

EF3020F-52S User's Guide

Suisei Electronics System Co., Ltd

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1. General Description

EF3020F-52S is a parallel writing unit to use to set to EFP-I.

Reading and writing data to MCU Renesas Technology M16C/20 series with built-in Flash memory are enabled by using EF3062F-52S.

IC socket for 52-pin 1.778mm pitch QFP (56P6S-A) is mounted on EF3020F-52S.

<Packing contents>

- 1) EF3020F-52S
- 2) Users guide (this manual)

Fig.1.1 shows the adapter appearance.

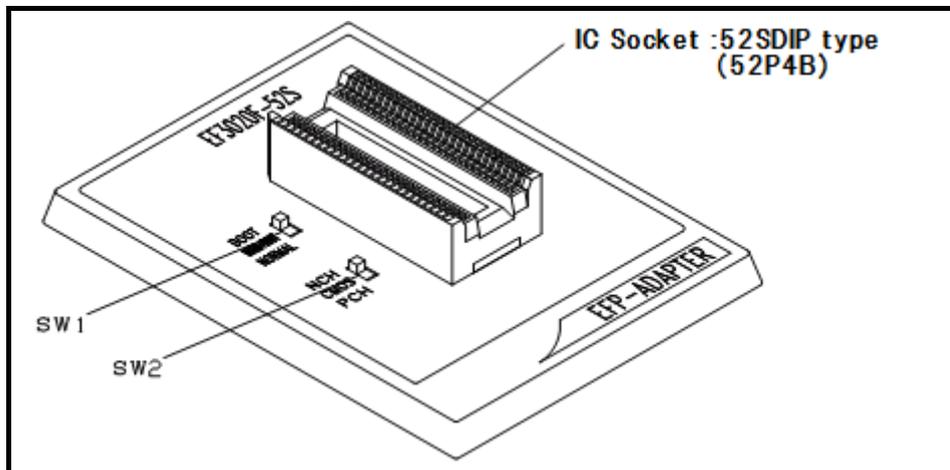


Fig.1.1: Appearance of EF3020F-52S

2. Insertion Direction of MCU and cleaning of IC socket

2.1 Insertion Direction of MCU

When MCU is inserted, No.1 pin of the IC socket on EF3020F-52S and MCU's No.1 pin should be connected.

The wrong insertion would cause a serious breakage of MCU.

Insertion direction of MCU is shown in Fig.2.1.

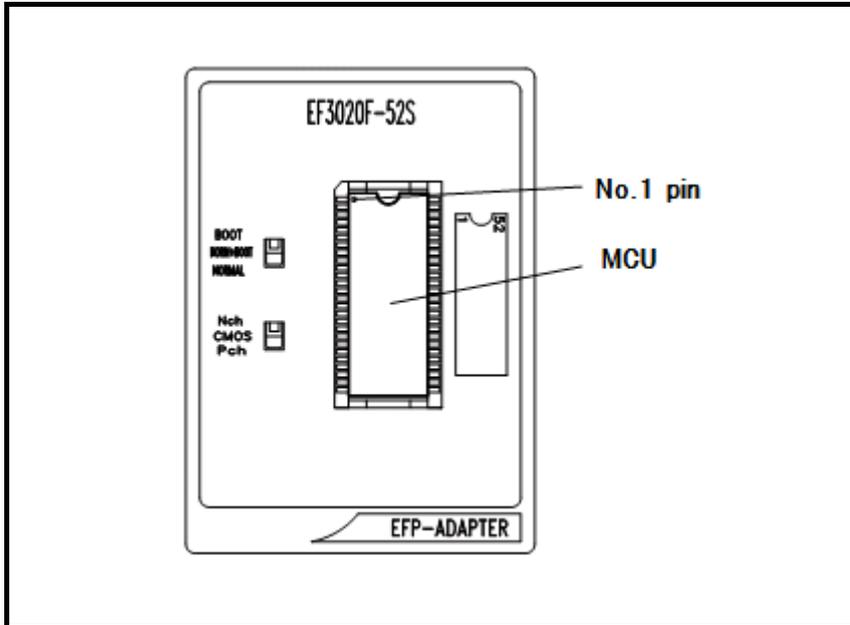


Figure 2.1: Pin Orientation of The socket

2.2 Cleaning of IC Socket

A contact pin inside of the IC socket of the MCU unit might deteriorate and a contact failure might occur because of the number of times used and its age of service. As the contact failure may cause incorrect writing of MCU and malfunction of the writer, please take the below measures.

