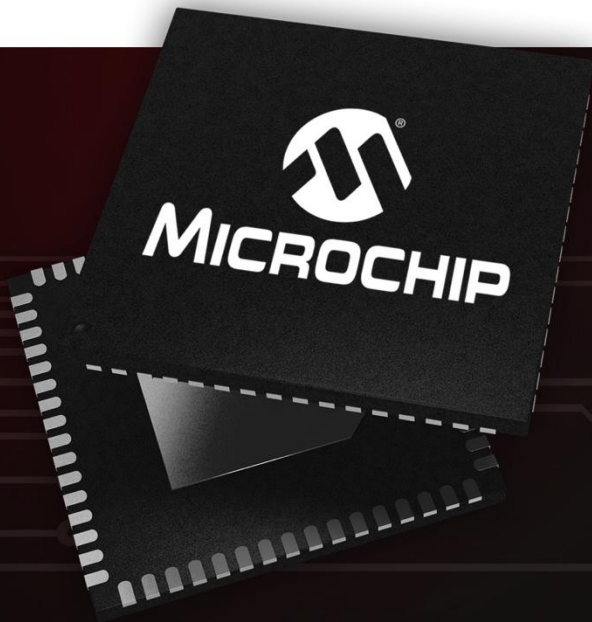




A Leading Provider of Microcontroller,
Mixed-Signal, Analog & Flash-IP Solutions



Microchip In Automotive

Ganesh Moorthy
President and
Chief Operating Officer

Business Update

- **Net sales for Q1FY18 expected to be +4.5% to +6% sequentially (previous guidance +2% to +7%).**
- **Non GAAP EPS for Q1FY18 expected to be between \$1.22 to \$1.26 per share (previous guidance \$1.17 to \$1.27 per share).**
- **Business conditions continue to be very strong. Backlog is strong. Lead times stretching out.**
- **Significant capacity challenges to persist for up to one year before lead times are normal.**
- **Long-term updated non-GAAP financial model is now 62.5% gross margin, 22.5% operating expenses and 40% operating profit.**

Corporate Overview

- **Leading provider of:**
 - High-performance Microcontrollers, Digital Signal Controllers and Microprocessors
 - Mixed-Signal, Analog, Interface and Security solutions
 - Clock and Timing solutions
 - Wireless and Wired Connectivity solutions
 - Non-volatile EEPROM and Flash Memory solutions
 - Flash IP solutions
- **~ \$3.5 Billion revenue in FY17**
- **~13,000 employees**
- **Headquartered near Phoenix in Chandler, AZ**

