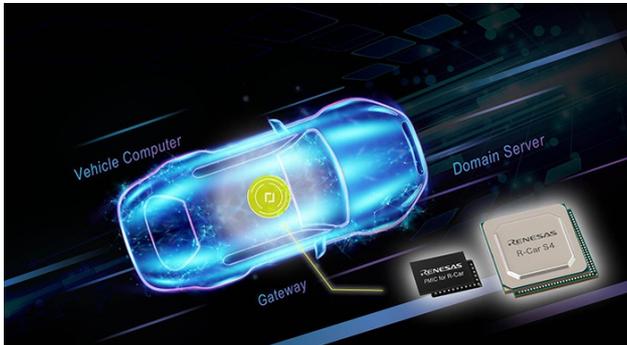


Automotive gateway solution for vehicle computer

Renesas Electronics unveiled an automotive gateway solution with R-Car S4 system on chips (SoCs) and power management ICs (PMICs) for vehicle computers, communication gateways, domain servers, and application servers. 16 CAN FD interfaces are provided.



The automotive gateway solution with R-Car S4 SoCs and PMICs provides 16 CAN FD interfaces for communication and connectivity (Source: Renesas)

The R-Car S4 is one of the first products in Renesas' 4th-generation R-Car family, explained the company. It includes multiple Arm Cortex A55, Cortex R52, and is the first to implement an RH850 MCU (micro-controller unit) for control domain management. R-Car S4 SoCs offer various automotive interfaces such as 16 x CAN FD, 16 x LIN, 8 x Sent, 1 x Flexray, 4 x PCIe version 4.0, and also 3 x Ethernet Switch to enable communication and connectivity options both inside and outside of the vehicle.

The solution from the supplier of semiconductor solutions enables software reusability and includes PMICs designed to work with the R-Car S4. "As the vehicle architectures evolve, safe connection to cloud services and secure management with in-vehicle control systems are major challenges," said Takeshi

Kataoka, Senior Vice President and General Manager of Automotive Solution Business Unit at Renesas. "As an automotive market leader, we have addressed these challenges with our new R-Car S4 solution, and global OEMs (original equipment manufacturers) have already begun to design next-generation systems with this solution."

The solution allows designers to re-use up to 88 percent of software code developed for 3rd generation R-Car SoC and RH850 MCU applications. The software package supports R-Car S4 application development including the real-time cores with various drivers and basic software such as Linux BSP and hypervisors. In addition, a virtual platform (VPF) is available from a partner company, enabling software development and evaluation.

The PMICs for R-Car provide advanced power modes that support low power operation, said the company. The RAA271041 PMIC accepts the vehicle's 12-V supply and supports operation for load dump and cold cranking pulses while providing the first-stage regulation. The RAA271005 is a 11-channel PMIC that takes the RAA271041's output and steps it down further to the various supply voltages needed by R-Car S4 and its peripherals such as LPDDR4x memory. The RAA271041 and RAA271005 PMICs provide a complete power solution from vehicle battery down to system voltage.

Renesas will provide the evaluation boards as a combination solution featuring the R-Car S4 device, the RAA271041 and RAA271005 PMICs, and a Renesas timing IC (Autoclock RC2121x).

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