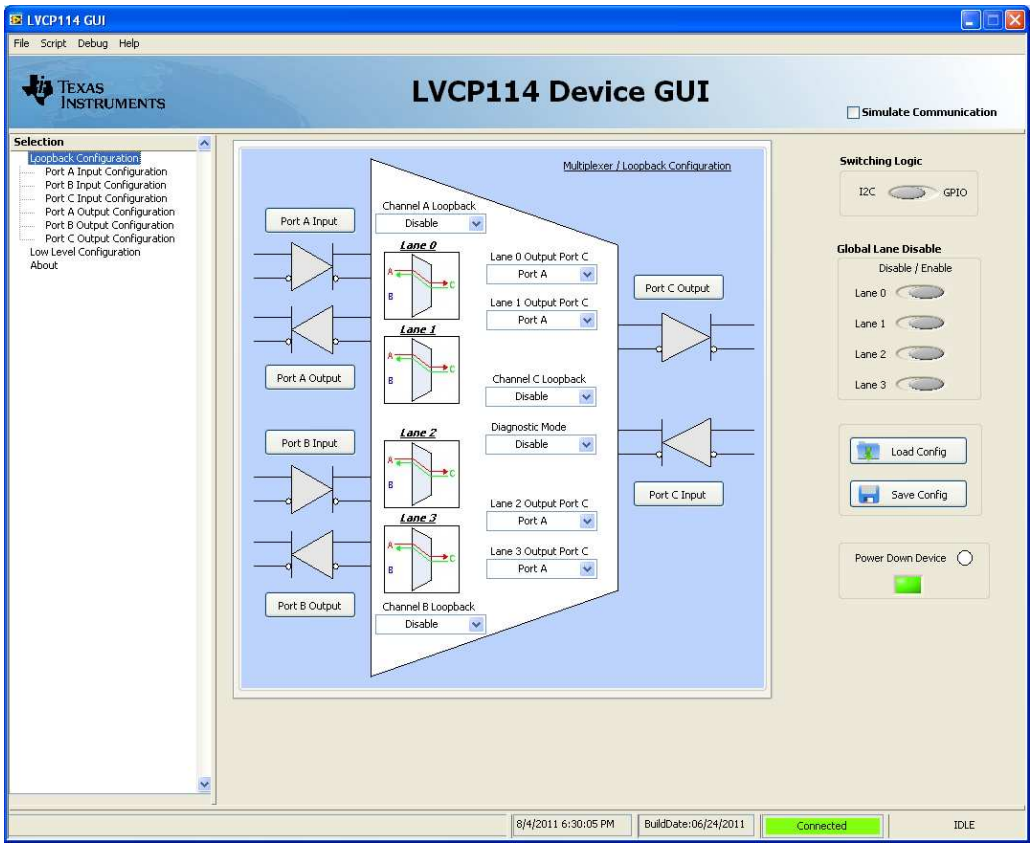
SN65LVCP114 Evaluation Module (EVM) Graphical User Interface

This User's Guide describes the usage and content of the SN65LVCP114 EVM graphical user interface (GUI). This document provides a basic overview of the different sections of the program.



WARNING

This equipment is intended for use in a laboratory test environment only. It generates, uses, and can radiate radio frequency energy and has not been tested for compliance with the limits of computing devices, pursuant to subpart J, part 15 of FCC rules. These rules are designed to provide reasonable protection against radio frequency interference. Operation of this equipment in other environments may cause interference with radio communications, in which case the user, at their own expense, must take whatever measures are necessary to correct this interference.

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1 Introduction

The Texas Instruments (TI) SN65LVCP114 evaluation module (EVM) board is controlled and configured using a custom GUI.

High- and low-level control of the registers is possible using this GUI, as are a variety of built-in test modes.

Refer to the SN65LVCP114 EVM User's Guide for proper jumper settings on the EVM, to set the device in I2C mode, and to use the GUI.

