

Thank you for using the AP4 for RX (The name was changed from Application Leading Tool for RX.). This document describes the restrictions and points for caution. Read this document before using the product.

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Chapter 1. Introduction

The AP4 for RX is a software tool to generate control programs (device driver programs) for peripheral modules (timers, UART, A/D, etc.). It generates device driver codes using user settings through GUI. Initialize code and API (Application Programming Interface) functions are provided.

Chapter 2. Target Devices

Below is a list of devices supported by the AP4 for RX V1.10.00.

| RX110 Group | |
|-------------------------------------|--|
| PIN | Device name |
| 36pin | R5F5110HAxLM, R5F5110JAxLM, R5F51101AxLM, R5F51103AxLM |
| 40pin | R5F5110HAxNF, R5F5110JAxNF, R5F51101AxNF, R5F51103AxNF |
| 48pin | R5F5110JAxFL, R5F5110JAxNE, R5F51101AxFL, R5F51101AxNE R5F51103AxFL, R5F51103AxNE, R5F51104AxFL, R5F51104AxNE R5F51105AxFL, R5F51105AxNE |
| 64pin | R5F5110JAxFK, R5F5110JAxFM, R5F5110JAxLF R5F51101AxFK, R5F51101AxFM, R5F51101AxLF R5F51103AxFK, R5F51103AxFM, R5F51103AxLF R5F51104AxFK, R5F51104AxFM, R5F51104AxLF R5F51105AxFK, R5F51105AxFM, R5F51105AxLF |
| Following documents. | |
| Manual Name | Document Number |
| RX110 Group User's Manual: Hardware | R01UH0421JJ0100 |
| | R01UH0421EJ0100 |

| RX111 Group | |
|-------------------------------------|--|
| PIN | Device name |
| 36pin | R5F5111JAxLM, R5F51111AxLM, R5F51113AxLM |
| 40pin | R5F5111JAxNF, R5F51111AxNF, R5F51113AxNF |
| 48pin | R5F5111JAxFL, R5F5111JAxNE, R5F51111AxFL, R5F51111AxNE R5F51113AxFL, R5F51113AxNE, R5F51114AxFL, R5F51114AxNE R5F51115AxFL, R5F51115AxNE, R5F51116AxFL, R5F51116AxNE R5F51117AxFL, R5F51117AxNE, R5F51118AxFL, R5F51118AxNE |
| 64pin | R5F5111JAxFK, R5F5111JAxFM, R5F5111JAxLF R5F51111AxFK, R5F51111AxFM, R5F51111AxLF R5F51113AxFK, R5F51113AxFM, R5F51113AxLF R5F51114AxFK, R5F51114AxFM, R5F51114AxLF R5F51115AxFK, R5F51115AxFM, R5F51115AxLF R5F51116AxFK, R5F51116AxFM, R5F51116AxLF R5F51117AxFK, R5F51117AxFM, R5F51117AxLF R5F51118AxFK, R5F51118AxFM, R5F51118AxLF |
| Following documents. | |
| Manual Name | Document Number |
| RX111 Group User's Manual: Hardware | R01UH0365JJ0110 |
| | R01UH0365EJ0110 |

| RX113 Group | |
|-------------------------------------|--|
| PIN | Device name |
| 64pin | R5F51135AxLJ, R5F51136AxLJ, R5F51137AxLJ, R5F51138AxLJ |
| 100pin | R5F51135AxFP, R5F51136AxFP, R5F51137AxFP, R5F51138AxFP R5F51135AxFM, R5F51136AxFM, R5F51137AxFM, R5F51138AxFM |
| Following documents. | |
| Manual Name | Document Number |
| RX113 Group User's Manual: Hardware | R01UH0448JJ0100 |
| | R01UH0448EJ0100 |

| RX130 Group | |
|-------------------------------------|--|
| PIN | Device name |
| 48pin | R5F51303AxFL, R5F51305AxFL, R5F51303AxNE, R5F51305AxNE |
| 64pin | R5F51303AxFM, R5F51305AxFM, R5F51303AxFK, R5F51305AxFK |
| 80pin | R5F51303AxFN, R5F51305AxFN |
| Following documents. | |
| Manual Name | Document Number |
| RX130 Group User's Manual: Hardware | R01UH0560JJ0100 |
| | R01UH0560EJ0100 |

