

# ACT88420 Evaluation Kit GUI

## Description

This document shows basic guidelines to use Qorvo's ACT88420 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.

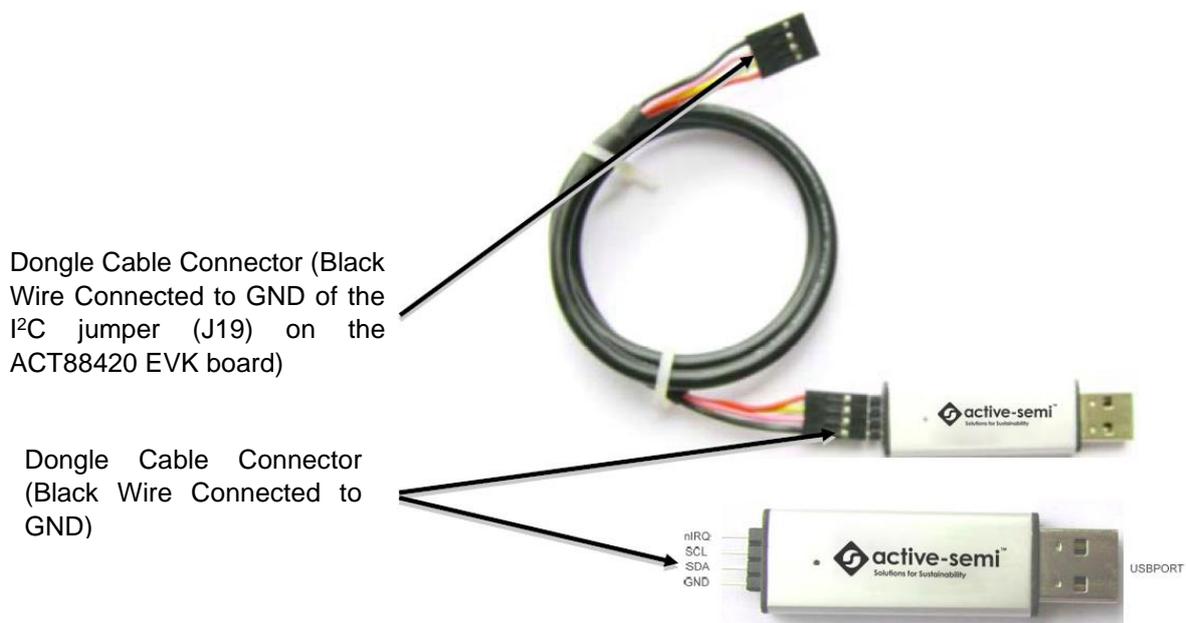
## Reference Documents

For more detail information, refer to the documents below, or contact [customer.support@qorvo.com](mailto:customer.support@qorvo.com).

1. ACT88420 Data Sheet.
2. ACT88420 Register Definition Application Note.
3. ACT88420 EVK User Guide

## USB-to-I<sup>2</sup>C Dongle

Qorvo's USB-to-I2C Dongle connects to the ACT88420 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 ACT88420 EVK via this dongle.



**Figure 1: USB-to-I<sup>2</sup>C dongle**

## Setup

1. Install the Qorvo's USB-to-I<sup>2</sup>C 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 "ACT88420 GUI Rev3.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 ACT88420 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 ACT88420 EVK.

