Samir Patodia, Investor Relations

Thank you, and welcome to Micron Technology's fiscal fourth-quarter 2023 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 can 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 X (formerly Twitter) at 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, Samir.

Good afternoon, everyone.

Intro and FQ4 Results

In fiscal Q4, Micron delivered revenue and gross margin above the midpoint of our guidance, with earnings per share (EPS) above the high end of the range. These results reflect our strong execution, and we are well positioned to drive significant improvements in our financial performance. We believe pricing has now bottomed. Ongoing demand growth, customer inventory normalization, and industrywide supply reductions have set the stage for increased revenue, along with improved pricing and profitability throughout fiscal 2024 (FY24). We continue to expect record industry total addressable market (TAM) in calendar 2025 (CY25) with more normalized levels of profitability.

FY23 Highlights

Fiscal 2023 was a challenging year for the memory and storage industry as the revenue TAM reached a multiyear low, resulting in a significant impact to financial performance. Despite this difficult backdrop, the Micron team stayed focused on our strategy, executed well and accomplished several important milestones. We achieved record annual automotive revenue, record NAND QLC bit shipments for the full fiscal year, and reached record levels in calendar Q2 for revenue share in data center and client SSDs. We were the first in our industry to introduce 1ß (1-beta) DDR5 (D5) and LP5X DRAM products and the first to ship HBM3E samples with industry-leading performance and power efficiency. We were also the first to introduce 232-layer NAND SSD products in data center, client and consumer markets. These accomplishments were underpinned by our leadership technology and continued strong progress in manufacturing execution. We achieved world-class mature yields in record time on our industry-leading 1ß DRAM and 232-layer NAND technologies. In addition, Micron took several prudent and timely actions to reduce our capex and supply in order to address the market imbalances through the course of fiscal 2023.

Technology Node Status

Our industry-leading technology roadmap continues to progress well. As we have mentioned before, the vast majority of our bits are on leading-edge nodes 1α (1-alpha) and 1ß in DRAM and 176-layer and 232-layer in NAND.

We continue to make good progress on 1γ (1-gamma) DRAM development using extreme ultraviolet lithography (EUV) and are on track for production in calendar 2025. Development of our next-generation NAND node is also well on track.

End Markets

Now turning to our end markets.

Customers continued to reduce their excess inventory for memory and storage in fiscal Q4. Most customer inventories for memory and storage in the PC and smartphone markets are now at normal levels, consistent with our prior forecasts. Inventory levels are normal across most customers in the automotive market as well. Data center customer inventory is also improving and will likely normalize in early calendar 2024. Consequently, we see demand continuing to strengthen, which has led to an inflection in pricing. Some customers have made strategic purchases in DRAM and NAND to take advantage of unsustainably low pricing as the market begins its recovery.

Data Center

In data center, traditional server demand remains lackluster while demand for artificial intelligence (AI) servers has been strong. Data center infrastructure operators have shifted budgets from traditional servers to higher-priced AI servers. Total server unit shipments are expected to decline in calendar 2023 — the first year-over-year decline since 2016. We expect total server unit growth will resume in calendar 2024 to help fulfill ever-increasing workload demand.

We also expect content growth in both AI and traditional servers. Compared to traditional servers, AI training servers contain significantly higher DRAM and NAND content with greater technology complexity, robust product value and higher profitability.

We believe our data center revenue has bottomed, and we expect growth in fiscal Q1 and increasing momentum through fiscal years 2024 and 2025 in our data center business. Micron has a strengthening portfolio of solutions optimized for bandwidth, capacity and power. These include HBM3E, D5 and associated high-capacity modules, LPDRAM, and data center SSDs. This portfolio of industry-leading products positions us well to capture the opportunities presented by data-centric computing architectures and AI.

The introduction of our HBM3E product offering has been met with strong customer interest and enthusiasm. Our HBM3E provides superior bandwidth, power and capacity for generative AI workloads. We developed this industry-leading design using our 1ß technology, advanced through-silicon via (TSV), and other innovations that enable a differentiated packaging solution. We have been working closely with our customers throughout the development process and are becoming a closely integrated partner in their AI roadmaps. Micron HBM3E is currently in qualification for NVIDIA compute products, which will drive HBM3E-powered AI solutions.

We expect to begin the production ramp of HBM3E in early calendar 2024 and to achieve meaningful revenues in fiscal 2024.

Micron also has a strong position in the industry transition to D5. We expect Micron D5 volume to cross over D4 in early calendar 2024, ahead of the industry. We expanded our high-capacity D5 DRAM module portfolio with a monolithic die-based 128GB module, and we have started shipping samples to customers to help support their AI application needs. We expect revenue from this product in Q2 of calendar 2024.

