Target Applications
• 1–4-cylinder gasoline direct injection engines
• Entry-level diesel engines
• Entry-level transmission

Overview
The Qorivva MPC563xM is Freescale’s first 32-bit, 90 nm powertrain MCU family built on Power Architecture® technology designed for up to 4-cylinder engines. It not only offers enhanced powertrain functionality, such as on-chip emission control, but addresses cost constraints for 32-bit powertrain applications. If you are currently using 16-bit solutions for powertrain, the Qorivva MPC563xM enables you to go beyond 16-bit capabilities with a family that offers up to 1.5 MB of flash, 111K of total SRAM and up to 80 MHz of CPU performance.

Go Green by Reducing Knock
• On-chip knock system makes tight emission control affordable and allows a three to five percent improvement of economy and power
• Power and memory size allow fast development of “clean sheet” solutions to meet emissions legislation
• No active external components required for on-chip knock system through variable on-chip gain and sensor bias
• Same integrated components can be used for a patented sensor diagnostics scheme that meets on-board diagnostics

Ease of Use
• Offers a 144-pin quad flat package (QFP) option. QFP has visible pins, making it easier to assemble and inspect since infrared and X-ray technology is not required
• Microsecond bus enabled for connecting ASIC with the Qorivva MPC563xM family

Mitigates Supply Risk
• The Qorivva MPC563xM family of devices offers dual-sourced solutions, enabling you to design applications with confidence that the supply will be there

Improves Performance
• Combination of hardware decimator and DMA can lead to a savings of up to five percent of the CPU load
• eTPU and I/O configured to handle electronic manual transmissions (paddle flap) applications where up to four brushless DC motors are used
• Offers 32 eTPU2 channels to handle complex timer applications and offload the CPU

Helps Save Cost
• Requires only one linear power supply (5V)
• Compatibility with existing Qorivva MPC5500 family allows code sharing and cost reduction of existing solutions into these new markets
Qorivva MPC563xM Key Features

- e200z3 core, built on Power Architecture technology, up to 80 MHz
- Single instruction/multiple data (SIMD) module for DSP and floating point operations
- Variable length encoding (VLE) capability to help reduce code footprint by up to 30 percent for improved code density and reduced memory requirements
- Family includes 768 KB, 1 MB and 1.5 MB flash memory options with ECC
- Up to 111 KB SRAM
- 32-channel eTPU2 to handle complex timer applications and offload the CPU
- Up to 34-channel dual analog-to-digital converter (ADC) with differential channels and input variable gain amplifiers
- 2 x FlexCAN compatible with TouCAN, 64 + 32 buffers
- 2 x eSCI
- 2 x DSPI (16 bits wide) up to six chip selects each with continuous mode mode, DMA and microsecond bus channel (MSC) support
- Die temperature sensor
- 32-channel enhanced DMA controller
- 191 source interrupt controller
- Nexus IEEE-ISTO 5001-2003 Class 2+ (eTPU2 Class 1)
- Single 5V power supply with internal regulator supporting 3.3V
- Frequency modulating phase-locked loop (FMPLL)
- 100 LQFP, 144 LQFP, 176 LQFP, 208 MAPBGA and VertiCal Calibration System package options

Learn More: For current information about the Qorivva MPC563xM family, please visit freescale.com/Qorivva.