



# Evaluating the MAX14827 with mbed

## User Guide

UG6248; Rev 0; 3/16

### Description

The MAX14827 IO-Link device transceiver/industrial-sensor output driver can be configured and monitored either by setting logic-interface pins (pin-mode) or through an SPI interface (SPI mode). The MAX14827 EV kit is designed to operate as a stand-alone board (for pin-mode evaluation only) or in conjunction with an Arduino®-based form-factor ARM® mbed® board (for either pin-mode or SPI-mode evaluation). Maxim used the STM32 Nucleo-F103R board for GUI development and testing.

### Installing the Software

Software for the MAX14827 EV kit can be downloaded from the MAX14827 EV kit Design Resources tab. This zip file contains 2 files: a .bin file, and an .exe file. Click on the .exe file to install the GUI on your PC.

To connect the PC to the mbed board, connect the USB cable from the mbed board to the PC, and copy and paste the .bin file to the mbed drive that appears. This programs the microcontroller on the mbed board.

Once the mbed board is connected and programmed, you can open the MAX14827 EV kit software installed on your PC.

### Quick Start

#### Required Equipment

- Windows® 7 and later for PC with a USB Port
- MAX14827EVKIT
- STM32 Nucleo-F103R mbed board or other Arduino form-factor mbed platform
- 24V, 500mA Power Supply
- Oscilloscope

*Note: Before connecting the mbed board to the PC, ensure that you have installed the appropriate mbed drivers.*

- *Download the driver for the mbed board from the mbed website.*
- *Follow the instructions on the mbed site for installing the drivers.*
- *Ensure that you have the latest firmware available by following the directions on this page.*

## Procedure

1. Ensure that you have installed the mbed drivers on your PC.
2. Ensure that the jumpers on the MAX14827 EV kit are configured as shown in **Table 1**.

**Table 1. Jumper Settings for mbed Connection**

| JUMPER/S WITCH | SHUNT POSITION/ SETTING | FUNCTION                                    |
|----------------|-------------------------|---|
| J1             | Open                    | LED1IN is not pulled high.                  |
| J2             | Open                    | UARTSEL is not pulled high.                 |
| J3             | Open                    | LED2 is connected to IRQ/OC (not bypassed). |
| J4             | 2-3                     | VL is connected to V33 (VL = 3.3V)          |
| J5             | Open                    | SDI/RX/NPN jumper is low.                   |
| J6             | Open                    | CS/PP jumper is high.                       |
| J7             | Open                    | CLK/TXEN/200MA is low.                      |
| J8             | Open                    | TXEN is open.                               |
| SW1            | Position 1 (Far Left)   | Internal 5V regulator is used.              |
| SW2            | Off (Left)              | SPI/PIN is pulled low.                      |

3. Connect the MAX14827EVKIT to the mbed platform.
4. Connect the positive terminal of the V24 supply source to the V24 test point (TP1). Connect the negative terminal of the V24 supply source to the GND test point (TP18).
5. Connect the USB cable from the PC to the mbed board.
6. Connect the oscilloscope probes to the C/Q (TP8), DO (TP14), and RX (TP7) test points.
7. Turn on the V24 power supply.
8. Open the MAX14827 EV kit software installed on your computer. A splash screen appears briefly as the program is started, then disappears.
9. Ensure that the GUI shows that both the mbed board and MAX14827 EV Kit board are detected (**Figure 1**).