Last month, we announced the introduction of 128GB and 256GB CXL 2.0 memory expansion modules. By leveraging a unique dual-channel memory architecture, we are able to deliver higher module capacity and increased bandwidth. We have shipped samples to several customers and key partners.

In data center SSDs, Micron's entire portfolio utilizes 176-layer or 232-layer NAND in production, a testament to our product and technology leadership. We are well positioned to serve the growing demand for fast storage as data-intensive AI applications proliferate. We saw strong demand for our data center NVMe SSDs across our AI-focused, industry-leading 30TB product, as well as for our mainstream products. Micron ended the second calendar quarter with record high revenue share in data center SSDs, based on independent industry assessments. We expect to build on this momentum in fiscal 2024.

PC

In PCs, we continue to forecast calendar 2023 PC unit volume to decline by a low double-digit percentage year over year and then grow by a low to mid-single-digit percentage in calendar 2024. AI-enabled PCs will drive content growth and an improved refresh cycle over the next two years.

In fiscal Q4, we saw strong sequential bit shipment growth at PC OEMs driven by demand for LPDRAM in thin client notebooks. We expect to begin revenue shipments of our industry-leading 1ß-based client D5 in fiscal Q1 to PC OEMs. According to third-party analysts, in calendar Q2, we reached record revenue share in client SSDs for PC OEMs as customers adopted our industry-leading solutions. Our 232-layer NVMe client SSD is now qualified at large OEMs and shipping in volume production.

Our SSD QLC bit shipment mix reached a new record for the second consecutive quarter, with growth in both client and consumer markets. We continue to expand our footprint in the high-end consumer SSD space with the launch of three new products that extend our reach into professional content creators and enthusiast PC gamers.

Mobile

In mobile, we expect calendar 2023 smartphone unit volume to be down by a mid-single-digit percentage year over year and then grow by a mid-single-digit percentage in calendar 2024. Elasticity, along with a mix shift toward premium phones with greater capacity, is contributing to memory content growth. About a third of smartphones sold today have at least 8GB of DRAM and 256GB of NAND, up more than 7 percentage points versus smartphone units a year ago. Similar to our view on PCs, AI-enabled mobile phones could drive content growth and a stronger refresh cycle over time. Longer term, we see generative AI applications executing on handsets. These applications will continue to drive new requirements for higher capacity, lower power and increased performance in memory and storage.

Auto & Industrial

Last, I'll cover the auto and industrial end markets, which contribute to more stable revenue and profitability.

Fiscal 2023 marked another record revenue year for our automotive business. Micron continues to lead in automotive market share and quality. Long term, we expect memory and storage content per vehicle to increase in both advanced driver-assistance systems (ADAS) and in-cabin applications. In addition, fast-growing electric vehicles (EVs) typically contain higher memory and storage content. Our automotive design win trajectory remains strong.

The industrial market showed signs of recovery in fiscal Q4. Inventory levels for memory and storage are stabilizing at distribution partners and at the majority of our customers. We expect the volume recovery that we observed in the second half of fiscal 2023 to continue into 2024. We see strong growth prospects in this market over time, as industrial customers continue to adopt and implement the internet of things (IoT), AI and machine learning solutions.

CAC Decision

As previously discussed, the CAC (or Cybersecurity Administration of China) decision earlier this year has impacted our business, particularly in the domestic data center and networking markets in China. We remain committed to serving our customers in China for those areas of their business not impacted by the CAC decision. While there is near-term impact to our demand due to these challenges in China, we remain focused on maintaining Micron's global market share. Our team's grit and Micron's deep relationships with our customers — underpinned by our technology leadership, increasing product momentum, excellent product quality, and extensive manufacturing and supply chain capabilities — position us well toward these goals.

Market Outlook

Now, turning to our market outlook, starting with demand.

We expect calendar 2023 DRAM bit demand to grow in the mid-single-digit percentage range. In NAND, our expectations for demand growth this calendar year have increased from high-single digits to high-teens percentage. These are below the expected long-term bit demand growth CAGRs (compound annual growth rates) of mid-teens in DRAM and low-20s percentage range in NAND. While calendar 2023 DRAM demand has been in line with expectations, NAND growth expectations have increased due to stronger-than-expected demand in certain parts of the consumer market and a trend of greater elasticity in per-unit content.

While macroeconomic factors remain a risk, we expect robust year-over-year bit demand growth in calendar 2024 for both DRAM and NAND, driven by improving end-market demand, normalized customer inventory levels, content growth across products, and ongoing growth in AI. Calendar 2024 bit demand growth is expected to exceed the long-term CAGR for DRAM and to be near the long-term CAGR for NAND.

