

EF1SRP-01US2 Supplement (R8C/Tiny Series 1-Wire Edition)

First Edition issued May 2006

1. General Description

This supplement contains information on matters that require attention for reading, writing and cleaning data to Renesas Technology Corp. R8C/Tiny Series MCU with built-in flash memory. This supplement can be referred in case of using EF1SRP-01U in EFP-S2/S2V.

*In case of using R8C/10 to 13 group, please refer to EF1SRP-01US2 supplement (R8C/10 to 13 group edition).

2. Operating Environment

Please use the MCU mentioned in this supplement in the environment as follows.

Table 2.1 Operating Environment List

| MCU Group Name | EFP-S2/S2V Monitor Version | WinEFP2 Version | EF1SRP-01US2.TBL Version |
|----------------|----------------------------|----------------------|--------------------------|
| R8C/14 Group | Ver.1.00.45 or later | Ver.1.00.00 or later | Ver.1.03.22 or later |
| R8C/15 Group | | | |
| R8C/16 Group | | | |
| R8C/17 Group | | | |
| R8C/18 Group | | | |
| R8C/19 Group | | | |
| R8C/1A Group | | | |
| R8C/1B Group | | | |
| R8C/20 Group | | | |
| R8C/21 Group | | | |
| R8C/22 Group | | | |
| R8C/23 Group | | | |
| R8C/24 Group | | | |
| R8C/25 Group | | | |
| R8C/26 Group | | | |
| R8C/27 Group | | | |
| R8C/28 Group | | | |
| R8C/29 Group | | | |

Each S/W version can be referred to [Help] [About] in WinEFP2 window menu.
If S/W version of EFP-S2/S2V etc. which you use is old one, please download the latest version upgrade data from the website below.

<EFP-S2's latest S/W free download site >
http://www.suisei.co.jp/download/efps2/efps2_down.htm

3. Pin Connection

Table 3.1 lists the Pin connection of target connection cable of the R8C/Tiny Series.

Table 3.1: List of Target Pin Connection

| Connection Pin No. (F1SRP-01US2 side) | Target End Wire Color | Signal | 4-Wire Cable Pin No. | MCU Connection Pin in Serial I/O Mode | I/O (writer side) |
|---------------------------------------|-----------------------|-------------|----------------------|---------------------------------------|-------------------|
| 1 | Orange/red dotted 1 | GND | 1 | Connects to VSS pin *3 | - |
| 2 | Orange/black dotted 1 | | | | |
| 3 | Gray/red dotted 1 | T_VPP | 4 | Unconnected | Open |
| 4 | Gray/black dotted 1 | T_VDD | 5 | Connects to VCC pin *1 | Input |
| 8 | White/black dotted 1 | T_PGM/OE/MD | 8 | Unconnected | Output |
| 9 | Yellow/red dotted 1 | T_SCLK | 6 | Unconnected | Output |
| 10 | Yellow/black dotted 1 | T_TXD | 7 | Connects to MODE pin | Output |
| 11 | Pink/red dotted 1 | T_RXD | 2 | Connects to MODE pin | Input |
| 12 | Pink/black dotted 1 | T_BUSY | 3 | Unconnected | Input/output |
| 14 | Orange/black dotted 2 | T_RESET | 9 | Connects to RESET pin *2 | Output |
| 15 | Gray/red dotted 2 | GND | 10 | Connects to VSS pin *3 | - |
| 16 | Gray/black dotted 2 | | | | |

Supplement of Pin Treatment:

*1 Supply VCC from user side to match source voltage of output buffer used on EFP-S2/S2V side with user side source voltage (VCC).

*2 Reset cancel is not carried out during using a writer. To execute user program, you should therefore unplug the user target connection cable to the writer. As for RESET output at writer side, see Note 2 in the page 3.

*3 The signal GND has 4 pins (No.1, 2, 15 and 16) for EF1SRP-01US2 side connector. When connecting to the target board, you can connect with using only one pin, but connecting 2 pins or more is recommended.

Supplement of others:

*4 Connect the MCU's Xin and Xout terminals to the oscillation circuit. In case of the operation with ring oscillator clock, connection to the oscillation circuit is not necessary.

(1) A recommended user target MCU circuit for R8C/Tiny Series is shown in Fig 3.1.

