User's Manual

RI600PX

Real-Time Operating System

User's Manual: Debug

Target Device
RX Family

Renesas Electronics
www.renesas.com

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How to Use This Manual

Readers

This manual is intended for users who design and develop application systems using RX family products.

Purpose

This manual is intended for users to understand the functions of real-time OS "RI600PX" manufactured by Renesas Electronics, described the organization listed below.

Organization

This manual can be broadly divided into the following units.

How to Read This Manual

It is assumed that the readers of this manual have general knowledge in the fields of electrical engineering, logic circuits, microcontrollers, C language, and assemblers.

To understand the hardware functions of the RX family.
-> Refer to the User's Manual of each product.

Conventions

Data significance:	Higher digits on the left and lower digits on the right
Note:	Footnote for item marked with Note in the text
Caution:	Information requiring particular attention
Remark:	Supplementary information
Numeric representation:	Decimal ... XXXX
	Hexadecimal ... 0xXXXX

Prefixes indicating power of 2 (address space and memory capacity):

K (kilo) $2^{10} = 1024$
M (mega) $2^{20} = 1024^2$

Related Documents

The related documents indicated in this publication may include preliminary versions. However, preliminary versions are not marked as such.

Document Name		Document No.
RI Series	Start	R20UT0751E
	Message	R20UT0756E
RI600PX	Coding	R20UT0964E
	Debug	This manual

Caution The related documents listed above are subject to change without notice. Be sure to use the latest edition of each document when designing.

TABLE OF CONTENTS

CHAPTER 1 GENERAL

The CubeSuite+ is an integrated development environment used to carry out tasks such as design, coding, build and debug for developing application systems for microcontrollers manufactured by Renesas Electronics.

This manual describes the resource information tool. This tool is useful for debugging programs using the "RI600PX" real-time OS functionality within this integrated program-development process.

1.1 Overview

When debugging programs using the RI600PX functionality, it is possible to use the resource information tool to confirm the RI600PX resource information (e.g. system information and memory area information) that changes dynamically as the program executes.

1.2 Features

Below are the features of the resource information tool.

- Confirm RI600PX resource information
  When the program running in the debugging tool is stopped at an arbitrary location, the current status of the RI600PX resource information appears in the Realtime OS Resource Information panel.

CHAPTER 2 FUNCTIONS

This chapter describes the key functions provided by the resource information tool along with operation procedures.

2.1 Overview

The resource information tool can be used to confirm the RI600PX resource information (e.g. system information and memory area information) that changes dynamically as the program executes.

The operating procedures for the resource information tool are described below.

(1) Start CubeSuite+

Launch the CubeSuite+ from the [start] menu of Windows.

Remark See "CubeSuite+ Integrated Development Environment User's Manual: Start" for details on "Start CubeSuite+".

(2) Open project

Open the project to debug.

Remark See "CubeSuite+ Integrated Development Environment User's Manual: Start" for details on "Open project".

(3) Select debug tool

Select the type of debugging tool with which to debug the program (E1, E20 or Simulator).

Remark See "CubeSuite+ Integrated Development Environment User's Manual: RX Debug" for details on "Select debug tool".

(4) Download programs

Download the program to debug.

Remark See "CubeSuite+ Integrated Development Environment User's Manual: RX Debug" for details on "Download programs".

(5) Open Realtime OS Resource Information Panel

Open the Realtime OS Resource Information panel.

Remarks 1. When a program using the RI600PX functionality is downloaded, this panel opens automatically.

2. The value will be indeterminate for the RI600PX resource information shown when the RI600PX system initialization is incomplete, because it will not be managed by the RI600PX.

(6) Execute/stop programs

Run the program to the location for which you wish to display the RI600PX resource information.

Remark See "CubeSuite+ Integrated Development Environment User's Manual: RX Debug" for details on "Execute/stop programs".

(7) Confirm RI600PX Resource Information

On the Realtime OS Resource Information panel tabs (e.g. [System] tab and [Memory Area] tab), check the current status of the RI600PX resource information.

2.2 Open Realtime OS Resource Information Panel

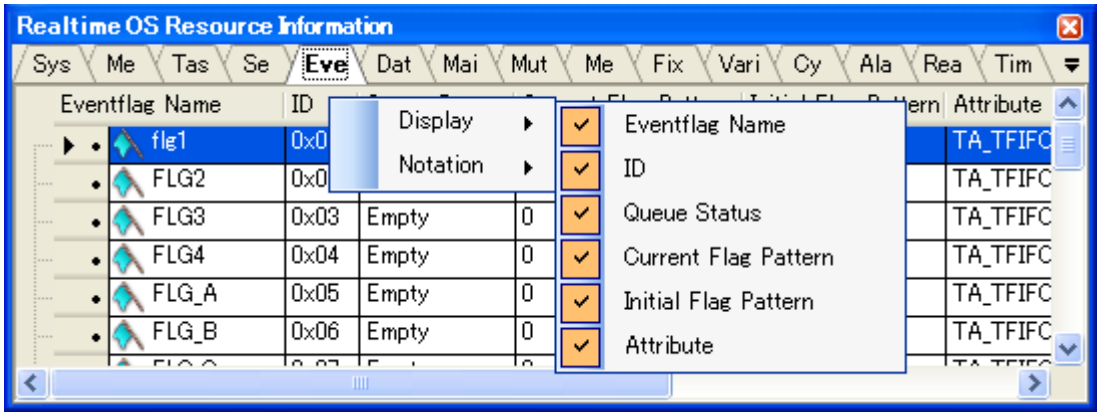
The Realtime OS Resource Information panel is used to confirm the RI600PX resource information (e.g. system information and memory area information). This panel opens automatically when a program using the RI600PX functionality is downloaded.

2.2.1 Select item

The resource information tool enables you to select the items to display in the Realtime OS Resource Information panel.

To select which items are displayed, right click on the header (header column or row) in the Realtime OS Resource Information panel, and from the context menu that appears, select "Display".

Figure 2-1. Select Item



Remark Select items to display by selecting their checkboxes.

Table 2-1. Select Item

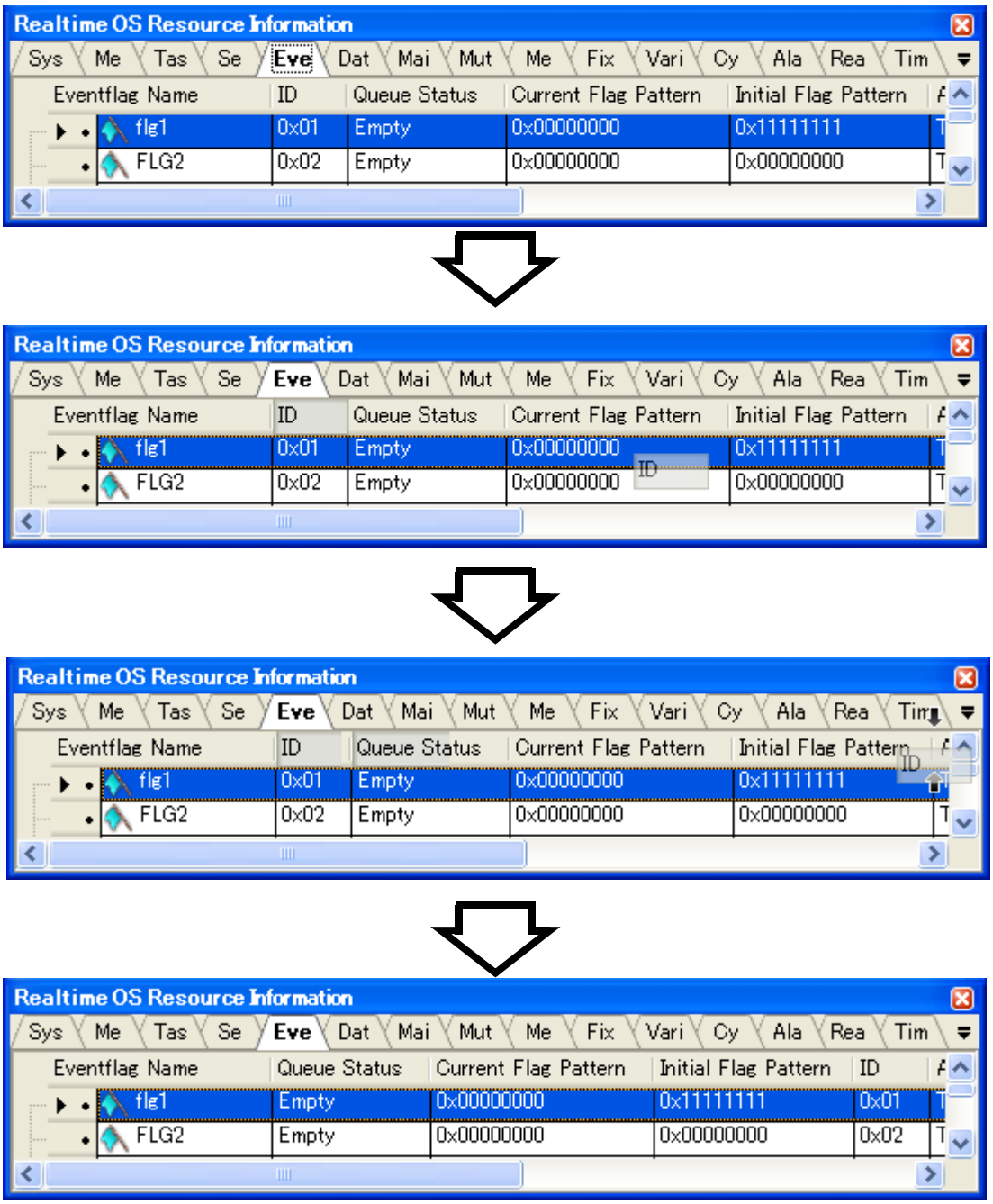
Checked	The item in question will be displayed.
Not checked	The item in question will not be displayed.

2.2.2 Change display order

The resource information tool enables you to change the order of items displayed in the Realtime OS Resource Information panel.

To change the display order, drag the columns in the Realtime OS Resource Information panel, and drop them to the desired position.

Figure 2-2. Change Display Order (Move “ID” Column)



2.3 Confirm RI600PX Resource Information

Check the RI600PX resource information when program execution is stopped via the various tabs of the Realtime OS Resource Information panel (e.g. [System] tab and [Memory Area] tab).

The Realtime OS Resource Information panel is made up of the following tabs.

- [System] tab
- [Memory Area] tab
- [Task] tab
- [Semaphore] tab
- [Eventflag] tab
- [Data Queue] tab
- [Mailbox] tab
- [Mutex] tab
- [Message Buffer] tab
- [Fixed-Sized Memory Pool] tab
- [Variable-Sized Memory Pool] tab
- [Cyclic Handler] tab
- [Alarm Handler] tab
- [Ready Queue] tab
- [Timer Queue] tab

Remark Switch tabs in the tab selection area of the Realtime OS Resource Information panel.

APPENDIX A WINDOW REFERENCE

This appendix describes the panels of the resource information tool.

A.1 Description

The panels of the resource information tool are listed below.

