



Power Architecture® 32-bit MCU Fact Sheet

Qorivva MPC5554 Family

For engine management applications

Target Applications

- Multipoint fuel injection control
- Electronically controlled transmissions
- Direct diesel injection
- Gasoline direct injection
- Avionics
- High-end motion control
- Military
- Heavy industries

Overview

The Qorivva MPC5554 32-bit embedded controller built on Power Architecture® technology is ideal for any application that requires complex, real-time control. It offers system performance of up to five times that of its MPC500 predecessors while providing the reliability and familiarity of Power Architecture technology. The Qorivva MPC5554 MCU helps you face the dual pressures of controlling costs while designing for increasingly complex applications. This high-performance MCU delivers more on-chip functionality than the MPC500 family, the largest amount of embedded flash offered from Freescale to date, enhanced timer systems and a peripheral set specifically tailored for automotive and industrial applications. The Qorivva MPC5554 MCU also offers a migration path from the market-leading MPC500 family of 32-bit MCUs, facilitating reuse of legacy software architectures.

MPC5554: Qorivva 32-bit MCU for Powertrain Applications

GPIO	JTAG	NEXUS	
2x CAN	3x DSPI	32-ch. eTPU	
1x 40-ch. ADC	2x eSCI	19 KB SRAM	
24-ch. eMIOS	32-ch. DMA		
1 MB Flash	64 KB SRAM		
SPE	e200z6	MMU	16-bit External Bus



The e200z6 Core

- High-performance 132 MHz 32-bit Book E-compliant core built on Power Architecture technology
- Memory management unit (MMU) with 32-entry fully associative translation lookaside buffer
- Signal processing extension (SPE): DSP, SIMD and floating point capabilities

Memory

- 2 MB of embedded flash memory with error correction coding (ECC) and read while write capability
- 64 KB on-chip static RAM with ECC
- 32 KB of cache (with line locking) that can be configured as additional RAM

System

- Two enhanced time processor units (eTPUs) with 64 input/output (I/O) channels and 19 KB of designated SRAM
- 64-ch. enhanced direct memory access controller
- Interrupt controller capable of handling 308 selectable-priority interrupt sources
- Frequency modulated phase-locked loop to assist in electromagnetic interference management
- MPC500-compatible external bus interface
- Nexus IEEE-ISTO 5001™ Class 3+ multicore debug capabilities
- 5/3.3 V IO, 5 V ADC, 3.3/1.8 V bus, 1.5 V core
- 416-pin PBGA package
- Temperature range: -40 °C to +125 °C
- Optional temperature range: -55 °C to +125 °C

Input/Output

- 40-ch. dual enhanced queued analog-to-digital converter (eQADC)—up to 12-bit resolution and up to 1.25 ms conversions, six queues with triggering and DMA support
- Four deserial serial peripheral interface (DSPI) modules—16 bits wide up to six chip selects each
- Three controller area network (CAN) modules with 64 buffers each
- Two enhanced serial communication interface (eSCI) modules
- 24-ch. enhanced multiple I/O system (EMIOS) with unified channels

Benefits

Excellent System Performance

Book E superscalar compliant with the Power Architecture core includes integrated DSP features and upgraded interrupt control.

Cost Effectiveness

Integrates more functionality on chip. Functions previously performed in external analog hardware have been moved into software.

Flexibility

Supports multiple protocols and customer requirements through intelligent subsystems.

Scalability and Compatibility

Core- and platform-based architecture enables simple derivative development. Leverages past engineering investments and existing knowledge of Power Architecture technology to create a solid migration path for MPC500 users.

Ease of Use

5 V interfaces to allow use of legacy sensor and I/O systems.

Development Support

A comprehensive suite of hardware and software development tools for the Qorivva MPC5554 MCU is available to help simplify and speed system design. Development support is available through leading independent tool vendors, providing compilers, debuggers, simulation environments, as well as more advanced or specific development tools. In addition to the standard evaluation kit that comes with the CodeWarrior compiler offering, Green Hills Software and iSYSTEM both provide individual evaluation kits to offer a uniquely catered out-of-box experience.

Committed to you for the long run, Freescale understands your top priority: design higher performance products in less time and at a reduced total cost. The Qorivva MPC55xx family enables you to buy as much, or as little performance as you need to help meet your product development goals. Its migration path from the MPC500 family means time and resources already invested in the Power Architecture instruction set architecture won't be wasted.

For more information about the MPC5554 or the MPC55xx family, visit freescale.com/Qorivva

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