



Farhan Ahmad, Senior Director, Investor Relations

Thank you, and welcome to Micron Technology's fourth fiscal quarter 2019 financial conference call. On the call with me today are Sanjay Mehrotra, President and CEO, and Dave Zinsner, Chief Financial Officer.

Today's call will be approximately 60 minutes in length. This call, including the audio and slides, is also being webcast from our Investor Relations website at investors.micron.com. In addition, our website contains the earnings press release and the prepared remarks filed a short while ago.

Today's discussion of financial results will be 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, along with a convertible debt and capped call dilution table. As a reminder, a webcast replay will be available on our website later today.

We encourage you to monitor our website at Micron.com throughout the quarter for the most current information on the Company, including information on the various financial conferences that we will be attending. You can follow us on Twitter at [MicronTech](https://twitter.com/MicronTech).

As a reminder, the matters we will be discussing today include forward-looking statements. 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, specifically 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 after today's date 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!

OVERVIEW

Fiscal 2019 was another solid year of execution as we continue to transform the New Micron. Despite the challenging industry environment, we achieved the second-best year in our history for revenue, free cash flow and earnings, which underscores the strength of the New Micron. We improved structural profitability



by further reducing the technology gap with competitors and by strengthening our product portfolio. We also made progress on our \$10 billion share repurchase program by returning \$2.7 billion to our shareholders.

In F4Q, the Micron team's strong execution resulted in financial performance exceeding our guidance ranges. Market trends were broadly consistent with our expectations discussed on the last earnings call. DRAM demand bounced back as the factors that impacted calendar first half demand largely dissipated. NAND elasticity is driving robust demand growth, causing industry inventories to improve rapidly. While the demand recovery in DRAM and NAND is encouraging, we remain mindful of ongoing macroeconomic and trade uncertainties.

I will provide more color on our view of the market after a review of progress on our key strategic objectives.

STRONG TECHNOLOGY AND ROADMAP EXECUTION

Since 2016, the actions we have taken to reduce our cost structure, increase our mix of high-value solutions, and enhance our customer engagement and go-to-market strategy have significantly improved our profitability relative to our peers.

In FY2019, our DRAM cost per bit declines led the industry and exceeded our internal plans, despite the headwinds from our announced reduction in wafer starts. In the F4Q, we began mass production and volume shipments of the industry's first 1Z products, giving Micron feature size leadership for DRAM. We are also making good progress migrating more of our production to leading-edge nodes. While we entered FY2019 with more than half of our bit production on 20nm or older nodes, we ended the fiscal year with approximately three-quarters on 1X and beyond, with a meaningful portion on 1Y. As previously announced, we are expanding cleanroom space in our Taichung, Taiwan, site to support future node transitions of our existing wafer capacity, and we expect output from this facility in calendar 2021.

In NAND, we continued to outpace industry cost declines during FY2019. Our 96-layer 3D NAND is continuing to increase as a portion of our mix. Meanwhile, we achieved our first yielding dies using replacement gate or "RG" for short. This milestone further reduces the risk for our RG transition. As a reminder, our first RG node will be 128 layers and will be used for a select set of products. We don't expect RG to deliver meaningful cost reductions until FY2021 when our second-generation RG node is broadly deployed. Consequently, we are expecting minimal cost reductions in NAND in FY2020. Our RG production deployment approach will optimize the ROI of our NAND capital investments. In addition, we announced the grand opening of our Singapore cleanroom expansion in August, which will enable the transition of our existing NAND wafer capacity to future generations of 3D NAND technology.



We are continuing to make solid progress with our 3DXP product development and remain on track to launch our initial products in calendar 2019.

END MARKET HIGHLIGHTS

Now turning to highlights by markets:

In SSDs, the industry transition from SATA to NVMe in FY2019 continued at a rapid rate. While we have been late to the NVMe market, our progress positions us to gain share starting in FY2020. For OEMs, building on strong growth last quarter, we more than tripled revenue shipments of our NVMe client SSD sequentially with sales penetration in multiple tier 1 PC OEMs. Our QLC-based NVMe consumer SSD was a best-selling SSD on Amazon Prime Day in North America. Our consumer SSD segment achieved record revenue and unit shipments with bits posting triple-digit percentage growth year-over-year, driven by our strategy to pursue channel expansion that extends our geographical and customer reach.

Price elasticity is driving an increase in attach rates and capacities, leading to solid demand growth across client and consumer SSDs. We are also making solid progress on advancing our roadmap of NVMe SSDs for the enterprise and cloud markets. In FY2019, we introduced the high-performance 9300 line of NVMe products, targeting high-end data center applications, and we are looking forward to increasing adoption of this product.