Though enquiries on contact failures can be made, we regard IC sockets as consumable supplies. We may recommend you to replace them if a contact failure of IC socket occurs due to its use deterioration.

Measures against IC Socket Contact Failure

- (i) Please clean the contact pin surface inside of IC socket with a brush, etc. regularly, depending on the number of times used.
- (ii) If the product is not to be used for a long period, please keep it with less humidity in a plastic bag, etc.

【Recommended item for cleaning】

About the cleaning of the contact pin in the IC socket, we recommend the use of the nanotech brush (Kita Mfg Co., Ltd).

The nanotech brush can remove the dirt which stuck to a contact pin, a very small amount of metastasis of solder. When a contact poor problem occurred, please try it.

About nanotech brush, please ask us or Kita Mfg Co., Ltd (refer to the following site).

Nanotech brush (Kita Mfg Co., Ltd.) http://www.kita-mfg.com/pro_nanotech_e.html

3. List of Corresponding MCU and corresponding version

3.1 Corresponding MCU

The correspondence list of EF3020F-52S

| MCU type | Memory type | Correspondence MCU Name | Program memory area | SW1 | SW2 |
|-------------------|--------------|-------------------------|---------------------|--------|------|
| M3020xF6 (BOOT) | Flash memory | M30201F6xSP | DF000H ~ DFDFFH | BOOT | CMOS |
| M3020xF6 (NORMAL) | Flash memory | M30201F6xSP | F4000H ~ FFFFFH | NORMAL | CMOS |

3.2 About Software version(S/W)

Please download the latest version up data on the following site when the S/W version.

Please use S/W of the latest version and confirm S/W version regularly.

【S/W version confirmation method】

The version numbers are displayed by [Help]→[About] in the WinEFP or WinEFP2 window menu.

< EFP-I/IM S/W the latest free download site >

http://www.suisei.co.jp/download_e/productdata_efp1_e.html

< EFP-S2 S/W the latest free download site >

http://www.suisei.co.jp/download_e/productdata_s2_e.html

< EFP-S2V S/W the latest free download site >

http://www.suisei.co.jp/download_e/productdata_s2_e.html

Note on Corresponding Versions

Above corresponding versions might change without notice on account of the future capability improvement, etc. Furthermore in case the upgrade procedure manual is attached when this product is purchased, please refer to that manual as a priority.

4. About setting of SW1

It can perform writing to BOOT domain and NORMAL domain and reading by setting SW1 of EF3020F-52S. The setting method of each domain is shown below.

It can perform writing and reading to BOOT domain and NORMAL domain by setting SW1 of EF3020F-52S. The setting method of each domain is shown below.

1) The setting of BOOT domain

Set SW1 of EF3020F-52S in BOOT side and set a use device parameter in the environmental setting dialogue of WinEFP in "M3020xF6 (BOOT)".

2) The setting of NORMAL domains

Set SW1 of EF3020F-52S in NORMAL side and set a use device parameter in the environmental setting dialogue of WinEFP in "M3020xF6 (NORMAL)".

※ When the device LED (red) of the main body of EFP-I turns on, please do not set SW1.

* When you set SW1 in "NORM + BOOT" and it performs to read and write NORMAL domain and BOOT domain, please refer to 6. Device batch macro instruction.

5. About setting of SW2

SW2 of EF3020F-52S sets an output form of port P0 of MCU.

Please set it according to the contents of **EF3020F-52S specifications**.

* When the device LED (red) of the main body of EFP-I turns on, please do not set SW2.

6. Device batch macroinstruction

Device batch macro command is a command writing and reading that NORMAL domain of MCU and a BOOT domain by batch. When it uses Device batch macro command, please set SW1 in MCU unit in "NORM + BOOT".

