



Issue #2: Micron Technology Inc. (MU)

The Boom-Bust Brain Behind Every AI Chip

Without Micron's memory chips, AI doesn't work. Every time ChatGPT answers a question, every time your phone opens an app, Micron's DRAM and NAND flash are doing the heavy lifting. But this is one of the most cyclical businesses on Earth — and the cycle just turned. Here's what's really happening, in plain English.

The 60-Second Snapshot

The fastest way to understand Micron's entire business

THE BUSINESS

Micron makes memory chips — specifically **DRAM** (the working memory in computers and data centers, 76% of revenue) and **NAND flash** (the storage in your phone and SSD, 23% of revenue). They sell to cloud giants like AWS and Google, PC makers, smartphone manufacturers, and car companies. Revenue = **chips shipped × price per chip**. When prices crash, Micron bleeds. When prices soar, Micron prints money.

THE MENTAL MODEL

"Think of Micron as a memory factory with a dimmer switch. When AI demand is high, the switch goes to maximum — revenue doubles in two years. When the cycle turns, the switch drops to minimum — they lose \$5.8 billion in a single year. You're not investing in a steady business; you're investing in a cycle."

The Money Engine: Following the Dollar

Exactly what happens when Micron sells a memory chip

60¢ Cost of Goods Sold Silicon wafers, fabrication, assembly, test (Source: 10-K FY2025)	26¢ Operating Profit 26.1% margin — but swings from -37% to +26% (Source: 10-K FY2025)	23¢ Net Income 22.8% margin — after taxes (Source: 10-K FY2025)
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Revenue (FY2025, ended Aug 2025) \$37.4B +49% YoY growth (Source: 10-K FY2025)	Free Cash Flow (Annual) \$1.7B 4.5% of revenue. OCF \$17.5B minus Capex \$15.9B (Source: 10-K FY2025)
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⚠ The Capital Inferno

Micron spent **\$15.9 billion on capex** in FY2025 — up 89% from \$8.4B the prior year. That's 42% of revenue going into new factories and equipment. For context: Micron's entire net income was \$8.5B. They're investing almost **twice their profit** back into the business. This only makes sense if AI memory demand stays explosive for years.

🔴 The Cycle Warning

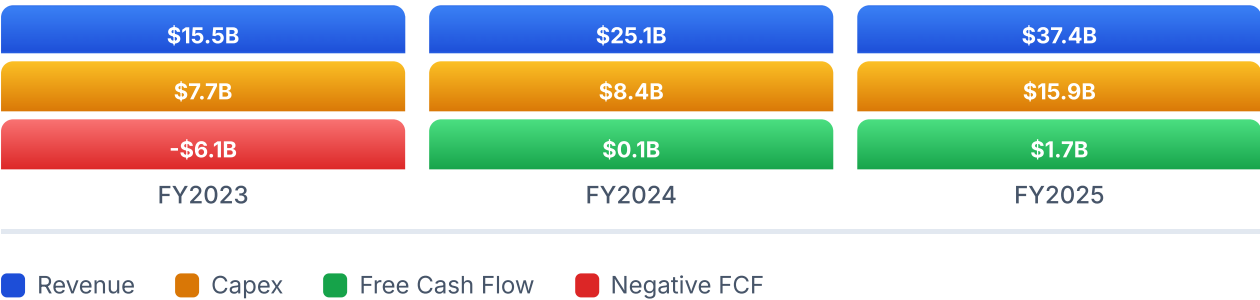
Just two years ago (FY2023), Micron **lost \$5.8 billion**. Revenue collapsed to \$15.5B. Gross margin was **negative 9%** — meaning they sold chips for less than it cost to make them. This is not a stable business. It's a boom-bust cycle, and we're currently in the boom.

The Numbers Don't Lie

Revenue, capex, and free cash flow — 3-year cycle in full view

Revenue vs Capex vs Free Cash Flow

All figures in \$ billions. Micron's fiscal year ends in August. Source: Form 10-K filings FY2023–FY2025 (SEC EDGAR CIK 0000723125)



