

**Contents**

<b>1.</b>	<b>Packaged Tools</b> .....	<b>2</b>
<b>2.</b>	<b>Tool News</b> .....	<b>2</b>
<b>3.</b>	<b>Target Devices</b> .....	<b>3</b>
<b>4.</b>	<b>Operating Environment</b> .....	<b>3</b>
4.1	Hardware Environment .....	3
4.2	Software Environment .....	3
4.3	Supported Tools .....	3
<b>5.</b>	<b>Installation and Uninstallation</b> .....	<b>3</b>
<b>6.</b>	<b>Timer Template File</b> .....	<b>4</b>
<b>7.</b>	<b>How to Build Kernel Source Code</b> .....	<b>4</b>
<b>8.</b>	<b>Stack Consumption</b> .....	<b>5</b>
8.1	Stack Consumption of System Clock Interrupt Handler (clocksz1, clocksz2, clocksz3) .....	5
8.2	Stack Consumption of Kernel (svcsz) .....	5
8.3	When the Kernel Library is Built .....	9
<b>9.</b>	<b>Changes from Previous Version</b> .....	<b>9</b>
9.1	Cancel the Restriction .....	9
<b>10.</b>	<b>Cautions</b> .....	<b>9</b>
10.1	Generating RTOS Project by High-performance Embedded Workshop .....	9
<b>11.</b>	<b>Restrictions</b> .....	<b>9</b>
<b>12.</b>	<b>Changes in User's Manual</b> .....	<b>9</b>

# 1. Packaged Tools

Agreement type and contents are different according to the product.

Product Name	Agreement Type	Contents
R0R5RX00PRW011	Evaluation License, Limited 1 host	A
R0R5RX00PRW01A	Evaluation License, Unlimited hosts	A
R0R5RX00PRW01K	Mass-production License, 3000 copies	A
R0R5RX00PRW01U	Mass-production License, Unlimited copies	A
R0R5RX00PRW01Z	Mass-production License, Unlimited copies, With source code	B

The following tools are provided.

Contents		Name
B	A	Kernel object
		Configurator "cfg600px"
		Table generation Utility "mkritblpx"
		Kernel source code

# 2. Tool News

Tool News provides information on our products so that customers can use the products more efficiently.

The Tool News pages are available on our Web site.

URL : <http://tool-support.renesas.com/eng/toolnews/index.htm>

Get the latest information about new products, upgraded versions and precautions from Tool News, and take advantage of it in your development projects. Since the release notes do not include information issued after the release of the product, be sure to check the latest issue of Tool News.

### 3. Target Devices

The following devices are supported by the product.

- RX600 series MCU with MPU (Memory Protection Unit)

### 4. Operating Environment

Below is described the operating environment for using the product.

#### 4.1 Hardware Environment

- Memory capacity: 256 MB or more recommended. Minimum requirement is 128 MB or more
- Display: Resolution at least 800 x 600

#### 4.2 Software Environment

The following software environments are supported.

- Windows XP (32bit)
- Windows Vista (32bit, 64bit)
- Windows 7 (32bit, 64bit)

Remark: For any of these, we recommend having the latest service pack installed.

#### 4.3 Supported Tools

The following tools are supported.

Tool Name	Version
C/C++ Compiler Package for RX Family	V.1.01 Release 00 or later

Note, the RX family C/C++ Compiler Package V.1.02 Release 00 or later is required to generate RI600/PX project by using High-performance Embedded Workshop. For details, refer to “10.1 Generating RTOS Project by High-performance Embedded Workshop”.

### 5. Installation and Uninstallation

Windows administrator privileges are required to install and uninstall the software.

To install the software, start “setup.exe” in the root directory of the CD, and then follow the instructions displayed on the screen. When installation, close all applications.

To uninstall the software, select [RI600/PX V.1.00 Release 01] from [Add/Remove Program] of the Control-Panel.

## 6. Timer Template File

The relation between template file provided by RI600/PX and corresponded MCUs is shown as follows.

