

This document describes the following items. Refer to the user's manual of the emulator for cautions on using E1/E20 Emulator.

- Restrictions not applicable to the target device but applicable to the emulator.
- Restrictions applicable to both the target device and emulator but correction is planned only for the emulator.

Refer to the following documents for the restrictions in the target device.

- User's manual of target device
- Restrictions notification document for target device

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1. List of Restrictions and Added Specifications

No.	Restrictions or Changes/Additions to Specifications	CubeSuite+ Ver.	
		V2.01.00	V2.02.00
1	Regarding connecting/disconnecting	×	○
2	Regarding rewriting of internal flash memory(Debugger operation)	×	×
3	Regarding rewriting of internal flash memory(Clock monitor)	×	×
4	Regarding download/upload function(External Flash memory)	×	×
5	Regarding download/upload function(progress dialogue)	×	×
6	Regarding memory map function	×	×
7	Regarding memory function(CPU reset)	×	×
8	Regarding memory function(Peripheral Break)	×	×
9	Regarding memory function(DMM)	×	×
10	Regarding IO register display function	×	×
11	Regarding controlling execution function(Power save mode)	×	×
12	Regarding controlling execution function(snooze instruction)	×	×
13	Regarding controlling execution function(interrupt/exception/CALLT instruction)	×	×
14	Regarding Break/Event function(SYSCALL instruction)	×	×
15	Regarding Break/Event function(during a clock setup)	×	×
16	Regarding time measurement function	×	×
17	Regarding trace function(address supplement) [Note]	×	×
18	Regarding trace function(setting of out-of-range trace event) [Note]	×	×
19	Regarding trace function(section of out-of-range trace event) [Note]	×	×
20	Regarding trace function(abnormal exit of out-of-range trace event) [Note]	×	×
21	Regarding trace function(section trace/Range out trace) [Note]	×	×
22	Regarding debug information relation(source level stepping)	×	×
23	Regarding debug information relation(display of information on variables)	×	×
24	Regarding debug console	×	×
25	Regarding Python console	×	×
26	Regarding hot plug-in function	×	×
27	Regarding static variable	×	×
28	Regarding division of a load module	×	×
29	Regarding Break function(read access break)	×	×
30	Regarding trace function(trace setting) [Note]	×	×
31	Regarding source file name	×	×

×: Applicable, ○: Not applicable or already corrected -: Not relevant

[Note] : When using debug MCU board or device with trace function.

2. Details of Restrictions and Added Specifications

No. 1 Regarding connecting/disconnecting

[Description]

After the emulator operation has been terminated by USB disconnection, re-connecting the emulator fails and leads to [Undefined error].

[Resolution]

Turn on the power to the target board and emulator and start them up.

No. 2 Regarding rewriting of internal flash memory(Debugger operation)

[Description]

Rewriting of internal flash memory occurs by the following operation. At this time, clock frequency is changed by debugger.

1. Download to internal flash memory
2. Change of internal flash memory by memory panel operation
3. Setup and release of software break point
4. Restart after software break point(RUN and STEP function)

[Resolution]

1. None
2. None
3. Please use hardware break point.
4. Please use hardware break point.

No. 3 Regarding rewriting of internal flash memory(Clock monitor)

[Description]

When rewriting flash memory^{*1}, debugger changes PLL multiplier to the following value.

For this reason, when rewriting a flash memory, frequency is set to higher speed than it in use.

When the frequency changed by debugger exceeds the frequency set by CLM2, flash memory rewriting is deterred.

[Change of PLL multiplier]

- When Main OSC is 8MHz, CPU clock and Peripheral clock multiplies by 10.
(CPU Clock: 80MHz Peripheral clock: 80MHz)
- When Main OSC is 10MHz, CPU clock and Peripheral clock multiplies by 8.
(CPU Clock: 80MHz Peripheral clock: 80MHz)
- When Main OSC is 12MHz, CPU clock and Peripheral clock multiplies by 6.
(CPU Clock: 72MHz Peripheral clock: 72MHz)
- When Main OSC is 16MHz, CPU clock and Peripheral clock multiplies by 5.
(CPU Clock: 80MHz Peripheral clock: 80MHz)
- When Main OSC is 20MHz, CPU clock and Peripheral clock multiplies by 4.
(CPU Clock: 80MHz Peripheral clock: 80MHz)
- When Main OSC is 24MHz, CPU clock and Peripheral clock multiplies by 3.
(CPU Clock: 72MHz Peripheral clock: 72MHz)

*1: Rewriting of internal flash memory occurs by the following operation.