+49%

Revenue Growth YoY

+998%

Net Income Swing

+89%

Capex Jump YoY

+1,300%

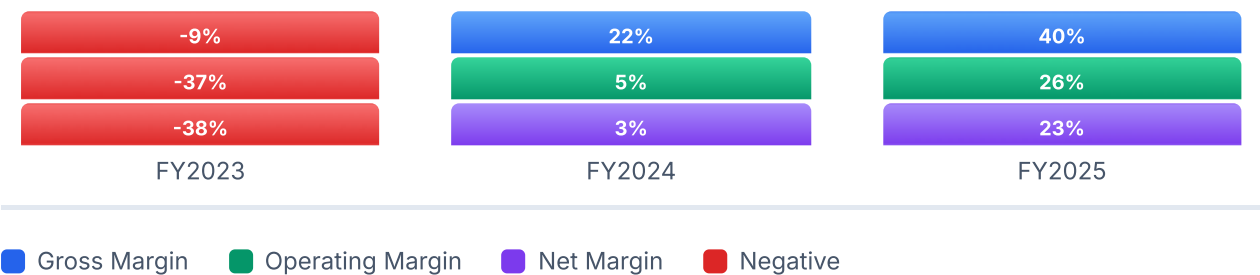
FCF Swing YoY

The Margin Rollercoaster

Gross, operating, and net margins — the cycle in one chart

Profit Margins (%)

Negative margins in FY2023 = selling below cost. Source: 10-K filings (SEC EDGAR CIK 0000723125)



The Depreciation Trap

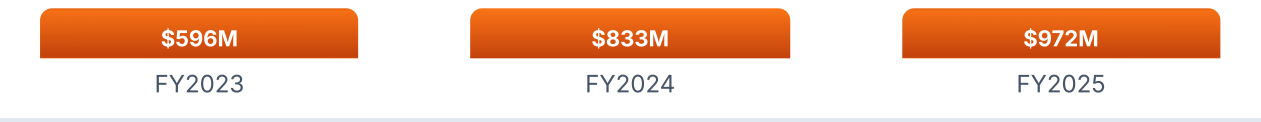
Micron's depreciation & amortization was **\$8.35B in FY2025** — nearly as much as their operating income (\$9.77B). In FY2023, D&A was \$7.76B while operating income was **negative \$5.75B**. This is the double-edged sword of capital-intensive manufacturing: massive upfront spending, then years of depreciation that crushes earnings during downturns. Source: 10-K FY2025, D&A line item.

The Hidden Payroll

Stock-based compensation — much smaller than tech peers

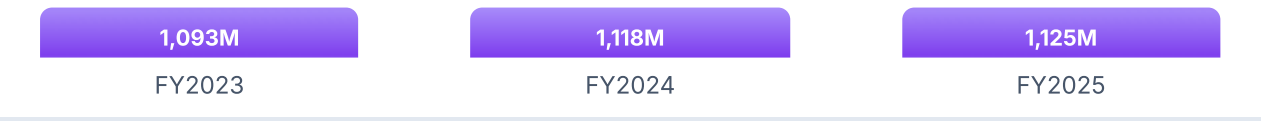
Stock-Based Compensation (\$ Millions)

Only 11% of net income — far lower than Meta's 34%. Source: 10-K FY2025, ShareBasedCompensation line item.



Diluted Share Count (Millions)

Slight dilution — no buybacks. Shares growing, not shrinking. Source: 10-K weighted-average diluted shares.



The Silver Lining

Unlike Meta or most tech companies, Micron's SBC is modest — **\$972M vs \$8.5B net income** = only 11.4%. And with \$25B in cash vs only \$5.8B in debt, the balance sheet is fortress-strong (Source: 10-K FY2025). The problem isn't financial engineering — it's the cycle.

The Moat: Why They're Hard to Kill

Three layers of protection — but thinner than you'd think

1 The Oligopoly

Only three companies make most of the world's DRAM: Micron, Samsung, and SK Hynix. That's it. Building a memory fab costs **\$10+ billion** and takes 3-5 years. No new competitor is entering this market. The barrier to entry is almost impossibly high.

2 The HBM Advantage

High Bandwidth Memory (HBM) is the specialized memory that goes into AI GPUs like Nvidia's H100. Micron's HBM3E is competitive with Samsung's and SK Hynix's. As AI demand explodes, HBM commands **premium pricing** and is supply-constrained. Micron's share of HBM is a key driver of the current boom.

3 The Cost Curve

Each new generation of memory chips packs more bits per wafer, lowering cost per bit. Micron has historically been at or near cost parity with Samsung. In a commodity market, the lowest-cost producer survives the downturn. Micron's \$15.9B capex is buying them a cost advantage for the next cycle.

