

Smart Configurator for RH850 V1.8.0

Release Note

Introduction

Thank you for using the Smart Configurator for RH850.

This document describes the restrictions and points for caution. Read this document before using the product.

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1. Introduction

Smart Configurator is a utility for combining software to meet your needs. It supports the following three functions related to the embedding of Renesas drivers in your systems: importing middleware, generating driver code, and setting pins.

1.1 System Requirements

The operating environment is as follows.

1.1.1 PC

- System: x64/x86 based processor
 - Windows® 11
 - Windows® 10 (64-bit version)
 - Windows® 8.1 (64-bit version)
- Memory capacity: We recommend 4 GB or more
- Capacity of hard disk: At least 500 MB of free space.
- Display: Graphics resolution should be at least 1024 x 768, and the mode should display at least 65,536 colors.
- Processor: 1 GHz or higher (must support hyper-threading, multi-core CPUs)

1.1.2 Development Environments

- Renesas electronics Compiler for RH850 [CC-RH] V2.05.00 or later
- GHS Multi V7.1.6 or later
- IAR Embedded Workbench for RH850 V3.10.1 ^{Note} or later
- Note:
 - IAR Embedded Workbench for RH850 V3.10.1 doesn't support RH850U/2B yet, so Smart Configurator doesn't support to create RH850/U2B IAR project and generate code.

2. Support List

2.1 Support Devices List

Below is a list of devices supported by the Smart Configurator for RH850 V1.8.0.

Table 2-1 Support Devices

Group (HW Manual number)	PIN	Device name (Device file version)
RH850/F1KM-S1 Group (R01UH0684EJ0100)	48pin	R7F701693, R7F701694, R7F701695 (V1.40)
	64pin	R7F701690, R7F701691, R7F701692 (V1.40)
	80pin	R7F701687, R7F701688, R7F701689 (V1.40)
	100pin	R7F701684, R7F701685, R7F701686 (V1.40)
RH850/F1KM-S2 Group (R01UH0684EJ0130)	100pin	R7F701760 (V1.40)
	144pin	R7F701762 (V1.40)
	176pin	R7F701764 (V1.40)
RH850/F1KM-S4 Group (R01UH0684EJ0100)	100pin	R7F701760, R7F701644, R7F701645 (V1.40)
	144pin	R7F701762, R7F701646, R7F701647 (V1.40)
	176pin	R7F701764, R7F701648, R7F701649 (V1.40)
	232pin	R7F701650, R7F701651 (V1.40)
	272pin	R7F701652, R7F701653 (V1.40)
RH850/U2A16 Group (R01UH0864EJ0130)	292pin	R7F702300 ^{*1} , R7F702300A (V1.20), R7F702300B (V1.10)
	373pin	R7F702300 ^{*1} , R7F702300A (V1.20), R7F702300B (V1.10)
	516pin	R7F702300 ^{*1} , R7F702300A (V1.20), R7F702300B (V1.10)
RH850/U2A8 Group (R01UH0864EJ0130)	292pin	R7F702301 ^{*1} , R7F702301A (V1.20), R7F702301B (V1.00)
	373pin	R7F702301 ^{*1} , R7F702301A (V1.20), R7F702301B (V1.00)
RH850/U2A6 Group (R01UH0864EJ0130)	144pin	R7F702302 (V1.10)
	156pin	R7F702302 (V1.10)
	176pin	R7F702302 (V1.10)
	292pin	R7F702302 (V1.10)
RH850/F1KH-D8 Group (R01UH0684EJ0111)	176pin	R7F701708, R7F701709 (V1.20)
	233pin	R7F701710, R7F701711 (V1.20)
	324pin	R7F701714, R7F701715 (V1.20)
RH850/C1M-A2 Group (R01UH0607EJ0120)	252pin	R7F701275 (V1.10)
RH850/U2B6 Group (R01UH0923EJ0050)	292pin	R7F70255x (V1.10)
RH850/U2B10 Group (R01UH0923EJ0050)	292pin	R7F70254x (V1.00)
	373pin	R7F70254x (V1.00)
	468pin	R7F70254x (V1.00)

Note 1. The devices are not supported in CS+V8.08 or later.

If you want to use these devices, you can use CS+V8.07 or earlier or obtain the device files via Renesas distributor.

2.2 Support Components List

Below is a list of Components supported by the Smart Configurator for RH850 V1.8.0.

Table 2-2 Support Components

✓: Support, -: Non-support

No	Components	Mode	FLKM RH850	U2A RH850	FLKH RH850	C1M RH850	U2B RH850	Remarks
1	A/D Converter	-	✓	✓	✓	✓	✓	
2	CSI Master	Master Transmit	✓	-	✓	✓	-	
		Master Receive	✓	-	✓	✓	-	
		Master Transmit/Receive	✓	-	✓	✓	-	
3	CSI Slave	Slave Transmit	✓	-	✓	✓	-	
		Slave Receive	✓	-	✓	✓	-	
		Slave Transmit/Receive	✓	-	✓	✓	-	
4	Data CRC	-	✓	✓	✓	✓	-	
5	DMA Controller	-	✓	✓	✓	✓	✓	
6	DTS Controller	-	-	✓	-	✓	-	
7	Error Control Module	-	-	✓	-	✓	-	
8	ATOM Signal Output Mode Compare	-	-	✓	-	-	-	
9	ATOM Signal Output Mode Immediate	-	-	✓	-	-	-	
10	ATOM Signal Output Mode PWM	-	-	✓	-	-	-	
11	ATOM Signal Output Mode Serial	-	-	✓	-	-	-	
12	Dead Time Module	-	-	✓	-	-	-	
13	GTM Clock	-	-	✓	-	-	-	
14	TIM Bit Compression Mode	-	-	✓	-	-	-	

