



Farhan Ahmad, Vice President, Investor Relations

Thank you, and welcome to Micron Technology's fiscal fourth-quarter 2022 financial conference call. On the call with me today are Sanjay Mehrotra, our president and CEO, and Mark Murphy, our CFO. Today's call is being webcast from our Investor Relations site at investors.micron.com, including audio and slides. In addition, the press release detailing our quarterly results has been posted on the website, along with the prepared remarks for this call.

Today's discussion of financial results is presented on a non-GAAP financial basis unless otherwise specified. A reconciliation of GAAP to non-GAAP financial measures may be found on our website. We encourage you to visit our website at micron.com throughout the quarter for the most current information on the company, including information on financial conferences that we may be attending. You can also follow us on Twitter at [MicronTech](https://twitter.com/MicronTech).

As a reminder, the matters we are discussing today include forward-looking statements regarding market demand and supply, our expected results, and other matters. These forward-looking statements are subject to risks and uncertainties that may cause actual results to differ materially from statements made today. We refer you to the documents we file with the SEC, including our most recent Form 10-K and 10-Q, for a discussion of risks that may affect our future results. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance, or achievements. We are under no duty to update any of the forward-looking statements to conform these statements to actual results.

I'll now turn the call over to Sanjay.

Sanjay Mehrotra, President and Chief Executive Officer

Thank you, Farhan.

Good afternoon, everyone.

Intro/FQ4 Highlights

Micron delivered record annual revenue in fiscal 2022 with solid profitability and free cash flow despite a challenging environment in the latter part of the year. In 2022, we ramped our industry-leading 1 α (1-alpha) DRAM and 176-layer NAND nodes across our portfolio and returned a record amount of cash to shareholders. We strengthened our product portfolio significantly during the year, as evidenced by record revenue in mobile, auto, industrial, and networking end markets. Our share gains in client and data center



SSDs contributed to record revenue in SSDs and also in our consolidated NAND business. We also ramped new product categories like high-bandwidth HBM2e memory and GDDR6X. In addition, a record number of customers recognized Micron as the industry leader in product quality.

Our fiscal Q4 financial results were impacted by rapidly weakening consumer demand and significant customer inventory adjustments across all end markets. We are responding decisively to this weak environment by decreasing supply growth through significant cuts to fiscal 2023 capital expenditures (capex) and by reducing utilization in our fabs. We are confident that the memory industry supply-demand balance will be restored as a result of reduced industry supply growth combined with the long-term demand growth drivers for memory. Micron's technology and manufacturing leadership, deep customer relationships, diverse product portfolio and strong balance sheet put us on solid footing to navigate this industry downcycle and position the company for strong long-term growth.

Technology and Operations

Our industry-leading 1 α DRAM and 176-layer NAND nodes drove strong cost reductions in fiscal 2022. In fiscal Q4, we led the industry again in introducing our 232-layer NAND, becoming the first company to enter volume production on a node with more than 200 layers. We also remain on track to begin the ramp of our 1 β (1-beta) DRAM node in manufacturing by the end of calendar 2022. Both the 1 β DRAM node and 232-layer NAND node will provide us with robust cost reduction when they ramp in high volume.

Greenfield/CHIPS

Artificial intelligence, cloud computing, electric vehicles and the ubiquitous connectivity offered by 5G are strong long-term demand drivers for memory and storage. As we have discussed previously, to support memory demand in the second half of the decade and beyond, we will need to add new DRAM wafer capacity. The recently passed CHIPS and Science Act will help to reduce the memory manufacturing cost disparities that exist between the U.S. and Asia. Following passage of the CHIPS Act, Micron announced our intent to invest \$40 billion through the end of the decade in leading-edge memory manufacturing in the U.S., contingent on CHIPS Act support. These investments will ultimately create tens of thousands of American jobs, strengthen U.S. supply chain resiliency, and further diversify our global fab footprint.

Earlier this month, we announced that we have chosen Boise as one of two leading-edge DRAM manufacturing fab sites that we are planning in the U.S., and we expect to invest approximately \$15 billion at this site through the end of the decade. The co-location of this new manufacturing facility with our existing R&D site at our headquarters in Boise provides multiple strategic benefits, including improving efficiency across both R&D and manufacturing, simplifying technology transfer, and reducing time to market for leading-edge products. We will soon announce a second high-volume U.S. DRAM manufacturing site. These new fabs will fulfill our requirements for additional wafer capacity starting in the



second half of the decade and beyond. We plan to build these sites in stages: Tool installation and production output will be ramped in line with industry demand growth, which is consistent with our goal to maintain stable bit supply share as well as supply discipline.

