hi)	HBM4				288										8,036	32,758	40,793
RV200 (2x GPU - 12Hi)	HBM4				576										32,142	87,354	119,497
*Other GPU/Accel	HBM3 / 3E	80	141	288	288										10,302	8,399	41,977
Total ('000 GB)						138,642	619,834	261,602	257,697	312,628	385,482	1,217,408	439,939	390,385	334,818	302,379	1,467,522
Total (bn Gb)						1.11	4.96	2.09	2.06	2.50	3.08	9.74	3.52	3.12	2.68	2.42	11.74
AMD																	
Mi300	HBM3	192	192	192	192	5,815	77,332	16,596	6,425	2,492		25,514					
Mi325X (12Hi)	HBM3E		256	256	256		3,461	12,101	16,378	17,801	17,595	63,875	9,711	3,343			13,054
Mi355X (12Hi)	HBM3E			288	288					3,204	15,439	18,643	25,128	33,473	32,130	22,818	113,550
Mi4XX (16Hi)	HBM4				512										10,200	27,502	37,702
*Other GPU/Accel	HBM3	96	192	192	192	921	1,911	778	567	534	660	2,539	728	752	765	773	3,019
Total ('000 GB)						6,736	82,704	29,475	23,370	24,032	33,693	110,571	35,568	37,569	43,096	51,093	167,325
Total (bn Gb)						0.05	0.66	0.24	0.19	0.19	0.27	0.88	0.28	0.30	0.34	0.41	1.34
Google																	
TPU v5	HBM2E	96	96	96	64	109,559	168,552	50,983	57,633	59,849	53,199	221,664	24,000	9,600	5,191		38,791
TPU v5e	HBM2E	16	16	32	32	3,003	4,620	3,099	3,503	3,638	3,234	13,475					
TPU v6e	HBM3E		32	32	32					1,379	12,414	13,793	15,448	16,552	13,793	9,379	55,172
TPU v7	HBM4				288								42,492	81,443	99,148	131,017	354,101
TPU v7e	HBM4				64								640	2,560	4,480	6,889	14,569
*Other TPU/Accel	HBM3	48	96	96	144	3,189	19,627	12,056	13,629	14,980	20,029	60,694	20,824	23,359	23,145	23,395	90,723
Total ('000 GB)						115,751	192,799	66,138	74,765	79,847	88,876	309,626	103,404	133,514	145,757	170,681	553,356
Total (bn Gb)						0.93	1.54	0.53	0.60	0.64	0.71	2.48	0.83	1.07	1.17	1.37	4.43
Amazon																	
Inferentia 2	HBM2E	32	32	32	32	30,023	28,233	3,388	1,976	282		5,647					
Trainium 2	HBM3		192	192	192		48,951	24,985	31,232	34,979	33,730	124,926	30,720	42,240	36,480	24,960	134,400
Inferentia 3	HBM3		96	96	96		41,415	18,739	23,424	26,235		93,695	35,520	42,240	36,480	21,120	135,360
Trainium 3	HBM3E			288	288							18,235	63,360	89,280	129,600	138,096	420,336
*Other Accel	HBM3	48	64	144	144	6,755	10,039	15,523	16,863	16,714	18,090	67,191	10,800	13,968	14,688	11,945	51,401
Total ('000 GB)						36,779	128,639	62,635	73,495	78,210	95,353	309,693	140,400	187,728	217,248	196,121	741,497
Total (bn Gb)						0.29	1.03	0.50	0.59	0.63	0.76	2.48	1.12	1.50	1.74	1.57	5.93
Intel																	
Gaudi 3	HBM2 / 3E	144	144	288	288	25,588	36,141	10,842	13,553	15,179	14,637	54,212	8,640	5,760	4,608	2,880	21,888
Gaudi 4	HBM3E			288	288										2,880	5,760	8,640
*Others	HBM2 / 3E	144	144	192	192	6,397	9,035	2,168	2,711	3,036	2,927	10,842	1,728	1,152	1,498	1,728	6,106
Total ('000 GB)						31,985	45,177	13,011	16,264	18,215	17,565	65,055	10,368	6,912	8,986	10,368	36,634
Total (bn Gb)						0.26	0.36	0.10	0.13	0.15	0.14	0.52	0.08	0.06	0.07	0.08	0.29
Microsoft																	
Maia 100	HBM3		64	120	120		1,680	960	1,080	1,200	810	4,050	360	240			600
Braga (Maia 200)	HBM3E				288								1,370	3,523	6,264	8,417	19,574
*Others	HBM3		64	120	192		504	360	360	480	480	1,680	960	960	960	960	3,840
Total ('000 GB)						2,184	1,320	1,440	1,680	1,290	5,730	2,690	2,690	4,723	7,224	9,377	24,014
Total (bn Gb)						0.02	0.01	0.01	0.01	0.01	0.05	0.05	0.02	0.04	0.06	0.08	0.19
Meta																	
MTIA v3	HBM3E				120										3,600	14,400	18,000
Total ('000 GB)															3,600	14,400	18,000
Total (bn Gb)															0.03	0.12	0.14
Others																	
Tesla	HBM3	32	32	64	64	785	5,571	1,738	2,173	2,434	2,347	8,692	2,285	2,419	2,016	1,577	8,297
Startups / Etc.	HBM2E / 3	64	120	192	192	4,800	76,985	54,595	76,774	91,045	112,181	334,596	131,328	148,608	162,432	179,712	622,080
Total ('000 GB)						5,585	82,555	56,333	78,947	93,479	114,528	343,288	133,613	151,027	164,448	181,289	630,377
Total (bn Gb)						0.04	0.66	0.45	0.63	0.75	0.92	2.75	1.07	1.21	1.32	1.45	5.04
Total HBM Demand ('000 GB)						335,478	1,153,893	490,515	525,977	608,092	736,787	2,361,371	865,982	911,858	925,175	935,708	3,638,724
Total HBM Demand (bn Gb)						2.68	9.23	3.92	4.21	4.86	5.89	18.89	6.93	7.29	7.40	7.48	29.11
% YoY							244.0%	174.3%	90.4%	71.0%	114.6%	104.6%	76.5%	73.4%	52.1%	27.0%	54.1%
% QoQ								42.9%	7.2%	15.6%	21.2%		17.5%	5.3%	1.5%	1.1%	

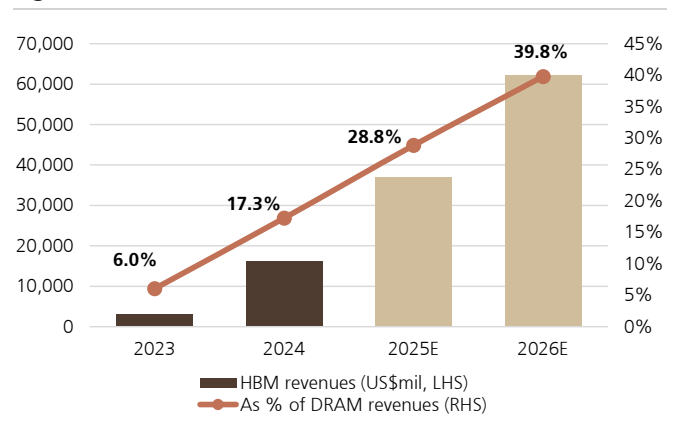
Source: Company data, UBS estimates

Figure 2: HBM ASP forecasts (US\$/1Gb)



Source: UBS estimates

Figure 3: HBM as % of total DRAM revenues 2023-2026E



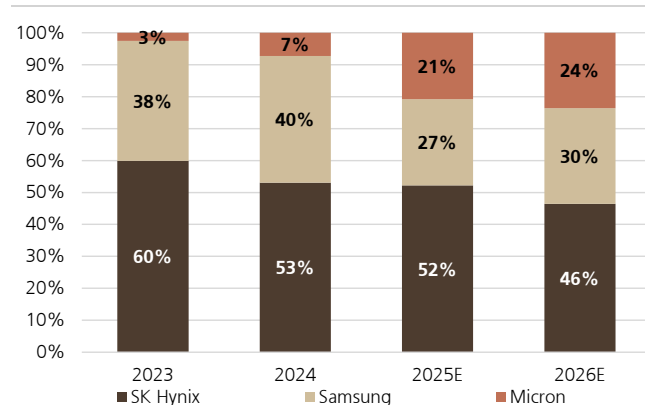
Source: UBS estimates

Figure 4: HBM capacity and bit shipment forecasts

	2024	2025E	2026E
Samsung DRAM bit shipment (bn Gb)	109.6	119.5	138.6
HBM bit shipment (bn Gb)	5.1	6.7	11.2
% of Samsung total DRAM bits	4.6%	5.6%	8.1%
HBM front-end capacity (k wpm), 4Q	125	155	175
SK Hynix DRAM bit shipment (bn Gb)	74.8	87.4	102.7
HBM bit shipment (bn Gb)	6.8	13.0	17.4
% of SK Hynix total DRAM bits	9.1%	14.9%	17.0%
HBM front-end capacity (k wpm), 4Q	125	175	190
Micron DRAM bit shipment (bn Gb)	60.4	69.3	82.2
HBM bit shipment (bn Gb)	0.9	5.2	8.8
% of Micron total DRAM bits	1.5%	7.5%	10.8%
HBM front-end capacity (k wpm), 4Q	30	65	100
Total HBM bit shipment (bn Gb)	12.8	24.9	37.5
Total HBM front-end capacity (k wpm), 4Q	280	395	465

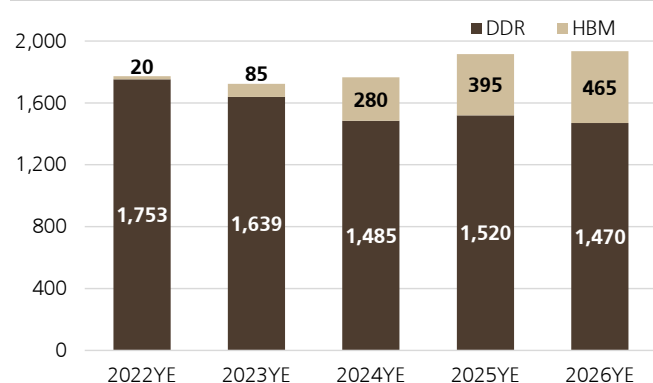
Source: UBS estimates

Figure 5: HBM bit shipment market share by vendor



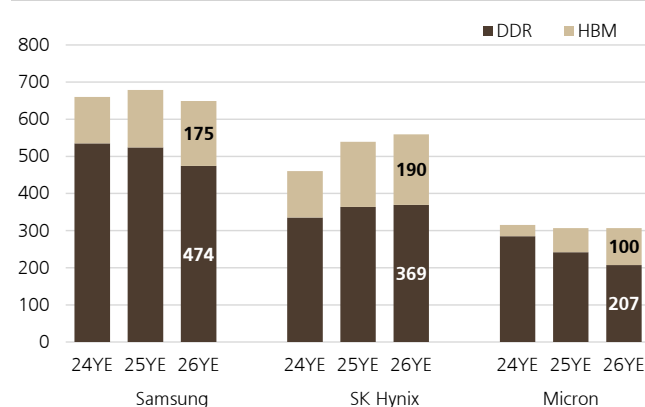
Source: Company data, UBS estimates

Figure 6: DRAM industry capacity (k wpm) breakdown between HBM vs non-HBM



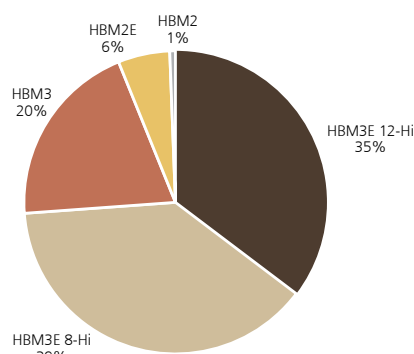
Source: Company data, UBS estimates

Figure 7: DRAM capacity (k wpm) breakdown between HBM vs non-HBM among suppliers



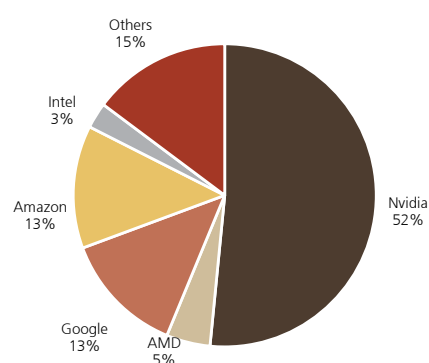
Source: Company data, UBS estimates

Figure 8: HBM demand by type (2025E)