2 High-Level Operation of the GUI

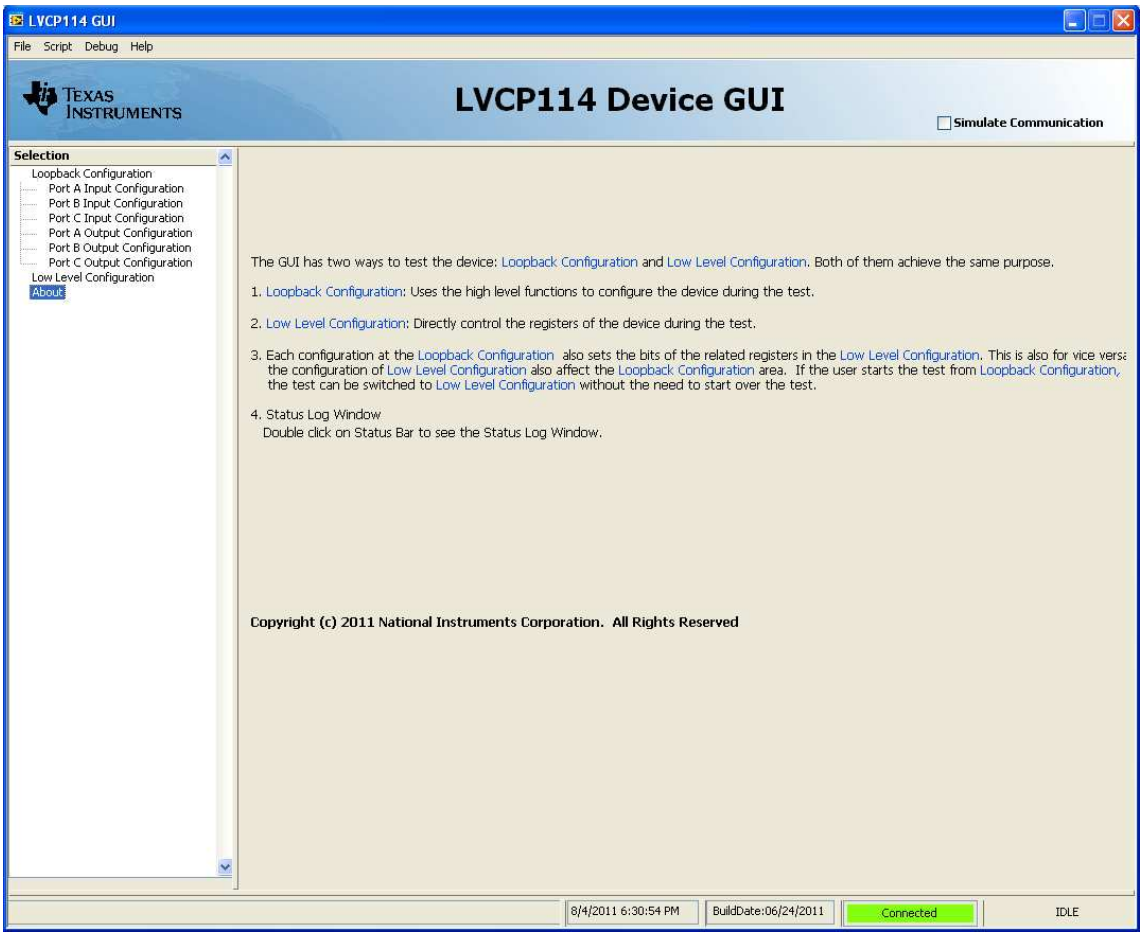

Figure 1. SN65LVCP114 EVM GUI About Window

When the GUI starts, the indicator at the bottom right corner of the window is red and displays *Working*. At this point, the GUI is establishing communication with the USB port of the EVM and setting the default configuration required for proper operation of both the board and GUI. When the indicator turns green, communication has been successfully established between the GUI and EVM board.

