

## EFP-LC Supplement (RX Family Edition)

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### 1. General Description

This supplement contains information required for reading, writing and erasing data to/from Renesas Electronics RX family MCU with built-in flash memory.

### 2. Operating Environment and List of supporting MCU

#### 2. 1 Operating Environment

Use the MCU mentions in this supplement in an environment as follows.

Table 2.1 Operating Environment List

| MCU series name  | EFP-LC Version       |
|--|----------------------|
| RX200/RX210,RX220,RX21A series   | Ver.1.00.06 or later |
| RX600/RX610,RX621,RX62N,RX62GRX62T,RX630,<br>RX631,RX63N,RX63T series  |                      |
| <p>If your S/W version of EFP-LC is old one, download the latest version data from the website below.</p> <p>&lt; EFP-LC latest S/W free download site &gt;<br/> <a href="http://www.suisei.co.jp/download_e/productdata_efplc_e.html">http://www.suisei.co.jp/download_e/productdata_efplc_e.html</a></p> |                      |

#### 2. 2 List of supporting MCU

show correspondence MCU table in Table 2. 1 The program to the RX family in EFP-LC needs the setting of the MCU type.

Please set MCU type by MCU set command of the script command.

Please refer to MCU set command of the EFP-LC instruction manual for the details of the **MCU set command**.

Table 2. 1 List of supporting MCU

| Set value of the MCU type                           | Correspondence MCU series name |
|---|--------------------------------|
| 38 : RX ( Little endian )<br>39 : RX ( Big endian ) | RX200 / RX210                  |
|   | RX200 / RX220                  |
|   | RX200 / RX21A                  |
|   | RX600 / RX610                  |
|   | RX600 / RX621                  |
|   | RX600 / RX62N                  |
|   | RX600 / RX62G                  |
|   | RX600 / RX62T                  |
|   | RX600 / RX630                  |
|   | RX600 / RX631                  |
|   | RX600 / RX63N                  |
| RX600 / RX63T                                       |                                |

### 3. Connect EFP-LC with target system

Please connect EFP-LC and the connection with the user target system using EF1TGCB-X( tip wire press cable ) or EF1TGCB-B(4 wire type target connection cable) to show it in Fig 3.1 .

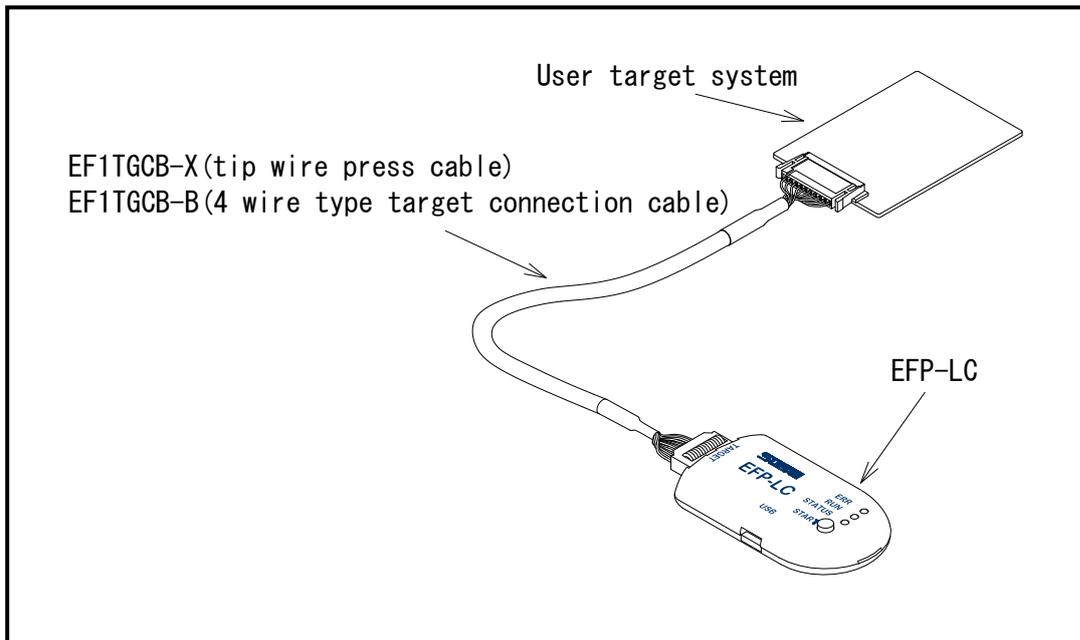


Fig3.1 Connection with target system

#### 4. Pin Connection

Table 4. 1 lists the connection of target connection cable pin of the RX Family.