Turning to supply.

Significant supply and capital expenditure (capex) reductions across the industry have helped to stabilize the market and are enabling the recovery now underway. We see both DRAM and NAND year-over-year supply growth in calendar 2023 to be negative for the industry. We expect Micron's year-on-year bit supply growth to be meaningfully negative for DRAM. We also expect to produce fewer NAND bits in calendar 2023 than in calendar 2022.

In calendar 2024, we expect industry DRAM and NAND supply growth to be below industry demand growth — and meaningfully so for DRAM. We believe calendar 2024 is positioned to be a year of recovery in the memory and storage industry. A sustained period of supply growth less than demand growth will strengthen the pace of recovery.

High-bandwidth memory (HBM) production will be a headwind to industry bit supply growth. Across the industry, the HBM3E die is roughly twice the size of equivalent-capacity D5. The HBM product includes a logic interface die and has a substantially more complex packaging stack that impacts yields. As a result, HBM3 and 3E demand will absorb an outsized portion of industry wafer supply. The ramp of HBM3 and 3E production will reduce overall DRAM bit supply growth industrywide — with a particular supply impact on non-HBM products as more capacity is diverted to addressing HBM opportunities. Micron is experiencing a similar impact of our planned HBM3E ramp on our bit supply capability.

Micron’s bit supply growth in fiscal 2024 is planned to be well below demand growth for both DRAM and NAND, and we expect to decrease our days of inventory in fiscal year 2024. We continue to execute to our strategy of maintaining global bit shipment market share for DRAM and NAND while sustaining tight supply and capex management discipline. Micron’s fiscal 2024 capex is projected to be up slightly compared to fiscal 2023 levels.

Wafer fab equipment (WFE) capex will be down again year over year in fiscal 2024. We remain focused on carefully managing overall supply growth. In last quarter’s earnings call, we communicated that total wafer start reductions in both DRAM and NAND are approaching 30% versus peak 2022 levels. Amid an intense focus on capital efficiency over the last few quarters, we have redeployed a portion of the underutilized equipment to support production ramp of leading-edge nodes in both DRAM and NAND. Given the higher process step count of these leading-edge nodes, transitioning this equipment results in a significant and structural reduction to our overall wafer capacity in both DRAM and NAND. Due to this structural reduction in capacity, our DRAM and NAND wafer starts will remain significantly below 2022 levels for the foreseeable future. Our industry supply projections assume a similar structural reduction in wafer capacity industrywide. Lead times to increase this wafer capacity will be long and depend on improving demand, pricing and financial performance. We expect underutilization to continue in our legacy nodes well into calendar 2024. We see our demand at leading-edge nodes exceeding our supply in fiscal and calendar 2024, particularly in the second half of the year.

Construction capex will be elevated to support our plans to build leading-edge memory fabs in Idaho and New York, for which we filed CHIPS applications in August. As we have highlighted before, the requested level of CHIPS grants for our Idaho and New York projects is essential to the viability and global competitiveness of each of these projects. Our capex plans assume that a certain level of CHIPS grant funds will be made available to us in fiscal year 2024.

Assembly and test capex is projected to double year over year in fiscal 2024, predominantly driven by investments to support HBM3E production. Our planned fiscal 2024 capex investments in HBM capacity have substantially increased versus our prior plan in response to strong customer demand for our industry-leading product.

Over the course of calendar 2024, we see accelerating AI-driven opportunities for memory and storage across multiple market segments from the data center to the edge. We are encouraged by the improving industry demand and supply fundamentals. We believe that the capex constraints created by the industry profitability environment — coupled with improved inventories, announced supply reductions and the impact of the HBM ramp on DRAM bit supply growth — will create conditions that will increasingly tighten the supply-demand balance, particularly in the second half of our fiscal year. Our Micron team is executing well and taking prudent and proactive actions to navigate through the near-term environment and position the company to emerge stronger from the current downturn. We look forward to a recovery in our business financials taking shape in fiscal 2024. I will now turn it over to Mark for our financial results and outlook.

Mark Murphy, Executive Vice President and Chief Financial Officer

Thanks, Sanjay, and good afternoon, everyone.

Opening

In the fourth quarter of fiscal 2023, Micron delivered revenue and gross margin higher than the midpoint of the guidance range and EPS above the high end of the range. We are exiting the fiscal year with the business improving due to multiple factors including higher volumes, an inflection in the pricing environment, strong productivity and ongoing capital discipline.