Please use this command when it work to write in reading data at MCU of the blank after it reads data from MCU which is finished writing.

The parameter input dialogue of the device batch macro command is shown in Fig.6.1.

Device batch macroinstruction

BOOT Area

Start Address(T): 05F000

End Address(B): 05FDFF

NORMAL Area

Start Address(S): 0F4000

End Address(C): 0FFFFFF

Device Type(D): Erase

Include Block Information(L)

OK Cancel

Fig.6.1 Device batch macro command parameter input dialogue

1) S t a r t、E n d A d d r e s s

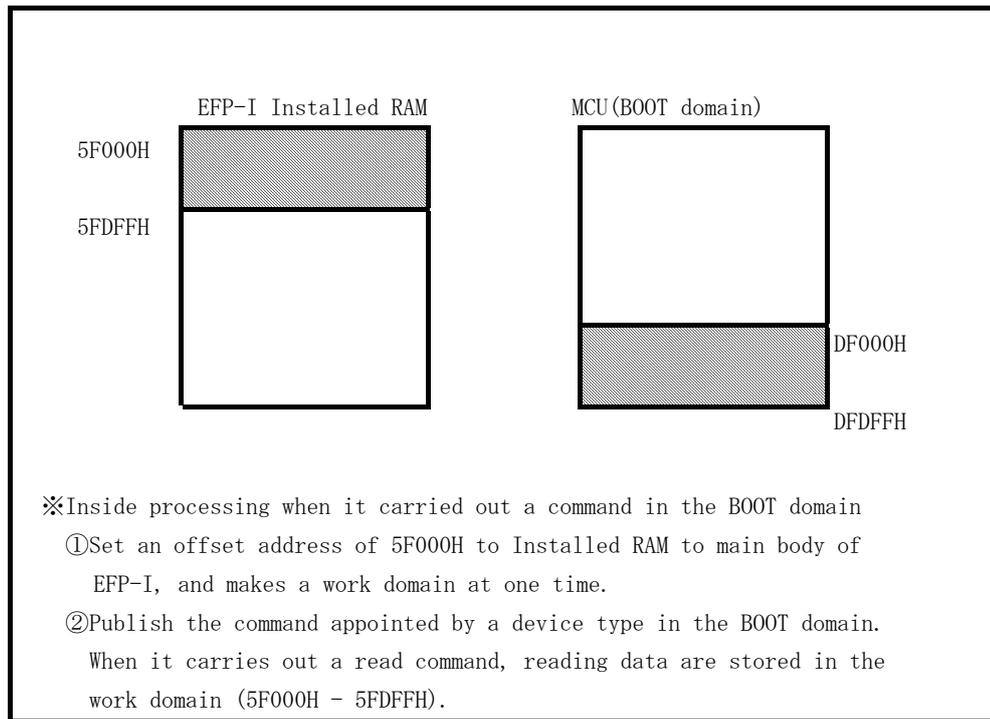
Appoint a domain reading or writing in the BOOT domain.

Please appoint domains from 5F000H to 5FDFFH in this parameter.

※In the BOOT domain, NORMAL domain and address space repeat.

From 5FDFFH to 5F000H of the EFP-I Installed RAM is assigned to the work domain for the BOOT domain.

The diagrammatical view of the work domain is shown in Fig. 6.2.



※Inside processing when it carried out a command in the BOOT domain

①Set an offset address of 5F000H to Installed RAM to main body of EFP-I, and makes a work domain at one time.

②Publish the command appointed by a device type in the BOOT domain. When it carries out a read command, reading data are stored in the work domain (5F000H - 5FDFFH).

Fig.6.2 Work domain diagrammatical view

2) S t a r t、E n d A d d r e s s (N O R M A L Domain)

Appoint a domain reading or writing in the NORMAL domain.

Please use address in NORMAL domain of the device.

3) D e v i c e T y p e

Appoint a command to publish. Please choose from drop-downs list in this parameter displayed area right side.

It is displayed when it click a downward arrow with a mouse.

4) I n c l u d e B l o c k I n f o r m a t i o n (including block information)

It can not in this unit.

5) O K button

Carry out a device batch macro command.

