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Commercial Vehicles Semiconductor Market – Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Component Type (Processor, Analog IC, Discrete Power Device, Sensor, Memory Device), By Application Type (Powertrain, Safety, Body Electronics, Chassis, Telematics & Infotainment) By Region & Competition, 2021-2031F

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Abstracts

The Global Commercial Vehicles Semiconductor Market is projected to expand from USD 30.61 Billion in 2025 to USD 45.76 Billion by 2031, reflecting a CAGR of 6.93%. These semiconductors, comprising components like power integrated circuits, microcontrollers, and sensors, are essential for managing safety, powertrain, and telematics systems in vans, trucks, and buses. Market growth is largely fueled by strict government mandates on vehicle safety and emissions which increase the silicon content per unit, along with a booming logistics industry driving the need for light commercial vehicles. For instance, the European Automobile Manufacturers' Association reported an 8.3% rise in new van sales within the European Union in 2024, totaling nearly 1.6 million units, which directly amplifies the demand for connectivity modules and electronic control units.

However, the market faces significant hurdles due to economic instability that restricts capital expenditure among fleet operators. Elevated interest rates and inflationary pressures have caused delays in fleet renewal cycles, especially within the heavy-duty sector, leading to reduced production volumes for large commercial vehicles and a smaller addressable market for chip suppliers. Additionally, the widespread adoption of electric trucks is hindered by inadequate charging infrastructure, which postpones the anticipated revenue growth from the high-value power electronics required for fleet

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electrification.

Market Driver

The rapid shift toward electric and hybrid commercial vehicle powertrains is fundamentally reshaping the semiconductor sector by necessitating larger volumes of power electronics. This transition drives the demand for advanced components such as battery management integrated circuits and Silicon Carbide (SiC) inverters to manage high-voltage systems and maximize vehicle range. According to the International Energy Agency's 'Global EV Outlook 2024', global sales of electric trucks surged by 35% in 2023, exceeding 54,000 units. This electrification growth compels suppliers to increase the production of specialized power modules to satisfy rising fleet targets and supports the deployment of essential charging hardware.

Concurrently, the expansion of Advanced Driver Assistance Systems (ADAS) and safety technologies is raising the silicon content per vehicle to comply with rigorous regulatory standards. Governments are enforcing mandates for active safety features, requiring the integration of cameras, radar sensors, and fusion processors to support capabilities like moving-off information systems and blind-spot monitoring. As noted in the 'Updated General Safety Regulations' report by the European Association of Abnormal Road Transport and Mobile Cranes, all new trucks sold in the EU must meet these safety standards from July 2024, ensuring a consistent demand for safety-critical microcontrollers. Furthermore, the European Automobile Manufacturers' Association recorded a 28.6% increase in new EU bus registrations in the first half of 2024, further bolstering component orders.

Market Challenge

Economic volatility serves as a major restraint on the global commercial vehicle semiconductor market by depressing capital investment from fleet operators. High interest rates and inflationary costs force logistics companies to delay fleet renewal cycles, a trend that is particularly severe in the capital-intensive heavy-duty segment. When operators decide to extend the service life of existing trucks rather than purchasing new models, original equipment manufacturers cut back on manufacturing output. This contraction in vehicle production directly lowers the volume of orders for essential semiconductor components, such as safety sensors and power integrated circuits, thereby limiting revenue opportunities for chip suppliers.

The downturn in the heavy vehicle sector exemplifies the impact of these economic

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pressures. Data from the European Automobile Manufacturers' Association indicates that registrations of heavy-duty trucks over 16 tonnes in the European Union fell by 8.5% in 2024 compared to the previous year. This decline in unit sales is especially damaging to the semiconductor market because heavy-duty trucks typically require a higher quantity of high-value silicon for their complex telematics and powertrain systems than light commercial vehicles do. Consequently, the slowdown in this specific segment disproportionately hampers the overall demand for commercial automotive electronics.

Market Trends

The adoption of 5G and C-V2X connectivity modules is accelerating as fleet operators prioritize data-driven operational efficiency over basic location tracking. This trend involves integrating high-bandwidth telematics units that enable real-time video streaming, over-the-air software updates, and advanced predictive diagnostics, effectively transforming vehicles into connected edge nodes. Driven by the need to lower total cost of ownership through granular visibility into fuel usage and driver behavior, this shift is gaining momentum; Verizon Connect's '2025 Fleet Technology Trends Report' highlights that 78% of surveyed European commercial fleets had integrated GPS tracking technologies by November 2024, a 5 percentage point increase from the prior year.

Simultaneously, the integration of High-Performance Computing (HPC) System-on-Chips (SoCs) is altering vehicle architectures to support Level 4 autonomous trucking. Manufacturers are transitioning from distributed microcontrollers to centralized supercomputing platforms capable of processing massive sensor data streams in real-time. This structural change facilitates the complex deep learning and path-planning required for hub-to-hub logistics, significantly exceeding standard driver assistance capabilities. The rising demand for centralized processing power is reflected in supplier performance, with Nvidia reporting in February 2024 that its automotive revenue from computing platforms grew by 21% annually to reach $1.1 billion.

Key Market Players

Robert Bosch GmbH

Infineon Technologies AG

STMicroelectronics

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NXP Semiconductors

Toshiba Corporation

On Semiconductor Corporation

ROHM Co., Ltd.

Texas Instruments Incorporated

Renesas Electronics Corporation

Denso Corporation

Report Scope

In this report, the Global Commercial Vehicles Semiconductor Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Commercial Vehicles Semiconductor Market, By Component Type

Processor

Analog IC

Discrete Power Device

Sensor

Memory Device

Commercial Vehicles Semiconductor Market, By Application Type

Powertrain

Safety

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- Body Electronics
- Chassis
- Telematics & Infotainment

Commercial Vehicles Semiconductor Market, By Region

- North America
  - United States
  - Canada
  - Mexico
- Europe
  - France
  - United Kingdom
  - Italy
  - Germany
  - Spain
- Asia Pacific
  - China
  - India
  - Japan
  - Australia
  - South Korea

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South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Commercial Vehicles Semiconductor Market.

Available Customizations:

Global Commercial Vehicles Semiconductor Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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