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Automotive Chip Market Report – Global Forecast till 2032

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Description:

Automotive Chip Market Overview:

The Automotive Chip market industry is projected to grow from USD 56.96 Billion in 2024 to USD 128.08 billion by 2032, exhibiting a compound annual growth rate (CAGR) of 10.66% during the forecast period (2024 - 2032). Automotive Chip Market Size was valued at USD 50.74 billion in 2023. An increase in the digitalization and computerization of the parts of an automobile and the adoption of engine control units are the key market drivers incorporating market growth.

Automotive Chip Market Overview

Source: Secondary Research, Primary Research, MRFR Database, and Analyst Review

Automotive Chip Market Trends

- **Rising advanced driver assistance system is driving the market growth**

The rising advanced driver assistance system drives market CAGR for automotive chip. ADAS technologies, such as adaptive cruise control, lane-keeping assist, and automatic emergency braking, rely heavily on automotive chips for real-time data processing and decision-making. These systems require high-performance chips capable of handling complex algorithms and sensor fusion to ensure accurate and reliable detection of objects and potential hazards on the road. The demand for automotive chips in the ADAS segment is surging as automakers strive to improve vehicle safety and meet regulatory requirements. Furthermore, the evolution towards autonomous driving further amplifies the need for powerful automotive chips to enable higher levels of automation.

Another prominent trend in the automotive industry is the growing adoption of electric vehicles (EVs) as a cleaner and more continuable alternative to traditional internal combustion engine (ICE) vehicles. This shift towards EVs drives the demand for higher power efficiency and increased processing capabilities for automotive chips. Electric vehicles require sophisticated semiconductor solutions for battery management, power electronics, and electric drivetrains. Moreover, integrating advanced features like regenerative braking and infotainment systems necessitates using more powerful and efficient chips. As a result, semiconductor manufacturers are investing heavily in developing automotive chips tailored for electric vehicles to meet the rising demand in this segment.

The Automotive Chip Market has recently experienced significant disruptions due to supply chain challenges, which have profoundly impacted the industry. The COVID-19 pandemic exposed vulnerabilities in global supply chains, disrupting the production and distribution of automotive chips. The closing of factories and restrictions on international trade hampered chip manufacturing, leading to a supply shortage. This shortage and the increasing demand for automotive chips resulted in production delays and higher vehicle prices. Automakers and chip manufacturers are now focusing on diversifying their supply chains, enhancing domestic production capacities, and implementing measures to mitigate future disruptions. The supply chain challenges faced by the automotive chip market serve as a reminder of the importance of building resilient and flexible supply networks. For instance, the industry has faced supply chain disruptions, leading to production delays and higher prices. Overcoming these challenges and ensuring a resilient supply chain will be crucial for the sustained growth of the Automotive Chip Market. As the automotive industry continues to evolve, semiconductor manufacturers and automakers must stay at the forefront of technological advancements to meet the demands of the future mobility landscape to drive the Automotive Chip market revenue.

Automotive Chip Market Segment Insights:

Automotive Chip Product Insights

The Automotive Chip Market segmentation, based on product, includes analog ICs, microcontrollers & microprocessors, and logic ICs. The microcontrollers & microprocessors category generate the most income, as they control various functions in the vehicle's electronic systems.

Automotive Chip Application Insights

The Automotive Chip Market segmentation, based on application, includes body electronics, telematics & infotainment, powertrain, safety system, and chassis. The safety system segment dominated the market. Increasing mandatory safety technologies, such as airbags and digital connectivity, boosts the segment.

Automotive Chip Vehicle Type Insights

The Automotive Chip Market segmentation, based on vehicle type, includes passenger car and commercial vehicles. The passenger car dominated the market due to the growing demand for advanced features and connected services in mainstream vehicles.