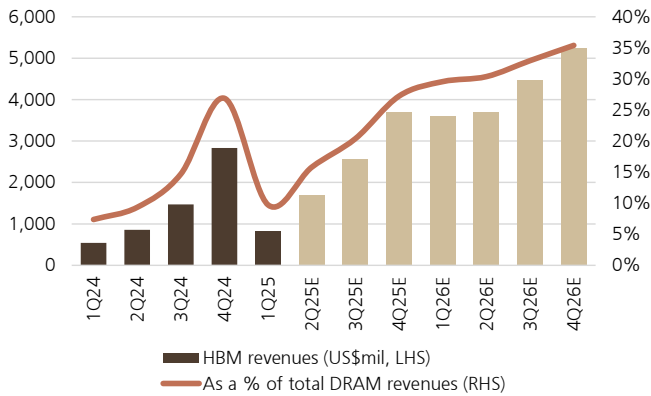
Source: Company data, UBS estimates

Figure 9: HBM demand by customer (2025E)



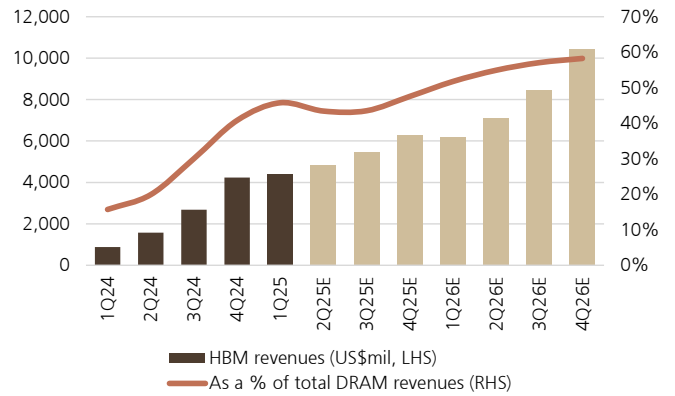
Source: Company data, UBS estimates

Figure 10: Samsung – HBM as a % of DRAM revenues



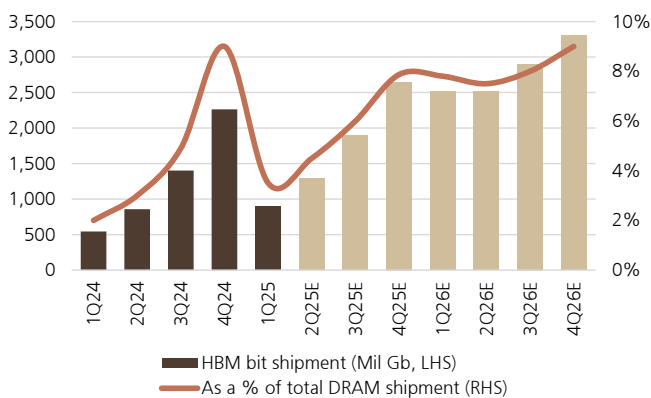
Source: Company data, UBS estimates

Figure 11: SK Hynix – HBM as a % of DRAM revenues



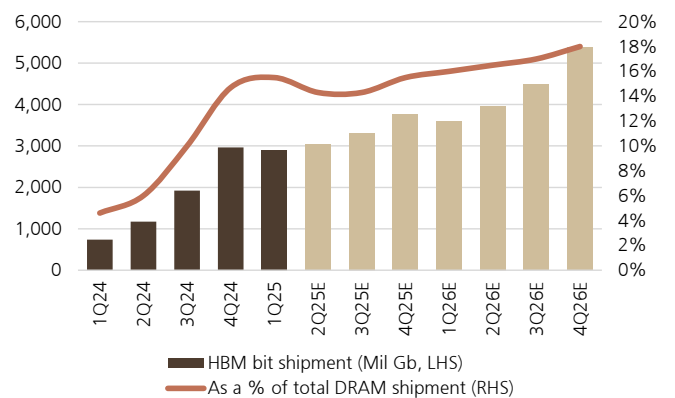
Source: Company data, UBS estimates

Figure 12: Samsung – HBM as a % of DRAM bits



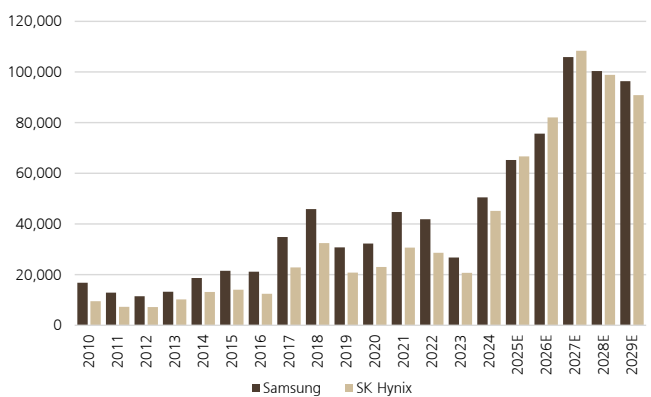
Source: Company data, UBS estimates

Figure 13: SK Hynix – HBM as a % of DRAM bits



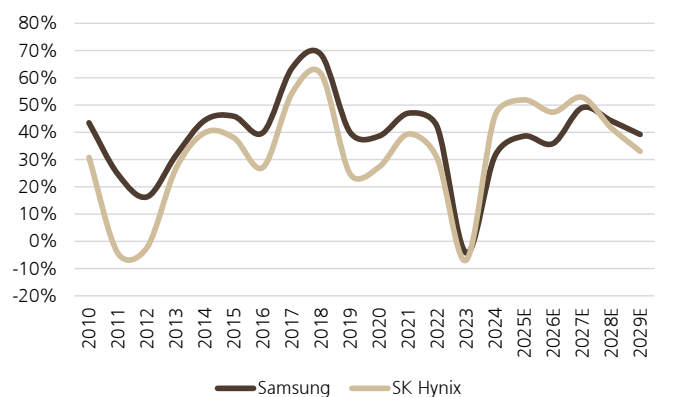
Source: Company data, UBS estimates

Figure 14: Samsung and SK Hynix DRAM revenues (Won bn) 2010-2029E



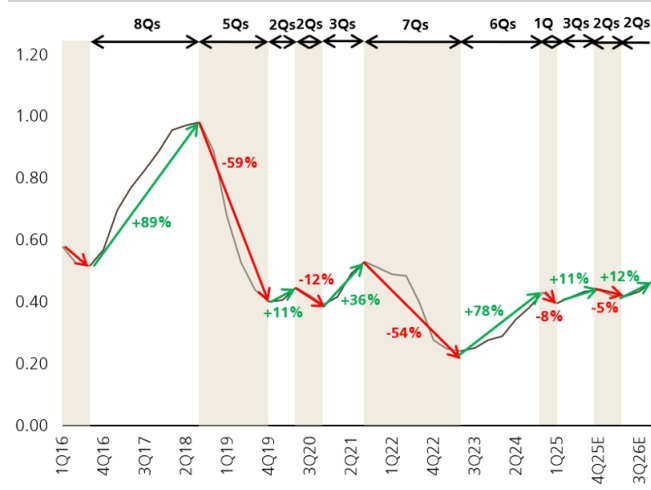
Source: Company data, UBS estimates

Figure 15: Samsung and SK Hynix DRAM operating margins (%) 2010-2029E



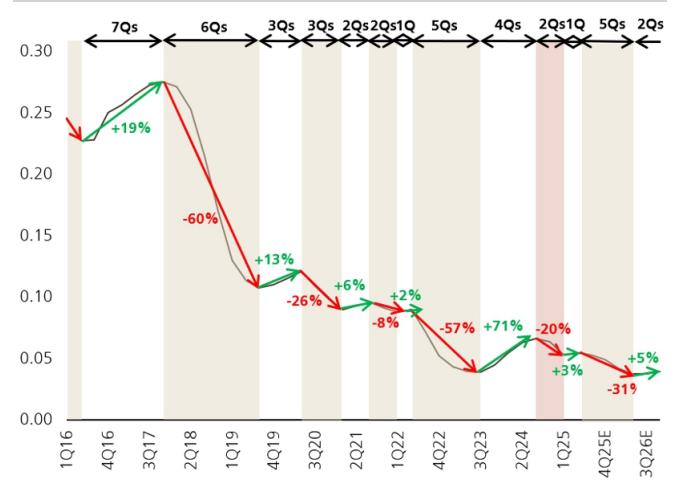
Source: Company data, UBS estimates

Figure 16: DRAM cycles in context



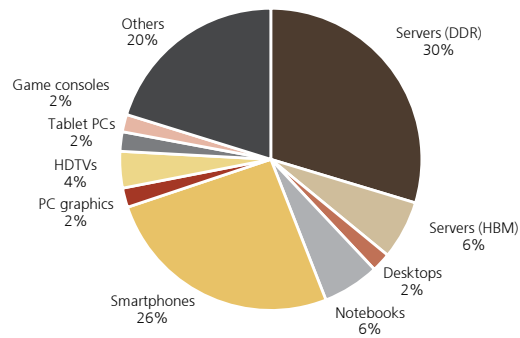
Source: Company data, UBS estimates

Figure 17: NAND cycles in context



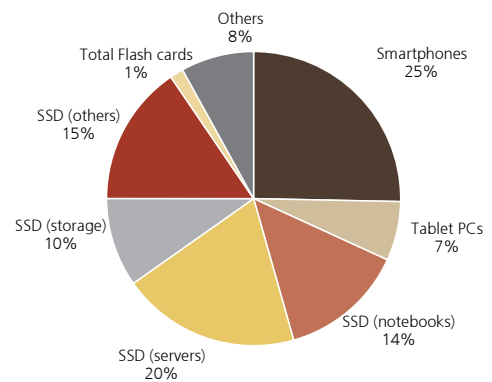
Source: Company data, UBS estimates

Figure 18: DRAM bit demand per application (2025E)



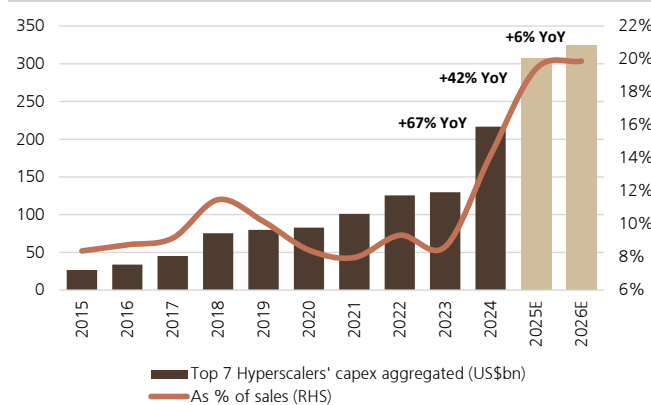
Source: Company data, UBS estimates

Figure 19: NAND bit demand per application (2025E)



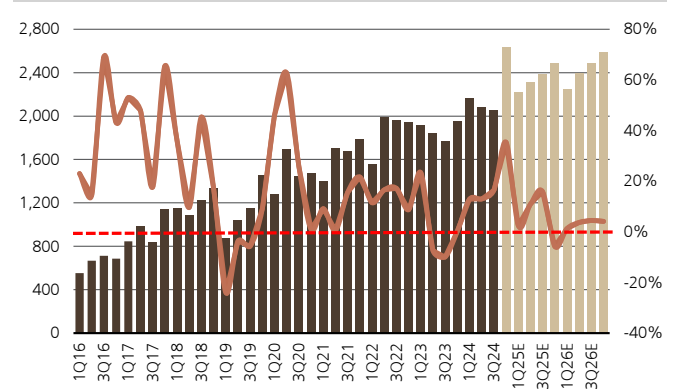
Source: Company data, UBS estimates

Figure 20: Top 7 Hyperscalers' capex forecasts aggregated (US\$bn) and total capital intensity (%)



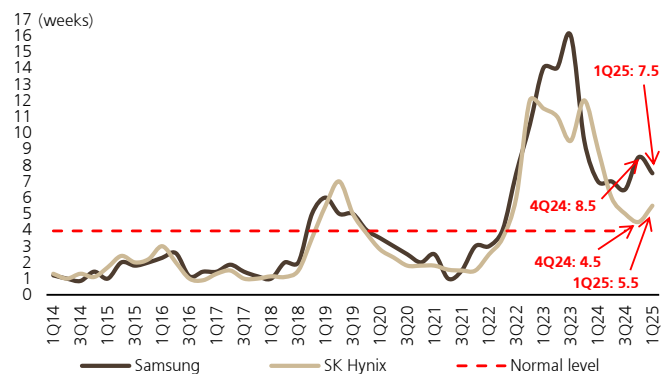
Source: Company data, UBS estimates – includes: Alibaba, Alphabet, Amazon, Baidu, Meta, Microsoft, Tencent

Figure 21: Top 8 Hyperscalers' server procurement aggregate (K units) and YoY growth