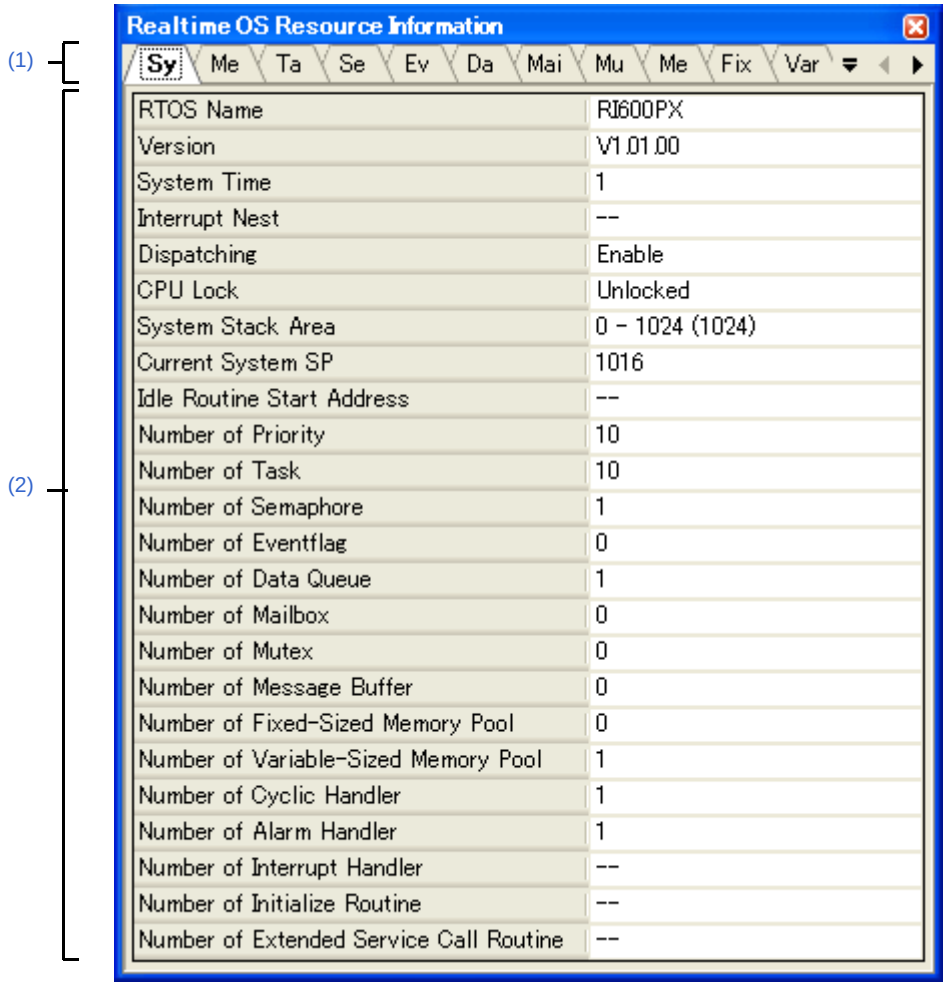
Table A-1. Panel List

Panel Name	Description
Realtime OS Resource Information panel	This panel displays the RI600PX resource information (e.g. system information and memory area information) of the RI600PX.

Realtime OS Resource Information panel

This panel displays the RI600PX resource information (e.g. system information and memory area information) of the RI600PX.

Figure A-1. Realtime OS Resource Information Panel



The following items are explained here.

- [How to open]
- [Description of each area]

[How to open]

- From the [Debug] menu, select [Download].
- From the [View] menu, select [Realtime OS] >> [Resource Information].

[Description of each area]

(1) Tab selection area

Select a tab to switch the content displayed in the Information display area.

This panel has the following tabs:

- [System] tab
- [Memory Area] tab
- [Task] tab
- [Semaphore] tab
- [Eventflag] tab
- [Data Queue] tab
- [Mailbox] tab
- [Mutex] tab
- [Message Buffer] tab
- [Fixed-Sized Memory Pool] tab
- [Variable-Sized Memory Pool] tab
- [Cyclic Handler] tab
- [Alarm Handler] tab
- [Ready Queue] tab
- [Timer Queue] tab

(2) Information display area

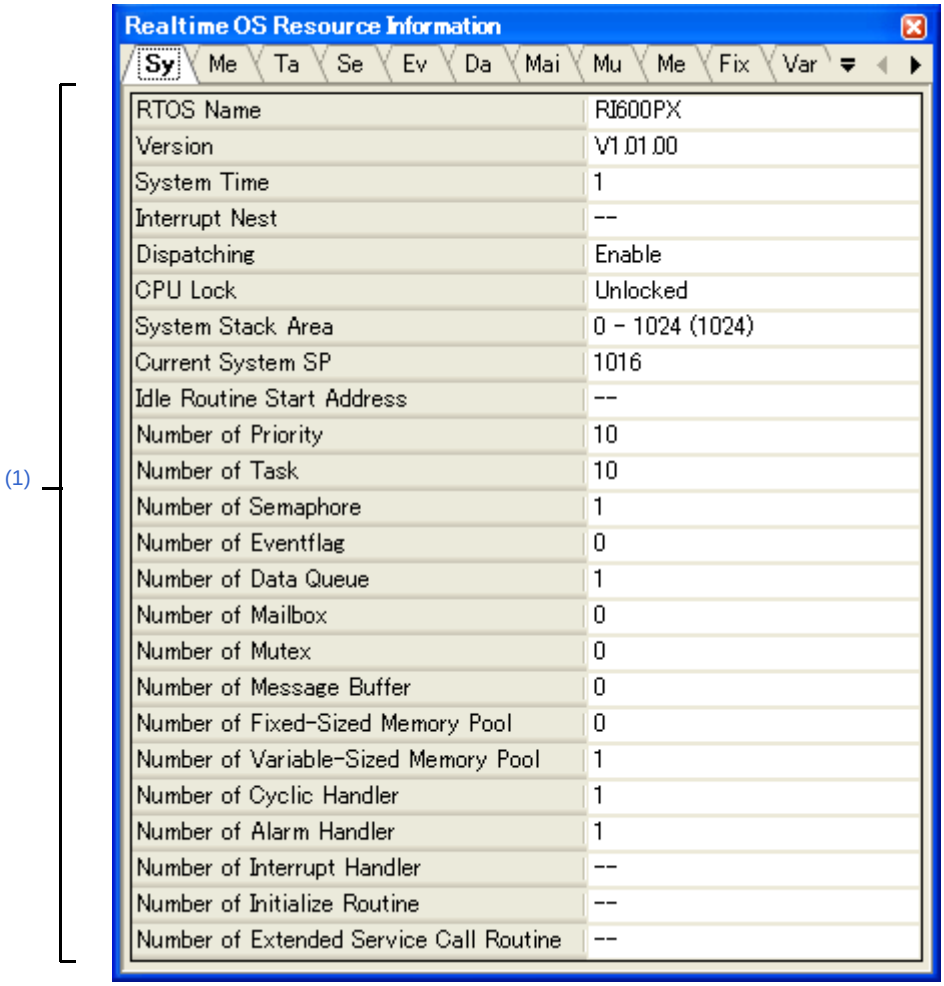
This area displays the RI600PX resource information (e.g. system information and memory area information) of the RI600PX.

Remark A non-existent state of the resource is supported in RI600PX. Therefore, "--" is displayed by resource information when a resource is non-existent.

[System] tab

This tab displays the system information (e.g. RTOS Name and Version) of the RI600PX.

Figure A-2. [System] Tab



RTOS Name	RI600PX
Version	V1.01.00
System Time	1
Interrupt Nest	--
Dispatching	Enable
CPU Lock	Unlocked
System Stack Area	0 - 1024 (1024)
Current System SP	1016
Idle Routine Start Address	--
Number of Priority	10
Number of Task	10
Number of Semaphore	1
Number of Eventflag	0
Number of Data Queue	1
Number of Mailbox	0
Number of Mutex	0
Number of Message Buffer	0
Number of Fixed-Sized Memory Pool	0
Number of Variable-Sized Memory Pool	1
Number of Cyclic Handler	1
Number of Alarm Handler	1
Number of Interrupt Handler	--
Number of Initialize Routine	--
Number of Extended Service Call Routine	--

The following items are explained here.

- [How to open]
- [Description of each area]
- [Context menu]

[How to open]

- From the [Debug] menu, select [Download].
- From the [View] menu, select [Realtime OS] >> [Resource Information].

[Description of each area]

(1) Information display area

This area displays the system information (e.g. RTOS Name and Version) of the RI600PX.
This area consists of the following items.

RTOS Name	"RI600PX" is shown.	
Version	The version of the RI600PX is shown.	
System Time	The system time of the RI600PX (in milliseconds) is shown.	
Interrupt Nest	"--" is shown.	
Dispatching	The system state of the RI600PX is shown.	
	Disable	Dispatch disabled state
	Enable	Dispatch enabled state
CPU Lock	The system state of the RI600PX is shown.	
	Locked	CPU locked state
	Unlocked	CPU unlocked state
System Stack Area	The start address, end address, and size (in bytes) of the system stack are shown in the following format. Start address - End address (Size)	
Current System SP	The current system stack pointer is shown.	
Idle Routine	"--" is shown.	
Number of Priority	The maximum priority of the task is shown.	
Number of Task	The total number of tasks is shown.	
Number of Semaphore	The total number of semaphores is shown.	
Number of Eventflag	The total number of eventflags is shown.	
Number of Data Queue	The total number of data queues is shown.	
Number of Mailbox	The total number of mailboxes is shown.	
Number of Mutex	The total number of mutexes is shown.	
Number of Message Buffer	The total number of message buffers is shown.	
Number of Fixed-Sized Memor Pool	The total number of fixed-sized memory pools is shown.	
Number of Variable-Sized Memory Pool	The total number of variable-sized memory pools is shown.	
Number of Cyclic Handler	The total number of cyclic handlers is shown.	
Number of Alarm Handler	The total number of alarm handlers is shown.	
Number of Interrupt Handler	"--" is shown.	
Number of Initialize Routine	"--" is shown.	
Number of Extended Service Call Routine	"--" is shown.	

[Context menu]

The context menu displayed in response to a right mouse click differs as follows depending on the area clicked.

(1) Header column

Display	Displays cascade menus for selecting the header items to display.

Selected item name	The following items are displayed for selection. RTOS Name, Version, System Time, Interrupt Nest, Dispatching, CPU Lock, System Stack Area, Current System SP, Idle Routine, Number of Priority, Number of Task, Number of Semaphore, Number of Eventflag, Number of Data Queue, Number of Mailbox, Number of Mutex, Number of Message Buffer, Number of Fixed-Sized Memory Pool, Number of Variable-Sized Memory Pool, Number of Cyclic Handler, Number of Alarm Handler, Number of Interrupt Handler, Number of Initialize Routine, Number of Extended Service Call Routine	
	Checked	The item in question will be displayed.
	Not checked	The item in question will not be displayed.
Notation	Displays cascade menus for selecting the display notation.	
Selected item name	The following items are displayed for selection. System Time, System Stack Area, Current System SP, Idle Routine, Number of Priority, hing, CPU Lock, Stack Area, Current SP, Idle Routine, Number of Priority, Number of Task, Number of Semaphore, Number of Eventflag, Number of Data Queue, Number of Mailbox, Number of Mutex, Number of Message Buffer, Number of Fixed-Sized Memory Pool, Number of Variable-Sized Memory Pool, Number of Cyclic Handler, Number of Alarm Handler, Number of Interrupt Handler, Number of Initialize Routine, Number of Extended Service Call Routine	
	DEC	Displays value in signed decimal number.
	HEX	Displays value in hexadecimal number.

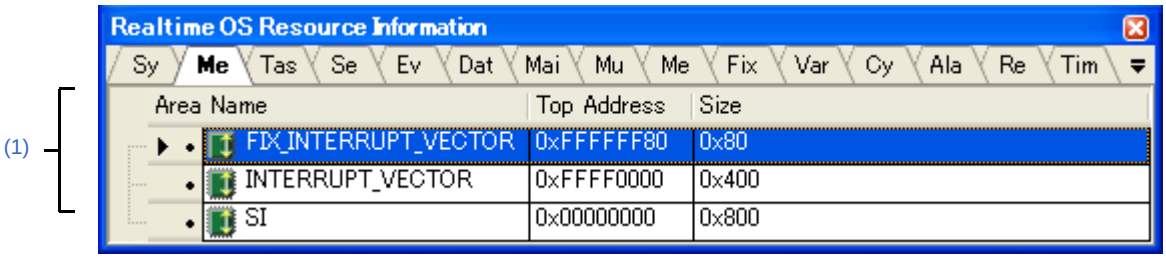
(2) Footer column

Jump to Memory (Current System SP)	Opens the Memory panel, and displays the contents of the Current System SP.
Reset Display Item	Resets the item displayed to initial state.

[Memory Area] tab

This tab displays the memory area information (e.g. Area Name and Top Address) of the RI600PX.

Figure A-3. [Memory Area] Tab



The following items are explained here.

- [How to open]
- [Description of each area]
- [Context menu]

[How to open]

- From the [Debug] menu, select [Download].
- From the [View] menu, select [Realtime OS] >> [Resource Information].

