

## Description

The USB-BRIDGEV2-EVAL USB Interface adapter board provides quick access to the I2C and other features of various IDT devices.

The tool is designed to allow PC based graphical user interface access via I2C interface, general purpose I/Os, analog input as well as IDT's proprietary OTP (One Time Programmable) Memory interface.

The board supports an I2C voltage level adjustment to the target system and an onboard 1.8V regulator for 1.8V slave-I2C operation in addition to the 5V USB derived operation.

The board allows easy access via the USB micro AB connector and included PC driver Software Package.

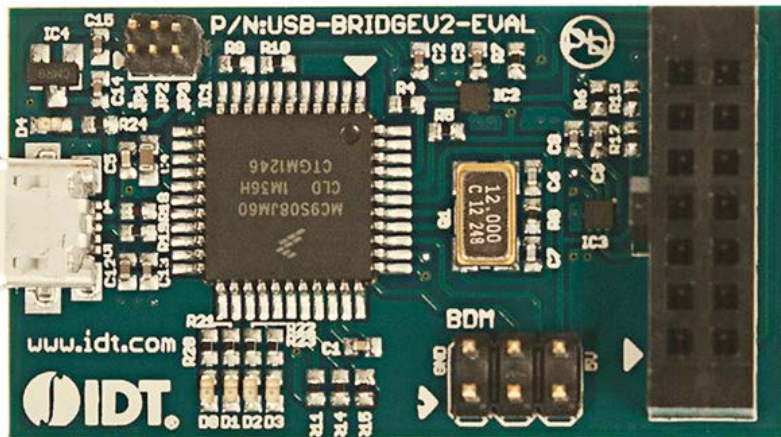
## Features

- Simple USB to I2C interface for IDT evaluation kits
- Additional Digital and Analog I/O option
- IDT Test Interface bridge for supported IDT devices
- Fully assembled
- Micro USB connector with cable included
- Firmware update option
- LED status indicators

## Kit Contents

- USB-BRIDGEV2-EVAL evaluation board
- USB A to micro-USB AB cable
- USB-BRIDGEV2-EVAL user manual
- Download the PC driver for Windows from IDT.com

Figure 1. USB-BRIDGEV2-EVAL Evaluation Board – top view



## Important Notes

### Disclaimer

Integrated Device Technology, Inc. and its affiliated companies (herein referred to as "IDT") shall not be liable for any damages arising out of defects resulting from

- (i) delivered hardware or software
- (ii) non-observance of instructions contained in this manual and in any other documentation provided to user, or
- (iii) misuse, abuse, use under abnormal conditions, or alteration by anyone other than IDT.

TO THE EXTENT PERMITTED BY LAW, IDT HEREBY EXPRESSLY DISCLAIMS AND USER EXPRESSLY WAIVES ANY AND ALL WARRANTIES, WHETHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE, STATUTORY WARRANTY OF NON-INFRINGEMENT, AND ANY OTHER WARRANTY THAT MAY ARISE BY REASON OF USAGE OF TRADE, CUSTOM, OR COURSE OF DEALING.

### Restrictions in Use

IDT's USB-BRIDGEV2-EVAL, consisting of the USB-BRIDGEV2-EVAL and USB-BRIDGEV2-EVAL USB Driver, is designed to communicate with and control I2C-enabled boards and devices only.



**Important Safety Warning:** These procedures can result in high currents, which can cause severe injury or death and/or equipment damage. Only trained professional staff should connect external equipment and operate the software.



**Important Equipment Warning:** Ensure the correct connection of all cables. Supplying the board using the wrong polarity could result in damage to the board and/or the equipment. Check that all jumpers have been removed from the board before applying power.

## Contents

1. Windows Driver Installation for Windows XP to Win7.....	4
2. Windows Driver Installation for Windows 8.....	6
3. Device Configuration .....	9
4. Schematic.....	11
5. Ordering Information.....	12
6. Revision History.....	12

## List of Figures

Figure 1. USB-BRIDGEV2-EVAL Evaluation Board – top view .....	1
Figure 2. Board Configuration.....	9
Figure 3. System Overview.....	10
Figure 4. Evaluation Board Schematic .....	11

## 1. Windows Driver Installation for Windows XP to Win7

The first time the USB-BRIDGEV2-EVAL is used, the Windows Drivers must be installed.

The installation of the Windows USB to I2C interface on a Windows (XP to Win7) 32-bit or 64-bit system is shown by the following steps:

1. Connect the USB-BRIDGEV2-EVAL without any target evaluation system connected to your PC via the USB cable included.
2. Choose Update in the Device Manager or follow the instructions for a new device found after first connect of the interface.



