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Autonomous Driving Software Market by Level of Autonomy (L2+, L3, L4), Vehicle Type (Passenger Cars, Commercial Vehicles), Propulsion (ICE, Electric), Software Type (Perception & Planning, Chauffeur, Interior Sensing, Monitoring) - Global Forecast to 2035

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Abstracts

The global autonomous driving software market is projected to grow from USD 1.8 billion in 2024 to USD 7.0 billion in 2035, at a CAGR of 13.3%.
With the growing advancement and adoption of ADAS features, the complexity and significance of software in these vehicles is gaining consistent traction. Today, the passenger cars segment has already achieved 45-60% penetration in the L2/L2+ segment. As the automotive industry moves towards L3 and above autonomy levels, the cost of software in the vehicle is expected to rise to as high as 45% in the short term and fall consequently by 2035. Furthermore, the proliferation of electric vehicles and shared mobility services is increasing the demand for autonomous driving software. To stimulate demand, the new OEM wants to convert to a software-driven vehicle centralized architecture, develop modular vehicle skateboards, and increase spending on complementary technologies such as AI/Gen AI, intelligent cockpits, and higher levels of automation.
“L3 segment is expected to hold a significant share of autonomous driving software market during the forecast period.”
L3 autonomous vehicles employ cutting-edge software and hardware components that work together to build a precise, real-time map of the vehicle's surroundings, allowing the system to make sound driving decisions. The software algorithms process the data, detect potential threats, and handle complex driving conditions. All of these technologies respond to the growing need for road safety, propelling the autonomous

driving software sector. Multiple level 3 autonomous car models have been released in recent years. Mercedes-Benz, for example, launched the L3 S-Class and EQS autonomous passenger vehicles in 2023. BMW also offers L3 autonomy in the 7 Series G70. On the other hand, Stellantis plans to launch its L3 vans in 2024. During the forecast period, Asia Pacific is expected to hold the largest market size of autonomous driving software solutions in L3 autonomy. Asia Pacific countries are actively working on the development of higher autonomy in vehicles. Further, OEMs and technology providers in the region are actively collaborating to stay competitive in this evolving technological landscape. China and Japan are a few countries that have provided a testing ground for L3 autonomy. For instance, in December 2023, IM Motors (China) got a permit to test L3 self-driving vehicles in Shanghai. Previously, in September 2023, the Japanese government aimed for nationwide autonomous driving lanes. This means that the automated system can drive the vehicle under certain conditions, such as when the vehicle is in congested traffic on an expressway.

“Perception and planning software to lead the development in fully autonomous vehicles”

Perception and planning software allow vehicles to effectively perceive and plan their way through the environment. Running a complex program, the software converts input data from an array of sensors—cameras, radar, and lidar—into a detailed and accurate model of the environment; thus, it classifies items like other vehicles, pedestrians, traffic signs, and obstructions by processing such data. All this allows a self-driven vehicle to make informed decisions in real time. Complex algorithms and methodologies are used for identification of environment and assessment for distinction between objects and forecasting the movement of the same. These are the key factors to stay collision-free and travel safely in a variety of driving conditions. Planning software defines the route that is safest and most efficient for the vehicle to follow. Safe and efficient routing is created by combining environmental data that is collected in real time with traffic rules. This includes real-time analysis of dynamic events, such as merging into a busy road or avoiding unexpected barriers. Planning software changes the path that the vehicle takes in response to changes in the environment to ensure that the ride is both smooth and safe. This includes real-time analysis of dynamic events, for example, merging into busy highways, and avoiding unexpected bottlenecks. The planning software continuously modifies the path of the vehicle according to environmental changes to ensure a smooth and safe ride.

