

ENVISIONING • EMPOWERING • EXCELLING



XR17V35x

MPIO Tool

User Manual

Revision History

| Document No. | Release Date | Change Description |
|--------------|----------------|--------------------|
| 030UMR00 | March 15, 2024 | Initial release. |

Table of Contents

| | |
|---|-----------|
| Introduction | 1 |
| Usage Condition..... | 1 |
| XR17V35x MPIO Test Tool Overview | 2 |
| Usage Examples | 3 |
| MPIO Read..... | 3 |
| MPIO Read via Direction Change | 3 |
| MPIO Read via Read | 5 |
| MPIO Write..... | 7 |
| Save Config..... | 9 |
| Load Config..... | 11 |
| Conclusion | 13 |

List of Figures

| | |
|---|----|
| Figure 1: XR17V358 Block Diagram..... | 1 |
| Figure 2: XR17V35x MPIO Test Tool | 2 |
| Figure 3: MPIO Read via Direction—Connect COM Port..... | 3 |
| Figure 4: MPIO Read via Direction—Change Direction | 4 |
| Figure 5: MPIO Read via Direction—Latest Status Display | 4 |
| Figure 6: MPIO Read via Read—Connect COM Port | 5 |
| Figure 7: MPIO Read via Read—Do Read..... | 5 |
| Figure 8: MPIO Read via Read—Read MPIO Status..... | 6 |
| Figure 9: MPIO Write—Connect COM Port..... | 7 |
| Figure 10: MPIO Write—Set State to Write | 7 |
| Figure 11: MPIO Write—Do Write | 8 |
| Figure 12: Save Config—Save Current Configuration..... | 9 |
| Figure 13: Save Config—Save to File | 9 |
| Figure 14: Save Config—Sample Configuration File..... | 10 |
| Figure 15: Load Config—Load the Intended Configuration File | 11 |
| Figure 16: Load Config—Load from File | 11 |
| Figure 17: Load Config—Configuration from File Updated | 12 |

Introduction

MaxLinear XR17V352, XR17V354, and XR17V358 (XR17V35x) PCIe UARTs support 16 multi-purpose inputs/outputs (MPIOs) for general usage. Each pin can be an input or output function via programming the device configuration registers. MaxLinear provides a Windows MPIO test tool for testing or debug usage. This user manual provides guidance to features and usage of this tool.

The following figure shows a sample block diagram using the XR17V358 device.

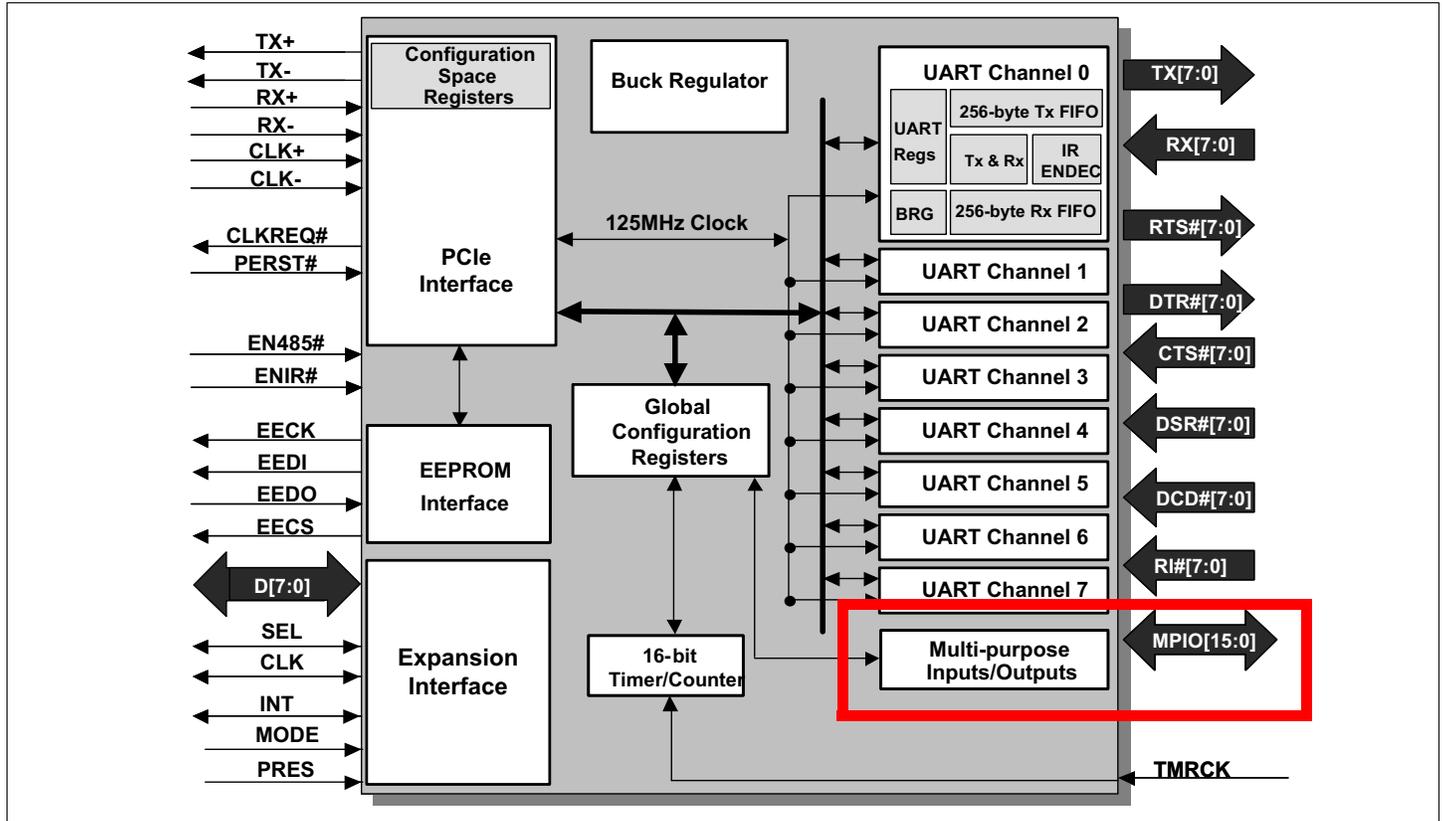


Figure 1: XR17V358 Block Diagram

Usage Condition

MaxLinear XR17V35x Windows MPIO test tool should be used along with MaxLinear’s standard release driver. For the latest standard release driver, go to <https://www.maxlinear.com/support/design-tools/software-drivers>.