Revenue

Total fiscal Q4 revenue was approximately $4 billion, up 7% sequentially and down 40% year over year. Fiscal 2023 total revenue was $15.5 billion, down 49% year over year.

DRAM

Fiscal Q4 DRAM revenue was $2.8 billion, representing 69% of total revenue. DRAM revenue increased 3% sequentially, with bit shipments increasing in the mid-teens percentage range and prices declining in the high-single-digit percentage range.

For the fiscal year, DRAM revenue declined 51% year over year to $11 billion, representing 71% of total revenue.

NAND

Fiscal Q4 NAND revenue was $1.2 billion, representing around 30% of Micron's total revenue. NAND revenue increased 19% sequentially, with bit shipments increasing over 40% driven by timing of shipments including strategic purchases and prices declining in the mid-teens percentage range.

For the fiscal year, NAND revenue declined 46% year over year to $4.2 billion, representing 27% of total revenue.

Revenue by Business Unit

Now turning to revenue by business unit.

Compute and Networking Business Unit revenue was $1.2 billion, down 14% sequentially. Data center revenue remained weak, as customers continued to adjust inventories and as a result of the CAC decision. In fiscal Q1, we expect sequential growth in data center.

Revenue for the Mobile Business Unit was $1.2 billion, up 48% sequentially due to seasonal effects and timing of shipments.

Embedded Business Unit revenue was $860 million, down 6% sequentially. Embedded consumer revenue increased sequentially, helped by seasonality while automotive and industrial revenue declined modestly.

Revenue for the Storage Business Unit was $739 million, up 18% sequentially and driven by increased shipments across most of the product portfolio. SBU bit shipments set records for fiscal Q4 and the fiscal year.

Operating Results

Gross Margin

The consolidated gross margin for fiscal Q4 was negative 9%, improving seven percentage points sequentially. Gross margin was impacted by lower pricing and underutilization costs, while the sell-through of previously written-down inventory provided some uplift.

For the fiscal year, consolidated gross margin was negative 8%, down 54 percentage points year over year driven by price effects, inventory write-downs and the burden of underutilization. Approximately six percentage points of the reduction is from net inventory write-downs.

Opex

Operating expenses in fiscal Q4 were $842 million, down $24 million sequentially due to ongoing expense-reduction initiatives and the timing of certain research and development (R&D) program expenditures. For the fiscal year, operating expenses were $3.6 billion, down $209 million year over year driven by expense-reduction initiatives. On opex for the fourth quarter and year, we ended below the target we communicated starting with our September call a year ago. As market conditions improve, we will remain disciplined in all spending, including operating expenses, focusing R&D on the most critical programs and leveraging a competitive and more productive overhead structure.

Operating Income

We had an operating loss of roughly $1.2 billion in fiscal Q4, resulting in an operating margin of negative 30%, improved from negative 39% in the prior quarter.

Fiscal 2023 operating loss was $4.8 billion, resulting in an operating margin of negative 31%.

Taxes

We recorded a tax benefit of $14 million in fiscal Q4, better than expectations and due primarily to lower-than-expected foreign taxes related to currency effects. For fiscal 2023, total taxes were $142 million.

Earnings Per Share

The non-GAAP loss per share in fiscal Q4 was $1.07, compared to a loss per share of $1.43 in the prior quarter and earnings per share of $1.45 in the year-ago quarter.

Non-GAAP EPS was a loss per share of $4.45 for the fiscal year.

Cash Flow

Turning to cash flows and capital spending, our operating cash flows were approximately $250 million in fiscal Q4. For the fiscal year, we generated $1.6 billion of cash from operations representing 10% of revenue.

Capital expenditures were $1 billion during the quarter and totaled $7 billion for the fiscal year. This was in line with recent guidance, and for the year, at the low end of the range of estimates we provided on our December 2022 earnings call.

Free cash flow was negative $758 million in the quarter.

Inventory

Our fiscal Q4 ending inventory was $8.4 billion or 170 days. As mentioned last quarter, we are holding approximately $1 billion of strategic inventory stock associated with build-ahead of products for cost optimization and risk mitigation. We see days of inventory improving into the first half of the fiscal year and, adjusting for this strategic stock, expect to have only a few weeks of above-target inventories as we enter the second half of fiscal 2024. Inventory levels and profitability will remain principal factors in our decisions around wafer starts and capacity planning.

Total Cash/Debt

Continuing with the balance sheet, we maintained historically high levels of liquidity. At year-end, we held $10.5 billion of cash and investments and had $13 billion of liquidity when including our untapped credit facility. We ended the year with $13.3 billion in total debt, a weighted average maturity of 2030 on debt, and low net leverage.

