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

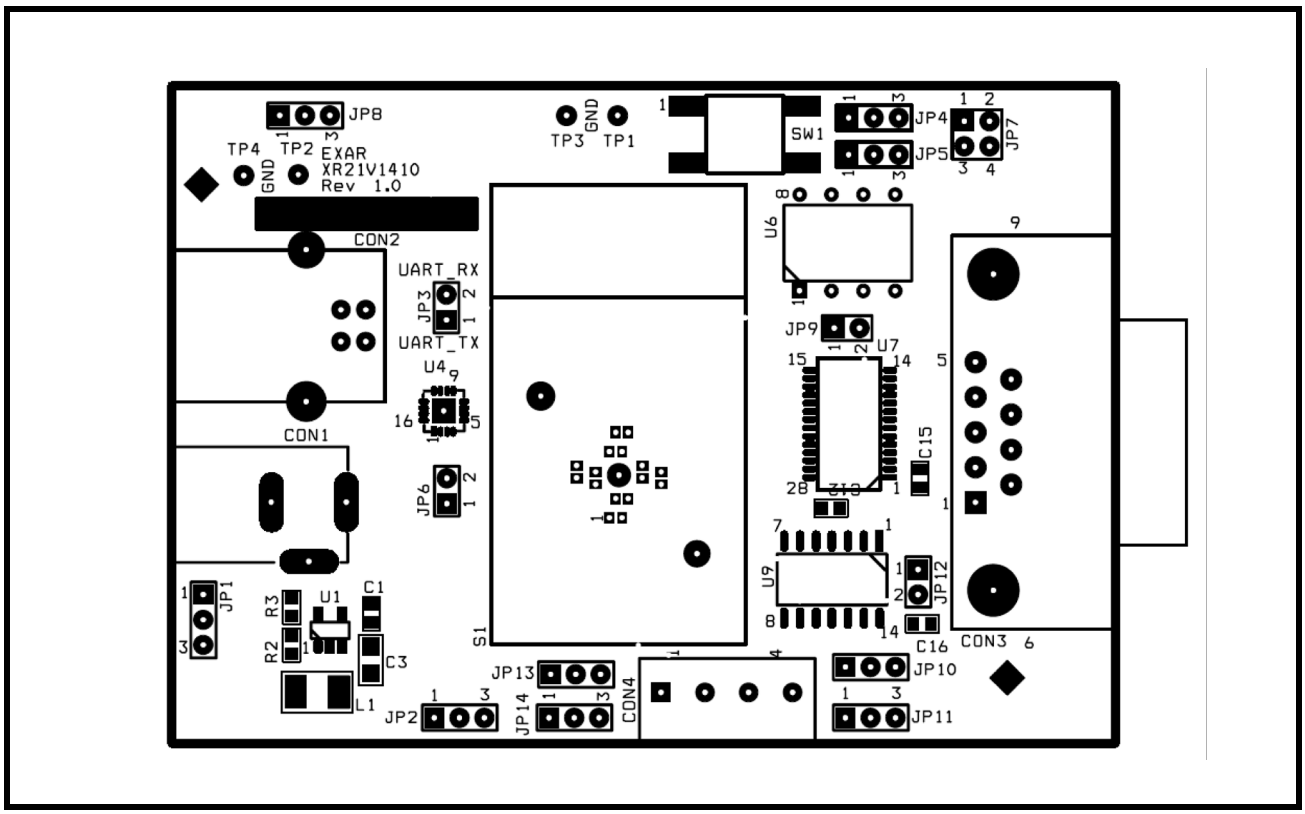
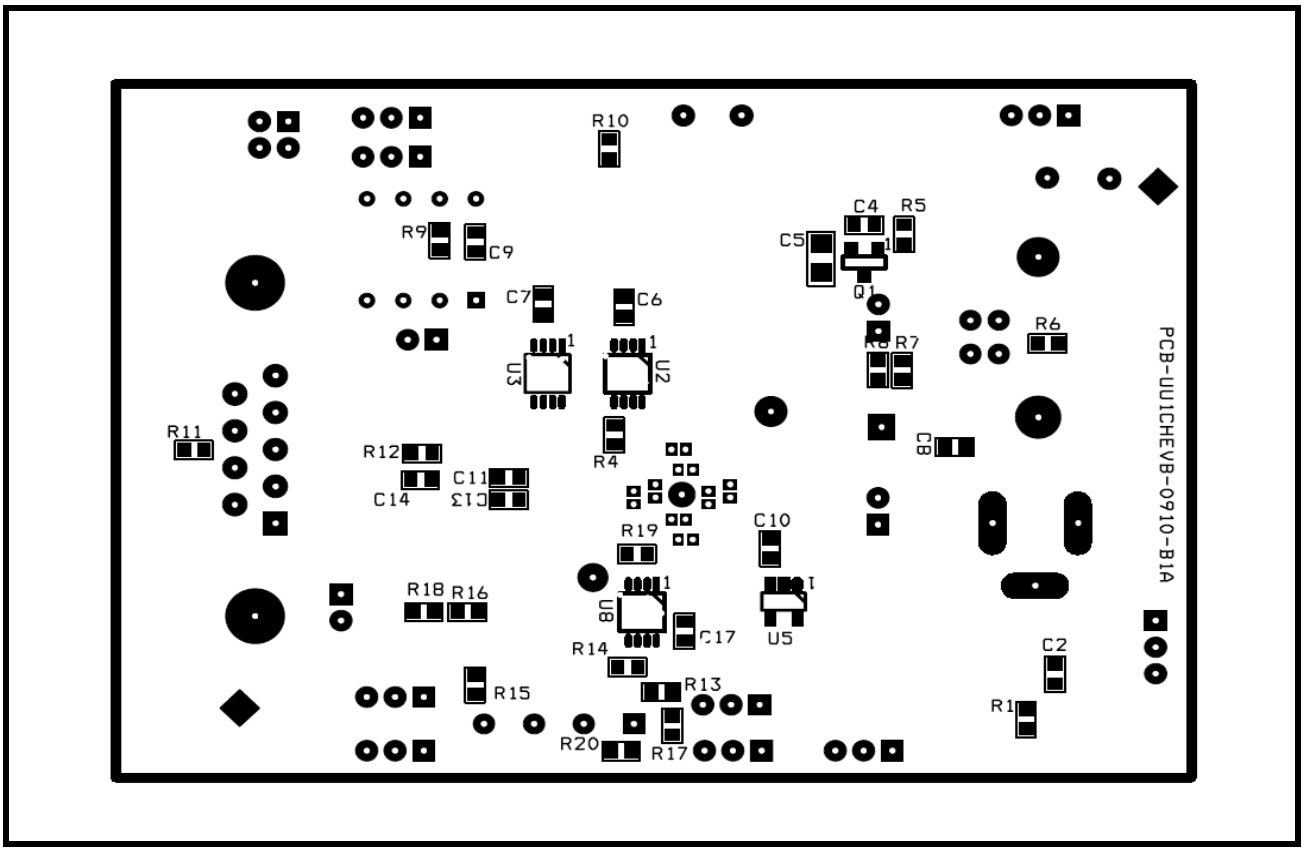


Figure 2 shows a bottom view of XR21V1410 evaluation board layout.

FIGURE 2. BOTTOM VIEW OF XR21V1410 EVALUATION BOARD LAYOUT



2.1 Evaluation Board Components

On the XR21V1410 evaluation board, some componets 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 U3	Bottom	SN74LVC2G53DCTR	Multiplexer to switch between RS-232 and RS-485 mode.
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 (USBD+, USBD-) and power source for evaluation board (V_{Bus}).
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_{BUS} 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 EEROM ***NOTE:*** *I2C EEPROM has not been programmed*

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.

NOTICE

Datasheet July 2009.

Send your UART technical inquiry with technical details to hotline: uarttechsupport@exar.com.