XR17V35x MPIO Test Tool Overview

This section provides a layout of the XR17V35x MPIO test tool and describes the usage of each button or feature.

The following figure shows the test tool layout.

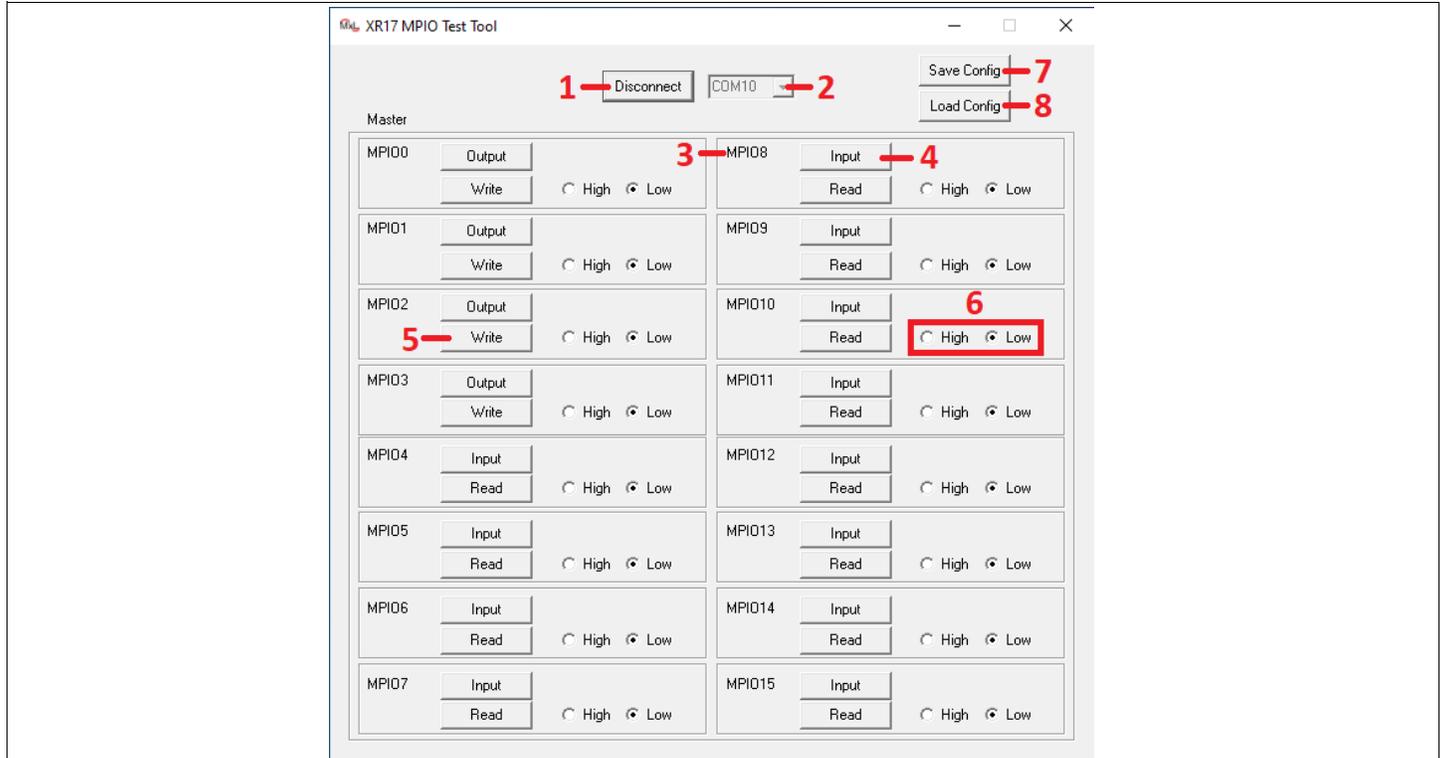


Figure 2: XR17V35x MPIO Test Tool

| # | Button/Feature | Usage |
|---|--------------------|--|
| 1 | Connect/Disconnect | Connects or disconnects to the designated COM port. Note that when connecting, this tool checks whether the COM port is a XR17V35x device. If the Device ID is not a standard MaxLinear PCIe UART device number, the check and connection fail. |
| 2 | COM Port | Lists out all the existing COM ports on the current system. To run the MPIO test tool, you should select and connect to any COM port number of the targeted XR17V35x device. |
| 3 | MPIO# | Indicates which specific MPIO# the related fields belong to. |
| 4 | Input/Output | Indicates either the MPIO is currently configured as an input or output. You can change this by clicking on this button based on your intended usage. |
| 5 | Write/Read | Reads the current state when the MPIO is configured as input or write the intended state when the MPIO is configured as output. <ul style="list-style-type: none"> When read as an input, the result updates on the High/Low button after the Read button is clicked. When write as an output, you should configure the intended state using the High/Low button first before clicking the Write button. |
| 6 | High/Low | Displays the current state when the MPIO is configured as an input or set the intended state when the MPIO is configured as an output. Note that when the MPIO is configured from output to input, the latest state is also updated. |
| 7 | Save Config | Saves the current configuration as a file. You can use this file for future reference or apply to other devices using the Load Config feature. |
| 8 | Load Config | Loads the configuration file of their choice. <ul style="list-style-type: none"> If the proper configuration file is loaded, the configuration is updated. If the file loaded is invalid, an error window is displayed. |

Usage Examples

MPIO Read

This section describes two sample procedures for MPIO read.

MPIO Read via Direction Change

1. Connect to the XR17V35x COM port.
If connected successfully, the button text changes from *Connect* to *Disconnect* as shown in the following figure.