[Description of each area]

(1) Information display area

This area displays the memory area information (e.g. Area Name and Top Address) of the RI600PX.
This area consists of the following items.

Area Name	The name of the managed memory area is shown.	
	FIX_INTERRUPT_VECTOR	Area where the section for the fixed interrupt vector table is to be allocated.
	INTERRUPT_VECTOR	Area where the section for the relocatable interrupt vector table is to be allocated.
	SI	Area where the section for the system stack is to be allocated.
Top Address	The start address of the managed memory area is shown.	
Size	The size of the managed memory area (in bytes) is shown.	

[Context menu]

The context menu displayed in response to a right mouse click differs as follows depending on the area clicked.

(1) Header row

Display	Displays cascade menus for selecting the header items to display.

Selected item name	The following items are displayed for selection. Area Name, Top Address, Size	
	Checked	The item in question will be displayed.
	Not checked	The item in question will not be displayed.
Notation	Displays cascade menus for selecting the display notation.	
Selected item name	The following items are displayed for selection. Top Address, Size	
	DEC	Displays value in signed decimal number.
	HEX	Displays value in hexadecimal number.

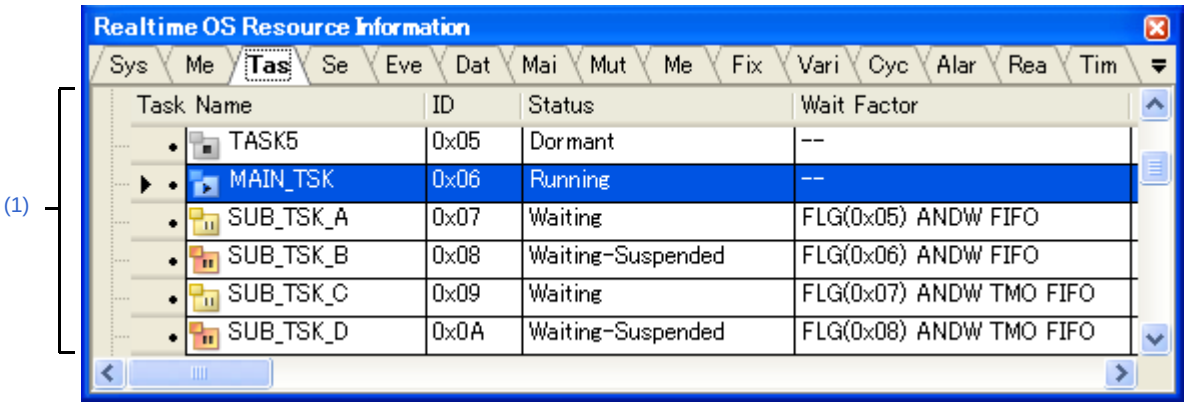
(2) Footer row

Jump to Memory (Top Address)	Opens the Memory panel, and displays the contents of the managed memory area.
Reset Display Item	Resets the item displayed to initial state.

[Task] tab

This tab displays the task information (e.g. Task Name and ID) of the RI600PX.

Figure A-4. [Task] Tab



The following items are explained here.

- [How to open]
- [Description of each area]
- [Context menu]

[How to open]

- From the [Debug] menu, select [Download].
- From the [View] menu, select [Realtime OS] >> [Resource Information].

[Description of each area]

(1) Information display area

(a) First layer

This layer displays the task information (e.g. Task Name and ID) of the RI600PX.
This layer consists of the following items.

Task Name	An icon indicating the current status of the task and the name of the task are shown in the following format. Icon Name	
		DORMANT state
		READY state
		RUNNING state
		WAITING state
		SUSPENDED state
		WAITING-SUSPENDED state
		NON-EXISTENT state
ID	The ID of the task is shown.	

Status	The current state of the task is shown.	
	Dormant	DORMANT state
	Ready	READY state
	Running	RUNNING state
	Waiting	WAITING state
	Suspended	SUSPENDED state
	Waiting-Suspended	WAITING-SUSPENDED state
	Non-Existent	NON-EXISTENT state
Wait Factor	The task wait factor (type of WAITING state, object ID and attribute of WAITING state) is shown in the format below. Type of WAITING state (Object ID) Attribute of WAITING state Note that if the current state of the task is other than WAITING state or WAITING-SUSPENDED state, "--" appears. If the WAITING state type is sleeping state or delayed state, then "(Object ID)" is not shown.	
	[Type of WAITING state]	
	SLP	Sleeping state
	DLY	Delayed state
	SEM	Waiting state for a semaphore resource
	FLG	Waiting state for an eventflag
	SDTQ	Sending waiting state for data queue
	RDTQ	Receiving waiting state for a data queue
	MBX	Waiting state for a mailbox
	MTX	Waiting state for a mutex
	SMBF	Sending waiting state for a message buffer
	RMBF	Receiving waiting state for a message buffer
	MPF	Waiting state for a fixed-sized memory pool
	MPL	Waiting state for a variable-sized memory pool
	[Attribute of WAITING state]	
	ANDW	AND waiting condition for a eventflag
	ORW	OR waiting condition for a eventflag
	TMO	Waiting for timeout
	FIFO	Waiting for FIFO order
	PRI	Waiting for task priority order

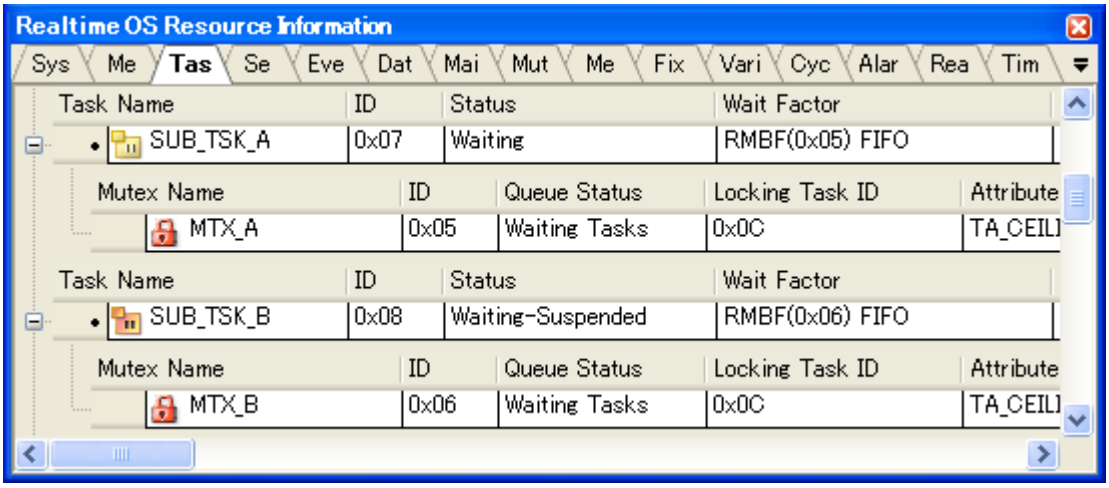
<table>
<tr><td>Wait Data</td><td colspan="2">The request conditions triggering the task's transition to WAITING state are shown.
Note that if the task's current state is other than waiting state for an eventflag, sending waiting state for a data queue, or waiting state for a variable-sized memory block, "--" is shown.</td></tr>
<tr><td></td><td>Wait bit pattern</td><td>Waiting state for an eventflag</td></tr>
<tr><td></td><td>Data element to be sent to the data queue</td><td>Sending waiting state for a data queue</td></tr>
<tr><td></td><td>Memory block size to be acquired</td><td>Waiting state for a variable-sized memory block</td></tr>
<tr><td>Time Left</td><td colspan="2">The time left until the delayed state is released is shown. A unit of the time is millisecond. But the unit is a basic clock count when a denominator of base clock interval time (tic_deno) is 1.
If the task is in the WAITING state forever, "TMO_FEVR" appears.
Note that if the current state of the task is other than WAITING state or WAITING-SUSPENDED, "--" appears.</td></tr>
<tr><td>Interrupt</td><td colspan="2">"Enable" is shown.</td></tr>
<tr><td>Current Priority</td><td colspan="2">The current priority of the task is shown.</td></tr>
<tr><td>Task Start Address</td><td colspan="2">The start address of the task is shown.</td></tr>
<tr><td>Current PC</td><td colspan="2">The current PC value of the task is shown.</td></tr>
<tr><td>Current Task SP</td><td colspan="2">The current SP value of the task is shown.</td></tr>
<tr><td>Task Stack Area</td><td colspan="2">The start address, end address, and size (in bytes) of the task stack are shown in the following format.
Start address - End address (Size)</td></tr>
<tr><td>Initial Priority</td><td colspan="2">The initial priority of the task is shown.</td></tr>
<tr><td>Suspend Count</td><td colspan="2">The suspension count of the task is shown.</td></tr>
<tr><td>Wakeup Count</td><td colspan="2">The wakeup request count of the task is shown.</td></tr>
<tr><td>Activate Count</td><td colspan="2">The activation request count of the task is shown.</td></tr>
<tr><td>Attribute</td><td colspan="2">The attributes of the task (the task's initial activation state and initial interrupt state) are shown in the following format.
Initial activation state Initial interrupt state</td></tr>
<tr><td></td><td colspan="2">[Initial activation state of task]</td></tr>
<tr><td></td><td>TA_ACT</td><td>READY state</td></tr>
<tr><td></td><td>Nothing displayed</td><td>DORMANT state</td></tr>
<tr><td></td><td colspan="2">[Initial interrupt state of task]</td></tr>
<tr><td></td><td>TA_ENAINT</td><td>All interrupts are enabled at task activation.</td></tr>
<tr><td>Extended Information</td><td colspan="2">The extended information of the task is shown.</td></tr>
<tr><td>Tex Start Address</td><td colspan="2">The start address of the task exception handling routine is shown.
Note that if the task exception handling routine is undefined, the name will appear as "--".</td></tr>
</table>

Tex Status	The current status of the task exception handling routine is shown. Note that if the task exception handling routine is undefined, the name will appear as "--".	
	TTEX_DIS	Disable task exceptions
	TTEX_ENA	Enable task exceptions
Tex Request Pattern	The pending exception code of the task exception handling routine is shown. Note that if the task exception handling routine is undefined, the name will appear as "--".	
Tex Executing Pattern	"--" is shown.	
ex Attribute	"--" is shown.	

(b) Second layer

See the [Mutex] tab for details about locking mutex information.

Figure A-5. [Task] Tab (Locking Mutex Information)



[Context menu]

The context menu displayed in response to a right mouse click differs as follows depending on the area clicked.

(1) Header row

Display	Displays cascade menus for selecting the header items to display.	
Selected item name	The following items are displayed for selection. Task Name, ID, Status, Wait Factor, Wait Data, Time Left, Interrupt, Current Priority, Task Start Address, Current PC, Current Task Stack SP, Task Stack Area, Initial Priority, Suspend Count, Wakeup Count, Activate Count, Attribute, Extended Information, Tex Start Address, Tex Status, Tex Request Pattern, Tex Executing Pattern, Tex Attribute	
	Checked	The item in question will be displayed.
	Not checked	The item in question will not be displayed.
Notation	Displays cascade menus for selecting the display notation.	
Selected item name	The following items are displayed for selection. ID, Wait Factor, Wait Data, Time Left, Current Priority, Task Start Address, Current PC, Current Task Stack SP, Task Stack Area, Initial Priority, Suspend Count, Wakeup Count, Activate Count, Extended Information, Tex Start Address, Tex Request Pattern, Tex Executing Pattern	
	DEC	Displays value in signed decimal number.
	HEX	Displays value in hexadecimal number.