3. Browse manually for the driver location:

How do you want to search for driver software?

→ Search automatically for updated driver software  
Windows will search your computer and the Internet for the latest driver software for your device, unless you've disabled this feature in your device installation settings.

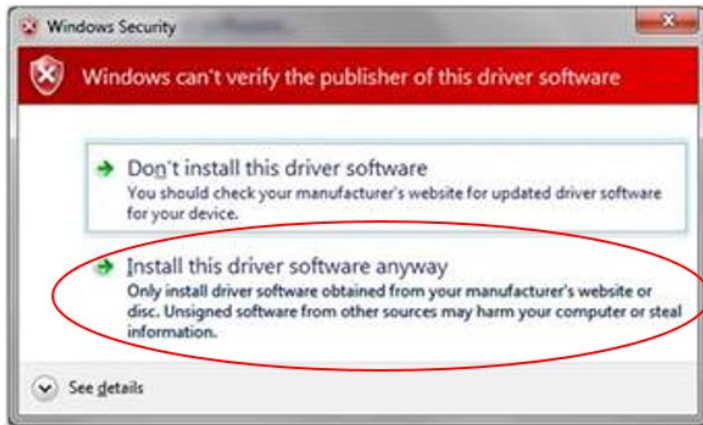
→ Browse my computer for driver software  
Locate and install driver software manually.

→ Let me pick from a list of device drivers on my computer  
This list will show installed driver software compatible with the device, and all driver software in the same category as the device.

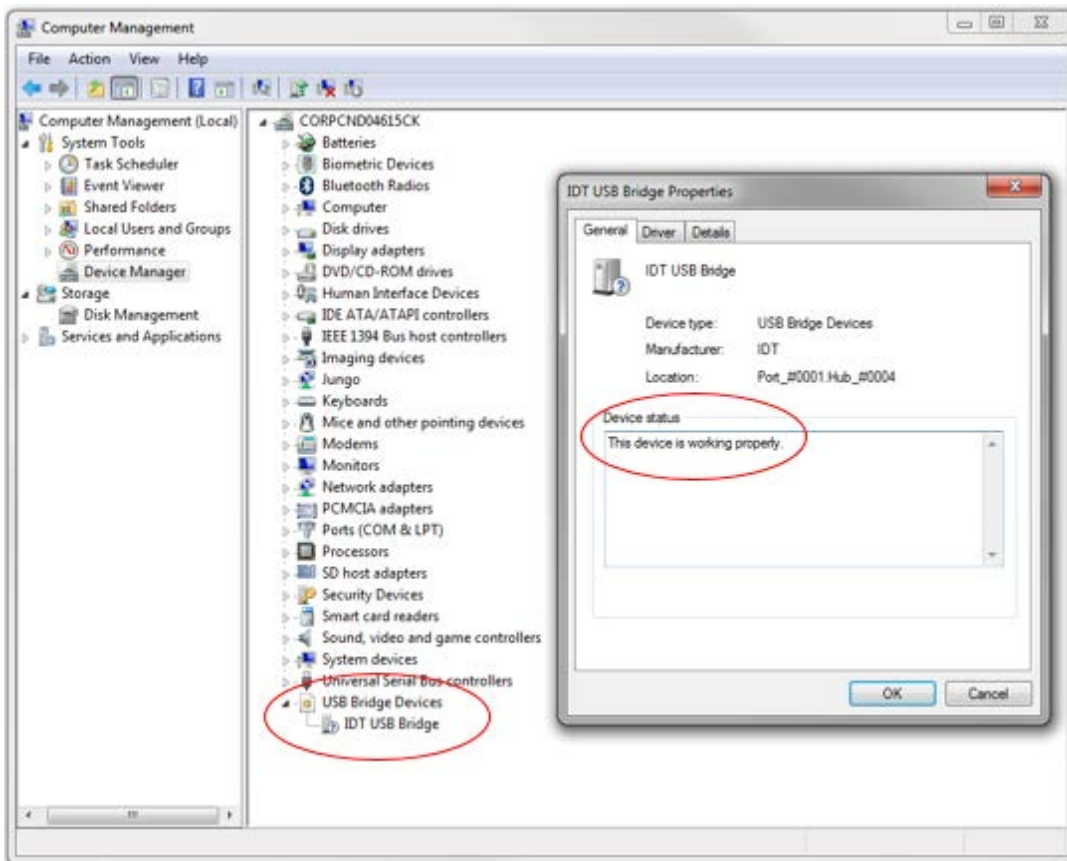
4. Choose "Have Disk" and select the "idt\_usb\_bridge.inf" from the uncompressed driver folder.



