

Global Memory Tech

Weekly theme: Samsung correction, strong indicator, CXMT IPO, Nanya Tech upturn

Industry Overview

Samsung share-price correction vs strong fundamentals

Many investors have asked why Samsung Electronics' share price corrected despite reporting (7 July) strong 2Q OP of W89.4tn. In our view, the bearish sentiment stemmed from following concerns: (1) Meta US – chip order cut; (2) CXMT China – large capacity; and (3) QoQ growth – no longer strong after 2Q peak. That said, we don't see any downturn signals – our weekly channel check still indicates strong memory chip demand (from US Big Tech), low impact of CXMT (no severe competition), and more favorable 3Q ASP (many new quarterly contracts already reveal 20%+ price hike, in our view). In fact, we have slightly raised 3Q DRAM ASP assumptions in our global memory industry model (new: +21% QoQ vs old +17%); see Exhibit 15 for our new forecast summary.

Super-cycle reconfirmed by BofA memory indicator

Our memory indicator, which is based on YoY changes in spot price, global billings, Korea exports, etc., remained at a record-high level, with May results at 183 – far above 2017/2024 peaks (120-130; mid-cycle: 100; downturn: 80). DRAM/NAND global billings grew more than 300% YoY in May, according to our analysis using WSTS's data. We also note solid June sales (Nanya Tech: +621% YoY; Phison +301% YoY), exports (Korea semis: +199%) and DRAM spot (+700%; even NAND shows +600% despite MoM drop). One of the most interesting point in Jun results was resumption of DRAM spot rally MoM (+11% on average vs -4%/+3% in Apr/May) but this is weaker than Korea's semis exports (+21% MoM) that include more high-end memory (HBM4, SOCAMM, etc.) vs May level.

CXMT's IPO share subscription date announced - 16 July

CXMT, China-based DRAM manufacturer, stated the firm's IPO share subscription date will be 16 July. Thus, actual listing can happen in late-July if the government regulations are properly followed. CXMT has disclosed its 2Q26 sales guidance (CNY59-69bn; ~US\$9.5bn). This is 7x YoY growth but still only high-single-digit% of global DRAM market share despite large wafer capacity (high-200k wpm or 300k, according to media reports; this accounts for mid-teen% of global total DRAM capacity). We still assume high-end DRAM (10Ghz+ LPDDR5, HBM, SOCAMM, GDDR7, etc.) will be supplied mostly by ex-China memory chipmakers due to quality and US's strict control (on China semis).

Nanya Tech's legacy DRAM more profitable vs HBM

Nanya Tech reported very strong 2Q results (sales up 684% YoY; OP margin 74% vs large loss or -43% a year ago). The key contributor was DRAM ASP rise (up 60%+ QoQ; 500%+ YoY). Management's guidance was also bullish for 3Q and even for the long term (shortage of legacy DRAM such as DDR3 & 4 continues, low impact of China memory players' capacity expansion, etc). We also learned that Nanya Tech's DRAM business is more profitable than HBM. Since 2Q results were broadly in line with our already bullish forecasts, our EPS estimate changes (2026-28) are almost nil and, as such, PO (NT\$660; 9x 2027-28E P/E) is unchanged; maintain Buy on solid earnings and low multiples.

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Exhibit 1: Global memory outlook -
supercycle likely to continue through
2027 despite 2026 quadrupling

BofA global memory forecasts

YoY	24	25	26E	27E
DRAM sales	86%	52%	325%	45%
NAND sales	84%	4%	299%	30%
DRAM ASP	62%	29%	249%	25%
NAND ASP	65%	-8%	238%	9%
DRAM bit	15%	18%	22%	17%
NAND bit	11%	13%	18%	20%
DRAM capex	49%	43%	65%	27%
NAND capex	4%	-5%	55%	18%
DRAM capa	7%	8%	11%	9%
NAND capa	-2%	-7%	5%	4%

Source: BofA Global Research estimates

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Exhibit 2: DDR5 and DDR4 price up in
Jun/early-Jul, while NAND prices softened

Spot-market prices among DRAM and NAND

US\$	Current	WoW	QoQ	YoY
DRAM spot				
16Gb DDR5	47.8	2%	29%	688%
16Gb DDR4	77.6	2%	9%	825%
8Gb DDR4	37.8	3%	13%	661%
NAND spot				
1Tb wafer	24.2	-1%	-9%	377%
512Gb wafer	19.3	-3%	-11%	621%
256Gb wafer	10.2	0%	-7%	578%

Source: DRAMeXchange

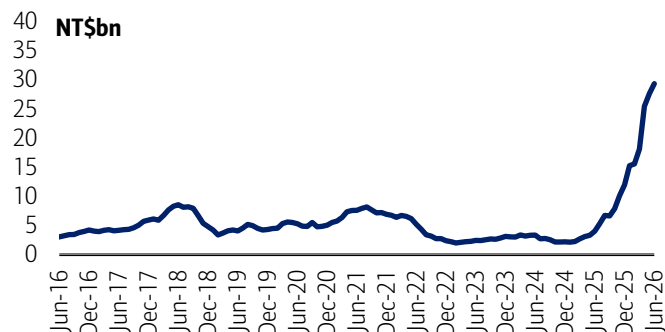
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See glossary at the end of this report

ASP-driven memory super-cycle to continue

Exhibit 3: New record-high in Jun (NT\$29.4bn; +6% MoM); more than 5x higher than 2025-avg (NT\$5.5bn)

Nanya Tech – Monthly sales (Jun 2026)

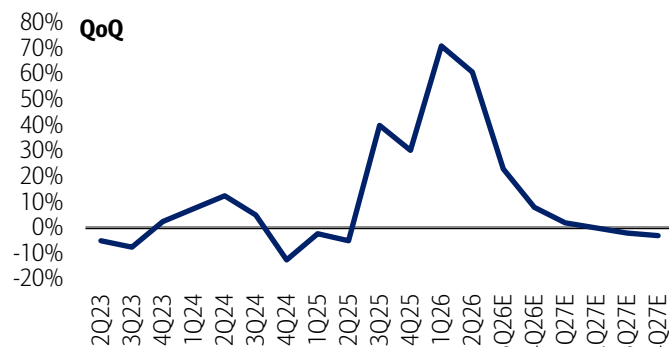


Source: Company

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Exhibit 5: Exceptionally strong ASP hike in 2Q (up >60% QoQ) even after robust 1Q (up >70%); we assume decelerating growth in 2H, but still strong at 23%/8% in 3Q/4Q, respectively; no downturn in 2027 – just softening ASP QoQ (still super-cycle)

Nanya Tech DRAM ASP trend – quarterly; 8Gb equiv.

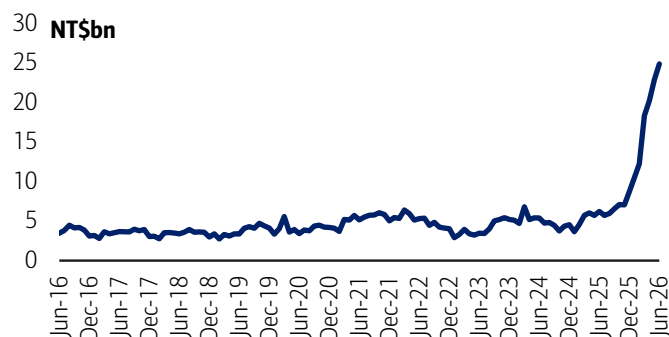


Source: Company, BofA Global Research estimates

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Exhibit 7: Also at all-time high in Jun (NT\$24.9bn; +9% MoM); more than 4x higher than 2025-avg (NT\$6.1bn)

Phison Electronics – Monthly sales (Jun 2026)

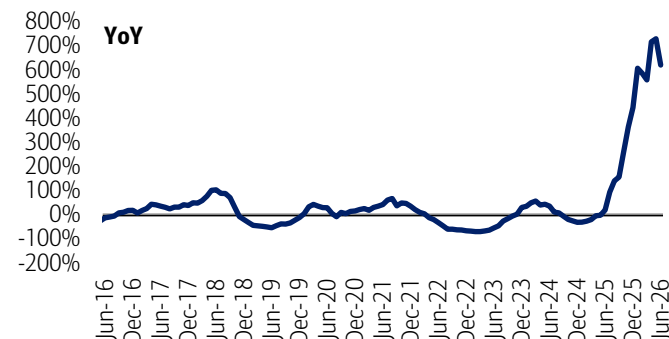


Source: Company

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Exhibit 4: Robust YoY growth continued in Jun (+621%); already 11 consecutive months of triple-digit rebound

Nanya Tech – YoY monthly sales (Jun 2026)

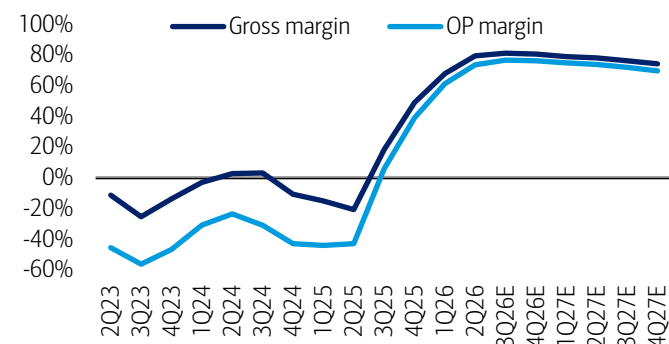


Source: Company

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Exhibit 6: We expect robust margins to continue in 2H26-27 (GM/OPM 70%+); record-high margins well-proved in 2Q (GM 79%, OPM 74%)

Nanya Tech – Gross and OP margin trend

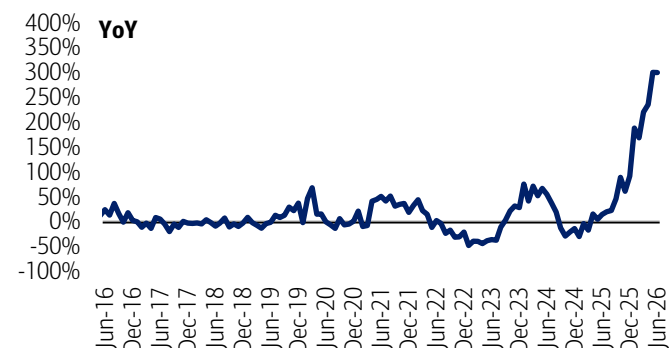


Source: Company, BofA Global Research estimates

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Exhibit 8: Strong YoY growth continued in Jun (+621%); already six consecutive months of triple-digit rebound

Phison Electronics – YoY monthly sales (Jun 2026)



Source: Company

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Exhibit 9: Given 2Q results were broadly in-line with our already bullish forecasts, our EPS estimate changes (2026-28) are almost nil and consequently PO (NT\$660; 9x 2027-28E P/E) is unchanged; reiterate Buy on strong earnings and low multiples

Nanya Tech – Earnings revisions (2026-28E)

(NT\$bn, NT\$)	1Q26	2Q26	3Q26E	4Q26E	1Q27E	2Q27E	3Q27E	4Q27E	2022	2023	2024	2025	2026E	2027E	2028E
EPS (FD)															
New	8.3	14.6	18.7	20.2	20.8	21.3	21.9	20.7	4.7	-2.4	-1.6	2.1	62.6	84.6	68.3
Old	8.3	14.7	19.0	20.5	20.9	21.3	21.8	20.6	4.7	-2.4	-1.6	2.1	62.6	84.7	68.0
Diff	n/a	-1%	-2%	-1%	-1%	0%	0%	0%	n/a	n/a	n/a	n/a	0%	0%	0%
Dividend/share															
New	0.0	1.4	0.0	0.0	0.0	20.0	0.0	0.0	2.1	0.0	0.0	1.4	20.0	25.0	25.0
Old	0.0	1.4	0.0	0.0	0.0	20.0	0.0	0.0	2.1	0.0	0.0	1.4	20.0	25.0	25.0
Difference	n/a	nm	nm	nm	nm	nm	nm	nm	n/a	n/a	n/a	n/a	0%	0%	0%
Sales total															
New	49.1	82.5	110.7	120.5	126.2	130.9	138.1	134.8	57.0	29.9	34.1	66.6	362.9	530.0	519.2
Old	49.1	82.2	102.6	111.6	116.8	121.1	127.8	124.8	57.0	29.9	34.1	66.6	345.5	490.5	480.5
Diff	n/a	0%	8%	8%	8%	8%	8%	8%	n/a	n/a	n/a	n/a	5%	8%	8%
OP margin															
New	61.3%	73.7%	76.7%	76.2%	74.9%	73.8%	72.0%	69.7%	19.3%	-48.4%	-30.9%	7.9%	73.8%	72.5%	59.8%
Old	61.3%	72.5%	75.6%	75.1%	73.2%	71.8%	69.8%	67.3%	19.3%	-48.4%	-30.9%	7.9%	72.7%	70.5%	57.8%
Diff	n/a	1.1%	1.1%	1.1%	1.7%	2.0%	2.2%	2.3%	n/a	n/a	n/a	n/a	1.1%	2.1%	2.0%
EBITDA															
New	33.0	63.8	87.8	94.9	97.5	99.8	102.7	97.4	26.2	0.9	5.6	19.5	279.5	397.4	326.3
Old	33.0	62.6	80.5	86.8	88.5	90.2	92.5	87.5	26.2	0.9	5.6	19.5	262.9	358.7	293.5
Diff	n/a	2%	9%	9%	10%	11%	11%	11%	n/a	n/a	n/a	n/a	6%	11%	11%
Capex															
New	2.8	4.0	15.0	28.1	18.0	16.0	17.0	19.0	20.7	13.2	16.1	13.4	50.0	70.0	70.0
Old	2.8	10.0	15.0	27.2	18.0	16.0	17.0	19.0	20.7	13.2	16.1	13.4	55.0	70.0	70.0
Diff	n/a	-60%	0%	4%	0%	0%	0%	0%	n/a	n/a	n/a	n/a	-9%	0%	0%
DRAM sales (US\$m)															
New	1,551	2,612	3,325	3,645	3,840	4,002	4,248	4,160	1,935	958	1,062	2,156	11,133	16,249	16,082
Old	1,551	2,411	3,060	3,356	3,537	3,687	3,915	3,833	1,935	958	1,062	2,156	10,378	14,972	14,820
Diff	n/a	8%	9%	9%	9%	9%	9%	9%	n/a	n/a	n/a	n/a	7%	9%	9%
Shipments (8Gb, mn)															
New	220	220	224	226	233	243	262	265	447	429	450	705	890	1,002	1,154
Old	220	212	216	219	225	234	253	255	447	429	450	705	867	967	1,114
Diff	n/a	4%	4%	4%	4%	4%	4%	4%	n/a	n/a	n/a	n/a	3%	4%	4%
ASP US\$/8b equiv															
New	7.90	12.70	15.62	16.87	17.21	17.21	16.86	16.36	4.49	2.52	2.86	3.54	13.31	16.89	14.50
Old	7.90	12.23	14.98	16.18	16.50	16.50	16.17	15.69	4.49	2.52	2.86	3.54	12.81	16.20	13.91
Diff	n/a	4%	4%	4%	4%	4%	4%	4%	n/a	n/a	n/a	n/a	4%	4%	4%
ASP chg (QoQ/YoY)															
New	71%	61%	23%	8%	2%	0%	-2%	-3%	-10%	-44%	13%	24%	276%	27%	-14%
Old	71%	55%	23%	8%	2%	0%	-2%	-3%	-10%	-44%	13%	24%	262%	26%	-14%
Diff	n/a	6%	1%	0%	0%	0%	0%	0%	n/a	n/a	n/a	n/a	14%	0%	0%
Cost US\$/8Gb equiv															
New	3.05	3.34	3.64	4.01	4.33	4.50	4.73	4.96	3.61	3.75	3.74	3.30	3.52	4.64	5.83
Old	3.05	3.36	3.66	4.03	4.43	4.65	4.88	5.13	3.61	3.75	3.74	3.30	3.53	4.79	5.88
Diff	n/a	-2%	-2%	-2%	-10%	-15%	-16%	-17%	n/a	n/a	n/a	n/a	-1%	-14%	-4%
Bit growth (QoQ/YoY)															
New	0%	0%	0%	0%	0%	0%	0%	0%	-27%	-4%	5%	57%	26%	13%	15%
Old	0%	0%	0%	0%	0%	0%	0%	0%	-27%	-4%	5%	57%	23%	12%	15%
Diff	n/a	0%	0%	0%	0%	0%	0%	0%	n/a	n/a	n/a	n/a	3%	1%	0%

Source: Company, BofA Global Research estimates

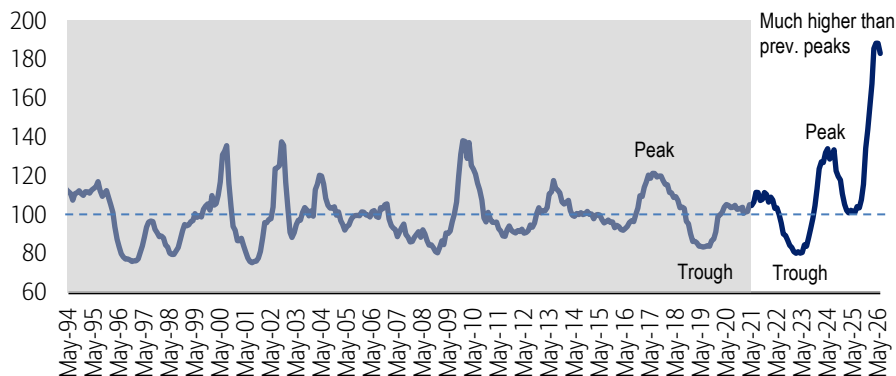
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BofA Memory Indicator

Exhibit 10: Our memory indicator still near all-time high level in May (183) vs 186/189/189 in Feb/Mar/Apr-26, driven by exceptionally strong DRAM/NAND spot pricing, rising ASPs and billings, along with Korea's 150%+ export growth.

BofA Memory Indicator – back to upturn level since Oct-2025 and hit highest peak in Mar/Apr-26 (back-tested)



Note: Our indicator had previously been capped at ~140, but the recent unprecedented surge—driven by memory spot prices, ASPs, and billings—has led us to raise the ceiling (up to 240 levels) to reflect a more accurate relative comparison. This exceptional strength is further validated by strong earnings from memory chipmakers.

Source: DRAMeXchange, WSTS, MoTIR Korea, BofA Global Research

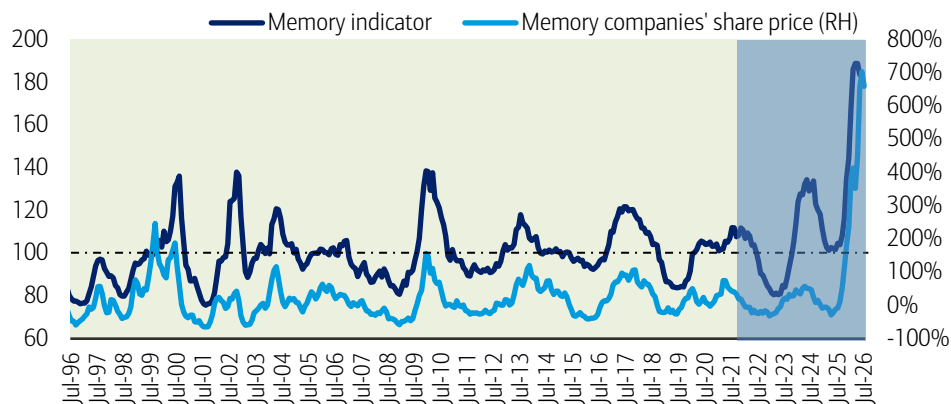
*The shaded area represents back-tested results from January 1991 to March 2021. The unshaded area represents actual performance since April 2021. This performance is back-tested up to March-2021, and does not represent the actual performance of any account or fund. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein.

Disclaimer: The BofA Memory Indicator is intended to be an indicative metric only and may not be used for reference purposes or as a measure of performance for any financial instrument or contract, or otherwise relied upon by third parties for any other purpose, without the prior written consent of BofA Global Research. This indicator was not created to act as a benchmark. For methodology, see the [5 Aug 2024 Global Memory Tech report](#).

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Exhibit 11: Mild setback in memory companies' stock prices in early-July, but still near record highs, supported by Samsung (strong 2Q prelim, optimism around HBM4 upside, and higher exposure to conventional DRAM), Micron (solid May-Q results and strong Aug-Q guidance), and Nanya Tech (record Jan-Jun monthly sales, up ~500–700% YoY).

BofA Memory Indicator is highly correlated with stock performance (back-tested)



Note: Memory companies share price is average of Samsung, Micron, and Nanya share price YoY changes

Source: Bloomberg, BofA Global Research

The light green shaded area represents back-tested results from January 1991 to March 2021. The blue shaded area represents actual data since April 2021. This performance is back-tested and does not represent the actual performance of any account or fund. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. For methodology, see the [5 Aug 2024 Global Memory Tech report](#).