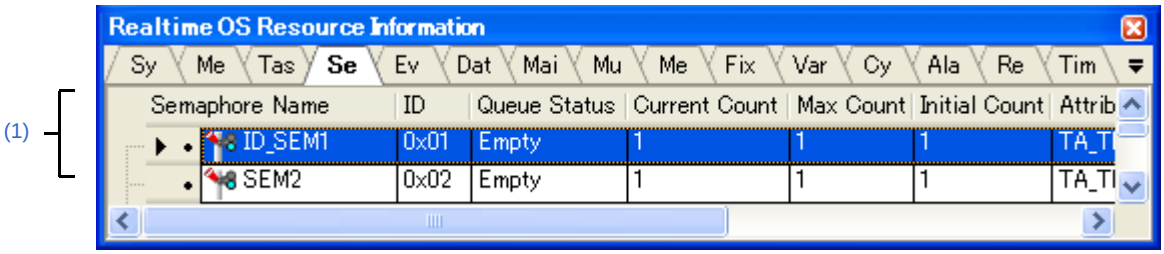
(2) Footer row

Jump to Source (Task Start Address)	Opens the Editor panel, and displays the source code of the task.
Jump to Disassemble (Task Start Address)	Opens the Disassemble panel, and displays the results of disassembling the task.
Jump to Source (Current PC)	Opens the Editor panel, and displays the contents of the Current PC.
Jump to Disassemble (Current PC)	Opens the Disassemble panel, and displays the contents of the Current PC.
Jump to Memory (Current Task SP)	Opens the Memory panel, and displays the contents of the Current Task SP.
Jump to Source (Tex Start Address)	Opens the Editor panel, and displays the source code of the task exception handling routine.
Jump to Disassemble (Tex Start Address)	Opens the Disassemble panel, and displays the results of disassembling the task exception handling routine.
Reset Display Item	Resets the item displayed to initial state.

[Semaphore] tab

This tab displays the semaphore information (e.g. Semaphore Name and ID) of the RI600PX.

Figure A-6. [Semaphore] Tab



The following items are explained here.

- [How to open]
- [Description of each area]
- [Context menu]

[How to open]

- From the [Debug] menu, select [Download].
- From the [View] menu, select [Realtime OS] >> [Resource Information].

[Description of each area]

(1) Information display area

(a) First layer

This layer displays the semaphore information (e.g. Semaphore Name and ID) of the RI600PX.
This layer consists of the following items.

Semaphore Name	An icon indicating the current status of the semaphore and the name of the semaphore are shown in the following format. Icon Name	
		There are waiting tasks.
		There are no waiting tasks.
		Non-existent semaphore
ID	The ID of the semaphore is shown.	
Queue Status	The current status of the semaphore is shown.	
	Waiting Tasks	There are waiting tasks.
	Empty	There are no waiting tasks.
Current Count	The current resource count of the semaphore is shown.	
Max Count	The maximum resource count of the semaphore is shown.	
Initial Count	The initial resource count of the semaphore is shown.	

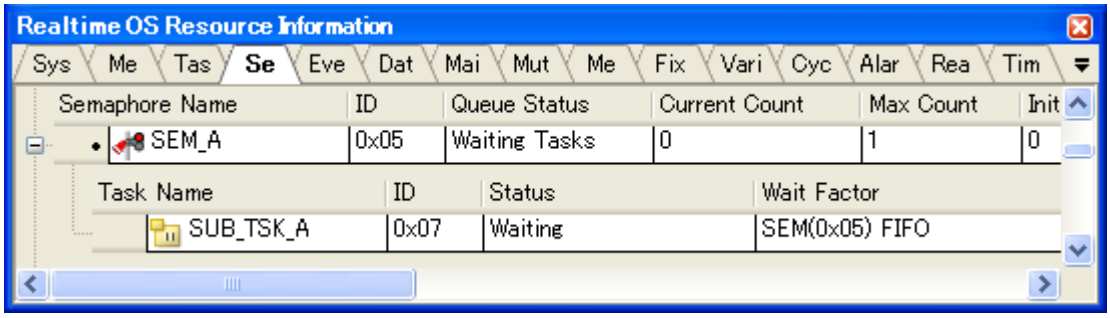
Attribute	The task queuing method is shown.	
	TA_TFIFO	FIFO order
	TA_TPRI	Task priority order

(b) Second layer

The waiting task information (e.g. Task Name and ID) only appears if there are tasks queued in the semaphore's wait queue.

See the [Task] tab for details about waiting task information.

Figure A-7. [Semaphore] Tab (Waiting Task Information)



[Context menu]

The context menu displayed in response to a right mouse click differs as follows depending on the area clicked.

(1) Header row

Display	Displays cascade menus for selecting the header items to display.	
Selected item name	The following items are displayed for selection. Semaphore Name, ID, Queue Status, Current Count, Max Count, Initial Count, Attribute	
	Checked	The item in question will be displayed.
	Not checked	The item in question will not be displayed.
Notation	Displays cascade menus for selecting the display notation.	
Selected item name	The following items are displayed for selection. ID, Current Count, Max Count, Initial Count	
	DEC	Displays value in signed decimal number.
	HEX	Displays value in hexadecimal number.

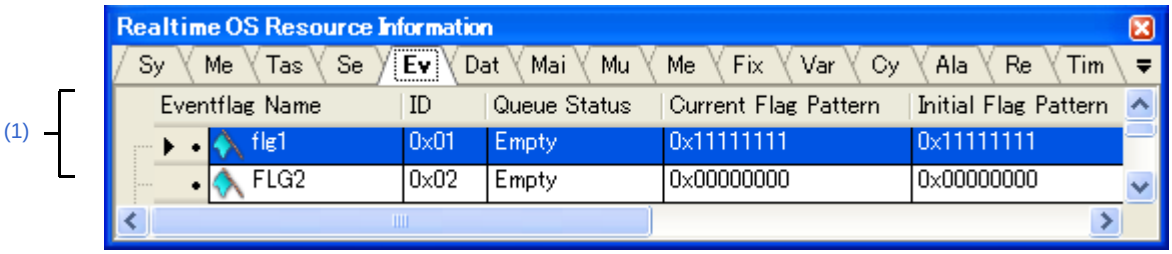
(2) Footer row

Reset Display Item	Resets the item displayed to initial state.

[Eventflag] tab

This tab displays the eventflag information (e.g. Eventflag Name and ID) of the RI600PX.

Figure A-8. [Eventflag] Tab



The following items are explained here.

- [How to open]
- [Description of each area]
- [Context menu]

[How to open]

- From the [Debug] menu, select [Download].
- From the [View] menu, select [Realtime OS] >> [Resource Information].

[Description of each area]

(1) Information display area

(a) First layer

This layer displays the eventflag information (e.g. Eventflag Name and ID) of the RI600PX.
This layer consists of the following items.

Eventflag Name	An icon indicating the current status of the eventflag and the name of the eventflag are shown in the following format. Icon Name	
		There are waiting tasks.
		There are no waiting tasks.
		Non-existent eventflag
ID	The ID of the eventflag is shown.	
Queue Status	The current status of the eventflag is shown.	
	Waiting Tasks	There are waiting tasks.
	Empty	There are no waiting tasks.
Current Flag Pattern	The current bit pattern of the eventflag is shown.	
Initial Flag Pattern	The initial bit pattern of the eventflag is shown.	

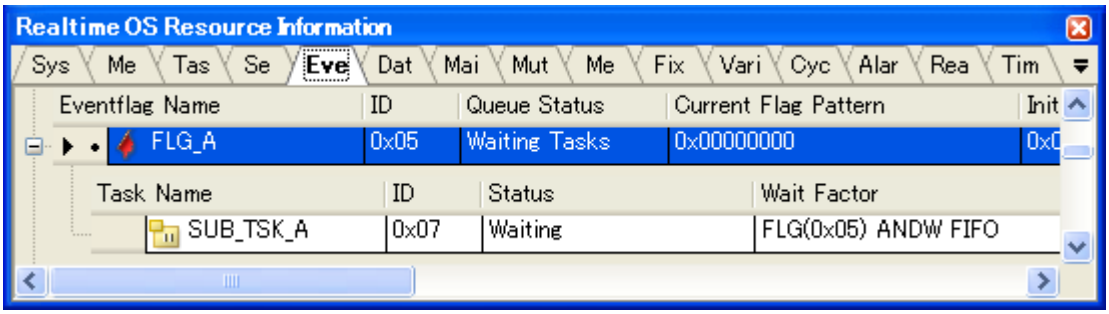
Attribute	The attributes of the eventflag (task queuing method, and maximum number of tasks that can be queued, and bit pattern clearing flag) are shown.	
	[Task queuing method]	
	TA_TFIFO	FIFO order
	TA_TPRI	Task Priority order
	[Maximum number of tasks that can be queued]	
	TA_WSGL	Only one task
	TA_WMUL	Multiple tasks
	[Bit pattern clearing flag]	
	TA_CLR	Bit pattern cleared if the request conditions are met.
	Nothing displayed	Bit pattern not cleared if the request conditions are met.

(b) Second layer

The waiting task information (e.g. Task Name and ID) only appears if there are tasks queued in the eventflag's wait queue.

See the [Task] tab for details about waiting task information.

Figure A-9. [Eventflag] Tab (Waiting Task Information)



[Context menu]

The context menu displayed in response to a right mouse click differs as follows depending on the area clicked.

(1) Header row

Display	Displays cascade menus for selecting the header items to display.	
Selected item name	The following items are displayed for selection. Eventflag Name, ID, Queue Status, Current Flag Pattern, Initial Flag Pattern, Attribute	
	Checked	The item in question will be displayed.
	Not checked	The item in question will not be displayed.
Notation	Displays cascade menus for selecting the display notation.	

Selected item name	The following items are displayed for selection. ID, Current Flag Pattern, Initial Flag Pattern	
	DEC	Displays value in signed decimal number.
	HEX	Displays value in hexadecimal number.

(2) Footer row

Reset Display Item	Resets the item displayed to initial state.

[Data Queue] tab

This tab displays the data queue information (e.g. Data Queue Name and ID) of the RI600PX.

Figure A-10. [Data Queue] Tab

The following items are explained here.

- [How to open]
- [Description of each area]
- [Context menu]

[How to open]

- From the [Debug] menu, select [Download].
- From the [View] menu, select [Realtime OS] >> [Resource Information].

[Description of each area]

(1) Information display area

(a) First layer

This layer displays the data queue information (e.g. Data Queue Name and ID) of the RI600PX.
This layer consists of the following items.

Data Queue Name	An icon indicating the current status of the data queue and the name of the data queue are shown in the following format. Icon Name	
		There are queued tasks (sending waiting tasks).
		There are queued tasks (receiving waiting tasks).
		There are queud data (receiving waiting data).
		There are no queued tasks/data (waiting tasks/ receiving waiting data).
		Non-existent data queue
ID	The ID of the data queue is shown.	

Queue Status	The current status of the data queue is shown.	
	Waiting Tasks (Send)	There are queued tasks (sending waiting tasks).
	Waiting Tasks (Receive)	There are queued tasks (receiving waiting tasks).
	Waiting Data	There are queud data (receiving waiting data).
	Empty	There are no queued tasks/data (waiting tasks/ receiving waiting data).
Total Buffers	Displays the maximum number of data buffers that can be queued.	
Free Buffers	Displays the number of free buffers in the data queue. The number of free buffers is the total number of buffers minus the number of buffers receiving waiting data.	
Number of Data	The number of data stored in the data queue.	
Attribute	Displays the queuing method of the sending waiting tasks. If the queuing method if the receiving waiting tasks is "data reception request order", then the queuing method of the receiving waiting data will be "data send request order".	
	TA_TFIFO	FIFO order
	TA_TPRI	Task priority order

(b) Second layer

<1> Sending waiting task/receive waiting task information

The sending/receiving waiting task information (e.g. Task Name and ID) only appears if there are tasks queued in the data queue's wait queue.

See the [Task] tab for details about sending/receiving waiting task information.

