

# **Global Automotive Microcontroller Unit (MCU) Market: Analysis By Product Type (32-bit MCUs, 16-bit MCUs, 8-bit MCUs), By Vehicle Type (Passenger Vehicles, Commercial Vehicles and Electric Vehicles), By Application (Chassis & Powertrain, Body Electronics, Safety & Security Systems, and Infotainment & Telematics), By Region Size and Trends with Impact of COVID-19 and Forecast up to 2028**

<https://marketpublishers.com/r/G7C9A43266FEEN.html>

Date: March 2023

Pages: 155

Price: US\$ 2,250.00 (Single User License)

ID: G7C9A43266FEEN

## **Abstracts**

The global automotive microcontroller unit (MCU) market in 2022 was valued at US\$6.42 billion. The market is expected to reach US\$9.35 billion by 2028. The automotive microcontrollers refer to self-contained systems consisting of processors, memory, and peripherals, and used as an embedded system. MCU, a core chip for vehicle control, finds application in body control, driving control, infotainment and driving assistance. An automotive microcontroller enables automatic control sensing, enhances safety features in vehicles and increases speed of execution in vehicles.

Automobile companies have experienced huge boost regarding introduction of automation in vehicles which eventually leads them to provide better and advanced features to the consumers. As a result, microcontrollers are a crucial part of the automotive sector, and the industry's rapid development supports the automotive microcontroller unit market's growth. Therefore, rapid developments in the automotive industry are predicted to drive the demand for automotive microcontroller unit (MCU) in the forthcoming years. The market is expected to grow at a CAGR of approx. 6.5% during the forecasted period of 2023-2028.

### Market Segmentation Analysis:

**By Product Type:** The report provides the bifurcation of the market into four segments based on the product type: 32-bit MCUs, 16-bit MCUs, 8-bit MCUs. In 2022, 32-bit MCUs lead the automotive microcontroller unit (MCU) market with the majority of market share. On the other hand, the 16-bit MCUs segment is expected to experience high growth, as they provide excellent performance with significant power savings and offer the perfect middle ground in terms of cost, size, and processing speed between 8-bit and 32-bit controllers, which would drive the market growth.

**By Vehicle Type:** The report further provides the segmentation based on the vehicle type: Passenger Vehicles, Commercial Vehicles and Electric Vehicles. The passenger vehicles segment held the highest share in the market. The passenger vehicle segment is expected to be the fastest-growing vehicle type in the market, owing to its vital role in the transportation industry and the increased demand for better and more efficient vehicles equipped with advanced components.

**By Application:** The report provides the categoriation of the market into four key segments based on the application: Powertrain & Chassis, Safety & Security Systems, Body Electronics, and Infotainment & Telematics. Powertrain & Chassis was the market leader in 2022 and is anticipated to remain dominant throughout the forecasted period. Automotive microcontrollers are gaining traction in the powertrain & chassis of vehicles, owing to their feature of reducing vehicle fuel consumption. In addition, they help operate various other features associated with the vehicle, such as an advanced driving system, which supplements the market growth.

**By Region:** The report provides insight into the automotive microcontroller unit (MCU) market based on the regions namely Asia Pacific, North America, Europe and Rest of the world. Asia Pacific dominated the market in 2022, as major companies in the automobile industry have concentrated on growing in Asia by setting up their corporate offices or manufacturing facilities in nations like China, Japan, and India, which are the region's automotive hubs. Asia Pacific is further divided into five regions: China, India, Japan, South Korea and Rest of Asia Pacific.

In North America, the US is expected to be the largest and fastest growing region in the forecasted period. Whereas, in the Europe region, Germany held the majority of share in the market. Germany automotive microcontroller unit (MCU) market is expected to grow in the future due to rising adoption of electric vehicles which are equipped with advanced electronic features such as internet connectivity, infotainment systems, and

safety control system in the region.

