

# GUIX Studio™

## Quick Start Guide

Renesas Synergy™ Platform  
Synergy Software  
Synergy Software (SSP) Component

All information contained in these materials, including products and product specifications, represents information on the product at the time of publication and is subject to change by Renesas Electronics Corp. without notice. Please review the latest information published by Renesas Electronics Corp. through various means, including the Renesas Electronics Corp. website (<http://www.renesas.com>).

## Notice

1. Descriptions of circuits, software and other related information in this document are provided only to illustrate the operation of semiconductor products and application examples. You are fully responsible for the incorporation or any other use of the circuits, software, and information in the design of your product or system. Renesas Electronics disclaims any and all liability for any losses and damages incurred by you or third parties arising from the use of these circuits, software, or information.
2. Renesas Electronics hereby expressly disclaims any warranties against and liability for infringement or any other claims involving patents, copyrights, or other intellectual property rights of third parties, by or arising from the use of Renesas Electronics products or technical information described in this document, including but not limited to, the product data, drawings, charts, programs, algorithms, and application examples.
3. No license, express, implied or otherwise, is granted hereby under any patents, copyrights or other intellectual property rights of Renesas Electronics or others.
4. You shall not alter, modify, copy, or reverse engineer any Renesas Electronics product, whether in whole or in part. Renesas Electronics disclaims any and all liability for any losses or damages incurred by you or third parties arising from such alteration, modification, copying or reverse engineering.
5. Renesas Electronics products are classified according to the following two quality grades: "Standard" and "High Quality". The intended applications for each Renesas Electronics product depends on the product's quality grade, as indicated below.
  - "Standard": Computers; office equipment; communications equipment; test and measurement equipment; audio and visual equipment; home electronic appliances; machine tools; personal electronic equipment; industrial robots; etc.
  - "High Quality": Transportation equipment (automobiles, trains, ships, etc.); traffic control (traffic lights); large-scale communication equipment; key financial terminal systems; safety control equipment; etc.Unless expressly designated as a high reliability product or a product for harsh environments in a Renesas Electronics data sheet or other Renesas Electronics document, Renesas Electronics products are not intended or authorized for use in products or systems that may pose a direct threat to human life or bodily injury (artificial life support devices or systems; surgical implantations; etc.), or may cause serious property damage (space system; undersea repeaters; nuclear power control systems; aircraft control systems; key plant systems; military equipment; etc.). Renesas Electronics disclaims any and all liability for any damages or losses incurred by you or any third parties arising from the use of any Renesas Electronics product that is inconsistent with any Renesas Electronics data sheet, user's manual or other Renesas Electronics document.
6. When using Renesas Electronics products, refer to the latest product information (data sheets, user's manuals, application notes, "General Notes for Handling and Using Semiconductor Devices" in the reliability handbook, etc.), and ensure that usage conditions are within the ranges specified by Renesas Electronics with respect to maximum ratings, operating power supply voltage range, heat dissipation characteristics, installation, etc. Renesas Electronics disclaims any and all liability for any malfunctions, failure or accident arising out of the use of Renesas Electronics products outside of such specified ranges.
7. Although Renesas Electronics endeavors to improve the quality and reliability of Renesas Electronics products, semiconductor products have specific characteristics, such as the occurrence of failure at a certain rate and malfunctions under certain use conditions. Unless designated as a high reliability product or a product for harsh environments in a Renesas Electronics data sheet or other Renesas Electronics document, Renesas Electronics products are not subject to radiation resistance design. You are responsible for implementing safety measures to guard against the possibility of bodily injury, injury or damage caused by fire, and/or danger to the public in the event of a failure or malfunction of Renesas Electronics products, such as safety design for hardware and software, including but not limited to redundancy, fire control and malfunction prevention, appropriate treatment for aging degradation or any other appropriate measures. Because the evaluation of microcomputer software alone is very difficult and impractical, you are responsible for evaluating the safety of the final products or systems manufactured by you.
8. Please contact a Renesas Electronics sales office for details as to environmental matters such as the environmental compatibility of each Renesas Electronics product. You are responsible for carefully and sufficiently investigating applicable laws and regulations that regulate the inclusion or use of controlled substances, including without limitation, the EU RoHS Directive, and using Renesas Electronics products in compliance with all these applicable laws and regulations. Renesas Electronics disclaims any and all liability for damages or losses occurring as a result of your noncompliance with applicable laws and regulations.
9. Renesas Electronics products and technologies shall not be used for or incorporated into any products or systems whose manufacture, use, or sale is prohibited under any applicable domestic or foreign laws or regulations. You shall comply with any applicable export control laws and regulations promulgated and administered by the governments of any countries asserting jurisdiction over the parties or transactions.
10. It is the responsibility of the buyer or distributor of Renesas Electronics products, or any other party who distributes, disposes of, or otherwise sells or transfers the product to a third party, to notify such third party in advance of the contents and conditions set forth in this document.
11. This document shall not be reprinted, reproduced or duplicated in any form, in whole or in part, without prior written consent of Renesas Electronics.
12. Please contact a Renesas Electronics sales office if you have any questions regarding the information contained in this document or Renesas Electronics products.