5. Accept the Warning (IDT is currently certifying the driver with Microsoft™ to bypass the warning):



6. Verification of successful driver installation:

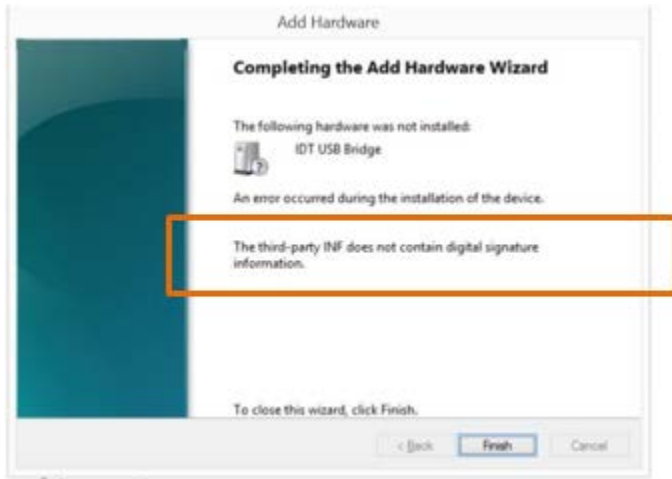


## 2. Windows Driver Installation for Windows 8

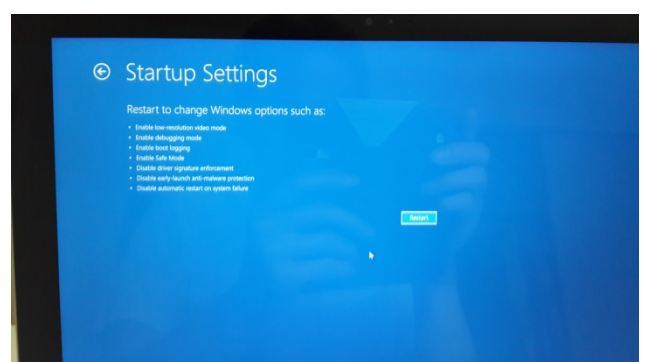
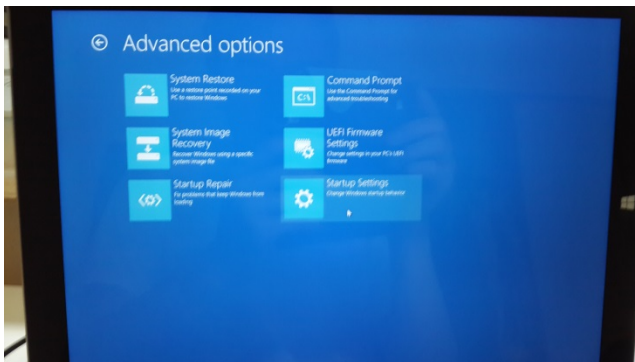
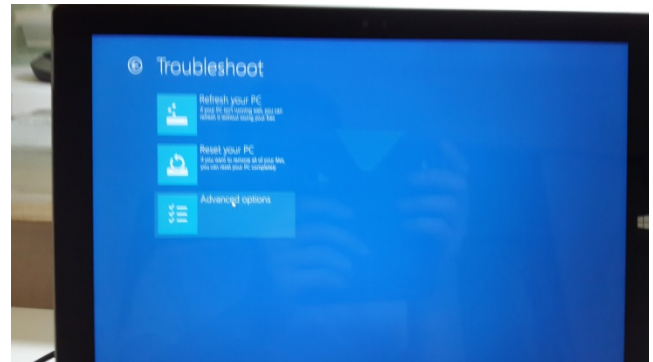
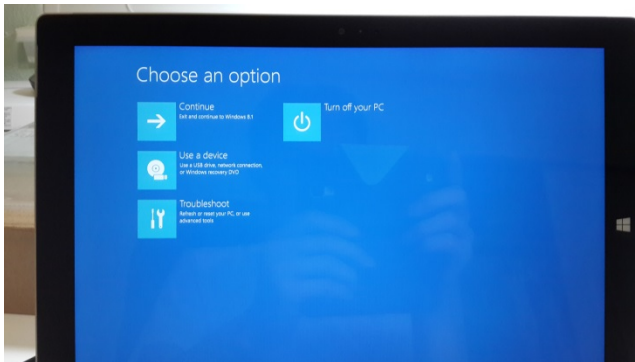
The first time the USB-BRIDGEV2-EVAL is used, the Windows Drivers must be installed.

