



Sanjay Mehrotra, President and Chief Executive Officer

In the first quarter, we demonstrated solid execution, further improved our balance sheet, and began executing on our \$10 billion share buyback program. We delivered strong profitability despite revenue headwinds from the inventory adjustments at several customers and industry-wide CPU shortages. Our results also reflect our success in further diversifying our business, as evidenced by record sales in our mobile, automotive, and industrial businesses in the quarter. As we enter calendar 2019, we are seeing weakening demand from our customers. As a result, we are taking decisive actions, including a meaningful reduction in our fiscal 2019 capex plan in both DRAM and NAND that will materially reduce our supply bit growth. I'll provide more details on these items later in the call, after first reviewing the highlights of the quarter.

I'll start with our execution progress. We are focused on improving our cost structure and increasing the mix of high-value solutions in our portfolio, both of which provide immediate benefits and strengthen Micron's ability to drive long-term profitable growth.

Our cost reductions in DRAM and NAND have meaningfully outpaced the industry over the last three years. Our progress on advanced technology gives us confidence that we will deliver healthy year-over-year cost declines in DRAM and NAND in FY2019, even after taking into account the supply and capex changes which I referenced earlier. In the first quarter, we achieved crossover of 1X nanometer DRAM shipments and started revenue shipments of 1Y nanometer products. Our 1Y yield ramp is ahead of schedule, and we remain on track for meaningful production by FQ3. We are also making excellent progress on our 1Z technology, which leverages our leadership in advanced materials and cost-effective lithography techniques.

In NAND we continue to lead with our QLC product offerings and have introduced both consumer QLC NVMe SSDs and enterprise QLC SATA SSDs. In the first quarter, we started shipping 96-layer NAND products. Yields on 96-layer are ahead of plan.

We remain focused on increasing the mix of high-value solutions in our portfolio and investing in differentiated products for our customers. In DRAM, we introduced our 1Y nanometer 12-gigabit low-power DRAM, which offers the highest density available for the mobile market. We are seeing strong demand for this product as the market continues to move toward higher densities.

In NAND, high-value solutions now represent over 50 percent of our NAND bits, which is an important milestone for us. The improving mix of high-value solutions increases our gross profit opportunity and provides better margin stability. The strength of our high-value solutions this quarter — which was driven



by managed NAND products — helped us maintain overall NAND gross margins above 45 percent despite industry oversupply.

We strengthened our #1 share position in SATA enterprise SSDs, gaining about 3 percentage points of market share sequentially according to industry reports. In addition to the QLC consumer NVMe SSD mentioned earlier, we also introduced the industry's first one-terabyte TLC NVMe automotive SSD in the first quarter. We are working to further expand our NVMe product portfolio and plan to introduce SSDs targeting client, enterprise, and cloud markets through the course of calendar 2019.

Looking ahead, we expect the SSD market opportunity will continue to shift from SATA to NVMe. FY2019 will be a year of transition for our SSD portfolio, and we expect our SSD share gains to resume in FY2020. In the meantime, the growth of our high-value NAND solutions in FY2019 will be driven by our mobile managed NAND products, where we believe we have significant opportunity to increase share. In the first quarter, we shipped multiple high-capacity, high-performance UFS solutions, nearly tripling our bit shipments quarter-over-quarter.

We continue to make good progress in developing high-value solutions using our 3D XPoint™ technology and plan to introduce differentiated products toward the end of calendar 2019 as previously discussed. Our conviction in the opportunities ahead is reflected in our October announcement that we intend to exercise our option to acquire Intel's interest in the IMFT facility in Lehi, Utah, early in calendar 2019.

Now turning to end markets. I will start first with mobile, where we set records for revenue, gross margins, and operating margins in FQ1. In addition to strong seasonal sales, we benefited from major product wins with several customers, which is driving our managed NAND share gains. We are seeing strong demand elasticity in this market and within our MCP portfolio. Our average NAND density was up over 25 percent sequentially and over 150 percent year-on-year. Content growth also continues to do well in mobile DRAM with more than 25 percent growth in density per unit shipped on a year-on-year basis. We expect content growth to continue in mobile devices, driven by broader use of artificial intelligence and the increasing number of cameras in the average smartphone. These elements will become pervasive while the industry readies for 5G implementation.