1. Download to internal flash memory
2. Change of internal flash memory by memory panel operation
3. Setup and release of software break point
4. Restart after software break point(RUN and STEP function)

[Resolution]

Please set the frequency accelerated by the above-mentioned multiplier to clock monitor as a maximum value, or not use clock monitor.

No. 4 Regarding download/upload function(External Flash memory)

[Description]

The OCD does not support downloading in external flash memory.

[Resolution]

None

No. 5 Regarding download/upload function(progress dialogue)

[Description]

After the [Cancel] button in the [Progress Status] dialog box is clicked on, closing the dialog box takes some

RH850/F1L Series E1/E20 Emulator Release Note(Restrictions when using CubeSuite+)

time because the process of canceling downloading/uploading is in progress. Wait until the process is completed.

[Resolution]

None

No. 6 Regarding memory map function

[Description]

The OCD does not support external memory.

[Resolution]

None

No. 7 Regarding memory function(CPU reset)

[Description]

When [CPU Reset after download] and [Execute to the specified symbol after CPU Reset] are set to [YES], execution proceeds to the location of the specified symbol after downloading.

If the [Download] menu item has been used to connect the debug tool and download a program, however, memory data from the reset to the specified symbol are not displayed in pink (Real-time RAM monitor) in the [Memory] panel.

[Resolution]

Execute [Connect to Debug Tool] and [Download] separately.

After the program has stopped, memory data being executed are displayed in pink.

No. 8 Regarding memory function(Peripheral Break)

[Description]

Peripheral Break is a function to stop operation of peripheral modules when a debugger stops operation of the microcontroller. However when rewriting a flash memory, a peripheral module set as peripheral break operates. Therefore the different counter value of WDT would be occurred between when a flash memory is rewritten and when it is not during the microcontroller stops.

[Resolution]

When rewriting a flash memory during the microcontroller stops, do CPU reset before executing a user program, or execute a user program by reset GO.

No. 9 Regarding memory function(DMM)

[Description]

Memory access by DMM function cannot be set to other than Local RAM area and Global RAM area.

[Resolution]

None

No. 10 Regarding IO register display function

[Description]

Bit names are not displayed.

[Resolution]

None

No. 11 Regarding controlling execution function(Power save mode)

[Description]

The device leaves the STOP or deep STOP mode in response to any of the following operations.

- a) Break
- b) Memory access
- c) Forcibly stopping tracing
- d) Setting an event
- e) Enabling the delay stop or full stop in tracing

[Resolution]

None

No. 12 Regarding controlling execution function(snooze instruction)

[Description]

When a snooze instruction is executed in single step (SS) mode and interruption is inputted into the stop state by snooze instruction, SS exception by the completion of snooze instruction execution does not occur. Since SS exception occurs after executing the top instruction to an interrupt handler, it seems that the snooze instruction was slippery.

[Resolution]

None

No. 13 Regarding controlling execution function (interrupt/exception instruction/CALLT instruction)

[Description]

When the instruction which is next to step execution of interrupt, exception instruction or CALLT instruction is LDSR or STSR which operates system register (PSW, EIIC, FEIC, EIPSW, FEPSW), a value may not be reflected to those registers correctly.

[Resolution]

None

No. 14 Regarding Break/Event function(SYSCALL instruction)

[Description]

A read-access break cannot be used to the data-access of a SYSCALL instruction.

[Resolution]

None

No. 15 Regarding Break/Event function(during a clock setup)

[Description]

When E1 emulator be taken a break during a clock setup, rewriting of a flash memory becomes impossible.

[Resolution]

None

No. 16 Regarding time measurement function

[Description]

Measurement of time in a specified range is not possible.

[Resolution]

Use measurement of time until execution stops.

No. 17 Regarding trace function(address supplement)

[Description]

Branch trace information being displayed consists of trace data on the branch origins and destinations and complemented source code between the origins and destinations.

If the address of each branch origin has not been acquired, trace data may be indicated as invalid from the beginning. Invalid data is displayed in the [Data] area.

[Resolution]

None

No. 18 Regarding trace function(setting of out-of-range trace event)

[Description]

For an out-of-range trace event, be sure to specify the start and end addresses.