Outlook

Now turning to our outlook for the fiscal first quarter.

Demand is improving as customer inventory levels continue to normalize and secular growth drivers remain intact. We expect record DRAM bit shipments in fiscal Q1. For NAND, we expect fiscal Q1 bit shipments to decline somewhat from fiscal Q4 levels but remain relatively strong. In China, the CAC decision continues to impact our revenue opportunity, and the associated headwind is reflected in our guidance.

Fiscal Q1 gross margin is projected to improve sequentially on a greater mix of DRAM and more sell-through of written-down inventories. We expect approximately 60% of the remaining benefit from lower-cost inventories to clear in fiscal Q1.

Our gross margin guidance does not contemplate any additional inventory write-downs due to pricing. Period costs associated with underutilization will weigh on gross margins in the quarter, as first quarter period costs are projected to be similar to the prior quarter.

Beyond fiscal Q1, we project gross margin improvement to continue as prices increase and period costs become less of a factor. We expect the rate of price improvement in the second fiscal half to exceed the first half. We now forecast gross margins to be positive throughout the second half of fiscal 2024.

As mentioned last quarter, we expect fiscal Q1 operating expenses to increase sequentially, driven by an increase in R&D and as temporary reductions to employee compensation come to an end. For the full fiscal year 2024, we expect operating expenses to be up by a low-single-digit percentage versus fiscal 2023.

On taxes, we project a material sequential quarterly increase as we move from a credit in Q4 to a more normal expense. As discussed previously, though overall profitability remains low, a minimum level of taxes will occur based primarily on local jurisdiction profit. As we are forecasting a consolidated pretax loss in fiscal 2024, these local factors will drive tax expense again this year. We estimate our full-year fiscal 2024 taxes to be under $200 million. A first-quarter tax estimate of $80 million reflects our forecasted Q1 results in proportion to full-year projected tax expense. Changes in the distribution of profit within the year may result in changes in the tax expense recognized each quarter.

We project our fiscal 2024 capital expenditures to increase slightly versus fiscal 2023 as we balance the long-term capacity needs of the business with ongoing capital discipline and near-term cash flow objectives. Consistent with our comments the last few quarters, we do see WFE capex decreasing from fiscal 2023 to fiscal 2024. When factoring higher construction spend and expected grants in fiscal 2024, we forecast our capex to be more evenly distributed over fiscal 2024. A sequential increase in quarterly capex, together with improving but still challenging profitability levels in the near term, means free cash flow will remain significantly negative in the first half of the fiscal year. We forecast improved free cash flow in the back half of the fiscal year.

We project our balance sheet to remain strong and net leverage ratio to peak in the second quarter of fiscal 2024. To support the long-term investment priorities of the business, we have ample liquidity and ready access to multiple sources of credit. We will continue to manage our business to maintain financial flexibility and in a manner consistent with our commitment to our investment-grade rating.

Non-GAAP Guidance

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

We expect revenue to be $4.4 billion, plus or minus $200 million; gross margin to be in the range of negative 4.0%, plus or minus 200 basis points; and operating expenses to be approximately $900 million, plus or minus $15 million. We expect tax expense of approximately $80 million.

Based on a share count of approximately 1.10 billion shares, we expect EPS to be a loss of $1.07, plus or minus $0.07.

Closing

In closing, we achieved many successes in fiscal 2023 despite facing a historic downturn. We sustained our technology, product and manufacturing leadership and achieved mature yields in record time on the industry's most advanced nodes in DRAM and NAND. Micron's leading product announcements position us well to address the growing performance requirements of data-centric computing. In response to severe market conditions, we acted quickly and decisively to cut supply and capital spend, to reduce operating costs and improve productivity, and to maintain a solid and flexible balance sheet. As the business improves in fiscal 2024, we will leverage our strengths in technology, product and manufacturing while maintaining the productivity and capital discipline that we displayed in fiscal 2023.

I will now turn it back over to Sanjay.

Sanjay's Closing

Thank you, Mark.

The past four quarters tested the resilience and agility of our entire industry. While the recovery from this downturn has begun, Micron will exercise continued supply discipline to drive a return to sustained profitability. I am proud of our team's response to adversity, sustaining our technology leadership, improving time to mature yield, and launching a suite of leading-edge products that represent one of the strongest portfolio expansions in Micron's 45-year history. As our global investment announcements throughout the year clearly show, Micron remains keenly focused on building our business to meet future demand driven by the proliferation of AI — from the data center to the edge. I have full confidence in our team, the position we have built for Micron, and our collective ability to capitalize on the opportunities ahead.

Thank you for joining us today. We will now open for questions.