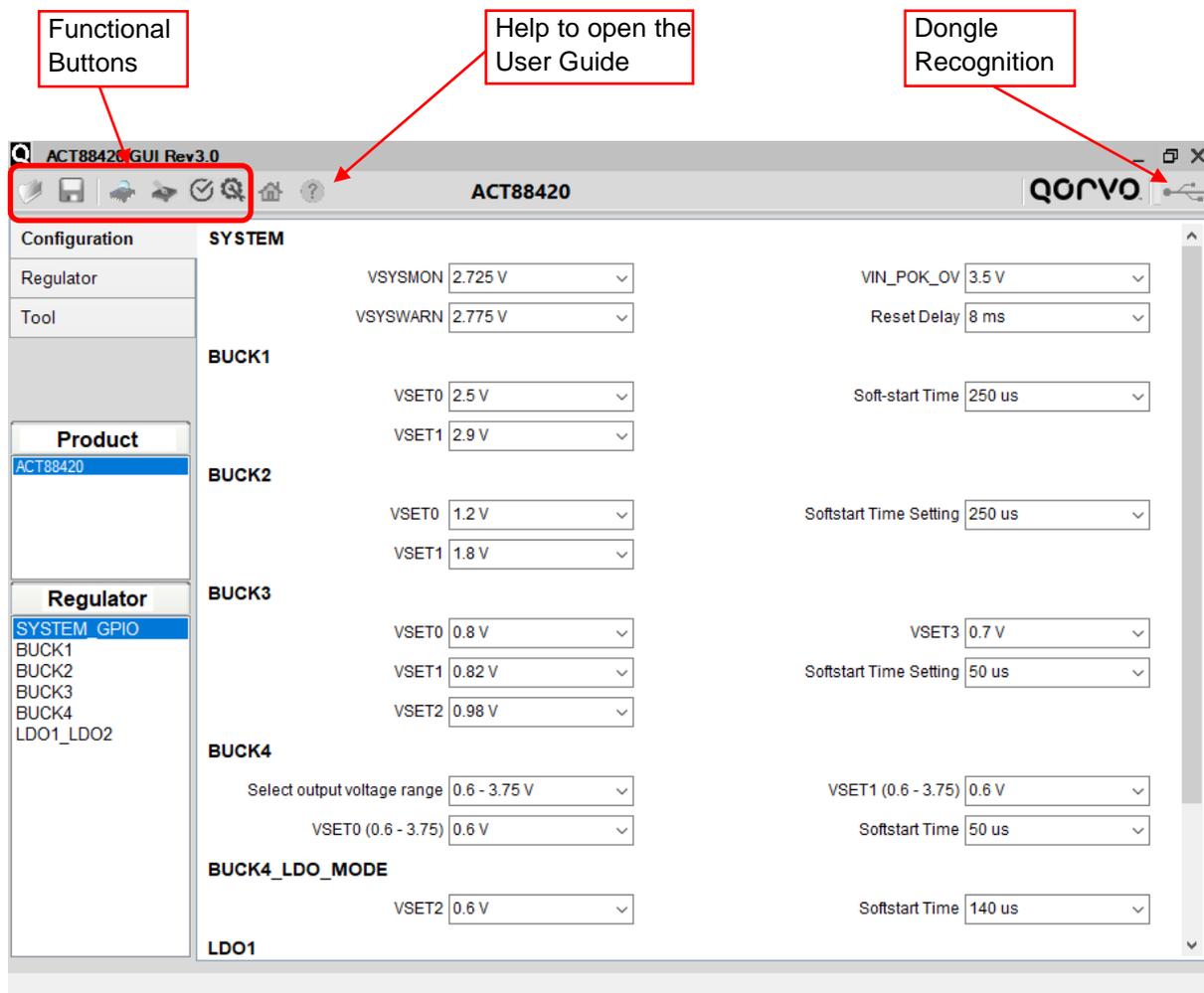


Figure 2: GUI in Configuration Mode

## GUI Operating Functions

**Figure 2** above shows the GUI's 6 functional buttons as icons on the top left corner. Moving from left to right, these are: Open, Save, Read, Write, Confirm and I2C Configuration.

### Open Function

The Open function opens an ACT88420'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 ACT88420.

### 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 ACT88420 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.

### Confirm Function

Confirm function allows user to compare the ACT88420's registers information on GUI with the values read from IC.