[Resolution]

None

No. 19 Regarding trace function(section of out-of-range trace event)

[Description]

Only one section is specifiable for an out-of-range trace event.

[Resolution]

None

No. 20 Regarding trace function(abnormal exit of out-of-range trace event)

[Description]

After the emulator operation has been terminated by USB disconnection with an out-of-range trace event set, re-connecting the emulator fails because the out-of-range trace event cannot be restored.

[Resolution]

None

No. 21 Regarding trace function(section trace/Range out trace)

[Description]

Concurrent use of "Section trace" and "Range Out trace" cannot be performed.

[Resolution]

None

No. 22 Regarding debug information relation(source level stepping)

[Description]

During source-level stepping, the debugger may appear to be executing instructions that are not supposed to be executed.

[Example 1-1]

In the example below, execution stops at the position of (*2) after completing the for loop (*1) and branches to the next line depending on the value of "i".

Under some conditions, however, the PC (indicated by an arrow) appears to have moved to the position of (*3) regardless of the value of "i" at (*2).

```
void main()
{
    int i = 0;
    int j = 0;
    for (j = 0; j < 10; j++) { <-(*)1
        i = atoi("100");
    }
    if (i != 100) { <-(*)2
        i = atoi("100"); <-(*)3
    }
    return;
}
```

Conditions:

- (a) There is a directive (e.g. if, for, switch) at the position of (*2).
- (b) The code prior to (*2) is one of the following.
 - Directive
 - Label, goto, or return statement
 - Ternary, logical, or NOT operation

[Resolution]

None

[Example 1-2]

In the example below, execution branches to the case statement (*2) from the position of (*1) when function GetCount() is called for the first time.

Under some conditions, however, the PC (indicated by an arrow) appears to have moved to the position of (*3) immediately before (*2).

```
enum Count { ZERO, ONE, TWO };

enum Count GetCount()
{
    static enum Count value = ZERO;

    switch (value) {          <-( *1)
case TWO:
    value = ZERO;
    break;
case ONE:
    value = TWO;   <-( *3)
    break;
case ZERO:
default:
    value = ONE;   <-( *2)
    break;
    }
    return value;
}
```

Conditions:

The instruction at the branch destination

- (a) acquires the value of a constant, or
- (b) determines the address of a variable.

[Resolution]:

None

No. 23 Regarding debug information relation(display of information on variables)

[Description]

If two or more variables defined in a function have the same name, the values of variables that can be viewed when the program has stopped may differ from expected values.

Whether this phenomenon arises depends on the optimization level* selected during the process of compilation.

*The optimization level can be set via [Build Tool] - [Common Options] - [Frequently Used Options (Link)].

[Example]

In the example below, char-type variable "a" exists in the innermost scope at (*1) and int-type variable "a" exists in the innermost scope at (*2).

Under some conditions, however, only the value of one of the variables can be viewed from (*1) or (*2).

```
void main()
{
    int a = 100;
    {
        char a = 'A';
        a++;          <-( *1)
    }
    a++;             <-( *2)
}
```

- Display of (*1) in the [Watch] panel

```
"a"          'A' (0x41) "signed char" "0xfeb1004" //★ Expected value
or "a" 100 (0x00000064) "int"          "0xfeb1000"
```

- Display of (*2) in the [Watch] panel

```
"a"          'B' (0x42) "signed char" "0xfeb1004"
or "a" 100 (0x00000064) "int"          "0xfeb1000" //★ Expected value
```

Condition:

Optimization was performed at the time of compilation.

[Resolution]

Select [Optimize for Debugging] as the optimization level before compilation.

No. 24 Regarding debug console

[Description]

The OCD does not support the debug console.

[Resolution]

None

No. 25 Regarding Python console

[Description]

The Python console only supports the following functions that are used to reference or set values in memory or registers/special function registers (SFRs).

Supported functions:

debugger.Watch.GetValue *1

debugger.Watch.SetValue

debugger.Register.GetValue

debugger.Register.SetValue

*1: [WatchOption] is mandatory for debugger.Watch.GetValue.

However do not specify [WatchOption.Auto].

Example) debugger.Watch.GetValue(Symbol, WatchOption.Hexdecimal)

[Resolution]

None

No. 26 Regarding hot plug-in function

[Description]

The OCD does not support the hot plug-in function.

[Resolution]

None

When hot plug-in may be used in the future, it is necessary to make it the following circuit configurations.

