CAN Newsletter Online

DEBUGGER

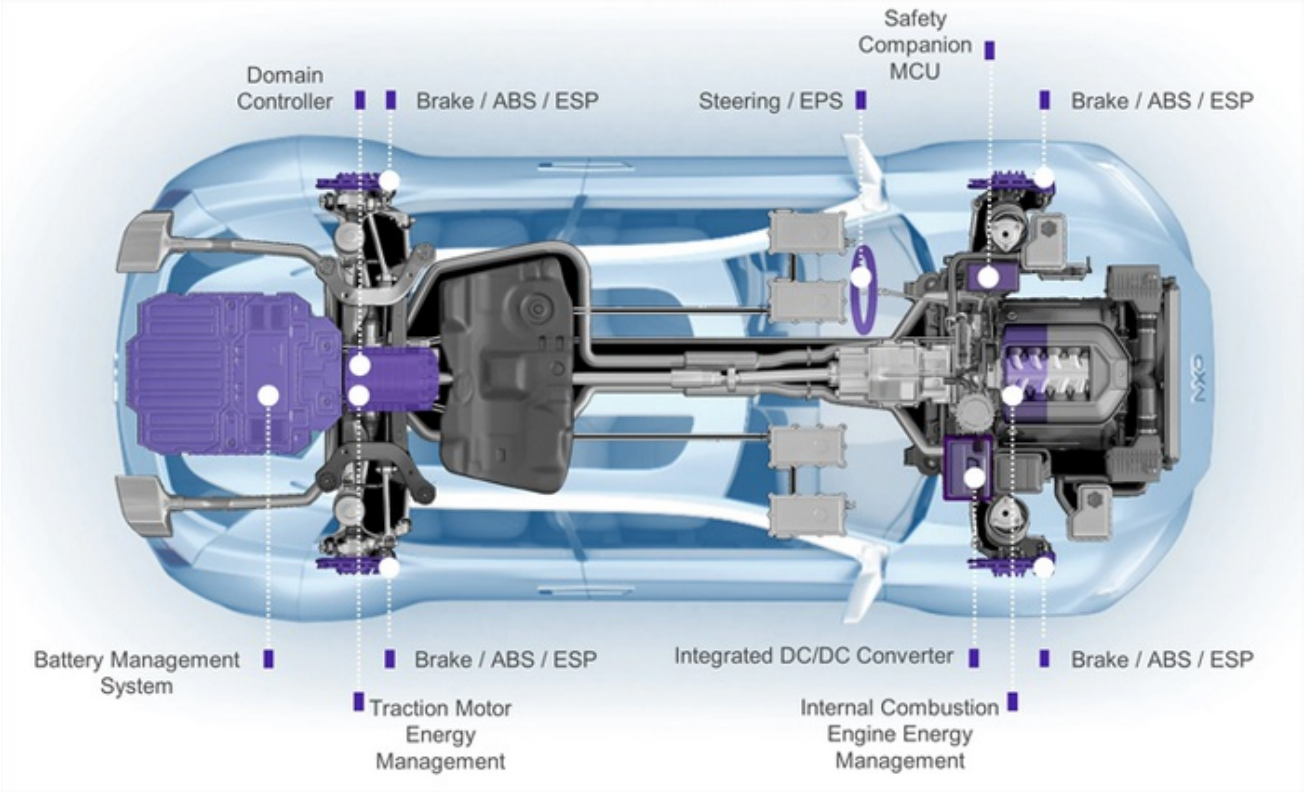
Developing automotive ECUs

The UDE by PLS (Germany) provides debugging and analysis functions for NXP's S32S247 and i.MX RT MCUs with up to eight CAN FD interfaces.

The latest version of the UDE (Universal Debug Engine) supports the S32S247 and i.MX RT MCUs (micro-controller units) (Source: PLS)

The S32S247 multi-core controller combines four 800-MHz Cortex-R52 processors with a 64-MiB integrated flash memory. Designed for safety-related real-time applications up to ASIL-D (automotive safety integrity level), the device addresses diverse control domains, e.g. in hybrid and electric vehicles as well as in the field of autonomous driving. The up to 1-GHz i.MX RT Arm Cortex-M7 processors address applications such as Internet of Things (IoT), consumer electronics, industrial electronics, and automotive engineering.

UDE's user interface for debugging and test allows a simplified changeover from another micro-controller architecture to the introduced NXP components. In addition to the interactive debugging functions, the visualization options of the application states are offered. The scripting support allows automated debugging and testing. UDE is independent from a specific scripting language. Due to the use of Microsoft COM technology for engine's software API (application programming interface), developers can use their preferred scripting language such as Python, Perl, Javascript, etc.



Target applications of the S32S MCUs (Source: NXP)

For the S32S247, multi-core debug functions such as multi-core run control for synchronous stop/start and multi-core breakpoints used in the shared code are available. Debugging and run-time analysis of multi-core applications is performed in a single debug session and within a single shared debugger instance. In addition, the Memtool add-on provides functions for programming of the integrated Flash memories.

The company's UAD2pro (universal access device), UAD2next, and UAD3+ devices allow access to the MCUs. Depending on the requirements, the Arm-specific serial wire debug (SWD) interface, JTAG, or cJTAG is used. The UAD2next provides 512 MiB and the UAD3+ provides up to 4 GiB of internal trace memory. Recorded trace data is used for a detailed analysis of the run-time behavior and offers functions for profiling and code coverage.

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