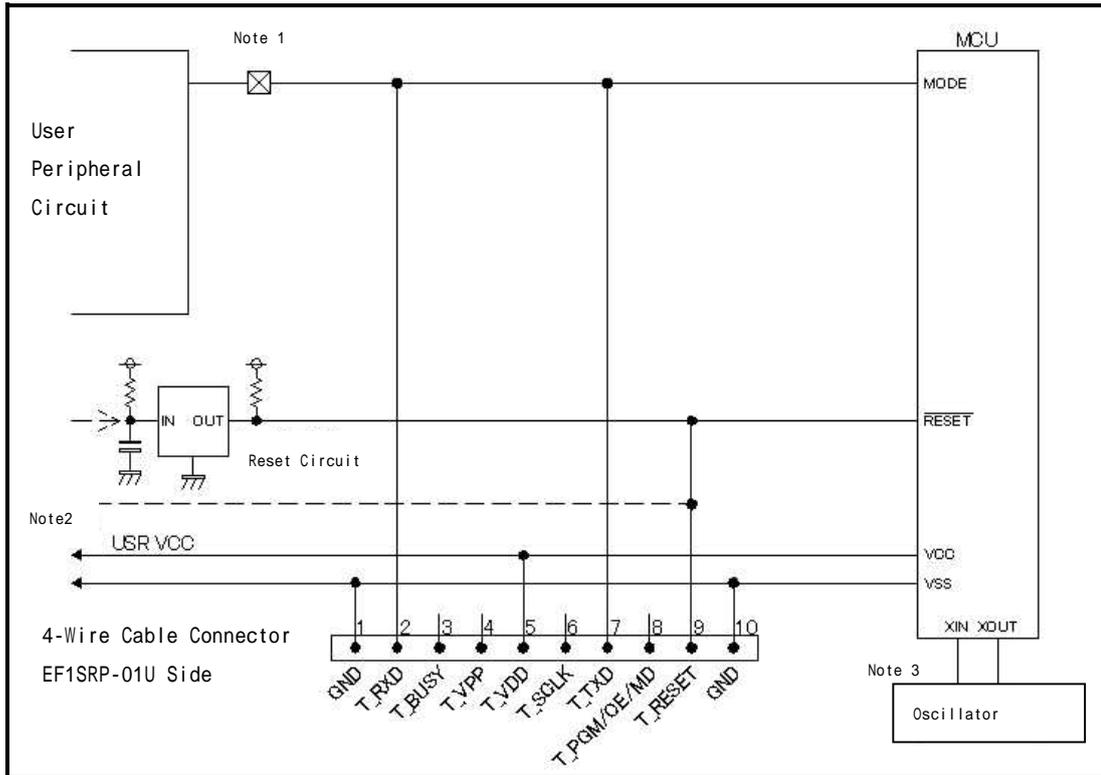


Fig 3.1: Recommended User Target Circuit

Notes:

- 1: If the user peripheral circuit is an output circuit, you should disconnect by jumper to avoid output collision when executing serial I/O mode.
- 2: EFP-I side RESET output is an open collector; therefore connect to the RESET pin with 1kΩ pull-up processing if RESET circuit is open collector output. If the RESET circuit is CMOS output, disconnect by jumper as described in Notes 1, or connect the EFP-I side T_RESET signal to RESET circuit input. Serial I/O mode entry is conducted by combining signal output timing of MODE and RESET from the writer, and make L to H output timing of MODE and RESET signals 500 ns or below.
- 3: In case of the operation with ring oscillator clock, connection to the oscillator circuit is not necessary.

4. Setting of Baud Transfer Rate

R8C/Tiny Series 1-Wire adopts clock asynchronous serial communication.

The default baud rate is 9600bps. It can be set to the baud rate of maximum of 57600bps by Bps parameter in Clock Asynchronous Serial in MCU Comm. tab of environment setting dialog.

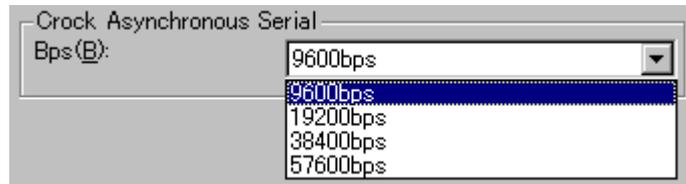


Fig.4.1: Bps parameter

5. ID Code Field

ID code field is provided in the internal flash memory of R8C/Tiny Series MCU. Fulfilling the following condition enables you to prohibit writing and reading of MCU internal flash memory.

Conditions for ID Code Protect Function:

Condition 1: Writes data except FFh to FFEh of the flash memory.

Condition 2: Writes ID code of your choice in ID code field.

Condition 3: Fulfills condition 1 and 2, and then turns on MCU power again.

MCU protected by writing ID code, can be released protected status by ID collation function of WinEFP. For the ID collation function, see "[6. ID Collation](#)".

* This function is for preventing incorrect data reading etc. of user's program.

| | |
|-------|--------------------------------|
| FFDFh | ID Code (1 st byte) |
| • | • |
| FFE3h | ID Code (2 nd byte) |
| • | • |
| FFEBh | ID Code (3 rd byte) |
| • | • |
| FFE7h | ID Code (4 th byte) |
| • | • |
| FFF3h | ID Code (5 th byte) |
| • | • |
| FFF7h | ID Code (6 th byte) |
| • | • |
| FFFBh | ID Code (7 th byte) |

* ID code field is discontinuous field divided 1byte.
ID code collation is done by fixed length at 7 bytes.

Fig.5.1: ID Code Field Configuration

6. ID Collation

ID collation command enables you to reset protected MCU after written ID code.

The command is executed by inputting the ID input format and ID code for the ID collation parameter of the WinEFP2 environmental setting dialog.

When ID code matches after executing ID collation command, protect status is reset. However, all commands of [Device] of the WinEFP window menu cannot be used if the ID code does not match.

