Quick Start Guide

TWR-PXD20

32-bit Power Architecture® MCU for
Quality Industrial Display Solutions

freescale

TOWER SYSTEM

Get to Know the TWR-PXD20

Primary Connector

User LEDs

Potentiometer

User Buttons

JTAG Interface

OSJTAG Interface

Secondary Connector

RGB LEDs

General-Purpose TWRPI Connector

Video Input

CAN

RS485

NEXUS Debug Connector

TWR-PXD20
Freescale Tower System

The TWR-PXD20 module is part of the Freescale Tower System portfolio, a modular development platform that enables rapid prototyping and tool re-use through reconfigurable hardware. The TWR-PXD10 can be used with a broad selection of Tower System peripheral modules, including the new TWR-LCD-RGB which accepts RGB data from the PXD20 MCU graphics LCD controller.

TWR-PXD20 Features

- MPXD2020VLU125 MCU (up to 125 MHz 32-bit e200z4d dual Issue core, five-stage pipeline, 4K I-Cache, OpenVG 2D graphics accelerator, dual graphics LCD module, 1 MB on-chip graphics SRAM, up to 1 MB on-chip flash with flash controller and video input unit)

- Interfaces to the new TWR-LCD-RGB Tower System peripheral module (accepts RGB data directly from the PXD20 LCD controller)

- MC9S08JM60 open source JTAG (OSJTAG) circuit

- Embedded Serial-to-USB converter using OSJTAG interface

- Two Spansion S25FL064P 64 MB QSPI memory

- General-purpose TWRPI socket (Tower plug-in module)

- On-board CAN transceiver

- On-board RS485 half duplex transceiver

- Two RGB LEDs for user interface

- ADV7180 video decoder for video input capabilities

- Two push buttons for user interface

- Potentiometer for ADC testing

Step-by-Step Installation Instructions

In this quick start guide, you will learn how to set up the TWR-PXD20 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-PXD20**.

1 Connect TWR-LCD-RGB

1. Locate the "secondary" elevator in the assembled Tower System kit.

2. Press the expansion connectors on the back of the TWR-LCD-RGB module onto the matching side expansion port connectors found on the outer side of the "secondary" elevator.

3. Insert the TWR-PXD20 board into the primary and secondary elevator board. The "primary" and "secondary" cards for each module are indicated along the card edges.

2 Power TWR-PXD20-KIT

Connect the TWR-PXD20 board to a computer or a wall charger using the provided USB cable. Additionally, the USB connector on the primary elevator or OSJTAG connector can be used to power up the board.

3 Follow the On-Screen Menu

The demo is using the Open VG 2D graphics accelerator to implement rotate, scale and move operations to the main object. Explore the features of the GUI demo by moving the sliders with the touch screen enabled.

Additional Software and Tools

- MQX™ RTOS

- Swell software PEG graphical user interface (GUI)

- Green Hills Software MULTI IDE

- Serial bootloader utility

- CodeWarrior V10.x Eclipse Development Studio

- OSJTAG virtual serial port using USB

- Rapid application initialization and documentation tool (RAppID)

- FreeMASTER run-time debugging tool

TWR-PXD20 Jumper Options

The following is a list of all jumper options. The default installed jumper settings are shown in white text within the blue boxes.

General Jumper Configuration

Jumper	Function
J1	Enable/Disable RGD LED 1
J2	Enable/Disable potentiometer
J5	Enable/Disable RGD LED 2
J10	Enable/Disable SW1
J11	Enable/Disable user LED 4
J12	Enable/Disable user LED 2
J13	Enable/Disable SW2
J20	Enable/Disable on-board CAN transceiver terminator resistor
J24	Enable/Disable RS485 half duplex control lines
J25	Enable/Disable RS485 half duplex control lines
J27	Enable/Disable on-board RS485 half duplex transceiver terminator resistor
J31	Enable/Disable OSJTAG interface bootloader mode

UART Configuration

Jumper	Position	Function
J22	1-2	UART0 RX is connected to RS485 transceiver
	2-3	UART0 RX is connected to UART0_RX on primary elevator
J23	1-2	UART0 TX is connected to RS485 transceiver
	2-3	UART0 TX is connected to UART0_TX on primary elevator

UART Configuration (continued)

Jumper	Position	Function
J3	1-2	UART1 RX is connected to OSJTAG
	2-3	UART1 RX is connected to UART1_RX on primary elevator
J4	1-2	UART1 TX is connected to OSJTAG
	2-3	UART1 TX is connected to UART1_TX on primary elevator

Boot Assistance Module Configuration

Jumper	Position	Function
J6	1-2	FABM is connected to VDD (BAM usage)
	2-3	FABM is connected to GND (BAM usage)
	open	PB5 is used as SPIB_SOUT
J7	1-2	ABS[0] is connected to VDD (BAM usage)
	2-3	ABS[0] is connected to GND (BAM usage)
	open	PB6 is used as SPIB_SIN

CAN Configuration

Jumper	Position	Function
J15	1-2	CAN_A_TX is connected to onboard transceiver
	2-3	CAN_A_TX is connected to CAN0_TX on primary elevator
J16	1-2	CAN_A_RX is connected to onboard transceiver
	2-3	CAN_A_RX is connected to CAN0_RX on primary elevator

Visit **freescale.com/TWR-PXD20** for the latest information on the TWR-PXD20 module, including:

- Board database: Schematics, layout and BOM
- User manual
- Quick start guide
- Software BSPs 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