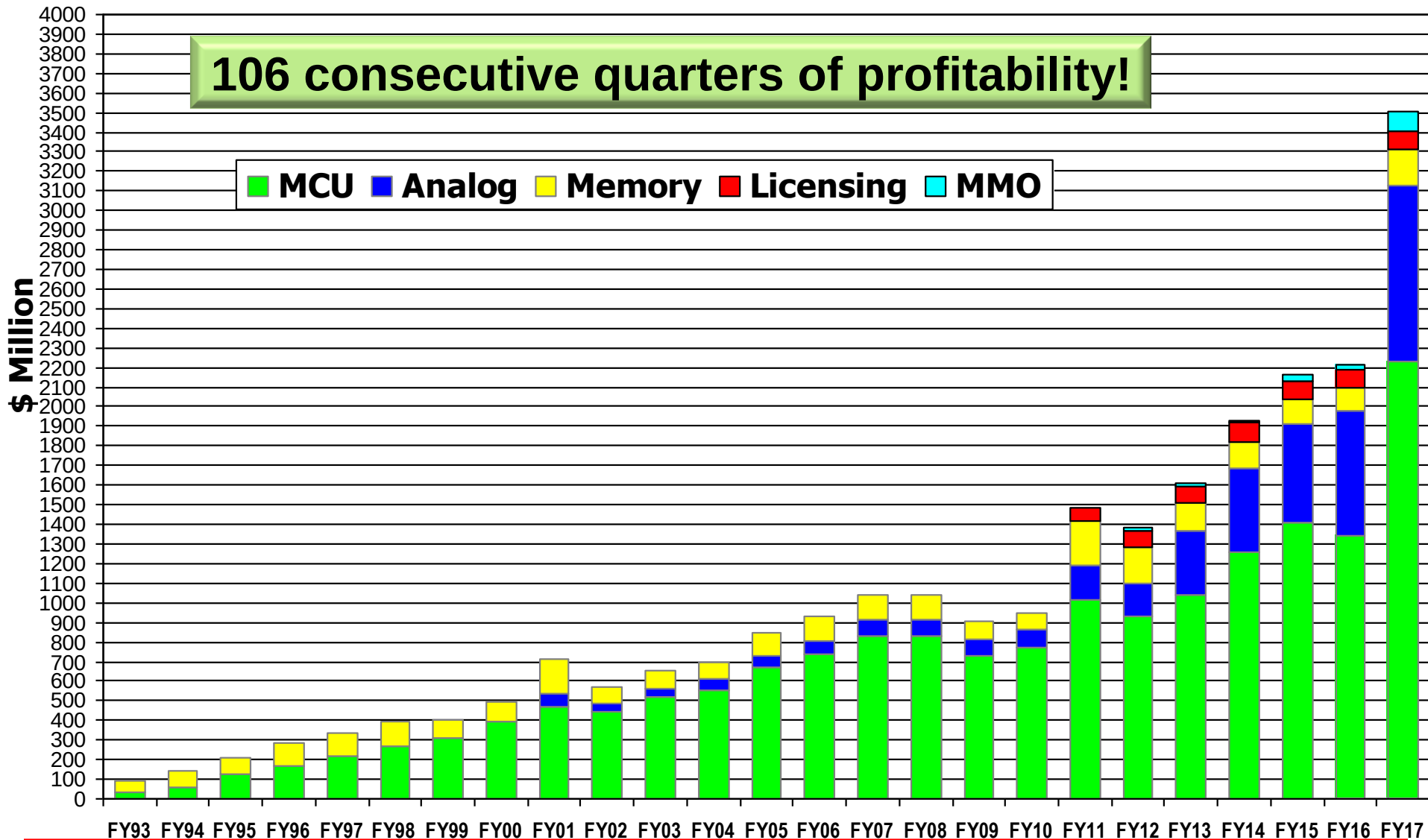
Our Vision

***Be The Very Best Embedded
Control Solutions Company Ever***



SMART | CONNECTED | SECURE

Annual Net Sales Growth

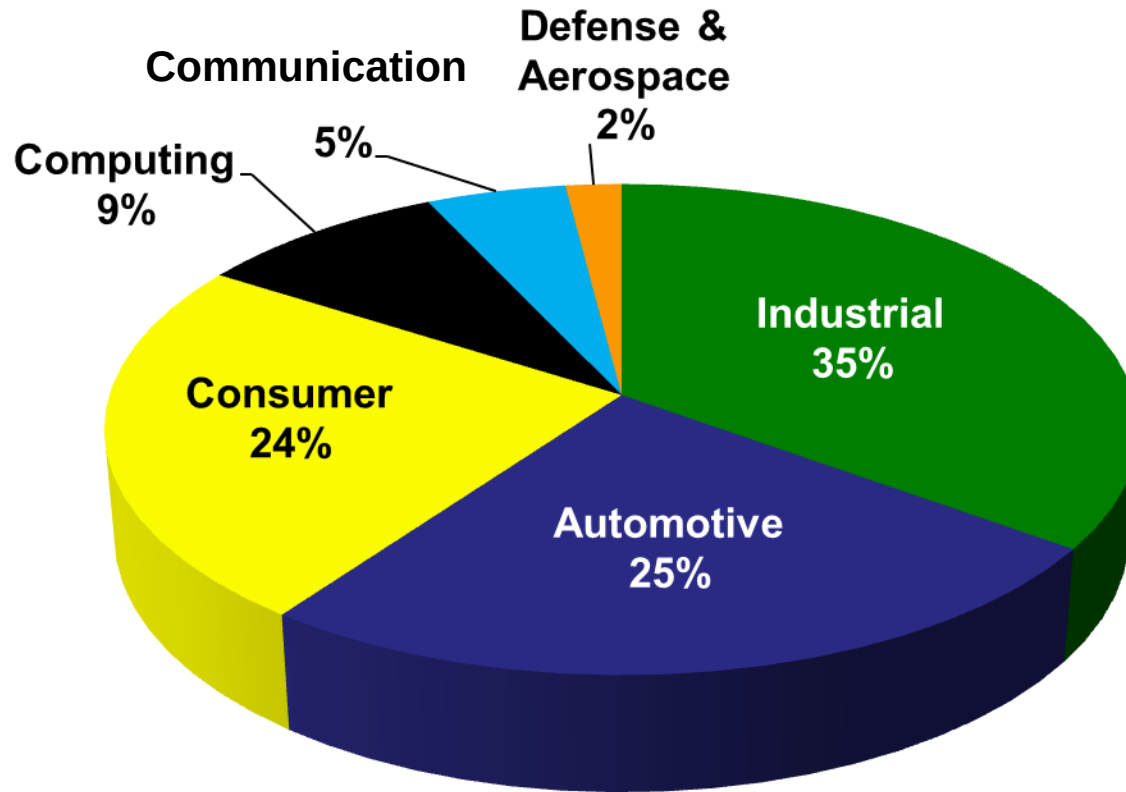


WW MCU Market Share

<u>No.</u>	<u>2003 Rank</u>	<u>2008 Rank</u>	<u>2009 Rank</u>	<u>2010 Rank</u>	<u>2012 Rank</u>	<u>2014 Rank</u>	<u>2015 Rank</u>	<u>2016 Rank</u>
1	Renesas	Renesas	Renesas	Renesas	Renesas	Renesas	Renesas	Renesas
2	Motorola	NEC	NEC	Freescall	Freescall	Freescall	NXP	NXP
3	NEC	Freescall	Freescall	Samsung	Infineon	ST-Micro	ST-Micro	Microchip
4	Matsushita	Infineon	Samsung	Microchip	Microchip	Microchip	Microchip	ST-Micro
5	Infineon	Samsung	Microchip	Atmel	ST-Micro	NXP	Infineon	TI
6	Fujitsu	Microchip	TI	TI	TI	TI	TI	Infineon
7	Toshiba	ST-Micro	Infineon	Infineon	Atmel	Infineon	Atmel	Cypress
8	Microchip	TI	ST-Micro	ST-Micro	NXP	Atmel	Cypress	Samsung