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Exhibit 12: HBM, DDR5, and legacy DRAM drove a strong YoY rebound in May, with DRAM ASP/billings up +252%/+309% and NAND +331%/+377%; momentum carried into Jun with sharp YoY gains in spot pricing (DRAM +723%, NAND +647%) and Korea semiconductor exports rising near-3x

Seven components of BofA Memory Indicator – MoM and YoY trends (back-tested)

	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26
MoM													
DRAM spot price	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	Down	Up	Up
NAND spot price	Down	Down	Up	Up	Up	Up	Up	Up	Up	Up	Down	Down	Down
Korea semis exports	Up	Down	Up	Up	Down	Up	Up	Up	Up	Up	Down	Up	Up
DRAM ASP	Down	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	na
NAND ASP	Down	Up	Down	Down	Up	Up	Up	Up	Up	Up	Up	Up	na
DRAM billings	Up	Up	Up	Up	Down	Up	Up	Down	Up	Up	Down	Up	na
NAND billings	Up	Down	Up	Up	Down	Up	Up	Up	Up	Up	Down	Up	na
Avg of MoM trend	Up	Down	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	na
YoY													
DRAM spot price	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up
NAND spot price	Down	Down	Down	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up
Korea semis exports	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up
DRAM ASP	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	na
NAND ASP	Down	Down	Down	Down	Down	Up	Up	Up	Up	Up	Up	Up	na
DRAM billings	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	na
NAND billings	Down	Down	Down	Up	Up	Up	Up	Up	Up	Up	Up	Up	na
Avg of YoY trend	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	Up	na
Memory indicator	102	105	104	108	116	135	144	168	186	189	189	183	na

Source: DRAmEXchange, WSTS, MoTIE Korea, BofA Global Research estimates. This performance is back-tested and does not represent the actual performance of any account or fund. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein.

Notes: *May-26 results recovered in all aspects in terms of YoY growth, but softened in terms of MoM change for DRAM/NAND billings and NAND spot price due to high base level in Apr-26

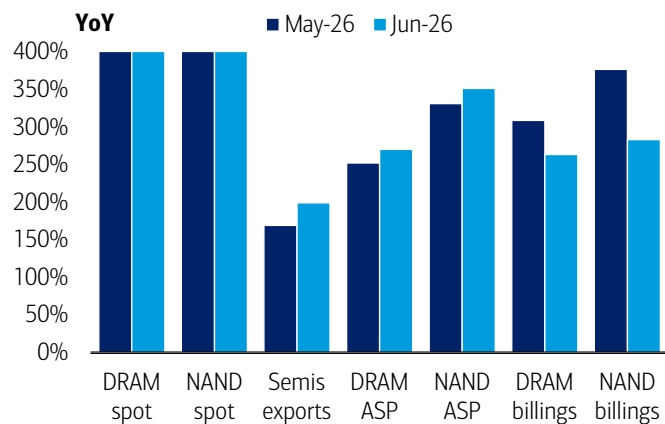
**For Jun-26, only spot prices and exports are reported so far

***DRAM spot price is based on weighted average MoM change of 16Gb DDR5, 16Gb DDR4 and 8Gb DDR4; NAND spot price is based on MoM change in 512Gb wafer spot price

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Exhibit 13: Exceptionally strong DRAM/NAND spot pricing persisted through May–Jun, with DRAM ASPs and billings also rising sharply in May, while semiconductor exports remained robust, reaching record highs in Jun

Seven components of BofA Memory Indicator – YoY



*All May data and Jun spot/exports are actual, but Jun billings are our estimates

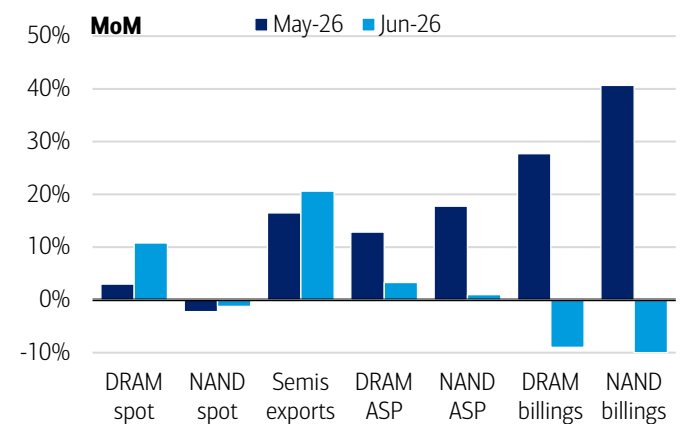
**DRAM spot up +839%/723% YoY and NAND spot up +646%/647% YoY in May/Jun

Source: DRAmEXchange, WSTS, MoTIR Korea, BofA Global Research estimates

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Exhibit 14: Solid price hike in DRAM spot seen in Jun vs NAND spot slightly down following a sharp rally in 4Q25/1Q26; semis exports rebounded strongly MoM in May-Jun, while DRAM/NAND ASP and billings remained elevated in May

Seven components of BofA Memory Indicator – MoM



*All May data and Jun spot/exports are actual, but Jun billings are our estimates

Source: DRAmEXchange, WSTS, MoTIR Korea, BofA Global Research estimates

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Global memory forecasts

Exhibit 15: We expect global DRAM revenue to nearly quadruple (+325% YoY) in 2026E, building on the strong growth trajectory of 86%/52% in 2024/25, primarily driven by a sharp ~3x rebound in ASPs (+249% YoY). NAND revenue is similarly forecast to increase nearly fourfold (+299% YoY) in 2026E, following modest low-single-digit growth in 2025, supported by a robust ~2.3x expansion in ASPs (+238% YoY).

Global memory forecast summary – top-down approach

	1Q26	2Q26E	3Q26E	4Q26E	1Q27E	2Q27E	3Q27E	4Q27E	2021	2022	2023	2024	2025	2026E	2027E	2028E
Revenue US\$bn																
DRAM	83.9	134.6	167.7	182.6	191.8	200.1	213.3	221.2	92.1	77.7	47.3	87.9	133.8	568.8	826.4	900.7
NAND	45.3	78.9	96.4	102.4	101.7	103.1	106.8	108.8	73.3	67.3	42.4	78.1	81.0	323.1	420.4	421.5
DRAM+NAND total	129.2	213.6	264.1	285.0	293.5	303.2	320.1	329.9	165.4	144.9	89.7	166.0	214.8	891.8	1,246.8	1,322.2
% QoQ																
DRAM	78%	60%	25%	9%	5%	4%	7%	4%								
NAND	71%	74%	22%	6%	-1%	1%	4%	2%								
DRAM/NAND total	75%	65%	24%	8%	3%	3%	6%	3%								
% YoY																
DRAM	258%	378%	378%	287%	129%	49%	27%	21%	41%	-16%	-39%	86%	52%	325%	45%	9%
NAND	196%	332%	360%	287%	125%	31%	11%	6%	25%	-8%	-37%	84%	4%	299%	30%	0%
DRAM/NAND total	234%	360%	371%	287%	127%	42%	21%	16%	34%	-12%	-38%	85%	29%	315%	40%	6%
Blended ASP US\$/unit																
DRAM 8Gb equiv	8.1	12.4	14.9	16.0	16.3	16.3	16.1	15.8	3.8	3.2	1.8	2.9	3.7	13.0	16.1	14.9
NAND 256Gb equiv	5.0	8.3	9.5	9.6	9.5	9.2	8.7	8.5	3.4	3.0	1.6	2.6	2.4	8.2	8.9	7.8
% QoQ																
DRAM ASP	73%	53%	21%	7%	2%	0%	-2%	-2%								
NAND ASP	75%	65%	15%	1%	-2%	-3%	-5%	-3%								
% YoY																
DRAM ASP	155%	283%	318%	242%	102%	32%	8%	-1%	14%	-16%	-45%	62%	29%	249%	25%	-8%
NAND ASP	115%	281%	313%	236%	89%	11%	-9%	-12%	-9%	-13%	-46%	65%	-8%	238%	9%	-13%
Shipments bn units																
DRAM 8Gb equiv	10.4	10.9	11.2	11.4	11.8	12.2	13.3	14.0	24.1	24.2	26.7	30.6	36.0	43.9	51.2	60.5
NAND 256Gb equiv	9.0	9.5	10.1	10.6	10.7	11.2	12.2	12.8	21.3	22.6	26.6	29.5	33.2	39.3	47.0	54.3
% QoQ																
DRAM bit growth	3%	5%	3%	2%	3%	4%	8%	5%								
NAND bit growth	-2%	5%	6%	5%	1%	5%	9%	5%								
% YoY																
DRAM bit growth	41%	25%	14%	13%	13%	12%	18%	22%	23%	0%	10%	15%	18%	22%	17%	18%
NAND bit growth	38%	13%	11%	15%	19%	18%	21%	21%	38%	6%	18%	11%	13%	18%	20%	16%
Capacity 300mm k wpm																
DRAM wafer capacity	1,988	2,036	2,091	2,150	2,182	2,224	2,264	2,299	1,481	1,561	1,628	1,734	1,867	2,066	2,242	2,379
NAND wafer capacity	1,695	1,722	1,736	1,750	1,767	1,784	1,801	1,834	1,681	1,783	1,820	1,781	1,651	1,726	1,797	1,878
DRAM+NAND total	3,683	3,758	3,827	3,900	3,949	4,008	4,065	4,133	3,162	3,344	3,447	3,515	3,517	3,792	4,039	4,256
% QoQ																
DRAM capacity total	3%	2%	3%	3%	1%	2%	2%	2%								
NAND capacity total	1%	2%	1%	1%	1%	1%	1%	2%								
DRAM/NAND total	2%	2%	2%	2%	1%	1%	1%	2%								
% YoY																
DRAM capacity	9%	11%	12%	11%	10%	9%	8%	7%	8%	5%	4%	7%	8%	11%	9%	6%
NAND capacity	2%	6%	6%	4%	4%	4%	4%	5%	1%	6%	2%	-2%	-7%	5%	4%	5%
DRAM+NAND total	5%	9%	9%	8%	7%	7%	6%	6%	4%	6%	3%	2%	0%	8%	7%	5%
Capex spending																
DRAM	23.0	22.2	21.3	22.2	26.0	27.1	29.4	30.5	27.1	31.0	25.2	37.7	53.9	88.6	112.9	119.5
NAND	6.9	7.2	7.5	8.4	9.2	8.8	8.5	8.8	27.9	29.0	19.7	20.4	19.3	30.1	35.4	37.2
Total (DRAM+NAND)	30.0	29.4	28.8	30.6	35.2	35.9	37.8	39.3	55.0	60.0	45.0	58.2	73.2	118.7	148.3	156.7
QoQ/YoY in capex																
DRAM	58%	-4%	-4%	4%	17%	4%	8%	4%	27%	14%	-19%	49%	43%	65%	27%	6%
NAND	28%	4%	4%	12%	9%	-4%	-4%	4%	24%	4%	-32%	4%	-5%	55%	18%	5%
Total (DRAM+NAND)	50%	-2%	-2%	6%	15%	2%	5%	4%	25%	9%	-25%	29%	26%	62%	25%	6%

Source: Companies' reports, BofA Global Research estimates

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Exhibit 16: We slightly raise our 2026–28 DRAM revenue forecasts by 2–3%, primarily reflecting higher ASP assumptions (at ~\$13/\$16/\$15 per 8Gb equivalent in 2026/27/28). NAND revenue estimates are also increased by 1-2% for 2026–28, driven by stronger ASP expectations (~\$8–9 per 256Gb equivalent) amid the recent pricing upcycle.

Global memory forecast revisions – top-down analysis

	1Q26	2Q26E	3Q26E	4Q26E	1Q27E	2Q27E	3Q27E	4Q27E	2021	2022	2023	2024	2025	2026E	2027E	2028E
DRAM (8Gb equiv)																
Sales (US\$bn)																
New	83.9	134.6	167.7	182.6	191.8	200.1	213.3	221.2	92.1	77.7	47.3	87.9	133.8	568.8	826.4	900.7
Old	83.9	134.6	162.1	176.6	185.5	193.5	206.3	213.9	92.1	77.7	47.3	87.9	133.8	557.2	799.1	870.9
Diff	nm	0.0%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	nm	nm	nm	nm	nm	2.1%	3.4%	3.4%
Shipments (bn units)																
New	10.4	10.9	11.2	11.4	11.8	12.2	13.3	14.0	24.1	24.2	26.7	30.6	36.0	43.9	51.2	60.5
Old	10.4	10.9	11.2	11.4	11.8	12.2	13.3	14.0	24.1	24.2	26.7	30.6	36.0	43.9	51.2	60.5
Diff	nm	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	nm	nm	nm	nm	nm	0.0%	0.0%	0.0%
Bit growth - sequential																
New	2.8%	5.0%	3.0%	1.8%	3.0%	4.1%	8.3%	5.3%	23.3%	0.3%	10.3%	14.8%	17.6%	21.9%	16.7%	18.1%
Old	2.8%	5.0%	3.0%	1.8%	3.0%	4.1%	8.3%	5.3%	23.3%	0.3%	10.3%	14.8%	17.6%	21.9%	16.7%	18.1%
Diff	nm	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	nm	nm	nm	nm	nm	0.0%	0.0%	0.0%
ASP chg - sequential																
New	73.2%	52.9%	20.9%	7.0%	2.0%	0.2%	-1.6%	-1.5%	14.2%	-16.0%	-44.8%	61.8%	29.4%	248.7%	24.5%	-7.7%
Old	73.2%	52.9%	16.9%	7.0%	2.0%	0.2%	-1.6%	-1.6%	14.2%	-16.0%	-44.8%	61.8%	29.4%	241.6%	22.9%	-7.7%
Diff	nm	0.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	nm	nm	nm	nm	nm	7.1%	1.6%	0.0%
Blended ASP (US\$)																
New	8.1	12.4	14.9	16.0	16.3	16.3	16.1	15.8	3.8	3.2	1.8	2.9	3.7	13.0	16.1	14.9
Old	8.1	12.4	14.4	15.5	15.8	15.8	15.6	15.3	3.8	3.2	1.8	2.9	3.7	12.7	15.6	14.4
Diff	nm	0.0%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	nm	nm	nm	nm	nm	2.1%	3.4%	3.4%
NAND (256Gb equiv)																
Sales (US\$bn)																
New	45.3	78.9	96.4	102.4	101.7	103.1	106.8	108.8	73.3	67.3	42.4	78.1	81.0	323.1	420.4	421.5
Old	45.3	78.9	94.7	100.6	99.9	101.3	104.9	106.9	73.3	67.3	42.4	78.1	81.0	319.6	413.0	414.1
Diff	nm	0.0%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	nm	nm	nm	nm	nm	1.1%	1.8%	1.8%
Shipments (bn units)																
New	9.0	9.5	10.1	10.6	10.7	11.2	12.2	12.8	21.3	22.6	26.6	29.5	33.2	39.3	47.0	54.3
Old	9.0	9.5	10.1	10.6	10.7	11.2	12.2	12.8	21.3	22.6	26.6	29.5	33.2	39.3	47.0	54.3
Diff	nm	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	nm	nm	nm	nm	nm	0.0%	0.0%	0.0%
Bit growth - sequential																
New	-2.2%	5.4%	6.2%	5.2%	0.9%	4.6%	9.0%	5.0%	37.8%	6.1%	17.6%	11.2%	12.5%	18.2%	19.7%	15.6%
Old	-2.2%	5.4%	6.2%	5.2%	0.9%	4.6%	9.0%	5.0%	37.8%	6.1%	17.6%	11.2%	12.5%	18.2%	19.7%	15.6%
Diff	nm	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	nm	nm	nm	nm	nm	0.0%	0.0%	0.0%
ASP chg - sequential																
New	74.7%	65.4%	15.0%	1.0%	-1.6%	-3.1%	-5.0%	-3.0%	-9.1%	-13.5%	-46.4%	65.5%	-7.8%	237.6%	8.7%	-13.3%
Old	74.7%	65.4%	13.0%	1.0%	-1.6%	-3.1%	-5.0%	-3.0%	-9.1%	-13.5%	-46.4%	65.5%	-7.8%	234.0%	7.9%	-13.3%
Diff	nm	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	nm	nm	nm	nm	nm	3.6%	0.7%	0.0%
Blended ASP (US\$)																
New	5.0	8.3	9.5	9.6	9.5	9.2	8.7	8.5	3.4	3.0	1.6	2.6	2.4	8.2	8.9	7.8
Old	5.0	8.3	9.4	9.5	9.3	9.0	8.6	8.3	3.4	3.0	1.6	2.6	2.4	8.1	8.8	7.6
Diff	nm	0.0%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	nm	nm	nm	nm	nm	1.1%	1.8%	1.8%

Source: BofA Global Research estimates, industry data. Chg = change. Equiv = equivalent

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Exhibit 17: Servers—especially AI systems using HBM—now make up over half of total DRAM demand, mainly due to higher memory per system

Global DRAM demand mix by application

(8Gb equiv, mn units)	1Q26	2Q26E	3Q26E	4Q26E	1Q27E	2Q27E	3Q27E	4Q27E	2022	2023	2024	2025E	2026E	2027E	2028E
Supply-to-demand															
Sufficiency (supply-to-demand)	64.1%	75.0%	88.0%	96.0%	101.0%	100.0%	101.0%	101.8%	108.5%	100.6%	94.3%	92.1%	79.3%	101.0%	101.8%
Supply	10,375	10,894	11,220	11,422	11,765	12,247	13,264	13,968	24,171	26,670	30,628	36,023	43,912	51,245	60,514
Demand	16,196	14,525	12,751	11,898	11,649	12,247	13,133	13,728	22,270	26,514	32,491	39,106	55,370	50,757	59,462
Wafer capacity (12" equiv k wpm)	1,988	2,036	2,091	2,150	2,182	2,224	2,264	2,299	1,561	1,628	1,734	1,867	2,066	2,242	2,379
Revenue (US\$bn)	83.9	134.6	167.7	182.6	191.8	200.1	213.3	221.2	77.7	47.3	87.9	133.8	568.8	826.4	900.7
ASP (US\$)	8.1	12.4	14.9	16.0	16.3	16.3	16.1	15.8	3.2	1.8	2.9	3.7	13.0	16.1	14.9
Demand by application (mn units)															
Server	5,468	5,583	6,094	6,585	6,452	6,646	7,599	7,596	9,731	9,022	13,217	18,459	23,730	28,293	34,504
PC	1,028	869	864	803	707	747	838	913	3,574	3,418	3,922	4,713	3,564	3,205	3,694
Smartphone	2,844	2,481	2,430	2,526	2,296	2,366	2,558	2,794	7,388	8,045	10,255	12,149	10,281	10,014	11,586
Tablet	233	194	183	196	184	188	187	221	846	786	929	1,052	805	781	908
TV - DRAM embedded	221	206	238	297	251	237	273	341	586	635	728	839	962	1,102	1,262
Game - DRAM embedded	125	114	136	206	135	124	156	221	454	459	499	535	581	636	680
Auto - DRAM embedded	105	113	125	132	135	145	161	170	168	219	288	370	475	611	785
Total demand	16,196	14,525	12,751	11,898	11,649	12,247	13,133	13,728	22,270	26,514	32,491	39,106	55,370	50,757	59,462
Demand mix (% to total bits)															
Server	34%	38%	48%	55%	55%	54%	58%	55%	44%	34%	41%	47%	43%	56%	58%
PC	6%	6%	7%	7%	6%	6%	6%	7%	16%	13%	12%	12%	6%	6%	6%
Smartphone	18%	17%	19%	21%	20%	19%	19%	20%	33%	30%	32%	31%	19%	20%	19%
Tablet	1%	1%	1%	2%	2%	2%	1%	2%	4%	3%	3%	3%	1%	2%	2%
TV - DRAM embedded	1%	1%	2%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Game - DRAM embedded	1%	1%	1%	2%	1%	1%	1%	2%	2%	2%	2%	1%	1%	1%	1%
Auto - DRAM embedded	0.6%	0.8%	1.0%	1.1%	1.2%	1.2%	1.2%	1.2%	0.8%	0.8%	0.9%	0.9%	0.9%	1.2%	1.3%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
DRAM content per product (GB)															
Server	1,148	1,159	1,182	1,194	1,206	1,230	1,267	1,293	655	736	914	1,066	1,172	1,251	1,383
PC	16.9	15.7	15.4	14.2	14.3	14.6	14.9	15.1	12.2	13.5	15.3	17.1	15.6	14.8	16.2
Smartphone	10.4	10.2	9.8	9.7	9.8	10.0	10.3	10.8	6.2	7.0	8.4	9.8	10.0	10.3	11.3
Tablet	6.8	6.4	6.2	6.3	6.4	6.4	6.6	7.0	5.2	5.7	6.3	7.0	6.5	6.6	7.3
TV - DRAM embedded	4.5	4.6	4.7	4.8	5.1	5.2	5.3	5.4	2.9	3.2	3.6	4.1	4.7	5.3	5.9
Game - DRAM embedded	13.1	13.3	13.5	13.6	13.9	14.2	14.3	14.4	10.6	11.2	11.9	12.6	13.4	14.2	15.1
Auto - DRAM embedded	5.2	5.5	5.8	5.9	6.3	6.7	6.9	7.1	2.4	3.0	3.9	4.7	5.6	6.8	8.1
DRAM-based products (mn units)															
Server	5	5	5	6	5	5	6	6	15	12	14	17	20	23	25
PC	61	55	56	57	49	51	56	61	294	253	256	275	228	217	228
Smartphone	275	244	247	259	233	236	247	260	1,198	1,152	1,218	1,237	1,025	976	1,028
Tablet	34	31	29	31	29	29	28	32	163	138	147	151	125	118	124
TV - DRAM embedded	49	45	50	61	50	46	51	63	203	199	201	203	206	209	213
Game - DRAM embedded	10	9	10	15	10	9	11	15	43	41	42	42	43	45	45
Auto - DRAM embedded	20	20	22	22	21	22	23	24	69	72	75	79	85	90	96
%QoQ in DRAM-based products															
Server	0%	1%	7%	7%	-3%	1%	11%	-2%	10%	-17%	18%	20%	17%	12%	10%
PC	-17%	-9%	1%	1%	-13%	3%	10%	8%	-16%	-14%	1%	8%	-17%	-5%	5%
Smartphone	-15%	-11%	1%	5%	-10%	1%	5%	5%	-12%	-4%	6%	2%	-17%	-5%	5%
Tablet	-20%	-10%	-4%	6%	-7%	1%	-4%	13%	-12%	-16%	7%	3%	-17%	-5%	5%
TV - DRAM embedded	-19%	-9%	12%	22%	-19%	-8%	12%	22%	-5%	-2%	1%	1%	1%	2%	2%
Game - DRAM embedded	-35%	-11%	19%	50%	-36%	-10%	25%	40%	-10%	-5%	3%	1%	2%	3%	1%
Auto - DRAM embedded	-4%	2%	7%	3%	-4%	2%	7%	3%	0%	5%	3%	6%	7%	7%	7%