| RX230 Group | |
|---|--|
| PIN | Device name |
| 48pin | R5F52305AxNE, R5F52306AxNE, R5F52305AxFL, R5F52306AxFL |
| 64pin | R5F52305AxND, R5F52306AxND, R5F52305AxFM, R5F52306AxFM R5F52305AxLF, R5F52306AxLF |
| 100pin | R5F52305AxLA, R5F52306AxLA, R5F52305AxFP, R5F52306AxFP |
| RX231 Group | |
| PIN | Device name |
| 48pin | R5F52315AxNE, R5F52316AxNE, R5F52317AxNE, R5F52318AxNE R5F52315CxNE, R5F52316CxNE, R5F52317BxNE, R5F52318BxNE R5F52315AxFL, R5F52316AxFL, R5F52317AxFL, R5F52318AxFL R5F52315CxFL, R5F52316CxFL, R5F52317BxFL, R5F52318BxFL |
| 64pin | R5F52315AxND, R5F52316AxND, R5F52317AxND, R5F52318AxND R5F52315CxND, R5F52316CxND, R5F52317BxND, R5F52318BxND R5F52315AxFM, R5F52316AxFM, R5F52317AxFM, R5F52318AxFM R5F52315CxFM, R5F52316CxFM, R5F52317BxFM, R5F52318BxFM R5F52315CxLF, R5F52316CxLF |
| 100pin | R5F52315AxLA, R5F52316AxLA, R5F52317AxLA, R5F52318AxLA R5F52315CxLA, R5F52316CxLA, R5F52317BxLA, R5F52318BxLA R5F52315AxFP, R5F52316AxFP, R5F52317AxFP, R5F52318AxFP R5F52315CxFP, R5F52316CxFP, R5F52317BxFP, R5F52318BxFP |
| Following documents. | |
| Manual Name | Document Number |
| RX230 Group, RX231 Group User's Manual: Hardware | R01UH0496JJ0100 |
| | R01UH0496EJ0100 |

| RX23T Group | |
|-------------------------------------|----------------------------|
| PIN | Device name |
| 48pin | R5F523T3AxFL, R5F523T5AxFL |
| 52pin | R5F523T3AxFD, R5F523T5AxFD |
| 64pin | R5F523T3AxFM, R5F523T5AxFM |
| Following documents. | |
| Manual Name | Document Number |
| RX23T Group User's Manual: Hardware | R01UH0520JJ0100 |
| | R01UH0520EJ0100 |

| RX24T Group | |
|-------------------------------------|--|
| PIN | Device name |
| 80pin | R5F524T8AxFF, R5F524T8AxFN, R5F524TAAxFF, R5F524TAAxFN |
| 100pin | R5F524T8AxFP, R5F524TAAxFP |
| Following documents. | |
| Manual Name | Document Number |
| RX24T Group User's Manual: Hardware | R01UH0576JJ0100 |
| | R01UH0576EJ0100 |

| RX64M Group | |
|-------------------------------------|--|
| PIN | Device name |
| 100pin | R5F56MFCxFP, R5F56MFCxLJ, R5F56MFDxFP, R5F56MFDxLJ R5F56MGCxFP, R5F56MGCxLJ, R5F56MGDxFP, R5F56MGDxLJ R5F56MJCxFP, R5F56MJCxLJ, R5F56MJDxFP, R5F56MJDxLJ R5F56MLCxFP, R5F56MLCxLJ, R5F56MLDxFP, R5F56MLDxLJ |
| 144/145pin | R5F56MFCxFB, R5F56MFCxLK, R5F56MFDxFB, R5F56MFDxLK R5F56MGCxFB, R5F56MGCxLK, R5F56MGDxFB, R5F56MGDxLK R5F56MJCxFB, R5F56MJCxLK, R5F56MJDxFB, R5F56MJDxLK R5F56MLCxFB, R5F56MLCxLK, R5F56MLDxFB, R5F56MLDxLK |
| 176/177pin | R5F56MFDxFC, R5F56MFDxBG, R5F56MFDxLC, R5F56MFCxFC R5F56MFCxBG, R5F56MFCxLC, R5F56MGDxFC, R5F56MGDxBG R5F56MGDxLC, R5F56MGCxFC, R5F56MGCxBG, R5F56MGCxLC R5F56MJDxFC, R5F56MJDxBG, R5F56MJDxLC, R5F56MJCxFC R5F56MJCxBG, R5F56MJCxLC, R5F56MLDxFC, R5F56MLDxBG R5F56MLDxLC, R5F56MLCxFC, R5F56MLCxBG, R5F56MLCxLC |
| Following documents. | |
| Manual Name | Document Number |
| RX64M Group User's Manual: Hardware | R01UH0377JJ0090 |
| | R01UH0377EJ0090 |

