LANTRONIX®

XPort® Universal Demo Board
User Guide

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Disclaimer and Revisions

Note: This product has been designed to comply with the limits for a Class B digital device pursuant to Part 15 of FCC and EN55022:1998 Rules when properly enclosed and grounded. These limits are designed to provide reasonable protection against radio interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with this guide, may cause interference to radio communications.

Changes or modifications to this device not explicitly approved by Lantronix will void the user's authority to operate this device.

The information in this guide may change without notice. The manufacturer assumes no responsibility for any errors that may appear in this guide.

Revision History

Date	Rev.	Comments
September 2009	A	Initial Release
February 2013	B	Updated part numbers.

For the latest revision of this product document, please check our online documentation at www.lantronix.com/support/documentation.html.

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1. Introduction

About this Guide

This guide provides the information needed to use the XPort and XPort Pro device servers with the Universal Demo Kit. The intended audience is the engineers responsible for integrating the XPort into their product.

Notes:

◆ *For evaluation of Evolution OS based turnkey application, one would require the XPort Universal Demo Kit (Lantronix PN: XP10010NMK-01) and a XPort Pro with Evolution OS sample (Lantronix PN: XPP100200S-01R).*

◆ *For evaluation of Linux OS based turnkey application, one would require the XPort Universal Demo Kit (Lantronix PN: XP10010NMK-01) and a XPort Pro with Linux OS sample (Lantronix PN: XPP100300S-01R).*

◆ *For evaluation of XPort Cobos OS based turnkey application, one would require the XPort Universal Demo Kit (Lantronix PN: XP10010NMK-01) and a XPort with Cobos OS sample (Lantronix PN: XP100200S-03R).*

◆ *The XPort Pro Linux SDK (Lantronix PN: XPPDK1000-LNX-01) provides hardware, development environment and sample applications for developing Linux based applications. An XPort Pro Development Board with a Background Debug Mode (BDM) connector option is included with the Linux SDK.*

◆ *The XPort Pro Evolution SDK (Lantronix PN: XPPDK1000-EVO-01) provides hardware, development environment and sample applications for developing Evolution based applications. An XPort Pro Development Board with a Background Debug Mode (BDM) connector option is included with the Evolution SDK.*

◆ *A separate USB BDM Debug Probe (Lantronix PN: 930-060-R) is available for use with the XPort Pro Linux and Evolution SDKs.*

Terminology

Demonstration (Demo) Board

The Demo board included in the XPort Universal Demonstration Kit is a circuit board that the XPort, XPort Pro, or XPort Pro Dev board would be installed on. This board has a power supply connector, UUT socket, RS-232 transceiver, and DB9 serial connector. A power supply and necessary cables are included with the Demo Board in the XPort Universal Demo Kit.

Development (Dev) Board

The XPort Pro Dev board is a single PCB version of the XPort Pro module without a mechanical housing. This PCB has all of the circuitry included in the standard XPort Pro module plus a connector for use with a USB BDM Debug Probe. The XPort Pro Dev Board is included in the XPort Pro SDKs. In addition the SDKs include the XPort Universal Demo Kit.

Additional Documentation

The following guides are available on the Lantronix website (www.lantronix.com).

Hardware Related

XPort Integration Guide	Provides information for integrating the XPort module on a customer platform.
XPort Pro Integration Guide	Provides information about the XPort Pro hardware, and integrating the XPort Pro into your product.
XPort Universal Demo Board Quick Start	Instructions for getting the XPort or XPort Pro module up and running on the demonstration board.

Software Related

XPort Pro User Guide	Provides information needed to configure, use, and update the XPort Pro Evolution firmware.
XPort Pro Command Reference	Lists and explains XPort Pro Evolution command line and XML commands.
XPort Pro Linux User Guide	Provides information needed to configure, use, and build Linux applications on the XPort Pro.
XPort User Guide	Provides information needed to configure, use, and update the XPort (-03/-04/-05) firmware.

2. Demonstration Kit

Using an XPort sample and the XPort Demonstration Kit, you can get familiar with the product and understand how to integrate the XPort into a given product design.

Contents of the Kit

The XPort Demonstration Kit contains the following items:

◆ XPort Demo Board

◆ 3.3V wall adaptor

◆ RS-232 cable, DB9F/F, null modem

Note: You must obtain an XPort sample separately for use with this Demonstration Kit.

