Needham Automotive Investor Conference 2020

A Leading Provider of Smart, Connected and Secure Embedded Control Solutions

Ganesh Moorthy, President and COO
Matthias Kaestner, Vice President – Automotive

June 3, 2020
Use of Non-GAAP Financial Measures: In this presentation, we have included certain non-GAAP financial information, including for example, adjusted EBITDA, non-GAAP gross profit, free cash flow and end-market demand. Our non-GAAP results, where applicable, exclude the effect of share-based compensation, COVID-19 shelter-in-place restrictions on manufacturing activities, expenses related to our acquisition activities (including intangible asset amortization, inventory valuation costs, excess capacity charges to normalize acquired inventory levels, severance and other restructuring costs, and legal and other general and administrative expenses associated with acquisitions including legal fees and expenses for litigation and investigations related to our Microsemi acquisition), professional services associated with certain legal matters, IT security remediation costs, non-cash interest expense on our convertible debentures, losses on the settlement of debt, and gains and losses related to available-for-sale investments. For the fourth quarters of fiscal 2020 and fiscal 2019, our non-GAAP income tax expense is presented based on projected cash taxes for the fiscal year, excluding transition tax payments under the Tax Cuts and Jobs Act. Following our required adoption of the new revenue recognition standard effective April 1, 2018, we disclose "end market demand" which is the net dollar amount of our products, investments. For the fourth quarters of fiscal 2020 and fiscal 2019, our non-GAAP income tax expense is presented based on projected cash taxes for the fiscal year, excluding transition tax payments under the Tax Cuts and Jobs Act.
FQ1’21 Business Update

• Our business is performing better than we expected when we issued our May 7, 2020 press release
• COVID-19 related supply chain disruptions have eased. We have begun to make up for lost production in our factories in the Philippines and our Malaysia subcontractors
  • We have seen a quicker recovery from supply chain disruptions versus our earlier expectations
  • We expect to continue to gain ground through the end of FQ1’21
• Our customers’ factories in China are fully back to work. Other customer factories in Europe and North America are starting to reopen, including Automotive factories where we saw the largest demand destruction
  • We experienced a lower level of June quarter cancellations and pushouts than earlier anticipated
• Microchip now expects its June 2020 quarterly net sales to be between $1.247 and $1.326 billion, and non-GAAP EPS to be between $1.35 and $1.53
  • Prior net sales guidance from May 7, 2020 was for net sales between $1.194 and $1.3 billion
  • Previous non-GAAP EPS guidance was to be between $1.25 and $1.45
# Financial Results, Guidance and Long-Term Model