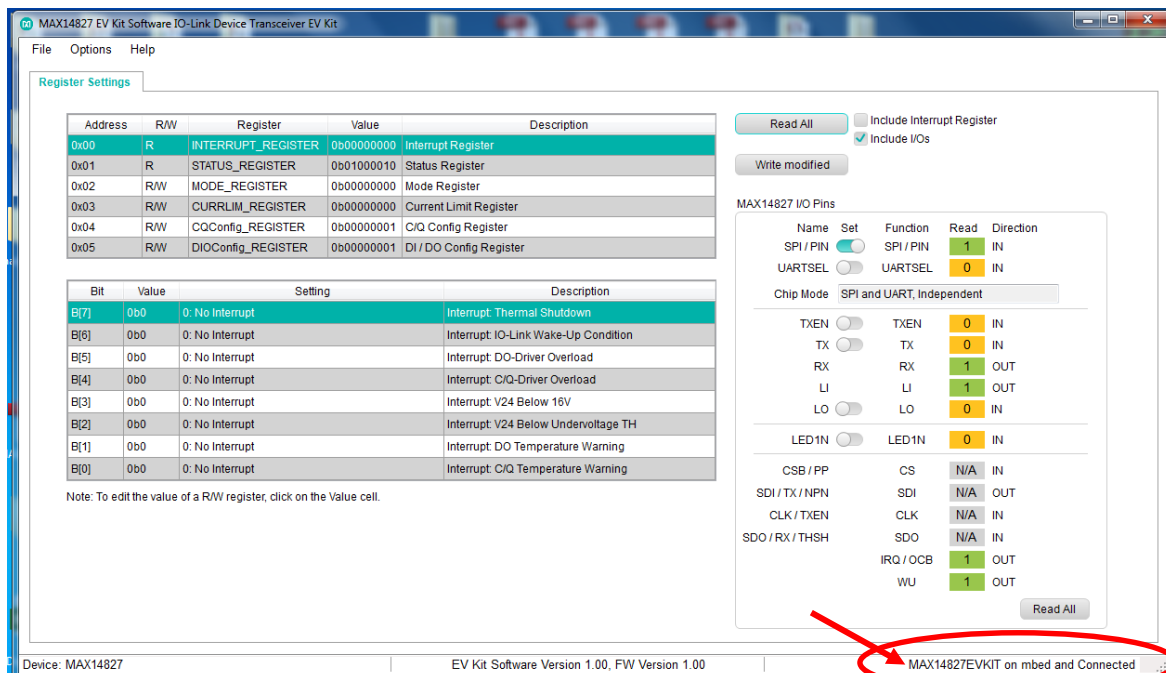


Figure 1. MAX14827 EV kit startup screen.

- Click on the SPI/ $\overline{\text{PIN}}$  switch to move it to the left and put the device in pin-mode. Click on the Read All button in the MAX14827 IO Pins section to verify that the pin setting has been changed.

*Note: In this mode the register block are greyed out and the inputs are controlled using the switches in the MAX14827 IO Pins section on the right.*

- Click on the LO switch and verify that DO switches are expected.
- Click on the TXEN switch so that it moves to the right.
- Click on the TX switch and verify that C/Q and RX move as expected.

## Operating in Pin-Mode

To operate the MAX14827 EV kit in pin-mode, set the mode selection switch (SW2) to the OFF, or left, position. When connected to the mbed board, SPI/ $\overline{\text{PIN}}$  switch in the MAX14827 IO Pins section must also be set to the left. In this position, the SPI/ $\overline{\text{PIN}}$  input is pulled low.

When operating in pin-mode, the C/Q and DO output modes are changed simultaneously by setting the CS/PP, SDI/TX/NPN or SDO/RX/200MA pins high or low. The DO output cannot be disabled in pin-mode, but C/Q can be configured as either a driver output or receiver input by setting the TXEN pin.

Each input is configured with a switch on the GUI in the MAX14827 I/O Pins section (**Figure 2**). The function for each pin is listed next to the switch. Click on the switch to change the setting. When a switch is set to the left, the corresponding pin is set low and the Read box is '0'. When a switch is set to the right, the corresponding pin is set high and the Read box next to it is '1.' Note that outputs do not have switches, but do have Read boxes for quick visual validation.

See Tables 1-3 in the [MAX14827 IC data sheet](#) for detailed information on configuring and setting the C/Q and DO drivers and LED output in pin-mode.