Source: BofA Global Research estimates, industry data. Chg = change. Equiv = equivalent

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Exhibit 18: SSD—especially in data center and AI applications—now accounts for over half of total NAND demand, driven by higher storage capacity per system; SSD including enterprise solutions already account for 50%+ of total NAND sales (price premium seen vs IT applications)

Global NAND demand mix by application

(256Gb equiv, mn units)	1Q26	2Q26E	3Q26E	4Q26E	1Q27E	2Q27E	3Q27E	4Q27E	2022	2023	2024	2025E	2026E	2027E	2028E
Supply-to-demand															
Sufficiency (supply-to-demand)	65.1%	69.2%	92.4%	99.9%	101.0%	103.0%	104.0%	102.7%	108.0%	101.8%	94.9%	97.7%	79.8%	102.7%	102.2%
Supply	9,022	9,510	10,099	10,624	10,720	11,217	12,227	12,838	22,576	26,558	29,528	33,222	39,256	47,003	54,350
Demand	13,853	13,742	10,930	10,639	10,614	10,891	11,757	12,498	20,910	26,097	31,128	34,004	49,164	45,759	53,172
Wafer capacity (12" equiv k wpm)	1,695	1,722	1,736	1,750	1,767	1,784	1,801	1,834	1,783	1,820	1,781	1,651	1,726	1,797	1,878
Revenue (US\$bn)	45.3	78.9	96.4	102.4	101.7	103.1	106.8	108.8	67.3	42.4	78.1	81.0	323.1	420.4	421.5
ASP (US\$)	5.0	8.3	9.5	9.6	9.5	9.2	8.7	8.5	3.0	1.6	2.6	2.4	8.2	8.9	7.8
Demand by application (mn units)															
Smartphones	2,808	2,474	2,449	2,623	2,408	2,481	2,683	2,902	6,821	7,724	9,792	11,965	10,355	10,473	12,467
SSDs	3,932	4,033	4,511	4,928	4,392	4,651	5,379	5,860	9,520	9,715	12,587	15,738	17,405	20,282	23,880
Notebook	1,129	1,013	1,061	1,072	961	1,036	1,178	1,316	3,172	3,275	3,991	4,934	4,275	4,491	5,325
Desktop	431	437	482	502	445	455	502	523	990	1,031	1,271	1,708	1,853	1,925	2,004
Server	1,929	2,105	2,428	2,749	2,467	2,617	3,085	3,333	4,256	4,432	6,057	7,335	9,211	11,502	13,866
Spot & inventories	443	477	540	606	519	542	614	689	1,101	978	1,268	1,760	2,066	2,363	2,686
Tablets	393	335	312	335	311	321	316	370	1,134	1,155	1,483	1,812	1,374	1,319	1,509
Game - NAND embedded	216	196	235	357	235	216	273	386	736	760	843	913	1,004	1,111	1,202
Autos - NAND embedded	55	58	66	72	72	77	87	94	80	107	147	191	251	330	434
Others & spot adj	6,449	6,645	3,356	2,324	3,195	3,145	3,019	2,885	2,620	6,636	6,277	3,385	18,775	12,245	13,679
NAND demand total	13,853	13,742	10,930	10,639	10,614	10,891	11,757	12,498	20,910	26,097	31,128	34,004	49,164	45,759	53,172
Demand mix (% to total bits)															
Smartphones	20%	18%	22%	25%	23%	23%	23%	23%	33%	30%	31%	35%	21%	23%	23%
SSDs	28%	29%	41%	46%	41%	43%	46%	47%	46%	37%	40%	46%	35%	44%	45%
Notebook	8%	7%	10%	10%	9%	10%	10%	11%	15%	13%	13%	15%	9%	10%	10%
Desktop	3%	3%	4%	5%	4%	4%	4%	4%	5%	4%	4%	5%	4%	4%	4%
Server	14%	15%	22%	26%	23%	24%	26%	27%	20%	17%	19%	22%	19%	25%	26%
Spot & inventories	3%	3%	5%	6%	5%	5%	5%	6%	5%	4%	4%	5%	4%	5%	5%
Tablets	3%	2%	3%	3%	3%	3%	3%	3%	5%	4%	5%	5%	3%	3%	3%
Game - NAND embedded	2%	1%	2%	3%	2%	2%	2%	3%	4%	3%	3%	3%	2%	2%	2%
Autos - NAND embedded	0%	0%	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%	1%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
NAND content per product (GB)															
Smartphones	327	324	318	324	330	337	347	357	182	215	257	310	323	343	388
SSDs	1,293	1,371	1,449	1,503	1,558	1,594	1,652	1,662	763	885	1,065	1,185	1,406	1,620	1,796
Notebook	846	867	910	919	938	956	975	985	525	600	700	801	884	965	1,035
Desktop	892	914	960	970	989	1,009	1,029	1,039	555	632	739	845	935	1,017	1,091
Server	3,822	3,899	3,996	4,076	4,158	4,241	4,347	4,434	2,348	2,676	3,215	3,640	3,959	4,305	4,683
Spot & inventories	617	632	645	658	691	708	722	736	388	438	505	572	639	716	801
Tablets	370	351	341	344	344	351	358	373	223	269	324	383	352	357	390
Game - NAND embedded	941	960	970	979	1,009	1,029	1,039	1,049	719	779	841	900	965	1,034	1,108
Autos - NAND embedded	91	95	101	107	112	118	125	133	38	48	65	80	99	122	152
NAND-based products (mn units)															
Smartphones	275	244	247	259	233	236	247	260	1,198	1,152	1,218	1,237	1,025	976	1,028
SSDs	97	94	100	105	90	93	104	113	399	351	378	425	396	401	426
Notebook	43	37	37	37	33	35	39	43	193	175	182	197	155	149	165
Desktop	15	15	16	17	14	14	16	16	57	52	55	65	63	61	59
Server	16	17	19	22	19	20	23	24	58	53	60	64	74	86	95
Spot & inventories	23	24	27	29	24	25	27	30	91	71	80	98	103	106	107
Tablets	34	31	29	31	29	29	28	32	163	138	147	151	125	118	124
Game - NAND embedded	7	7	8	12	7	7	8	12	33	31	32	32	33	34	35
Auto	19	20	21	21	21	21	22	23	68	71	73	77	81	86	92
%QoQ / YoY in NAND-based products															
Smartphones	-15%	-11%	1%	5%	-10%	1%	5%	5%	-12%	-4%	6%	2%	-17%	-5%	5%
SSDs	-18%	-3%	6%	5%	-14%	3%	12%	8%	-7%	-12%	8%	12%	-7%	1%	6%
Notebook	-18%	-12%	0%	0%	-12%	6%	11%	11%	-12%	-10%	4%	8%	-22%	-4%	11%
Desktop	-13%	-1%	5%	3%	-13%	0%	8%	3%	10%	-9%	5%	17%	-2%	-5%	-3%
Server	-14%	7%	13%	11%	-12%	4%	15%	6%	8%	-9%	14%	7%	15%	15%	11%
Spot & inventories	-25%	5%	11%	10%	-19%	2%	11%	10%	-15%	-22%	13%	23%	5%	2%	2%
Tablets	-20%	-10%	-4%	6%	-7%	1%	-4%	13%	-12%	-16%	7%	3%	-17%	-5%	5%
Game - NAND embedded	-35%	-11%	19%	50%	-36%	-10%	25%	40%	-10%	-5%	3%	1%	3%	3%	1%
Auto	-4%	1%	6%	2%	-4%	1%	6%	2%	0%	4%	3%	5%	6%	6%	6%

Source: BofA Global Research estimates, industry data. Chg = change. Equiv = equivalent

Exhibit 19: Company-specific DRAM sales/ASP/shipment/margin comparison – high margin due to HBM

Bottom-up approach analysis based on top-4 DRAM companies' quarterly earnings results

(8Gb equiv)	1Q26	2Q26E	3Q26E	4Q26E	1Q27E	2Q27E	3Q27E	4Q27E	2021	2022	2023	2024	2025	2026E	2027E	2028E
Units (bn)																
Samsung	4.3	4.6	4.7	4.8	4.9	5.1	5.6	5.9	10.9	10.8	11.8	13.4	15.0	18.4	21.5	24.9
SK Hynix	3.1	-	-	-	-	-	-	-	6.8	6.8	7.6	9.0	11.0	-	-	-
Micron	2.5	2.6	2.7	2.9	3.0	3.2	3.4	3.5	5.2	5.2	5.8	7.2	8.6	10.7	13.1	15.4
Nanya	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.6	0.4	0.4	0.4	0.7	0.9	1.0	1.2
Top 4 total	10.1								23.5	23.3	25.7	30.1	35.3			
ASP (US\$)																
Samsung	9.0	13.1	15.8	17.0	17.4	17.4	17.2	16.7	3.9	3.3	1.8	2.9	3.5	13.9	17.2	15.5
SK Hynix	9.4	-	-	-	-	-	-	-	4.1	3.3	2.1	3.6	4.8	-	-	-
Micron	7.5	12.2	14.2	14.6	14.6	14.6	14.2	13.7	4.1	3.8	2.0	2.9	3.9	12.2	14.3	13.0
Nanya	7.9	12.7	15.6	16.9	17.2	17.2	16.9	16.4	5.0	4.5	2.5	2.9	3.5	13.3	16.9	14.5
Top 4 total	8.7								4.0	3.4	2.0	3.1	4.0			
OP margin (%)																
Samsung	79%	80%	81%	81%	80%	80%	80%	79%	50%	41%	-4%	30%	40%	80%	80%	76%
SK Hynix	77%	-	-	-	-	-	-	-	39%	31%	0%	47%	61%	-	-	-
Micron	70%	81%	83%	83%	82%	82%	81%	80%	39%	35%	-31%	19%	40%	81%	81%	76%
Nanya	61%	74%	77%	76%	75%	74%	72%	70%	32%	20%	-48%	-31%	7%	74%	73%	60%
Top 4 total	76%								44%	36%	-10%	32%	47%			
Sales (US\$bn)																
Samsung	39.2	59.7	73.9	81.4	85.7	89.1	96.2	98.0	42.0	35.3	21.8	39.2	53.2	254.2	369.1	385.9
SK Hynix	28.7	-	-	-	-	-	-	-	27.7	22.8	15.7	32.6	52.4	-	-	-
Micron	18.8	31.3	38.9	41.6	43.7	46.3	47.9	48.5	21.6	19.6	11.6	20.6	33.0	130.6	186.5	200.7
Nanya	1.7	2.8	3.5	3.8	4.0	4.2	4.4	4.3	3.1	2.0	1.1	1.3	2.5	11.9	16.9	16.7
Top 4 total	88.4								94.3	79.7	50.2	93.6	141.1			
Bit mkt shr																
Samsung	43%								46%	46%	46%	45%	43%			
SK Hynix	30%								29%	29%	30%	30%	31%			
Micron	25%								22%	22%	23%	24%	24%			
Nanya	2%								3%	2%	2%	1%	2%			
Top 4 total	100%								100%	100%	100%	100%	100%			
Sales mkt shr																
Samsung	44%	43%	43%	43%	44%	44%	44%	44%	45%	44%	43%	42%	38%	43%	44%	43%
SK Hynix	32%	-	-	-	-	-	-	-	29%	29%	31%	35%	37%	-	-	-
Micron	21%	23%	23%	22%	22%	23%	22%	22%	23%	25%	23%	22%	23%	22%	22%	23%
Nanya	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	2%	1%	2%	2%	2%	2%
Top 4 total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Bit growth QoQ/YoY																
Samsung	3%	5%	3%	2%	3%	4%	9%	5%	27%	-1%	9%	14%	12%	22%	17%	16%
SK Hynix	0%	-	-	-	-	-	-	-	19%	0%	12%	17%	23%	-	-	-
Micron	5%	3%	6%	4%	5%	6%	6%	5%	22%	0%	11%	25%	19%	25%	22%	18%
Nanya	-5%	0%	2%	1%	3%	4%	8%	1%	0%	-27%	-4%	5%	57%	26%	13%	15%
Top 4 total	2%								23%	-1%	10%	17%	17%			
ASP chg QoQ/YoY																
Samsung	91%	45%	20%	8%	2%	0%	-1%	-3%	13%	-15%	-43%	58%	21%	291%	24%	-10%
SK Hynix	65%	-	-	-	-	-	-	-	15%	-18%	-38%	76%	31%	-	-	-
Micron	65%	62%	17%	3%	0%	0%	-3%	-4%	17%	-9%	-47%	43%	35%	217%	17%	-9%
Nanya	71%	61%	23%	8%	2%	0%	-2%	-3%	47%	-10%	-44%	13%	24%	276%	27%	-14%
Top 4 total	76%								15%	-15%	-43%	59%	28%			

*Upbeat YTD data points not yet fully reflected in 2026 ASP; thus earnings upside seen

**SK Hynix information is historical data only

Source: Companies, BoFA Global Research estimates, industry data. Chg = change. Equiv = equivalent



Exhibit 20: Company-specific NAND sales/ASP/shipment/margin comparison – high margin due to eSSD and 3D NAND

Bottom-up approach analysis based on top-4 NAND companies' quarterly earnings results

(256Gb equiv)	1Q26	2Q26E	3Q26E	4Q26E	1Q27E	2Q27E	3Q27E	4Q27E	2022	2023	2024	2025	2026E	2027E	2028E
Sales (US\$bn)															
Samsung	15.4	26.1	33.4	36.0	35.0	33.9	35.1	36.8	22.2	14.2	26.1	25.2	110.9	140.8	144.4
Kioxia ex-foundry	5.8	10.4	12.5	12.7	11.7	11.6	12.1	12.1	9.4	5.6	9.5	9.2	41.4	47.4	46.7
Micron	5.0	9.9	11.4	12.5	12.9	12.7	12.2	12.4	7.0	4.3	8.2	9.0	38.9	50.2	50.3
SK Hynix	9.7	-	-	-	-	-	-	-	12.4	8.4	16.0	16.9	-	-	-
Global total	45.3								67.3	42.4	78.1	81.0			
OP margin (%)															
Samsung	60%	65%	65%	62%	59%	58%	56%	54%	13%	-68%	13%	4%	63%	57%	52%
Kioxia ex-foundry	60%	72%	72%	70%	67%	65%	63%	61%	15%	-46%	27%	19%	70%	64%	53%
Micron	58%	78%	78%	79%	78%	77%	75%	74%	0%	-71%	8%	5%	76%	76%	71%
SK Hynix	54%	-	-	-	-	-	-	-	-12%	-76%	14%	8%	-	-	-
ASP (US\$)															
Samsung	5.5	9.1	10.5	10.5	10.2	9.9	9.4	9.2	2.9	1.6	2.6	2.5	9.0	9.7	8.5
Kioxia ex-foundry	5.2	9.2	9.5	9.3	9.0	8.6	8.1	7.9	3.4	1.8	2.6	2.2	8.4	8.4	7.2
Micron	2.3	4.3	4.6	4.8	4.7	4.6	4.2	4.1	1.7	0.8	1.3	1.2	4.1	4.4	3.7
SK Hynix	5.5	-	-	-	-	-	-	-	2.4	1.4	2.6	2.5	-	-	-
Global total	5.0								3.0	1.6	2.6	2.4			
Units (bn)															
Samsung	2.8	2.9	3.2	3.4	3.4	3.4	3.7	4.0	7.7	8.9	9.9	10.2	12.3	14.6	17.0
Kioxia ex-foundry	1.1	1.1	1.3	1.4	1.3	1.3	1.5	1.5	2.7	3.0	3.6	4.1	4.9	5.7	6.5
Micron	2.1	2.3	2.5	2.6	2.7	2.8	2.9	3.1	4.1	5.3	6.2	7.8	9.5	11.4	13.7
SK Hynix	1.8	-	-	-	-	-	-	-	5.1	6.1	6.0	6.7	-	-	-
Global total	9.0								22.6	26.6	29.5	33.2			
Bit growth QoQ/YoY															
Samsung	7%	3%	11%	8%	-1%	0%	9%	8%	3%	16%	11%	3%	20%	18%	17%
Kioxia ex-foundry	-10%	2%	16%	4%	-5%	3%	11%	3%	-1%	10%	19%	15%	20%	15%	15%
Micron	2%	6%	9%	5%	4%	2%	4%	5%	0%	27%	18%	26%	22%	20%	19%
SK Hynix	-10%	-	-	-	-	-	-	-	42%	21%	-2%	12%	-	-	-
Global total	-2%								6%	18%	11%	13%			
ASP chg QoQ/YoY															
Samsung	88%	65%	15%	0%	-2%	-3%	-5%	-3%	-15%	-45%	66%	-7%	266%	7%	-12%
Kioxia ex-foundry	105%	75%	3%	-2%	-3%	-4%	-6%	-3%	-15%	-46%	43%	-15%	276%	0%	-14%
Micron	79%	87%	6%	4%	-2%	-3%	-8%	-4%	-3%	-52%	61%	-13%	254%	7%	-16%
SK Hynix	75%	-	-	-	-	-	-	-	-18%	-44%	93%	-5%	-	-	-
Global total	75%								-13%	-46%	65%	-8%			
Sales mkt shr															
Samsung	34%								33%	34%	33%	31%			
Kioxia ex-foundry	13%								14%	13%	12%	11%			
Micron	11%								10%	10%	11%	11%			
SK Hynix	21%								18%	20%	20%	21%			
Global total	100%								100%	100%	100%	100%			
Bit mkt shr															
Samsung	31%								34%	34%	34%	31%			
Kioxia ex-foundry	12%								12%	11%	12%	12%			
Micron	24%								18%	20%	21%	23%			
SK Hynix	20%								23%	23%	20%	20%			
Global total	100%								100%	100%	100%	100%			

*Upbeat YTD data points not yet fully reflected in 2026 ASP; thus earnings upside seen

** SK Hynix information is historical data only

***Kioxia data mostly based on JV fab NAND production/sales; thus it can be different vs the company's GAAP basis accounting results

Source: Companies, BofA Global Research estimates, industry data. Chg = change. Equiv = equivalent

Exhibit 21: Smartphone and PC production cut assumed for 2026 due to memory chip shortage and very expensive BOM – a mild recovery assumed for 2027-28 once memory supply shortage somewhat relieved; separately server shipment growth can be stronger due to AI boom

