

ACT43850 Evaluation Kit GUI

Description

This document shows basic guidelines to use Qorvo's ACT43850 EVK Graphical User Interface software (GUI). This GUI operates from a Windows-based PC with a Qorvo's USB-to-I2C dongle and allows the user to control the EVK by writing to its internal registers.

Reference Documents

For more detail information, refer to the documents below, or contact customer.support@qorvo.com.

1. ACT43850 Data Sheet.
2. ACT43850 Register Definition Application Note.
3. ACT43850 EVK User Guide

USB-to-I²C Dongle

Qorvo's USB-to-I2C Dongle connects to the ACT43850 EVK through a 4-wire cable with a 4-pin connector at each end. The black wire is ground and should be oriented as shown in **Figure 1**. After the set-up steps are complete, the GUI will be able to control the ACT43850 EVK via this dongle.

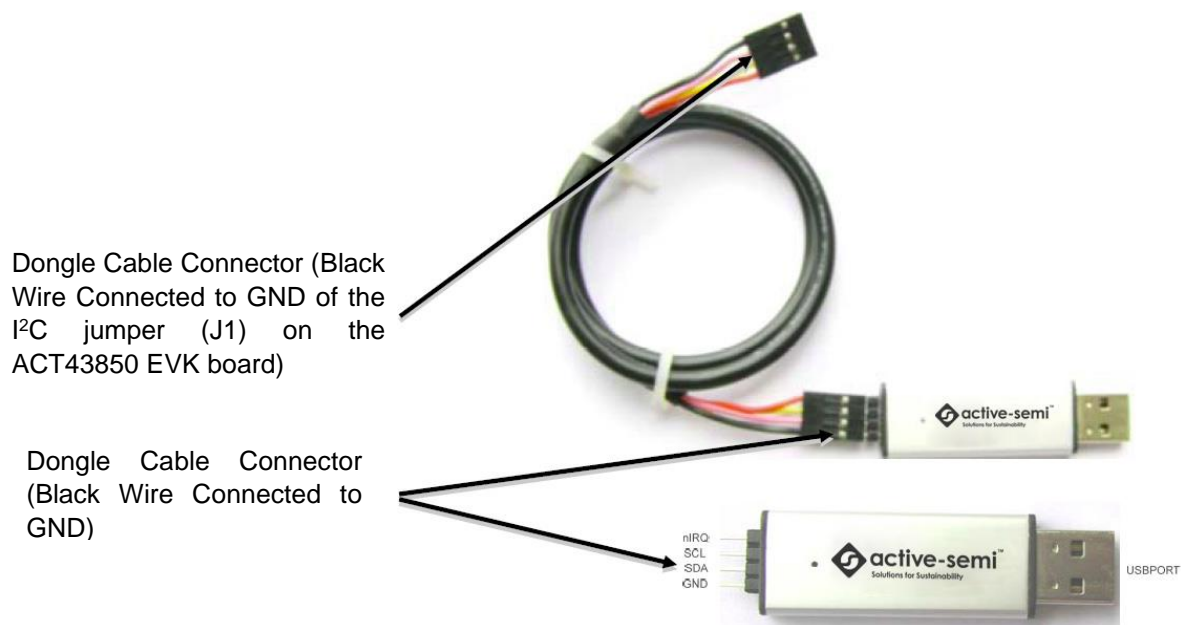


Figure 1: USB-to-I²C dongle

Setup

1. Install the Qorvo's USB-to-I²C dongle's driver by following the guide in "Qorvo's GUI and Dongle Driver Installation Rev1.1.pdf".
2. Plug the dongle into a USB port of the PC. User should see the indicating LED turn on.
3. Double click the "[ACT43850 GUI Rev4.x.exe](#)" to Open the GUI. The GUI starts up in the Configuration mode as shown in **Figure 2** below. The "dongle recognition" icon shows up to let user the dongle is ready to use.
4. Power up the ACT43850 EVK with an appropriate voltage. Use a multimeter to ensure the EVK starts up properly and provides the correct output voltages. Connect the I2C cable to the I2C connector on the ACT43850 EVK.