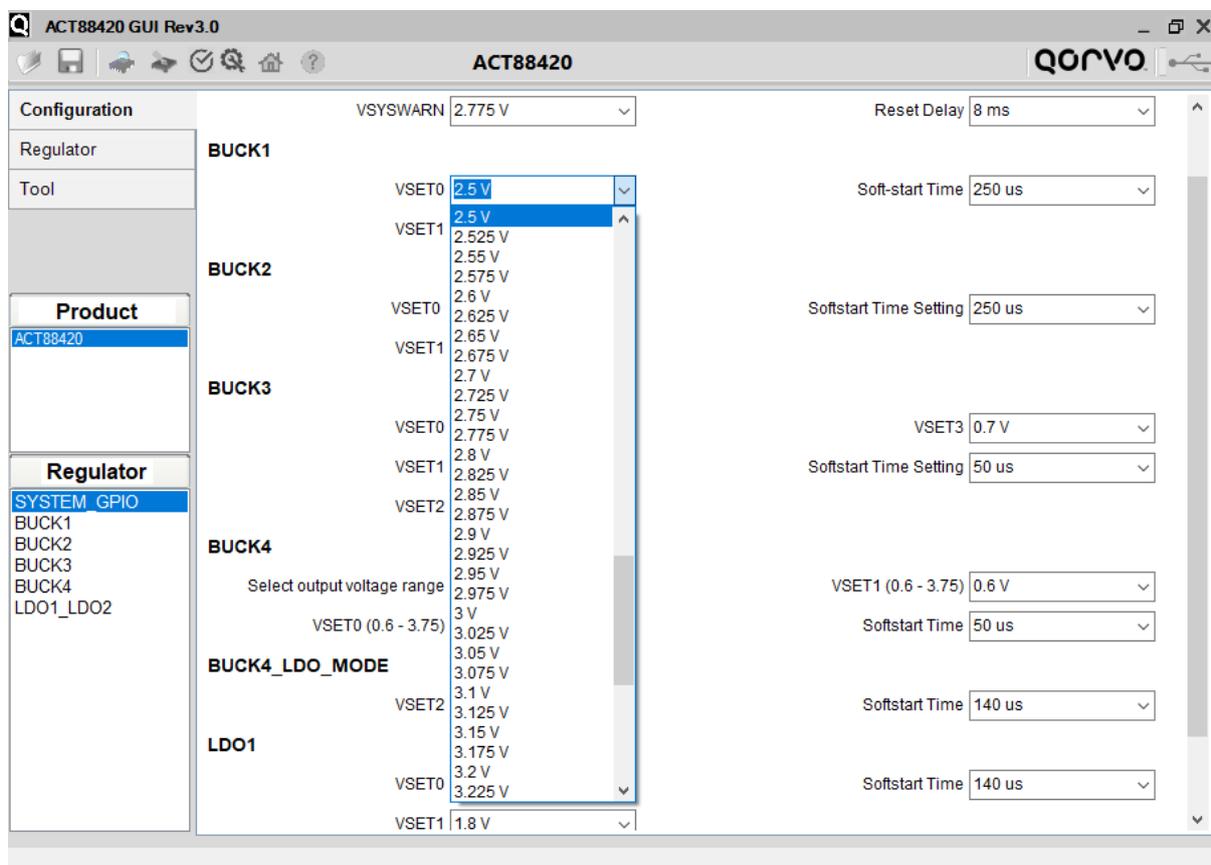
### I2C Configuration

I2C configuration function allows user to select one of the ACT88420's I2C addresses for Read/Write function.

## Configuration Mode

The GUI starts up in the Configuration mode screen and displays each regulator's basic information on single page. The user can use either the mouse scroll or the right-side scroll bar to navigate to other regulators. This display mode allows user to change some basic settings of each regulator (voltages, current, timing). Using drop-boxes, left-click the small arrow next to the value, then a selection pop-up displays all possible options to choose from. Scroll up/down to find the target value and left-click to select it. After the required parameters are changed, click the "Write" button to transfer the changes from the GUI to the IC.

