

S1C17 Family C Compiler Package Ver.3.1.x

**S5U1C17001C**

# **Release History and Issues**

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## 1. Release History

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### 1. Release History

#### GNU17 3.1.1: Jan. 20, 2017

|             | Changes  | Issues             | Resolved Issues               |
|-------------|--|--------------------|-------------------------------|
| IDE         | <ul style="list-style-type: none"><li>• The version of Eclipse was changed from 4.5.1 to 4.5.2.</li><li>• Wizard to create "GNU17 Linker Script" was defined.</li><li>• Linker scripts are selectable in GNU17 Setting of the project property.</li><li>• "c17 flv" and "c17 flvs" command are able to execute from the C17/debug command menu.</li><li>• GNU17 project template was updated.</li><li>• MCU definition of EmbSysRegView was updated.</li><li>• Failures detected by in-house test are corrected.</li></ul> | IDE-009<br>IDE-011 |                               |
| C Compiler  | <ul style="list-style-type: none"><li>• Failures detected by in-house test are corrected.</li></ul>  | GCC-002<br>GCC-003 |                               |
| Library     | <ul style="list-style-type: none"><li>• crt0.o, libc.a, libg.a and libgcc.a were re-build.</li><li>• Failures detected by in-house test are corrected.</li></ul>   | LIB-002<br>LIB-003 |                               |
| Assembler   | <ul style="list-style-type: none"><li>• None</li></ul>   |                    |                               |
| Linker      | <ul style="list-style-type: none"><li>• The method of updating debugging information was changed, when the optimization of the output code size (-relax) was specified.</li></ul>  |                    | GLD-002                       |
| Debugger    | <ul style="list-style-type: none"><li>• ICDmini 1.0/1.1/2.0 are supported.</li><li>• MCU definition of ES-Sim17 (Peripheral Circuit Simulator) was updated.</li><li>• Convenience variable \$icdLastLapTime, \$icdLastLapUs, \$icdTotalLapTime and \$icdTotalLapUs were defined to show the lap time. It is possible to use with ICDmini environment.</li><li>• Failures detected by in-hose test are corrected.</li></ul>   | GDB-004            | GDB-002<br>GDB-006<br>GDB-007 |
| ICD Driver  | <ul style="list-style-type: none"><li>• The driver for ICDmini 1.0/1.1/2.0 is included.</li></ul>  |                    |                               |
| Other Tools | <ul style="list-style-type: none"><li>• The ptd.exe was updated to output error messages according to the GNU17 manual.</li><li>• External builder tools (make and post-build batch) were bundled.</li><li>• C17 MCU model-specific information was updated.</li><li>• Sample projects were updated using new project template.</li></ul>  |                    | ETC-002                       |

### GNU17 3.1.0: Apr. 11, 2016

|             | Changes   | Issues             | Resolved Issues    |
|-------------|---|--------------------|--------------------|
| IDE         | <ul style="list-style-type: none"> <li>• The version of Eclipse was changed from 4.4.1 to 4.5.1.</li> <li>• SP register initial value, flash security key and flash protect bits are prepared in GNU17 Setting of the project property.</li> <li>• IDE menu “C17” was added.</li> <li>• GDB command files (reset.gdb / reset_target.gdb / userdefine.gdb) are able to execute from IDE.</li> <li>• Details of PSR are able to check in Register View.</li> <li>• MCU definition of EmbSysRegView plug-in was updated.</li> <li>• Failures detected by in-house test are corrected.</li> </ul> | IDE-009            | IDE-010            |
| C Compiler  | <ul style="list-style-type: none"> <li>• The version of GCC was changed from 4.9.1 to 4.9.3.</li> <li>• Failures detected by in-house test are corrected.</li> </ul>  | GCC-002<br>GCC-003 | GCC-005<br>GCC-006 |
| Library     | <ul style="list-style-type: none"> <li>• crt0.o, libc.a, libg.a and libgcc.a were re-build.</li> <li>• Failures detected by in-house test are corrected.</li> </ul>   | LIB-002<br>LIB-003 |                    |
| Assembler   | <ul style="list-style-type: none"> <li>• The version of binutils was changed from 2.24 to 2.25.1.</li> </ul>  |                    |                    |
| Linker      | <ul style="list-style-type: none"> <li>• The version of binutils was changed from 2.24 to 2.25.1.</li> </ul>  |                    |                    |
| Debugger    | <ul style="list-style-type: none"> <li>• ES-Sim17 (Peripheral Circuit Simulator) was added.</li> <li>• Failures detected by in-hose test are corrected.</li> </ul>  | GDB-002<br>GDB-004 | GDB-005            |
| ICD Driver  | <ul style="list-style-type: none"> <li>• None</li> </ul>  |                    |                    |
| Other Tools | <ul style="list-style-type: none"> <li>• New sample projects were added.</li> <li>• C17 MCU model-specific information was updated.</li> </ul>  | ETC-002            |                    |

