



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 <sup>2</sup> C       | 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                    |

## 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

|   | Compilers | Debuggers | Simulators | Evaluation Boards | Initialization Tools |
|---|-----------|-----------|------------|-------------------|----------------------|
|                    | ✓         |           |            | ✓                 |                      |
|                    | ✓         | ✓         | ✓          |                   |                      |
| <b>WIND RIVER</b>   | ✓         | ✓         | ✓          |                   |                      |
| <b>LAUTERBACH</b>  |           | ✓         | ✓          |                   |                      |
|                    |           | ✓         |            | ✓                 |                      |
|                    |           | ✓         |            | ✓                 |                      |
|                    |           |           |            |                   | ✓                    |

### Freescale Tools for Qorivva MPC5510

#### CWS-MPC-5500B-CX

CodeWarrior MPC55xx compiler (Build Only Edition)



144 LQFP  
20 mm x 20 mm

#### 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



176 LQFP  
24 mm x 24 mm

#### MPC5510KIT208

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



208 MAPBGA  
17 mm x 17 mm

#### MPC5510DEMO

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

### Learn More:

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



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С нами вы становитесь еще успешнее!

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