The installation of the Windows USB-to I<sup>2</sup>C-interface on a Windows 8 system is shown by the following steps. Additional reference is available at [How to install a driver that does not contain digital signature information in Windows 8?](#)

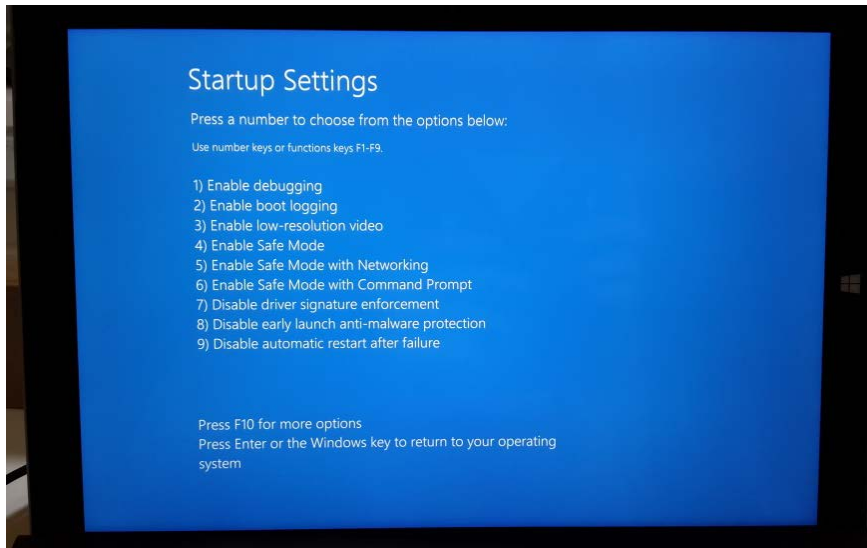
1. Connect the USB-BRIDGEV2-EVAL without any target evaluation system connected to your PC via the USB cable included. The computer will report an error message that the driver is not digitally-signed.



2. Hold the Shift key while choosing to restart the computer.
3. Windows will show options below. Select Troubleshoot, Advanced options, Startup Settings, Restart.



4. After the computer restarts, select option 7) *Disable driver signature enforcement*.



5. When Windows restarts, reconnect the USB-BRIDGEV2-EVAL without any target evaluation system connected to your PC via the USB cable included. The computer will report that driver is not successfully installed. Use Device Manager to update the driver.
  - a. Choose Update in the Device Manager or follow the instructions for a new device found after first connecting the interface.



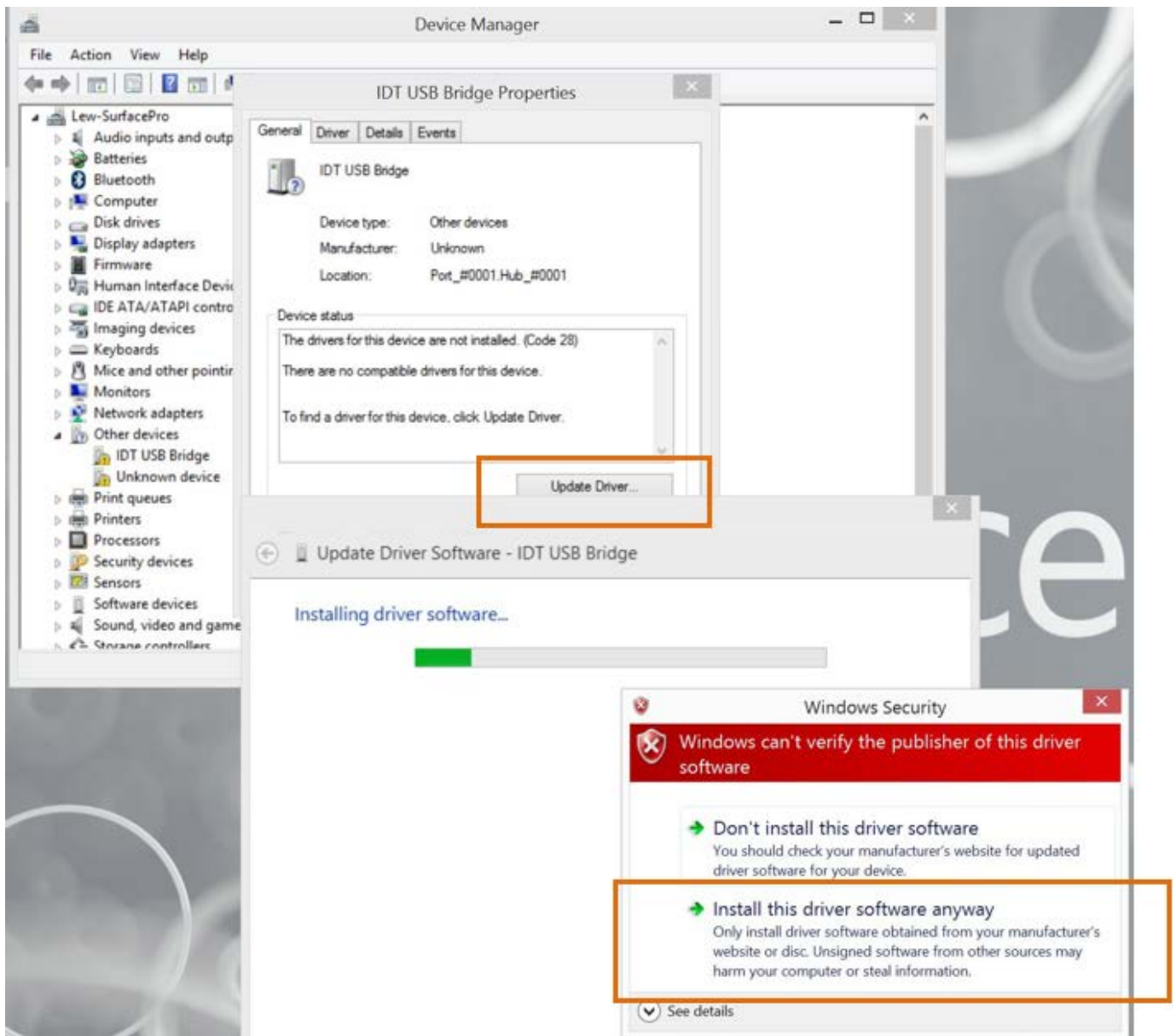
- b. Browse manually for the driver location:



- c. Choose "Have Disk" and select the "idt\_usb\_bridge.inf" from the uncompressed driver folder.

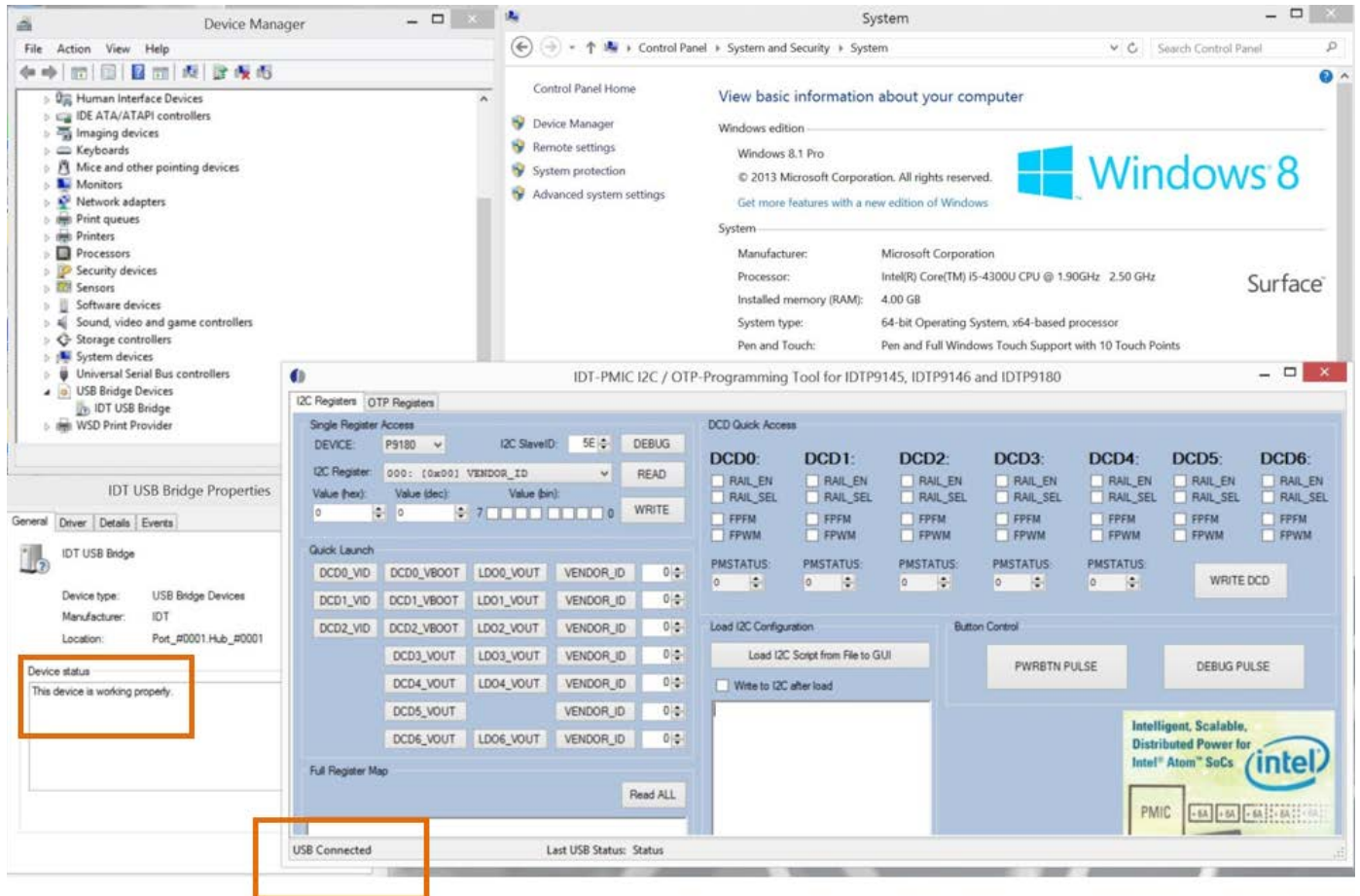


- d. The computer will alert that "Windows can't verify the publisher of this driver software". Choose "Install this driver software anyway" to accept the Warning (IDT is currently certifying the driver with Microsoft™ to bypass the warning):



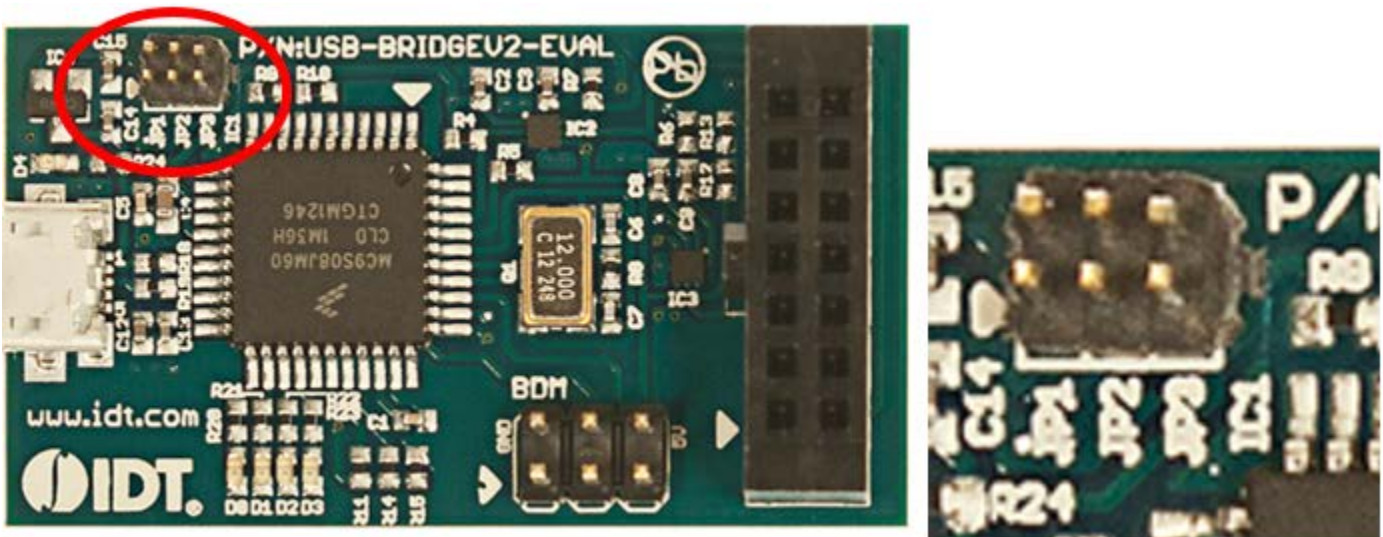


- e. Verification of successful driver installation. Once the driver is installed, running IDTP91xx-PMIC-GUI should show that the device is connected.