**Figure 3** below shows an example where the user clicked the drop-box arrow to select a different Buck1 VSET0 output voltage.



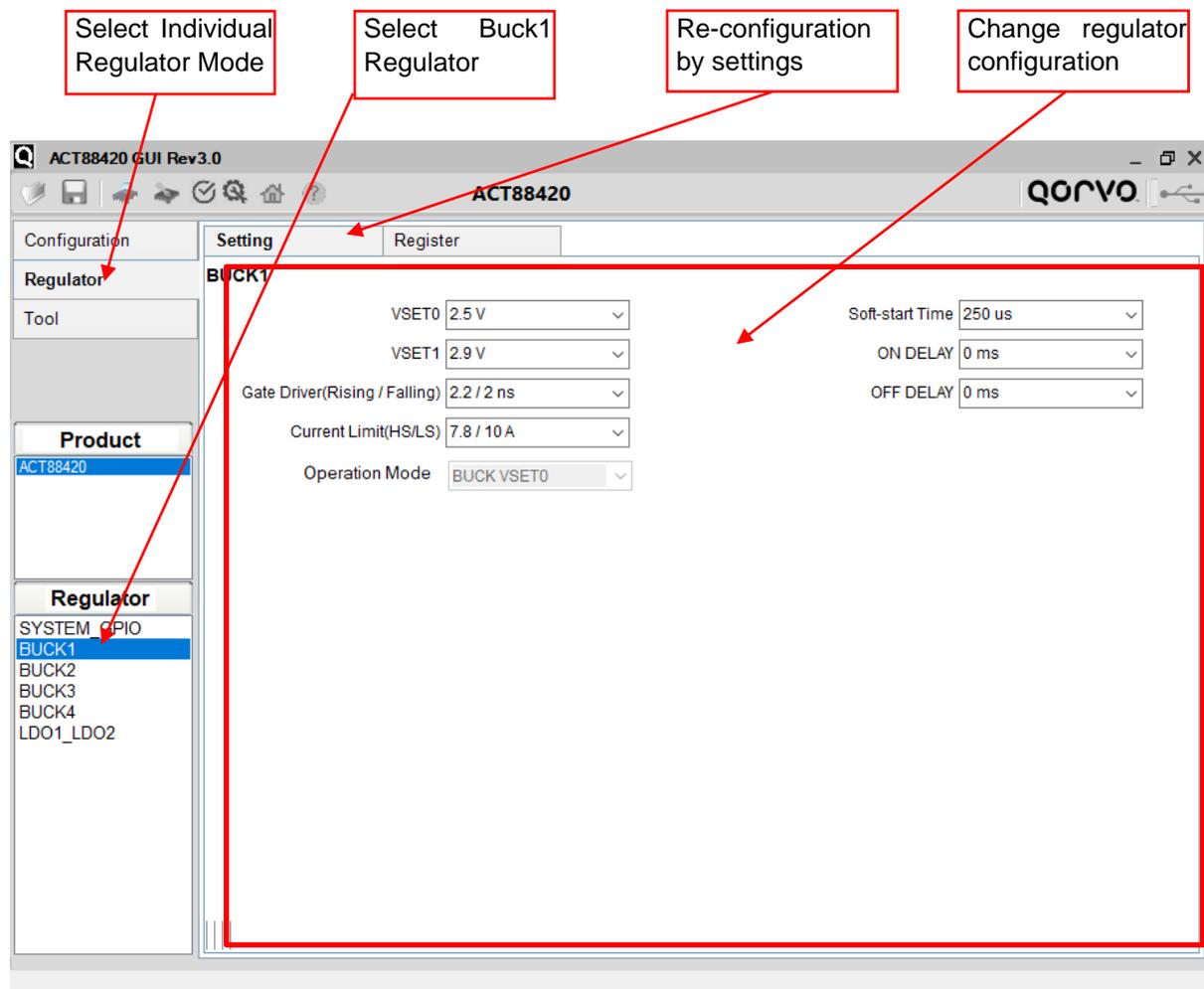
**Figure 3: Change a parameter on Configuration tab**