The Evidence

Revenue grew **49% year-over-year** to \$37.4B, with gross margins swinging from **-9% to +40%** in two years (Source: 10-K FY2023 vs FY2025). HBM is sold out for the foreseeable future. The oligopoly is working.

The Fatal Vulnerabilities

How the story could change — and it will

The Memory Cycle

Memory is a commodity. When supply exceeds demand, prices crash — fast. In FY2023, Micron lost **\$5.8 billion**. Revenue fell 47% in one year. The cycle is driven by factors Micron can't control: consumer PC demand, smartphone sales, enterprise IT spending. If AI demand slows or competitors add too much capacity, we're back to the bust.

Watch for: DRAM spot prices declining for 2+ consecutive months; inventory days increasing quarter-over-quarter

The China Choke

7% of Micron's revenue comes from Mainland China, and the Chinese government has already **banned Micron from key infrastructure projects**. US export controls restrict what Micron can sell to China. If tensions escalate, Micron loses a meaningful market. If China subsidizes domestic memory production (Yangtze Memory Technologies), the oligopoly weakens.

Watch for: New US export control announcements; Chinese subsidies for domestic memory fabs

The Capex Bet

Micron is spending **\$15.9 billion per year** on new fabs — nearly double last year. If AI demand doesn't materialize as expected, this capex becomes a massive burden. The depreciation from these investments will hit the income statement for years, regardless of whether the chips sell. This is the same trap that destroyed memory companies in past cycles.

Watch for: Capex as % of revenue exceeding 50% while revenue growth decelerates

The Variant View: What the Crowd Might Be Missing

Two possible futures

The Cycle Top Story

Wall Street is pricing Micron as if AI demand will grow forever. But memory cycles always turn. Samsung and SK Hynix are also ramping HBM production. If all three oligopolists add capacity simultaneously — which has happened before — prices crash. The market may be underestimating how quickly the cycle can turn, especially if hyperscaler AI spending pauses.

Result: Margins compress from 26% back to single digits; stock corrects sharply

The Structural AI Memory Story

What if this cycle is different? AI requires 3-6x more memory per server than traditional cloud workloads. HBM is supply-constrained and commands premium pricing. If AI adoption follows the smartphone trajectory — multi-year, structural, not cyclical — then Micron's \$15.9B capex is building capacity for demand that won't slow down for 5+ years.

Result: This is a structural upcycle, not a cyclical blip; earnings power is permanently higher

The Honest Take

The market is debating whether this is a **cyclical peak** or a **structural shift**. The truth is probably in between: AI demand is real and structural, but memory markets have **always** overshot on the way up and undershot on the way down. The key question isn't whether AI is real — it's whether all three memory giants will add capacity rationally or greedily.

The Verdict & Your Next Move

What this all means

QUALITY SCORE

6/10

Strong oligopoly and AI tailwind, but extreme cyclicity, thin FCF, and massive capex risk pull the score down. This is a cyclical bet, not a compounder.

INVESTMENT CONCLUSION

Micron is not a "buy and forget" stock. It's a **cyclical position** that requires active monitoring of memory prices, inventory levels, and capex utilization. The current boom is real — revenue grew 49%, margins went from negative to 40% — but the same cycle that delivered those gains can take them away in 12-18 months. The \$15.9B capex bet is either visionary or reckless, and we won't know which for 2-3 years.

THE KEY QUESTION

"Are Samsung, SK Hynix, and Micron all adding HBM capacity rationally — or are they repeating the same oversupply mistake that crashed memory prices in 2019, 2022, and 2023?"

Disclaimer: This newsletter is for informational and educational purposes only. It does not constitute financial or investment advice. Always conduct your own research or consult with a qualified financial advisor before making investment decisions.

Data Sources: All financial figures sourced from Micron Technology Inc. Form 10-K annual reports (FY2023–FY2025, fiscal years ending August) filed with the U.S. Securities and Exchange Commission (SEC EDGAR, CIK 0000723125). Revenue, operating income, net income, capital expenditures, stock-based compensation, depreciation & amortization, and diluted share count verified against SEC CompanyFacts XBRL data. Free Cash Flow calculated as Operating Cash Flow minus Capital Expenditures per 10-K cash flow statements. Revenue segments (DRAM 76%, NAND 23%) and geographic exposure (US 65%, Taiwan 15%, China 7%) sourced from 10-K segment disclosures. All percentages independently rechecked for mathematical consistency prior to publication.