1.0 INTRODUCTION

This user's manual is for both the XR16M654 and the XR16M554 evaluation board. Since it can be used for both XR16M654 and XR16M554, this user's manual will describe the hardware setup required to operate the different parts.

2.0 OVERVIEW

The XR16M654 evaluation board uses the 32-bit PCI bus with multiplexed address and data lines at 66 MHz. To test the XR16M654 evaluation board, a Windows 2000 or XP system is needed. The evaluation board could be used to test parts both XR16M654 and XR16M554. On both evaluation boards, there are four RS-232 ports with an optional RS-422/485 port that is an optional and not installed. An optional IR module is also available on the board. An EEPROM (M93LC66C) for storage of vendor ID model number and revision number has been added.

2.1 Evaluation Board Difference between XR16M554 and XR16M654

2.1.1 Hardware difference

The XR16M554 and the XR16M654 are pin-to-pin compatible except the 80-pin package. The M554 has different pin-out than M654 in 80-pin package. Other than this, there is no big difference in testing XR16M554 and XR16M654.

2.1.2 Software difference

There is no software difference when using the evaluation board to test either XR16M554 or XR16M654.

2.2 Evaluation Board Components

The XR16M654 evaluation board is designed for multi-purpose test. Some componets are required to install. Some are optional and some are not installed. **Table 1** shows the components:

TABLE 1: COMPONENTS OF THE XR16M654 EVALUATION BOARD

UNIT	PART	FUNCTION
U22	PCI 9030	Installed. PCI to ISA bridge.
U5	M93LC66C	Installed. EEPROM to store the device ID and vendor ID.
U29	XC9572XV	Installed. CPLD for address decoding.
U24/U25	XR16V654/554 48-QFN	Option. Installed depends on request.
U26	XR16V654/554 64-TQFP	Option. Installed depends on request.
U27	XR16V654/554 68-PLCC	Option. Installed depends on request.
U28	XR16V654/554 80-LQFP	Option. Installed depends on request.
U19	XR16V564/554 80-LQFP	Option. Installed depends on request.
U23	XR16V654 100-LQFP	Option. Installed depends on request.
U9--U12	SP3245EEA-L	All installed. RS-232 transceiver.
U1--U2	SP3491CN	Option. RS-422/485 transceiver.
U3	HSDL-2300	Option. IR transceiver.

For more information about EEPROM, please refer to our DAN 112 that could be found at our website www.exar.com.

2.3 Jumper Settings

2.3.1 Common jumpers

Common jumpers are those jumpers which should be set the same on the different evaluation boards, no matter which parts and packages. The **Table 2** shows the common jumpers setting on the evaluation board:

TABLE 2: COMMON JUMPERS SETTINGS

JUMPERS	FUNCTIONS	COMMENTS
J82	Power to UART	Jumper in 1&2 selects +5V Jumper in 3&4 selects +3.3V Jumper in 5&6 selects +2.5V Jumper in 7&8 selects +1.8V
J89	Power to RS-232 transceivers	Jumper in 1&2 selects +5V Jumper in 3&4 selects +3.3V
J52	PCI bridge clock in	Jumper in connects the out phase clock to the local clock input. (should be in) Jumper out disconnects the out phase clock to the local clock input.
J112	Power to CPLD core	Jumper in 1&2 selects +3.3V Jumper in 2&3 selects +2.5V ■ Trace between 2 & 3
J113	Power to CPLD I/O	Jumper in 1&2 selects +3.3V Jumper in 2&3 selects +2.5V
JP7	Power to CPLD I/O	Jumper in selects +1.8V Note: Apply together with J113
JP9	Motorola and Intel mode selection	Jumper in selects Motorola (68) mode Jumper out selects Intel (16) mode
JP10	PCI bridge Clock to CPLD	Jumper in connects the clock Jumper out disconnects the clock ■ Trace between 1 & 2 Note: Motorola mode needs the clock, so jumper should be in
JP11	External clock to CPLD	Jumper in connects the clock Jumper out disconnects the clock Note: Motorola mode needs the clock. Apply with the JP10. Only one (either JP10 or JP11) could be in
J29	Power supply to RS-232 transceiver	Jumper in powers RS232 transceiver Jumper out disables RS232 transceiver
J120	Connect/Disconnect TXDA signal to RS232 transceiver	Jumper in connects TXDA to RS232 transceiver Jumper out disconnects TXDA to RS232 transceiver
J32	Connect/Disconnect RXDA signal to RS232 transceiver	Jumper in connects RXDA to RS232 transceiver Jumper out disconnects RXDA to RS232 transceiver
J37	Connect/Disconnect TXDB signal to RS232 transceiver	Jumper in connects TXDB to RS232 transceiver Jumper out disconnects TXDB to RS232 transceiver

