Thank you for using the CS+ integrated development environment. This document describes the restrictions and points for caution. Read this document before using the product.

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Chapter 1. Target Devices

The target devices supported by the CC-RH compiler are listed on the Website. Please see the URL below.

CS+ Product Page:

http://www.renesas.com/cs+
Chapter 2. User's Manuals

Please read the following user's manuals along with this document.

<table>
<thead>
<tr>
<th>Manual Name</th>
<th>Document Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC-RH Build Tool Operation</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 3. Keywords When Uninstalling the Product

There are two ways to uninstall this product.

- Use the integrated uninstaller from Renesas (uninstalls all CS+ components)
- Use the Windows uninstaller (only uninstalls this product)

To use the Windows uninstaller, select "CS+ CC-RH V2.01.00" from "Programs and Features" of the control panel.
This chapter describes changes to the CC-RH compiler from V2.00.00 to V2.01.00.
Note that the features and changes that are only available to users holding a registered license for the Professional edition are indicated as [Professional edition].

4.1 Addition of checking source code across multiple files against MISRA-C:2012 rules [Professional edition]

The -misra_intermodule option has been added to check source code across multiple files against MISRA-C:2012 rules.

Although source code had previously only been checked within the individual files, specifying this option now enables the checking of source code across multiple files.

4.2 Extensions to the checking of source code against MISRA-C:2012 rules [Professional edition]

The following rule numbers have been added as arguments of the -Xmisra2012 option for checking source code against MISRA-C:2012 rules.

Required rules: 8.5 and 8.6

The following shows the number of MISRA-C:2012 rules which can be checked by each revision.

<table>
<thead>
<tr>
<th>Classification of Rules</th>
<th>V2.00.00</th>
<th>V2.01.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory rules: 16</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Required rules: 108</td>
<td>86</td>
<td>88</td>
</tr>
<tr>
<td>Recommended rules: 32</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>Total: 156</td>
<td>119</td>
<td>121</td>
</tr>
</tbody>
</table>

4.3 Link-time Optimization

Link-time optimization in the form of the removal of unused functions and variables has been added.

Unlike conventional optimization at compilation, the entire program is analyzed at linkage. Thus global functions and global variables can be removed if they are unused.

The following options have been added for this feature.

- Compile option
-goptimize Adds information for link-time optimization when a C source file is compiled. The files that were compiled with this option are the targets for link-time optimization.

- Assemble option
  -goptimize Adds information for link-time optimization when an assembly source file is compiled.

- Link options
  - optimize / -nooptimize Selects or deselects link-time optimization.
  - symbol_forbid Suppresses link-time optimization in units of functions or variables.
  - section_forbid Suppresses link-time optimization in units of sections.
  - absolute_forbid Suppresses link-time optimization for a range of absolute addresses.

4.4 Addition of a feature for changing a section name when a library file is input

The -lib_rename linkage option has been added. With this option, section names or symbol names in a file within a library that is input at the time of linkage can be changed and linked.

4.5 C99 standard library functions

The following C99 standard library functions have been supported.

- acosl(), asinl(), atanl(), atan2l(), cosl(), sinl(), tanl(), coshl(), sinh(), tanhl(), expl(), frexpl(), ldexpl(), logl(), log10l(), modfl(), fabsl(), powl(), sqrtl(), ceil(), floor(), roundl(), roundf(), round(), ilround(), ilroundf(), ilroundl(), lround(), lroundf(), lroundl(), trunc(), truncf(), truncl(), fmodl(), copysignl(), fmaxl(), fminl()
4.7 Other changes and improvements

Other major changes and improvements are described below.

(a) Interlinking of the -pid option and the CS+ debugger
   The PID offset function of the CS+ debugger is now supported.

(b) Change to the operation of preprocessing
   When the -Xdble_size and -Xround options were specified at the same time as the -P option, a warning
   message was output and ignored.
   Now, when these options are also enabled with the -P option specified, the values of predefined
   macros __DBL4, __DOUBLE_IS_32BITS__, and __ROZ are reflected in the results of preprocessing.

(c) Enhancement of optimization
   The code size and speed of execution have been improved, mainly by adding optimization in terms
   of conditional branches and the order of memory access.
   Other optimization processes have also been enhanced.

(d) Correction of internal errors
   Internal errors sometimes occurred in the build process in previous versions. These errors have been
   corrected.
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