



## MatchPort® b/g Integration Guide

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## Disclaimer



This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- ◆ Reorient or relocate the receiving antenna.
- ◆ Increase the separation between the equipment and receiver.
- ◆ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ◆ Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device is intended only for OEM Integrators. The OEM integrator should be aware of the following important issues.

### Labeling of the End Product

The label on the end product incorporating the MatchPort b/g module must clearly state that it contains an FCC-approved RF module. For example, "This product contains an RF transmitter ID# (put FCC or IC module grant number here)." The actual grant number is on the MatchPort b/g label.

### **RSS-GEN Sections 7.1.4 and 7.1.5 Statement for Devices with Detachable Antennas**

This device has been designed to operate with the antennas listed in the Certificate, and having a maximum gain of 5 dBi. Antennas not included in this list or having a gain greater than 5 dBi are strictly prohibited for use with this device, unless system-level FCC approval is gained. The required antenna impedance is 50 ohms.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication.

#### **Integration Note**

a) This module is authorized under limited module approval specified to mobile host equipment. So, the antenna must be installed such that 20cm is maintained between the antenna and users.

b) The transmitter module may not be co-located with any other transmitter or antenna.

As long as the two conditions above are met, further transmitter testing will not be required. However, the OEM integrator is still responsible for testing their end product for any additional compliance requirements required with this module installed (for example, digital device emission, PC peripheral requirements, etc.)

**Note:** *In the event that these conditions cannot be met (for example certain laptop configurations, general purpose PCMCIA or similar cards, or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product (including the transmitter) and obtaining a separate FCC authorization.*

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

### **Revision Table**

| <b>Date</b>   | <b>Rev.</b> | <b>Comments</b>  |
|---------------|-------------|--|
| March 2007    | A           | Initial Draft  |
| June 2007     | B           | Updated content related to demo board jumper configuration, recommended operating conditions, technical specifications and the PCB interface signal. |
| June 2008     | C           | Updated the RoHS table, configuration switch bank, and tolerance information.  |
| December 2011 | D           | Updated absolute maximum ratings and recommended supply voltage information.   |

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# 1: Introduction

## About the Integration Guide

This guide provides the information needed to integrate the MatchPort b/g device server within another product. The intended audiences are the engineers responsible for integrating the MatchPort b/g into their product.

## Additional Documentation

The following guides are available on the product CD and the Lantronix Web site ([www.lantronix.com](http://www.lantronix.com))

|   |   |
|---|---|
| <b><i>MatchPort b/g<br/>Demonstration Kit Quick<br/>Start Guide</i></b> | Briefly explains the basics to get the MatchPort b/g up and running.                  |
| <b><i>MatchPort b/g User Guide</i></b>                                  | Provides information needed to configure, use, and update the MatchPort b/g firmware. |

## 2: Description and Specifications

The MatchPort b/g wireless embedded device server is a complete network-enabling solution based on the IEEE 802.11b/g wireless standard, with 802.11i (PSK), WPA, and WEP capabilities. MatchPort b/g allows Original Equipment Manufacturers (OEMs) to add wireless connectivity to their products by incorporating it onto a circuit board with minimal engineering.

The MatchPort b/g functions independently of a PC, providing an integrated solution that combines a processor, memory, 802.11b/g transceiver, a 10/100 Mbps Ethernet transceiver, and two high-speed serial ports into a single compact module. It includes a wireless connection, an operating system, an embedded Web server, and a full TCP/IP protocol stack. In addition, the MatchPort b/g sends email alerts and supports numerous other network communication protocols, including ARP, UDP, TCP, ICMP, Telnet, AutoIP, DHCP, HTTP and SNMP.

### MatchPort b/g Overview

The MatchPort b/g contains Lantronix's own DSTni controller with 256 Kbytes of internal zero wait state SRAM and 16 Kbytes of boot ROM.

The MatchPort b/g also contains the following:

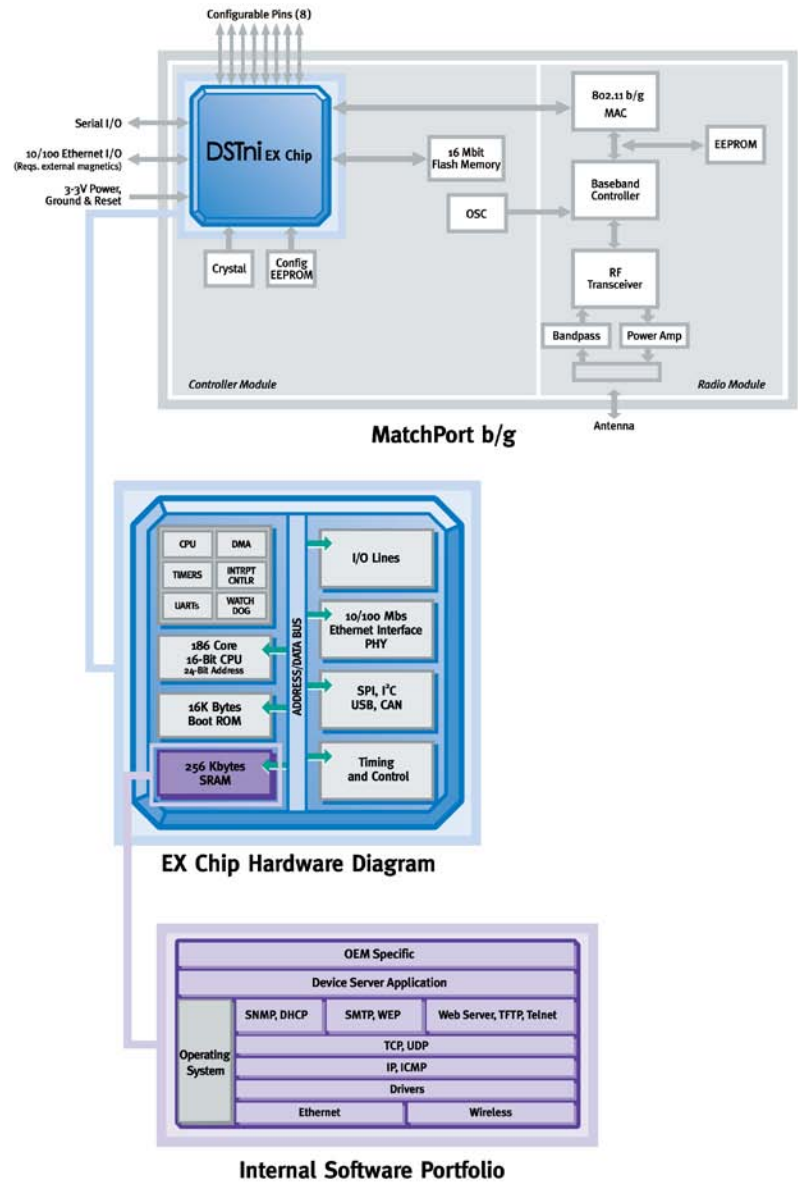
- ◆ Two 3.3 volt, CMOS level, asynchronous serial interfaces (5 volt tolerant)
- ◆ Support for RS-232 and RS-485 up to 921 Kbps
- ◆ 16 Mbit flash memory
- ◆ 26 (low), 48 (regular), 88 (high) MHz clock
- ◆ 802.11b/g interface
- ◆ 10/100 Mbps Ethernet transceiver (requires external magnetics and RJ45)
- ◆ 8 configurable pins

The MatchPort b/g requires +3.3-volt power and is designed to operate within a temperature range of -40°C to +70°C.

## MatchPort b/g Block Diagram

The following drawing is a block diagram of the MatchPort b/g showing the relationships of the components.

