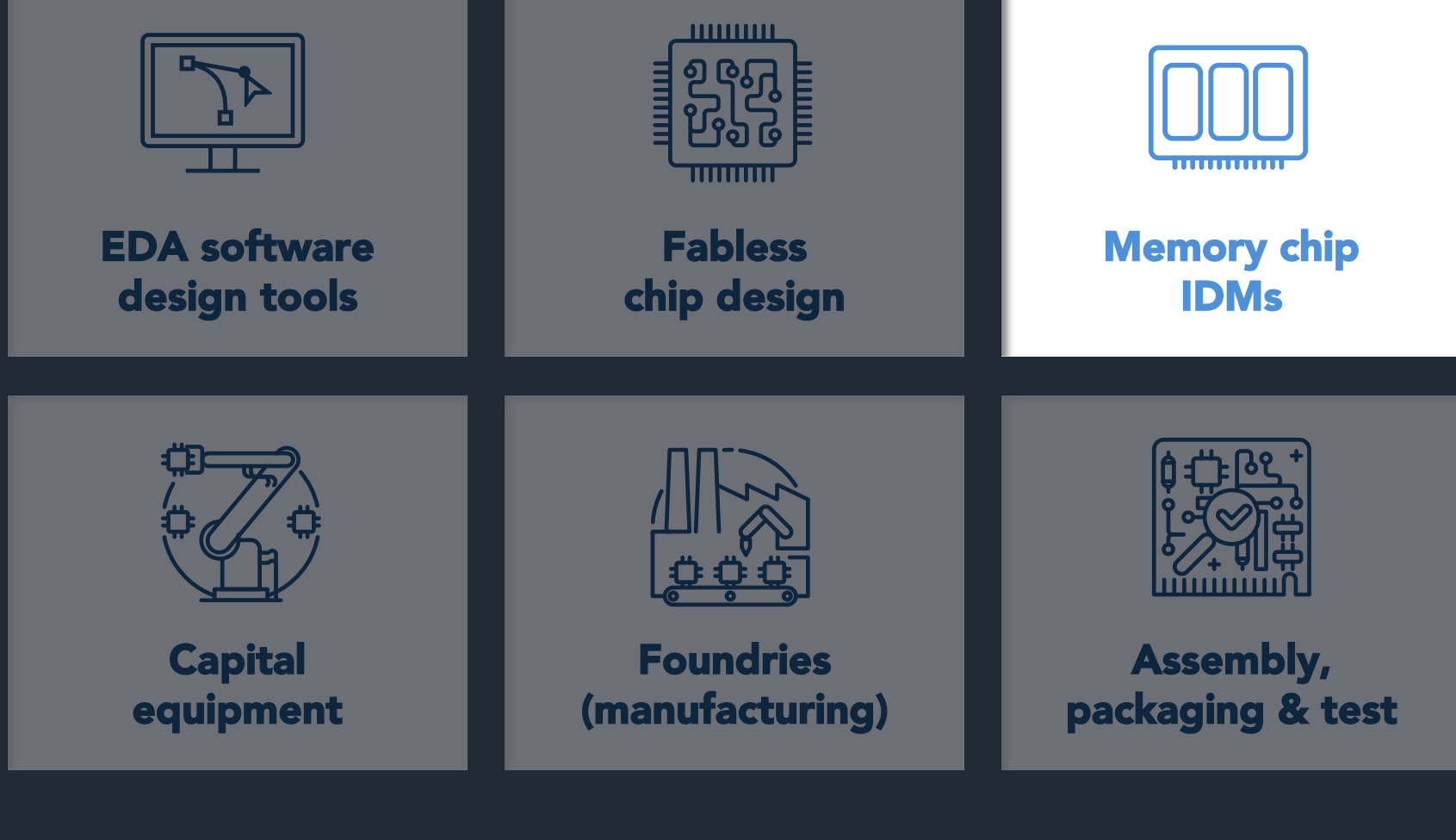


Chart of the Day