Table 2-3 Support Components

✓: Support, -: Non-support

No	Components	Mode	RH850 F1KM	RH850 U2A	RH850 F1KH	RH850 C1M	RH850 U2B	Remarks
15	TIM Gated Periodic Sampling Mode	-	-	✓	-	-	-	
16	TIM Input Event Mode	-	-	✓	-	-	-	
17	TIM Input Prescaler Mode	-	-	✓	-	-	-	
18	TIM Pulse Integration Mode	-	-	✓	-	-	-	
19	TIM PWM Measurement Mode	-	-	✓	-	-	-	
20	TIM Serial Shift Mode	-	-	✓	-	-	-	
21	Time Base Unit	-	-	✓	-	-	-	
22	Interrupt Controller	-	✓	✓	✓	✓	✓	Only table reference method
23	Key Return	-	✓	-	✓	-	-	
24	MSPI Master	Transmit	-	✓	-	-	✓	No support LVDS mode
		Receive	-	✓	-	-	✓	
		Transmit/Receive	-	✓	-	-	✓	
25	MSPI Slave	Transmit	-	✓	-	-	✓	
		Receive	-	✓	-	-	✓	
		Transmit/Receive	-	✓	-	-	✓	
26	OS Timer	-	✓	✓	✓	✓	-	
27	Ports	-	✓	✓	✓	✓	✓	
28	Real-Time Clock	-	✓	✓	✓	-	-	
29	RIIC Master	-	✓	✓	✓	✓	✓	
30	RIIC Slave	-	✓	✓	✓	✓	✓	

Table 2-4 Support Component

✓: Support, -: Non-support

No	Components	Mode	RH850F1 KM	RH850 U2A	RH850F1K H	RH850C1 M	RH850 U2B	Remarks
31	SCI3 Asynchronous Mode	Transmission	-	✓	-	✓	-	
		Reception	-	✓	-	✓	-	
		Transmission / Reception	-	✓	-	✓	-	
		Multi-processor Transmission	-	✓	-	✓	-	
		Multi-processor Reception	-	✓	-	✓	-	
		Multi-processor Transmission / Reception	-	✓	-	✓	-	
32	SCI3 Clock Synchronous Mode	Transmission	-	✓	-	✓	-	
		Reception	-	✓	-	✓	-	
		Transmission / Reception	-	✓	-	✓	-	
33	Stand-by Controller	-	✓	✓	✓	-	-	Only Stop and DeepStop mode
34	Clock Divider	-	✓	✓	✓	✓	✓	
35	Delay Count	-	✓	✓	✓	✓	✓	
36	External Event Count	-	✓	✓	✓	✓	✓	
37	Input Interval Timer	-	✓	✓	✓	✓	✓	
38	Input Period Count Detection	-	✓	✓	✓	✓	✓	
39	Input Position Detection	-	✓	✓	✓	✓	✓	
40	Input Pulse Interval Judgment	-	✓	✓	✓	✓	✓	
41	Input Pulse Interval Measurement	-	✓	✓	✓	✓	✓	
42	Input Signal Width Judgement	-	✓	✓	✓	✓	-	
43	Input Signal Width Measurement	-	✓	✓	✓	✓	-	
44	Interval Timer	-	✓	✓	✓	✓	✓	
45	One-Pulse Output	-	✓	✓	✓	✓	✓	

Table 2-5 Support Components

✓: Support, -: Non-support

No	Components	Mode	RH850 FLKM	RH850 U2A	RH850 FLKH	RH850 C1M	RH850 U2B	Remarks
46	One-Shot Pulse output	-	✓	✓	✓	✓	✓	
47	Overflow Interrupt Output (Input Period Count Detection)	-	✓	✓	✓	-	-	
48	Overflow Interrupt Output (Width Measurement)	-	✓	✓	✓	-	✓	
49	PWM Output	-	✓	✓	✓	✓	✓	
50	Triangle PWM Output	-	✓	✓	✓	✓	-	
51	Triangle PWM Output with Dead Time	-	-	✓	✓	✓	✓	
52	UART Interface	Transmission	✓	✓	✓	✓	✓	
		Reception	✓	✓	✓	✓	✓	
		Transmission / Reception	✓	✓	✓	✓	✓	
53	Window Watchdog Timer	-	✓	✓	✓	✓	-	
54	ADC Boundary Flag Generator	-	-	-	-	-	✓	

2.3 New Support

2.3.1 Support new packages

From Smart Configurator for RH850 V1.8.0, some new devices are supported, including:

- RH850/U2A6

- RH850/U2A8 (373-pin product)

- RH850/U2A16 (373-pin product)

- RH850/F1KM-S2

- RH850/F1KM-S4 (272-pin product)

- RH850/U2B10

See “Table 2-1 Support Devices” for details on supported devices.

3. Changes

This chapter describes changes to the Smart Configurator for RH850 V1.8.0.

3.1 Correction of Issues/Limitations

Table 3-1 List of Correction of Issues/Limitations

✓ : Applicable, -: Not Applicable

No	Description	RH850 F1KM	RH850 U2A	RH850 F1KH	RH850 C1M	RH850 U2B	Remarks
1	Fixed the issue of T&H function of A/D Converter	-	✓	-	-	-	
2	Fixed the issue of MSPI Master channel lock function	-	✓	-	-	✓	
3	Fixed the issue of wrong generated code for some error source of Error Control Module	-	✓	-	-	-	
4	Fixed the issue of noise filter setting of ADCA1	✓	-	✓	-	-	
5	Fixed the issue of not generating "Start User code..." comments in "Includes" segment	-	✓	-	✓	-	

3.1.1 Fixed the issue of T&H function of A/D Converter

When using A/D Converter, T&H function is not enabled even if "T&Hz enable"(z = 0 to 5) is selected and "T&Hz"(z = 0 to 5) is selected in the Advanced settings of the A/D Converter component.

This issue is fixed from Smart Configurator for RH850 V1.8.0.