Template File	Corresponded MCUs
rx62n.tpl	RX600 series RX62N group RX600 series RX621 group
rx630.tpl	RX600 series RX630 group RX600 series RX631 group RX600 series RX631 group RX600 series RX63T group

## 7. How to Build Kernel Source Code<sup>1</sup>

The kernel source code is stored in "< installation directory >\src600". It moves to the source code installation directory to build the kernel, and "nmake.exe"<sup>2</sup> is executed. The environment variable settings are needed by compiler when building the kernel.

Example:

```
C:\RI600PX\v100r01\src600> nmake(RET)
```

After the building the kernel, the kernel library is generated to the following directories.

Kernel Library Name	Contents
product\big\debug\ri600big.lib	Big endian library with debugging information
product\big\release\ri600big.lib	Big endian library without debugging information
product\little\debug\ri600lit.lib	Little endian library with debugging information
product\little\release\ri600lit.lib	Little endian library without debugging information

Please copy "src600" directory to the writable directory if you don't have the write-access permission to the product installation directory. After the build, copy the generated library to the "lib600" directory under the product installation directory by the user who has write-access permission to the product installation directory.

<sup>1</sup> The source code is only attached to R0R5RX00PRW01Z.

<sup>2</sup> "nmake.exe" is a tool to build the project provided by Microsoft Corporation in United States. "nmake.exe" is included in Microsoft Visual Studio 2008 etc.

## 8. Stack Consumption

### 8.1 Stack Consumption of System Clock Interrupt Handler (clocksz1, clocksz2, clocksz3)

The value of *clocksz1*, *clocksz2*, and *clocksz3* described in the RI600/PX User’s Manual paragraph 11.4 are as follows.

- *clocksz1* = 104
- *clocksz2* = 104
- *clocksz3* = 160

### 8.2 Stack Consumption of Kernel (svcsz)

The kernel uses the system stack.

Please apply the maximum value of consumption of service calls used with the system and the following expression to *svcsz* described in the RI600/PX User’s Manual paragraph 11.4.

- Size consumed by function tree that makes the access exception handler (`_RI_sys_access_exception()`) + 16
- Size consumed by function tree that makes the timer initialization call-back function (`_RI_init_cmt_knl()`) + 8

	Service call	Consumption	Note
1	Maximum consumption in all service call.	104	.
Task management function			
2	cre_tsk	44	
3	acre_tsk	44	
4	del_tsk	28	
5	act_tsk	32	
6	iact_tsk	24	
7	can_act	24	
8	ican_act	24	
9	sta_tsk	32	
10	ista_tsk	28	
11	ext_tsk	36	The ext_tsk is called at the return from the task beginning function.
12	ter_tsk	104	
13	chg_pri	56	
14	ichg_pri	60	
15	get_pri	36	
16	iget_pri	36	
17	ref_tsk	44	
18	iref_tsk	44	
19	ref_tst	36	
20	iref_tst	36	
Task dependent synchronization function			
21	slp_tsk	32	
22	tslp_tsk	40	
23	wup_tsk	52	
24	iwup_tsk	56	
25	can_wup	24	
26	ican_wup	24	
27	rel_wai	100	
28	irel_wai	104	
29	sus_tsk	32	
30	isus_tsk	28	
31	rsm_tsk	32	

	Service call	Consumption	Note
32	irmsm_tsk	28	
33	frsm_tsk	32	
34	ifrsn_tsk	28	
35	dly_tsk	40	
Task exception handling function			
36	def_tex	40	
37	ras_tex	28	
38	iras_tex	24	
39	dis_tex	24	
40	ena_tex	28	
41	sns_tex	24	
42	ref_tex	32	
43	iref_tex	32	
Semaphore			
44	cre_sem	44	
45	acre_sem	48	
46	del_sem	68	
47	sig_sem	52	
48	isig_sem	56	
49	wai_sem	48	
50	pol_sem	24	
51	ipol_sem	24	
52	twai_sem	52	
53	ref_sem	36	
54	iref_sem	36	
Eventflag			
55	cre_flg	44	
56	acre_flg	48	
57	del_flg	68	
58	set_flg	68	
59	iset_flg	72	
60	clr_flg	24	
61	iclr_flg	24	
62	wai_flg	52	
63	pol_flg	36	
64	ipol_flg	36	
65	twai_flg	56	
66	ref_flg	36	
67	iref_flg	36	
Data queue			
68	cre_dtq	44	
69	acre_dtq	48	
70	del_dtq	68	
71	snd_dtq	52	
72	psnd_dtq	52	
73	ipsnd_dtq	56	
74	tsnd_dtq	56	
75	fsnd_dtq	52	
76	ifsnd_dtq	60	
77	rcv_dtq	52	
78	prcv_dtq	52	
79	iprcv_dtq	56	
80	trcv_dtq	52	
81	ref_dtq	40	
82	iref_dtq	40	
Mailbox			
83	cre_mbx	44	