### 3. Device Configuration

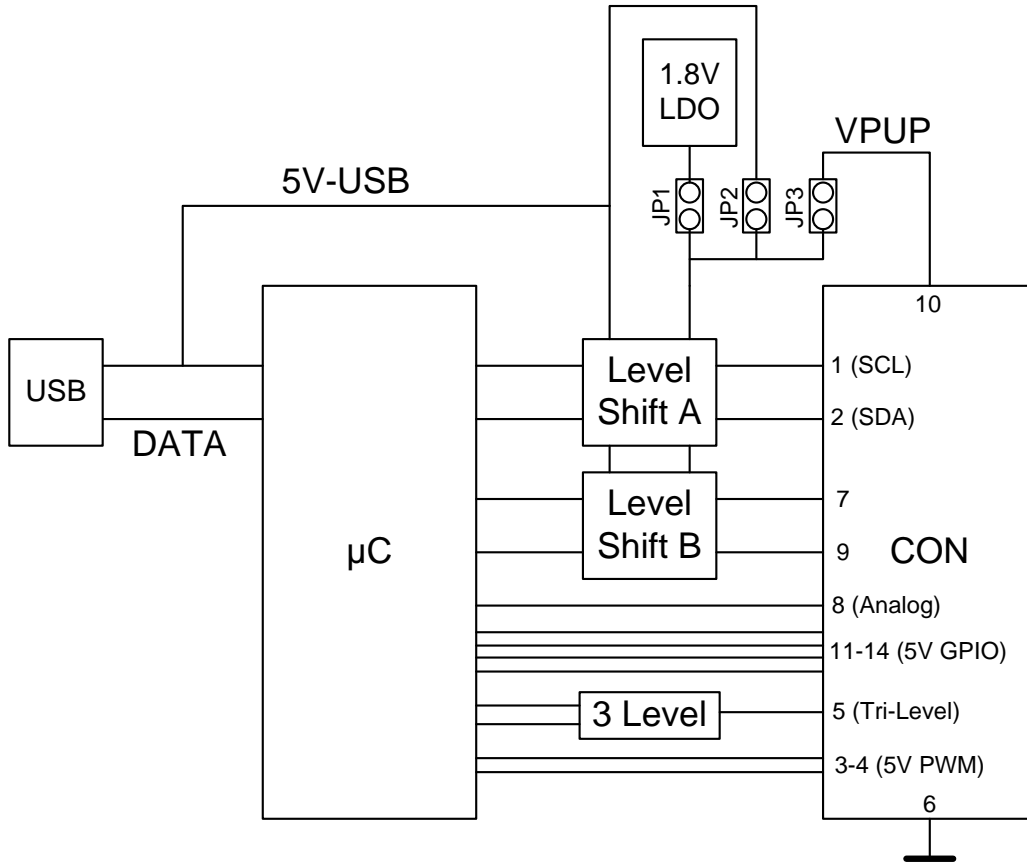
Figure 2. Board Configuration



The USB-BRIDGEV2-EVAL has to be configured for the target system used. The detailed requirement for the target system can be found in the respective manual.

The configuration will adjust the voltage level of the 2 on board level shifters (including pull-up resistors) to the required target system level using JP1, 2 and 3 highlighted in the figure above and below.