Table 4. 1 Connection of the Target Connection Cable Pin (RX family)

| Pin No.<br>(EFP-LC side) | Target End Wire<br>Color | Signal      | 4-wire Cable<br>Pin No. | MCU Connection Pin For<br>Serial Input/Output | Input/Output<br>(writer side) |
|--------------------------|--------------------------|-------------|-------------------------|---|-------------------------------|
| 1                        | Orange/red dotted1       | GND         | 1                       | Connects to VSS pin *3                        | —                             |
| 3                        | Gray/red dotted1         | T_VPP       | 4                       | Unconnected                                   | Open                          |
| 4                        | Gray/black dotted1       | T_VDD       | 5                       | Connects to VCC pin *1                        | Input                         |
| 8                        | White/black dotted1      | T_PGM/OE/MD | 8                       | Unconnected *5                                | Output                        |
| 9                        | Yellow/red dotted1       | T_SCLK      | 6                       | Unconnected                                   | Output                        |
| 10                       | Yellow/black<br>dotted1  | T_TXD       | 7                       | Connects to RXD pin*6                         | Output                        |
| 11                       | Pink/red dotted1         | T_RXD       | 2                       | Connects to TXD pin*6                         | Input                         |
| 12                       | Pink/black dotted1       | T_BUSY      | 3                       | Unconnected *5                                | Input/Output                  |
| 14                       | Orange/black<br>dotted2  | T_RESET     | 9                       | Connects to RESET pin *2                      | Output                        |
| 16                       | Gray/black dotted2       | GND         | 10                      | Connects to VSS pin *3                        | —                             |

< Supplement of Pin Treatment >

- \*1 : Supply VCC from user side to match source voltage of output buffer used on EFP-LC 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 target connection cable to the writer. As for RESET output at writer side, see Note 2 in the page 4.
- \*3 : The signal GND has 2 pins(No.1,16)of EFP-LC side connector. When connecting to the target board, you can connect with using only one pin, but connecting more than 2pins is recommended.

< Supplement for others >

- \*4 : Connect the MCU's Xin and Xout terminals to the oscillator circuit.  
When operate it in an on tip oscillator, the connection of the oscillation circuit is unnecessary
- \*5 : When the Handling of mode pins is not possible with a user target board, please be connected to the mode terminal of MCU.  
T\_PGM/OE/MD = "H" Output, T\_BUSY = "L" Output
- \*6 : Please be connected to the terminal listed in a " Input and Output Pins Associated with the ROM " of the MCU hardware manual.

## 5. User target recommendation circuit

### 5. 1 User target recommendation circuit

A recommended sample of user target MCU peripheral circuit for RX62T is shown in Fig 5. 1 .

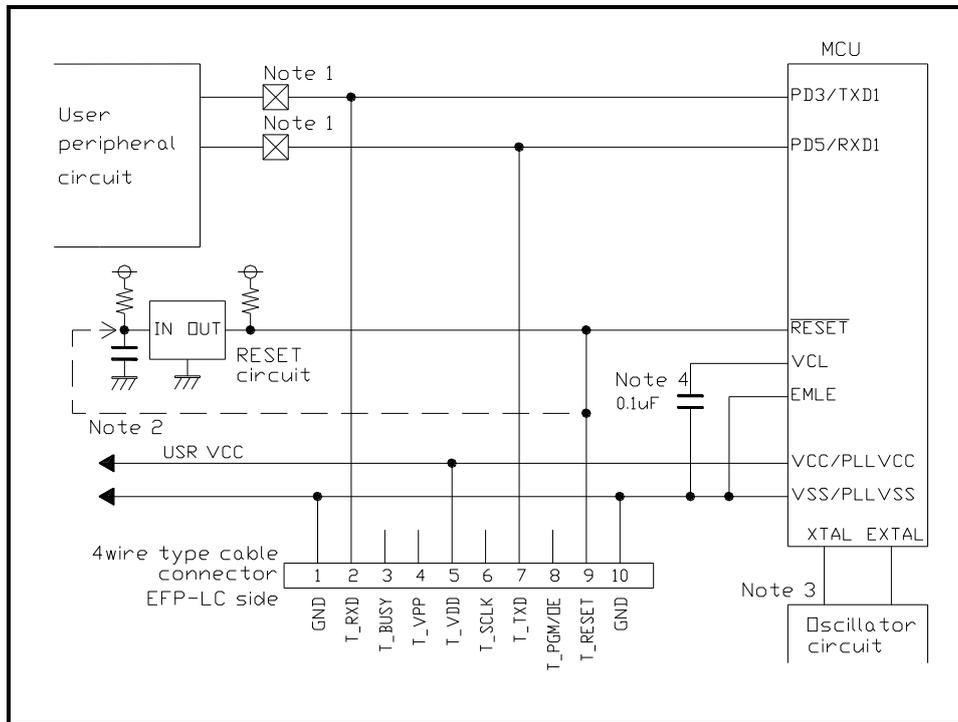


Fig 5. 1 User Target Peripheral Circuit Example (For RX62T)

