



User's Manual

TICS PRO

Revision History

Revision	Date	Descriptions/Comments
1.0	8-April-2015	Initial version
2.0	19-June-2015	Updated the Color compliant screen shots

The TICS PRO User's Manual provides a general overview of the Evaluation Module (EVM) GUI which includes,

- Description of the features of the GUI
- Functions to be considered while using the GUI

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Pre-requisites

- Iron Python 2.7.5
- .Net Framework 4.5

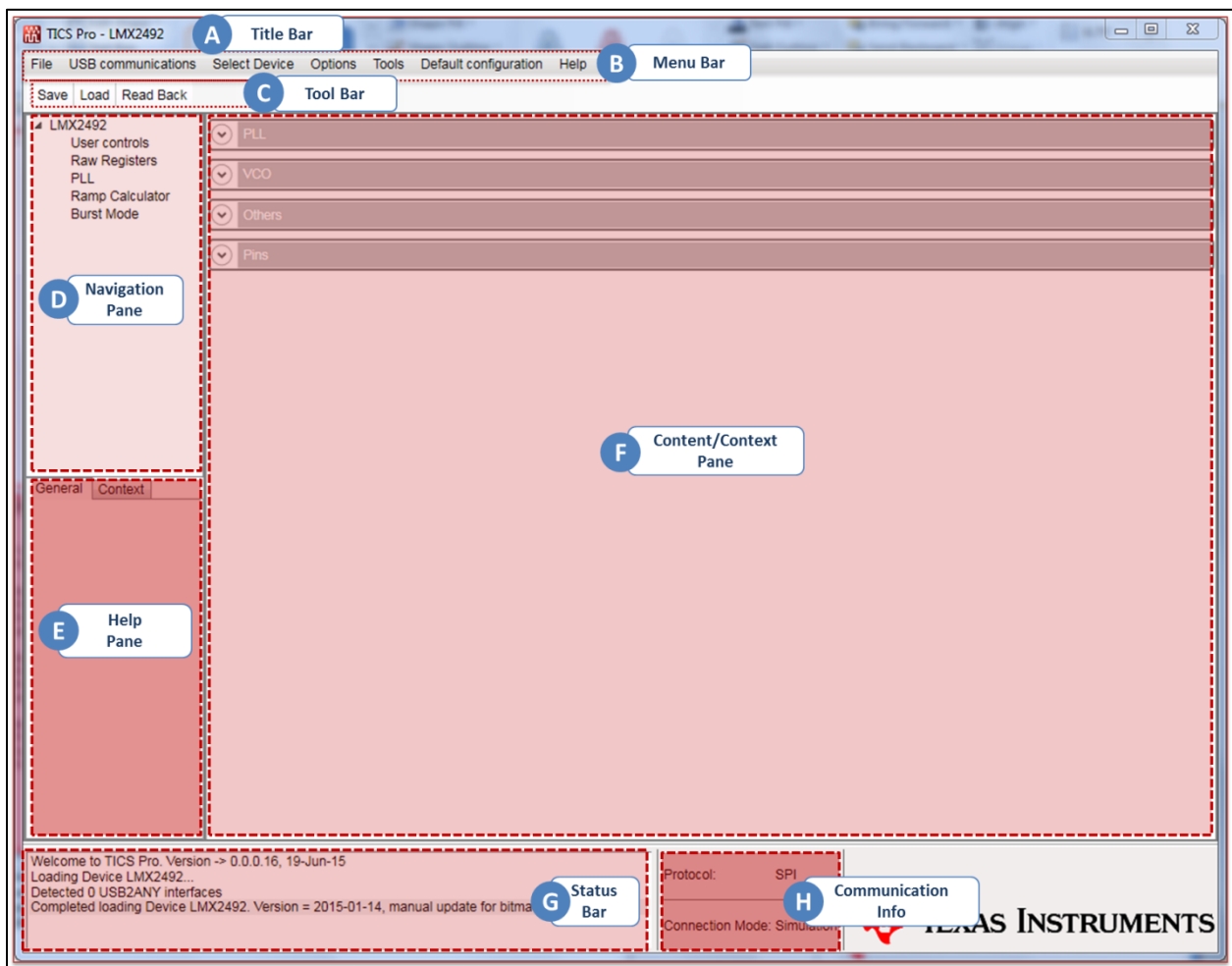
1. TICS PRO GUI Overview

The TICS Pro software provides a generic EVM GUI framework for the LMX, LMK and the CDC timing devices.

1.1. TICS-PRO GUI Layout

In this section, the layout of the TICS Pro GUI is explained.

Figure 1: TICS Pro GUI Layout



A. Title Bar

The TICS Pro GUI provides an option to select the required device. The name of the selected device is displayed in the title bar.

B. Menu Bar

The menu bar provides the option to perform the various operations on the GUI like selecting the device, communication mode, loading or saving configurations etc.

C. Tool Bar

The Tool bar provides the options to perform device specific operations that are defined as Iron Python script. The display of the tool bar is optional in the UI and the menu present varies for different devices. It will be loaded only if there is an entry [TOOLBAR] in the device INI and the scripts specified in the section are displayed as the options in the tool bar.

D. Navigation Pane

The navigation pane lists all the available pages in the GUI. Clicking on an item in the pane will load the corresponding page in the GUI.

E. Help Pane

When you mouse over the controls on the GUI pages, the help pane displays the information relevant to the controls. It has two tabs – General & Context. The general tab provides information about the selected page. The context tab explains the control-specific information.

F. Content Pane

When you select any page in the navigation pane, the content pane is loaded with the corresponding page

G. Status Bar

The status bar displays the status with respect to the different operations being performed on the page.

H. Communication Info

This pane displays the selected communication protocol and whether the GUI is connected to a device or is being used in simulation mode.

2. TICS PRO GUI Menu Options

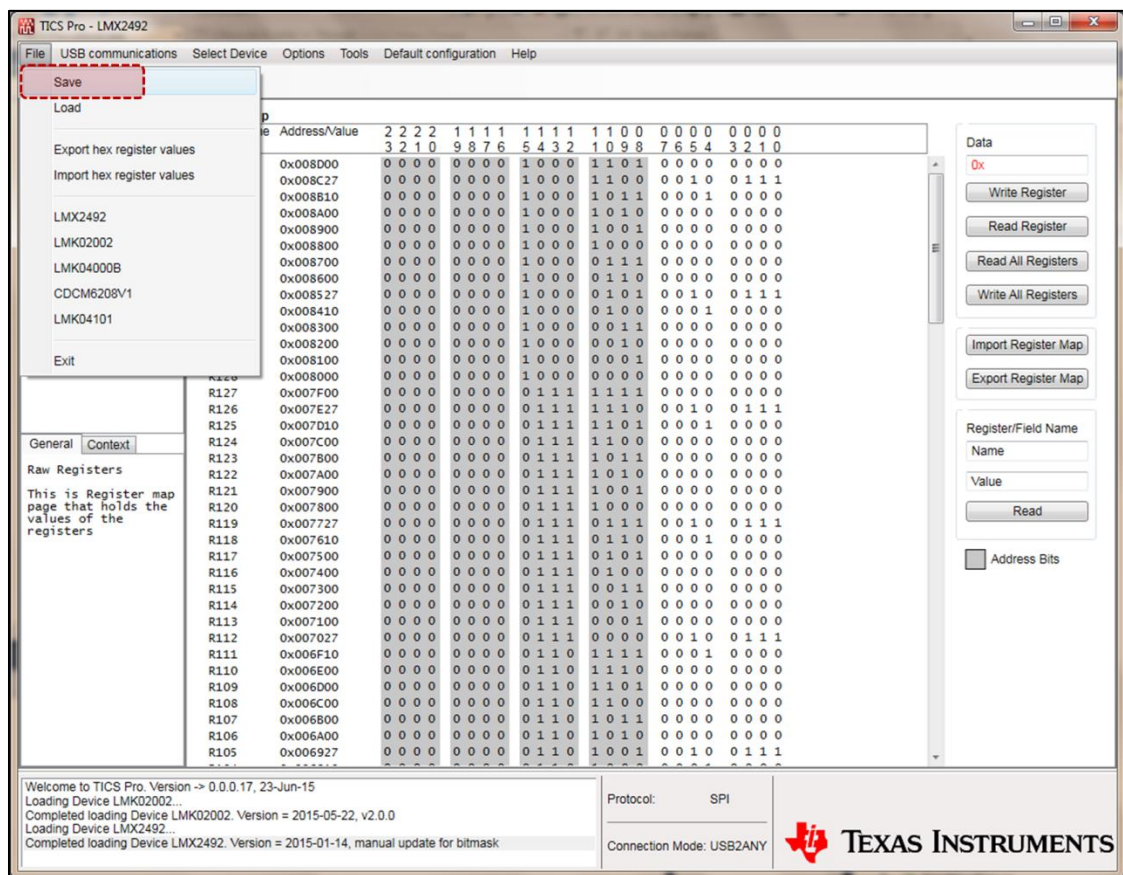
In this section, we will describe the use of the listed menu options

2.1. File Menu

2.1.1. Save

The Save option allows you to save the current configuration of the GUI in a macro file(.mac file). This option can be accessed by traversing through the file menu

Figure 2 : File Menu - Save Option



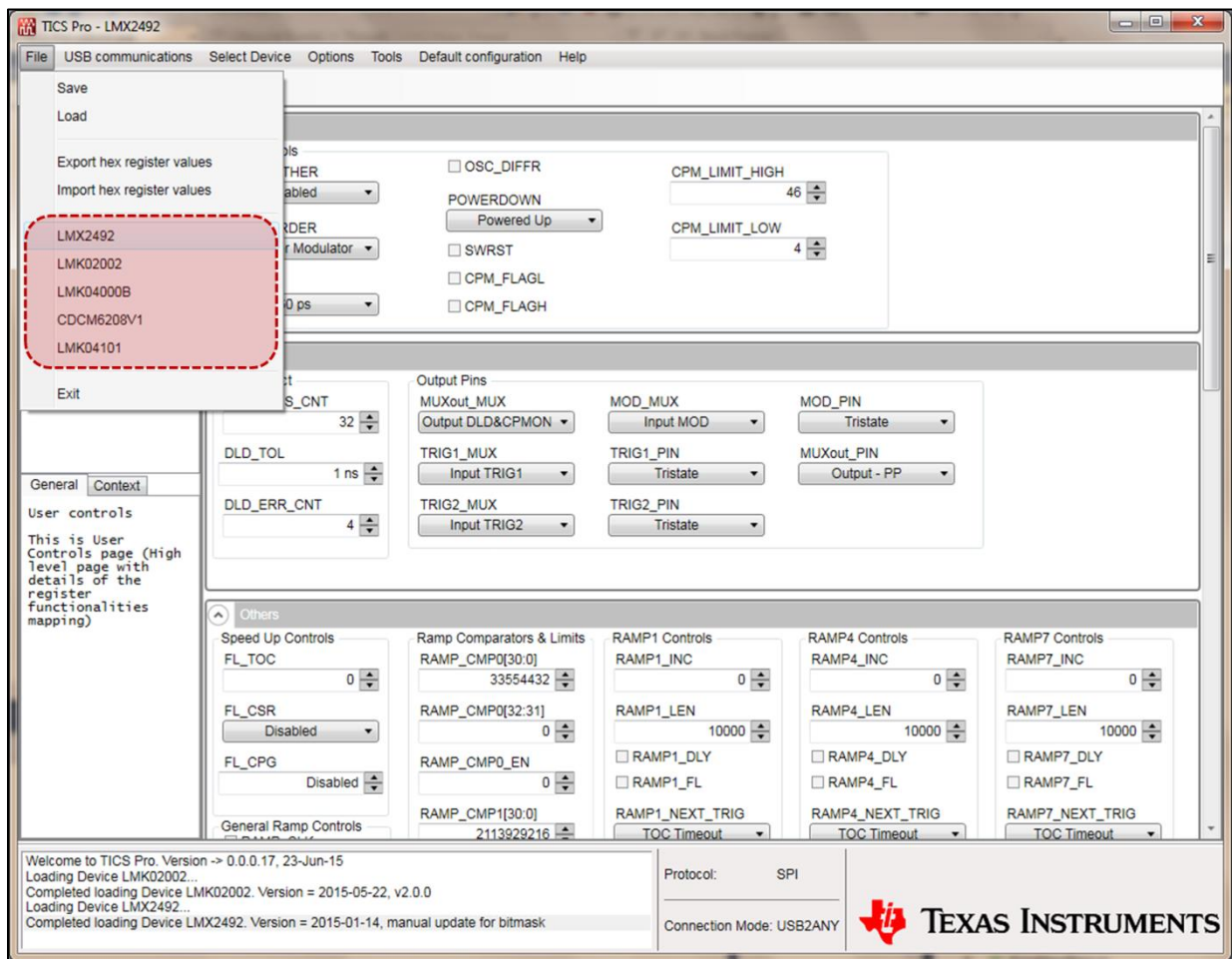
2.1.2. Load

This option allows you to load a configuration which was previously saved. It can be accessed in the following by traversing through the File menu and selecting the “Load” option

2.1.3. Recently Loaded Device Info

The five most recently loaded devices are listed under the file menu as shown below in the diagram.