Figure 2-1. MatchPort b/g Block Diagram





## PCB Interface

Table 2-1. PCB Interface Signals

| Pin # | Name      | Function  | Pin # | Name     | Function  |
|-------|-----------|---|-------|----------|---|
| 1     | Reset IN# | Active low Reset. Min reset input 2 ms. Leave floating if unused. | 2     | GND      | Signal Ground                                   |
| 3     | NC        | No Connect  | 4     | NC       | No Connect                                      |
| 5     | TXD1      | Transmit data output (logic level), port 0                        | 6     | TX+      | Ethernet TX+                                    |
| 7     | RTS1      | Request to Send output (logic level), port 0                      | 8     | TX-      | Ethernet TX-                                    |
| 9     | RXD1      | Receive data input (logic level), port 0                          | 10    | TXCT     | Ethernet TX center tap                          |
| 11    | CTS1      | Clear to Send input (logic level), port 0                         | 12    | RXCT     | Ethernet RX center tap                          |
| 13    | CP1       | Configurable pin  | 14    | RX+      | Ethernet RX+                                    |
| 15    | CP2       | Configurable pin  | 16    | RX-      | Ethernet RX-                                    |
| 17    | CP3       | Configurable pin  | 18    | ELED1    | Ethernet Link (active low)                      |
| 19    | CP4       | Configurable pin  | 20    | ELED2    | Ethernet Activity (active low)                  |
| 21    | TXD2      | Transmit data output (logic level), port 1                        | 22    | WLAN LED | Wireless LAN status LED output (4mA) Active low |
| 23    | RTS2      | Request to Send output (logic level), port 1                      | 24    | NC       | No connect                                      |
| 25    | RXD2      | Receive data input (logic level), port 1                          | 26    | NC       | No connect                                      |
| 27    | CTS2      | Clear to Send input (logic level), port 1                         | 28    | RES      | Reserved for future use                         |
| 29    | CP5       | Configurable pin  | 30    | RES      | Reserved for future use                         |
| 31    | CP6       | Configurable pin  | 32    | NC       | No connect                                      |
| 33    | CP7       | Configurable pin  | 34    | NC       | No connect                                      |
| 35    | CP8       | Configurable pin  | 36    | NC       | No connect                                      |
| 37    | 3.3V      | 3.3V power input  | 38    | NC       | No connect                                      |
| 39    | GND       | Signal Ground   | 40    | NC       | No connect                                      |

**Note:** For all the configurable pins, see the MatchPort b/g User Guide for selectable functions.

## Mating Connector

MatchPort can be soldered directly to the PCB using the footprint shown in Figure 2-10. If a socket is required, two 2 mm 20-pin sockets spaced 1.42" apart can be used (e.g., Samtec P/N SMM-120-02-S-S-TR).

An antenna connection is made via the U.FL style connector on the MatchPort. Lantronix offers two cable options, reverse-SMA to U.FL (P/N 500-180-R) or U.FL to U.FL (P/N 500-181-R).

Figure 2-2. Reverse-SMA to U.FL (P/N 500-180-R)

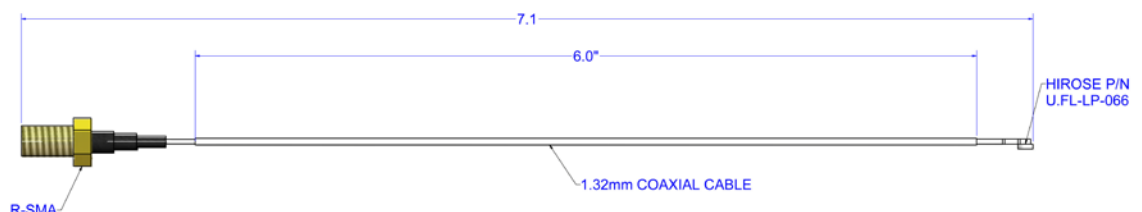
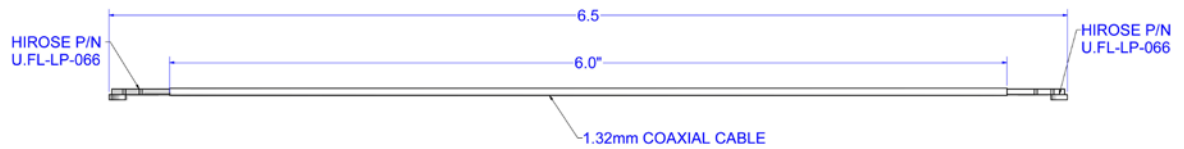


Figure 2-3. U.FL to U.FL Cable (P/N 500-181-R)



**Note:** The antenna cable is included in the MatchPort b/g sample. For production, it can be purchased from Lantronix or a cable supplier.

## Serial Input/Output

The unit has two serial ports compatible with RS232 serial standards at data rates up to 921 Kbps. The serial I/O signals are 3.3V CMOS logic level and pins are 5V tolerant. Serial signals connect to the OEM CPU/UART. For evaluation and prototype work, it is convenient to have an external RS-232 interface that can connect to the serial port on a PC. The MatchPort Demo Board has RS-232/422/485 transceivers to implement this external interface.

If desired, use the CPs to create a DTE or DCE-style interface using any three available CPs. To create these interfaces, connect the signals according to Table 2-2 and Table 2-4.

**Note:** CPx, and CPy are any of the available CPs.

Table 2-2. RS232 Connections

| MatchPort b/g  |                         | DCE Connector |      | DTE Connector |     |      |        |
|----------------|-------------------------|---------------|------|---------------|-----|------|--------|
| Signal (Logic) | Description             | DB9           | DB25 | Signal        | DB9 | DB25 | Signal |
| RxDx           | Data In                 | 2             | 3    | RxDx          | 3   | 2    | TxDx   |
| TxDx           | Data Out                | 3             | 2    | TxDx          | 2   | 3    | RxDx   |
| RTSx           | H/W Flow Control Output | 7             | 4    | RTSx          | 8   | 5    | CTSx   |
| CTSx           | H/W Flow Control Input  | 8             | 5    | CTSx          | 7   | 4    | RTSx   |
| CPx            | Modem Control Input     | 1             | 8    | DCDx          | 4   | 20   | DTRx   |
| CPy            | Modem Control Output    | 4             | 20   | DTRx          | 1   | 8    | DCDx   |

Table 2-4. JP6 RS422/485 Connections

| MatchPort b/g Signal (logic) | Description  | RS485 Signal | JP6 Pin | DB25 4 Wire | DB25 2 Wire | DB9 4 wire | DB9 2 wire |
|------------------------------|--------------|--------------|---------|-------------|-------------|------------|------------|
| TXD1                         | Data Out     | TX+485       | 4       | 14          | 14          | 7          | 7          |
| TXD1                         | Data Out     | TX-485       | 3       | 15          | 15          | 3          | 3          |
| RXD1                         | Data In      | RX+485       | 2       | 21          | 14          | 2          | 7          |
| RXD1                         | Data In      | RX-485       | 1       | 22          | 15          | 8          | 3          |
| RTS1                         | TX Enable    |              |         |             |             |            |            |
| CP3                          | RS485 Select |              |         |             |             |            |            |
| CP4                          | RS485 2-wire |              |         |             |             |            |            |

Table 2-3. JP9 RS-422/485 Connections

| MatchPort<br>b/g Signal<br>(logic) | Description   | RS-485<br>Signal | JP9<br>Pin | DB25<br>4<br>Wire | DB25<br>2<br>Wire | DB9<br>4 wire | DB9<br>2 wire |
|------------------------------------|---------------|------------------|------------|-------------------|-------------------|---------------|---------------|
| TXD2                               | Data Out      | TX+485           | 4          | 14                | 14                | 7             | 7             |
| TXD2                               | Data Out      | TX-485           | 3          | 15                | 15                | 3             | 3             |
| RXD2                               | Data In       | RX+485           | 2          | 21                | 14                | 2             | 7             |
| RXD2                               | Data In       | RX-485           | 1          | 22                | 15                | 8             | 3             |
| RTS2                               | TX Enable     |                  |            |                   |                   |               |               |
| CP7                                | RS-485 Select |                  |            |                   |                   |               |               |
| CP8                                | RS-485 2-wire |                  |            |                   |                   |               |               |