	Service call	Consumption	Note
84	acre_mbx	48	
85	del_mbx	68	
86	snd_mbx	52	
87	isnd_mbx	60	
88	rcv_mbx	48	
89	prcv_mbx	36	
90	iprcv_mbx	36	
91	trcv_mbx	52	
92	ref_mbx	36	
93	iref_mbx	36	
Mutex			
94	cre_mtx	44	
95	acre_mtx	48	
96	del_mtx	72	
97	loc_mtx	48	
98	ploc_mtx	32	
99	tlloc_mtx	52	
100	unl_mtx	64	
101	ref_mtx	36	
Message buffer			
102	cre_mbf	44	
103	acre_mbf	48	
104	del_mbf	68	
105	snd_mbf	56	
106	psnd_mbf	56	
107	ipsnd_mbf	64	
108	tsnd_mbf	56	
109	rcv_mbf	76	
110	prcv_mbf	76	
111	trcv_mbf	76	
112	ref_mbf	36	
113	iref_mbf	36	
Fixed-sized memory pool			
114	cre_mpf	44	
115	acre_mpf	48	
116	del_mpf	68	
117	get_mpf	48	
118	pget_mpf	36	
119	ipget_mpf	36	
120	tget_mpf	52	
121	rel_mpf	52	
122	irel_mpf	48	
123	ref_mpf	36	
124	iref_mpf	36	
Variable-sized memory pool			
125	cre_mpl	80	
126	acre_mpl	80	
127	del_mpl	68	
128	get_mpl	92	
129	pget_mpl	96	
130	ipget_mpl	96	
131	tget_mpl	92	
132	rel_mpl	96	
133	ref_mpl	36	
134	iref_mpl	36	
Time management function			
135	set_tim	36	

	Service call	Consumption	Note
136	iset_tim	36	
137	get_tim	36	
138	iget_tim	36	
Cyclic handler			
139	cre_cyc	40	
140	acre_cyc	44	
141	del_cyc	28	
142	sta_cyc	24	
143	ista_cyc	24	
144	stp_cyc	24	
145	istp_cyc	24	
146	ref_cyc	36	
147	iref_cyc	36	
Alarm handler			
148	cre_alm	40	
149	acre_alm	44	
150	del_alm	28	
151	sta_alm	28	
152	ista_alm	28	
153	stp_alm	24	
154	istp_alm	24	
155	ref_alm	36	
156	iref_alm	36	
System state management function			
157	rot_rdq	28	
158	irotd_rdq	24	
159	get_tid	36	
160	iget_tid	36	
161	loc_cpu	16	
162	iloc_cpu	16	
163	unl_cpu	28	
164	iunl_cpu	24	
165	dis_dsp	16	
166	ena_dsp	28	
167	sns_ctx	24	
168	sns_loc	24	
169	sns_dsp	24	
170	sns_dpn	24	
171	vsta_knl	84	The system stack is used after initializing ISP.
172	ivsta_knl	84	
173	vsys_dwn	24	
174	ivsys_dwn	24	
Interrupt management function			
175	chg_ims	36	
176	ichg_ims	24	
177	get_ims	36	
178	iget_ims	36	
179	ret_int	28	
System configuration management function			
180	ref_ver	36	
181	iref_ver	36	
Object reset function			
182	vrst_dtq	60	
183	vrst_mbx	28	
184	vrst_mbf	32	
185	vrst_mpf	32	
186	vrst_mpl	32	
Memory object management function			

	Service call	Consumption	Note
187	ata_mem	64	
188	det_mem	60	
189	sac_mem	76	
190	vprb_mem	40	
191	ref_mem	68	

### 8.3 When the Kernel Library is Built

Please note that the stack consumption might change when a version and/or an optional setting of the compiler are changed and the kernel library is built.

