



32-bit Microcontrollers

Qorivva MPC5674F Family

Revolutionizing efficient engine designs with Power Architecture® technology

Target Applications

- Powertrain engine control
- Gasoline direct injection (GDI)
- Common rail diesel injection or clean diesel
- Hybrid electric vehicles
- Knock detection
- Cylinder deactivation
- Transmission control
- Continuously variable transmission (CVT)

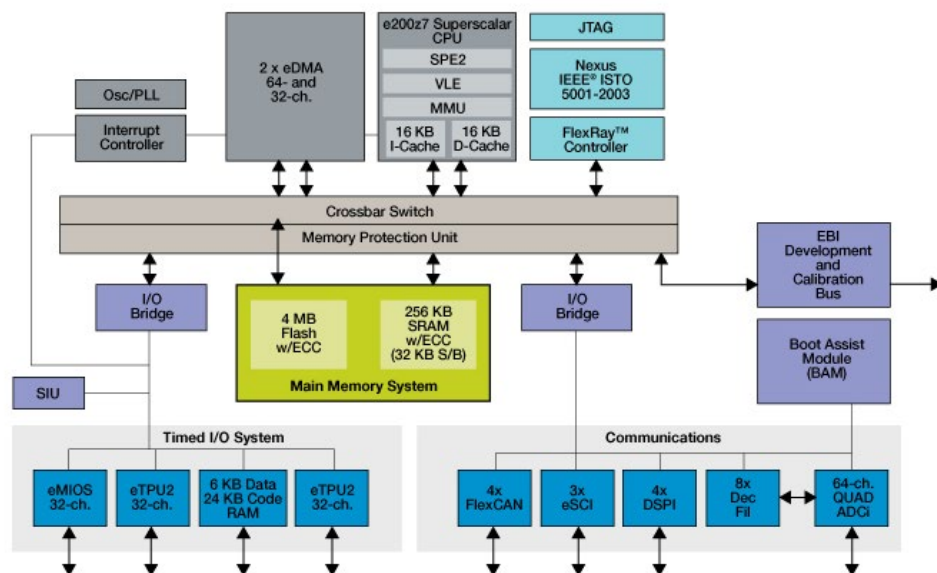
Overview

The Qorivva MPC5674F 32-bit MCU family built on Power Architecture® technology is designed to reduce time to market for efficient engines at lower costs and with higher reliability. In addition to enabling more fuel-efficient automobiles and the MPC5674F helps designers to meet stricter government-mandated emissions standards by enabling precise control of engine events without sacrificing performance.

The Qorivva MPC5674F MCU has a 264 MHz clock speed, 4 MB of on-chip flash, 64-channel dual timing units, quad ADCs, on-chip digital signal processing and 256 KB RAM (for data storage) that can perform knock detection without requiring additional external components.

The combination of performance, advanced signal processing capabilities and ultra-large flash memory array offered in the Qorivva MPC5674F address the growing computational demands of efficient engine designs, including common rail diesel injection systems, gasoline direct injection engines, homogenous charge compression ignition systems and hybrid electric vehicles.

Qorivva MPC5674F Block Diagram



Development Tools

XPC567XKIT416-PT
(416 PBGA evaluation board)

XPC567XKIT516-PT
(516 PBGA evaluation board)

MPC5674FXMB
(MPC5674F universal main board)

MPC5674ADAT324
(324 PBGA adapter card, to be used with MPC567XEVBMB main board)

XPC567XADAT-PT4
(416 PBGA adapter card, to be used with MPC567XEVBMB main board)

XPC567XADAT-PT5
(516 PBGA adapter card, to be used with MPC567XEVBMB main board)

Package Options

| Part Number | Temperature Ranges | Package |
|-----------------|--------------------|---|
| SPC5674FF3MVY3 | -40 °C to +125 °C | 516 PBGA package (Pb free) |
| SPC5674FF3MVY3R | -40 °C to +125 °C | Tape and reel version of 516 PBGA package (PB free) |
| SPC5674FF3MVR3 | -40 °C to +125 °C | 416 PBGA package (Pb free) |
| SPC5674FF3MVR3R | -40 °C to +125 °C | Tape and reel version of 416 PBGA package (PB free) |
| SPC5674FF3MVZ2 | -40 °C to +125 °C | 324 PBGA package (Pb free) |
| SPC5674FF3MVZ2R | -40 °C to +125 °C | Tape and reel version of 324 PBGA package (PB free) |
| SPC5674FF3MVV3 | -40 °C to +125 °C | 516 PBGA package (SnPb) |
| SPC5674FF3MVV3R | -40 °C to +125 °C | Tape & Reel version of 516 PBGA package (SnPb) |
| SPC5673FF3MVR3 | -40 °C to +125 °C | 416 PBGA package (PB free) |
| SPC5673FF3MVV2 | -40 °C to +125 °C | 516 PBGA package (SnPb) |
| SPC5673FF3MVV2R | -40 °C to +125 °C | Tape and reel version of 516 PBGA package (SnPb) |
| SPC5673FF3MVY2 | -40 °C to +125 °C | 516 PBGA package (PB free) |

Features

| Features | Benefits |
|---|---|
| <ul style="list-style-type: none">e200z7 core built on Power Architecture® technology at 264 MHzSIMD module for DSP and floating point operationsVariable length encoding | <ul style="list-style-type: none">600 DMIPS from 264 MHz core with integrated DSP capability allows users to enable virtual sensors and eliminate many external ICsThe capability to reduce code footprint by up to 30 percent for improved code density and reduced memory requirements |
| <ul style="list-style-type: none">4 MB flash memory w/ECC | <ul style="list-style-type: none">Generous memory supports autocode generation and modeling tools that speed time to market |
| <ul style="list-style-type: none">256 KB SRAM w/ECC64-channel dual eTPU2 | <ul style="list-style-type: none">Extra RAM to meet next-generation requirementsPrecise engine timersUsing complex timers to monitor systems results in precisely controlled fuel delivery and improved gas mileage |
| <ul style="list-style-type: none">64-channel quad analog-to-digital converter (ADC) | <ul style="list-style-type: none">Allows independent and simultaneous conversions 12-bit ADC offers <1 us conversions |
| <ul style="list-style-type: none">Dual-channel FlexRay™ controller4 x FlexCAN | <ul style="list-style-type: none">Capable of up to 10 Mb/s bandwidthCompatible with TouCAN, 64 buffers each |
| <ul style="list-style-type: none">3 x eSCI4 x DSPIMicrosecond bus support | <ul style="list-style-type: none">Microsecond bus supportSupports LIN/J260216 bits wide with up to six chip selects each |
| <ul style="list-style-type: none">Hardware decimators | <ul style="list-style-type: none">Used to minimize DSP calculations and reduce CPU load by up to five percent by leveraging the DMA as an anti-knock filter |
| <ul style="list-style-type: none">On-chip regulator for standby voltageNexus 3+ support | <ul style="list-style-type: none">Saves system costSophisticated debug capability |
| <ul style="list-style-type: none">416-pin PBGA package516-pin PBGA package (with expanded bus option)324-pin PBGA package | <ul style="list-style-type: none">Offers significant I/O and access to external memory or ASICs |

For more information, visit freescale.com/Qorivva



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