## Sample Layouts for RS-485 Connectivity

Figure 2-4. Combined RS-232/422 Transceiver

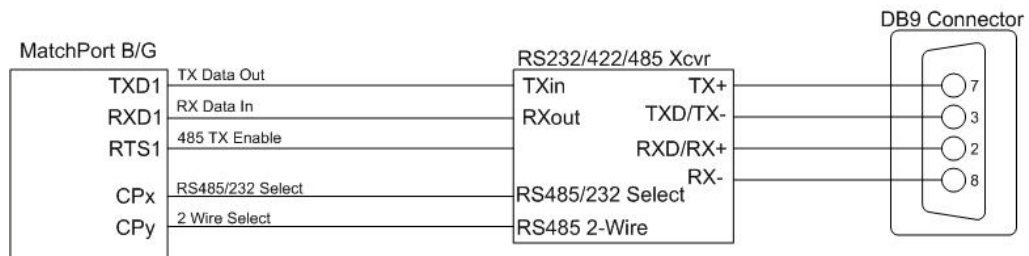


Figure 2-5. Separate RS-232/422 Transceivers

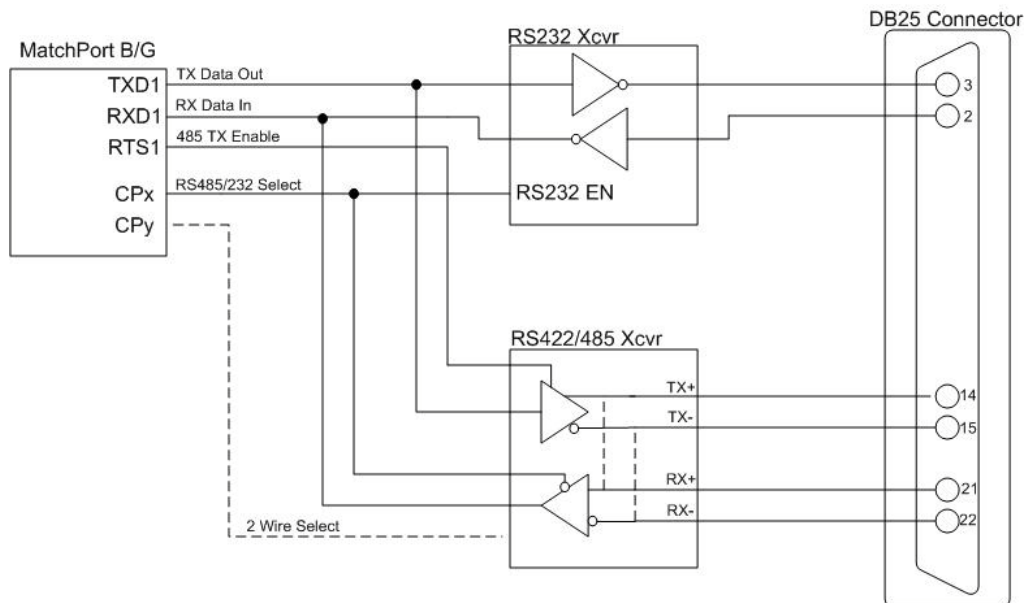
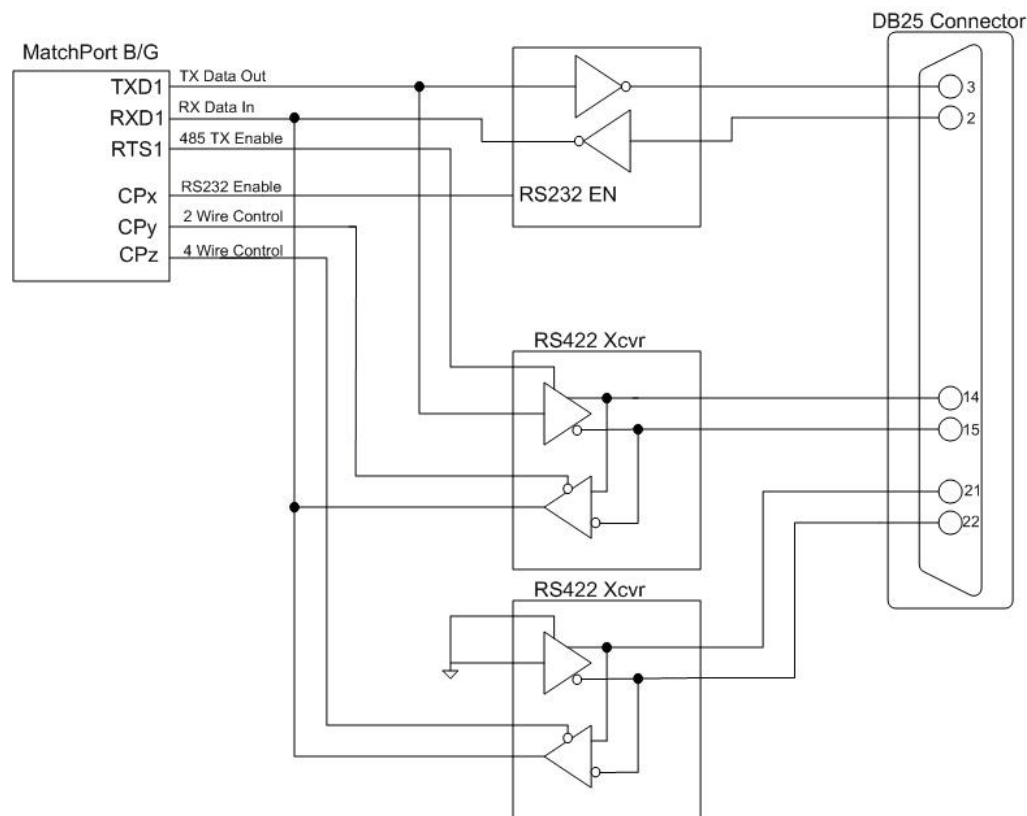


Figure 2-6. Separate RS-422 Transceivers for 2-Wire and 4-Wire Setups



## WLAN Input/Output

The following table displays the WLAN LED functions.

Table 2-4. WLAN Signals

| Pin Number | Pin Function |
|------------|--------------|
| 22         | WLAN LED     |

### MatchPort b/g

Output WLAN LED can be used to drive an external LED to monitor the activity of the radio. The output is active when the receiver and or transmitter are on. The output is active low and can drive an LED with 10mA. The LED shall be connected between the output and 3.3V with a series resistor of 220 ohm.

**Note:** If you have questions or concerns, please contact Lantronix Technical Support at (800) 422-7055 (US only) or (949) 453-7198.

If power management is disabled, and when the unit is associated with a network, the receiver will always be on and thus any LED output, that indicates the receiver or transmitter being on will be active continuously.

## Power, Ground, and Reset

Table 2-5. Power, Ground, and Reset Pins

| Power  | Ground | Reset |
|--------|--------|-------|
| Pin 37 | Pin 2  | Pin 1 |
|        | Pin 39 |       |

Driving the Reset In line low resets the MatchPort b/g. Minimum reset pulse width is 2 ms at IIL = -500uA.

## Absolute Maximum Ratings

Table 2-6. Absolute Maximum Ratings

| Parameter             | Min   | Max | Units |
|-----------------------|-------|-----|-------|
| Supply Voltage        | 3.135 | 3.6 | V     |
| Input Voltage         | -0.5  | 6   | V     |
| Output Voltage        | -0.5  | 6   | V     |
| Operating Temperature | -40   | 70  | °C    |
| Storage Temperature   | -40   | 85  | °C    |

## Recommended Operating Conditions

The following table illustrates the optimal and recommended operating conditions for the MatchPort b/g device.

Table 2-7. Operating Conditions, Serial Ports, & Configurable Pins

| Parameter  | Min   | Typical   | Max      | Units |
|--|-------|-----------|----------|-------|
| Supply Voltage   | 3.135 | 3.3       | 3.45     | V     |
| Voltage Ripple   |       |           | 2        | %     |
| VIL Input Low Voltage*                                 | -0.3  |           | 0.8      | V     |
| VIH Input High Voltage*                                | 2     |           | 5.5      | V     |
| II Input Leakage Current*                              |       | +/- 10 nA | +/- 1 µA |       |
| VOL Output Low Voltage @ IOL max*                      |       |           | 0.4      | V     |
| VOH Output High Voltage @ IOH max*                     | 2.4   |           |          | V     |
| TXDx, RTSx IOL<br>Low Level Output Current @ VOL 0.4V  | 2.2   | 3.5       | 4.3      | mA    |
| CP1-CP8 Low Level Output Current<br>@ VOL 0.4V         | 4.4   | 7.1       | 8.5      | mA    |
| TXDx, RTSx IOH<br>High Level Output Current @ VOH 2.4V | -3.2  | -6.4      | -10.0    | mA    |
| CP1-CP8 IOH<br>High Level Output Current @ VOH 2.4V    | -3.2  | -6.4      | -10.0    | mA    |

\* For UART and CP pins

## Wireless Specifications

Refer to the following table for the MatchPort b/g's wireless specifications:

**Table 2-8. Wireless Specifications**

| Category              |                                  | IEEE 802.11b/g   |
|-----------------------|----------------------------------|--|
| Frequency Range       |                                  | 2.400 – 2.484 GHz  |
| Output Power          |                                  | 14 +2.0/- 1.5 dBm 1, 2, 5.5, 11 Mbps<br>12 +/- 1.5 dBm 6, 9, > 12 Mbps                   |
| Antenna Connector     |                                  | 1  |
| Data Rates            |                                  | 1,2,5.5,11,6,9,12,18,24,36,48,54 Mbps  |
| Radio                 | Number of Selectable Subchannels | US 1-11<br>CA 1-11<br>JP 1-14<br>FR 10-13<br>SP 10-11<br>OT 1-13 (OT=Others)             |
|                       | Modulation                       | DSSS,DBPSK,DQPSK,CCK, OFDM, 16QAM, 64QAM   |
|                       | Antenna Connector                | 1  |
| Security              |                                  | WEP 64/128,WPA, WPA2/802.11i   |
| Maximum Receive Level |                                  | -10 dBm (with PER < 8%)  |
| Receiver Sensitivity  |                                  | -69 dBm for 54 Mbps<br>-88 dBm for 11 Mbps<br>-85 dBm for 6 Mbps<br>-91 dBm for 1.0 Mbps |
| WLAN LED Current      |                                  | Max: 10 mA   |

## Technical Specifications

Table 2-9. Technical Specifications

| Category                            | MatchPort b/g   |
|-------------------------------------|---|
| CPU, Memory                         | Lantronix DSTni-EX 186 CPU, 256 KB zero wait state SRAM<br>2048 KB Flash, 16 KB Boot ROM  |
| Firmware                            | Upgradeable via TFTP and serial port  |
| Reset Circuit                       | Reset In is low active. Minimum reset pulse width is 2 ms at IIL = -500 $\mu$ A   |
| Serial Interface                    | CMOS (Asynchronous) 3.3V - level signals<br>Speed software selectable (300 bps to 921 Kbps)   |
| Serial Line Formats                 | 7 or 8 data bits, 1-2 Stop bits, Parity: odd, even, none  |
| Modem Control                       | DTR, DCD  |
| Flow Control                        | XON/XOFF (software), CTS/RTS (hardware), none   |
| Network Interface                   | 802.11b/g, Ethernet 10Base-T or 100Base-T (auto sensing) (Ethernet with external magnetics and RJ45)  |
| Protocols Supported                 | ARP, UDP, TCP, Telnet, ICMP, SNMP, DHCP, BOOTP, Auto IP, HTTP, SMTP, TFTP   |
| Management                          | Internal web server, SNMP (read only)<br>Serial login, Telnet login, DeviceInstaller software   |
| Internal Web Server                 | Serves web pages<br>WEB storage capacity: 1.2 MB  |
| Distance                            | Up to 328 feet Indoors  |
| Average Power Consumption (at 3.3V) | <b>Wireless Mode Associated</b><br>850 mW (Reg performance. Data transfer at 230 Kbps.)<br>740 mW (Low performance. Data transfer at 230 Kbps.)<br>350 mW (Regular performance. No data transfer.)<br>250 mW (Low performance. No data transfer.)<br>1360 mW (High performance bridging mode) |
| Peak Supply Current (at 3.3V)       | 360 mA (Reg performance, 230 Kbps data transfer, Wireless mode); (550 mA high performance bridging mode)  |
| Security                            | Password protection, locking features, 64/128 bit WEP, WPA, 802.11i (PSK)   |
| Weight                              | 14g   |
| Cover Material                      | ABS   |
| Temperature                         | Operating range: -40°C to +70°C<br>Storage range: -40°C to +85°C (-40°F to 185°F)   |
| Warranty                            | 2-year limited warranty   |
| Included Software                   | Windows™ 98/NT/2000/XP based Device Installer configuration software and Windows™ based Com Port Redirector, DeviceInstaller, and Web-Manager.  |

## Dimensions

The MatchPort b/g dimensions are shown in the following diagrams. All tolerances  $\pm .005$ in unless otherwise noted.

