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## RTA-OS TriCore/WindRiver

Release Note - Version 5.0.4 (16-08-2019)

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## Safety Notice

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This ETAS product fulfills standard quality management requirements. If requirements of specific safety standards (e.g. IEC 61508, ISO 26262) need to be fulfilled, these requirements must be explicitly defined and ordered by the customer. Before use of the product, customer must verify the compliance with specific safety standards.

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# 1 Introduction

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

## 1.1 Version Information

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This is Version 5.0.4 of the RTA-OS TriCore/WindRiver plug-in.

## 1.2 Installation

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

## 2 **Open EHI Calls**

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

No EHI calls are open.

## 3 Change History

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### 3.1 Version 5.0.4

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#### Additional Features

The following features have been added to this release:

- Added support for the 5.9.6.6 compiler
- Added support for TC35x.
- Added support for TC37x.
- Adds support for the InterruptSource APIs added in RTA-OS 5.6.0

#### Modified Features

The following features have been modified in this release:

- Updated chip descriptions for TC38x, TC39xB.

#### Removed Features

No features have been removed from this release.

### 3.2 Version 5.0.3

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#### Additional Features

The following features have been added to this release:

- The compile option `-Xwhole-program-optim=0` has been added when building the RTA-OS library. (Replaces use of `-Xlto-group=0`.) Due to the huge number of potential RTA-OS codebases that can be generated, it is not possible to test the effects of whole-program-optimization on all of them. Therefore, we take the approach of excluding the RTA-OS library.

#### Modified Features

No features have been modified in this release.

#### Removed Features

No features have been removed from this release.

### 3.3 Version 5.0.2

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#### **Additional Features**

The following features have been added to this release:

- Added support for TC21x.
- Added support for TC36x.

#### **Modified Features**

The following features have been modified in this release:

- TC22x has now been tested on real hardware.
- The compile option `-Xlto-group=0` is used when building the RTA-OS library. Due to the huge number of potential RTA-OS codebases that can be generated, it is not possible to test the effects of whole-program-optimization on all of them. Therefore, we take the approach of excluding the RTA-OS library.

#### **Removed Features**

No features have been removed from this release.

### 3.4 Version 5.0.1 (Preview Release)

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#### **Additional Features**

The following features have been added to this release:

- Added support for the 5.9.6.2 compiler
- Preliminary support for TC22x based on early data sheets, and not tested on real hardware.
- Added support for TC38x (AA step), based on preliminary datasheets only.
- Added support for TC39x (A step)
- The compile option `-Xlto-group 'RTAOS'` has been added for building the OS kernel. Note that the WR whole-program-optimization mechanism should not be applied to this group because it may affect sensitive code in a way that ETAS can not predict.

#### **Modified Features**

No features have been modified in this release.

#### **Removed Features**

The following features have been removed from this release:

- Removed support for TC2Dx chip



### 3.5 Version 5.0.0

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#### **Additional Features**

The following features have been added to this release:

- Supports 'Enable stack repositioning' option
- Support winIDEA signalling
- Add target option to emit ORTI according to the ORTI\_SMP\_Proposal\_v4.pdf (multi-core only).
- Add target option to set the minimum structure alignment.
- The target option 'ORTI/winIDEA' has been added to support generating ORTI that is compatible with the winIDEA debugger.
- The target option 'Support winIDEA Analyzer' has been added to support the winIDEA debugger Analyzer features.
- The target option 'ORTI Stack Fill' has been added to support debugger calculation of application stack usage using the ORTI details.

#### **Modified Features**

The following features have been modified in this release:

- Switch to using 5.9.4.6 compiler. Do not use earlier 5.9.4.x versions because they have bugs that might mean that the OS will not compile.

#### **Removed Features**

No features have been removed from this release.

### 3.6 Version 0.0.3

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#### **Additional Features**

The following features have been added to this release:

- Tested on Aurix devices and TC1387.
- Synchronized with other RTA TriCore ports.

#### **Modified Features**

The following features have been modified in this release:

- Switch to using 5.9.4.4 compiler.
- Updates compiler options.

### Removed Features

No features have been removed from this release.

## 3.7 Version 0.0.2

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### Additional Features

The following features have been added to this release:

- A target option has been added to add extra security checks to the syscall(0) trap handler to validate that the caller is the OS. Use '-target\_option:Guard supervisor access=true'
- Information about unhandled traps can be obtained by calling the new Os\_GetTrapInfo() API from ProtectionHook.
- The new target option 'Interrupt vector matches priority' can be used to override the default SRC.SRPN allocation strategy for interrupts. When this is 'true', SRC.SRPN values match the declared interrupt priority.

### Modified Features

The following features have been modified in this release:

- Switch to using 5.9.4.0 compiler.
- The OS only intercepts the System Call Trap Handler if it is called with TIN=0. Otherwise it processes it like the other traps.

### Removed Features

No features have been removed from this release.

## 3.8 Version 0.0.1

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### Additional Features

The following features have been added to this release:

- Initial implementation from preliminary requirements, using 5.9.3.2 compiler with workarounds.

### Modified Features

No features have been modified in this release.

### Removed Features

No features have been removed from this release.

## 4 Fixed EHI Calls

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

### 4.1 Version 5.0.4

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#### **EHI 596515**

*Status:* Fixed

*Title:* Compile error with untrusted code where the System Trap is overridden by user code

*Description:* There was a fault in the code generation of Os\_Traps.s that would cause a compilation error if the System Trap handler was being overridden by an application handler AND there was untrusted code in the configuration.

#### **EHI 603382**

*Status:* Fixed

*Title:* Invalid code in NMI vector

*Description:* The code generated for the Os\_syscall\_trap was more than 32 bytes long if there was untrusted code and the target option 'Guard supervisor access' was true. The code overflowed into the space in the vector table where the NMI handler should sit, preventing NMIs from being handled.

### 4.2 Version 5.0.3

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#### **EHI 578823**

*Status:* Fixed

*Title:* -Xwhole-program-optim=0 should be used to exclude WPO

*Description:* Previously -Xlto-group=0 was used for OS code. This did not fully disable WPO for the OS code.

### 4.3 Version 5.0.1 (Preview Release)

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#### **EHI 498312**

*Status:* Fixed

*Title:* Change to disabling of interrupts

*Description:* The macros in Os\_DisableInterrupts.h that disable interrupt sources now manipulate the SRE bit instead of changing the interrupt priority.

**EHI 547677**

*Status:* Fixed

*Title:* Library name change when using "Optimize for size" option

*Description:* The name of the generated OS library was RTAOS, rather than RTAOS.a if the "Optimize for size" target option was set to either "true" or "false". When the option was omitted (defaulting to "true"), the correct name was used.

## 5 Limitations

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### 5.1 Installer

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There are the following limitations for the installer:

<b>Limitation</b>	None.
<b>Workaround</b>	None.

### 5.2 TriCoreWR DLL

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There are the following limitations for this tool:

<b>Limitation</b>	None.
<b>Workaround</b>	None.

## 6 Contacting ETAS

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### 6.1 Technical Support

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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 and .rtaos 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

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#### 6.2.1 ETAS Global Headquarters

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**ETAS GmbH**

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70469 Stuttgart  
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#### 6.2.2 ETAS Local Sales & Support Offices

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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](http://www.etas.com/en/contact.php)  
ETAS technical support [www.etas.com/en/hotlines.php](http://www.etas.com/en/hotlines.php)