The ID collation parameter layout is shown in Figure 6.1.

* Fig 6.1 shows ID collation command screen when selecting R8C/Tiny Series.



Fig 6.1: ID Collation Parameter Layout

1) Input format

The ID code input format is specified as ASCII or HEX.

2) Start address

Please specify the start address of ID code field.

For this parameter, the ID code start address of MCU is set automatically.

3) ID code

Please input the ID code fixed at 7 bytes.

7. ID Collation Operating Procedure

When you use an MCU in which ID code field is provided, pay attention to the miswriting into the ID code field. In order not to forget ID code written in, please keep the ID code at user's side.

This section contains a description of the usage example and operation procedure of ID code.

Consecutive procedure from ID code writing to ID code resetting is as follows.

* The following example of the procedure is made based upon the operation procedure of R8C/Tiny Series, and therefore in case MCU of the other groups is used, ID code size and ID code field address are different.

Procedure 1: ID Code Setting

The ID code is set to the area that corresponds to the ID code area in buffer RAM with built-in the main body of EFP-S2.

In the example below, ID code is set as "SUISEI." (Refer to Fig 7.1.).

| Address | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F | ASCII |
|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------|
| 0FF80 | FF | |
| 0FF90 | FF | |
| 0FFA0 | FF | |
| 0FFB0 | FF | |
| 0FFC0 | FF | |
| 0FFD0 | FF | 53 | |S |
| 0FFE0 | FF | FF | FF | 55 | FF | FF | FF | FF | FF | FF | 49 | FF | FF | FF | 53 | | ...U...I...S |
| 0FFF0 | FF | FF | FF | 45 | FF | FF | FF | 49 | FF | FF | 2E | FF | FF | FF | 00 | | ...E...I..... |

Fig 7.1: Dump Window (ID Code Setting Data)

Table.7.1: Buffer RAM Setting Data List

| Flash Memory Address | Setting Data | Flash Memory Address | Setting Data |
|----------------------|--------------|----------------------|--------------|
| FFDFh | 53h | FFF3h | 45h |
| FFE3h | 55h | FFF7h | 49h |
| FFEBh | 49h | FFFBh | 2Eh |
| FFEFh | 53h | FFFEh | 00h |

Procedure 2: Writing in the ID code Field

Write EFP-S2's internal buffer RAM data into MCU internal flash memory.

Fig 7.2 shows an example of writing in the field including ID code field, with using program command.

After completion of writing into the ID code field, turn MCU's power on again.

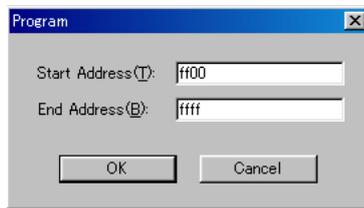


Fig 7.2: Writing in the ID Code Field

* Program Command Setting Address

Start address: FF00h

End address: FFFFh

Procedure 3: Checking Protected Status and Resetting

When executing the each command in [Device] of Win EFP window menu to the MCU in which the ID code is written, the error message dialog in Fig 7.3 is shown and command execution is stopped.



Fig 7.3: ID Error

Execute ID code collation using the ID collation command, and resets protected status at MCU side. ID code inputting by each input format is shown in Fig 7.4 and Fig 7.5.



Fig 7.4: ID Collation (Input Format: ASCII)

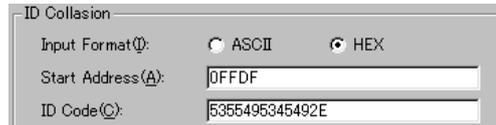


Fig 7.5 : ID Collation (Input Format: HEX)

If the ID code matches, protected status of MCU is reset, and writing and reading to MCU are enabled. If an error occurs after executing ID collation command, check ID code again and execute ID collation command.

8 . Erase Command

The erase type parameter contained in the erase command enables you to erase by block or erase all blocks. The erase command parameter input dialog is shown in Fig 8.1.

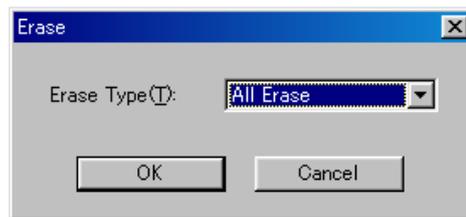


Fig 8.1: Erase Command Parameter Input Dialog

1) Erase Type

All Erase and block address field (xxxxxxh - xxxxxh) are displayed in the drop-down list to the right of the erase type parameter display field (displayed by clicking the arrow pointing downward with the mouse). Select the block erase method.

2) OK Button

Executes the block erase command.

3) Cancel Button

Cancels a command.

9 . Parameter Input by Device Command

MCU used in this MCU unit conducts data writing and reading by unit of a page.

Data size for one page is 256 bytes. For Start and End Addresses of each command, enter them following the below input format.

* Input format

Start Address: xxxx00h

End Address: xxxxFFh

If an address other than page unit is entered into Start and End Addresses, a parameter error occurs and it stops executing a command.