9	Samsung	Fujitsu	Fujitsu	Fujitsu	Fujitsu	Spansion	Samsung	CEC Huada
10	ST-Micro	NXP	NXP	NXP	Samsung	Samsung	CEC Huada	Toshiba
11	Atmel	Toshina	Atmel	Toshiba	Toshiba	Cypress	Datang	Si Labs
12	TI	Atmel	Toshiba	Denso	Cypress	Toshiba	Toshiba	Denso
13	Sanyo	Panasonic	Panasonic	Cypress	Denso	Denso	Denso	Datang
14	Philips	Denso	Denso	Panasonic	Panasonic	Datang	Si Labs	SH Fudan
15	Intel	Sony	Cypress	Sony	Sony	Si Labs	SHIC	Panasonic
16	Sony	Cypress	Sony	Datang	Si Labs	CEU-Huada	Tongfang	Holtek
17	Micronas	Intel	Datang	JSC Sitronics	CEC Huada	Panasonic	Panasonic	Nuvoton
18	Oki	Micronas	Intel	Si-Labs	Melfas	SHIC	Holtek	Unigroup
19	Sunplus	Winbond	Si-Labs	Intel	JSC	Tongfang	Winbond	Maxim
20	Winbond	Si-Labs	Rohm		INSIDE	Holtek		Nationz

Based on dollar shipment volume 2003-2016, Source: Gartner and Microchip

Revenue by End Market



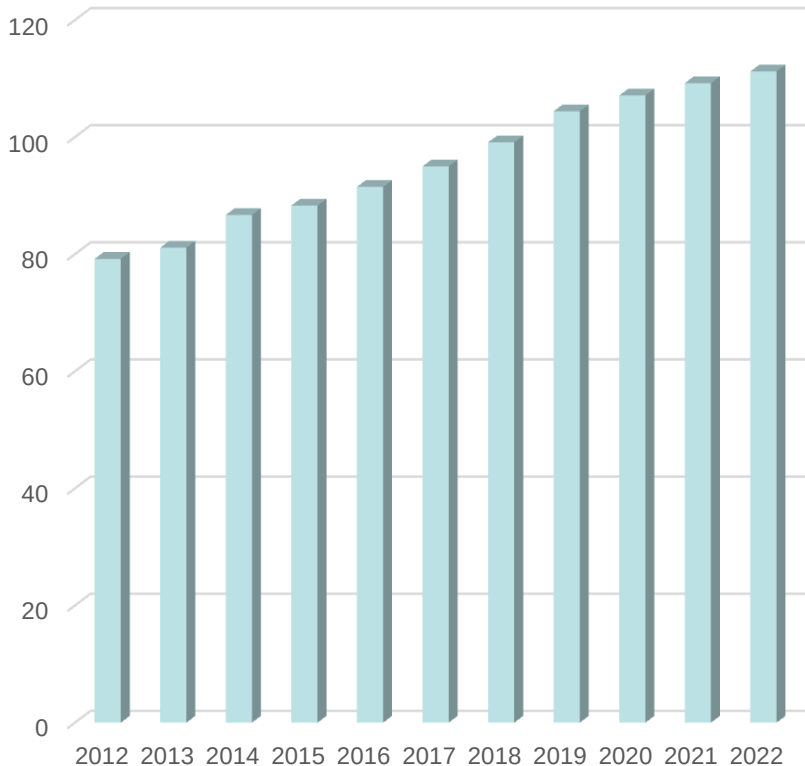
Automotive Semiconductor Supplier Ranking