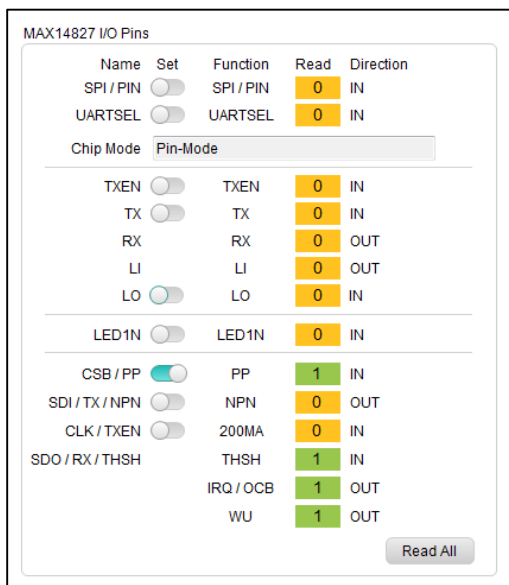


Figure 2. MAX14827 I/O pins section for Pin-Mode Control on the GUI.

## Operating in SPI Mode

To operate the MAX14827 EV kit in SPI mode, ensure that SW2 is in the OFF position and set the SPI/ $\overline{\text{PIN}}$  switch in the MAX14827 IO Pins section to the right. This pulls the SPI/ $\overline{\text{PIN}}$  input high and sets the device in SPI mode. Click on the Read All button in the MAX14827 I/O Pins section to ensure that the change is validated.

When operating the MAX14827 in SPI mode, the C/Q and DO outputs can be independently monitored and configured. See the MAX14827 data sheet for more detailed information about setting/reading the SPI registers and configuration bits.

After setting the device in SPI mode, it is a good idea to check the “Include Interrupt Register” check box in the upper right side of the GUI, and to click on the Read All button near the top of the Register list. Both C/Q and DO should be disabled when SPI mode is entered (after power up) and the register list should look as shown in **Figure 3**.

**Register Settings**

| Address | R/W | Register             | Value      | Description             |
|---------|-----|----------------------|------------|-------------------------|
| 0x00    | R   | INTERRUPT_REGISTER   | 0b00000000 | Interrupt Register      |
| 0x01    | R   | STATUS_REGISTER      | 0b01000010 | Status Register         |
| 0x02    | R/W | MODE_REGISTER        | 0b00000000 | Mode Register           |
| 0x03    | R/W | CURRLIM_REGISTER     | 0b00000000 | Current Limit Register  |
| 0x04    | R/W | CQConfig_REGISTER    | 0b00000001 | C/Q Config Register     |
| 0x05    | R/W | DIODOConfig_REGISTER | 0b00000001 | DI / DO Config Register |

Read All  Include Interrupt Register  
 Include I/Os

Write modified

MAX14827 I/O Pins

| Name                                 | Set                                 | Function                      | Read | Direction |
|--------------------------------------|-------------------------------------|-------------------------------|------|-----------|
| SPI / $\overline{\text{PIN}}$        | <input checked="" type="checkbox"/> | SPI / $\overline{\text{PIN}}$ | 1    | IN        |
| UARTSEL                              | <input type="checkbox"/>            | UARTSEL                       | 0    | IN        |
| Chip Mode: SPI and UART, Independent |                                     |                               |      |           |
| TXEN                                 | <input type="checkbox"/>            | TXEN                          | 0    | IN        |
| TX                                   | <input type="checkbox"/>            | TX                            | 0    | IN        |
| RX                                   | <input type="checkbox"/>            | RX                            | 1    | OUT       |
| LI                                   | <input type="checkbox"/>            | LI                            | 1    | OUT       |
| LO                                   | <input type="checkbox"/>            | LO                            | 0    | IN        |
| LED1N                                | <input type="checkbox"/>            | LED1N                         | 0    | IN        |
| CSB / PP                             | <input type="checkbox"/>            | CS                            | N/A  | IN        |
| SDI / TX / NPN                       | <input type="checkbox"/>            | SDI                           | N/A  | OUT       |
| CLK / TXEN                           | <input type="checkbox"/>            | CLK                           | N/A  | IN        |
| SDO / RX / THSH                      | <input type="checkbox"/>            | SDO                           | N/A  | IN        |
|                                      | <input type="checkbox"/>            | IRQ / OCB                     | 1    | OUT       |
|                                      | <input type="checkbox"/>            | WU                            | 1    | OUT       |