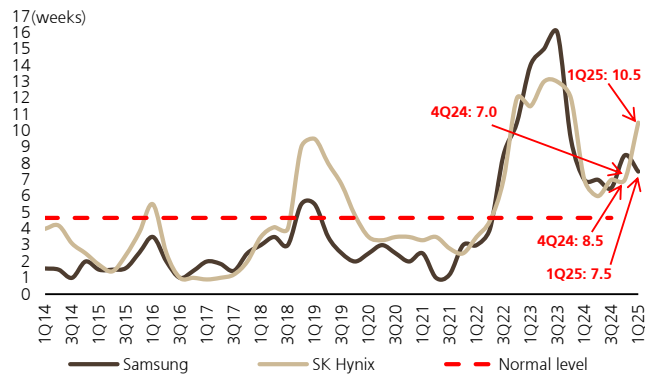
Source: Dell'Oro Group, UBS estimates - includes: Alibaba, Alphabet, Amazon, Baidu, ByteDance, Meta, Microsoft, Tencent

Figure 22: Samsung and SK Hynix – DRAM finished wafers and dies inventories



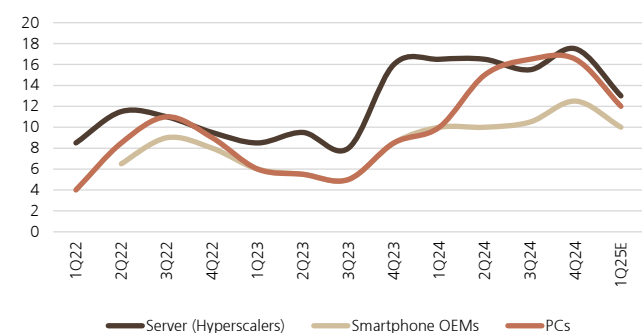
Source: Company data, UBS estimates

Figure 23: Samsung and SK Hynix – NAND finished wafers and dies inventories



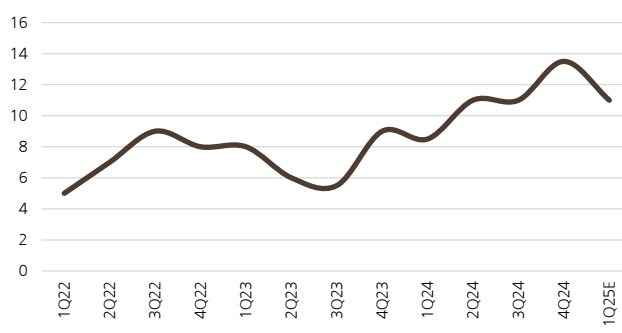
Source: Company data, UBS estimates

Figure 24: DRAM customer inventories (weeks)



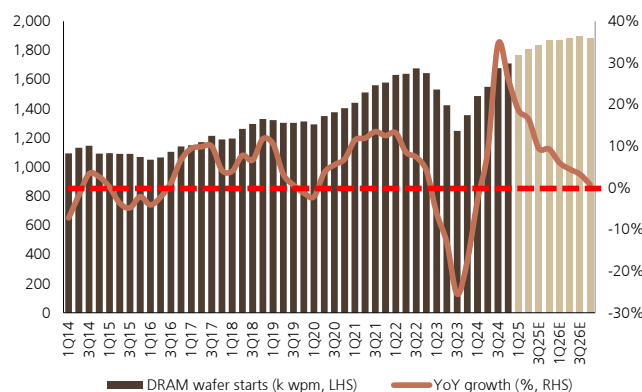
Source: Company data, UBS estimates

Figure 25: NAND customer inventories (weeks)



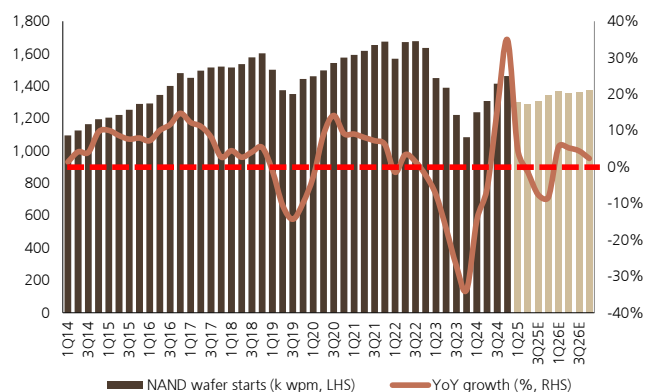
Source: Company data, UBS estimates

Figure 26: DRAM industry wafer starts and YoY growth



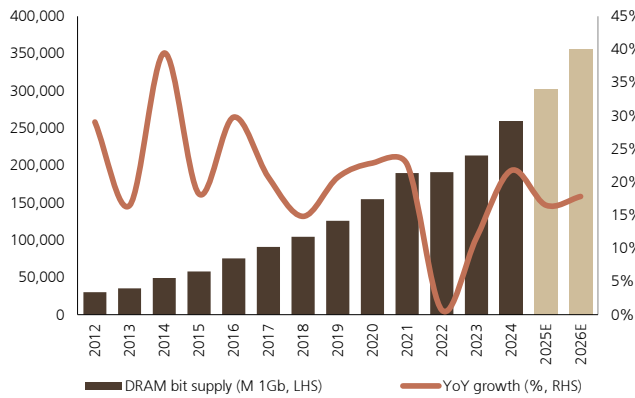
Source: Company data, UBS estimates

Figure 27: NAND flash industry wafer starts and YoY growth



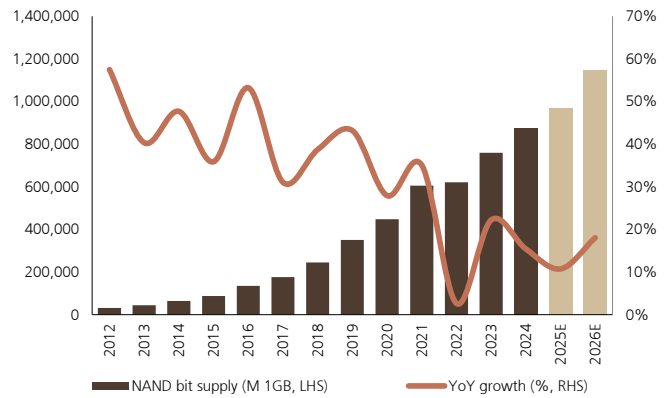
Source: Company data, UBS estimates

Figure 28: DRAM industry bit supply and YoY growth



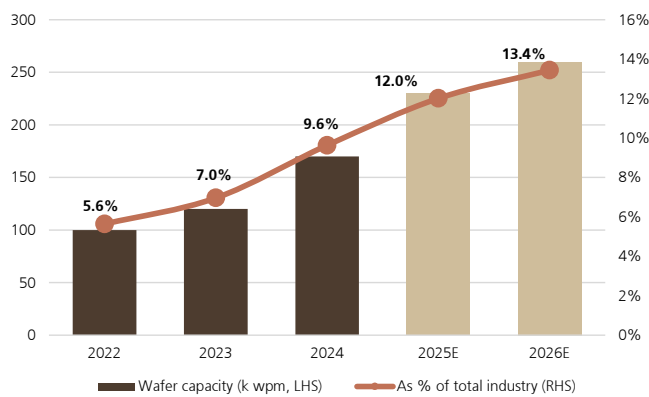
Source: Company data, UBS estimates

Figure 29: NAND flash industry bit supply and YoY growth



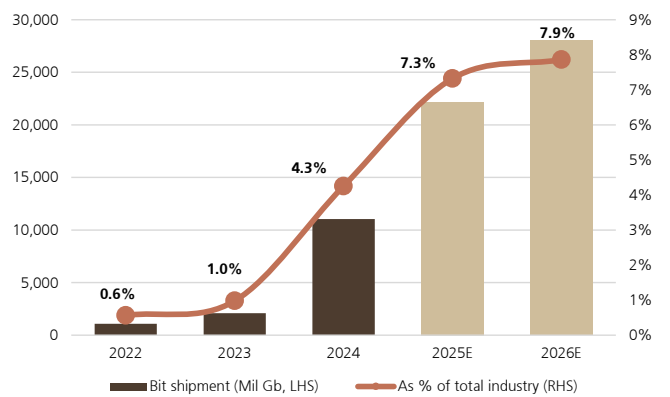
Source: Company data, UBS estimates

Figure 30: CXMT wafer capacity (k wpm) and as % of DRAM industry



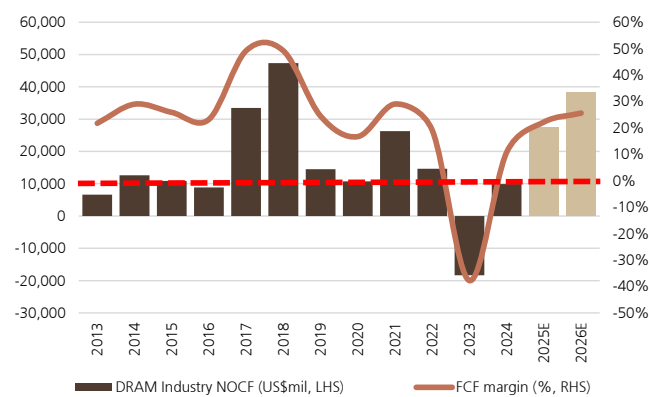
Source: UBS estimates

Figure 31: CXMT bit shipments (Mil Gb) and as % of DRAM industry



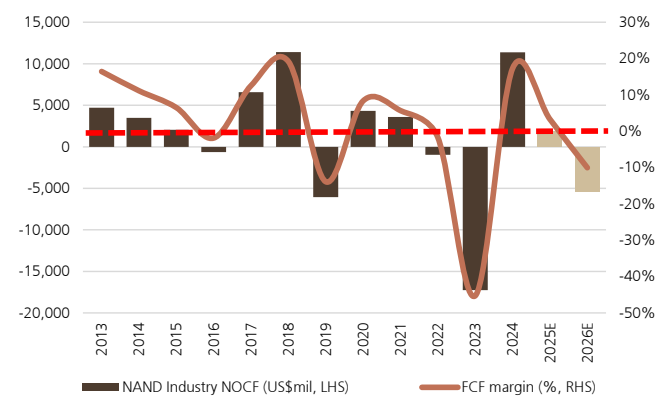
Source: UBS estimates

Figure 32: DRAM industry NOCF (US\$m) and FCF margin %









Source: Company data, UBS estimates

Figure 33: NAND industry NOCF (US\$m) and FCF margin %



Source: Company data, UBS estimates

Figure 34: DRAM signposts

DATA RELEASE / EVENT DATE		WHAT WE EXPECT
1Q25	<ul style="list-style-type: none"> • DRAM inventory levels 	DDR5 inventories are now low We estimate that customer inventories for DRAM are c. 10 weeks for smartphone OEMs, 12 weeks for PC OEMs, 13 weeks for hyperscale customers. Samsung DRAM finished products inventory days stood at 7.5 weeks the end of March, and for SK Hynix, forward finished products inventories were 5.5 weeks (incl. HBM). We believe SK Hynix' DDR5 inventories are now 2 weeks only.
2025-26	<ul style="list-style-type: none"> • Supply outlook 	Supply dynamics supportive Stripping out HBM, we forecast DDR bit shipments in 2025 to grow c. 11% YoY. This will be insufficient to meet DDR demand during the course of 2025. This in part due to DRAM industry capacity allocated to DDR only modestly increasing in 2025 to 1.52m wpm (in 4Q25E) from 1.49m in 4Q24, to then come down to 1.47m by 4Q26E. So far, DRAM capex indications for 2025 are not suggesting a meaningful step up.
2025-26	<ul style="list-style-type: none"> • HBM 	HBM demand forecasts coming down slightly We forecast HBM bit demand to reach 18.9bn Gb in 2025, up 105% YoY, and 29.1bn in 2026, up 54% YoY. The delays in volume shipments of B200/GB200 servers do not seem to have materially affected HBM3E 8-Hi demand in the near term. SK Hynix started shipping HBM3E 12-Hi to Nvidia in 4Q24, well ahead of the expected ramp of the B300/GB300 from 3Q25 onwards. We expect Micron to start shipping to Nvidia in April/May. Samsung HBM4E 12 Hi re-design was completed in February, which may lead to qualification at key customers in 2Q25. As for HBM4, SK Hynix is expected to start production in early 3Q25, Samsung by 4Q25.
2025-26	<ul style="list-style-type: none"> • Server DRAM demand (DDR only - 30% of total bit demand in 2025E) 	Conventional server DRAM demand remains steady We forecast server units up 5% YoY in 2025 and 3% in 2026. We forecast server DDR demand to grow 21% YoY in 2025, and 19% in 2026. Once hyperscalers start to re-accelerate builds, we expect server DDR5 procurement to start to recover.
2025-26	<ul style="list-style-type: none"> • Mobile DRAM demand (28% of total bit demand in 2025E) 	Edge AI to gradually help mobile DRAM content growth We forecast mobile DRAM bit end demand growth to be 12% YoY in 2025 and 10% in 2026. We forecast smartphone units to be up 1% YoY in 2025 and flat in 2026. We have factored in a gradual spec-ing up of mid to high end smartphones to allow for edge gen AI. This leads us to forecast smartphone DRAM content to move up from 7.2GB in '24, to 8.0GB in '25E and 9.0GB in '26E. We expect the iPhone 17 Pro/Pro Max to move to 12GB, and the other models to remain at 8GB, while several Android phones will use 16GB.
2025-26	<ul style="list-style-type: none"> • China DRAM industry build-up 	CXMT's competitive threat may be overstated CXMT's production capacity reached 170k wpm end of 2024, and should be close to 230k wpm end of '25. So far it has competed in the DDR4 market (19nm) and is now sampling to customers DDR5 (16nm). The density should not be comparable to incumbents' products - most of them using sub 15nm process tech. In addition, the ability of CXMT to ship DDR5 in volumes will depend upon its ability to ramp 16nm production, which in turn, could be negatively affected by export controls.