#### Market Dynamics:

**Growth Drivers:** The global automotive microcontroller unit (MCU) market has been growing over the past few years, due to factors such as surging demand for electric vehicles, increasing disposable income, growing demand for advanced driver assistance systems (ADAS), rising installation of enhanced safety features and rise in demand for in-vehicle infotainment system (IVI), and many other factors. The expansion of the automotive microcontrollers has been seemed to be fueled by widespread demand for electric vehicles. The transition to electric mobility is well underway, presenting automobile industry with new hurdles. A phase-out of the combustion engine appears all but unavoidable in the face of increasingly ambitious climate targets, and is a set policy in an increasing number of countries. The main element projected to lead to the development of a mainstream market for electric vehicles in the near future is the declining cost of components such as lithium-ion batteries, sensors, and microcontrollers. Furthermore, governments worldwide are vigorously promoting electric vehicles due to their critical role in reducing carbon emissions and addressing air pollution. All these factors have led to the surge in the demand for automotive microcontroller unit (MCU). Thus, surging demand for electric vehicles has encouraged the growth of the global automotive microcontroller unit (MCU) market.

**Challenges:** However, the market has been confronted with some challenges specifically, security risks and high costs and functional and operational failures in extreme climatic conditions, etc.

**Trends:** The market is projected to grow at a fast pace during the forecast period, due to various latest trends such as upsurge in demand for autonomous vehicles, increasing semiconductor content in vehicles, soaring use of connected technologies in vehicles and rising government regulations on emission reduction.

#### Impact Analysis of COVID-19 and Way Forward:

The COVID-19 pandemic has put staggering strains on supply chain disruptions in in global automotive MCU market, resulting in bottlenecks in labor, manufacturing, transportation, and logistics, as well as significant demand fluctuations. The leading companies such as Infineon Technologies AG, NXP Semiconductors, Texas Instruments Incorporated, and STMicroelectronics have witnessed a significant fall in revenues in the first two quarters of 2020. While in 2021, the automotive microcontroller

unit (MCU) market rebounded as people are now more transilient for electric and safer vehicles, which is increasing the use of ADAS in cars, thus driving the demand of automotive microcontroller units.

#### Competitive Landscape:

The global automotive microcontroller unit (MCU) market is highly fragmented, with a large number of small- and medium-sized manufacturers operating in the market.

The key players in the global automotive microcontroller unit (MCU) market are:

Renesas Electronics Corporation

NXP Semiconductor N.V.

Infineon Technologies AG

Texas Instruments

Microchip Technology Inc.

STMicroelectronics N.V

ROHM Semiconductor

Toshiba Corporation

ON Semiconductor Corporation

NVIDIA Corporation

Analog Devices, Inc. (Maxim Integrated)

Taiwan Semiconductor Manufacturing Company Limited

Silicon Laboratories, Inc.

Players in the market are diversifying the service offering to maintain market share. All

of the major players in the market are focused on developing products with increasing investment in research & development that are compatible with the latest trends & technologies. For instance, in August 2022, NXP Semiconductors announced it had signed a memorandum of understanding with Hon Hai Technology Group ("Foxconn") to jointly develop platforms for a new generation of smart connected vehicles.?