Read All

| Bit  | Value | Setting         | Description                          |
|------|-------|-----------------|--------------------------------------|
| B[7] | 0b0   | 0: No Interrupt | Interrupt: Thermal Shutdown          |
| B[6] | 0b0   | 0: No Interrupt | Interrupt: IO-Link Wake-Up Condition |
| B[5] | 0b0   | 0: No Interrupt | Interrupt: DO-Driver Overload        |
| B[4] | 0b0   | 0: No Interrupt | Interrupt: C/Q-Driver Overload       |
| B[3] | 0b0   | 0: No Interrupt | Interrupt: V24 Below 16V             |
| B[2] | 0b0   | 0: No Interrupt | Interrupt: V24 Below Undervoltage TH |
| B[1] | 0b0   | 0: No Interrupt | Interrupt: DO Temperature Warning    |
| B[0] | 0b0   | 0: No Interrupt | Interrupt: C/Q Temperature Warning   |

Note: To edit the value of a R/W register, click on the Value cell.

Figure 3. SPI Mode default configuration after power-up.

To set a bit (or bits) in the registers:

1. Click on the Register in the register list box at the top.
2. Click on the bit to set and select the setting from the drop-down menu.
3. Click on the Write Modified button to set the registers as desired.

The following example shows this process. In this example, the C/Q output is enabled and set to push-pull mode.

1. Click on the C/Q Config Register in the register list (**Figure 4**).

Register Settings

| Address | R/W | Register           | Value      | Description             |
|---------|-----|--------------------|------------|-------------------------|
| 0x00    | R   | INTERRUPT_REGISTER | 0b00000000 | Interrupt Register      |
| 0x01    | R   | STATUS_REGISTER    | 0b01000010 | Status Register         |
| 0x02    | R/W | MODE_REGISTER      | 0b00000000 | Mode Register           |
| 0x03    | R/W | CURRLIM_REGISTER   | 0b00000000 | Current Limit Register  |
| 0x04    | R/W | CQConfig_REGISTER  | 0b00000001 | C/Q Config Register     |
| 0x05    | R/W | DIOConfig_REGISTER | 0b00000001 | DI / DO Config Register |

| Bit  | Value | Setting    | Description                 |
|------|-------|------------|-----------------------------|
| B[7] | 0b0   | 0: Disable | Rx Receiver Disable         |
| B[6] | 0b0   | 0: Disable | C/Q Weak Pull-Down          |
| B[5] | 0b0   | 0: Disable | C/Q Weak Pull-Up            |
| B[4] | 0b0   | 0: Disable | C/Q and DO Outputs Tracking |
| B[3] | 0b0   | 0: Disable | C/Q NPN operation           |
| B[2] | 0b0   | 0: Disable | C/Q Push-Pull Mode          |
| B[1] | 0b0   | 0: Disable | Drive C/Q to V24            |
| B[0] | 0b1   | 1: Enable  | C/Q Driver Tristate         |

Note: To edit the value of a R/W register, click on the Value cell.

MAX14827 I/O Pins

| Name                                 | Set                                 | Function  | Read | Direction |
|--------------------------------------|-------------------------------------|-----------|------|-----------|
| SPI / PIN                            | <input checked="" type="checkbox"/> | SPI / PIN | 1    | IN        |
| UARTSEL                              | <input type="checkbox"/>            | UARTSEL   | 0    | IN        |
| Chip Mode: SPI and UART, Independent |                                     |           |      |           |
| TXEN                                 | <input type="checkbox"/>            | TXEN      | 0    | IN        |
| TX                                   | <input type="checkbox"/>            | TX        | 0    | IN        |
| RX                                   | <input type="checkbox"/>            | RX        | 1    | OUT       |
| LI                                   | <input type="checkbox"/>            | LI        | 1    | OUT       |
| LO                                   | <input type="checkbox"/>            | LO        | 0    | IN        |
| LED1N                                | <input type="checkbox"/>            | LED1N     | 0    | IN        |
| CSB / PP                             | <input type="checkbox"/>            | CS        | N/A  | IN        |
| SDI / TX / NPN                       | <input type="checkbox"/>            | SDI       | N/A  | OUT       |
| CLK / TXEN                           | <input type="checkbox"/>            | CLK       | N/A  | IN        |
| SDO / RX / THSH                      | <input type="checkbox"/>            | SDO       | N/A  | IN        |
|                                      | <input type="checkbox"/>            | IRQ / OCB | 1    | OUT       |
|                                      | <input type="checkbox"/>            | WU        | 1    | OUT       |

Figure 4. Selecting the C/Q Register in the register list.

