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Chapter 1 User's Manuals

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

Manual Name	Document Number
CC-RL Compiler	R20UT3123EJ0107

Chapter 2 Changes

This section describes changes to CC-RL from V1.06.00 to V1.07.00.

The features of the latter can only be used if the compiler is registered under the professional license.

They are indicated by [Professional edition] from here on.

2.1 C99 standard library functions

Support for standard library functions of the C99 language has newly been added and functionality for compliance with the C99 standard have been added to existing standard library functions as listed below.

- isblank function
- imaxabs function
- imaxdiv function
- strtoumax function
- strtoumax function
- printf function (C99 standard functionality has been added)
- printf_tiny function (C99 standard functionality has been added)
- snprintf function
- sprintf function (C99 standard functionality has been added)
- sprintf_tiny function (C99 standard functionality has been added)
- vprintf function (C99 standard functionality has been added)
- vsnprintf function
- vsprintf function (C99 standard functionality has been added)
- atoll function
- strtod function (C99 standard functionality has been added)
- strtod function (C99 standard functionality has been added)
- strtold function
- strtoll function
- strtoull function
- labs function
- lldiv function

2.2 Enhancement of output to HEX and binary files

The facility for the output of data to HEX and binary files has been enhanced in the following ways.

1. The -crc option is also specifiable when the -form=binary option is specified.

2. A new option `-CHECK_OUTPUT_ROM_AREA` to check whether the addresses of the data output to a HEX file extend beyond the internal ROM or data flash area has been added.
3. The linker option `-output` has been enhanced so that the load address can be specified in an Intel extended HEX format file or a Motorola S-record file to be output. This enhancement allows the output of code for placement at a user-specified address rather than at the address determined during linkage.

2.3 New facility for generating vector table sections split by vector table address

A new option `-SPLIT_VECT` has been added to select the generation of vector table sections split by vector table address. This enables the use of unused areas in vector table sections for other purposes.

2.4 Enhancement of `#pragma` address directive

`#pragma` address can be specified for a variable declared with `__saddr`.

```
<Example>
#pragma address i=0xffe20
int __saddr i;           // An error occurred in CC-RL V1.06.00 and earlier versions.
```

2.5 Enhancement of `#pragma` section directive

In CC-RL V1.06.00 and earlier versions, modifying the section names for string literals, branch tables for switch statements, and initial values for aggregate-type automatic variables from the default names was not possible. In CC-RL V1.07.00, the names can be modified by using the `#pragma` section directive.

2.6 Enhancement of the facility for detecting illicit indirect function calls [Professional edition]

To enhance the facility for detecting indirect function calls to illicit addresses, which was a new facility in CC-RL V1.06.00, the `-cfi_ignore_module` option has been modified to accept library files (*.lib) as parameters.

2.7 Enhancement of optimization

The code generated for the long-type comparison to check for equality to zero has been improved and other optimization items have been enhanced.

2.8 Rectified point for caution

The following point for caution no longer applies. For details, refer to Tool News.

- Point for caution regarding the static variable declaration of an array, structure, or union that has an initializer (CCRL#019)

2.9 Other changes and improvements

The generation of an internal error in response to building has been corrected.

Chapter 3 Points for Caution

Please refer to the user's manual for caution regarding V1.07.00 of the CC-RL compiler.

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