Figure A-11. [Data Queue] Tab (Sending Waiting Task Information)

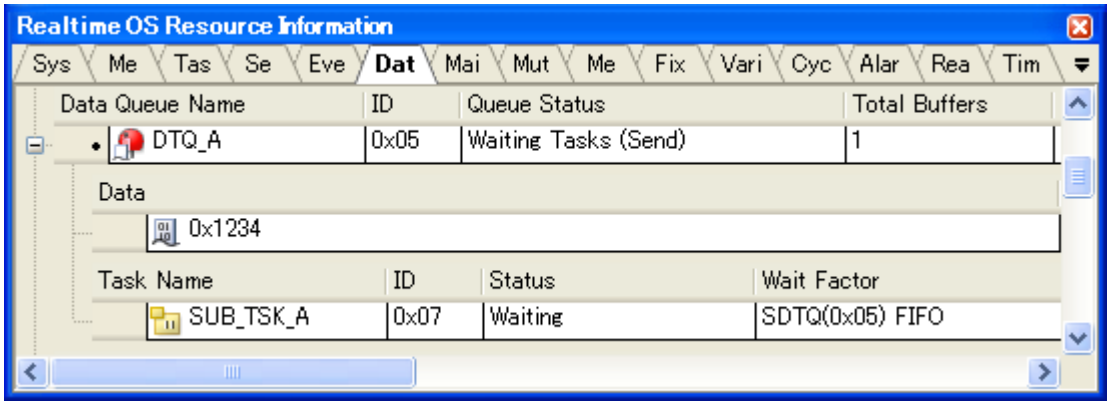
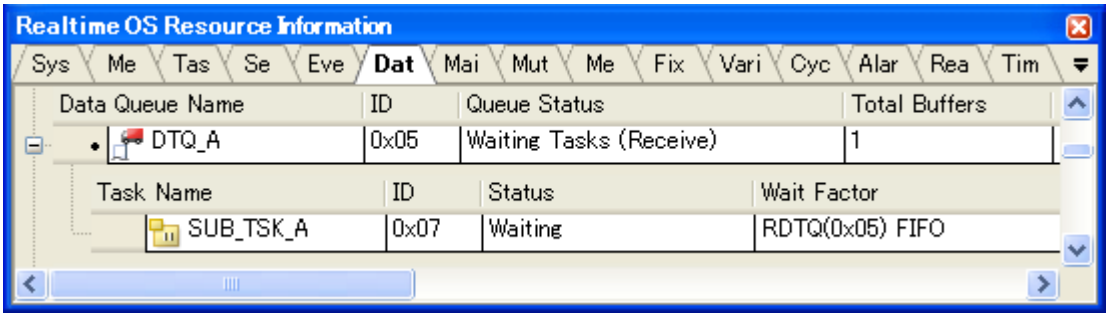


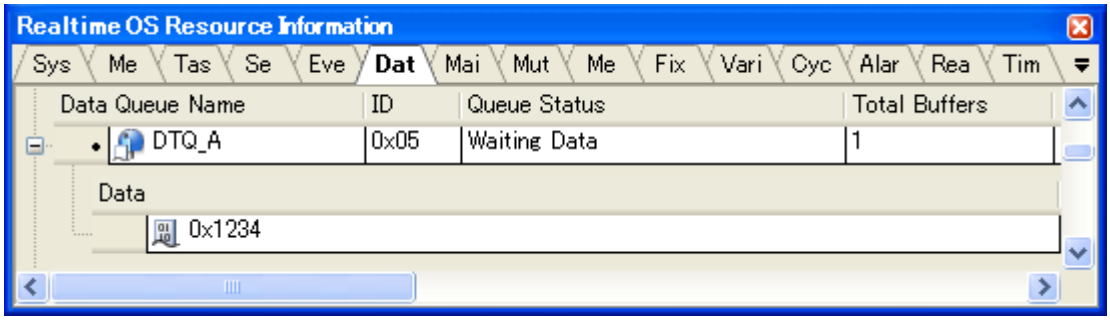
Figure A-12. [Data Queue] Tab (Receiving Waiting Task Information)



<2> Receiving waiting data information

The receiving waiting data information (e.g. Data) only appears if there are data queued in the data queue.

Figure A-13. [Data Queue] Tab (Receiving Waiting Data Information)



This area consists of the following items.

Data	the contents of the data is shown.

[Context menu]

The context menu displayed in response to a right mouse click differs as follows depending on the area clicked.

(1) Header row

Display	Displays cascade menus for selecting the header items to display.	
Selected item name	The following items are displayed for selection. Data Queue Name, ID, Queue Status, Total Buffers, Free Buffers, Number of Data, Attribute	
	Checked	The item in question will be displayed.
	Not checked	The item in question will not be displayed.
Notation	Displays cascade menus for selecting the display notation.	

Selected item name	The following items are displayed for selection. ID, Total Buffers, Free Buffers, Number of Data	
	DEC	Displays value in signed decimal number.
	HEX	Displays value in hexadecimal number.

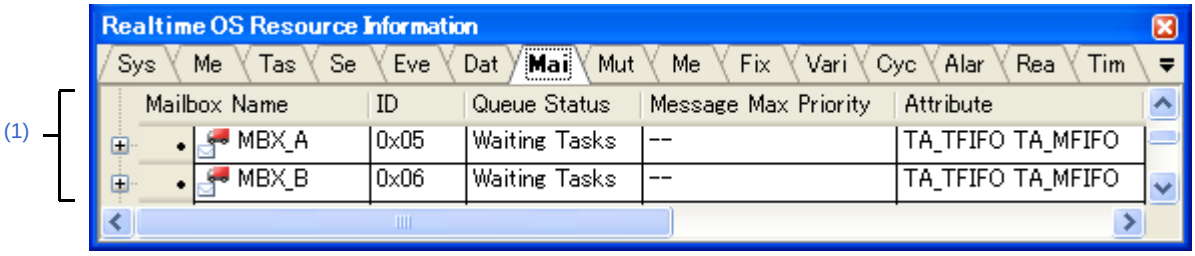
(2) Footer row

Reset Display Item	Resets the item displayed to initial state.

[Mailbox] tab

This tab displays the mailbox information (e.g. Mailbox Name and ID) of the RI600PX.

Figure A-14. [Mailbox] Tab



The following items are explained here.

- [How to open]
- [Description of each area]
- [Context menu]

[How to open]

- From the [Debug] menu, select [Download].
- From the [View] menu, select [Realtime OS] >> [Resource Information].

[Description of each area]

(1) Information display area

(a) First layer

This layer displays the mailbox information (e.g. Mailbox Name and ID) of the RI600PX.
This layer consists of the following items.

Mailbox Name	An icon indicating the current status of the mailbox and the name of the mailbox are shown in the following format. Icon Name	
		There are waiting tasks.
		There are waiting messages.
		There are no waiting tasks/messages.
		Non-existent mailbox
ID	The ID of the mailbox is shown.	
Queue Status	The current status of the mailbox is shown.	
	Waiting Tasks	There are waiting tasks.
	Waiting Messages	There are waiting messages.
	Empty	There area no waiting tasks/messages.
Message Max Priority	The maximum priority of the message is shown. If the message queuing method is TA_MFIFO, then "--" is shown.	

Attribute	The attributes of the mailbox (task queuing method and message queuing method) are shown.	
	[Task queuing method]	
	TA_TFIFO	FIFO order
	TA_TPRI	Task priority order
	[Message queuing method]	
	TA_MFIFO	FIFO order
	TA_MPRI	Message priority order

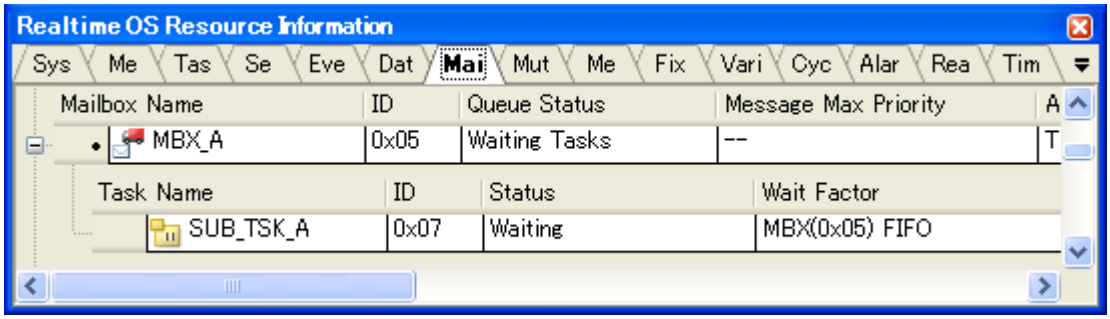
(b) Second layer

<1> Waiting task information

The waiting task information (e.g. Task Name and ID) only appears if there are tasks queued in the mailbox's wait queue.

See the [Task] tab for details about waiting task information.

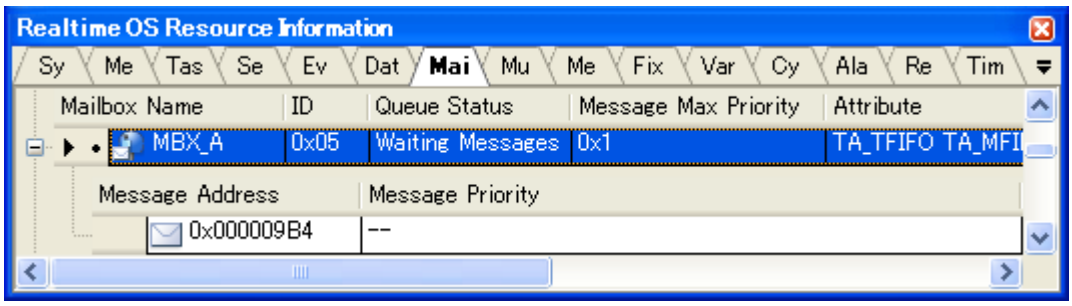
Figure A-15. [Mailbox] Tab (Waiting Task Information)



<2> Waiting message information

The waiting message information (e.g. Message Address and Message Priority) only appears if there are messages queued in the mailbox's wait queue.

Figure A-16. [Mailbox] Tab (Waiting Message Information)



This area consists of the following items.

Message Address	The start address of the message is shown.

Message Priority	The priority of the message is shown.

[Context menu]

The context menu displayed in response to a right mouse click differs as follows depending on the area clicked.

(1) Header row

Display	Displays cascade menus for selecting the header items to display.	
Selected item name	The following items are displayed for selection. Mailbox Name, ID, Queue Status, Message Max Priority, Attribute	
	Checked	The item in question will be displayed.
	Not checked	The item in question will not be displayed.
Notation	Displays cascade menus for selecting the display notation.	
Selected item name	The following items are displayed for selection. ID, Message Max Priority	
	DEC	Displays value in signed decimal number.
	HEX	Displays value in hexadecimal number.

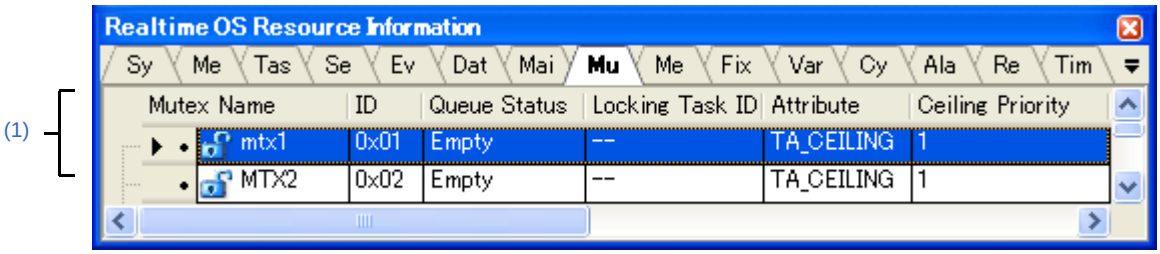
(2) Footer row

Reset Display Item	Resets the item displayed to initial state.

[Mutex] tab

This tab displays the mutex information (e.g. Mutex Name and ID) of the RI600PX.

Figure A-17. [Mutex] Tab



The following items are explained here.

- [How to open]
- [Description of each area]
- [Context menu]

[How to open]

- From the [Debug] menu, select [Download].
- From the [View] menu, select [Realtime OS] >> [Resource Information].

[Description of each area]

(1) Information display area

(a) First layer

This layer displays the mutex information (e.g. Mutex Name and ID) of the RI600PX.
This layer consists of the following items.

Mutex Name	An icon indicating the current status of the mutex and the name of the mutex are shown in the following format. Icon Name	
		There are waiting tasks.
		There are no waiting tasks. (The task locking the mutex)
		There are no waiting tasks.
		Non-existent mutex
ID	The ID of the mutex is shown.	
Queue Status	The current status of the mutex is shown.	
	Waiting Tasks	There are waiting tasks.
	Empty	There are no waiting tasks.
Locking Task ID	The ID of the locking task is shown.	