## Actual Results

<table>
<thead>
<tr>
<th></th>
<th>Q1 FY17</th>
<th>Q2 FY17</th>
<th>Q3 FY17</th>
<th>Q4 FY17</th>
<th>Q1 FY18</th>
<th>Q2 FY18</th>
<th>Q3 FY18</th>
<th>Q4 FY18</th>
<th>Q1 FY19</th>
<th>Q2 FY19</th>
<th>Q3 FY19</th>
<th>Q4 FY19</th>
<th>Q1 FY20</th>
<th>Q2 FY20</th>
<th>Q3 FY20</th>
<th>Q4 FY20</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net Sales</strong></td>
<td>$844.0</td>
<td>$873.8</td>
<td>$881.2</td>
<td>$902.7</td>
<td>$972.1</td>
<td>$1012.1</td>
<td>$994.2</td>
<td>$1002.3</td>
<td>$1216.8</td>
<td>$1513.3</td>
<td>$1416.0</td>
<td>$1329.8</td>
<td>$1322.6</td>
<td>$1337.8</td>
<td>$1287.4</td>
<td>$1326.4</td>
</tr>
<tr>
<td><strong>Gross Profit</strong></td>
<td>$471.1</td>
<td>$499.9</td>
<td>$509.7</td>
<td>$534.7</td>
<td>$587.2</td>
<td>$617.8</td>
<td>$610.6</td>
<td>$618.4</td>
<td>$756.7</td>
<td>$933.7</td>
<td>$881.1</td>
<td>$826.9</td>
<td>$820.1</td>
<td>$832.7</td>
<td>$791.2</td>
<td>$822.3</td>
</tr>
<tr>
<td><strong>Gross Margin</strong></td>
<td>55.8%</td>
<td>57.2%</td>
<td>57.8%</td>
<td>59.2%</td>
<td>60.4%</td>
<td>61.0%</td>
<td>61.4%</td>
<td>61.7%</td>
<td>62.2%</td>
<td>61.7%</td>
<td>62.2%</td>
<td>62.2%</td>
<td>62.2%</td>
<td>62.0%</td>
<td>62.0%</td>
<td>62.0%</td>
</tr>
<tr>
<td><strong>Operating Expenses</strong></td>
<td>$240.0</td>
<td>$233.6</td>
<td>$220.6</td>
<td>$213.6</td>
<td>$222.9</td>
<td>$227.3</td>
<td>$218.9</td>
<td>$222.8</td>
<td>$283.2</td>
<td>$354.5</td>
<td>$351.1</td>
<td>$342.8</td>
<td>$341.6</td>
<td>$341.9</td>
<td>$339.1</td>
<td>$336.6</td>
</tr>
<tr>
<td><strong>Operating Income</strong></td>
<td>$231.1</td>
<td>$266.3</td>
<td>$289.1</td>
<td>$321.2</td>
<td>$364.3</td>
<td>$390.5</td>
<td>$391.7</td>
<td>$395.6</td>
<td>$473.5</td>
<td>$579.3</td>
<td>$530.0</td>
<td>$484.1</td>
<td>$478.5</td>
<td>$490.8</td>
<td>$452.1</td>
<td>$485.7</td>
</tr>
<tr>
<td><strong>Operating Margin</strong></td>
<td>27.4%</td>
<td>30.5%</td>
<td>32.8%</td>
<td>35.6%</td>
<td>37.5%</td>
<td>38.6%</td>
<td>39.4%</td>
<td>39.5%</td>
<td>38.9%</td>
<td>38.3%</td>
<td>37.4%</td>
<td>36.4%</td>
<td>36.2%</td>
<td>36.7%</td>
<td>35.1%</td>
<td>36.6%</td>
</tr>
<tr>
<td><strong>Net Income</strong></td>
<td>$194.0</td>
<td>$219.6</td>
<td>$246.5</td>
<td>$276.9</td>
<td>$319.1</td>
<td>$344.1</td>
<td>$341.2</td>
<td>$351.3</td>
<td>$405.8</td>
<td>$454.6</td>
<td>$405.6</td>
<td>$370.4</td>
<td>$357.6</td>
<td>$365.7</td>
<td>$340.8</td>
<td>$375.5</td>
</tr>
<tr>
<td><strong>Diluted EPS</strong></td>
<td>$0.84</td>
<td>$0.94</td>
<td>$1.05</td>
<td>$1.16</td>
<td>$1.31</td>
<td>$1.41</td>
<td>$1.36</td>
<td>$1.40</td>
<td>$1.61</td>
<td>$1.81</td>
<td>$1.66</td>
<td>$1.48</td>
<td>$1.41</td>
<td>$1.43</td>
<td>$1.32</td>
<td>$1.46</td>
</tr>
<tr>
<td><strong>EBITDA</strong></td>
<td>$264.1</td>
<td>$298.8</td>
<td>$321.3</td>
<td>$356.5</td>
<td>$395.6</td>
<td>$422.5</td>
<td>$425.9</td>
<td>$429.6</td>
<td>$537.5</td>
<td>$574.0</td>
<td>$556.3</td>
<td>$544.4</td>
<td>$537.1</td>
<td>$540.2</td>
<td>$503.4</td>
<td>$548.1</td>
</tr>
</tbody>
</table>

* Amounts above are reflected in millions of dollars except for diluted EPS and percentages. Microchip does not utilize a GAAP long-term model. All figures are Non-GAAP except for net sales. Figures prior to Q4 FY19 and are measured off of end market demand (instead of GAAP net sales). In Q4 FY19, based on discussions with the SEC, Microchip changed to providing Non-GAAP guidance based on GAAP revenue. Excludes share-based compensation, acquisition related charges, and other items. A reconciliation of our GAAP to non-GAAP results is available at www.microchip.com.