## 1. Release History

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### GNU17 3.0.5: Oct. 30, 2015

|             | Changes  | Issues             | Resolved Issues               |
|-------------|--|--------------------|-------------------------------|
| IDE         | <ul style="list-style-type: none"><li>• Wizard to create "GNU17 Debug Configuration" was defined.</li><li>• Creation of PA file was changed to the last step of the post build process, because it is not able to create PA file for the program on RAM.</li><li>• A dummy g++ (calls xgcc) was prepared for the environment checker of IDE. It is not a C++ compiler.</li><li>• Making "inc" folder and setting it to the include path were added when the project was made newly.</li><li>• The parameter of the c17 model command of debugger command file "gdb*.ini" follows to the change of Target CPU.</li><li>• The parameter of the c17 model_path command of debugger command file "gdb*.ini" follows to the GNU17 installation folder.</li><li>• The problem of outputting ROM data different from the size specification of some MCUs was solved.</li><li>• EmbSysRegView plug-in was installed.</li><li>• Failures detected by in-house test are corrected.</li></ul> | IDE-009            | IDE-004<br>IDE-005<br>IDE-006 |
| C Compiler  | <ul style="list-style-type: none"><li>• The definition of "stdarg.h" was changed to pass the arguments of struct, long long, double and etc. to the function taking variable number of arguments.</li><li>• Failures detected by in-house test are corrected.</li></ul>  | GCC-002<br>GCC-003 | GCC-004                       |
| Library     | <ul style="list-style-type: none"><li>• crt0.o, libc.a and libg.a were re-build.</li><li>• Failures detected by in-house test are corrected.</li></ul>   | LIB-002<br>LIB-003 |                               |
| Assembler   | <ul style="list-style-type: none"><li>• None</li></ul>   |                    |                               |
| Linker      | <ul style="list-style-type: none"><li>• *.o files containing no program code became linkable.</li><li>• The issue that the linker sometimes fails in the main function linkage at O2 or more optimization level was corrected.</li><li>• Failures detected by in-house test are corrected.</li></ul>   |                    |                               |
| Debugger    | <ul style="list-style-type: none"><li>• break and tbreak commands were changed to use hardware breakpoints, if it is possible.</li><li>• Failures detected by in-hose test are corrected.</li></ul>  | GDB-002<br>GDB-004 |                               |
| ICD Driver  | <ul style="list-style-type: none"><li>• The ICD driver was signed.</li></ul>   |                    |                               |
| Other Tools | <ul style="list-style-type: none"><li>• Installation processing was changed so that all users on installed PC might use GNU17.</li><li>• The method of WinMDC's checking the size of input ROM data was changed.</li><li>• New sample projects were added.</li><li>• C17 MCU model-specific information was updated.</li></ul>   |                    |                               |

### GNU17 3.0.4: May, 27, 2015

|             | Changes   | Issues                        | Resolved Issues                                     |
|-------------|---|-------------------------------|---|
| IDE         | <ul style="list-style-type: none"> <li>Project type to create libraries is supported.</li> </ul>  | IDE-004<br>IDE-005<br>IDE-006 | IDE-001<br>IDE-002<br>IDE-003<br>IDE-007<br>IDE-008 |
| C Compiler  | <ul style="list-style-type: none"> <li>Failures detected by in-house test are corrected.</li> </ul>   | GCC-002<br>GCC-003<br>GCC-004 | GCC-001   |
| Library     | <ul style="list-style-type: none"> <li>crt0 is available with gcc3.</li> <li>libg.a was implemented again to ignore compiler optimizations.</li> <li>limits.h was updated because of UINT_MAX, USHORT_MAX, LONG_MAX and SHRT_MIN definitions.</li> <li>GCC4 Emulation library and ANSI library were built with GCC4.</li> </ul> | LIB-002<br>LIB-003            | LIB-001   |
| Assembler   | <ul style="list-style-type: none"> <li>Failures detected by in-house test are corrected.</li> </ul>   |                               | GAS-001   |
| Linker      | <ul style="list-style-type: none"> <li>Removing unnecessary "ext" instructions is supported.</li> </ul>   |                               | GLD-001   |
| Debugger    | <ul style="list-style-type: none"> <li>None</li> </ul>  | GDB-002<br>GDB-004            | GDB-001   |
| ICD Driver  | <ul style="list-style-type: none"> <li>None</li> </ul>  |                               | DRV-001   |
| Other Tools | <ul style="list-style-type: none"> <li>None</li> </ul>  |                               | ETC-001   |

