RZ/T1 Encoder I/F Configuration Library

R01AN3569EJ0200

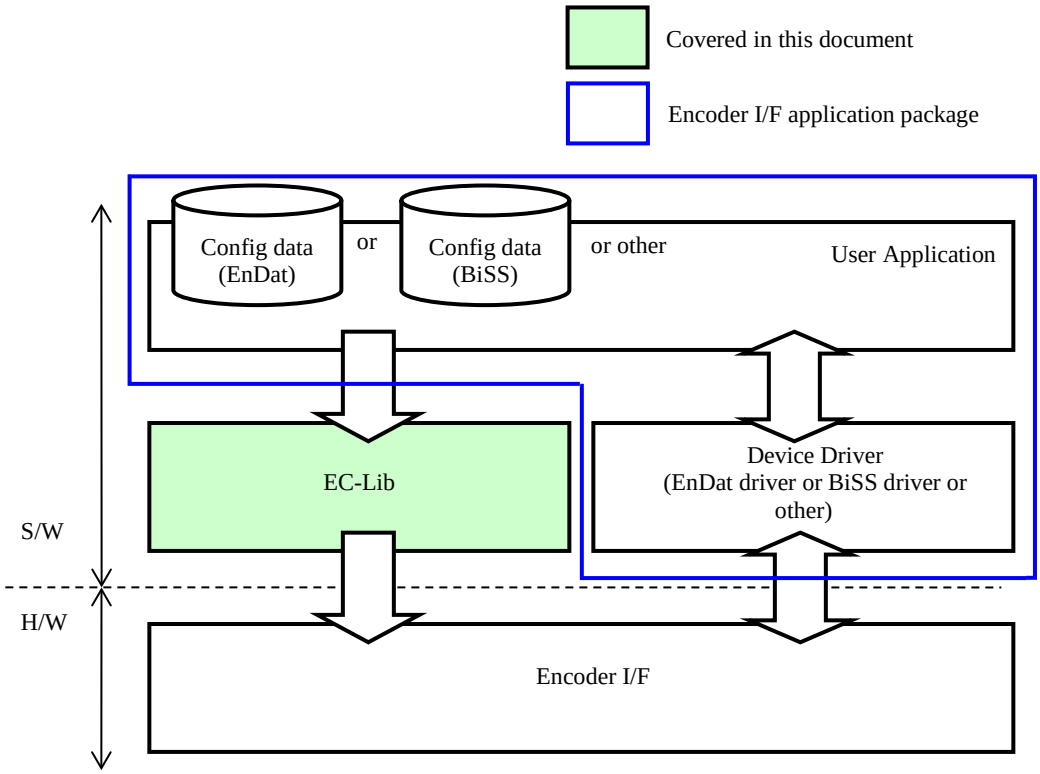
Version2.0

August 24, 2018

Summary

This document explains about RZ/T1 Encoder I/F Configuration Library package.

This package cannot be used alone. Obtain the application of Encoder I/F (EnDat, BiSS, etc.), and use this package by incorporating files of this package in the sample software package that you obtained.



Device that Encoder I/F Configuration Library functionality is checked

RZ/T1 CPU Board (RTK7910018C00000BE)

Version History

Ver.	Date	Content	Note
2.0	Aug. 2018	Updated library. (1) Supported the configuration of multiple data. (2) Supported rewriting the configuration data. Updated document “RZ/T1 Group Encoder I/F Configuration Library User’s Manual” (English/Japanese) to Rev.1.40.	
1.2	Jun. 2016	Updated library for ARM and IAR and KPIT GCC to Ver.1.2. (Improved the stability of the operation.) Updated document “RZ/T1 Group Encoder I/F Configuration Library User’s Manual” (English/Japanese) to Rev.1.21.	
1.1	Sep. 2015	Updated library for ARM to Ver.1.1. (The problem that the state of the IRQ interrupt disable (I bit of CPSR) is changed by calling R_ECL_Configure function has been fixed.) Added library for KPIT GCC (Ver.1.0). Updated document “RZ/T1 Group Encoder I/F Configuration Library User’s Manual” (English/Japanese) to Rev.1.10.	
1.0	Jul. 2015	Newly created.	

Table of contents

1. Contents of Package

Contents of this package are described in this chapter.

1.1 Software

・ Library

No.	Title	Ver.		
		For ARM	For IAR	For KPIT GCC
1	RZ/T1 Encoder I/F Configuration Library	2.0*	2.0*	2.0*

* The library type is 2. Regarding the library type, please refer to “5.6 R_ECL_GetVersion” of “RZ/T1 Group Encoder I/F Configuration Library User’s Manual”.

