FLASH MCU Programmer

for Traveo

User's Manual

Target products

This application note is described about below products;
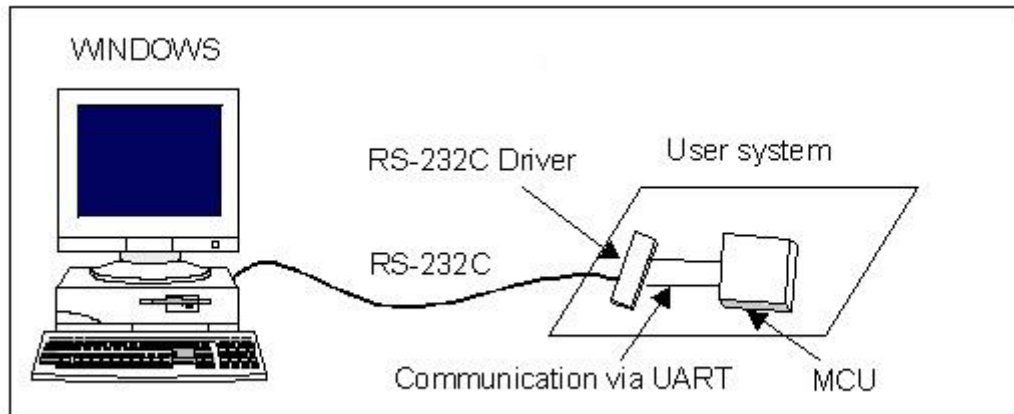
Series	Product Number
MB9D560	MB9DF566MGA MB9DF564MAE/MGE/LAE/LGE MB9DF565MAE/MGE/LAE/LGE MB9DF566MAE/MGE/LAE/LGE
S6J3110	S6J311EJAA/EHAA S6J311AHAA S6J311BJAB/BHAB/BJBB/BHBB S6J311CJAB/CHAB/CJBB/CHBB S6J311DJAB/DHAB/DJBB/DHBB S6J311EJAB/EHAB/EJBB/EHBB
S6J3120	S6J312AHAA
S6J320C	S6J320CQXA
S6J3200	S6J323C/4C/5C/6C/7C/8C S6J324CLS/CKS S6J326CLS/CKS S6J32A9/B9/C9/D9 S6J32AA/BA/CA/DA
S6J3300	S6J331E

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1. CONFIGURATION DIAGRAM

Figure 1-1   Configuration Diagram

Using RS-232C cable connected to the personal computer (Windows PC), flash memory data in the microcontroller mounted in the user system can be reprogrammed. Note that the user system must have an RS-232C driver for communication with the microcontroller UART.

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2. EXAMPLE OF CONNECTION FOR ON-BOARD REPROGRAMMING BY PROGRAMMER

This chapter explains a pin setup which must be set up for every kind series.

2.1   Setting for MB9DF566MGA / F564MAE/MGE/LAE/LGE / F565MAE/MGE/ LAE/LGE / F566MAE/MGE/LAE/LGE

Figure 2-1   Example of connection for MB9D560 series
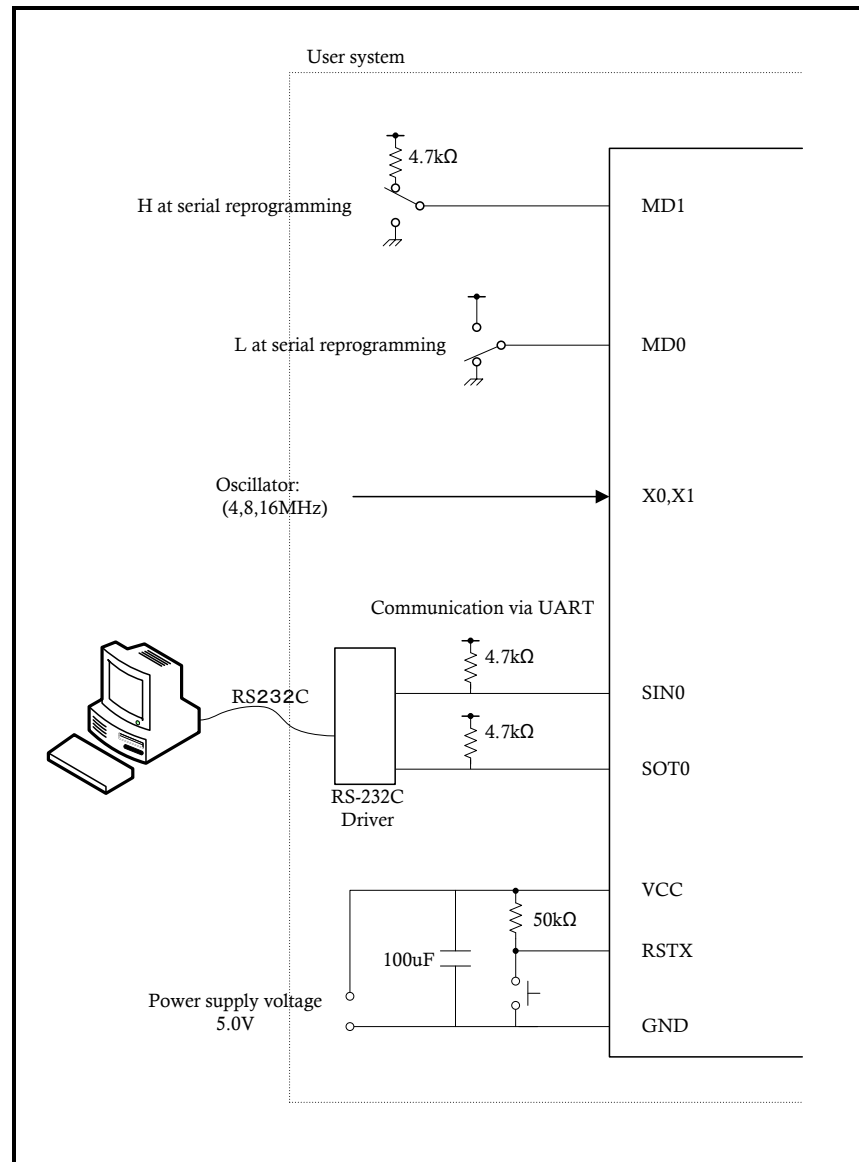
The MD1 and MD0 pins, SIN0 and SOT0 pins cannot be controlled by the PC and should be set in the user system.