Companies such as NVIDIA, Aurora Innovation Inc., Mobileye, PlusAI, and Waymo offer perception and planning software meant for autonomous driving. For instance, NVIDIA Drive is an end-to-end platform for autonomous vehicles, which consists of in-car computing hardware, including the Orin system-on-a-chip, while also including the complete software stack for AV and AI cockpit applications. It also provides PlusVision,

which is an AI program for perception used in advanced safety systems and ADAS applications, with increased levels of autonomy. It leverages the strongest deep neural networks, including transformer-based models, for best-in-class perceptual capabilities. PlusAI's PlusDrive is also an advanced L2+ Driver Assist System utilizing Level 4 autonomous driving technologies. Plus Drive® permits supervised autonomy in order for the drivers to execute maneuvers appropriately and safely.
“Europe is expected to have significant growth during the forecast period.”
According to experts, Europe's severe emission standards and zero-emission ambitions significantly impact passenger and commercial vehicle manufacturers. This led to most manufacturers working on ADAS and AD features for vehicles in the region. Countries such as Germany, France, and the UK have already allowed the use of autonomous vehicles on roads, with testing already being conducted over the years for the applicability of these vehicles on roads. Major automakers such as Audi, Volkswagen Group, Mercedes-Benz, Renault and BMW, provide these safety features in the region. The growth of the European autonomous driving software demand can be thus attributed to technological advancements in driver assistance features, and mandates for features such as traffic jam assist and blind-spot detection. Mandates for the adoption of features like as DMS, AEB, and LCW in passenger cars, which came into effect in July 2022, are expected to boost autonomous vehicle demand and, consequently, the European autonomous driving software sector. Since January 2023, the region has authorized Level 3 autonomous cars to travel at speeds of up to 130 km/h under specific traffic circumstances, including as on motorways and during lane changes.
In-depth interviews were conducted with CEOs, marketing directors, other innovation and technology directors, and executives from various key organizations operating in this market.

By Company Type: OEMs - 24%, Tier I - 67%, and Tier II - 9%,

By Designation: C- Level Executives - 33%, Directors - 52%, and Others - 15%

By Region: North America - 26%, Europe - 36%, and Asia Pacific - 38%

The autonomous driving software market is dominated by major players including Mobileye (Israel), NVIDIA Corporation (US), Qualcomm Technologies, Inc. (US), Huawei Technologies Co, Ltd (China), and Aurora Innovation Inc. (US). These companies are expanding their operations in self driving technologies to strengthen their software ecosystem.

Research Coverage:
The report covers the autonomous driving software market, in terms of Level of Autonomy (L2+, L3, L4), Vehicle Type (Passenger Cars, Commercial Vehicles), Propulsion Type (ICE, Electric), Software Type, and Region (Asia Pacific, Europe, and North America). It covers the competitive landscape and company profiles of the major players in the autonomous driving software market ecosystem.
The study also includes an in-depth competitive analysis of the key market players, along with their company profiles, key observations related to product and business offerings, recent developments, and key market strategies.
Key Benefits of Buying the Report:

The report will help market leaders/new entrants with information on the closest approximations of revenue numbers for the overall autonomous driving software market and its subsegments.

This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and 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 also helps stakeholders understand the current and future pricing trends of autonomous driving software.

The report provides insight on the following pointers:

Analysis of key drivers (Increasing development and adoption of autonomous vehicles, Growing adherence to safety regulations for vehicles worldwide, Increasing advancements in ADAS technology, Integration of 5G technology for vehicle connectivity), restraints (Data privacy concerns, Lack of standardization in software architecture and hardware platforms), opportunities (Rising demand for safer and sustainable transportation solutions, Increasing adoption of ADAS in modern vehicles, Growing deployment of sensor fusion in automotive, Advancement in autonomous commercial vehicle technology), and challenges (High operational cost of cybersecurity measures, Compatibility and integration challenges in hardware and software components).

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

Market Development: Comprehensive information about lucrative markets - the report analyses the autonomous driving software market across varied regions.

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

Competitive Assessment: In-depth assessment of market ranking, growth strategies, and service offerings of leading players like Mobileye (Israel), NVIDIA Corporation (US), Qualcomm Technologies, Inc. (US), Huawei Technologies Co, Ltd (China), and Aurora Innovation Inc. (US) among others in autonomous driving software market.

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Contents

7 AUTONOMOUS DRIVING SOFTWARE MARKET, BY VEHICLE TYPE

8 AUTONOMOUS DRIVING SOFTWARE MARKET, BY PROPULSION

9 AUTONOMOUS DRIVING SOFTWARE MARKET, BY SOFTWARE TYPE

10 AUTONOMOUS DRIVING SOFTWARE MARKET, BY REGION

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