Source: Company data, UBS estimates

Figure 35: NAND Flash signposts

DATA RELEASE / EVENT DATE		WHAT WE EXPECT
1Q25	• NAND inventory levels	NAND inventories have come down at customers, on the high side at suppliers We estimate customers' NAND flash inventories are at 11 weeks for SSDs, 9 weeks at smartphone customers. Samsung's inventories of finished products were 7.5 weeks end of March and SK Hynix 10.5 weeks (forward).
2025-26	• Supply outlook	NAND manufacturers have swiftly cut down production this time We do not see any evidence of wafer capacity addition (bar YMTC) in 2025. We believe Samsung pushed out NAND wafer capacity addition in P4. We note though that as Samsung converts the Xi'an fabs and P1 to 236L from 128L, its net wafer capacity will decline from a peak of 650k wpm in 1Q23 to 435k end of '25E. In addition, NAND flash makers started reducing production from December '24 onwards, including Samsung. This should help supply / demand in balance by 2Q25E. We expect those cuts to continue for longer consider end-demand uncertainty on the back of tariffs.
2025-26	• NAND flash demand	Enterprise SSD demand may start to recover in 2Q25 We forecast enterprise SSD bit demand to grow 20% YoY in 2025 and 28% in 2026. In the near term, enterprise SSD demand started to soften late 2024. Our industry checks point to a recovery starting at the earliest in 2Q25. Longer term, near-line SSD storage continues to be supported by AI inference deployment, and server SSD by the need to bring in NAND on AI servers for training larger LLMs. We are less positive on client (PC) SSD and mobile NAND demand, as growth in local storage is not a top priority for OEMs.
2025-26	• China's NAND flash build up	YMTC continues to gradually add capacity YMTC has been facing the US restrictions for 128L equipment as well as servicing of the installed base, as it is on the Entity List. It is ramping 160L with a process flow reportedly not using US semis manufacturing equipment. But by doing so, production yields are we believe challenging. Total production wafer capacity was 130k wpm end of '24, and should reach 160k end of '25E.

Source: Company data, UBS estimates

Figure 36: UBS DRAM supply/demand summary

	2023	Q124	Q224	Q324	Q424	2024	Q125	Q225E	Q325E	Q425E	2025E	Q126E	Q226E	Q326E	Q426E	2026E
Revenues (\$ mil)	54,948	17,796	22,677	25,339	28,585	94,398	25,705	30,541	34,685	37,153	128,083	34,610	35,940	40,053	45,491	156,094
% QoQ		-5.2%	27.4%	11.7%	12.8%		-10.1%	18.8%	13.6%	7.1%		-6.8%	3.8%	11.4%	13.6%	
% YoY	-31.2%	73.8%	91.6%	79.8%	52.2%	71.8%	44.4%	34.7%	36.9%	30.0%	35.7%	34.6%	17.7%	15.5%	22.4%	21.9%
Supply (Shipments Based) (M 1Gb)	213,341	61,331	65,981	66,182	66,234	259,727	64,936	73,362	79,922	84,391	302,611	81,932	85,778	92,033	96,804	356,548
% QoQ		-9.4%	7.6%	0.3%	0.1%		-2.0%	13.0%	8.9%	5.6%		-2.9%	4.7%	7.3%	5.2%	
% YoY	11.5%	49.7%	35.2%	18.4%	-2.1%	21.7%	5.9%	11.2%	20.8%	27.4%	16.5%	26.2%	16.9%	15.2%	14.7%	17.8%
Demand (End Consumption) (M 1Gb)	218,890	62,146	63,188	66,515	66,112	257,961	67,450	70,326	78,255	84,775	300,805	79,480	81,937	89,213	96,168	346,798
% QoQ		-1.8%	1.7%	5.3%	-0.6%		2.0%	4.3%	11.3%	8.3%		-6.2%	3.1%	8.9%	7.8%	
% YoY	11.6%	32.2%	24.5%	15.0%	4.4%	17.8%	8.5%	11.3%	17.6%	28.2%	16.6%	17.8%	16.5%	14.0%	13.4%	15.3%
Demand ex-HBM (M 1Gb)	216,206					248,730					281,914					317,688
% YoY	10.3%					15.0%					13.3%					12.7%
Inventory adjustment	-4,800	-200	5,400	1,100	1,800	8,100	-3,600	3,800	2,300	-300	2,200	1,700	3,700	3,500	2,400	11,300
Inventory Adj. Demand (M 1Gb)	214,090	61,946	68,588	67,615	67,912	266,061	63,850	74,126	80,555	84,475	303,005	81,180	85,637	92,713	98,568	358,098
% QoQ		-10.4%	10.7%	-1.4%	0.4%		-6.0%	16.1%	8.7%	4.9%		-3.9%	5.5%	8.3%	6.3%	
% YoY	14.7%	54.4%	41.3%	20.0%	-1.7%	24.3%	3.1%	8.1%	19.1%	24.4%	13.9%	27.1%	15.5%	15.1%	16.7%	18.2%
Wafer out (k wpm, 12" equi.)	1,423	1,408	1,505	1,599	1,686	1,550	1,729	1,777	1,818	1,852	1,794	1,858	1,876	1,889	1,893	1,879
% QoQ		10.3%	6.9%	6.2%	5.4%		2.5%	2.8%	2.4%	1.8%		0.3%	1.0%	0.7%	0.3%	
% YoY	-13.4%	-12.1%	1.2%	20.4%	32.1%	8.9%	22.7%	18.0%	13.7%	9.8%	15.8%	7.5%	5.6%	3.9%	2.3%	4.7%
% Sufficiency Ratio	-0.3%	-1.0%	-3.8%	-2.1%	-2.5%	-2.4%	1.7%	-1.0%	-0.8%	-0.1%	-0.1%	0.9%	0.2%	-0.7%	0.0%	-0.4%
Blended ASP incl. HBM (\$/Gb)	0.26	0.29	0.34	0.38	0.43	0.36	0.40	0.42	0.43	0.44	0.42	0.42	0.42	0.44	0.47	0.44
% QoQ		4.6%	18.4%	11.4%	12.7%		-8.3%	5.2%	4.2%	1.4%		-4.0%	-0.8%	3.9%	8.0%	
% YoY	-38.3%	16.1%	41.7%	51.8%	55.6%	41.1%	36.4%	21.1%	13.4%	2.0%	16.5%	6.7%	0.6%	0.3%	6.7%	3.4%
DDR ASP (\$/Gb)	0.24	0.27	0.32	0.34	0.35	0.32	0.33	0.35	0.35	0.33	0.34	0.30	0.29	0.29	0.30	0.29
% QoQ		13.9%	16.3%	5.9%	4.1%		-6.2%	5.0%	2.0%	-5.0%		-10.0%	-5.0%	0.0%	5.0%	
% YoY	-42.5%	18.9%	44.5%	60.3%	46.0%	33.3%	20.3%	8.6%	4.6%	-4.5%	6.5%	-8.4%	-17.2%	-18.8%	-10.2%	-13.8%
HBM ASP (\$/Gb)		1.12	1.20	1.26	1.36	1.27	1.32	1.48	1.52	1.56	1.48	1.58	1.63	1.69	1.71	1.66
% QoQ			7.4%	4.8%	8.0%		-3.0%	11.6%	2.9%	2.8%		1.3%	3.2%	3.3%	1.0%	
% YoY							18.0%	22.6%	20.4%	14.5%	16.3%	19.6%	10.7%	11.1%	9.2%	11.8%

Source: Company data, UBS estimates

Figure 37: DRAM vendors' market share in bit shipments

	2023	Q124	Q224	Q324	Q424	2024	Q125	Q225E	Q325E	Q425E	2025E	Q126E	Q226E	Q326E	Q426E	2026E
Samsung	45.0%	44.4%	43.3%	43.2%	38.0%	42.2%	39.4%	39.2%	39.5%	39.9%	39.5%	39.3%	39.1%	39.4%	37.9%	38.9%
SK Hynix	30.0%	26.1%	29.6%	29.0%	30.4%	28.8%	28.9%	29.0%	29.0%	28.7%	28.9%	27.4%	28.0%	28.7%	30.9%	28.8%
Micron	22.2%	25.0%	22.0%	21.9%	24.3%	23.3%	22.8%	23.1%	22.9%	22.8%	22.9%	24.2%	23.8%	22.6%	21.9%	23.1%
Nanya Tech	1.4%	1.5%	1.3%	1.0%	0.9%	1.2%	0.9%	1.0%	1.2%	1.3%	1.1%	1.1%	1.0%	1.2%	1.3%	1.1%
CXMT	1.0%	2.7%	3.5%	4.6%	6.1%	4.3%	7.7%	7.4%	7.1%	7.1%	7.3%	7.7%	7.9%	7.9%	7.9%	7.9%
Others	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.2%	0.2%	0.2%	0.2%
Total Supply	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: Gartner, Company data, UBS estimates

Figure 38: DRAM vendors' bit shipments QoQ and YoY growth

	2023 YoY	Q124 QoQ	Q224 QoQ	Q324 QoQ	Q424 QoQ	2024 YoY	Q125 QoQ	Q225E QoQ	Q325E QoQ	Q425E QoQ	2025E YoY	Q126E QoQ	Q226E QoQ	Q326E QoQ	Q426E QoQ	2026E YoY
Samsung	11.0%	-15.0%	5.0%	0.0%	-12.0%	14.1%	1.5%	12.5%	9.9%	6.5%	9.0%	-4.2%	4.0%	8.2%	1.1%	16.0%
SK Hynix	13.0%	-15.0%	21.9%	-1.6%	5.0%	17.1%	-7.0%	13.4%	8.8%	4.8%	16.8%	-7.5%	7.0%	10.0%	13.2%	17.5%
Micron	9.7%	3.0%	-5.6%	0.0%	11.0%	27.3%	-8.0%	14.6%	8.0%	5.0%	14.7%	3.0%	3.0%	2.0%	2.0%	18.7%
Nanya Tech	-5.4%	1.0%	-6.9%	-23.0%	-8.6%	0.6%	3.0%	23.0%	30.0%	9.0%	13.8%	-15.0%	-3.0%	20.0%	15.0%	18.9%
CXMT	93.0%	101.3%	43.0%	29.9%	32.3%	429.0%	24.8%	8.3%	4.8%	5.1%	100.6%	6.0%	6.8%	7.6%	4.3%	26.5%
Others	2.6%	-7.3%	5.3%	2.5%	2.4%	1.9%	-4.8%	2.5%	2.4%	2.4%	3.1%	-2.3%	0.0%	2.4%	0.0%	2.4%
Bit supply Growth	11.5%	-9.4%	7.6%	0.3%	0.1%	21.7%	-2.0%	13.0%	8.9%	5.6%	16.5%	-2.9%	4.7%	7.3%	5.2%	17.8%

Source: Gartner, Company data, UBS estimates

Figure 39: DRAM vendors' wafers out (k wpm, 12 inch equivalent)

	2023	Q124	Q224	Q324	Q424	2024	Q125	Q225E	Q325E	Q425E	2025E	Q126E	Q226E	Q326E	Q426E	2026E
Samsung	606	572	600	636	663	618	663	667	668	674	668	676	673	670	659	669
SK Hynix	376	358	391	422	450	405	475	499	519	534	507	539	542	548	555	546
Micron	281	302	293	296	317	302	315	313	311	309	312	307	313	311	309	310
Nanya Tech	52	55	55	56	56	55	56	58	61	65	60	56	58	60	61	59
CXMT	59	72	117	140	150	120	170	190	210	220	198	230	240	250	260	245
Other	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Total	1,423	1,408	1,505	1,599	1,686	1,550	1,729	1,777	1,818	1,852	1,794	1,858	1,876	1,889	1,893	1,879
% YoY	-13.4%	-12.1%	1.2%	20.4%	32.1%	8.9%	22.7%	18.0%	13.7%	9.8%	15.8%	7.5%	5.6%	3.9%	2.3%	4.7%