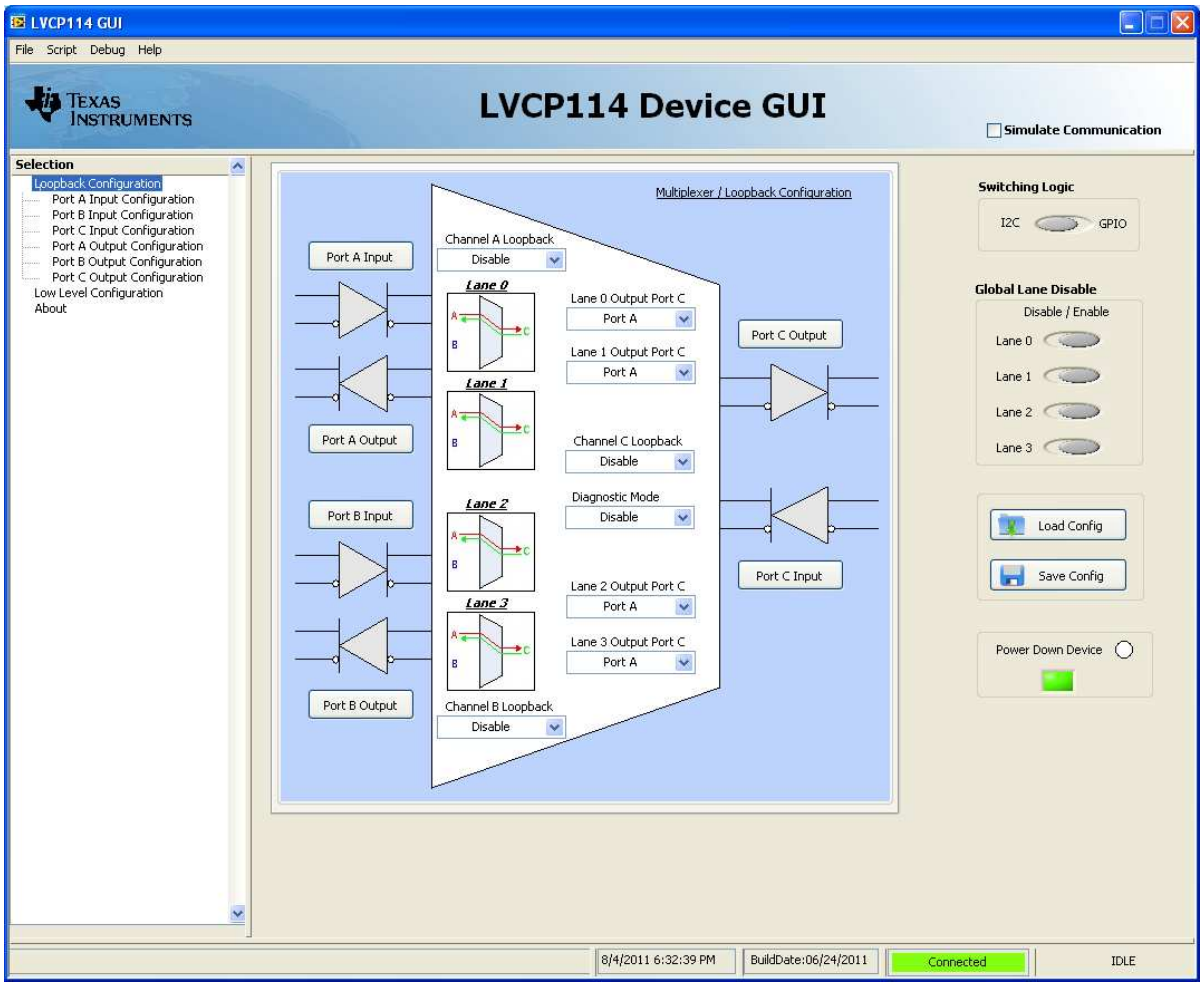

Figure 2. SN65LVCP114 EVM GUI Loopback Configuration Window

Register settings of the SN65LVCP114 can be modified from selections on this tab. Functions are grouped into individual windows.

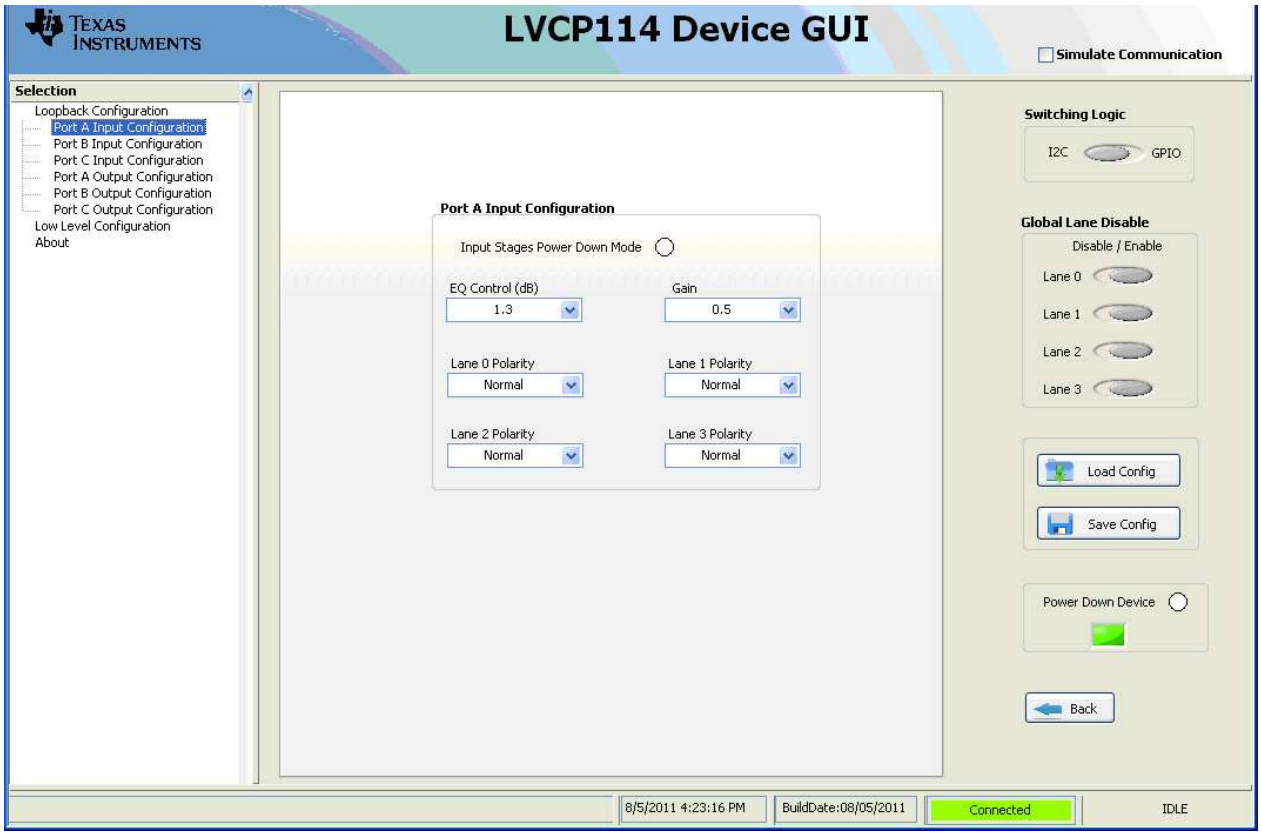

Figure 3. SN65LVCP114 EVM GUI Port X Input Configuration

Selecting the *Port X, (A, B, C), Input* button in the main window or the Port X, (A, B, C), Input Configuration menu in the Selection tab opens the Port X Input parameters. To return to the main window, click the *Back* button or click the desired window on the Selection tab. All changes are instantly sent through I2C to the device after any change is made to the configuration.