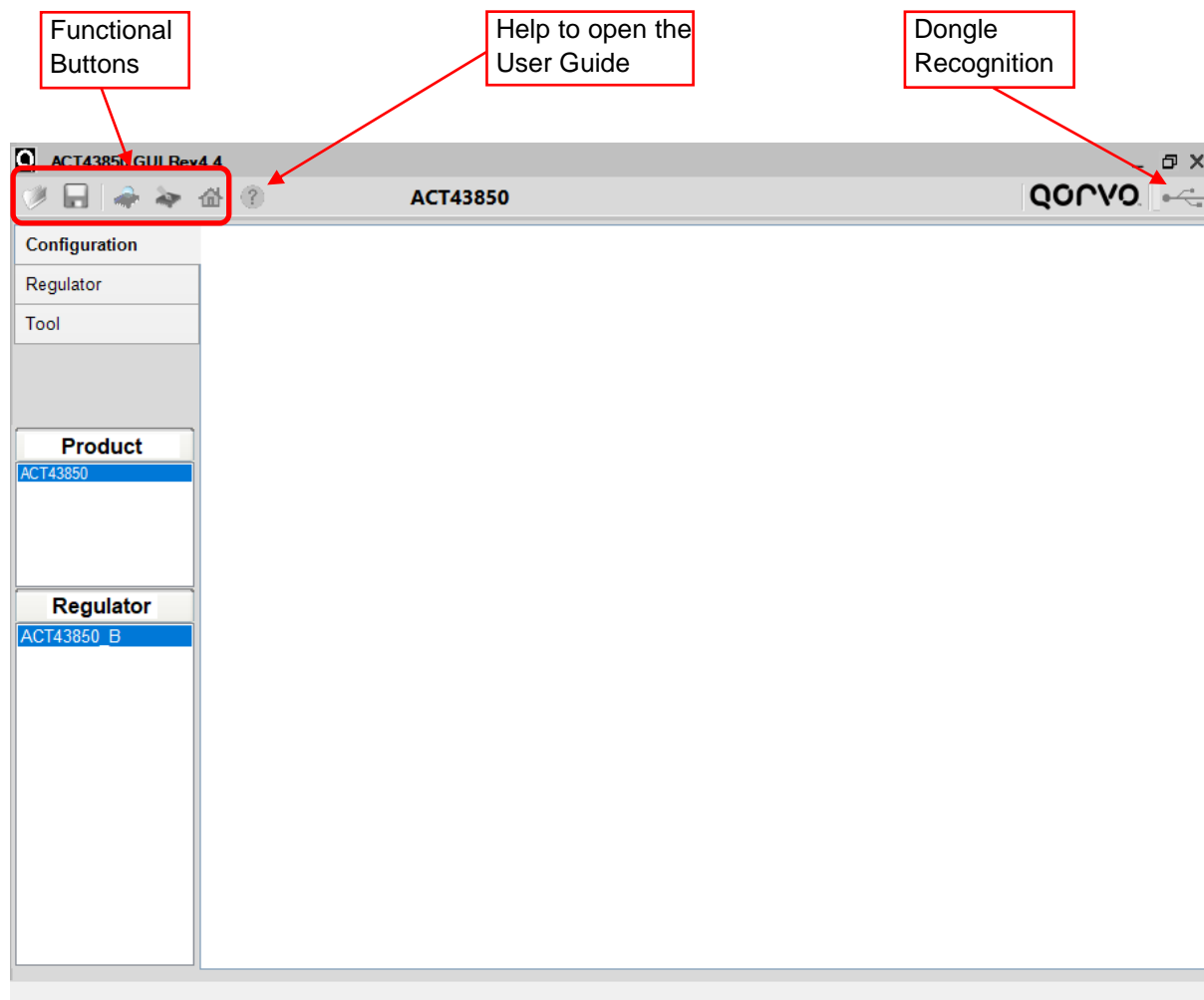


Figure 2: GUI in Configuration Mode

GUI Operating Functions

Figure 2 above shows the GUI's 4 functional buttons as icons on the top left corner. Moving from left to right, these are: Open, Save, Read and Write.