#### 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. (see Fig 5. 2)
- 2 : EFP LC side reset output is an open collector therefore connect to the RESET pin with 1kΩ pull-up resistor for open collector output. If the reset circuit is CMOS output, disconnect by jumper as described in Notes 1, or connect the EFP-LC side T\_RESET signal to reset circuit input.  
By TXD from a writer, RXD and in combination in RESET signal output timing, a serial input and output mode entry is performed. Please become less than 500ns in the L → H output timing of TXD, RXD and the RESET signal.
- 3 : When operate it in an on tip oscillator, the connection of the oscillation circuit is unnecessary
- 4 : Please connect the VCL terminal to GND through capacitor (0.1uF).

## 5. 2 Collision prevention circuit example

An example of collision prevention circuit when user peripheral circuit outputs is shown Fig 5. 2.

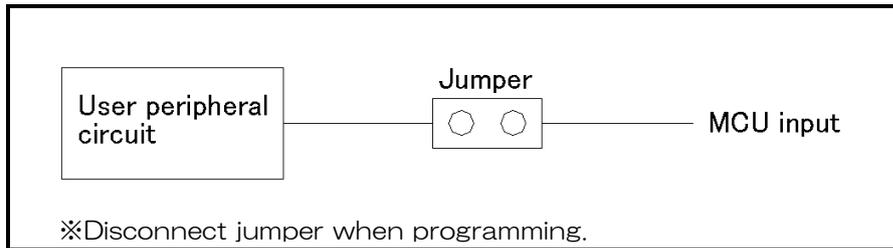


Fig 5. 2 Collision Prevention Circuit Using Jumper

## 5. 3 Handling of mode Pins

The handling content of the mode pins varies according to the MCU series. Please carry out the handling of the pins of the mode pin according to **table 5. 1**.

When the handling of the Mode pins is not possible on a user target board, please connect T\_BUSY pin of EFP-LC and T\_PGM/OE/MD pin to a mode pin of MCU.

table 5. 1 Handling of mode pins

| MCU series name                         | Mode pin name | Pin handling | pin handling in EFP-LC             |
|---|---------------|--------------|------------------------------------|
|   |               |              | Signal name (4-wire Cable Pin No.) |
| RX210,RX220,RX21A,<br>RX630,RX631,RX63N | MD            | L            | T_BUSY (3)                         |
|   | PC7           | L            | T_BUSY (3)                         |
| RX610<br>RX621,RX62N<br>RX62G,RX62T     | MD0           | H            | T_PGM/OE/MD (8)                    |
|   | MD1           | L            | T_BUSY (3)                         |
| RX63T                                   | MD            | L            | T_BUSY (3)                         |

※ : H connects with VCC, and L connects with GND

## 6. List of available commands

show a list of available commands in **table6.1** in RX family.

Table6.1 List of available commands(RX family)

| Command name          | Description command | Summary  |
|-----------------------|---------------------|--|
| Erase                 | E                   | Flash ROM with built-in MCU, all areas are erased.                           |
| Block erase           | E                   | Flash ROM with built-in MCU is block erased.                                 |
| Read                  | R                   | The data with built-in MCU ROM to written to the Hxw file.                   |
| Blank check           | B                   | Wheter which is erased with built-in MCU ROM is confirmed.                   |
| All block blank check | B                   | Confirm whether all blocks of built-in MCU ROM are erased.                   |
| Verify                | V                   | The data with built-in MCU ROM is collated with the content of the Hxw file. |
| Program               | P                   | The content of the Hxw file is written with built-in MCU ROM.                |
| Lock bit              | K                   | The lock bit with built-in MCU ROM is set in the lock.                       |
| ID Collation          | I                   | The ID code protect function is released.                                    |
| MCU-set               | T                   | Target MCU is set.   |
| Wait                  | W                   | The script operation is stopped temporarily.                                 |
| VDD Supply            | X                   | It supplies VDD in target MCU  |
| Baud-rate set         | S                   | change transmission rate.  |
| Check sum             | H                   | confirm a checksum value of the MCU built-in ROM.                            |
| Mode entry            | M                   | Carry out a mode entry to communication with RX family.                      |

## 7. Command descriptions for RX family

Explain the command for dedicated of the RX family.

### 7. 1 Mode entry command

Execute a mode entry command and make each command feasible.