In mobile, our portfolio featuring the industry's lowest-power and highest-density products is enabling our customers to bring differentiated capabilities to the market and helping us deliver outstanding financial performance in a challenging industry environment. In FY2019, we delivered mobile revenue that was down only 3% from 2018's record performance, despite a significant drop in market pricing and the impact from the addition of Huawei to the Entity List. Our mobile margins were resilient, and our managed NAND bit shipments in FY2019 more than tripled year-on-year, driven by growth of MCP and discrete NAND eMMC and UFS products. In the F4Q, we started volume shipments of a new leading-edge UFS-based MCP that uses our 1Z LPDRAM. This new UFS MCP will bring flagship-like performance and densities to mid- and high-end smartphones. We are also leading the industry in power-efficient, high-bandwidth LP5 DRAM, which positions us well as 5G begins to accelerate in 2020.

In data center, customer inventories for DRAM have reduced significantly, driving solid sequential demand growth for server solutions in both cloud and enterprise markets. New processor platforms are also creating an uptick in demand for higher-density and higher-performance DRAM modules.

In graphics, we saw strong sequential bit growth, with increases for graphics cards and gaming consoles, as normal buying resumed following inventory reductions in DRAM.



In the PC market, DRAM module and SSD shipments continued the growth trend from last quarter, as CPU shortages further subsided.

In automotive, we continued to increase revenue year-over-year, despite weak auto industry unit sales and a challenging DRAM industry environment. Our growth was supported by secular content increases, our superior quality, and well-established customer relationships. LP4 shipments in the F4Q were over five times higher year-over-year, as lower-power DRAM becomes increasingly important for new Infotainment and ADAS systems. We continue to have leading industry share in automotive.

HUAWEI UPDATE

Before talking about the market outlook, I want to provide an update on our business with Huawei and the ongoing impact of trade uncertainties.

As we noted last quarter, we started shipping some products to Huawei that are not subject to Export Administration Regulations and Entity List restrictions. In the F4Q, sales to Huawei declined sequentially and were down meaningfully from the levels we anticipated prior to the addition of Huawei to the Entity List. We have applied for licenses with the Department of Commerce that would allow us to ship additional products, but there have been no decisions on licenses to date. We see ongoing uncertainty surrounding U.S. China trade negotiations. If the Entity List restrictions against Huawei continue and we are unable to get licenses, we could see a worsening decline in our sales to Huawei over the coming quarters.

INDUSTRY OUTLOOK

Now, turning to our market outlook, which assumes that the macroeconomic environment doesn't materially deteriorate from current levels. I'll begin with our industry outlook, and then turn to Micron's outlook for DRAM and NAND.

The DRAM and NAND industry demand growth in the second half of calendar 2019, compared to the first half, is primarily being driven by a normalization of inventories at most customers, and secular growth trends in various end markets. In recent months, we have seen increased demand from customers headquartered in mainland China, some of whom could be making strategic decisions to build higher levels of inventory in the face of increased trade tensions between the U.S. and China, as well as Japan and Korea.

Our view of calendar 2019 DRAM industry bit demand growth remains unchanged at mid-teens, with supply exceeding demand due to previously discussed factors that impacted first half calendar 2019 demand. Based on our early view of calendar 2020, we expect the industry to see bit demand growth of high teens to 20%, above supply growth of only mid-teens, which should help normalize supplier inventories and enable a healthy industry environment. We expect the long-term DRAM bit demand growth CAGR to be mid- to high teens.



Turning to NAND industry outlook, demand elasticity and industry supply reductions are resulting in improving market conditions and declining industry inventory. On the supply side, capex and wafer start cuts across the industry are leading to supply reductions. A power outage at a competitor's fab also reduced industry supply and inventory. We now expect calendar 2019 industry bit demand growth in the low to mid-40% range, which will exceed industry bit supply growth of approximately 30%. Based on our view of calendar 2020, we estimate industry bit demand growth of high 20s to low 30% range, with supply growing somewhat below demand. We believe that NAND industry margins, which are at the lowest levels in the last 10 years, should start increasing for the rest of the year. We expect the long-term NAND bit demand growth CAGR to be in the low 30% range.