(Note1) "Renesas Electronics" as used in this document means Renesas Electronics Corporation and also includes its directly or indirectly controlled subsidiaries.

(Note2) "Renesas Electronics product(s)" means any product developed or manufactured by or for Renesas Electronics.

(Rev. 4.0-1 November 2017)

## Corporate Headquarters

TOYOSU FORESIA, 3-2-24 Toyosu,  
Koto-ku, Tokyo 135-0061, Japan  
[www.renesas.com](http://www.renesas.com)

## Trademarks

Renesas and the Renesas logo are trademarks of Renesas Electronics Corporation. All trademarks and registered trademarks are the property of their respective owners.

## Contact information

For further information on a product, technology, the most up-to-date version of a document, or your nearest sales office, please visit:  
[www.renesas.com/contact/](http://www.renesas.com/contact/).

# **Renesas Synergy Specific Information**

If you are using GUIX Studio™ for the Renesas Synergy Platform, please use the following information.

## **Customer Support Center**

For Renesas Synergy platform support, please contact Renesas directly:

Support: [www.renesas.com/synergy/support](http://www.renesas.com/synergy/support)



## **Quick Start Guide**

### **V5 for Windows**

Express Logic

858.613.6640

Toll Free 888.THREADX

FAX 858.521.4259

[www.expresslogic.com](http://www.expresslogic.com)

## Summary:

GUIX includes everything you need to create, build, and run your own graphical interface design.

If you are evaluating GUIX Studio, the evaluation kit is designed to allow you to build and run your GUIX design as a standalone Windows desktop application for test and evaluation purposes. Rest assured that GUIX is designed for use on nearly any embedded target capable of graphical output, and the work you do and designs you create on the desktop can always be re-compiled and executed on your embedded target without changing any of your application software.

If you are a GUIX customer, you also received the GUIX source code and target specific driver files needed to build and run your GUIX application on your embedded target. If you are not a customer and would like to evaluate GUIX running on your embedded target, please contact [sales@expresslogic.com](mailto:sales@expresslogic.com) to obtain additional runtime libraries and example project files for your specific target hardware.

The GUIX Studio installer places several components on your development system:

- The GUIX Studio application.
- Several GUIX example projects.
- The GUIX User Guide and the GUIX Studio User Guide.
- All graphics resources and fonts used in the example projects.
- Solution files and project files for building in a Windows desktop environment.
- Pre-built GUIX and ThreadX libraries for Win32, allowing you to build and run your own applications on your PC.
- GUIX and ThreadX API header files.
- This Quick Start Guide.