End Markets

Now turning to our end markets.

Micron's product portfolio has become significantly stronger and contributed to our momentum in the most attractive markets. In fiscal 2022, data center and graphics revenue grew approximately 35% and auto, industrial and networking revenue grew approximately 40%. The combined revenue mix of these important markets grew from approximately 45% of our total revenue in fiscal 2021 to 52% in fiscal 2022, putting us on track to hit our target of 62% by fiscal 2025, as outlined at our investor day earlier this year. This portfolio transformation will increase our exposure to the most attractive and stable profit pools in the industry.

Data Center

In fiscal Q4, data center revenue was down both sequentially and year over year, driven primarily by declines in ASP. In fiscal 2022, we set a new revenue record for our cloud revenues, which grew more than 30% year over year. Cloud end demand remains healthy, driven by secular growth in AI and the digital economy. However, the data center market, including both cloud and enterprise, continues to face some supply constraints that are limiting server builds, and customers are reducing memory and storage inventory due to macroeconomic uncertainties. With a diverse set of products across DDR4, DDR5, graphics memory, high-bandwidth memory and data center SSDs, Micron offers a wide portfolio of solutions targeting this market, with industry-leading quality. Building on our recent momentum of market share gains in data center SSDs in the first half of calendar 2022, we continue to make solid progress in ongoing qualifications of our 176-layer NVMe data center SSDs at hyperscalers and OEMs around the world.

PC

Fiscal Q4 client revenue was down both sequentially and year over year, as PC unit end-demand declined and customers reduced inventory. We now forecast calendar 2022 PC unit sales to decline by an approximately mid-teens percentage year over year.

In fiscal Q4, we began ramping 16Gb DDR5 in high-volume production ahead of anticipated client platform launches. We also commenced volume production of Gen4 QLC NVMe client SSDs and are the only company with a full portfolio of 176-layer TLC and Gen4 QLC NVMe SSDs qualified and shipping to PC OEMs.



Graphics

In fiscal Q4, graphics revenue declined both sequentially and year over year. Micron continues to hold an excellent position as the performance leader in the graphics market. In fiscal Q4, we began shipping the industry's fastest graphics memory, with 24Gbps GDDR6X shipping in high-volume production. We are excited to see our proprietary GDDR6X memory featured in the recent launch of NVIDIA's GeForce RTX 4090 and 4080 GPUs.

Mobile

Fiscal Q4 mobile revenue declined both sequentially and year over year. Despite the weakness in end unit sales, we achieved two consecutive years of record mobile revenue in fiscal 2021 and 2022. We now project calendar 2022 smartphone unit volume to decline by a high single-digit percentage year over year. 5G continues to drive greater content per device, and we project 5G penetration to exceed 50% of the smartphone unit total addressable market (TAM) in calendar 2022.

We continued to execute well on our mobile product roadmap. In fiscal Q4, 1 α comprised over 70% of our LPDRAM mobile bit shipments, and 176-layer made up approximately 95% of our mobile NAND bit shipments.

Auto & Industrial

Micron is exceptionally well-positioned as the leader in automotive and industrial markets, which are attractive because of strong long-term growth and relatively stable margins.

In fiscal Q4, our automotive business delivered another record revenue quarter, and fiscal 2022 auto revenues grew 30% year over year, setting a new all-time high. In fiscal Q1, we see some slowdown in our automotive demand as our customers rebalance DRAM and NAND inventory levels as they deal with non-memory semiconductor shortages and production challenges. However, we see continued strong growth in our second half of fiscal 2023, with volume ramp of advanced next-generation in-vehicle infotainment systems as well as the broader adoption of more advanced driver-assistance systems. We are extremely excited by the long-term prospects for memory and storage in the automotive market and expect long-term CAGR for DRAM and NAND in autos to be at about twice the rate of the overall DRAM and NAND markets.

While long-term fundamentals remain strong, our industrial IoT business saw sequential and year-over-year revenue declines in fiscal Q4. Softening macroeconomic conditions have led some customers to reduce overall purchases of DRAM and NAND. Nevertheless, our long-term outlook remains strong for our industrial business, driven by the proliferation of factory automation and digitization.



Market Outlook

Turning to the market outlook.