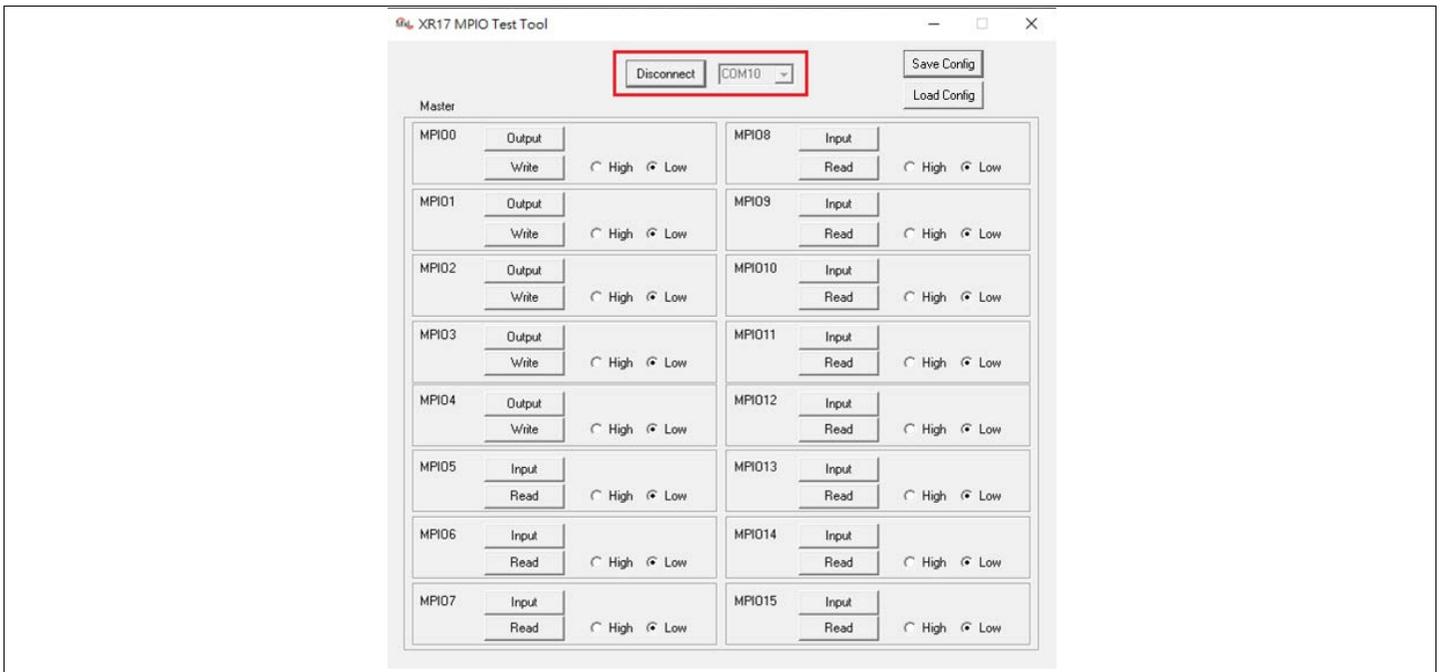


Figure 3: MPIO Read via Direction—Connect COM Port

- 2. In the MPIO4 as example (originally it is an output), click on the **Output** button as shown in the following figure.

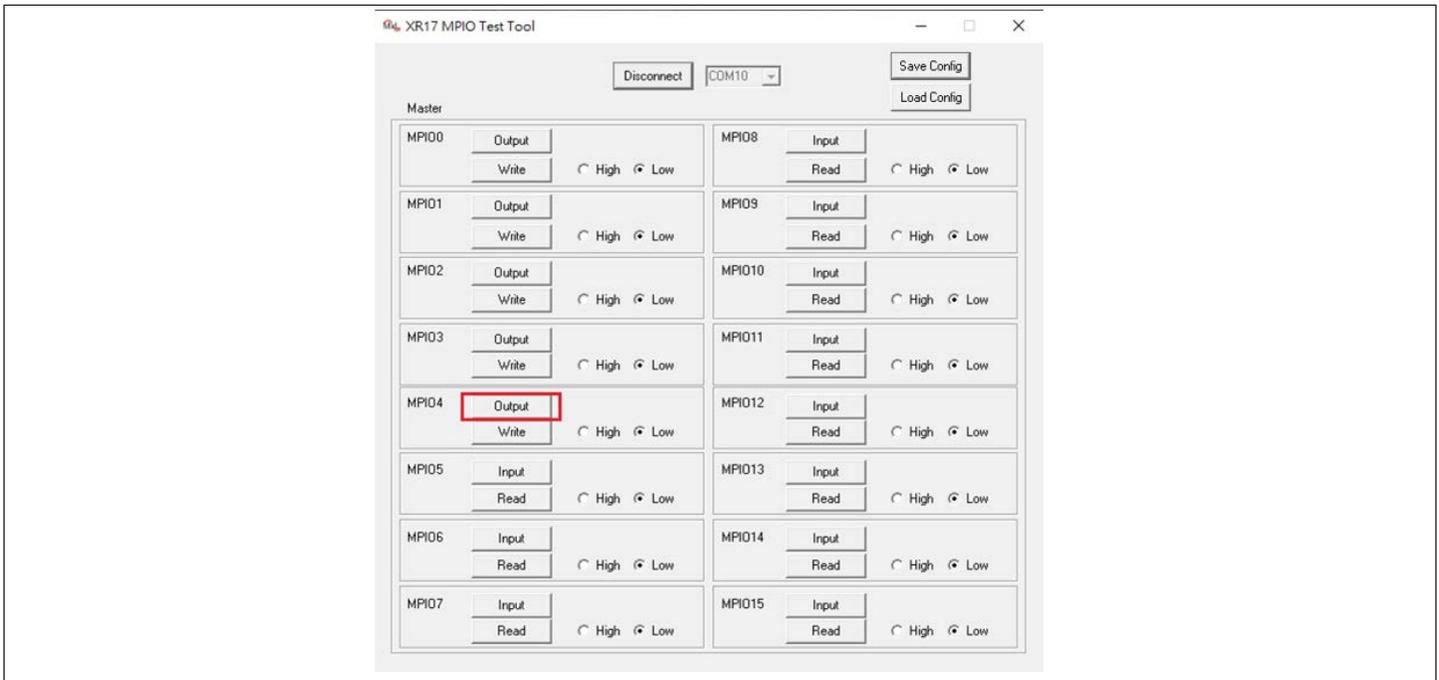


Figure 4: MPIO Read via Direction—Change Direction

Then, the direction button automatically changes to *Input*. The latest status when the MPIO4 changes as an input is displayed on the **High/Low** button as shown in the following figure.

