



QorIQ Multicore Processor Development

QorIQ P1024 Reference Design Board

Overview

The QorIQ P1024 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 P1024 processor and incorporates a broad array of modern connectivity options to help you quickly design, test and launch your application.

The QorIQ P1024RDB features the P1024 processor and supports both the dual-core P1024 or single-core P1015 configurations. The P1024 processor family is based on the e500 core, built on Power Architecture® technology, with a core frequency range of 400–667 MHz, with 32 KB L1 instruction and data cache as well as a shared 256 KB frontside L2 cache. The P1024 supports six Gigabit Ethernet controllers with IEEE® 1588 v2 support, dual USB 2.0 controllers, up to two PCI Express® 1.0a controllers, up to two SGMII SerDes interfaces, 32-bit DDR3 with ECC, SPI controller supporting booting from SPI serial flash memory, SD/MMC card controller with boot-from-flash capability and an integrated security engine.

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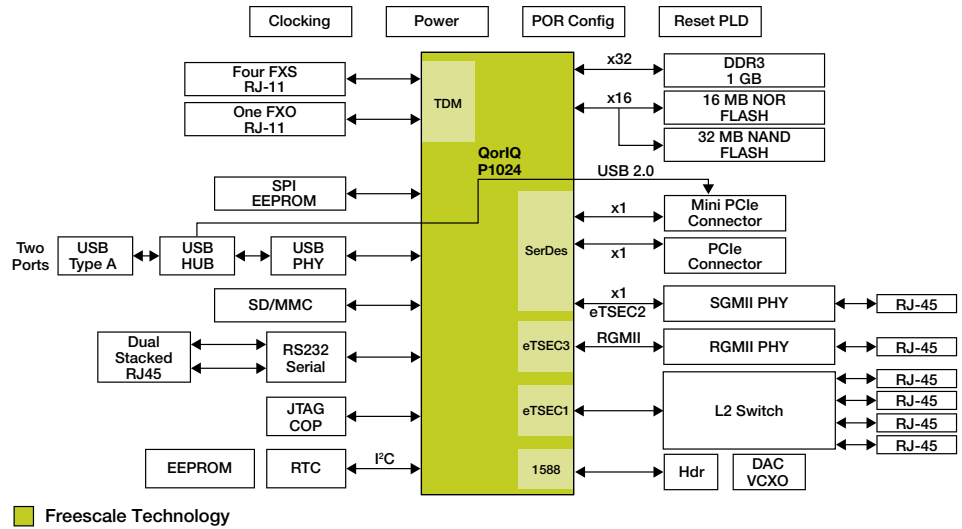


The P1024RDB features 1 GB unbuffered DDR3 SDRAM, 16 MB NOR flash and 32 MB NAND flash, with boot options. The board supports six Gigabit-capable ports, four ports from an L2 switch, one port via an SGMII PHY and one port via an RGMII PHY, as well as two USB 2.0 ports, four FXS ports and one FXO port.

The P1024RDB features two PCI Express ports, one a full-size add-in connector, the other a mini PCI Express connector. In addition, the P1024RDB also provides a combination SD/MMC card slot. These components, integrated with the P1024, provide a highly versatile development platform that allows you to jump start your next design. In addition, the P1024RDB provides a simplified migration path for existing PowerQUICC processor customers wishing to migrate to QorIQ multicore processors. Customers who only require single-core processing or lower power can migrate to the P1015 as a stepping stone on their way to multicore processing.

Along with hardware support, the P1024RDB 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 on our third-party applications, please contact your local Freescale or distributor sales office.

QorIQ P1024 Reference Design Block Diagram



Board Features

- Memory
 - 16 MB NOR flash memory
 - 32 MB NAND flash memory
 - 16 MB SPI ROM
 - 256 KB M2456 I²C EEPROM
- PCI Express interconnects
 - One standard PCI Express connector (x1)
 - One mini PCI Express connector (x1)
- Ethernet
 - Six 10/100/1000 ports
 - Four ports from L2 switch connected to eTSEC1
 - One SGMII PHY connected to eTSEC2
 - One RGMII PHY connected to eTSEC3
- USB 2.0 port
 - ULPI PHY interface: SMSC USB3300 USB PHY and Genesys Logic's GL850A USB 2.0 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 I²C
 - SD/MMC card slot
 - Mini AB connectors on I/O panel (default)
 - UARTs
 - One DB9 connector
 - Dual SLIC for FXS/FXO interfaces
 - IEEE 1588 signals for test and measurement
- Board connectors
 - Open frame power supply connector
 - JTAG/COP for debugging
- Mini-ITX form factor
 - 170 mm x 170 mm
 - Six-layer PCB routing (four-layer signals, two-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

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