Note: Development Kits for Evolution OS and Linux include the Demonstration Kit and the XPort Pro Dev Board (w/ BDM connector port). A USB BDM Debug Probe may be purchased separately.

Development Kit Part Numbers

|	
XP10010NMK-01	XPort Demonstration Kit
XPPDK1000-LNX-01	Linux SDK for XPort Pro including XPort Pro Demonstration Kit and XPort Pro Development board (w/BDM connector port)
XPPDK1000-EVO-01	Evolution SDK for XPort Pro including XPort Pro Demonstration Kit and XPort Pro Development board (w/BDM connector port)

Demo Board Description

The XPort Demo Board provides a test platform for the Lantronix XPort device server products, including XPort and XPort Pro. The demo board uses 3.3V power from the wall adaptor same as that of XPort. The demo board has the following features:

◆ 1 serial port with a 1Mbps RS-232 transceiver connected to a DB9 serial port connector

◆ Access to all IO signals on the XPort via header pins for measurements and connections to other places.

Demo Board Block Diagram

The following drawing is a block diagram of the XPort Demo Board showing the relationships of the components.

Figure 2-1. Demo Board Block Diagram
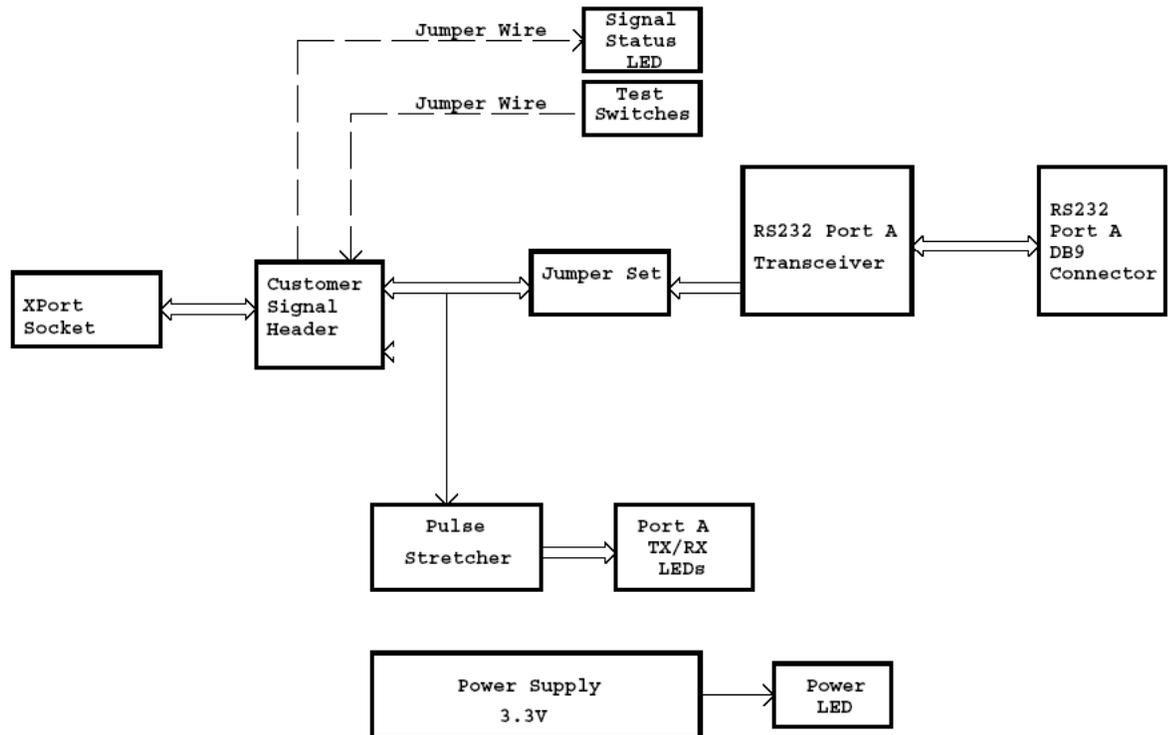
Serial Interfaces

The demo board has an RS-232 transceiver for connection to the XPort internal UART. The table below lists the RS-232 signals and corresponding pins on the demo board. All signals are level-shifted by the transceivers.