**Format :** M,[main clock frequency],[main clock multiplication],[peripheral clock multiplication]

- main clock frequency : fill in operation frequency of the main clock by a 0.01MHz unit (example 12.4MHz:1240)
- main clock multiplication : fill in the multiplication ratio to MCU, according the specifications.
- peripheral clock multiplication : fill in the multiplication ratio to MCU, according the specifications.

**Description example :**

M,800,8,4 ; frequency=8MHz, main clock multiplication=8, peripheral clock multiplication=4

**Detail :**

Firstly it is necessary to execute a mode entry command to execute a command in RX family. Please fill in this command after baud rate setting command.(S command).

### 7. 2 ID verification command

The ID code protect function is released.

**Format :** I,[the number of times to carry out],[ID cord],[ID cord form]

- the number of times to carry out : 0 : 1time, 1 : 3time
- ID cord : The value that a user of 16bytes sets
- ID cord form : 0 : input by ASCII codes, 1 : input by HEX codes

**Description example :**

I,0,450102030405060708090A0B0C0D0E0F,1

**Detail :**

By releasing the protection ID code, enables access to the MCU.

Please describe this command after the mode entry command (M command) .

### 7. 3 Erase command

Erasing MCU built-in ROM.

**Format :** E,[Block End address],[Lock bit form] ; block erase  
E,,[lock bit form] ; all area erase

- Lock bit form : 0 : effective, 1 : invalidity
- Block End address : End address of the block to erase.

**Description example :**

E,FFFFFFFF,1 ; block erase  
E,,1 ; all area erase (Block end address will not fill)

**Detail :**

By enabling the lock bit format, a locked block is not erased.

If you disable the lock-bit format, it is possible to erase all blocks, regardless of the state of the lock / unlock. user boot area is not erased at all area erase.

#### 7. 4 All block blank check command

Confirm whether the data of all blocks of built-in MCU ROM are erased.

**Format :** B,[Type of Flash]

- Type of Flash : 1:user area, 2:data flash area, 3:user boot area

**Description example :**

B,1 : all block blank check of the user area

**Detail :**

Make sure that each area of the ROM chip MCU, the data of all the blocks have been erased.  
The boot program performs a check cleared, it can be checked faster than normal blank command.

#### 7. 5 Read command

**Format :** R,[Hxw file name],[start address],[end address]

- Hxw file name : Specify here the hxw file name, to be read in EFP-LC
- start address : Start address of the area to be read
- end address : End address of the area to be read

**Description example :**

R,LC-PBT.Hxw,FFF00000,FFFFFFF

**Detail :**

EFP-LC read to the data of the built-in MCU ROM.

**Attention :**

This command cannot be used in the data flash area.

#### 7. 6 Blank check command

**Format :** B,[Start address],[End address]

- Start address : Start address of the area to be Blank check.
- End address : End address of the area to be Blank check.

**Description example :**

B,FFFFFF00,FFFFFFF

**Detail :**

Whether it is erased with built-in MCU ROM is confirmed.

**Attention :**

This command cannot be used in the data flash area.

## 7. 7 Verify command

**Format** : V,[Hxw file name],[start address],[end address]

- Hxw file name : Please specify the name of the Hxw files that have been downloaded to EFP-LC.
- start address : Start address of the area to be verify check
- end address : End address of the area to be verify check

**Description example** :

V,LC-PBT.Hxw,FFFFFF00,FFFFFFF

**Detail** :

The data with built-in MCU ROM is collated with the content of the Hxw file.

**Attention** :

This command cannot be used in the data flash area.

## 7. 8 Program command

The content of the Hxw file is written with built-in MCU ROM.

**Format** : P,[Hxw file name],[start address],[end address],[lock bit form]

- Hxw file name : Please specify the name of the Hxw files that have been downloaded to EFP-LC.
- start address : Start address of the area to be written
- end address : End address of the area to be written
- lock bit form : 0 : lock bit effective、 1 : Lock bit invalidity

**Description example** :

P,SAMPLE.Hxw,FFFFFF00,FFFFFFF, 1

**Detail** :

The Hxw data from the start address to the end address is written with built-in MCU ROM.

When it is an area where the block is locked, and all data in the page which tries to be written is erased, it is possible to write it by invalidly setting the lock bit.

If the locked area is effectively set the lock bit and written, it becomes an error.

It becomes an error if it writes on the page not erased even if not locked.

**Attention** :

The error occurs when the address other than the range of the address of the Hxw file have been described in the start address and the end address.

In the RX family, in order to perform a write in units of 1 page (256 bytes), an error occurs when you do not specify one page at (xxxxxx00h - xxxxxxFFh) start address, end address.