6) C a n c e l button

Cancel the command

※ the use example of the device batch macro command

It shows in the follow example that it uses a device batch macro command, and begin to read data from MCU which is finished writing and write in data to MCU of the blank article.

1) Set SW1 of EF3020F-52S in "NORM + BOOT" and choose [Device]→[Device batch macroinstruction] in the WinEFP menu.

2) Insert MCU which is finished writing in EF3020F-52S.

Start a device batch macro command, the end address set an arbitrary address and set "read" a device type and click the OK button.

When a command was finished normally, it takes out MCU from EF3020F-52S.

3) Insert MCU of the blank article in EF3020F-52S.

Set an arbitrary address in a start of the device batch macro and the end address, and set a device type in "program" and click the OK button.

7. Automatic offset address for EFP-I internal RAM

EFP-I has built-in 512k Byte user buffer RAM. In EFP-I, address space of buffer RAM are normally set from 0h to 7FFFFFFh. However, some MCU used in this unit automatically set offset address in buffer RAM and allocate address space from 80000h to FFFFFFFh.

*Please set domain of FFFFFFFh - 80,000h the command in the [Edit] in the WinEFP window menu.

For automatic offset setting, it cannot use the domain of 7FFFFFFh - 0h.

* When you input indication value into the Offset Address parameters such as Download, Upload command, a value of "the input value + automatic offset value" (80,000h) becomes offset value for the buffer RAM.

* The explanation about the offset of the buffer RAM is mentioned in "the way of thinking of offset addresses" of EFP-I control software WinEFP instruction manual.

8. Command Specification of Group Distinction

This guidebook contains special command description using for M16C/62, 80 and M32C/83 group parallel I/O mode, however command correspondence contents are different by each group of MCU.

The command correspondence list is given in Table 8.1

Table 8.1: Command Correspondence List

| MCU Group Name | Block Set | Block Erase | Automatic Offset | HEX Files |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------|------------------|-----------|
| M16C/62 Group | ○ | ○ | × | × |
| M16C/62N Group | ○ | ○ | × | × |
| M16C/62P Group | ○ | ○ | × | × |
| M16C/80 Group | ○ | ○ | ○ | ○ |
| M32C/83 Group | ○ | ○ | ○ | ○ |
| ※ ○ means "correspondence", and × means "not correspondence". Refer to following articles for description of command by each group: Block Set : 7. Block Set Block Erase: 8. Erase Automatic Offset : 10. Automatic Offset Address of EFP-S2 HEX Files: 11. A limit of a HEX file | | | | |

9. Select of a BOOT/NORMAL Field

In the parameter input dialogue of each device command, a field to execute writing and reading can be selected.

A parameter input dialogue of program command is shown in Fig. 9.1.

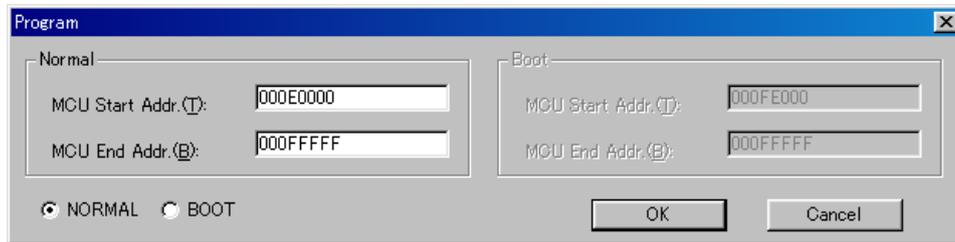


Fig.9.1: Parameter Input Dialogue of Program Command

Radio button for selecting field is located in left below of parameter input dialog of program command.

After setting each parameters and selecting field to execute command, click the OK button.

※ All device command has a radio button for selecting field same as Fig.6.1, and its operations are also same.

10. Block Set Command

In the MCU usable by this unit, internal flash memory is divided into several blocks. And every block has block-renewal-prohibition bit called lock bit.

The block set command handles for viewing and setting lock bit.

Setting a block's lock bit to "lock" allows you to protect the block from being written to or erased.

