Freescale: World's most advanced powertrain microcontroller, helping drive auto industry to 55 MPG

November 14 2012

Freescale Semiconductor today announced the new Qorivva MPC5777M multicore microcontroller (MCU), the latest advancement in its extensive Qorivva product line. This advanced MCU family will help automakers worldwide address regional automotive fuel economy and safety trends by providing outstanding performance for a new generation of engine management solutions.

Automakers are under increasing pressure from both governments and consumers to improve overall fuel efficiency across their fleet (e.g. the US goal is expected to be 54.5 MPG by 2025) and lower polluting emissions. This is achieved by increasingly tight computerized control of the complete engine combustion process.

With new fuel choices, and increasing safety demands primarily driven by electric vehicles, automakers need innovation and creativity to address increasingly complex powertrain platforms. As a pioneer and leader in the powertrain market, Freescale is anticipating these needs and continues to increase collaboration with automotive OEMs and tier one suppliers around the world, developing a suite of controllers that will power vehicles beyond 2025.

The Qorivva MPC5777M will help address these needs by powering traditional diesel and gasoline direct injection systems as well as hybrid electric and plug-in electric vehicles. The MPC5777M MCU provides

three times the performance of Freescale's Qorivva MPC5674F MCU, which has the highest official performance benchmark score in the industry. By harnessing this level of performance, automakers can simultaneously improve fuel economy and lower emissions. The MCU, with its smart on-chip partitioning, allows virtually instantaneous switching between high-performance and low-power operations, reducing the load on an increasingly complex vehicle electrical system.

"As the global powertrain market continues to evolve, Freescale is working hard to anticipate our customers' needs by providing the value and capabilities required for future engine control developments," said Ray Cornyn, vice president of Global Marketing for Freescale's Automotive MCU business. "The Qorivva MPC5777M device, along with our recently announced MCU for electronic braking systems at Continental, demonstrates Freescale's leadership in the most advanced areas of automotive electronics."

Functional safety and security are becoming increasingly important to automakers and system suppliers. The MPC5777M is the newest Freescale SafeAssure functional safety solution and has been defined and developed from the ground up to address the ISO 26262 standard. The MPC5777M allows functional safety technology and ASIL-D compliance to be included in this new generation of powertrain controller and several key features have been included in hardware to help developers create safe solutions.

With the tremendous amount of data streaming through today's vehicles, security has become a necessity for automakers to protect their control systems from software attacks. The MPC5777M MCU offers a hardware security module (HSM), which can prevent a hacker from taking control of the engine control unit. In addition, tamper detection protects against unauthorized code changes, power modifications and emissions tampering, which can lead to potentially critical damages to

the automotive systems.

To help customers bring their designs to market more quickly, Freescale provides comprehensive enablement solutions for powertrain development, including comprehensive software libraries and reference solutions with full software and hardware integration. Freescale also offers an extensive suite of advanced development tools from partners such as Green Hills and Lauterbach.

Provided by Freescale Semiconductor