



Power Architecture® 32-bit Microcontroller Fact Sheet

Qorivva MPC5566 Microcontroller

The industry's largest embedded flash array

Overview

Designed for high-end engine management applications or industrial use that requires complex real-time control, the Qorivva MPC5566 is a 32-bit microcontroller with 3 MB of flash, 128 KB of static random access memory (SRAM), fast Ethernet controller (FEC) and performance up to 144 MHz.

Product Benefits

- Up to 144 MHz processing performance
 - Equates to five times the system performance of its MPC500 predecessors
- Variable length encoding to improve code density up to 30 percent over classic PowerPC® technology
- Full read-while-write (RWW) capability, which provides developers with a cost-effective medium to support more sophisticated, memory-intensive timing and control functionality

- Pin and code compatible with other members of the Qorivva MPC5500 family of scaleable powertrain controllers
 - Allows 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 re-use 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

Features

- e200z6 Core
 - High-performance 144 MHz 32-bit Book E-compliant core built on Power Architecture® technology with VLE
 - Memory management unit with 32-entry fully associative translation look aside buffer
 - Signal processing extension: DSP, SIMD and floating point capabilities

Specification Overview

Device	Core Platform	Program Flash	SRAM	DMA	EEPROM	eSCI	DSPI	CAN	Ethernet (100BaseT)	External Bus	Nexus	ETPU	eMOS Module	I/O	ADC	Voltage	Temp. Range	Frequency Range
MPC5566	e200z6	3 MB	128 KB	6-ch.	Emulated in program flash	2	4	4	√	√	3	2 x 32-ch.	24-ch., 24-bit	256	1 x 40-ch., 12-bit eQADC	3.3V and 5V	C, M	80–144 MHz

C = -40°C to +85°C M = -40°C to +125°C

- Memory
 - 3 MB of embedded flash memory with error correction coding (ECC) and RWW capabilities
 - 128 KB on-chip static RAM with ECC
 - 32 KB of cache (with line-locking) that can be configured as additional RAM
- I/O
 - 88 timed I/O channels
 - 64-ch. dual ETPU
 - 24-ch. EMIOs with unified channels
 - Fast Ethernet Controller
 - MMI Interface
 - 4 x FlexCAN—compatible with TouCAN, 64 buffers each
 - 2 x eSCI
 - 4 x DSPI 16 bits wide with up to six chip selects each
 - Standard SPI with continuous mode and DMA support
 - Pin serialization (similar to PPM)
 - 40-ch. dual Dual ADC—up to 12-bit and up to 1.25 μ s conversions, six queues with triggering and DMA support
- System
 - eTPU with 64 I/O channels and 24 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+ multi-core debug capabilities
 - 5/3.3V IO, 5V ADC, 3.3V/1.8V bus, 1.5V core
 - 416-pin plastic ball grid array (PBGA) packages
 - Temperature range: -40°C to +125°C

32-bit Automotive Tools for Qorivva MPC5566

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 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.



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Document Number: MPC5566FS / REV 4