## Prerequisites:

The GUIX Studio installer includes several simple example projects, and we expect that you will begin by modifying, building, and running these examples as you learn how to use the GUIX Studio application. In order to build and run the examples on the Windows desktop, you will need a Microsoft MSVC compiler version 2010/SP1 or later. The Express versions of these compilers can be downloaded for free. We recommend Visual C++ 2010 Express, with SP1, which can be downloaded here:

[http://www.visualstudio.com/en-us/downloads/download-visual-studio-vs#DownloadFamilies\\_4](http://www.visualstudio.com/en-us/downloads/download-visual-studio-vs#DownloadFamilies_4)

If you do not have the Microsoft developer tools installed, you can still kick the tires and use the GUIX Studio application to create your own interface design and examine the source code produced. However you will not be able to build and run your design as a standalone application.

## Running the Examples:

After running the GUIX Studio installer, you will find several example Studio project and build files are included in the installed contents. To verify that your desktop tools are installed and working correctly,

we recommend that you begin by building and running each of the provided examples as-is. We will refer to your installation directory as <root>, in which case you should use your file browser and browse to <root>/GUIX\_Studio\_5.x/examples. Within this directory you should see several simple example programs such as *demo\_guix\_calculator*, *demo\_guix\_car\_infotainment*, *demo\_guix\_home\_automation*, *demo\_guix\_widget\_types*, and others. Within each example folder there is a subdirectory named *build* which includes pre-configured projects for each supported toolchain. For example, you can browse to <root>/GUIX\_Studio\_5.x/examples/thermometer/build/msvc\_2010 and you will find a pre-configured MSVC solution file and project file ready to be loaded and run in the MSVC 2010 IDE. If you want to use a different toolchain, please contact [sales@expresslogic.com](mailto:sales@expresslogic.com).

We recommend that you start the Microsoft Visual C++ IDE and open at least one of these examples. Press the <F7> key to build the example project, and press the <F5> key to run the program after it builds successfully. You should now see a GUIX user interface running within a Microsoft Windows window. If you are not able to build and run the provided example(s), please refer to your tools installation instructions or report the error to [support@expresslogic.com](mailto:support@expresslogic.com) and we will try to help you with your tools installation.

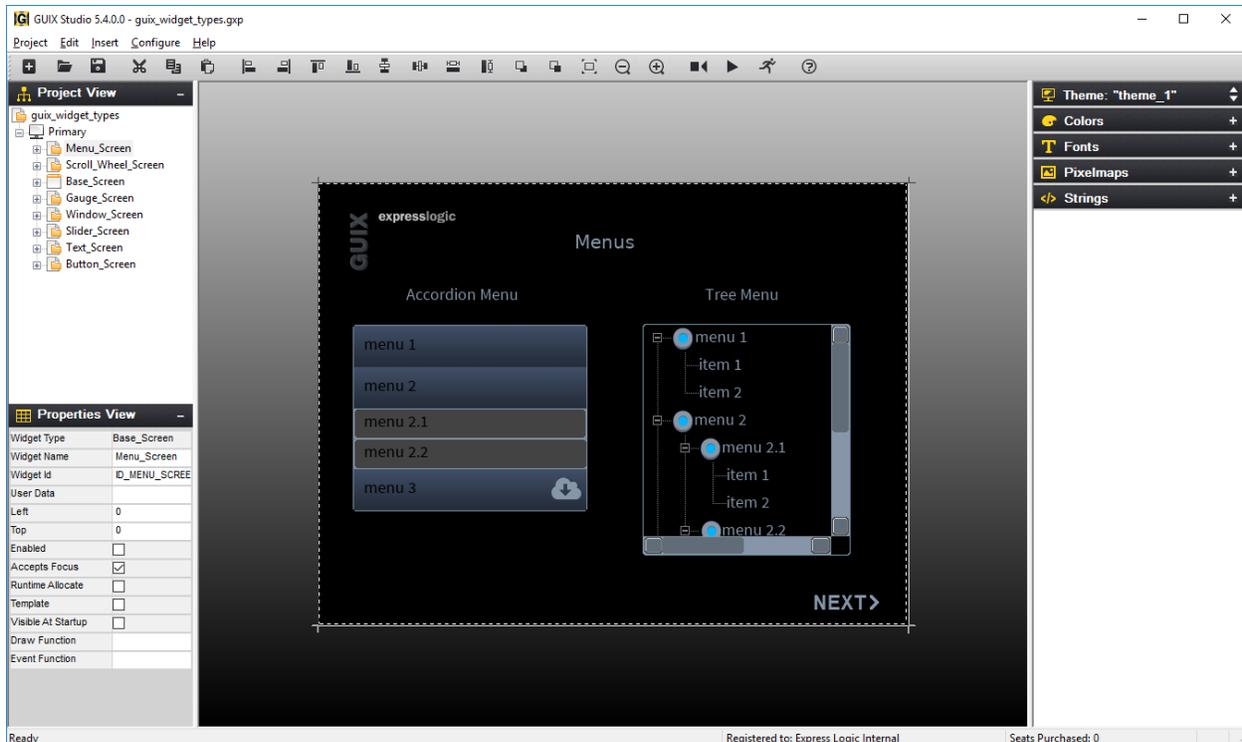
## Designing and Running your own User Interface:

This quick-start guide is not a replacement for the GUIX Studio User Guide or the GUIX User Guide, but we will show you enough to get started and encourage you to continue by referring to the GUIX Studio User Guide for more detailed information.

There are two methods of creating and modifying your own user interface. You can study the GUIX library programming manual and use the GUIX API directly from within your application software to fully implement your design. More often, you will use the GUIX Studio application to do most of the work of design and layout of your screen elements, and then simply fill in the event handling and other application logic required to make your user interface perform real work.

Each of the provided examples was created using the GUIX Studio interface design application. You should have an icon on your desktop for GUIX Studio 5.x.x.x after running the GUIX Studio installer. Start GUIX Studio now and open the project named "demo\_guix\_widget\_types\guix\_widget\_types.gxp". This is a simple example project that demonstrates several variations of the most common GUIX widget types.

Now that you have a project open, click "+" to open the tree node named "Primary" in the Project View in the upper left corner of the IDE, and click on the first screen within this node named "Menu\_Screen". You should now see something similar to this:



The GUIX Studio IDE is composed of several **views**. Each view is designed to assist you in navigating through your design and making changes to that design. The top-left view is called the Project View. This view shows you each of the physical displays that are included in your project (most projects have only one display), and the screens and child widgets that have been designed to run on that display.

Below the Project View is the Properties View. As the name Properties View implies, this view allows you to modify widgets by changing various properties associated with them.

The central display area is called the Target View. This view is a WYSIWYG display of your user interface. This is a pixel-accurate representation of how your design will look when executing on your embedded target. If you click on different widgets either in the Project View or the central Target View, you will see the values displayed in the Properties View change to display the properties of the widget you have selected.

Finally, on the right, you will see what is called the Resource View. This view allows you to select, add, delete, and modify the colors, fonts, pixelmaps, and strings included in your project.

## Modifying the Example:

GUIX Studio is designed to be intuitive. To move one of the widgets shown above, you simply click on that widget in the Target View and drag it to a new location. To change the widget colors, you click on the desired widget and change the colors displayed in the Properties View. To change the font used by a text display widget, you simply click on the desired font within the Resource View and drag-and-drop the

font onto the desired target widget. Float your mouse along the toolbar buttons to see quick help regarding the operation that each button performs.

Experiment yourself and make some minor changes to the example. For example you might drag a widget to a new location, change a window background color, or resize a button. We do not recommend deleting any widgets from the example until you gain more experience working with GUIX since deleting widgets might require associated modifications to application source code.