## Q1 FY21 Updated Guidance from 6/2/20

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<td>$1,247</td>
<td>$1,326</td>
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<tr>
<td><strong>Gross Profit %</strong></td>
<td>60.5%</td>
<td>61.3%</td>
</tr>
<tr>
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<td>23.4%</td>
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<tr>
<td><strong>Diluted EPS</strong></td>
<td>$1.35</td>
<td>$1.53</td>
</tr>
</tbody>
</table>

## Long Term Model Including Microsemi

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>Gross Margin</strong></td>
<td>63.0%</td>
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<tr>
<td><strong>Operating Expense</strong></td>
<td>22.5%</td>
</tr>
<tr>
<td><strong>Operating Margin</strong></td>
<td>40.5%</td>
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FQ1’21 Debt Financing Activities

• Issued $1.0 billion in senior secured notes with a 2.67% interest rate and $1.2 billion in senior notes with a 4.25% interest rate
• $615 million of the proceeds from the notes was used to retire the senior secured bridge loan that was issued in March 2020
• $383.3 million of proceeds from the notes was used to retire principal of convertible senior subordinated notes due 2025
• $643.9 million of proceeds from the notes was used to retire principal of convertible senior subordinated notes due 2027
• Remaining net proceeds from the newly issued notes will be used for general corporate purposes, which may include repayment of a portion of the amounts outstanding under Microchip’s revolving line of credit
• ~ 6.7 million shares were issued in the convertible notes exchange
Corporate Snapshot

Leading Total Systems Solutions Provider:

- High-performance standard and specialized Microcontrollers, Digital Signal Controllers and Microprocessors
- Mixed-Signal, Analog, Interface and Security solutions
- Clock and Timing solutions
- Wireless and Wired Connectivity solutions
- FPGA solutions
- Non-volatile EEPROM and Flash Memory solutions
- Flash IP solutions

$5.3 Billion Revenue
FY2020

Headquartered near Phoenix in Chandler, AZ

~18,000 Employees
### Annual Net Sales Growth

**End Market Demand**

- **FY93** to **FY20**
- **MCU**
- **Analog**
- **FPGA**
- **LMO**

118 consecutive quarters of profitability!
Market Megatrends

Converging in the Car of Tomorrow
Market Megatrends

- Industrial
- Data Center & Computing
- Automotive
- Communications
- Aerospace & Defense
- Consumer

- 5G
- IoT
- Data Centers
- Electric Vehicle
- AI/Machine Learning
- ADAS/Autonomous Driving
Market MegaTrends...

... go hand in hand with the automotive future

**Connected**
One hour per day in the vehicle & enabling features – revenue potential

**Automated**
> 1 Million fatalities globally through road traffic, driver convenience, fleet cost reduction

**Electrified**
CO2 emission regulations, “green” consumer consciousness
Automotive Market Overview

Covid-19 impact
Automotive Market - Production

- The Automotive Market is declining since the last peak in 2017
- 2020: Plants and Dealerships closed due to Covid-19 Pandemic, disrupted supply chains
- Global car production dropped by 65% YoY in April 2020
- China car production almost fully recovered in April

Source: Marklines 2020

Monthly Production in Units

![Bar chart showing monthly production in units from 2019/04 to 2020/04 for various countries and regions.](image-url)
Automotive Market - Demand

- Global consumer confidence Index is at the lowest level – massive unemployment
- Stimulus packages for the Automotive Sector discussed and expected around the world
- The China market recovered in April to pre-crisis levels – up 4.4% YoY
- Delayed Car Purchases may result in pent up demand – recovery of lost sales possible

