

## **RX65N Group**

Renesas Starter Kit Sample Code (e<sup>2</sup> studio for CC-RX)

R01AN4135EJ0100 Rev.1.00 Nov 30, 2017

### Introduction

Renesas Starter Kits (RSK+) are supplied as complete development systems for the selected microcontroller. The kit includes an evaluation board, portable On-Chip Debugger, and a set of peripheral sample code.

### **Target Device**

RX65N Group

#### **Development Environment**

IDE: e<sup>2</sup> studio v6.0.0 Compiler: Renesas CC-RX v2.07.00 Hardware: Renesas Starter Kit+ for RX65N-2MB

#### Contents

1.	Installation	2
2.	Creating the Project Workspace	2
3.	Opening the Sample Code and Source Files	5
4.	Source Code Functionality	5



#### 1. Installation

This section assumes that e<sup>2</sup> studio and the Renesas RXC toolchain are already installed.

Create a new folder, for example 'C:\Renesas\Workspace\RSK\RSK+RX65N-2MB'. Copy the application note zip package 'an-r01an4135ej0100-rx65n-2mb-rsk.zip' downloaded from the website to this folder.

### 2. Creating the Project Workspace

Open  $e^2$  studio by clicking the Windows Start button, select All Programs > Renesas Electronics e2studio > e2 studio.

e <sup>2</sup> Eclipse Launcher	×
Select a directory as workspace	
e <sup>2</sup> studio uses the workspace directory to store its preferences an	d development artifacts.
Workspace: C:\Users\user_name\e2_studio\workspace	✓ Browse
Use this as the default and do not ask again	
	OK Cancel
Select <ok>.</ok>	
e <sup>2</sup>	×
Toolchain Integration	
<ol> <li>New toolchains available for integration</li> </ol>	C
- Toolchain Registry	
✓ ✓ Renesas CCRX	
✓ Renesas CCRX - v2.07.00	
Select all	
Enable 'Toolchain integration' on startup	
	Register Cancel

In the 'Toolchain Registry' dialog select the 'Renesas CCRX' and 'Renesas CCRX - v2.07.00' checkboxes. Click <Register>.

The 'Information' dialog below appears. Click <OK>.

e <sup>2</sup> Info	mation	×
i	Selected toolchains were successfully integrated with e2 studio	
		OK



On the 'Welcome' screen select the 'Go to the e2 studio workbench' icon as shown below.

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<b>昭</b> 参	Renesas	Welcome to e <sup>2</sup> studio			Workbench
	0	Create a new C/C++ project Create a new e <sup>2</sup> studio C/C++ project		Overview Get an overview of the features	
	*	Import existing projects Import existing e <sup>2</sup> studio projects from the filesystem or archive	2	Tutorials Go through tutorials	
	٠	Review IDE configuration settings Review the IDE's most fiercely contested preferences	2	Samples Try out the samples	
	Ľ	Open an existing file Open a file from the filesystem	${}^{}$	What's New Find out what is new	
					☑ Always show Welcome at start up

1. Right click in the project explorer window and click <Import...>.

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				No consoles to displa	y at this time.								• 🖸 •
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2. The 'Import - Select' dialog will now appear. Expand the "General" folder icon, and select "Existing Projects into Workspace", then click 'Next'.

e <sup>2</sup> Import			×
Select Create new projects from an archive file or directory.		Ľ	5
Select an import wizard:			
type filter text			
<ul> <li>✓ Seneral</li> <li>Archive File</li> <li>➢ Existing Projects into Workspace</li> <li>➢ File System</li> <li>➢ HEW Project</li> <li>➢ Projects from Folder or Archive</li> <li>➢ Renewas CS+ Project for CA78K0R/CA78K0</li> <li>➢ Renesas CS+ Project for CC-RX and CC-RL</li> <li>&gt; ➢ C/C++</li> <li>&gt; ➢ Code Generator</li> <li>&gt; ➢ Install</li> <li>&gt; ➢ Oomph</li> <li>&gt; ➢ Run/Debure</li> </ul>	:		~
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3. The 'Import - Import Projects' dialog will now appear. Select 'Select archive file', click the <Browse> button and locate the directory: 'C:\Renesas\Workspace\RSK\RSK+RX65N-2MB\an-r01an4135ej0100-rx65n-2mb-rsk.zip'. Click <Finish> to import the project.

Import Projects         Select a directory to search for existing Eclipse projects.         Select archive file       C:Renesas/Workspace/RSK/RSK+RX65N-2MB\an_r01an0475eg0100_n65n-2mb_rsk.zip         Bigowse         Projects:         Application (Application/)         Apyre, Serial (Async, Serial)         Select All         Desclect All         Yotronal_withTFT('Iutorial_withTFT)         Options         Search for nested projects         Copy projects that already exist in the workspace         Hidge projects that already exist in the workspace         Working sets       Negw         Working sets       Select	e <sup>2</sup> Import							
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#### 3. Opening the Sample Code and Source Files

Once imported into e<sup>2</sup> studio select a project from the project list in the "Project Explorer". Click the arrow next to it to expand the folder contents.

Description.txt in the 'doc' folder provides a functional description of the sample.

Clicking the arrow next to the 'src' folder and the 'smc\_gen' folder will show the source files.

e <sup>2</sup> workspace - C/C++ - Tutorial/src/main.c - e <sup>2</sup> studio								- 🗗 🗙
<u>File Edit Source Refactor Navigate Search Project</u>	Renesas <u>V</u> iews <u>R</u> ur	n <u>W</u> indow <u>H</u> elp						
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#### 4. Source Code Functionality

Each source code project is specifically written to run on the appropriate RSK. However, this source code can be useful as an example of peripheral initialization even without the RSK.

Each sample project will contain a C source file that includes "main" in the name, for example "main.c". This source file will include the C function main().



#### Website and Support

Renesas Electronics Website <u>http://www.renesas.com/</u>

#### Inquiries

http://www.renesas.com/contact/

#### Product Information

https://www.renesas.com/rskrx65n-2mb

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## **Revision History**

		Descript	tion	
Rev.	Date	Page	Summary	
1.00	Nov 30, 2017	-	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. 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 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. Unused pins should be handled as described under Handling of Unused Pins in the manual.

2. Processing at Power-on

The state of the product is undefined at the moment 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 moment 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 moment 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 moment when power is supplied until the power reaches the level at which resetting has been specified.

3. Prohibition of Access to Reserved Addresses

Access to reserved addresses is prohibited.

The reserved addresses are provided for the possible future expansion of functions. Do not
access these addresses; the correct operation of LSI is not guaranteed if they are accessed.

4. Clock Signals

After applying a reset, only release the reset line after the operating clock signal has become stable. When switching the clock signal during program execution, wait until the target clock signal has 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. Moreover, 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.
- 5. Differences between Products

Before changing from one product to another, i.e. to a product with a different part number, confirm that the change will not lead to problems.

 The characteristics of Microprocessing unit or Microcontroller unit products in the same group but having a different part number may differ in terms of the 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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