| RX65N Group | |
|---|--|
| PIN | Device name |
| 100pin | R5F565N9AxLJ, R5F565N9BxLJ, R5F565N9ExLJ, R5F565N9FxLJ R5F565N7AxLJ, R5F565N7BxLJ, R5F565N7ExLJ, R5F565N7FxLJ R5F565N4AxLJ, R5F565N4BxLJ, R5F565N4ExLJ, R5F565N4FxLJ R5F565N9AxFP, R5F565N9BxFP, R5F565N9ExFP, R5F565N9FxFP R5F565N7AxFP, R5F565N7BxFP, R5F565N7ExFP, R5F565N7FxFP R5F565N4AxFP, R5F565N4BxFP, R5F565N4ExFP, R5F565N4FxFP |
| 144pin | R5F565N9AxFB, R5F565N9BxFB, R5F565N9ExFB, R5F565N9FxFB R5F565N7AxFB, R5F565N7BxFB, R5F565N7ExFB, R5F565N7FxFB R5F565N4AxFB, R5F565N4BxFB, R5F565N4ExFB, R5F565N4FxFB |
| 145pin | R5F565N9AxLK, R5F565N9BxLK, R5F565N9ExLK, R5F565N9FxLK R5F565N7AxLK, R5F565N7BxLK, R5F565N7ExLK, R5F565N7FxLK R5F565N4AxLK, R5F565N4BxLK, R5F565N4ExLK, R5F565N4FxLK |
| RX651 Group | |
| PIN | Device name |
| 100pin | R5F56519AxLJ, R5F56519BxLJ, R5F56519ExLJ, R5F56519FxLJ R5F56517AxLJ, R5F56517BxLJ, R5F56517ExLJ, R5F56517FxLJ R5F56514AxLJ, R5F56514BxLJ, R5F56514ExLJ, R5F56514FxLJ R5F56519AxFP, R5F56519BxFP, R5F56519ExFP, R5F56519FxFP R5F56517AxFP, R5F56517BxFP, R5F56517ExFP, R5F56517FxFP R5F56514AxFP, R5F56514BxFP, R5F56514ExFP, R5F56514FxFP |
| 144pin | R5F56519AxFB, R5F56519BxFB, R5F56519ExFB, R5F56519FxFB R5F56517AxFB, R5F56517BxFB, R5F56517ExFB, R5F56517FxFB R5F56514AxFB, R5F56514BxFB, R5F56514ExFB, R5F56514FxFB |
| 145pin | R5F56519AxLK, R5F56519BxLK, R5F56519ExLK, R5F56519FxLK R5F56517AxLK, R5F56517BxLK, R5F56517ExLK, R5F56517FxLK R5F56514AxLK, R5F56514BxLK, R5F56514ExLK, R5F56514FxLK |
| Following documents. | |
| Manual Name | Document Number |
| RX65N Group, RX651 Group User's Manual: Hardware | R01UH0590JJ0100 |
| | R01UH0590EJ0100 |

| RX71M Group | |
|-------------------------------------|---|
| PIN | Device name |
| 100pin | R5F571MFDxFP, R5F571MFCxLJ, R5F571MFDxFP, R5F571MFDxLJ R5F571MGDxFP, R5F571MGDxLJ, R5F571MGCxFP, R5F571MGCxLJ R5F571MJDxFP, R5F571MJDxLJ, R5F571MJCxFP, R5F571MJCxLJ R5F571MLDxFP, R5F571MLDxLJ, R5F571MLCxFP, R5F571MLCxLJ |
| 144/145pin | R5F571MFCxFB, R5F571MFCxLK, R5F571MFDxFB, R5F571MFDxLK R5F571MGCxFB, R5F571MGCxLK, R5F571MGDxFB, R5F571MGDxLK R5F571MJCxFB, R5F571MJCxLK, R5F571MJDxFB, R5F571MJDxLK R5F571MLCxFB, R5F571MLCxLK, R5F571MLDxFB, R5F571MLDxLK |
| 176/177/178pin | R5F571MFDxFC, R5F571MFDxBG, R5F571MFDxLC, R5F571MFCxFC, R5F571MFCxBG, R5F571MFCxLC, R5F571MGDxFC, R5F571MGDxBG, R5F571MGDxLC, R5F571MGCxFC, R5F571MGCxBG, R5F571MGCxLC, R5F571MJDxFC, R5F571MJDxBG, R5F571MJDxLC, R5F571MJCxFC, R5F571MJCxBG, R5F571MJCxLC, R5F571MLDxFC, R5F571MLDxBG, R5F571MLDxLC, R5F571MLCxFC, R5F571MLCxBG, R5F571MLCxLC |
| Following documents. | |
| Manual Name | Document Number |
| RX71M Group User's Manual: Hardware | R01UH0493JJ0100 |
| | R01UH0493EJ0100 |

