Qorivva MPC5561 Microprocessor
Developed for advanced driver assistance systems applications

The Qorivva MPC5561 is a 32-bit microprocessor built on Power Architecture® technology. Containing the Book E-compliant core with variable-length encoding (VLE) and a FlexRay™ network controller, the Qorivva MPC5561 microprocessor is ideal for advanced driver assistance systems using radar or image sensors. It offers superior computation and signal processing capabilities, while bringing you the reliability and familiarity of proven Power Architecture technology. The Qorivva MPC5561 helps you face the dual pressures of controlling costs while designing for increasingly complex applications. This high-performance MCU is based on the proven Qorivva MPC5500 platform and a peripheral set specifically tailored for advanced automotive safety systems.

Applications
- Adaptive cruise control
- Blind spot detection
- Pre-crash systems
- Chassis management
- Occupant detection
- Driver alertness
- Autonomous vehicles

Features

The Freescale e200z6 Core
- High-performance 132 MHz 32-bit Book E-compliant core with VLE built on Power Architecture technology
- Single instruction multiple data (SIMD) module for DSP and floating point capabilities

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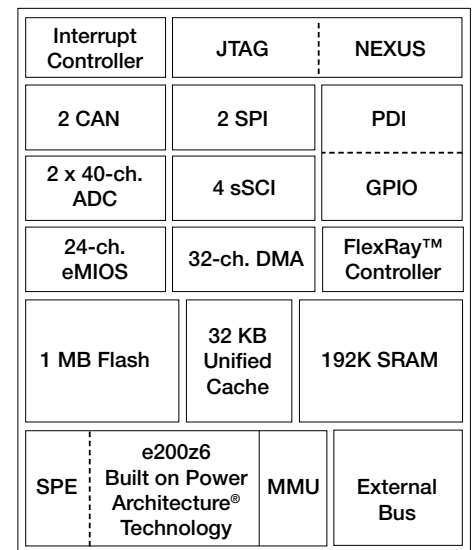- 32 KB of cache (with line-locking) that can be configured as additional RAM

System
- High-speed sensor interface
- Integrated FlexRay controller
- Crossbar architecture for efficient data flow
- 32-ch. enhanced direct memory access controller with advance scatter/gather
- Interrupt controller capable of handling 281 selectable-priority interrupt sources
- Frequency modulated phase-locked loop to assist in electromagnetic interference management
- Nexus IEEE-ISTO 5001™ Class 3+ multicore debug capabilities
- 5/3.3V IO, 5V ADC, 3.3V/1.8V bus, 1.5V core
- 324-pin plastic ball grid array (PBGA) package
- Temperature range: -40ºC to +125ºC

I/O
- 20-ch. dual enhanced queued analog-to-digital converter—up to 12-bit resolution and up to 1.25 ms conversions, six queues with triggering and DMA support
- Two deserial serial peripheral interface (DSPI) modules—16 bits wide and up to six chip selects each
- Two FlexCan modules compatible with TouCAN
- Four enhanced serial communication interface (eSCI) modules
- 24-ch. enhanced multiple I/O system with unified channels

Qorivva MPC5561 Block Diagram

Interrupt Controller	JTAG	NEXUS
2 CAN	2 SPI	PDI
2 x 40-ch. ADC	4 sSCI	GPIO
24-ch. eMIOS	32-ch. DMA	FlexRay™ Controller
1 MB Flash	32 KB Unified Cache	192K SRAM
SPE / e200z6 Built on Power Architecture® Technology	MMU	External Bus

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Benefits

FlexRay Controller
Dual-channel FlexRay support for reliable high-speed communication.

Excellent System Performance
Book E superscalar-compliant core with Power Architecture technology 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 Power Architecture technology knowledge from our broad portfolio of MPC5500 devices used in powertrain, body and chassis applications.

Ease of Use
Direct interface for high-speed ADC and CMOS image sensors. Optimized signal processing library takes advantage of SIMD processing engine.

Development Support
A comprehensive suite of hardware and software development tools for the Qorivva MPC5561 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 other more advanced or specific development tools.

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 shared platform and peripheral set with the Qorivva MPC5500 family maximizes code and tools reuse, which enables the development of a more reliable product in less time.

Learn More: For more information about the Qorivva MPC5561, the Qorivva MPC55xx family and the services and support available for them, visit us at **freescale.com/Qorivva**.

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