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Global Memory Tech

# Weekly theme: Japan conf takeaways and investor feedback, Sept spot price upside

**Industry Overview**

## Bullish guidance at our Japan conference

We met with management teams of various companies during our Japan conference (31 Aug–3 Sept). Key takeaways for major tech products: (1) NAND - strong growth opportunities in key value cash memory or overall enterprise solutions, global memory supply continuously tight even for the long term, ASP still rising even with more LTAs, minimal greenfield investments (vs DRAM), active shareholder returns; (2) semis equipment - upbeat order trend continues, led by etching, deposition and grinding tools (stronger orders from Taiwan/Korea/US chipmakers vs China); (3) T-glass (ultra-thin glass fiber) - capacity expansion (100-200% growth through 2027-28 vs 2025 level) on track to meet strongly growing AI demand, price increase not yet significant to make the supply chain healthy; (4) substrate - FC BGA supply tight for AI chips, capacity expansion not yet sufficient to meet new demand; (5) MLCC – sharply rising demand for AI servers but price hike not yet active to prevent abnormally high margin (to keep high entry barrier); (6) HBM hybrid bonding - too early to expect meaningful equipment order, still at R&D stage (e.g., traditional TCB likely used for 16-hi or even 20-hi); and (7) limited competition with China AI supply chain companies due to low quality (memory, equipment, substrate, T-glass, MLCC, etc).

## Investors highly interested in memory, asked when to buy

During the conference, lots of investors said memory is still one of the most attractive sectors given high margin/return and low P/E. Some investors also alluded to already trimmed position (less overweight or neutral/underweight in their portfolios) through Jul-Aug correction period. Elevated stock-price volatility was also one of the reasons to have less memory company shares. That said, investors were asking when to buy memory stocks. We believe the current share-price level is highly attractive. Three reasons: (1) trough P/E at 5x or less (like 1.0x P/B established in 2001, 2009, 2019 and 2023); (2) 3Q ASP still rising well (DRAM: 20%+ QoQ); (3) no hardlanding even after 2026 due to AI boom (stable ASP or only marginal price cut even in 2028); (4) no severe competition with China chipmakers; and (5) very active share buyback and dividends. Net-net, we note that many investors with whom we spoke appear ready to rebuild positions in memory stocks.

## Some room for DRAM/NAND spot price increase

Memory spot price increase continued this week, led by 16Gb DDR4 and 1Tb NAND (up 2%). Module makers and channel distributors keep purchasing DRAM and NAND actively, expecting further spot-price rally. This trend seems similar to August (spot price up 10%+/- MoM or 20-30% QoQ; Nanya Tech's monthly sales and Korea's semis exports were also strong). Overall, we expect Sept spot price to rise further as demand/order exceeds broadly tight supply.

**04 September 2026**

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**Exhibit 1: DRAM up this week vs NAND mixed (1Tb up vs 512Gb down)**
Spot-market prices among DRAM and NAND

| US$ | Current | WoW | QoQ | YoY |
|---|---|---|---|---|
| **DRAM spot** | | | | |
| 16Gb DDR5 | 54.0 | 0% | 24% | 793% |
| 16Gb DDR4 | 92.9 | 2% | 45% | 878% |
| 8Gb DDR4 | 44.6 | 1% | 26% | 810% |
| 4Gb DDR4 | 15.1 | 2% | 59% | 491% |
| **NAND spot** | | | | |
| 1Tb wafer | 32.5 | 2% | 29% | 540% |
| 512Gb wafer | 20.7 | -1% | 0% | 640% |
| 256Gb wafer | 16.8 | 0% | 60% | 979% |

**Source:** DRAMeXchange

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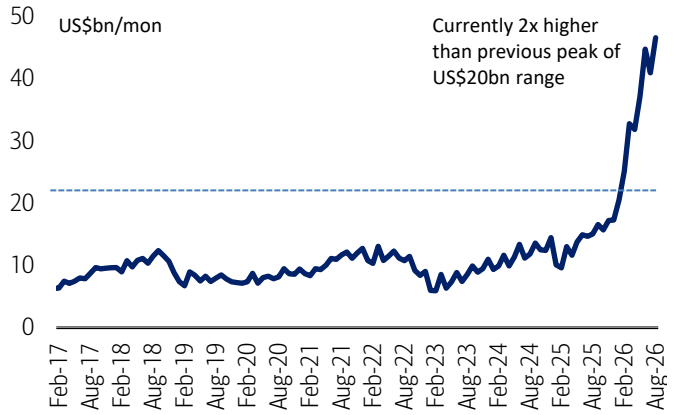
**ASIC**: Application-specific integrated circuit
**ASP**: Average selling price
**CPU**: Central processing unit
**DDR5**: 5th gen double-data rate DRAM
**DRAM**: Dynamic random-access memory
**eSSD**: Enterprise solid-state drive
**FC BGA**: Flip chip ball grid array
**GPU**: Graphics processing unit
**HBM**: High bandwidth memory
**LTA**: Long-term agreement
**TCB**: Thermal compression bonding
**MLCC**: Multilayer ceramic capacitor
**NAND**: Not-AND memory
**OEM**: Original equipment manufacturer

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**Refer to important disclosures on page 9 to 11.**
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# Korea exports and Nanya monthly sales trend

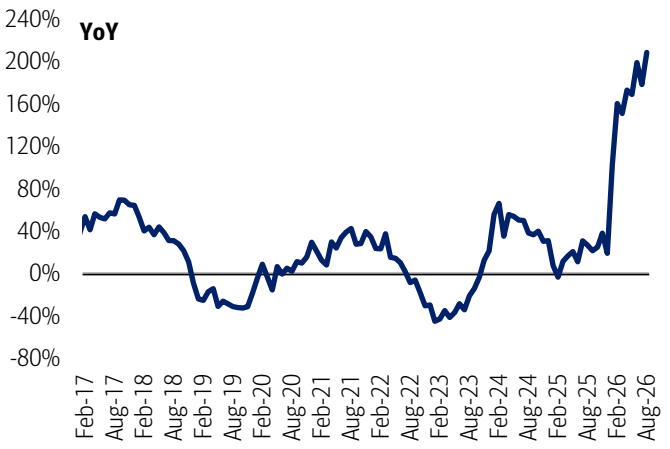
**Exhibit 2: Over US$40bn for three consecutive months with a new record-high in Aug (US$46.7bn; +14% MoM)**
Korea semis exports - US$bn/month




