

Thank you for using the AP4 for RZ.
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 RZ 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 RZ V1.04.00.

RZ/T1 group	
PIN	Device name
176pin	R7S910001CFP, R7S910101CFP
320pin	R7S910002CBG, R7S910102CBG, R7S910006CBG, R7S910106CBG R7S910007CBG, R7S910107CBG, R7S910011CBG, R7S910111CBG R7S910013CBG, R7S910113CBG, R7S910015CBG, R7S910115CBG R7S910016CBG, R7S910116CBG, R7S910017CBG, R7S910117CBG R7S910018CBG, R7S910118CBG, R7S910025CBG, R7S910125CBG R7S910026CBG, R7S910126CBG, R7S910027CBG, R7S910127CBG R7S910028CBG, R7S910128CBG, R7S910035CBG, R7S910135CBG, R7S910036CBG, R7S910136CBG
Following documents.	
Manual Name	Document Number
RZ/T1 Group User's Manual: Hardware	R01UH0483JJ0100
	R01UH0483EJ0100

Chapter 3. Operating Environment

▪ Host machine

- IBM PC/AT compatibles (Windows® 10, Windows® 8.1, 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
 - Microsoft Visual C++ 2010 SP1 runtime library

▪ Development Environments

Product Name	Version
IAR Embedded Workbench for ARM	V7.70 or later
GNUARM-NONE-EABI	V16.01 or later
ARM Development Suite (DS-5™)	V5.21.1 or later

Chapter 4. Changes

This chapter describes change to the AP4 for RZ V1.04.00.

4.1 List of Changes

No	Description	Version *1
		RZ/T1
		V1.03.00.02
1	Addition of the Supported devices	○

○: Correspondence, ◡: Not correspondence (finish of correction), /: Outside of function

Note 1: Version is described in the generated code.

4.2 Details of Changes

4.2.1 Addition of the Supported devices

Support for the group below has been newly added.

- RZ family: RZ/T1 group
R7S910035CBG, R7S910135CBG, R7S910036CBG, R7S910136CBG

Chapter 5. Points for Cautions

This chapter describes points for caution regarding the AP4 for RZ V1.04.00

5.1 List of Cautions

No	Description	Version *1
		RZ/T1
		V1.03.00.02
1	About online Help	○
3	Addition of Pin View	○
4	Cautions of Multiple Interrupts	○
5	Cautions of Pin settings	○

○: Correspondence, /: Outside of function

Note 1: Version is described in the generated code.

5.2 Details of Cautions

5.2.1 About online Help

AP4 for RZ is not supporting online help.

5.2.2 Addition of Pin View

Pin View shows pin settings set by AP4 and allows user to configure pin settings.

Pin View has two view; Device List View and Device Top View and the two views are linked, so that settings can be made in either of them.

Device List View

Device list View shows the pin settings by the table style. Device list View has two lists; Pin Number and Pin Function.

Pin Number List

Pin Number List shows all assigned pins sorted by the pin number. If pins have multiple functions, Pin Number List allows to user to configure the functions.

Pin Number	Pin Name	Selected Function	Pin Direction	Pin Remarks
A1	VSS	VSS	-	
A2	PC2/ ETH0_TXC/ ETH1_RX...	Not assigned	-	
A3	PJ3/ IRQ11/ ETH0_TXD0/ ...	Not assigned	-	
A4	PJ1/ ETH0_TXD2/ CATLE...	Not assigned	-	
A5	PF7/ IRQ7/ A25/ ETH0_TX...	Not assigned	-	
A6	PB4/ A24/ ETH1_COL/ ET...	Not assigned	-	
A7	PB0/ ETH1_RXDV/ MTCLK...	Not assigned	-	
A8	PC0/ WAIT#/ ETH1_RXD2/...	Not assigned	-	

Pin Number Pin Function

If pins have multiple functions, User can select pin functions by configuring the "Selected Function". For example, when IRQ7 has not been set up in CG and user set A5 as IRQ7, the following warning is shown.