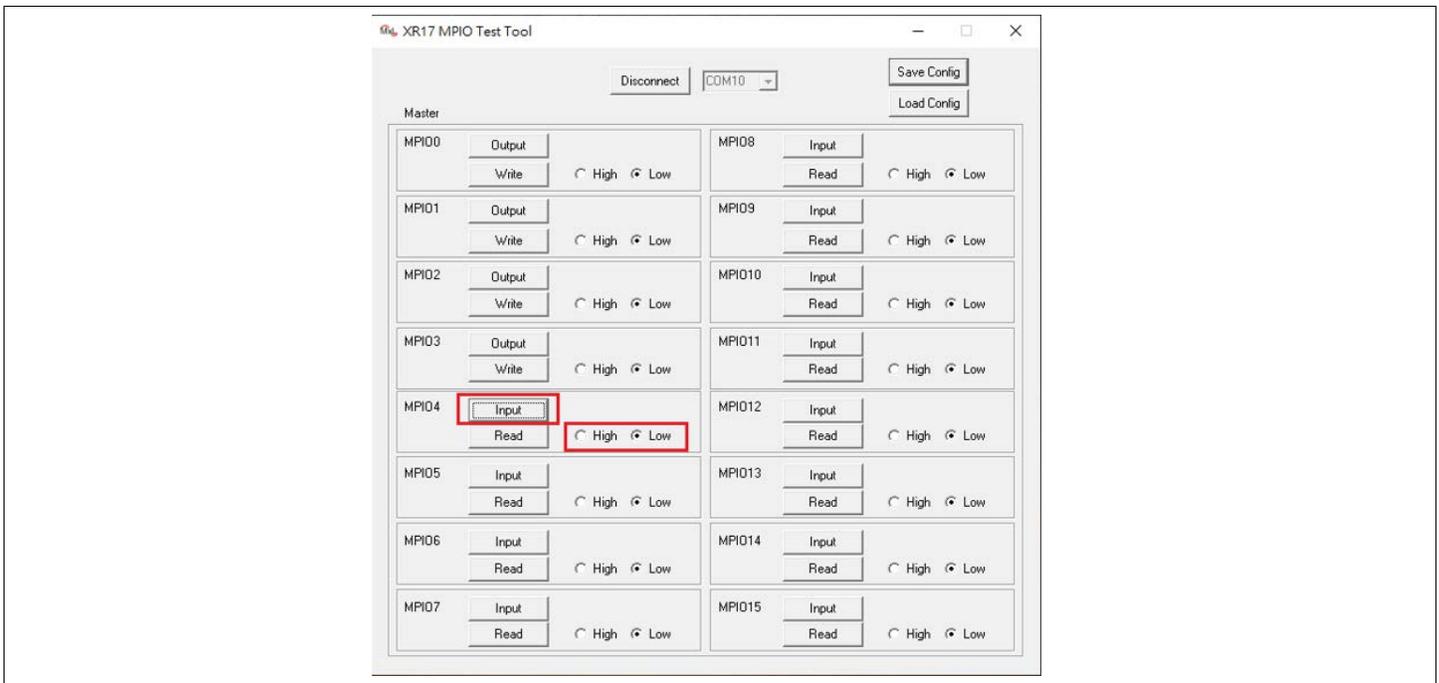


Figure 5: MPIO Read via Direction—Latest Status Display

MPIO Read via Read

1. Connect to the XR17V35x COM port.
If connected successfully, the button text changes from *Connect* to *Disconnect* as shown in the following figure.



Figure 6: MPIO Read via Read—Connect COM Port

2. In the MPIO4 as example (which is configured as an input in this case), click on the **Read** button as shown in Figure 7. It makes the actual read for the corresponding input MPIO (in this case it is MPIO4).



Figure 7: MPIO Read via Read—Do Read

The latest status is displayed on the **High/Low** button as shown in the following figure.

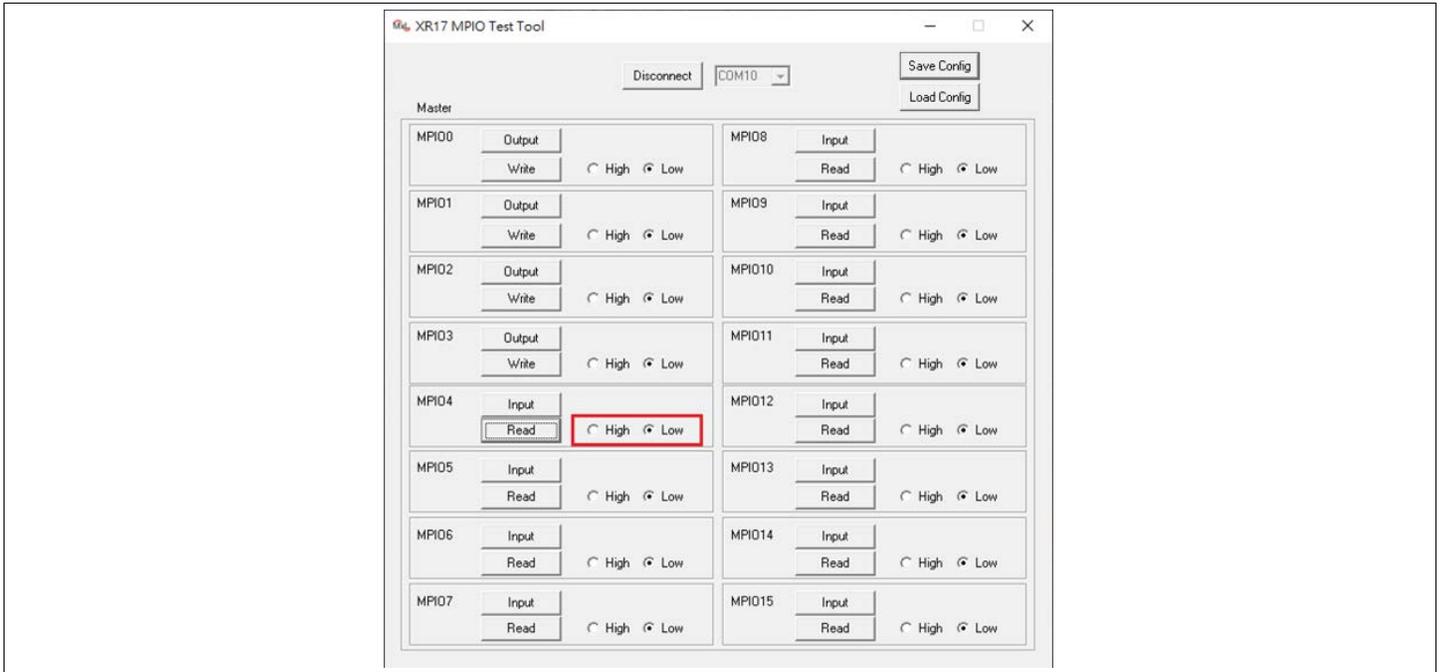


Figure 8: MPIO Read via Read—Read MPIO Status

MPIO Write

This section describes a sample procedure for MPIO write.