**Source:** MoTIR

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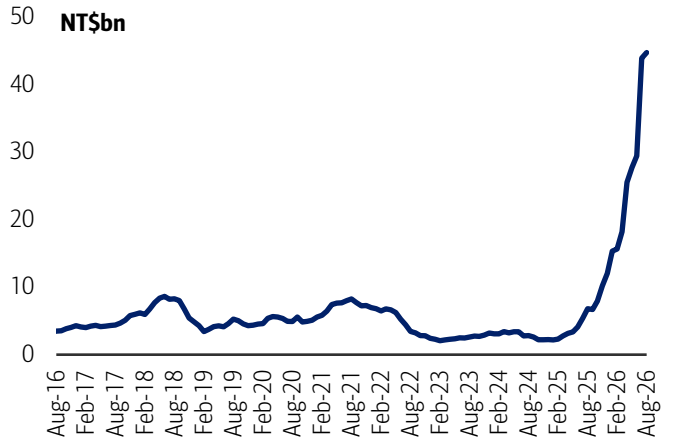
**Exhibit 3: YoY rebound further accelerated in Aug (+209%); already eight consecutive months of triple-digit growth**
Korea semis exports - YoY change in monthly US$bn




**Source:** MoTIR

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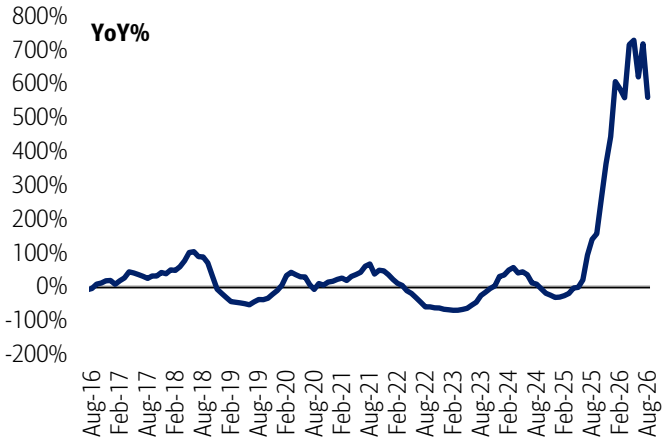
**Exhibit 4: Nanya Tech Aug 2026 sales hit a new record high: NT$44.7bn, +2% MoM**
Nanya Tech monthly sales




**Source:** Company, BofA Global Research

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**Exhibit 5: Nanya Tech Aug sales up 561% YoY, slightly decelerated vs past three months (600-700% in May-July) but significantly higher than normal trend**
Nanya Tech monthly sales YoY

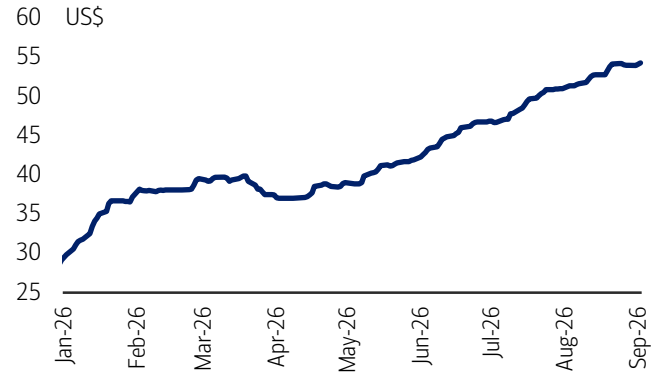



**Source:** Company, BofA Global Research

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# YTD spot price and memory share-price trend

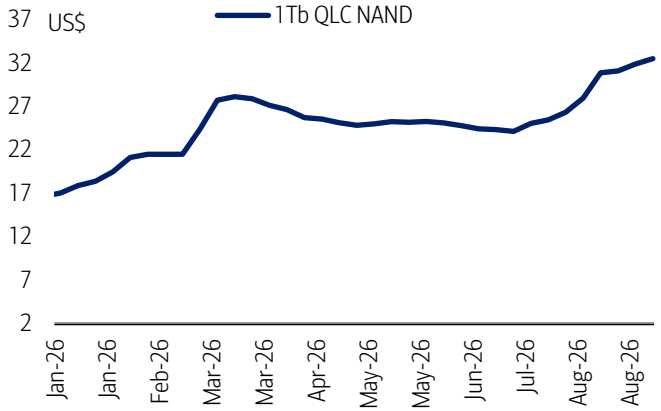
**Exhibit 6: DDR5 spot-price rally continues into 3Q26 despite 4Q25 and 1H26 rally; price up 85% YTD hitting an all-time high of US$54**
16Gb DDR5 spot price – daily, Jan '26 - Aug '26




**Source:** DRAMeXchange

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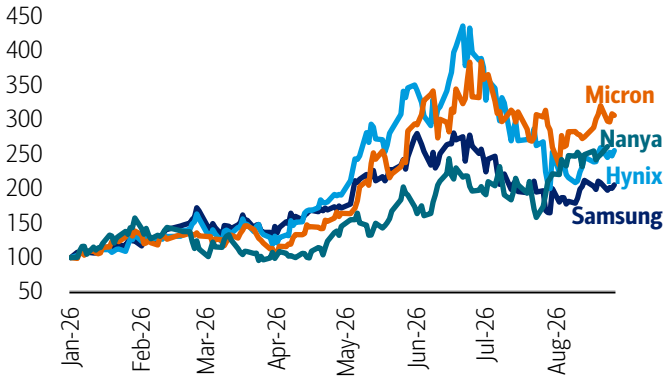
**Exhibit 7: NAND spot rebounded well in Jul-Aug led by 1Tb wafer vs softened 2Q26**
1Tb NAND wafer spot price – weekly, Jan '26 - Aug '26