Chapter 3. Operating Environment

▪ Host machine

- IBM PC/AT compatibles (Windows® 10, Windows® 8.1, Windows® 8, Windows® 7, Windows Vista®)
- Processor: 1 GHz or higher (must support hyper-threading, multi-core CPUs)
- Memory capacity: 2 GB or more recommended. Minimum requirement is 1 GB or more (64-bit Windows requires 2 G or more)
- Hard disk capacity: 200 MB or more spare capacity
- Display: 1024 x 768 or higher resolution, 65,536 or more colors
- All other necessary software environments in addition to Windows OS
 - .NET Framework version4.5

▪ Development Environments

| Product Name | Version |
|---|-------------------|
| IAR Embedded Workbench for Renesas RX | V2.90.1 or later |
| GNURX | V15.02 or later |
| Renesas electronics Compiler for RX [CC-RX] | V2.05.00 or later |

Chapter 4. Changes

This chapter describes changes to the AP4 for RX V1.10.00.

4.1 List of Changes

| No | Description | Version *1 | | | | | | | | | |
|----|---|------------|-------|-------|-------|--------------|-------|-------|-------|--------------|-------|
| | | RX110 | RX111 | RX113 | RX130 | RX230, RX231 | RX23T | RX24T | RX64M | RX65N, RX651 | RX71M |
| 1 | Addition of supported devices | / | / | / | / | / | / | / | / | ○ | / |
| 2 | Removal of the note on Serial Communications Interface SCI6 | / | / | / | / | ○ | / | / | / | / | / |

○: Correspondence, /: Outside of function

Note 1: Version is described in the generated code.

4.2 Details of Changes

4.2.1 Addition of Supported devices

Support for the group below has been newly added.

- RX family: RX65N group, RX651 group

4.2.2 Removal of the note on Serial Communications Interface SCI6

The following caution was raised.

- Since the generated code have an error when the clock input/output pin function for the SC16 serial communications interface is assigned to P34, communications will not proceed.

Chapter 5. Points for Caution

This section describes points for caution regarding the AP4 for RX V1.10.00.

5.1 List of Caution

| No | Description | version *1 | | | | | | | | | |
|----|---|-------------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|--------------|-------------|
| | | RX110 | RX111 | RX113 | RX130 | RX230, RX231 | RX23T | RX24T | RX64M | RX65N, RX651 | RX71M |
| | | V1.05.04.04 | V1.05.04.04 | V1.02.04.04 | V1.00.02.05 | V1.00.03.04 | V1.00.03.04 | V1.00.02.04 | V1.02.04.04 | V1.00.00.08 | V1.00.05.04 |
| 1 | Online Help | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 2 | Cautions of USB | / | ○ | ○ | / | ○ | / | / | ○ | ○ | ○ |
| 3 | Low Power Consumption | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 4 | Serial Communications Interface Asynchronous Mode | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 5 | Processor mode | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 6 | Extension code and multi-master of RIIC | / | / | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

○: Correspondence, /: Outside of function

Note 1: Version is described in the generated code.

5.2 Details of Caution

5.2.1 Online Help

AP4 for RX is not supporting online help.

5.2.2 Cautions of USB

AP4 for RX is not supporting the USB.

5.2.3 Low Power Consumption

AP4 for RX is not supporting Low Power Consumption.

5.2.4 Serial Communications Interface Asynchronous Mode

AP4 for RX is not supporting transfer rate clock input from the TMR or MTU in Asynchronous Mode of Serial Communications Interface.