During serial reprogramming, when the RSTX pin is set from Low to High level after setting the MD1 pin(H level) and MD0 pin(L Level), and SIN0 and SOT0 pin(Pull Up), the microcontroller enters the serial reprogramming mode(reference of the upper figure), enabling serial reprogramming from the PC. In addition, please use an oscillator (4, 8, 16MHz) at the time of FLASH reprogramming. The oscillator of the other frequency cannot use it at FLASH reprogramming.

After the reprogramming, control is shifted to the normally-used mode as for MD1 and MD0 pins and to the user circuit side as for SIN0 and SOT0 pin. Then RSTX pin set from Low to High level executes user program.

[Notes concerning example of connection]

The circuit diagram between Vcc pin, RSTX pin, and GND pin is an example. And users can select the suitable setting for each system.

2.2 Setting for S6J311AHAA / J311EJAA/EHAA / J311BJAB/BHAB/BJBB/B HBB / J311CJAB/CHAB/CJBB/CHBB / J311DJAB/DHAB/DJBB/DHBB / J311EJAB/EHAB/EJBB/EHBB

Figure 2-2   Example of connection for S6J3110 series

The MD pins, SIN0 and SOT0 pins cannot be controlled by the PC and should be set in the user system.

During serial reprogramming, when the RSTX pin is set from Low to High level after setting the MD pin(L Level), and SIN0 and SOT0 pin(Pull Up), the microcontroller enters the serial reprogramming mode(reference of the upper figure), enabling serial reprogramming from the PC. In addition, please use an oscillator (4MHz) at the time of FLASH reprogramming. The oscillator of the other frequency cannot use it at FLASH reprogramming.
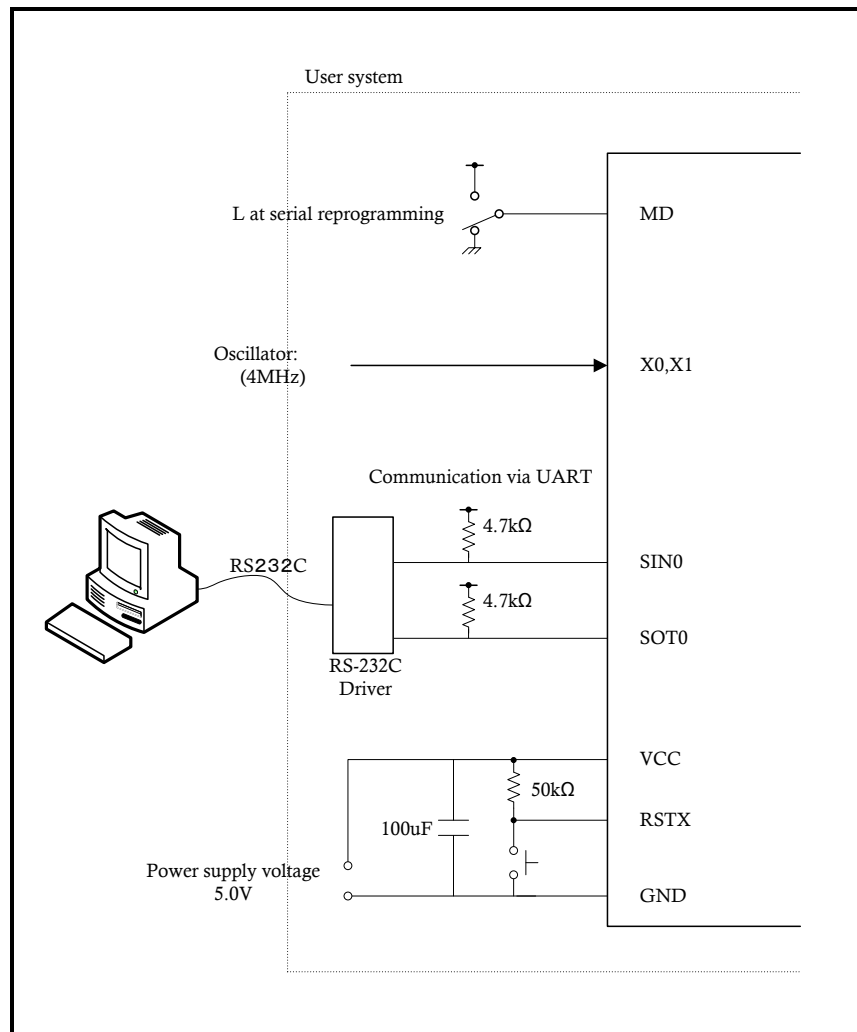
After the reprogramming, control is shifted to the normally-used mode as for MD pins and to the user circuit side as for SIN0 and SOT0 pin. Then RSTX pin set from Low to High level executes user program.

[Notes concerning example of connection]

The circuit diagram between Vcc pin, RSTX pin, and GND pin is an example. And users can select the suitable setting for each system.