## 9. Changes from Previous Version

This chapter explains changes from the previous version (V.1.00 Release 00).

### 9.1 Cancel the Restriction

The following restrictions have been canceled.

(1) Problem with giving a value to the address of the reset vector

Tool News URL : <http://tool-support.renesas.com/eng/toolnews/121216/tn4.htm>

(2) Do not specify “NOACC” for “interrupt\_vector[],pragma\_switch” and “interrupt\_fvector[],pragma\_switch” in the cfg file.

## 10. Cautions

This section describes cautions for RI600/PX V.1.00 Release 01.

### 10.1 Generating RTOS Project by High-performance Embedded Workshop

The RX family C/C++ Compiler Package V.1.02 Release 00 or later is required to generate RI600/PX project by using High-performance Embedded Workshop. The build-setting of the project generated with the version before this is improper.

## 11. Restrictions

There are no restrictions for this product.

## 12. Changes in User's Manual

There are no changes in User's Manual for this product.

All trademarks and registered trademarks are the property of their respective owners.

## Notice

1. Descriptions of circuits, software and other related information in this document are provided only to illustrate the operation of semiconductor products and application examples. You are fully responsible for the incorporation of these circuits, software, and information in the design of your equipment. Renesas Electronics assumes no responsibility for any losses incurred by you or third parties arising from the use of these circuits, software, or information.
  2. Renesas Electronics has used reasonable care in preparing the information included in this document, but Renesas Electronics does not warrant that such information is error free. Renesas Electronics assumes no liability whatsoever for any damages incurred by you resulting from errors in or omissions from the information included herein.
  3. Renesas Electronics does not assume any liability for infringement of patents, copyrights, or other intellectual property rights of third parties by or arising from the use of Renesas Electronics products or technical information described in this document. No license, express, implied or otherwise, is granted hereby under any patents, copyrights or other intellectual property rights of Renesas Electronics or others.
  4. You should not alter, modify, copy, or otherwise misappropriate any Renesas Electronics product, whether in whole or in part. Renesas Electronics assumes no responsibility for any losses incurred by you or third parties arising from such alteration, modification, copy or otherwise misappropriation of Renesas Electronics product.
  5. Renesas Electronics products are classified according to the following two quality grades: "Standard" and "High Quality". The recommended applications for each Renesas Electronics product depends on the product's quality grade, as indicated below.  
"Standard": Computers; office equipment; communications equipment; test and measurement equipment; audio and visual equipment; home electronic appliances; machine tools; personal electronic equipment; and industrial robots etc.  
"High Quality": Transportation equipment (automobiles, trains, ships, etc.); traffic control systems; anti-disaster systems; anti-crime systems; and safety equipment etc.  
Renesas Electronics products are neither intended nor authorized for use in products or systems that may pose a direct threat to human life or bodily injury (artificial life support devices or systems, surgical implantations etc.), or may cause serious property damages (nuclear reactor control systems, military equipment etc.). You must check the quality grade of each Renesas Electronics product before using it in a particular application. You may not use any Renesas Electronics product for any application for which it is not intended. Renesas Electronics shall not be in any way liable for any damages or losses incurred by you or third parties arising from the use of any Renesas Electronics product for which the product is not intended by Renesas Electronics.
  6. You should use the Renesas Electronics products described in this document within the range specified by Renesas Electronics, especially with respect to the maximum rating, operating supply voltage range, movement power voltage range, heat radiation characteristics, installation and other product characteristics. Renesas Electronics shall have no liability for malfunctions or damages arising out of the use of Renesas Electronics products beyond such specified ranges.
  7. Although Renesas Electronics endeavors to improve the quality and reliability of its products, semiconductor products have specific characteristics such as the occurrence of failure at a certain rate and malfunctions under certain use conditions. Further, Renesas Electronics products are not subject to radiation resistance design. Please be sure to implement safety measures to guard them against the possibility of physical injury, and injury or damage caused by fire in the event of the failure of a Renesas Electronics product, such as safety design for hardware and software including but not limited to redundancy, fire control and malfunction prevention, appropriate treatment for aging degradation or any other appropriate measures. Because the evaluation of microcomputer software alone is very difficult, please evaluate the safety of the final products or systems manufactured by you.
  8. Please contact a Renesas Electronics sales office for details as to environmental matters such as the environmental compatibility of each Renesas Electronics product. Please use Renesas Electronics products in compliance with all applicable laws and regulations that regulate the inclusion or use of controlled substances, including without limitation, the EU RoHS Directive. Renesas Electronics assumes no liability for damages or losses occurring as a result of your noncompliance with applicable laws and regulations.
  9. Renesas Electronics products and technology may not be used for or incorporated into any products or systems whose manufacture, use, or sale is prohibited under any applicable domestic or foreign laws or regulations. You should not use Renesas Electronics products or technology described in this document for any purpose relating to military applications or use by the military, including but not limited to the development of weapons of mass destruction. When exporting the Renesas Electronics products or technology described in this document, you should comply with the applicable export control laws and regulations and follow the procedures required by such laws and regulations.
  10. It is the responsibility of the buyer or distributor of Renesas Electronics products, who distributes, disposes of, or otherwise places the product with a third party, to notify such third party in advance of the contents and conditions set forth in this document, Renesas Electronics assumes no responsibility for any losses incurred by you or third parties as a result of unauthorized use of Renesas Electronics products.
  11. This document may not be reproduced or duplicated in any form, in whole or in part, without prior written consent of Renesas Electronics.
  12. Please contact a Renesas Electronics sales office if you have any questions regarding the information contained in this document or Renesas Electronics products, or if you have any other inquiries.
- (Note 1) "Renesas Electronics" as used in this document means Renesas Electronics Corporation and also includes its majority-owned subsidiaries.  
(Note 2) "Renesas Electronics product(s)" means any product developed or manufactured by or for Renesas Electronics.



