## 1.0   INTRODUCTION

This user's manual is for the XR16M780 evaluation board. Since this board can be used for the XR16M780/M770, XR16M680/M670 and XR16M580/M570, this user's manual will describe the hardware setup required to operate the different parts.

2.0   OVERVIEW

The XR16M780 evaluation board has three packages on it: 32-QFN, 25-BGA and 24-QFN. **Figure 1** shows a top view of XR16M780 evaluation board layout.

FIGURE 1. TOP VIEW OF XR16M780 EVALUATION BOARD LAYOUT
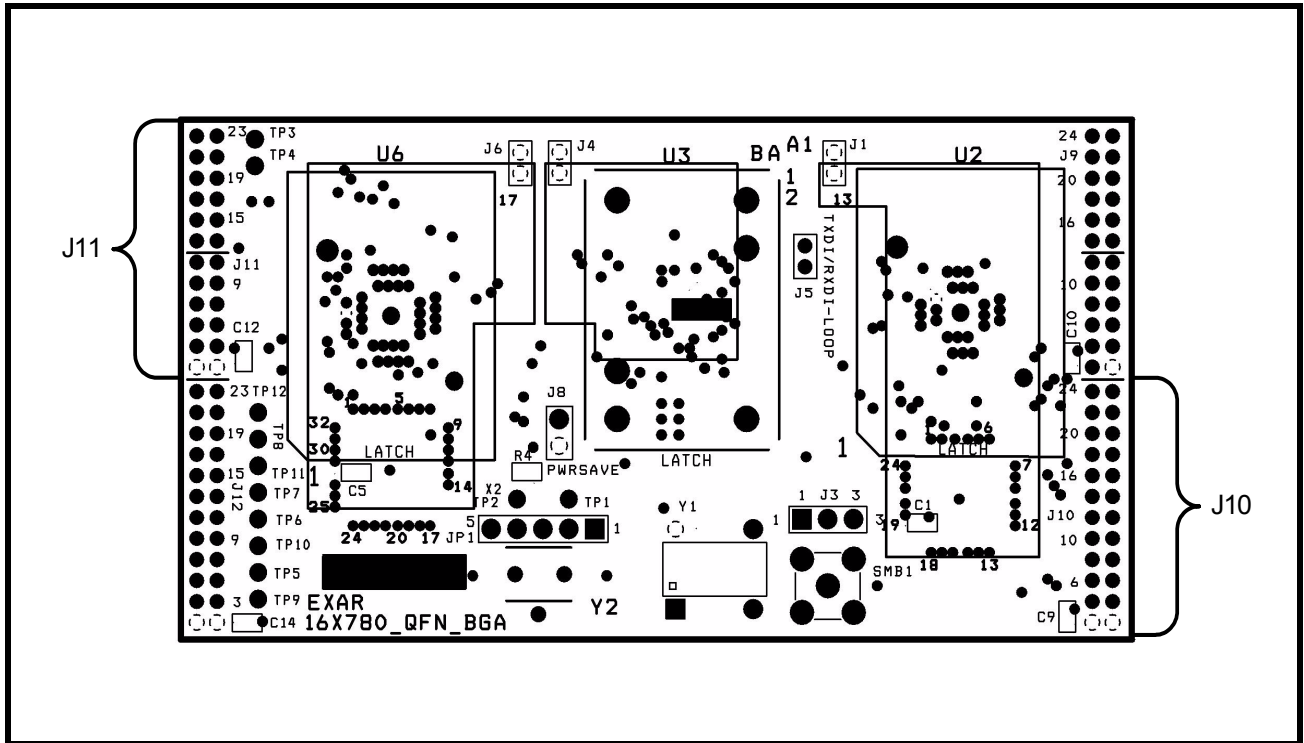
There are three units U6, U3 and U2 in the figure 1. Among them, U6 represents 32-QFN package. U3 is for 25-BGA package. And U2 is for 24-QFN package. There are four 24-pin jumpers on both left and right sides of XR16M780 evaluation board. The XR16M780 evaluation board actually uses two jumpers, J11 and J10. Jumper J11 locates in the upper left side of figure 1. It includes data lines, address lines , chip selects and other control signals of UART. Jumper J10 locates in the bottom right side of figure 1. It includes TXD, RXD and other modem control signals to and from UART.

2.1 Evaluation Board Components

2.1.1 Common Jumpers

The XR16M780 evaluation board connects with another mother board (designed by customers) through jumpers J11 and J10. **Table 1** shows the pin assignment for both J11 and J10.