T&H setting

☒ T&H0 enable ☐ T&H1 enable ☐ T&H2 enable ☐ T&H3 enable

☐ Enable automatic sampling

T&H group A setting

☒ T&H0 ☐ T&H1 ☐ T&H2 ☐ T&H3

Scan group: Scan group 1

Hold start trigger: Hardware trigger

Figure 3-1. A/D Converter T&H setting

3.1.2 Fixed the issue of MSPI Master channel lock function

When using Channel lock function of MSPI Master, the function is not enabled even if choosing the “Enable” option in the Advanced settings of the MSPI Master component.

This issue is fixed from Smart Configurator for RH850 V1.8.0.

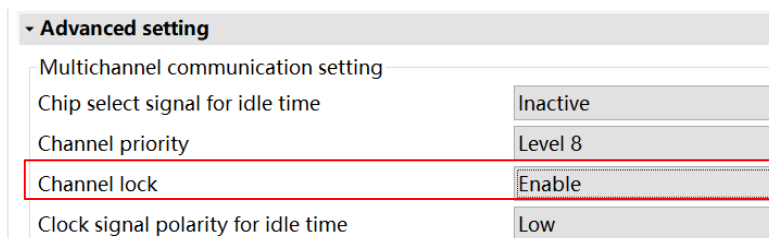


Figure 3-2. MSPI Master Channel lock setting

3.1.3 Fixed the issue of wrong generated code for some error sources of Error Control Module

When selecting the following five error sources, the macro generated for register ECMETMKn_j, ECMISCFGj, ECMIRCFGj, ECMEMKj and ECMDTMCFGj is wrong.

The error source number “xx” in following macro should be the number corresponding to the selected error sources, but the five error sources do not use their own error source number in generated code:

```
ECM.EMKj &= _ECM_xx_ERROR_OUTPUT_NOT_MASKED;
ECM.ISCFGj |= _ECM_MASKABLE_xx_FE_LEVEL_INTERRUPT;
ECM.IRCFGj |= _ECM_xx_INTERNAL_RESET_ENABLED;
ECM.ETMKn_j &= _ECM_xx_ERROR_TRIGGER_NOT_MASKED;
ECM.DTMCFGj |= _ECM_xx_DELAY_TIMER_START_ENABLED;
```

This issue is fixed from Smart Configurator for RH850 V1.8.0.

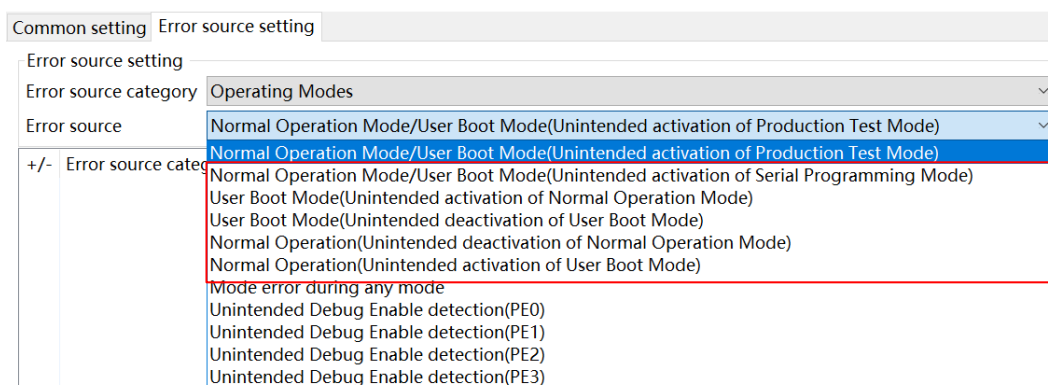


Figure 3-3. ECM Error source setting

3.1.4 Fixed the issue of noise filter setting of ADCA1 of A/D Converter

When using ADCA1 of component A/D Converter, selecting “A/D conversion hardware trigger enable” and “External trigger pin”, wrong register DNFAADCTL0ENLx is generated in driver code. Correct register name should be DNFAADCTL1ENLx.

This issue is fixed from Smart Configurator for RH850 V1.8.0.

Basic setting

Setting Scan group 1

Operation setting

Scan mode setting Multicycle scan mode

Scan times setting 1

☒ A/D conversion hardware trigger enable

Trigger input signal External trigger pin

Valid edge Falling edge

Figure 3-4. External trigger pin setting

3.1.5 Fixed the issue of not generating “Start user code ...” comments in “Includes” segment

When using TAUD Input Pulse Interval Measurement of the RH850/U2A, the pair of comment “Start user code for include” in “Includes” segment of <Config_TAUDn_m>_user.c is not generated.

Following files also has similar issue:

RH850/U2A16: r_cg_intc_PE0.c, r_cg_intc_PE1.c, r_cg_intc_PE2.c, r_cg_intc_PE3.c

RH850/C1M: r_cg_intc_PE1.c

This issue is fixed from Smart Configurator for RH850 V1.8.0.

```

/*****
Includes
*****/
#include "r_cg_macrodriver.h"
#include "r_cg_userdefine.h"
#include "Config_TAUD0_0.h"
/* Start user code for include. Do not edit comment generated here */
/* End user code. Do not edit comment generated here */
/*****
Global variables and functions
*****/

```

Figure 3-5. Generated comments in Includes part

3.2 Specification Changes

Table 3-2 List of Specification Changes

✓ : Applicable, -: Not Applicable

No	Description	RH850 F1KM	RH850 U2A	RH850 F1KH	RH850 C1M	RH850 U2B	Remarks
1	Improved PCR register setting of A/D Converter	-	✓	-	-	✓	
2	Improved Pins page to support ETNB1 pin	-	✓	-	-	-	
3	Improved device name display when creating a project	-	✓	-	-	-	
4	Improved Toolchain selection	-	-	-	-	✓	
5	Improved layout of Smart Configurator Component Preference page for better user experience	✓	✓	✓	✓	✓	

3.2.1 Improved PCR register setting of A/D Converter

From Smart Configurator for RH850 V1.8.0, the macro value of “_PCR_ANALOG_INPUT” is improved from 0x00000000 to 0x00000010, which is consistent with the register value after reset. In file "Pin.h" and "r_cg_macrodriver.h", the following macro value is changed:

```
#define _PCR_ANALOG_INPUT          (0x00000010UL) /* Analog input */
```

3.2.2 Improved Pins page to support ETNB1 pin

From Smart Configurator for RH850 V1.8.0, Smart Configurator for RH850/U2A8 supports ETNB1 pin in Pins page.

