

S1C17 Family C Compiler Package Ver.3.2.x

S5U1C17001C

Release History and Issues

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1. Release History

1. Release History

GNU17 3.2.0: Apr. 19, 2019

	Changes	Issues	Resolved Issues
IDE	<ul style="list-style-type: none">• Corresponds to GCC6.4.• GDB command file was updated.	IDE-009 IDE-011	
C Compiler	<ul style="list-style-type: none">• Corresponds to GCC6.4.• Deleted GCC3.3.	GCC-002 GCC-003 GCC-007	
Library	<ul style="list-style-type: none">• Corresponds to GCC6.4	LIB-002 LIB-003	
Assembler	<ul style="list-style-type: none">• None		
Linker	<ul style="list-style-type: none">• None		
Debugger	<ul style="list-style-type: none">• Added profiler and coverage function.• Added LCD panel simulator function.• Standard output function was updated.• Added standard input function.	GDB-004 GDB-008 GDB-014 GDB-015 GDB-016	
ICD Driver	<ul style="list-style-type: none">• None		
Other Tools	<ul style="list-style-type: none">• C17 MCU model-specific information was updated.	ETC-003	

1. Release History

GNU17 3.1.2: Dec. 13, 2017

	Changes	Issues	Resolved Issues
IDE	<ul style="list-style-type: none">MCU definition of EmbSysRegView was updated.	IDE-009 IDE-011	
C Compiler	<ul style="list-style-type: none">None	GCC-002 GCC-003	
Library	<ul style="list-style-type: none">None	LIB-002 LIB-003	
Assembler	<ul style="list-style-type: none">None		
Linker	<ul style="list-style-type: none">None		
Debugger	<ul style="list-style-type: none">Failures detected by in-hose test are corrected.	GDB-004 GDB-008	GDB-009 GDB-010 GDB-011 GDB-012 GDB-013
ICD Driver	<ul style="list-style-type: none">None		
Other Tools	<ul style="list-style-type: none">C17 MCU model-specific information was updated.	ETC-003	

1. Release History

GNU17 3.1.1: Jan. 20, 2017

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

GNU17 3.1.0: Apr. 11, 2016

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

1. Release History

GNU17 3.0.5: Oct. 30, 2015

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

GNU17 3.0.4: May, 27, 2015

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

1. Release History

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

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

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

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

1. Release History

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

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

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

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

2. Known Issues

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 (-)].
 - 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-007 When using GCC 6.4 and compiling under the following conditions, an internal error occurs.

- GNU17V3 setting
Optimization option : -O1
Memory model : REGULAR(-mpointer24)
- User source code
(1) It is volatile and has an array in the stack.
(2) Access the problem array in the loop to be optimized.
*If the number of loops is fixed and loops more than once, the loops are optimized.

[User source code examples that cause problems]

```

int sub( int e, int *p ) {
    if ( e == *p ) {
        return( 0 );
    } else {
        return( 1 );
    }
}

int main( void ) {
    volatile int ary[] = { 0, 1, 2 };           ... problem array
    int i, flg = 0 ;

    for( i = 0 ; i < (3) ; i++ ) {           ... loop to be optimized
        flg += sub( (int)ary[i], (int *)&ary[i] );   ...access the problem array in the loop
    }

    return( flg );
}

```

There is a problem with the optimization of loops in local volatile arrays. Please do one of the following.

- Do not use volatile.
- Take an array out of a function.
- Do not use loops.

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. Known Issues

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-016 Derivation problem of GDB-015.
When objdump option (-g) is used with objdump.exe for .elf generated under the following conditions, debug information is not output.

- GNU17V3 setting
GCC version : GCC6.4
Debug level : -g

The objdump option (-g) is not used because objdump.exe does not accept __int24.

GDB-015 Under the following conditions, the debugger can not recognize the values of unsigned long and long long.

- GNU17V3 setting
GCC version : GCC6.4
Debug level : -gstabs

When using GCC 6.4, it is standard to set debug level to “Default (-g)”.

GDB-014 If you terminate after repeating Resume / Step into / Step over with five or more hardware breakpoints pasted, it may not be able to end normally and a Windows error may occur.

GDB-013 Even if five or more breakpoints are set, if the current PC value is equal to the breakpoint, no error occurs when executing Resume (program execution).

GDB-012 Do not set the breakpoint to the correct address in the prologue or where there is no code.

GDB-011 Call command does not work properly.

GDB-010 If the debugger is started twice while the debugger is running, an error occurs.

GDB-009 Suspend (forced break) may not be possible while executing STDOUT (standard output).

GDB-008 When launching the debugger, multiple same source files are opened.

This phenomenon is an operation of the Eclipse CDT, so it is a restriction item.

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.

2.7 ICD driver

DRV-001 The test is not completed.

2.8 Other Tools

ETC-003 When the installer installs VC++2008, the temporary files are generated to the drive with the largest capacity. And, it remains. This phenomenon is trouble of VC++2008.

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

ETC-001 The test is not completed.

Revision History

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
Rev1.8	2017/12/13	2,12	Add	Add GNU17V3.1.2 release history
Rev1.9	2019/04/19	2,12,13 ,14	Add	Add GNU17V3.2.0 release history

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