## Contents

### 1. EXECUTIVE SUMMARY

### 2. INTRODUCTION

#### 2.1 Automotive microcontroller unit (MCU): An Overview

##### 2.1.1 Applications of MCU in Auto Parts by Bit Density

#### 2.2 Automotive Microcontroller Unit Segmentation: An Overview

##### 2.2.1 Automotive Microcontroller Unit Segmentation

### 3. GLOBAL MARKET ANALYSIS

#### 3.1 Global Automotive Microcontroller Unit (MCU) Market: An Analysis

##### 3.1.1 Global Automotive Microcontroller Unit (MCU) Market: An Overview

##### 3.1.2 Global Automotive Microcontroller Unit (MCU) Market by Value

##### 3.1.3 Global Automotive Microcontroller Unit (MCU) Market by Product Type

##### 3.1.4 Global Automotive Microcontroller Unit (MCU) Market by Vehicle Type

##### 3.1.5 Global Automotive Microcontroller Unit (MCU) Market by Application

##### 3.1.6 Global Automotive Microcontroller Unit (MCU) Market by Region

#### 3.2 Global Automotive MCU Market: Product Type Analysis

##### 3.2.1 Global Automotive MCU Market by Product Type: An Overview

##### 3.2.2 Global 32-Bit Microcontrollers Market by Value

##### 3.2.3 Global 16-Bit Microcontrollers Market by Value

##### 3.2.4 Global 8-Bit Microcontrollers Market by Value

#### 3.3 Global Automotive MCU Market: Vehicle Type Analysis

##### 3.3.1 Global Automotive MCU Market By Vehicle Type: An Overview

##### 3.3.2 Global Passenger Vehicles Automotive MCU Market by Value

##### 3.3.3 Global Commercial Vehicles Automotive MCU Market by Value

##### 3.3.4 Global Electric Vehicles Automotive MCU Market by Value

#### 3.4 Global Automotive MCU Market: Application Analysis

##### 3.4.1 Global Automotive MCU Market by Application: An Overview

##### 3.4.2 Global Powertrain & Chassis Automotive MCU Market by Value

##### 3.4.3 Global Body Electronics Automotive MCU Market by Value

##### 3.4.4 Global Safety & Security Systems Automotive MCU Market by Value

##### 3.4.5 Global Infotainment & Telematics Automotive MCU Market by Value

### 4. REGIONAL MARKET ANALYSIS

- 4.1 Asia Pacific Automotive MCU Market: An Analysis
  - 4.1.1 Asia Pacific Automotive MCU Market: An Overview
  - 4.1.2 Asia Pacific Automotive MCU Market by Value
  - 4.1.3 Asia Pacific Automotive MCU Market by Region
  - 4.1.4 China Automotive MCU Market by Value
  - 4.1.5 India Automotive MCU Market by Value
  - 4.1.6 Japan Automotive MCU Market by Value
  - 4.1.7 South Korea Automotive MCU Market by Value
  - 4.1.8 Rest of Asia Pacific Automotive MCU Market by Value
- 4.2 North America Automotive MCU Market: An Analysis
  - 4.2.1 North America Automotive MCU Market: An Overview
  - 4.2.2 North America Automotive MCU Market by Value
  - 4.2.3 North America Automotive MCU Market by Region
  - 4.2.4 The US Automotive MCU Market by Value
  - 4.2.5 Canada Automotive MCU Market by Value
  - 4.2.6 Mexico Automotive MCU Market by Value
- 4.3 Europe Automotive MCU Market: An Analysis
  - 4.3.1 Europe Automotive MCU Market: An Overview
  - 4.3.2 Europe Automotive MCU Market by Value
  - 4.3.3 Europe Automotive MCU Market by Region
  - 4.3.4 Germany Automotive MCU Market by Value
  - 4.3.5 United Kingdom Automotive MCU Market by Value
  - 4.3.6 France Automotive MCU Market by Value
  - 4.3.7 Italy Automotive MCU Market by Value
  - 4.3.8 Rest of Europe Automotive MCU Market by Value
- 4.4 Rest of the World Automotive MCU Market: An Analysis
  - 4.4.1 Rest of the World Automotive MCU Market: An Overview
  - 4.4.2 Rest of the World Automotive MCU Market by Value

## **5. IMPACT OF COVID-19**

- 5.1 Impact of COVID-19
  - 5.1.1 Impact of COVID-19 on Global Automotive MCU Market
  - 5.1.2 Post-COVID Scenario

## **6. MARKET DYNAMICS**

- 6.1 Growth Drivers
  - 6.1.1 Surging Demand for Electric Vehicles



- 6.1.2 Increasing Disposable Income
- 6.1.3 Growing Demand for Advanced Driver Assistance Systems (ADAS)
- 6.1.4 Rising Installation of Enhanced Safety Features
- 6.1.5 Rapid Developments in the Automotive Industry
- 6.1.6 Rise in Demand for In-Vehicle Infotainment System (IVI)
- 6.2 Challenges
  - 6.2.1 Security Risks and High Costs
  - 6.2.2 Functional & Operational Failures in Extreme Climatic Conditions
- 6.3 Market Trends
  - 6.3.1 Upsurge in Demand for Autonomous Vehicles
  - 6.3.2 Increasing Semiconductor Content in Vehicles
  - 6.3.3 Soaring Use of Connected Technologies in Vehicles
  - 6.3.4 5G Upgrades
  - 6.3.5 Rising Government Regulations on Emission Reduction

