QE for Display[RX] V2.1.0

Release Note

Thank you very much for your interest in QE for Display[RX] V2.1.0.

This document describes this product installation, restrictions and so on. Please read this document before using the product.

Contents

1. About QE for Display[RX]

1.1 Summary

QE for Display[RX] is one of several Solution Toolkit which operate under the e^2 studio integrated development environment. This product allows for easy initial adjustment of display connection (display timing adjustment and image quality adjustment) and create GUI, by using the image display function of the Graphic LCD Controller (a display controller mounted on the RX family of MCUs), an emWin GUI software package and an Aeropoint GUI for RX. This shortens the development period.

1.2 New Functions

➢ **Enhanced integration with Aeropoint® GUI for RX, the GUI middleware from CRI Middleware**

You can now include an Aeropoint® GUI using QE for Display[RX]. By making settings according to the workflow view, you can easily make initial adjustments to the LCD display and create and display the GUI.
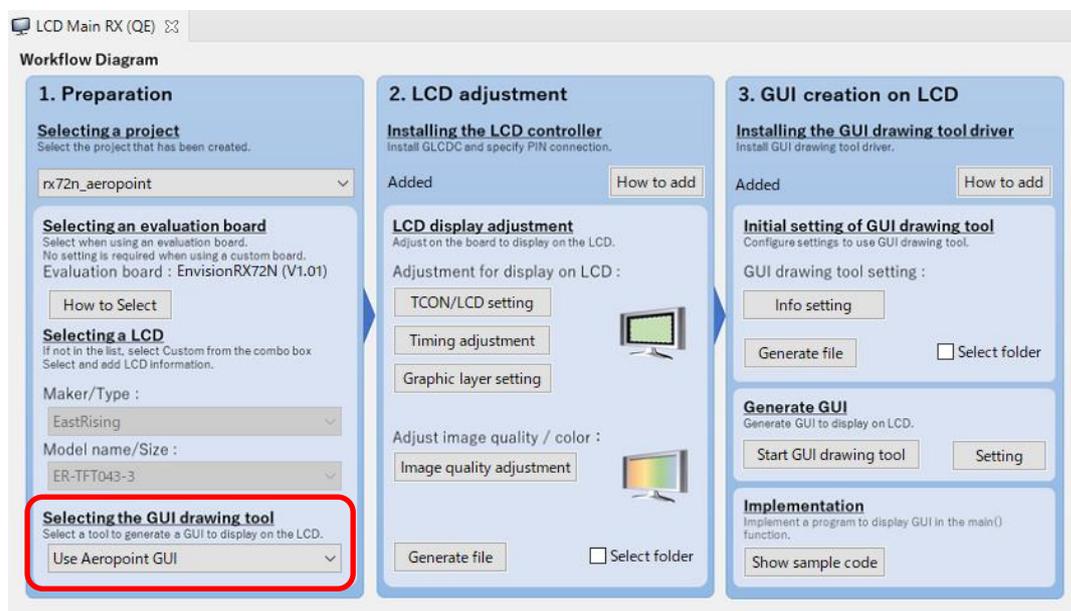
➢ **Added automatic timing adjustment function**

A function to automatically adjust the parameters in the "Timing Adjustment" tab has been added. By using this function, you can start display adjustment immediately.

1.3 Supported Environment

➢ Windows 8.1, Windows 10

➢ Recommended: Renesas e^2 studio 2021-04* (or later)

(* Scheduled for release on Apr 20.)

➢ Available: Renesas e^2 studio 2020-07 (or later)

1.4   Supported Microcontroller

RX family

  ➢   RX600 Series   RX65N groups*, RX651 groups*, RX66N groups
                        (* ROM capacity: 1.5 MB to 2 MB only)

        RX700 Series   RX72M groups*, RX72N groups
                        (* 100-pin is not supported.)

1.5   Supported Fit Modules

  ➢   Graphic LCD Controller Module: r_glcdc_rx V1.50 (or later)

  ➢   emWin v6.14 Module: r_emwin_rx V1.30 (or later)

  ➢   Aeropoint Module: r_aeropoint_rx V1.00 (or later)

2.   Installation and Uninstallation

QE for Display[RX] is included in RenesasQE_display_package_V210.zip. This zip file is QE for Display package which is an integrated package of RX version and RZ version.

2.1   Installing This Product

Use either of the following procedure to install this product.

