



Power Architecture® 32-bit Microcontroller Fact Sheet

# Qorivva MPC5565 Microcontroller

## Powertrain at the high-end offering 2 MB flash

### Overview

Targeted at mid-range engine management applications and industrial use cases requiring complex, real-time control, the Qorivva MPC5565 is a 32-bit microcontroller with 2 MB of flash, 80 KB of SRAM and up to 132 MHz of performance.

### Product Benefits

- Up to 132 MHz processing performance
  - Equates to five times the system performance of its MPC500 predecessors
- Variable length encoding (VLE) to improve code density up to 30 percent over the classic PowerPC® technology

- Pin and code compatible with other members of the Qorivva MPC5500 family of scalable powertrain controllers
  - Allows for easy migration up to the industry's first 3 MB flash embedded controller for next-generation applications
  - Performs a critical function as the need for increased fuel efficiency and improved emissions continues to rise
- Facilitates reuse of legacy software architectures
- Enhanced timer processing (eTPU) offloads complex control, I/O and timing requirements

### Applications

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

### Specification Overview

Device	Core Platform	Program Flash	SRAM	DMA	EEPROM	SCI	DSPI	CAN	External Bus	Nexus	PWM	ETPU	eMOS Module	I/O	ADC	Voltage	Temp. Range	Frequency Range
MPC5565	Power e200z6	2 MB	80 KB	32-ch.	Emulated in program flash	2	3	3	√	3	24-ch.	32-ch.	24-ch., 24-bit	192	1-ch. x 40-ch., 12-bit	3.3V and 5V	M	80–132 MHz

M = -40°C to +125°C

## Features

- e200z6 Core
  - High-performance 132 MHz 32-bit Book E-compliant core built on Power Architecture® technology with VLE
  - Memory management unit 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
  - 80 KB on-chip static RAM with ECC
  - 8 KB of cache (with line-locking) that can be configured as additional RAM
- System
  - eTPU with 32 I/O channels and 14K of designated SRAM
  - 32-channel enhanced direct memory access controller
  - Interrupt controller capable of handling 339 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 > 5/3.3V IO, 5V ADC, 3.3V/1.8V bus, 1.5V core
  - 324-pin PBGA and 208 MAPBGA packages
  - Temperature range: -40°C to +125°C
- I/O
  - 40-channel dual enhanced queued analog-to-digital converters—each with up to 12-bit resolution and up to 1.25 us conversions, six queues with triggering and direct memory access support
  - Three deserial serial peripheral interface modules—16 bits wide up to six chip selects each
  - Three controller area network modules with 64 buffers each
  - Two enhanced serial communication interface modules
  - 24-channel enhanced multiple I/O system with unified channels

### 32-bit Automotive Tools for Qorivva MPC5565

Part Number	Description
CWS-MPC-5500B-CX: CodeWarrior MPC55xx (Build Only Edition)	This is a “compiler and build tools” version only. CodeWarrior tools range from individual products and services to tools that help migrate to Freescale’s Qorivva MPC5500 family.
CWS-OSK-5500-DV: OSEK Development Set for Freescale MPC5500 Family	This small, fast, reliable, scalable real-time operating system provides a valuable set of services that can be leveraged by your embedded application.
RAppID: Rapid Application Initialization and Documentation	This family of graphical development tools for the Qorivva MPC5xxx family of controllers is built on Power Architecture technology that enables you to easily configure the controller plus generate complete documentation.
MPC55xxEVB: MPC55xx Evaluation Board	Kits include everything necessary to begin development with the Qorivva MPC55xx family of microcontrollers.
MPC55xxEVBGHS: MPC55xx Green Hills Software Evaluation Kit	As our most comprehensive family solution today, the GMIRT-EVAL-MPC55xx evaluation kit is a complete development system for quickly developing an embedded design with the Qorivva MPC55xx product family.
MPC55xxEVBISYS: MPC55xx iSYSTEM Evaluation Kit	iSYSTEM, partnering with several other software vendors, has created a comprehensive suite of hardware and software development tools including the iSYSTEM IONE USB-JTAG MODULE.

**Learn More:** For more information about our Power Architecture-based products and part numbers, please visit [freescale.com/Qorivva](http://freescale.com/Qorivva).



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