The memory and storage industry environment has deteriorated sharply since our last earnings call. Calendar 2022 industry bit demand growth for DRAM is now expected to be in the low-to-mid single-digit percentage range, and for NAND, slightly higher than 10%. An unprecedented confluence of events has affected overall demand, including COVID-related lockdowns in China, the Ukraine war, the inflationary environment impacting consumer spending, and the macroeconomic environment influencing customers' buying behavior in multiple segments. In addition, inventory adjustments at customers across all end markets are also contributing to demand weakness.

These factors are depressing demand for DRAM and NAND to well below end market consumption levels. We are also seeing an extremely aggressive pricing environment.

Due to the sharp decline in near-term demand, we expect supply growth to be significantly above demand growth in calendar 2022, contributing to very high supplier inventories for both DRAM and NAND.

Looking ahead in calendar 2023, while macroeconomic uncertainty is high and visibility is low, we currently expect demand growth to be closer to the long-term growth rates of both DRAM and NAND, bouncing back from very weak levels in calendar 2022. We expect the inventory at our customers to improve in early calendar 2023, causing demand to rebound starting from the second quarter of calendar 2023. We expect calendar 2023 industry DRAM supply to grow well below demand growth. We are modeling a mid-single-digit percentage growth in DRAM industry supply in 2023, which would represent the lowest-ever industry supply growth. NAND supply growth in calendar 2023 is also expected to fall below demand growth.

Given the elevated supplier inventories entering calendar 2023, we expect industry profitability to remain challenging in 2023. Following a weak first half of fiscal 2023, we expect strong revenue growth in the second half of fiscal 2023 as bit demand rebounds, following substantial improvement in customer inventories.

Projections for long-term demand trends remain strong across multiple end markets. We expect long-term DRAM bit growth to be in the mid-teens percentage, slightly lower than our prior expectation of mid-to-high teens due to a moderation in expectation of long-term PC unit sales. We continue to expect the NAND market, which benefits from elasticity, to grow around 28% over the long term.

Turning to our supply: Given the change in market conditions, we have been taking immediate action to reduce our supply growth trajectory and align it to market demand.



We made significant reductions to capex and now expect fiscal 2023 capex to be around \$8 billion, down more than 30% year over year. Capex would be lower if it were not for more than doubling our construction capex year over year to support the supply growth required to meet demand for the second half of this decade as well as investment for EUV (extreme ultraviolet) lithography systems to support 1 γ (1-gamma) node development. Wafer fab equipment (WFE) capex will decline nearly 50% year over year and reflects a much slower ramp of our 1 β DRAM and 232-layer NAND versus prior expectations. Fiscal 2023 WFE capex is focused on developing the technology capability of our leading nodes and new product introduction. To immediately address our inventory situation and reduce supply growth, we are reducing utilization in select areas in both DRAM and NAND.

Our capex and utilization actions will have an adverse impact on our fiscal 2023 costs, but they are necessary to bring our supply and inventory closer to industry demand. We will aim to grow our DRAM and NAND supply in line with demand over time, while continuing to optimize our costs and portfolio to improve our profitability.

Before passing it over to Mark, I want to reflect on the tremendous progress that the Micron team has made over the last few years. Today we are the technology leader in both DRAM and NAND, with a very competitive cost structure. We have leadership products and a strong portfolio that is transitioning toward high-value solutions, and we are gaining share in products that represent a more attractive profit pool in our industry. Our balance sheet is strong and allows us to invest appropriately to maintain technology, product and manufacturing leadership going forward. Our world-class quality and manufacturing expertise is recognized by our customers worldwide. We have delivered record revenues in multiple end markets in fiscal 2022 while returning record levels of cash to our shareholders. While the near-term environment is challenging, we are confident in our ability to emerge stronger and deliver financial performance in line with our long-term financial model. The long-term manufacturing investments we are making will further strengthen our diversified fab footprint and position us to capitalize on the exciting long-term opportunities ahead of us.

I will now turn it over to Mark.

Mark Murphy, Executive Vice President and Chief Financial Officer

Thanks, Sanjay.

Opening

Our fiscal Q4 revenues came in consistent with our Aug. 9 update, while earnings per share (EPS) was within the original guidance range. Fiscal Q4 capped off a strong fiscal year in which we set a record for total revenue, generated substantial free cash flow, and returned \$2.9 billion to shareholders.