**Source:** DRAMeXchange

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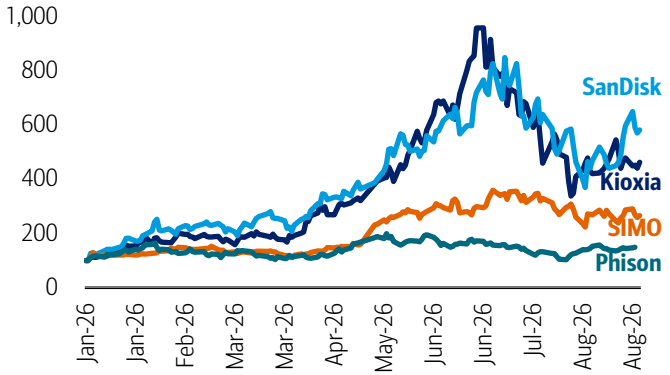
**Exhibit 8: All DRAM stocks (Micron, Nanya, Hynix and Samsung) corrected in July-Aug but still 2-3x higher than beginning of 2026 level**
DRAM stock performance comparison YTD




***Share prices indexed to 100 based on Jan-26 close prices**
**Source:** Bloomberg, BofA Global Research

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**Exhibit 9: NAND stocks also corrected in July-August but still 100%+ higher than beginning of 2026**
NAND stock performance comparison YTD




***Share prices indexed to 100 based on Jan-26 close prices**
**Source:** Bloomberg, BofA Global Research

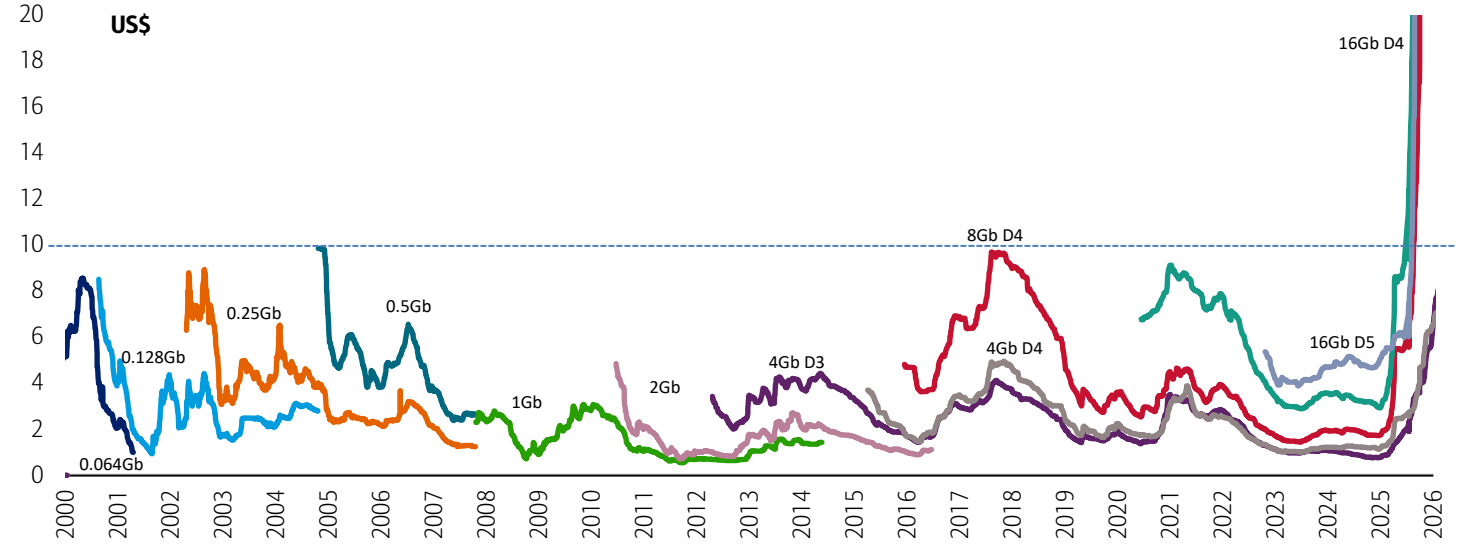
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## Memory spot/contract price trend

**Exhibit 10: DRAM spot prices rebounded through June/July/Aug after softening through April–May, following a strong rally from September 2025 to January 2026. Prices have reached multi-decade highs, with 16Gb DDR5 (for PC) at ~$54 and DDR4 at ~$93, driven by supply reallocation toward HBM and server DRAM—well above the prior ~$10 peak in October 2017.**

DRAM spot price – long-term trend (2000-2026)