Product unit assumptions – our underlying assumptions for tech product shipments

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E	CAGR 2025-28E
Units (mn)														
5G smartphone				19	269	614	678	730	847	888	752	777	850	-1.4%
Non-5G smartphone	1,488	1,508	1,432	1,394	1,031	744	520	421	371	349	273	199	178	-20.0%
Smartphones	1,488	1,508	1,432	1,413	1,300	1,358	1,198	1,152	1,218	1,237	1,025	976	1,028	-6.0%
Apple iPhone)	215	216	205	192	195	238	233	225	222	243	215	262	269	3.4%
Samsung	311	315	290	295	254	271	258	225	224	240	227	232	242	0.3%
Other OEMs	962	977	936	926	851	849	707	702	772	754	583	482	517	-11.8%
Tablet	204	185	173	160	188	184	163	138	147	151	125	118	124	-6.4%
SSD	130	167	201	248	340	431	399	351	378	425	396	401	426	0.1%
PC	256	255	255	261	297	351	294	253	256	275	228	217	228	-6.0%
Server	10	10	12	12	13	14	15	12	14	17	20	23	25	12.9%
Auto - DRAM embedded	57	61	65	67	63	69	69	72	75	79	85	90	96	6.7%
TV (LCD, OLED)	222	215	221	223	225	214	203	199	201	203	206	209	213	1.6%
Game - DRAM embedded	44	50	52	51	42	48	43	41	42	42	43	45	45	2.1%
Growth YoY														
5G smartphone						128.1%	10.3%	7.8%	16.0%	4.9%	-15.3%	3.3%	9.4%	
Non-5G smartphone	3.3%	1.3%	-5.1%	-2.6%	-26.1%	-27.8%	-30.1%	-19.0%	-12.0%	-6.0%	-21.8%	-27.0%	-10.4%	
Smartphones	3.3%	1.3%	-5.1%	-1.3%	-8.0%	4.5%	-11.8%	-3.9%	5.7%	1.5%	-17.1%	-4.8%	5.4%	
Apple iPhone)	-7.0%	0.2%	-4.8%	-6.5%	1.3%	22.2%	-2.1%	-3.4%	-1.3%	9.5%	-11.5%	21.9%	2.7%	
Samsung	-3.0%	1.5%	-8.1%	1.8%	-14.0%	6.8%	-4.8%	-12.8%	-0.6%	7.3%	-5.4%	2.1%	4.5%	
Other OEMs	8.3%	1.5%	-4.1%	-1.1%	-8.0%	-0.3%	-16.8%	-0.7%	10.0%	-2.4%	-22.6%	-17.3%	7.3%	
Tablet	-9.1%	-9.0%	-6.3%	-7.5%	17.2%	-2.0%	-11.7%	-15.5%	6.6%	3.1%	-17.4%	-5.3%	4.7%	
SSD	36.2%	28.4%	20.0%	23.7%	36.9%	26.7%	-7.3%	-12.0%	7.6%	12.4%	-6.8%	1.1%	6.2%	
PC	-5.9%	-0.3%	-0.2%	2.6%	13.6%	4.0%	-16.2%	-13.8%	1.0%	7.6%	-17.0%	-4.9%	5.1%	
Server	-1.6%	7.2%	15.7%	-0.4%	7.3%	6.9%	9.7%	-17.5%	18.0%	19.8%	16.9%	11.7%	10.3%	
Auto - DRAM embedded	13.1%	7.1%	5.3%	3.5%	-5.2%	8.6%	0.3%	4.7%	3.4%	5.9%	6.8%	6.7%	6.7%	
TV (LCD, OLED)	-1.2%	-3.2%	2.9%	0.7%	1.0%	-5.2%	-4.8%	-2.1%	1.0%	1.1%	1.2%	1.8%	1.8%	
Game - DRAM embedded	6.9%	12.8%	3.0%	-1.3%	-16.8%	12.5%	-9.7%	-4.9%	2.5%	1.0%	2.4%	3.0%	0.8%	

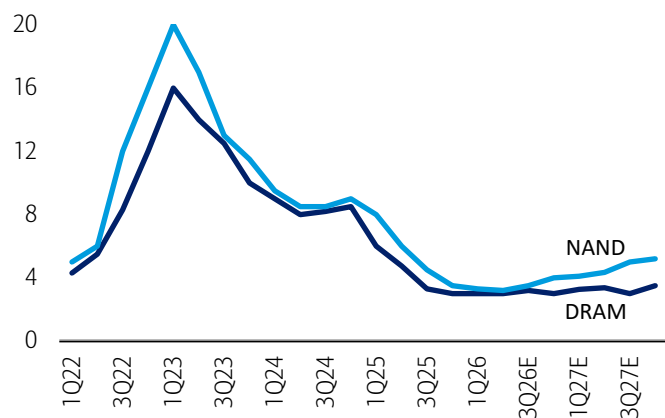
Note: Sell-in based thus actual sell-through can be higher/lower than our assumptions; we still assume minimal impact of Huawei given other OEMs' market share increase, etc; memory content increase (auto, server, SSD) likely stronger than unit growth; smartphone shipment estimate is slightly lowered due to Samsung Electronics' weak shipment for mid to low end phones vs upbeat AI smartphone GS24

Source: SA, IDC, IHS, BofA Global Research estimates

BofA GLOBAL RESEARCH

Exhibit 22: NAND inventories likely up through 2027 but still normal level or slightly higher; DRAM continuously tight

Memory chipmakers' inventories - finished chips in weeks

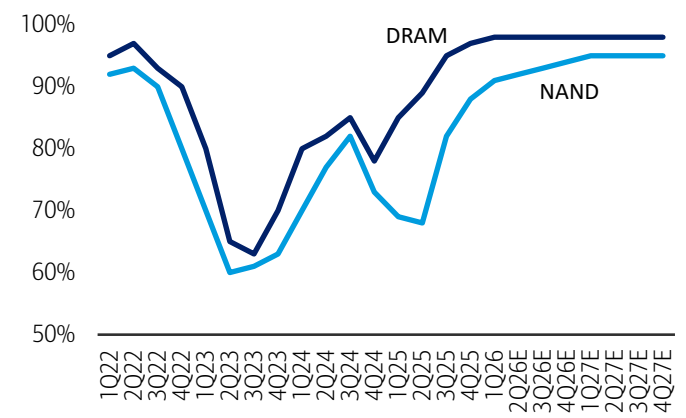


Source: BofA Global Research estimates

BofA GLOBAL RESEARCH

Exhibit 23: DRAM mostly full utilization; NAND also more than 90% - different vs 2H24-1H25 production cut

Memory chipmakers' fab utilization



Source: BofA Global Research estimates

BofA GLOBAL RESEARCH



Exhibit 24: Mostly server (including HBM) and smartphone-driven sales seen

Implied DRAM sales mix based on bit shipments x ASP by application

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
DRAM sales mix													
Servers	25%	26%	35%	24%	30%	31%	41%	33%	48%	55%	58%	61%	65%
PCs	10%	14%	14%	13%	14%	15%	14%	11%	11%	12%	6%	5%	5%
Smartphones	26%	31%	29%	45%	38%	36%	34%	33%	34%	30%	21%	18%	17%
Spot, others, adjustments*	39%	29%	22%	18%	18%	18%	12%	22%	7%	2%	14%	16%	13%
Demand mix total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
DRAM sales, US\$bn													
Servers	10.2	18.9	34.4	14.9	19.4	28.5	31.6	15.8	42.3	73.4	331.9	501.9	585.5
PCs	4.1	10.0	13.9	8.4	8.9	14.2	10.6	5.3	9.6	16.6	36.9	41.9	41.2
Smartphones	10.6	22.9	29.0	27.9	25.0	32.9	26.1	15.7	29.6	40.6	119.8	148.7	155.2
Spot, others, adjustments*	16.3	21.0	22.0	11.3	12.0	16.6	9.4	10.5	6.5	3.2	80.0	133.9	118.8
Total sales US\$bn	41.2	72.8	99.3	62.5	65.4	92.1	77.7	47.3	87.9	133.8	568.8	826.4	900.7
DRAM ASP, US\$/8Gb													
Servers	5.9	7.7	9.9	3.3	3.1	3.6	3.2	1.8	3.2	4.0	14.0	17.7	17.0
PCs	2.6	5.8	7.2	3.7	3.0	3.6	3.0	1.5	2.4	3.5	10.4	13.1	11.2
Smartphones	4.1	6.6	6.9	5.1	4.1	4.4	3.5	2.0	2.9	3.3	11.7	14.9	13.4
Spot, others, adjustments*	4.5	5.7	6.6	3.0	2.9	3.4	2.7	1.7	2.0	4.6	12.6	13.8	11.1
DRAM ind avg price	4.3	6.4	7.7	3.9	3.3	3.8	3.2	1.8	2.9	3.7	13.0	16.1	14.9
ASP change YoY													
Servers	-20%	31%	29%	-66%	-7%	17%	-11%	-46%	82%	24%	252%	27%	-4%
PCs	-48%	122%	26%	-49%	-18%	21%	-19%	-48%	58%	45%	194%	26%	-15%
Smartphones	-42%	60%	5%	-26%	-20%	8%	-20%	-45%	48%	16%	249%	27%	-10%
Spot, others, adjustments*	-35%	25%	17%	-54%	-6%	19%	-21%	-37%	18%	128%	177%	9%	-20%
DRAM ind avg price	-34%	48%	20%	-49%	-15%	14%	-16%	-45%	62%	29%	249%	25%	-8%

*Implied amount after server/PC/smartphone demand, thus negative figures possible due to channel inventories (not consumed)

Source: Company data, BofA Global Research estimates, industry data

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Exhibit 25: Mostly for SSD (including enterprise solutions) and smartphone applications

Implied NAND sales mix based on bit shipments x ASP by application

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
NAND sales mix													
SSD	30%	33%	34%	36%	45%	47%	48%	40%	49%	52%	60%	61%	64%
Smartphone	36%	38%	33%	34%	33%	34%	33%	31%	35%	33%	25%	23%	23%
Spot, others, adjustments*	34%	29%	33%	30%	22%	19%	18%	29%	16%	14%	15%	17%	14%
Demand mix total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
NAND sales, US\$bn													
SSD	11.1	19.8	22.9	16.7	26.5	34.3	32.6	16.9	38.6	42.2	193.4	255.7	268.5
Smartphone	13.7	22.3	22.0	15.5	19.2	24.9	22.4	13.1	27.2	27.1	81.8	94.6	95.7
Spot, others, adjustments*	12.8	17.2	22.6	14.1	12.7	14.1	12.3	12.4	12.3	11.7	47.9	70.0	57.2
Total sales US\$bn	37.6	59.2	67.4	46.3	58.5	73.3	67.3	42.4	78.1	81.0	323.1	420.4	421.5
NAND ASP, US\$/8Gb													
SSD	8.5	10.6	8.8	4.5	4.4	4.0	3.4	1.7	3.1	2.7	11.1	12.6	11.2
Smartphone	8.7	10.5	8.6	4.4	4.3	4.1	3.3	1.7	2.8	2.3	7.9	9.0	7.7
Spot, others, adjustments*	7.7	9.2	6.9	3.0	2.6	2.1	2.0	1.4	1.7	2.1	4.2	4.3	3.2
NAND ind avg price	8.3	10.1	8.0	3.9	3.8	3.4	3.0	1.6	2.6	2.4	8.2	8.9	7.8
ASP change YoY													
SSD	-29%	25%	-17%	-49%	-1%	-10%	-13%	-49%	76%	-13%	314%	14%	-11%
Smartphone	-30%	21%	-18%	-48%	-2%	-4%	-21%	-48%	64%	-18%	248%	14%	-15%
Spot, others, adjustments*	-27%	19%	-24%	-57%	-14%	-17%	-8%	-31%	26%	23%	97%	3%	-26%
NAND ind avg price	-28%	22%	-21%	-52%	-2%	-9%	-13%	-46%	65%	-8%	238%	9%	-13%

*Implied amount after SSD/smartphone demand, thus negative figures possible due to channel inventories (not consumed)

Source: Company data, BofA Global Research estimates, industry data

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Record high capex includes heavy infrastructure spending

Exhibit 26: Big-3 DRAM makers' capex to grow in 2026, but it includes lots of non-WFE spending (shell fab, utilities, TCB/HB); overall capex growth rate likely to decelerate through 2027-28 vs 40%+ CAGR in 2023-25

DRAM capex trend

US\$bn	2018	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
Samsung	12.5	8.9	8.2	11.6	12.2	13.9	17.0	19.9	29.0	38.8	44.3
SK Hynix	8.1	7.4	5.6	7.3	8.9	3.8	9.0	16.1	-	-	-
Micron	4.6	4.3	5.3	5.6	5.7	3.9	6.3	13.1	27.9	37.4	37.2
Nanya	0.7	0.2	0.3	0.4	0.7	0.4	0.5	0.4	1.7	2.3	2.3
CXMT		0.7	1.5	1.5	1.7	2.6	4.0	3.5	4.0	4.4	4.5
DRAM capex total	27.1	21.9	21.4	27.1	31.0	25.2	37.7	53.9			
Capex change YoY	66%	-19%	-2%	27%	14%	-19%	49%	43%			
DRAM capex to sales	27%	35%	33%	29%	40%	53%	43%	40%			
DRAM capex share											
Samsung	46%	41%	38%	43%	39%	55%	45%	37%			
SK Hynix	30%	34%	26%	27%	29%	15%	24%	30%			
Micron	17%	19%	25%	21%	19%	16%	17%	24%			
Nanya	2%	1%	1%	1%	2%	2%	1%	1%			
CXMT		3%	7%	6%	5%	10%	11%	6%			
Total	99%	100%	100%	100%	100%	100%	100%	100%			
DRAM capex YoY											
Samsung	72%	-28%	-8%	42%	5%	14%	22%	17%			
SK Hynix	71%	-10%	-23%	30%	22%	-58%	138%	79%			
Micron	72%	-8%	24%	6%	3%	-32%	62%	106%			
Nanya	-30%	-74%	62%	40%	72%	-39%	27%	-17%			
CXMT		75%	114%	0%	13%	50%	57%	-13%			
Total	66%	-19%	-2%	27%	14%	-19%	49%	43%			

*SK Hynix information is historical data only

Source: Companies' reports, BofA Global Research estimates

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Exhibit 27: NAND capex also grows in 2026, but mainly due to low base in 2025

NAND capex trend

US\$bn	2018	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
Samsung	7.3	4.9	9.2	10.9	10.3	10.1	8.1	4.6	8.2	11.2	12.5
Kioxia & JVs	5.0	3.8	4.5	5.7	6.5	2.7	4.5	5.2	7.0	7.5	7.0
Micron	4.7	4.4	3.4	4.6	5.2	2.7	3.1	4.6	7.4	7.7	7.9
SK Hynix	6.3	4.4	2.7	3.4	4.1	1.6	2.3	2.5	-	-	-
Intel China	2.0	1.6	0.8	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YMTC	0.3	0.7	1.6	1.5	2.5	2.3	2.0	2.0	3.0	3.5	4.0
NAND capex total	26.0	20.1	22.5	27.9	29.0	19.7	20.4	19.3			
NAND capex chg YoY	7%	-23%	12%	24%	4%	-32%	4%	-5%			
NAND capex to sales	38%	43%	38%	38%	43%	46%	26%	24%			
NAND capex share											
Samsung	28%	25%	41%	39%	36%	51%	39%	24%			
Kioxia & JVs	19%	19%	20%	20%	22%	14%	22%	27%			
Micron	18%	22%	15%	17%	18%	14%	15%	24%			
SK Hynix	24%	22%	12%	12%	14%	8%	11%	13%			
Intel China	8%	8%	4%	5%	n/a	n/a	n/a	n/a			
YMTC	1%	3%	7%	5%	9%	11%	10%	10%			
NAND capex total	100%	100%	100%	100%	100%	100%	100%	100%			
NAND capex growth (YoY)											
Samsung	-36%	-33%	87%	19%	-5%	-2%	-20%	-42%	76%	37%	12%
Kioxia & JVs	4%	-24%	18%	27%	14%	-58%	67%	16%	35%	7%	-7%
Micron	100%	-6%	-22%	35%	11%	-47%	13%	49%	60%	5%	2%
SK Hynix	97%	-29%	-38%	26%	19%	-60%	42%	5%	-	-	-
Intel China	0%	-23%	-48%	88%	na	na	na	na	na	na	na
YMTC	200%	133%	129%	-6%	67%	-10%	-11%	0%	50%	17%	14%
NAND capex total	7%	-23%	12%	24%	4%	-32%	4%	-5%			

*SK Hynix information is historical data only

**Kioxia data mostly based on JV fab NAND production/sales; thus it can be different vs the company's GAAP basis accounting results

Source: Companies' reports, BofA Global Research estimates

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Exhibit 28: Ex-conventional DRAM equipment capex spend likely up strongly due to HBM, but conventional DRAM and NAND spend broadly disciplined; non-equipment spend for buildings and utilities remain high

SPE vs non-SPE capex spend

US\$bn	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
SPE capex										
DRAM	12.1	12.7	16.2	17.3	14.1	23.8	34.8	58.9	74.8	79.9
NAND	12.1	14.3	18.2	18.7	11.9	12.9	13.5	21.5	25.6	26.8
Total	24.3	26.9	34.4	35.9	26.0	36.7	48.3	80.4	100.4	106.7
SPE capex YoY										
DRAM	-22%	4%	28%	7%	-18%	69%	46%	69%	27%	7%
NAND	-24%	17%	28%	3%	-36%	8%	5%	59%	19%	5%
Total	-23%	11%	28%	5%	-28%	41%	32%	66%	25%	6%
Non-SPE to capex										
DRAM	45%	41%	40%	44%	44%	37%	35%	34%	34%	33%
NAND	39%	37%	35%	36%	40%	37%	30%	29%	28%	28%
Total	42%	39%	38%	40%	42%	37%	34%	32%	32%	32%
Total capex, US\$bn										
DRAM	21.9	21.4	27.1	31.0	25.2	37.7	53.9	88.6	112.9	119.5
NAND	20.1	22.5	27.9	29.0	19.7	20.4	19.3	30.1	35.4	37.2
Total	42.0	43.9	55.0	60.0	45.0	58.2	73.2	118.7	148.3	156.7

Source: Company data, BofA Global Research estimates, industry data

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Exhibit 29: DRAM capex increase likely to remain strong even in 2026 driven by big-3 chipmakers; NAND capex growth also notable (due to low base)

SPE capex spend by memory chipmakers

US\$bn	2019	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E
DRAM SPE										
Samsung	5.5	4.8	6.9	7.0	7.8	9.8	12.3	18.3	24.8	28.8
SK Hynix	2.9	2.5	3.4	4.3	1.6	6.1	9.9	-	-	-
Micron	2.9	3.5	3.7	3.8	2.1	3.8	9.0	18.1	23.2	23.4
Nanya	0.1	0.2	0.4	0.5	0.3	0.4	0.3	1.1	1.5	1.5
CXMT	0.3	1.2	1.3	1.2	2.0	3.2	2.8	3.2	3.5	3.6
DRAM SPE total	12.1	12.7	16.2	17.3	14.1	23.8	34.8			
YoY										
Samsung	-25%	-14%	44%	1%	12%	27%	25%	49%	36%	16%
SK Hynix	-21%	-14%	32%	27%	-63%	284%	63%	-	-	-
Micron	-14%	24%	6%	3%	-45%	80%	137%	101%	28%	1%
DRAM SPE total	-22%	4%	28%	7%	-18%	69%	46%			
NAND SPE										
Samsung	3.4	5.7	6.7	6.6	6.2	5.2	3.2	6.2	8.4	9.4
Kioxia & JVs	2.1	2.7	3.4	4.1	1.4	2.7	3.7	5.0	5.3	4.8
Micron	3.0	2.3	3.1	3.5	1.4	1.9	3.0	5.2	5.4	5.5
SK Hynix	2.3	1.8	2.4	2.5	1.0	1.5	1.9	-	-	-
YMTC	0.0	1.0	1.2	1.8	1.8	1.3	1.4	2.0	2.5	2.8
NAND SPE total	12.1	14.3	18.2	18.7	11.9	12.9	13.5			
YoY										
Samsung	-26%	68%	19%	-2%	-6%	-16%	-40%	95%	37%	12%
Micron	-3%	-22%	35%	11%	-59%	33%	62%	72%	5%	1%
SK Hynix	-38%	-24%	36%	2%	-61%	57%	27%	-	-	-
YMTC			25%	46%	3%	-28%	8%	39%	26%	14%
NAND SPE total	-24%	17%	28%	3%	-36%	8%	5%			

*SK Hynix information is historical data only

**Kioxia data mostly based on JV fab NAND production/sales; thus it can be different vs the company's GAAP basis accounting results

Source: Company data, BofA Global Research estimates, industry data

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2026/27E HBM TAM expansion to US\$77bn/135bn

Exhibit 30: We maintain our bullish view on HBM. We assume strong growth in 2026 sales (US\$77bn; +122% YoY) driven by solid ASP growth (+27% YoY) and robust bit growth (+76%). Industry average OPM near 50%; no downturn in 2027 given volume growth and cost reduction fully offset price cut.

