*Yano Research Institute*

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*RESEARCH SUMMARY*

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# Global Market of Automated Driving Systems: Key Research Findings 2016

## ◆ Research Outline

**Yano Research Institute has conducted a study on the global market of automated driving systems with the following conditions:**

1. Research period: From September to November, 2016
2. Research targets: Manufacturers of automobiles, car electronics, semiconductors, and maps
3. Research methodologies: Face-to-face interviews with expert researchers, surveys via telephone/email, and literature search

**<What are Automated Driving Systems?>**

The automated driving systems have been categorized into 5 stages (from Level 0 to 4) by NHTSA (National Highway Traffic Safety Administration) in the United States Department of Transportation as follows: Level 1) Driver Assistance: The recent, widely accepted ADAS (advanced driver assistance system) falls into this category. Level 2) Partial Automation: Driving assistance is available to multiple driving operations of the vehicle including speeding and steering, but some other operations must be conducted manually. Level 3) Conditional Automation: All the driving operations of the vehicle are automated, but the driver is needed to intervene in the emergency. Level 4) High Automation: The driving operations of the vehicle are completely automated with the presence of a human being no longer needed in any circumstances. Note that the market size is calculated based on the number of new passenger and commercial vehicles with their body weighing 3.5 tons or less, embedded with automated driving systems.

## ◆ Key Findings

■ **Automated Driving Systems Level 2 Projected to Fully Accepted in 2020 and Beyond, With Global Number of Vehicles Embedded Reaching 23,812 Thousand by 2025**

The automated driving systems level 2 (partial automation) has started being introduced in 2015 and are likely to be installed progressively, especially with regard to those systems as ACC (Adaptive Cruise Control) during traffic jam, and automatic parking. The market size is likely to achieve 5,095 thousand by 2020. With the cost of sensors expected to be reduced in 2020 and beyond, the automated driving systems level 2 are projected to be accepted even in the middle-class car types, which makes the global number of vehicles embedded with the automated driving systems level 2 to expand to 23,812 thousand by 2025.

■ **With Automated Driving Systems Level 3 Limited for Highways Start being Embedded During 2020 and 2021, Global Number of Vehicles Installed Attains 6,267.1 Thousand by 2025**

The automated driving systems level 3 (conditional automation) especially for highways in Europe, U.S. and Japan, are scheduled to be started being installed in the flagship cars of leading automobile makers during the period between 2020 and 2021. With the installation being projected to be applied also to some middle-class types, the global market size is expected to expand to 6,267.1 thousand by 2025.

■ **Global Number of Automated Driving Systems Level 2 Embedded in Vehicles Expected to Attain 27,980 Thousand, Level 3 17,867 Thousand, and Level 4 2,244.4 Thousand by 2030**

With the costs of the automated driving systems level 2 are likely to decline in 2025 and beyond, the number of vehicles embedded with the systems is expected to attain 27,980 thousand by

2030, exceeding the market size of the systems level 1. Because the systems level 3, that is limited to highways, are likely to be installed even in automobiles of middle-class types, the global numbers of level-3-system-embedded vehicles are likely to expand to 17,867 thousand. With regard to the level-4 systems, the installation is to be in progress especially in commercial vehicles. Therefore, more buses and taxis with automated driving systems are expected to increase in some of limited areas.

## ◆ Report Format

Published report: "Automated Driving System Market 2016 - R&D Trends in Tier1/Automakers"
Issued on: December 8, 2016
Language: Japanese
Format: 170 pages in A4 format
Price: 150,000 yen (The consumption tax shall additionally be charged for the sales in Japan.)

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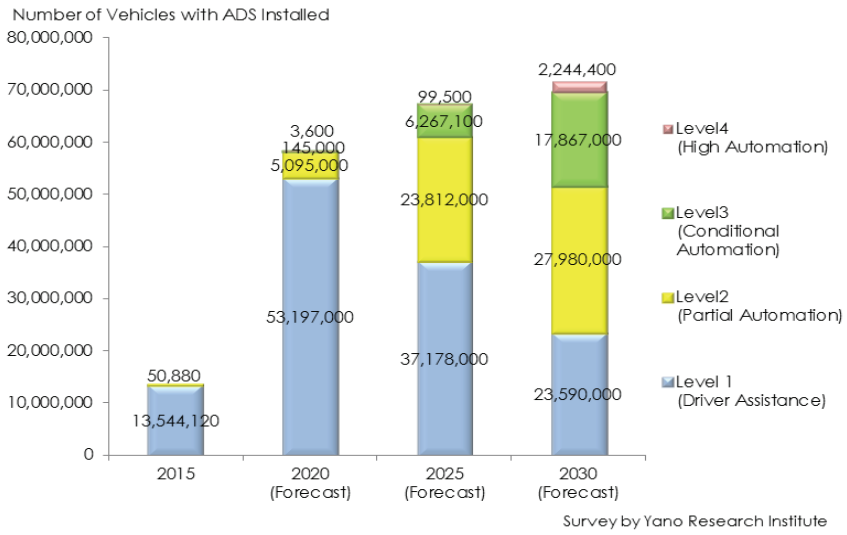
### ■ Figure & Table 1. Forecast of Global Market Size of Automated Driving Systems




Number of Vehicles with ADS Installed

| | 2015 | 2020 (Forecast) | 2025 (Forecast) | 2030 (Forecast) |
|---|---|---|---|---|
| Level 1 (Driver Assistance) | 13,544,120 | 53,197,000 | 37,178,000 | 23,590,000 |
| Level2 (Partial Automation) | 50,880 | 5,095,000 | 23,812,000 | 27,980,000 |
| Level3 (Conditional Automation) | - | 145,000 | 6,267,100 | 17,867,000 |
| Level4 (High Automation) | - | 3,600 | 99,500 | 2,244,400 |
| Global Market Size (Total) | 13,595,000 | 58,440,600 | 67,356,600 | 71,681,400 |

Survey by Yano Research Institute

Notes:

1. The market size is calculated based on the number of new passenger and commercial vehicles with their body weighing 3.5 tons or less, embedded with automated driving systems.
2. The numerical values for 2015 are actual and those from 2020 to 2030 are forecast.
3. The automated driving systems in this research indicates those systems categorized into 5 stages (from Level 0 to 4) by NHTSA (National Highway Traffic Safety Administration) in the United States Department of Transportation, with Level 1 driver assistance, Level 2 partial automation, Level 3 conditional automation, and Level 4 high automation.