1. Connect to the XR17V35x COM port.

If connected successfully, the button text changes from *Connect* to *Disconnect* as shown in the following figure.



Figure 9: MPIO Write—Connect COM Port

2. In the MPIO4 as example (it is already an output), click on the **High/Low** button to select the intended state to be written.

For example, select the **High** checkbox as shown in the following figure.

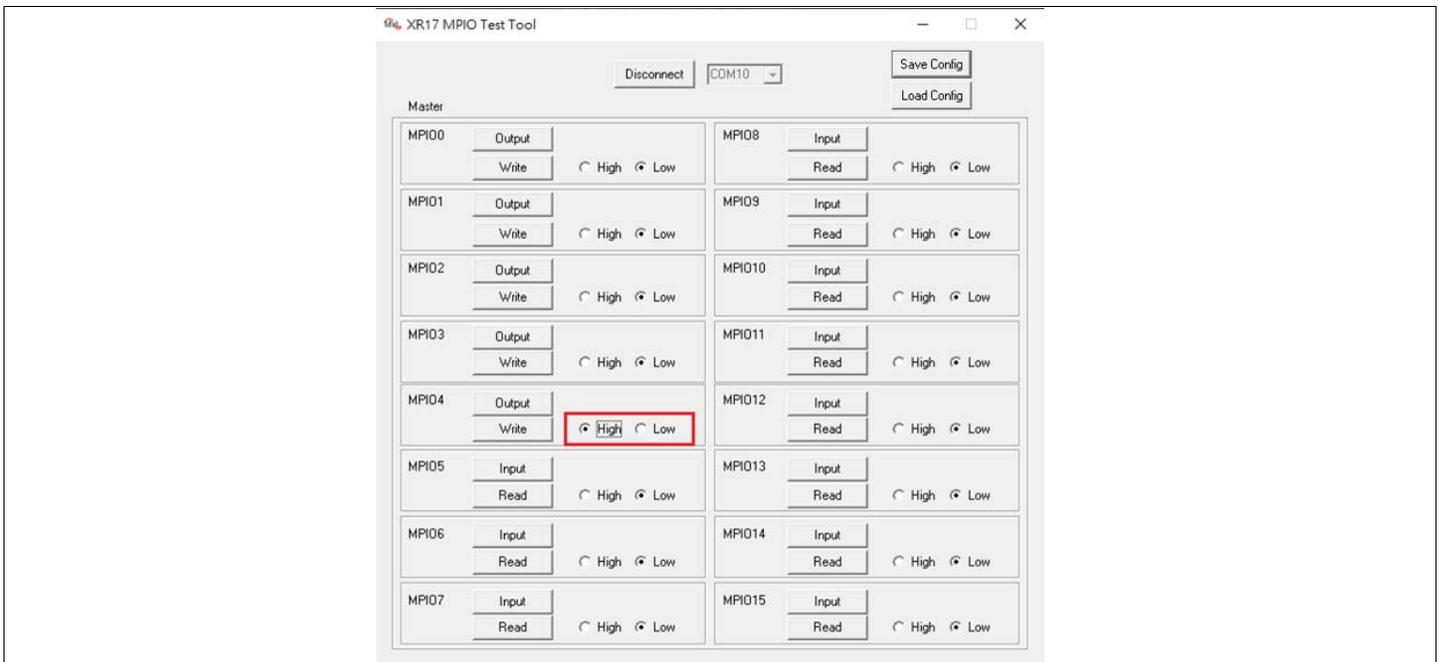


Figure 10: MPIO Write—Set State to Write

3. Click on the **Write** button to do the actual write configuration as shown in the following figure.

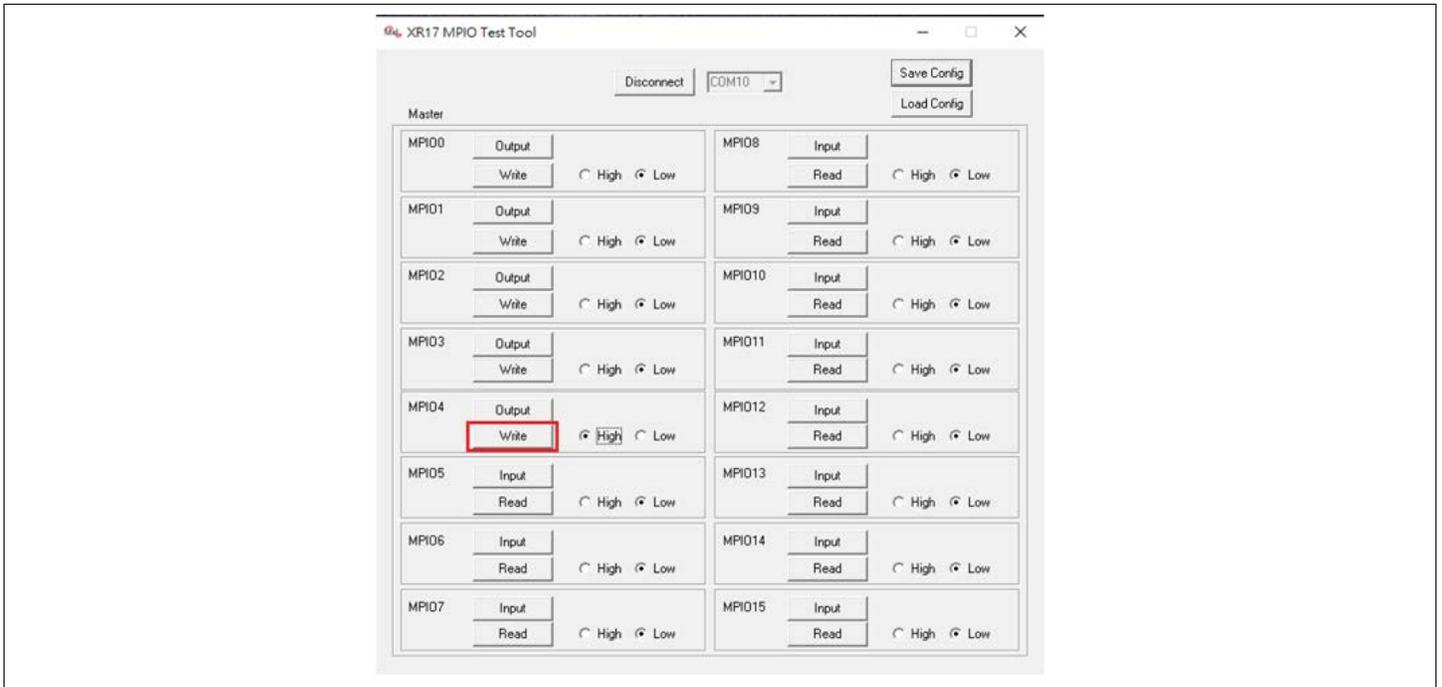