Source: Marklines 2020
ADAS & Autonomous

Cars and beyond
ADAS Market Today: L2/L3 for Safety and Comfort

- Lane Keep Assist
- Lane Departure
- Front Collision Avoidance
- Pedestrian Detection
- Blind Spot Detection
- Adaptive Cruise Control
- Back up Camera
- Surround View Camera
- Autonomous Parking
- Parking Sensors
- Tire Pressure Management
- Rain Sensor
- Adaptive Lighting
- LED Matrix Lighting
- Automatic Emergency Braking
- Traffic Sign Recognition
- Hands on Detection
- Steering Wheel
- Sensor Processing
  - MCUs, MPUs & FPGAs
  - Security/Trust Anchor
  - Oscillators
  - Memory
  - Power Management
  - Amplifiers
  - ADC & DAC
  - Thermal Management
- Communications
  - LIN
  - CAN& CANFD Controllers
  - 802.3 Ethernet controllers
  - 10Base-T1S
  - 100Base-T1
  - 1000Base-T1
  - CoaXPress
- Vehicle Computer/ADAS Controller
  - PCIe Switch
  - FPGA & MPUs
  - Power Management
  - Ethernet
  - Security/Trust Anchor
  - MEMS Clock
  - Clock Retimers
  - Memory

Microchip
ADAS - L4/L5

Requirements for Autonomous Driving

• **Knowing the environment:** Reliable Sensing using multiple technologies that – once combined - work in all situations

• **Knowing the Position at a given time:** Exact positioning on a precise map which is updated real time

• **Making driving decisions:** High Speed Centralized Computing & AI

• **Safety:** implement sufficient redundancy – “fail operational modes”
ADAS L4/L5 Tech Trends and Challenges

Centralized Computing

• Autonomous car = datacenter on wheels! Sensor data processing and decision making is highly centralized.
• Several SoCs, high speed memory and high bandwidth sensors are interconnected
• The PCIe Switch Fabric that provides this connectivity is the same one used in large datacenters – Gen 4 = 16GBit/s/lane

High Precision Location

• Knowing the precise position of the car is key to full autonomous driving
• Precise cloud-based maps are updated on the fly – each car is a sensor providing input for the updates, 5G is the link to the cloud, OEMs invest and own the maps.
• GPS is not good enough in urban canyons, requires line of sight to satellites
ADAS - L4/L5 Microchip Solutions

Centralized Computing

• Microchip aggressively invests in a broad family of PCIe switches, using leading edge process technology
• Switchtec™ PCIe Gen4 solutions for L3/L4/L5 vehicles
• Switchtec™ PCIe is on major SOC vendors reference designs

High Precision Timing

• micro-PNT (Positioning, Navigation, Timing) closes the gap caused by Urban Canyons and inaccuracy of vehicle sensors to achieve +/-2 cm – also eliminates the risk of GPS “spoofing”
• Microchip micro-PNT ensures a link to a common precise time base and holds precise time without GNSS
• Microchip engaged in test bed projects in 3 Cities
ADAS Technology Beyond Cars...

Autonomous Objects
Electrification

Accelerating Change
**EV Market**

- Electrification is gaining momentum – combustion free cities
- Traditional OEMs make massive investments in EVs and are starting to catch up
- Carrot and stick approach: Tax breaks, R&D $$ & hefty fines
- Automotive buying incentives are often tied to environmental goals

Source: DATAQUEST - May 13, 2020

Source: CNBC - May 5, 2020

Source: oekonews.at – April 28, 2020

Source: www.deraktionaer.de – May 12, 2020
EV Tech trend – Silicon Carbide

Best technology for EV power train and for EV charging

- Lowest switching losses:
  => high efficiency, longer range

- High temp stability:
  => relaxed thermal design, less cooling

- High switching frequencies:
  => smaller and lighter passives

*IHS MARKIT TECHNOLOGY - SiC and GaN Power Semiconductor Report - 2018*
Microchip EV Solutions