## 1. Release History

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### GNU17 3.0.3 (GNU17 3.0 Beta2): Apl. 27, 2015

|             | Changes   | Issues   | Resolved Issues    |
|-------------|---|--|--------------------|
| IDE         | <ul style="list-style-type: none"><li>Failures detected by in-house test are corrected.</li></ul>   | IDE-001<br>IDE-004<br>IDE-005<br>IDE-006<br>IDE-007<br>IDE-008 | IDE-002<br>IDE-003 |
| C Compiler  | <ul style="list-style-type: none"><li>Failures detected by in-house test are corrected.</li></ul>   | GCC-001<br>GCC-002   |                    |
| Library     | <ul style="list-style-type: none"><li>Symbol names defined by libg.a are changed to WRITE_FLASH and WRITE_BUF.</li><li>Entries for gcc4 are appended to libgcc.a.</li></ul> | LIB-001<br>LIB-002   |                    |
| Assembler   | <ul style="list-style-type: none"><li>None</li></ul>  | GAS-001  |                    |
| Linker      | <ul style="list-style-type: none"><li>Default linker script is updated.</li></ul>   | GLD-001  |                    |
| Debugger    | <ul style="list-style-type: none"><li>Failures detected by in-house test are corrected..</li></ul>  | GDB-001<br>GDB-002<br>GDB-004                                  |                    |
| ICD Driver  | <ul style="list-style-type: none"><li>None</li></ul>  | DRV-001  |                    |
| Other Tools | <ul style="list-style-type: none"><li>None</li></ul>  | ETC-001  |                    |



### GNU17 3.0.2 (GNU17 3.0 Beta): Apl. 03, 2015

|             | Changes   | Issues                        | Resolved Issues |
|-------------|---|-------------------------------|-----------------|
| IDE         | <ul style="list-style-type: none"> <li>• Generating new GNU17 V3 project is available.</li> <li>• Importing GNU17 V2 project is available.</li> <li>• Setting GNU17 project properties is available.</li> </ul> | IDE-001<br>IDE-002<br>IDE-003 |                 |
| C Compiler  | <ul style="list-style-type: none"> <li>• Failures detected by in-house test are corrected..</li> <li>• Generating delayed branch instructions are supported.</li> </ul>   | GCC-001                       |                 |
| Library     | <ul style="list-style-type: none"> <li>• The following libraries were re-compiled.               <ul style="list-style-type: none"> <li>• libg.a</li> </ul> </li> </ul>   | LIB-001                       |                 |
| Assembler   | <ul style="list-style-type: none"> <li>• None</li> </ul>  | GAS-001                       |                 |
| Linker      | <ul style="list-style-type: none"> <li>• Default linker script is updated.</li> </ul>   | GLD-001                       |                 |
| Debugger    | <ul style="list-style-type: none"> <li>• Failures detected by in-house test are corrected..</li> </ul>  | GDB-001<br>GDB-002<br>GDB-004 |                 |
| ICD Driver  | <ul style="list-style-type: none"> <li>• None</li> </ul>  | DRV-001                       |                 |
| Other Tools | <ul style="list-style-type: none"> <li>• The following tools were added.               <ul style="list-style-type: none"> <li>• moto2ff.exe</li> <li>• sconv32.exe</li> </ul> </li> </ul>                       | ETC-001                       |                 |