## **7. COMPETITIVE LANDSCAPE**

- 7.1 Global Automotive MCU Players by Market Share

## **8. COMPANY PROFILES**

- 8.1 Renesas Electronics Corporation
  - 8.1.1 Business Overview
  - 8.1.2 Operating Segment
  - 8.1.3 Business Strategy
- 8.2 NXP Semiconductors N.V.
  - 8.2.1 Business Overview
  - 8.2.2 Revenue by End-Market
  - 8.2.3 Business Strategy
- 8.3 Infineon Technologies AG
  - 8.3.1 Business Overview
  - 8.3.2 Operating Segments
  - 8.3.3 Business Strategy
- 8.4 Texas Instruments
  - 8.4.1 Business Overview
  - 8.4.2 Operating Segment
  - 8.4.3 Business Strategy
- 8.5 Microchip Technology Inc.
  - 8.5.1 Business Overview



- 8.5.2 Operating Segment
- 8.5.3 Business Strategy
- 8.6 STMicroelectronics N.V.
  - 8.6.1 Business Overview
  - 8.6.2 Business Segments
  - 8.6.3 Business Strategy
- 8.7 ROHM Semiconductor
  - 8.7.1 Business Overview
  - 8.7.2 Operating Segment
  - 8.7.3 Business Strategy
- 8.8 Toshiba Corporation
  - 8.8.1 Business Overview
  - 8.8.2 Operating Segment
  - 8.8.3 Business Strategy
- 8.9 ON Semiconductor Corporation
  - 8.9.1 Business Overview
  - 8.9.2 Operating Segment
  - 8.9.3 Business Strategy
- 8.10 NVIDIA Corporation
  - 8.10.1 Business Overview
  - 8.10.2 Operating Segment
  - 8.10.3 Business Strategy
- 8.11 Analog Devices, Inc. (Maxim Integrated)
  - 8.11.1 Business Overview
  - 8.11.2 Revenue by End Market
  - 8.11.3 Business Strategy
- 8.12 Taiwan Semiconductor Manufacturing Company Limited
  - 8.12.1 Business Overview
  - 8.12.2 Operating Region
  - 8.12.3 Business Strategy
- 8.13 Silicon Laboratories, Inc.
  - 8.13.1 Business Overview
  - 8.13.2 Operating Region
  - 8.13.3 Business Strategy

## List Of Figures

### LIST OF FIGURES

Figure 1: Applications of MCU in Auto Parts by Bit Density

Figure 2: Automotive Microcontroller Unit Segmentation

Figure 3: Global Automotive Microcontroller Unit (MCU) Market by Value; 2018-2022 (US\$ Billion)

Figure 4: Global Automotive Microcontroller Unit (MCU) Market by Value; 2023-2028 (US\$ Billion)

Figure 5: Global Automotive Microcontroller Unit (MCU) Market by Product Type; 2022 (Percentage, %)

Figure 6: Global Automotive Microcontroller Unit (MCU) Market by Vehicle Type; 2022 (Percentage, %)

Figure 7: Global Automotive Microcontroller Unit (MCU) Market by Application; 2022 (Percentage, %)

Figure 8: Global Automotive Microcontroller Unit (MCU) Market by Region; 2022 (Percentage, %)

Figure 9: Global 32-Bit Microcontrollers Market by Value; 2018-2022 (US\$ Billion)

Figure 10: Global 32-Bit Microcontrollers Market by Value; 2023-2028 (US\$ Billion)

Figure 11: Global 16-Bit Microcontrollers Market by Value; 2018-2022 (US\$ Billion)

Figure 12: Global 16-Bit Microcontrollers Market by Value; 2023-2028 (US\$ Billion)

Figure 13: Global 8-Bit Microcontrollers Market by Value; 2018-2022 (US\$ Million)

Figure 14: Global 8-Bit Microcontrollers Market by Value; 2023-2028 (US\$ Million)

Figure 15: Global Passenger Vehicles Automotive MCU Market by Value; 2018-2022 (US\$ Billion)

Figure 16: Global Passenger Vehicles Automotive MCU Market by Value; 2023-2028 (US\$ Billion)