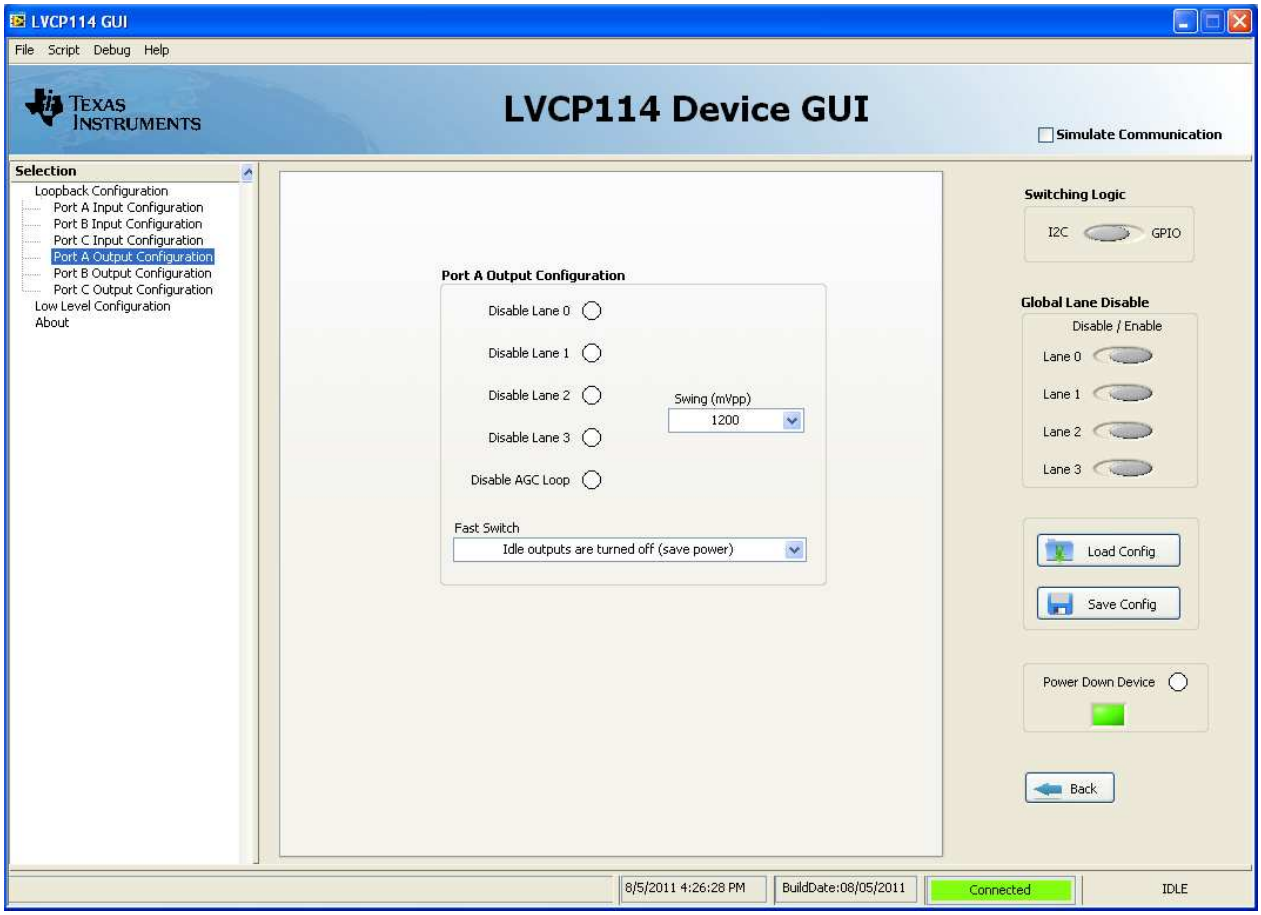

Figure 4. SN65LVCP114 EVM GUI Port X Output Configuration

Selecting the *Port X, (A, B, C), Output* button on the main window or the Port X, (A, B, C), Output Configuration menu on the Selection tab opens the Port X Output parameters. To return to the main window, click the *Back* button or click the desired window on the Selection tab. All changes are instantly sent through I2C to the device after any change is made to the configuration.