Figure 11: MPIO Write—Do Write

Save Config

This section describes a sample procedure for Save Config.

1. When connected, click on the **Save Config** button to save the current configuration as shown in the following figure.

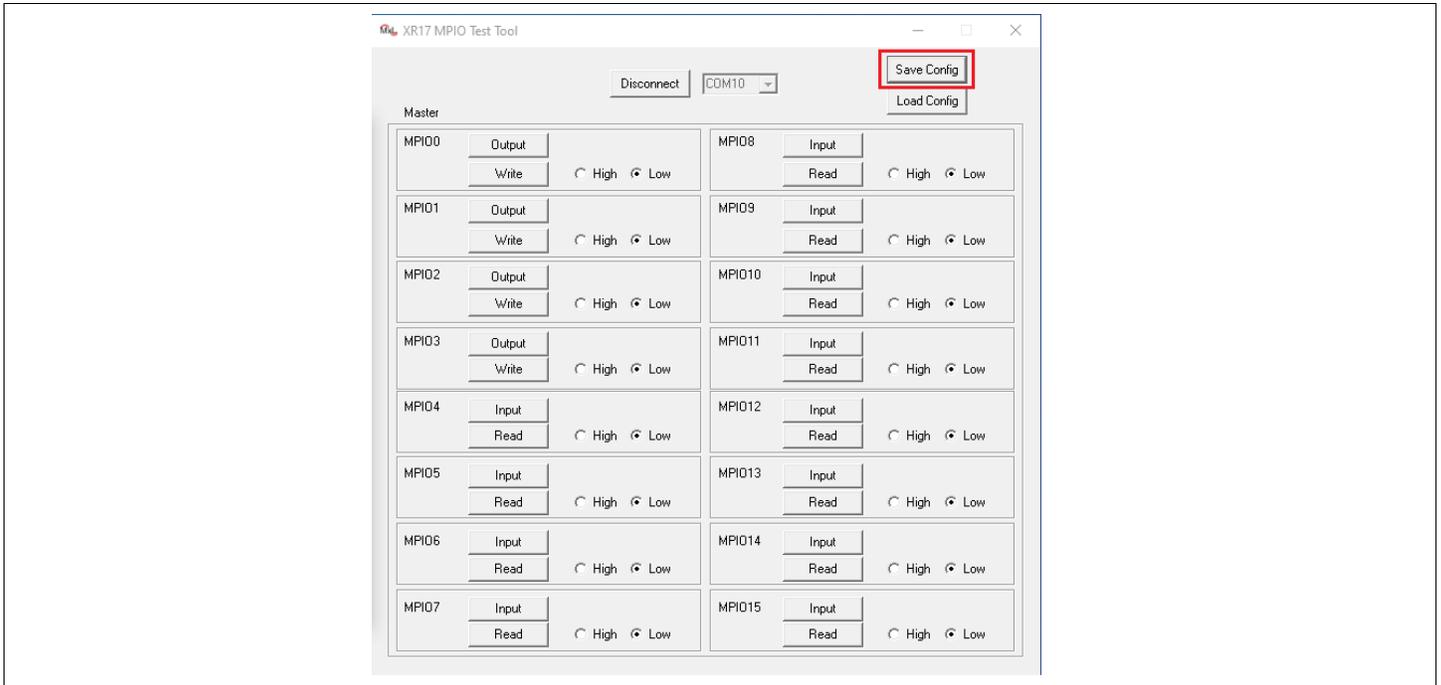


Figure 12: Save Config—Save Current Configuration

2. Then:
 - a. Set the path for the intended log file as shown as item 1 in Figure 13.
 - b. Set the file name for the intended log file as shown as item 2 in Figure 13.
 - c. Click **Save** button as shown as item 3 in Figure 13.

Once done, you can find the saved configuration file under the expected folder.

