



Quick Start Guide

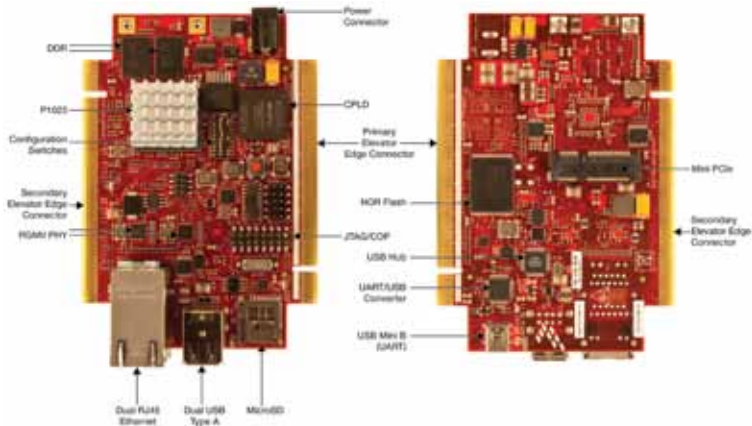
TWR-P1025

QorIQ Processor with Networking and
Industrial Connectivity and
Protocol Offload Engine



TOWER SYSTEM

Get to Know the TWR-P1025



TWR-P1025 Freescale Tower System

The TWR-P1025 module is part of the Freescale Tower System portfolio, a modular development platform that enables rapid prototyping and tool re-use through reconfigurable hardware. Elevate your design to the next level by building your Tower System today.

TWR-P1025

The TWR-P1025 processor module can be operated as a stand-alone single board computer (SBC) or a Tower System rapid prototyping development platform. Freescale's MQX™ real-time OS (shipped separately) support enables applications to quickly migrate from Freescale MCUs up to the high-performance QorIQ P1025 processor featuring networking and industrial connectivity. The P1025 also features a protocol offload engine which eliminates the need for an external industrial protocol FPGA/ASIC in the system.

Pre-Loaded Software

- U-boot bootloader
- Freescale Linux® OS with real-time patches
- Diagnostic routines to validate board functionality

Step-by-Step Installation Instructions

In this quick start guide, you will learn how to set up the TWR-P1025 module and run the included demonstration software. For more detailed information, please see the user manual found on the included DVD or at freescale.com/TWR-P1025.

1 Connect a Display (Optional)

Purchase and connect the TWR-ELEV modules and TWR-LCD display module to see a short video on example applications included with the TWR-P1025. See the TWR-LCD quick start guide for assembly instructions. The SW1 Dip[1:3] switches should be set to [ON, OFF, ON], respectively. The remaining dip switches should be at their default setting.

After applying power, wait one minute for the video to begin.

2 Powering TWR-P1025

Connect the 5-volt @5A power supply to the 5-volt barrel connector on the TWR-P1025 module. Note that the heatsink on

the TWR-P1025 can become hot. This is normal.

3 Configuring a Terminal Application for the Console

On-board circuitry has been provided to support a host computer console window over the mini type B USB connector. Users should note that USB drivers should be installed onto the host PC before the serial terminal can be used. These can be downloaded from ftdichip.com/Drivers/VCP.htm (FT2232).

Plug in the USB cable between the mini type B USB connector on the board and your PC. Do not bend the cable once it has been inserted. Your PC will assign two COM port numbers to the USB serial ports after the driver is installed.

Open a serial console using any terminal emulation application attached to the lower numbered COM port with the following serial protocol settings: **Bits per Second: 115200, Data Bits: 8, Parity: None, Stop Bits: 1, Flow Control: None.** See the user manual for more details.

4 Connecting Cables

Dual Ethernet and RS485 ports enable point-to-point networking demos on a single TWR-P1025 module. Any Ethernet cable can be connected between the Ethernet ports and the ports will auto-configure for proper communication. Auto-configure also enables a direct connection from either Ethernet port to a host computer Ethernet port. All TWR-P1025 headers have pin 1 marked with a white dot printed on the board and increasing pin numbers proceeding top to bottom, right to left from pin 1 while looking into the header pins.

For cable connections on other interfaces, refer to the user manual.

5 Controlling the Board

Upon power-up, you can also hit any key on a connected serial terminal to get to the u-boot prompt, otherwise the board will boot to the Freescale Linux OS.

You can also log in to the module via the OpenWRT interface by opening your browser to 192.168.1.1 (you will need to connect your PC LAN port to the module's Eth0 port and reconfigure your PC IP address to 198.168.1.54). The OpenWRT interface will allow for easy configuration of the module's network settings. Use the following information to log in:

Login: root
Password: root

Standard u-boot and Linux commands are supported.

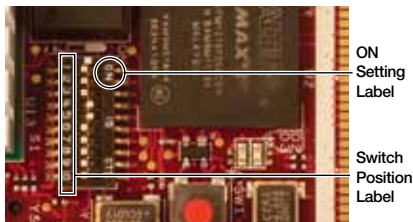
6 Debugger Interface Connections

When the board is powered off, connect the desired debugger hardware to the standard JTAG/COP header connector J3 lining up pin 1. TWR-P1025 includes on-board debugging circuitry to support CodeWarrior software to work with the board.

7 Configuration Switch Settings

See configuration switch settings on the following page.

Configuration Switch Settings



| SW ¹ | Signals ² | Settings ² | Switch ³ | Description |
|-----------------|-----------------------|-----------------------|---------------------|---|
| 1 | Reserved | 0 | ON | Reserved |
| | | 1 | OFF | |
| 2 | PCIE_HOST_AGENT | 0 | ON | PCIe Agent Mode |
| | | 1 | OFF | PCIe Host Mode |
| 3 | Reserved | 0 | ON | Reserved |
| | | 1 | OFF | |
| 4 | CFG_CPU0_1_BOOT | 0 | ON | Core0 boots, Core1 is in holdoff mode after reset |
| | | 1 | | Both cores run after reset |
| 5 | BOOT_SEQ | 1 | ON | Boot sequencer is OFF |
| | | 1 | OFF | Boot sequencer is ON |
| 6 | LOCALBUS_QE_MUXSEL | 0 | | LB pins muxed with QE function as QE pins in CPLD |
| | | 1 | OFF | LB pins muxed with QE function as LB pins in CPLD |
| 7, 8 | CPU_SPEED_SELECT[0:1] | 00 | ON, ON | 533 MHz core, 266 MHz QE, 66.667 MHz SYSCLK |
| | | 01 | ON, OFF | Reserved |
| | | 10 | OFF, ON | Reserved |
| | | 11 | OFF, OFF | Reserved |
| 9 | ETH_TDM_SEL | 0 | ON | TDM clock is routed to the P1025 thru the CPLD |
| | | 1 | OFF | Eth1 clock is routed to the P1025 thru the CPLD |
| 10 | Reserved | 0 | ON | Reserved |
| | | 1 | OFF | |

1) Switch positions as printed on the switch

2) Schematic signal settings readable from software from MSB (top-left as bit 0) to LSB (bottom-right as bit 7)

3) Switch settings as printed on the switch, factory settings highlighted red

Visit freescale.com/TWR-P1025 for the latest information on the TWR-P1025 module, including:

- Board database: Schematics, layout and BOM
- User manual
- Quick start guide
- Software BSPs, industrial protocol evaluation stacks and CodeWarrior
- Demos and tutorial
- Fact sheet

Support

Visit freescale.com/support for a list of phone numbers within your region.

Warranty

Visit freescale.com/warranty for complete warranty information.

For more information, visit freescale.com/Tower

Join the online Tower community at towergeeks.org

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