Revenue

Total fiscal Q4 revenue was \$6.6 billion, down 23% sequentially and down 20% year over year. Fiscal 2022 total revenue was a record at \$30.8 billion, up 11% year over year.

DRAM

Fiscal Q4 DRAM revenue was \$4.8 billion, representing 72% of total revenue. DRAM revenue declined 23% sequentially and was down 21% year over year. Sequentially, bit shipments decreased by roughly 10% while average selling prices (ASPs) declined in the low-teens percentage range.

For the fiscal year, DRAM revenue increased 12% year over year to \$22.4 billion, representing 73% of total fiscal year revenue.

NAND

Fiscal Q4 NAND revenue was \$1.7 billion, representing 25% of Micron's total revenue. NAND revenue declined 26% sequentially and was down 14% year over year. Sequential bit shipments declined in the low-20s percentage range, and ASPs declined in the mid-to-high single-digit percentage range.

For the fiscal year, NAND revenue increased 11% year over year to a record \$7.8 billion, representing 25% of total fiscal year revenue.

Revenue by Business Unit

Turning to our fiscal Q4 revenue trends by business unit.

Revenue for the Compute and Networking Business Unit was \$2.9 billion, down 25% sequentially and down 23% year over year. The sequential decline was primarily driven by client, while declines in server and graphics were less pronounced. Networking revenue hit a new record in fiscal 2022.

Revenue for the Mobile Business Unit was approximately \$1.5 billion, down 23% sequentially and down 20% year over year. Mobile revenue for fiscal 2022 set a new record.

Revenue for the Storage Business Unit was \$891 million, down 34% sequentially and down 26% year over year. For the fiscal year, NAND revenue in the Storage Business Unit was its highest ever, with share gains in both client and data center SSDs.

Finally, revenue for the Embedded Business Unit was \$1.3 billion, down 9% sequentially and down 4% year over year. For fiscal 2022, the Embedded Business Unit delivered \$5.2 billion of revenue supported by revenue records in automotive and industrial markets.



Operating Results

Gross Margin

The consolidated gross margin for fiscal Q4 was 40.3%, down approximately seven percentage points sequentially. Lower pricing was the primary driver of the decline.

For the fiscal year, the consolidated gross margin was 45.9%, up approximately six percentage points year over year.

Opex

Operating expenses in fiscal Q4 were approximately \$1 billion, below the guidance range provided on our last earnings call due in part to lower variable compensation in the quarter. Sequentially, opex was up approximately \$60 million due primarily to the timing of technology development spend. For the fiscal year, operating expenses were \$3.8 billion, up approximately \$500 million year over year, driven by R&D to support our product and technology roadmaps.

Operating Income

Fiscal Q4 operating income was \$1.7 billion, resulting in an operating margin of 25%, down approximately 11 percentage points sequentially and down 12 points from the prior year.

Fiscal 2022 operating income was \$10.3 billion, resulting in an operating margin of 33.4%, up approximately six percentage points from the prior year.

Fiscal Q4 adjusted EBITDA was \$3.6 billion, resulting in an EBITDA margin of 53.5%, down 390 basis points sequentially. For the fiscal year, adjusted EBITDA was \$17.4 billion, resulting in an EBITDA margin of 56.7%.

Taxes

Fiscal Q4 taxes were \$74 million or over 4% of pretax income. For fiscal 2022, total taxes were \$793 million or approximately 8% of pretax income.

Earnings Per Share

Non-GAAP earnings per share (EPS) in fiscal Q4 was \$1.45, down from \$2.59 in fiscal Q3 and \$2.42 in the year-ago quarter.

Non-GAAP EPS was \$8.35 for the fiscal year, up from \$6.06 in the prior year.



Operating Cash Flow

Turning to cash flows and capital spending, we generated \$3.8 billion in cash from operations in fiscal Q4, representing 57% of revenue. For the fiscal year, we generated \$15.2 billion of cash from operations representing 49% of revenue.

Capital Allocation

Capital expenditures were \$3.6 billion during the quarter and \$12 billion for the fiscal year. We generated \$196 million of free cash flow in fiscal Q4 and \$3.2 billion for the fiscal year. Fiscal 2022 was the sixth consecutive year of positive free cash flow for Micron.

During the quarter, we completed share repurchases of \$784 million or 13.2 million shares. For the fiscal year, we completed share repurchases of \$2.4 billion, representing 35.4 million shares. Including our dividend payments, we returned \$2.9 billion to shareholders in fiscal 2022, representing 90% of free cash flow. We remain committed to returning 100% of free cash flow across the cycle through a combination of share repurchases and dividends.

