CAN Newsletter Online

MICRO-CONTROLLER

Nissan uses Renesasâ€™ SoC and MCU

The Japanese carmaker adopted the R-Car system-on-chip and the RH850 automotive micro-controller by Renesas for its Propilot 2.0 driver assistance system.

Nissan's Propilot 2.0 driver assistance system communicates via CAN control commands to other ECUs (Source: Renesas)

The advanced driver assistance system (ADAS) combines navigated highway driving with hands-off, single-lane driving capabilities, employing the R-Car automotive system-on-chip (SoC) and RH850 automotive MCU to implement core functionality in the electronic control units (ECUs) that handle driving judgment and control. Designed for on-ramp to off-ramp (ramp-to-ramp) highway driving, the ADAS engages with the vehicle's navigation system to help maneuver the car according to a predefined route on designated roadways. The system also enables hands-off driving while cruising in a single lane.

To achieve this advanced capability, the R-Car creates detailed environment maps of the vehicle surroundings by combining information on nearby vehicles and other objects from the cameras and front radar with the high-precision 3D map data preloaded for navigation. The SoC determines the vehicle's own position from the map data and lane information and, based on this information, determines the vehicle's action plan. The RH850 micro-controller receives the resulting data and sends control commands via CAN to the ECUs controlling the steering wheel, the acceleration, and the brakes. Combining the SoC's processing with the MCU's real-time responsiveness and reliability enables judgment and control operations to take place sequentially and accurately, stated the Japanese chipmaker.

"Realizing Propilot 2.0 on the Skyline required the technological innovation of achieving performance that can handle real-time processing of several times more sensor data than ever before while maintaining reliability," said Takashi Yoshizawa from Nissan. "Many years of collaboration with partners such as Renesas have enabled Nissan to drive technological advances leading to the realization of advanced driver assistance technology, and I am delighted that the industry-leading Propilot 2.0 has emerged as a result of this work."

"We are honored that Nissan has adopted Renesas automotive semiconductors in the Propilot 2.0 system featured on the new Skyline," said Shingo Yamamoto from Renesas. "Nissan's confidence in the processing performance and quality of our semiconductors and in Renesas as a partner in the overall project of advanced driver assistance system ECUs made it possible to combine our technological expertise for development. I look forward to seeing our relationship with Nissan to grow even stronger."

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