RENESAS Tool News

RX Family C/C++ Compiler Package V2 (without IDE) Revised to V2.04.00

We will be revising V2 of the RX Family C/C++ Compiler Package (without IDE), which is for use with the e² studio , from V2.03.00 to 2.04.00.

---

1. Description of Revision

1.1 Standard and Professional Editions

   License for the RX Family C/C++ Compiler (CC-RX) has been divided into the following two types.

   - Standard editions
     These editions support a C language specification which complies with the ANSI Standard. They supply the basic functionality which is required for writing programs for embedded applications.
   - Professional editions
     In addition to the features of the Standard editions, these editions provide additional functions which help to improve the quality of the customer's programs and shorten development periods.

   The Standard edition provides a subset of the functionality of the Professional edition.
   Refer to the following URL for a list of the Standard and Professional editions.

   https://www.renesas.com/compiler_licenses

   Products with licenses purchased before V2.04.00 can be used as the Professional editions.

In this Tool News, the features in Section 1.2 and later which are only available when a license for the Professional edition is registered are indicated by .

1.2 Checking of source code against MISRA-C:2004 rules

The following options can only be used if the compiler is registered under the professional license.

(a) -misra2004
(b) -ignore_files_misra
(c) -check_language_extension

1.3 Checking of source code against MISRA-C:2012 rules

A -misra2012 option, which selects the checking of source code against MISRA-C:2012 rules, has been added.
The -misra2012 option can be designated at the same time as the -ignore_files_misra option, which designates files to be outside the scope of source-code checking, and the -check_language_extension option, which enables source-code checking that is partially suppressed in the case of language extensions.

1.4 Detection of stack smashing

A feature for detecting stack smashing has been added.
This feature can be used by specifying the below options or extended language specifications.

(a) -stack_protector option
(b) -stack_protector_all option
(c) Language extension: #pragma stack_protector
(d) Language extension: #pragma no_stack_protector

In response, code for detecting stack smashing is generated at the entrances to and exits from functions to which this feature is applied.

1.5 Extensions to CRC calculation

The -CRC option of the optimizing linkage editor has been extended as follows.

(a) The range for calculation can be specified by a section name.
(b) The methods of CRC calculation described below have been newly added.
  - 16-CCITT-MBS
    The result of calculation is obtained by applying CRC-16-CCITT to the input MSB first.
  - 16-CCITT-MSB-LITTLE-4

The input is a 4-byte unit with little endian.
The result of calculation is obtained by applying CRC-16-CCITT to the input MSB first.
- 16-CCITT-MSB-LITTLE-2
The input is a 2-byte unit with little endian.
The result of calculation is obtained by applying CRC-16-CCITT to the input MSB first.
- 16-CCITT-LSB
The result of calculation is obtained by applying CRC-16-CCITT to the input LSB first.
- SENT-MSB
The input is 1 byte, with the higher- and lower-order 4 bit units in little endian.
The result of calculation on the input MSB first is obtained with SENT compliance.
- 32-ETHERNET
The result of calculation is obtained by applying CRC-32-ETHERNET to the input. The initial value of the result is 0xFFFFFFFF, and is XOR inverted and the bit order is reversed.

1.6 Enhanced support for UTF-8
The following options have been extended or added.
(a) Extended the -utf8 option and -outcode=utf8 option.
Those options are now always selectable, not only when -lang=c99 option is also selected.
(b) Added a new assembler option -utf8.
String literals and comments in assembly source are handled as encoded in UTF-8.

1.7 Other improvements
Other improvements are described below.
(a) Improved debugging information
Unnecessary debugging information was deleted to reduce the sizes of object files (*.obj) and load module files (*.abs).
(b) Fixed incorrect display when stepping
The problem which produced different operation from that the actual program code should produce in the stepped execution of an if statement which includes any of the following operators in the conditional expression by a debugger, has been corrected.
- &&
- ||
- !
- ?:
(c) Internal errors
The problem which led to an internal error in the compiler when

building has been corrected.
  (d) Optimization
    The performance and the size of generated code have been improved.
  (e) Compiling time
    Compiling some programs with optimization took excessive time.
    This problem has been relieved by shortening the times.

 1.8 Addition of basic facility
   - Support for Windows 10 (32- and 64-bit) has been added.

 2. Updating Your Product and Ordering Revised Product
 2.1 Updating
   Download and install the stand-alone version of CC-RX V2.03.00 from the
  following URL. The above program will be available from October 20.
   https://www.renesas.com/rx_c_download

 2.2 Ordering
   When ordering, please contact your local Renesas Electronics marketing
   offices or distributor.

   Before purchasing, you can evaluate its performance and functionality by
   using the evaluation edition of this product. To do so, download the
   evaluation edition from the web site at:
     https://www.renesas.com/tool_evaluation
   The installer will be available on this site from October 20.