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Automotive Ethernet Market by Type (Automotive Ethernet Network, Automotive Ethernet Testing), Component Type (Hardware, Software, Services), Bandwidth, Application, Vehicle Type (Passenger Cars & Commercial Vehicles) & Region - Global Forecast to 2028

https://marketpublishers.com/r/A88538E0B84EN.html
Date: February 2024
Pages: 270
Price: US$ 4,950.00 (Single User License)
ID: A88538E0B84EN

Abstracts

The global automotive ethernet market size is projected to grow from USD 2.2 Billion in 2023 to USD 5.5 Billion by 2028, at a CAGR of 19.7%. The automotive Ethernet market is witnessing robust growth driven by the increasing adoption of connected cars and the surging advancements in software defined vehicles (SDVs). The demand for high-bandwidth communication systems in these advanced vehicles is propelling the market's expansion to facilitate seamless data transfer and communication within intelligent automotive ecosystems.

The Automotive Ethernet Testing segment is expected to have notable opportunities during the forecast period

Automotive Ethernet testing involves comprehensive evaluation procedures to ensure the performance, reliability, and security of Ethernet networks within vehicles. It encompasses various testing methodologies and tools designed to verify compliance with industry standards, assess network functionality, and identify potential vulnerabilities. These include ensuring the functionality, dependability, and performance of Ethernet-based networks in vehicles. It includes latency, throughput, EMC (electromagnetic compatibility), interoperability, and reliability assessments. Latency testing guarantees that data transmission is delayed as little as possible for applications such as navigation which need real-time data transfers, while throughput testing

confirms that the network's data transfer capability satisfies specified rates. EMC tests ensure resistance to electromagnetic interference, which is critical for reliable automotive performance. Performance testing evaluates data transfer speeds, latency, and network throughput to ensure optimal functioning under different conditions. Interoperability testing ensures seamless communication between various devices and components within the automotive Ethernet network. Compliance testing validates adherence to industry standards such as IEEE 802.3 Ethernet specifications and automotive Ethernet standards. Multiple companies offer automotive Ethernet testing solutions for automakers, for example, Rohde & Schwarz's new K88 option for R&S RTO and R&S RTP oscilloscopes enables compliance testing on the next development of the automotive Ethernet standard.

Commercial Vehicles segment is likely to show the biggest growth in the automotive ethernet market during the forecast period

Commercial vehicles encompass a broad category of vehicles utilized for commercial purposes, including trucks, buses, vans, and other utility vehicles. These vehicles are pivotal in transporting goods and passengers and facilitating essential services. Ethernet’s integration in commercial vehicles revolutionizes the operational landscape by enabling advanced connectivity and data-driven functionalities. The demand for enhanced safety features, such as collision avoidance systems, lane departure warnings, and emergency braking, is pushing commercial vehicle manufacturers to adopt sophisticated in-vehicle networking solutions. Automotive Ethernet provides a robust platform for the integration of these safety features, enabling seamless communication between various components within the vehicle’s safety system. Automotive Ethernet also finds diverse applications in powertrain, body and comfort, and chassis systems in commercial vehicles. Ethernet enables seamless connectivity for in-vehicle infotainment and climate control in the body and comfort segment, enhancing the overall user experience. Within the chassis system, automotive Ethernet plays a pivotal role in real-time communication for electronic stability control and anti-lock braking systems, contributing to improved safety and vehicle dynamics. Furthermore, the deployment of automotive Ethernet aligns with the growing trend of connected commercial vehicles, allowing for real-time monitoring and communication between vehicles and fleet management systems. This connectivity enables predictive maintenance, remote diagnostics, and the ability to address safety concerns promptly, further reinforcing the role of automotive Ethernet in elevating safety standards.

US expected to show substantial growth in the North Amercan automotive ethernet market