Global HBM market – record high revenue continues into 2027E (US\$135bn)

	2022	2023	2024	2025	2026E	2027E	2028E	2029E	2030E	CAGR 2025-28E
HBM earnings										
Sales, US\$bn	1.6	4.2	17.4	34.5	76.8	134.6	176.3	204.6	246.3	72%
Shipment units, GB bn	0.1	0.5	1.6	3.1	5.4	7.7	10.1	12.9	16.2	49%
ASP, US\$/GB	16.7	8.8	11.0	11.3	14.3	17.4	17.5	15.9	15.2	16%
Price premium	430%	436%	355%	274%	12%	9%	22%	2%	-6%	
OP, US\$bn	0.4	1.8	8.3	14.6	37.6	72.4	98.2	111.3	135.7	89%
OP margin	25%	42%	48%	42%	49%	54%	56%	54%	55%	
% YoY										
Sales, US\$bn	55%	155%	316%	98%	122%	75%	31%	16%	20%	
Shipment units, GB bn	95%	383%	233%	94%	76%	44%	30%	27%	26%	
ASP, US\$/GB	n/a	n/a	25%	2%	27%	22%	0%	-9%	-4%	
HBM shipment mix										
HBM5+	0%	0%	0%	0%	0%	0%	23%	55%	79%	
HBM4e	0%	0%	0%	0%	0%	19%	51%	36%	19%	
HBM4	0%	0%	0%	0%	32%	64%	24%	9%	3%	
HBM3e	0%	0%	58%	83%	60%	16%	3%	1%	0%	
HBM3	10%	60%	27%	14%	7%	1%	0%	0%	0%	
HBM2e & below	90%	40%	15%	3%	1%	0%	0%	0%	0%	
HBM mix total	100%	100%	100%	100%	100%	100%	100%	100%	100%	
% to DRAM shipment	0.4%	1.8%	5.2%	8.5%	12.2%	15.1%	16.7%	18.8%	21.1%	
% to DRAM sales	2.1%	8.8%	19.8%	25.8%	13.5%	16.3%	19.6%	19.1%	20.2%	
Wafer capacity, k wpm	68	87	204	360	476	624	741	815	897	27%
% to DRAM wafer capacity	4.4%	5.4%	11.8%	19.3%	23.0%	27.8%	31.1%	32.6%	34.5%	
Main node	1z	1z	1a, 1b	1a, 1b	1b, 1c	1c	1c, 1d	1d	1d, 1e	
Implied demand, GB bn units	0.1	0.5	1.8	3.3	6.4	8.7	10.2	12.1	15.8	46%
AI+HBM server units, mn	0.3	1.0	1.9	2.8	4.5	5.9	6.3	6.8	7.5	32%
AI+HBM server shipment YoY	42%	289%	88%	50%	62%	30%	8%	7%	11%	
GB HBM per AI+HBM server	340	530	954	1,171	1,413	1,479	1,612	1,789	2,093	11%
GB content growth QoQ/YoY	13%	56%	80%	23%	21%	5%	9%	11%	17%	
AI+HBM to total server units*	1.7%	8.1%	12.9%	16.1%	22.3%	26.0%	25.4%	25.4%	26.4%	
Global server units, mn	14.9	12.3	14.5	17.3	20.2	22.6	24.9	26.7	28.6	13%
Global server units YoY	10%	-17%	18%	20%	17%	12%	10%	7%	7%	
Excess supply, GB bn units	0.01	-0.05	-0.20	-0.20	-1.01	-0.95	-0.15	0.70	0.41	
HBM sufficiency (supply to demand)	13%	-10%	-11%	-6%	-16%	-11%	-1%	6%	3%	

Source: Companies' reports, BofA Global Research estimates

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Exhibit 31: Our bottom-up approach based on Big-3 companies' track record and long-term plans

Global HBM market share by company

	2022	2023	2024	2025	2026E	2027E	2028E	2029E	2030E	CAGR 2025-28E
HBM units, GB bn										
SK Hynix	0.06	0.27	0.87	1.78	-	-	-	-	-	-
Samsung	0.03	0.20	0.61	0.66	1.82	2.80	3.61	4.51	5.50	76%
Others	0.00	0.01	0.10	0.62	-	-	-	-	-	-
Global HBM total GB bn units	0.10	0.47	1.58	3.06	5.38	7.74	10.08	12.85	16.19	49%
% of global DRAM volume	0.4%	1.8%	5.2%	8.5%	12.2%	15.1%	16.7%	18.8%	21.1%	
HBM wafer capa, k wpm - yr avg										
SK Hynix	35	37	100	153	-	-	-	-	-	-
Samsung	30	45	78	133	178	246	298	312	322	31%
Others	3	5	27	75	-	-	-	-	-	-
Global HBM wafer capa total	68	87	204	360	476	624	741	815	897	27%
% of global DRAM capacity	4.4%	5.4%	11.8%	19.3%	23.0%	27.8%	31.1%	32.6%	34.5%	
Main node	1z	1z	1a, 1b	1a, 1b	1b, 1c	1c	1c, 1d	1d	1d, 1e	
HBM ASP, US\$/GB										
SK Hynix	16.2	8.5	11.1	11.8	-	-	-	-	-	-
Samsung	17.8	9.3	11.0	9.8	14.8	17.3	17.4	16.0	15.2	21%
Global average - HBM ASP	16.7	8.8	11.0	11.3	14.3	17.4	17.5	15.9	15.2	16%
HBM price premium	430%	436%	355%	274%	12%	9%	22%	2%	-6%	
HBM sales, US\$bn										
SK Hynix	1.1	2.3	9.6	20.9	-	-	-	-	-	-
Samsung	0.6	1.8	6.7	6.5	26.9	48.5	62.7	72.1	83.6	113%
Others	0.0	0.1	1.1	7.1	-	-	-	-	-	-
Global HBM sales total	1.6	4.2	17.4	34.5	76.8	134.6	176.3	204.6	246.3	72%
% of global DRAM sales	2.1%	8.8%	19.8%	25.8%	13.5%	16.3%	19.6%	19.1%	20.2%	
Ex-HBM global DRAM										
ex-HBM wafer capa, kwpm	1,493	1,541	1,530	1,507	1,590	1,618	1,638	1,683	1,701	3%
ex-HBM GB bn units	24.1	26.2	29.0	33.0	38.5	43.5	50.4	55.5	60.4	15%
ex-HBM ASP, US\$/GB	3.2	1.6	2.4	3.0	12.8	15.9	14.4	15.6	16.1	68%
ex-HBM sales, US\$bn	76.0	43.1	70.5	99.3	492.0	691.8	724.5	864.1	974.6	94%
HBM OPM										
SK Hynix	25%	47%	63%	64%	-	-	-	-	-	-
Samsung	27%	38%	33%	20%	53%	58%	62%	62%	63%	-
HBM bit market share										
SK Hynix	66%	57%	55%	58%	-	-	-	-	-	-
Samsung	32%	42%	39%	22%	34%	36%	36%	35%	34%	-
HBM sales market share										
SK Hynix	64%	54%	55%	61%	-	-	-	-	-	-
Samsung	34%	44%	39%	19%	35%	36%	36%	35%	34%	-
HBM wafer capa mkt share										
SK Hynix	51%	43%	49%	42%	-	-	-	-	-	-
Samsung	44%	52%	38%	37%	-	-	-	-	-	-
HBM wafer capa mkt share total	100%	100%	100%	100%						

*SK Hynix information is historical data only

Source: Companies' reports, BofA Global Research estimates

Exhibit 32: Samsung's upside could come from more normalized HBM price (2026-28) vs 2025 bottom, focused on NVIDIA's Tier 2 customers (ex-US data centers) and Big Tech companies (Amazon, Google, Broadcom, AMD, etc.)

SEC – HBM earnings outlook

	1Q26	2Q26E	3Q26E	4Q26E	1Q27E	2Q27E	3Q27E	4Q27E	2023	2024	2025	2026E	2027E	2028E	2029E	2030E
HBM																
Sales, US\$bn	2.82	4.45	7.33	12.34	11.17	10.93	12.50	13.90	1.84	6.75	6.46	26.94	48.50	62.73	72.14	83.61
% to DRAM sales	7.2%	7.4%	9.9%	15.2%	13.4%	12.8%	13.5%	14.6%	8.4%	17.2%	12.1%	10.6%	13.6%	16.6%	18.3%	21.4%
Shipment, GB bn	0.24	0.30	0.48	0.80	0.68	0.64	0.71	0.77	0.20	0.61	0.66	1.82	2.80	3.61	4.51	5.50
ASP, US\$/GB	11.63	14.77	15.21	15.52	16.52	17.02	17.53	18.06	9.31	11.00	9.76	14.79	17.31	17.38	15.99	15.19
Price premium	31%	14%	-4%	-10%	-6%	-3%	2%	8%	440%	335%	200%	8%	1%	12%	0%	2%
Cost, US\$/GB	6.7	6.5	6.9	7.3	7.4	7.4	7.1	7.0	5.8	7.4	7.8	7.0	7.2	6.5	6.1	5.7
OP, US\$bn	1.20	2.48	4.03	6.50	6.16	6.17	7.42	8.48	0.70	2.22	1.29	14.21	28.23	39.10	44.67	52.45
OP margin	43%	56%	55%	53%	55%	56%	59%	61%	38%	33%	20%	53%	58%	62%	62%	63%
Wafer capa, kwpm	160	170	180	200	220	240	250	275	45	78	133	178	246	298	312	322
QoQ/YoY																
Sales	27%	57%	65%	68%	-9%	-2%	14%	11%		267%	-4%	317%	80%	29%	15%	16%
Shipment	5%	24%	60%	65%	-15%	-5%	11%	8%		210%	8%	175%	54%	29%	25%	22%
ASP	21%	27%	3%	2%	7%	3%	3%	3%		18%	-11%	52%	17%	0%	-8%	-5%
Cost	13%	-2%	5%	7%	1%	0%	-4%	-1%		28%	6%	-10%	4%	-10%	-7%	-7%
OP	41%	106%	62%	62%	-5%	0%	20%	14%		217%	-42%	998%	99%	39%	14%	17%
Wafer capa	7%	6%	6%	11%	10%	9%	4%	10%		72%	71%	34%	39%	21%	5%	3%
HBM shipment mix																
HBM5 & above	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	39.4%	60.0%	80.0%
HBM4e	0.0%	0.0%	0.0%	0.0%	1.0%	5.0%	15.0%	30.0%	0.0%	0.0%	0.0%	0.0%	13.5%	49.3%	34.0%	18.0%
HBM4	1.0%	20.0%	30.0%	42.0%	60.0%	70.0%	65.0%	60.0%	0.0%	0.0%	0.0%	29.7%	63.6%	11.1%	6.0%	2.0%
HBM3e	95.0%	78.0%	69.0%	58.0%	39.0%	25.0%	20.0%	9.9%	0.0%	19.8%	77.3%	69.1%	23.0%	0.2%	0.0%	0.0%
HBM3	3.0%	2.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.3%	58.1%	18.4%	1.0%	0.0%	0.0%	0.0%	0.0%
HBM2e & below	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	93.7%	22.1%	4.4%	0.1%	0.0%	0.0%	0.0%	0.0%
Mix total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Hi-mix																
20-hi & above	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	39.4%	60.0%	80.0%
16-hi	0.0%	0.0%	0.0%	0.3%	2.0%	5.0%	15.0%	30.0%	0.0%	0.0%	0.0%	0.1%	13.7%	49.3%	39.0%	20.0%
12-hi	51.0%	75.0%	90.0%	92.7%	94.0%	93.0%	84.0%	69.9%	0.0%	0.4%	17.2%	83.5%	84.6%	11.2%	1.0%	0.0%
8-hi	49.0%	25.0%	10.0%	7.0%	4.0%	2.0%	1.0%	0.0%	100.0%	99.6%	82.8%	16.4%	1.7%	0.0%	0.0%	0.0%
Hi-mix total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
% HBM to DRAM																
Sales	7%	7%	10%	15%	13%	13%	14%	15%	8%	17%	12%	11%	14%	17%	18%	21%
Shipment	6%	7%	10%	17%	14%	13%	13%	14%	2%	5%	4%	10%	14%	15%	17%	19%
OP	4%	7%	8%	12%	12%	11%	12%	14%	-72%	19%	6%	8%	12%	18%	38%	45%
Wafer capa	24%	25%	26%	28%	30%	32%	33%	37%	6%	11%	20%	26%	33%	38%	39%	40%
QoQ/YoY	2.82	4.45	7.33	12.34	11.17	10.93	12.50	13.90	1.84	6.75	6.46	26.94	48.50	62.73	72.14	83.61
Sales	7.2%	7.4%	9.9%	15.2%	13.4%	12.8%	13.5%	14.6%	8.4%	17.2%	12.1%	10.6%	13.6%	16.6%	18.3%	21.4%
Shipment	0.24	0.30	0.48	0.80	0.68	0.64	0.71	0.77	0.20	0.61	0.66	1.82	2.80	3.61	4.51	5.50
ASP	11.63	14.77	15.21	15.52	16.52	17.02	17.53	18.06	9.31	11.00	9.76	14.79	17.31	17.38	15.99	15.19
Cost	31%	14%	-4%	-10%	-6%	-3%	2%	8%	440%	335%	200%	8%	1%	12%	0%	2%
OP	6.7	6.5	6.9	7.3	7.4	7.4	7.1	7.0	5.8	7.4	7.8	7.0	7.2	6.5	6.1	5.7
Wafer capa	1.20	2.48	4.03	6.50	6.16	6.17	7.42	8.48	0.70	2.22	1.29	14.21	28.23	39.10	44.67	52.45

Source: Company reports, BofA Global Research estimates

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GPU spec tables

Exhibit 33: H200/B200/B300 will lead to 2025 HBM demand growth and later by Rubin/Rubin Ultra in 2026/27

NVIDIA GPUs that use HBM memory

Company	Name	Type	AI function	Launch date	DRAM spec	Remarks
Mainstream	Feynman	GPU	AI training	2028	HBM5 (likely)	Based on Next-gen HBM
	Rubin Ultra	GPU	AI training	2H27	1TB HBM4e	4 reticles leading to 16 HBM chips each with 64GB memory (based on 16-hi layer 32Gb DRAM)
	Rubin	GPU	AI training	2H26	288/384GB HBM4	HBM4 with 12-hi/16-hi layer 24Gb DRAM die; bandwidth at 13TB/s
	B300	GPU	AI training	3Q25	288GB HBM3e	Based on 8 units of 12-hi layer 24Gb DRAM die; bandwidth at 8TB/s
	B100/200	GPU	AI training	1Q25	192GB HBM3e	Nvidia confirmed production ramp-up and shipment in FY4Q25 (Oct-Jan)
	H200 SXM/NVL	GPU	AI training	2Q24	141GB HBM3e	First GPU with HBM3e (1.2TB/s) memory
	H100 NVL	GPU	AI training	Sep-22	188GB HBM3; 7.8TB/s	Powerful AI training GPU using 188GB HBM3
	H100 SXM5	GPU	AI training	Sep-22	80GB HBM3; 3.35TB/s	High-speed AI training GPU (900GB/sec) PCIe / NVL (600GB/sec)
	H100 PCIe	GPU	AI training	Sep-22	80GB HBM2e; 2TB/s	Still based on HBM2e - HBM3 not yet
	A100	GPU	AI training	Jun-20	40/80GB HBM2/2e; 2TB/s	Old gen but still actively used for AI training
Superchip	Rubin Ultra NVL576	Giant Superchip	AI training/inference	2H27	288TB HBM4e (likely) + 72TB DRAM	Combines 288x Rubin Ultra GPU via NV Link
	Vera Rubin NVL144 CPX	Giant Superchip	AI training/inference	2H26	40TB HBM4 (likely) + 36TB DRAM + 18TB GDDR7	Combines 144x Rubin GPU and 114x CPX GPU and Vera CPUs via NV Link
	Vera Rubin NVL144	Giant Superchip	AI training/inference	2H26	40TB HBM4 (likely) + 36TB DRAM	Combines 144x Rubin GPU along with Vera CPUs via NV Link
	Vera Rubin NVL72	Giant Superchip	AI training/inference	2H26	21TB HBM4 (likely) + 27/54TB DRAM	Combines 72x Rubin GPU along with 36x Vera CPUs via NV Link
	Vera Rubin	Superchip	AI training/inference	2H26	576GB HBM4 + 1.5TB LPDDR5X	Combines 2 x Rubin GPUs with a 1 x Vera CPU
	GB300 NVL72	Giant Superchip	AI training/inference	3Q25	20TB HBM3e + 18TB LPDDR5X	Combines 36x GB300 superchips via NV Link
	GB300	Superchip	AI training/inference	3Q25	576GB HBM3e + 1.2TB LPDDR5X	Combines 2 x B300 GPUs with a 1 x Grace CPU
	GB200 NVL72	Giant Superchip	AI training/inference	1H25	13.5TB HBM3e + 17TB LPDDR5X	Combines 36x GB200 superchips to form one supercomputer
	GB200	Superchip	AI training/inference	1H25	384GB HBM3e + 480GB LPDDR5X	Combines 2 x B200 GPUs with a 1 x Grace CPU
	GH200 v2	Superchip	AI training/inference	2Q24	144GB HBM3e	2nd gen of GH200 using "HBM3e (1.2TB/sec)"
China	GH200	Superchip	AI training/inference	Dec-23	96GB HBM3	Superchip based on both GPU+HBM3 and CPU+LPDDR5
	B30/B40	GPU	AI training/inference	2H25	GDDR7	Despec version of B300 for China; multiple B30 chips can be connected to form cluster
	H20	GPU	AI training	1Q24	96GB HBM3; 4TB/s	Despec version of H100 for China export;
	L2	GPU	AI training/inference	Jan-24	24GB GDDR6; 300GB/s	Despec version of L40S for China export; lower bandwidth vs L20 [
	L20	GPU	AI training/inference	Dec-23	48GB GDDR6; 864GB/s	Despec version of L40S for China export;
	L40S	GPU	AI training/inference	Oct-23	48GB GDDR6; 864GB/s	No HBM, just GDDR6 used but 1.2x/1.7x better AI inference/training vs A100

Source: Company reports, media reports, BofA Global Research

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Exhibit 34: Lots of GPU line-ups for AI training/inference; LPDDR5 and GDDR6 are also used for AI inferencing but we newly see upbeat demand for 12-Hi HBM3e from new ASICs (e.g., Google's TPU v7/TPU 8i/8t); AMD MI400 series; Amazon Trainium chips expected to use HBM4

AI accelerators that use HBM memory

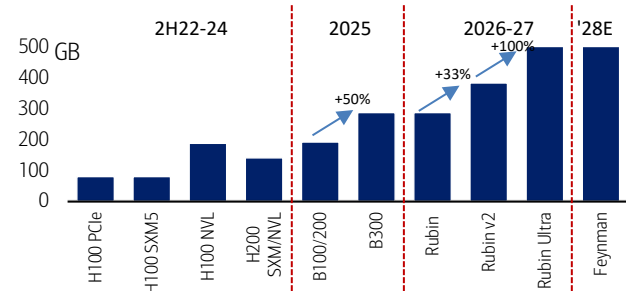
Company	Name	Type	AI function	Launch date	DRAM spec	Remarks
AMD	MI500	APU	AI training	2027	500-600GB HBM4e (exp.)	Provides up to a 1,000x increase in performance vs MI300X
	MI450	APU	AI training	2026	432GB HBM4; 20TB/s+	Fabricated on TSMC's 2nm technology; can be scaled to a server rack combining 72x GPUs (to a total of 30TB HBM)
	MI400	APU	AI training	2026	384GB HBM4	To compete with NVIDIA's Rubin GPU using HBM4; based on 16-Hi
	MI350X	APU	AI training	2H25	288GB HBM3e; 8TB/s	Announced during its Advancing AI 2024 event; MP in 2H25
	MI325X	APU	AI training	4Q24	256GB HBM3e; 6TB/s	256GB HBM3e stated during its Advancing AI 2024 event on 10 Oct
	MI300A	APU	AI training	Dec-23	128GB HBM3; 5.3TB/s	Slightly higher bandwidth vs MI300X
	MI300X	APU	AI training	Jun-23	192GB HBM3; 5.2 TB/s	More advanced version vs MI300
Intel	MI300	APU	AI training	Jan-23	128GB HBM3; 1.2TB/s	Combination of CPU+GPU
	Crescent Island	GPU	AI inference	2H26	160GB LPDDR5X	Xe3P architecture with 640-bit memory interface
	Gaudi3	GPU	AI training	3Q24	128GB HBM2e; 3.7TB/s	Target to compete with NVIDIA H100
	Gaudi2	GPU	AI training	May-22	96GB HBM2e; 2.45TB/s	Stated stronger than NVIDIA A100
Meta	MTIA 400	ASIC	AI inference	2027	288GB HBM; 9.2TB/s	On track to deploy chips in datacenters; 6 petaflops FP8 perf.
	MTIA 300	ASIC	AI inference	2026	216GB HBM; 6.1TB/s	Offers 1.2 petaflops of FP8 compute performance
Amazon	Trainium 4	ASIC	AI training	4Q26/1Q27	288GB HBM4	2x the HBM capacity and 4x the bandwidth (19.6 TB/s)
	Trainium3	ASIC	AI training	4Q25	144GB HBM3e	2x faster and 40% more energy-efficient vs previous gen
	Trainium2	ASIC	AI training	Dec-2024	96GB HBM3e	Apple reportedly will use these chips for training its AI Intelligence
	Inferentia2	ASIC	AI inference	2H22	32GB HBM2e	More advanced AI inference vs 2019 generation
	Trainium	ASIC	AI training	2H22	32GB HBM2e; 1.6TB/s	Used for training AI models in cloud
Google	TPU 8t	ASIC	AI training	2H26	216GB HBM3e	Can be scaled to 9,600 chips to a massive 2PB HBM memory
	TPU 8i	ASIC	AI inference	2H26	288GB HBM3e	Scalable to 1,152 chips for 331TB HBM memory
	TPU v7 (Ironwood)	ASIC	AI inference	4Q25	192GB HBM3e	Designed for inference workloads and for AI agents
	TPU v6e	ASIC	AI training	Late-2024	64GB HBM3	2x higher capacity and bandwidth vs its predecessor
	TPU v5p	ASIC	AI training	Dec-23	95GB HBM2e	2.8x faster in AI training vs its predecessor
	TPU v5e	ASIC	AI training	Aug-23	16GB HBM2	Pre-version of v5 2024; combines tens of thousands of v5e TPUs
Microsoft	Maia 200 (next-gen)	ASIC	AI training	2026	288GB HBM3e	For large-scale training and inference tasks within Microsoft cloud
	Maia 100	ASIC	AI inference	2024	64GB HBM2e	Optimized for Azure/Bing inference workloads; 1.8TB/s bandwidth
	Cobalt CPU	CPU	AI inference	TBC	DDR5	Undisclosed
Huawei	Ascend 950PR/950DT	NPU	AI Inference/training	2026	128GB HiBL/144GB HiZQ	Employs proprietary HBM (HiBL / HiZQ)
	Ascend 910C	NPU	AI Training	1H25	128GB HBM2e (likely)	ASIC for China AI training and inference
	Ascend 910B	NPU	AI Training	Oct-23	64GB HBM2e	Mostly used AI chips in China besides the US chips
Alibaba	Zhenwu M890	PPU	AI training/inference	2026	144GB HBM3	Mainly for Alibaba AI training/inference; supports cluster scaling
Biren	BR106	GPU	AI training/inference	2023	64GB HBM2e	HBM3 not yet adopted; memory content also low at 64GB
	BR104	GPU	AI training/inference	2022	32GB HBM2e	TSMC 7nm process
Enflame	L600	ASIC	AI training	2025	144GB HBM2e	Mainly for China AI training
Cambricon	MLU590	ASIC	AI inference	2024	64GB HBM2e	Mainly for AI inference;