2.1.1   Install from the e² studio Installer

1.   Start e² studio.
2.   Select the [Renesas Views] – [Renesas Software Installer] menu of e² studio to open the [Renesas Software Installer] dialog box.
3.   Select the [Renesas QE] and click the [Next>] button
4.   Select the [QE for Display[RX](v2.1.0)] check box, and click the [Finish] button.
5.   Check that [Renesas QE for Display[RX]] is selected in the [Install] dialog box, and click the [Next>] button.
6.   Check that [Renesas QE for Display[RX]] is selected as the target of installation, and click the [Next>] button.
7.   After confirming the license agreements, if you agree to the license, select the [I accept the terms of the license agreements] radio button, and click the [Finish] button.
8.   If the dialog of the trust certificate is displayed, check that certificate, and click the [OK] button to continue installation.
9.   When prompted to restart e² studio, restart it.
10. Start this product from the [Renesas Views] - [Renesas QE] menu of e² studio. For details about how to use this product, see the [Help] menu of e² studio.

2.1.2   Using the QE Installer

1.   Start e² studio.
2.   From the [Help] menu, select [Install New Software...] to open the [Install] dialog box.
3.   Click the [Add...] button to open the [Add Repository] dialog box.
4.   Click the [Archive] button, select "RenesasQE_display_package_V210.zip" in the opened dialog box, and click the [Open] button.
5.   Click the [OK] button in the [Add Repository] dialog box.
6.   Expand the [Renesas QE] item shown in the [Install] dialog box, select the [Renesas QE for Display[RX]] check box, and then click the [Next>] button.
     * If you check off the [Contact all update sites during install to find required software] checkbox, you can shorten the installation time.
7.   Check that [Renesas QE for Display[RX]] is selected as the target of installation, and click the [Next>] button.
8.   After confirming the license agreements, if you agree to the license, select the [I accept the terms of the license agreements] radio button, and click the [Finish] button.
9.   If the dialog of the trust certificate is displayed, check that certificate, and click the [OK] button to continue installation.
10. When prompted to restart e² studio, restart it.
11. Start this product from the [Renesas Views] - [Renesas QE] menu of e² studio. For details about how to use this product, see the [Help] menu of e² studio.

2.2   Updating This Product

If you have already installed this product, you can update it in the same way as the procedure for installation.

2.3   Uninstalling This Product

Use the following procedure to uninstall this product.

1. Start e^2 studio.
2. Select [Help -> About e^2 studio] to open the [About e^2 studio] dialog box.
3. Click the [Installation Details] button to open the [e^2 studio Installation Details] dialog box.
4. Select [Renesas QE for Display[RX]] displayed on the [Installed Software] tabbed page and click the [Uninstall...] button to open the [Uninstall] dialog box.
5. Check the displayed information and click the [Finish] button.
6. When prompted to restart e^2 studio, restart it.

3.   Notes / Restrictions

3.1   Usage Considerations

3.1.1   About compatibility with the previous version of sample program

V2.0.0 or later is not compatible with the previous version (QE for Display[RX] V1.1.0 or below) of the sample program because V2.0.0 or later has many new items to set and macros to output to the header file. When updating to V2.0.0 or later, also update the Graphic LCD Controller Module (r_glcdc_rx) to V1.40 or later.

For your information, the relationship between the previous version of QE for Display[RX] and the Graphic LCD Controller Module is as follows.

- ➢ QE for Display[RX] V1.0.0 : r_glcdc_rx V1.00 - V1.30
- ➢ QE for Display[RX] V1.1.0 : r_glcdc_rx V1.30

3.1.2   How to transfer the data of the previous version

To transfer the configuration data from the previous version, copy the configuration file from the workspace location below to the project-specific location.

- ■   Storage location of the previous version's configuration data

<workspace>/.metadata/.plugins/com.renesas.apltool.glcdc

- ■   Storage location of the V2.0.0 or later configuration data

<project>/.settings/.plugin/com.renesas.apltool.glcdc

3.1.3   About reflecting the settings in the "Display Tuning RX (QE)" view

The settings in the "Display Tuning RX (QE)" view are updated when this view is opened. When you change the LCD or GUI drawing tool in the "LCD Main RX (QE)" view, please open the "Display Tuning RX (QE)" view once to reflect the settings.

3.1.4   Notes on using the Aeropoint GUI (Install PowerPoint®)

If PowerPoint® is not installed on your PC, the GUI drawing tool will not launch even if you select "Use Aeropoint GUI" in the "LCD Main RX (QE)" view and click the "Start GUI Drawing Tool" button. Please install PowerPoint® before using the Aeropoint GUI. Also, please refer to the Aeropoint GUI manual for notes on how to use the Aeropoint GUI.