MICRON OUTLOOK

Specific to Micron's DRAM outlook, we are seeing solid demand from customers across multiple segments. This is improving our inventory, and we have started to see pockets of tight supply, particularly in leading-edge nodes. However, we still have elevated inventory levels on older nodes. As a result, we are continuing with the previously disclosed DRAM wafer start reductions of 5%. We expect Micron's calendar 2019 bit supply growth to be slightly below industry demand growth of mid-teens, and expect our calendar 2020 DRAM bit supply growth to be close to the market demand growth. We also expect our DRAM cost reductions to moderate in FY2020 to high single digits. As we have said before, the increasing complexity of more advanced DRAM nodes is resulting in a slower pace of cost declines for the industry.

As our DRAM inventory improves, we are committed to maintaining price discipline. While we are having to respond to some aggressive market pricing, we have started walking away from some transactions, as we look to optimize our profitability.

Turning to Micron's NAND outlook, we expect our calendar 2019 bit growth to be slightly above industry supply growth, and in calendar 2020, we expect Micron's bit supply growth to be significantly below the industry demand growth as we transition a limited portion of our wafer starts to our first-generation replacement gate node and use inventory to support customer demand. Supply growth will also be impacted by our previously announced wafer start reductions of approximately 10%. We are seeing some capacity tightness in our back-end manufacturing operations due to significant increases in demand for high-capacity NAND products. This is another datapoint of elasticity kicking in on high-value NAND solutions.

While NAND and DRAM market conditions are showing some promising signs, in order to bring our supply in line with the market demand, we are targeting our FY2020 front-end equipment capex to be reduced by more than 30% from FY2019. Our capex decision is also influenced by macroeconomic uncertainty and low industry profitability. Our front-end capex outlook reflects our strategy for limited ramp of our first RG node. While we are reducing front-end equipment capex, we are spending significantly more on shell space to



enable future node transition, and also investing in a new SSD packaging facility in Penang, Malaysia. As always, we will maintain flexibility and discipline while investing appropriately for Micron's long-term success.

I want to emphasize that our goal is to manage our DRAM and NAND bit supply growth CAGR in line with industry demand. As we catch up on the technology and cost gaps to best-in-class competitors in DRAM and transition to RG technology in NAND, our supply growth may fluctuate – but we expect the medium-to-long-term growth rate of our supply to approximately equal the rate of demand growth across both NAND and DRAM markets. We are also focused on maximizing the ROI of our capex investments – and for this reason – we are not emphasizing wafer capacity growth but instead focusing on bit growth driven by technology transitions. In addition, some of our capex is dedicated to increasing our internal capacity for assembly, packaging and test, which helps drive cost reductions without adding any bit growth and has good ROI.

I'll now turn it over to Dave to provide our financial results and guidance.

Dave Zinsner, Senior Vice President and Chief Financial Officer

Thanks Sanjay.

As Sanjay mentioned, Micron delivered resilient performance throughout a challenging year for the industry, highlighted by FQ4 results that exceeded our guided ranges for revenue and earnings. As market conditions evolved during the year, we curtailed our planned operating expenses and capital expenditures, allowing us to preserve margins and generate healthy free cash flow. We achieved our first corporate investment grade rating, strengthened our balance sheet, and meaningfully reduced our share count. All-in-all, FY2019 was a year of stellar progress that sets Micron up for attractive growth as industry conditions recover.

REVENUE

Turning to our recent financial results, total FQ4 revenue was approximately \$4.9 billion. Revenue was up 2% sequentially and down 42% year-over-year. Revenue exceeded our guidance range largely due to better-than-expected demand. Full FY2019 revenue totaled \$23.4 billion, down 23% year-over-year.

DRAM REVENUE

FQ4 DRAM revenue was \$3.1 billion, representing 63% of total revenue. DRAM revenue increased 1% sequentially and declined 48% year-on-year. Bit shipments grew approximately 30% sequentially and in the mid-teens percent range year-on-year, as customer inventories improved significantly. ASP declined approximately 20% sequentially. For full FY2019, DRAM revenue was \$15.2 billion, down 28% from FY2018 as bits grew in the low-single-digit percent range and ASP declined approximately 30%.



NAND REVENUE

FQ4 NAND revenue was approximately \$1.5 billion, or 31% of total revenue. Revenue was up 5% sequentially but declined 32% year-on-year. Bit shipments grew in the low-to-mid-teens percent range sequentially. ASP declined in the upper-single-digit percent range. We are starting to see supply tightness in portions of the NAND market, and prices are beginning to increase.

Full FY2019 NAND revenue was \$6.9 billion, down 12% from FY2018, as ASP declines of mid-40% range more than offset strong bit shipment growth.

REVENUE BY BUSINESS UNIT

Now turning to our revenue trends by business unit.