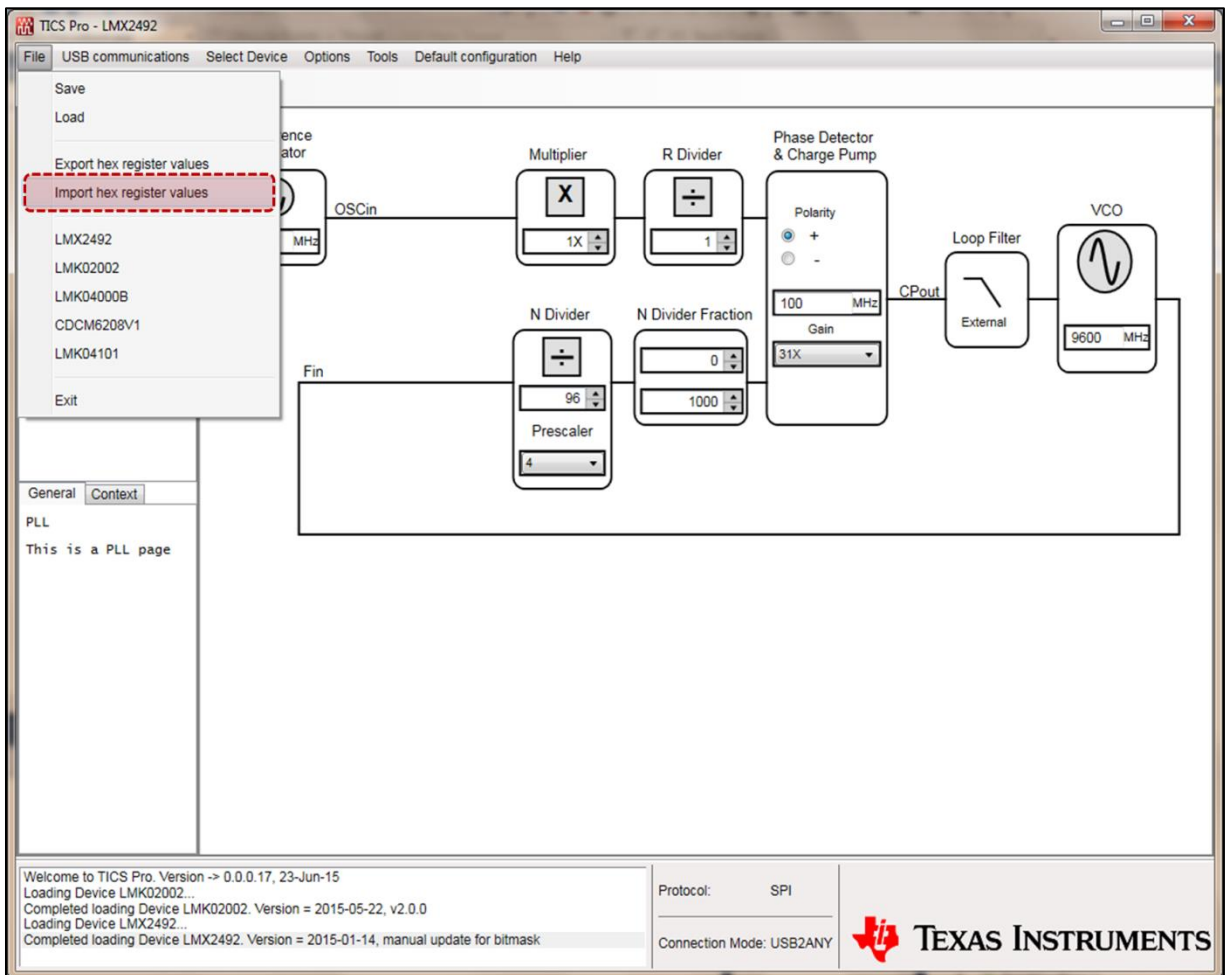
Figure 3 : File Menu - Recently Loaded Device Info



2.1.4. Importing Register Map Data

The “Import Hex Register Values” feature allows you to import the register information or data into the GUI in the following three formats

Figure 4 : File Menu - Import Hex Register Values



2.1.4.1. Format 1

CASE A (decimal reg#)

```
R0 0x80000100
R0 0x08030400
R1 0x00000101
...
R8 0x10000908
R9 0xa0022a09
R10 0x0082000b
R13 0x0286c00d
```

2.1.4.2. Format 2

CASE B (hex reg#)

```
R0x0 0x80000100
R0x0 0x08030400
R0x1 0x00000101
....
R0x8 0x10000908
R0x9 0xa0022a09
R0xb 0x0082000b
R0xd 0x0286c00d
```

2.4.1.3. Format 3

CASE C (no reg num)

```
0x80000100
0x08030400
0x00000101
...
0x10000908
0xa0022a09
0x0082000b
0x0286c00d
```



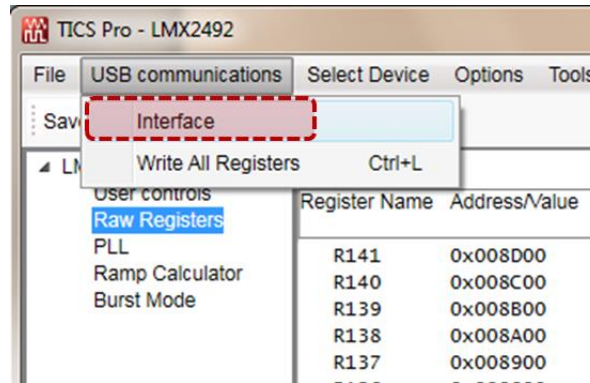
However when you export the register data using the “Export Hex Register Values” option, It is always exported in Format 1

2.2. USB Communications Menu

2.2.1. Interface

The Interface option allows you to select the protocol that is to be used for communication with the devices.

Figure 5 : USB Communications Menu - Interface



When you traverse through the USB Communications menu and click on the Interface option, the pop-up dialog shown below appears on the screen. The Communication setup window lists the Interfaces available for the device loaded. Select the required protocol and click on OK. The rectangular area at the middle of the window display image of the Pin Configuration of the respective interface selected.

Figure 6 : USB Communications - Interface Selection Dialog – In Simulation mode

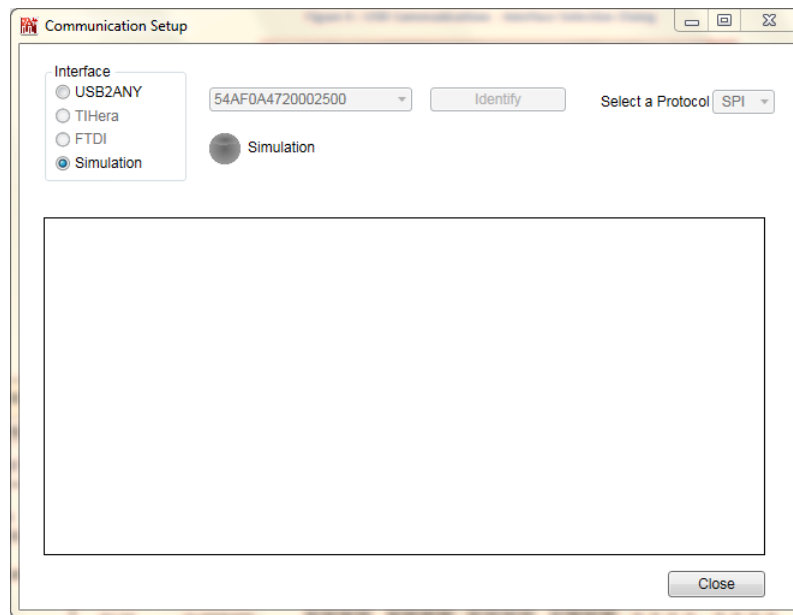


Figure 7 : USB Communications - Interface Selection Dialog – USB2ANY Device Disconnected

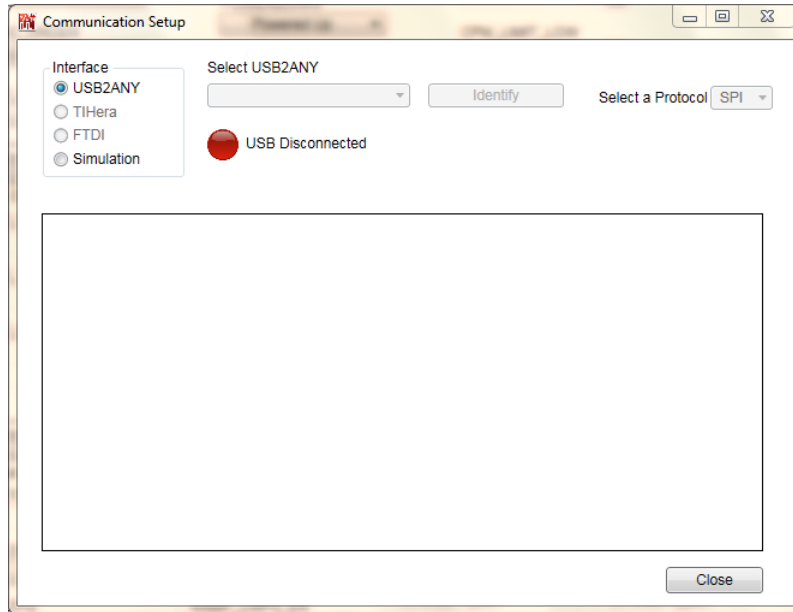
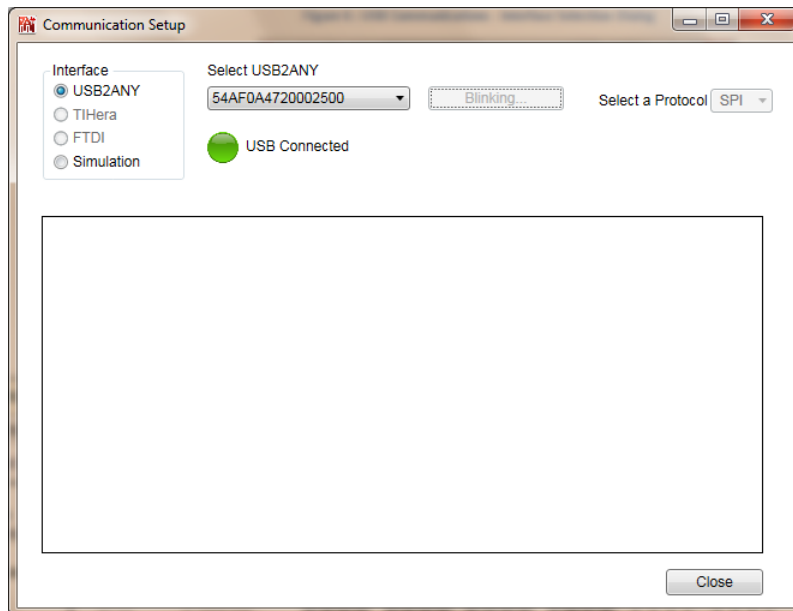


Figure 8 : USB Communications - Interface Selection Dialog – USB2ANY Device Connected



- **Connection Status**

The connection status of a device can be identified from the LED where Green denotes one or more devices are connected. On the other hand Red LED denotes that the device is disconnected.

- **List of Devices**

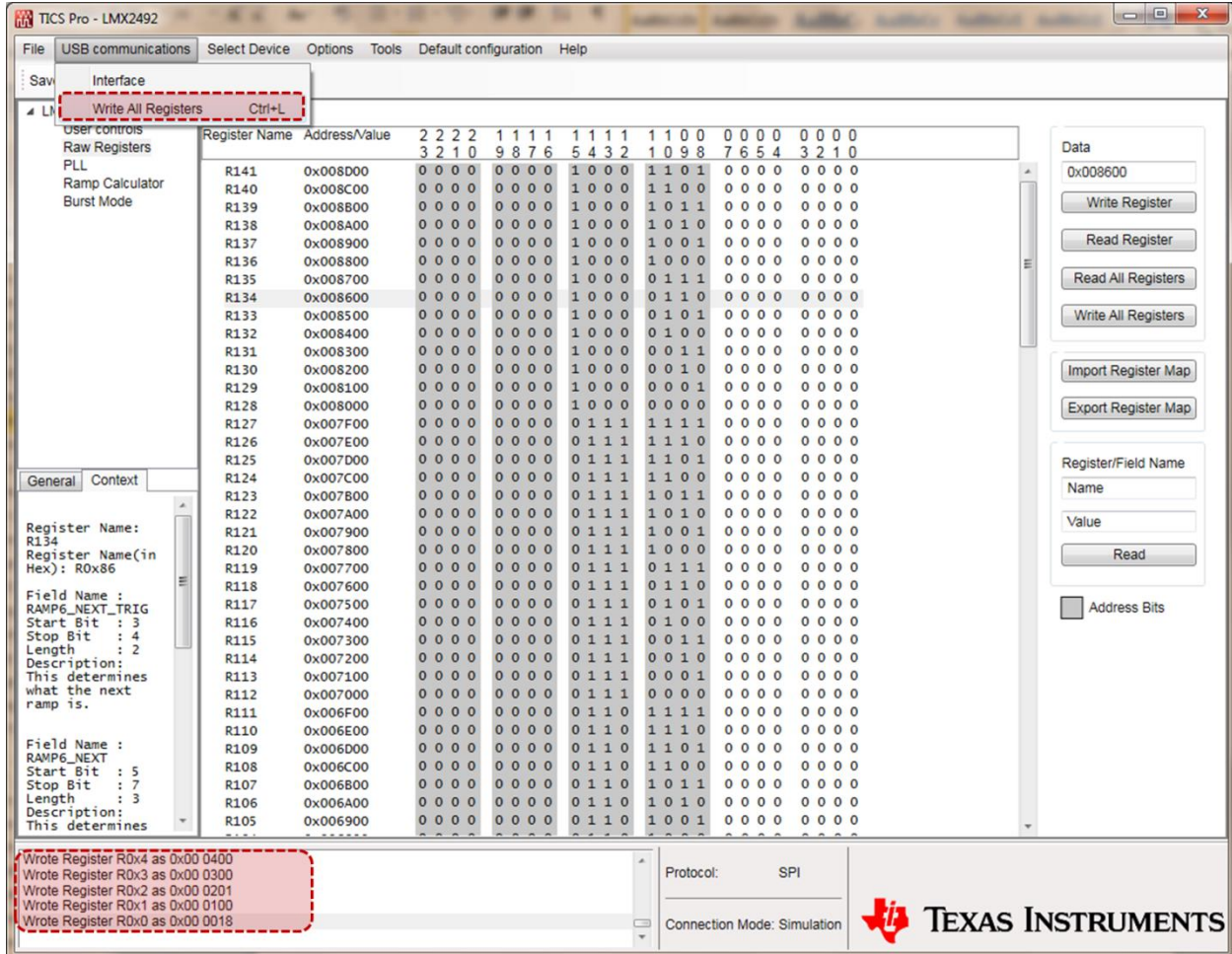
The list of connected devices are populated in the listbox for each Interface respectively. Each device is represented as a unique string populated in the list box.

- **Identifying a device**

The device connected could be identified by using the “Identify” option. Select one of the listed device and Click the identify option. The “Identify” option will change to “Blinking” state, that will toggle the LED of the selected device in the list.

2.2.2. Program All Register

The “Program All Register” option allows you to write all the register values into the device. The status bar at the bottom indicates this. It is similar to the “Write All” operation on the Raw Register Page

Figure 9 : USB Communications - Program All Register


The screenshot shows the TICS Pro - LMX2492 software interface. The 'Write All Registers' menu item is highlighted with a red dashed box. The central panel displays a table of registers with their names, addresses, and bit patterns. The right-hand panel contains controls for writing and reading registers. The bottom status bar shows a log of write operations and the connection mode.