**Figure 2-7. Side Views**

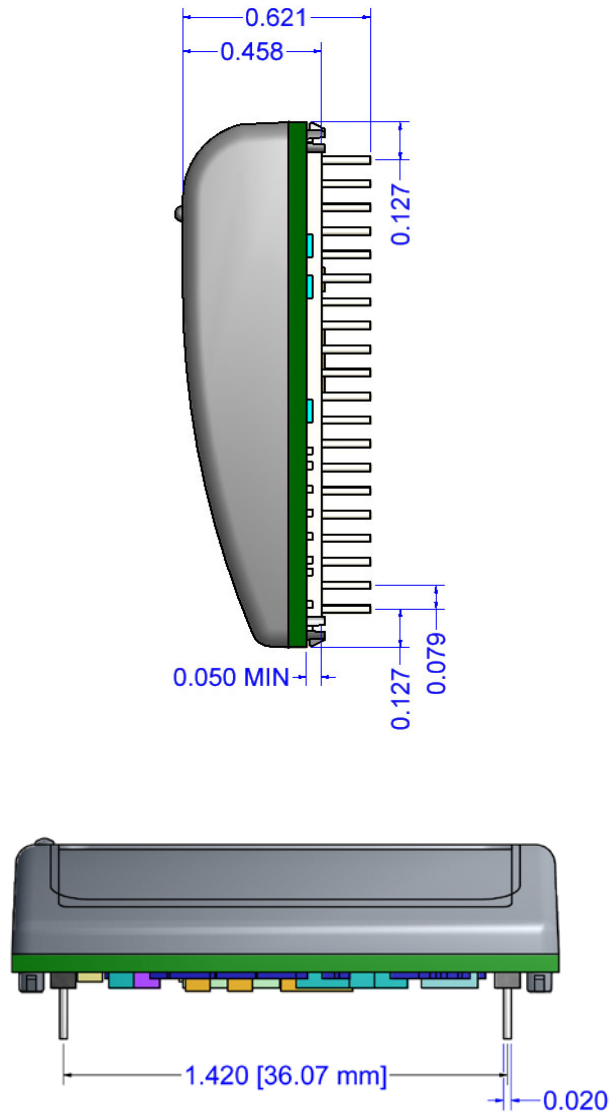




Figure 2-8. Top View

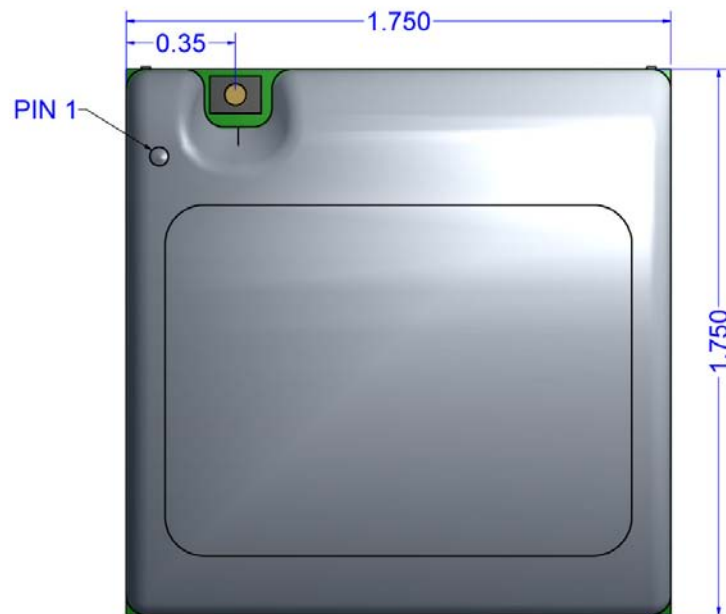
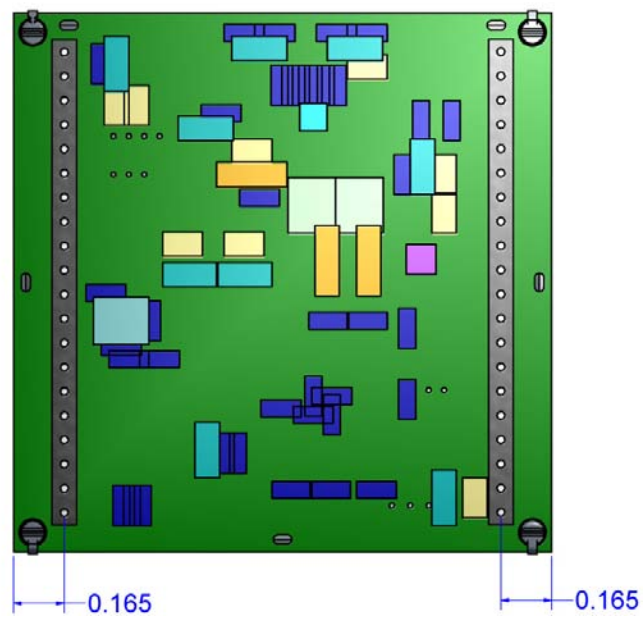
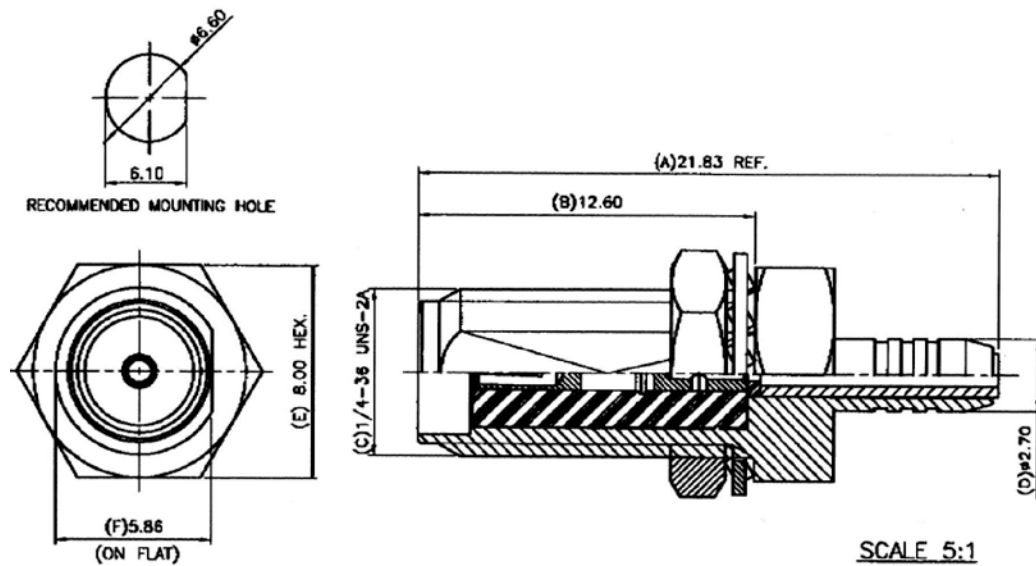


Figure 2-9. Bottom View



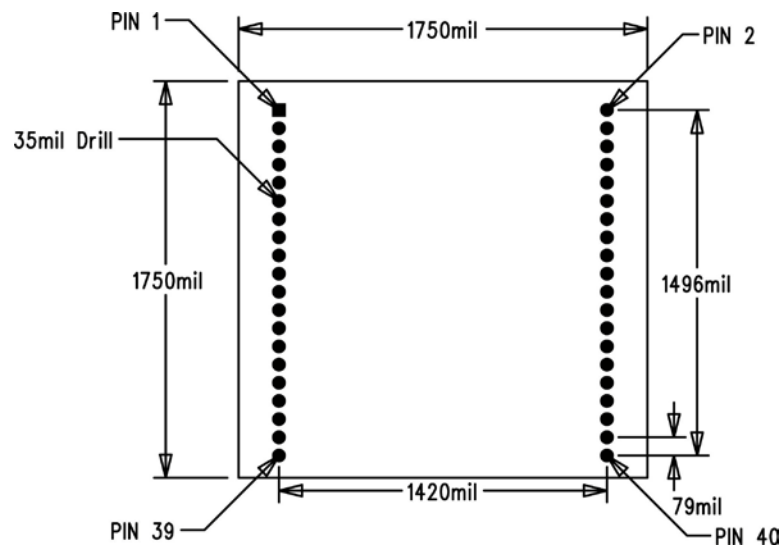
### Figure 2-10. Wireless Connector Dimensions



## Recommended PCB Layout

The hole pattern and mounting dimensions for the MatchPort b/g device server are shown in the following drawing:

**Figure 2-11. PCB Layout (Top View)**



## Product Information Label

The product information label contains important information about your specific unit, such as its product ID (name), bar code, part number, and MAC address.

**Figure 2-12. Product Label**



## 3: Demonstration Kit

The MatchPort b/g Demonstration Kit includes everything needed to begin to integrate the MatchPort b/g into a given product design.

### Contents of the Kit

The Demonstration Kit contains the following items:

- ◆ MatchPort Demo Board
- ◆ 3.6V Power Supply
- ◆ RS-232 cable, DB9F/F, null modem
- ◆ Ethernet cable
- ◆ Antenna

***Note:** You must purchase the MatchPort b/g sample separately for use with this Demonstration Kit.*

### Demo Board Description

The MatchPort Demo Board provides a test platform for the Lantronix MatchPort b/g device server. It supplies 3.3V power. The MatchPort demo board provides access to all signals to and from the MatchPort b/g device server. The demo board has two serial port interfaces (CON1 and CON2). The MatchPort b/g demo board also includes an RJ45 connector for use with wired Ethernet.

### Serial Interfaces

The MatchPort b/g serial interface is 3.3V logic level and typically connected to a Universal Asynchronous Receiver/Transmitter (UART). For connection to an external device, the demo board has RS-232/422/485 transceivers. CON1 and CON2 support RS-232/485. Connect to a PC using a null-modem serial cable with 9-pin connectors (F/F).

The table below lists the RS-232 signals and corresponding pins on the MatchPort b/g. All signals are level-shifted by the RS-232 transceivers.

Table 3-1. RS-232 Signals

| MatchPort b/g<br>PIN FUNCTION | DB9<br>Pin # |
|-------------------------------|--------------|
| UART x                        | Conx         |
| TXDx (Data Out)               | 3            |
| RXDx (Data In)                | 2            |
| CTSx (HW Flow Control Input)  | 8            |
| RTSx (HW Flow Control Output) | 7            |
| DCDx (Modem Control Input)    | 1            |
| DTRx (Modem Control Output)   | 4            |

Table 3-2. RS-485 4-Wire Connector

| MatchPort<br>b/g Signal | Description | DB9<br>Pin # |
|-------------------------|-------------|--------------|
| TX+                     | Data Out    | 7            |
| TX-                     | Data Out    | 3            |
| RX+                     | Data In     | 2            |
| RX-                     | Data In     | 8            |

## Power Supply

The demo board uses an external 3.3V regulated supply (included with kit). The demo board contains additional filtering and protection.

## General Control

The following table denotes the configuration of the demo board. Configuring the jumper re-routes the signals on the demo board as required for a given product. This also drives the LEDs.

## Configuration Switch Bank

Table 3-3. Demo Board JP1 Jumper Configuration

| JP1 pin/Signal | JP1 pin/Signal | Function                        |
|----------------|----------------|---------------------------------|
| 1/CP1          | 2/LED12        | Jumper 1-2, CP1 Controls LED12  |
| 3/CP2          | 4/LED11        | Jumper 3-4, CP2 Controls LED11  |
| 5/CP3          | 6/LED10        | Jumper 5-6, CP3 Controls LED10  |
| 7/CP4          | 8/LED9         | Jumper 7-8, CP4 Controls LED9   |
| 9/CP5          | 10/LED8        | Jumper 9-10, CP5 Controls LED8  |
| 11/CP6         | 12/LED7        | Jumper 11-12, CP6 controls LED7 |
| 13/CP7         | 14/LED6        | Jumper 13-14, CP7 controls LED6 |
| 15/CP8         | 16/LED5        | Jumper 15-16, CP8 controls LED5 |

Table 3-4. Demo Board JP7 Jumper Configuration for CON1

| JP7 pin/Signal | JP7 pin/Signal | Function  |
|----------------|----------------|---|
| 1/TXD1         | 2/TXA          | Jumper 1-2, Send TXD to RS-232/485 transceiver.   |
| 3/RTS1         | 4/RTSA         | Jumper 3-4, Send RTS to RS-232/485 transceiver. In 485 mode RTS controls transmit enable. |
| 5/CP3          | 6/SEL4XXA      | Jumper 5-6, CP3 high selects 485 mode, low 232 mode.                                      |
| 7/RXD1         | 8/RXA          | Jumper 7-8, Receive RXD from RS-232/485 transceiver.                                      |
| 9/CTS1         | 10/CTSA        | Jumper 9-10, Receive CTS from RS-232 transceiver.   |
| 11/CP4         | 12/HDPX4XXA    | Jumper 11-12, In 485 mode, CP4 selects full duplex when low, half duplex when high.       |
| 13/CP1         | 14/DTRA        | Jumper 13-14, CP1 drives DTR to RS-232 transceiver.                                       |
| 15/CP2         | 16/DCDA        | Jumper 15-16, CP2 receives DCD from RS-232 transceiver.                                   |