Revenue for the Compute and Networking Business Unit was \$1.9 billion in FQ4, a decline of 8% sequentially and down 56% year-over-year. ASP declines across most segments continued to be the leading cause of lower revenue. For the fiscal year, revenue was \$10 billion, down 35% year-over-year.

Revenue for the Mobile Business Unit in FQ4 was \$1.4 billion, up 20% sequentially and down 26% year-over-year. Both DRAM and NAND bits had strong growth driven by seasonality and continued content growth in smartphones. Our mobile business gained share in the year, driven by a stronger product portfolio. For the fiscal year, MBU revenue was \$6.4 billion, down only 3% from FY2018.

Revenue for the Storage Business Unit in FQ4 was \$848 million, an increase of 4% from FQ3 and down 32% year-over-year. For the fiscal year, SBU revenue was \$3.8 billion, down 24% from FY2018.

Finally, revenue for the Embedded Business Unit was \$705 million in FQ4, up 1% from FQ3 and down 24% from the prior year. For the fiscal year, EBU revenue was \$3.1 billion, down 10% from FY2018.

NON-GAAP OPERATING RESULTS

GROSS MARGIN

The consolidated gross margin for FQ4 was 30.6%, above our guidance range due to our strong execution, improving demand and slightly better pricing. FQ4 gross margins included approximately 200 basis point negative impact or approximately \$100 million due to underutilization charges at IMFT. Starting in FQ1 and continuing for the foreseeable future, we expect to incur an underutilization impact of approximately \$150M per quarter, with about half of the impact consisting of non-cash items. Over time, as our 3DXP business ramps, this underutilization impact will be mitigated, but as you can expect, it takes time to commercialize



a new breakthrough technology. Meanwhile, we will continue to look for ways to optimize our costs and will provide updates on material progress over time.

With respect to U.S. tariffs on imports from China, with continued mitigation, we were able to contain their impact on our consolidated gross margin in FQ4 to less than 20 basis points.

OPEX

Operating expenses were \$797 million, and included some one-time expenses. We continue to control our expenses tightly, and our SG&A as a percent of revenue is meaningfully lower than our competitors'.

OPERATING INCOME

FQ4 operating income was \$694 million, representing 14% of revenue. Operating margin was down 38 percentage points year-over-year and down 9 percentage points from FQ3.

Our full FY2019 operating income was \$7.8 billion or 33% of our fiscal year revenue.

TAXES

Our FQ4 effective tax rate was 8.8%. For the fiscal year, our effective tax rate was approximately 7.3%, which included the tax benefit we recorded in FQ3. Going forward, we expect our tax rate to be mid-to-high single digits.

EARNINGS PER SHARE

Non-GAAP earnings per share in FQ4 were \$0.56, down from \$1.05 in FQ3 and \$3.53 in the year-ago quarter.

For full FY2019, our non-GAAP earnings per share were \$6.35, down from \$11.95 in FY2018.

OPERATING CASH FLOW

Turning to cash flows and capital spending, we generated \$2.2 billion in cash from operations in FQ4, representing 46% of revenue.

For full FY2019, cash from operations was \$13.2 billion, representing 56% of revenue, down from \$17.4 billion or 57% of revenue in FY2018. Cash flow margins remained almost flat due to effective working capital management.

CAPITAL ALLOCATION



CAPEX

During the quarter, net capital spending, was approximately \$2.0 billion, down from \$2.2 billion in the prior quarter.

For full FY2019, our net capex was \$9.1 billion, up from \$8.2 billion in FY2018, but down meaningfully from the \$10 to \$11 billion plan we originally had entering FY2019.

We expect our FY2020 net capex to be in the range of \$7 to \$8 billion, down meaningfully from FY2019. We expect that capex for buildings and back-end manufacturing will increase significantly from last year, while the front-end equipment capex will decline more than 30% year-on-year.

FREE CASH FLOW

Looking at cash generation, we generated adjusted free cash flow of approximately \$260 million in FQ4 compared to \$500 million in FQ3 and \$3.1 billion in the year-ago quarter. Adjusted free cash flow for FY2019 was \$4.1 billion, down from \$9.2 billion in FY2018.

SHARE REPURCHASE

We received notice for approximately \$180M of convertible note redemptions in the quarter, which will remove approximately 4.0 million shares from our ongoing share count in FQ1. For full FY2019 we returned approximately \$2.7 billion to shareholders in the form of buybacks, representing 65% of free cash flow, at an average purchase price of \$40.

Including these share repurchases and our convertible note redemptions, we reduced our average diluted share count by 80 million shares in FY2019, representing 7% of shares outstanding.