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US is estimated to be the largest market in North America for automotive ethernet market during the forecast period. US consumers are increasingly adopting new vehicle technologies to improve safety and sustainability. The rising sales of connected and autonomous vehicles nationwide primarily drive automotive Ethernet expansion. Outfitted with cutting-edge technology and connection capabilities, these vehicles necessitate robust in-car networking solutions such as automotive Ethernet to manage the complicated data interchange across various vehicle systems. Simultaneously, the growing demand for immersive entertainment and linked car features increases the requirement for high-bandwidth, dependable communication networks within vehicles. Major car manufacturers in the US, including General Motors (GM), Ford, and Tesla, are progressively using automotive Ethernet in their vehicle designs. They use this technology to offer seamless communication between various in-car sensors, cameras, and electronic control units (ECUs), improving safety, connectivity, and overall vehicle performance. The regulatory environment in the US emphasizes high safety requirements, encouraging the incorporation of modern safety technology such as lane departure warning, collision avoidance systems, and automatic emergency braking. These rules provide an impetus for the implementation of automotive Ethernet, ensuring reliable data transfer and communication, among important safety features. Key players such as Broadcom Inc., Microchip Technology Inc., and Cadence Design Systems Inc. are also increasing their presence in the US to meet the growing demands for automotive Ethernet products and solutions. For instance, Microchip Technology Inc. announced an expansion of its Detroit Automotive Technology Center in Michigan, US, in October 2023.

In-depth interviews were conducted with CEOs, marketing directors, other innovation and technology directors, and executives from various key organizations operating in the automotive ethernet market. The break-up of the primaries is as follows:

By Company Type: OEMs – 21%, Tier 1 –31% and Tier 2 – 48%,

By Designation: C Level Executives – 40%, Directors – 35%, and Others – 25%

By Region: North America – 40%, Europe – 50%, Asia Pacific – 10%,

The automotive ethernet market comprises major manufacturers such as Broadcom (US), Marvell (US), Microchip Technology Inc. (US), NXP Semiconductors (Netherlands), and Texas Instruments Incorporated (US), Cadence Design Sytems, Inc.

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(US), etc.

Research Coverage:

The study covers the automotive ethernet market across various segments. It aims at estimating the market size and future growth potential of this market across different segments such as type, component, bandwidth, application, vehicle type, and region. The study also includes an in-depth competitive analysis of key market players, their company profiles, key observations related to product and business offerings, recent developments, and acquisitions.

This research report categorizes automotive ethernet market by Type (Automotive Ethernet Network and Automotive Ethernet Testing), Component (Hardware, Software, and Service), Bandwidth (10 Mbps, 100 Mbps, 1 Gbps, and 2.5/5/10 Gbps), Application (Advanced Driver Assistance Systems (ADAS), Infotainment, Powertrain, Chassis, and Body and Comfrt), Vehicle Type (Passenger Cars and Commercial Vehicles), and Region (Asia Pacific, Europe, and North America).

The report's scope covers detailed information regarding the major factors, such as drivers, restraints, challenges, and opportunities, influencing the growth of the automotive ethernet market. A detailed analysis of the key industry players provides insights into their business overview, solutions, and services; key strategies; contracts, partnerships, agreements, new product & service launches, mergers and acquisitions, and recent developments associated with the automotive ethernet market. Competitive analysis of SMEs/startups in the automotive ethernet market ecosystem is covered in this report.

Reasons to buy this report:

The report will help the market leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall automotive ethernet market and the subsegments. This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and to plan suitable go-to-market strategies. The report also helps stakeholders understand the market pulse and provides information on key market drivers, restraints, challenges, and opportunities.

The report provides insights on the following pointers:

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Analysis of key drivers (Booming trend of connected cars, Rising demand for data-intensive applications, Standardization and interoperability of automotive ethernet technology, Growing preference for infotainment systems in automobiles), restraints (Unraveling the implementation challenges hindering automotive ethernet's takeoff, The high installation cost of automotive ethernet), opportunities (Increasing demand for improved chassis dynamics, Advancements in software-defined vehicles, Shift toward cloud-based services), and challenges (Vulnerability to cyberattacks, Increasing complexity of automotive networks) influencing the growth of the automotive ethernet market.

Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product & service launches in the automotive ethernet market.

Market Development: Comprehensive information about lucrative markets – the report analyses the automotive ethernet market across varied regions.

Market Diversification: Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the automotive ethernet market.

Competitive Assessment: In-depth assessment of market shares, growth strategies, and service offerings of leading players like Broadcom (US), Marvell (US), Microchip Technology Inc. (US), NXP Semiconductors (Netherlands), and Texas Instruments Incorporated (US), Cadence Design Sytems, Inc. (US) among others in the automotive ethernet market.

Strategies: The report also helps stakeholders understand the pulse of the automotive ethernet market and provides them information on key market drivers, restraints, challenges, and opportunities

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8 AUTOMOTIVE ETHERNET MARKET, BY BANDWIDTH

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*Details on Business overview, Products offered, Recent developments & MnM View might not be captured in case of unlisted companies.

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