When the end address of the MOT file is not xxxxxxFFh, in the case of the conversion from MOT in RC-Downloader to Hxw file, please set "Setting type" in "Manual" in an item of "Hxw data domain setting". Please convert top address into xxxxxx00h with an end address as xxxxxxFFh.

MOT file area that does not exist in the source file at this time, 0xFF is set as data.

## 7. 9 Check sum command

The command verify the check sum of MCU built-in ROM data.

**Format :** H,[Type of Flash],[ROM capacity],[check sum value]

- type of Flash : 1 : user area, 2 : data area, 3 : user boot area
- ROM capacity :Input by KB unit ( 64KB ⇒64 )
- check sum value : 4Byte ( The long word data which added by a 1 byte unit )

**Description example :**

H,1,256,1D4B59E6

**Detail :**

Confirm that the check sum of MCU built-in ROM data and check sum value of argument match.

The check sum value is the long word data which added all data of the ROM area to by a 1 byte unit. As for the calculation size of SUM, SUM is calculated at the nearest size more than deployment size as follows in each area when do not reach the following size. It is calculated as FF about the lack area.

- data area , user boot area  $8\text{kByte} \times 2^n$  (n = 0,1,2 . . . )
- user area  $64\text{kByte} \times 2^n$  (n = 0,1,2 . . . )

When there is non-program area in data area, data become unsettled.

## 7. 10 Lock bit command

The lock bit at every the block with built-in MCU ROM can be set in the lock, and the thing to prevent the mis-erase and mis-writing, etc.

**Format :** K,[Lock block end address]

**Description example :**

K,FFFFFFFF

**Details :**

If you specify the argument the end address of the block you want to lock, set the lock bits for each block of MCU built-in ROM.

**Attention :**

The cancellation of the lock needs erase by the lock bit invalidity.

In the RX family lock-bit protected function exists only in the user area.

The error occurs when described mistake the block end address where MCU corresponds.

## 7. 1 1 Wait command

Command which stops temporarily while script is operating.

**Format :** W=xx

- xx : Specifies the number of seconds to pause (Valid until 0-99. Waiting for key input is 0.)

**Description example :**

W=7 ; The script execution is stopped during the 7 seconds.

W=0 ; The script execution is stopped until START button input

**Details :**

When the wait command is executed, MCU reset of the target substrate is released.

MCU can operate with the cable for writing connected.

The warning sound ((\*pipipi\*)) is generated once while stopping the key input waiting at each passage of five minutes.

In case of key entry waiting, after START button is pressed and it is unlocked, commands after Wait command can be continuously executed. This command can be used any number of times in one PBT file.

**Use example :**

When protecting writing is done in MCU which can be protected after check of operation.

The operation check can be done by two or more set of software's operating without removing the cable for the simple debugging and the demonstration.

**Attention :**

When you release the reset, the RX family please be mode entry again. Please run the mode entry command after this command.

Writing, and after writing ends, target MCU reset does not release and end (writer) for safety as for originally and on board (The target substrate does not operate). It is necessary to turn on the power supply to the target substrate after the power supply is turned off, and connected cable for writing etc. are detached and do the operation check etc. When reset is released after writing, It might influence the MCU operation in the circuit with which the cable for writing is connected.

The problem on safety might occur in this command according to the circuit composition of the target substrate, and this respect is had to be examined enough, and it uses it to the last in the responsibility of the user externals.

Because any damage occurs because of use, our company cannot take the responsibility.

In addition, it is not the one to secure the MCU operation when reset is released.

## 7. 1 2 Baudrate set command

The command which changes the baud rate to access.

**Format :**S=xxx

- xxx : (Valid until 1-256)

### Description example :

S=3 ; 500kBps is used for access with MCU.

S ; Error ( no argument )

### Detail :

RX family is in communication at 9600bps when accessing data read, verify, and writing.

You can shorten the processing time to change the baud rate to access. The value to be set, please refer to Table 7. 1 - Table 7. 2.

Please description after the MCU set command (T command ) This command is.

### Attention :

MCU access error occurs, if compatibility with the MCU clock oscillator has been mounted is poor, as the device error. Please use it to change the baud rate.

After setting, changing does MCU setting (T command) or works at the baud rate that set until cut the power supply of the main body of EFP-LC.