Automotive Chip Propulsion Insights

The Automotive Chip Market segmentation, based on propulsion, includes ICE, BEVs, and HEVs. The ICE segment dominated the market due to the high-efficiency power modules enabling the highest driving range and faster recharge in modern electric vehicles.

Figure 1: Automotive Chip Market, by Propulsion, 2022 & 2032 (USD billion)

Source: Secondary Research, Primary Research, MRFR Database, and Analyst Review

Automotive Chip Regional Insights

By Region, the study provides market insights into North America, Europe, Asia-Pacific, and the Rest of the World. The North American Automotive Chip market area will dominate this market due to the presence of major automobile manufacturers and the well-established semiconductor industry. The region has been at the forefront of adopting new automotive technologies, such as EVs and autonomous vehicles, which has increased the demand for automotive chips. Furthermore, government initiatives to promote electric mobility and stringent safety regulations have also propelled the growth of the automotive chip market in North America.

Further, the major countries studied in the market report are The U.S., Canada, German, France, the UK, Italy, Spain, China, Japan, India, Australia, South Korea, and Brazil.

Figure 2: Automotive Chip Market Share By Region 2022 (%)

Source: Secondary Research, Primary Research, MRFR Database, and Analyst Review

Europe's Automotive Chip market accounts for the second-largest market share owing to the presence of renowned automobile manufacturers like Volkswagen, BMW, and Daimler. The region has actively invested in developing EV infrastructure and promoting sustainable mobility solutions. Stringent emission regulations and the introduction of Euro 6 standards have accelerated the adoption of EVs, boosting the demand for automotive chips. Further, the German Automotive Chip market held the largest market share, and the UK Automotive Chip market was the rapid-growing market in the European region.

The Asia-Pacific Automotive Chip Market is subjected to growth at a rapid CAGR from 2023 to 2032 due to rapid urbanization, increasing disposable incomes, and a great consumer base in the region have fueled the demand for automobiles, thereby driving the automotive chip market. Moreover, China’s Automotive Chip market held the largest market share, and the Indian Automotive Chip market was the rapid-growing market in the Asia-Pacific region.

For instance, as the automotive industry continues to evolve with the advent of electric and autonomous vehicles, the demand for automotive chips will further escalate, making regional analysis crucial for understanding market dynamics and identifying growth opportunities.

Automotive Chip Key Market Players & Competitive Insights

Leading market players are investing heavily in research and development to expand their product lines, which will help the Automotive Chip market grow even more. Market participants are also undertaking various strategic activities to expand their global footprint, with important market developments including new product launches, contractual agreements, mergers and acquisitions, higher investments, and collaboration with other organizations. The Automotive Chip industry must offer cost-effective items to expand and survive in a more competitive and rising market climate.

Manufacturing locally to minimize operational costs is one of the key business tactics manufacturers use in the global Automotive Chip industry to benefit clients and increase the market sector. The Automotive Chip industry has recently offered some of the most significant medical advantages. Major players in the Automotive Chip market, including STMicroelectronics (Switzerland), Infineon Technologies (Germany), Toshiba Corporation (Japan, ON Semiconductor (US), Renesas Electronics (Japan), Robert Bosch GmbH (Germany), NXP Semiconductors (Netherlands), Texas Instruments Incorporated (US), ROHM Semiconductor (Japan), Denso Corporation (Japan), and others, are attempting to increase market demand by investing in research and development operations.

Tesla, Inc., founded in 2003, located in Austin, Texas, United States, is an American multinational automotive and clean energy company. It designs and manufactures electric cars and trucks, solar panels, battery energy storage, solar roof tiles, and all the other related products. In September 2021, Tesla launched its new Model S Plaid, which includes a new infotainment system powered by a custom-built chip, the Tesla Full Self-Driving (FSD) computer. This chip is designed to provide the necessary computing power for the vehicle's advanced ADAS features and is a key component in Tesla's strategy to develop fully autonomous vehicles.