Figure 3. System Overview

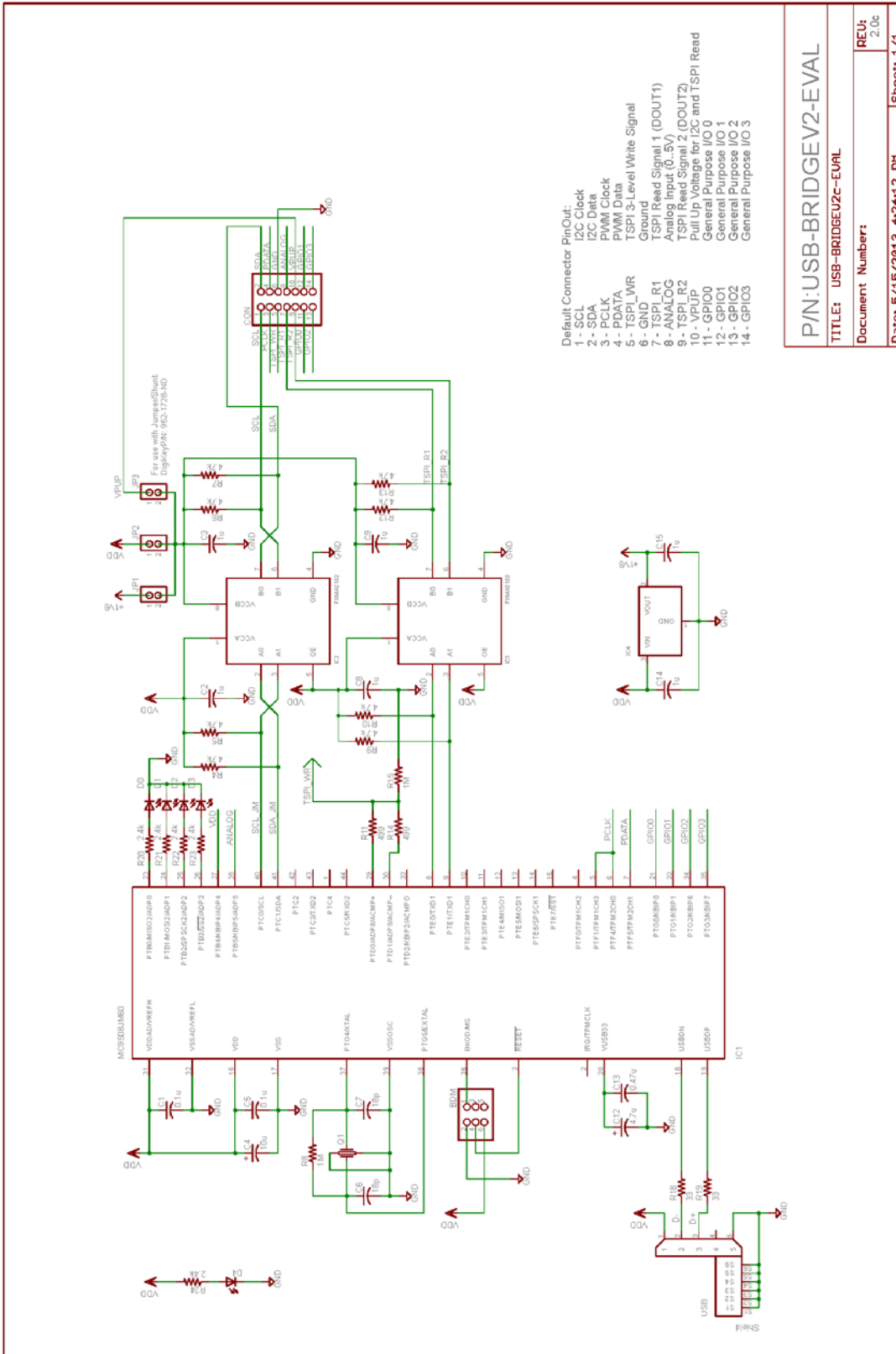


- Option 1 (JP1 shorted, JP2, 3 open) will provide a 1.8V (on board LDO) voltage level for the I2C interface and CON-7, 8 pins.
- Option 2 (JP2 shorted, JP1, 3 open) will provide the USB 5V voltage level for the I2C interface and CON-7, 8 pins.
- Option 3 (JP3 shorted, JP1, 2 open) will provide the VPUP voltage level for the I2C interface and CON-7, 8 pins. VPUP is provided through the CON interface connector and allows the target system to supply the desired voltage level.
- Option 1 and 2 can be combined with JP3 shorted to provide the 1.8V or 5V to the target system.

**WARNING:** Never short JP1 and JP2 the same time or provide a voltage through VPUP with JP1 and JP2 shorted.

# 4. Schematic

Figure 4. Evaluation Board Schematic



<b>P/N: USB-BRIDGEV2-EVAL</b>	
<b>TITLE: USB-BRIDGEV2-EVAL</b>	<b>REV: 2.0c</b>
<b>Document Number:</b>	
<b>Date: 5/15/2013 4:24:12 PM</b>	<b>Sheet: 1/1</b>

## 5. Ordering Information

Orderable Part Number	Ambient Temperature Range	Shipping Carrier	Quantity
USB-BRIDGEV2-EVAL	0°C to +85°C	Box 14" × 10" × 2"	1

## 6. Revision History

Revision Date	Description of Change
September 14, 2018	Updated document to latest template.
August 3, 2015	Released Version 2.0.
April 24, 2013	Initial release, Version 1.0.

## IMPORTANT NOTICE AND DISCLAIMER

RENESAS ELECTRONICS CORPORATION AND ITS SUBSIDIARIES (“RENESAS”) PROVIDES TECHNICAL SPECIFICATIONS AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES “AS IS” AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for