
RTA-OS RH850/CS

Release Note - Version 2.0.2 (06-02-2017)

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1 Introduction

RTA-OS is an AUTOSAR compliant Operating System and associated tooling. This document provides release information for the RTA-OS RH850/CS port plug-in that customizes the RTA-OS development tools for the Renesas RH850 with the Renesas_CS compiler. It supplements the more general information you can find in the *Release Note*.

1.1 Version Information

This is Version 2.0.2 of the RTA-OS RH850/CS plug-in.

1.2 Installation

The installation process is covered in detail in the *RH850CS Port Guide*.

2 **Open EHI Calls**

Open issues are referred to by their call number in the ETAS Helpdesk International (EHI) system.

No EHI calls are open.

3 **Change History**

3.1 Version 2.0.2

Additional Features

The following features have been added to this release:

- Third Full Release (single core only).
- Support for the D1x, F1K and P1LC chip variants.
- Support for Trusted-with-Protection (not supported on all hardware variants as the MPU cannot restrict access for trusted code on some parts i.e. F1L/R1L).
- Checks are now made to determine possible conflicts between configured interrupts and any interrupts required by the OS.

Modified Features

The following features have been modified in this release:

- Updated to run with the RTA-OS tools release (v5.5.8) and tests.
- The code to support the 'Enable stack repositioning' target option has been updated. When dealing with Tasks, ISRs, untrusted functions and untrusted hooks both the repositioned and normal code no longer relies on values stored in the CPU general purpose registers to be preserved over the call to untrusted code.
- Updated the RH850CS port guide to add details on the TRAP, FETRAP and SYSCALL support.
- Updated to add fix for EHI issue 496664
- Updated to add fix for EHI issue 534609.
- Updated to add fix for EHI issue 557909.
- Tested on the G3K, G3KH and G3M single core chip variants using Renesas CS+ RH850 Compiler CC-RH V1.02.00.

Removed Features

No features have been removed from this release.

3.2 Version 2.0.1

Additional Features

The following features have been added to this release:

- Second Full Release (single core only).
- Support for iSYSTEM User Tracing
- Support for the P1M chip variant.
- Add SYNCP instructions to the vector table interrupt entries for G3M cores to address a reported issue from Renesas (ID95 SYNCP Instruction Insertion to Terminating-type Exception Handler).

Modified Features

The following features have been modified in this release:

- Rework the OS API code when used in applications with untrusted objects to avoid unnecessary use of a function callout when restoring the trust mode at the end of the API code.
- Tested on the G3K, G3KH and G3M single core chip variants using Renesas CS+ RH850 Compiler CC-RH V1.02.00.

Removed Features

No features have been removed from this release.

3.3 Version 2.0.0

Additional Features

The following features have been added to this release:

- First Full Release (single core only).
- Support for 'OS Size Information' reports using MinGW binutils v2.22 readelf.
- Test in StartOS so that the FPU target option cannot be used on an E1x core without the FPU.

Modified Features

The following features have been modified in this release:

- Moved compiler version to only support the Renesas CS+ RH850 Compiler CC-RH V1.02.00 tools.
- The RTA-OS generated vector table is updated to remove '.extern' assembler directives to support correct behavior of the v1.02 tools.
- Tested on the G3K, G3KH and G3M single core chip variants using Renesas CS+ RH850 Compiler CC-RH V1.02.00.

Removed Features

No features have been removed from this release.

3.4 Version 1.99.0

Additional Features

The following features have been added to this release:

- Initial Early Access Release (no warranty is provided for use in production applications). Category 1 and 2 Interrupts. BCCx/ECCx Tasks. SC1-SC4 Autosar conformance. RTA-TRACE support. ORTI support

Modified Features

No features have been modified in this release.

Removed Features

No features have been removed from this release.

4 Fixed EHI Calls

Bugs that have been fixed are referred to by their call number in the ETAS Helpdesk International (EHI) system.

4.1 Version 2.0.2

EHI 496664

Status: Fixed

Title: Default RTA-OS Os_Cbk_GetAbortStack() code can return NULL

Description: In configurations that use the Os_Cbk_SetMemoryAccess callback to update the memory protection settings for untrusted code, but where the stack value is not actually passed to the callback (i.e. Stack Monitoring is disabled AND target option 'Enable stack repositioning' is false) a NULL value can be returned. This release has updated the default implementation of Os_Cbk_GetAbortStack() to fix this issue.

EHI 534609

Status: Fixed

Title: iSYSTEM winIDEA User-Trace support for applications with untrusted code and the ShutdownHook and ProtectionHook

Description: The macros used to support tracking ORTI items with the iSYSTEM winIDEA profiler User-Trace caused a build error in applications with untrusted code and the ShutdownHook and ProtectionHook. This release has updated the use of these macros to correct this issue. Additional tests have been added to cover all possible use cases for these macros.

EHI 557909

Status: Fixed

Title: FPU context not restored correctly at the end of an interrupt

Description: In configurations that enable both the 'Handle FPU context' and the 'Enable Direct vector mode' target options the FPU context was incorrectly restored at the end of interrupts. This release has updated the interrupt demultiplexer code to restore the FPU context correctly to fix this issue. Additional tests have been added to check this functionality.

5 Limitations

5.1 Installer

There are the following limitations for the installer:

Limitation	None.
Workaround	None.

5.2 RH850CS DLL

There are the following limitations for this tool:

Limitation The v2.0.x releases support single core OS applications. Multi-core OS support will be added in the v5.0.x releases. Until that time multi-core applications are unsupported.

Workaround None.

Limitation iSYSTEM debugger ORTI support added but only tested on the F1L variant.

Workaround None.

Limitation Tests running applications on the D5EDv2 hardware found a limitation with multicore applications. If data is located in GRAM then the GRAM Write-Through buffer must be disabled otherwise there is an issue with code coherency between cores. This topic is currently under investigation at Renesas.

Workaround None.

Limitation Generation of 'OS Size Information' reports requires the MinGW readelf utility located on the path as the Renesas tools support no similar functionality.

Workaround None.

Limitation The iSYSTEM User Trace (UTP) Profiling does not support tracking of Category 1 interrupts.

Workaround None.

6 **Contacting ETAS**

6.1 **Technical Support**

Technical support is available to all users with a valid support contract. If you do not have a valid support contract, please contact your regional sales office (see Section 6.2.2).

The best way to get technical support is by email. Any problems or questions about the use of the product should be sent to:

`rta.hotline.uk@etas.com`

If you prefer to discuss your problem with the technical support team, you call the support hotline on:

+44 (0)1904 562624.

The hotline is available during normal office hours (0900-1730 GMT/BST).

In either case, it is helpful if you can provide technical support with the following information:

- Your support contract number
- Your .xml, .arxml, .rtaos and/or .stc files
- The command line which caused the error
- The version of the ETAS tools you are using
- The version of the compiler tool chain you are using
- The error message you received (if any)
- The file Diagnostic.dmp if it was generated

6.2 **General Enquiries**

6.2.1 **ETAS Global Headquarters**

ETAS GmbH

Borsigstrasse 14
70469 Stuttgart
Germany

Phone: +49 711 3423-0
Fax: +49 711 3423-2106
WWW: www.etas.com

6.2.2 **ETAS Local Sales & Support Offices**

Contact details for your local sales office and local technical support team (where available) can be found on the ETAS web site:

ETAS subsidiaries www.etas.com/en/contact.php
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