Register Name	Address/Value	2	2	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
R141	0x008D00	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0
R140	0x008C00	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
R139	0x008B00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
R138	0x008A00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
R137	0x008900	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
R136	0x008800	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
R135	0x008700	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0
R134	0x008600	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0
R133	0x008500	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0
R132	0x008400	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
R131	0x008300	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
R130	0x008200	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
R129	0x008100	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
R128	0x008000	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
R127	0x007F00	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0
R126	0x007E00	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0
R125	0x007D00	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0
R124	0x007C00	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0
R123	0x007B00	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0
R122	0x007A00	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0
R121	0x007900	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	0
R120	0x007800	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0
R119	0x007700	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	0
R118	0x007600	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	0
R117	0x007500	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	1
R116	0x007400	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0
R115	0x007300	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	1
R114	0x007200	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	0
R113	0x007100	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	1
R112	0x007000	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0
R111	0x006F00	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	0
R110	0x006E00	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	0
R109	0x006D00	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	1
R108	0x006C00	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	0
R107	0x006B00	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	1
R106	0x006A00	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0
R105	0x006900	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0

Log of operations:

- Write Register R0x4 as 0x00 0400
- Write Register R0x3 as 0x00 0300
- Write Register R0x2 as 0x00 0201
- Write Register R0x1 as 0x00 0100
- Write Register R0x0 as 0x00 0018

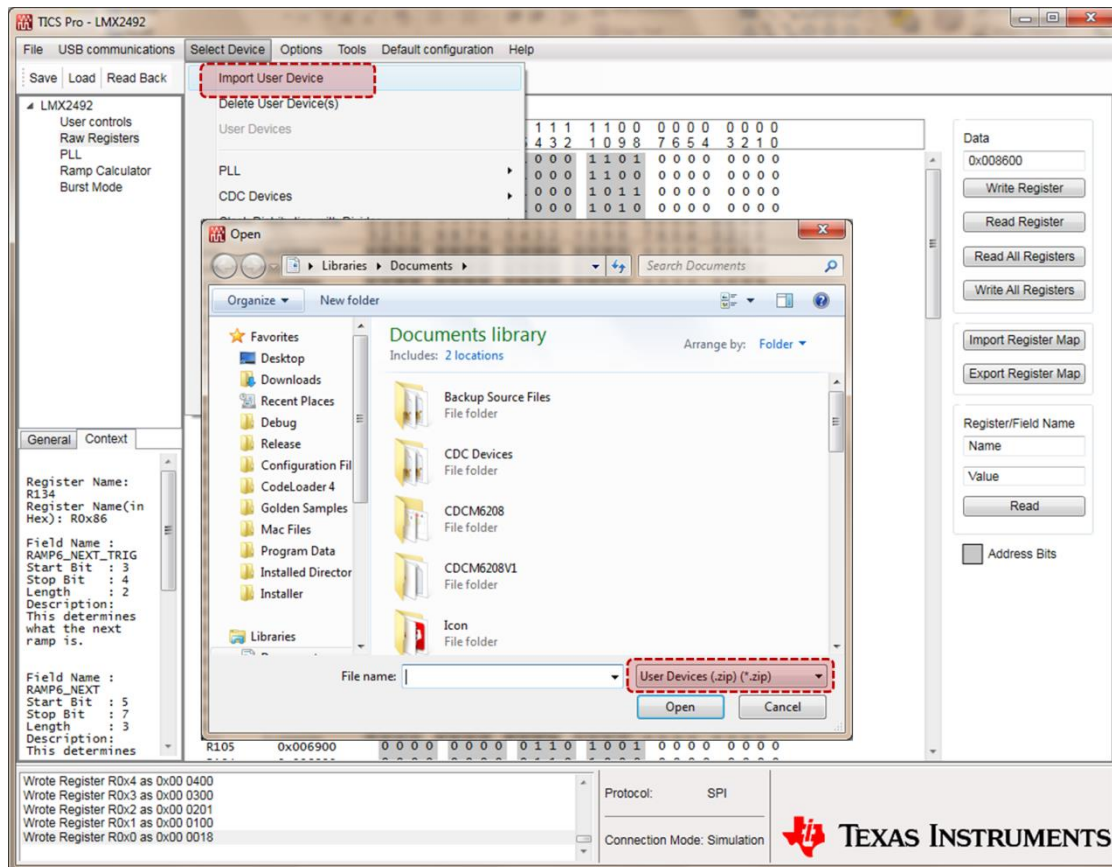
Protocol: SPI
Connection Mode: Simulation

2.3. Select Device Menu

2.3.1. Import User Device

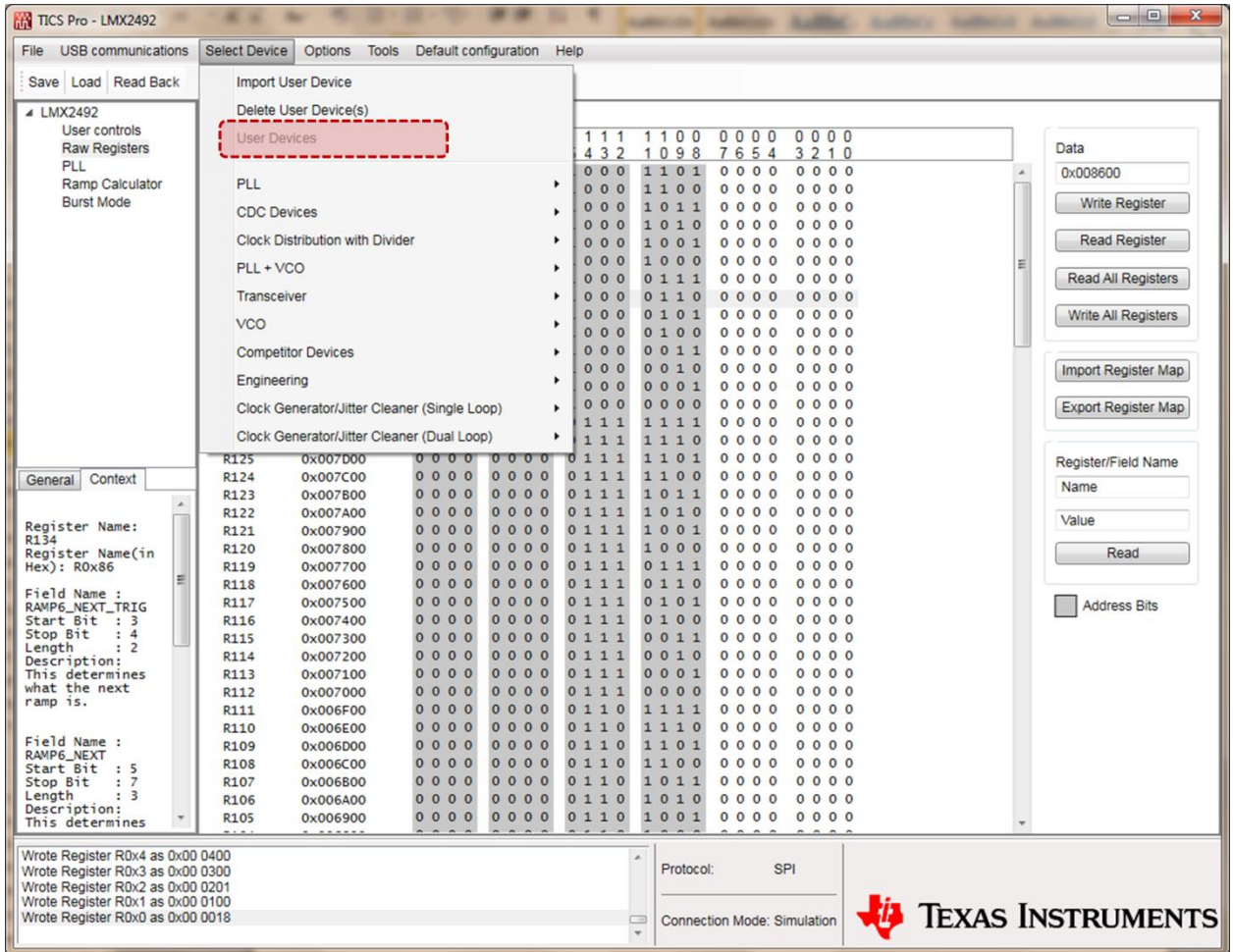
This option allows you to load new devices into the GUI. The User Device related files must be grouped together in a “.Zip” File. When the Import User Device option is selected, a dialog pops up to select the zip file. The GUI then unzips all the files and places them into the appropriate folders.

Figure 10 : Select Device - Import User Device



The new user devices would then appear in the Select Device menu as shown in figure below.

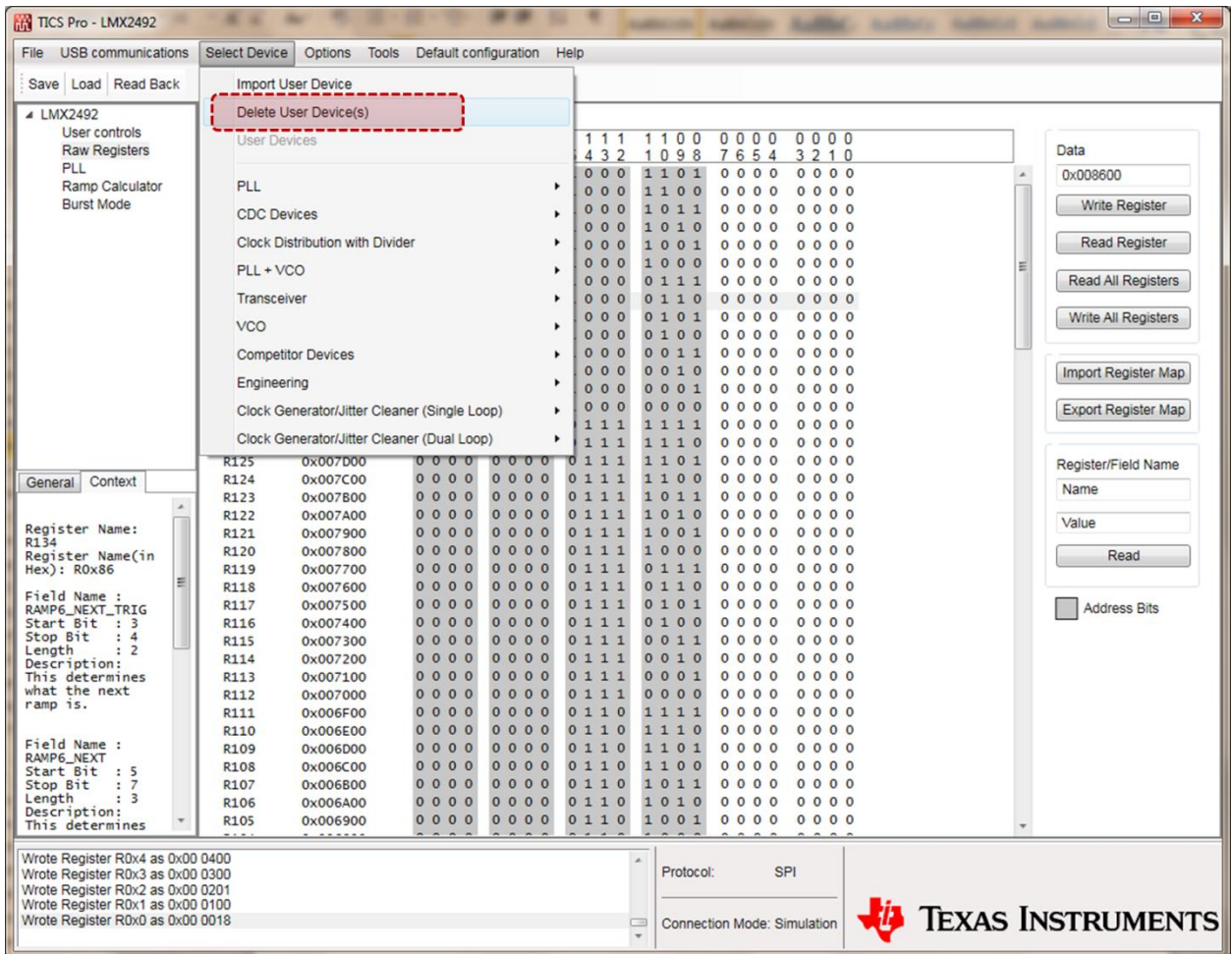
Figure 11 : Select Device - List of User Devices



2.3.2. Delete User Device

When you select the Delete User Device option, a pop-up displays on the screen. Select the required devices and press the Delete button

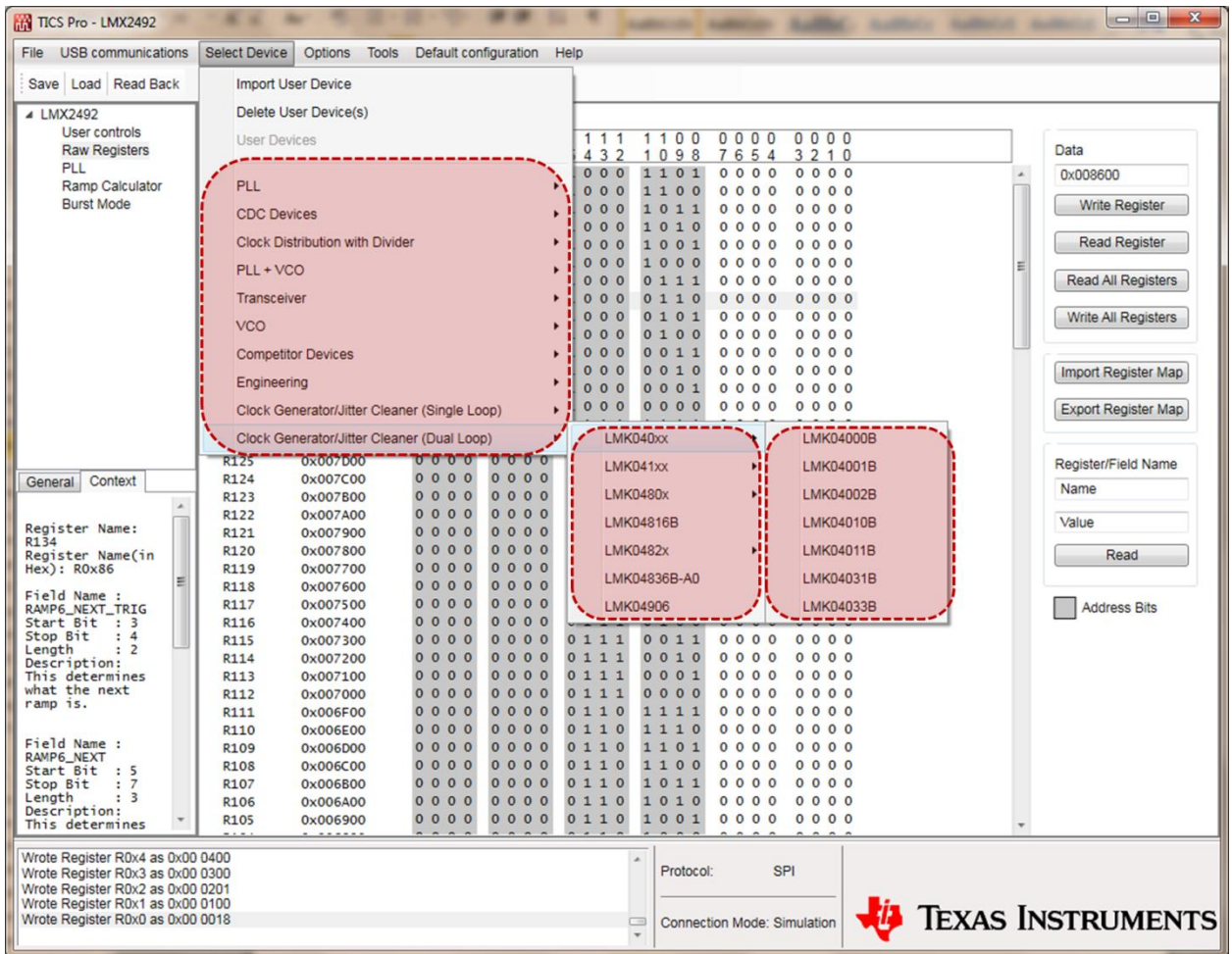
Figure 12 : Select Device - Delete User Device



2.3.3. List of Devices under groups

All the devices in the GUI are grouped into relevant categories based on the type of the device. There can be multiple levels of sub-menus based on the device types.