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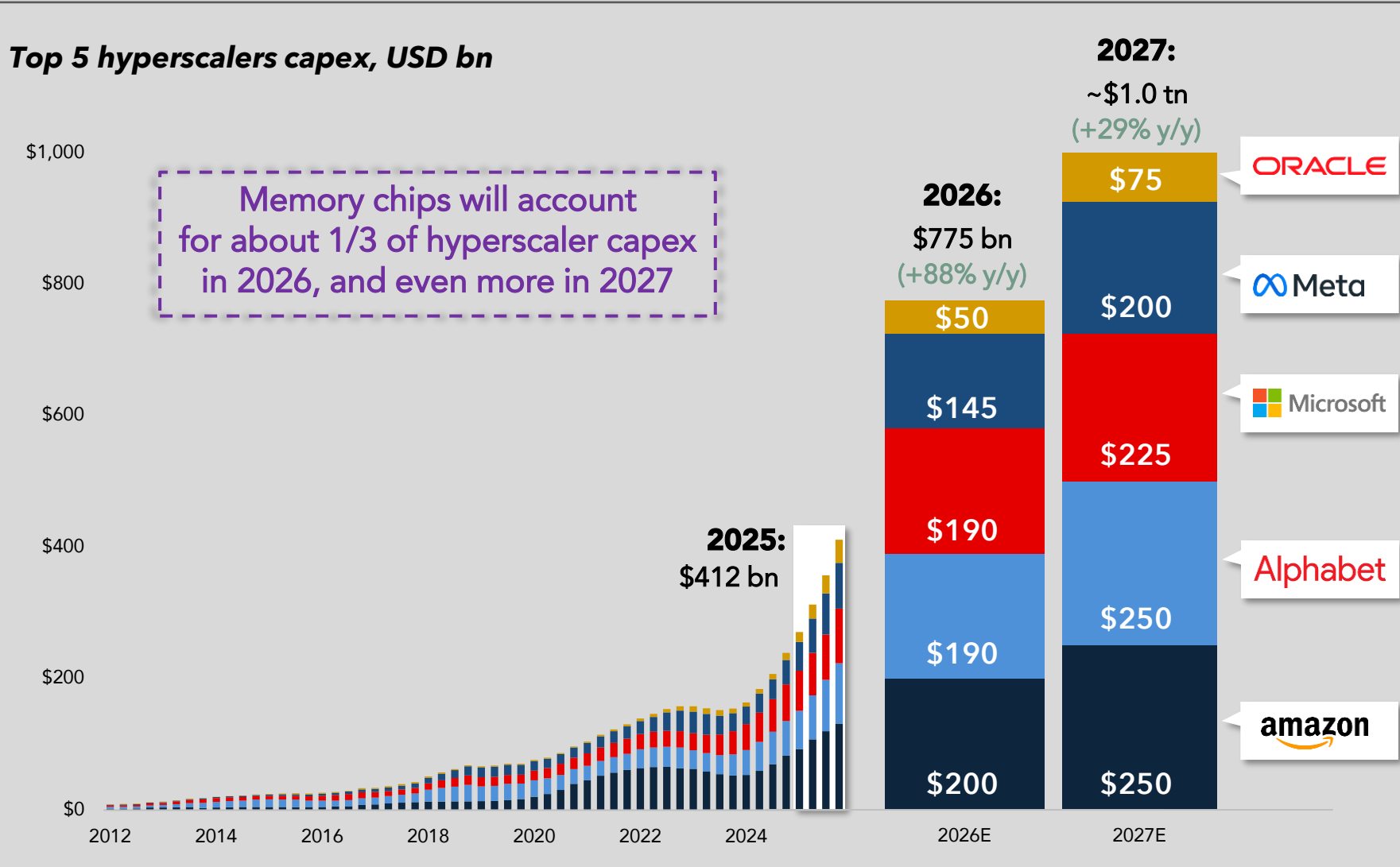