Source: Gartner, Company data, UBS estimates

Figure 40: DRAM bit demand growth by application

	2023 YoY	Q124 QoQ	Q224 QoQ	Q324 QoQ	Q424 QoQ	2024 YoY	Q125 QoQ	Q225E QoQ	Q325E QoQ	Q425E QoQ	2025E YoY	Q126E QoQ	Q226E QoQ	Q326E QoQ	Q426E QoQ	2026E YoY
Total PC DRAM	-7.5%	-14.4%	5.6%	12.4%	1.5%	9.0%	-7.7%	4.8%	10.6%	5.4%	10.7%	-5.7%	4.6%	8.7%	2.9%	13.3%
Desktops	-1.4%	-7.2%	4.8%	6.9%	10.3%	11.7%	-6.1%	1.0%	6.7%	7.8%	11.9%	-3.4%	5.5%	4.3%	5.4%	14.0%
Notebooks	-1.6%	-12.9%	9.0%	16.2%	3.2%	16.7%	-8.2%	5.4%	10.7%	6.3%	14.7%	-5.7%	4.6%	9.9%	3.2%	14.9%
Upgrade Modules	-30.9%	-30.0%	-9.0%	1.1%	-29.3%	-26.6%	-8.1%	12.2%	22.4%	-8.3%	-18.4%	-13.4%	1.9%	12.0%	-8.4%	-3.5%
Servers	8.2%	23.4%	3.2%	4.4%	-5.6%	42.2%	18.4%	7.4%	7.1%	5.5%	29.5%	-0.6%	6.7%	8.5%	8.6%	21.8%
Graphics	13.3%	-30.1%	13.1%	-2.0%	-10.7%	-6.8%	13.0%	-0.8%	3.9%	7.5%	9.3%	-11.3%	10.9%	0.1%	1.6%	3.4%
Game Consoles	25.4%	-13.7%	4.9%	4.5%	-5.9%	2.1%	2.2%	2.3%	4.2%	-8.5%	2.6%	5.5%	2.3%	4.2%	-8.5%	2.9%
HDTVs	8.1%	-22.6%	7.0%	12.0%	15.3%	12.8%	-17.5%	1.9%	11.0%	14.7%	9.0%	-19.0%	2.5%	16.1%	14.5%	8.2%
Total Mobile DRAM	9.9%	-7.9%	1.0%	13.9%	7.0%	19.0%	-6.6%	-2.7%	14.1%	8.3%	12.1%	-6.8%	-3.4%	11.8%	8.2%	10.2%
Smartphones	10.9%	-7.5%	0.0%	14.7%	7.3%	20.2%	-6.0%	-3.8%	15.2%	8.2%	12.8%	-6.0%	-4.3%	12.7%	8.2%	11.0%
Apple	12.1%	-30.7%	-12.2%	23.5%	52.6%	22.7%	-31.8%	-14.4%	37.5%	58.8%	19.8%	-30.8%	-15.3%	26.7%	56.6%	21.5%
Samsung	0.4%	26.3%	-12.3%	13.2%	-11.5%	14.2%	26.2%	-12.2%	7.7%	-6.4%	9.7%	22.0%	-10.7%	12.9%	-6.8%	11.8%
Non-Apple/Samsung	14.7%	-8.2%	8.4%	13.2%	1.6%	21.5%	-5.1%	2.2%	12.4%	-1.6%	11.7%	-2.7%	1.6%	8.8%	-2.2%	7.4%
Tablet PCs	1.7%	-13.8%	13.0%	6.0%	3.3%	7.4%	-14.0%	12.0%	1.1%	8.9%	4.6%	-16.9%	9.6%	1.4%	8.8%	1.0%
Others	28.3%	-7.4%	-3.3%	-7.3%	-6.4%	-1.0%	-1.6%	10.4%	17.5%	15.3%	9.2%	-13.1%	4.2%	5.9%	8.7%	15.3%
Total Bit Demand	11.6%	-1.8%	1.7%	5.3%	-0.6%	17.8%	2.0%	4.3%	11.3%	8.3%	16.6%	-6.2%	3.1%	8.9%	7.8%	15.3%

Source: Gartner, Company data, UBS estimates

Figure 41: DRAM content assumptions (MB/unit) by application

	2023	Q124	Q224	Q324	Q424	2024	Q125	Q225E	Q325E	Q425E	2025E	Q126E	Q226E	Q326E	Q426E	2026E
Total PC	10,302	11,127	11,443	11,924	12,488	11,761	12,688	12,939	13,201	13,509	13,101	13,911	14,387	14,854	15,362	14,642
% YoY	16%	19%	12%	12%	15%	14%	14%	13%	11%	8%	11%	10%	11%	13%	14%	12%
Desktops	10,091	10,990	11,290	11,790	12,295	11,609	12,495	12,695	12,995	13,195	12,855	13,595	14,095	14,595	15,095	14,353
Notebooks	10,696	11,621	11,921	12,421	12,941	12,258	13,141	13,441	13,741	14,041	13,611	14,441	14,941	15,441	15,941	15,208
Upgrade Modules	9,201	9,400	9,500	9,600	9,700	9,534	9,900	10,100	10,300	10,500	10,217	10,700	10,900	11,100	11,300	11,002
Servers	624,497	729,451	774,451	820,551	870,826	795,937	919,826	962,326	1,007,326	1,050,429	986,088	1,090,429	1,130,429	1,186,429	1,243,636	1,164,829
% YoY	17%	27%	30%	29%	27%	27%	26%	24%	23%	21%	24%	19%	17%	18%	18%	18%
Smartphones	6,300	6,954	7,054	7,306	7,470	7,208	7,677	7,793	8,171	8,499	8,049	8,749	8,690	8,944	9,300	8,932
% YoY	14%	17%	15%	14%	12%	14%	10%	10%	12%	14%	12%	14%	12%	9%	9%	11%
Apple	5,725	6,800	7,000	7,300	7,600	7,228	7,600	7,700	8,940	9,590	8,611	9,690	9,690	10,400	11,200	10,366
Samsung	6,859	7,839	7,635	8,047	7,946	7,869	8,619	8,553	8,849	8,817	8,707	9,696	9,658	9,949	9,974	9,820
Non-Apple/Samsung	6,308	6,700	6,900	7,100	7,300	7,012	7,400	7,600	7,800	8,000	7,706	8,200	8,200	8,300	8,400	8,277

Source: Gartner, Company data, UBS estimates

Figure 42: UBS Server DRAM bottom-up model

	2019	2020	2021	2022	2023	2024	2025E	2026E
Total Server shipments (K unit)	12,585	12,915	13,368	13,027	12,032	13,424	14,032	14,471
% YoY	-2.8%	2.6%	3.5%	-2.6%	-7.6%	11.6%	4.5%	3.1%
Traditional enterprise	6,076	4,768	4,546	3,111	2,149	1,960	1,882	1,769
% YoY	-2.0%	-21.5%	-4.7%	-31.6%	-30.9%	-8.8%	-4.0%	-6.0%
% of total	48.3%	36.9%	34.0%	23.9%	17.9%	14.6%	13.4%	12.2%
Hyperscalers	6,509	8,147	8,822	9,915	9,883	11,464	12,150	12,702
% YoY	-3.6%	25.2%	8.3%	12.4%	-0.3%	16.0%	6.0%	4.5%
% of total	51.7%	63.1%	66.0%	76.1%	82.1%	85.4%	86.6%	87.8%
Standard servers	5,941	7,313	7,837	8,823	8,702	9,466	10,125	10,483
% YoY	-5.5%	23.1%	7.2%	12.6%	-1.4%	8.8%	7.0%	3.5%
% of total hyperscalers	91.3%	89.8%	88.8%	89.0%	88.0%	82.6%	83.3%	82.5%
% of total servers	47.2%	56.6%	58.6%	67.7%	72.3%	70.5%	72.2%	72.4%
AI Servers	300	520	630	730	811	1,614	1,625	1,798
% YoY	50.0%	73.3%	21.2%	15.9%	11.1%	98.9%	0.7%	10.7%
% of total hyperscalers	4.6%	6.4%	7.1%	7.4%	8.2%	14.1%	13.4%	14.2%
% of total servers	2.4%	4.0%	4.7%	5.6%	6.7%	12.0%	11.6%	12.4%
Database servers	267	314	356	363	370	385	400	420
% YoY	3.0%	17.6%	13.2%	2.0%	2.0%	4.0%	4.0%	5.0%
% of total hyperscalers	4.1%	3.9%	4.0%	3.7%	3.7%	3.4%	3.3%	3.3%
% of total servers	2.1%	2.4%	2.7%	2.8%	3.1%	2.9%	2.9%	2.9%
Avg. DRAM content (GB)	296	410	474	518	615	774	963	1,138
% YoY	24.7%	38.2%	15.8%	9.3%	18.7%	25.9%	24.3%	18.1%
Traditional enterprise	234	298	340	349	383	390	420	440
% YoY	23.3%	27.5%	14.2%	2.6%	9.7%	1.8%	7.7%	4.8%
Hyperscalers Blended	355	475	544	572	666	840	1,047	1,235
% YoY	25.8%	33.8%	14.4%	5.1%	16.4%	26.2%	24.6%	17.9%
Standard servers	323	432	484	508	547	570	620	670
% YoY	24.5%	33.9%	12.2%	4.9%	7.7%	4.2%	8.8%	8.1%
AI servers	560	680	770	850	1,467	2,220	3,486	4,324
% YoY	19.1%	21.4%	13.2%	10.4%	72.6%	51.3%	57.0%	24.0%
Total DRAM Demand (mn Gb)	29,850	42,341	50,745	54,033	59,216	83,166	108,097	131,687
% YoY	21.1%	41.8%	19.8%	6.5%	9.6%	40.4%	30.0%	21.8%
Total DRAM Demand ex-HBM (mn Gb)	29,850	42,341	50,745	54,033	56,532	73,935	89,206	102,577
% YoY	21.1%	41.8%	19.8%	6.5%	4.6%	30.8%	20.7%	15.0%
Traditional enterprise	11,355	11,359	12,367	8,687	6,584	6,115	6,322	6,226
% YoY	20.8%	0.0%	8.9%	-29.8%	-24.2%	-7.1%	3.4%	-1.5%
Hyperscalers	18,495	30,983	38,378	45,345	52,633	77,051	101,775	125,461
% YoY	21.3%	67.5%	23.9%	18.2%	16.1%	46.4%	32.1%	23.3%
Standard servers	15,335	25,264	30,373	35,855	38,080	43,163	50,220	56,191
% YoY	17.6%	64.8%	20.2%	18.0%	6.2%	13.3%	16.3%	11.9%
AI servers	1,344	2,829	3,881	4,964	9,522	28,655	45,313	62,212
% YoY	78.7%	110.5%	37.2%	27.9%	91.8%	200.9%	58.1%	37.3%
HBM DRAM Demand					2,684	9,231	18,891	29,110
% YoY						244.0%	104.6%	54.1%
DDR DRAM Demand					6,838	19,424	26,422	33,102
% YoY						184.1%	36.0%	25.3%
Database Servers	1,816	2,890	4,125	4,526	5,031	5,232	6,242	7,058
% YoY	25.1%	59.1%	42.7%	9.7%	11.2%	4.0%	19.3%	13.1%

Source: Dell'Oro Group, Gartner, Company data, UBS estimates

Figure 43: UBS bottom-up server procurement model (K units)

(K Units)	2021	2022	2023	2024	1Q25E	2Q25E	3Q25E	4Q25E	2025E	1Q26E	2Q26E	3Q26E	4Q26E	2026E
Quarterly														
Alphabet	838	1,039	1,085	1,241	270	310	305	330	1,215	290	320	300	330	1,240
AWS	1,797	2,237	2,131	2,622	650	660	690	690	2,690	640	660	720	730	2,750
Microsoft	1,088	1,056	1,274	1,523	370	380	390	430	1,570	380	400	410	430	1,620
Meta	1,817	2,192	2,027	2,252	550	550	560	580	2,240	530	550	570	590	2,240
Baidu	108	71	70	47	8	11	10	12	41	9	12	11	12	44
Alibaba	421	376	188	291	84	95	105	105	389	90	97	110	108	405
Tencent	269	118	149	202	68	70	73	78	289	70	73	79	83	305
ByteDance	223	358	550	761	220	230	250	260	960	240	280	290	305	1,115
Total Top 8	6,560	7,448	7,473	8,939	2,220	2,306	2,383	2,485	9,394	2,249	2,392	2,490	2,588	9,719
% YoY	11.4%	13.5%	0.3%	19.6%	2.5%	10.9%	15.9%	-5.7%	5.1%	1.3%	3.7%	4.5%	4.1%	3.5%
% QoQ					-15.8%	3.9%	3.3%	4.3%		-9.5%	6.4%	4.1%	3.9%	
Others	2,262	2,468	2,410	2,525	615	672	711	758	2,756	699	715	760	809	2,983
Total hyperscale	8,822	9,915	9,883	11,464	2,835	2,978	3,094	3,243	12,150	2,948	3,107	3,250	3,397	12,702
% YoY	8.3%	12.4%	-0.3%	16.0%	4.7%	10.4%	10.4%	-0.4%	6.0%	4.0%	4.3%	5.0%	4.7%	4.5%
% QoQ					-12.9%	5.0%	3.9%	4.8%		-9.1%	5.4%	4.6%	4.5%	
YoY (%)														
Alphabet	8.8%	24.0%	4.4%	14.4%	-17.9%	-19.4%	18.5%	22.2%	-2.1%	7.4%	3.2%	-1.6%	0.0%	2.1%
AWS	35.4%	24.5%	-4.7%	23.0%	38.2%	40.5%	-4.0%	-28.3%	2.6%	-1.5%	0.0%	4.3%	5.8%	2.2%
Microsoft	-0.1%	-2.9%	20.6%	19.5%	-14.6%	0.3%	18.4%	12.8%	3.1%	2.7%	5.3%	5.1%	0.0%	3.2%
Meta	1.1%	20.7%	-7.5%	11.1%	-6.4%	-4.0%	30.2%	-12.3%	-0.5%	-3.6%	0.0%	1.8%	1.7%	0.0%
Baidu	107.9%	-34.0%	-1.6%	-32.5%	-43.3%	-13.1%	-1.5%	15.3%	-13.4%	12.5%	9.1%	10.0%	0.0%	7.3%
Alibaba	7.5%	-10.6%	-50.2%	55.2%	22.4%	57.4%	49.4%	14.5%	33.7%	7.1%	2.1%	4.8%	2.9%	4.1%
Tencent	-17.9%	-56.1%	25.9%	35.7%	46.4%	53.0%	13.4%	71.3%	43.0%	2.9%	4.3%	8.2%	6.4%	5.5%
ByteDance	66.0%	60.6%	53.8%	38.4%	1.4%	48.9%	42.0%	21.6%	26.1%	9.1%	21.7%	16.0%	17.3%	16.1%

