

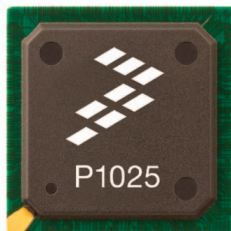


QorIQ Multicore Processor Development

## QorIQ P1025 Reference Design Board

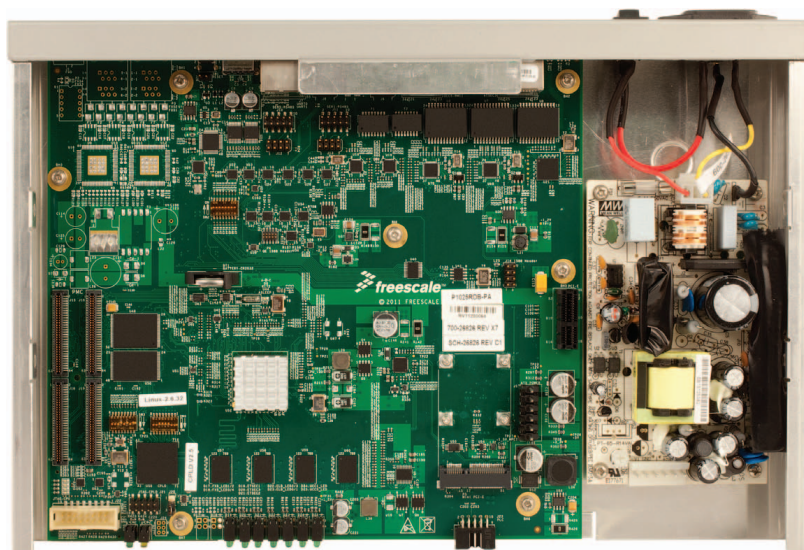
### Overview

The QorIQ P1025 reference design board (RDB) can accelerate your time to market for products targeting the networking, telecom, aerospace and defense and industrial markets. This cost-effective, highly integrated board is based on the QorIQ P1025 dual-core processor and features a broad array of modern connectivity options to help you quickly design, test and launch your application.



The P1025RDB features the dual-core P1025 processor and offers support for the single-core P1016 processor. The P1025 processor family is based on the e500 core, built on Power Architecture® technology, with a core frequency range of 400–667 MHz, and supports L1 32 KB instruction and data cache as well as a shared 256 KB frontside L2 cache. The P1025 supports three Gigabit Ethernet controllers with IEEE® 1588 v2 support, dual USB 2.0, up to two PCI Express® 1.0a controllers, up to two SGMII SerDes interfaces, 32-bit DDR with ECC support, a SPI controller supporting boot from SPI serial flash memory, an SD/MMC card controller supporting boot-from-flash cards, an integrated security engine and a QUICC Engine module supporting UTOPIA-L2, four T1/E1/HDLC and two additional 10/100 Ethernet interfaces.

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The P1025 RDB features 1 GB unbuffered DDR3 SDRAM, 16 MB NOR flash and 32 MB NAND flash, with the ability to boot from either NOR or NAND flash memory. The reference design board includes a built-in security accelerator and QUICC Engine for multiprotocol support. It also supports three Gigabit-capable ports via an SGMII PHY and two RGMII PHYs, two 10/100 Mb/s Ethernet ports, as well as two ports of USB 2.0, two 10-pin RJ45 RS485 ports and PMC connectors.

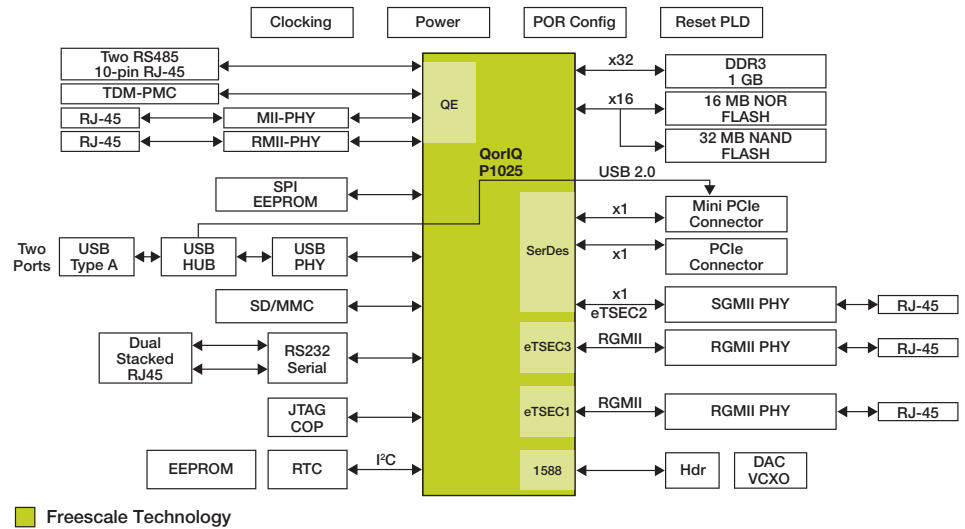
The P1025RDB features two PCI Express ports, one a full size add-in connector, the other a mini PCI Express connector. In addition, the P1025RDB also provides a combination SD/MMC card slot. These components, integrated with the P1025, provide a highly versatile development platform that allows you to jump start your next design. In addition, the P1025RDB provides a simplified migration path for an existing PowerQUICC processor customer wishing to migrate to QorIQ multicore processors. Customers who only require single-core processing or lower power can migrate to the P1016 as a stepping stone on their way to multicore processing.

Along with hardware support, the P1025RDB comes with a board support package (BSP) that includes both u-boot and Linux® 2.6 operating system support. The platform is also supported by third-party software applications. To see demonstrations or to acquire details of our third-party applications for this platform, please contact your local Freescale or distributor sales office.

## Board Features

- Memory
  - 1 GB DDR3
  - 16 MB NOR flash memory
  - 32 MB NAND flash memory
  - 16 MB SPI ROM
  - 256 KB M2456 I<sup>2</sup>C EEPROM

## QorIQ P1025 Reference Design Block Diagram



- PCI Express interconnects
  - One standard PCI Express connector (x1)
  - One mini PCI Express connector (x1)
- Ethernet
  - Three 10/100/1000 ports
    - One RGMII PHY connected to eTSEC1
    - One SGMII PHY connected to eTSEC2
    - One RGMII PHY connected to eTSEC3
  - Dual 10/100Base-T Ethernet ports for QUICC Engine module
    - One MII PHY connected to UEC1
    - One RMII PHY connected to UEC5
- USB 2.0 port
  - ULPI PHY interface: SMSC USB3300 USB PHY and Genesys Logic's GL850A USB2.0 HUB controller with four downstream ports
  - Two USB 2.0 Type A receptacles
  - One USB 2.0 signal to mini PCI express slot
- System integration
  - Dual I<sup>2</sup>C
  - SD/MMC card slot
  - Mini AB connectors on I/O panel (default)
  - UARTs
  - IEEE 1588 signals for test and measurement
  - Two 10-pin RJ45 RS485 ports
- Board connectors
  - Open frame power supply connector
  - JTAG/COP for debugging
  - PMC connector
  - UMI (PLC) connector
- Mini-ITX form factor
  - 170 mm x 170 mm
  - 6-layer PCB routing (4-layer signals, 2-layer power and ground)
- Lead-free (ROHS), CE and FCC certification
- Software tools
  - Linux 2.6.x kernel
  - Cross compile and native GNU tool chain
  - CodeWarrior V8.8

For more information, please visit [freescale.com/QorIQ](http://freescale.com/QorIQ)

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