- SiC power product family: 700V & 1200V & 1700V MOSFETS & Diodes
- Supporting 400V & 800V power trains and 1000V high speed DC charging
- TTM: SiC Power Modules & complete reference designs
- Leading 16/32-bit MCU portfolio for Digital Power Conversion
- Inductive Positioning Sensors: robustness in strong magnetic fields
R&D Complexity Challenge

Ethernet will Rule the Car
Software Defined Car

- R&D cost and R&D cycle time for a new car model is increasing rapidly...
- ... driven by new features, security & safety, cloud connectivity, ADAS, distributed architectures and the many legacy communication networks...
- ...and by the exponential growth in SW complexity
Auto Networking Tech Trend – All Ethernet

• **Today – Decentralized, hardware optimized**

- Ethernet is the enabler for the connected and autonomous vehicle
- One IP communication stack for all networks / speed grades – from 10Mbps to multi-Gbps
- Proven IP communication protocols with some level of built in security
- Removes need for complex gateways – seamless communication using switches
- Reduces verification & validation efforts and simplifies wiring

• **Tomorrow – Homogeneous, software optimized**

- Source: Audi, Ludwigsburg

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**Ethernet is the enabler for the connected and autonomous vehicle**

- LIN, CAN, CANFD
- FlexRay, MOST, Ethernet, A2B Gateways
- Ethernet
- 10Base-T1S
- 100Base-T1
- 1000Base-T1
- NG-Auto Switches, Bridges

Source: Audi, Ludwigsburg
Microchip Solutions Support the Evolution

Ethernet Total System Solutions

- Support from 10 Mbps to Multi Gigabit Ethernet
- Broadest portfolio: Phy, Switches, Bridges
- 100Base-TX and 10BASE-T1S market leader
- Complete suite of development tools

Microchip Products

- OBD Gateway
- 100BASE-TX

Distribution, Domain ECUs

- AVB Ethernet Backbone
- 10/100/1000BASE-T1

Zonal ECU, Autonomous Centralized Computing

- TSN
- Multi-Gigabit
- PCIe

Customer Applications

- Network Creator Configuration API
- AVB / TSN Modular Software Stack
- Low level drivers
- Ethernet IC

Microchip Solutions Support the Evolution

Ethernet Total System Solutions

- Support from 10 Mbps to Multi Gigabit Ethernet
- Broadest portfolio: Phy, Switches, Bridges
- 100Base-TX and 10BASE-T1S market leader
- Complete suite of development tools
Security

Required for connected systems
Security Market Needs

• Car owners expect security – not optional!
• ADAS => requires safety => requires security

Automotive Attack Surfaces:
• Car => always connected => IoT Device
• Car => OTA SW upgrades
• Car => Cellular emergency call system
• EV charging => communication with charger by wire
• USB data connectivity => phone connected to car

Growing need for Automotive Cyber Security!
Security Requirements

Securing what:
• Secure Boot – no fraudulent SW to start a function
• Authentication – authorizing communication on the network
• Encrypted communication – protecting message content

Security in the car – at the module level:
• Connected modules – secured by a dedicated security IC
• Connected modules – security provided by the Microcontroller
Microchip Automotive Security Solutions

TA100

- Trust Anchor - automotive hardware-based security solution, external HSM
- JIL “High” rated secure key storage
- Code Authentication (Secure Boot), Message Authentication
- Multiple key management protocols including TLS
- Cost efficient and easy to implement, minimizing re-design efforts
- Trust Platform Service: customizable key provisioning in Microchip’s certified factories

Secure MCUs with HSM

- 32Bit Arm based Automotive SAM MCUs with built in security - HSM
Summary
Summary

• Microchip’s market segments are well aligned with Six Global Megatrends

• The three Automotive Megatrends: Connected, Electrified & Autonomous align with all of the Six Global Megatrends

• Microchip’s broad product portfolio is the enabler for our Total System Solutions approach

• Microchip will continue to invest in automotive innovation despite the current automotive market turbulence

• Microchip is well positioned to participate in the long-term growth of the market, incl. EVs and autonomous vehicles
Thank You – Questions, please!