- Click on the B[0] bit row to select the 0: Disable setting for the C/Q Driver Tristate bit (Figure 5). Setting this bit to 0 disables the tristate setting (enabling the driver output).

Register Settings

| Address | R/W | Register           | Value      | Description             |
|---------|-----|--------------------|------------|-------------------------|
| 0x00    | R   | INTERRUPT_REGISTER | 0b00000000 | Interrupt Register      |
| 0x01    | R   | STATUS_REGISTER    | 0b01000010 | Status Register         |
| 0x02    | R/W | MODE_REGISTER      | 0b00000000 | Mode Register           |
| 0x03    | R/W | CURRLIM_REGISTER   | 0b00000000 | Current Limit Register  |
| 0x04    | R/W | CQConfig_REGISTER  | 0b00000001 | C/Q Config Register     |
| 0x05    | R/W | DIOConfig_REGISTER | 0b00000001 | DI / DO Config Register |

| Bit  | Value | Setting    | Description                 |
|------|-------|------------|-----------------------------|
| B[7] | 0b0   | 0: Disable | Rx Receiver Disable         |
| B[6] | 0b0   | 0: Disable | C/Q Weak Pull-Down          |
| B[5] | 0b0   | 0: Disable | C/Q Weak Pull-Up            |
| B[4] | 0b0   | 0: Disable | C/Q and DO Outputs Tracking |
| B[3] | 0b0   | 0: Disable | C/Q NPN operation           |
| B[2] | 0b0   | 0: Disable | C/Q Push-Pull Mode          |
| B[1] | 0b0   | 0: Disable | Drive C/Q to V24            |
| B[0] | 0b1   | 1: Enable  | C/Q Driver Tristate         |

Note: To edit the value of a R/W register, click on the Value cell.

MAX14827 I/O Pins

| Name                                 | Set                                 | Function  | Read | Direction |
|--------------------------------------|-------------------------------------|-----------|------|-----------|
| SPI / PIN                            | <input checked="" type="checkbox"/> | SPI / PIN | 1    | IN        |
| UARTSEL                              | <input type="checkbox"/>            | UARTSEL   | 0    | IN        |
| Chip Mode: SPI and UART, Independent |                                     |           |      |           |
| TXEN                                 | <input type="checkbox"/>            | TXEN      | 0    | IN        |
| TX                                   | <input type="checkbox"/>            | TX        | 0    | IN        |
| RX                                   | <input type="checkbox"/>            | RX        | 1    | OUT       |
| LI                                   | <input type="checkbox"/>            | LI        | 1    | OUT       |
| LO                                   | <input type="checkbox"/>            | LO        | 0    | IN        |
| LED1N                                | <input type="checkbox"/>            | LED1N     | 0    | IN        |
| CSB / PP                             | <input type="checkbox"/>            | CS        | N/A  | IN        |
| SDI / TX / NPN                       | <input type="checkbox"/>            | SDI       | N/A  | OUT       |
| CLK / TXEN                           | <input type="checkbox"/>            | CLK       | N/A  | IN        |
| SDO / RX / THSH                      | <input type="checkbox"/>            | SDO       | N/A  | IN        |
|                                      | <input type="checkbox"/>            | IRQ / OCB | 1    | OUT       |
|                                      | <input type="checkbox"/>            | WU        | 1    | OUT       |

Figure 5. Setting the C/Q Driver Tristate Bit in the C/Q Config Register.

- Click on the B[2] bit row to select the 1: Enable setting for the C/Q Push-Pull Mode bit (Figure 6). Setting this bit enables push-pull mode for the C/Q driver.