Open Function

The Open function opens an ACT43850's register information data (.iact) or (.cmi) files from the computer. The file should be either provided by Qorvo or saved by the same software previously. This loads the file's register settings into the GUI. Note that this does not load the register settings into the ACT43850.

Save Function

The Save function saves the GUI's register information to a (.iact) file on the computer. Note that this does not save the ACT43850 register settings into the file. Qorvo recommends saving the IC's original register settings to a (.iact) file before implementing any adjustments.

Read Function

The Read function reads all the IC's register values and shows them in the GUI. Qorvo recommends clicking the "Read" button after powering up an EVK to ensure that the IC's settings are properly transferred into and displayed properly in the GUI. Qorvo also recommends performing a "Read" function immediately after a "Write" function to ensure that the data was properly written to the IC.

Write Function

The Write function transfers all the GUI settings to the IC. Note that any changes to the GUI settings are not transferred into the IC until the "Write" button is clicked. Note that data written to the IC using the "Write" function is volatile. The IC's register settings change back to their default settings when power is cycled.

Individual Regulator Mode

The GUI allows the user to view and change the IC's advanced internal registers of each regulator. This is accomplished in the "Individual Regulator Mode" tab. Navigate to this mode by left clicking on the Regulator tab button, then select the target regulator from the Regulator list. The GUI gives the user two options for changing the regulator settings: The "Settings" tab and the "Register" tab. **Figure 3** below shows these two options.

The "Settings" tab is easy to read and has drop down menus that show the available choices. The Registers" tab shows the actual register values required to achieve a desired setting. This tab is useful for debugging customer firmware. To change the setting in the "Register" tab, simply click the "bit name" button to flip the bit value between "0" and "1" as shown in **Figure 4**. Refer to the latest ACT43850 datasheet and register definition for each bit's functionality. The user should have a full understanding of each bit/register function prior changing it while the EVK is in operation.

Note: Remember that changes to the GUI settings are not transferred into the IC until the GUI's "Write" button is pressed.