Source: Dell'Oro Group, Company data, UBS estimates

Figure 44: UBS NAND Flash supply/demand summary

	2023	Q124	Q224	Q324	Q424	2024	Q125	Q225E	Q325E	Q425E	2025E	Q126E	Q226E	Q326E	Q426E	2026E
Revenues (\$ mil)	31,585	12,019	13,831	14,622	13,886	54,359	10,925	12,583	13,787	13,326	50,621	10,701	10,348	11,299	12,342	44,689
% QoQ		25.1%	15.1%	5.7%	-5.0%		-21.3%	15.2%	9.6%	-3.3%		-19.7%	-3.3%	9.2%	9.2%	
% YoY	-35.4%	76.4%	87.4%	87.8%	44.6%	72.1%	-9.1%	-9.0%	-5.7%	-4.0%	-6.9%	-2.1%	-17.8%	-18.0%	-7.4%	-11.7%
Supply (Shipments Based) (M 1GB)	759,298	218,844	218,991	220,489	218,121	876,445	206,755	231,201	261,144	271,424	970,524	256,411	275,496	300,832	312,944	1,145,683
% QoQ		1.7%	0.1%	0.7%	-1.1%		-5.2%	11.8%	13.0%	3.9%		-5.5%	7.4%	9.2%	4.0%	
% YoY	17.2%	39.0%	17.5%	10.0%	1.4%	15.4%	-5.5%	5.6%	18.4%	24.4%	10.7%	24.0%	19.2%	15.2%	15.3%	18.0%
Demand (End Consumption) (M 1GB)	814,858	221,097	224,276	242,419	251,519	939,310	239,476	245,756	266,876	295,002	1,047,110	274,914	281,999	300,694	326,691	1,184,299
% QoQ		-7.6%	1.4%	8.1%	3.8%		-4.8%	2.6%	8.6%	10.5%		-6.8%	2.6%	6.6%	8.6%	
% YoY	21.2%	25.7%	21.2%	13.0%	5.1%	15.3%	8.3%	9.6%	10.1%	17.3%	11.5%	14.8%	14.7%	12.7%	10.7%	13.1%
Inventory adjustment	-57,500	8,600	1,500	-19,600	-35,000	-44,500	-39,500	-13,000	-7,500	-27,200	-87,200	-26,000	-12,000	0	-10,500	-48,500
Inventory Adj. Demand (M 1GB)	757,358	229,697	225,776	222,819	216,519	894,810	199,976	232,756	259,376	267,802	959,910	248,914	269,999	300,694	316,191	1,135,799
% QoQ		3.5%	-1.7%	-1.3%	-2.8%		-7.6%	16.4%	11.4%	3.2%		-7.1%	8.5%	11.4%	5.2%	
% YoY	19.6%	50.7%	23.3%	11.4%	-2.4%	18.1%	-12.9%	3.1%	16.4%	23.7%	7.3%	24.5%	16.0%	15.9%	18.1%	18.3%
Wafer out (k wpm, 12" equi.)	1,388	1,147	1,257	1,347	1,427	1,294	1,421	1,288	1,268	1,297	1,318	1,355	1,363	1,360	1,368	1,361
% QoQ		2.6%	9.6%	7.1%	6.0%		-0.4%	-9.4%	-1.5%	2.3%		4.4%	0.5%	-0.2%	0.6%	
% YoY	-20.1%	-32.0%	-14.3%	5.0%	27.7%	-6.8%	23.9%	2.5%	-5.8%	-9.1%	1.9%	-4.6%	5.8%	7.2%	5.4%	3.2%
% Sufficiency Ratio	0.3%	-4.7%	-3.0%	-1.0%	0.7%	-2.1%	3.4%	-0.7%	0.7%	1.4%	1.1%	3.0%	2.0%	0.0%	-1.0%	0.9%
NAND ASP (\$/1GB)	0.04	0.05	0.06	0.07	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04
% QoQ		23.0%	15.0%	5.0%	-4.0%		-17.0%	3.0%	-3.0%	-7.0%		-15.0%	-10.0%	0.0%	5.0%	
% YoY	-44.9%	26.8%	59.4%	70.8%	42.6%	-49.1%	-3.8%	-13.8%	-20.4%	-22.9%	-15.9%	-21.0%	-31.0%	-28.9%	-19.7%	-25.2%

Source: Company data, UBS estimates

Figure 45: NAND Flash vendors market share in bit shipments

	2023	Q124	Q224	Q324	Q424	2024	Q125	Q225E	Q325E	Q425E	2025E	Q126E	Q226E	Q326E	Q426E	2026E
Samsung	33.5%	36.4%	34.6%	32.6%	31.8%	33.8%	30.2%	31.1%	31.6%	31.0%	31.0%	29.3%	29.6%	30.1%	30.4%	29.9%
Kioxia	15.4%	14.6%	16.4%	17.9%	17.2%	16.5%	17.2%	16.2%	16.4%	15.8%	16.4%	16.6%	16.5%	15.9%	15.3%	16.0%
SanDisk	13.3%	11.3%	10.3%	11.6%	13.0%	11.6%	12.9%	12.0%	11.6%	12.0%	12.1%	12.5%	12.1%	11.7%	11.3%	11.9%
SK Hynix	19.6%	18.4%	17.8%	15.0%	14.4%	16.4%	12.7%	14.0%	15.4%	17.0%	14.9%	14.4%	14.7%	14.6%	15.3%	14.8%
Micron	11.9%	11.1%	12.1%	12.9%	12.6%	12.2%	13.8%	13.8%	11.8%	11.2%	12.5%	12.2%	12.2%	12.4%	12.2%	12.3%
YMTC	5.5%	7.4%	8.0%	9.1%	10.0%	8.6%	12.3%	12.1%	12.3%	12.1%	12.2%	14.1%	14.1%	14.5%	14.9%	14.4%
Total Bit Supply	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: Gartner, Company data, UBS estimates

Figure 46: NAND Flash bit shipments QoQ and YoY growth

	2023 YoY	Q124 QoQ	Q224 QoQ	Q324 QoQ	Q424 QoQ	2024 YoY	Q125 QoQ	Q225E QoQ	Q325E QoQ	Q425E QoQ	2025E YoY	Q126E QoQ	Q226E QoQ	Q326E QoQ	Q426E QoQ	2026E YoY
Samsung	19.3%	-1.0%	-5.0%	-5.0%	-3.5%	16.7%	-10.0%	15.0%	14.9%	2.0%	1.5%	-10.6%	8.2%	11.2%	5.0%	13.7%
Kioxia	9.2%	12.5%	12.5%	10.0%	-5.0%	23.8%	-5.0%	5.0%	15.0%	0.0%	9.9%	-1.0%	7.0%	5.0%	0.0%	15.6%
SanDisk	18.9%	-13.1%	-9.3%	14.2%	10.6%	0.4%	-6.0%	4.0%	9.0%	8.0%	15.8%	-2.0%	4.0%	6.0%	0.0%	15.8%
SK Hynix	19.1%	0.0%	-3.2%	-15.0%	-5.0%	-3.1%	-16.8%	23.3%	24.7%	14.8%	0.8%	-20.0%	9.1%	9.1%	8.5%	16.6%
Micron	27.2%	-2.5%	9.5%	7.0%	-3.1%	18.4%	3.5%	12.0%	-3.0%	-2.0%	14.0%	3.0%	8.0%	11.0%	2.0%	15.6%
YMTC	1.9%	49.1%	8.2%	13.9%	9.3%	81.1%	15.7%	10.6%	14.5%	2.7%	56.3%	10.0%	7.5%	11.6%	7.1%	39.6%
Total Bit Supply	17.2%	1.7%	0.1%	0.7%	-1.1%	15.4%	-5.2%	11.8%	13.0%	3.9%	10.7%	-5.5%	7.4%	9.2%	4.0%	18.0%

Source: Gartner, Company data, UBS estimates

Figure 47: NAND Flash vendors wafers out (k wpm, 12 inch equivalent)

	2023	Q124	Q224	Q324	Q424	2024	Q125	Q225E	Q325E	Q425E	2025E	Q126E	Q226E	Q326E	Q426E	2026E
Samsung	525	362	425	445	475	427	471	449	423	398	435	409	423	416	409	414
Kioxia / SanDisk	442	400	400	430	450	420	470	400	400	441	428	480	470	460	450	465
SK Hynix	205	166	182	220	242	202	218	189	185	181	193	176	170	174	189	177
Micron	125	129	140	137	135	135	132	111	111	117	118	130	130	130	130	130
YMTC	91	90	110	115	125	110	130	140	150	160	145	160	170	180	190	175
Total	1,388	1,147	1,257	1,347	1,427	1,294	1,421	1,288	1,268	1,297	1,318	1,355	1,363	1,360	1,368	1,361
% YoY	-20.1%	-32.0%	-14.3%	5.0%	27.7%	-6.8%	23.9%	2.5%	-5.8%	-9.1%	1.9%	-4.6%	5.8%	7.2%	5.4%	3.2%

Source: Gartner, Company data, UBS estimates

Figure 48: NAND Flash bit demand growth by application

	2023 YoY	Q124 QoQ	Q224 QoQ	Q324 QoQ	Q424 QoQ	2024 YoY	Q125 QoQ	Q225E QoQ	Q325E QoQ	Q425E QoQ	2025E YoY	Q126E QoQ	Q226E QoQ	Q326E QoQ	Q426E QoQ	2026E YoY
Total Embedded	22.3%	-7.3%	1.5%	8.1%	4.0%	16.1%	-4.4%	2.7%	8.7%	11.0%	12.4%	-6.7%	2.6%	6.7%	8.8%	13.7%
Smartphones	18.4%	-14.6%	-7.2%	20.6%	15.4%	14.0%	-11.6%	-10.1%	13.4%	17.0%	8.2%	-12.6%	-6.9%	11.8%	17.1%	6.3%
iPhones	27.7%	-30.1%	-13.2%	31.0%	47.7%	18.4%	-29.0%	-16.4%	17.2%	48.1%	8.7%	-30.8%	-12.8%	22.1%	49.6%	6.6%
Samsung	-3.0%	35.0%	-18.3%	15.0%	-17.7%	10.3%	42.2%	-15.0%	5.1%	-10.0%	10.4%	32.6%	-11.0%	2.2%	-9.0%	8.9%
Non- iPhone/Samsung	21.7%	-13.0%	5.3%	14.4%	-1.2%	11.1%	-6.4%	-0.5%	13.8%	-0.5%	6.6%	-5.1%	1.6%	7.5%	-3.3%	4.6%
Tablet PCs	9.2%	-16.4%	25.0%	3.7%	5.2%	23.7%	-17.6%	22.9%	-4.0%	14.2%	8.9%	-25.3%	22.4%	-2.5%	13.9%	1.1%
SSD-Total	25.8%	-3.2%	3.2%	4.8%	-1.1%	18.1%	0.4%	6.7%	9.0%	8.9%	15.6%	-2.4%	5.1%	6.3%	5.7%	19.6%
SSD (notebooks)	12.0%	-14.1%	7.6%	13.0%	0.3%	11.3%	-7.4%	5.5%	10.8%	6.5%	11.9%	-7.2%	2.2%	7.5%	2.1%	9.6%
SSD (servers)	5.4%	17.6%	-1.3%	2.7%	-9.7%	29.9%	16.6%	8.3%	7.8%	9.3%	23.4%	-1.0%	7.4%	7.8%	7.9%	25.1%
SSD (storage)	72.8%	0.3%	4.5%	4.3%	5.0%	37.9%	-8.2%	7.5%	11.3%	14.4%	13.9%	5.3%	4.7%	4.6%	4.5%	33.2%
SSD (others)	48.4%	-14.5%	4.5%	0.8%	3.9%	3.9%	-3.5%	5.4%	7.6%	7.0%	10.9%	-5.0%	4.7%	4.6%	6.7%	12.9%
Total Flash cards	-4.5%	-19.7%	-0.7%	8.6%	-7.4%	-11.7%	-21.4%	-4.1%	3.4%	-16.6%	-27.2%	-14.9%	-3.6%	3.3%	-12.2%	-28.5%
Mobile Phones - Flash cards	-42.2%	-10.4%	-1.3%	4.4%	3.8%	-1.7%	-6.0%	-1.4%	10.2%	-2.7%	1.6%	-1.6%	-1.1%	8.4%	-5.2%	2.8%
Total Bit Demand	21.2%	-7.6%	1.4%	8.1%	3.8%	15.3%	-4.8%	2.6%	8.6%	10.5%	11.5%	-6.8%	2.6%	6.6%	8.6%	13.1%