In data center markets, we saw reduced revenue coming off a record-setting FQ4, due primarily to inventory adjustments at our customers. We expect this headwind will persist for a couple of quarters. We are seeing some cloud customers go through a digestion period following very strong growth over the last two years. We believe we are still in the early innings of cloud growth, and long-term end-customer demand trends remain strong in this market. Our engagement with our customers continues to be deep and now includes collaboration on our 3D XPoint product roadmap.



Higher-density DRAM products are seeing stronger demand across the data center market. Revenue from our high-density 64-gigabyte DRAM modules grew more than 50 percent quarter-over-quarter. We are focused on the upcoming industry transition from 8- to 16-gigabit DRAM and expect to start sampling our new 16-gigabit DRAM by our FQ3.

In graphics, we started volume ramp of our high-performance GDDR6 memory and are working closely with key customers in this segment. Higher-than-normal inventories in gaming cards and a falloff in crypto-related demand created revenue headwinds, which we expect to continue for a couple more quarters. Looking ahead, we see broadening interest in high-performance graphics memory for AI enablement in segments like data center and automotive. Our product leadership in GDDR6 is already creating new opportunities in these segments.

Turning to markets requiring our long lifecycle products, in FQ1 we had record revenue in auto and industrial markets with a sequential expansion in gross margins. Strength in automotive continues to be driven by increasing demand for in-vehicle infotainment and advanced driver assistance systems. As a result, we see strong demand for our latest generation of automotive products. In November, we announced a collaboration with BMW to define and validate next-generation automotive solutions. This is another proof point of Micron's leadership in automotive and the growing criticality of memory and storage to leading-edge automotive applications.

Turning to our DRAM industry outlook. As I have mentioned previously, DRAM demand weakened through the course of our FQ1. Since the start of FQ2, the weakening demand trend has continued, and our near-term visibility is limited. Due to a lengthy period of rising DRAM prices, we believe our some of our customers had decided to carry higher-than-normal inventory levels, and as DRAM supply caught up with demand, these customers are bringing down their inventory levels. Smartphone unit demand is also continuing to weaken, particularly at the high end, in what is a seasonally slow quarter for mobile. Lastly, we are continuing to see the impact of CPU shortages.

While our customers' end market demand in segments like industrial, cloud, enterprise, and client compute is healthy, this inventory adjustment period will contribute to weaker demand conditions in DRAM that will likely persist through the first half of calendar 2019.

We now expect DRAM bit demand growth for the industry in calendar 2019 at approximately 16 percent, compared with our prior expectation of approximately 20 percent. Even after factoring in the recent capex cuts publicly announced across the industry, DRAM supply growth is tracking above our view of demand growth in calendar 2019.



Given this supply-demand dynamic, we are taking decisive actions to lower our DRAM bit output growth to approximately 15 percent for calendar 2019, versus our prior plan of around 20 percent bit growth. These actions include a significant reduction to our capital expenditures in FY2019.

Based on our current demand estimates, our DRAM bit shipments for FQ2 will decline sequentially, but more importantly, are likely to be flat to down on a year-over-year basis as well, consistent with a weak quarter for the memory industry and significantly below the long-term demand growth rate. This shows that inventory adjustments by our customers are well underway. Barring weaker macroeconomic conditions, we expect our DRAM bit demand to grow sequentially in our FQ3. Looking beyond FQ3, as we enter the second half of calendar 2019, we expect a healthier demand environment, alongside an improved industry supply picture, which should contribute to improved financial performance.

In NAND, while the inventory levels at customers are in better shape, NAND suppliers appear to have elevated levels of inventory. The transition from planar to 3D NAND in the industry and successful ramp of 64-layer across the NAND manufacturers has resulted in oversupply in the market over the last several quarters. We currently expect calendar 2019 NAND industry bit demand growth to be approximately 35 percent, with ongoing impacts due to client compute CPU shortages and weaker high-end smartphone unit demand. Even after taking into account recent publicly announced NAND capex reductions for calendar 2019, our assessment is that the NAND industry supply growth will exceed industry demand growth in the coming calendar year. We are therefore lowering our 2019 planned NAND bit growth and further reducing our FY2019 NAND capex. We now expect our calendar 2019 NAND supply bit growth to be meaningfully reduced from prior expectations and expect our bit shipment growth to be in line with the industry demand at approximately 35 percent. We also expect NAND demand to accelerate in the second half of the calendar year as demand elasticity kicks in for the mobile, enterprise, and client markets.