Source: Company reports, media reports, BofA Global Research

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Exhibit 35: Substantial HBM content growth expected in 2025/2026-27, led by B300, Rubin, and Rubin Ultra

NVIDIA GPUs HBM spec evolution; Rubin Ultra HBM content also up 3x vs 2026 1st Rubin



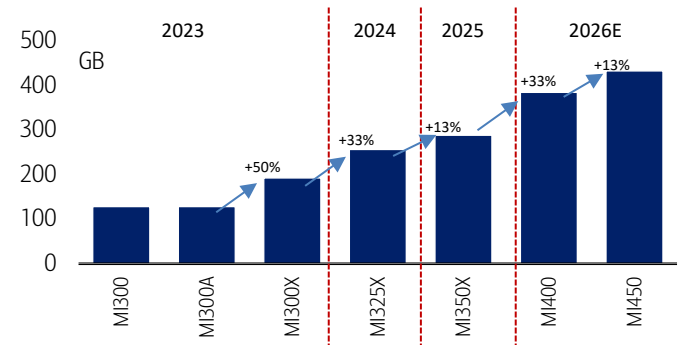
Rubin Ultra and Feynman are likely to have HBM content more than 1TB; axis scaled

Source: NVIDIA, BofA Global Research

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Exhibit 36: 10-30% HBM content growth observed in AMD GPUs as well led by MI350X in 2025 and MI400 series in 2026

AMD GPUs HBM spec evolution



Source: NVIDIA, BofA Global Research

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Exhibit 37: HBM capacity to hit 1TB with Rubin Ultra (2027) and then more than 1.5TB with Feynman Ultra (2030); bandwidth also set to increase 40-50% every year from 1.2 TB/s in 2025 to more than 8 TB/s in 2030

NVIDIA GPU HBM capacity and bandwidth progression

NVIDIA GPU HBM capacity and bandwidth progression

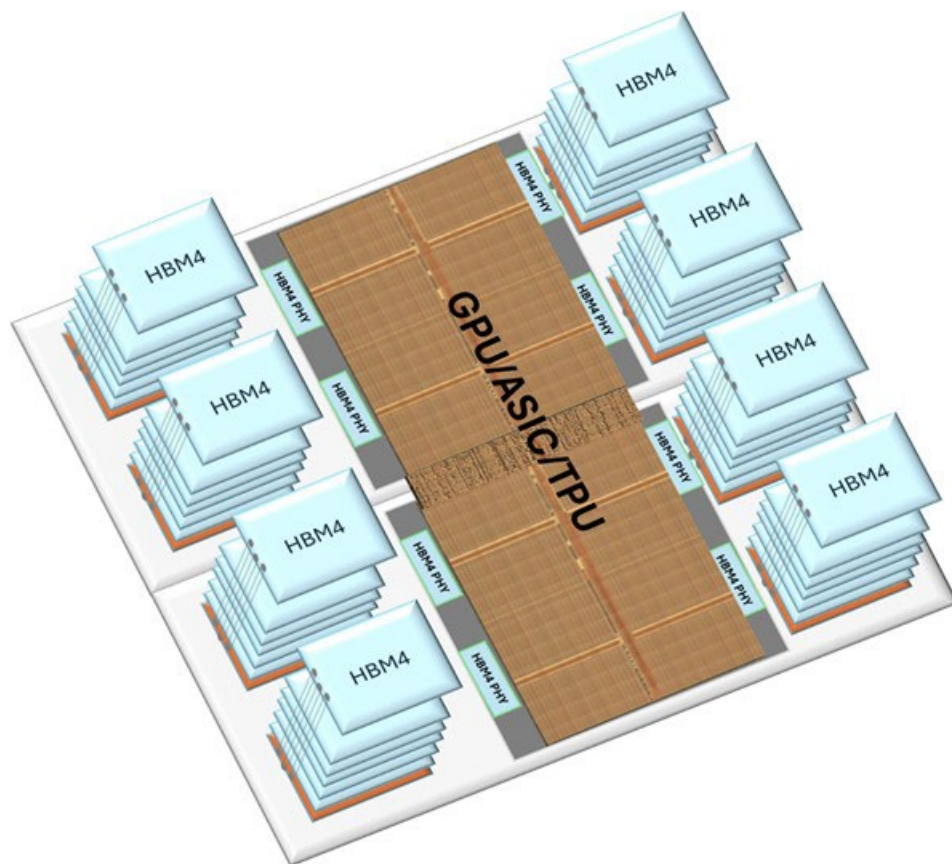
GPU	Shipment start	HBM gen	HBM units/GPU	# of DRAM die layers	DRAM die capacity	Capacity/HBM	Total HBM/GPU	Bandwidth/HBM	GPU bandwidth	Packaging	Bonding
Blackwell B200	2024	HBM3e	8	8-hi	24Gb (3GB)	24GB	192GB	1.2 TB/s	7.2 TB/s	2.5D CoWoS	MR-MUF/NCF
Blackwell Ultra B300	2025	HBM3e	8	12-hi	24Gb (3GB)	36GB	288GB	1.2 TB/s	7-8 TB/s	2.5D CoWoS	MR-MUF/NCF
Rubin	2026	HBM4	8	12-hi/16-hi	24Gb (3GB)	36-48GB	288-384GB	2.8-3.3 TB/s	22-26 TB/s	2.5D CoWoS	MR-MUF/NCF
Rubin Ultra	2027	HBM4e	16	16-hi	32Gb (4GB)	64GB	1,024GB	3.6-4.1 TB/s	58-66 TB/s	2.5D CoWoS	MR-MUF/NCF
Feynman	2028-29	HBM5	8	16-hi/20-hi	32Gb (4GB)	64-80GB	512-640GB	5-6 TB/s	40-50 TB/s	3D Stacked	Partially HB
Feynman Ultra	2030	HBM5e	16	16-hi/20-hi	40Gb (5GB)	80-100GB	1,280-1,600GB	8 TB/s+	128 TB/s+	3D Stacked	Almost Full HB
Post Feynman	2032	HBM6	16	20-hi/24-hi	48Gb (6GB)	120-144GB	1,920-2,304GB	12 TB/s+	192 TB/s+	3D Stacked	HB
Post Feynman Ultra	2035	HBM7	32	20-hi/24-hi	64Gb (8GB)	160-192GB	5,120-6,144GB	20 TB/s+	640 TB/s+	3D Stacked	HB

Source: Company, media reports, BofA Global Research

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Exhibit 38: GPU/ASIC/TPUs use 6-8 HBM chips; upcoming Rubin Ultra GPU is expected to use 16 HBM units; each HBM contains 8-12 DRAM dies (16-20 likely for HBM4e and HBM5)

HBM supply GPU or ASIC (TPU) vs conventional DRAM (LPDDR5, etc.) works with CPU

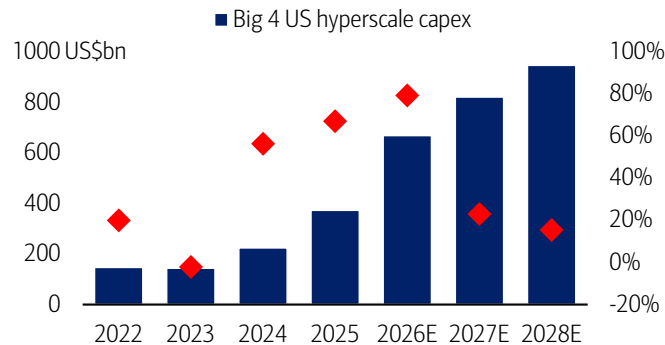


Source: BofA Global Research

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Hyperscale capex and cloud revenue margins

Exhibit 39: Amazon, Microsoft, Alphabet, Meta, and Oracle capex collectively to grow ~80% YoY in 2026 to \$650bn even after strong 65% YoY growth in 2025; 2027/28 capex to hit \$800/950bn+
Combined capex of top 4 US tech companies

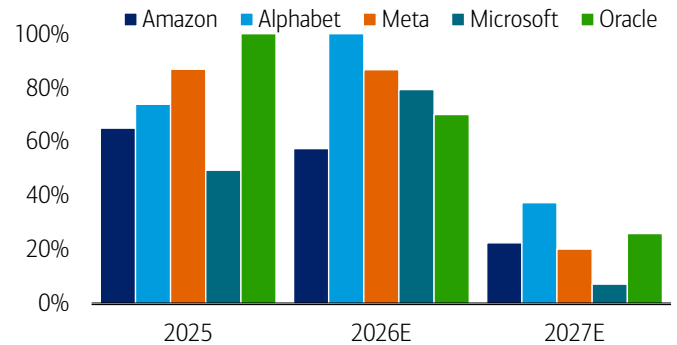


Source: Company reports, BofA Global Research estimates

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Exhibit 40: Record-high capex spend by all big-4 hyperscalers expected to continue in 2026E; robust growth since 2024

Hyperscalers' capex growth – YoY change



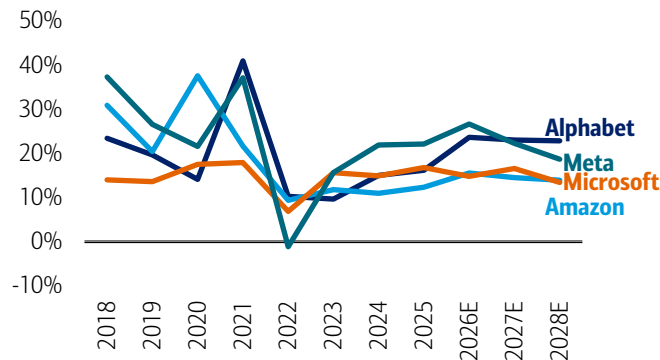
Note: Microsoft and Oracle data adjusted for CY basis **Oracle's 2025 capex up 230% YoY MSFT capex for 2026-27 is based on consensus

Source: Companies, BofA Global Research estimates

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Exhibit 41: Amazon, Microsoft, Alphabet, and Meta overall revenue expected to grow +15-20% in 2026-28

Overall revenue growth trend of top 4 US hyperscalers

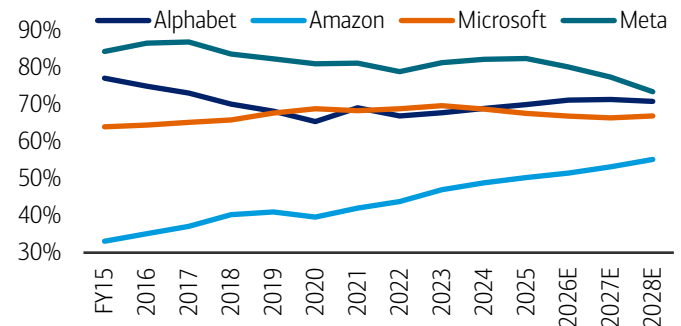


Source: Company reports, BofA Global Research estimates

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Exhibit 42: Gross margin of hyperscalers strong at around 70-80% levels

Gross margin trend of top 4 US hyperscalers

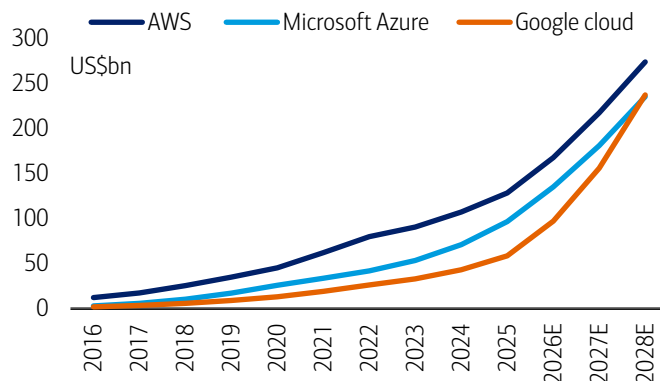


Source: Company reports, BofA Global Research estimates

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Exhibit 43: Cloud revenue growth still solid at 35-40% YoY in 2026-28

Cloud revenue of hyperscalers consistently strong

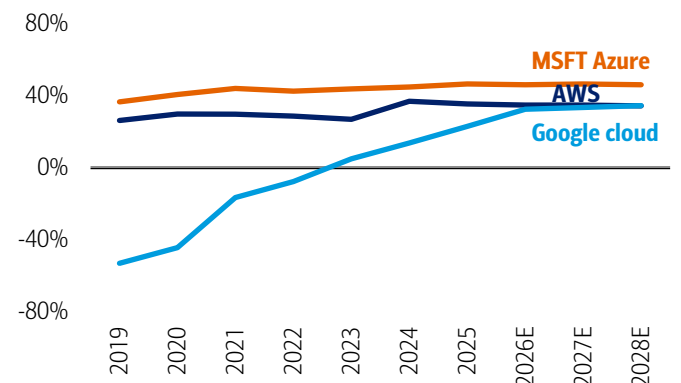


Source: Company reports, BofA Global Research estimates

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Exhibit 44: High OPM seen among AWS (35%+) and Azure (40%+); Google's margin also set to reach 30-35% in 2026-28

Cloud OPM trend also high



Source: Company reports, BofA Global Research estimates

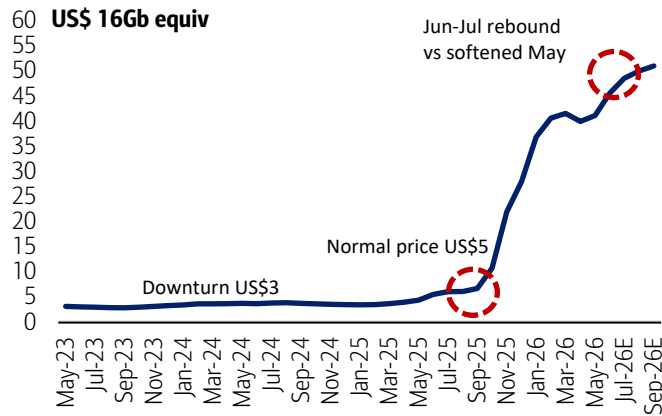
BofA GLOBAL RESEARCH



Memory price forecast and spot price short term trend

Exhibit 45: Well recovered in Jun-Jul following May corrections but still far higher than normal at US\$30-40/GB vs previous peaks of US\$10 range; thus 10%+ downside seen toward end-2026

DRAM spot price outlook - US\$/16Gb equiv

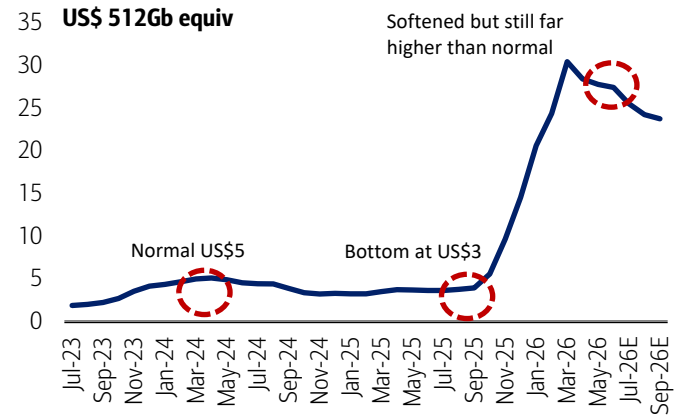


Source: DRAmExchange, BofA Global Research estimates

BofA GLOBAL RESEARCH

Exhibit 46: Unlike DRAM, NAND spot price has been corrected through June-July; further correction possible through summer but no hardlanding and absolut price still far higher than normal

NAND spot price outlook - US\$/512Gb equiv

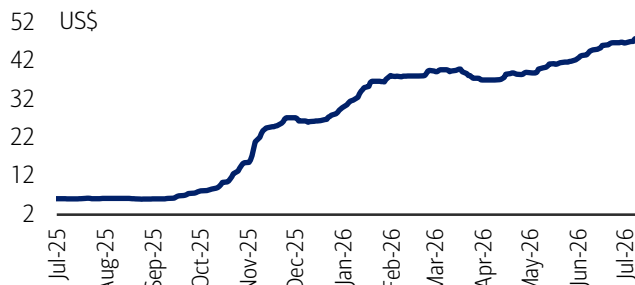


Source: DRAmExchange, BofA Global Research estimates

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Exhibit 47: DDR5 prices reached new highs (\$48) in early-July, supported by strong AI-related demand and constrained supply as DRAM makers prioritize HBM production

16Gb DDR5 spot price – daily, Jul'25 - Jul '26

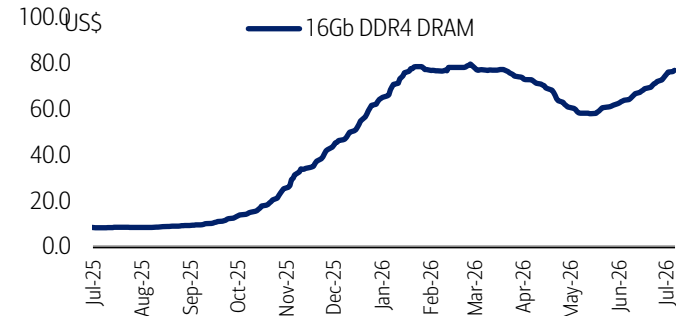


Source: DRAmExchange

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Exhibit 48: DDR4 prices remained near cycle highs, supported by supply cuts and customer restocking, with a brief correction in May before recovering through June and early-July

16Gb DDR4 spot price trend, Jul'25 - Jul '26

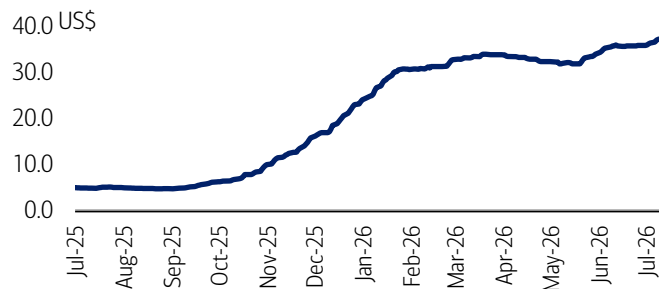


Source: DRAmExchange

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Exhibit 49: 8Gb DDR4 prices remained firm near highs, driven by production exits and inventory replenishment

8Gb DDR4 spot price trend, Jul'25 - Jul '26

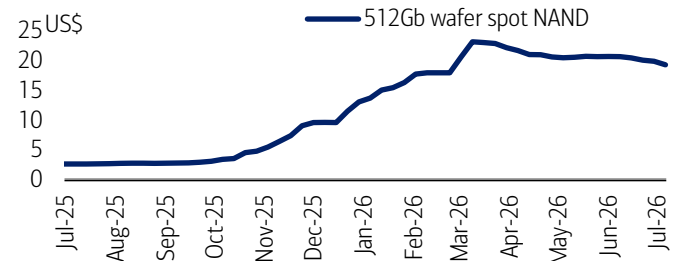


Source: DRAmExchange

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Exhibit 50: NAND wafer pricing rose to elevated levels, through 4Q25-1Q26, on tight supply and stronger SSD demand, but has flattened/slightly softened through 2Q26 and early-Jul

512Gb NAND wafer spot price – weekly, Jun'25 - Jun '26



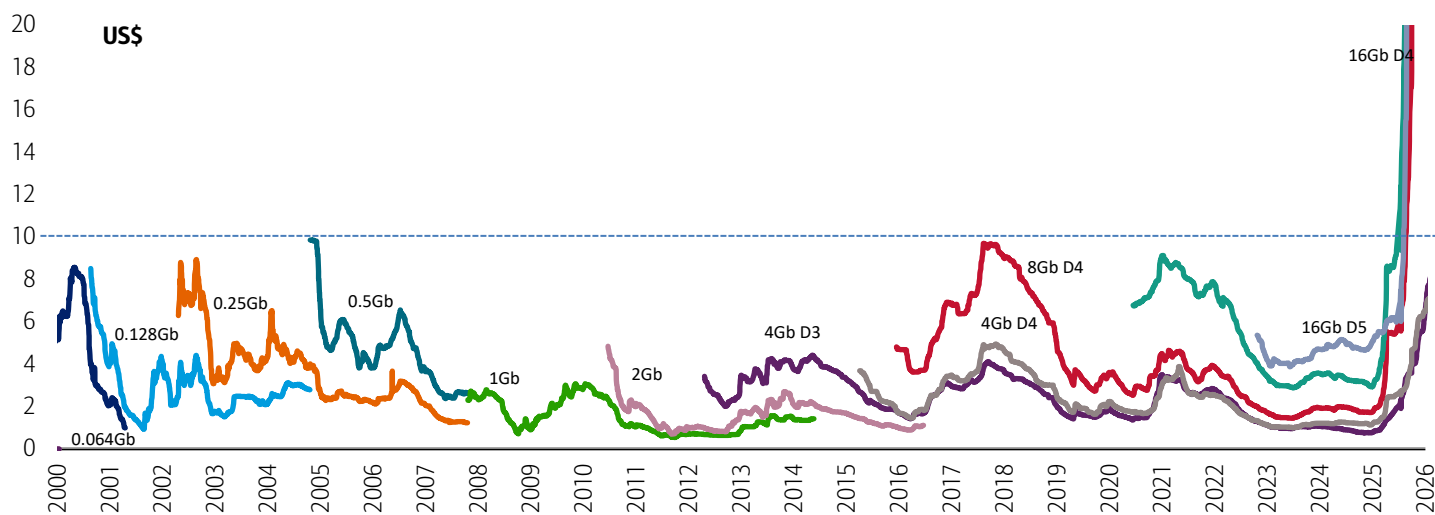
Source: DRAmExchange

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Memory spot/contract price long term trend

Exhibit 51: DRAM spot prices rebounded through June after softening through April–May, following a strong rally from September 2025 to January 2026. Prices have reached multi-decade highs, with 16Gb DDR5 at ~\$48 and DDR4 at ~\$77, driven by supply reallocation toward HBM and server DRAM—well above the prior ~\$10 peak in October 2017.