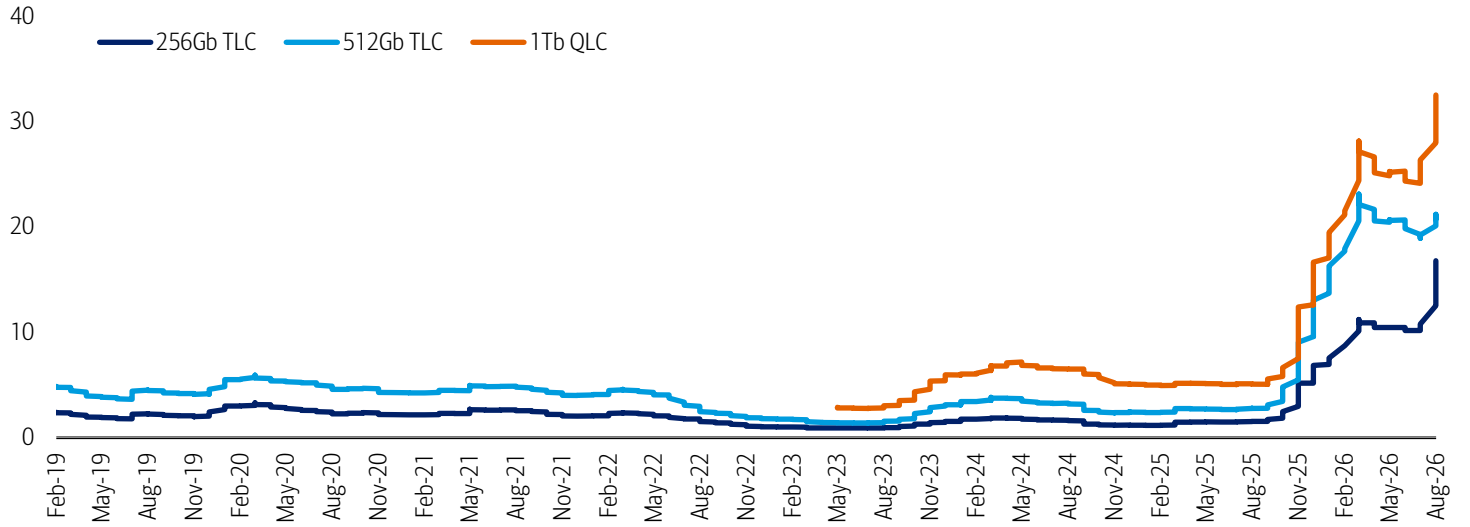



**Source:** DRAMeXchange

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**Exhibit 11: NAND wafer prices rebounded sharply in early August, having stayed broadly flat to slightly lower through 2Q26 — a pause that followed the exceptionally strong rally seen across 4Q25 and 1Q26**

NAND wafer spot price – long-term trend (2019-2026)

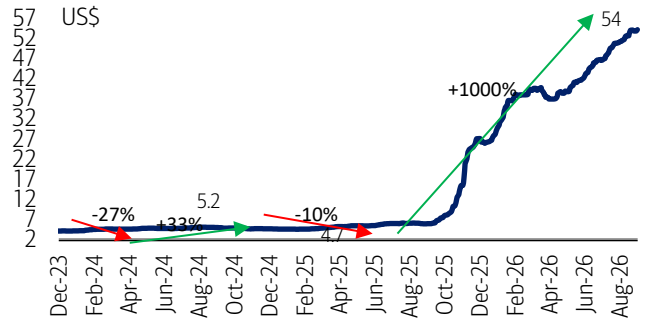



**Source:** DRAMeXchange

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**Exhibit 12: Prices rebounded through May/June/Jul/Aug, reaching an all-time high ($54). Uptrend 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, Dec '23 - Aug '26

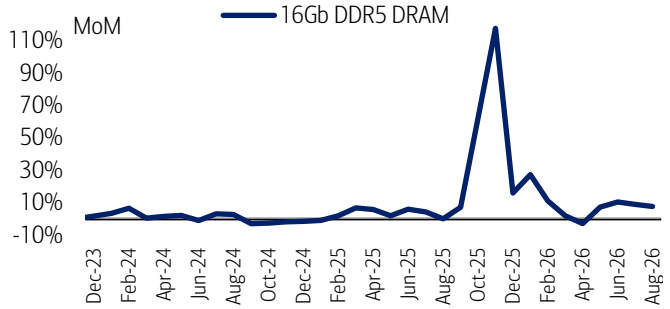



**Source:** DRAMeXchange

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**Exhibit 13: Modest uptick observed in May/Jun/Jul/Aug (+7-10%), 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-2025 rally (+60–120%)**

16Gb DDR5 spot month-average price – MoM change, Dec '23 - Aug '26

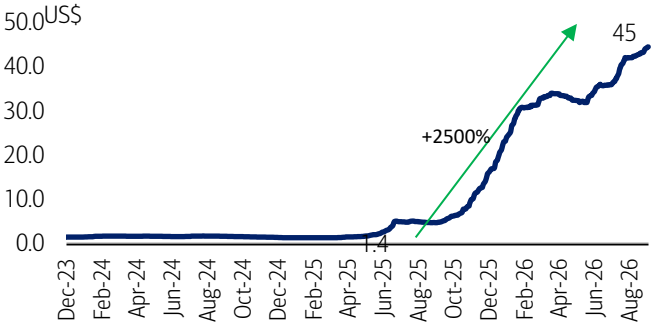



**Source:** DRAMeXchange

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**Exhibit 14: 8Gb DDR4 spot prices reached a record high of ~$45 in Aug, still well above the prior ~$10 peak in October 2017, driven by ongoing supply cuts from major vendors**

8Gb DDR4 spot price trend, Dec '23 - Aug '26

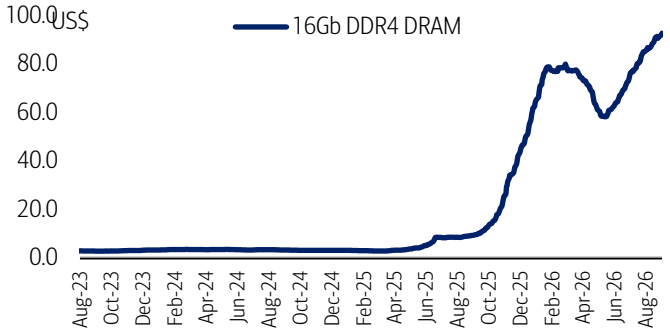



**Source:** DRAMeXchange

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**Exhibit 15: Prices rebounded to record highs in late-May–Aug after a ~25% April–mid-May correction, remaining ~2000% above the October 2025 low (~$3)**

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

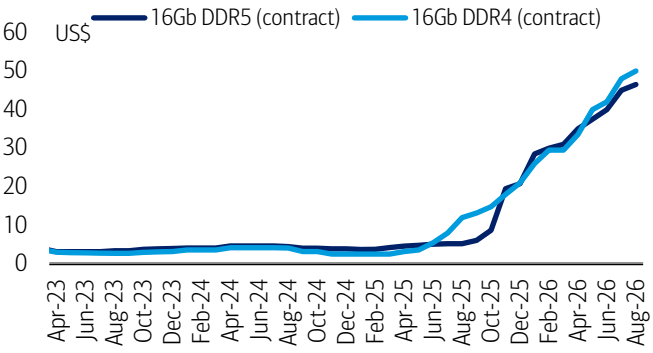



**Source:** DRAMeXchange

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**Exhibit 16: 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, Mar '23- Aug '26