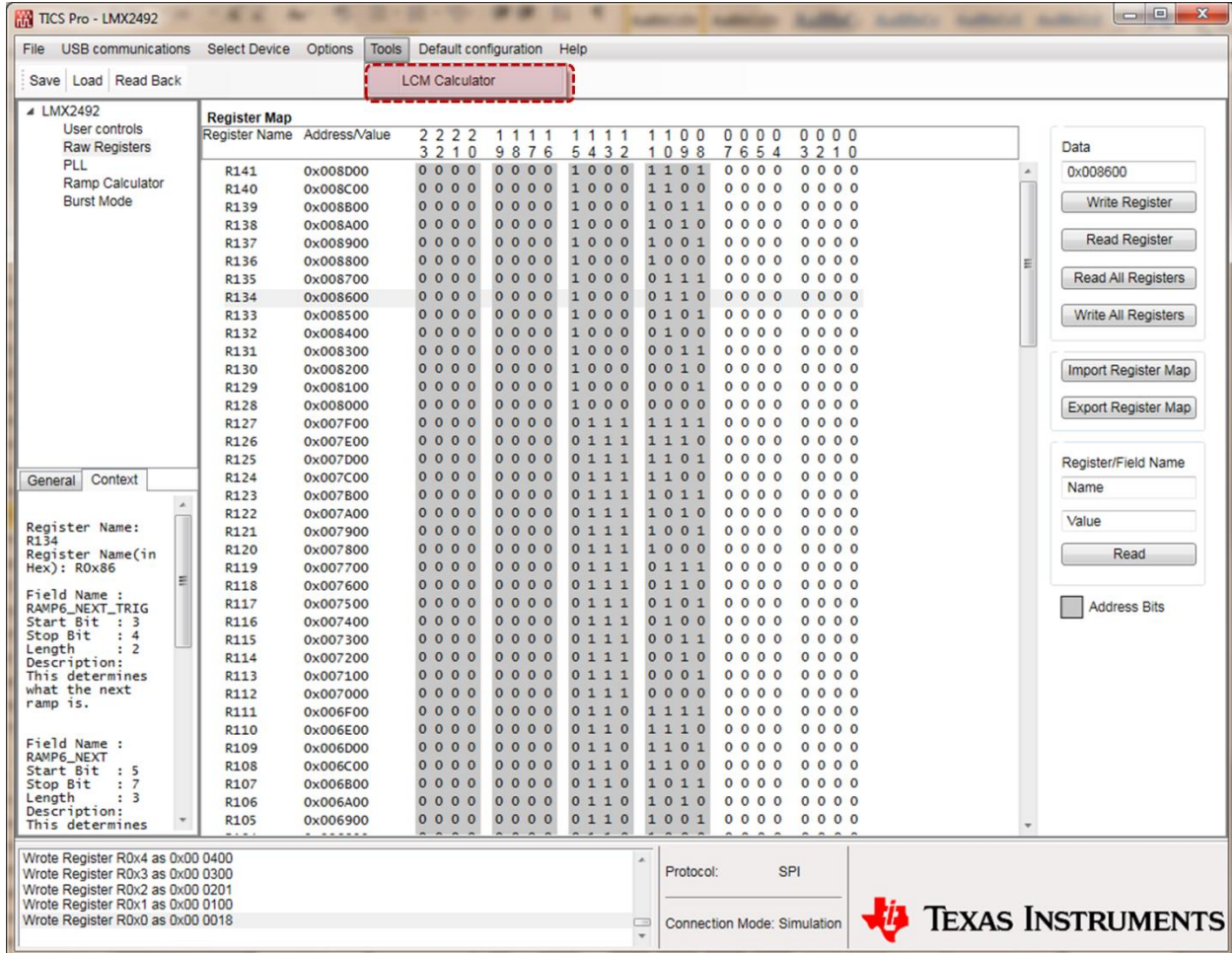
Figure 13 : Select Device - List of Devices under Groups



2.5. Tools Menu

This menu lists all the tools available for use in the TICS Pro GUI

Figure 15 : Tools Menu



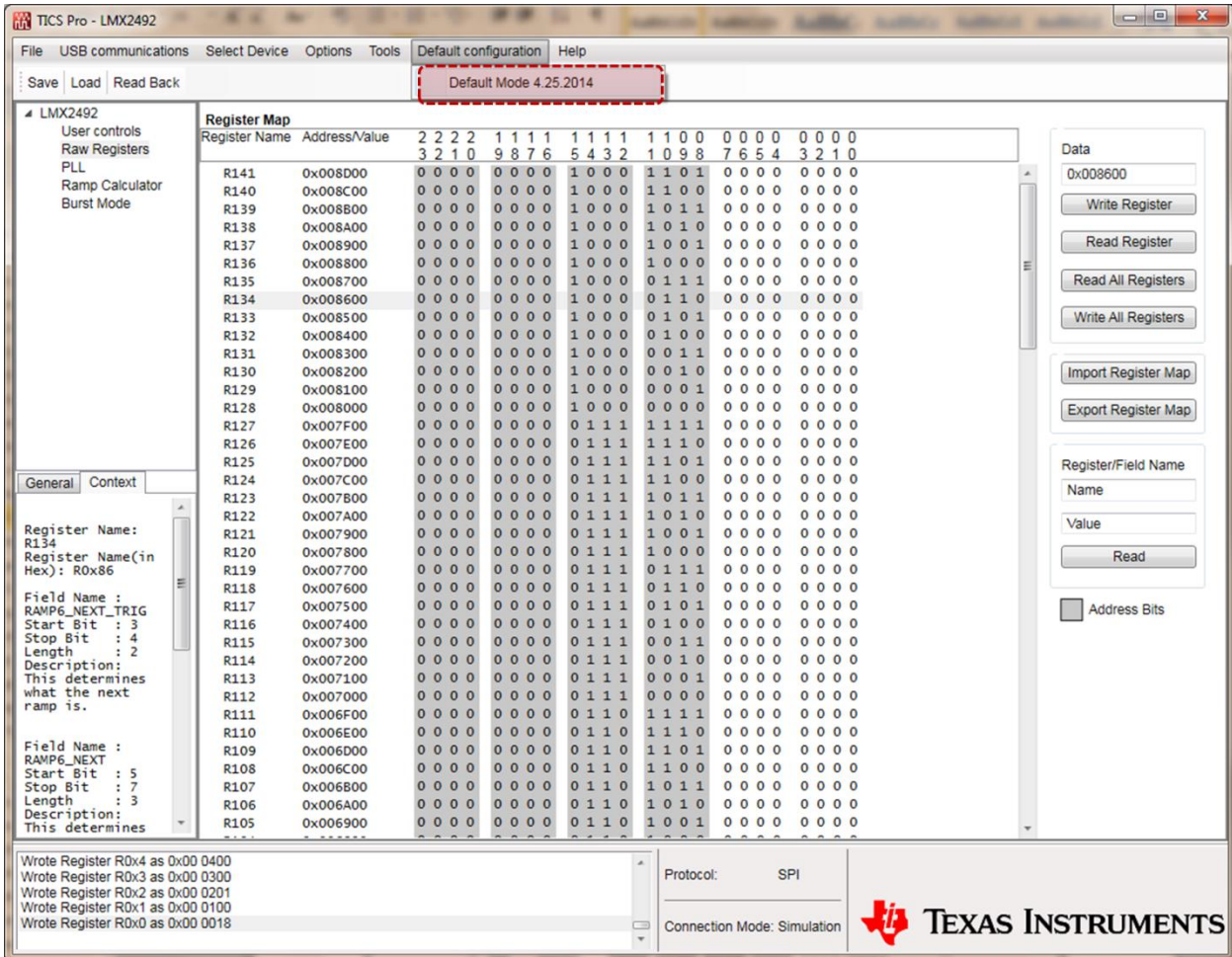
The screenshot shows the TICS Pro - LMX2492 interface. The 'Tools' menu is open, and 'LCM Calculator' is highlighted with a red dashed box. The main window displays a Register Map table with columns for Register Name, Address/Value, and binary data. The table lists registers from R105 to R141. The bottom status bar shows the protocol as SPI and connection mode as Simulation. The Texas Instruments logo is visible in the bottom right corner.

Register Name	Address/Value	2	2	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0									
Register Name	Address/Value	3	2	1	0	9	8	7	6	5	4	3	2	1	0	9	8	7	6	5	4	3	2	1	0			
R141	0x008D00	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0
R140	0x008C00	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
R139	0x008B00	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R138	0x008A00	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
R137	0x008900	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
R136	0x008800	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R135	0x008700	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0
R134	0x008600	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
R133	0x008500	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
R132	0x008400	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
R131	0x008300	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R130	0x008200	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
R129	0x008100	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
R128	0x008000	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R127	0x007F00	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
R126	0x007E00	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
R125	0x007D00	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0
R124	0x007C00	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
R123	0x007B00	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R122	0x007A00	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
R121	0x007900	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
R120	0x007800	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R119	0x007700	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0
R118	0x007600	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
R117	0x007500	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
R116	0x007400	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
R115	0x007300	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R114	0x007200	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
R113	0x007100	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
R112	0x007000	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R111	0x006F00	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
R110	0x006E00	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
R109	0x006D00	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0
R108	0x006C00	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
R107	0x006B00	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0
R106	0x006A00	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
R105	0x006900	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0

2.6. Default Configuration Menu

The GUI maintains a list of default modes. When you click on the Default Configuration menu all the available default modes are listed. You can select one of the modes and the device is automatically re-configured.

Figure 16 : Default Configuration Menu




Register Map

Register Name	Address/Value	2	2	2	2	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
		3	2	1	0	9	8	7	6	5	4	3	2	1	0	9	8	7	6	5	4	3	2	1	0
R141	0x008D00	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	0	0	0	0	
R140	0x008C00	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	
R139	0x008B00	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0	0	0	
R138	0x008A00	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	
R137	0x008900	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	
R136	0x008800	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	
R135	0x008700	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	
R134	0x008600	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	
R133	0x008500	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	
R132	0x008400	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
R131	0x008300	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	
R130	0x008200	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	
R129	0x008100	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	
R128	0x008000	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
R127	0x007F00	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	
R126	0x007E00	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	
R125	0x007D00	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	0	0	0	0	0	0	0	
R124	0x007C00	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	
R123	0x007B00	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	0	0	0	0	0	0	0	
R122	0x007A00	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	0	0	0	0	0	0	0	
R121	0x007900	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	1	0	0	0	0	0	0	
R120	0x007800	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	
R119	0x007700	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	1	0	0	0	0	0	0	0	
R118	0x007600	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	1	0	0	0	0	0	0	0	
R117	0x007500	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0	1	0	0	0	0	0	0	
R116	0x007400	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0	0	0	0	0	0	0	0	
R115	0x007300	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	0	0	0	0	0	0	
R114	0x007200	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	0	0	0	0	0	0	0	
R113	0x007100	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	1	0	0	0	0	0	0	
R112	0x007000	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	
R111	0x006F00	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	1	1	0	0	0	0	0	0	
R110	0x006E00	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	1	0	0	0	0	0	0	0	
R109	0x006D00	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0	1	0	0	0	0	0	0	
R108	0x006C00	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0	0	0	0	0	0	0	0	
R107	0x006B00	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0	1	1	0	0	0	0	0	
R106	0x006A00	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0	1	0	0	0	0	0	0	
R105	0x006900	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0	1	0	0	0	0	0	0	

Data
0x008600
Write Register
Read Register
Read All Registers
Write All Registers
Import Register Map
Export Register Map
Register/Field Name
Name
Value
Read
Address Bits

Write Register R0x4 as 0x00 0400
Write Register R0x3 as 0x00 0300
Write Register R0x2 as 0x00 0201
Write Register R0x1 as 0x00 0100
Write Register R0x0 as 0x00 0018

Protocol: SPI
Connection Mode: Simulation

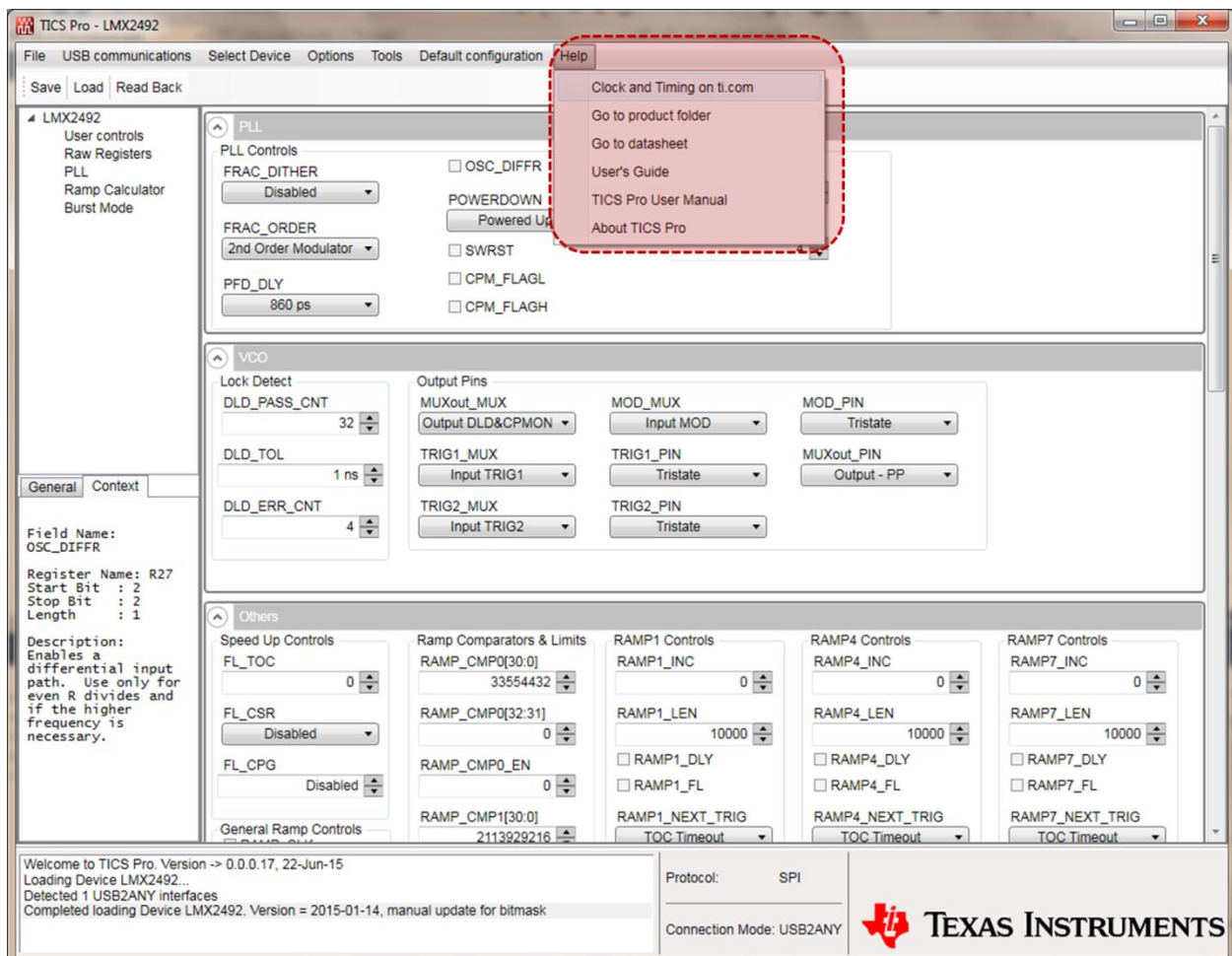

TEXAS INSTRUMENTS

2.7. Help Menu

The Help Menu provides the following information

- Clock and timing on ti.com – Connects to the relevant page on the TI website that displays the clock and timing information
- Go to product folder – Opens the Installed directory of the software
- Go to datasheet – Opens the datasheet of the currently loaded device
- User's Guide – Opens the website link containing the User's Guide
- TICS Pro User Manual – Opens the User Manual
- About TICS Pro – Displays the about screen for the TICS Pro software

Figure 17 : Help Menu



3. TICS PRO Page Selection

3.1. TICS PRO Pages

The different pages available in the TICS PRO GUI are as listed below

- User Control Page
- Raw Register Page
- PLL Page
- Flex Page
- Burst mode Page

3.2. User Control Page

The User control Page displays the different controls to work with the device grouped by separate Master Groups

3.2.1. Master Group Display for a Device

The controls are grouped into separate Master Groups as shown in the figures below. User can expand one or multiple master groups to access the controls from the group.

