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Power Architecture® 32-bit Microcontroller Fact Sheet

Qorivva MPC5510 Family

Dual-core 32-bit MCUs for body and gateway applications

Product Map

Device	MPC5517G	MPC5517E	MPC5517S	MPC5516G	MPC5516E	MPC5516S	MPC5515S	MPC5514G	MPC5514E
Core Platform	Power Architecture® e200z1 + e200z0	Power Architecture e200z1 + e200z0	Power Architecture e200z1	Power Architecture e200z1 + e200z0	Power Architecture e200z1 + e200z0	Power Architecture e200z1	Power Architecture e200z1	Power Architecture e200z1 + e200z0	Power Architecture e200z1 + e200z0
Program Flash	1.5 MB	1.5 MB	1.5 MB	1 MB	1 MB	1 MB	768 KB	512K	512K
SRAM	80 KB	80 KB	64 KB	64 KB	64 KB	48 KB	48 KB	64 KB	32 KB
DMA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
EEPROM	Emulated in Program Flash	Emulated in Program Flash	Emulated in Program Flash	Emulated in Program Flash	Emulated in Program Flash	Emulated in Program Flash	Emulated in Program Flash	Emulated in Program Flash	Emulated in Program Flash
eSCi	6	6, 8	6	8	6	6	6	8	6
DSPI	4	4	4	4	4	3	3	3	4
FlexCAN	6	5	4, 5	6	5	4, 5	4, 5	6	5
I^2C	1	1	1	1	1	1	1	1	1
FlexRay™	√	-	-	√	-	-	-	√	√
MediaLB for MOST	Emulated via z0	Emulated via z0	-	Emulated via z0	Emulated via z0	-	-	Emulated via z0	Emulated via z0
External Bus	√	√	√	√	√	-	-	√	√
Nexus2+	√	√	√	√	√	√	√	√	√
eMIOS Timer Module	24-ch., 16-bit	24-ch., 16-bit	24-ch., 16-bit	24-ch., 16-bit	24-ch., 16-bit	24-ch., 16-bit	24-ch., 16-bit	24-ch., 16-bit	24-ch., 16-bit
PIT Timer	8-ch., 32-bit	8-ch., 32-bit	8-ch., 32-bit	8-ch., 32-bit	8-ch., 32-bit	8-ch., 32-bit	8-ch., 32-bit	8-ch., 32-bit	8-ch., 32-bit
ADC	40-ch., 12-bit	40-ch., 12-bit	40-ch., 12-bit	40-ch., 12-bit	40-ch., 12-bit	40-ch., 12-bit	40-ch., 12-bit	40-ch., 12-bit	40-ch., 12-bit
Voltage	5V	5V	5V	5V	5V	5V	5V	5V	5V
Temp. Range	C, V, M	C, V, M	C, V, M	C, V, M	C, V, M	C, V, M	C, V, M	C, V, M	C, V, M
Frequency Range	48–80 MHz	48–80 MHz	48-66 MHz	48–80 MHz	48–66 MHz	48–66 MHz	48–66 MHz	48–80 MHz	48–80 MHz
Package Options	208 MAPBGA	144 LQFP, 208 MAPBGA, 176 LQFP	144 LQFP, 208 MAPBGA, 176 LQFP	144 LQFP, 208 MAPBGA	144 LQFP, 208 MAPBGA, 176 LQFP	144 LQFP, 176 LQFP	144 LQFP, 176 LQFP	144 LQFP	144 LQFP
Additional Information	MPU, 32 kHz RTC	MPU, 32 kHz RTC	MPU	MPU, 32 kHz RTC	MPU, 32 kHz RTC	MPU	MPU	MPU, 32 kHz RTC	MPU, 32 kHz RTC

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Qorivva

Overview

The Qorivva MPC5510 family is the first automotive 32-bit microcontroller, built on Power Architecture® technology, featuring flexible low-power modes. This high-performance MCU inherits the single cycle access flash memory and advanced peripherals from the existing Qorivva MPC5500 product families and reuses the same proven 130 nm automotive flash technology. The Qorivva MPC5510 family is supported by outstanding development tools and software support built around Power Architecture technology in automotive applications.

Applications

- Central body controller
- Gateway
- Center stack display
- Smart junction box

Product Benefits

- Enables centralized architectures which reduce the number of distributed electronic control units (ECU) and complexity of vehicle architectures
- Connects FlexRay™ nodes to the body electronics domain
- Exceeds 100 Dhrystone MIPS (DMIPS) performance
- Minimizes ECU leakages below 200 µA, depending on functionality
- Provides extensive communication capabilities, including FlexRay communications protocol, multiple CAN and LIN support
- Offers room to grow with scalable family ranging from 512 KB up to 1.5 MB of embedded flash
- Leverages Power Architecture network for third-party tools and software

Prototype Ordering Information

Part Number	Package
PPC5517GMLQ66	144 LQFP
PPC5517GMLU66	176 LQFP
PPC5517GMMG66	208MAPBGA

Development Tools Support

	Compliers	Debuggers	Simulators	Evaulation Boards	Initialization Tools
freescale semiconductor	√			√	
Green Hills Software, Inc.	√	√	√		
WIND RIVER	√	√	√		
LAUTERBACH		√	√		
I SYSTEM		√		√	
P&E		√		√	
NAMMO					√

Freescale Tools for Qorivva MPC5510

CWS-MPC-5500B-CX
CodeWarrior MPC55xx compiler (Build Only Edition)

RAppID
Rapid Application Initialization and Documentation

MPC5510KIT144
Qorivva MPC5510 evaluation kit with 144LQFP daughter card, comes with code size limited free CodeWarrior compiler and P&E debugger

MPC5510KIT208
Qorivva MPC5510 evaluation kit with 208MAPBGA daughter card, comes with code size limited free CodeWarrior compiler and P&E debugger

MPC5510DEMO
Entry-level evaluation board with embedded JTAG interface from P&E, comes with code size limited free CodeWarrior compiler and P&E debugger

144 LQFP
20 mm x 20 mm

176 LQFP
24 mm x 24 mm

208 MAPBGA
17 mm x 17 mm

Learn More: For more information about our Power Architecture-based products, please visit **freescale.com/Qorivva.**

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