## 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 4** 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 5**. Refer to the latest ACT88420 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 4: Individual Regulator mode with Settings**

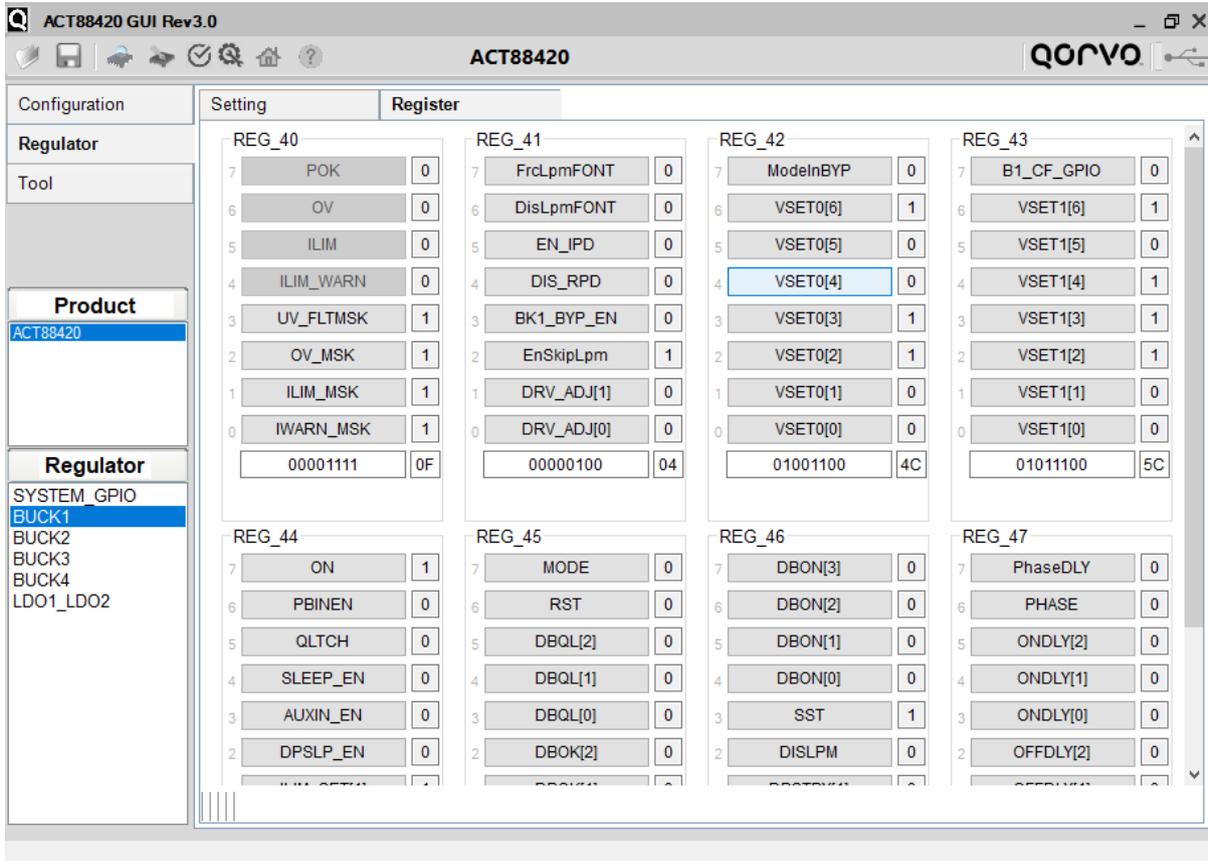


Figure 5: Individual Regulator Mode with Registers.

## Revision history

REVISION	DATE	DESCRIPTION
3.0	3-Jun-2022	Initial Released.
3.1	8-Jul-2022	Update ReadByte Function

## Contact Information

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

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