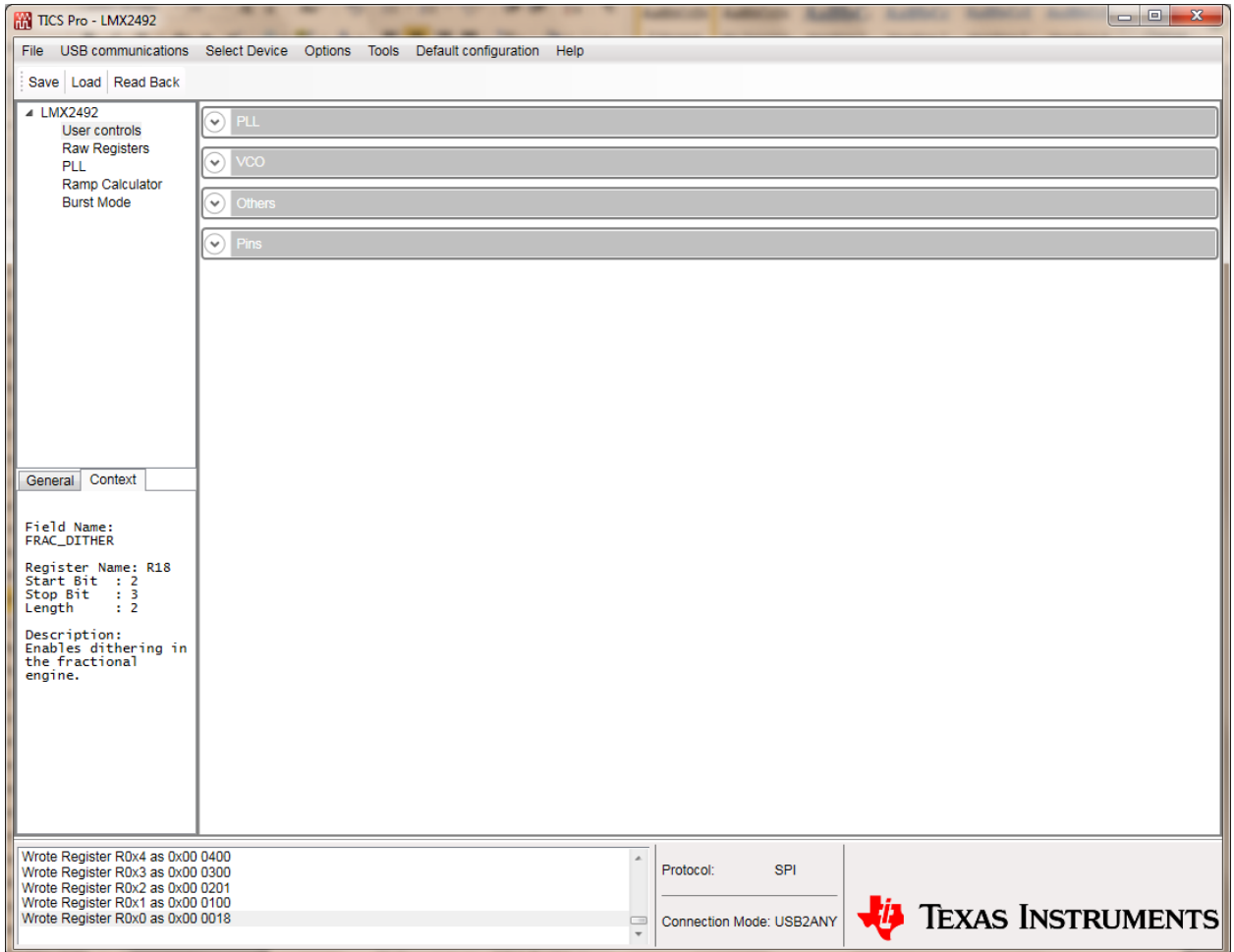
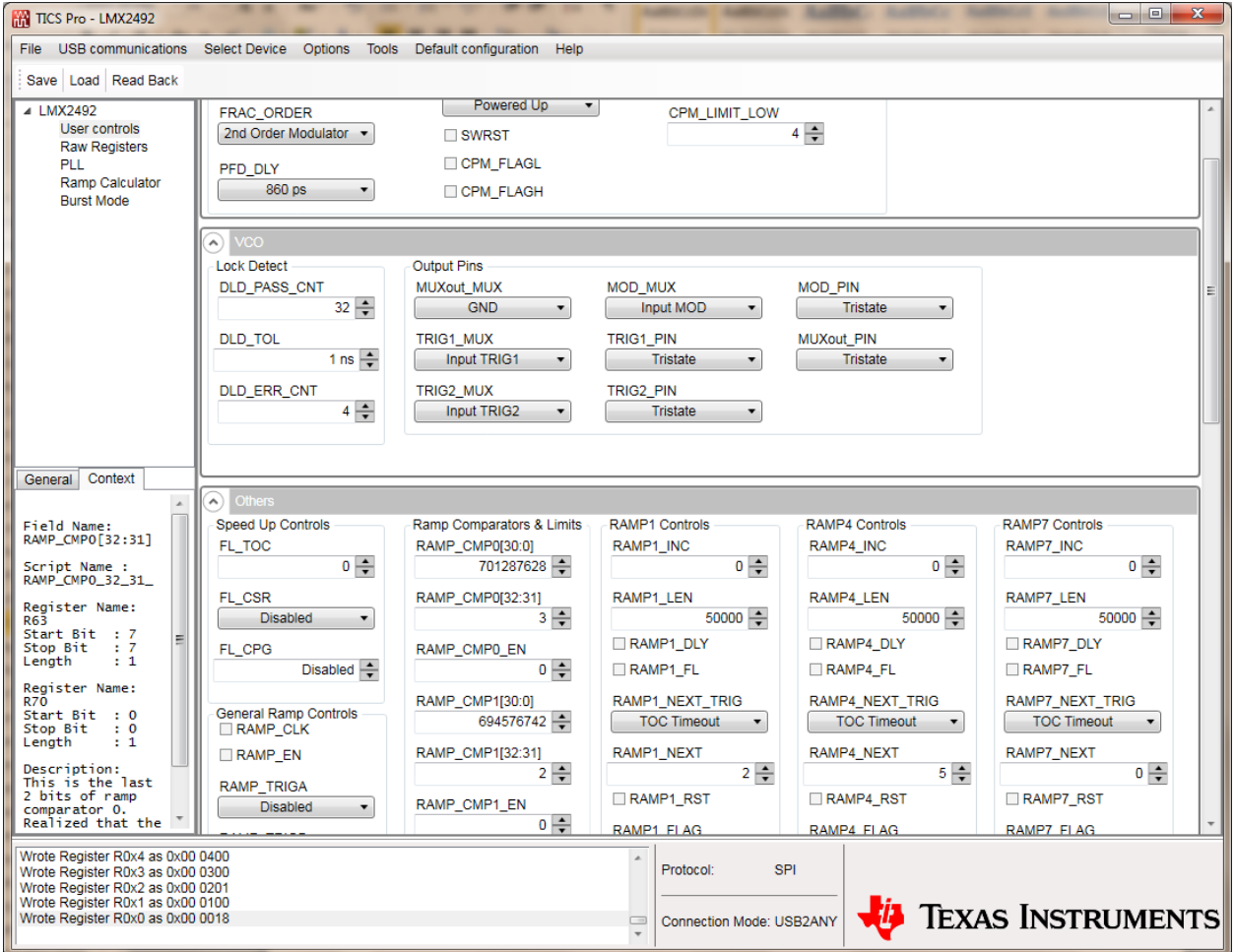
Figure 18 : User Control Page


Figure 19 : User Control Page - Master Group


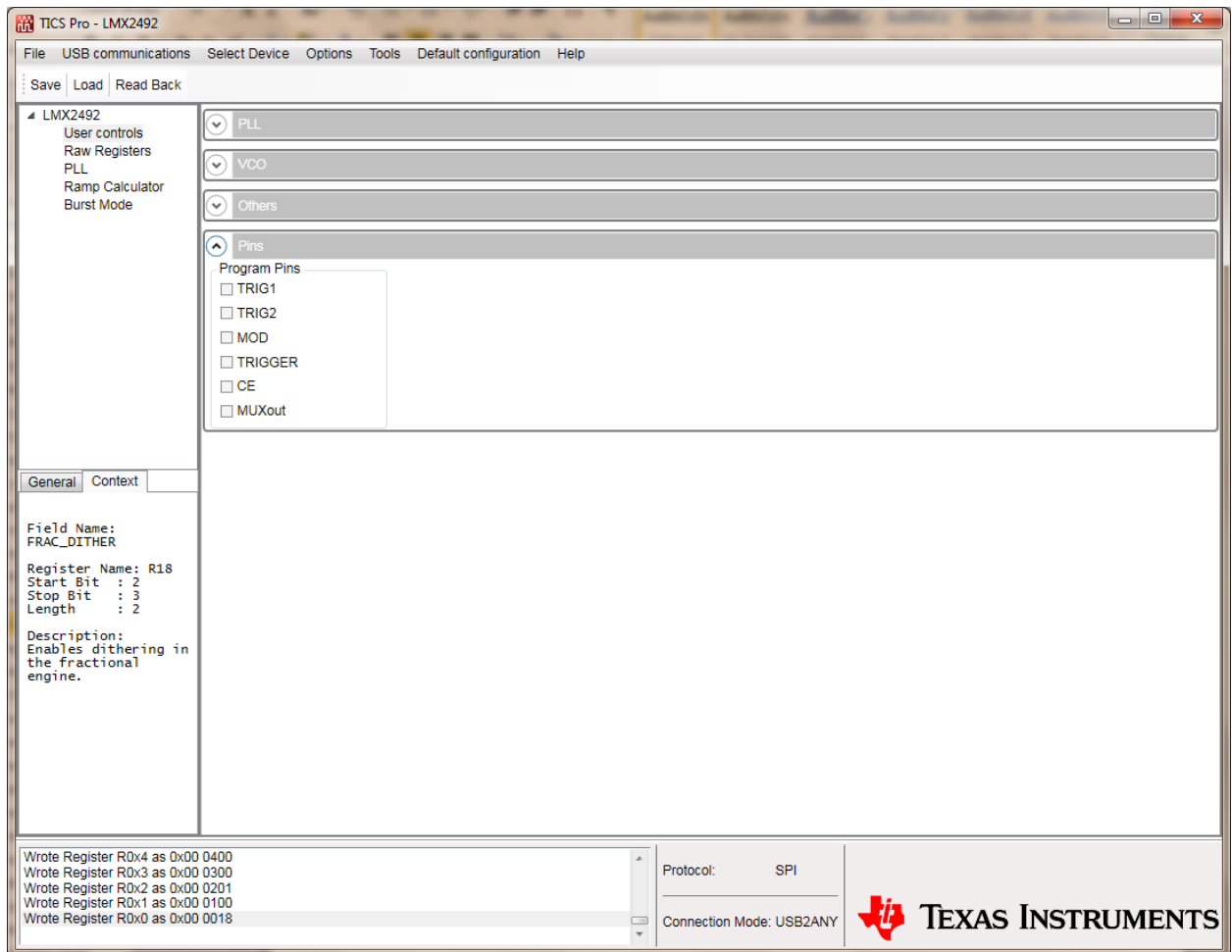
The screenshot displays the TICS Pro - LMX2492 software interface. The main window is titled "TICS Pro - LMX2492" and contains several sections for configuring the device's user controls.

