

P1 Tower System Development Platform

QorIQ processors with networking and industrial connectivity and protocol offload engine options

Target Applications

- Industrial automation and drives
- Gateways, bridges and hubs
- Intelligent I/O
- Test and measurement
- Robotics
- Line card controllers
- WLAN access points
- Programmable logic controllers



QorIQ P1 Family Overview

The Freescale QorIQ P1 series communications processors are the next generation of our leading PowerQUICC platform. Designed for scalability, this product family provides the horsepower required to meet the most demanding application needs within a manageable power envelope—making them ideal for industrial networking, factory automation and telecom applications. Evaluating, developing and debugging with the QorIQ P1 processors is simple and cost effective with the Freescale Tower System development platform.

The QorIQ P1 family of communications processors delivers unprecedented performance per watt for a wide variety of applications. The family delivers I/O flexibility in dual- and single-core frequencies from 400 MHz to 1.2 GHz, along with advanced security features and a rich set of interfaces on 45 nm technology for low-power implementation. The QorIQ P1 family shares the same e500 Power Architecture® core, as well as full software compatibility with existing PowerQUICC processors.

integrated I/O controllers supporting a wide range of industrial and networking protocols and connectivity options. The I²C, UART and USB-enhanced three-speed Ethernet controllers are further enhanced by Freescale's QUICC Engine technology. The QUICC Engine is built around a dedicated 32-bit RISC processor running at 233 MHz and serves as a real-time protocol offload engine. This rich I/O superset eliminates the need for an expensive FPGA/ASIC, thereby reducing design complexity and BOM costs.

Freescale's QorIQ P1 processors deliver a superb price-to-performance blend and the flexibility and scalability to run a variety of industrial and networking applications.

TWR-P1025 Tower System

The TWR-P1025 processor module supports multiple usage scenarios. It can be used stand-alone as a development board for various applications or as a rapid-prototyping Tower System development platform.

In addition to traditional networking connectivity, industrial Ethernet and fieldbus protocols with industrial connectivity will be supported by the P1 Tower System. The cost-effective Tower System modules enable rapid prototyping of a wide range of entry-level networking and industrial applications, including WLAN, factory and building automation and protocol bridging—greatly reducing design time and accelerating time to market for customer solutions.

The dual-core P1025 processor offers an excellent combination of performance, protocol and interface support, including dual high-performance CPU cores running up to 533 MHz, a large L2 cache, a DDR3 memory controller, a PCIe controller and an array of

TWR-P1025



Figure 1. TWR-P1025

Ready-to-Use Design

The TWR-P1025 module can be ordered directly from **freescale.com** or an authorized Freescale distributor. The module includes a fully tested board, BSP software and documentation.

Key Features

- QorIQ P1025 dual-core multi-protocol communications processor
 - 2558 DMIPs
 - 533 MHz e500 processors, built on Power Architecture technology
 - QUICC Engine technology
 - 32 KB L1 instruction cache and 32 KB L1 data cache
 - DDR3 SDRAM memory controller (32/16-bit with ECC support)
 - 2x 10/100/1000 RGMII Ethernet Interfaces
- Configurations
 - Stand-alone development board
 - SoM over primary elevator connector
 - Rapid prototyping with Tower System peripheral modules
- Memory
 - 512 MB of DDR3 memory
 - 64 MB of NOR flash
 - eSDHC interface to micro SD connector
- Connectivity and features
 - Freescale silicon, including a 32-bit MPU
 - Dual RJ45 Ethernet ports
 - PCIe interfaces x1 (mini-PCIe+USB)
 - Two USB 2.0 interfaces
 - Two UART interfaces (via miniUSB)
 - One accelerometer (via I²C)
 - QUICC Engine UART header (provides RS485 connectivity via interface card)
- Debug interfaces
 - JTAG/COP debug header

Get to Know the TWR-P1025

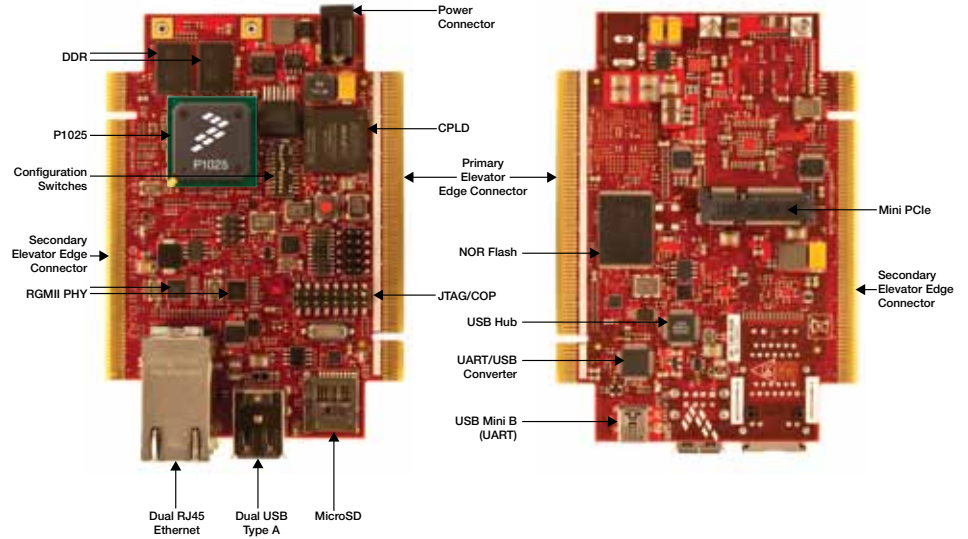


Figure 2. TWR-P1025 processor module showing connectivity support

- Package/TWR expansion options
 - eLBC supporting TWR-LCD: 3.2" QVGA LCD
 - SPI, I²C, UART and GPIO
 - QUICC Engine Ethernet (MII/RMII), UART and TDM
 - Three high-speed SerDes lanes (SGMII/PCIe)
 - Linux[®] BSP, MQX[™] RTOS and QNX[®] RTOS software support
 - Reference design (schematics, layout and BOM available)
 - Printed quick start guide and DVD with software and documentation
- Certification: FCC class B and CE

QorIQ P1 Tower System Module

Part Number	MSRP	Includes
TWR-P1025		<ul style="list-style-type: none"> • TWR-P1025 module • USB cable • Quick start guide • Interactive DVD

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