Table 3-5. Demo Board JP8 Jumper Configuration for CON2

| JP8 pin/Signal | JP8 pin/Signal | Function  |
|----------------|----------------|---|
| 1/TXD2         | 2/TXB          | Jumper 1-2, Send TXD to RS-232/485 transceiver.   |
| 3/RTS2         | 4/RTSB         | Jumper 3-4, Send RTS to RS-232/485 transceiver. In 485 mode RTS controls transmit enable. |
| 5/CP7          | 6/SEL4XXB      | Jumper 5-6, CP7 high selects 485 mode, low 232 mode.                                      |
| 7/RXD2         | 8/RXB          | Jumper 7-8, Receive RXD from RS-232/485 transceiver.                                      |
| 9/CTS2         | 10/CTSB        | Jumper 9-10, Receive CTS from RS-232 transceiver.   |
| 11/CP8         | 12/HDPX4XXB    | Jumper 11-12, In 485 mode, CP8 selects full duplex when low, half duplex when high.       |
| 13/CP5         | 14/DTRB        | Jumper 13-14, CP5 drives DTR to RS-232 transceiver.                                       |
| 15/CP6         | 16/DCDB        | Jumper 15-16, CP6 receives DCD from RS-232 transceiver.                                   |

Table 3-6. Demo Board JP5 Jumper Configuration

| Pin/Signal | Pin/Signal | Function  |
|------------|------------|---|
| 1/3V3      | 2/3V3_UUT  | MatchPort UUT power input jumper for current measurement. Jumper 1-2 must be installed to provide power to UUT. |

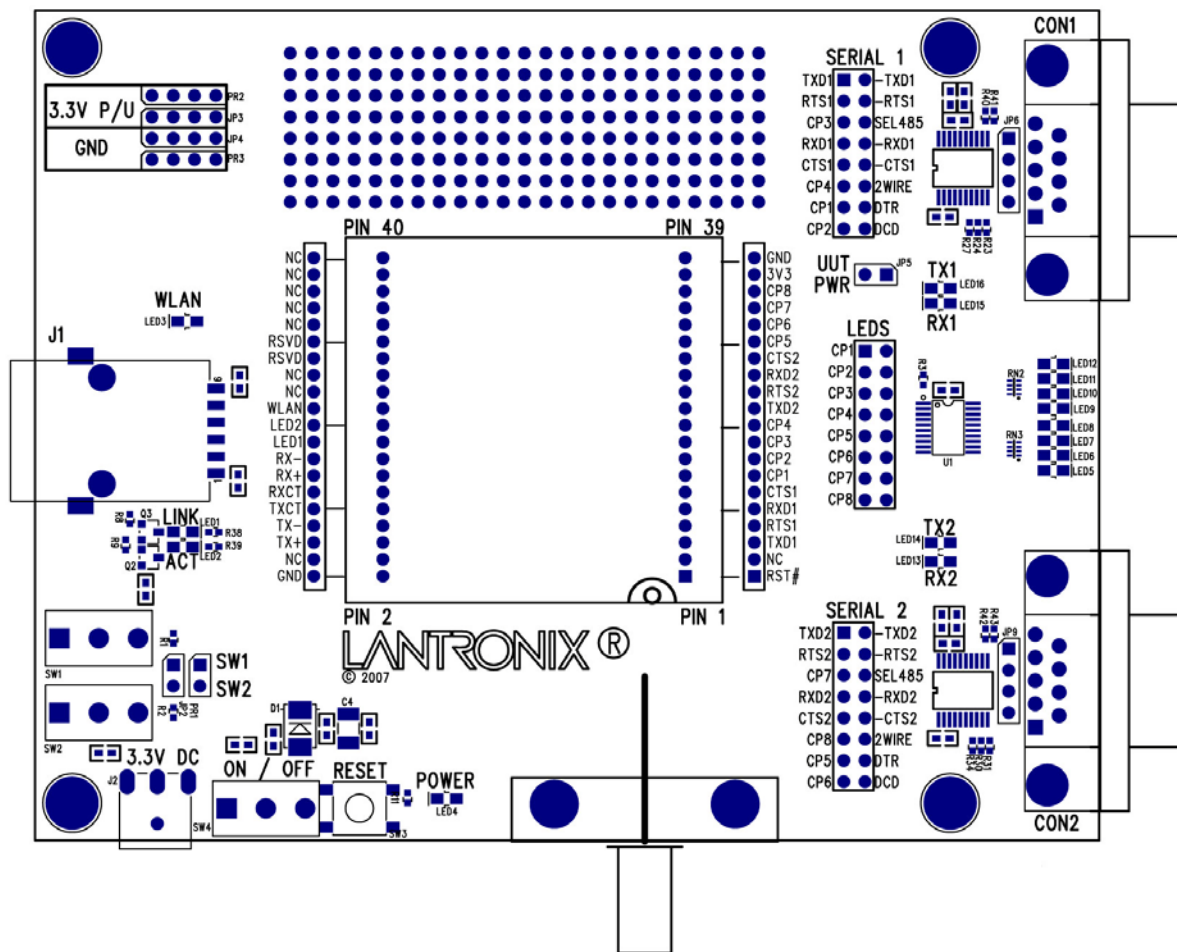
If using CPs for any combination of the above demo board configurations, please use the appropriate CP function selection as shown in Table 3-5. If assigning a CP for any function other than the serial port, the jumper for the associated CP pin should be removed from JP1, JP7, or JP8 to avoid conflict with the serial port function.

Table 3-7. Demo Board Configurable Pin Jumper Configurations.

| Configurable Pin | JP1 Function | JP7,JP8 Function                |
|------------------|--------------|---------------------------------|
| CP1              | LED12        | JP7, CON1 DTR                   |
| CP2              | LED11        | JP7, CON1 DCD                   |
| CP3              | LED10        | JP7, CON1 RS-485/232 Select     |
| CP4              | LED9         | JP7, CON1 RS-485 Duplex Select  |
| CP5              | LED8         | JP8, CON2 DTR                   |
| CP6              | LED7         | JP8, CON2 DCD                   |
| CP7              | LED6         | JP8, CON2 RS-485/232 Select     |
| CP8              | LED5         | JP8, CON2 RS-485, Duplex Select |