Table 2-1. RS-232 Signals on Serial Port 1

XPort Demo PIN FUNCTION	DB9 Pin #
Serial Port	CON1
TX_232 (Data Out)	3
RX_232 (Data In)	2
CTS_232 (HW Flow Control Input)	8
RTS_232 (HW Flow Control Output)	7
DTR_232 (Modem Control Output)	4
GND (Ground)	5

Power Supply

The demo board uses an external 3.3V regulated supply (included with kit).

General Control

The following tables denote the configuration of the demo board. Configuring the jumpers re-routes signals on the demo board to use as Serial control signals, or to connect to other places on target board as General Purpose IO (GPIO).

Configuration Switch Bank

Table 2-2. Demo Board JP6 Jumper Configuration for CON1

JP6 pin/Signal	JP6 pin/Signal	Function
1/TXD	2/TXD	Jumper 1-2, Send TXD to RS-232 transceiver.
3/RTS	4/RTS/CP1	Jumper 3-4, Send RTS to RS-232 transceiver. For connection to an additional RS485 transceiver, RTS would be used to drive the transceiver TX enable.
5/DTR	6/DTR/CP2	Jumper 5-6, Send DTR/CP2 to RS-232 transceiver.
7/RXD	8/RXD	Jumper 7-8, Receive RXD from RS-232/485 transceiver.
9/CTS	10/CTS/CP3	Jumper 9-10, Receive CTS from RS-232 transceiver.
11/DSR	12/NC	Jumper 11-12. Unused, auxiliary transceiver receive port.
13/DCD	14/NC	Jumper 13-14, Unused, auxiliary transceiver receive port.

Note: CP arrangement in the tables above is for demonstration purposes only. All CPs can be used as GPIOs. In XPort Pro custom applications, any CP can be assigned as any function except that only CP1 can be assigned to RTS in RS-232 mode or TX Enable in RS485 Mode, and only CP3 can be assigned to CTS in RS-232 Mode. In XPort custom applications (RS-232 mode), only CP1 can be assigned to RTS, only CP2 can be assigned to DTR, and only CP3 can be assigned to CTS.

Note: NC=Not Connected to the XPort module. These pins can be assigned as needed using jumpers.

Table 2-3. Demo Board R16 Configuration

| Pin/Signal	Pin/Signal	Function
1/3V3	2/3V3_XPort	XPort UUT power input resistor for current measurement. Resistor can be replaced by a wire loop or other resistor value for UUT power measurements

Configuration for Modem Control

By default, on this demo board, the DCD and DSR signals are not routed to the XPort module. This makes it necessary to jumper the pins in JP6 in order to route the signals to the desired CPs on the XPort module.

To be specific, if you wanted to route the serial port DCD signal to CP3 in order to take advantage of the modem control mode, you would place a jumper wire between JP6 pin 11 (the DSR signal from the serial port) to JP6 pin 10 (the CP3 pin from the XPort module).