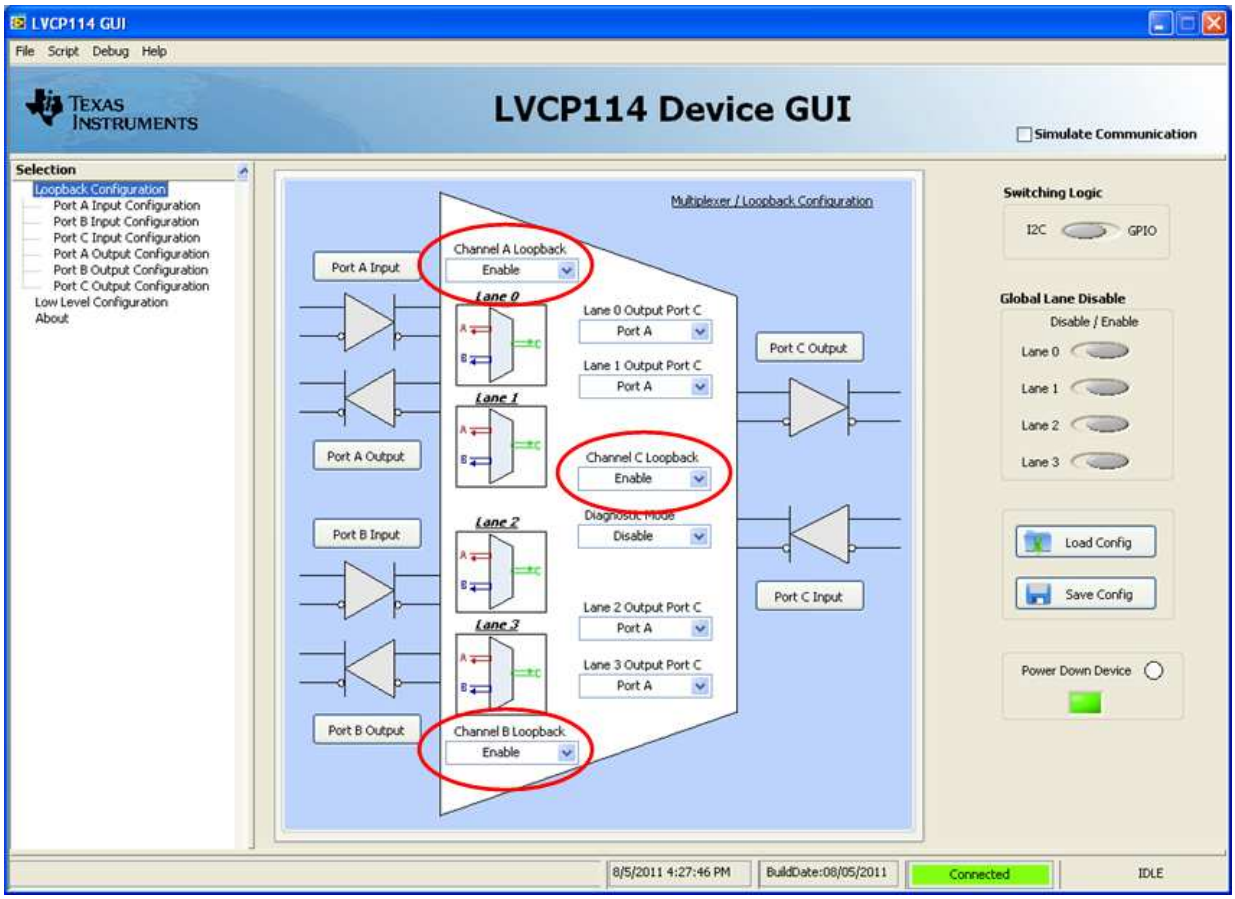

Figure 5. SN65LVCP114 EVM GUI Loopback Configuration

Channel A, B and C Loopback mode can be enabled or disabled on the main window using the pull-down menus. The Lane X displayed configurations update according to the selected configuration. All changes are instantly sent through I2C to the device after any change is made to the configuration.