Highly Integrated Global Semiconductor Supply Chain



1/3 of Hyperscaler Capex Directed Toward Memory Chips

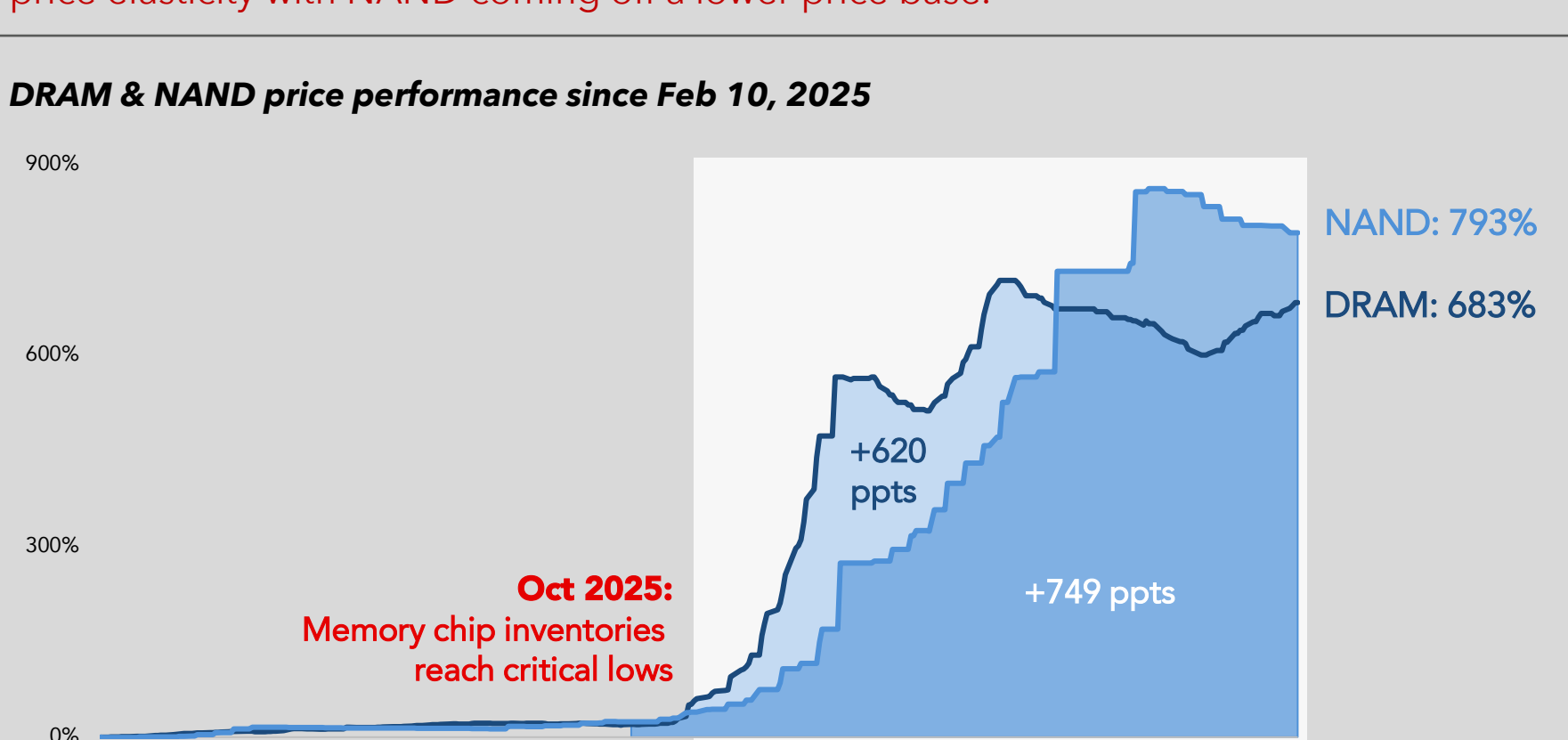
High-bandwidth-memory (HBM) remains structurally undersupplied through 2027, thereby representing a core bottleneck and swing factor in AI infrastructure economics over the next two years. According to SemiAnalytics, roughly 1/3 of hyperscaler capex will be directed to memory chips in 2026 (up from ~8% in 2023), rising further in 2027. With memory accounting for a massive slice of an already exploding capex pie, memory therefore becomes a first-order driver of hyperscaler FCF and capital intensity.



Source: (1) Bloomberg, "The AI Spending Boom Is Huge But Not Unprecedented". Data trailing 12 months. Oracle's quarters end a month earlier than the other companies. 2026E data is based on company announcements, including Q1. Oracle estimate for FY 2026. 2027 projections based on high-end of analyst estimates.

Memory Chip Shortages Ripple Through Markets

A sharp global shortage in memory chips has driven DRAM and NAND prices up more than 600% in recent months as hyperscaler AI data centers lock-in multi-year supply, crowding out other applications. While DRAM is much more important to AI's expansion, NAND (flash storage) memory chip prices have risen more rapidly over the last 18 months because: (1) deeper NAND under-supply prior to this cycle; (2) the cannibalization impact of DRAM stealing NAND fab capacity; (3) NAND also important to AI; and (4) varying price elasticity with NAND coming off a lower price base.