5.2.5 Processor mode

The RX CPU has two processor modes; supervisor and user. The API driver functions may be assumed the operation by the CPU in supervisor mode.

More information on the processor modes can be found in the RX Family software manual.

5.2.6 Extension code and multi-master of RIIC

The code generator is not supporting the extension code, multi-master function of RIIC.

Chapter 6. Correction History

This section describes correction history of RENESAS TOOL NEWS.

6.1 List of RENESAS TOOL NEWS

| Issue Date | Document No. | Description | Device Concerned | Fixed version |
|---------------|--------------|--|--|---------------|
| Aug. 8, 2013 | 130808/tn4 | Restriction on Data handled by polling | RX111 | V1.01.00 |
| | | Note on Clock Generator setting | RX111 | |
| Apr. 16, 2014 | 140416/tn6 | With generating code for the IAR Embedded Workbench for Renesas RX from IAR Systems | RX110, RX111 | - |
| Aug. 16, 2014 | 140816/tn5 | With setting of the multi-function timer pulse unit (MTU) and 16-bit timer pulse unit (TPU) | RX111, RX64M | V1.05.00 |
| Dec. 16, 2014 | 141216/tn4 | 1. Settings for clocks in the output code | RX64M | V1.05.00 |
| | | 2. Bus settings | RX64M | |
| Mar. 01, 2015 | 150301/tn3 | 1. Multifunction Timer Pulse Unit 3 | RX64M | V1.06.00 |
| | | 2. Serial Communications Interface | RX111, RX113, RX64M, RX71M | |
| May 16, 2015 | 150516/tn3 | 1. Code Generated for the Clock Generation Circuit(PLL Circuit Operation) | RX111, RX113 | V1.06.00 |
| | | 2. Bus Settings | RX64M, RX71M | |
| | | 3. 16-bit Timer Pulse Unit (TPUa) and Multifunction Timer Pulse Unit 3 (MTU3a) | RX64M, RX71M | |
| | | 4. 12-bit A/D Converter (S12ADC) | RX64M, RX71M | V1.08.00 |
| | | 5. 12-bit D/A Converter (R12DA) | RX64M, RX71M | |
| Jul. 16, 2015 | 150716/tn1 | 1. Bus Settings | RX64M, RX71M | V1.08.00 |
| | | 2. Code Generated for the Clock Generation Circuit (HOCO Operation) | RX111, RX113 | |
| Aug.07, 2015 | 150807/tn3 | Complementary PWM mode setting of the MTU | RX230, RX231 | V1.08.00 |
| Sep. 01, 2015 | 150901/tn2 | Interrupts when the MTU is set for complementary PWM mode | RX110, RX111, RX113, RX23T, RX230, RX231 | V1.08.00 |
| Nov. 01, 2015 | 151101/tn4 | 1. Setting to permit or prohibit suspension of transfer in response to the reception of NACK over the I2C bus interface (RIIC) | RX110, RX111, RX113, RX23T, RX230, RX231, RX64M, RX71M | V1.09.00 |
| | | 2. Settings for the output of RTCOUT from the real time clock (RTC) | RX110, RX111, RX113 | |
| | | 3. Setting of the data transfer controller (DTC) | RX110, RX111, RX113, RX23T, RX230, RX231, RX64M, RX71M | V1.08.00 |

| Issue Date | Document No. | Description | Device Concerned | Fixed version |
|---------------|-----------------|---|------------------|---------------|
| Dec. 01, 2015 | 151201/tn3 | Using the Multi-Function Pin Controller (MPC) to Select Functions of the PAn Pins | RX113 | V1.08.00 |
| Feb. 16, 2016 | 160216/tn4 | FIFO embedded Serial Communications Interface SCIFA10 | RX64M, RX71M | V1.09.00 |
| Jun. 16, 2016 | R20TS0039EJ0100 | 1. Serial communications interface SCI6 | RX231, RX230 | V1.10.00 |

6.2 Details of RENESAS TOOL NEWS

6.2.1 RENESAS TOOL NEWS Document No.130808/tn4

This issue has been corrected in Application Leading Tool for RX V1.01.00.

- Restriction on Data handled by polling (target: RX111 group)

When Data handled by polling is selected for the data processing settings shown below, the Application Leading Tool will not operate correctly in some cases.