10.1 Screen Layout

The screen layout for the block set command is shown in Fig. 10.1.

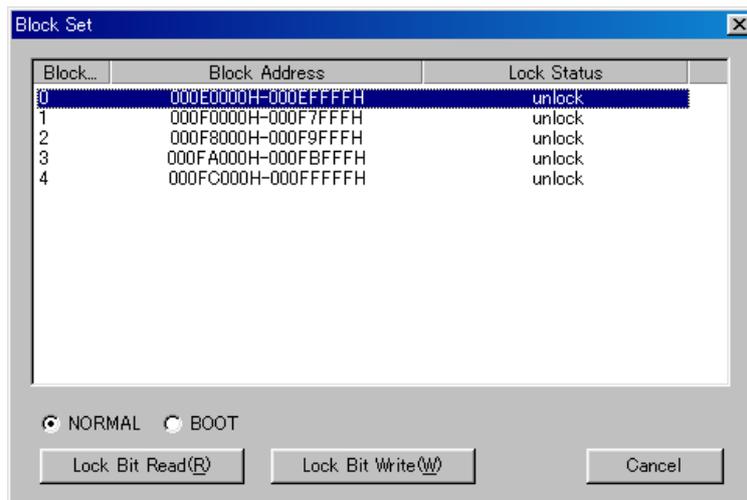


Fig. 10.1: Block Set Command Screen layout

(1) Block No.

Indicates the block No. assigned for each block.

(2) Block Address

Indicates start and end address for each block.

(3) Lock Status

Indicates the lock bit status for each block.

Lock: The lock bit is locked.

Unlock: The lock bit is unlocked.

(4) Radio button for selecting field

Select a field to be erased.

(5) Lock Bit Read button

Reads all lock bit data from target MCU, and indicates lock bit status according to data contents.

(6) Lock Bit Write button

Setting lock bit. The lock bit of the block, which is displayed "lock" in lock bit status, is set to "locked".

(7) Cancel button

Cancels command.

Refer to "10.2 Lock Bit Setting Operation Procedure" about a setting method of lock bit.

10.2 Lock Bit Setting

The procedure for setting lock bit to lock is as follows:

This section contains a procedure to set unlocked lock bit to be locked.

To change a locked lock bit back to unlocked, see “7.1 Lock Bit Erase Command” .

Procedure-1: Lock Type Setting

Lock type parameter specifies whether lock bit is to be effective or not.

Lock type parameter is located in Use Devise of WinEFP2 Environment Setting dialog.

Without setting lock type parameter, protect function by lock bit is not worked correctly.



Fig.10.2: Lock Type Parameter

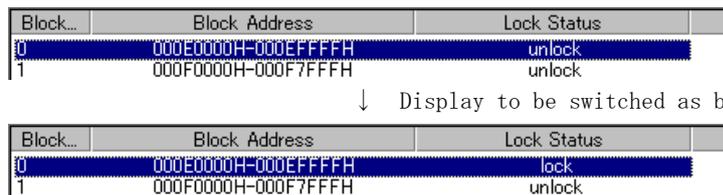
※ Lock type setting contents

Lock bit effective: Lock bit is effective

Procedure-2: Lock Bit Setting

Execute block set command, and then block set command dialog appears.

Position the mouse cursor on the desired line and double-click to switch lock bit status in Lock Status, and set to lock side.



| Block... | Block Address | Lock Status |
|----------|---------------------|-------------|
| 0 | 000E0000H-000EFFFFH | unlock |
| 1 | 000F0000H-000F7FFFH | unlock |

↓ Display to be switched as below when double-clicking

| Block... | Block Address | Lock Status |
|----------|---------------------|-------------|
| 0 | 000E0000H-000EFFFFH | lock |
| 1 | 000F0000H-000F7FFFH | unlock |

Fig.10.3: Setting Lock Bit

Click the Lock Bit Write button, and execute block set command.

If you write or erase the block which protected status by lock bit after setting above, error occur and stop a command execution. Error doesn't occur by All Erase (all block to be erased together) command, but unlocked block is all erased.

1 1. 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. 11.1.