Source: Gartner, Company data, UBS estimates

Figure 49: NAND Flash content assumptions (GB/unit) by application

	2023	Q124	Q224	Q324	Q424	2024	Q125	Q225E	Q325E	Q425E	2025E	Q126E	Q226E	Q326E	Q426E	2026E
Smartphones - Blended	168	173	170	195	206	187	197	187	193	217	199	207	200	203	232	211
% YoY	26%	12%	12%	12%	9%	11%	13%	10%	-1%	5%	7%	5%	7%	5%	7%	6%
iPhones	378	438	445	493	497	461	517	512	507	507	498	512	527	545	561	527
Samsung	176	206	187	201	184	195	225	216	218	209	217	250	248	231	226	239
Non- iPhone/Samsung	123	122	122	127	127	125	127	127	132	137	131	137	137	137	137	137
SSD - Notebook PCs	597	630	621	660	679	648	689	694	713	739	710	743	751	764	783	761
% YoY	23%	14%	9%	7%	6%	9%	9%	12%	8%	9%	10%	8%	8%	7%	6%	7%
SSD- Servers	2,752	3,072	3,121	3,170	3,219	3,143	3,267	3,365	3,463	3,658	3,445	3,697	3,775	3,853	3,931	3,820
% YoY	19%	24%	18%	12%	6%	14%	6%	8%	9%	14%	10%	13%	12%	11%	7%	11%
SSD- Storage	7,759	8,755	8,779	8,804	8,901	8,812	9,194	9,487	9,780	10,073	9,661	10,269	10,415	10,562	10,708	10,494
% YoY	38%	32%	20%	10%	2%	14%	5%	8%	11%	13%	10%	12%	10%	8%	6%	9%

Source: Gartner, Company data, UBS estimates

Figure 50: UBS Global Memory / Semicap valuation comparisons

		Current	Price	EV/Sales			EV/EBITDA			PE			PBV		
Company name	Rating	Price	Target	'25E	'26E	'27E	'25E	'26E	'27E	'25E	'26E	'27E	'25E	'26E	'27E
Memory															
Micron Technology	Buy	US\$76.88	US\$92	2.5	2.1	1.9	5.1	4.1	3.4	10.5	8.1	6.1	1.64	1.42	1.21
Nanya Tech	Buy	NT\$36	NT\$50	1.3	1.2	0.7	5.6	2.5	1.1	NM	9.2	3.3	0.68	0.63	0.54
Samsung Electronics	Buy	Won55,500	Won65000	0.8	0.8	0.7	3.5	3.7	2.4	10.9	12.2	6.3	0.92	0.88	0.79
SK Hynix	Buy	Won177,500	Won262000	1.6	1.4	1.1	2.8	2.6	1.8	4.4	4.6	2.8	1.30	1.07	0.82
Average				1.6	1.4	1.1	4.3	3.2	2.2	8.6	8.5	4.6	1.14	1.00	0.84
Semicap Equipment															
AccoTEST	Neutral	Rmb145.18	Rmb105	16.1	13.2	10.5	40.6	33.3	26.7	45.2	37.8	31.8	5.14	4.69	4.25
Advantest	Neutral	¥5,863	¥6400	5.0	4.4	4.0	13.0	11.4	10.2	19.9	17.5	16.4	6.98	5.22	4.17
AMEC	Buy	Rmb188.26	Rmb238	8.7	6.6	5.3	42.1	27.8	19.4	51.5	33.2	23.6	5.37	4.69	4.01
Applied Materials	Neutral (CBE)	US\$149.55	US\$175	4.3	4.1	3.8	13.7	13.2	12.0	15.9	15.4	13.8	6.21	5.72	5.13
ASMP	Buy	HK\$52.20	HK\$77	1.3	1.1	1.0	10.0	6.1	5.0	32.0	15.0	11.7	1.38	1.30	1.23
ASMI	Neutral	€425.50	€610	5.3	4.1	3.6	14.9	11.0	9.3	25.0	18.5	15.6	4.87	4.09	3.45
ASML	Neutral	€589.80	€610	7.1	7.2	6.1	20.4	21.7	16.7	26.0	27.4	20.7	11.60	10.87	9.75
BE Semiconductor	Buy	€96.84	€126.9	11.6	8.7	6.6	30.8	20.1	14.0	44.5	26.6	18.1	18.60	15.65	12.90
Disco	Neutral	¥27,620	¥38600	6.6	6.1	5.7	14.4	12.7	11.8	23.5	21.0	19.9	5.46	4.87	4.35
Eugene Technology	Neutral	Won34,000	Won47000	1.7	1.4	1.3	8.3	6.9	6.3	13.5	12.3	12.4	1.69	1.51	1.37
KLA Corporation	Neutral	US\$687.95	US\$690	7.7	7.8	7.5	17.4	17.6	16.4	21.8	22.6	20.6	22.81	21.79	19.36
LAM Research	Buy	US\$70.90	US\$95	4.9	4.6	3.9	14.5	13.4	11.2	17.6	16.2	13.1	9.27	8.88	8.28
Lasertec	Neutral	¥13,290	¥14000	4.6	4.2	3.4	10.5	9.5	7.8	17.2	15.5	12.6	4.93	4.08	3.38
NAURA Technology	Buy	Rmb450.96	Rmb545	6.0	4.7	3.9	24.3	17.8	14.1	31.7	23.7	19.4	5.50	4.59	3.85
SCREEN Holdings	Neutral	¥9,464	¥11800	1.1	0.9	0.8	4.7	3.9	3.5	9.7	8.9	8.8	1.84	1.64	1.47
Teradyne	Buy	US\$74.89	US\$110	3.9	3.0	2.6	16.0	11.0	8.9	20.5	14.0	11.3	4.09	3.80	3.54
Tokyo Electron	Neutral	¥21,225	¥28000	3.7	3.5	3.1	11.6	10.9	9.0	18.2	17.9	14.9	4.39	3.91	3.46
Wonik IPS	Neutral	Won22,700	Won27000	1.0	0.9	0.8	8.3	7.6	6.0	20.5	17.6	15.5	1.18	1.13	1.08
Average				5.5	4.7	4.0	17.7	14.3	11.6	25.3	20.0	16.5	6.81	6.09	5.33

Source: Company data, UBS estimates. Priced as of April 30, 2025

Valuation Method and Risk Statement

Investing in the technology sector involves a high degree of risk. Rapid technological changes, increasing competition and exposure to macroeconomic cycles are among the many risks faced by investors in technology stocks. Moreover, it is extremely difficult to project the financial results of tech companies since their operating models are highly volatile and unpredictable. Finally, valuing technology stocks can prove challenging, as neither traditional nor non-traditional valuation measures have provided much insight into how these stocks trade.

Samsung: Roughly 1/3 of Samsung's operating profit comes from mobile phones directly (and more indirectly for components) where we see revenue growth for the industry decelerating as the smartphone market starts to mature. The industry is characterized by product cycles, intense competition and requires significant scale and ongoing expenses for marketing/promotional activities. Some of its divisions (Memory and Display Panels) operate in industries which are cyclical and characterized by fluctuations in supply, demand and capital spending. Both industries have commodity-like features – although it is to be noted that the DRAM industry is now operating with significantly fewer players than before. Whilst overall cyclical risks have decreased longer term for DRAM (our "Goldilocks scenario"), cyclical corrections will likely occur. Consumer exposure overall at Samsung is universally high across products, although well balanced in terms of geographies. Strength in the Korean Won vs. major currencies can penalize earnings. Being a large component of the KOSPI, Samsung faces country risks as well indirectly. Corporate governance risks re the Samsung group center around some degree of opacity in decision-making, and limited consideration for shareholder returns (this may change). On the flipside, Samsung Electronics is the "crown jewel" of the group and its interests tend to supersede those of other Samsung companies. We value Samsung Electronics ordinary shares at 1.04x NTM P/BV on the back of a LT ROE average forecast of 8.9% and CoE of 8.5%. Our GDR price target comes from using a conversion ratio of 25 from Samsung Electronics common shares (005930.KS) and USD/KRW FX1434.

SK Hynix: Whilst overall cyclical risks have decreased longer term for DRAM (our "Goldilocks scenario"), amidst significant consolidation (3 players, from 15 in 1998) and lower growth, cyclical corrections will still occur as the sector retains commodity-like characteristics. The NAND flash industry structure has not changed as dramatically, but the coming rollout of 3D NAND flash manufacturing is restraining the players' willingness to add large increments of capacity at 2D. That being said, both segments are sensitive in particular to smartphones/tablets demand, mix within those segments, and to a lesser extent enterprise spend (enterprise solid state drives, servers). The industry also remains capital-intensive, and with contract prices negotiated every 2 weeks to 3 months, cash flows can change quickly – so adequate capitalization is required. Lastly, the industry may have to move to new memory technologies longer term to supplement, if not replace, current silicon-based Flash and RAM memory structures. We value SK Hynix with a target price-to-book multiple based on long-term average ROE vs. cost of equities.

Micron: Memory industry is highly volatile. To arrive at our PT we use a valuation method solely based on P/TBV. Memory has been fairly correlated to global GDP. Therefore from a macro perspective there could be potential downside to our PT should economic conditions worsen and leading to demand destruction. Should ASP declines be more severe than our expectations, there could be more downside in the stock. Scaling both DRAM and NAND is highly complex and risks on the Technology front abound. There could be further downside should technology migration be slower than we expect. On the upside, while we expect ASPs to decline on account of incremental supply addition, any delays to the timelines could moderate the growth of supply and create an upward bias to ASPs and MU. Other risks include a faster than expected adoption of AI driving up memory content in servers and cars.

Nanya Tech: We have a Buy rating and NT\$50 price target based on 1.0x 2025 P/B (vs. its 1-2x P/B range). Our target multiple is below its recent peak of 1.8x as we see the upcycle re-rating catalyst is partially offset by China competition concern. Downside risks: slower than expected memory pricing recovery, aggressive China expansion.

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12-Month Rating	Definition	Coverage ¹	IB Services ²
Buy	FSR is > 6% above the MRA.	52%	24%
Neutral	FSR is between -6% and 6% of the MRA.	40%	20%
Sell	FSR is > 6% below the MRA.	8%	22%
Short-Term Rating	Definition	Coverage ³	IB Services ⁴
Buy	Stock price expected to rise within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%
Sell	Stock price expected to fall within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%

Source: UBS. Rating allocations are as of 31 March 2025.

1:Percentage of companies under coverage globally within the 12-month rating category.

2:Percentage of companies within the 12-month rating category for which investment banking (IB) services were provided within the past 12 months.

3:Percentage of companies under coverage globally within the Short-Term rating category.

4:Percentage of companies within the Short-Term rating category for which investment banking (IB) services were provided within the past 12 months.