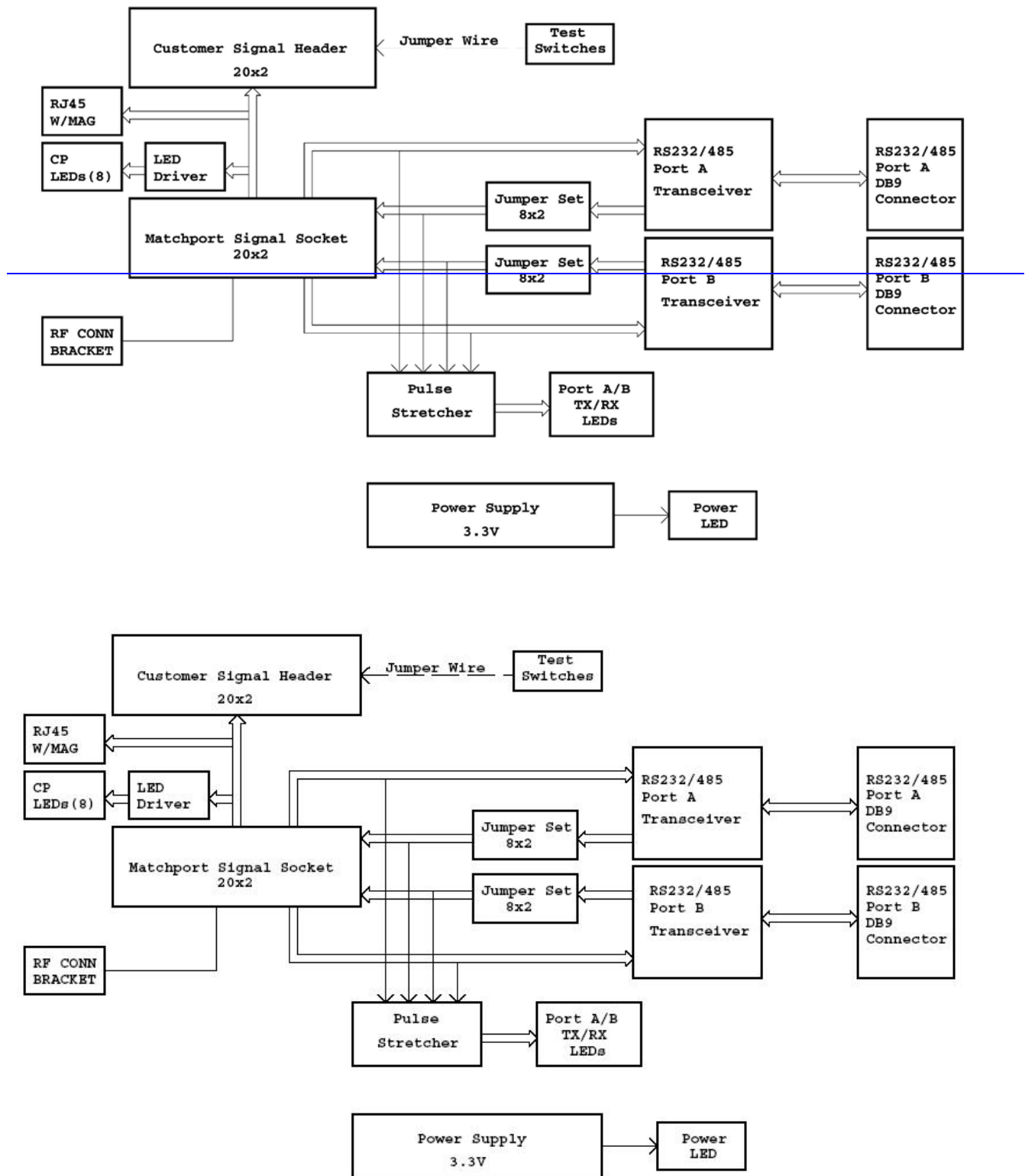
## Demo Board Layout

Figure 3-1. MatchPort b/g Demo Board Layout

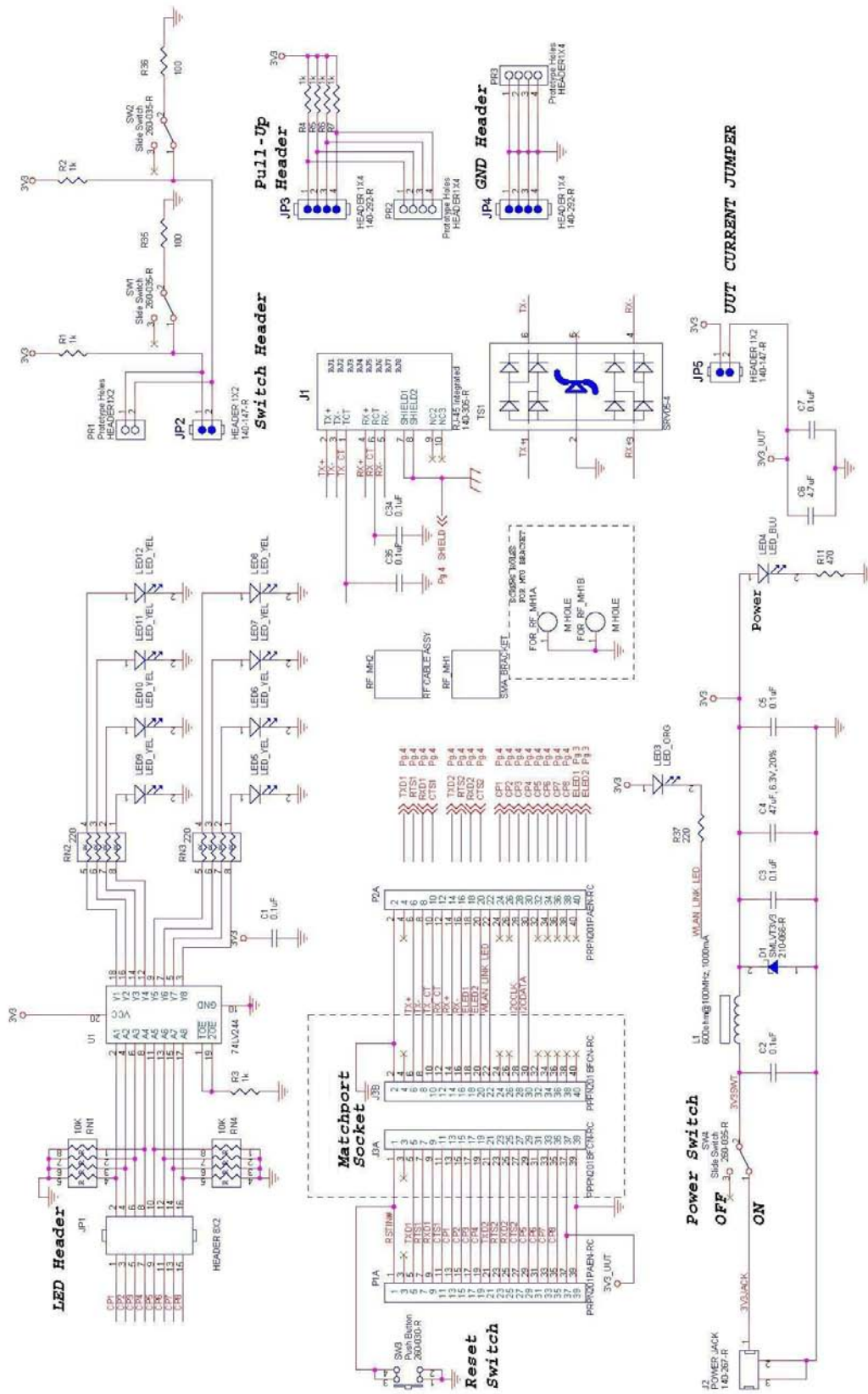


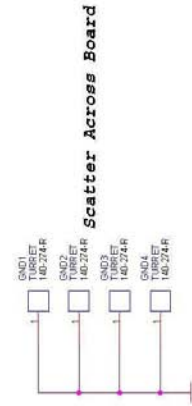
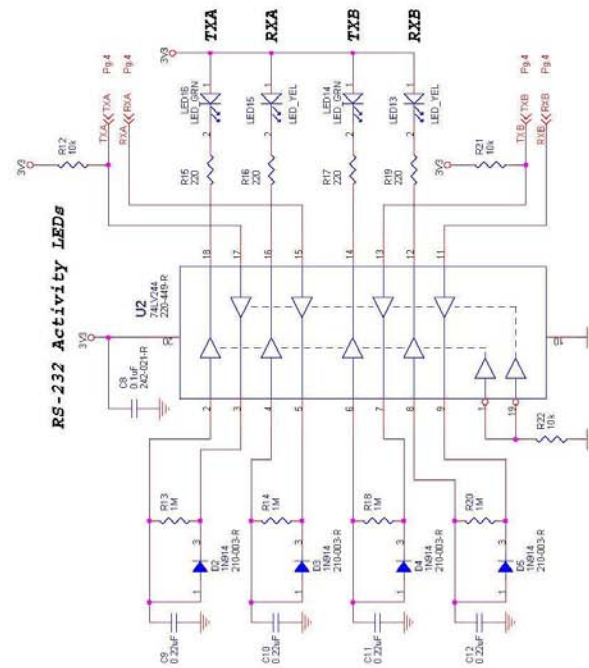
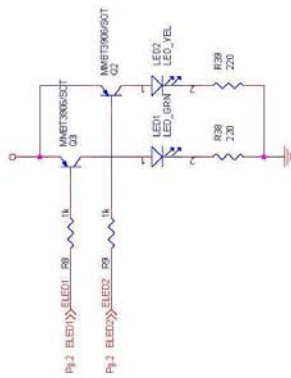
## Demo Board Schematics