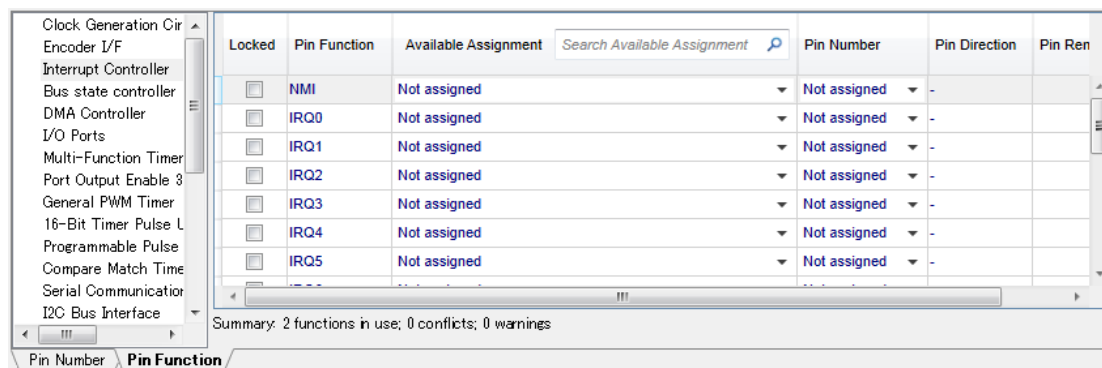
A5	PF7/ IRQ7/ A25/ ETH0_TX...	IRQ7	-	Function is not enabled in peripheral configuration.
----	----------------------------	------	---	--

After that, IRQ7 has been set in Peripheral Functions (Interrupt Controller), this warning is disappeared and IRQ7 is shown in Selected Function.

A5	PF7/ IRQ7/ A25/ ETH0_TX...	IRQ7	In	
----	----------------------------	------	----	--

Pin Function List

Pin Function List shows which pins are used by corresponding peripheral module. If multiple pins are selectable for a specific function, the allocation can be changed through this list.



Pin Function List allows user to change a specific pin which has been set by CG. For example, IRQ7 has been set by CG, an available pin are automatically set.

IRQ7	PF7/ IRQ7/ A25/ ETH0_TXE...	A5	In	
------	-----------------------------	----	----	--

User can change the pin to another available pins by selection “Pin Assignment” or “Pin Number”.

IRQ7	P97/ AN107/ IRQ7/ A25/ AD...	E18	In	
------	------------------------------	-----	----	--

If a pin which has been already set as other function is selected, the warning is shown and the selected pin is not assigned.

IRQ7	Not assigned	Not assigned	In	Conflict detected in peripheral configuration.
------	--------------	--------------	----	--

Save Device List View



Clicking the icon above in Device List View, User can save the current pin settings as csv the format.

Lock Pin Settings



Clicking the icon above in Device List View, User can lock the current pin settings and be free of influence from other peripherals.