TABLE 2: COMMON JUMPERS SETTINGS

JUMPERS	FUNCTIONS	COMMENTS
J44	Connect/Disconnect RXDB signal to RS232 transceiver	Jumper in connects RXDB to RS232 transceiver Jumper out disconnects RXDB to RS232 transceiver
J46	Connect/Disconnect TXDC signal to RS232 transceiver	Jumper in connects TXDC to RS232 transceiver Jumper out disconnects TXDC to RS232 transceiver
J47	Connect/Disconnect RXDC signal to RS232 transceiver	Jumper in connects RXDC to RS232 transceiver Jumper out disconnects RXDC to RS232 transceiver
J48	Connect/Disconnect TXDD signal to RS232 transceiver	Jumper in connects TXDD to RS232 transceiver Jumper out disconnects TXDD to RS232 transceiver
J45	Connect/Disconnect RXDD signal to RS232 transceiver	Jumper in connects RXDD to RS232 transceiver Jumper out disconnects RXDD to RS232 transceiver
J30	Enable/Disable RS232 transceiver	Jumper in 1&2 enables RS232 transceiver Jumper in 2&3 disables RS232 transceiver Note: Apply together with J31
J31	Enable/Disable RS232 transceiver	Jumper in 1&2 enables RS232 transceiver Jumper in 2&3 disables RS232 transceiver Note: Apply together with J30
J90	Select RS-232 transceiver side loopback for Channel 1	Jumper in 1&2 connects XTXD1 to XRXD1 Jumper in 3&4 connects XRTS1 to XCTS1 Jumper out connects the signals to connector
J91	Select RS-232 transceiver side loopback for Channel 2	Jumper in 1&2 connects XTXD2 to XRXD2 Jumper in 3&4 connects XRTS2 to XCTS2 Jumper out connects the signals to connector

2.3.2 48-QFN package jumper

The following Table 3 jumper settings apply to the 48-QFN package:

TABLE 3: JUMPER SETTINGS FOR 48-QFN PACKAGE

JUMPERS	FUNCTIONS	COMMENTS
J97	Power supply to UART	Trace between 1 & 2
J98	Pad to GND	Trace between 1 & 2
J99	Selects UART side loopback for Channel 1	Jumper in 1&2 connects TXA to RXA Jumper in 3&4 connects RTSA# to CTSA# Jumper out connects the signals to transceiver.
J100	Selects UART side loopback for Channel 2	Jumper in 1&2 connects TXB to RXB Jumper in 3&4 connects RTSB# to CTSB# Jumper out connects the signals to transceiver.
J101	Selects UART side loopback for Channel 3	Jumper in 1&2 connects TXC to RXC Jumper in 3&4 connects RTSC# to CTSC# Jumper out connects the signals to transceiver.
J102	Selects UART side loopback for Channel 4	Jumper in 1&2 connects TXD to RXD Jumper in 3&4 connects RTSD# to CTSD# Jumper out connects the signals to transceiver.
J103	Selects crystal or external clock	Jumper in 1&2 and 4& 5 selects crystal ■ Trace between 1 & 2 ■ Trace between 4 & 5 Jumper out and pin 3 selects external clock