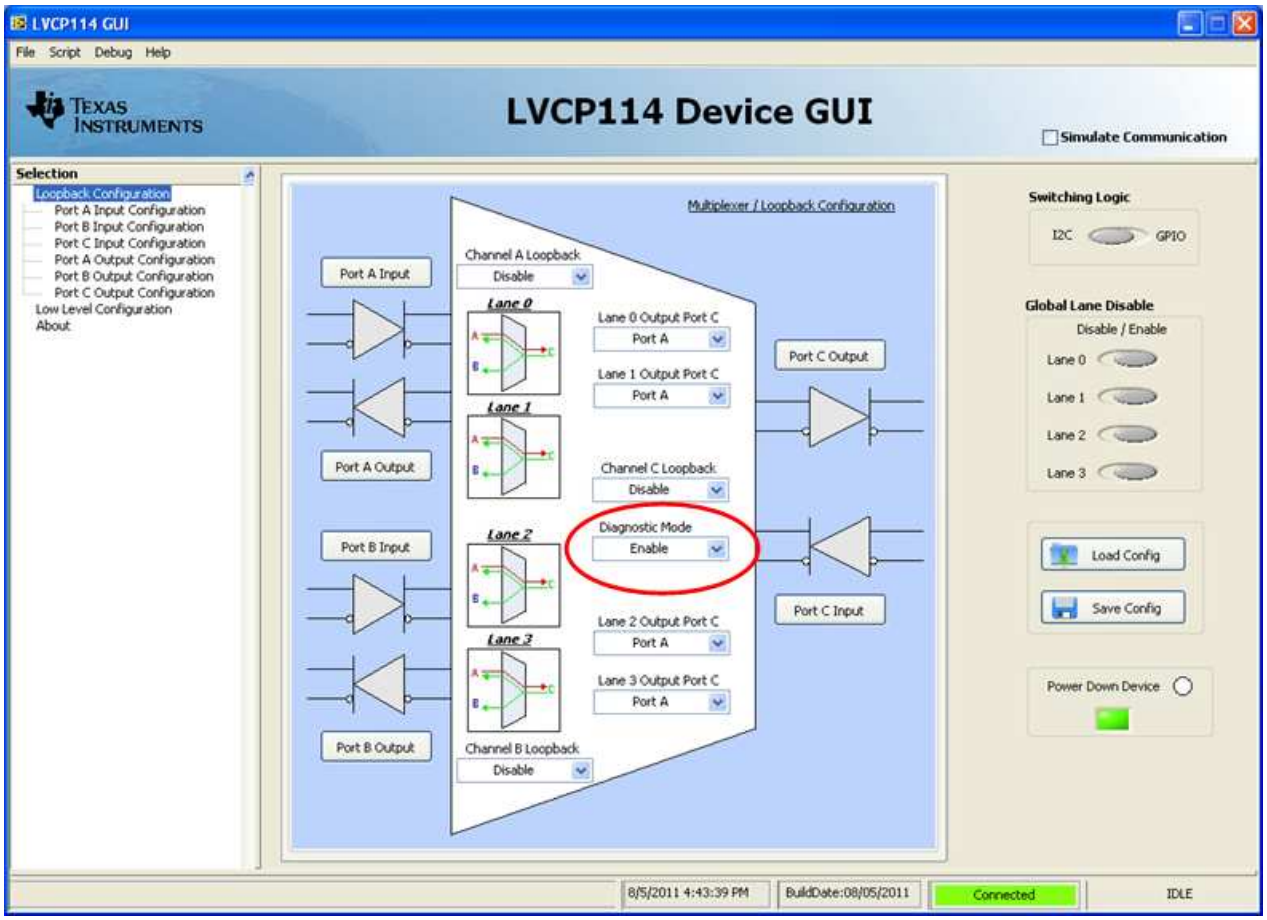

Figure 6. SN65LVCP114 EVM GUI Diagnostic Mode

Diagnostic mode can be enabled or disabled on the main window using the pull-down menus. The Lane X drawings update according to the selected configuration. All changes are instantly sent through I2C to the device after any change is made to the configuration.

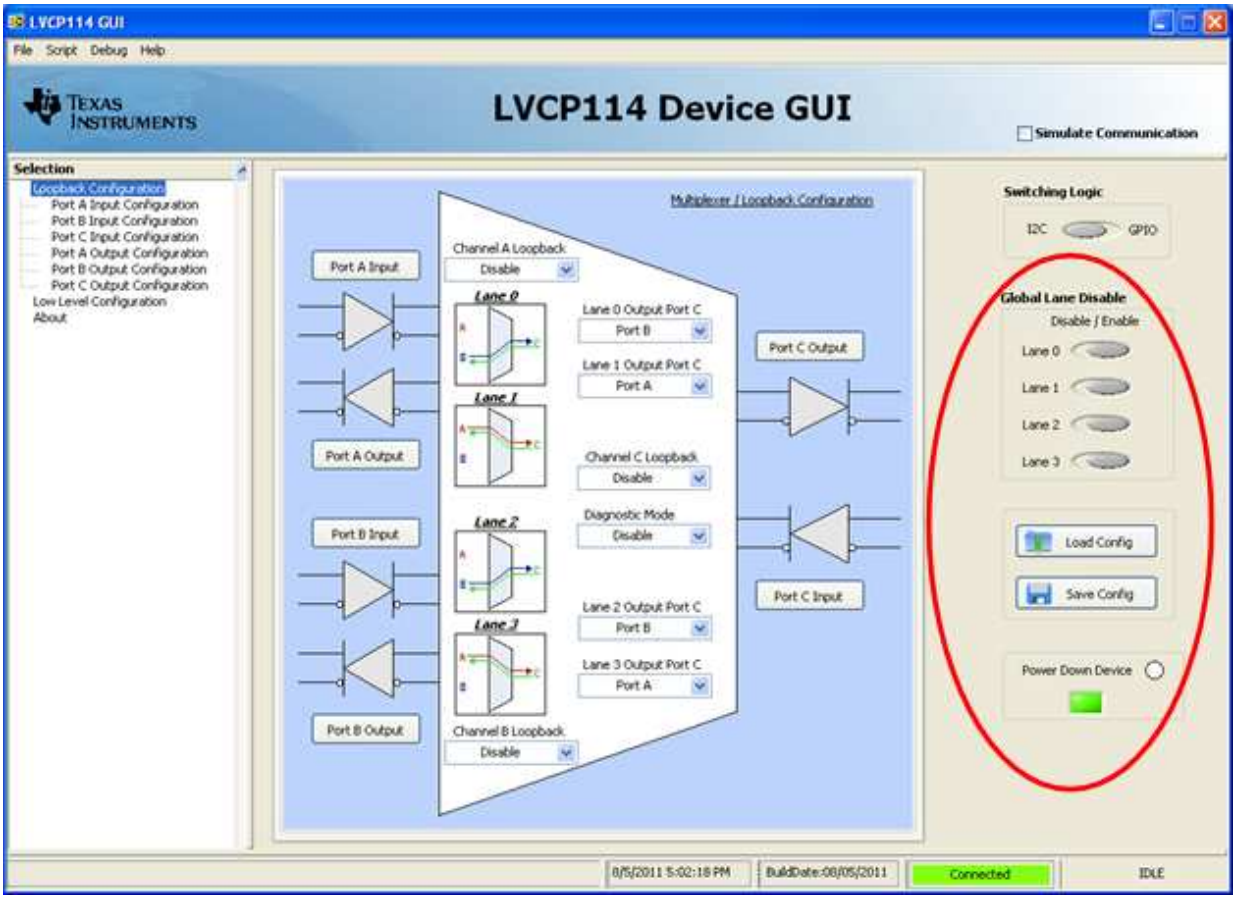

Figure 7. SN65LVCP114 EVM GUI Global Settings

Global registers are always available on the right side of the window. The *Power Down Device* button is set in register address 0x00 bit 6. For power down and I2C reset, jumper 5 must be toggled on the EVM. Refer to the EVM User's Guide for more details.

