RH850 Smart Configurator V1.2.0

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.

Contents

1. Introduction

RH850 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

- IBM PC/AT compatibles (Windows® 10, Windows® 8.1)
- 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 GB 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
    - Java Runtime Environment

1.1.2 Development Environments

- Renesas electronics Compiler for RH850 [CC-RH] V2.01.00 or later
- GHS Multi V7.6.1 or later
- IAR Embedded Workbench for RH850 V2.10 or later

2. Support List

2.1 Support Devices List

Below is a list of devices supported by the RH850 Smart Configurator V1.2.0.

Table 2-1 Support Devices

Group (HW Manual number)	PIN	Device name (Device file version)
RH850/F1KM-S1 Group (R01UH0684JJ0100)	48pin	R7F701693, R7F701694, R7F701695
	64pin	R7F701690, R7F701691, R7F701692
	80pin	R7F701687, R7F701688, R7F701689
	100pin	R7F701684, R7F701685, R7F701686
RH850/F1KM-S4 Group (R01UH0684JJ0100)	100pin	R7F701644, R7F701645
	144pin	R7F701646, R7F701647
	176pin	R7F701648, R7F701649
	232pin	R7F701650, R7F701651
RH850/U2A16 Group (R01UH0864EJ0061)	292pin	R7F702300(V1.10)
	516pin	R7F702300(V1.10)
RH850/U2A8 Group (R01UH0864EJ0061) (Planned support)	292pin	R7F702301(Undecided)

2.2 Support Components List

Below is a list of Components supported by the RH850 Smart Configurator V1.2.0.

Table 2-2 Support Components

✓: Support, -: Non-support

No	Components	Mode	F1KM	U2A	Remarks
1	A/D Converter	-	✓	✓	
2	CSI	Master Transmit	✓	-	
		Master Receive	✓	-	
		Master Transmit/Receive	✓	-	
		Slave Transmit	✓	-	
		Slave Receive	✓	-	
		Slave Transmit/Receive	✓	-	
3	Data CRC	-	✓	✓	
4	DMA Controller	-	✓	✓	
5	DTS Controller	-	-	✓	
6	Error Control Module	-	-	✓	
7	GTM	ATOM Signal Output Mode Compare	-	✓	
		ATOM Signal Output Mode Immediate	-	✓	
		ATOM Signal Output Mode PWM	-	✓	
		ATOM Signal Output Mode Serial	-	✓	
		Dead Time Module	-	✓	
		GTM Clock	-	✓	
		TIM Bit Compression Mode	-	✓	
		TIM Gated Periodic Sampling Mode	-	✓	
		TIM Input Event Mode	-	✓	
		TIM Input Prescaler Mode	-	✓	
		TIM Pulse Integration Mode	-	✓	

Table 2-3 Support Components

✓: Support, -: Non-support

No	Components	Mode	F1KM-S	U2A	Remarks
7	GTM	TIM PWM Measurement Mode	-	✓	
		TIM Serial Shift Mode	-	✓	
		Time Base Unit	-	✓	
8	Interrupt Controller	-	✓	✓	Only table reference method
9	Key Return	-	✓	-	
10	MSPI	Master Transmit	-	✓	No support LVDS mode
		Master Receive	-	✓	
		Master Transmit/Receive	-	✓	
		Slave Transmit	-	✓	
		Slave Receive	-	✓	
		Slave Transmit/Receive	-	✓	
11	OS Timer	-	✓	✓	
12	Ports	-	✓	✓	
13	Real-Time Clock	-	✓	✓	
14	RIIC	Master	✓	✓	
		Slave	✓	✓	
15	SCI3 Asynchronous Mode	Transmit	-	✓	
		Receive	-	✓	
		Transmit/Receive	-	✓	
		Multi-processor Transmit	-	✓	
		Multi-processor Receive	-	✓	
		Multi-processor Transmit/Receive	-	✓	
16	SCI3 Clock Synchronous Mode	Transmit	-	✓	
		Receive	-	✓	
		Transmit/Receive	-	✓	