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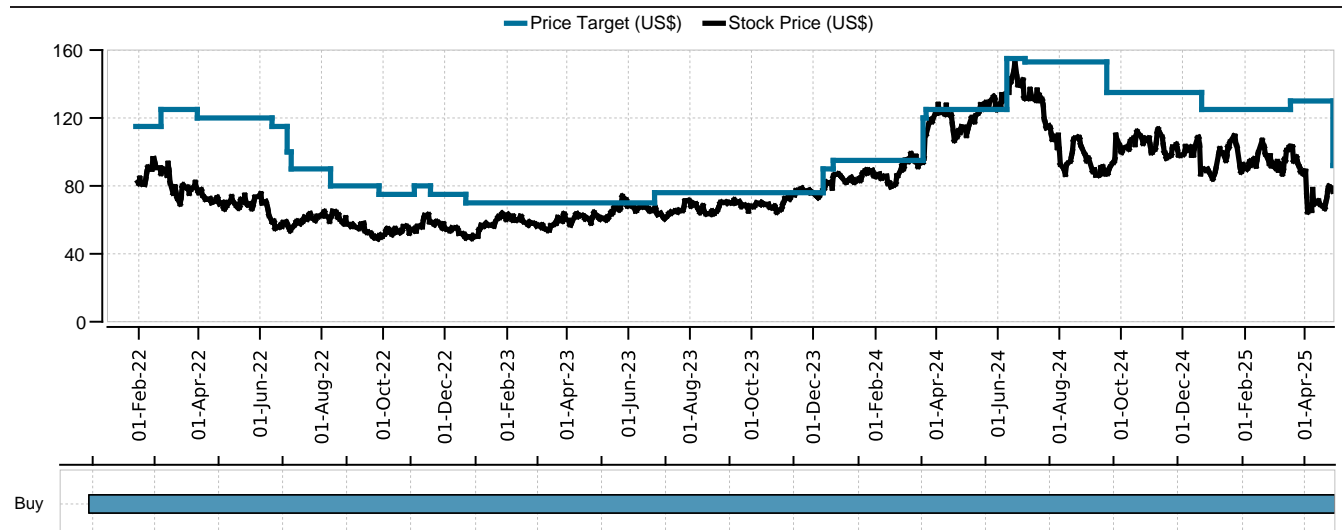
Company Name	Reuters	12-month rating	Price	Price date
Micron Technology Inc ^{16,28}	MU.O	Buy	US\$76.95	30 Apr 2025
Nanya Technology	2408.TW	Buy	NT\$36.00	30 Apr 2025
SK Hynix ^{28,8}	000660.KS	Buy	Won177,500	30 Apr 2025
Samsung Electronics ^{28,8}	005930.KS	Buy	Won55,500	30 Apr 2025

Source: UBS Global Research; LSEG Eikon. All prices as of local market close. Ratings in this table are the most current published ratings prior to this report. They may be more recent than the stock pricing date.

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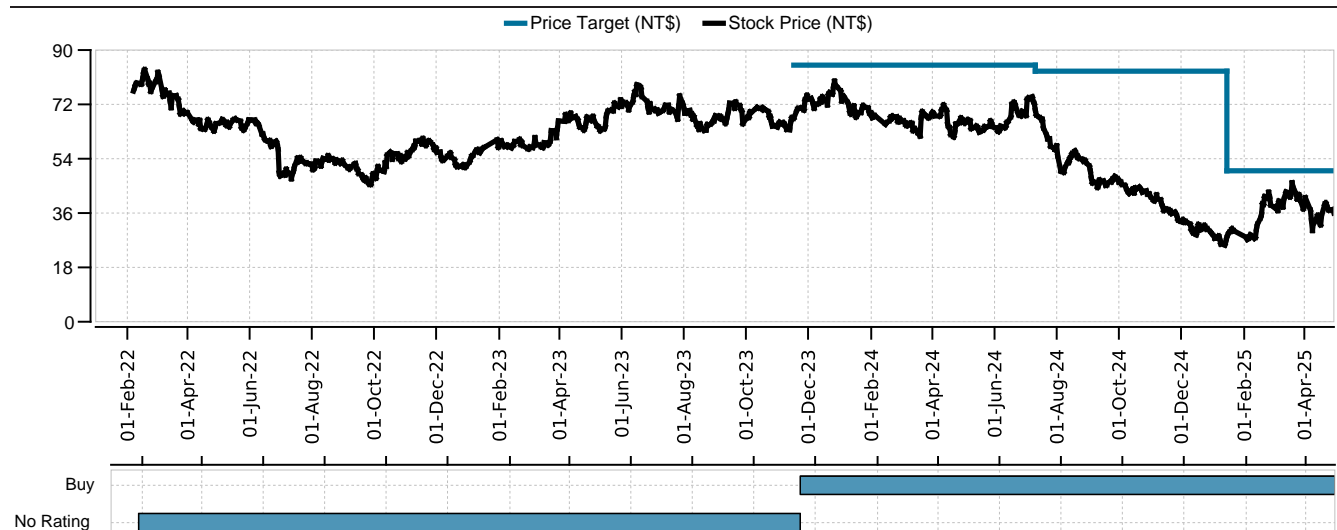
Micron Technology Inc (US\$)



Date	Stock Price (US\$)	Price Target (US\$)	Rating
2022-01-28	79.27	115.00	Buy
2022-02-22	90.57	125.00	Buy
2022-03-30	79.16	120.00	Buy
2022-06-12	62.62	115.00	Buy
2022-06-27	58.78	100.00	Buy
2022-07-01	53.65	90.00	Buy
2022-08-09	59.15	80.00	Buy
2022-09-26	48.88	75.00	Buy
2022-10-31	54.10	80.00	Buy
2022-11-16	58.87	75.00	Buy
2022-12-21	51.19	70.00	Buy
2023-06-26	65.45	76.00	Buy
2023-12-10	74.96	90.00	Buy
2023-12-20	78.69	95.00	Buy
2024-03-18	93.78	120.00	Buy
2024-03-21	109.85	125.00	Buy
2024-06-09	130.94	155.00	Buy
2024-06-27	132.23	153.00	Buy
2024-09-16	87.18	135.00	Buy
2024-12-19	87.09	125.00	Buy
2025-03-17	103.11	130.00	Buy
2025-04-28	78.56	92.00	Buy

Source: UBS Global Research; LSEG Eikon as of 30-Apr-2025. All prices as of local market close. Ratings as of date shown.

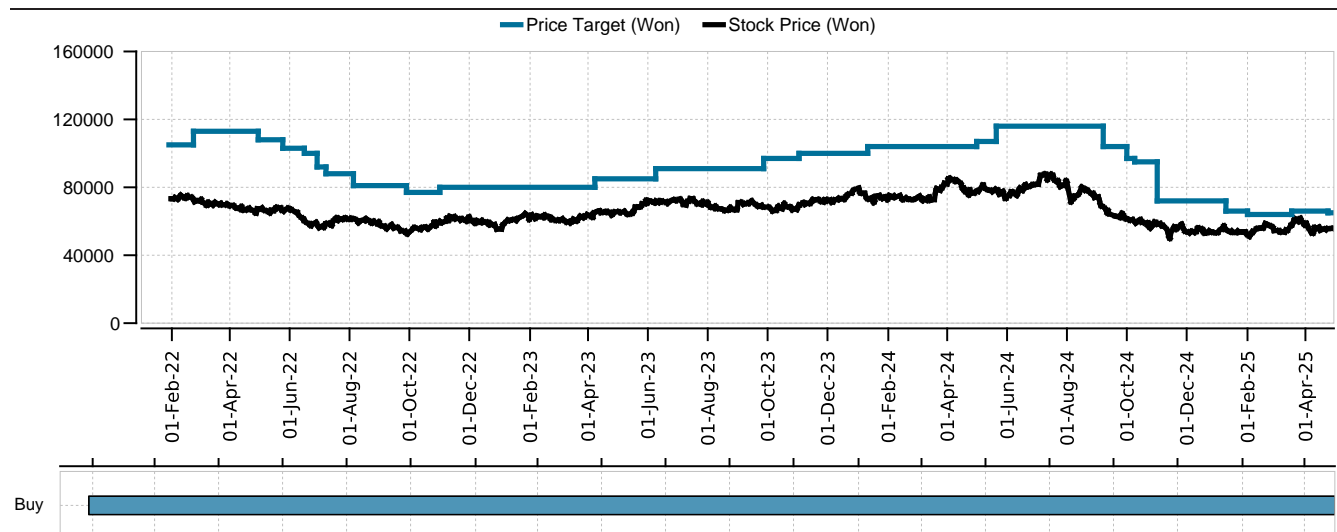
Nanya Technology (NT\$)



Date	Stock Price (NT\$)	Price Target (NT\$)	Rating
2022-01-28	NaN	-	No Rating
2023-11-16	67.20	85.00	Buy
2024-07-10	72.30	83.00	Buy
2025-01-14	26.65	50.00	Buy

Source: UBS Global Research; LSEG Eikon as of 30-Apr-2025. All prices as of local market close. Ratings as of date shown.

Samsung Electronics (Won)

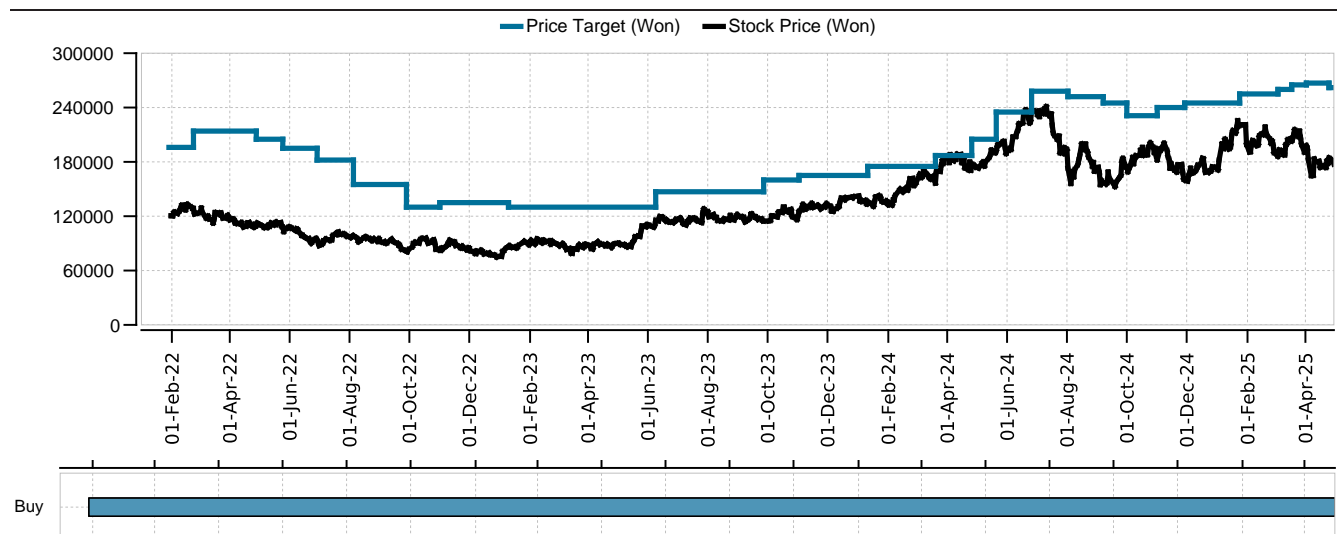


Date	Stock Price (Won)	Price Target (Won)	Rating
2022-01-28	73300	105000	Buy
2022-02-22	73400	113000	Buy
2022-04-29	67400	108000	Buy
2022-05-24	66500	103000	Buy
2022-06-15	60700	100000	Buy
2022-06-28	59400	92000	Buy
2022-07-07	58200	88000	Buy
2022-08-04	61500	81000	Buy
2022-09-27	54200	77000	Buy
2022-10-31	59400	80000	Buy
2023-04-07	65000	85000	Buy
2023-06-08	70900	91000	Buy

Date	Stock Price (Won)	Price Target (Won)	Rating
2023-09-26	68600	97000	Buy
2023-11-01	68600	100000	Buy
2024-01-10	73600	104000	Buy
2024-04-30	77500	107000	Buy
2024-05-20	78900	116000	Buy
2024-09-06	68900	104000	Buy
2024-09-30	61500	97000	Buy
2024-10-08	60300	95000	Buy
2024-10-31	59200	72000	Buy
2025-01-09	56100	66000	Buy
2025-01-31	52400	64000	Buy
2025-03-17	57600	66000	Buy
2025-04-23	55700	65000	Buy

Source: UBS Global Research; LSEG Eikon as of 30-Apr-2025. All prices as of local market close. Ratings as of date shown.

SK Hynix (Won)



Date	Stock Price (Won)	Price Target (Won)	Rating
2022-01-28	120500	196000	Buy
2022-02-22	128500	214000	Buy
2022-04-27	108500	205000	Buy
2022-05-24	108500	195000	Buy
2022-06-28	95300	182000	Buy
2022-08-04	97500	155000	Buy
2022-09-27	82000	130000	Buy
2022-10-31	82700	135000	Buy
2023-01-09	86000	130000	Buy
2023-06-08	109700	147000	Buy
2023-09-26	115000	160000	Buy
2023-11-01	120300	165000	Buy
2024-01-10	133500	175000	Buy
2024-03-19	160200	187000	Buy
2024-04-25	170600	205000	Buy
2024-05-20	190100	235000	Buy
2024-06-25	225000	258000	Buy
2024-08-01	193300	252000	Buy
2024-09-06	156400	245000	Buy
2024-09-30	174600	231000	Buy
2024-10-31	186300	240000	Buy
2024-11-28	161100	245000	Buy
2025-01-23	219500	255000	Buy

Date	Stock Price (Won)	Price Target (Won)	Rating
2025-03-03	190200	260000	Buy
2025-03-17	206000	265000	Buy
2025-04-01	197000	267000	Buy
2025-04-24	178300	262000	Buy

Source: UBS Global Research; LSEG Eikon as of 30-Apr-2025. All prices as of local market close. Ratings as of date shown.

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