3.1.5   Notes on using the Aeropoint GUI (Library Setting)

When you use the RXv2 instruction set architecture on RX66N, RX72M, and RX72N, change the library set in the linker options to the following.

- ・   libcri_AeropointLite_RXv2_CCRX.lib
- ・   libcri_Atom_Multiplayer_RXv3_CCRX.lib

3.2   Functional Restrictions

There is no restriction in QE for Display[RX] V2.1.0.

Revision History

Rev.	Date	Description	
		Page	**Summary**
1.00	Mar.31.21	-	First edition issued.

General Precautions in the Handling of Microprocessing Unit and Microcontroller Unit Products

The following usage notes are applicable to all Microprocessing unit and Microcontroller unit products from Renesas. For detailed usage notes on the products covered by this document, refer to the relevant sections of the document as well as any technical updates that have been issued for the products.

1. Precaution against Electrostatic Discharge (ESD)

   A strong electrical field, when exposed to a CMOS device, can cause destruction of the gate oxide and ultimately degrade the device operation. Steps must be taken to stop the generation of static electricity as much as possible, and quickly dissipate it when it occurs. Environmental control must be adequate. When it is dry, a humidifier should be used. This is recommended to avoid using insulators that can easily build up static electricity. Semiconductor devices must be stored and transported in an anti-static container, static shielding bag or conductive material. All test and measurement tools including work benches and floors must be grounded. The operator must also be grounded using a wrist strap. Semiconductor devices must not be touched with bare hands. Similar precautions must be taken for printed circuit boards with mounted semiconductor devices.

2. Processing at power-on

   The state of the product is undefined at the time when power is supplied. The states of internal circuits in the LSI are indeterminate and the states of register settings and pins are undefined at the time when power is supplied. In a finished product where the reset signal is applied to the external reset pin, the states of pins are not guaranteed from the time when power is supplied until the reset process is completed. In a similar way, the states of pins in a product that is reset by an on-chip power-on reset function are not guaranteed from the time when power is supplied until the power reaches the level at which resetting is specified.

3. Input of signal during power-off state

   Do not input signals or an I/O pull-up power supply while the device is powered off. The current injection that results from input of such a signal or I/O pull-up power supply may cause malfunction and the abnormal current that passes in the device at this time may cause degradation of internal elements. Follow the guideline for input signal during power-off state as described in your product documentation.

4. Handling of unused pins

   Handle unused pins in accordance with the directions given under handling of unused pins in the manual. The input pins of CMOS products are generally in the high-impedance state. In operation with an unused pin in the open-circuit state, extra electromagnetic noise is induced in the vicinity of the LSI, an associated shoot-through current flows internally, and malfunctions occur due to the false recognition of the pin state as an input signal become possible.

5. Clock signals

   After applying a reset, only release the reset line after the operating clock signal becomes stable. When switching the clock signal during program execution, wait until the target clock signal is stabilized. When the clock signal is generated with an external resonator or from an external oscillator during a reset, ensure that the reset line is only released after full stabilization of the clock signal. Additionally, when switching to a clock signal produced with an external resonator or by an external oscillator while program execution is in progress, wait until the target clock signal is stable.

6. Voltage application waveform at input pin

   Waveform distortion due to input noise or a reflected wave may cause malfunction. If the input of the CMOS device stays in the area between V_{IL} (Max.) and V_{IH} (Min.) due to noise, for example, the device may malfunction. Take care to prevent chattering noise from entering the device when the input level is fixed, and also in the transition period when the input level passes through the area between V_{IL} (Max.) and V_{IH} (Min.).

7. Prohibition of access to reserved addresses

   Access to reserved addresses is prohibited. The reserved addresses are provided for possible future expansion of functions. Do not access these addresses as the correct operation of the LSI is not guaranteed.

8. Differences between products

   Before changing from one product to another, for example to a product with a different part number, confirm that the change will not lead to problems. The characteristics of a microprocessing unit or microcontroller unit products in the same group but having a different part number might differ in terms of internal memory capacity, layout pattern, and other factors, which can affect the ranges of electrical characteristics, such as characteristic values, operating margins, immunity to noise, and amount of radiated noise. When changing to a product with a different part number, implement a system-evaluation test for the given product.

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