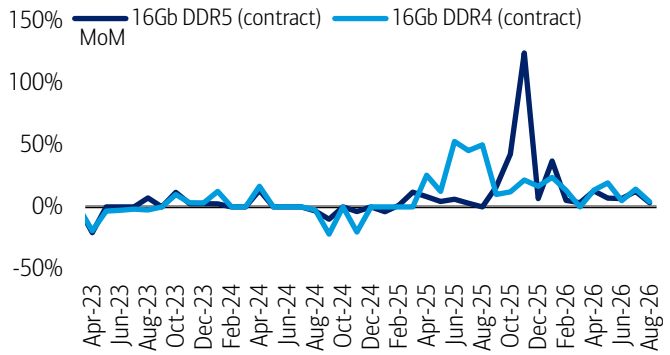



**Source:** TrendForce

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**Exhibit 17: DDR5 and DDR4 contract prices up only low-single digit in Aug vs up 10-15% MoM in July; price strong through 2H25 and 1H26**

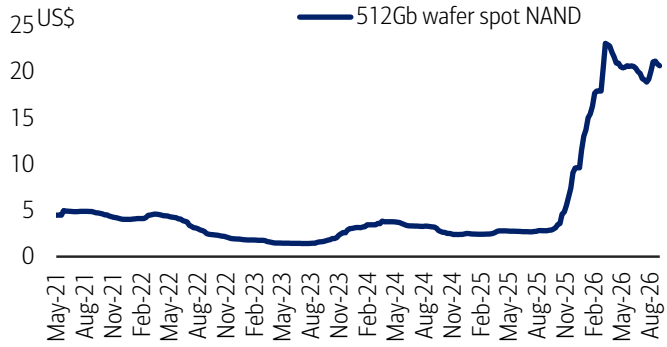
16Gb DDR5 vs 16Gb DDR4 contract price change - MoM, Mar '23- Aug'26




**Source:** TrendForce

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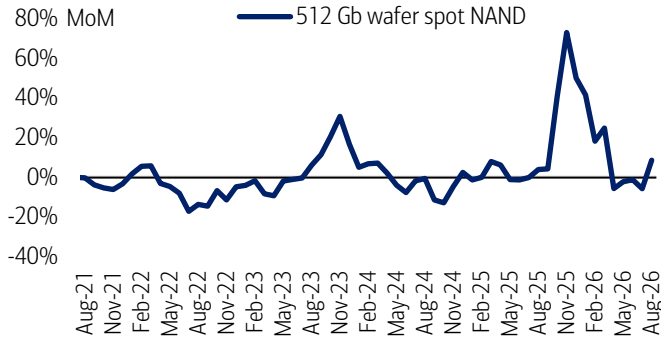
**Exhibit 18: NAND spot prices rebounded sharply in Aug after remaining largely flat to slightly weaker throughout 2Q26 and most of July, prices are still up more than 50% YTD and nearly 8x above the Feb-2025 trough**
512Gb NAND wafer spot price – weekly, May'21 - Aug'26




**Source:** DRAMeXchange

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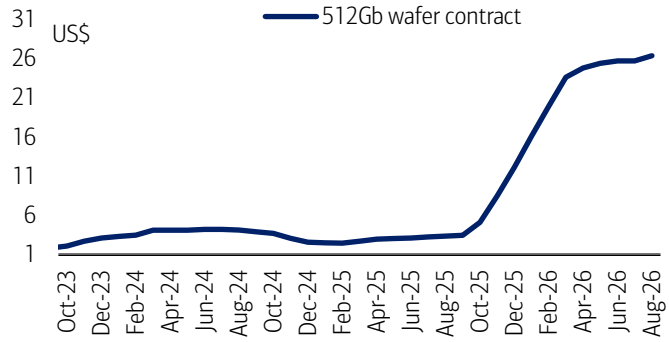
**Exhibit 19: Strong rebound observed in Aug after prices remained largely flat in June and softened in July following the Apr-May correction, compared with stronger gains of 15-20% in Feb-Mar'26 and sharp 40-70% MoM increases during Oct'25-Jan'26**
512Gb NAND wafer spot average – MoM change, Aug'21 - Aug'26




**Source:** DRAMeXchange

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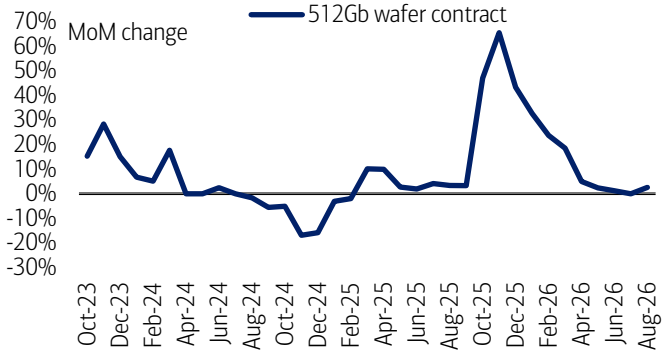
**Exhibit 20: Current contract price at ~$26, around 10x vs Feb-25 bottom of $2.5; prices significantly up in 4Q25/1Q26 and remained broadly stable thereafter**
NAND wafer contract price trend, Oct '23-Aug '26




**Source:** TrendForce, DRAMeXchange, BofA Global Research

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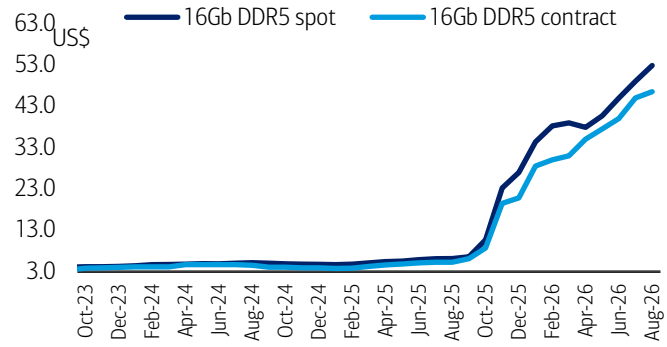
**Exhibit 21: Apr/May/Jun/Jul/Aug price only up 1-5% MoM each following Jan/Feb/Mar'26 rally (up 20-30% MoM) and Oct/Nov/Dec upturn (up 40-60% MoM)**
MoM change of NAND contract price (512Gb wafer Oct'23-Aug'26