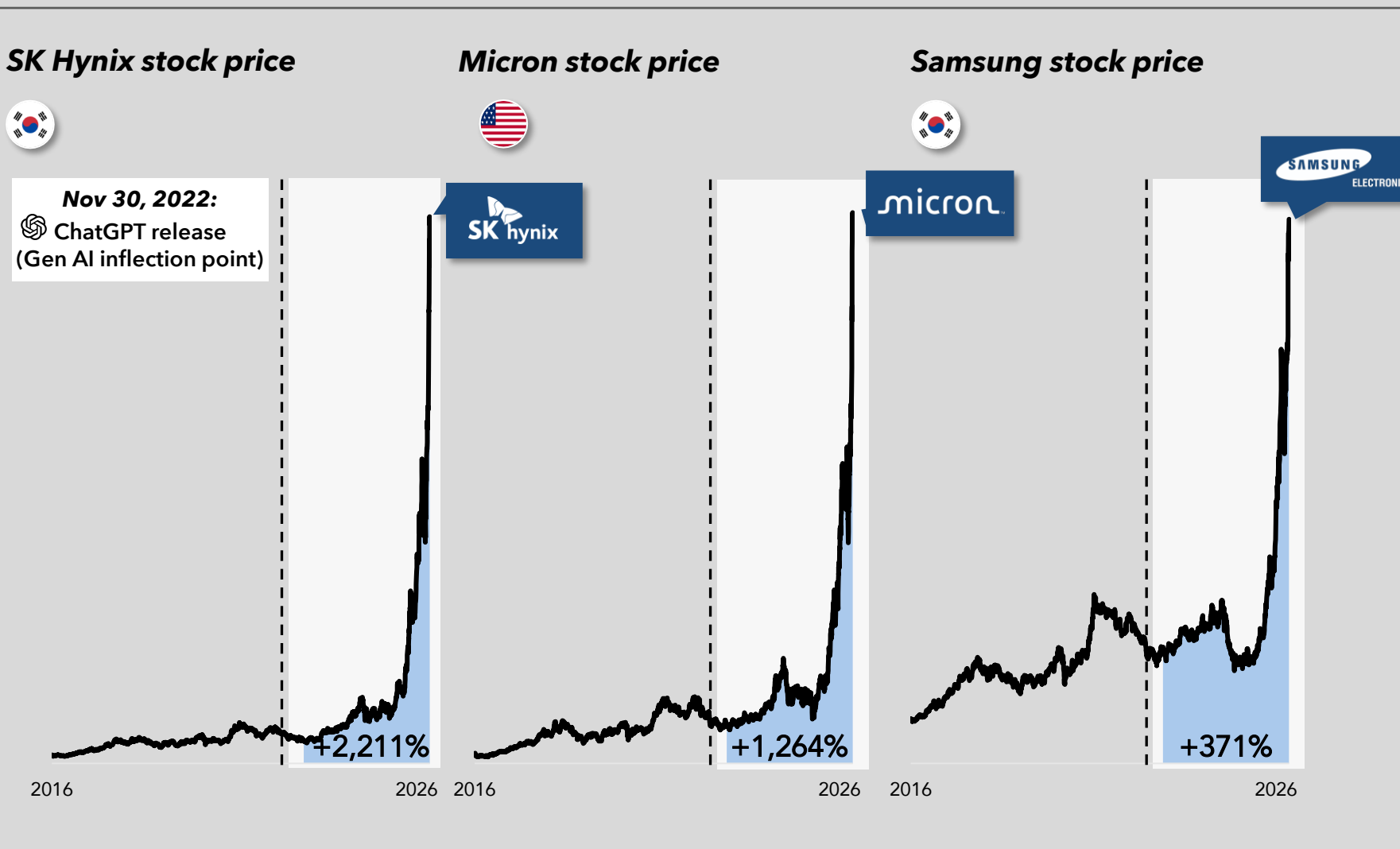
Source: (1) Bloomberg, "Memory Chip Squeeze Widens Gap Between Market Winners and Losers". Data as of May 14, 2026.