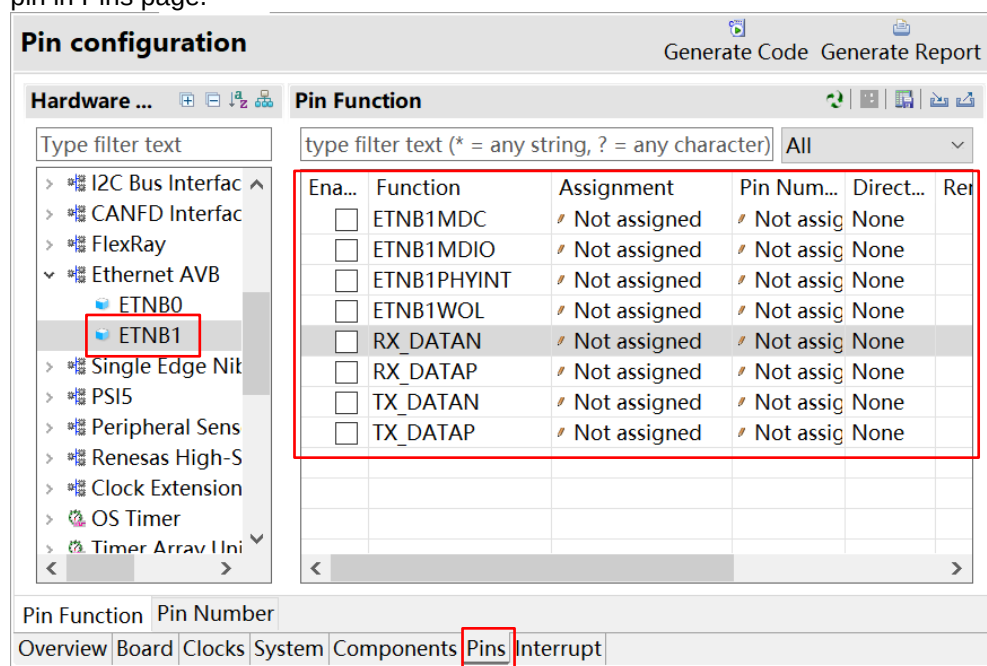


Figure 3-6. ETNB1 is supported in Pins page

3.2.3 Improved RH850/U2A device name display when creating a project.

From Smart Configurator for RH850 V1.8.0, when creating project for RH850/U2A, in “New Smart Configuration File” dialog, a short device name “R7F70230x” is used, which represents “R7F70230x”, “R7F70230xA”, “R7F70230xB” and so on. (x = 0 or 1).

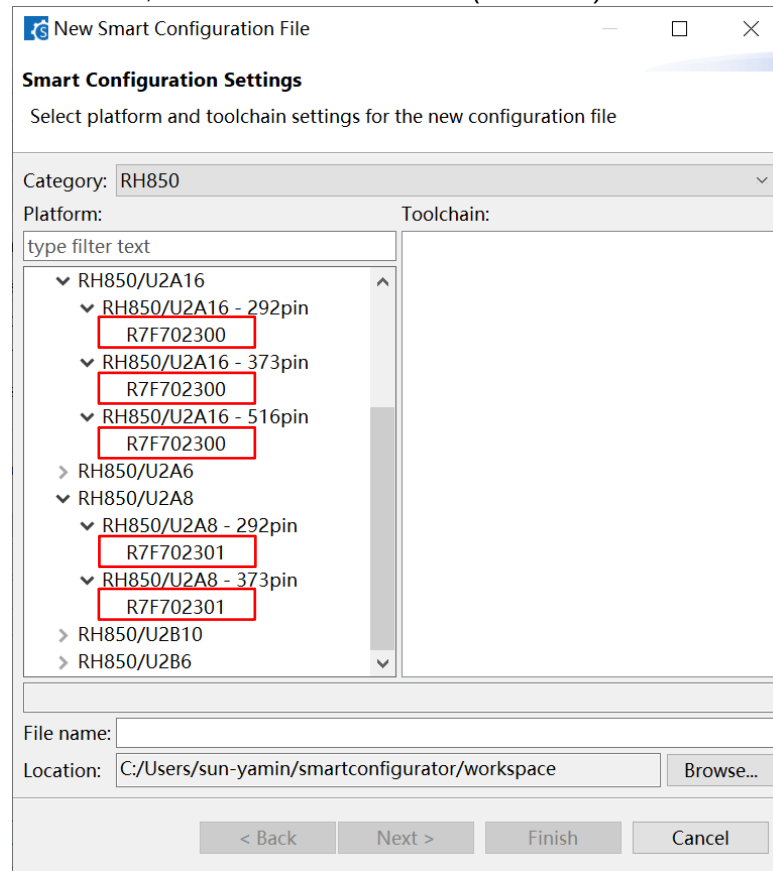


Figure 3-7. RH850/U2A8 and RH850/U2A16 device name

3.2.4 Improved Toolchain selection

From Smart Configurator for RH850 V1.8.0, "IAR RH850 Toolchain" selection in "New Smart Configuration File" dialog is removed because IAR Embedded Workbench for RH850 does not support RH850/U2B devices yet.