Register Settings

| Address | R/W | Register           | Value      | Description             |
|---------|-----|--------------------|------------|-------------------------|
| 0x00    | R   | INTERRUPT_REGISTER | 0b00000000 | Interrupt Register      |
| 0x01    | R   | STATUS_REGISTER    | 0b01000010 | Status Register         |
| 0x02    | R/W | MODE_REGISTER      | 0b00000000 | Mode Register           |
| 0x03    | R/W | CURRLIM_REGISTER   | 0b00000000 | Current Limit Register  |
| 0x04    | R/W | C/QConfig_REGISTER | 0b00000000 | C/Q Config Register     |
| 0x05    | R/W | DIOConfig_REGISTER | 0b00000001 | DI / DO Config Register |

| Bit  | Value | Setting    | Description                 |
|------|-------|------------|-----------------------------|
| B[7] | 0b0   | 0: Disable | Rx Receiver Disable         |
| B[6] | 0b0   | 0: Disable | C/Q Weak Pull-Down          |
| B[5] | 0b0   | 0: Disable | C/Q Weak Pull-Up            |
| B[4] | 0b0   | 0: Disable | C/Q and DO Outputs Tracking |
| B[3] | 0b0   | 0: Disable | C/Q NPN operation           |
| B[2] | 0b0   | 0: Disable | C/Q Push-Pull Mode          |
| B[1] | 0b0   | 0: Disable | Drive C/Q to V24            |
| B[0] | 0b0   | 0: Disable | C/Q Driver Tristate         |

Note: To edit the value of a R/W register, click on the Value cell.

Read All  Include Interrupt Register  
 Include I/Os

Write modified

MAX14827 I/O Pins

| Name                                | Set                                 | Function  | Read | Direction |
|-------------------------------------|-------------------------------------|-----------|------|-----------|
| SPI / PIN                           | <input checked="" type="checkbox"/> | SPI / PIN | 1    | IN        |
| UARTSEL                             | <input type="checkbox"/>            | UARTSEL   | 0    | IN        |
| Chip Mode SPI and UART, Independent |                                     |           |      |           |
| TXEN                                | <input type="checkbox"/>            | TXEN      | 0    | IN        |
| TX                                  | <input type="checkbox"/>            | TX        | 0    | IN        |
| RX                                  | <input type="checkbox"/>            | RX        | 1    | OUT       |
| LI                                  | <input type="checkbox"/>            | LI        | 1    | OUT       |
| LO                                  | <input type="checkbox"/>            | LO        | 0    | IN        |
| LED1N                               | <input type="checkbox"/>            | LED1N     | 0    | IN        |
| CSB / PP                            |                                     | CS        | N/A  | IN        |
| SDI / TX / NPN                      |                                     | SDI       | N/A  | OUT       |
| CLK / TXEN                          |                                     | CLK       | N/A  | IN        |
| SDO / RX / THSH                     |                                     | SDO       | N/A  | IN        |
|                                     |                                     | IRQ / OCB | 1    | OUT       |
|                                     |                                     | WU        | 1    | OUT       |

Read All

Figure 6. Setting the C/Q Push-Pull Mode Bit in the C/Q Config Register.

- Click on the Write Modified button to write the register changes to the MAX14827 (Figure 7 and Figure 8).

Register Settings

| Address | R/W | Register           | Value      | Description             |
|---------|-----|--------------------|------------|-------------------------|
| 0x00    | R   | INTERRUPT_REGISTER | 0b00000000 | Interrupt Register      |
| 0x01    | R   | STATUS_REGISTER    | 0b01000010 | Status Register         |
| 0x02    | R/W | MODE_REGISTER      | 0b00000000 | Mode Register           |
| 0x03    | R/W | CURRLIM_REGISTER   | 0b00000000 | Current Limit Register  |
| 0x04    | R/W | C/QConfig_REGISTER | 0b00000100 | C/Q Config Register     |
| 0x05    | R/W | DIOConfig_REGISTER | 0b00000001 | DI / DO Config Register |

| Bit  | Value | Setting    | Description                 |
|------|-------|------------|-----------------------------|
| B[7] | 0b0   | 0: Disable | Rx Receiver Disable         |
| B[6] | 0b0   | 0: Disable | C/Q Weak Pull-Down          |
| B[5] | 0b0   | 0: Disable | C/Q Weak Pull-Up            |
| B[4] | 0b0   | 0: Disable | C/Q and DO Outputs Tracking |
| B[3] | 0b0   | 0: Disable | C/Q NPN operation           |
| B[2] | 0b1   | 1: Enable  | C/Q Push-Pull Mode          |
| B[1] | 0b0   | 0: Disable | Drive C/Q to V24            |
| B[0] | 0b0   | 0: Disable | C/Q Driver Tristate         |

Note: To edit the value of a R/W register, click on the Value cell.