Confluence of Forces Driving Memory Crunch

- AI infrastructure demand**
Data centers, servers, accelerators. Represents about 70% of memory demand in 2026.
- Big 3 memory IDM supply discipline**
Extreme supplier concentration from rational, experienced oligopoly. 95% of DRAM market share. Majority of NAND supply.
- Long lead times on new fab construction**
Now 3-5 years vs 18-24 months previously. Constraints on power, equipment and labor. Reallocations to high-bandwidth memory (HBM) also take time.
- Multi-year underinvestment from 2022-23 downturn**
Meaningful new capacity expected in 2027-28.
- Long-term hyperscaler supply agreements**
Approximately 1/3 of hyperscaler capex going to memory. Increased visibility raises pricing power.

The Big 3 Memory Chip IDMs

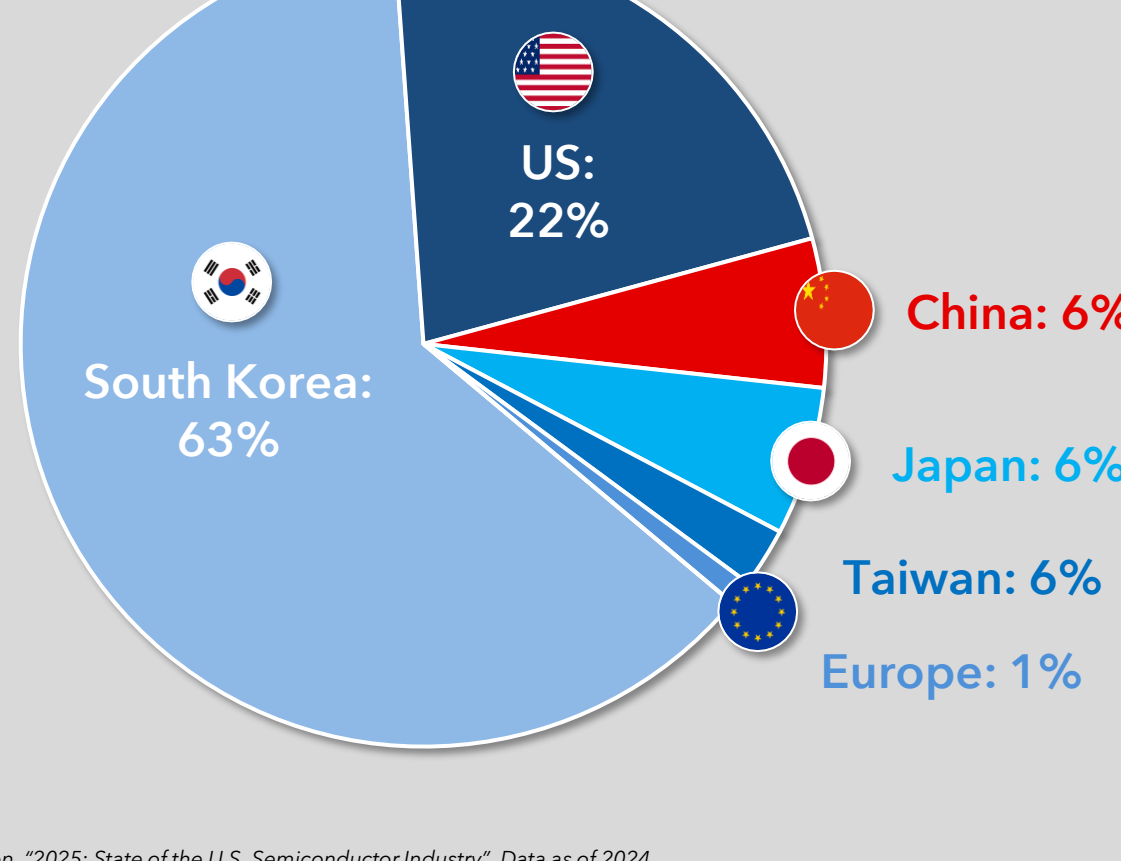
The big 3 vertically integrated memory chip integrated device manufacturers (IDMs) control 95% of the DRAM market, and a majority of NAND, critical for AI's expansion.



Source: (1-3) Bloomberg. Data as of May 14, 2026.

Global Leadership in Memory Chip Design

Memory chip design value added, by region (2024)



Source: (1) Semiconductor Industry Association, "2025: State of the U.S. Semiconductor Industry". Data as of 2024.

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"Macro stability isn't everything, but without it, you have nothing."