## 1. Release History

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### GNU17 3.0.1 (GNU17 3.0 Alpha2): Feb. 28, 2015

|             | Changes  | Issues             | Resolved Issues |
|-------------|--|--------------------|-----------------|
| IDE         | <ul style="list-style-type: none"><li>None</li></ul>   | IDE-001            |                 |
| C Compiler  | <ul style="list-style-type: none"><li>Failures detected by in-house test are corrected..</li></ul>   | GCC-001            |                 |
| Library     | <ul style="list-style-type: none"><li>The following libraries were re-compiled.<ul style="list-style-type: none"><li>crt0.o</li><li>libg.a</li></ul></li></ul> | LIB-001            |                 |
| Assembler   | <ul style="list-style-type: none"><li>None</li></ul>   | GAS-001            |                 |
| Linker      | <ul style="list-style-type: none"><li>None</li></ul>   | GLD-001            |                 |
| Debugger    | <ul style="list-style-type: none"><li>Debugging the target system using the ICDmini3 is available.</li></ul>   | GDB-001<br>GDB-002 | GDB-003         |
| ICD Driver  | <ul style="list-style-type: none"><li>None</li></ul>   | DRV-001            |                 |
| Other Tools | <ul style="list-style-type: none"><li>None</li></ul>   | ETC-001            |                 |

## GNU17 3.0.0 (GNU17 3.0 Alpha): Jan. 30, 2015

|             | Changes   | Issues             |
|-------------|---|--------------------|
| IDE         | <ul style="list-style-type: none"> <li>The version of Eclipse was changed from 3.4.0 to 4.4.1.</li> <li>The plug-in for GNU17 2.x was deleted.</li> </ul>   | IDE-001            |
| C Compiler  | <ul style="list-style-type: none"> <li>The version of GCC was changed from 3.3.2 to 4.9.1.</li> <li>The following command line options were deleted. <ul style="list-style-type: none"> <li>-mshort-offset</li> <li>-mno-sjis-filt</li> </ul> </li> </ul>   | GCC-001            |
| Library     | <ul style="list-style-type: none"> <li>The following libraries were added. <ul style="list-style-type: none"> <li>crt0.o</li> <li>libg.a</li> </ul> </li> </ul>   | LIB-001            |
| Assembler   | <ul style="list-style-type: none"> <li>The version of binutils was changed from 2.10.1 to 2.24.</li> <li>The following command line options were deleted. <ul style="list-style-type: none"> <li>-mc17_ext</li> </ul> </li> </ul>   | GAS-001            |
| Linker      | <ul style="list-style-type: none"> <li>The version of binutils was changed from 2.10.1 to 2.24.</li> <li>The following command line options were deleted. <ul style="list-style-type: none"> <li>-c17-overlap-noerr</li> <li>-c17-memoryover-noerr</li> </ul> </li> </ul>   | GLD-001            |
| Debugger    | <ul style="list-style-type: none"> <li>The version of gdb was changed from 5.1.1 to 7.8.</li> <li>The following command line options were added. <ul style="list-style-type: none"> <li>--model</li> <li>--model_path</li> </ul> </li> <li>The following command line options were deleted. <ul style="list-style-type: none"> <li>--c17-cmw</li> <li>--c17-double_starting</li> </ul> </li> <li>Commands corresponding to new comand line options were added.</li> <li>Icdmini3 was added to Type of the target command for the ICDmini3 support.</li> <li>Some GNU17 original commands were deleted.</li> </ul> | GDB-001<br>GDB-002 |
| ICD Driver  | <ul style="list-style-type: none"> <li>ICDmini3 was supported.</li> </ul>   | DRV-001            |
| Other Tools | <ul style="list-style-type: none"> <li>The version of binutils was changed from 2.10.1 to 2.24.</li> <li>The following tools were deleted. <ul style="list-style-type: none"> <li>make.exe</li> <li>ccap.exe</li> <li>moto2ff.exe</li> <li>sconv32.exe</li> <li>LCDUtil17</li> <li>Insight</li> </ul> </li> </ul>   | ETC-001            |

## 2. Known Issues

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## 2. Known Issues

### 2.1 IDE

IDE-011 Breakpoints deleted from the Breakpoints view might remain on the Editor as a marker. In this case, it is necessary to display the Markers view, and to delete the marker.

IDE-010 Project building fails when the installed path contains space characters.

IDE-009 When "GCC Version" is changed on "GNU17 Setting" page of the project property, don't see "C/C++ Build / Settings" page until the property dialog is closed.