### SALES OFFICES

Renesas Electronics Corporation

<http://www.renesas.com>

Refer to "<http://www.renesas.com/>" for the latest and detailed information.

**Renesas Electronics America Inc.**  
2880 Scott Boulevard Santa Clara, CA 95050-2554, U.S.A.  
Tel: +1-408-588-6000, Fax: +1-408-588-6130

**Renesas Electronics Canada Limited**  
1101 Nicholson Road, Newmarket, Ontario L3Y 9C3, Canada  
Tel: +1-905-898-5441, Fax: +1-905-898-3220

**Renesas Electronics Europe Limited**  
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.  
Tel: +44-1628-651-700, Fax: +44-1628-651-804

**Renesas Electronics Europe GmbH**  
Arcadiastrasse 10, 40472 Düsseldorf, Germany  
Tel: +49-211-65030, Fax: +49-211-6503-1327

**Renesas Electronics (China) Co., Ltd.**  
7th Floor, Quantum Plaza, No.27 ZhichunLu Haidian District, Beijing 100083, P.R.China  
Tel: +86-10-8235-1155, Fax: +86-10-8235-7679

**Renesas Electronics (Shanghai) Co., Ltd.**  
Unit 204, 205, AZIA Center, No.1233 Lujiazui Ring Rd., Pudong District, Shanghai 200120, China  
Tel: +86-21-5877-1818, Fax: +86-21-6887-7858 / -7898

**Renesas Electronics Hong Kong Limited**  
Unit 1601-1613, 16/F., Tower 2, Grand Century Place, 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong  
Tel: +852-2886-9318, Fax: +852 2886-9022/9044

**Renesas Electronics Taiwan Co., Ltd.**  
13F, No. 363, Fu Shing North Road, Taipei, Taiwan  
Tel: +886-2-8175-9600, Fax: +886 2-8175-9670

**Renesas Electronics Singapore Pte. Ltd.**  
80 Bendemeer Road, Unit #06-02, Hyflux Innovation Centre Singapore 339949  
Tel: +65-6213-0200, Fax: +65-6213-0300

**Renesas Electronics Malaysia Sdn.Bhd.**  
Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No. 18, Jln Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia  
Tel: +60-3-7955-3390, Fax: +60-3-7955-9510

**Renesas Electronics Korea Co., Ltd.**  
11F., Samik Laved' or Bldg., 720-2 Yeoksam-Dong, Kangnam-Ku, Seoul 135-080, Korea  
Tel: +82-2-558-3737, Fax: +82-2-558-5141