Automotive Semiconductor Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 170 pages | Mordor Intelligence

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Report description:

The automotive semiconductor market is expected to register at a CAGR of 16.2% over the forecast period. The market was evaluated by analyzing the market sizes of different components used in the automotive industry, including processors, sensors, memory devices, integrated circuits, and discrete power devices. The scope of the report comprises analyzing various vehicle types, like light commercial vehicles, heavy commercial vehicles, and passenger vehicles, around the world.

Key Highlights
A semiconductor is a substance, such as germanium or silicon, with electrical conductivity intermediate between a conductor and an insulator. The application of semiconductors in vehicles ranges from chassis, power electronics, safety, body electronics, and comfort or entertainment units, among others.
Automobiles are an essential element of people's life because they are the primary form of transportation today. There are currently over 1.3 billion motor cars on the road worldwide, which is predicted to climb to 1.8 billion by 2035. Passenger automobiles account for around 74% of these figures, with light commercial vehicles and large trucks, buses, coaches, and mini-buses accounting for the remaining 26%.
The technologies in automotive safety and security system have undergone a significant change in recent years, from seat headrests to adaptive cruise control systems. The rising wave of advanced technologies, such as blind-spot detection, drowsiness monitoring system, lane departure warning system, head-up display, night vision systems, park assist, e-call telematics, and tire-pressure-monitoring system technologies, are creating a significant potential for safety and security systems to protect the driver and passengers from serious injuries during a vehicle crash.
A growing number of affordable vehicles feature advanced infotainment, safety, performance, and fuel efficiency. Such features lead to the inclusion of various components leading to an increase in the price raise of the overall vehicle. Thousands of semiconductor chips are at the core of automobiles today, acting as the vehicle's eyes, ears, and brain, monitoring the

environment, making choices, and regulating actions. According to the Semiconductor Industry Association, modern automobiles may have 8,000 or more semiconductor chips and over 100 electronic control units, which currently account for more than 35% of total vehicle cost and are predicted to exceed 50% by 2025 to 2030.
The COVID-19 caused an immediate halt in existing manufacturing, impacting supply chains around the world. China, which was initially afflicted by the pandemic, lost over two-thirds of its vehicle manufacturing owing to the statewide lockdown, which significantly damaged the supply chain. Auto supply chains are frequently geographically dispersed; with each country imposing its own protocol following the pandemic, supply chain management took a significant hit, emerging as one of the most critical challenges confronting the automotive industry during COVID-19.

Automotive Semiconductor Market Trends

Heavy Commercial Vehicle Segment to Register Significant Growth

The heavy commercial vehicle market is expected to register a significant CAGR during the projected period. With the introduction of modern technology, such as accident prevention systems, ADAS, efficient driving, and engine systems, and a focus on environmental sustainability and emission reduction, the demand for these large commercial vehicles is likely to increase in the future.
Top manufacturers' technological advancements in heavy commercial vehicles are set to surge worldwide. A prominent trend characterizing the market's success has concentrated on accident prevention systems, automatic emergency braking systems, driver assistance, and blind-spot monitoring. Installing automated emergency braking systems and forward-collision warnings on heavy-duty vehicles may save more than 40% of rear-end incidents involving large trucks, according to research led by the Insurance Institute for Highway Safety (IIHS).
According to the research, heavy-duty vehicles with front-crash prevention systems, such as automated emergency braking (AEB), had 12% fewer collisions, and forward-collision warning (FCW) had 22% fewer collisions. Consequently, the increasing demand for integrated ICs to make efficient automatic braking and driving systems is significantly driving the automotive semiconductor market worldwide.
Under the new scrappage policy, governments in Asia-Pacific countries, like India, South Korea, and China, seek to push heavy-duty truck owners to acquire new heavy-duty trucks and other commercial vehicles, discouraging the use of old, polluting ones. The program would not only reduce pollution levels but also promote the advancements of the heavy-trucks segment in adopting integrated ICs, sensors , advanced microcontrollers, ADAS, and motor driver ICs, significantly influencing the growth of the market.
To avoid paying high penalties for non-compliance with EU norms, several heavy-duty truck manufacturers in Europe have been investing in integrating novel technology to meet the zero-emission objective from 2025 onwards. The European Union has established carbon-neutrality goals and criteria for heavy-duty vehicles. These include a 15% decrease beginning in 2025 and increasing to 30% by 2030, with zero emissions by 2050.
According to OICA, heavy commercial vehicle production in 2021 decreased by 1.51% compared with 2020 commercial vehicle production. Before the delta version caused a severe supply issue, chip producers, mostly in Asia, had ramped up manufacturing through the second half of 2021. Overall, the market is recovering after the pandemic.