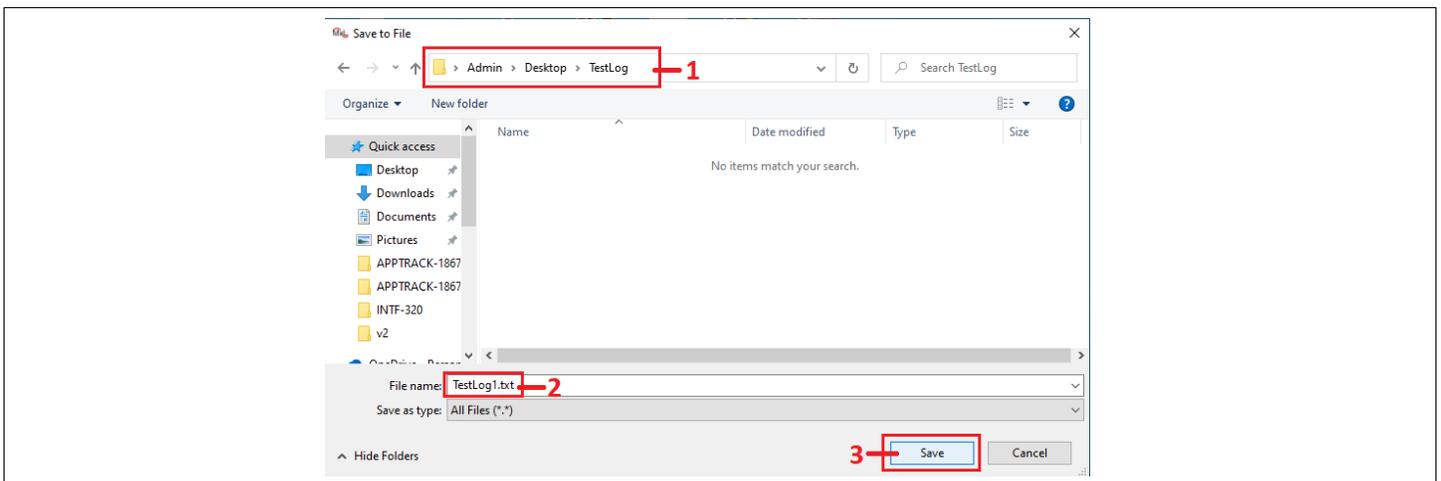


Figure 13: Save Config—Save to File

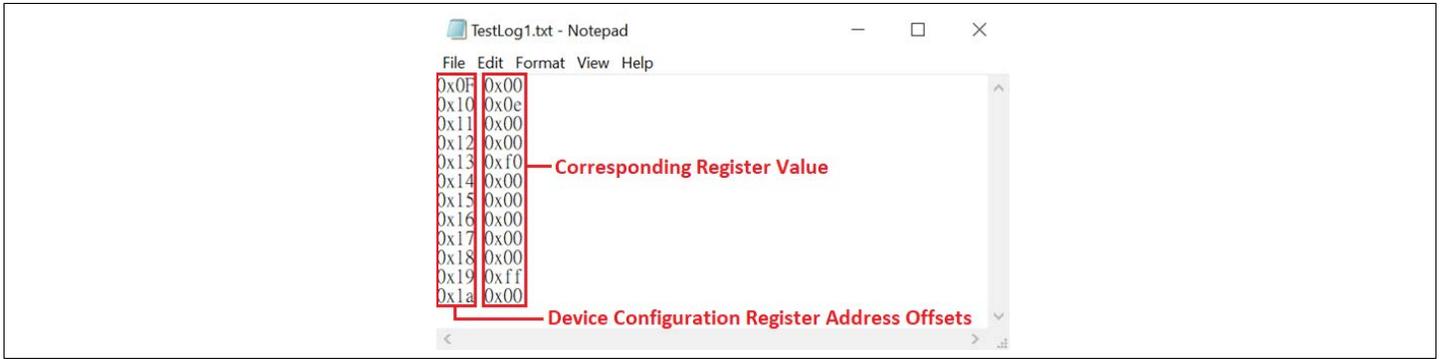


Figure 14: Save Config—Sample Configuration File

Load Config

This section describes a sample procedure for Load Config.

1. When connected, click on the **Load Config** button to reset or apply a saved configuration file as shown in the following figure.



Figure 15: Load Config—Load the Intended Configuration File

2. Then:
 - a. Set the path for the target log file as shown as item 1 in Figure 16.
 - b. Select the file name of the target log file as shown as item 2 in Figure 16.
 - c. Click **Open** button to do the actual load as shown as item 3 in Figure 16.

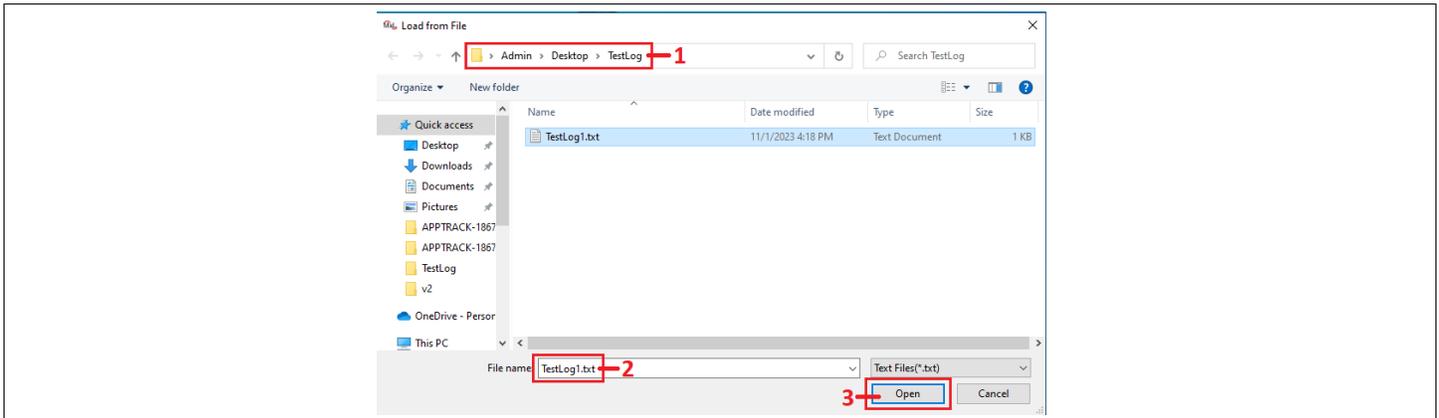


Figure 16: Load Config—Load from File

If the file loaded is valid, the configuration is automatically applied and updated. In the example shown in [Figure 17](#), the MPIO1, MPIO2, MPIO5, MPIO6, MPIO7, MPIO10, and MPIO12 directions are restored comparing to the configuration shown in [Figure 15](#).