GUI settings can be saved and loaded for future use and convenience. The *Save Config* button saves all the register settings into a text file that can be loaded at any time using the *Load Config* button.

3 Low-Level Operation of the GUI

The SN65LVCP114 Device registers and settings can be controlled manually through a low-level register Read/Write portion of the GUI.

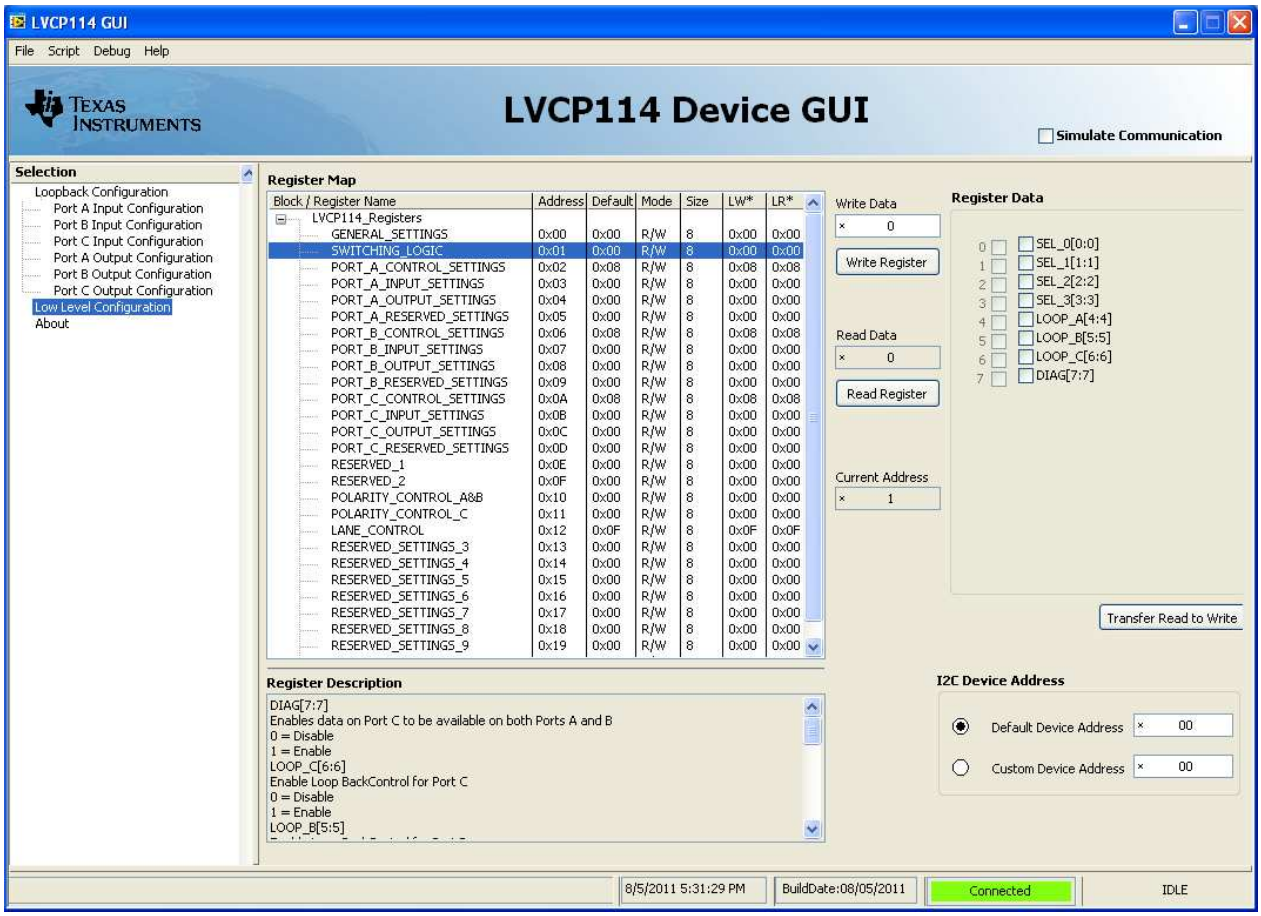

Figure 8. SN65LVCP114 EVM GUI Low-Level Register Configuration Window

Selecting the Low-Level Configuration Tab brings up a complete register list for the SN65LVCP114. Selecting one of these registers loads the Register Description and Register Data fields with the proper values and displays the current value. The bits can be set by clicking in the check boxes next to the bit's name or typing the full HEX value for the register directly into the Write Data field. Clicking the *Write Register* button writes the register of the device. Reading the register is done by clicking the *Read Data* button. After a Read or Write operation the LW (Last Written) or LR (Last Read) fields in the register list are updated for future reference.

The GUI's mid-level array synchronizes the high-level control indicator values so navigation between the high- and low-level portions of the GUI is possible.

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REGULATORY COMPLIANCE INFORMATION

As noted in the EVM User's Guide and/or EVM itself, this EVM and/or accompanying hardware may or may not be subject to the Federal Communications Commission (FCC) and Industry Canada (IC) rules.