DRAM spot price – long-term trend (2000-2025)

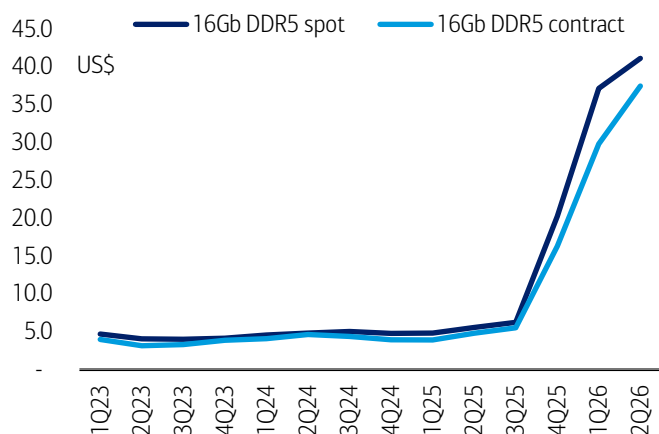


Source: DRAMeXchange

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Exhibit 52: DRAM spot and contract prices climbed to record highs of ~\$35–40, with moderate growth in 2Q26 following a strong rally in 4Q25 and 1Q26.

DRAM spot and contract price - quarterly average trend

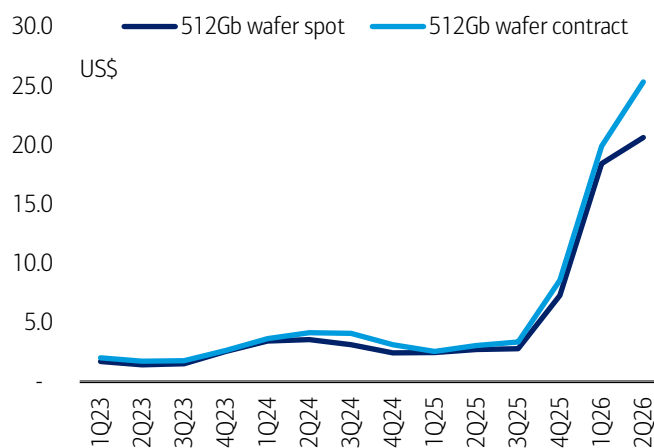


Source: DRAMeXchange, TrendForce

BofA GLOBAL RESEARCH

Exhibit 53: NAND wafer contract prices have surged significantly ahead of spot prices, with both now at record-high levels

NAND wafer spot and contract price - quarterly average trend



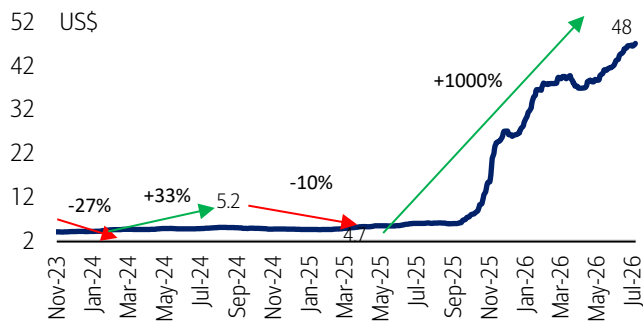
Source: DRAMeXchange, TrendForce

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Exhibit 54: Prices rebounded through May/June/early-Jul, reaching an all-time high (\$48). Uptrend was driven by strong gains in Oct (+70%), Nov (+60%), Jan (+25%), before moderating into a more subdued trend during Feb–Apr

16Gb DDR5 spot price – daily, Nov '23 - Jul '26

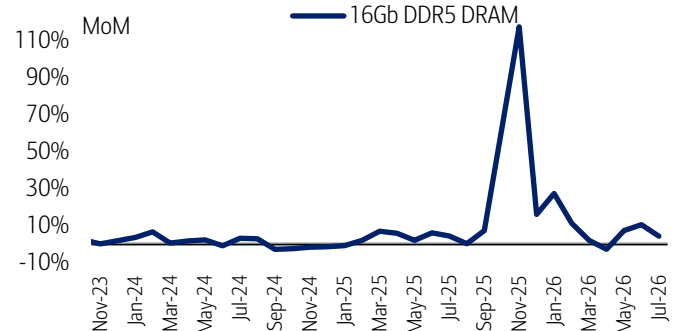


Source: DRAMeXchange

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Exhibit 55: Modest uptick observed in May/Jun/early-Jul (+5-10%), following a sequential slowdown from Feb (+10%) to flat momentum in Mar and a minor decline in Apr, after the strong Jan (+25%) surge and the sharp Oct–Nov-25 rally (+60–120%)

16Gb DDR5 spot month-average price – MoM change, Nov '23 - Jul '26

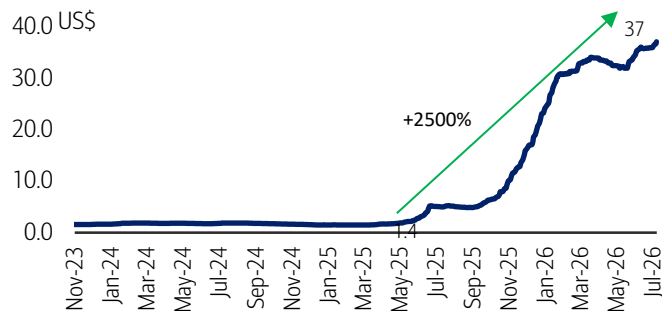


Source: DRAMeXchange

BofA GLOBAL RESEARCH

Exhibit 56: 8Gb DDR4 spot prices reached a record high of ~\$37 in early July, well above the prior ~\$10 peak in October 2017, driven by ongoing supply cuts from major vendors

8Gb DDR4 spot price trend, Nov '23 - Jul '26

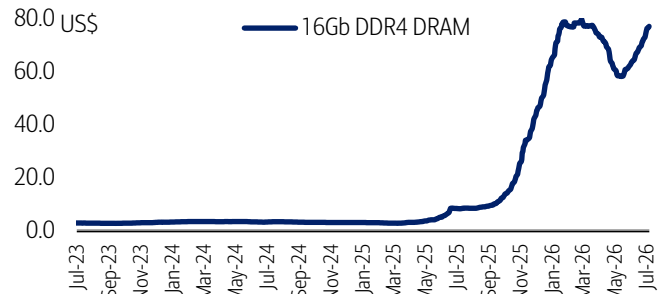


Source: DRAMeXchange

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Exhibit 57: Prices rebounded to record highs in late May–early July after a ~25% April–mid-May correction, remaining ~2000% above the October 2025 low (~\$3)

16Gb DDR4 spot price trend, Jul '23 - Jul '26

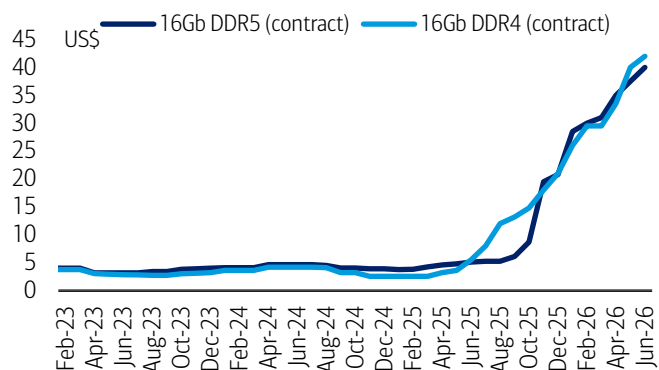


Source: DRAMeXchange

BofA GLOBAL RESEARCH

Exhibit 58: DDR4 and DDR5 (16Gb) contract prices are similar at US\$35–\$40 levels – DDR5 price premium no longer exists due to DDR4 shortage

16Gb DDR5 vs 16Gb DDR4 contract price trend, Feb '23-Jun '26

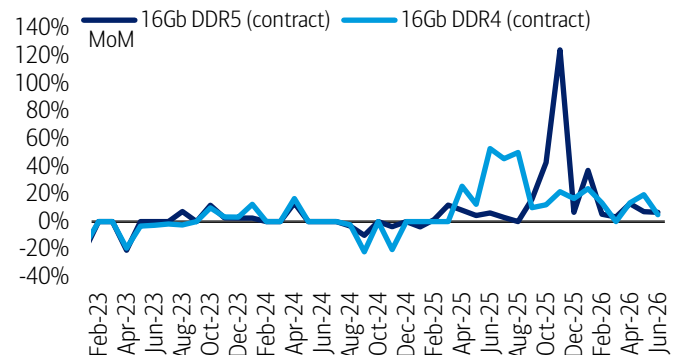


Source: TrendForce

BofA GLOBAL RESEARCH

Exhibit 59: DDR5 and DDR4 contract prices expected to be flat MoM in Jun vs up +10-15% MoM each in Apr/May-26; price strong through 2H25 and early 2026

16Gb DDR5 vs 16Gb DDR4 contract price change - MoM, Feb '23-Jun '26

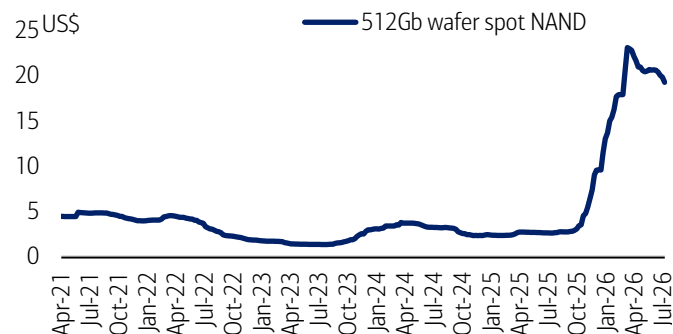


Source: TrendForce

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Exhibit 60: NAND spot prices remained broadly stable to slightly weaker through 1Q26 and early Jul, but still stand more than 50% YTD and nearly 8x higher than the Feb-25 trough

512Gb NAND wafer spot price – weekly, Apr '21 - Jul '26

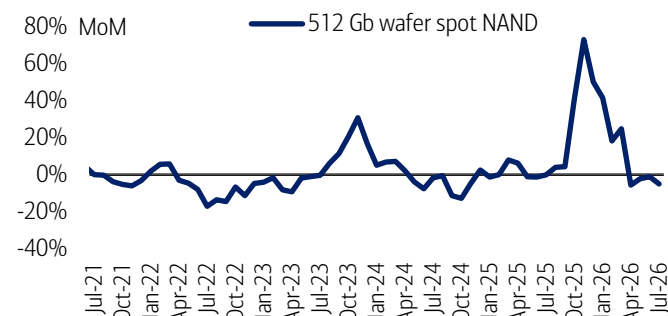


Source: DRAMeXchange

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Exhibit 61: Prices were largely flat in June and slightly lower in early July, following the April–May correction, compared with gains of 15–20% in Feb–Mar 2026 and 40–70% MoM increases during Oct 2025–Jan 2026

512Gb NAND wafer spot average – MoM change, Jul'21 - Jul'26

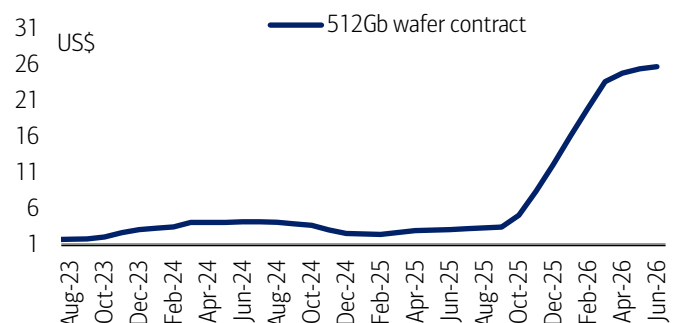


Source: DRAMeXchange

BofA GLOBAL RESEARCH

Exhibit 62: Current contract price at ~\$25, around 10x vs Feb-25 bottom of \$2.5; prices significantly up in 4Q25/1Q26 and remained broadly stable thereafter

NAND wafer contract price trend, Aug '23-Jun '26

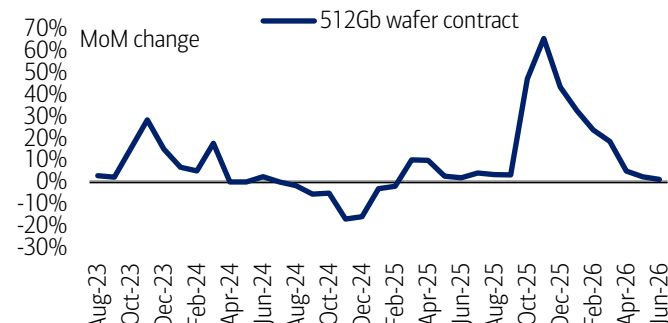


Source: TrendForce, DRAMeXchange, BofA Global Research

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Exhibit 63: Apr/May/Jun price only up +1-5% MoM each following Jan/Feb/Mar-26 rally (up 20-30% MoM) and Oct/Nov/Dec upturn (up 40-60% MoM)

MoM change of NAND contract price (512Gb wafer Aug '23-Jun '26)

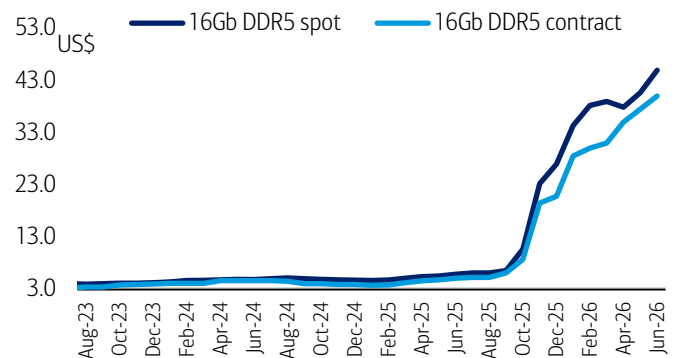


Source: DRAMeXchange, TrendForce, BofA Global Research

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Exhibit 64: 16Gb DDR5 spot and contract prices are in the range of US\$35-40 vs historical range of US\$3-5

16Gb DDR5 spot vs contract price trend (US\$), Aug '23-Jun '26

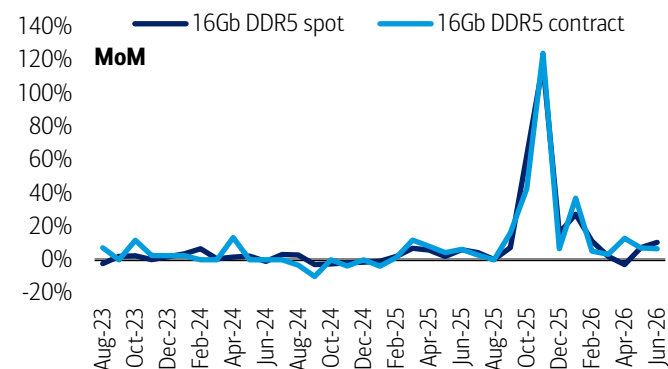


Source: DRAMeXchange, TrendForce

BofA GLOBAL RESEARCH

Exhibit 65: Jun'26 spot and contract prices turned positive again after Feb-Mar moderation, prices had witnessed a sharp Oct–Dec'25 rally

16Gb DDR5 spot vs contract price trend – MoM change, Aug '23-Jun '26



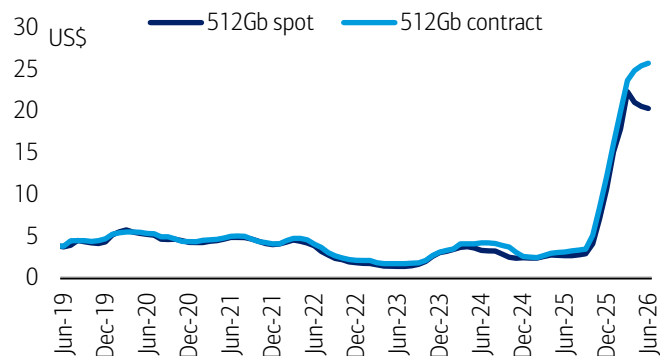
Source: DRAMeXchange, TrendForce

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Exhibit 66: Current NAND spot and contract prices are a few times higher than 2025 summer level

512Gb NAND wafer spot vs contract price trend (US\$), Jun '19 - Jun '26

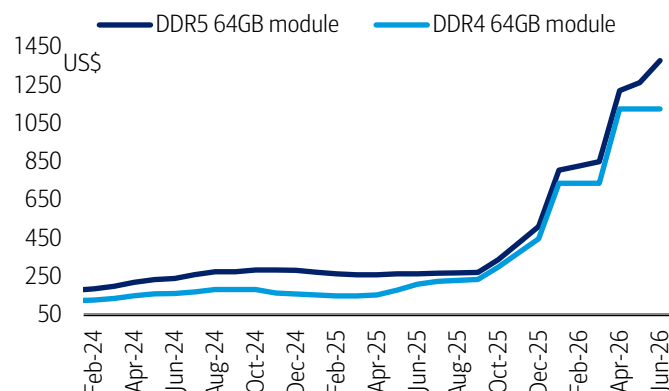


Source: DRAMeXchange, TrendForce

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Exhibit 68: Current price of 64GB DDR4/DDR5 modules hit all-time high of more than \$1,000 level (DDR5: US\$1,400, DDR4: US\$1,100)

Server DRAM contract price trend – DDR5 vs DDR4 modules, Feb '24-Jun '26

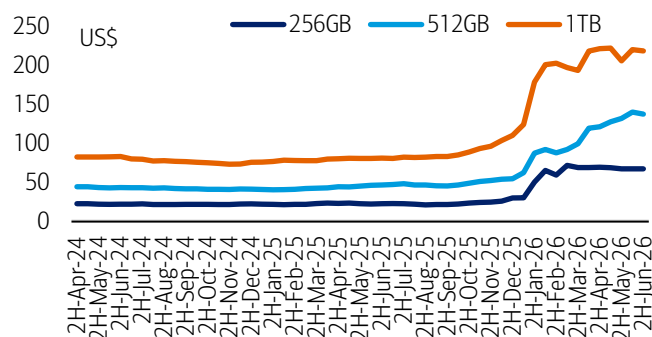


Source: TrendForce

BofA GLOBAL RESEARCH

Exhibit 70: 2H-Jun SSD price slightly down vs 1H-Jun rebound; prices witnessed a sharp surge in 1Q26 and April (DRAMeXchange), following a gradual upward trend throughout 2025

Client SSD price trend – mostly for PC (not server), Apr '24 - Jun '26



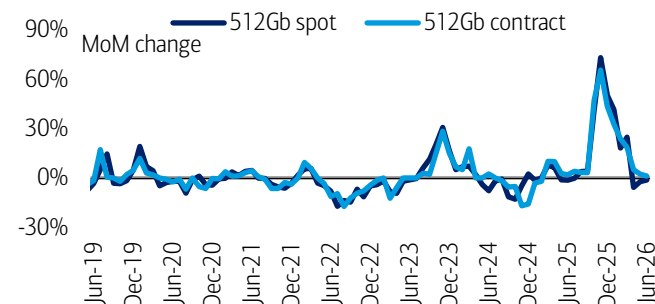
Note: SSD prices are as of 28 Jun 2026, reported by DRAMeXchange. TB = terabyte.