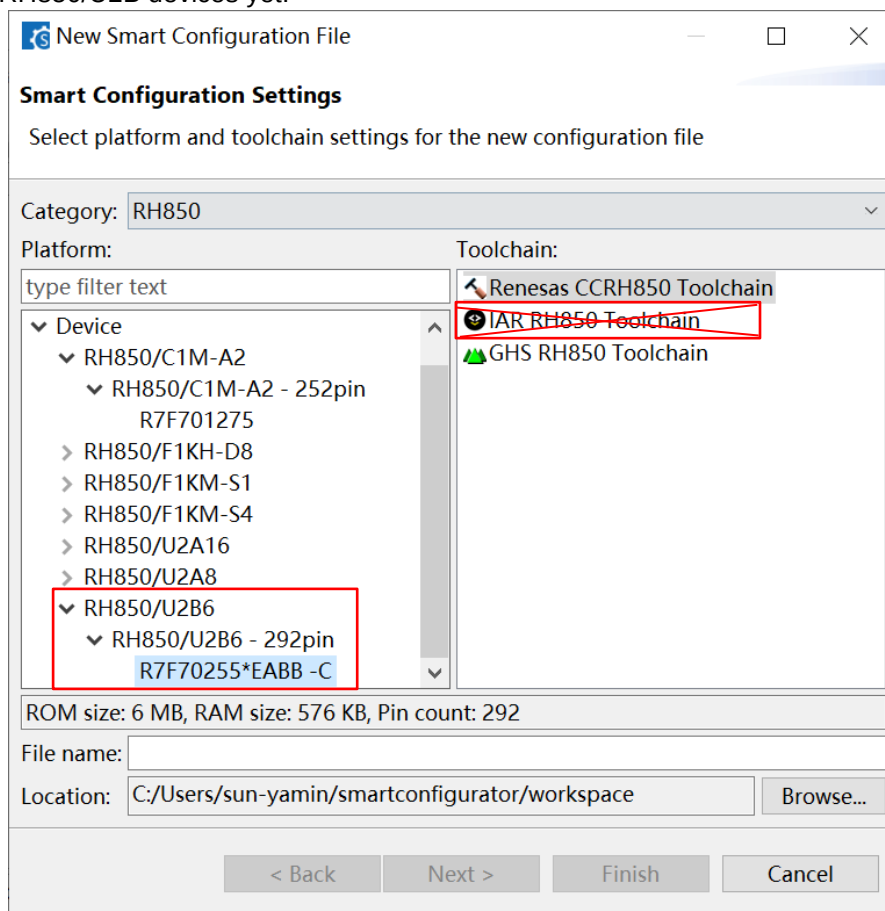


Figure 3-8. IAR RH850 Toolchain is removed for RH850/U2B

3.2.5 Improved layout of Smart Configurator Component Preference page for better user experience

From Smart Configurator for RH850 V1.8.0, the layout for Smart Configurator Component Preferences page has been improved for better user experience. The options are re-cataloged, and more exact descriptions are added.

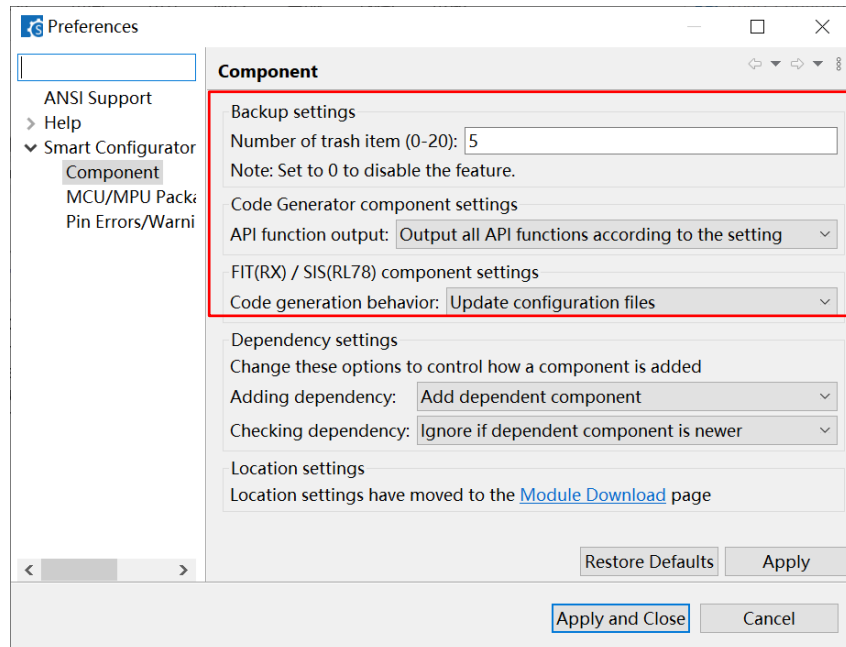


Figure 3-9 New layout for Smart Configurator Component Preference page

4. List of RENESAS TOOL NEWS AND TECHNICAL UPDATE

Below is a list of notifications delivered by RENESAS TOOL NEWS and TECHNICAL UPDATE.