Inventory

Our ending fiscal Q4 inventory was \$6.7 billion, and average days of inventory for the quarter was 139 days, reflecting weaker market conditions during the quarter.

Total Cash/Debt

Our balance sheet is rock-solid with strong liquidity, low leverage ratio, and a net cash position. We ended fiscal 2022 with \$13.6 billion of liquidity, exceeding our mid-30s percentage of revenue target. Fiscal Q4 ending cash and investments were \$11.1 billion, and total debt was \$6.9 billion.

Outlook

Now turning to our outlook for the fiscal first quarter. As a result of the demand challenges described by Sanjay earlier, we expect fiscal Q1 bit shipments and pricing to decline in both DRAM and NAND. We expect that inflationary pressure will continue to be a headwind to costs in Q1 and in fiscal 2023. We remain disciplined in our expense management and have taken specific actions, with more planned. As we look ahead, macroeconomic uncertainty is high, and visibility is low. In fiscal Q2, we currently expect revenue to be in a similar range as fiscal Q1, with bit shipments up but still weak for both DRAM and NAND. We also expect a recovery in volumes and revenues in the second half of the fiscal year. We expect our inventory to increase in the fiscal first half of 2023 and days of inventory to improve as demand recovers in the second half of the fiscal year.



As Sanjay mentioned, we expect our fiscal 2023 capital spending to be around \$8 billion, down more than 30% year over year, driven by a near 50% decline in wafer fab equipment capex. We expect capital spending to be weighted toward the first half of the fiscal year, and as a result, we project to be over \$1.5 billion negative free cash flow in the November quarter. We continue to evaluate ways to improve free cash flow, including reducing capex, lowering expenses, and managing working capital, as we respond to market conditions.

In fiscal 2023, we expect our tax rate to be elevated. Unless Congress repeals or delays recent changes to R&D deductibility, recent legislation requires that, for tax purposes, we capitalize and amortize R&D expense this fiscal year. In addition, based on our income mix and U.S. and foreign tax rules, our taxes become more fixed at these lower profitability levels. These factors result in an estimated tax of approximately \$300 million at a minimum. Beyond this level, the actual tax expense will depend on the level of operating income through the year. So, in this lower pretax profitability fiscal year 2023, we expect a materially higher tax rate. Long term, as our profitability normalizes, we expect our tax rate to be in the low to mid-teens percentage range.

Non-GAAP Guidance

With all these factors in mind, our non-GAAP guidance for fiscal Q1 is as follows.

We expect revenue to be \$4.25 billion, plus or minus \$250 million; gross margin to be in the range of 26.0% plus or minus 200 basis points; and operating expenses to be \$1 billion, plus or minus \$25 million. Based on a share count of approximately 1.12 billion fully diluted shares, we expect EPS to be \$0.04, plus or minus \$0.10.

Closing

In closing, we had many meaningful accomplishments in fiscal 2022, including delivering record revenue, achieving clear technology leadership in both DRAM and NAND, increasing share in client and data center SSDs, further strengthening our balance sheet and returning a record amount of capital to our shareholders.

While the near-term environment is challenging, the Micron of today is extremely well prepared to navigate it with our competitive cost structure, strong product portfolio and rock-solid balance sheet. Beyond fiscal 2023, a year starting out with a challenging set of external events, we are confident in our ability to deliver financial performance consistent with our long-term cross-cycle financial model, including revenue growth of high single digits, operating margins of 30%, and free cash flow margin of over 10%.

I will now turn it back to Sanjay.



Sanjay Mehrotra, President and Chief Executive Officer

Thank you, Mark.

The current macroeconomic environment presents an unprecedented challenge for the industry. Our rapid actions to both moderate utilization and sharply reduce capex illustrate our commitment to supply discipline and our focus on bringing our supply and demand back into balance. The Micron team continues to execute with agility to changing business conditions. We remain committed to our strategy of maintaining stable bit share and growing profitability with a portfolio of higher-value solutions, and we are confident in the long-term technology drivers for memory. New data-centric applications and technologies will drive long-term memory demand on a trajectory that outpaces growth in other semiconductor categories. Our strategic investments underscore this confidence and will ensure Micron is able to capitalize on these long-term trends in the decade ahead.

Thanks for joining us today. We will now open for questions.