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2.3   Setting for S6J312AHAA

Figure 2-3   Example of connection for S6J3120 series

The MD pins, SIN0 and SOT0 pins cannot be controlled by the PC and should be set in the user system.

During serial reprogramming, when the RSTX pin is set from Low to High level after setting the MD pin(L Level), and SIN0 and SOT0 pin(Pull Up), the microcontroller enters the serial reprogramming mode(reference of the upper figure), enabling serial reprogramming from the PC. In addition, please use an oscillator (4MHz) at the time of FLASH reprogramming. The oscillator of the other frequency cannot use it at FLASH reprogramming.
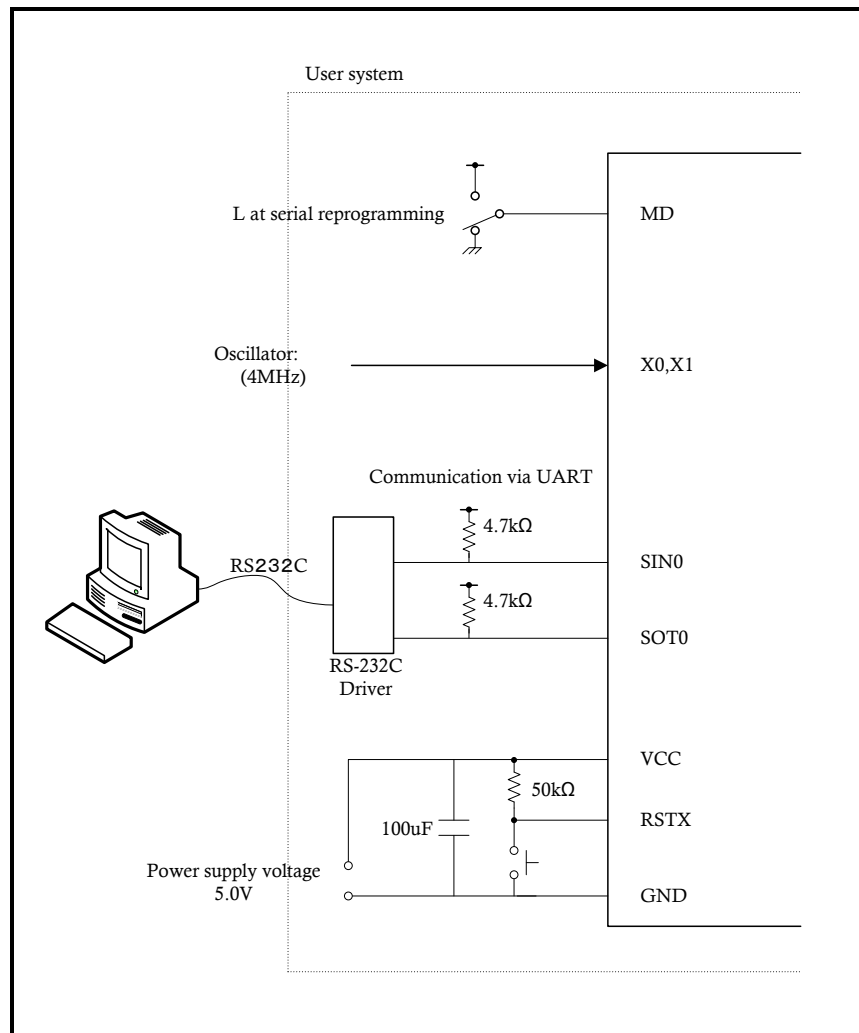
After the reprogramming, control is shifted to the normally-used mode as for MD pins and to the user circuit side as for SIN0 and SOT0 pin. Then RSTX pin set from Low to High level executes user program.

[Notes concerning example of connection]

The circuit diagram between Vcc pin, RSTX pin, and GND pin is an example. And users can select the suitable setting for each system.

2.4　Setting for S6J320CQXA

Figure 2-4　Example of connection for S6J320C series

The MD pins, SIN0 and SOT0 pins cannot be controlled by the PC and should be set in the user system.