1. NXP
2. Infineon Technologies
3. Renesas Electronics
4. ST Microelectronics
5. Texas Instruments
6. Robert Bosch (mostly captive)
7. ON Semiconductor
8. **Microchip**
9. Toshiba
10. Rohm Semiconductor

Source: Semicast Research 2017

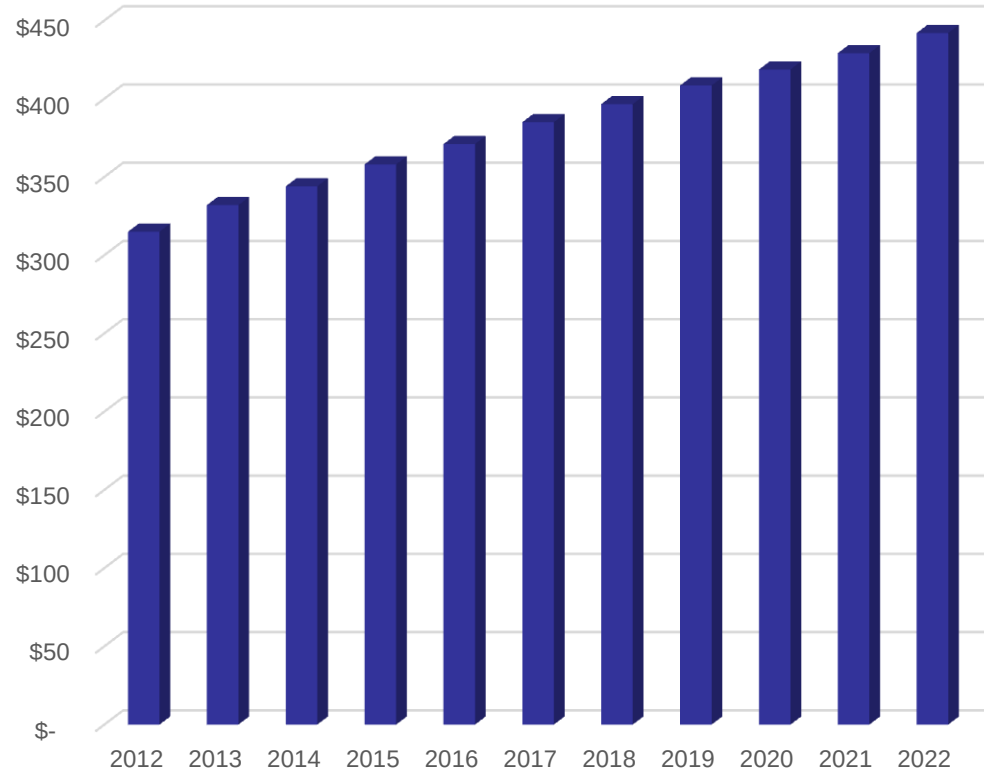
Automotive Semiconductor Content

Vehicle Shipments (Munits)



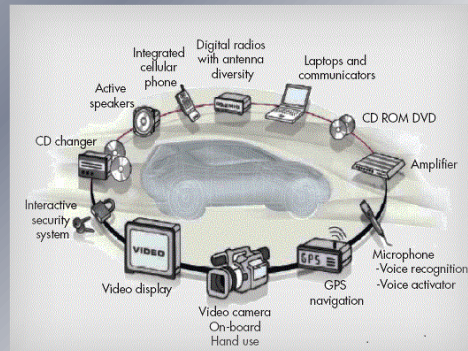
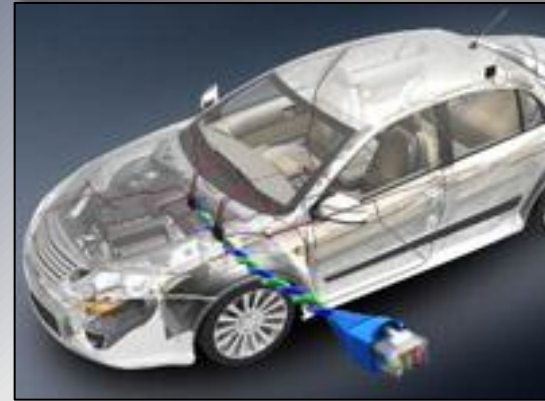
Source: Statista