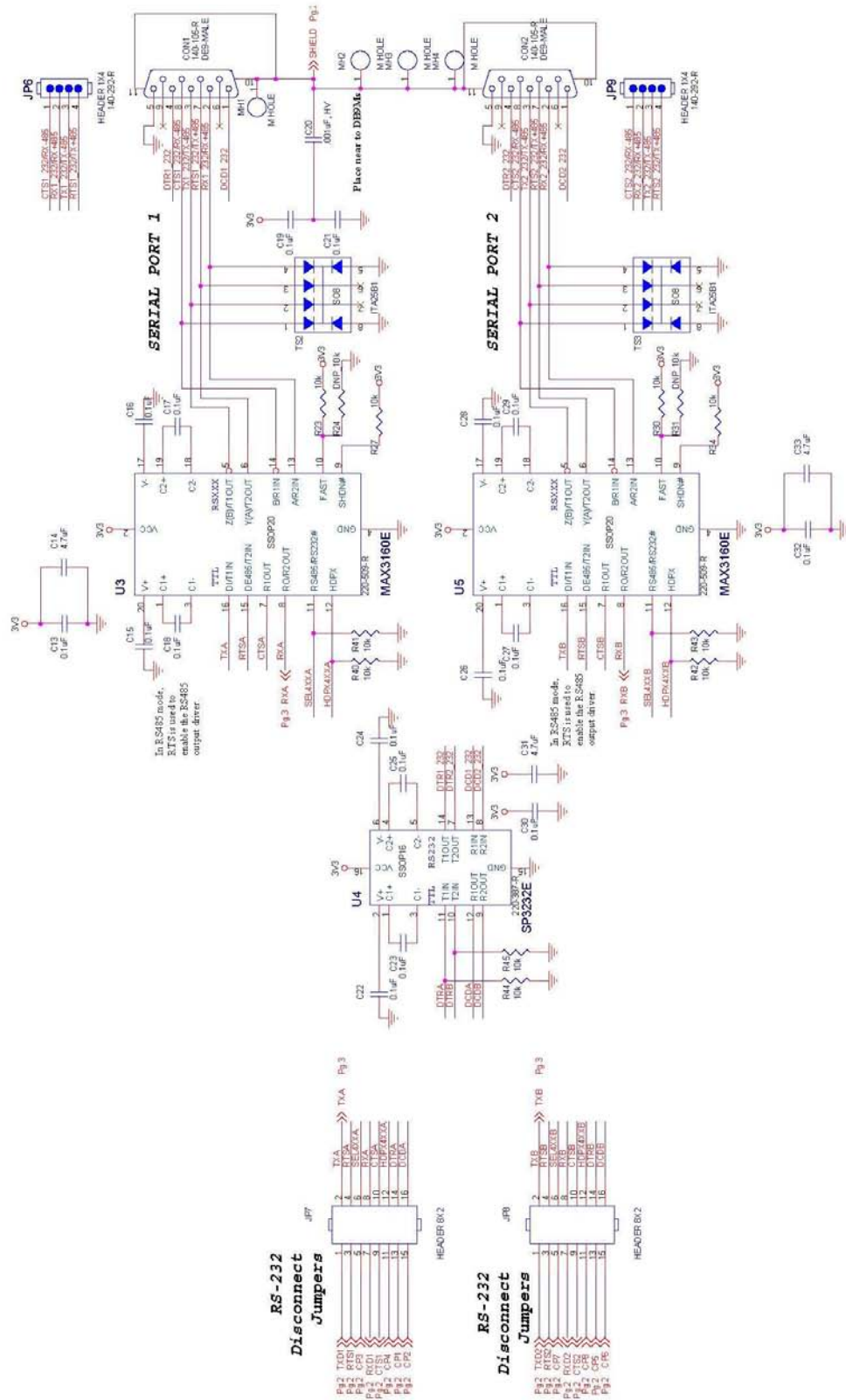
Figure 3-2. Demo Board Schematics











# ***A: Compliance and Warranty Information***

## **Compliance Information**

(According to ISO/IEC Guide 22 and EN 45014)

### **Manufacturer's Name & Address:**

Lantronix 167 Technology Drive, Irvine, CA 92618 USA

*Declares that the following product:*

**Product Name Model:** MatchPort b/g Embedded Device Server

*Conforms to the following standards or other normative documents:*

*Safety:*

UL 60950-1

CAN/CSA-C22.2 No. 60950-1-03

EN 60950-1:2001, Low Voltage Directive (73/23/EEC)

*EMC & Radio:*

*For purposes of certification, the MatchPort b/g was tested as a modular device.*

CFR Title 47 FCC Part 15, Subpart B and C, Class B

FCC Module Approval

FCC Identifier: R68MTCHDRCT

Industry Canada ICES-003 Issue 4 (2004), Class B

Industry Canada RSS-Gen Issue 1 (2005)

Industry Canada RSS-210 Issue 6 (2005)

Industry Canada Module Approval IC: 3867A-MTCHDRCT

EN 301 489-1 v1.6.1 (2006-07), EMC Directive (1999/5/EC)

EN 301 489-17 v.1.2.1 (2002-08), EMC Directive (1999/5/EC)

EN 300 328 v1.7.1 (2006-10), R&TTE Directive (1999/5/EC)

Australia / New Zealand AS/NZS CISPR 22 (2006), Class B

Australia / New Zealand AS/NZS 4771 (2000 + A1:2003)

EN55022: 1998 + A1: 2000 + A2: 2003

EN55024: 1998 + A1: 2001 + A2: 2003

EN61000-3-2: 2000 + A2: 2005

EN61000-3-3: 1995 + A1: 2001

## RoHS Notice

All Lantronix products in the following families are China RoHS-compliant and free of the following hazardous substances and elements:

- Lead (Pb)
- Mercury (Hg)
- Polybrominated biphenyls (PBB)
- Cadmium (Cd)
- Hexavalent Chromium (Cr (VI))
- Polybrominated diphenyl ethers (PBDE)

| Product Family Name    | Toxic or hazardous Substances and Elements |              |              |                               |                                |                                       |
|------------------------|--|--------------|--------------|-------------------------------|--------------------------------|---------------------------------------|
|                        | Lead (Pb)                                  | Mercury (Hg) | Cadmium (Cd) | Hexavalent Chromium (Cr (VI)) | Polybrominated biphenyls (PBB) | Polybrominated diphenyl ethers (PBDE) |
| UDS1100 and 2100       | 0  | 0            | 0            | 0                             | 0                              | 0                                     |
| EDS                    | 0  | 0            | 0            | 0                             | 0                              | 0                                     |
| MSS100                 | 0  | 0            | 0            | 0                             | 0                              | 0                                     |
| IntelliBox             | 0  | 0            | 0            | 0                             | 0                              | 0                                     |
| XPress DR & XPress-DR+ | 0  | 0            | 0            | 0                             | 0                              | 0                                     |
| SecureBox 1101         | 0  | 0            | 0            | 0                             | 0                              | 0                                     |
| WiBox                  | 0  | 0            | 0            | 0                             | 0                              | 0                                     |
| UBox                   | 0  | 0            | 0            | 0                             | 0                              | 0                                     |
| MatchPort              | 0  | 0            | 0            | 0                             | 0                              | 0                                     |
| SLC                    | 0  | 0            | 0            | 0                             | 0                              | 0                                     |
| XPort                  | 0  | 0            | 0            | 0                             | 0                              | 0                                     |
| WiPort                 | 0  | 0            | 0            | 0                             | 0                              | 0                                     |
| SLB                    | 0  | 0            | 0            | 0                             | 0                              | 0                                     |
| SLP                    | 0  | 0            | 0            | 0                             | 0                              | 0                                     |
| SCS                    | 0  | 0            | 0            | 0                             | 0                              | 0                                     |
| SLS                    | 0  | 0            | 0            | 0                             | 0                              | 0                                     |
| DSC                    | 0  | 0            | 0            | 0                             | 0                              | 0                                     |
| PremierWave            | 0  | 0            | 0            | 0                             | 0                              | 0                                     |
| Micro125               | 0  | 0            | 0            | 0                             | 0                              | 0                                     |

O: toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.

X: toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.

### Manufacturer's Contact:

Director of Quality Assurance, Lantronix Inc.  
 167 Technology Drive, Irvine, CA 92618 USA  
 Phone: 949-453-3990  
 Fax: 949-450-7249

## Warranty

For details on the Lantronix warranty replacement policy, go to our web site at [www.lantronix.com/support/warranty](http://www.lantronix.com/support/warranty)