**Source:** DRAMeXchange, TrendForce, BofA Global Research

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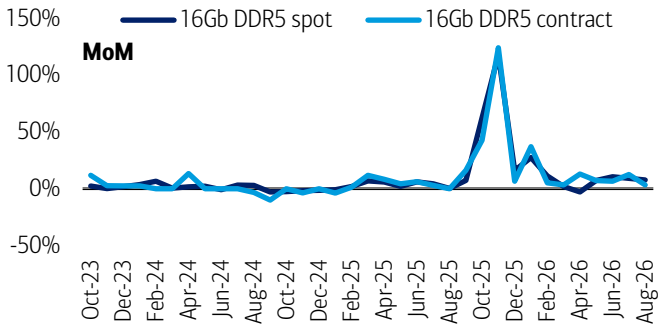
**Exhibit 22: 16Gb DDR5 spot and contract prices are in the range of US$35-40 vs historical range of US$3-5**
16Gb DDR5 spot vs contract price trend (US$), Oct '23-Aug '26




**Source:** DRAMeXchange, TrendForce

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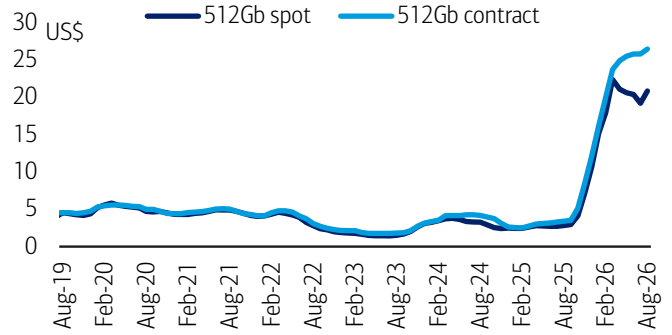
**Exhibit 23: Jun/Jul/Aug-26 spot and contract prices turned positive again after Feb-Mar moderation; prices had witnessed a sharp rally in Oct–Dec'25**
16Gb DDR5 spot vs contract price trend – MoM change, Oct '23-Aug '26




**Source:** DRAMeXchange, TrendForce

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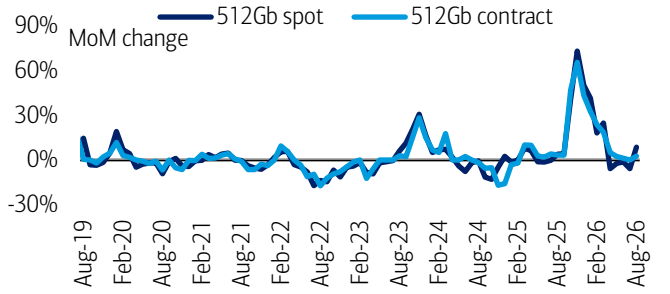
**Exhibit 24: Current NAND spot and contract prices are a few times higher than 2025 summer level**
512Gb NAND wafer spot vs contract price trend (US$), Aug'19 - Aug'26




**Source:** DRAMeXchange, TrendForce

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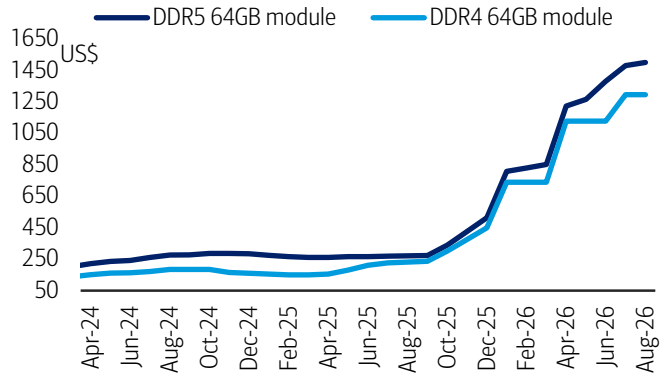
**Exhibit 25: NAND spot and contract prices recover in Aug after normalizing in Apr/May/Jun/Jul after strong rally during Oct'25 – Dec'25 (up 40-50% per month) and Jan-Mar'26 (20-30% per month)**
512Gb NAND spot vs contract price trend – MoM change, Aug'19 - Aug'26




**Source:** DRAMeXchange, TrendForce

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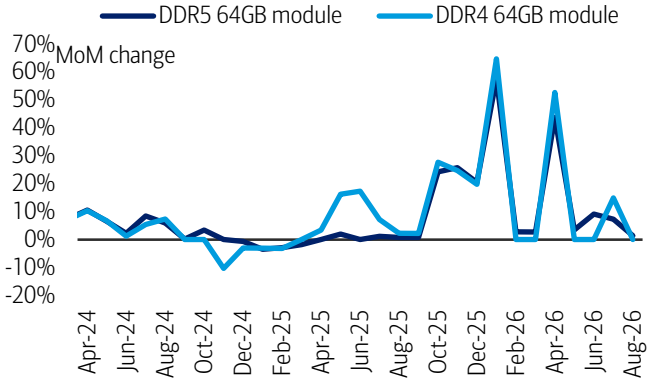
**Exhibit 26: Current price of 64GB DDR4/DDR5 modules hit all-time high of more than US$1,000 level (DDR5: US$1,480, DDR4: US$1,300)**
Server DRAM contract price trend – DDR5 vs DDR4 modules, Mar'24-Jul'26




**Source:** TrendForce

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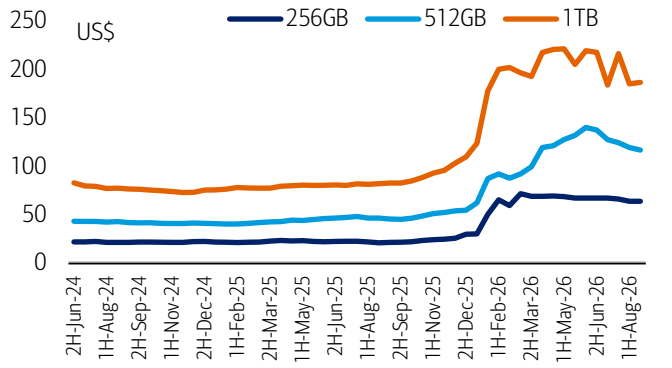
**Exhibit 27: DDR5/DDR4 server contract prices remained flat in Aug after recovering +7-15% MoM in July, remained stable in May/Jun-26**
MoM change of server DRAM contract prices, Mar'24-Jul'26