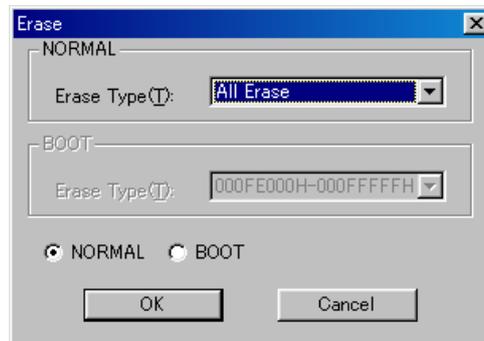


Fig. 11.1: Erase Command Parameter Input Dialog

(1) Erase type

All erase and block address field (xxxxxxh - xxxxxxh) 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) Radio button for selecting field

Select a field doing erase.

(3) OK button

Executes block erase command.

(4) Cancel button

Cancels command.

11.1 Lock Bit Releasing

Procedure for releasing a protected status block by lock bit is as follows.

Procedure-1: Lock Type Setting

Lock type parameter specifies whether lock bit is to be effective or not.

Lock type parameter is located in Use Devise of WinEFP2 Environment Setting dialog.

Without setting lock type parameter, protect function by lock bit is not worked correctly.



Fig.11.2: Lock Type Parameter

※ Lock type setting contents

Lock bit ineffective: Lock bit is ineffective

Procedure-2: Lock Bit Erasing

Execute erase command. Then, Erase Command Parameter Input dialog is appeared.

Specify a protected block by lock bit or “All Erase” in Erase type parameter, and then execute Erase command.

1 2. Automatic offset address for EFP-S2/S2V' s internal RAM

EFP-S2/S2V has built-in 4MB user buffer RAM. In EFP-S2/S2V, address space of buffer RAM are normally set from 0h to 3FFFFFFh. However, some MCU used in this unit automatically set offset address in buffer RAM and allocate address space from C00000h to FFFFFFFh.

Buffer RAM address configuration in each group is given in Table.12.1.

Table 12.1: Buffer RAM Address Configuration

| MCU Group Name | User Buffer RAM Address Configuration |
|----------------|---------------------------------------|
| M16C/62 Group | 000000h~3FFFFFFh |
| M16C/62N Group | 000000h~3FFFFFFh |
| M16C/80 Group | C00000h~FFFFFFh |
| M32C/83 Group | C00000h~FFFFFFh |

1 3. Parameter Input by Device Command

In a case to execute programming and reading by device command, there is an input limitation given in Table 13.1 when inputting executing field of command. If incorrect field is specified, parameter error occurs and it stops command execution.

Table 13.1: Address Input Format

| MCU Group Name | Programming | Reading |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|
| M16C/62 Group | “Page” Input | “Word” Input |
| M16C/62N Group | “Word” Input | |
| M16C/62P Group | “Word” Input | |
| M16C/80 Group | “Page” Input | |
| M32C/83Group | “Page” Input | |
| In case of “Page” input, input a start and end address with page unit. 1Page equals 256bytes, and this means start address should be xxxx00h and an end address should be xxxxFFh when inputting a command. | | |

1 4. Limitation on HEX File

Intel HEX and extension HEX format file are compatible with EFP-S2/S2V, but address field can be composed Kusing HEX file is within 1Mega bite (from 0h to FFFFFh). If the address configuration of user program is more than 100000h, create HEX file with Motorola S format and download it to EFP-S2/S2V.

Table 14.1: HEX File Address Configuration

| EFP-S2 compatible HEX File | Address Configuration |
|-----------------------------------|------------------------------|
| Intel HEX | 00000000h~0000FFFFh |
| Intel extension HEX | 00000000h~000FFFFFh |
| Motorola S Format HEX | 00000000h~FFFFFFFh |

In addition to above HEX file format, HEX file for Mitsubishi exclusive use is available. Mitsubishi exclusive HEX file enable to create address field from 0h to FFFFFFFh with Intel HEX format. It is impossible to download Mitsubishi HEX file to EFP-S2 directly, so exchange that file to Motorola S format HEX with using HEXTOS2.EXE enclosed Mitsubishi C compiler tool, and then download it to EFP-S2.