2.3.3 64-TQFP package

The following Table 4 jumper setting applies to the 64-TQFP package:

TABLE 4: JUMPER SETTINGS FOR 64-TQFP PACKAGE

JUMPERS	FUNCTIONS	COMMENTS
J104	Power supply to UART	Trace between 1 & 2
J105	Selects crystal or external clock	Jumper in 1&2 and 4& 5 selects crystal ■ Trace between 1 & 2 ■ Trace between 4 & 5 Jumper out and pin 3 selects external clock

2.3.4 68-PLCC package

The following Table 5 jumper setting applies to the 68-PLCC package:

TABLE 5: JUMPER SETTINGS FOR 68-PLCC PACKAGE

JUMPERS	FUNCTIONS	COMMENTS
J106	Power supply to UART	Trace between 1 & 2
J109	Selects crystal or external clock	Jumper in 1&2 and 4& 5 selects crystal ■ Trace between 1 & 2 ■ Trace between 4 & 5 Jumper out and pin 3 selects external clock
J107	Connects/Disconnects CLKSEL pin to GND	Jumper in connects CLKSEL pin to GND Jmper out disconnects CLKSEL pin to GND
J108	Connects/Disconnects CLKSEL pin to VCC	Jumper in connects CLKSEL pin to VCC Jmper out disconnects CLKSEL pin to VCC

2.3.5 80-LQFP package (XR16M654)

The following Table 6 jumper setting applies to the 80-LQFP package:

TABLE 6: JUMPER SETTINGS FOR 80-LQFP PACKAGE

JUMPERS	FUNCTIONS	COMMENTS
J110	Power supply to UART	Trace between 1 & 2
J111	Selects crystal or external clock	Jumper in 1&2 and 4& 5 selects crystal ■ Trace between 1 & 2 ■ Trace between 4 & 5 Jumper out and pin 3 selects external clock

2.3.6 80-LQFP package (XR16M554 and XR16M564)

The following Table 7 jumper setting applies to the 80-LQFP package:

TABLE 7: JUMPER SETTINGS FOR 80-LQFP PACKAGE

JUMPERS	FUNCTIONS	COMMENTS
J72	Power supply to UART	Trace between 1 & 2
J70	Selects crystal or external clock	Jumper in 1&2 and 4& 5 selects crystal ■ Trace between 1 & 2 ■ Trace between 4 & 5 Jumper out and pin 3 selects external clock

2.3.7 100-LQFP package

The following **Table 8** jumper setting applies to the 80-LQFP package:

TABLE 8: JUMPER SETTINGS FOR 100-LQFP PACKAGE

JUMPERS	FUNCTIONS	COMMENTS
J92	Power supply to UART	Trace between 1 & 2
J95	Selects crystal or external clock	Jumper in 1&2 and 4& 5 selects crystal ■ Trace between 1 & 2 ■ Trace between 4 & 5 Jumper out and pin 3 selects external clock
J93	Selects HIGH for INTSEL pin	Jumper in forces INTSEL to HIGH Jumper out does not force INTSEL to HIGH
J94	Selects LOW for CLKSEL pin	Jumper in forces CLKSEL to LOW Jumper out does not force CLKSEL to LOW
J96	Select CHCCLK pin	Jumper in connects J95 pin 4 to CHCCLK pin Jumper out disconnects J95 pin 4 to CHCCLK pin ■ Trace between 1 & 2

3.0 DRIVERS

For the PCI UART drivers, Exar offers Windows, Linux and VxWorks OS drivers. It is recommended that you contact uarttechsupport@exar.com to inquiry and request them.

4.0 SAMPLE INITIALIZATION ROUTINE AND SUPPORT

For a sample initialization routine or if there are any questions, send an e-mail to uarttechsupport@exar.com.

Datasheet August 2008.

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