Demo Board Layout

Figure 2-2. XPort Demo Board Layout
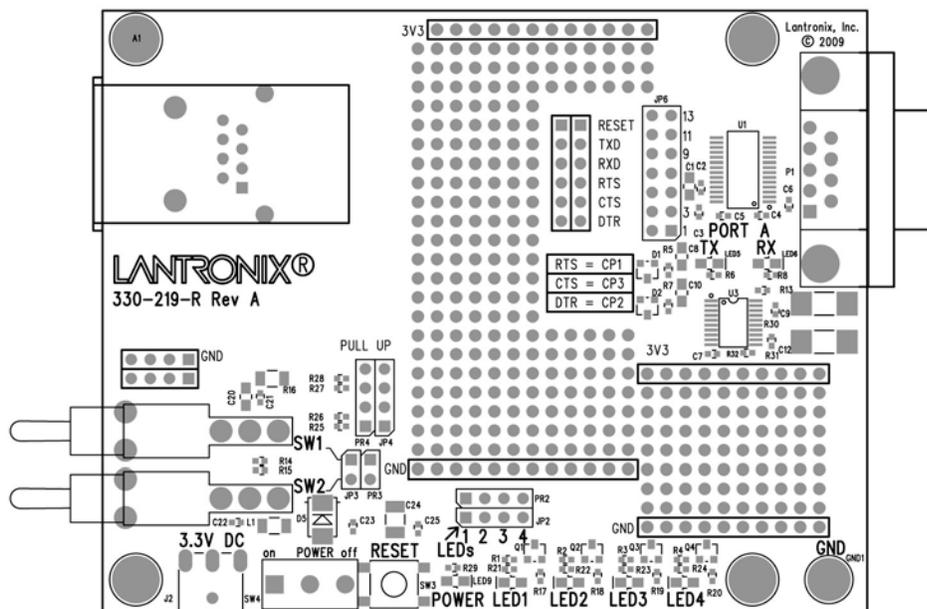
Demo Board Schematics
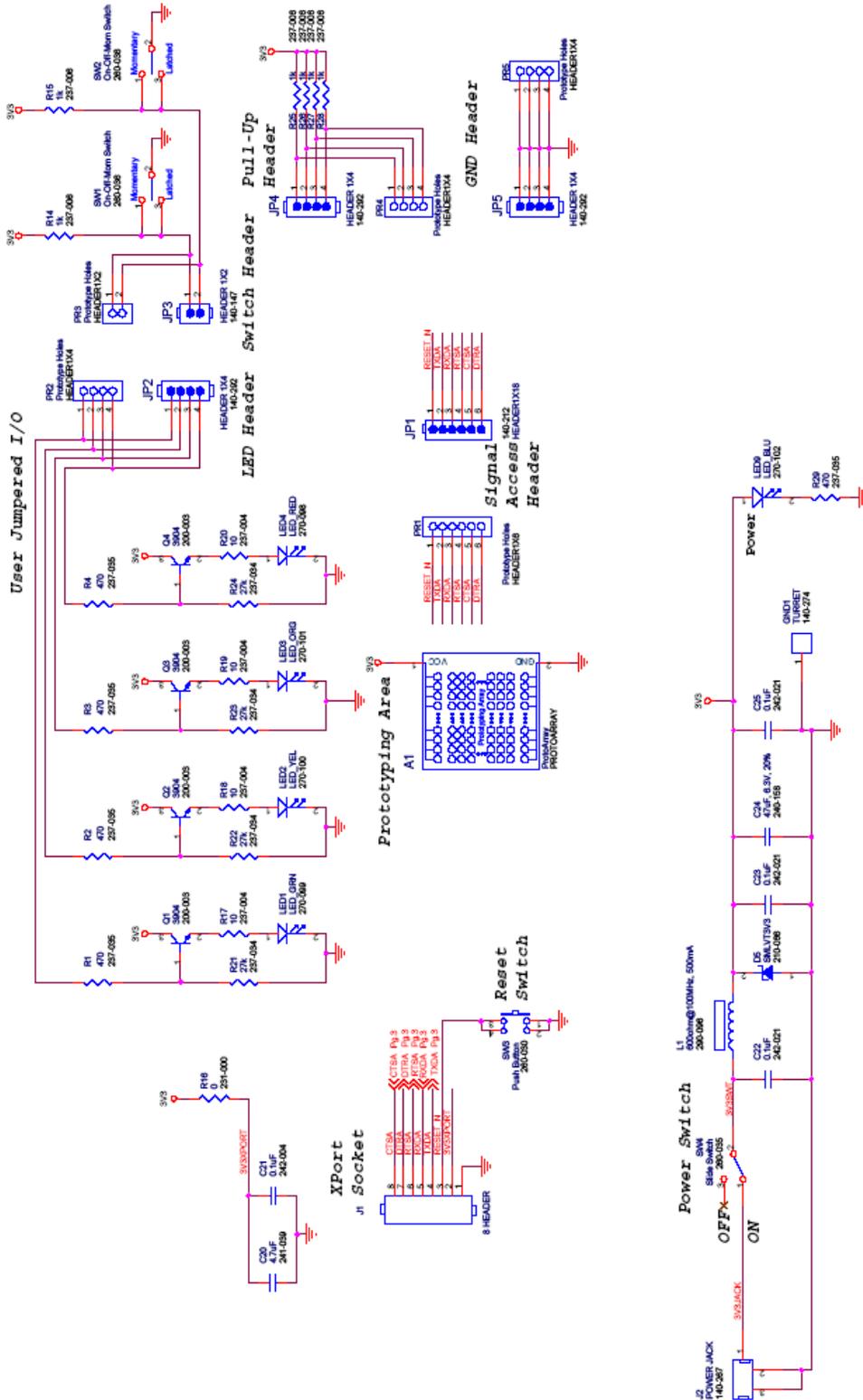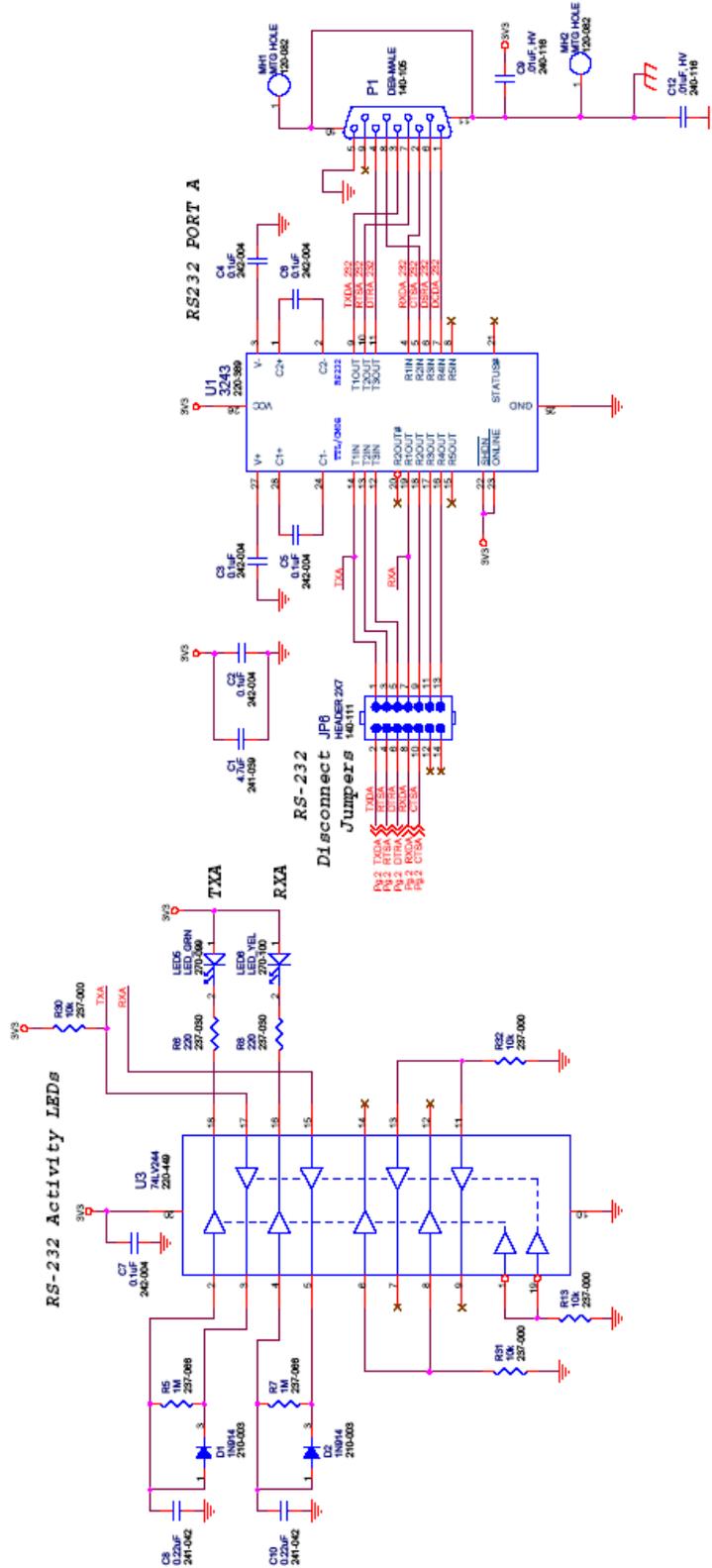
Figure 2-3. Demo Board Schematics

Figure 2-4. RS-232 Transceiver

A: Warranty

For details on the Lantronix warranty replacement policy, go to our web site at http://www.lantronix.com/support/warranty/index.html.