

## 1.0 INTRODUCTION

This user's manual is for the XR21V1410 evaluation board. It will describe the hardware setup required to operate the part.

## 2.0 OVERVIEW

The XR21V1410 evaluation board has one 16-QFN package on it. **Figure 1** shows a top view of XR21V1410 evaluation board layout.

FIGURE 1. TOP VIEW OF XR21V1410 EVALUATION BOARD LAYOUT

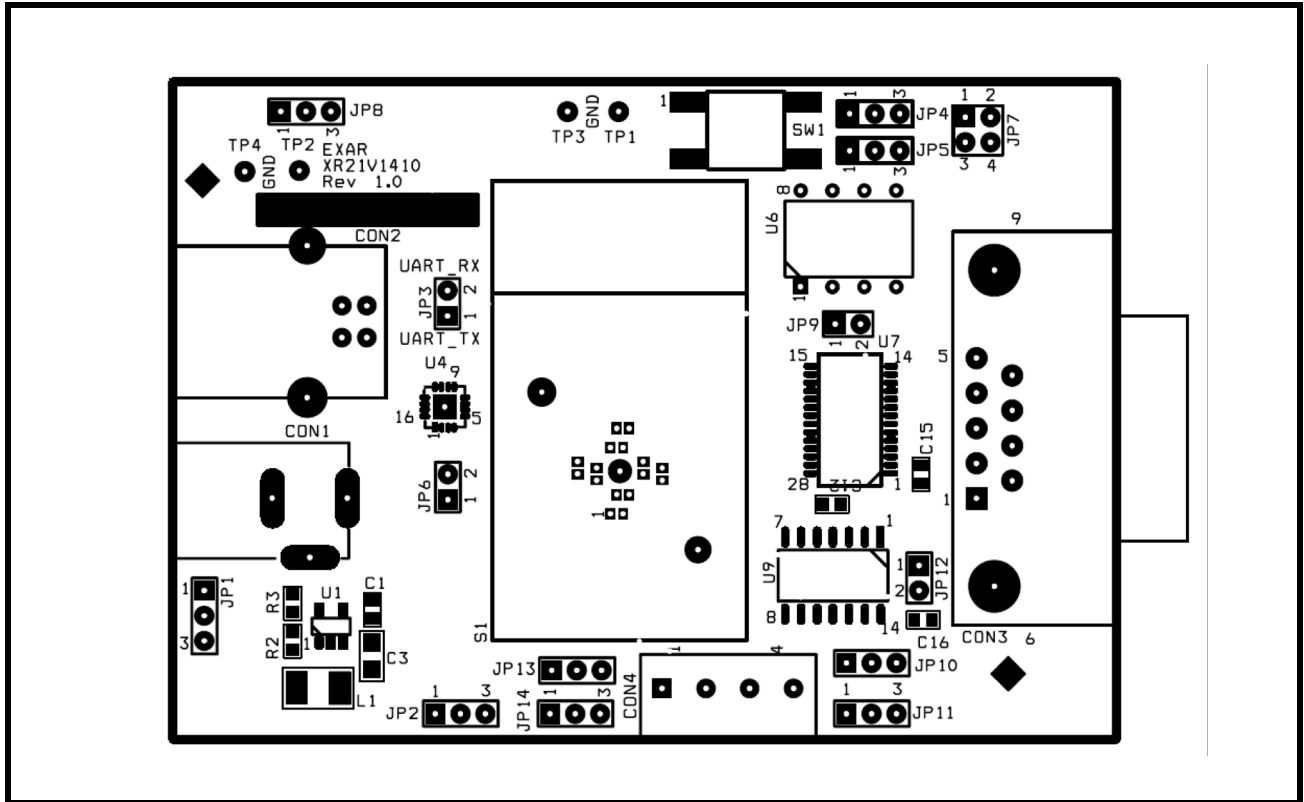
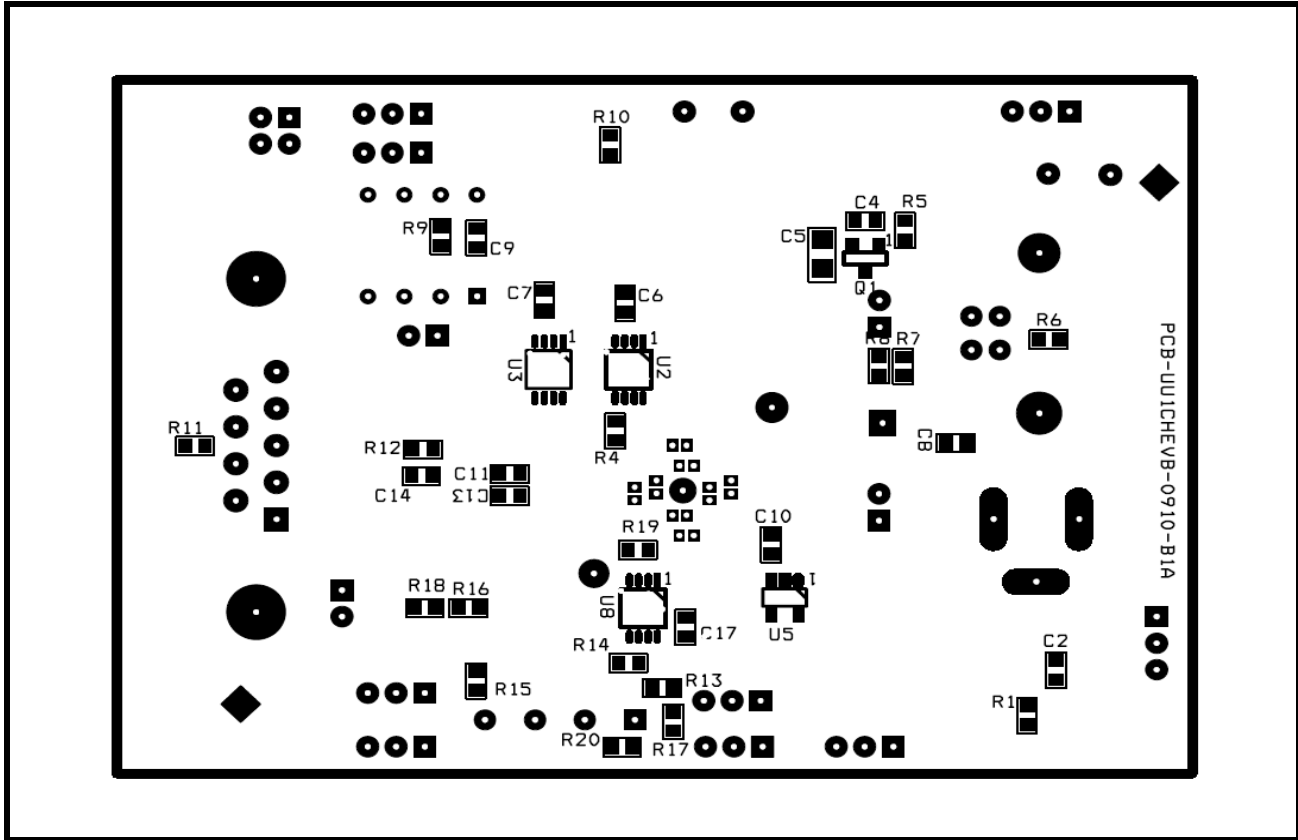