1.2 Document

No.	Document Name	Ver.	File Name
1	RZ/T1 Encoder I/F Configuration Library RELEASE NOTE	2.00	(English) r01an3569ej0200-rzt1.pdf (this document) (Japanese) r01an3569jj0200-rzt1.pdf
2	RZ/T1 Group Encoder I/F Configuration Library User’s Manual	1.40	(English) r01uh0586ej0140-rzt1-encoderif-cl.pdf (Japanese) r01uh0586jj0140-rzt1-encoderif-cl.pdf

2. File Structures

File structures and contents of this package are described below.

```
Top
 ├──r01an3569ej0200-rzt1.pdf
 ├──r01an3569jj0200-rzt1.pdf
 └──workspace
     ├──Software
     │   ├──armcc
     │   │   └──RZ_T1_ecl.zip          A set of Encoder I/F Configuration Library for ARM.
     │   ├──iccarm
     │   │   └──RZ_T1_ecl.zip          A set of Encoder I/F Configuration Library for IAR.
     │   └──kpitgcc
     │       └──RZ_T1_ecl.zip          A set of Encoder I/F Configuration Library for KPIT GCC.
     └──Documentation
         ├──r01uh0586ej0140-rzt1-encoderif-cl.pdf
         └──r01uh0586jj0140-rzt1-encoderif-cl.pdf
```

Regarding file structures under RZ_T1_ecl.zip, please refer to “3. File Configuration” of “RZ/T1 Group Encoder I/F Configuration Library User’s Manual”.

3. Information about Encoder I/F Configuration Library

This chapter describes information to use a set of Encoder I/F Configuration Library.

3.1 Software Information

3.1.1 Operating System

This software is independent from operating system.

3.1.2 Memory Footprint

- Library

Item	For ARM [bytes]	For IAR [bytes]	For KPIT GCC [bytes]
Code	7974	5368	12556
Data (with initial value)	68	16	0
Data (without initial value)	688	732	760
Constant data	32	32	56
Stack size of function “R_ECL_Configure”	308	208	222
Stack size of function “R_ECL_ConfigureMulti”	356	248	354
Stack size of function “R_ECL_Start”	44	48	138
Stack size of function “R_ECL_Stop”	36	40	132
Stack size of function “R_ECL_GetVersion”	0	0	0

3.2 Hardware Information

3.2.1 Device

RZ/T1

3.2.2 Target Board

(1) Board Name

RZ/T1 CPU Board (RTK7910018C00000BE)

(2) Settings of CPU Board

SW4-1: ON

SW4-2: ON in case of serial flash memory is used, OFF in case of NOR flash memory is used

SW4-3: ON

SW4-4: ON

SW4-5: ON

SW4-6: OFF

JP2: 2-3 Connect

JP7: 1-2 Connect

3.3 Tool Information

3.3.1 Build Environment

Package type	Build environment
For ARM	ARM Development Studio 5 (DS-5) Version 5.28.1 ARM Compiler 5.06 update 6
For IAR	IAR Embedded Workbench for ARM v8.30.1
For KPIT GCC	RENESAS e2 studio 6.3.0.R20180411-1547 KPIT GNUARM-NONE-EABI Toolchain v16.01

4. Restriction

None.

5. Note

5.1 Note when using library for KPIT GCC

There is a case that the linker error occurs due to mismatch of the floating point ABI option (-mfloat-abi) when you use KPIT GCC. You can link by setting "--no-warn-mismatch" linker option because this library doesn't use floating point. In addition, "--no-warn-mismatch" option causes to be forced to link regardless of floating point ABI option. If you use this option, the linker error about mismatch of the floating point ABI option never occurs. Please take care of that.

5.2 Note when using library for IAR

If the following warning or error occurs when building the project in the IAR, please refer to the link below.

Error/Warning number	Workaround
Warning [Lt009]	https://support.renesas.com/hc/ja/articles/360001269907-FAQ-2000500 *1
Error [Pe020]	https://support.renesas.com/hc/ja/articles/360001269887-FAQ-2000501

Note 1. In the RZ/T1 Encoder I/F Configuration Library, wchar_t type is not used.

5.3 Interrupt setting when rewriting configuration data

When rewriting the configuration data with the R_ECL_Configure function or R_ECL_ConfigureMulti function, in order to prevent interrupt request of configuration data before rewriting, disable interrupt before rewriting the configuration data in the "Section written by user" described in Figure 5.1 of "RZ/T1 Group Encoder I/F Configuration Library User's Manual".
When using the sample driver of each Encoder I/F, interrupt is disabled by R_xxxx_Close function (xxxx: different for each Encoder I/F).