Table 7. 1 Setting baud rate ( 1 )

| Setting | Baud rate |
|---------|-----------|---------|-----------|---------|-----------|---------|-----------|
| S=1     | 1500000   | S=25    | 60000     | S=49    | 30612     | S=73    | 20547     |
| S=2     | 750000    | S=26    | 57692     | S=50    | 30000     | S=74    | 20270     |
| S=3     | 500000    | S=27    | 55555     | S=51    | 29411     | S=75    | 20000     |
| S=4     | 375000    | S=28    | 53571     | S=52    | 28846     | S=76    | 19736     |
| S=5     | 300000    | S=29    | 51724     | S=53    | 28301     | S=77    | 19480     |
| S=6     | 250000    | S=30    | 50000     | S=54    | 27777     | S=78    | 19230     |
| S=7     | 214285    | S=31    | 48387     | S=55    | 27272     | S=79    | 18987     |
| S=8     | 187500    | S=32    | 46875     | S=56    | 26785     | S=80    | 18750     |
| S=9     | 166666    | S=33    | 45454     | S=57    | 26315     | S=81    | 18518     |
| S=10    | 150000    | S=34    | 44117     | S=58    | 25862     | S=82    | 18292     |
| S=11    | 136363    | S=35    | 42857     | S=59    | 25423     | S=83    | 18072     |
| S=12    | 125000    | S=36    | 41666     | S=60    | 25000     | S=84    | 17857     |
| S=13    | 115384    | S=37    | 40540     | S=61    | 24590     | S=85    | 17647     |
| S=14    | 107142    | S=38    | 39473     | S=62    | 24193     | S=86    | 17441     |
| S=15    | 100000    | S=39    | 38461     | S=63    | 23809     | S=87    | 17241     |
| S=16    | 93750     | S=40    | 37500     | S=64    | 23437     | S=88    | 17045     |
| S=17    | 88235     | S=41    | 36585     | S=65    | 23076     | S=89    | 16853     |
| S=18    | 83333     | S=42    | 35714     | S=66    | 22727     | S=90    | 16666     |
| S=19    | 78947     | S=43    | 34883     | S=67    | 22388     | S=91    | 16483     |
| S=20    | 75000     | S=44    | 34090     | S=68    | 22058     | S=92    | 16304     |
| S=21    | 71428     | S=45    | 33333     | S=69    | 21739     | S=93    | 16129     |
| S=22    | 68181     | S=46    | 32608     | S=70    | 21428     | S=94    | 15957     |
| S=23    | 65217     | S=47    | 31914     | S=71    | 21126     | S=95    | 15789     |
| S=24    | 62500     | S=48    | 31250     | S=72    | 20833     | S=96    | 15625     |

unit [bps]

Table 7.2 Setting baud rate (2)

| Setting | Baud rate |
|---------|-----------|---------|-----------|---------|-----------|---------|-----------|
| S=97    | 15463     | S=137   | 10948     | S=177   | 8474      | S=217   | 6912      |
| S=98    | 15306     | S=138   | 10869     | S=178   | 8426      | S=218   | 6880      |
| S=99    | 15151     | S=139   | 10791     | S=179   | 8379      | S=219   | 6849      |
| S=100   | 15000     | S=140   | 10714     | S=180   | 8333      | S=220   | 6818      |
| S=101   | 14851     | S=141   | 10638     | S=181   | 8287      | S=221   | 6787      |
| S=102   | 14705     | S=142   | 10563     | S=182   | 8241      | S=222   | 6756      |
| S=103   | 14563     | S=143   | 10489     | S=183   | 8196      | S=223   | 6726      |
| S=104   | 14423     | S=144   | 10416     | S=184   | 8152      | S=224   | 6696      |
| S=105   | 14285     | S=145   | 10344     | S=185   | 8108      | S=225   | 6666      |
| S=106   | 14150     | S=146   | 10273     | S=186   | 8064      | S=226   | 6637      |
| S=107   | 14018     | S=147   | 10204     | S=187   | 8021      | S=227   | 6607      |
| S=108   | 13888     | S=148   | 10135     | S=188   | 7978      | S=228   | 6578      |
| S=109   | 13761     | S=149   | 10067     | S=189   | 7936      | S=229   | 6550      |
| S=110   | 13636     | S=150   | 10000     | S=190   | 7894      | S=230   | 6521      |
| S=111   | 13513     | S=151   | 9933      | S=191   | 7853      | S=231   | 6493      |
| S=112   | 13392     | S=152   | 9868      | S=192   | 7812      | S=232   | 6465      |
| S=113   | 13274     | S=153   | 9803      | S=193   | 7772      | S=233   | 6437      |
| S=114   | 13157     | S=154   | 9740      | S=194   | 7731      | S=234   | 6410      |
| S=115   | 13043     | S=155   | 9677      | S=195   | 7692      | S=235   | 6382      |
| S=116   | 12931     | S=156   | 9615      | S=196   | 7653      | S=236   | 6355      |
| S=117   | 12820     | S=157   | 9554      | S=197   | 7614      | S=237   | 6329      |
| S=118   | 12711     | S=158   | 9493      | S=198   | 7575      | S=238   | 6302      |
| S=119   | 12605     | S=159   | 9433      | S=199   | 7537      | S=239   | 6276      |
| S=120   | 12500     | S=160   | 9375      | S=200   | 7500      | S=240   | 6250      |
| S=121   | 12396     | S=161   | 9316      | S=201   | 7462      | S=241   | 6224      |
| S=122   | 12295     | S=162   | 9259      | S=202   | 7425      | S=242   | 6198      |
| S=123   | 12195     | S=163   | 9202      | S=203   | 7389      | S=243   | 6172      |
| S=124   | 12096     | S=164   | 9146      | S=204   | 7352      | S=244   | 6147      |
| S=125   | 12000     | S=165   | 9090      | S=205   | 7317      | S=245   | 6122      |
| S=126   | 11904     | S=166   | 9036      | S=206   | 7281      | S=246   | 6097      |
| S=127   | 11811     | S=167   | 8982      | S=207   | 7246      | S=247   | 6072      |
| S=128   | 11718     | S=168   | 8928      | S=208   | 7211      | S=248   | 6048      |
| S=129   | 11627     | S=169   | 8875      | S=209   | 7177      | S=249   | 6024      |
| S=130   | 11538     | S=170   | 8823      | S=210   | 7142      | S=250   | 6000      |
| S=131   | 11450     | S=171   | 8771      | S=211   | 7109      | S=251   | 5976      |
| S=132   | 11363     | S=172   | 8720      | S=212   | 7075      | S=252   | 5952      |
| S=133   | 11278     | S=173   | 8670      | S=213   | 7042      | S=253   | 5928      |
| S=134   | 11194     | S=174   | 8620      | S=214   | 7009      | S=254   | 5905      |
| S=135   | 11111     | S=175   | 8571      | S=215   | 6976      | S=255   | 5882      |
| S=136   | 11029     | S=176   | 8522      | S=216   | 6944      | S=256   | 5859      |