Table 2-4 Support Components

✓: Support, -: Non-support

No	Components	Mode	F1KM-S	U2A	Remarks
17	Stand-by Controller	-	✓	✓	Only Stop and DeepStop mode
18	Timer Array Unit	Clock Divider	✓	✓	
		Delay Count	✓	✓	
		External Event Count	✓	✓	
		Input Interval Timer	✓	✓	
		Input Period Count Detection	✓	✓	
		Input Position Detection	✓	✓	
		Input Pulse Interval Judgment	✓	✓	
		Input Pulse Interval Measurement	✓	✓	
		Input Signal Width Judgement	✓	✓	
		Input Signal Width Measurement	✓	✓	
		Interval Timer	✓	✓	
		One-Pulse Output	✓	✓	
		One-Shot Pulse output	✓	✓	
		Overflow Interrupt Output (Input Period Count Detection)	✓	✓	
		Overflow Interrupt Output (Width Measurement)	✓	✓	
		PWM Output	✓	✓	
		Triangle PWM Output	✓	✓	
		Triangle PWM Output with Dead Time	-	✓	

Table 2-5 Support Components

✓: Support, -: Non-support

No	Components	Mode	F1KM-S	U2A	Remarks
19	UART Interface	Transmit	✓	✓	
		Receive	✓	✓	
		Transmit/Receive	✓	✓	
20	Window Watchdog Timer	-	✓	✓	

2.3 New support

2.3.1 Supports new RH850/U2A group devices

Support new RH850/U2A group devices from RH850 Smart Configurator V1.2.0.

3. Changes

This chapter describes changes to the RH850 Smart Configurator V1.2.0.

3.1 Correction of issues/limitations

Table 3-1 List of Correction of issues/limitations

✓: Applicable, -: Not Applicable

No	Description	F1KM-S	U2A	Remarks
1	Fixed the issue of an external resonator pin could not be assigned in the clock setting.	✓	-	
2	Fixed the issue of TAUJ0 channel1 cannot be selected.	✓	-	
3	Fixed the issue of the code of the slave channel pin setting of triangle PWM output is not generated.	✓	-	
4	Fixed the issue of TAUD input signal using with two channels.	✓	-	
5	Fixed the issue clock setting could not be reset.	✓	-	
6	Fixed the issue CAN3RX pin cannot be assigned.	✓	-	
7	Fixed the issue of chip select signal is used.	✓	-	
8	Fixed the issue of pins used in same groups.	✓	-	
9	Fixed the issue of One-Shot Pulse Output generated code.	✓	-	
10	Fixed the issue of Input Interval Timer generated code.	✓	-	
11	Fixed the issue of Input Pulse Interval Judgment generated code.	✓	-	
12	Fixed the issue of CSI Master generated code.	✓	-	

3.1.1 Fixed the issue of an external resonator pin could not be assigned in the clock setting.

The issue of the X1 and X2 pins cannot be assigned when generating the main clock from the Main Oscillator has been fixed.

The issue of the XT1 and XT2 pins cannot be assigned when generating the sub-clock from Sub Oscillator has been fixed.

3.1.2 Fixed the issue of TAUJ0 channel1 cannot be selected.

The issue of the TAUJ0 channel1 cannot selected when adding the input interval timer has been fixed.

3.1.3 Fixed the issue of the code of the slave channel pin setting of triangle PWM output is not generated.

The issue of the code of the slave channel pin setting of triangle PWM output is not generated has been fixed.

3.1.4 Fixed the issue of TAUD input signal using with two channels.

The issue of warning displayed when the TAUD input signal is used with two channels has been fixed.

3.1.5 Fixed the issue clock setting could not be reset.

The issue of clock setting could not be reset has been fixed.

3.1.6 Fixed the issue CAN3RX pin cannot be assigned.

The issue of CAN3RX cannot be assigned has been fixed.

3.1.7 Fixed the issue of chip select signal is used.

The issue of chip select signal is used in direct master/slave connection for CSIH has been fixed.

3.1.8 Fixed the issue of pins used in same groups.

The issue of not displayed the warning when the different group of pin assigned has been fixed.

3.1.9 Fixed the issue of One-Shot Pulse Output generated code.

The issue of One-Shot Pulse Output generated code has been fixed.

Please re-generate code when used One-Shot Pulse Output (TAUB) in previous version.

3.1.10 Fixed the issue of Input Interval Timer generated code.

The issue of Input Interval Timer generated code has been fixed.

Please re-generate code when used Input Interval Timer (TAUJ) in previous version.

3.1.11 Fixed the issue of Input Pulse Interval Judgment generated code.

The issue of Input Pulse Interval Judgment generated code has been fixed.

Please re-generate code when used Input Pulse Interval Judgment (TAUD) in previous version.

3.1.12 Fixed the issue of CSI Master generated code.

The issue of CSI Master generated code has been fixed.

Please re-generate code when used CSI Master (CSIH) in previous version.