Figure 17: Global Commercial Vehicles Automotive MCU Market by Value; 2018-2022 (US\$ Billion)

Figure 18: Global Commercial Vehicles Automotive MCU Market by Value; 2023-2028 (US\$ Billion)

Figure 19: Global Electric Vehicles Automotive MCU Market by Value; 2018-2022 (US\$ Billion)

Figure 20: Global Electric Vehicles Automotive MCU Market by Value; 2023-2028 (US\$ Billion)

Figure 21: Global Powertrain & Chassis Automotive MCU Market by Value; 2018-2022 (US\$ Billion)

Figure 22: Global Powertrain & Chassis Automotive MCU Market by Value; 2023-2028

(US\$ Billion)

Figure 23: Global Body Electronics Automotive MCU Market by Value; 2018-2022 (US\$ Billion)

Figure 24: Global Body Electronics Automotive MCU Market by Value; 2023-2028 (US\$ Billion)

Figure 25: Global Safety & Security Systems Automotive MCU Market by Value; 2018-2022 (US\$ Billion)

Figure 26: Global Safety & Security Systems Automotive MCU Market by Value; 2023-2028 (US\$ Billion)

Figure 27: Global Infotainment & Telematics Automotive MCU Market by Value, 2018-2022 (US\$ Billion)

Figure 28: Global Infotainment & Telematics Automotive MCU Market by Value, 2023-2028 (US\$ Billion)

Figure 29: Asia Pacific Automotive MCU Market by Value; 2018-2022 (US\$ Billion)

Figure 30: Asia Pacific Automotive MCU Market by Value; 2023-2028 (US\$ Billion)

Figure 31: Asia Pacific Automotive MCU Market by Region; 2022 (Percentage,%)

Figure 32: China Automotive MCU Market by Value; 2018-2022 (US\$ Billion)

Figure 33: China Automotive MCU Market by Value; 2023-2028 (US\$ Billion)

Figure 34: India Automotive MCU Market by Value; 2018-2022 (US\$ Million)

Figure 35: India Automotive MCU Market by Value; 2023-2028 (US\$ Billion)

Figure 36: Japan Automotive MCU Market by Value; 2018-2022 (US\$ Million)

Figure 37: Japan Automotive MCU Market by Value; 2023-2028 (US\$ Million)

Figure 38: South Korea Automotive MCU Market by Value; 2018-2022 (US\$ Million)

Figure 39: South Korea Automotive MCU Market by Value; 2023-2028 (US\$ Million)

Figure 40: Rest of Asia Pacific Automotive MCU Market by Value; 2018-2022 (US\$ Million)

Figure 41: Rest of Asia Pacific Automotive MCU Market by Value; 2023-2028 (US\$ Million)

Figure 42: North America Automotive MCU Market by Value; 2018-2022 (US\$ Billion)

Figure 43: North America Automotive MCU Market by Value; 2023-2028 (US\$ Billion)

Figure 44: North America Automotive MCU Market by Region; 2022 (Percentage,%)

Figure 45: The US Automotive MCU Market by Value; 2018-2022 (US\$ Billion)

Figure 46: The US Automotive MCU Market by Value; 2023-2028 (US\$ Billion)

Figure 47: Canada Automotive MCU Market by Value; 2018-2022 (US\$ Million)

Figure 48: Canada Automotive MCU Market by Value; 2023-2028 (US\$ Million)

Figure 49: Mexico Automotive MCU Market by Value; 2018-2022 (US\$ Million)

Figure 50: Mexico Automotive MCU Market by Value; 2023-2028 (US\$ Million)

Figure 51: Europe Automotive MCU Market by Value; 2018-2022 (US\$ Billion)

Figure 52: Europe Automotive MCU Market by Value; 2023-2028 (US\$ Billion)