Read All  Include Interrupt Register  
 Include I/Os

Write modified

MAX14827 I/O Pins

| Name                                | Set                                 | Function  | Read | Direction |
|-------------------------------------|-------------------------------------|-----------|------|-----------|
| SPI / PIN                           | <input checked="" type="checkbox"/> | SPI / PIN | 1    | IN        |
| UARTSEL                             | <input type="checkbox"/>            | UARTSEL   | 0    | IN        |
| Chip Mode SPI and UART, Independent |                                     |           |      |           |
| TXEN                                | <input type="checkbox"/>            | TXEN      | 0    | IN        |
| TX                                  | <input type="checkbox"/>            | TX        | 0    | IN        |
| RX                                  | <input type="checkbox"/>            | RX        | 1    | OUT       |
| LI                                  | <input type="checkbox"/>            | LI        | 1    | OUT       |
| LO                                  | <input type="checkbox"/>            | LO        | 0    | IN        |
| LED1N                               | <input type="checkbox"/>            | LED1N     | 0    | IN        |
| CSB / PP                            |                                     | CS        | N/A  | IN        |
| SDI / TX / NPN                      |                                     | SDI       | N/A  | OUT       |
| CLK / TXEN                          |                                     | CLK       | N/A  | IN        |
| SDO / RX / THSH                     |                                     | SDO       | N/A  | IN        |
|                                     |                                     | IRQ / OCB | 1    | OUT       |
|                                     |                                     | WU        | 1    | OUT       |

Read All

Figure 7. Click on the Write Modified button to write the changes to the MAX14827.

Register Settings

| Address | R/W | Register               | Value      | Description            |
|---------|-----|------------------------|------------|------------------------|
| 0x00    | R   | INTERRUPT_REGISTER     | 0b00000000 | Interrupt Register     |
| 0x01    | R   | STATUS_REGISTER        | 0b01000010 | Status Register        |
| 0x02    | R/W | MODE_REGISTER          | 0b00000000 | Mode Register          |
| 0x03    | R/W | CURRENT_LIMIT_REGISTER | 0b00000000 | Current Limit Register |
| 0x04    | R/W | C/QConfig_REGISTER     | 0b00000100 | C/Q Config Register    |
| 0x05    | R/W | DOConfig_REGISTER      | 0b00000001 | DO Config Register     |

Read All  Include Interrupt Register  
 Include I/Os  
 Write modified

MAX14827 I/O Pins

| Name                                 | Set                                 | Function  | Read | Direction |
|--------------------------------------|-------------------------------------|-----------|------|-----------|
| SPI / PIN                            | <input checked="" type="checkbox"/> | SPI / PIN | 1    | IN        |
| UARTSEL                              | <input type="checkbox"/>            | UARTSEL   | 0    | IN        |
| Chip Mode: SPI and UART, Independent |                                     |           |      |           |
| TXEN                                 | <input type="checkbox"/>            | TXEN      | 0    | IN        |
| TX                                   | <input type="checkbox"/>            | TX        | 0    | IN        |
| RX                                   | <input type="checkbox"/>            | RX        | 0    | OUT       |
| LI                                   | <input type="checkbox"/>            | LI        | 0    | OUT       |
| LO                                   | <input type="checkbox"/>            | LO        | 0    | IN        |
| LED1N                                | <input type="checkbox"/>            | LED1N     | 0    | IN        |
| CSB / PP                             | <input type="checkbox"/>            | CS        | N/A  | IN        |
| SDI / TX / NPN                       | <input type="checkbox"/>            | SDI       | N/A  | OUT       |
| CLK / TXEN                           | <input type="checkbox"/>            | CLK       | N/A  | IN        |
| SDO / RX / THSH                      | <input type="checkbox"/>            | SDO       | N/A  | IN        |
|                                      | <input type="checkbox"/>            | IRQ / OCB | 1    | OUT       |
|                                      | <input type="checkbox"/>            | WU        | 1    | OUT       |

Note: To edit the value of a RW register, click on the Value cell.