Issue date	Document No.	Description	Applicable MCUs	Fixed version
Mar.16, 2019	R20TS0407	1. Build error occurs when setting not to generate clocks 2. RAM size display error https://www.renesas.com/document/tnn/notes-rh850-smart-configurator	RH850F1KM	V1.2.0
Jun. 01, 2016	R20TS0431	When using PLL0 Clock https://www.renesas.com/document/tnn/notes-rh850-smart-configurator-0	RH850F1KM	V1.2.0
Jul.01, 2019	R20TS0441	1. When using PWM output and triangle PWM output slave setting 2. Port input buffer setting error 3. Port drive strength control setting error 4. Port register setting error https://www.renesas.com/document/tnn/notes-smart-configurator-rh850	RH850F1KM	V1.2.0
Aug.01, 2019	R20TS0463	1. When using the input pulse interval measurement function 2. When using the Clocked Serial Interface in Master mode https://www.renesas.com/document/tnn/notes-smart-configurator-rh850-0	RH850F1KM	V1.2.0
Oct.16, 2019	R20TS0500	1. When using data CRC 2. When using one-pulse outputs https://www.renesas.com/document/tnn/notes-smart-configurator-rh850-1	RH850F1KM	V1.2.0
Apr.16, 2020	R20TS0569	When using CSI master and CSI slave https://www.renesas.com/document/tnn/notes-smart-configurator-rh850-2	RH850F1KM	V1.3.0
May.16, 2020	R20TS0576	When using CSI master and CSI slave https://www.renesas.com/document/tnn/notes-smart-configurator-rh850-3	RH850F1KM	V1.3.0
Feb. 16, 2021	R20TS0668	When using CSI master https://www.renesas.com/document/tnn/notes-smart-configurator-rh850-4	RH850F1KM	V1.4.0

Issue date	Document No.	Description	Applicable MCUs	Fixed version
Apr. 05, 2021	R20TS0679	1. When using CSI Master and CSI Slave with CSIG 2. When using CSI Master with CSIH 3. When using Data CRC 4. When using One-Pulse Output and One-Shot Pulse Output 5. When using PWM Output and Triangle PWM Output https://www.renesas.com/document/tnn/notes-smart-configurator-rh850-5	RH850F1KM RH850U2A	V1.4.0
Jun.16, 2021	R20TS0717	1. When using A/D converter with ADCJ2 https://www.renesas.com/document/tnn/notes-smart-configurator-rh850-6	RH850U2A	V1.5.0
Jul. 01, 2021	R20TS0723	1. Notes on using One-Shot Pulse Output, PWM Output, Triangle PWM Output, Triangle PWM Output with Dead Time functions with TAUD1, TAUD2 https://www.renesas.com/document/tnn/notes-smart-configurator-rh850-7	RH850U2A	V1.5.0
Sep. 16, 2021	R20TS0744	1. Notes on selecting PLL0 clock CPLL0OUT as source of CPU Subsystem clock 2. Notes on using CSIH Master receive and Master transmit/receive operation mode https://www.renesas.com/document/tnn/notes-smart-configurator-rh850-8	RH850F1KM RH850F1KH	V1.5.0
Feb. 01, 2022	R20TS0806	1. Notes on using T&H path self-diagnosis function of A/D Converter 2. Notes on redundant macros and wrong comments in A/D Converter header file https://www.renesas.com/document/tnn/notes-smart-configurator-rh850-9	RH850U2A	V1.6.0

5. Points for Limitation

This section describes points for limitation regarding the Smart Configurator for RH850 V1.8.0.

5.1 List of Limitation

Table 5-1 List of Limitation

✓ : Applicable, -: Not Applicable

No	Description	RH850F1 KM	RH850U2 A	RH850F1 KH	RH850C1 M	RH850U2 B	Remarks
1	Note on using RIIC	✓	✓	✓	✓	✓	
2	Note on the “Show view” dialog in Standalone Smart Configurator	✓	✓	✓	✓	✓	
3	Note on using the “Interrupt generation” function of Error Control Module	-	✓	-	-	-	

5.2 Details of Limitation

5.2.1 Note on using RIIC

When using RIIC master or RIIC Slave to send or receive data, error interrupt priority must be higher than any other interrupt priority.

Interrupt setting

Transmit data empty interrupt (TI) Lowest

Transmit end interrupt (TEI) Lowest

Receive data full interrupt (RI) Lowest

☐ Enable timeout interrupt (TMOI)

☐ Enable arbitration-lost interrupt (ALI)

☒ Enable NACK reception interrupt (NAKI)

Priority Level 8

Figure 5-1. RIIC interrupt priority setting

5.2.2 Note on the “Show view” dialog in Standalone Smart Configurator

When configuring the "Show View" dialog in Standalone Smart Configurator, although the following items will be shown inside the menu, but do not configure or use it, because the standalone version of Smart Configuration does not support these functions. This issue will be fixed from the next release.

- Bookmarks
- Markers
- Minimap
- Navigator (Deprecated)
- Problems
- Progress
- Tasks
- Welcome
- Cheat Sheets

5.2.3 Note on using “Interrupt generation” function of Error Control Module

When “Interrupt generation” is selected in Error Control Module, the setting code for register “ECMINCFGi_j” is not generated in driver code. This issue will be fixed from the next release.

+/-	Error source category	Error source	Maskable interrupt	Interrupt generation	DCLS error interrupt
⊖	DTS/sDMAC	DTS compare error	Maskable Interrupt (EI level) ▾	☒	-
⊖	OS timer	OS timer 1 interrupt	Maskable Interrupt (EI level) ▾	☒	-

Figure 5-2 Interrupt generation setting

6. Points for Caution

This section describes points for caution regarding the Smart Configurator for RH850 V1.8.0.