- Figure 53: Europe Automotive MCU Market by Region; 2022 Percentage, %)
- Figure 54: Germany Automotive MCU Market by Value; 2018-2022 (US\$ Million)
- Figure 55: Germany Automotive MCU Market by Value; 2023-2028 (US\$ Million)
- Figure 56: United Kingdom Automotive MCU Market by Value; 2018-2022 (US\$ Million)
- Figure 57: United Kingdom Automotive MCU Market by Value; 2023-2028 (US\$ Million)
- Figure 58: France Automotive MCU Market by Value; 2018-2022 (US\$ Million)
- Figure 59: France Automotive MCU Market by Value; 2023-2028 (US\$ Million)
- Figure 60: Italy Automotive MCU Market by Value; 2018-2022 (US\$ Million)
- Figure 61: Italy Automotive MCU Market by Value; 2023-2028 (US\$ Million)
- Figure 62: Rest of Europe Automotive MCU Market by Value; 2018-2022 (US\$ Million)
- Figure 63: Rest of Europe Automotive MCU Market by Value; 2023-2028 (US\$ Million)
- Figure 64: Rest of the World Automotive MCU Market by Value; 2018-2022 (US\$ Billion)
- Figure 65: Rest of the World Automotive MCU Market by Value; 2023-2028 (US\$ Billion)
- Figure 66: Global Passenger Car Production Growth; 2016-2020 (Percentage, %)
- Figure 67: Global Share of Electric Vehicles; 2017-2021 (Percentage, %)
- Figure 68: Advanced Economies and Emerging Market & Developing Economies GDP Per Capita; 2018-2027 (US\$ Thousand)
- Figure 69: Global ADAS Unit Production Volume; 2017-2022 (1000 Units)
- Figure 70: Global Autonomous Vehicle Market; 2021-2030 (US\$ Billion)
- Figure 71: Implied Semiconductor Content per Light Vehicle (LV) Produced, 2018-2025, (US\$)
- Figure 72: Global Connected Car Shipments; 2020-2025 (Million)
- Figure 73: Global 5G Infrastructure Market Size; 2020-2030 (US\$ Billion)
- Figure 74: Global Automotive MCU Players by Market Share; 2022 (Percentage, %)
- Figure 75: Renesas Electronic Corporation Revenue by Segment; 2021 (Percentage, %)
- Figure 76: NXP Semiconductor N.V. Revenue by End-Market; 2021 (Percentage, %)
- Figure 77: Infineon Technologies AG Revenue by Segment; 2022 (Percentage, %)
- Figure 78: Texas Instruments Revenue by Segment; 2022 (Percentage, %)
- Figure 79: Microchip Technology Inc., Net Sales by Segment; 2021 (Percentage, %)
- Figure 80: STMicroelectronics N.V. Total Revenues by Segment; 2021 (Percentage, %)
- Figure 81: ROHM Semiconductor Net Sales by Segment; 2021 (Percentage, %)
- Figure 82: Toshiba Corporation Net Sales by Segment; 2021 (Percentage, %)
- Figure 83: ON Semiconductor Corporation Revenue by Segment; 2022 (Percentage, %)
- Figure 84: NVIDIA Corporation Revenue by Segment; 2022 (Percentage, %)
- Figure 85: Analog Devices, Inc. Revenue by End Market; 2022 (Percentage, %)
- Figure 86: Taiwan Semiconductor Manufacturing Company Limited Net Revenue by

Region; 2021 (Percentage, %)

Figure 87: Silicon Laboratories, Inc. Revenue by Region; 2022 (Percentage, %)

## I would like to order

Product name: Global Automotive Microcontroller Unit (MCU) Market: Analysis By Product Type (32-bit MCUs, 16-bit MCUs, 8-bit MCUs), By Vehicle Type (Passenger Vehicles, Commercial Vehicles and Electric Vehicles), By Application (Chassis & Powertrain, Body Electronics, Safety & Security Systems, and Infotainment & Telematics), By Region Size and Trends with Impact of COVID-19 and Forecast up to 2028

Product link: <https://marketpublishers.com/r/G7C9A43266FEEN.html>

Price: US\$ 2,250.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

[info@marketpublishers.com](mailto:info@marketpublishers.com)

## Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/G7C9A43266FEEN.html>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:

Last name:

Email:

Company:

Address:

City:

Zip code:

Country:

Tel:

Fax:

Your message:

**\*\*All fields are required**

Customer signature \_\_\_\_\_

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <https://marketpublishers.com/docs/terms.html>

To place an order via fax simply print this form, fill in the information below  
and fax the completed form to +44 20 7900 3970