Multicore MCU Touts Exponential Increase in Performance to Enable Cleaner, More Fuel-Efficient Engines

Freescale Semiconductor announced the first of several multicore automotive MCUs that help make it easier for automotive designers to improve engine efficiency and reduce exhaust pollution. The new multicore Qorivva 32-bit MPC5676R MCU, built on Power Architecture technology, provides four times the performance, double the memory space and more functionality than the previous-generation, single-core MPC5566 MCU. The combined features of this MCU are said to allow global automakers to incorporate state-of-the art technology, such as direct injection, turbo-charging and full drive by wire systems into a single controller. The 90-nanometer, dual-core MPC5676R MCU is equipped with 6 MB of on-chip flash memory; 384 KB of on-chip RAM; three high-performance enhanced timing processor units (eTPU); 64-channel 12-bit analog-to-digital converter; CAN and FlexRay(TM) communications systems; and on-chip hardware for knock detection processing. The device includes two parallel 180 MHz 32 Bit Power Architecture processors for maximum throughput and software flexibility.

The MPC5676R's increased performance and features address the competitive forces of the automotive industry head-on. Industry-standard Power Architecture cores make it easy for software engineers to reuse legacy code, helping drive down automakers' costs even when moving to advanced multi-core architectures. The adaptability and capability of the MPC5676R make it ideal for a variety of powertrain control applications, including diesel, gasoline and natural gas engines and hybrid electric and plug-in electric vehicles. Freescale continues to work with global automotive OEMs, including GM, to provide 32-bit MCU solutions that can meet the performance demands required to manage complex powertrain systems.

Comprehensive ecosystem for Qorivva MCUs

The strength and value of Qorivva microcontrollers extend beyond the silicon. Each Qorivva MCU comes with a full run-time software solution, including AUTOSAR MCAL driver suites and AUTOSAR real-time operating system for single-core and multicore

MCUs. Qorivva MCUs also are supported by development tools, including high-performance compilers and multicore debuggers from Freescale development partners. Access to this ecosystem of Freescale and third-party tools helps reduce application development complexity and debugging/validation time during prototyping and software integration. In addition, the Qorivva powertrain portfolio is now supported by a new eTPU compiler, debugger and simulator, helping to lower customer development costs and providing them with a tool for creating advanced engine timer software.

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[1] http://www.freescale.com