6.1 List of Caution

Table 6-1 List of Caution

✓ : Applicable, -: Not Applicable

No	Description	RH850 F1KM	RH850 U2A	RH850 F1KH	RH850 C1M	RH850 U2B	Remarks
1	About the I/O define header file	✓	✓	✓	✓	✓	
2	About loading the project on CS+	✓	✓	✓	✓	✓	
3	About the sample projects	✓	✓	✓	✓	-	
4	About the decimal point	✓	✓	✓	✓	✓	
5	Note on pins sharing functions.	✓	✓	✓	✓	✓	
6	Note on Interrupt Controller resource name	✓	-	-	-	-	
7	Note on DMA/DTS trigger generator setting of MSPI Master	-	✓	-	-	✓	
8	Note on CPU Operating mode of DTS Controller	-	✓	-	-	-	
9	Note on using Smart Configurator when the OS language is Japanese	-	✓	-	-	✓	
10	Note on changing device when using Error Control Module	-	✓	-	✓	-	
11	Note on reloading project for Error Control Module	-	✓	-	-	-	
12	Note on the “Release Notes” or “Tool News” display issue in Renesas Website	✓	✓	✓	✓	✓	

6.2 Details of Caution

6.2.1 About the I/O define header file

Please use Renesas iodef.h for the header file that defines the register. Because RH850 Smart Configurator outputs code conforming to the definition in Renesas iodef.h, a build error occurs when using the register definition file provided by other environments

6.2.2 About loading the project on CS+

When launching RH850 Smart Configurator from CS+, please set 'RH850 Build tool CC-RH plugin' and 'RH850 Build tool GHS CCRH850 plugin' to enable. If these plugins are disable, the error occurs when CS+ project that includes the setting of RH850 Smart Configurator is loaded.

6.2.3 About the sample project

The RH850 Smart Configurator does not output the processing after resetting the microcontroller (including the startup routine).

Therefore, we provide sample projects that include sample startup routines and other necessary processing so that user applications can be built immediately after peripheral modules are set up using the RH850 Smart Configurator.

Please refer to the user guide for sample projects under installation path.

Default installation path:

C:\Program Files (x86)\Renesas Electronics\SmartConfigurator\RH850\

6.2.4 About the decimal point

For error-free operation of the RH850 Smart Configurator, use a period (".") as the decimal point and a comma (",") as the digit grouping separator. Which of "." (period), ",", " " (space) is used as the decimal point or digit grouping separator differs depending on the language setting of the Windows OS that is used. For example, if you use a comma (",") as the decimal point, the RH850 Smart Configurator may not work correctly. This will occur when you are using Windows OS with language set to other than Japanese or English. If you are using the RH850 Smart Configurator on Windows OS with language set to other than Japanese or English, change the language setting to Japanese or English.

6.2.5 Note on pins sharing functions

When function shared pin selects a shared pin, shared pin displays an error.
But the shared pin can be selected correctly and work correctly.

Example) For RH850/U2A RSENT0

Assign RSENT0RX and RSENT0SPCO to the T24 pin

When assigned: T24 pin displays an error

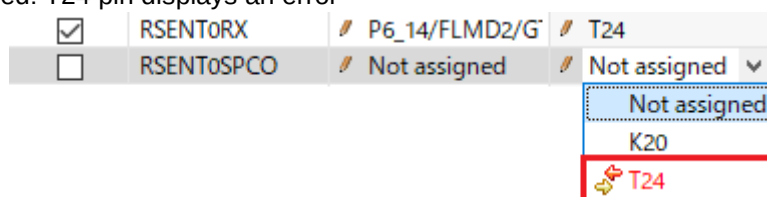


Figure 6-1. pins sharing function sample when assigned

After assignment

☒	RSENT0RX	P6_14/FLMD2/G	T24
☒	RSENT0SPCO	P6_14/FLMD2/G	T24

Figure 6-2. pins sharing function sample after assigned

6.2.6 Note on Interrupt Controller resource name

In RH850 Smart Configurator V1.2.0, the resource name of the interrupt controller has been changed to "INTC". The resource name of the interrupt controller of the previous version is automatically changed from "ICU" to "INTC".

Therefore, the following file name and macro name are changed.

Table 6-2 File name change

Before change	After change
r_cg_icu.h	r_cg_intc.h

Table 6-3 Macro name change

File name	Before change	After change
r_smc_interrupt.h	ICU_XXX_PRIORITY	INTC_XXX_PRIORITY

6.2.7 Note on DMA/DTS trigger generator setting of MSPI Master

If alternative trigger is selected in Smart Configurator for RH850 V1.5.0, when reloading the project file (.scfg file) into Smart Configurator for RH850 V1.7.0, the alternative trigger signal "Use alternative trigger" can't be reloaded and the default trigger signal

"Trigger1(DTSMSPi12)/Trigger2(DTSMSPi13)" will be used.

There isn't this cautions when reloading project between Smart Configurator for RH850 V1.5.0 and before, or between Smart Configurator for RH850 V1.7.0 and later.

DMA/DTS trigger generator setting

☐ DMA ☒ DTS

Trigger1 Transmit status interrupt (INTMSPI0TX0) ▾

Trigger2 Receive status interrupt (INTMSPI0RX0) ▾

☒ Use alternative trigger

Trigger1 (Alternative) (DTSMSPi8)

Trigger2 (Alternative) (DTSMSPi9)

Figure 6-3. "Use alternative trigger" checked in Smart Configurator for RH850 V1.5.0

DMA/DTS trigger generator setting

☐ DMA trigger signal Trigger1(DMAMSPi4)/Trigger2(DMAMSPi5)

☒ DTS trigger signal Trigger1(DTSMSPi12)/Trigger2(DTSMSPi13)

Trigger1 Transmit status interrupt (INTMSPI0TX6)

Trigger2 Receive status interrupt (INTMSPI0RX6)

Figure 6-4. "Trigger1(DTSMSPi12)/Trigger2(DTSMSPi13)" selected after reloading in Smart Configurator for RH850 V1.6.0

6.2.8 Note on CPU Operating mode of DTS Controller

If CPU operating mode selects “User mode” in Smart Configurator for RH850 V1.5.0, after reloading the project in Smart Configurator for RH850 V1.8.0, CPU operating mode will be changed to “Supervisor mode” which is default setting.

There isn't this cautions when reloading project between Smart Configurator for RH850 V1.5.0 and before, or between Smart Configurator for RH850 V1.8.0 and later.