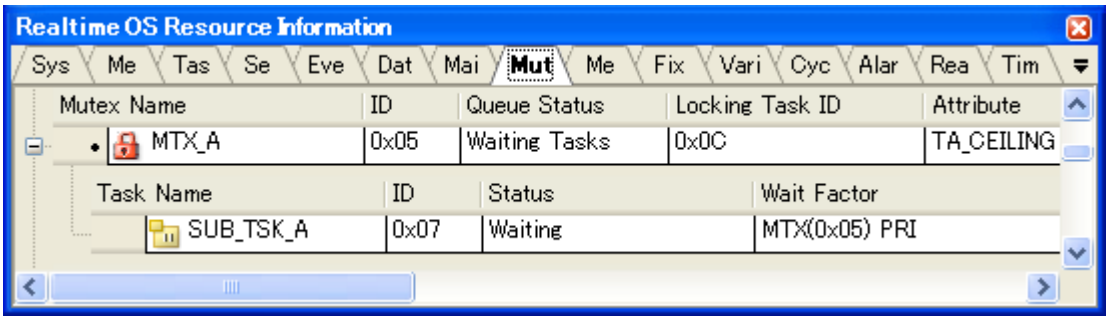
Attribute	The attributes of the mutex is shown.	
	TA_CEILING	Priority ceiling protocol
Ceiling Priority	The ceiling priority of the mutex is shown.	

(b) Second layer

The waiting task information (e.g. Task Name and ID) only appears if there are tasks queued in the mutex's wait queue.

See the [Task] tab for details about waiting task information.

Figure A-18. [Mutex] Tab (Waiting Task Information)



[Context menu]

The context menu displayed in response to a right mouse click differs as follows depending on the area clicked.

(1) Header row

Display	Displays cascade menus for selecting the header items to display.	
Selected item name	The following items are displayed for selection. Mutex Name, ID, Queue Status, Locking Task ID, Attribute, Ceiling Priority	
	Checked	The item in question will be displayed.
	Not checked	The item in question will not be displayed.
Notation	Displays cascade menus for selecting the display notation.	
Selected item name	The following items are displayed for selection. ID, Locking Task ID, Ceiling Priority	
	DEC	Displays value in signed decimal number.
	HEX	Displays value in hexadecimal number.

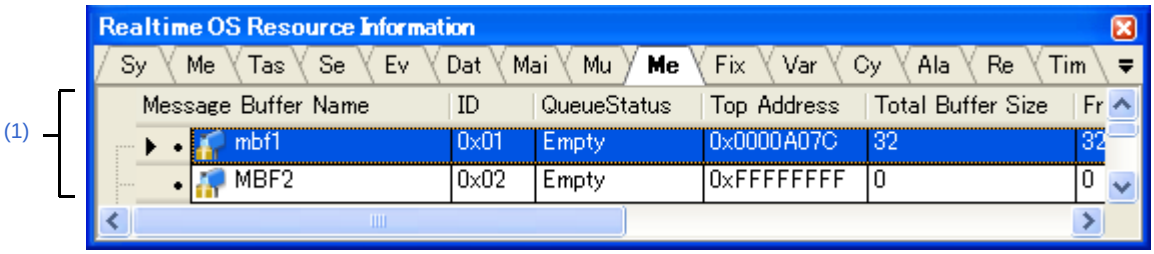
(2) Footer row

Reset Display Item	Resets the item displayed to initial state.

[Message Buffer] tab

This tab displays the message buffer information (e.g. Message Buffer Name and ID) of the RI600PX.

Figure A-19. [Message Buffer] Tab



The following items are explained here.

- [How to open]
- [Description of each area]
- [Context menu]

[How to open]

- From the [Debug] menu, select [Download].
- From the [View] menu, select [Realtime OS] >> [Resource Information].

[Description of each area]

(1) Information display area

(a) First layer

This layer displays the message buffer information (e.g. Message Buffer Name and ID) of the RI600PX.
This layer consists of the following items.

Message Buffer Name	An icon indicating the current status of the message buffer and the name of the message buffer are shown in the following format. Icon Name	
		There are sending waiting tasks.
		There are receiving waiting tasks.
		There are receiving waiting messages.
		There are no waiting tasks/receiving waiting messages.
		Non-existent message buffer

ID	The ID of the message buffer is shown.	
Queue Status	The current status of the message buffer is shown.	
	Waiting Tasks (Send)	There are sending waiting tasks.
	Waiting Tasks (Receive)	There are receiving waiting tasks.
	Waiting Messages	There are receiving waiting messages.
	Empty	There are no waiting tasks/receiving waiting messages.
Top Address	The start address of the message buffer is shown.	
Total Buffer Size	The total buffer size (in bytes) of the message buffer is shown.	
Free Buffer Size	The free buffer size (in bytes) of the message buffer is shown.	
Maximum Message Size	The maximum message size (in bytes) of the message buffer is shown.	
Number of Message	The number of message stored in the message buffer.	
Attribute	Displays the queuing method of the sending waiting tasks.	
	TA_TFIFO	FIFO order

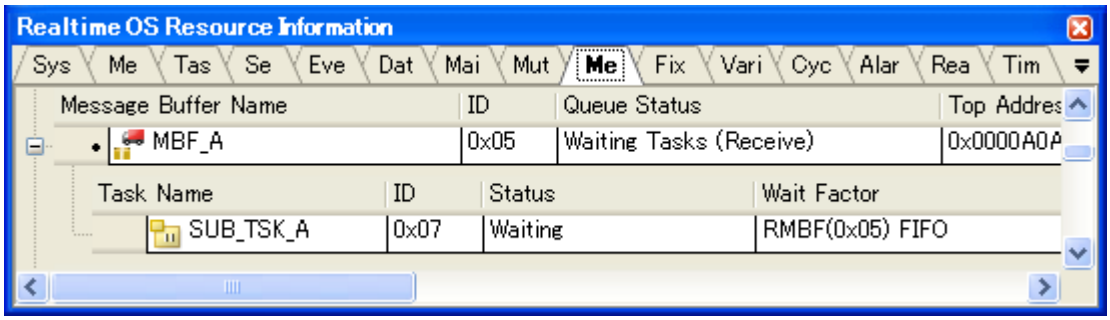
(b) Second layer

<1> Waiting task information

The waiting task information (e.g. Task Name and ID) only appears if there are tasks queued in the message buffer's wait queue.

See the [Task] tab for details about waiting task information.

Figure A-20. [Message Buffer] Tab (Waiting Task Information)



[Context menu]

The context menu displayed in response to a right mouse click differs as follows depending on the area clicked.

(1) Header row

Display	Displays cascade menus for selecting the header items to display.	
Selected item name	The following items are displayed for selection. Message Buffer Name, ID, Queue Status, Top Address, Total Buffer Size, Free Buffer Size, Maximum Message Size, Number of Message, Attribute	
	Checked	The item in question will be displayed.
	Not checked	The item in question will not be displayed.
Notation	Displays cascade menus for selecting the display notation.	
Selected item name	The following items are displayed for selection. ID, Top Address, Total Buffer Size, Free Buffer Size, Maximum Message Size, Number of Message	
	DEC	Displays value in signed decimal number.
	HEX	Displays value in hexadecimal number.

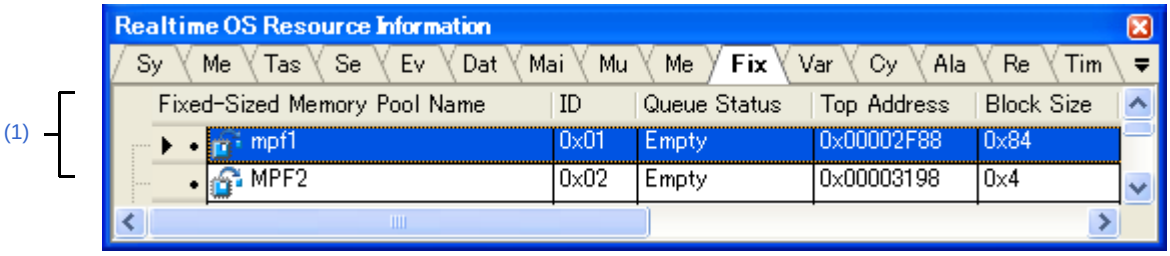
(2) Footer row

Jump to Memory (Top Address)	Opens the Memory panel, and displays the contents of the message buffer.
Reset Display Item	Resets the item displayed to initial state.

[Fixed-Sized Memory Pool] tab

This tab displays the fixed-sized memory pool information (e.g. Fixed-Sized Memory Pool Name and ID) of the RI600PX.

Figure A-21. [Fixed-Sized Memory Pool] Tab



The following items are explained here.

- [How to open]
- [Description of each area]
- [Context menu]

[How to open]

- From the [Debug] menu, select [Download].
- From the [View] menu, select [Realtime OS] >> [Resource Information].

[Description of each area]

(1) Information display area

(a) First layer

This layer displays the fixed-sized memory pool information (e.g. Fixed-Sized Memory Pool Name and ID) of the RI600PX.

This layer consists of the following items.

Fixed-Sized Memory Pool Name	An icon indicating the current status of the fixed-sized memory pool and the name of the fixed-sized memory pool are shown in the following format. Icon Name	
		There are waiting tasks.
		There are no waiting tasks.
		Non-existent fixed-sized memory
ID	The ID of the fixed-sized memory pool is shown.	
Queue Status	The current status of the fixed-sized memory pool is shown.	
	Waiting Tasks	There are waiting tasks.
	Empty	There are no waiting tasks.
Top Address	The start address of the fixed-sized memory pool is shown. (Not the start address of the memory block)	
Block Size	The size per block (in bytes) of the fixed-sized memory pool is shown.	

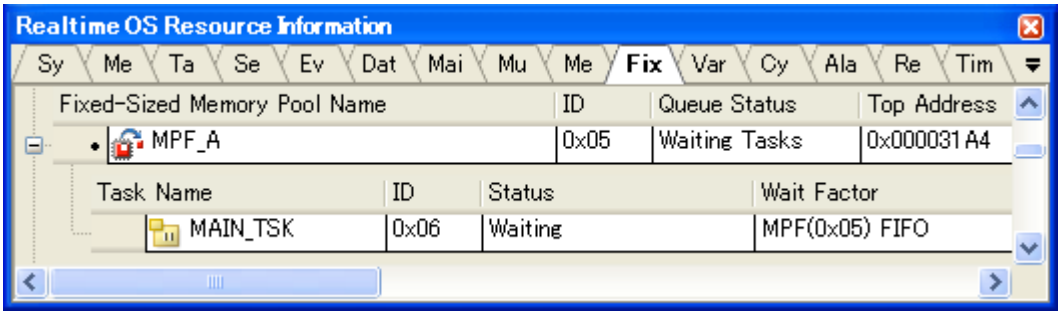
Total Blocks	The block count of the fixed-sized memory pool is shown.	
Free Blocks	The number of free memory blocks is shown.	
Attribute	The task queuing method is shown.	
	TA_TFIFO	FIFO order
	TA_TPRI	Task priority order

(b) Second layer

The waiting task information (e.g. Task Name and ID) only appears if there are tasks queued in the fixed-sized memory pool's wait queue.

See the [Task] tab for details about waiting task information.

Figure A-22. [Fixed-Sized Memory Pool] Tab (Waiting Task Information)



[Context menu]

The context menu displayed in response to a right mouse click differs as follows depending on the area clicked.

(1) Header row

Display	Displays cascade menus for selecting the header items to display.	
Selected item name	The following items are displayed for selection. Fixed-Sized Memory Pool Name, ID, Queue Status, Top Address, Block Size, Total Blocks, Free Blocks, Attribute	
	Checked	The item in question will be displayed.
	Not checked	The item in question will not be displayed.
Notation	Displays cascade menus for selecting the display notation.	
Selected item name	The following items are displayed for selection. ID, Top Address, Block Size, Total Blocks, Free Blocks	
	DEC	Displays value in signed decimal number.
	HEX	Displays value in hexadecimal number.