During serial reprogramming, when the RSTX pin is set from Low to High level after setting the MD pin(L Level), and SIN0 and SOT0 pin(Pull Up), the microcontroller enters the serial reprogramming mode(reference of the upper figure), enabling serial reprogramming from the PC. In addition, please use an oscillator (4MHz) at the time of FLASH reprogramming. The oscillator of the other frequency cannot use it at FLASH reprogramming.
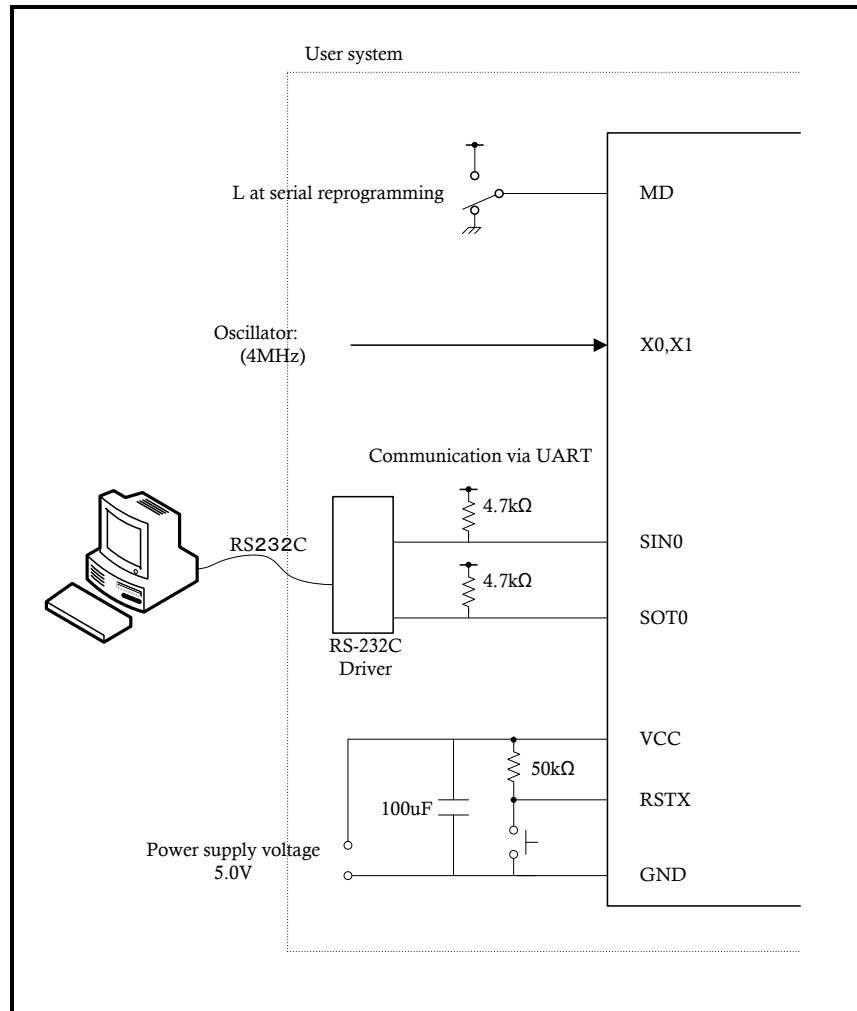
After the reprogramming, control is shifted to the normally-used mode as for MD pins and to the user circuit side as for SIN0 and SOT0 pin. Then RSTX pin set from Low to High level executes user program.

[Notes concerning example of connection]

The circuit diagram between Vcc pin, RSTX pin, and GND pin is an example. And users can select the suitable setting for each system.

2.5 Setting for S6J323C/4C/5C/6C/7C/8C / J324CLS/CKS / J326CLS/CKS / J32A9/B9/C9/D9 / J32AA/BA/CA/DA

Figure 2-5 Example of connection for S6J3200 series

The MD pins, SIN0 and SOT0 pins cannot be controlled by the PC and should be set in the user system.

During serial reprogramming, when the RSTX pin is set from Low to High level after setting the MD pin(L Level), and SIN0 and SOT0 pin(Pull Up), the microcontroller enters the serial reprogramming mode(reference of the upper figure), enabling serial reprogramming from the PC. In addition, please use an oscillator (4, 8, 16MHz) at the time of FLASH reprogramming. The oscillator of the other frequency cannot use it at FLASH reprogramming.
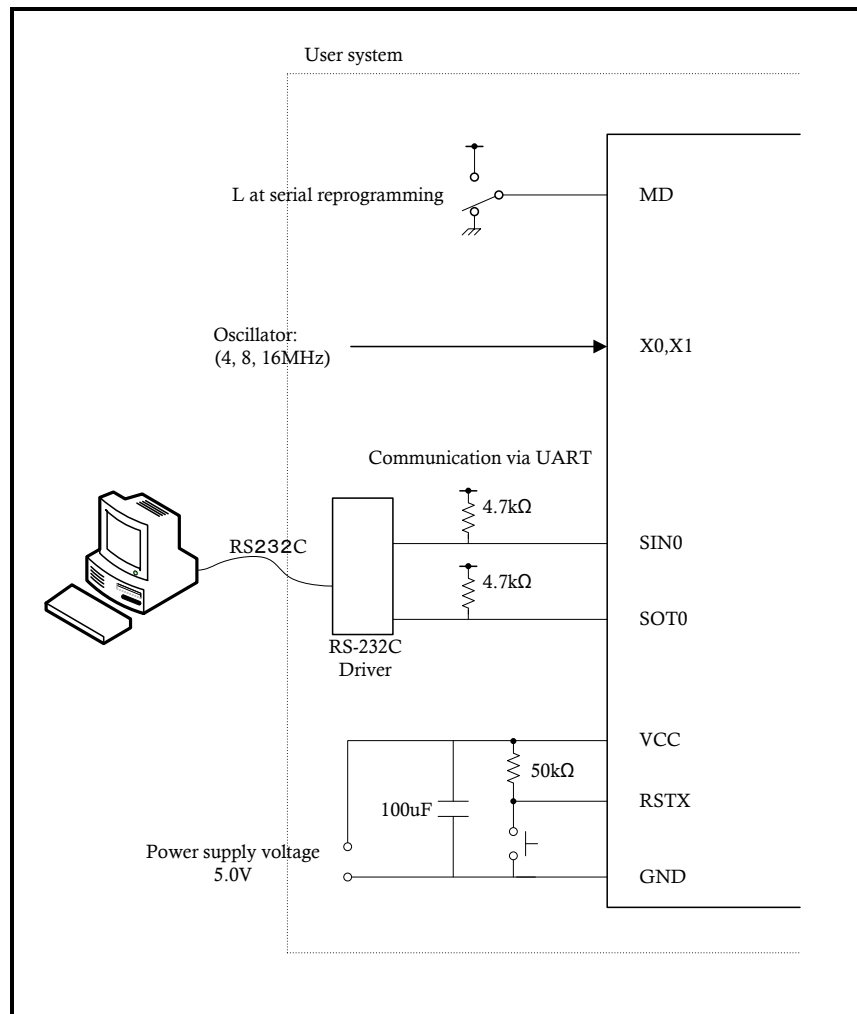
After the reprogramming, control is shifted to the normally-used mode as for MD pins and to the user circuit side as for SIN0 and SOT0 pin. Then RSTX pin set from Low to High level executes user program.

