

[Notification]

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Debugging Console Function of the RX MCUs

Using On-chip Emulators: E2 Emulator Lite, E1, or E20

Outline

We proudly introduce the debugging console function, which facilitates convenient debugging and inspection of the RX MCUs by using an on-chip emulator: E2 emulator Lite (E2 Lite), E1, or E20.

For details of the functionality and system configuration of E2 Lite, E1, and E20, visit our Web site at:

<https://www.renesas.com/ocd>

1. Debugging Console Function of the RX MCUs using E2 Lite, E1, or E20



E2 emulator Lite



E1



E20

➤ Brief Description

The debugging console function of the RX MCUs can input and output arbitrary characters by the standard I/O functions (printf/scanf). Additionally, this function inputs and outputs information via an on-chip emulator, and therefore does not require the UART function of the MCU.

The debugging console function is very effective in the following cases:

- To obtain variables or SFR values at a specific location in the program and save them in an arbitrary format as a log
- To assign arbitrary data at a specific location in the program to change the control for the sake of testing the program
- To record a long program flow that exceeds the capacity of the trace function

➤ Using the debugging console function

The operation of the debugging console function of the RX MCUs is common to E2 Lite, E1, and E20. E2 Lite, E1, and E20 can be operated in combination with the CS+ or e²studio integrated development environment. For the usage in the CS+ or e²studio, refer to the followings.

- For CS+:

Refer to the chapter “Using the Debug Console” in the CS+ help or online help.

- CS+ help

RX[with CC-RX] > Debug Tool > Functions > Using the Debug Console

- Front page of the CS+ online help

<https://www.renesas.com/tool-help/index.html>

Debug console window for CS+

```

Line | Address | Code
---|---|---
31 | ffe00f81 | void main(void)
32 |         | {
33 | ffe00f83 |     printf("Hello World\n");
34 | ffe00f91 |     SampleFunc();
35 | ffe00f94 |     while(1);
36 |         | }
37 | ffe00f96 | void SampleFunc(void)
38 |         | {
39 |         |     char cMode[2];
40 |         |     char ledmode = 0;
41 |         |
42 | ffe00f9c |     printf("SampleFunc\n");
43 |         |     while(1){
44 |         |         printf("Now Led Mode %d\n", ledmode);
45 |         |         printf("Enter New mode >>");
46 |         |         scanf("%c", &cMode);
47 |         |         ledmode = atoi(cMode);
48 |         |         if(ledmode==0){
49 |         |             LedMode0();
50 |         |     }
    
```

Debug Console

```

Hello World
SampleFunc
Now Led Mode 0
Enter New mode >>1
Start Led Mode 1
Now Led Mode 1
Enter New mode >>0
Start Led Mode 0
Now Led Mode 0
Enter New mode >>
    
```

In the debug console window, output points and variable values you want to check at printf(), or input parameters you want to pass at scanf().

Output debugging console data to a log file by the logging function.

- For e² studio:

Refer to the chapter "e² studio Renesas Debug Virtual Console User Guide" in the e² studio help.

e² studio debug console window

```

46 ffe010d8 void main(void)
47 {
48 ffe010da     printf("Hello World\n");
49 ffe010e8     SampleFunc();
50 ffe010eb     while(1);
51 }
52 ffe010ed void SampleFunc(void)
53 {
54 ffe010f3     char cMode[2];
55 ffe01109     char ledmode = 0;
56
57 ffe0110f     printf("SampleFunc\n");
58 ffe01110     while(1){
59 ffe01113         printf("Now Led Mode %d\n", ledmode);
60 ffe01109         printf("Enter New mode >>");
61 ffe0110f         scanf("%c", &cMode);
62 ffe0113c         ledmode = atoi(cMode);
63 ffe01142         if(ledmode==0){
64 ffe01149             LedMode0();
65     }
    
```

Output debugging console data to a log file by the logging function.

In the Renesas debug virtual console, output points and variable values you want to check at printf(), or input parameters you want to pass at scanf().

2. RX MCUs which support the debugging console function

- All of the RX Family of MCUs

3. Purchasing the Product

For product ordering, contact your local Renesas Electronics marketing office or distributor with the following information. For product pricing, make inquiries in the same manner.

	Product model name	Order model name
E2 Lite	RTE0T0002LKCE00000R	As at left
E1	ROE000010KCE00	As at left
E20	ROE000200KCT00	As at left

Revision History

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		Page	Summary
1.00	Feb. 16, 2017	-	First edition issued

TOYOSU FORESIA, 3-2-24 Toyosu, Koto-ku, Tokyo 135-0061 Japan
 Renesas Electronics Corporation

■Inquiry

<https://www.renesas.com/contact/>

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