Semiconductor Content / Vehicle



Source: PWC, Microchip Estimates

Networking



Security

**HACKER
DETECTED!!**

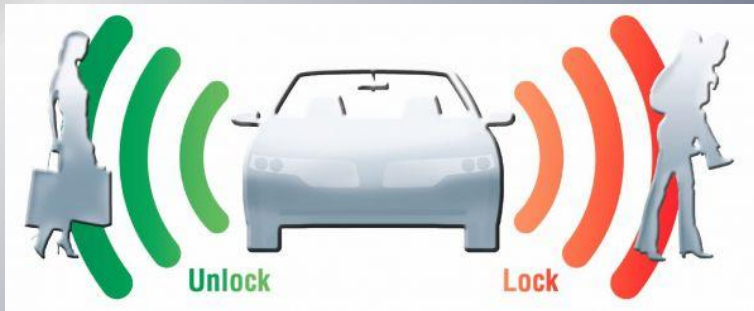


- >20 years in secure IC market
- Automotive grade stand alone Security ICs
- Secure Crypto Microcontrollers
- Securing in vehicle networks, including legacy CAN
- Enabling Secure BOOT – no fraudulent firmware

All you need is Trust



Access Control Systems



Passive Entry – Walk Away Locking



Relay Attack Theft Prevention:
Low Power UWB Radar



Highly Secure Keyfobs
RF link + LF immobilizer



Homelink – Garage Doors

Advanced HMI: Capacitive Sensing



Multi-Point Touch Screens



Touch Pad Controls



Capacitive Gesture Recognition



Buttons and Sliders

Interior and Exterior Lighting



Exterior LED Front Lighting



LED Tail Lights



Interior Ambient Lighting - RGB



Instrument Cluster Backlighting

Body Electronics



Steering Wheel control



Kick Sensing



Door Handle Sensing



Pressure Monitoring

Motor Control



Fuel Pumps



Cooling Fans



Water Pumps

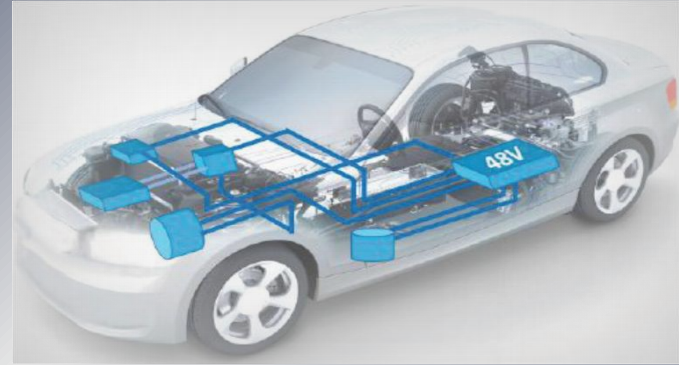


Turbo Wastegate

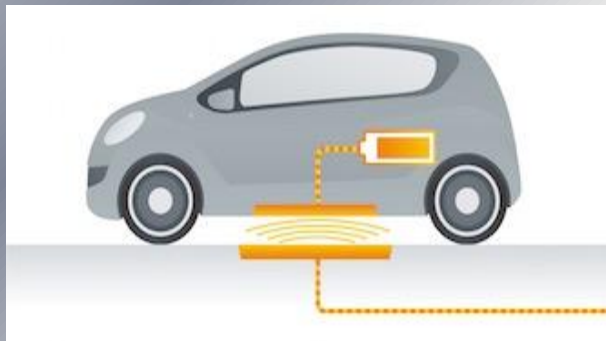
Electrification / Fuel Economy



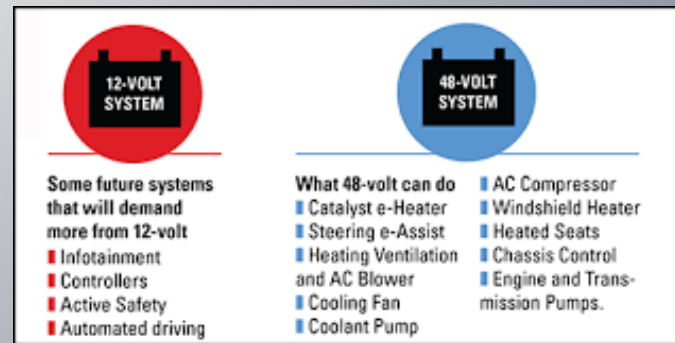
EV Portable Charger



Start Stop Voltage
Stabilization (DC/DC)