- Top Section:** Includes "FRAC_ORDER" (set to 2nd Order Modulator), "Powered Up" (checked), and "CPM_LIMIT_LOW" (set to 4). There are also checkboxes for SWRST, CPM_FLAGL, and CPM_FLAGH.
- VCO Section:** Contains "Lock Detect" parameters (DLD_PASS_CNT: 32, DLD_TOL: 1 ns, DLD_ERR_CNT: 4) and "Output Pins" for MUXout_MUX, MOD_MUX, MOD_PIN, TRIG1_MUX, TRIG1_PIN, MUXout_PIN, TRIG2_MUX, and TRIG2_PIN.
- Others Section:**
 - Speed Up Controls:** FL_TOC (0), FL_CSR (Disabled), FL_CPG (Disabled).
 - General Ramp Controls:** RAMP_CLK (unchecked), RAMP_EN (unchecked), RAMP_TRIGA (Disabled).
 - Ramp Comparators & Limits:** RAMP_CMP0[30:0] (701287628), RAMP_CMP0[32:31] (3), RAMP_CMP0_EN (0), RAMP_CMP1[30:0] (694576742), RAMP_CMP1[32:31] (2), RAMP_CMP1_EN (0).
 - RAMP1 Controls:** RAMP1_INC (0), RAMP1_LEN (50000), RAMP1_DLY (unchecked), RAMP1_FL (unchecked), RAMP1_NEXT_TRIG (TOC Timeout), RAMP1_NEXT (2), RAMP1_RST (unchecked), RAMP1_FLAG (unchecked).
 - RAMP4 Controls:** RAMP4_INC (0), RAMP4_LEN (50000), RAMP4_DLY (unchecked), RAMP4_FL (unchecked), RAMP4_NEXT_TRIG (TOC Timeout), RAMP4_NEXT (5), RAMP4_RST (unchecked), RAMP4_FLAG (unchecked).
 - RAMP7 Controls:** RAMP7_INC (0), RAMP7_LEN (50000), RAMP7_DLY (unchecked), RAMP7_FL (unchecked), RAMP7_NEXT_TRIG (TOC Timeout), RAMP7_NEXT (0), RAMP7_RST (unchecked), RAMP7_FLAG (unchecked).
- Left Panel:** Shows "Field Name: RAMP_CMP0[32:31]", "Script Name: RAMP_CMP0_32_31_", "Register Name: R63", "Start Bit: 7", "Stop Bit: 7", "Length: 1", "Register Name: R70", "Start Bit: 0", "Stop Bit: 0", "Length: 1", and a description: "This is the last 2 bits of ramp comparator 0. Realized that the".
- Bottom Panel:** Shows "Wrote Register R0x4 as 0x00 0400", "Wrote Register R0x3 as 0x00 0300", "Wrote Register R0x2 as 0x00 0201", "Wrote Register R0x1 as 0x00 0100", "Wrote Register R0x0 as 0x00 0018", "Protocol: SPI", and "Connection Mode: USB2ANY".

3.2.2. PINS Master group

The PINS Master Group is a common group that appears for all devices irrespective of the device type selected.

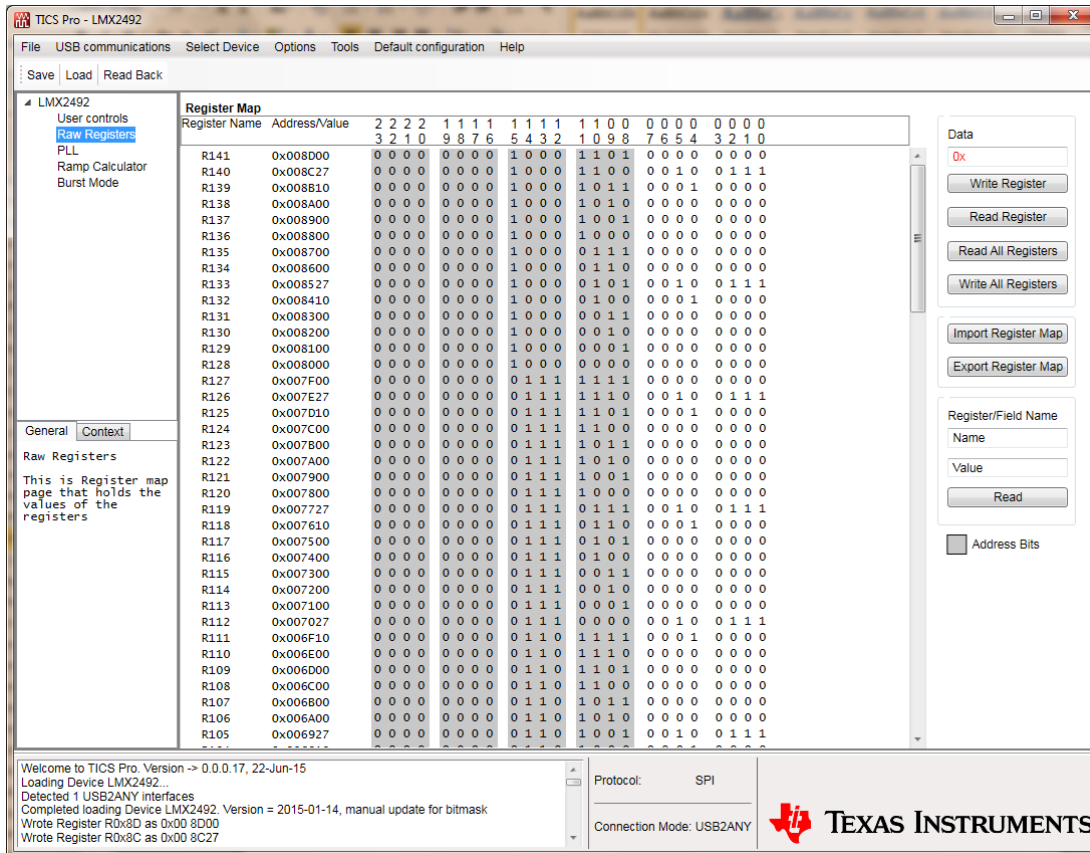
Figure 20 : User Control Page - PINS Master Group



3.3. Raw Register Page

The Raw Register Page displays the register map for the selected device.

Figure 21 : Raw Register Page – Register Map



Register Name	Address/Value	2	2	2	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	
Register Name	Address/Value	3	2	1	0	9	8	7	6	5	4	3	2	1	0	9	8	7	6	5	4	3	2	1	0
R141	0x008D00	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	
R140	0x008C27	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	1	0	1	1	
R139	0x008B10	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	1	0	0	0
R138	0x008A00	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
R137	0x008900	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
R136	0x008800	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
R135	0x008700	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0
R134	0x008600	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
R133	0x008527	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	1	1	1	1
R132	0x008410	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0
R131	0x008300	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
R130	0x008200	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
R129	0x008100	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
R128	0x008000	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
R127	0x007F00	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
R126	0x007E27	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	1	0	0	1	1	1
R125	0x007D10	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	0	0	0	1	0	0	0	0
R124	0x007C00	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
R123	0x007B00	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0
R122	0x007A00	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0
R121	0x007900	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	0	0	0	0	0	0	0	0
R120	0x007800	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
R119	0x007727	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	0	0	0	1	0	1	1	1
R118	0x007610	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	0	0	0	1	0	0	0	0
R117	0x007500	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	0	0	0	0
R116	0x007400	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0
R115	0x007300	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	1	0	0	0	0	0	0	0
R114	0x007200	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0
R113	0x007100	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	1	0	0	0	0	0	0	0
R112	0x007027	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	1	1	1
R111	0x006F10	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	0	0	0	1	0	0	0
R110	0x006E00	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	0	0	0	0	0	0	0	0
R109	0x006D00	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	0	0	0	0
R108	0x006C00	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0
R107	0x006B00	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	0	0	0	0
R106	0x006A00	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	0	0	0	0	0
R105	0x006927	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	1	0	1	1	1

- c) **Read All**
Pressing the Read All button, reads the data from all the registers in the device and updates the UI
- d) **Write All**
Pressing the Write All button, writes all the data into the registers in the device
- e) **Import Register Map**
This option allows you to load a register map into the GUI
- f) **Export Register Map**
This option allows you to export or save the current register map into a file
- g) **Read**
The Read option at the bottom of the page allows you to read the value of a particular register or a field in the device. This option does not cause any updates to the UI. The read data is only displayed in the box shown

Figure 23 : Raw Register Page – Read Register Value

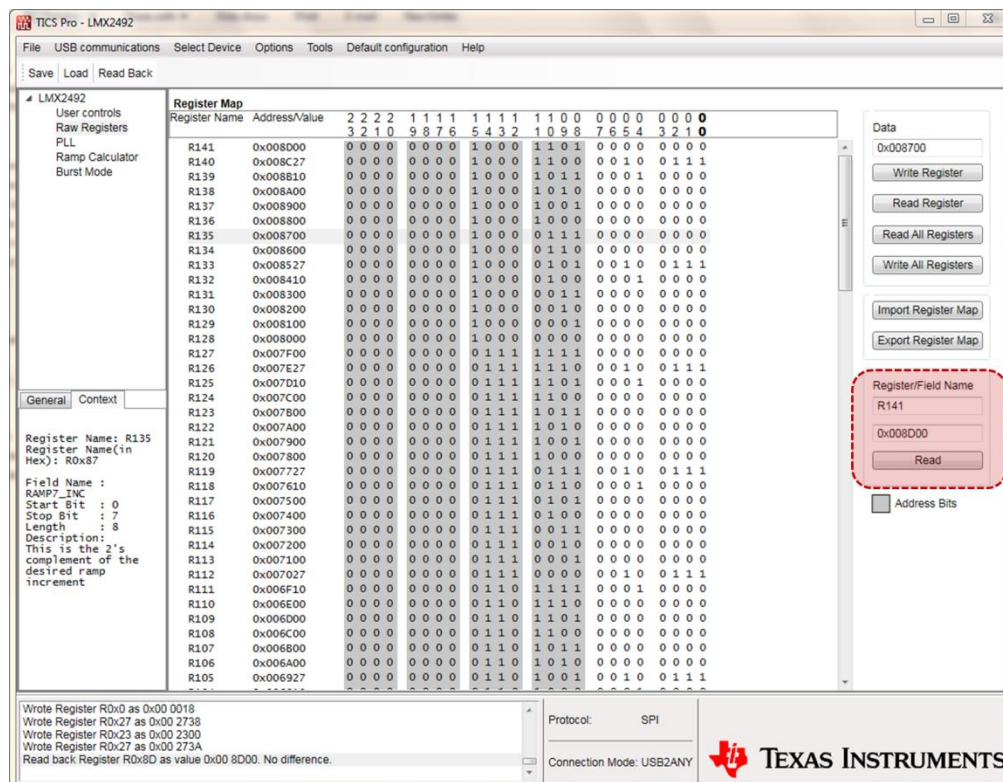
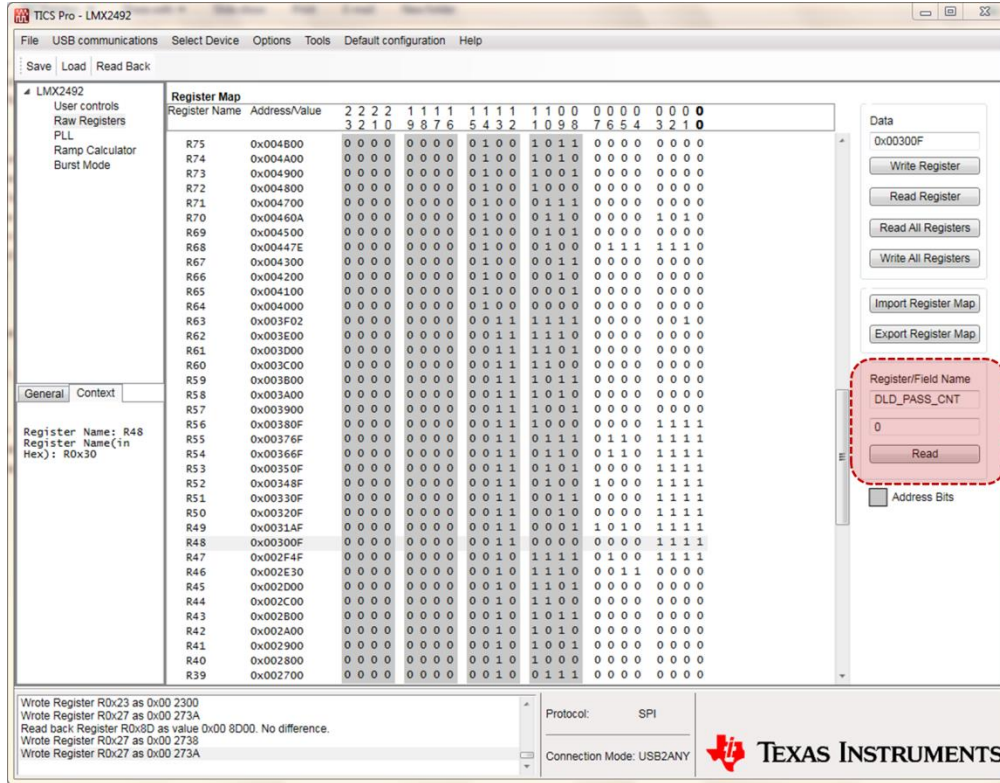


Figure 24 : Raw Register Page – Read Field Value



Register Map

Register Name	Address/Value	2	2	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
R75	0x004800	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	1	0	0	0	0	0	0	0	0
R74	0x004400	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0
R73	0x004900	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0
R72	0x004800	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
R71	0x004700	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	0	0	0	0	0	0	0	0
R70	0x00460A	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0
R69	0x004500	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0
R68	0x00447E	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	1	1	0	0	0	0	0	0	0
R67	0x004300	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	0	0	0	0	0	0	0	0
R66	0x004200	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
R65	0x004100	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
R64	0x004000	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R63	0x003F02	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
R62	0x003E00	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R61	0x003D00	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
R60	0x003C00	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R59	0x003B00	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
R58	0x003A00	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0
R57	0x003900	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
R56	0x00380F	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R55	0x00376F	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	0	1	1	0	1	1	1	1	1	1	1
R54	0x00366F	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	0	1	1	0	1	1	1	1	1	1	1
R53	0x00350F	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
R52	0x00348F	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
R51	0x00330F	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
R50	0x00320F	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R49	0x00314F	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	1	0	1	0	1	1	1	1	1
R48	0x00300F	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R47	0x002F4F	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0
R46	0x002E30	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
R45	0x002D00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0
R44	0x002C00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R43	0x002B00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0
R42	0x002A00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
R41	0x002900	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
R40	0x002800	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
R39	0x002700	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0

Data
0x00300F
Write Register
Read Register
Read All Registers
Write All Registers
Import Register Map
Export Register Map
Register/Field Name
DL_D_PASS_CNT
0
Read
Address Bits

Write Register R0x23 as 0x00 2300
Write Register R0x27 as 0x00 273A
Read back Register R0x8D as value 0x00 8D00. No difference.
Write Register R0x27 as 0x00 2738
Write Register R0x27 as 0x00 273A

