

SAE level-2 automated truck launched

Daimler Trucks presented in Las Vegas its Cascadia truck. It features SAE level-2 automated driving functionality.



The Cascadia truck uses multiple ECUs with CAN connectivity (Photo: Daimler)

On CES 2019, Daimler Trucks North America's (DTNA) launched its Cascadia truck, which can accelerate, decelerate, and steer independently. Of course, the truck uses CAN-based in-vehicle networks to communicate between the ECUs (electronic control unit). But there is no CAN communication between truck and semi-trailer.

The Detroit Assurance 5.0 Adaptive Cruise Control and Active Lane Assist features make automated driving possible in all speed ranges for the first time in a series production truck, stated the vehicle manufacturer. The truck implements several advanced driver assistant systems (ADAS):

- Adaptive Cruise Control to 0 km/h: Improves safety, efficiency, and driver comfort by automatically decelerating and accelerating to maintain a safe following distance. This technology is especially important for maintaining a comfortable driving experience in congested traffic conditions where repeated braking, accelerating and resetting of traditional cruise control can lead to driver fatigue.
- Active Lane Assist: Consists of Lane Keep Assist and Lane Departure Protection. When Adaptive Cruise Control is enabled, Lane Keep Assist supports the driver by using micro-steering movements to keep the new Cascadia centered in its detected lane. With Lane Departure Protection, if the truck begins to drift without the turn signal engaged, the system will counter steer the truck back into its lane and give an auditory and visual warning.

In addition to SAE level-2 automated driving features, the Detroit Assurance 5.0 active safety and advanced driver assistance systems are designed to keep truck drivers, pedestrians, cyclists, and other motorists safe. It comprises the following sub-systems:

- Active Brake Assist 5.0: The fusion of Detroit Assurance 5.0 camera and radar technology detects moving pedestrians and cyclists in front of the truck and can deploy full braking – an industry first. It can also detect and mitigate a collision with full braking on moving and stationary vehicles and objects.
- Side Guard Assist: Detects objects, including pedestrians and cyclists, in the passenger-side blind spot for the tractor and a full-length 53-foot trailer, another industry first, and delivers an audible and visual warning.

The Detroit Connect Analytics provides fleets with analysis and key insights on the performance of the new Detroit Assurance 5.0 safety features. Fleets are notified, if drivers have their hands off the wheel for longer than one minute.



Kary Schaefer: "With its ability to assist in both forward and lateral directions, the new Cascadia is the first North American truck with level-2 automation." (Photo: Daimler)

According to NHTSA, ninety-four percent of crashes are attributable to human error. Automating acceleration, deceleration, and steering reduces the chance for human error, mitigates collisions, and can potentially save lives. These technologies can also enhance the driver experience by making the truck-driving task easier, thereby improving driver comfort and wellbeing.

Kary Schaefer, DTNA marketing manager, explained on the [Daimler Blog](#): "It's hard work, driving a truck, so we're supporting drivers with even more enhancements: automatic wipers and headlights, intelligent high-beam, and traffic sign display – which posts the current speed limit right in the instrument cluster. And speaking of instrument cluster, our new optional 12-inch digital display provides the driver with improved graphics, access to trip information, and a wide range of vehicle diagnostics and key operating parameters. This new instrument cluster is offered with a 10-inch touch screen display in the b-panel of the dash which enables ability to host third party apps in the future. Both displays are easily controlled by buttons on the steering wheel."

DTNA's expertise in automation is backed by Daimler Trucks, which announced at CES 2019 an investment of over half a billion dollars and an addition of more than 200 new jobs in its global push to put highly automated trucks (SAE level-4) on the road within a decade. Most of these jobs will be located at the new Daimler Trucks Automated Truck Research & Development Center at DTNA's headquarters in Portland (OR).

The Cascadia has been developed Freightliner Trucks, a daughter company of DTNA. "With more than 65 000 customer deliveries to date and 50 000 on order, the new Cascadia has proven to be the Class 8 truck of choice in the industry," explained Schaefer. "We're proud to be once again raising the bar." She added: "Automation in transportation is coming. Level-5 is a fully-automated truck (we're a long ways from that). Level 2-is partially automated, an ADAS – the driver's hands remain on the wheel and attentive, while the system enhances not only their safety, but yours and mine as well."

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