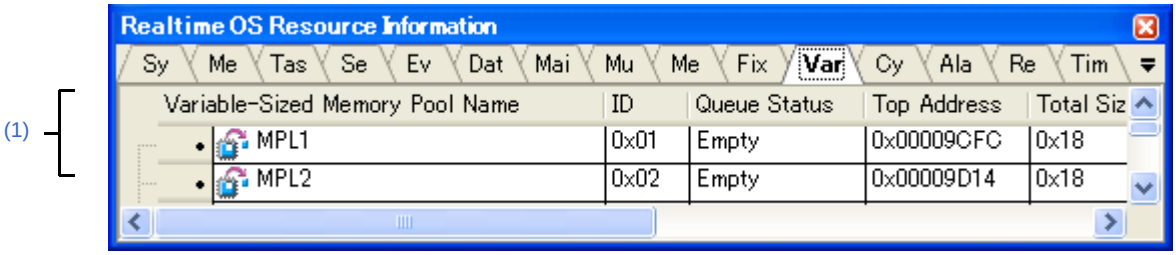
(2) Footer row

Jump to Memory (Top Address)	Opens the Memory panel, and displays the contents of the fixed-sized memory pool.
Reset Display Item	Resets the item displayed to initial state.

[Variable-Sized Memory Pool] tab

This tab displays the variable-sized memory pool information (e.g. Variable-Sized Memory Pool Name and ID) of the RI600PX.

Figure A-23. [Variable-Sized Memory Pool] Tab



The following items are explained here.

- [How to open]
- [Description of each area]
- [Context menu]

[How to open]

- From the [Debug] menu, select [Download].
- From the [View] menu, select [Realtime OS] >> [Resource Information].

[Description of each area]

(1) Information display area

(a) First layer

This layer displays the variable-sized memory pool information (e.g. Variable-Sized Memory Pool Name and ID) of the RI600PX.

This layer consists of the following items.

Variable-Sized Memory Pool Name	An icon indicating the current status of the variable-sized memory pool and the name of the variable-sized memory pool are shown in the following format. Icon Name	
		There are waiting tasks.
		There are no waiting tasks.
		Non-existent variable-sized memory
ID	The ID of the variable-sized memory pool is shown.	
Queue Status	The current status of the variable-sized memory pool is shown.	
	Waiting Tasks	There are waiting tasks.
	Empty	There are no waiting tasks.
Top Address	The start address of the variable-sized memory pool is shown. (Not the start address of the memory block)	
Total Size	The size (in bytes) of the variable-sized memory pool is shown.	

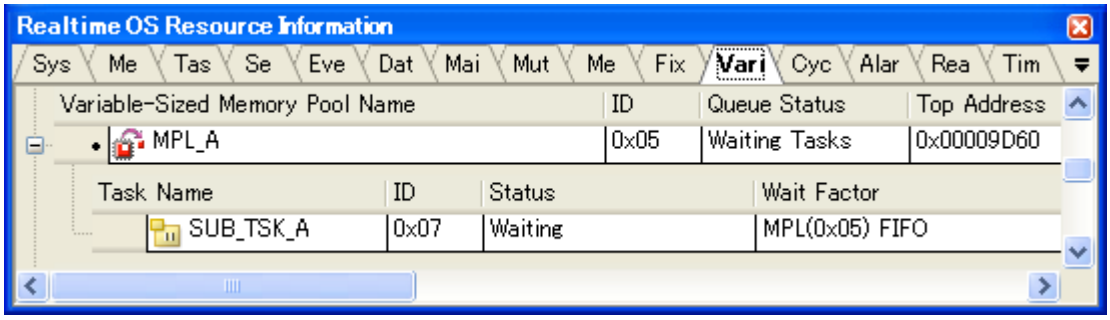
Free Size	The total size (in bytes) of the free memory blocks is shown.	
Available Max Block Size	The maximum memory block size available (in bytes) of the variable-sized memory pool is shown.	
Attribute	The task queuing method is shown.	
	TA_TFIFO	FIFO order

(b) Second layer

The waiting task information (e.g. Task Name and ID) only appears if there are tasks queued in the variable-sized memory pool's wait queue.

See the [Task] tab for details about waiting task information.

Figure A-24. [Variable-Sized Memory Pool] Tab (Waiting Task Information)



[Context menu]

The context menu displayed in response to a right mouse click differs as follows depending on the area clicked.

(1) Header row

Display	Displays cascade menus for selecting the header items to display.	
Selected item name	The following items are displayed for selection. Variable-Sized Memory Pool Name, ID, Queue Status, Top Address, Total Size, Free Size, Available Max Block Size, Attribute	
	Checked	The item in question will be displayed.
	Not checked	The item in question will not be displayed.
Notation	Displays cascade menus for selecting the display notation.	
Selected item name	The following items are displayed for selection. ID, Top Address, Total Size, Free Size, Available Max Block Size	
	DEC	Displays value in signed decimal number.
	HEX	Displays value in hexadecimal number.

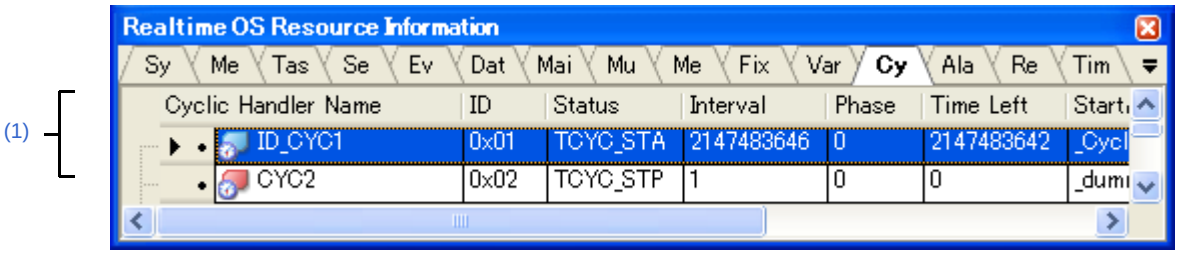
(2) Footer row

Jump to Memory (Top Address)	Opens the Memory panel, and displays the contents of the variable-sized memory pool.
Reset Display Item	Resets the item displayed to initial state.

[Cyclic Handler] tab

This tab displays the cyclic handler information (e.g. Cyclic Handler Name and ID) of the RI600PX.

Figure A-25. [Cyclic Handler] Tab



The following items are explained here.

- [How to open]
- [Description of each area]
- [Context menu]

[How to open]

- From the [Debug] menu, select [Download].
- From the [View] menu, select [Realtime OS] >> [Resource Information].

[Description of each area]

(1) Information display area

This area displays the cyclic handler information (e.g. Cyclic Handler Name and ID) of the RI600PX.
This area consists of the following items.

Cyclic Handler Name	An icon indicating the current status of the cyclic handler and the name of the cyclic handler are shown in the following format. Icon Name	
		Non-operational state (STP state)
		Operational state (STA state)
		Non-existent cyclic handler
ID	The ID of the cyclic handler is shown.	
Status	The current status of the cyclic handler is shown.	
	TCYC_STP	Non-operational state (STP state)
	TCYC_STA	Operational state (STA state)
Interval	The activation cycle of the cyclic handler is shown. A unit of the time is millisecond. But the unit is a basic clock count when a denominator of base clock interval time (tic_deno) is 1.	
Phase	The initial activation phase of the cyclic handler is shown. A unit of the time is millisecond. But the unit is a basic clock count when a denominator of base clock interval time (tic_deno) is 1.	

Time Left	The time left before the next activation of the cyclic handler is shown. A unit of the time is millisecond. But the unit is a basic clock count when a denominator of base clock interval time (tic_deno) is 1.	
Start Address	The start address of the cyclic handler is shown.	
Extended Information	The extended information of the cyclic handler is shown.	
Attribute	The attributes of the cyclic handler (initial activation state and existence of saved activation phases) are shown in the following format. Initial activation state Existence of saved activation phases	
	[Initial activation state of cyclic handler]	
	TA_STA	Operational state (STA state)
	Nothing displayed	Non-operational state (STP state)
	[Existence of saved activation phases]	
	TA_PHS	There are saved activation phases.
	Nothing displayed	There are no saved activation phases.

[Context menu]

The context menu displayed in response to a right mouse click differs as follows depending on the area clicked.

(1) Header row

Display	Displays cascade menus for selecting the header items to display.	
Selected item name	The following items are displayed for selection. Cyclic Handler Name, ID, Status, Interval, Phase, Time Left, Start Address, Extended Information, Attribute	
	Checked	The item in question will be displayed.
	Not checked	The item in question will not be displayed.
Notation	Displays cascade menus for selecting the display notation.	
Selected item name	The following items are displayed for selection. ID, Interval, Phase, Time Left, Start Address, Extended Information	
	DEC	Displays value in signed decimal number.
	HEX	Displays value in hexadecimal number.

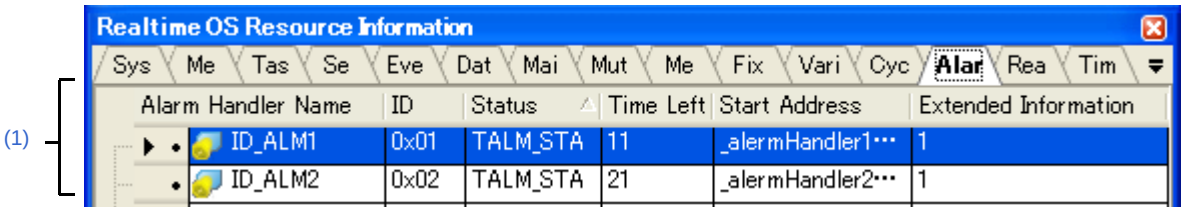
(2) Footer row

Jump to Source (Start Address)	Opens the Editor panel, and displays the source code of the cyclic handler.
Jump to Disassemble (Start Address)	Opens the Disassemble panel, and displays the results of disassembling the cyclic handler.
Reset Display Item	Resets the item displayed to initial state.

[Alarm Handler] tab

This tab displays the alarm handler information (e.g. Alarm Handler Name and ID) of the RI600PX.

Figure A-26. [Alarm Handler] Tab



The following items are explained here.

- [How to open]
- [Description of each area]
- [Context menu]

[How to open]

- From the [Debug] menu, select [Download].
- From the [View] menu, select [Realtime OS] >> [Resource Information].

[Description of each area]

(1) Information display area

This area displays the alarm handler information (e.g. Alarm Handler Name and ID) of the RI600PX.
This area consists of the following items.

Alarm Handler Name	An icon indicating the current status of the alarm handler and the name of the alarm handler are shown in the following format. Icon Name	
		Non-operational state (STP state)
		Operational state (STA state)
		Non-existent alarm handler
ID	The ID of the alarm handler is shown.	
Status	The current status of the alarm handler is shown.	
	TALM_STP	Non-operational state (STP state)
	TALM_STA	Operational state (STA state)
Time Left	The time left before the next activation of the alarm handler is shown. A unit of the time is millisecond. But the unit is a basic clock count when a denominator of base clock interval time (tic_deno) is 1.	
Start Address	The start address of the alarm handler is shown.	
Extended Information	The extended information of the alarm handler is shown.	

[Context menu]

The context menu displayed in response to a right mouse click differs as follows depending on the area clicked.

(1) Header row

Display	Displays cascade menus for selecting the header items to display.	
Selected item name	The following items are displayed for selection. Alarm Handler Name, ID, Status, Time Left, Start Address, Extended Information	
	Checked	The item in question will be displayed.
	Not checked	The item in question will not be displayed.
Notation	Displays cascade menus for selecting the display notation.	
Selected item name	The following items are displayed for selection. ID, Time Left, Start Address, Extended Information	
	DEC	Displays value in signed decimal number.
	HEX	Displays value in hexadecimal number.