- Data processing settings for the serial communication interface (SCI)
- Data processing settings for the serial peripheral interface

- Note on Clock Generator setting

In the clock generator setting, a problem that values exceeding the limitation in the device can be specified has been found.

For details of the problem, refer to the URL below.

https://www.renesas.com/doc/toolnews/eng/2013/130808tn4_e.pdf

6.2.2 RENESAS TOOL NEWS Document No.140416/tn6

Please use the IAR Embedded Workbench for Renesas RX V2.42.2 or later.

- With generating code for the IAR Embedded Workbench for Renesas RX (hereafter called EWRX) from IAR Systems (target: RX110 and RX111 groups)

When a project for the EWRX is generated through the Application Leading Tool for RX of the product concerned, the code for initializing the option function select registers is not generated even if the independent watchdog timer and the voltage detection circuit are specified as peripheral functions.

Therefore, the following functions that use the option function select registers are not set up.

- Auto-start mode for the independent watchdog timer
- Startup voltage monitoring 1 reset function

For details of the problem, refer to the URL below.

https://www.renesas.com/doc/toolnews/eng/2014/140416tn6_e.pdf

6.2.3 RENESAS TOOL NEWS Document No.140816/tn5

This issue has been corrected in AP4 for RX V1.05.00.

- With setting of the multi-function timer pulse unit (MTU) and 16-bit timer pulse unit (TPU) (target: RX111 and RX64M groups)

In some cases, required code for setting the TGRC and TGRD registers is not output to the create function that is generated in response to setting up the multi-function timer pulse unit (MTU) or 16-bit timer pulse unit (TPU)

For details of the problem, refer to the URL below.

https://www.renesas.com/doc/toolnews/eng/2014/140816tn5_e.pdf

6.2.4 RENESAS TOOL NEWS Document No.141216/tn4

This issue has been corrected in AP4 for RX V1.05.00.

1. Settings for clocks in the output code
(applicable products: RX64M group)

There is an error in the output code of the void R_CGC_Create(void) function, which is in the r_cg_cgc.c source file for clock settings. In writing a value to system clock control register 2 (SCKCR2), bit 0 is erroneously set to "0". The correct setting for bit 0 is "1".

2. Bus settings
(applicable products: RX64M group)

When setting a separate bus in the interface for bus area settings, the address latch signal (ALE) has to be enabled. The use of a separate bus was originally selectable regardless of the ALE setting.

For details of the problem, refer to the URL below.

https://www.renesas.com/doc/toolnews/eng/2014/141216tn4_e.pdf

6.2.5 RENESAS TOOL NEWS Document No.150301/tn3

This issue has been corrected in AP4 for RX V1.06.00.

1. Multifunction Timer Pulse Unit 3
(Applicable products: RX64M group)

When the MTU3 is set with the following conditions, the code generated for port settings is not correct.

<Condition>

Setting "peripheral functions": Multifunction timer pulse unit 3

- Applicable channel: MTU3
- Function setting: Normal mode
- TGRD3: Output compare register
- Output of MTIOC3D pin: PC4

2. Serial Communications Interface

(Applicable products: RX111, RX113, RX64M and RX71M groups)

(1) When the SCI is set with the following conditions, the generated handler code will not be correct. In master reception, the data reception clock is generated for an extra byte. The extra received data are not stored at the designated address.

< Condition >

Setting "peripheral function": Serial Communications Interface

- Applicable channel: All

- Function setting: Simple I2C bus

- I2C interrupt mode select: Use the reception and transmission interrupts.

(2) When a simple SPI bus is selected for the SCI, the generated code will not be correct. Reception does not proceed with the execution of the R_SCIn_Start(void) function following executing of the R_SCIn_Stop(void) function.

For details of the problem, refer to the URL below.

https://www.renesas.com/doc/toolnews/eng/2015/150301tn3_e.pdf

6.2.6 RENESAS TOOL NEWS Document No.150516/tn3

This issue has been corrected in AP4 for RX V1.06.00 (Numbers 1, 2 and 3) and V1.08.00 (Numbers 4 and 5).

1. Code Generated for the Clock Generation Circuit (PLL Circuit Operation)

(Applicable products: RX111 and RX113 groups)

When "Operation" is selected under "PLL circuit setting" on the "Clock Generator" page, the generated code has an error.

2. Bus Settings

(Applicable products: RX64M and RX71M groups)

An error is generated in the address output pins "A16-A23" when the following address output pin settings are made for the bus.