Figure 2 shows a bottom view of XR21V1410 evaluation board layout.

FIGURE 2. BOTTOM VIEW OF XR21V1410 EVALUATION BOARD LAYOUT



### 2.1 Evaluation Board Components

On the XR21V1410 evaluation board, some components are required to install. Some are optional and some are not installed. Table 1 shows the components:

TABLE 1: COMPONENTS OF THE XR21V1410 EVALUATION BOARD

UNIT	LOCATION	PART	FUNCTION
U1	Top	SP6669AEK-L/TRR3	Exar's Voltage converter to step down voltage from 5V to 3.3V.
U2	Bottom	SN74LVC2G53DCTR	Multiplexer to switch between RS-232 and RS-485 mode.
U3			
U4	Top	XR21V1410IL16-F	Exar's USB 1 channel UART.
U5	Bottom	NC7SZ14M5X	Invert LowPower (suspend) signal.
U6	Top	AT24C02B	I2C EEPROM.
U7	Top	SP3245EEY-L	Exar's RS-232 transceiver.
U8	Bottom	SN74LVC2G66DCT	Analog switch.
U9	Top	SP3497EEN-L	Exar's RS-485 transceiver.
CON1	Top	PJ-002A	External power input.

**TABLE 1: COMPONENTS OF THE XR21V1410 EVALUATION BOARD**

UNIT	LOCATION	PART	FUNCTION
CON2	Top	690-004-621-023	USB B-Type connector. Communication with USB host (USB <sup>D+</sup> , USB <sup>D-</sup> ) and power source for evaluation board (V <sub>BUS</sub> ).
CON3	Top	182-009-113R161	RS-232 mode DB9 male connector.
CON4	Top	ED555/4DS	RS-485 mode 4X1 terminal block.