Inductive Wireless
Charging Control



48V System Solutions

Advanced Driver Assist Systems



Collision Avoidance Systems



Lane Departure Warning

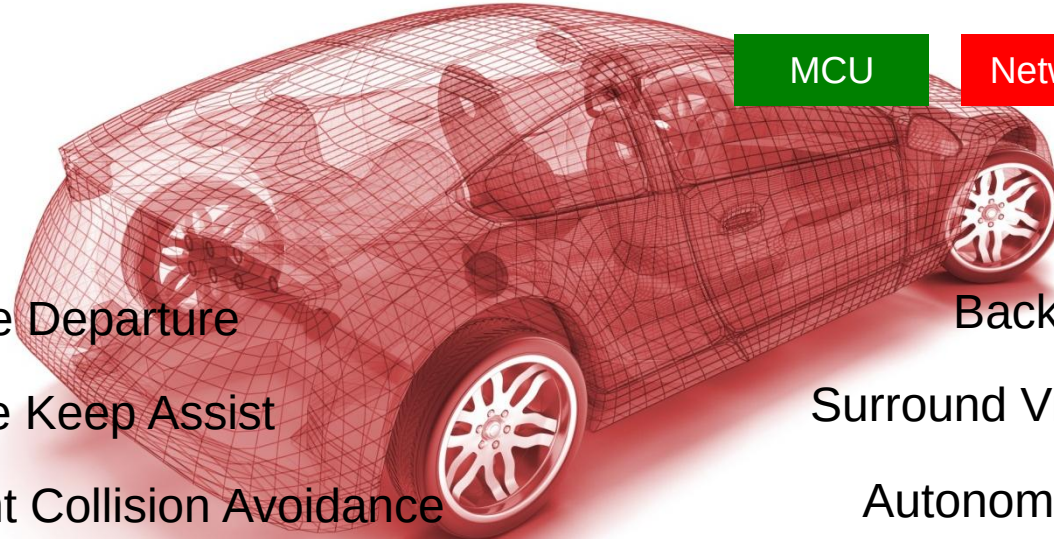


Smart Mirrors



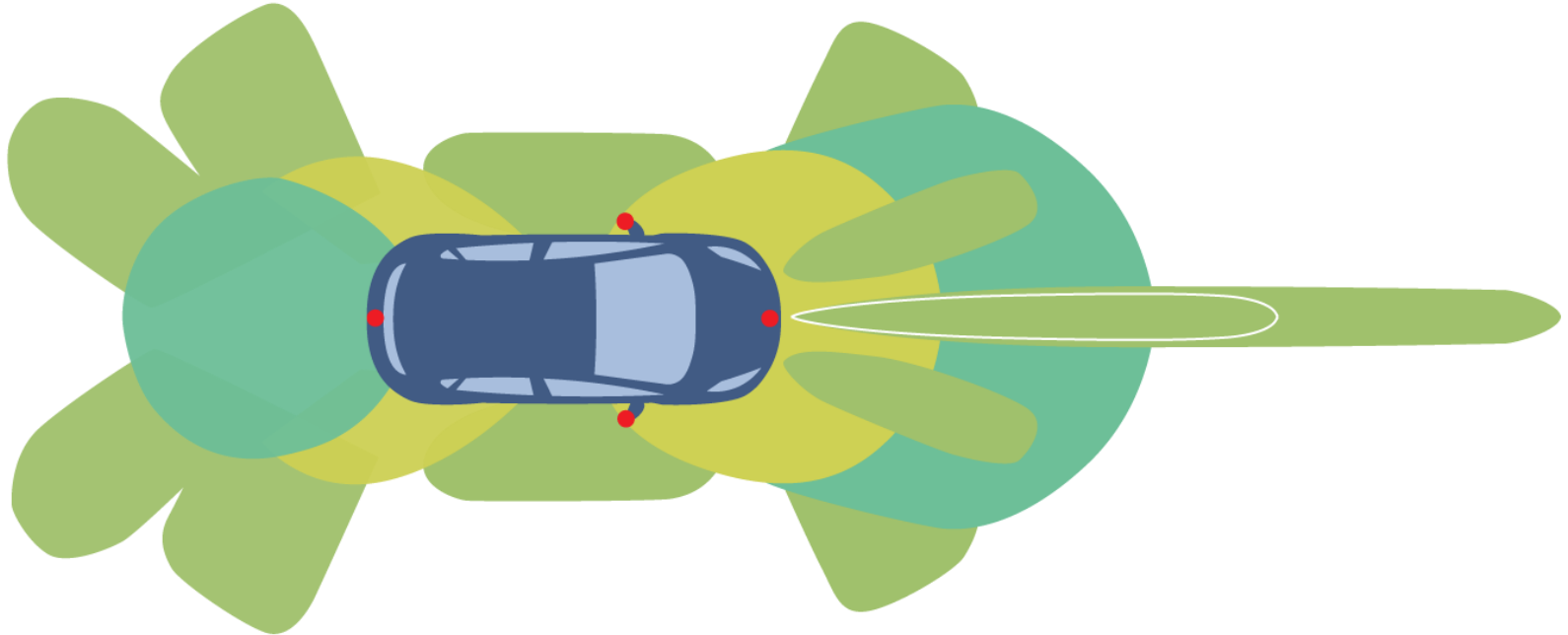
Blind Spot Detection

Microchip Content in ADAS



			Lane Departure	Back up Camera			
			Lane Keep Assist	Surround View Camera			
			Front Collision Avoidance	Autonomous Parking			
			Automatic Emergency Braking	LED Matrix Lighting			
			Adaptive Cruise Control	Pedestrian Detection			
			Blind Spot Detection	TPMS			
			Traffic Sign Recognition	Rain Sensor			
			Parking Sensors	Adaptive Lighting			
				V2X			