unit [bps]

## 8. EFP-LC Type-E Dedicated function

You can download up to four Hxw file in EFP-LC Type-E is possible.

That the user area, the data area, the user boot area, write to each area of the script file, it is possible by one.

If you want to download to the EFP-LC, please download the required number of Hxw file first. Please download the PBT file at the end.

## 9. Parameter Input by Device Command

MCU used in EFP-LC conducts data writing and reading by unit of a block.

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

※Input format

Start Address : xxxxxx00h

End Address : xxxxxxFFh

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

## 1 0. Sample script file

wrote the following script to reference when for the RX family, write, and erase.

For more information about the script commands, see "7. Command descriptions for RX family".

<Sample script file RX210 ( R5F52108 ) >

```

; Set MCU type   t = 38:Little endian
t=38

; Set communication baud rate (500kBps)
s=3

; Mode entry
M,3200,1,1

; Remove ID protection
i,0,450102030405060708090A0B0C0D0E0F,1

; Lock bit is invalid and Erases all domains
e,,1

; Blank Check whether data are not written
B,FFF80000,FFFFFFFF
; The blank check of the data area is effective for only all area blank check commands
B,2
B,FF7FC000,FF7FFFFF

; Write Program (Lock bit Invalidity)
p,User_Program.hxw,FFF80000,FFFFFFFF,1
p,Data_Program.hxw,00100000,00101FFF,1
p,Boot_Program.hxw,FF7FC000,FF7FFFFF,1

; Verify Check whether data are able to make writing normally
v,User_Program.hxw,FFF80000,FFFFFFFF
v,Boot_Program.hxw,FF7FC000,FF7FFFFF
; Because the data area is impossible of verify check, confirm program data with a check sum value
H,2,8,000FED0B

```

## 1 1. Trouble shooting

The following shows a part of errors occurring in EFP-LC and how to deal with tem.