**Source:** TrendForce

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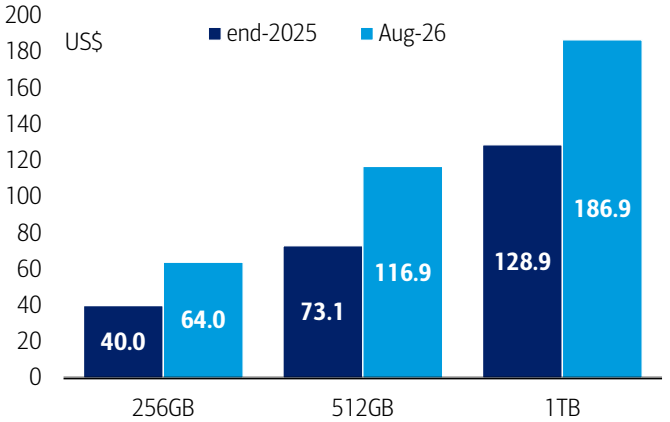
**Exhibit 28: Aug SSD prices corrected slightly vs strong rally in 1H26 and 2025 gradual recovery**
Client SSD price trend – mostly for PC (not server), Jun'24 - Aug'26




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

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**Exhibit 29: Aug 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 Aug 2026, reported by DRAMeXchange
**Source:** DRAMeXchange

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## Valuation and stock performance

**Exhibit 30: Samsung and SK Hynix softened this week due to a broad semiconductor pullback and profit-taking after strong AI-driven gains, while fundamentals remain supported by robust HBM demand, strong NVIDIA commentary, and continued hyperscaler AI CapEx expansion; most DRAM stocks still trade just at 4-7x based on 2026/27 EPS**

