Software Tools Optimized for TriCore Microcontrollers in Complex Automotive Applications

Wind River [1], a world leader in embedded and mobile software, is collaborating with Infineon Technologies [2] as part of a multi-year partnership to extend its integrated software tools portfolio by optimizing Wind River Diab Compiler for the TriCore microcontroller architecture of Infineon Technologies, including the latest AUDO MAX and future TriCore families. Wind River has released an update to Wind River Diab Compiler that includes enhancements for TriCore architecture resulting in increased performance and smaller software footprint for TriCore developers.

Infineon TriCore 32-bit microcontrollers provide high performance and real-time capabilities and are widely used for compute-intensive automotive applications such as power train, passive safety systems, engine control, energy management, and chassis control.

Wind River Diab Compiler is an embedded software tool suite that includes a C/C++ compiler, assembler, linker, ANSI C and C++ libraries, and an instruction-set simulator that supports a variety of processor architectures including ARM, Power, SuperH and TriCore. Diab compiler technology is widely used in mission-critical applications, such as automotive, industrial, and aerospace and defense systems for over 25 years and is tested for quality and performance with millions of test cases.

“Given the growing complexity in automotive electronic systems as well as the emergence of new safety standards such as ISO 26262, software quality is paramount,” said Tomas Evensen, chief technical officer at Wind River and creator of the original Diab Compiler. “Automotive electronic control unit makers are under continuing pressure to increase functionality in their devices while saving power and costs. This requires close alignment between software and semiconductor vendors. Alongside Infineon, we are working to provide an optimized software development environment and deliver Wind River Diab Compiler for AUDO MAX and future TriCore automotive microcontrollers. With the code optimization that Diab Compiler brings, electronic control unit makers are able to add more functionality in the same or less memory footprint, without increasing power consumption.”

“Together, Wind River and Infineon are optimizing Wind River Diab Compiler for TriCore architectures and the improvements in code performance and software footprint can lower hardware costs for automotive system suppliers,” said Peter Schaefer, vice president and general manager, Microcontrollers, Automotive division at Infineon Technologies. “Infineon’s powerful TriCore microcontrollers are designed for highly complex electronic systems and it is essential to partner with an expert commercial compiler supplier with safety-critical expertise to ensure we provide a solution that meets the demanding needs of the automotive industry.”

Wind River and Infineon will also continue to collaborate on automotive-specific compiler requirements such as the need for compiler compliance with the latest ISO 26262 standard. The new standard is an adaptation of the Functional Safety standard IEC 61508 for automotive electric/electronic systems. ISO 26262 applies to functional safety aspects of the development process, including such activities as requirements specification, design, implementation, integration, verification, validation and configuration.

More information about Wind River Diab Compiler is available at http://www.windriver.com/products/development_suite/wind_river_compiler/ [3].

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