

Qorivva MPC5553 Family

Targeted at mid-range engine management applications and industrial uses cases requiring complex, real-time control, the Qorivva MPC5553 is a 32-bit microcontroller that offers 1.5 MB of flash, 64 KB SRAM, FEC and up to 132 MHz of performance. The Qorivva MPC5553 helps you face the dual pressures of controlling costs while designing for increasingly complex applications. The Qorivva MPC5553 offers a migration path from the market-leading MPC500 family of 32-bit MCUs, facilitating reuse of legacy software architectures.

Applications

- Multi-point fuel injection control
- Electronically controlled transmissions
- Direct diesel injection (DDI)
- Gasoline direct injection (GDI)
- Avionics
- High-end motion control
- Military
- Heavy industries

Features

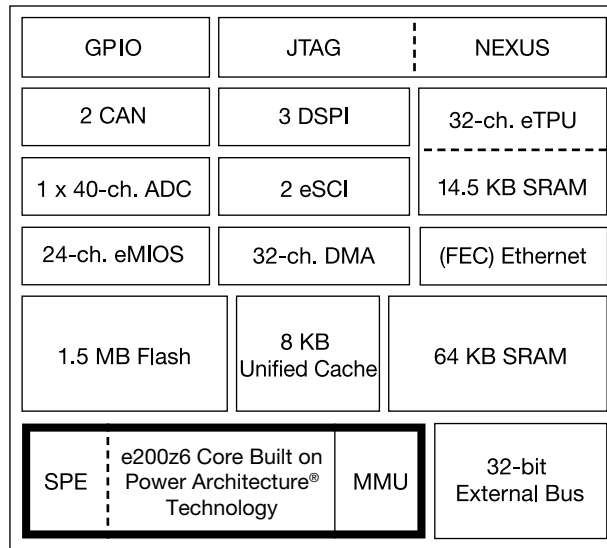
Freescale's e200z6 Core

- 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 (TLB)
- Signal processing extension (SPE): DSP, SIMD and floating point capabilities

Memory

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

Qorivva MPC5553 Block Diagram



System

- An enhanced time processor unit (eTPU) with 32 I/O channels and 14.5 KB of designated SRAM
- 32-ch. enhanced direct memory access (eDMA) controller
- Interrupt controller (INTC) capable of handling 212 selectable-priority interrupt sources
- Frequency modulated phase-locked loop (FMPLL) to assist in electromagnetic interference (EMI) management
- MPC500 compatible external bus interface
- Nexus IEEE-ISTO 5001™ Class 3+ multicore debug capabilities
- 5/3.3V IO, 5V ADC, 3.3V/1.8V bus, 1.5V core
- 416-pin PBGA, 324-pin PBGA and 208 MAPBGA packages
- Temperature range: -40°C to +125°C
- Optional temperature range: -55°C to +125°C

I/O

- 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
- Three deserial serial peripheral interface (DSPI) modules—16 bits wide up to six chip selects each
- Two 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 PowerPC architecture knowledge to create a solid migration path for MPC500 users

Ease of use

5V 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 MPC5553 is available to help simplify and speed system design. Development support is available through leading independent tools vendors providing compilers, debuggers, simulation environments, as well as other more advanced or specific development tools. In addition to the standard evaluation kit which 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 MPC5500 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.

Learn More

For more information about the Qorivva MPC5553, the Qorivva MPC55xx family and the services and support available for them, visit freescale.com/Qorivva.

For more information, please contact your local Freescale sales office.

Learn More: For more information about Freescale Qorivva products, please visit freescale.com/Qorivva.



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