developers skilled in the art designing with Renesas products. You are solely responsible for (1) selecting the appropriate products for your application, (2) designing, validating, and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. Renesas grants you permission to use these resources only for development of an application that uses Renesas products. Other reproduction or use of these resources is strictly prohibited. No license is granted to any other Renesas intellectual property or to any third party intellectual property. Renesas disclaims responsibility for, and you will fully indemnify Renesas and its representatives against, any claims, damages, costs, losses, or liabilities arising out of your use of these resources. Renesas' products are provided only subject to Renesas' Terms and Conditions of Sale or other applicable terms agreed to in writing. No use of any Renesas resources expands or otherwise alters any applicable warranties or warranty disclaimers for these products.

(Disclaimer Rev.1.0 Mar 2020)

### Corporate Headquarters

TOYOSU FORESIA, 3-2-24 Toyosu,  
Koto-ku, Tokyo 135-0061, Japan  
[www.renesas.com](http://www.renesas.com)

### Contact Information

For further information on a product, technology, the most up-to-date version of a document, or your nearest sales office, please visit:  
[www.renesas.com/contact/](http://www.renesas.com/contact/)

### Trademarks

Renesas and the Renesas logo are trademarks of Renesas Electronics Corporation. All trademarks and registered trademarks are the property of their respective owners.