Source: DRAMeXchange

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Exhibit 67: NAND spot and contract prices normalized in Apr/May/June after strong rally during Oct-25 – Dec-25 (up 40-50% per month) and Jan-Mar-26 (20-30% per month)

512Gb NAND spot vs contract price trend – MoM change, Jun '19 - Jun '26

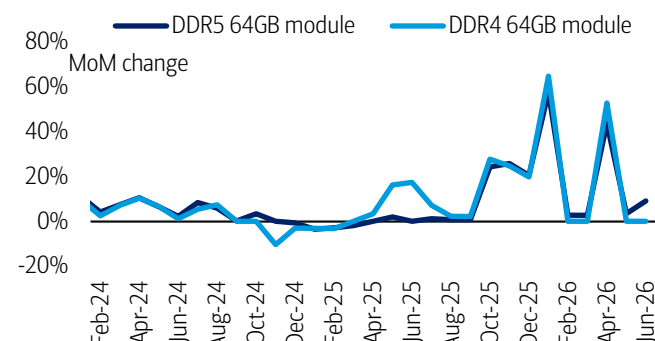


Source: DRAMeXchange, TrendForce

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Exhibit 69: DDR5 server contract prices recovered in June, while DDR4 remained flat in, following a sharp 40–50% MoM increase in Apr-26 and a similar 50–60% surge in January, after largely stable pricing conditions during Feb–Mar

MoM change of server DRAM contract prices, Feb '24-Jun '26

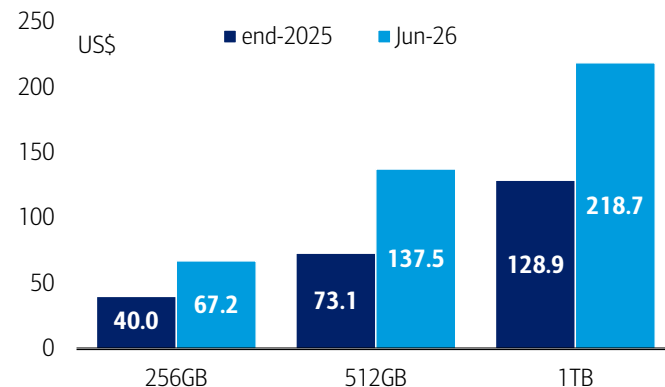


Source: TrendForce

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Exhibit 71: Jun prices have doubled compared to end-2025 levels, while the 2025 increase was more modest at around 35–40%

Client SSD (for PC) price comparison – current vs. end-2025



Note: SSD prices are as of 28 Jun 2026, reported by DRAMeXchange

Source: DRAMeXchange

BofA GLOBAL RESEARCH

Valuation and stock performance

Exhibit 72: Memory stocks sharply corrected this week as well; we believe Meta/CXMT/Korea were newly overly concerned vs solid fundamentals (still rising AI capex spend, CXMT's DRAM for Apple likely not meaningful, low impact of Korea's new memory cluster by 2030, etc); P/E multiples still low despite robust stock price rally in May/June

Valuation comparison among memory and semiconductor supply chain stocks

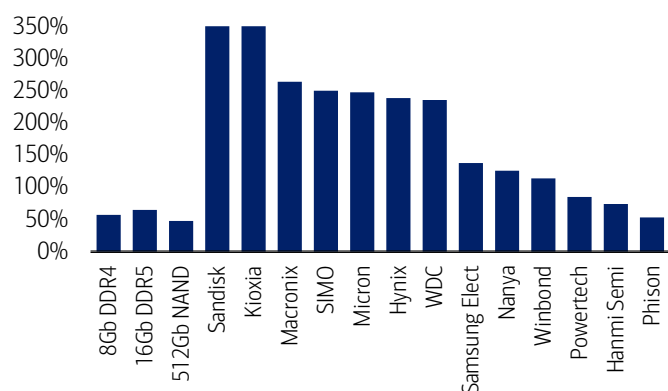
	Ticker	Rating	Price (Local)	Mcap (\$bn)	P/E			P/Book			EV/EBITDA		EV/Sales		ROE			Div. yield	
					FY25	FY26E	FY27E	FY25	FY26E	FY27E	FY26E	FY27E	FY26E	FY27E	FY25	FY26E	FY27E	FY26E	FY27E
Memory/DRAM																			
SK Hynix	HXSCF	RSTR**	2,253,000	1,043.9	37.3			13.3							44.2%				
Samsung	SSNLF	B-1-7	282,500	1,110.2	43.0	6.5	4.9	4.5	2.7	1.8	3.8	2.9	2.3	1.8	10.8%	51.8%	43.5%	1.0%	1.7%
Micron	MU	C-1-7	991.64	1,120.0	119.6	13.6	7.1	20.6	8.2	4.3	10.9	5.7	8.4	4.7	18.8%	87.8%	81.0%	0.1%	0.1%
Nanya	NNYAF	B-1-7	435.50	46.7	205.5	7.0	5.1	8.8	4.2	2.7	5.0	3.7	3.8	2.7	3.9%	73.9%	57.6%	4.6%	5.7%
Memory/NAND																			
Kioxia	XIYUF	C-1-9	77,000	259.5	75.3	8.4	6.4	29.8	6.5	3.2	5.2	4.0	4.2	3.3	51.9%	128.2%	67.2%	0.0%	0.0%
Sandisk	SNDK	C-1-9	1,858.27	275.2	n/a	27.0	8.0	29.9	14.6	4.8	20.7	5.9	13.2	5.0	4.3%	76.0%	96.8%	0.0%	0.0%
Western Digital	WDC	C-1-7	578.05	211.6	n/a	58.1	30.9	39.8	17.1	11.4	39.2	21.4	16.4	11.3	22.5%	42.9%	46.5%	0.1%	0.1%
SIMO	SIMO	C-1-7	324.26	11.0	89.1	36.0	30.5	12.9	9.9	7.9	26.8	21.1	6.3	5.3	15.3%	31.9%	29.6%	0.7%	0.9%
Phison	PISNF	C-1-8	2,220.00	15.2	55.9	6.2	10.5	8.0	4.1	3.4	4.6	7.4	1.9	1.7	16.0%	89.2%	36.0%	8.6%	5.1%
US/Taiwan semis																			
NVIDIA	NVDA	C-1-7	202.78	4,907.3	44.6	22.3	15.3	32.1	16.7	10.5	18.6	13.0	12.6	8.8	94.3%	95.9%	80.3%	0.4%	0.6%
AMD	AMD	C-1-9	546.72	891.5	131.1	72.9	41.2	14.2	12.0	9.2	52.6	31.7	17.9	11.5	11.3%	18.1%	26.3%	0.0%	0.0%
Broadcom	AVGO	C-1-7	401.11	1,908.3	58.8	34.6	22.4	23.6	18.1	11.6	27.4	17.5	18.2	12.0	45.3%	61.3%	65.5%	0.6%	0.7%
Intel	INTC	C-1-9	112.54	565.6	261.7	106.2	65.4	4.5	4.1	3.8	27.9	21.1	9.3	8.1	1.7%	4.1%	6.2%	0.0%	0.0%
Arm	ARM	C-2-9	327.87	350.2	185.2	158.4	115.4	42.3	33.4	25.9	125.1	90.1	59.0	44.1	25.0%	23.6%	25.5%	0.0%	0.0%
Qualcomm	QCOM	B-3-7	191.11	201.4	15.9	18.0	17.4	9.5	7.6	7.2	14.8	14.8	5.1	4.9	56.0%	47.6%	41.7%	1.9%	1.9%
TSMC	TSMWF	B-1-7	2,415	1,944.6	36.5	23.5	16.1	11.6	8.2	5.7	15.2	10.7	11.2	8.0	35.4%	40.8%	41.8%	1.0%	1.0%
MediaTek	MDTKF	B-1-7	3,925	195.5	59.3	60.3	28.8	15.7	16.6	11.5	47.1	23.2	9.5	5.7	26.4%	26.6%	46.8%	1.3%	2.8%
Equipment																			
ASML	ASMLF	B-1-7	1,602.80	711.2	64.7	48.3	34.3	31.8	25.8	21.2	38.3	27.8	15.3	12.2	50.6%	58.7%	67.5%	0.5%	0.7%
AMAT	AMAT	B-1-7	588.66	467.4	62.5	48.4	36.3	22.9	16.0	11.2	41.3	30.9	14.2	11.3	38.6%	39.0%	36.0%	0.4%	0.4%
Lam	LRCX	C-1-7	353.17	441.7	85.5	62.5	46.7	44.8	38.6	27.8	51.4	38.4	19.1	15.0	57.9%	66.9%	68.9%	0.3%	0.3%
TEL	TOELF	C-1-7	72,940	210.2	58.3	48.9	39.7	16.2	13.7	11.4	33.2	27.3	10.6	9.1	29.3%	30.3%	31.4%	1.0%	1.3%
Hanmi Semi	HNSIF	C-1-7	220,000	14.0	97.5	69.7	36.4	30.4	22.9	15.1	53.9	26.9	26.5	14.7	34.8%	37.3%	49.8%	0.5%	0.9%
BESI	BESVF	B-1-7	254.80	23.6	151.2	59.1	35.4	48.3	35.4	25.9	44.9	28.2	20.3	14.4	29.2%	69.4%	84.6%	1.6%	2.7%
ASMPT	ASMVF	C-1-7	187.90	10.1	74.1	47.2	28.4	4.6	4.4	4.0	26.9	17.6	4.1	2.8	6.5%	9.4%	14.5%	1.1%	1.4%

Source: Company reports, BofA Global Research estimates; Mcap = market capitalization, ROE = return on equity, Div = dividend. RSTR = Restricted. Price as of latest close.

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Exhibit 73: Memory stocks corrected sharply for 2 consecutive week after a strong 1H26 rally; however, prices still remain elevated year-to-date, led by NAND and HDD with sustained strength in DRAM, underpinned by robust AI-driven demand

Memory companies – 2026 YTD stock performance comparison



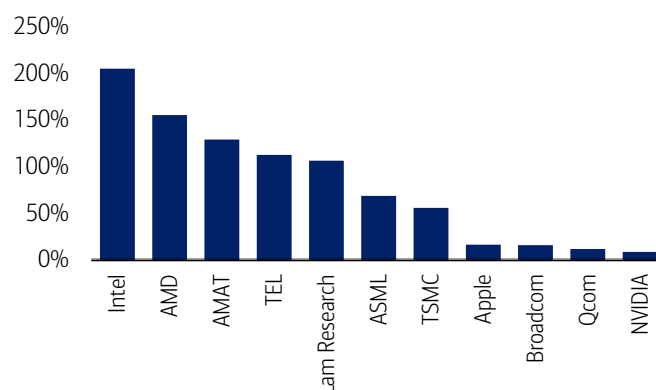
SanDisk/Kioxia shows above 800% YTD return

Source: Bloomberg, DRAMeXchange

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Exhibit 74: CPU names such as Intel and AMD clearly outperforming other US big tech names such as NVIDIA/Apple/QCOM

Global major tech companies – 2026 YTD stock performance comparison



Source: Bloomberg

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Glossary

ASP: Average selling price

CXMT: ChangXin Memory Technologies

DDR3/4/5: 3rd/4th/5th gen double-data rate DRAM

DRAM: Dynamic random-access memory

GDDR7: 7th gen graphics DRAM

GHz: Gigahertz

HBM: High bandwidth memory

HBM4: 6th gen of HBM

IPO: Initial public offering

LPDDR5: Low-power DDR5

SOCAMM: Small-outline compression attached memory module

Wpm: Wafers per month

WSTS: World semiconductor trade statistics

Exhibit 75: Stocks mentioned

Prices and ratings for stocks mentioned in this report

BofA Ticker	Bloomberg ticker	Company name	Price	Rating
NNYAF	2408 TT	Nanya Tech	NT\$ 435.5	B-1-7

Source: BofA Global Research

BofA GLOBAL RESEARCH

Investment Rationale

Nanya Technology

Our Buy rating is based on the DRAM industry's supercycle, which should warrant a high-margin profile for Nanya Tech even in the long term. Its 1Q/2Q26 results already reveal exceptionally strong revenue (NT\$49/83bn, more than 2-3x higher than the previous peak cycle) and 70%+ operating margin. Management focus on long-term contracts, including DDR4 for eSSD or servers, should also act as a catalyst. Significantly rising net cash even after capex hike could also support higher dividend payouts.

Price objective basis & risk

Nanya Technology (NNYAF)

Our PO of NT\$660 is derived from 9x 2027-28E P/E, which is c.30% below the long-term historical average (13x during 2014-25), but near-50% above the previous upturn period (6x in 2014-18). Memory stocks usually trade at low valuation multiples during peak cycle due to downturn concerns. However, the current DRAM cycle looks structurally much better than ever and we expect 2027-28 earnings to exceed 2026 level due to the AI growth theme. This could lead to a re-rating (e.g., 9x P/E or higher), with solid earnings outlook.

Upside risks: DRAM price increases even after the 1H26 upturn, Big-3 memory chipmakers' significant supply cut for commodity DRAM due to HBM, and Nanya Tech's more successful ramp-up of DDR4 or DDR5 (better cost or margin improvement).

Downside risks: weaker legacy DDR4 demand (quicker shift to DDR5), and China's more successful memory production increase.



Analyst Certification

We, Simon Woo, CFA and Matt Shin, hereby certify that the views each of us has expressed in this research report accurately reflect each of our respective personal views about the subject securities and issuers. We also certify that no part of our respective compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.



APR - Semiconductor Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
BUY				
	Alchip	ALCPF	3661 TT	Haas Liu
	AMEC	XRTOF	688012 CH	Dai Shen
	ASE Technology Holding	XSRIF	3711 TT	Haas Liu
	ASE Technology Holding -ADR	ASX	ASX US	Haas Liu
	ASMPT	ASMVF	522 HK	Simon Woo, CFA
	Aspeed	XLKMF	5274 TT	Mike Yang
	Chroma ATE	CRMJF	2360 TT	Haas Liu
	eMemory	XYLWF	3529 TT	Mike Yang
	GigaDevice	YGXIF	603986 CH	Daley Li, CFA
	Global Unichip Corp.	GBUHF	3443 TT	Haas Liu
	Grand Process Technology Corp	XZOWF	3131 TT	Haas Liu
	Hanmi Semiconductor	HNSIF	042700 KS	Simon Woo, CFA
	Hon Precision	XXPIF	7769 TT	Haas Liu
	Horizon Robotics	HRZRF	9660 HK	Daley Li, CFA
	Iluvatar CoreX	XSIBF	9903 HK	Daley Li, CFA
	Ingenic	XISCF	300223 CH	Dai Shen
	InnoScience Technology	XSCHF	2577 HK	Daley Li, CFA
	JCET Group Co Ltd	XJIEF	600584 CH	Dai Shen
	King Yuan Electronics Corp.	KYUFF	2449 TT	Haas Liu
	Kinik	KIKCF	1560 TT	Haas Liu
	MediaTek	MDTKF	2454 TT	Haas Liu
	Montage Technology	XRDF	688008 CH	Daley Li, CFA
	MPI Corporation	XMJCF	6223 TT	Mike Yang
	Nanya Technology	NNYAF	2408 TT	Simon Woo, CFA
	NCE Power	XVFFF	605111 CH	Daley Li, CFA
	OmniVision	XXHQF	603501 CH	Dai Shen
	Phison Electronics	PISNF	8299 TT	Simon Woo, CFA
	Powerchip Semiconductor Manufacturing Co	XCHPF	6770 TT	Haas Liu
	Powertech Technology	XPPZF	6239 TT	Simon Woo, CFA
	Rockchip	XRPXF	603893 CH	Daley Li, CFA
	Samsung C&T	XCDTF	028260 KS	Simon Woo, CFA
	Samsung Elec -G	SSNHZ	SMSN LI	Simon Woo, CFA
	Samsung Electronics	SSNLF	005930 KS	Simon Woo, CFA
	Samsung Electronics Preferred	SSNNF	005935 KS	Simon Woo, CFA
	Silergy Corp.	SLEGF	6415 TT	Mike Yang
	Silicon Motion	SIMO	SIMO US	Simon Woo, CFA
	SK Square	SKSQF	402340 KS	Simon Woo, CFA
	Taiwan Semiconductor Manufacturing Co.	TSM	TSM US	Haas Liu
	Taiwan Semiconductor Manufacturing Co.	TSMWF	2330 TT	Haas Liu
	Vanguard International Semiconductor Co	VGILF	5347 TT	Haas Liu
	Winbond Electronics	WBEKF	2344 TT	Dai Shen
	WinWay Technology	XWCLF	6515 TT	Mike Yang
	WT Microelectronics	XZOPF	3036 TT	Mike Yang
NEUTRAL				
	ASMedia Technology Inc.	XZSFF	5269 TT	Mike Yang
	Black Sesame Intl Holding	BSIHF	2533 HK	Daley Li, CFA
	Hangzhou Silan Microelectronics	XDFRF	600460 CH	Daley Li, CFA
	Lion Electronics	XDHFF	605358 CH	Dai Shen
	LX Semicon	XLXSF	108320 KS	Simon Woo, CFA
	MetaX	XMEZF	688802 CH	Daley Li, CFA
	Novatek	NVKMF	3034 TT	Haas Liu
	Realtek	RLTKF	2379 TT	Mike Yang
	Shenzhen Goodix	XQPLF	603160 CH	Daley Li, CFA
UNDERPERFORM				
	Crystal Clear	XPPTF	300655 CH	Dai Shen
	Faraday	FDYTF	3035 TT	Haas Liu
	GlobalWafers	XWLFF	6488 TT	Mike Yang
	Hua Hong Semi	HHUSF	1347 HK	Dai Shen
	M31 Technology	XMTZF	6643 TT	Mike Yang
	Macronix International	MXICF	2337 TT	Dai Shen
	Maxscend	MXSXF	300782 CH	Daley Li, CFA
	Parade	PRDWF	4966 TT	Mike Yang
	Soulbrain	XSBOF	357780 KS	Simon Woo, CFA



APR - Semiconductor Coverage Cluster

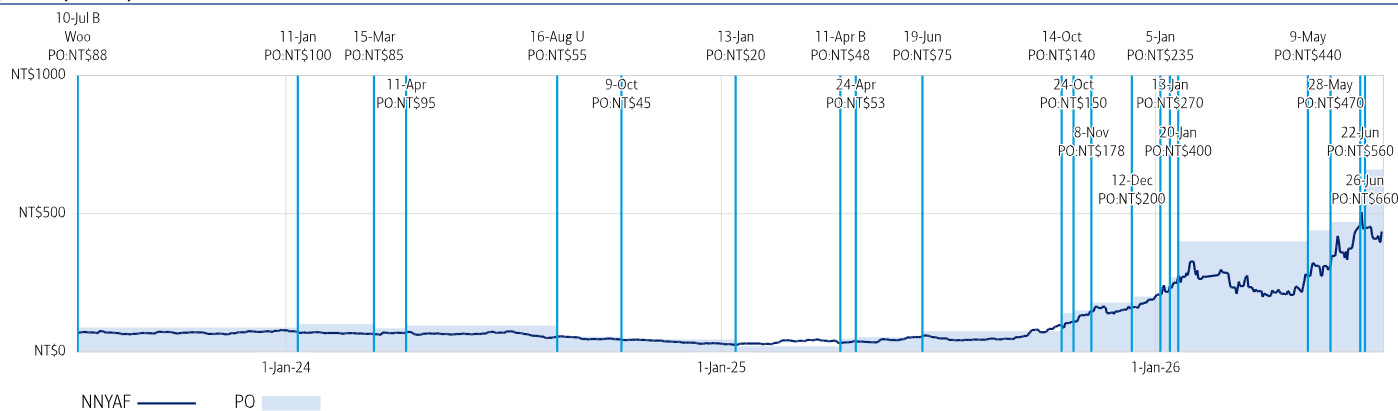
Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
	United Microelectronics Corp.	XUMIF	2303 TT	Haas Liu
	United Microelectronics Corp.	UMC	UMC US	Haas Liu
	VeriSilicon	XMLZF	688521 CH	Daley Li, CFA
	Win Semiconductors	WSMIF	3105 TT	Haas Liu
	Wonik IPS	XRHQF	240810 KS	Simon Woo, CFA

RSTR

	SK Hynix	HXSCF	000660 KS	Simon Woo, CFA
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Nanya Tech (NNYAF) Price Chart

B: Buy, N: Neutral, U: Underperform, PO: Price Objective, NA: No longer valid, NR: No Rating

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Equity Investment Rating Distribution: Technology Group (as of 30 Jun 2026)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	243	60.60%	Buy	123	50.62%
Hold	87	21.70%	Hold	45	51.72%
Sell	71	17.71%	Sell	21	29.58%

Equity Investment Rating Distribution: Global Group (as of 30 Jun 2026)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	1987	56.11%	Buy	1190	59.89%
Hold	797	22.51%	Hold	496	62.23%
Sell	757	21.38%	Sell	391	51.65%

^{R1} Issuers that were investment banking clients of BofA Securities or one of its affiliates within the past 12 months. For purposes of this Investment Rating Distribution, the coverage universe includes only stocks. A stock rated Neutral is included as a Hold, and a stock rated Underperform is included as a Sell.



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Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster ^{R2}
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Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

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