Given our attractive cost structure on leading-edge NAND and DRAM, in this market environment we will manage pricing and carry inventory as necessary to optimize our profitability. We are taking decisive action on the supply side to manage our business in a prudent fashion, with an eye toward delivering a robust return on our investments. Our actions will significantly reduce our FY2019 capex and allow us to continue delivering strong profitability and healthy free cash flow, while investing in our strategic priorities as we position Micron to capitalize on the exciting growth opportunities for the company.

Dave Zinsner, Senior Vice President and Chief Financial Officer

Micron delivered strong results in our FQ1, including double-digit, year-over-year growth in revenue, gross profits, and earnings per share. While our near-term outlook has become more challenging, the actions taken to improve our cost structure and increase our mix of high-value solutions will ensure that our profitability profile remains strong. Moreover, Micron's financial position remains healthy with an improved net cash position and with total liquidity reaching our target levels.



Total FQ1 revenue was \$7.9 billion, up 16 percent from the prior year and down 6 percent from the record FQ4. Revenue was adversely impacted by inventory adjustments at key customers in the cloud, graphics, and enterprise markets. Offsetting these headwinds, we delivered record revenue in the mobile, industrial, and automotive markets.

DRAM represented 68 percent of total company revenue in the FQ1. DRAM revenue increased 18 percent year-over-year and declined 9 percent from the prior quarter. On a blended basis, DRAM ASPs declined high single-digits percent compared to the prior quarter while shipment quantities were relatively flat.

Trade NAND revenue represented 28 percent of total company revenue in the FQ1. Trade NAND revenue increased 17 percent year-over-year and declined 2 percent quarter-over-quarter. Our overall NAND ASP declined in the low-to-mid-teens percent and shipment quantities increased in the low-to-mid-teens percent compared to the prior quarter.

Now turning to our revenue trends by business unit. Revenue for the Compute and Networking Business Unit was \$3.6 billion, up 12 percent year-on-year and down 17 percent quarter-on-quarter. The sequential decline was driven by the impact of inventory adjustments at some of our customers in the graphics, enterprise, and cloud markets.

The Mobile Business Unit delivered a strong quarter with record revenue of \$2.2 billion. Revenue increased 62 percent year-over-year and 17 percent from the prior quarter. Revenue growth was driven by the continued strength of our low power DRAM offerings and share gains in our mobile managed NAND business with several leading handset customers.

Embedded Business Unit revenue of \$933 million was up 12 percent year-on-year and up 1 percent quarter-on-quarter. The automotive and industrial businesses had record revenue, driven by strong sales of our DRAM and NOR products.

Finally, turning to the Storage Business Unit, or SBU, FQ1 revenue was \$1.1 billion, down 17 percent year-on-year, and 8 percent quarter-on-quarter. The sequential decline in revenue was driven by weaker pricing and the ongoing transition from SATA to NVMe SSDs. The impact of this transition will continue through calendar 2019. Our strategy to move bits from SBU components to high-value solutions in mobile is also contributing to the decline in revenue for SBU.

The consolidated gross margin for the FQ1 was 59 percent, up 360 basis points from the prior year and down approximately 230 basis points from the prior quarter. This includes a 120-basis point impact from 3D XPoint underutilization costs. During the last few months, we successfully leveraged our global supply chain to mitigate the impact of the China trade tariffs to less than 50 basis points to our consolidated FQ1 gross margin. We expect to be able to mitigate approximately 90 percent of the impact from tariffs starting



in January 2019. We believe that Micron will not be directly impacted by any expansion of trade tariffs to additional product categories.

Operating expenses were \$783 million, slightly above our guidance, mainly due to higher-than-expected prequalification expenses associated with new product introductions. Looking forward, as our joint development work with Intel comes to a conclusion around the end of this fiscal year, the R&D cost sharing between the companies will naturally reduce and come to an end. In FQ1, Intel's share of joint R&D expenses was approximately \$30 million. We expect that our R&D expenses will continue to increase in the coming quarters due to the combination of these declining R&D contributions from Intel, as well as increased investments in future technologies and high-value solutions across our portfolio.