3.2 Specification changes

Table 3-2 List of Specification changes

✓: Applicable, -: Not Applicable

No	Description	F1KM-S	U2A	Remarks
1	Supported the wildcard at filter functions.	✓	✓	

3.2.1 Supported the wildcard at filter functions.

Supported the wildcard ("*" and "?") at filter functions.

4. List of RENESAS TOOL NEWS

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

Issue date	Document No.	Description	Applicable MCUs	Fixed version
2019/03/16	R20TS0407	1. Build error occurs when setting not to generate clocks 2. RAM size display error https://www.renesas.com/search/keyword-search.html#genre=document&q=R20TS0407	F1KM-S	V1.2.0
2016/06/01	R20TS0431	When using PLL0 Clock https://www.renesas.com/search/keyword-search.html#genre=document&q=R20TS0431	F1KM-S	V1.2.0
2019/07/01	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/search/keyword-search.html#genre=document&q=R20TS0441	F1KM-S	V1.2.0
2019/08/01	R20TS0463	1. When using the input pulse interval measurement function 2. When using the Clocked Serial Interface in Master mode https://www.renesas.com/search/keyword-search.html#genre=document&q=R20TS0463	F1KM-S	V1.2.0
2019/10/16	R20TS0500	1. When using data CRC 2. When using one-pulse outputs https://www.renesas.com/search/keyword-search.html#genre=document&q=R20TS0500	F1KM-S	V1.2.0

5. Points for Limitation

This section describes points for limitation regarding the RH850 Smart Configurator V1.2.0.

5.1 List of Limitation

Table 5-1 List of Limitation

✓: Applicable, -: Not Applicable

No	Description	F1KM-S	U2A	Remarks
1	Note on using DTS	–	✓	

5.1.1 Note on using DTS

Missing function prototypes in generated code when using DTS components.

Manually add the following function prototype to the user code editing area located under Global functions in r_cg_dts.h of the generated code.

Additional function prototype

- void R_DTS_Suspend(void);
- void R_DTS_Resume(void);

Source example

```
/***********************************************************************************************************************
Global functions
***********************************************************************************************************************/
/* Start user code for function. Do not edit comment generated here */
void R_DTS_Suspend(void);
void R_DTS_Resume(void);
/* End user code. Do not edit comment generated here */
```

6. Points for Caution

This section describes points for caution regarding the RH850 Smart Configurator V1.2.0.

6.1 List of Caution

Table 6-1 List of Caution

✓: Applicable, -: Not Applicable

No	Description	F1KM-S	U2A	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	✓	-	

6.1.1 About the I/O define header file

Please use Renesas iodefine.h for the header file that defines the register. Because RH850 Smart Configurator V1.2.0 outputs code conforming to the definition in Renesas iodefine.h, a build error occurs when using the register definition file provided by other environments

6.1.2 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.

6.1.3 About the sample projects

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 about sample projects.

https://www.renesas.com/search/keyword-search.html#genre=document&q=r20an0516

6.1.4 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), ”,” (comma) or ”, ” (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.

6.1.5 Note on pins sharing functions.

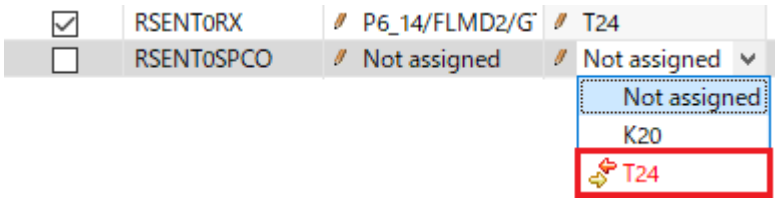
When function shared pin selects a shared pin, shared pin displays an error.

But the shared pin can be selected correctly and work correctly.

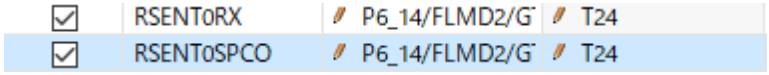
Example) For RH850/U2A RSENT0

Assign RSENT0RX and RSENT0SPCO to the T24 pin

When assigned: T24 pin displays an error



After assignment



6.1.6 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.

File name change

Before change	After change
r_cg_icu.h	r_cg_intc.h

Macro name change

File name	Before change	After change
r_smc_interrupt.h	ICU_xxx_PRIORITY	INTC_xxx_PRIORITY

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	July.20.19	-	Create new
1.20	Jan.16.20	-	Update to Rev.1.2.0

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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