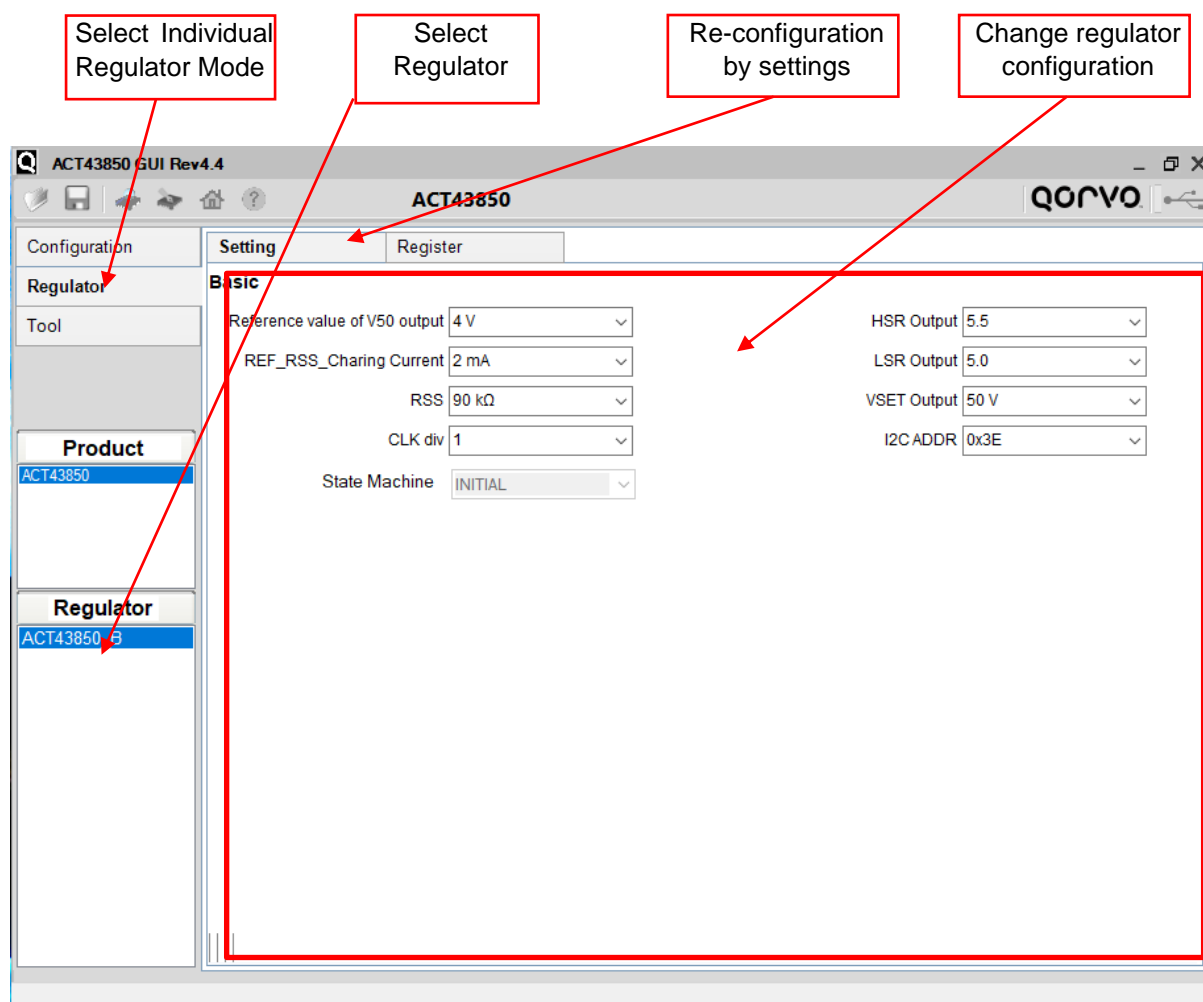


Figure 3: Individual Regulator mode with Settings

ACT43850 GUI Rev4.4

Configuration

Regulator

Tool

Product

ACT43850

Regulator

ACT43850 B

Setting

Register

REG_0C

7	SyncDiv[2]	0
6	SyncDiv[1]	0
5	SyncDiv[0]	0
4	RFU	0
3	RoutREFSS[1]	0
2	RoutREFSS[0]	0
1	IoutREFSS[1]	1
0	IoutREFSS[0]	1
		00000011
		03

REG_0D

7	VoHSR[3]	0
6	VoHSR[2]	0
5	VoHSR[1]	1
4	VoHSR[0]	0
3	VoLSR[3]	0
2	VoLSR[2]	0
1	VoLSR[1]	0
0	VoLSR[0]	0
		00100000
		20

REG_0E

7	Not used	0
6	VoREG50[5]	1
5	VoREG50[4]	1
4	VoREG50[3]	0
3	VoREG50[2]	0
2	VoREG50[1]	0
1	VoREG50[0]	0
0	Not used	0
		01100000
		60

REG_0F

7	PG_or_INT	0
6	ExtClkSYNC	0
5	ClkOutSYNC	0
4	SYNCCinPol	0
3	I2CorGPIO	1
2	I2C_Addr[2]	1
1	I2C_Addr[1]	1
0	I2C_Addr[0]	1
		00001111
		0F

Figure 4: Individual Regulator Mode with Registers.

Revision history

REVISION	DATE	DESCRIPTION
4.3	14-Jun-2022	Update register name

Contact Information

For the latest specifications, additional product information, worldwide sales and distribution locations:

Web: www.qorvo.com

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