ADAS Drives Sensor Proliferation

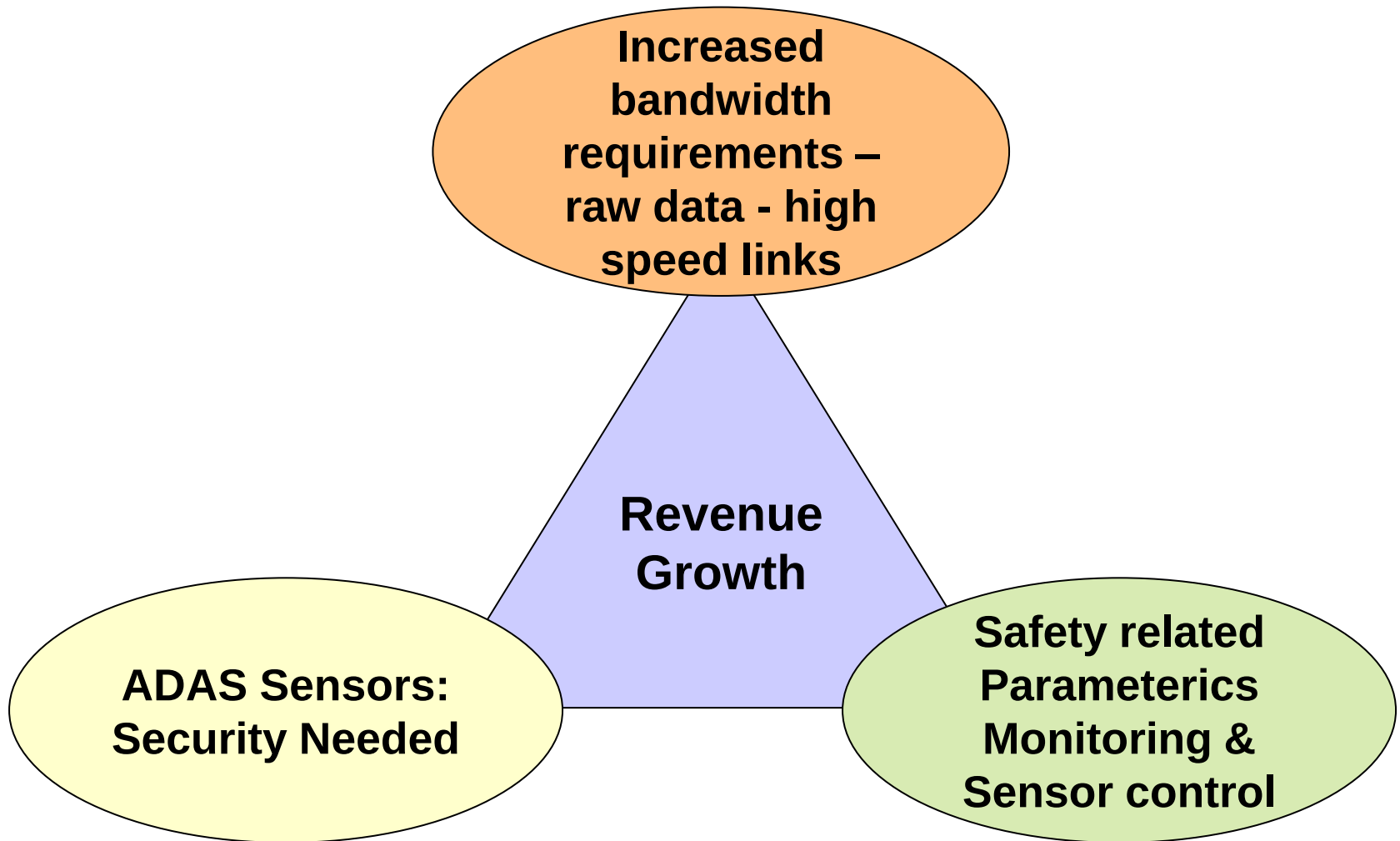


Camera
Radar
Ultrasonic
● Laser

Automation	Level 2	Level 3	Level 4
Sensor / Year	2015	2020	2025
Radar	≥ 3	≥ 6	≥ 10
Camera *	≥ 1	$= 2$	≥ 8
Lidar	0	≤ 1	≥ 1