As shown at Figure A, because 4.7uF capacitor is fixed with 8th pin of E1/E20 emulator inside, power supply voltage in user system may decrease for an instant when it is in hot-plug connecting. This decrease in voltage might lead MCU to be reset.

By fixing Ferrite Beads (or inductor) and large-sized low ESR capacitor with an area close to VDD line of debug connector ,as shown at Figure B, it is able to reduce the value of the voltage to the minimum. However, it is not the solution that completely prevent it.

In addition, hot plug-in function is valid only for debugging.

Hot plug-in adapter(option) is required to use this function.

Support schedule of a hot plug-in function is T.B.D.

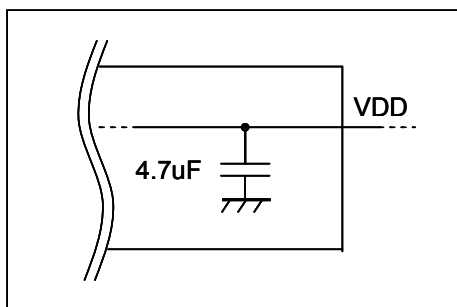


Figure A E1/E20 Emulator Internal circuit

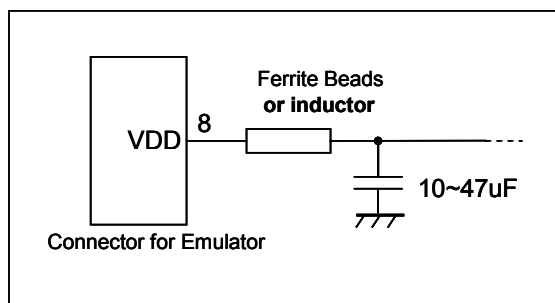


Figure B The measure method of E1 Emulator

No. 27 Regarding static variable

[Description]

The following function cannot be used in the address range of the static variable in a source file.

The error “Cannot find the symbol” is displayed.

Object function:

- Setting of Software break or Hardware break
- Setting of Event function(Break,trace, measurement function)
- Setting of action event
- Jump to memory

[Resolution]

None

No. 28 Regarding division of a load module

[Description]

When division generation of the load module is carried out using a CC-RH compiler, there is the following restriction.

-Source level debugging cannot be performed.

-Auto-registration of the output file of the 2nd henceforth is not carried out to a debug tool.

[Resolution]

Please do not divide the load module.

No. 29 Regarding Break function(read access break)

[Description]

A read access break of data designation will be a break after execution in the access break function.

Other access break will be "before execution".

[Resolution]

None

No. 30 Regarding trace function(trace setting)

[Description]

Although the trace setup is displayed in the property panel of a debug tool setting tab by 48/64/80/100pins device, the trace function cannot be used in 48/64/80/100pins device.

[Resolution]

None

No. 31 Regarding source file name

[Description]

Restriction of a debug function in case existing multiple source files of the same name

Example:

```
C:¥Work¥CubeSuite+¥ProjA¥ProjA.mtpj
           ¥Src¥main.c    -> A.abs
C:¥Work¥CubeSuite+¥ProjB¥ProjB.mtpj
           ¥Src¥main.c    -> B.abs
```

When the above two load modules are debugged simultaneously

Note: Although multiple load modules are used in the above example, this restriction is applicable for the case using single load module.

Functions : Editor , Event , etc

Symptom : When existing multiple source files with the same name in the load module for debugging (*1), the line address in another source file with the same name is displayed on editor.

Condition : The relative path from the compile directory (*2) of a file is consistent.

*1 : Build by CubeSuite+

Project file directory (*.mtpj) = compile directory

*2 : Build by make file

Current directory = compile directory

The above folder configuration example:

Relative path is set to "Src¥main.c." for the file "main.c" A.abs and the file "main.c" of B.abs.

[Resolution]

When existing multiple source files of the same name in the load module for debugging, a source file with the same name can be distinguished by doing any of the following during debugging.

(a) Please change folder configuration to differ the relative path from a compile directory.

Before: ProjA¥Src¥main.c

ProjB¥Src¥main.c

After : ProjA¥SrcA¥main.c

ProjB¥SrcB¥main.c

Relative paths : "SrcA¥main.c" "SrcB¥main.c"

(b) Please change a source file name not to exist same name file in debugging target.

Before: ProjA¥Src¥main.c

ProjB¥Src¥main.c

After : ProjA¥Src¥mainA.c

ProjB¥Src¥mainB.c

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