Figure 8. C/Q Config Register has been changed and C/Q Driver Output is enabled.

## Driving the Inputs with an External Source

When the MAX14827 EV kit is connected to the mbed board and the MAX14827 GUI is on, the mbed board is set to drive the inputs high or low, as set with the switch. It is possible, however, to drive an input with an external source when needed.

When a switch is set, the GUI writes to the corresponding pin and then reads it to verify that the input is set correctly. When the input reads back a different value than written, however, the GUI interprets this as the pin being controlled by an external source, and a message box with that note appears (Figure 9). The DIRECTION note in that pin row is also modified to note that the pin is being driven with an external source (Figure 10).

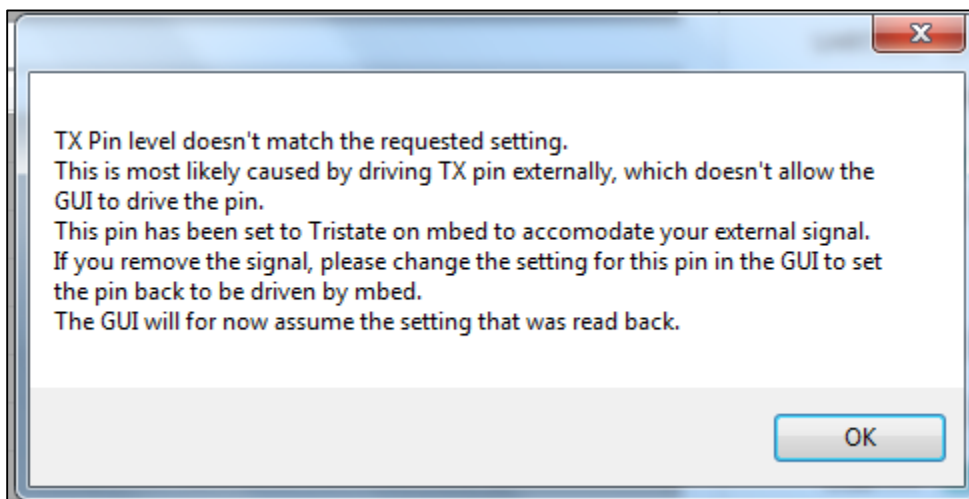


Figure 9. Driving with an external signal message.

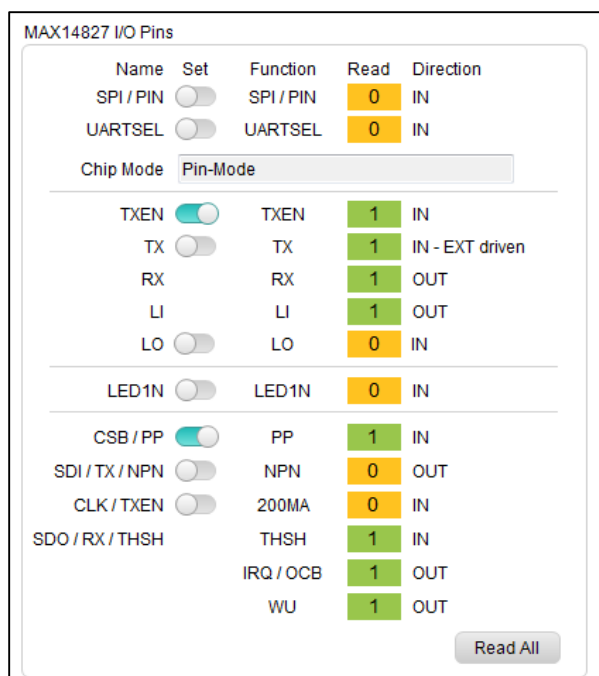


Figure 10. Driving signal with an external source indicator.

Ensure that the signal from the external source can source enough to drive the input with a 0V-3.3V signal when the mbed is attempting to set the pin. If the external source is not strong enough, the GUI may not detect that an external source is present on the pin.

## Trademarks

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