[Notes concerning example of connection]

The circuit diagram between Vcc pin, RSTX pin, and GND pin is an example. And users can select the suitable setting for each system.

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2.6   Setting for S6J331E

Figure 2-6   Example of connection for S6J3300 series

The MD pins, SIN0 and SOT0 pins cannot be controlled by the PC and should be set in the user system.

During serial reprogramming, when the RSTX pin is set from Low to High level after setting the MD pin(L Level), and SIN0 and SOT0 pin(Pull Up), the microcontroller enters the serial reprogramming mode(reference of the upper figure), enabling serial reprogramming from the PC. In addition, please use an oscillator (4MHz) at the time of FLASH reprogramming. The oscillator of the other frequency cannot use it at FLASH reprogramming.
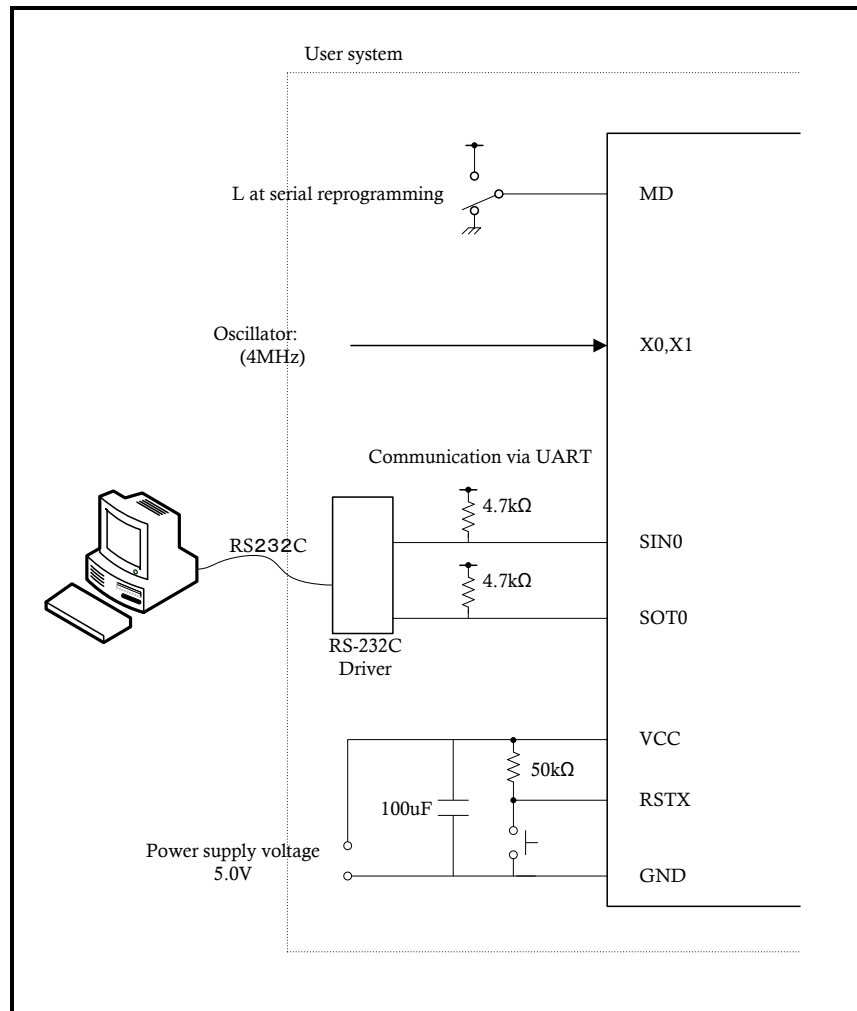
After the reprogramming, control is shifted to the normally-used mode as for MD pins and to the user circuit side as for SIN0 and SOT0 pin. Then RSTX pin set from Low to High level executes user program.

[Notes concerning example of connection]

The circuit diagram between Vcc pin, RSTX pin, and GND pin is an example. And users can select the suitable setting for each system.

3. PINS USED FOR ON-BOARD REPROGRAMMING

Table 3-1 Control pins for on-board programming

No.	Function	Pin	Supplementary
1	Mode pins （MB9D560 series）	MD1, MD0	
2	Mode pins （S6J3110 series） （S6J3120 series） （S6J320C series） （S6J3200 series） （S6J3300 series）	MD	
3	Reset pin	RSTX	
4	Serial data input pin	SIN	As the pin varies with the type of the microcontroller, see details as follow.
5	Serial data output pin	SOT	As the pin varies with the type of the microcontroller, see details as follow.
6	Oscillation pins	X0, X1	

Table 3-2 Serial data pins for each type of microcontroller

No.	Type	UART Ch	Serial Input Pin	Serial Output Pin
1	MB9DF566MGA MB9DF564MAE/MGE/LAE/LGE MB9DF565MAE/MGE/LAE/LGE MB9DF566MAE/MGE/LAE/LGE	UART0	P321/SIN0	P322/SOT0
2	S6J311EJAA/EHAA S6J311AHAA S6J311BJAB/BHAB/BJBB/BHBB S6J311CJAB/CHAB/CJBB/CHBB S6J311DJAB/DHAB/DJBB/DHBB S6J311EJAB/EHAB/EJBB/EHBB S6J312AHAA	UART0	P022/SIN0_0	P020/SOT0_0

3	S6J320CQXA S6J323C/4C/5C/6C/7C/8C S6J324CLS/CKS S6J326CLS/CKS S6J32A9/B9/C9/D9 S6J32AA/BA/CA/DA	UART0	P2_27/MFS0_SIN	P2_25/MFS0_SOT
4	S6J331E	UART0	P1_03/SIN0_0	P1_05/SOT0_0

4. TIMING CHART FOR EACH PIN

Input data to each pin of the microcontroller with the following timing on the basis of the input of the RSTX pin.