**NOTES:** 1) An external pull-up is required on the LOWPOWER pin for proper functionality. The external pull-up is not shown in the evaluation board schematics, but has been added on the evaluation board. 2) An external pull-up is required on any GPIO pins that is used as an input. In the suspend mode, the internal pull-up resistor is disabled and the input will be floating if there is no external pull-up resistor. The external pull-ups have not been added to the GPIOs used as inputs on this evaluation board.

## 2.2 Jumper Settings

### 2.2.1 Common jumpers

Common jumpers are those jumpers which should be set the same for both RS-232 and RS-485 mode. The **Table 2** shows the common jumpers setting on the evaluation board:

**TABLE 2: COMMON JUMPERS SETTINGS**

JUMPERS	LOCATION	FUNCTIONS	COMMENTS
JP1	Top	Power select	Jumper in 1&2 selects power from external power supply of 5V Jumper in 2&3 selects power from USB V <sub>BUS</sub> power
JP2	Top	Selects RS-232 or RS-485 mode	Jumper in 1&2 selects RS-485 mode Jumper in 2&3 selects RS-232 mode (default)
JP3	Top	External loopback or test header	Jumper in 1&2 selects external loopback
JP4	Top	SCL pull-up/pull-down select	Jumper in 1&2 selects pull-up resistor Jumper in 2&3 selects pull-down resistor
JP5	Top	SDA pull-up/pull-down select	Jumper in 1&2 selects pull-up resistor Jumper in 2&3 selects pull-down resistor
JP6	Top	Power supply for XR21V1410	Not installed. Trace between pin 1 & 2
JP7	Top	I2C EEPROM header	Jumper in 1&2 connects SCL to I2C EEPROM Jumper in 3&4 connects SDA to I2C EEPROM <b>NOTE:</b> I2C EEPROM has not been programmed

**XR21V1410 EVALUATION BOARD USER'S MANUAL**
**2.2.2 Remote wakeup and jumper**

The SDA and SCL are used to specify whether Remote Wakeup and/or Bus Powered configurations are to be supported. These pins are sampled at power-up. The following **Table 3** describes how Remote Wakeup and Bus Powered support.

**TABLE 3: REMOTE WAKEUP AND POWER MODES**

SDA	SCL	REMOTE WAKE-UP SUPPORT	POWER MODE	COMMENTS
1	1	No	Self-Powered	Default, if no EEPROM is present
1	0	No	Bus-Powered	
0	1	Yes	Self-Powered	
0	0	Yes	Bus-Powered	

The following **Table 4** shows jumpers related to remote wakeup.

**TABLE 4: REMOTE WAKEUP JUMPERS SETTINGS**

JUMPERS	LOCATION	FUNCTIONS	COMMENTS
JP8	Top	Select remote control wakeup signal	Jumper in 1&2 selects RS-232 (RI#) signal Jumper in 2&3 selects push-button
SW1	Top	Generate remote wakeup signal	Push once to generate one remote wakeup signal

**2.2.3 RS-232 mode jumpers (Default setting is RS-232)**

The XR21V1410 evaluation board is set as RS-232 mode by default. The following **Table 5** shows the jumper settings apply to the RS-232 mode:

**TABLE 5: JUMPER SETTINGS FOR RS-232 MODE**

JUMPERS	LOCATION	FUNCTIONS	COMMENTS
JP9	Top	Selects power	Not installed. Trace between pin 1&2



2.2.4 RS-485 mode jumpers

The following Table 6 jumper setting applies to the RS-485 mode:

TABLE 6: JUMPER SETTINGS FOR RS-485 MODE

JUMPERS	LOCATION	FUNCTIONS	COMMENTS
JP10	Top	Select RTS or DTR direction control for TX	Jumper in 1&2 selects RTS based direction control for TX Jumper in 2&3 selects DTR based direction control for TX
JP11	Top	Select direction control for RX and TX or always for RX	Jumper in 1&2 selects common direction control for RX and TX Jumper in 2&3 enables RX always
JP12	Top	Selects power for RS-485 transceiver	Not installed. Trace between pin 1 & 2.
JP13 JP14	Top	Selects half duplex or full duplex mode.	Jumper in 1&2 selects half duplex mode Jumper in 2&3 selects full duplex mode

3.0 DRIVERS AND SUPPORT

For any questions about this evaluation board, software drivers or technical support, send an e-mail to [uarttechsupport@exar.com](mailto:uarttechsupport@exar.com).

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