(1) "P71" is selected as the CS1#output pin after checking "Use CS1" with the bus operation setting "Used".

(2) After selecting "Normal mode" for TPU1 in the 16-bit timer pulse unit settings, "P14" is enabled and set as the TCLKA pin.

(3) General registers TGRA1 and TGRB1 of TPU1 are set as "Output compare register", after which pins TIOCA1 and TIOCB1 are set to "output disabled".

(4) The address output pin settings for the bus are made.

3. 16-bit Timer Pulse Unit (TPUa) and Multifunction Timer Pulse Unit 3 (MTU3a)

(Applicable products: RX64M and RX71M groups)

A selection error is generated for the TIOCA1 pin of TPU1 of the 16-bit timer pulse unit when the following settings for the unit are made.

(1) TPU1 of the 16-bit timer pulse unit is set to "Phase counting mode 1", a check mark is placed against "TCLKA pin", and "P14" is selected as the TCLKA pin.

(2) The TIOCA1 and TIOCB1 pins of TPU1 are set to "Input capture at TPU0.TGRn input capture/compare match".

(3) MTU0 of the Multifunction Timer Pulse Unit 3 is set to "Normal mode" and a check mark is placed against "MTCLKA pin".

4. 12-bit A/D Converter (S12ADC)

(Applicable products: RX64M and RX71M groups)

When the 12-bit A/D converter (S12ADC) is used in the group scan mode, an A/D conversion end interrupt or group B A/D conversion end interrupt will be generated immediately after the scan has started, if further scanning is started by calling the function void R_S12ADn_Start(void) after the function void R_S12ADn_Stop(void) has been executed.

5. 12-bit D/A Converter (R12DA)

(Applicable products: RX64M and RX71M groups)

The code output for the function void R_R12Dax_Start(void) has an error, so the output amplifier may not operate correctly in use with the 12-bit D/A converter (R12DA).

For details of the problem, refer to the URL below.

https://www.renesas.com/doc/toolnews/eng/2015/150516tn3_e.pdf

6.2.7 RENESAS TOOL NEWS Document No.150716/tn1

This issue has been corrected in AP4 for RX V1.08.00.

1. Bus Settings

(Applicable MCUs: RX64M and RX71M groups)

An error will occur for A16, A17, A21, A22, A23 and code will not be generated after the external address bus signals A16 to A23 are set to PC0, PC1, P71, P72, P74, and PC5 to PC7 because PC2 to PC4 are used for peripheral functions other than address signals.

2. Code Generated for the Clock Generation Circuit (HOCO Operation)

(Applicable MCUs: RX111 and RX113 groups)

Generated code has an error when settings are for the high-speed on-chip oscillator (HOCO) to be used as the clock circuit.

To set the high-speed on-chip oscillator for operation, set the high-speed on-chip oscillator control register (HOCOOCR) after setting the high-speed on-chip oscillator wait control register (HOCOWTCR).

For details of the problem, refer to the URL below.

https://www.renesas.com/doc/toolnews/eng/2015/150716tn1_e.pdf

6.2.8 RENESAS TOOL NEWS Document No.150807/tn3

This issue has been corrected in AP4 for RX V1.08.00.

· Complementary PWM mode setting of the MTU

(Applicable products: RX230 and RX231 groups)

An error appears in the generated code when complementary PWM mode is selected for MTU3 of the multi-function timer pulse unit (MTU).

A build error occurs since an undefined symbol is used when the timer counter register (TCNT) of MTU3 is set in the function void R_MTU2_Create(void), which is in the r_cg_mtu2.c file.

The dead time is set in the timer counter register (TCNT) of MTU3.

For details of the problem, refer to the URL below.

https://www.renesas.com/doc/toolnews/eng/2015/150807tn3_e.pdf

6.2.9 RENESAS TOOL NEWS Document No.150901/tn2

This issue has been corrected in AP4 for RX V1.08.00.

- Interrupts when the MTU is set for complementary PWM mode
(Applicable products: RX23T, RX230, RX231, RX110, RX111, and RX113 groups)

The code output for the following functions is erroneous when the use of the multi-function timer pulse unit 3 of the RX23T group or the multi-function timer pulse unit 2 of other groups in complementary PWM mode is selected.