Figure 4-1 Minimum values of setup and hold times of each signal on rising edge of RSTX signal
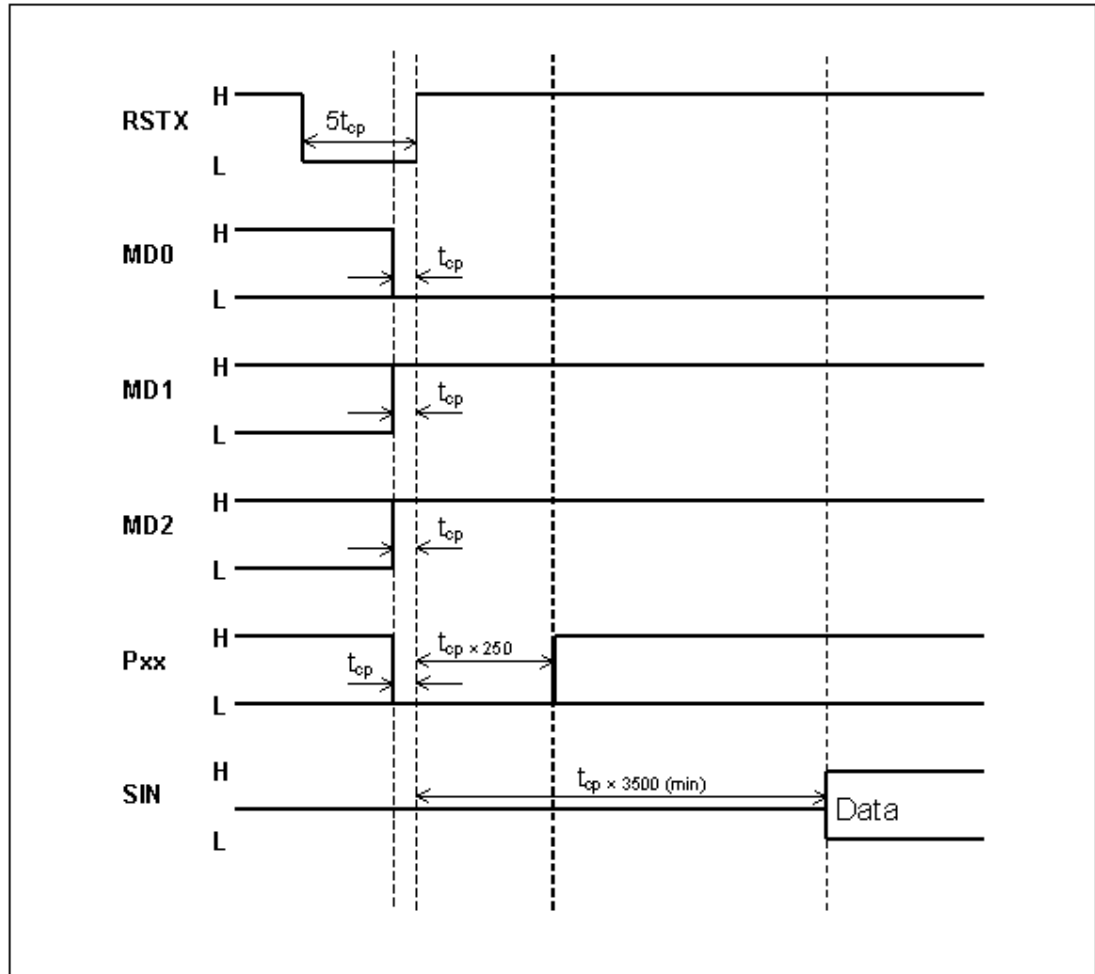
Although the Pxx signal indicates a starting pin for programming program and the SIN signal a serial data input pin. The value of the above-mentioned figure [timing / setting / of each of these setting pins / to reset input] is only an example. Refer to the hardware manual for the detailed value over each kind.

Moreover, the above Although it is the chart figure for kinds set as Pxx = MD0 = L and MD1 = MD2 = H, since an input level setup of these setting pins changes with kinds, please set up the input level corresponding to each kind with reference to the individual connection figure of Chapter 2.

5. INSTALLATION AND EXECUTION OF SOFTWARE

If the old software version is installed, uninstall it first before installation.

Starting the installer to operate as instructed will complete the installation. Note that the install might not be performed when a directory in a deep nest is specified as the install directory.

After installation, click the Windows **Start** button **=> Program => CYPRESS FLASH MCU Programmer => Traveo** to start the programmer software.

6. PROGRAMMER FUNCTIONS

Erase, Blank Check, Program & Verify, Read & Compare, and Copy can be executed for flash memory integrated into the microcontroller.

· Main dialog box

Programmer software is started to open the dialog box as shown below.