Table 1 1 . 1 List of errors

| LED Display |        | Cause and How to Cope   |
|-------------|--------|---|
| ERR         | STATUS |   |
| ○           | ○      | [Script error]<br>(1)Is Hxw File Type correctly selected when you convert from HEX to Hxw?<br>RX family, please select Normal.<br>(2)Are the start address and the end address of PBT and Hxw matched?<br>Please set “Hxw data domain setting” to “Manual”, and conform Hxw address with script<br>or conform script address with Hxw file.   |
| ○           | ◎      | [Device error]<br>(1)Is MCU power voltage used in the normal range?<br>(2)Is wire connection of MCU and EFP-LC OK?<br>(3)Connector and/or IC socket may have a bad connection.<br>Please clean the connector and/or IC socket.<br>(4) it may not be matched with communication baud rate.<br>Please change the setting of baud rate.  |
| ○           | ●      | [Command execution error]<br>(1) Is wire connection of MCU and EFP-LC OK?<br>(2) Connector and/or IC socket may have a bad connection.<br>Please clean the connector and/or IC socket.<br>(3) Is the data erased before blank command is executed?<br>In case it is erased with lock bit valid, please try erasing it with lock bit invalid.<br>(4) In case of QzROM, is it after read protect command is executed?<br>There is no way to cancel read protect. Please change MCU. |
| ◎           | ○      | [Download error]<br>(1) Isn't a file other than that of Hxw, Fxw or Pbt type downloaded?<br>(2) Is Hxw or Fxw file edited?  |
| ◎           | ◎      | [Version up error]<br>EFP-LC F/W is not corresponded.<br>EFP-LC has different F/W for each type, so please upgrade it with corresponding F/W.   |

○ : Light up, ◎ : Blink, ● : EXTinction

### Supplementary information about the script error

The EFP-LC compare the addresses of Hxw file address and PBT file written in PBT file.

Script error will be raised if the following conditions are satisfied.

- 1、 Start Address of the Hxw file <= Start Address of the Pbt file
- 2、 End Address of the Pbt file <= End Address of the Hxw file

If an error occurs, such as program error or device error, recommend that you check the following steps.

- 1.MCU power supply voltage is within the normal range?
2. There are no problems in the wiring of the EFP-LC and MCU?
3. Poor contact has not occurred in the IC socket and connector?

With respect to poor contact, refer to “**10.2 About the poor contact**”.

## 1 2. Reference

### 1 2. 1 Write time

Table 1 2. 1 shows the time of writing RX/RX210(ROM size : 512kB)

Measurement condition :

|                               |  |
|-------------------------------|--|
| EFP-LC F/W                    | Ver.1.00.06  |
| External power supply voltage | 5[V]   |
| Input Clock                   | an on-chip oscillator clock (Without external clock operation) |
| Clock transfer speed          | 500,000[bps]   |

Command is executed for the user area ( FFF80000h - FFFFFFFFh ).

| Executed command | Execution time<br>(unit:[Sec]) |
|------------------|--------------------------------|
| Erase            | 2.6                            |
| Program          | 23.6                           |
| Verify check     | 19.4                           |

Table 1 2. 1 Command execution time measurement result

### 1 2. 2 About the poor contact

If a poor contact in the IC socket connectors or connectors, it is necessary to clean.

For cleaning of the IC socket is recommended to use nanotech brush (Kita Mfg. Co., Ltd.).

This brush can remove the dirt that adheres to the contacting pin and a small amount of solder metastasis.

It can help to solve the problem of the improving loose connection.

When you buy "NANOTEK BRUSH", please contact to KITA Manufacturing Co.,Ltd.

NANOTEK BRUSH (KITA Manufacturing Co.,Ltd. ) [http://www.kita-mfg.com/pro\\_nanotech\\_e.html](http://www.kita-mfg.com/pro_nanotech_e.html)

Fig 1 2. 1 shows a micrograph of the IC socket where there is poor contact.

Conduction failure has occurred in the contact portion of the IC socket, whitish part.

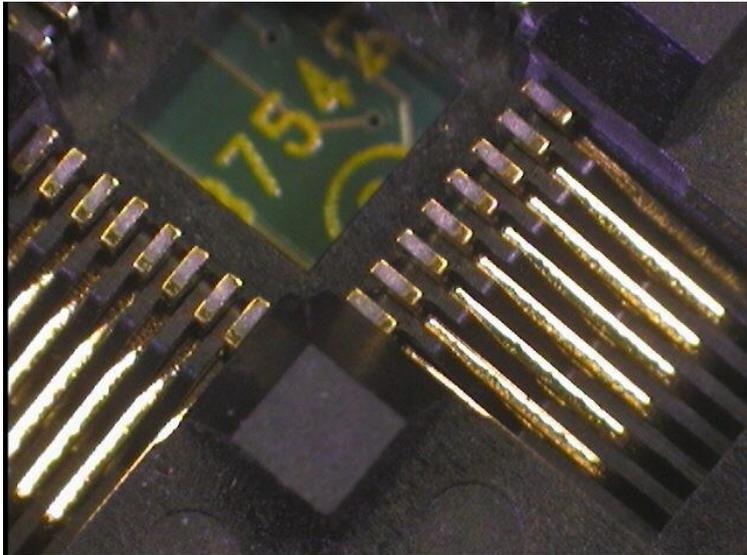


Fig 1 2. 1 poor contact state

#### Editoevision History

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