- RX23T group
void R_MTU3_Create(void) function in the r_cg_mtu3.c source file
- Other than the RX23T group
void R_MTU2_Create(void) function in the r_cg_mtu2.c source file

The code for setting the interrupt priority level of the following interrupts, which should be set up in the above functions, is not output, so they are not generated even if they are set as "enabled".

- Compare match interrupt (TGIA4)
- Compare match interrupt (TGIB4)
- Underflow interrupt (TCIV4)

For details of the problem, refer to the URL below.

https://www.renesas.com/doc/toolnews/eng/2015/150901tn2_e.pdf

6.2.10 RENESAS TOOL NEWS Document No.151101/tn4

This issue has been corrected in AP4 for RX V1.08.00 (Number 3) and V1.09.00 (Numbers 1 and 2).

1. Setting to permit or prohibit suspension of transfer in response to the reception of NACK over the I2C bus interface (RIIC)
(Applicable products: RX71M, RX64M, RX23T, RX230, RX231, RX110, RX111, and RX113 groups)

When using the I2C bus interface (RIIC) in master or slave mode, permitting or prohibiting the suspension of transfer in response to negative-acknowledge (NACK) reception is not configured properly, due to errors in two symbol definitions in r_cg_riic.h.

2. Settings for the output of RTCOUT from the real time clock (RTC)
(Applicable products: RX110, RX111, and RX113 groups)

Generated code has an error when the real-time clock (RTC) is used in binary counting mode and it is set up with the output of RTCOUT (a 1-Hz or 64-Hz clock) enabled. Due to an error in the assignment operator for RTC control register 2 (RCR2), the value is not set correctly.

3. Setting of the data transfer controller (DTC)

(Applicable products: RX71M, RX64M, RX23T, RX230, RX231, and RX113 groups)

If you make settings for peripheral functions and handle projects with the following procedure, settings that have already been made for the data transfer controller (DTC) are returned to their initial states.

- (1) Set the DTC and close the project after saving it.
- (2) Open the project in (1) again, and set the peripheral function after opening the setting screen for the peripheral function other than DTC (e.g., an 8-bit timer).
- (3) Close the project after saving it.
- (4) Open the project which was set in steps (1) to (3) again.

For details of the problem, refer to the URL below.

https://www.renesas.com/doc/toolnews/eng/2015/151101tn4_e.pdf

6.2.11 RENESAS TOOL NEWS Document No.151201/tn3

This issue has been corrected in AP4 for RX V1.08.00.

Using the Multi-Function Pin Controller (MPC) to Select Functions of the PAn Pins
(Applicable MCUs: RX113 group)

An error in handling of the pin function selection bits (PSEL [4:0]) of the PAn pin function control register (PAnPFS, n= 0 to 7) of the multi-function pin controller (MPC) means that the code for selecting the following peripheral functions does not select the correct functions.

- Multifunction Timer Pulse Unit 2 (MTU2)
 - MTU1 MTIOC1B pin
 - MTU2 MTIOC2A pin, MTIOC2B pin
- 8-bit timer (TMR)
 - TMR0 external reset pin (TMRIO)
 - TMR3 external reset pin (TMC13)

For details of the problem, refer to the URL below.

https://www.renesas.com/doc/toolnews/eng/2015/151201tn3_e.pdf

6.2.12 RENESAS TOOL NEWS Document No.160216/tn4

This issue has been corrected in AP4 for RX V1.09.00.

FIFO embedded Serial Communications Interface SCIFA10
(Applicable MCUs: RX71M group (144 or more pins) and RX64M group (144 or more pins))

Settings to select the following pins for the RXD10 and TXD10 pin functions of the FIFO embedded Serial Communications Interface SCIFA10 are impossible.

- Setting the P86 pin as RXD10
- Setting the P87 pin as TXD10

For details of the problem, refer to the URL below.

https://www.renesas.com/doc/toolnews/eng/2016/160216tn4_e.pdf

6.2.13 RENESAS TOOL NEWS Document No.R20TS0039EJ0100

This issue has been corrected in AP4 for RX V1.10.00.

FIFO embedded Serial Communications Interface SCIFA10

(Applicable MCUs: RX231 group (100-pin products) and RX230 group (100-pin products))

Since the generated code have an error when the clock input/output pin function for the SC16 serial communications interface is assigned to P34, communications will not proceed.

For details of the problem, refer to the URL below.

https://www.renesas.com/doc/toolnews/eng/2016/r20ts0039ej0100_cstnno.pdf

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