### **Running the application with Studio:**

You can use the Edit | Run Application menu command (or Run Application button on the button bar) to run the application immediately within a new desktop window. Of course custom drawing functions and other application code will not be invoked using this method, but it does allow you to quickly navigate through your UI design and get an overall idea of the look and feel of the application, including navigation from one screen to the next.

### **Generating Source Files:**

After making your changes, you need to invoke GUIX Studio menu commands to generate new source files for your project. You can then rebuild the example program to see your changes in action. To generate source files, use the GUIX Studio menu commands Project | Generate Resource Files and Project | Generate Specification Files (you can also right-click on the display in the Project View to execute these commands). As you generate these new source files, you should observe a confirmation message telling you that the source files associated with your project have been updated. If you do not observe these confirmation, check to make sure you have write permissions to the directory in which the project resides. You can now close the GUIX Studio application. If you have made changes to the project, GUIX Studio will ask you if you want to save those changes. Go ahead and save your changes, these examples are intended for you to use and experiment with as you learn to use GUIX Studio.

### **Re-building and running the application:**

Now that GUIX Studio has generated your project output files, you can compile and link to create a standalone executable. In addition, in order to incorporate any custom drawing or event handling you have defined in your application, you need to compile and link the output files generated by GUIX Studio with your own application software. We will use the Microsoft Visual C++ toolchain as an example, but exactly the same procedure is used if you are building and running for your intended target.

- 1) Start the MSVC IDE, and open the solution  
`<root>/GUIX_Studio_5.x/examples/demo_guix_widget_types/build/msvc_2010/guix_widget_types.sln.`
- 2) Use the <F7> key to rebuild the solution
- 3) Use the <F5> key to run the program.

You should now see the running program, with the changes you made within Studio!

## Learning More:

The GUIX Studio User Guide is a much more thorough guide to using GUIX Studio. In addition, the GUIX User Guide gives you much more detailed information about what is happening “Under the Hood” when your GUIX application executes. You will need to refer to both of these guides to fully utilize the capabilities of the GUIX runtime library and GUIX Studio.

If at any time you have a problem or have questions on regarding how to implement your UI design, we encourage you to email us at [support@expresslogic.com](mailto:support@expresslogic.com) and we will do our best to answer any questions you have!

**©2002-2020 by Express Logic, Inc.**

All rights reserved. This document and the associated ThreadX, GUIX and GUIX Studio software are the sole property of Express Logic, Inc. Each contains proprietary information of Express Logic, Inc. Reproduction or duplication by any means of any portion of this document without the prior written consent of Express Logic, Inc., is expressly forbidden.

Express Logic, Inc., reserves the right to make changes to the specifications described herein at any time and without notice in order to improve design or reliability of GUIX Studio. The information in this document has been carefully checked for accuracy; however, Express Logic, Inc., makes no warranty pertaining to the correctness of this document.

### **Trademarks**

GUIX, GUIX Studio, USBX, NetX, Piconet, preemption-threshold, event chaining, and UDP Fast Path are trademarks of Express Logic, Inc. ThreadX, and FileX are registered trademarks of Express Logic, Inc. All other product and company names are trademarks or registered trademarks of their respective holders.

### **Warranty Limitations**

Express Logic, Inc., makes no warranty of any kind that the GUIX Studio products will meet the USER's requirements, or will operate in the manner specified by the USER, or that the operation of the GUIX Studio products will operate uninterrupted or error free, or that any defects that may exist in the GUIX Studio products will be corrected after the warranty period. Express Logic, Inc., makes no warranties of any kind, either expressed or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose, with respect to the GUIX Studio products. No oral or written information or advice given by Express Logic, Inc., its dealers, distributors, agents, or employees shall create any other warranty or in any way increase the scope of this warranty, and licensee may not rely on any such information or advice.

Part Number: 000-1025

Revision 5.6.1.0

---

GUIX Studio™ Quick Start Guide

Publication Date: Rev.5.61 May 11, 2020

Published by: Renesas Electronics Corporation

---

# GUIX Studio™ Quick Start Guide