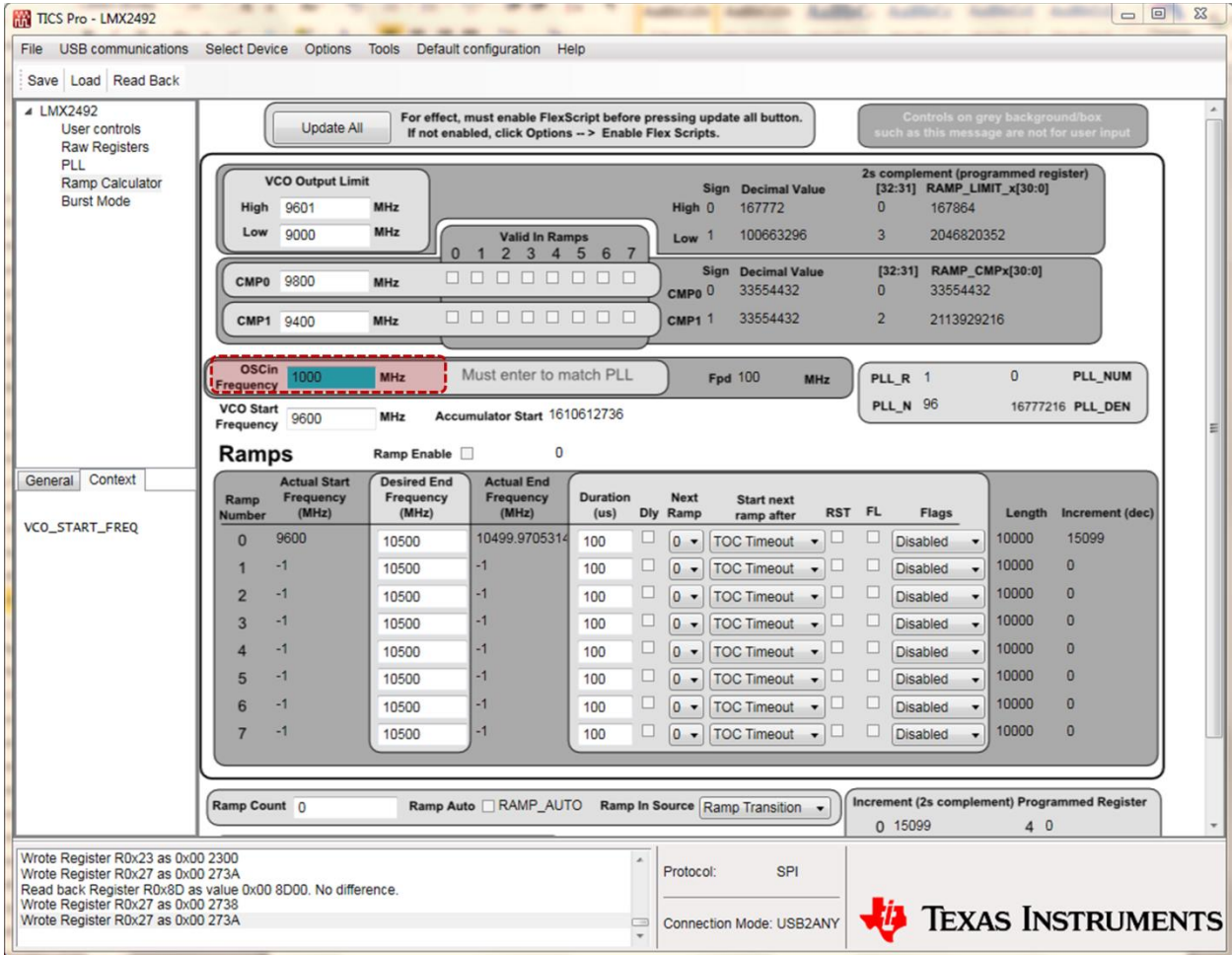
Protocol: SPI
Connection Mode: USB2ANY


TEXAS INSTRUMENTS

3.3.2. Using the AutoUpdate feature

When the AutoUpdate Option is not selected and changes are made to any control in the GUI, the Raw Register Map displays the new data in red color indicating that these changes have not been written to the device.

Figure 25 : AutoUpdate OFF - Changes made to Control



The screenshot shows the TICS Pro - LMX2492 GUI. The 'OSCin Frequency' field is highlighted in red, indicating a change that has not been written to the device. The 'Update All' button is disabled, and a message states: 'For effect, must enable FlexScript before pressing update all button. If not enabled, click Options --> Enable Flex Scripts.' The 'Valid In Ramps' section shows a row of checkboxes for ramps 0 through 7, with ramp 1 checked. The 'Ramps' table below shows the configuration for each ramp.

Ramp Number	Actual Start Frequency (MHz)	Desired End Frequency (MHz)	Actual End Frequency (MHz)	Duration (us)	Dly	Next Ramp	Start next ramp after	RST	FL	Flags	Length	Increment (dec)
0	9600	10500	10499.9705314	100	<input type="checkbox"/>	0	TOC Timeout	<input type="checkbox"/>	<input type="checkbox"/>	Disabled	10000	15099
1	-1	10500	-1	100	<input type="checkbox"/>	0	TOC Timeout	<input type="checkbox"/>	<input type="checkbox"/>	Disabled	10000	0
2	-1	10500	-1	100	<input type="checkbox"/>	0	TOC Timeout	<input type="checkbox"/>	<input type="checkbox"/>	Disabled	10000	0
3	-1	10500	-1	100	<input type="checkbox"/>	0	TOC Timeout	<input type="checkbox"/>	<input type="checkbox"/>	Disabled	10000	0
4	-1	10500	-1	100	<input type="checkbox"/>	0	TOC Timeout	<input type="checkbox"/>	<input type="checkbox"/>	Disabled	10000	0
5	-1	10500	-1	100	<input type="checkbox"/>	0	TOC Timeout	<input type="checkbox"/>	<input type="checkbox"/>	Disabled	10000	0
6	-1	10500	-1	100	<input type="checkbox"/>	0	TOC Timeout	<input type="checkbox"/>	<input type="checkbox"/>	Disabled	10000	0
7	-1	10500	-1	100	<input type="checkbox"/>	0	TOC Timeout	<input type="checkbox"/>	<input type="checkbox"/>	Disabled	10000	0

At the bottom of the GUI, the 'Raw Register Map' shows the following log entries:

```

Wrote Register R0x23 as 0x00 2300
Wrote Register R0x27 as 0x00 273A
Read back Register R0x8D as value 0x00 8D00. No difference.
Wrote Register R0x27 as 0x00 2738
Wrote Register R0x27 as 0x00 273A
    
```

The 'Protocol' is set to SPI and the 'Connection Mode' is USB2ANY.

For example, in the above page we have made changes to the “OSCin Frequency” as shown in the above figures and the AutoUpdate option is OFF. In the Raw Register Page, we will notice that for a couple of registers the data is updated in red color indicating that this has not been written to the device. An explicit write operation must be performed to write the data into the device.

Figure 26 : AutoUpdate OFF - Change in Data in Raw Register Page

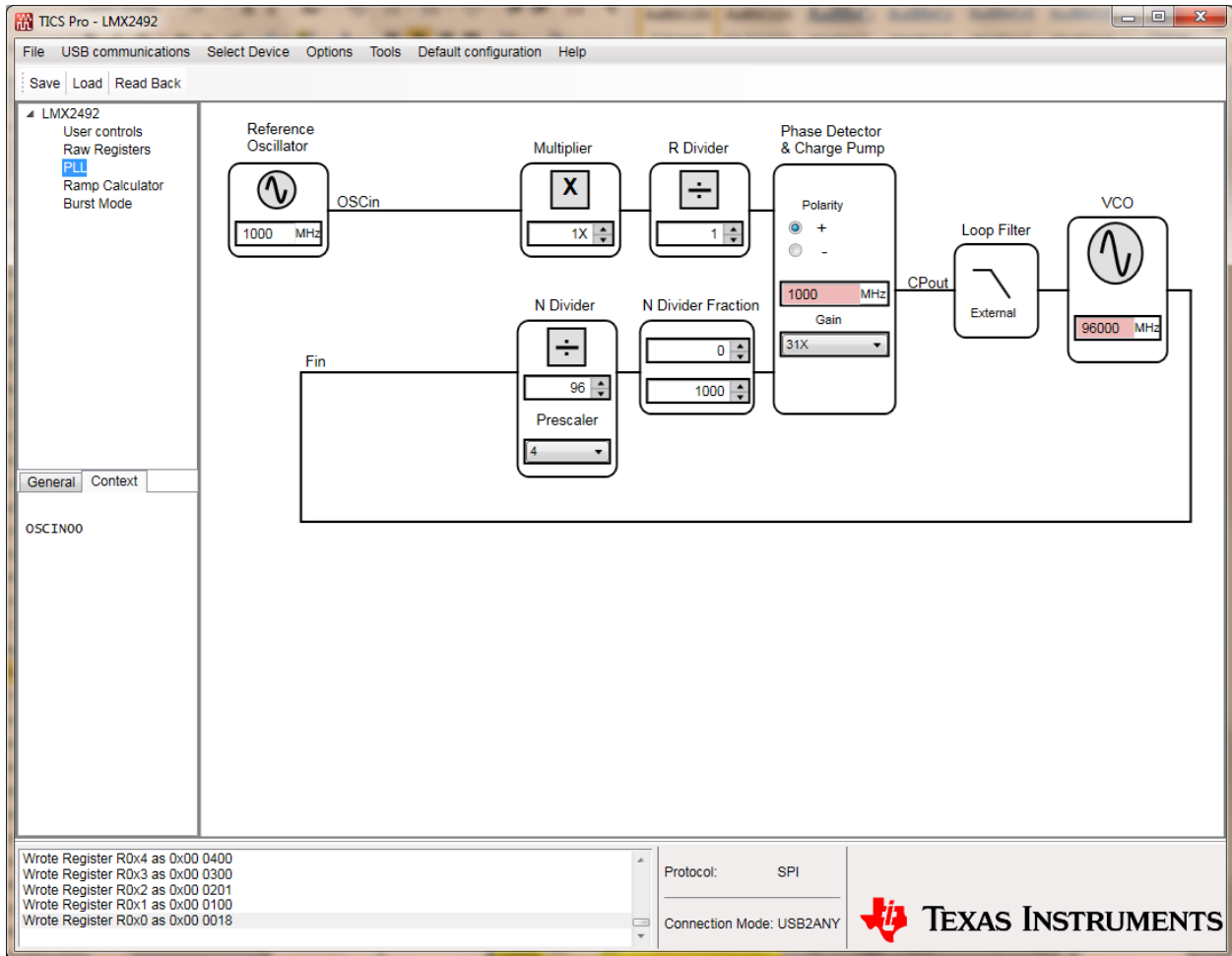
The screenshot shows the TICS Pro - LMX2492 software interface. The main window displays the Register Map for LMX2492. The 'Raw Registers' section is selected, and the data for several registers is shown in red, indicating they have not been updated. The registers shown in red are R99, R98, R97, R96, R95, R94, R93, R92, R91, R90, R89, R88, R87, R86, R85, R84, R83, R82, R81, R80, R79, R78, R77, R76, R75, R74, R73, R72, R71, R70, R69, R68, R67, and R66. The data for these registers is shown in red text. The interface also includes a menu bar, a toolbar, a left sidebar with navigation options, and a right sidebar with control buttons like 'Write Register', 'Read Register', and 'Read All Registers'.

Register Name	Address/Value	2	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
R102	0x006600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R101	0x006500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R100	0x006400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R99	0x006340	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R98	0x0062C3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R97	0x006150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R96	0x006000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R95	0x005F00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R94	0x005E00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R93	0x005D00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R92	0x005C20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R91	0x005BC3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R90	0x005A50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R89	0x00593F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R88	0x0058FF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R87	0x0057C7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R86	0x0056F7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R85	0x005500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R84	0x005400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R83	0x005300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R82	0x0052A9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R81	0x005199	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R80	0x0050DB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R79	0x004F22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R78	0x004EA9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R77	0x004D00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R76	0x004C00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R75	0x004B00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R74	0x004A00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R73	0x004900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R72	0x004800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R71	0x004700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R70	0x004618	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R69	0x004500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R68	0x004429	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R67	0x004366	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R66	0x004266	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

3.4. PLL Page

For a particular device, there can be one or more PLL pages and based on the device selected the required controls will be enabled on each of the PLL page.

Figure 27 : PLL Page



3.5. Flex Page

The Flex Pages in the TICS Pro GUI, provide the option to create dynamic pages and have complete control over the design and functionality of the page. A sample flex page is shown below.


 The procedure to create a flex page is available as a separate document

Figure 28 : Flex Page

VCO Output Limit

High	9601	MHz	Sign	Decimal Value	2s complement (programmed register) [32:31]	RAMP_LIMIT_x[30:0]	
High	1		1	1449534685	3	697948962	
Low	9000	MHz	Low	1	1459617792	3	687865856

Valid In Ramps 0 1 2 3 4 5 6 7

CMP0 9800 MHz **CMP0** 1 1446196019 [32:31] RAMP_CMPx[30:0] 3 701287628

CMP1 9400 MHz **CMP1** 1 1452906905 2 694576742

OSCin Frequency 1000 MHz **Fpd** 1000 MHz **PLL_R** 1 0 **PLL_NUM**

PLL_N 96 16777216 **PLL_DEN**

VCO Start Frequency 96000 MHz **Accumulator Start** 1610612736


Ramps Ramp Enable 0

Ramp Number	Actual Start Frequency (MHz)	Desired End Frequency (MHz)	Actual End Frequency (MHz)	Duration (us)	Dly	Next Ramp	Start next ramp after	RST	FL	Flags	Length	Increment (dec)
0	96000	10500	10497.1370697	100	<input type="checkbox"/>	1	TOC Timeout	<input type="checkbox"/>	<input type="checkbox"/>	Disabled	115536	-14345
1	10497.1370697	10500	10497.1370697	100	<input type="checkbox"/>	2	TOC Timeout	<input type="checkbox"/>	<input type="checkbox"/>	Disabled	115536	0
2	10497.1370697	10500	10497.1370697	100	<input type="checkbox"/>	3	TOC Timeout	<input type="checkbox"/>	<input type="checkbox"/>	Disabled	115536	0
3	10497.1370697	10500	10497.1370697	100	<input type="checkbox"/>	4	TOC Timeout	<input type="checkbox"/>	<input type="checkbox"/>	Disabled	115536	0
4	10497.1370697	10500	10497.1370697	100	<input type="checkbox"/>	5	TOC Timeout	<input type="checkbox"/>	<input type="checkbox"/>	Disabled	115536	0
5	10497.1370697	10500	10497.1370697	100	<input type="checkbox"/>	6	TOC Timeout	<input type="checkbox"/>	<input type="checkbox"/>	Disabled	115536	0
6	10497.1370697	10500	10497.1370697	100	<input type="checkbox"/>	7	TOC Timeout	<input type="checkbox"/>	<input type="checkbox"/>	Disabled	115536	0
7	10497.1370697	10500	10497.1370697	100	<input type="checkbox"/>	0	TOC Timeout	<input type="checkbox"/>	<input type="checkbox"/>	Disabled	115536	0

Ramp Count 0 **Ramp Auto** RAMP_AUTO **Ramp In Source** Ramp Transition **Increment (2s complement) Programmed Register** 0 1073727479 4 0

Write Register R0x4 as 0x00 0400
Write Register R0x3 as 0x00 0300
Write Register R0x2 as 0x00 0201
Write Register R0x1 as 0x00 0100
Write Register R0x0 as 0x00 0018