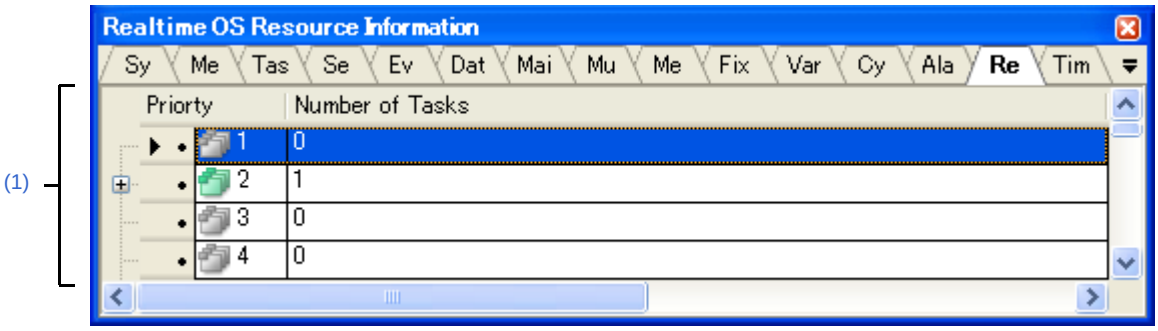
(2) Footer row

Jump to Source (Start Address)	Opens the Editor panel, and displays the source code of the alarm handler.
Jump to Disassemble (Start Address)	Opens the Disassemble panel, and displays the results of disassembling the alarm handler.
Reset Display Item	Resets the item displayed to initial state.

[Ready Queue] tab

This tab displays the ready queue information (e.g. Priority and Task Num) of the RI600PX.

Figure A-27. [Ready Queue] Tab



The following items are explained here.

- [How to open]
- [Description of each area]
- [Context menu]

[How to open]

- From the [Debug] menu, select [Download].
- From the [View] menu, select [Realtime OS] >> [Resource Information].

[Description of each area]

(1) Information display area

(a) First layer

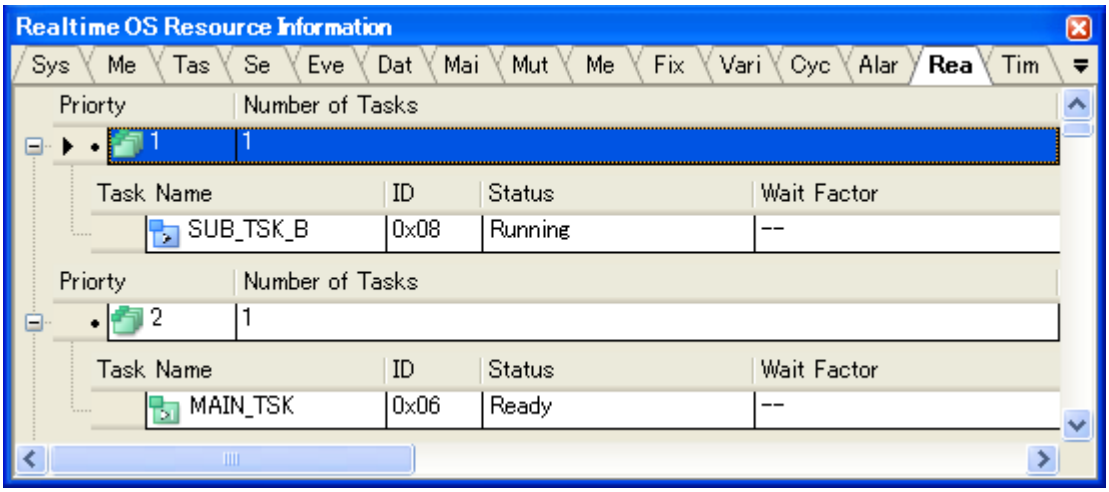
This layer displays the ready queue information (e.g. Priority and Task Num) of the RI600PX.
This layer consists of the following items.

Priority	An icon indicating the current status of the ready queue and the task priority are shown in the following format. Icon Task priority	
		There are queued tasks.
		There are no queued tasks.
Number of Tasks	The total number of queued tasks (tasks with of READY state or RUNNING state) is shown.	

(b) Second layer

The executing task information (e.g. Task Name and ID) only appears if there are tasks queued in the ready queue.
See the [Task] tab for details about executing task information.

Figure A-28. [Ready Queue] Tab (Executing Task Information)



[Context menu]

The context menu displayed in response to a right mouse click differs as follows depending on the area clicked.

(1) Header row

Display	Displays cascade menus for selecting the header items to display.	
Selected item name	The following items are displayed for selection. Priority, Number of Tasks	
	Checked	The item in question will be displayed.
	Not checked	The item in question will not be displayed.
Notation	Displays cascade menus for selecting the display notation.	
Selected item name	The following items are displayed for selection. Priority, Number of Tasks	
	DEC	Displays value in signed decimal number.
	HEX	Displays value in hexadecimal number.

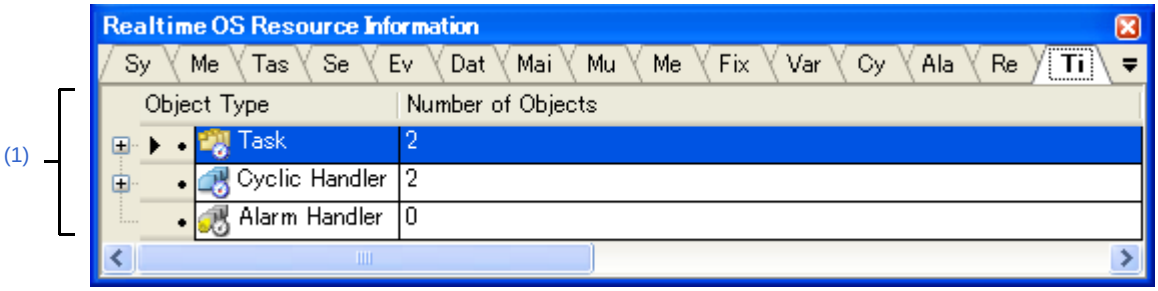
(2) Footer row

Reset Display Item	Resets the item displayed to initial state.

[Timer Queue] tab

This tab displays the timer queue information (e.g. Object Type and Object Num) of the RI600PX.

Figure A-29. [Timer Queue] Tab



The following items are explained here.

- [How to open]
- [Description of each area]
- [Context menu]

[How to open]

- From the [Debug] menu, select [Download].
- From the [View] menu, select [Realtime OS] >> [Resource Information].

[Description of each area]

(1) Information display area

(a) First layer

This layer displays the timer queue information (e.g. Object Type and Object Num) of the RI600PX.
This layer consists of the following items.

Object Type	An icon indicating the current status of the timer queue and the object type are shown in the following format. Icon Object type	
	[Icon]	
		There are queued tasks.
		There are no queued tasks.
		There are queued cyclic handlers.
		There are no queued cyclic handlers.
		There are queued alarm handlers.
		There are no queued alarm handlers.
	[Object type]	
	Task	Task
	Cyclic Handler	Cyclic handler
	Alarm Handler	Alarm handler
Number of Objects	The total number of queued objects (tasks, cyclic handlers and alarm handlers) is shown.	

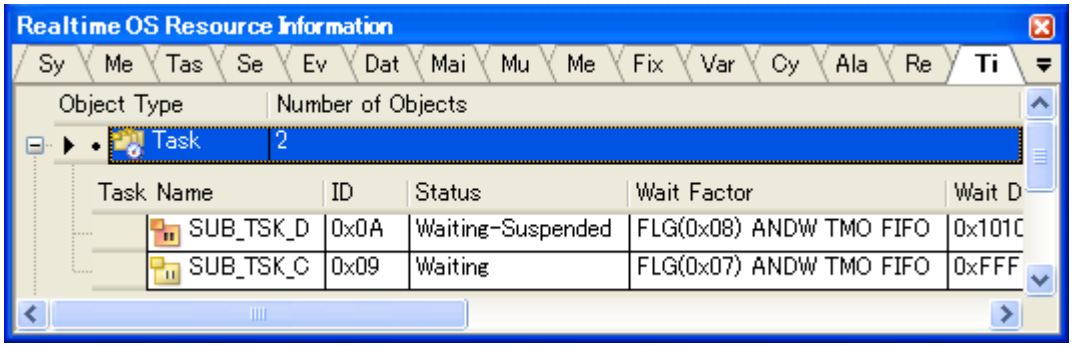
(b) Second layer

<1> Waiting task information

The waiting task information (e.g. Task Name and ID) only appears if there are tasks queued in the timer queue.

See the [Task] tab for details about waiting task information.

Figure A-30. [Timer Queue] Tab (Waiting Task Information)

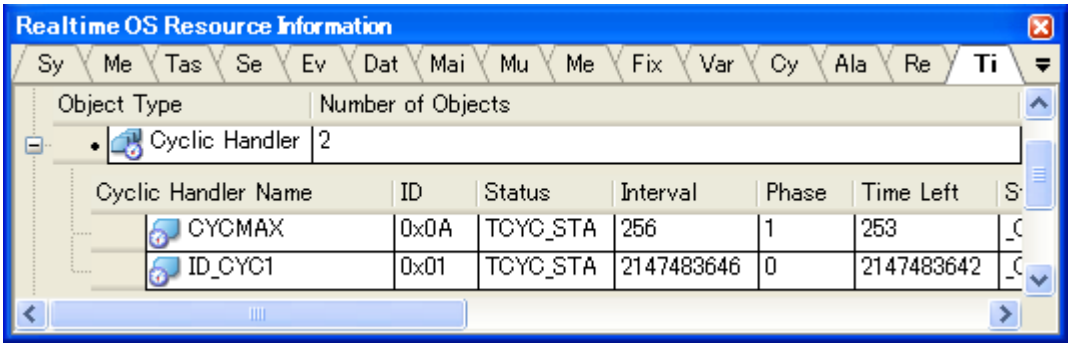


<2> Cyclic handler information

The cyclic handler information (e.g. Cyclic Handler Name and ID) only appears if there are cyclic handlers queued in the timer queue.

See the [Cyclic Handler] tab for details about cyclic handler information.

Figure A-31. [Timer Queue] Tab (Cyclic Handler Information)

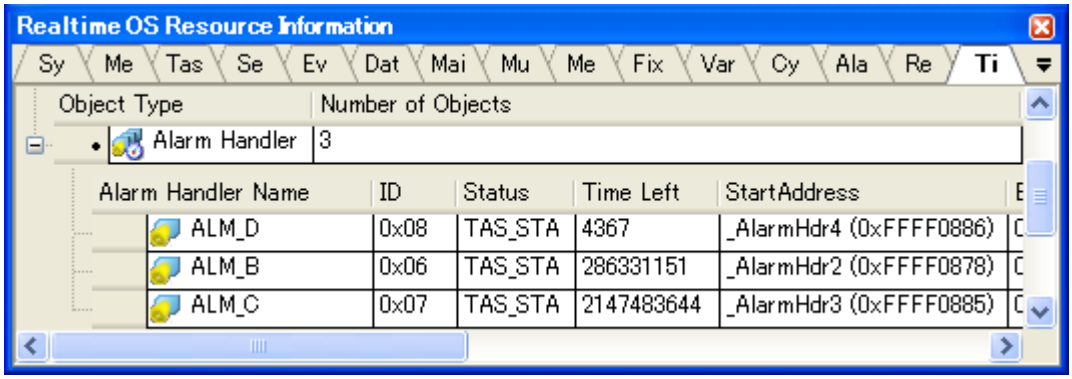


<3> Alarm handler information

The alarm handler information (e.g. Alarm Handler Name and ID) only appears if there are alarm handlers queued in the timer queue.

See the [Alarm Handler] tab for details about alarm handler information.

Figure A-32. [Timer Queue] Tab (Alarm Handler Information)



[Context menu]

The context menu displayed in response to a right mouse click differs as follows depending on the area clicked.

(1) Header row

Display	Displays cascade menus for selecting the header items to display.	
Selected item name	The following items are displayed for selection. Object Type, Number of Objects	
	Checked	The item in question will be displayed.
	Not checked	The item in question will not be displayed.
Notation	Displays cascade menus for selecting the display notation.	
Selected item name	The following items are displayed for selection. Number of Objects	
	DEC	Displays value in signed decimal number.
	HEX	Displays value in hexadecimal number.

(2) Footer row

Reset Display Item	Resets the item displayed to initial state.

APPENDIX B INDEX

Revision History

Rev.	Date	Description		
		Page	Before Modification	After Modification
1.00	Apr 01, 2012	-	First Edition issued	

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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: +44-1628-585-100, Fax: +44-1628-585-900

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.
1 harbourFront Avenue, #06-10, keppel Bay Tower, Singapore 098632
Tel: +65-6213-0200, Fax: +65-6278-8001

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: +60-3-7955-9390, Fax: +60-3-7955-9510

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

Colophon 1.1

RI600PX

Renesas Electronics Corporation

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