We remain committed to returning at least 50% of our annual free cash flow to shareholders in the form of share repurchases in the future.

INVENTORY

Days of inventory was 131, down from 143 days in FQ3. Inventory ended the quarter at \$5.1 billion, increasing from \$4.9 billion at the end of FQ3. We will continue to focus on reducing our days of inventory and expect to see further reduction in FQ1. As mentioned before, we are seeing pockets of tight supply in certain parts of our business. Our long-term normalized inventory target has increased over time to above 100 days as a result of greater process complexity and the broadening of our product portfolio to high-value solutions, such as SSDs that require longer assembly and test cycle time.



TOTAL CASH/DEBT

Total cash ended the quarter at \$9.2 billion, up quarter-over-quarter, largely as a result of our \$1.75 billion investment grade debt issuance. Our total debt increased to \$5.9 billion. Total liquidity ended FQ4 at \$13 billion. We are holding approximately \$1.4 billion of liquidity for the acquisition of the IMFT joint venture, expected in FQ1 2020. This acquisition will eliminate approximately \$700 million of member debt financing and will be funded by drawing down \$1.25 billion from our term loan facility secured in FQ4.

OTHER EVENTS / SUBSEQUENT EVENTS

Before moving on to guidance, I want to share some expected changes to our upcoming reporting. We continue to evaluate planned technology node transitions, capital spending, and re-use rates for NAND equipment. Based on our preliminary assessment, we anticipate changing the depreciable life of our NAND equipment from five to seven years beginning in FQ1 2020. This change will reduce our depreciation expense included in cost of goods sold for FQ1 by approximately \$80 million, and increasing to approximately \$100 to \$150 million per quarter for the remainder of FY2020. As a reminder, depreciable life for DRAM equipment is already seven years.

Also starting in FQ1, we expect to change how we report MCP revenue, which we currently include within NAND revenue. We will begin disaggregating MCP revenue into DRAM and NAND, which will reduce our reported NAND revenue and margins in FQ1 while increasing our DRAM revenue. We believe that this change will help improve the transparency of our DRAM and NAND businesses.

OUTLOOK

Now turning to our financial outlook. As our portfolio strengthens and we improve our share in high-value segments, we are seeing growing demand for both DRAM and NAND and this is creating pockets of supply shortage, particularly in some leading-edge nodes and in back-end manufacturing. However, the market remains competitive and industry inventories continue to adjust to economic and geopolitical uncertainties. Notwithstanding these challenges, we expect bit shipments for both DRAM and NAND to grow in FQ1, with NAND increasing more than DRAM.

NON-GAAP GUIDANCE

With that in mind, our non-GAAP guidance for FQ1 is as follows. We expect revenue to be in the range of \$5 billion, plus or minus \$200 million, gross margin to be in the range of 26.5% plus or minus 150 basis points, and operating expenses to be approximately \$780 million, plus or minus \$25 million. Based on a share count of approximately 1.13 billion fully diluted shares, we expect EPS to be \$0.46, plus or minus \$0.07.



CLOSING

Despite a variety of industry and trade-related challenges in FY2019, Micron delivered strong financial results. At our 2018 analyst day, we laid out how we believed Micron was structurally improved and able to weather the storm in even challenging periods for the industry. While we are not out of the woods, we are proud of our execution as we have moved through the current cycle. We are exiting the fiscal year with a stronger product portfolio, deeper customer relationships, and our highest liquidity and net cash position to date, and we have also made good progress on our share buyback program. We are well-positioned to emerge from the current cycle ready to capitalize on the secular growth trends driving our business.

I will now turn the call over to Sanjay for concluding remarks.

Sanjay Mehrotra, President and Chief Executive Officer

Thank you, Dave.

FY2019 has been a solid year of accomplishments for the New Micron, as we continue to focus on structural improvements across a range of functions in the company, to take our performance to new heights. While we have made dramatic progress over the last couple of years, there is significant opportunity ahead of us to further improve our operations, drive product cost reductions, further improve engineering execution, build on our go-to-market strategy and initiatives, deepen customer engagements, and enhance the core competitiveness of the company to best-in-class levels.

As we look ahead, the long-term opportunities are exciting, and we are extremely enthusiastic about the momentum we have established at the New Micron.

On October 24th, we'll be hosting our second annual Micron Insight event, which will bring together leaders from across the industry to discuss how a world activated by data can transform the way we use information to enrich life — and how memory and storage are vital to these efforts. We will be webcasting Micron Insight live from San Francisco, and I encourage you all to tune in.

We will now open for questions.