Protocol: SPI
Connection Mode: USB2ANY

 **TEXAS INSTRUMENTS**

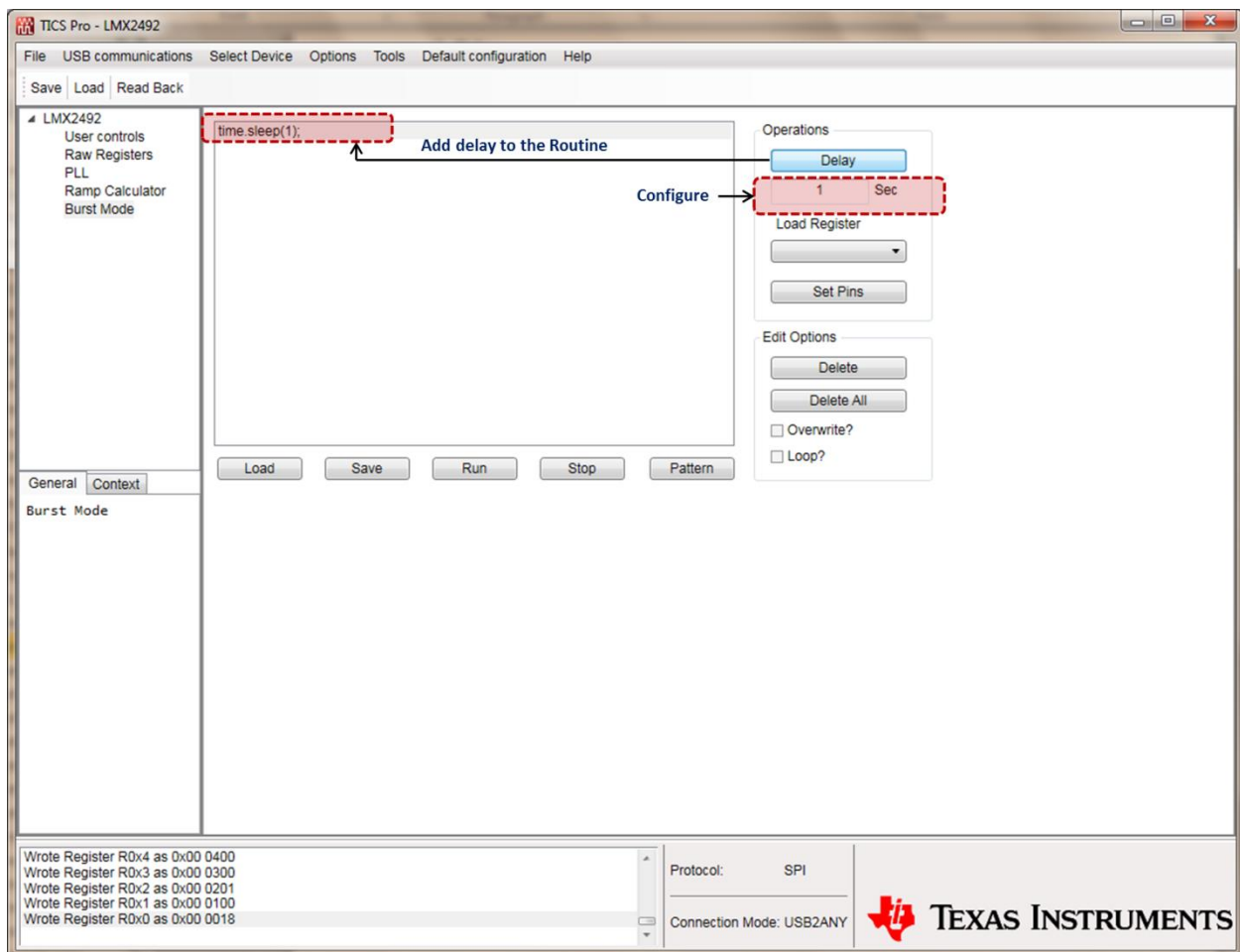
3.6. Burst Page

The Burst Page allows user to write simple routines and execute them or save them for later use

a) Delay

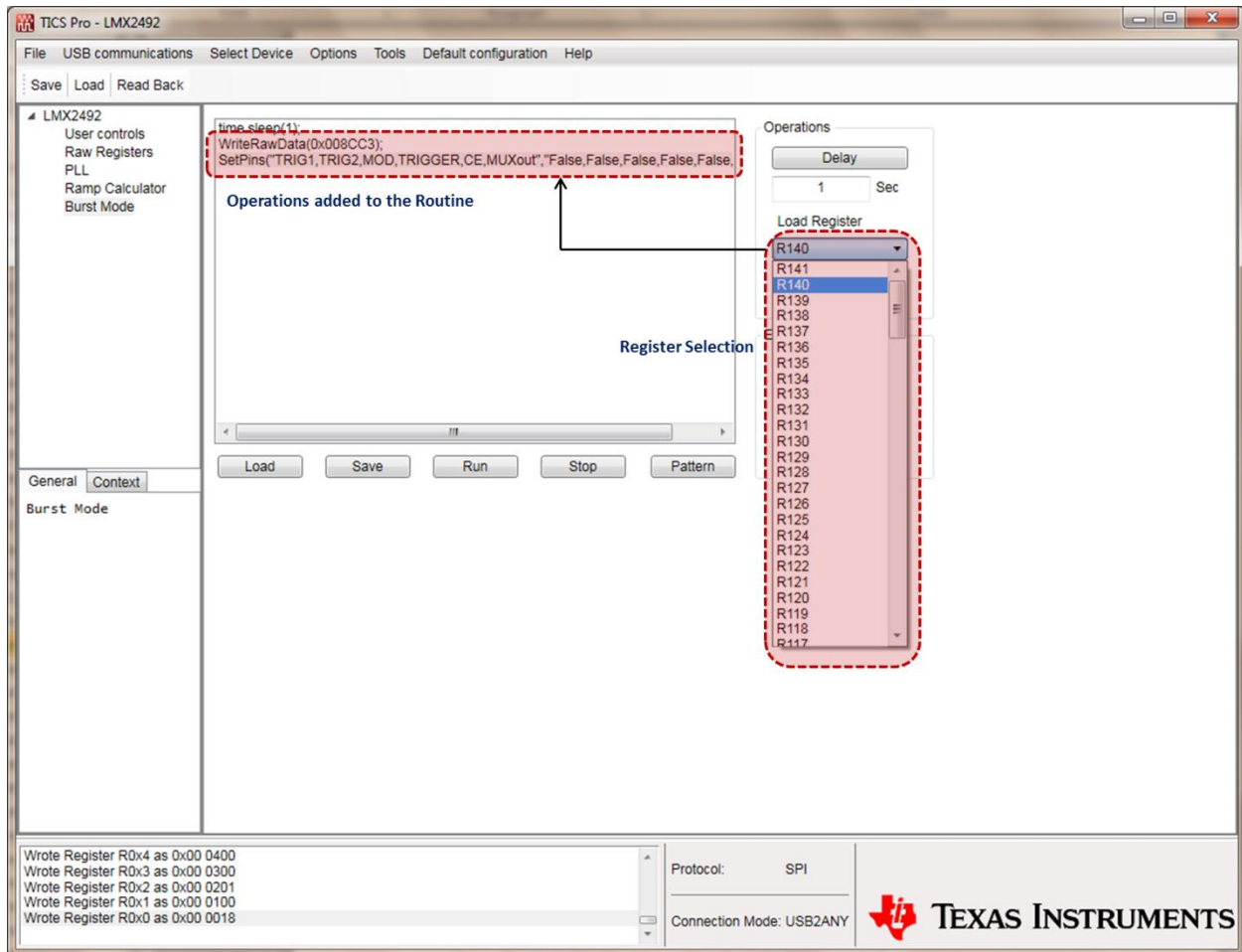
You can configure the delay in sec(s) using the text control as shown below. Pressing the Delay button will add a line corresponding to Delay in your routine

Figure 29 : Burst Page - Delay



b) Load Register

This option allows you to select the required register and add the lines corresponding to the "Write Register" and the "Set Pins" operation to the routine

Figure 30 : Burst Page - Load Register

c) Load

The Load options allows you to load a pre-saved routine and execute it

d) Save

Save allows you to save the routine that you have created

e) Run

The Run option executes the routine that you have created / loaded in the pane.

f) Stop

This option stops the execution of the routine which is currently executing

4. Automation Function

The automation functions help provide a means to access / modify the behavior of the control. Some of the automation functions that are available are listed below.

4.1. SetText

Boolean SetText(string controlName,string value)

- This function helps set the value, including setting a float or integer TextCtrl with a non-numeric String or setting a floating value for an integer TextCtrl.
- Note that a combo box is an 'integer' type for the index, but could have float values in the drop down which could match as a string.
- If function returns false it means no changes were made. True indicates that the operation was successful.

Explanation for Parameters

Parameter_Name	Description
controlName	– Name of the control as described in the INI file.
Value	– Use a text string to set the index of a control with items. (ComboBox, ListBox, SmartComboBox). – Or, set Text of a simple StaticText, TextCtrl, MultiTextCtrl, Button.

4.2. GetText

string GetText(string controlName)

- Returns the current text string of a control with the items.(ComboBox, ListBox, SmartComboBox)
- Or gets the Text of a simple StaticText, TextCtrl, MultiTextCtrl.

Explanation for Parameters

Parameter_Name	Description
controlName	– Name of the control as described in the INI file.

4.3. SetIndex

Boolean SetIndex(string controlName,int value)

- Sets the index directly of a control with items type control in Flex: ComboBox, ListBox, SmartComboBox, CheckBox, RadioButton

Explanation for Parameters

Parameter_Name	Description
controlName	– Name of the control as described in the INI file.
Value	– Index value of the item to be set in the control's list.

4.4. GetIndex

long GetIndex(string controlName)

- Gets the index of a control directly with items type control in Flex for the controls of type : ComboBox, ListBox, SmartComboBox, CheckBox, RadioButton.

Explanation for Parameters

Parameter_Name	Description
controlName	Name of the control as described in the INI file.

4.5. SetFieldValue

Boolean SetFieldValue(string controlName,long value)

- Sets the field value of the specified field in the register map for ComboBox, ListBox, SmartComboBox, CheckBox, TextCtrl, StaticText. Note, that a control which has linked bits will be set all together

Explanation for Parameters

Parameter_Name	Description
controlName	– Name of the control as described in the INI file.
Value	– The unsigned integral value of the field to be set.

4.6. GetFieldValue

ulong GetFieldValue (string controlName)

- Gets the field value of the specified field in the register map for Combo Box, ListBox, SmartComboBox, CheckBox, TextCtrl, StaticText. Note that a control which has linked bits will be set all together

Explanation for Parameters

Parameter_Name	Description
controlName	– Name of the control as described in the INI file.

4.7. PressButton

Boolean PressButton(string controlName)

- Triggers the press button event and returns “False” if not valid and “True” if valid.

Explanation for Parameters

Parameter_Name	Description
controlName	– Name of the control as described in the INI file.

4.8. PressSpinButton

Boolean PressSpinButton(string controlName,int direction)

- Triggers the press button event and returns “False” if not valid and “True” if valid.

Explanation for Parameters

Parameter_Name	Description
controlName	Name of the control as described in the INI file.
direction	Up if direction >0 by the value. Down if direction < 0 by the value.

4.9. WriteRawData

Boolean WriteRawData(long IValue)

- Parses the input value into address and data and writes the data of the register to corresponding address of the device

Explanation for Parameters

Parameter_Name	Description
IValue	The raw value of the register that is a combination of address and data. The length of this value is equal to the register length.

4.10. WriteAddressData

Boolean WriteAddressData(long IAddress,long IValue)

- Writes the input value to the device at the corresponding input address passed

Explanation for Parameters

Parameter_Name	Description
IAddress	The address of the register to be written to the device.
IValue	The data of the register to be written to the device.

4.11. WriteRegisterByIndex

Boolean WriteRegisterByIndex(int Index)

- Writes the current value of the register that is located at the index passed in the register map

Explanation for Parameters

Parameter_Name	Description
Index	The index of the register in the register map for which the value to be written to the device.

4.12. WriteRegister

Boolean WriteRegister(string registerName)

- Writes the value of the register having the input register Name to the device.

Explanation for Parameters

Parameter_Name	Description
registerName	The name of the register to be written to the device.

4.13. WriteAllRegisters

Boolean WriteAllRegisters()

- Writes the value of all registers to the device.

4.14. GetDevice

Boolean GetDevice(out string deviceName, out string deviceType)

- Retrieves the name and type of the current device loaded and assigns them to the variables deviceName and deviceType

Explanation for Parameters

Parameter_Name	Description
deviceName	The name of the device currently loaded.
deviceType	The type of the currently loaded that could be either of the following <ul style="list-style-type: none"> • BuiltinDevice • UserDevice • Tools

4.15. SelectDevice

Boolean SelectDevice(string deviceName)

- Loads the input built in device to the GUI.

Explanation for Parameters

Parameter_Name	Description
deviceName	The name of the built in device to be loaded.

4.16. SelectUserDevice

Boolean SelectUserDevice(string userDeviceName)

- Loads the input user device to the GUI.

Explanation for Parameters

Parameter_Name	Description
userDeviceName	The name of the user device to be loaded.

4.17. SaveSetup

Boolean SaveSetup(string filePath)

- Saves the current configuration (values of all the registers, non-field controls and pin values) into a .mac file into the file path passed.

Explanation for Parameters

Parameter_Name	Description
filePath	The complete file path to which the current configuration to be saved as .mac file.

4.18. RestoreSetup

Boolean RestoreSetup(string filePath)

- Restores the configuration from a .mac file passed that contains the values of all the registers, non-field controls and pin values to the currently loaded device

Explanation for Parameters

Parameter_Name	Description
filePath	The complete path of the file from which the field and non-field values to be restored.

4.19. RunScript

Int RunScript(string filePath,string[] scriptVariables)

- Sets the array of variables passed to the scope of the Python engine and Runs the Iron Python script located at the passed file path.
- Returns 0 if the script execution is completely successful, else returns -1.

Explanation for Parameters

Parameter_Name	Description
filePath	The path to the file that contains the python script to be run.
scriptVariables	The array of variables to be added to the Python engine scope, that might be used in the Iron Python script executed.

4.20. CheckModeText

Boolean CheckModeText(string modeName)

- Checks whether the mode name passed is available in the default configuration menu and returns true if one exists.

Explanation for Parameters

Parameter_Name	Description
modeName	The name of the mode which to check for existence in default configuration .

4.21. SetMode

Boolean SetMode(int Index)

- Loads the mode at the index passed in the default configuration menu.

Explanation for Parameters

Parameter_Name	Description
Index	The index of the mode to be loaded in the default configuration menu..

4.22. SetMode

Boolean SetModeText(string modeName)

- Loads the mode in default configuration menu that is matching with the mode Name passed.

Explanation for Parameters

Parameter_Name	Description
modeName	The name of the mode that is to be loaded from the default configuration menu.

4.23. SetPin

Boolean SetPin(string pinName, Boolean setFlag)

- Sets/ Clears the pin with passed pin name based on the setFlag.

Explanation for Parameters

Parameter_Name	Description
pinName	The name of the pin to be set / cleared.
setFlag	The flag that specifies whether the pin to be set or cleared. If it is true, the pin is set else cleared.

4.24. GetPin

int GetPin(string pinName)

- Returns 1 if the pin passed is set, else returns 0.

Explanation for Parameters

Parameter_Name	Description
pinName	The name of the pin which flag to be returned.