Microchip Technology Inc., founded in 1989 and located in Chandler, Arizona, United States of America, is an American Corporation that manufactures microcontrollers, analog, mixed-signal, serial EEPROM devices, embedded security devices, linear interfaces, and wireless products. In October 2020, Microchip Technology Inc. announced the acquisition of Tekron International Limited, a global leader in providing high-precision GPS and atomic clock time-keeping technologies and solutions for the smart grid and other industrial applications.

Key Companies in the Automotive Chip market include

- STMicroelectronics (Switzerland)
- Infineon Technologies (Germany)
- Toshiba Corporation (Japan)
- ON Semiconductor (US)
- Renesas Electronics (Japan)
- Robert Bosch GmbH (Germany)
- NXP Semiconductors (Netherlands)
- Texas Instruments Incorporated (US)
- ROHM Semiconductor (Japan)
- Denso Corporation (Japan)

Automotive Chip Industry Developments

June 2021: Infineon Technologies AG, its Time-of-Flight (TOF) partner and technologies ag, and the leading vision-based imaging specialist ArcSoft announced the development of a turnkey solution that enables a ToF camera to work under the display of commercial smartphones. It would provide dependable, high-quality coral images and 3D data for security-related applications like face ID and mobile payment.

May 2022: Continental (Germany) extended its sensor portfolio by launching several new sensors for electrified vehicles: the Current Sensor Module and the Battery Impact Detection system. The new solutions focus on protecting the battery and on battery parameter retention.

January 2024 : The semiconductor firm AMD has introduced two new automotive chips for its customers in the automobile industry. The Versal AI Edge XA adaptable SoC and the Ryzen Embedded V2000A are two products that are designed to assist automobile manufacturers in providing improved information and entertainment services, as well as advanced driver safety and autonomous driving services.

The Versal AI Edge XA adaptive SoCs come equipped with what AMD refers to as an advanced artificial intelligence engine. This engine makes it possible for the devices to be further optimized for next-generation advanced automotive systems and applications. Some examples of these include forward cameras, in-cabin monitoring, LiDAR, 4D radar, surround-view, automated parking, and autonomous driving. The vendor also claims increased security that is in accordance with the norms of the automotive industry. The product is built on a 7nm manufacturing node.

According to AMD, the artificial intelligence engines that are available in the chipset are able to manage several sorts of AI models, including categorization and feature tracking. In the first half of this year, the first gadgets in the range will be made available for purchase, and other releases are scheduled to take place in 2024.

AMD believes that it is addressing a market that is rapidly expanding, as more modern vehicles have an ever-increasing number of CPUs. Automotive manufacturers will, in the not-too-distant future, utilize applications for autonomous vehicles in order to develop their brand identities. Due to the fact that these applications rely largely on artificial intelligence, automobile manufacturers require computing platforms that are capable of providing AI compute that is both powerful and efficient.

In the period between 2024 and 2030, the number of highly autonomous vehicles that are expected to be shipped

annually is projected to increase at a rate of 41%. This indicates that there is a good development opportunity for producers of heterogeneous SoCs that have powerful and efficient AI computation.

Automotive Chip Market Segmentation:

Automotive Chip Product Outlook

- Analog ICs
- Microcontrollers & Microprocessors
- Logic ICs

Automotive Chip Application Outlook

- Body Electronics
- Telematics & Infotainment
- Powertrain
- Safety system
- Chassis

Automotive Chip Vehicle Type Outlook

- Passenger Car
- Commercial Vehicle

Automotive Chip Propulsion Outlook

- ICE
- BEVs
- HEVs

Automotive Chip Regional Outlook

- **North America**
  - US
  - Canada
- **Europe**
  - Germany
  - France
  - UK
  - Italy
  - Spain
  - Rest of Europe
- **Asia-Pacific**
  - China

- Japan
- India
- Australia
- South Korea
- Australia
- Rest of Asia-Pacific

- **Rest of the World**
  - Middle East
  - Africa
  - Latin America

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