TABLE 1: COMMON JUMPERS J11 AND J10 PIN ASSIGNMENT

J11 PIN NUMBER	SIGNAL	J10 PIN NUMBER	SIGNAL
J11 - 1	VCC	J10 - 1	VCC
J11 - 2	VCC	J10 - 2	VCC
J11 - 3	GND	J10 - 3	GND
J11 - 4	GND	J10 - 4	GND
J11 - 5	UART_RTS1#	J10 - 5	UART_D1
J11 - 6	UART_CTS1#	J10 - 6	UART_D0
J11 - 7	UART_DTR1#	J10 - 7	UART_D3
J11 - 8	UART_DSR1#	J10 - 8	UART_D2
J11 - 9	UART_TXD1	J10 - 9	UART_D5
J11 - 10	UART_RXD1	J10 - 10	UART_D4
J11 - 11	UART_CD1#	J10 - 11	UART_D7
J11 - 12	UART_RI1#	J10 - 12	UART_D6
J11 - 13	UART_CS2#	J10 - 13	UART_A1
J11 - 14	UART_INT2	J10 - 14	UART_A0
J11 - 15	UART_RTS2#	J10 - 15	UART_INT1
J11 - 16	UART_CTS2#	J10 - 16	UART_A2
J11 - 17	UART_DTR2#	J10 - 17	GND
J11 - 18	UART_DSR2#	J10 - 18	GND
J11 - 19	UART_TXD2	J10 - 19	UART_16/68#
J11 - 20	UART_RXD2	J10 - 20	UART_CS1#
J11 - 21	UART_CD2#	J10 - 21	SPARE_0
J11 - 22	UART_RI2#	J10 - 22	UART_RESET
J11 - 23	SPARE_1	J10 - 23	UART_IOW#
J11 - 24	SPARE_2	J10 - 24	UART_IOR#

2.1.2   Package Units

The XR16M780 evaluation board is designed for three different packages. Some componets are required to install. Some are optional and some are not installed. **Table 2** shows the components:

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TABLE 2: COMPONENTS OF THE XR16M780 EVALUATION BOARD

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UNIT	PART	FUNCTION
U6	32-QFN part	Option. XR16Mx80/x70 32-QFN part.
U3	25-BGA part	Option. XR16Mx80/x70 25-BGA part.
U2	24-QFN part	Option. XR16Mx80/x70 24-QFN part.

2.2   Jumper Settings

2.2.1   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 3** shows the common jumpers setting on the evaluation board:

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TABLE 3: COMMON JUMPERS SETTINGS

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JUMPERS	FUNCTIONS	COMMENTS
J10	I/O Interface with mother board	Installed. Necessary to connect UART signals mother board.
J11	I/O Interface with mother board	Installed. Necessary to connect UART signals with mother board.
J9	I/O Interface with mother board	Option. Not necessary for single channel UART..
J12	I/O Interface with mother board	Option. Not necessary for single channel UART.

2.2.2   32-QFN package jumper

The following **Table 4** jumper settings apply to the 32-QFN package:

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TABLE 4: JUMPER SETTINGS FOR 32-QFN PACKAGE

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JUMPERS	FUNCTIONS	COMMENTS
J6	Power supply to UART	Trace between 1 & 2
J8	Selects POWERSAVE mode	Jumper in 1&2 enables POWERSAVE mode Jumper out 1&2 disables POWERSAVE mode
JP1	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

2.2.3   25-BGA package

The following **Table 5** jumper setting applies to the 25-BGA package:

TABLE 5: JUMPER SETTINGS FOR 25-BGA PACKAGE

JUMPERS	FUNCTIONS	COMMENTS
J4	Power supply to UART	Trace between 1 & 2
J3	Selects external clock	Jumper in 1&2 deselects external clock Jumper in 2&3 selects external clock ■ Trace between 2 & 3
J8	Selects POWERSAVE mode	Jumper in 1&2 enables POWERSAVE mode Jumper out 1&2 disables POWERSAVE mode
J5	Selects external loopback on UART side	Jumper in 1&2 selects external loopback on UART side Jumper out 1&2 deselects external loopback on UART side

2.2.4   24-QFN package

The following **Table 6** jumper setting applies to the 24-QFN package:

TABLE 6: JUMPER SETTINGS FOR 24-QFN PACKAGE

JUMPERS	FUNCTIONS	COMMENTS
J1	Power supply to UART	Trace between 1 & 2
J3	Selects different type of clocks	Jumper in 1&2 selects crystal Jumper in 2&3 selects external clock ■ Trace between 2 & 3
J8	Selects POWERSAVE mode	Jumper in 1&2 enables POWERSAVE mode Jumper out 1&2 disables POWERSAVE mode

3.0   DRIVERS

It is recommended that you contact uarttechsupport@exar.com to inquiry and request drivers.

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.

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