*) excluding backup camera and surround view cameras

Increasing Number of Sensors Will Drive

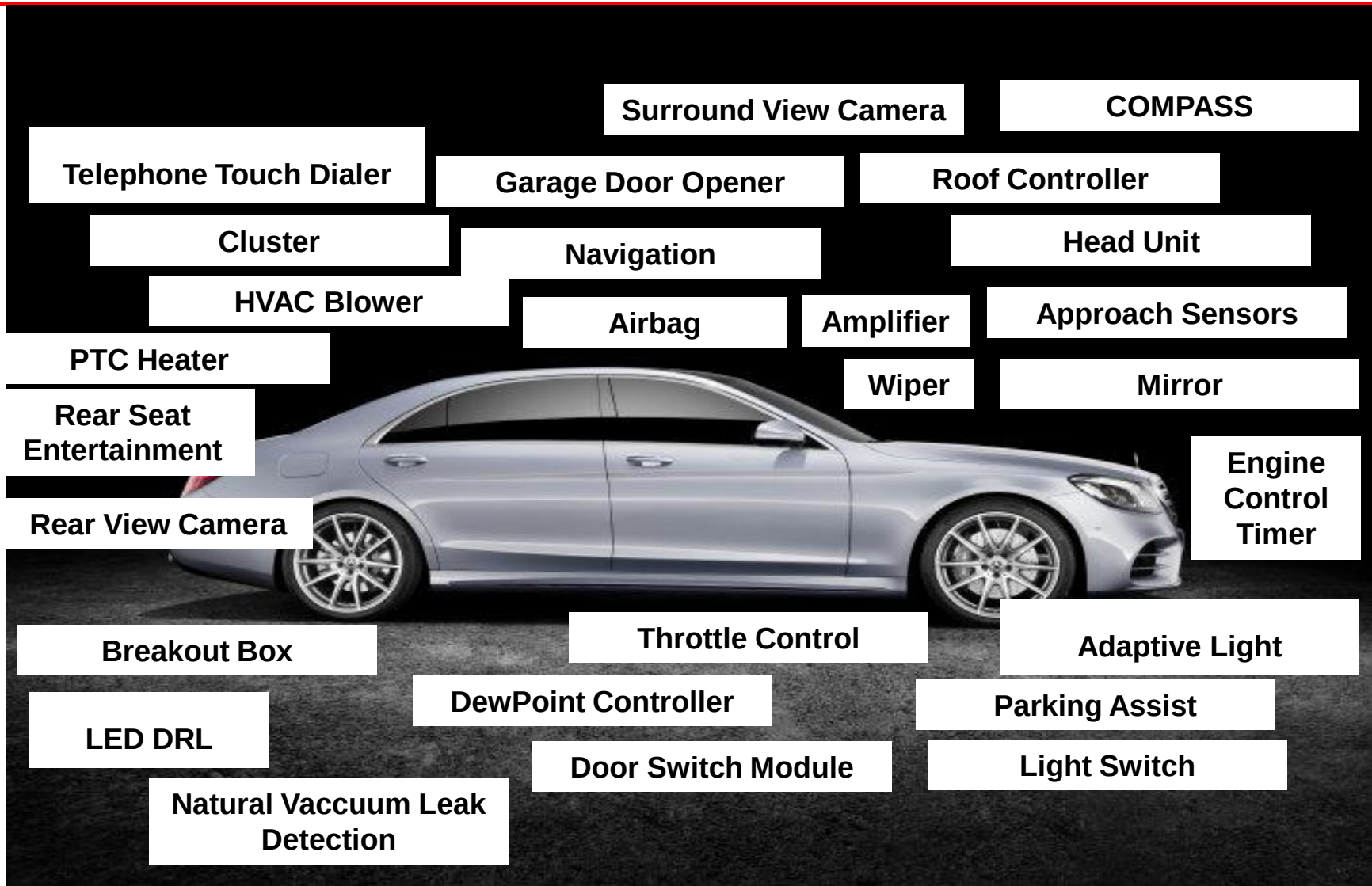




MICROCHIP

Applications in S-Class

29 MCUs / 8 Analog / 6 USB / 6 Memory / 6 MOST / 4 Kleer



Applications in Hyundai Genesis

30 MCU, 22 Analog, 5 Memory, 3 MOST®, 2 USB



OEMs using Microchip



Summary

- **Microchip is a significant Automotive semiconductor player with 25 years experience serving the market**
- **Microchip dominates multiple application areas in automobiles**
- **Microchip is well positioned for the explosive ADAS growth ahead**



MICROCHIP

Thank you!



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Questions?