Figure 6-1   Main dialog box of Programmer
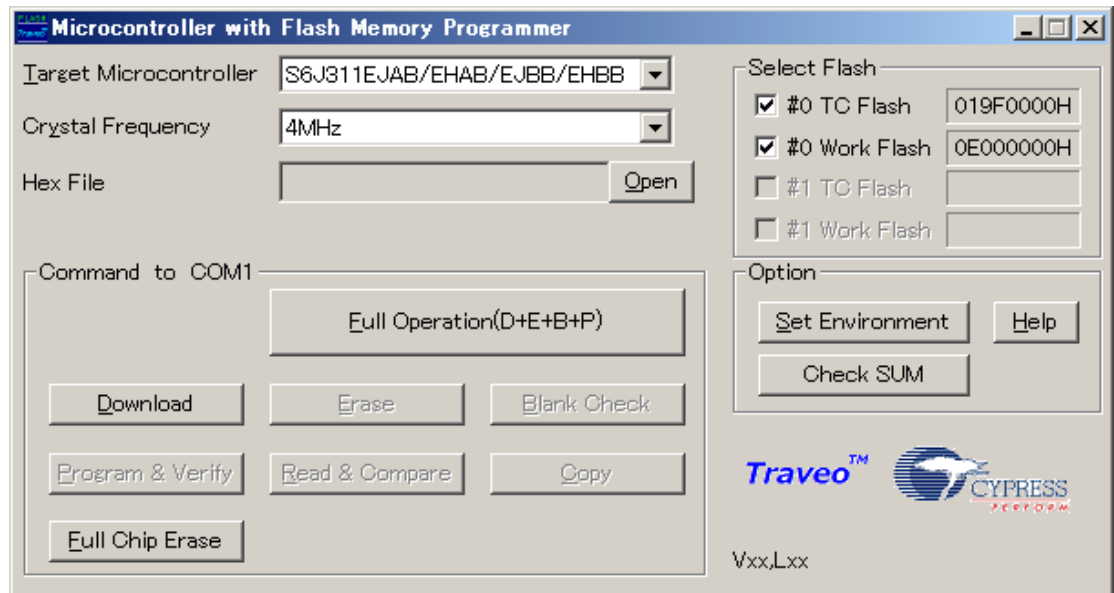
· Overview of operating procedure

First, complete setting of the user system (microcontroller board) that data is programmed to (see Chapter 2).

In starting or when setting has been changed, it is necessary to perform downloading (described later).

After downloading terminates normally, perform procedures such as Erase and Programming.

· Product types of microcontrollers supporting security function

The types of microcontrollers that support the security function have slightly different operating procedures from other types.

6.1 Downloading

This section describes the operating procedure for downloading and the operating state of the program.

(a) Specify the type of microcontroller used in the user system in **Target Microcontroller** of the main dialog box. Please read **Target products** about the kind which can be chosen.

Note: To select the type of microcontroller, use the **Tab** key to move to **Target Microcontroller**, select with the cursor keys ↑ and ↓ then press the **Enter** key, or click the ▼button on **Target Microcontroller** for dragging.

(b) Specify the frequency of the crystal oscillator input to the microcontroller in **Crystal Frequency** of the main dialog box.

The frequency of the crystal oscillator that can be specified for each type of microcontroller is limited as follows.

Table 6-1 Frequency of the crystal oscillator for each microcontroller

No.	Product Type	Frequency of Crystal Oscillator (MHz)
1	MB9DF566MGA MB9DF564MAE/MGE/LAE/LGE MB9DF565MAE/MGE/LAE/LGE MB9DF566MAE/MGE/LAE/LGE S6J323C/4C/5C/6C/7C/8C S6J324CLS/CKS S6J326CLS/CKS S6J32A9/B9/C9/D9 S6J32AA/BA/CA/DA	4, 8, 16
2	S6J311EJAA/EHAA S6J311AHAA S6J311BJAB/BHAB/BJBB/BHBB S6J311CJAB/CHAB/CJBB/CHBB S6J311DJAB/DHAB/DJBB/DHBB S6J311EJAB/EHAB/EJBB/EHBB S6J312AHAA S6J320CQXA S6J331E	4

Notice: This program will not operate normally if the microcontroller uses a crystal oscillator frequency not listed in the above table.

(c) Select the COM port of the PC connected to the user system.

Click the **[Set Environment]** button in the main dialog box to open the setup window. When the **[COM PORT]** tab in the setup window is clicked, the specifying window is opened. The COM ports can be specified from COM1 to COM256.

(d) Specify the target sectors in the **Select Sector** area of the main dialog box.

Specify the target sectors for each operation from any combination of #0 TC Flash, #0 Work Flash, #1 TC Flash, #1 Work Flash in the **Select Sector** area of the main dialog box. The **Select Sector** area is available for some microcontrollers, and it is unavailable for the other microcontrollers. When the **Select Sector** area is unavailable, the target sectors can't be specified by users and all sectors are selected by default.

Please specify the target sectors for each operation (Full Operation, Erase, Blank Check, Program & Verify, Read & Compare, Copy) by operating the checkboxes in the **Select Sector** area of the main dialog box.

[Notes concerning sector select]

At least one sector should be selected in the **Select Sector** area of the main dialog box. If the **[Download]** button is clicked without selecting any sector, the warning message "Please Select the area of writing" will be opened.

(e) Execution of full chip erasing

For the flash memory of microcontroller in device protection mode, **[Full Chip Erase]** button should be executed to erase flash memory areas, before **[Download]** or **[Full Operation]** is executed.

The **[Full Chip Erase]** button is enabled only for S6J3110 / S6J3120 / S6J320C / S6J3200 / S6J3300 series, and is applied only in device protection mode. When **[Full Chip Erase]** button is pressed in the other mode except device protection mode, error message will be displayed.