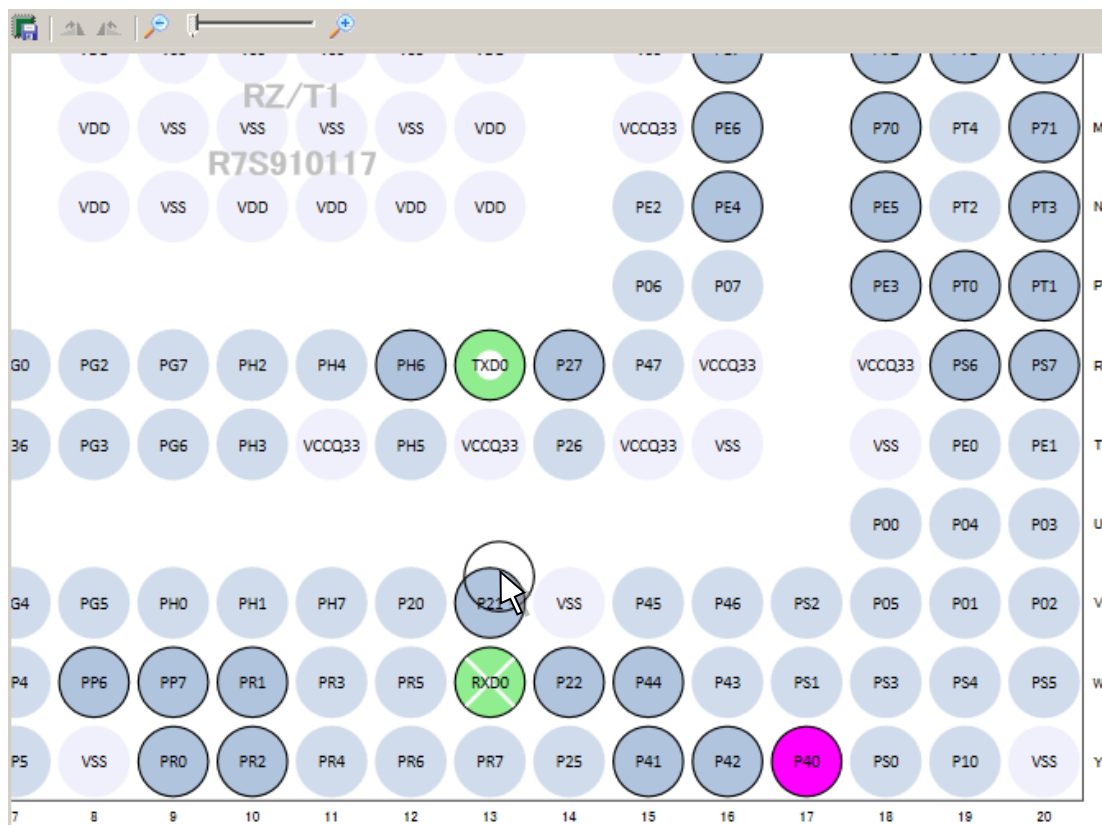
Generate Code



Clicking the icon above in Device List View, code generation can be executed.

Device Top View

Device Top View shows which pins are used by corresponding peripheral module in the package view. If pins have multiple functions, this view allows to user to configure the functions and if multiple pins selectable for a specific function, the allocation can be changed through this view.



Highlight Pins by Peripheral



Device Top View highlights the group of pins that belongs to the active CG peripheral functions. The figure above shows Device Top View when Serial Communications Interface with FIFO is being selected by CG.

Assigned Pin (Input)



Shows assigned pins (Input).

Assigned pin (Output)



Shows assigned pins (Output).

Alternative pin selection



If user holds down the “CTRL” key and use mouse “left click” on the pin in use, the other pins with this same function will change color. For example, R13 is assigned to the function “TXD0”, if user “CTRL + Click” to pin “TXD0”, the pin Y17 (P40) changes color, because it contains the same function “TXD0”. At the same time, while the “CTRL” key is hold down, if user drag and drops the pin to Y17 (P40). Y17 (P40) will be assigned to in use as “TXD0”.

Zoom



Device Top View supports the zoom function by slider controls. After clicking the device top view, user can do this by mouse-wheel.

Drag and Move

Device Top View supports mouse drags actions. Hold down mouse left button on the view and move will drag the view around.

Save Device Top View



Clicking the icon above in Device Top View, User can save the view as PNG format.

Configure Pin View Color

Pin View supports for user to change color, through the property window.

Right click on the Device Top View on project tree, the property window will pop up a right click menu.

5.2.3 Cautions of Multiple Interrupts

AP4 for RZ is not supporting multiple interrupts.

5.2.4 Cautions of Pin settings

The warning icon is displayed if the AP4 is used to set up the following pins in a pin configuration table or pin configuration figure.

- OSCTH
- AVCC0
- AVSS0
- VREFH0
- VREFL0
- AVCC1
- AVSS1
- VREFH1
- VREFL1

[Workaround]

There is currently no way to prevent this problem. You can still use the C source code since the problem does not affect the generated C source code.

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
May. 16, 2015	150516/tn2	I2C Bus Interface (RIICa)	RZ/T1	V1.01.00
Nov. 10, 2015	151101/tn3	Setting to permit or prohibit suspension of transfer in response to the reception of NACK over the I2C bus interface (RIIC)	RZ/T1	V1.02.00

6.2 Details of RENESAS TOOL NEWS

6.2.1 RENESAS TOOL NEWS Document No.150516/tn2

This issue has been corrected in AP4 Tool for RZ V1.01.00.

- I2C Bus Interface (RIICa)
(Applicable products: RZ/T1 group)

When using the I2C bus interface (RIICa) for master reception, the interrupt following sending of the slave address cannot be accepted, since the transmission data empty interrupt (TXI) is in the interrupt-masked state.

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

https://www.renesas.com/doc/toolnews/eng/2015/150516tn2_e.pdf

6.2.2 RENESAS TOOL NEWS Document No.151101/tn3

This issue has been corrected in AP4 Tool for RZ V1.02.00.

- Setting to permit or prohibit suspension of transfer in response to the reception of NACK over the I2C bus interface (RIIC)
(Applicable products: RZ/T1 group)

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`.

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

https://www.renesas.com/doc/toolnews/eng/2015/151101tn3_e.pdf

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