Register access protection setting	
CPU operating mode	User mode
System protection	0

Figure 6-5. CPU operating mode in Smart Configurator for RH850 V1.5.0

Register access protection setting	
CPU operating modes	Supervisor mode
System protection	0

Figure 6-6. CPU operating mode after reloading in Smart Configurator for RH850 V1.6.0

6.2.9 Note on using Smart Configurator when the OS language is Japanese

For RH850/U2x users, we recommend using Smart Configurator on English OS. If your OS is Japanese, you also can add “-Duser.language=en” to “<install directory>\SmartConfigurator\RH850\eclipse\SmartConfigurator.ini” file, then you can see English GUI in Smart Configurator. For RH850/U2x, Smart Configurator Japanese UI is just for your reference, and we do not recommend that you use it.

6.2.10 Note on changing device when using Error Control Module

When using Error Control Module, we don't recommend to change device between RH850/U2A and RH850/C1M. Because most of error sources of these two devices are different, the error sources cannot migrate.

6.2.11 Note on reloading project for Error Control Module

If user used some error sources of Error Control Module in the project created using Smart Configurator for RH850 V1.7.0 or earlier, when reloading the project using Smart Configurator for RH850 V1.8.0 or later, the error source will be different between the two versions.

Figure 6-7 and Figure 6-8 show the difference.

Figure 6-9 shows the error sources that have such issue in Smart Configurator for RH850 V1.7.0 or earlier.

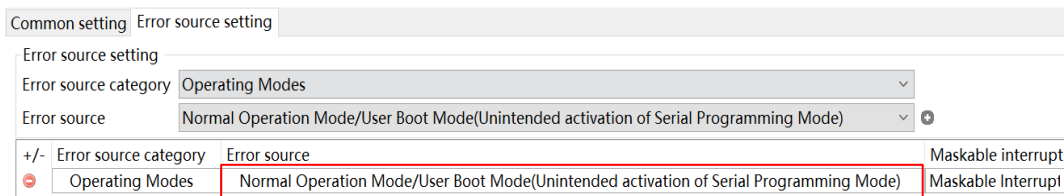


Figure 6-7. Error source added in Smart Configurator for RH850 V1.7.0 or earlier

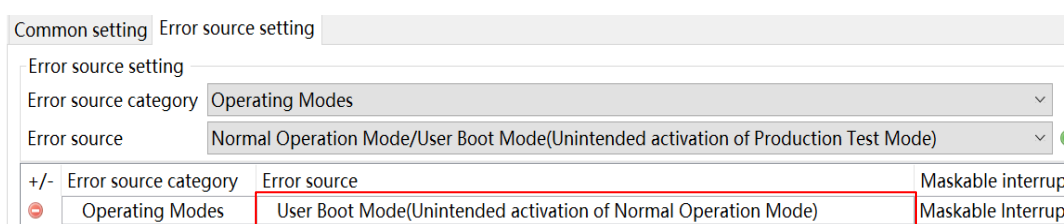


Figure 6-8. Error source reloaded in Smart Configurator for RH850 V1.8.0 or later

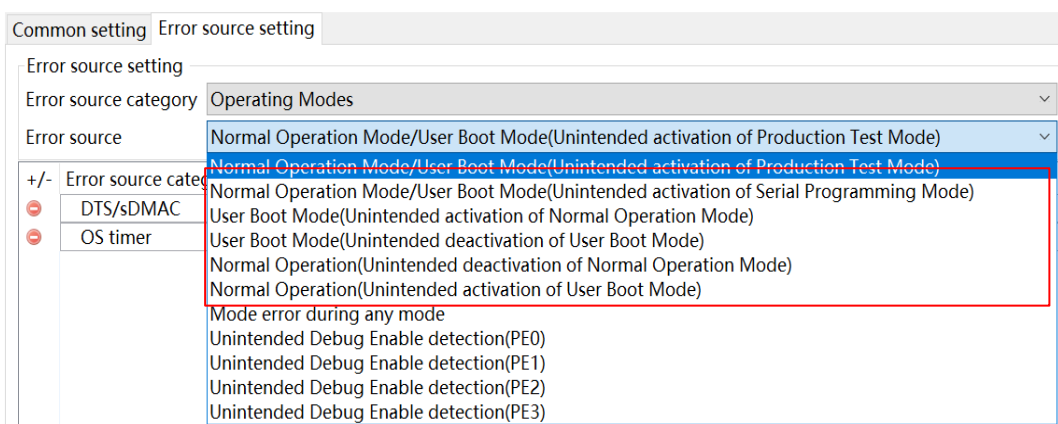


Figure 6-9. Error sources that have such issue in Smart Configurator for RH850 V1.7.0 or earlier

6.2.12 Note on browsing “Release Notes” and “Tool News” URL from the help menu

For Smart Configurator for RH850 V1.7.0 or before version, “Release Notes” and “Tools News” in the help menu cannot access the correct URL. This issue has been fixed from this version.

Please access the URL below directly for Smart Configurator for RH850 V1.7.0 or before version.

Release Notes: [_https://www.renesas.com/rh850-smart-configurator-release-note](https://www.renesas.com/rh850-smart-configurator-release-note)

Tool News: <https://www.renesas.com/rh850-smart-configurator-tn-notes>

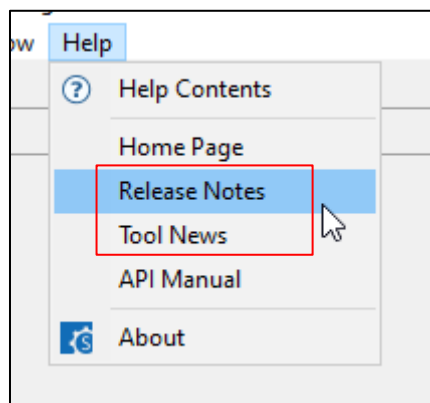


Figure 6-10 Help menu of Smart Configurator

Revision History

Rev.	Section	Description
1.00	-	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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