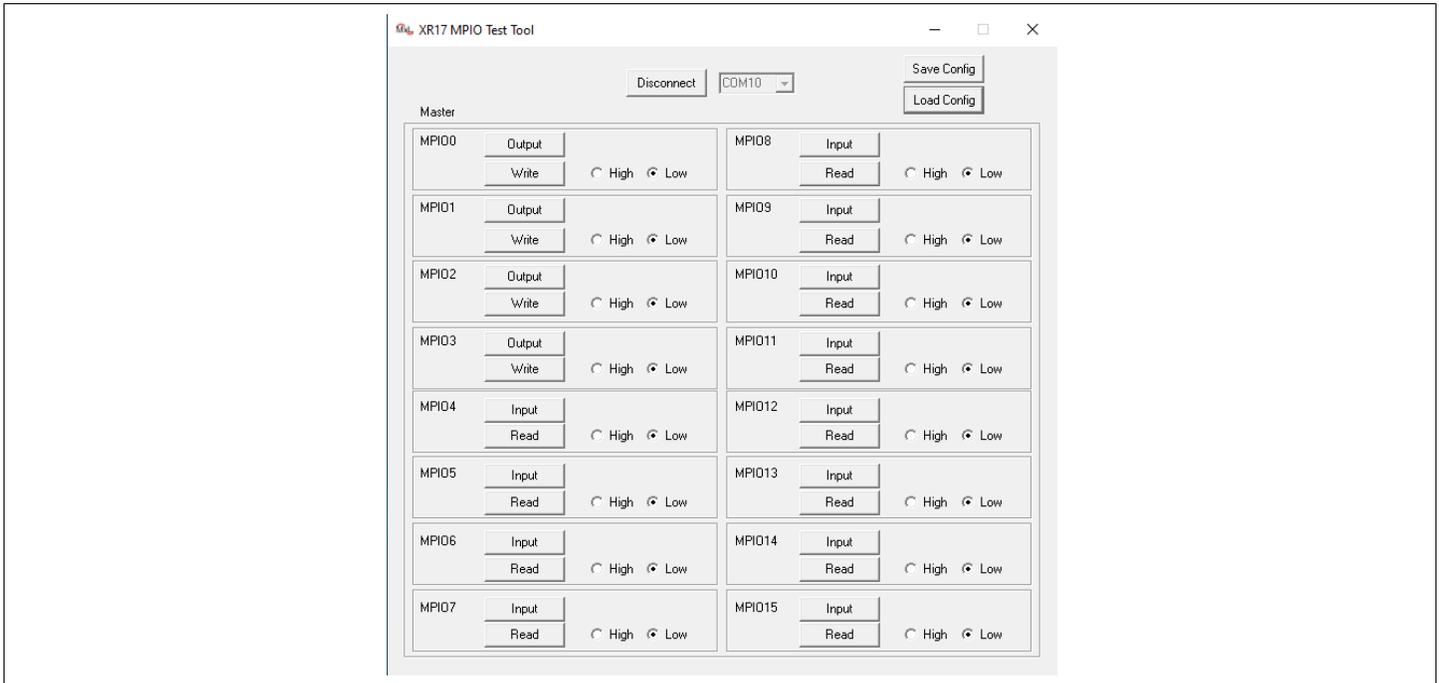


Figure 17: Load Config—Configuration from File Updated

Conclusion

MaxLinear XR17V35x MPIO test tool helps you to verify the MPIO related designs. With the supported features, it allows you to test or change the MPIO configuration based on different conditions and fully utilize the MPIO function MaxLinear's XR17V35x PCIe UART supports.



MaxLinear, Inc.
5966 La Place Court, Suite 100
Carlsbad, CA 92008
760.692.0711
760.444.8598

www.maxlinear.com

The content of this document is furnished for informational use only, is subject to change without notice, and should not be construed as a commitment by MaxLinear, Inc. MaxLinear, Inc. assumes no responsibility or liability for any errors or inaccuracies that may appear in the informational content contained in this document. Complying with all applicable copyright laws is the responsibility of the user. Without limiting the rights under copyright, no part of this document may be reproduced into, stored in, or introduced into a retrieval system, or transmitted in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise), or for any purpose, without the express written permission of MaxLinear, Inc.

EXCEPT AS OTHERWISE PROVIDED EXPRESSLY IN WRITING BY MAXLINEAR, AND TO THE MAXIMUM EXTENT PERMITTED BY LAW: (A) THE MAXLINEAR PRODUCTS ARE PROVIDED ON AN "AS IS" BASIS WITHOUT REPRESENTATIONS OR WARRANTIES OF ANY KIND, INCLUDING WITHOUT LIMITATION ANY IMPLIED OR STATUTORY WARRANTIES AND ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, OR TITLE; AND (B) MAXLINEAR DOES NOT GUARANTEE THAT THE PRODUCTS WILL BE FREE OF ERRORS OR DEFECTS. MAXLINEAR PRODUCTS SHOULD NOT BE USED IN ANY EMERGENCY, SECURITY, MILITARY, LIFE-SAVING, OR OTHER CRITICAL USE CASE WHERE A FAILURE OR MALFUNCTION COULD CAUSE PERSONAL INJURY OR DEATH, OR DAMAGE TO OR LOSS OF PROPERTY. USERS ASSUME ALL RISK FOR USING THE MAXLINEAR PRODUCTS IN SUCH USE CASE. CUSTOMERS AND USERS ARE SOLELY RESPONSIBLE FOR USING THEIR OWN SKILL AND JUDGMENT TO DETERMINE WHETHER MAXLINEAR PRODUCTS ARE SUITABLE FOR THE INTENDED USE CASE.

MaxLinear, Inc. may have patents, patent applications, trademarks, copyrights, or other intellectual property rights covering subject matter in this document. Except as expressly provided in any written license agreement from MaxLinear, Inc., the furnishing of this document does not give you any license to these patents, trademarks, copyrights, or other intellectual property.

MaxLinear, the MaxLinear logo, and any other MaxLinear trademarks (including but not limited to MxL, Full-Spectrum Capture, FSC, AirPHY, Puma, AnyWAN, VectorBoost, MXL WARE, and Panther) are all property of MaxLinear, Inc. or one of MaxLinear's subsidiaries in the U.S.A. and other countries. All rights reserved.

All third-party marks and logos are trademarks™ or registered® trademarks of their respective holders/owners. Use of such marks does not imply any affiliation with, sponsorship or endorsement by the owners/holders of such trademarks. All references by MaxLinear to third party trademarks are intended to constitute nominative fair use under applicable trademark laws.

The URLs provided are for informational purposes only; they do not constitute an endorsement or an approval by MaxLinear of any of the products or services of the corporation or organization or individual. MaxLinear bears no responsibility for the accuracy, legality or content of the external site or for that of subsequent links. Contact the external site for answers to questions regarding its content.

© 2024 MaxLinear, Inc. All rights reserved.