IDE-008 When "Target CPU" and "Memory Model" was changed on "GNU17 Setting" page of the project property, it is necessary to build, clean and build the project again.

IDE-007 When "GCC Version" was changed on "GNU17 Setting" page of the project property, it is necessary to restart Eclipse. (Including new gcc3 project, because gcc4 is default setting.)

IDE-006 If "Debug configuration" of the project has been removed, it is necessary to set parameters of new "Debug configuration" manually.

IDE-005 In case of the program located on the RAM, its builder reports an error at creating the PA file.

IDE-004 The Problem window shows a message: Progrm ""g++""not found in PATH.

IDE-003 Project should be set manually when [GCC Version] (C compiler) 3.3 is selected.

- Copy sample linker script "sample/sample\_gcc3/elf32c17.x" to the project folder.
- Adjust the project's [C/C++Build] > [Settings] > [Tool Settings] properties as followings:
  - Change [Cross Settings] > [Path] setting to "C:\EPSON\GNU17V3\gcc3".
  - Add following libraries to [Cross GCC Linker] > [Libraries] > [Libraries (-l)].
    - c
    - stdio
    - gcc\${GCC17\_COPRO}

Add "-T ..\elf32c17.x" to [Cross GCC Linker] > [Miscellaneous] > [Other options].

IDE-002 Installation destination folder should be C:\EPSON\GNU17V3.

IDE-001 The test is not completed.

### 2.2 C Compiler

GCC-006 Values indicating the register allocated to variables are different from what the debugger expects.

GCC-005 Bit shift operations might overwrite a register operation immediately before.

GCC-004 The compiler may output unexpected results when "struct" "long long" "double" type arguments are passed to a variable arguments function. Please confirm the function acts appropriately by the output program.

GCC-003 How to pass arguments of some types is different in GCC4 and GCC3. Please re-build the existing program from sources through GCC4.

GCC-002 When calling a function which has double or long long type arguments, The way to pass those arguments is different from the manual.

GCC-001 The test is not completed.

### 2.3 Library

LIB-003 GCC4 uses the existing libraries developed for GCC3.

LIB-002 Corresponding to the compiler issue GCC-002, functions replacing arguments are included in the emulation library.

LIB-001 The test is not completed.

### 2.4 Assembler

GAS-001 The test is not completed.

### 2.5 Linker

GLD-002 When the optimization of the output code size (-relax) option is specified, debugging information might not follow to the optimized address.

GLD-001 The test is not completed.

### 2.6 Debugger

GDB-007 Even if the peripheral circuit simulator requests an interrupt, the debugger does not end C17 halt instruction.

GDB-006 Even if the peripheral circuit simulator begins execution, ES-Sim window is not displayed.

GDB-005 A finish command executed on the function that does not end might not be able to be suspended.

GDB-004 Results of commands on GDB console may not be reflected in the GUI.

GDB-003 Debugging the target system using the ICDmini3 from the IDE is not available.

GDB-002 ICD33/ICDmini 1.0/1.1/2.0 are not supported.

GDB-001 The test is not completed.

## 2. Known Issues

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### 2.7 ICD driver

DRV-001 The test is not completed.

### 2.8 Other Tools

ETC-002 ptd.exe does not output error messages listed in the manual.

ETC-001 The test is not completed.

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## Revision History

Attachment-1

| Rev. No. | Date       | Page    | Category | Contents                         |
|----------|------------|---------|----------|----------------------------------|
| Rev 1.0  | 2015/01/30 | All     | new      | First revision.                  |
| Rev 1.1  | 2015/02/28 | 1,3     | Add      | Add GNU17V3.0.1 release history. |
| Rev 1.2  | 2015/04/03 | 2,5,6   | Add      | Add GNU17V3.0.2 release history. |
| Rev1.3   | 2015/04/27 | 2,6     | Add      | Add GNU17V3.0.3 release history. |
| Rev1.4   | 2015/05/27 | 2,7,8   | Add      | Add GNU17V3.0.4 release history. |
| Rev1.5   | 2015/10/30 | 2,8     | Add      | Add GNU17V3.0.5 release history. |
| Rev1.6   | 2016/04/11 | 2,9,19  | Add      | Add GNU17V3.1.0 release history. |
| Rev1.7   | 2017/01/20 | 2,10,11 | Add      | Add GNU17V3.1.1 release history  |
|          |            |         |          |                                  |
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