Asia-Pacific to be the Fastest Growing Region

The Asia-Pacific automotive semiconductor market is fueled by increased automotive manufacturing and continued partnerships between automotive OEMs and semiconductor manufacturers. Cost and fuel efficiency are no longer the most important factors to

consider when buying an automobile; instead, the comfort and luxury offered by the vehicle are more important.
This may be attributed to the fact that global automobile manufacturers are seeing strong demand for luxury and semi-luxury vehicles, which is pressuring them to install more electronic components, pushing the Asia-Pacific automotive semiconductors market. As a result of this reason, the Asia-Pacific automotive semiconductor industry offers a potential market area.
The rapid expansion of the Asia-Pacific automotive semiconductor industry is expected to be fueled by the rising demand for electric vehicles. Automobile manufacturers must continue to innovate, create, and develop self-driving cars, which have already attracted a significant number of customers in key automotive manufacturing countries.
The growth trajectory of fully-autonomous automobiles is expected to be heavily influenced by several factors, including technology advancements, consumer willingness to accept fully-automated vehicles, pricing, and suppliers' and OEMs' capacity to address major concerns about vehicle safety.
According to the automobile industry, two-wheelers, three-wheelers, and tractors are in great demand across the country. In addition, India has a strong semiconductor R&D infrastructure, which may open up new potentials for the automotive semiconductor market in India in the future. Further, the government is taking various initiatives to boost the supply of semiconductor chips in the country. For instance, in September 2022, the Indian government announced to provide uniform fiscal support of 50% of the project cost for setting up semiconductor fabrication plants to boost semiconductor manufacturing in the country.

Automotive Semiconductor Market Competitor Analysis

The automotive semiconductor market is fragmented due to the presence of major players like NXP Semiconductor NV, Infineon Technologies AG, Renesas Electronics Corporation, STMicroelectronics NV, and Toshiba Electronic Devices& Storage Corporation (Toshiba Corporation) among others. Players in the market are adopting strategies such as partnerships, mergers, collaborations, innovations, and acquisitions to enhance their product offerings and gain sustainable competitive advantage.

In August 2022, Onsemi opened a silicon carbide (SiC) facility in Hudson, New Hampshire. The facility is expected to increase the company's production capacity by five times yearly and almost quadruple the number of employees in Hudson by the end of 2022.

In July 2022, NXP Semiconductors NV collaborated with Foxconn for a new generation of intelligent connected vehicles. The primary focus of the expanded collaboration is aimed at Foxconn□s efforts in electric vehicle (EV) platforms, leveraging NXP□s system expertise and comprehensive electrification portfolio, from NXP S32 processors to analog-front-end, drivers, networking, and power products. The collaboration would leverage NXP□s portfolio of automotive technologies and its longstanding expertise in safety and security to enable architectural innovation and platforms for electrification, connectivity, and safe automated driving.

In June 2022, Renesas Electronics Corporation partnered with Cyberon Corporation to provide voice user interface (VUI) solutions for customers using Renesas□ entire RA MCU line. The customers would get complimentary access to Cyberon□s command-based VUI toolchain, enabling them to add voice recognition to various endpoint applications in home appliances, building automation, industrial automation, wearables, and many more.

Additional Benefits:

The market estimate (ME) sheet in Excel format
3 months of analyst support

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