We continued to drive strong profitability in FQ1 with operating income of \$3.9 billion, representing 49 percent of revenue. This margin is up 3 percentage points year-over-year and down 3 percentage points from FQ4. As previously mentioned, the improvements that Micron has made over the prior several years have resulted in structurally higher margins.

The tax rate FQ1 was 10 percent, and we expect our FY2019 tax rate to be around 11 percent.

Non-GAAP earnings per share in FQ1 totaled \$2.97, up from \$2.45 in the year-ago quarter and down from \$3.53 in the prior quarter.

We commenced our capital return program in FQ1 with the repurchase of \$1.8 billion of common stock, representing a reduction of approximately 42 million shares or about 3.5 percent of shares outstanding. We expect to remain active with our stock buybacks in FQ2 as we continue to make progress on our \$10 billion repurchase program by returning at least 50 percent of our ongoing free cash flow to shareholders.

Turning to cash flows and capital spending, in FQ1, we generated \$4.8 billion in cash from operations, representing 61 percent of revenue.

Capital spending, net of third-party contributions, was \$2.5 billion, up from \$2.1 billion in the prior quarter.

In FQ1, our free cash flow was approximately \$2.3 billion, up about \$600 million from the year-ago quarter and down approximately \$750 million from the prior quarter. We deployed approximately 80 percent of the quarter's free cash flow toward our share repurchase program.

Even with the substantial outlay for share repurchases, we ended the fiscal quarter in a record net cash position of \$3.1 billion, with approximately \$7.2 billion in cash, marketable investments, and restricted cash, and \$4.1 billion in debt. While we largely completed our deleveraging activities in FY2018, we further reduced our debt balance in the quarter by approximately \$500 million through the settlement of outstanding convertible note redemptions of \$160 million and other scheduled payments. Overall, our solid



balance sheet, strong cash flow, and robust liquidity put us in an excellent position to execute on our capital returns program.

Prior to issuing our FQ2 guidance, I'd like to provide some context for our outlook. Due to the weaker demand environment, we expect FQ2 sequential bit shipments to be down meaningfully for both NAND and DRAM. Given the weaker near-term outlook, we are lowering our capex plans to a range of \$9 to \$9.5 billion for FY2019. At the mid-point, this represents a \$1.25 billion reduction from our prior guidance, and our front-end equipment capex is now down year-on-year. We will continue to remain flexible with capital spending to respond to market conditions.

With that in mind, our non-GAAP guidance for FQ2 is as follows. We expect revenue to be in the range of \$5.7 billion to \$6.3 billion and gross margins to be in the range of 50 percent to 53 percent. Operating expenses are expected to be \$800 million, plus or minus \$25 million. As we execute on longer-term growth investments, we are actively managing opex by implementing expense controls across the company, including tighter controls on headcount, holiday work schedule slowdowns, and reductions in discretionary spending. Based on a share count of approximately 1.15 billion fully diluted shares, we expect EPS to be \$1.75, plus or minus 10 cents.

In closing, Micron continues to deliver solid financial results on a stronger performance foundation. We are making progress on all of our key initiatives, including our high-value solutions product portfolio, our cost profile, capital return program, and financial structure, with a record net cash position and \$9.7 billion of liquidity at the end of FQ1. While near-term market conditions are challenging, we are taking appropriate steps to manage production and spending in order to deliver healthy profitability and cash flows. There is no doubt Micron remains in the strongest financial position in the company's history as we transition to next-generation technologies and products.

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While we end calendar 2018 on the heels of unprecedented profitability and revenue for both Micron and the industry, we do believe we are entering a period of weaker market conditions. We are taking prudent actions to adapt our manufacturing plans to the changing demand environment.

While we are implementing expense controls, we are also continuing to invest in our technology and cost competitiveness, as well as strengthening our portfolio of high-value solutions. Memory and storage have become essential ingredients to the value created by the data economy, and it is this added value that is driving a virtuous cycle of long-term growth and innovation.

We continue to believe that the memory industry is structurally stronger with more diversified demand drivers and moderating supply growth capability. Micron is better positioned than ever before to win in this



environment, with our strong balance sheet and the structural improvements we have made to our operating model in the past several years. We believe 2019 will be a year of solid profitability, and I look forward to sharing our results over the quarters ahead.



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