Valuation comparison among memory and semiconductor supply chain stocks

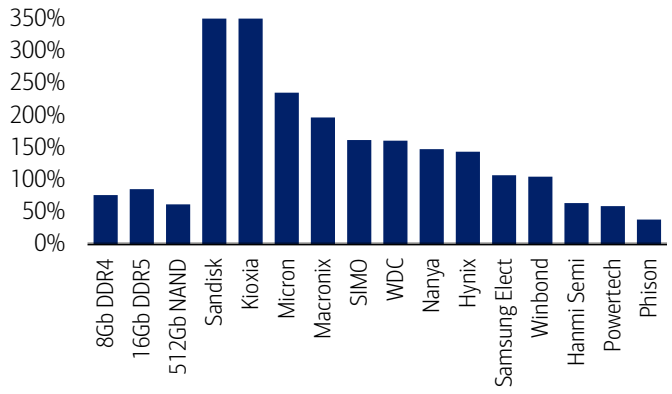
| | Ticker | Rating | Price (Local) | Mcap ($bn) | P/E | | | P/Book | | | EV/EBITDA | | EV/Sales | | ROE | | | Div. yield | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | FY25 | FY26E | FY27E | FY25 | FY26E | FY27E | FY26E | FY27E | FY26E | FY27E | FY25 | FY26E | FY27E | FY26E | FY27E |
| **Memory/DRAM** | | | | | | | | | | | | | | | | | | | |
| SK Hynix | HXSCF | C-1-7 | 1,597,000 | 847.4 | 4.4 | 4.1 | 4.1 | 2.9 | 1.8 | 1.4 | 2.5 | 2.5 | 2.1 | 2.0 | 100.1% | 55.7% | 38.3% | 4.7% | 5.9% |
| Samsung | SSNLF | C-1-7 | 248,500 | 1,064.0 | 5.5 | 4.1 | 4.3 | 2.4 | 1.6 | 1.3 | 2.5 | 2.6 | 1.6 | 1.5 | 54.2% | 47.1% | 32.5% | 4.3% | 4.5% |
| Micron | MU | C-1-7 | 956.08 | 1,079.8 | 13.1 | 6.8 | 6.6 | 7.9 | 4.1 | 3.0 | 5.5 | 5.5 | 4.5 | 4.3 | 87.8% | 81.0% | 54.8% | 0.1% | 0.1% |
| Nanya | NNYAF | B-1-7 | 477.50 | 51.8 | 7.6 | 5.6 | 7.0 | 3.6 | 2.4 | 2.0 | 3.4 | 4.2 | 2.6 | 2.6 | 67.9% | 52.0% | 31.5% | 5.2% | 5.2% |
| **Memory/NAND** | | | | | | | | | | | | | | | | | | | |
| Kioxia | XIYUF | C-1-9 | 51,670 | 178.6 | 5.3 | 4.1 | 3.3 | 4.2 | 2.1 | 1.3 | 2.4 | 2.0 | 2.0 | 1.6 | 130.5% | 67.6% | 47.9% | 0.0% | 0.0% |
| Sandisk | SNDK | C-1-9 | 1,553.40 | 227.4 | n/a | 6.6 | 6.3 | 14.6 | 4.2 | 2.4 | 4.5 | 4.2 | 3.8 | 3.6 | 88.0% | 103.2% | 52.1% | 0.0% | 0.0% |
| Western Digital | WDC | C-1-7 | 448.90 | 154.7 | n/a | 23.4 | 14.1 | 18.5 | 10.7 | 6.2 | 15.7 | 10.3 | 8.8 | 5.9 | 54.9% | 61.3% | 58.5% | 0.1% | 0.1% |
| SIMO | SIMO | C-1-7 | 242.51 | 8.2 | 20.8 | 22.8 | 18.4 | 6.7 | 5.5 | 4.4 | 15.9 | 12.9 | 3.8 | 3.3 | 39.1% | 27.2% | 27.4% | 1.2% | 1.3% |
| Phison | PISNF | C-1-8 | 2,000.00 | 13.9 | 5.5 | 9.4 | 14.7 | 3.3 | 2.8 | 2.5 | 5.9 | 9.2 | 1.4 | 1.6 | 92.3% | 37.0% | 20.7% | 5.8% | 0.0% |
| **US/Taiwan semis** | | | | | | | | | | | | | | | | | | | |
| NVIDIA | NVDA | C-1-7 | 224.41 | 5,408.3 | 24.7 | 14.3 | 9.7 | 18.7 | 10.7 | 6.7 | 12.2 | 8.6 | 8.1 | 5.8 | 96.8% | 90.7% | 77.6% | 0.5% | 0.6% |
| AMD | AMD | C-1-9 | 457.06 | 746.1 | 60.0 | 28.8 | 19.1 | 10.0 | 7.4 | 5.2 | 22.5 | 15.0 | 8.3 | 5.8 | 18.3% | 30.3% | 34.1% | 0.0% | 0.0% |
| Broadcom | AVGO | C-1-7 | 367.24 | 1,747.2 | 31.7 | 19.7 | 11.8 | 16.0 | 10.2 | 6.0 | 15.4 | 9.2 | 10.4 | 6.2 | 60.0% | 65.1% | 66.3% | 0.8% | 0.9% |
| Intel | INTC | C-1-9 | 90.05 | 475.9 | 61.3 | 44.8 | 30.8 | 3.6 | 3.4 | 3.0 | 15.6 | 12.3 | 6.2 | 5.3 | 5.9% | 7.9% | 10.6% | 0.0% | 0.0% |
| Arm | ARM | C-2-9 | 234.86 | 250.8 | 105.8 | 79.9 | 60.4 | 23.1 | 17.1 | 12.6 | 60.4 | 45.1 | 30.0 | 23.2 | 25.1% | 25.0% | 24.5% | 0.0% | 0.0% |
| Qualcomm | QCOM | C-3-7 | 169.96 | 178.5 | 16.2 | 16.0 | 13.7 | 6.2 | 5.8 | 5.0 | 13.0 | 11.3 | 4.3 | 3.8 | 44.4% | 36.9% | 38.0% | 2.1% | 2.1% |
| TSMC | TSMWF | B-1-7 | 2,390 | 1,949.6 | 21.7 | 15.6 | 13.1 | 7.9 | 5.5 | 4.0 | 10.4 | 8.9 | 7.7 | 6.6 | 43.0% | 41.4% | 35.3% | 1.0% | 1.0% |
| MediaTek | MDTKF | C-1-7 | 4,340 | 219.0 | 63.3 | 31.5 | 12.5 | 16.0 | 11.4 | 6.5 | 24.7 | 10.1 | 6.0 | 3.0 | 26.1% | 41.9% | 65.9% | 2.5% | 6.4% |
| **Equipment** | | | | | | | | | | | | | | | | | | | |
| ASML | ASMLF | B-1-7 | 1,445.80 | 650.6 | 34.8 | 24.9 | 19.2 | 20.4 | 15.5 | 11.5 | 19.8 | 15.6 | 9.4 | 7.7 | 68.0% | 70.3% | 68.3% | 1.0% | 1.3% |
| AMAT | AMAT | B-1-7 | 438.46 | 348.0 | 34.4 | 23.6 | 18.7 | 12.3 | 8.7 | 6.2 | 20.2 | 16.1 | 7.5 | 6.2 | 41.9% | 42.9% | 38.2% | 0.6% | 0.6% |
| Lam | LRCX | C-1-7 | 288.32 | 360.8 | 49.5 | 31.3 | 24.5 | 28.9 | 15.8 | 11.5 | 25.4 | 21.0 | 10.5 | 8.5 | 65.7% | 65.5% | 54.0% | 0.4% | 0.5% |
| TEL | TOELF | C-1-7 | 53,300 | 157.2 | 31.0 | 22.5 | 17.7 | 9.4 | 7.5 | 6.1 | 15.6 | 12.6 | 5.9 | 4.7 | 33.6% | 37.2% | 38.1% | 2.2% | 2.8% |
| Hanmi Semi | HNSIF | C-1-7 | 207,000 | 14.5 | 61.2 | 34.2 | 19.4 | 21.0 | 14.0 | 8.9 | 25.4 | 14.3 | 13.9 | 8.4 | 39.4% | 48.9% | 55.7% | 1.0% | 1.5% |
| BESI | BESVF | B-1-7 | 192.50 | 18.1 | 41.4 | 26.3 | 17.4 | 19.5 | 15.2 | 11.5 | 20.7 | 13.8 | 10.5 | 7.5 | 61.7% | 65.6% | 75.9% | 3.6% | 5.1% |
| ASMPT | ASMVF | C-1-7 | 157.40 | 8.4 | 37.1 | 23.8 | 16.7 | 3.7 | 3.3 | 2.9 | 14.5 | 10.7 | 2.3 | 1.7 | 10.1% | 14.7% | 18.7% | 1.7% | 2.0% |

**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 31: Memory stocks turned stable through late Aug and early Sept vs deep corrections during July and early Aug but current share prices still far higher than end-2025 levels**

Memory companies – 2026 YTD stock performance comparison



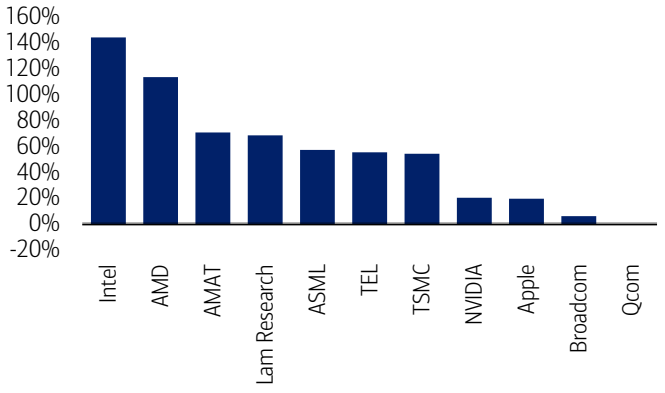

SanDisk and Kioxia shows above 400% YTD return

**Source:** Bloomberg, DRAMeXchange

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**Exhibit 32: CPU names such as Intel and AMD 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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| Investment rating | Total return expectation (within 12-month period of date of initial rating) | Ratings dispersion guidelines for coverage cluster[R1] |
|---|---|---|
| Buy | ≥ 10% | ≤ 70% |
| Neutral | ≥ 0% | ≤ 30% |
| Underperform | N/A | ≥ 20% |

[R1]Ratings dispersions may vary from time to time where BofA Global Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

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