For EVMs **not** subject to the above rules, this evaluation board/kit/module is intended for use for ENGINEERING DEVELOPMENT, DEMONSTRATION OR EVALUATION PURPOSES ONLY and is not considered by TI to be a finished end product fit for general consumer use. It generates, uses, and can radiate radio frequency energy and has not been tested for compliance with the limits of computing devices pursuant to part 15 of FCC or ICES-003 rules, which are designed to provide reasonable protection against radio frequency interference. Operation of the equipment may cause interference with radio communications, in which case the user at his own expense will be required to take whatever measures may be required to correct this interference.

General Statement for EVMs including a radio

User Power/Frequency Use Obligations: This radio is intended for development/professional use only in legally allocated frequency and power limits. Any use of radio frequencies and/or power availability of this EVM and its development application(s) must comply with local laws governing radio spectrum allocation and power limits for this evaluation module. It is the user's sole responsibility to only operate this radio in legally acceptable frequency space and within legally mandated power limitations. Any exceptions to this are strictly prohibited and unauthorized by Texas Instruments unless user has obtained appropriate experimental/development licenses from local regulatory authorities, which is responsibility of user including its acceptable authorization.

For EVMs annotated as FCC – FEDERAL COMMUNICATIONS COMMISSION Part 15 Compliant

Caution

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Interference Statement for Class A EVM devices

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Interference Statement for Class B EVM devices

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

For EVMs annotated as IC – INDUSTRY CANADA Compliant

This Class A or B digital apparatus complies with Canadian ICES-003.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Concerning EVMs including radio transmitters

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Concerning EVMs including detachable antennas

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

This radio transmitter has been approved by Industry Canada to operate with the antenna types listed in the user guide with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Cet appareil numérique de la classe A ou B est conforme à la norme NMB-003 du Canada.

Les changements ou les modifications pas expressément approuvés par la partie responsable de la conformité ont pu vider l'autorité de l'utilisateur pour actionner l'équipement.

Concernant les EVMs avec appareils radio

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Concernant les EVMs avec antennes détachables

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Le présent émetteur radio a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés dans le manuel d'usage et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

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This development kit is NOT certified as Confirming to Technical Regulations of Radio Law of Japan

If you use this product in Japan, you are required by Radio Law of Japan to follow the instructions below with respect to this product:

1. Use this product in a shielded room or any other test facility as defined in the notification #173 issued by Ministry of Internal Affairs and Communications on March 28, 2006, based on Sub-section 1.1 of Article 6 of the Ministry's Rule for Enforcement of Radio Law of Japan,
2. Use this product only after you obtained the license of Test Radio Station as provided in Radio Law of Japan with respect to this product, or
3. Use of this product only after you obtained the Technical Regulations Conformity Certification as provided in Radio Law of Japan with respect to this product. Also, please do not transfer this product, unless you give the same notice above to the transferee. Please note that if you could not follow the instructions above, you will be subject to penalties of Radio Law of Japan.

Texas Instruments Japan Limited
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EVALUATION BOARD/KIT/MODULE (EVM)
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2. You have full and exclusive responsibility to assure the safety and compliance of your products with all such laws and other applicable regulatory requirements, and also to assure the safety of any activities to be conducted by you and/or your employees, affiliates, contractors or designees, using the EVM. Further, you are responsible to assure that any interfaces (electronic and/or mechanical) between the EVM and any human body are designed with suitable isolation and means to safely limit accessible leakage currents to minimize the risk of electrical shock hazard.
3. You will employ reasonable safeguards to ensure that your use of the EVM will not result in any property damage, injury or death, even if the EVM should fail to perform as described or expected.
4. You will take care of proper disposal and recycling of the EVM's electronic components and packing materials.

Certain Instructions. It is important to operate this EVM within TI's recommended specifications and environmental considerations per the user guidelines. Exceeding the specified EVM ratings (including but not limited to input and output voltage, current, power, and environmental ranges) may cause property damage, personal injury or death. If there are questions concerning these ratings please contact a TI field representative prior to connecting interface electronics including input power and intended loads. Any loads applied outside of the specified output range may result in unintended and/or inaccurate operation and/or possible permanent damage to the EVM and/or interface electronics. Please consult the EVM User's Guide prior to connecting any load to the EVM output. If there is uncertainty as to the load specification, please contact a TI field representative. During normal operation, some circuit components may have case temperatures greater than 60°C as long as the input and output are maintained at a normal ambient operating temperature. These components include but are not limited to linear regulators, switching transistors, pass transistors, and current sense resistors which can be identified using the EVM schematic located in the EVM User's Guide. When placing measurement probes near these devices during normal operation, please be aware that these devices may be very warm to the touch. As with all electronic evaluation tools, only qualified personnel knowledgeable in electronic measurement and diagnostics normally found in development environments should use these EVMs.

Agreement to Defend, Indemnify and Hold Harmless. You agree to defend, indemnify and hold TI, its licensors and their representatives harmless from and against any and all claims, damages, losses, expenses, costs and liabilities (collectively, "Claims") arising out of or in connection with any use of the EVM that is not in accordance with the terms of the agreement. This obligation shall apply whether Claims arise under law of tort or contract or any other legal theory, and even if the EVM fails to perform as described or expected.

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