(f) Execution of downloading

Click the **[Download]** button.
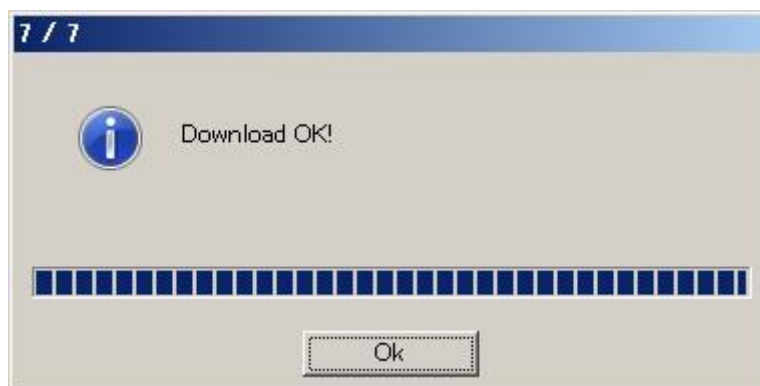
If the following dialog window is opened, Input a reset signal to the microcontroller to start the program in the flash programming mode and then click the **[OK]** button.

Figure 6-2　Download Dialog

Downloading is performed to open the "Download" window. When downloading is completed normally, the following dialog window opens.

Figure 6-3　Download complete normally

When the *[OK]* button is clicked to close the dialog window, the *[Erase]*, *[Blank Check]*, *[Program & Verify]*, *[Read & Compare]* and *[Copy]* buttons are enabled. At the same time, all checkboxes in the *Select Sector* area of the main dialog box are disabled, and can't be operated. You can enable the Select Sector area in the main dialog box by reselecting the type of the microcontroller in *Target Microcontroller* of the main dialog box, and then the state of the main dialog box will return to the state before the *[Download]* button clicking.

6.2   Erasing and Programming

This section explains how to specify Hex File and the processing and operation performed when the *[Erase]*, *[Blank Check]*, *[Program & Verify]*, *[Read & Compare]*, *[Copy]* and *[Full Operation (D+E+B+P)]* buttons are clicked.

Figure 6-4   Main dialog after download
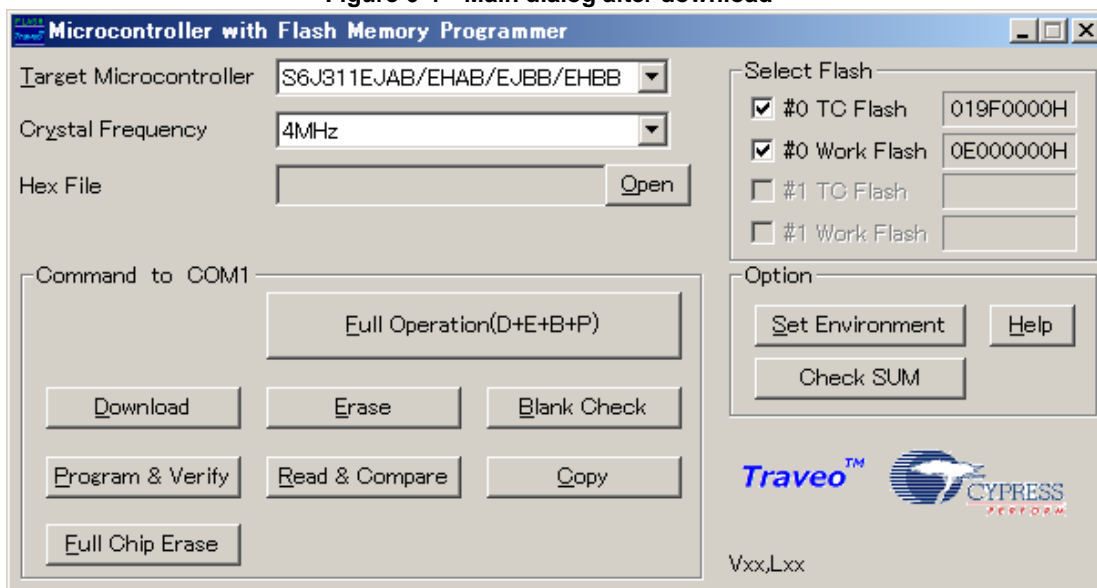
(a)   **Hex File**: Select the file to be programmed to flash memory

Specify the Motorola-S or Intel-HEX format file to be programmed to flash memory in the microcontroller. Although the specification method by drags and drops a direct file from Explorer etc. is recommended, it can specify also by the file appointed window displayed by pushing the [Open] button.

Hex File must be specified to execute *[Program & Verify]*, *[Read & Compare]* and *[Full Operation (D+E+B+P)]*. Since it is decoded at the head of these processing each time, even if the specified Motorola-S or Intel-HEX format file changes specification of a file just before processing, it is OK.

(b)   **Check SUM**: Calculate the checksum of selected Hex File

After Hex File is specified, checksum *to ROM image* after Motorola-S format file or Intel-HEX format file shown in Hex File is deciphering done can be calculated. The dialog box which to calculate checksum opens when a lower right *[Check SUM]* button is pushed.

Figure 6-5   Checksum calculate dialog
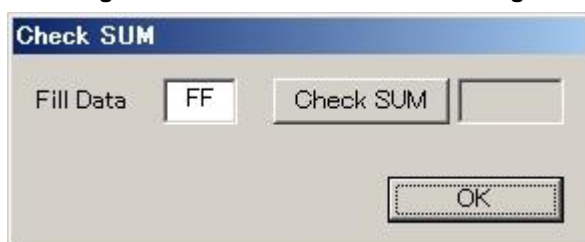
The range of the calculation of checksum is limited to the Flash area shown in the upper right of the main dialog. When the area has divided into plural block, the empty area between blocks is not added, and the total of each block is calculated.

The calculation method is simple addition of every one byte, and the result shows the last 4 digits (It is not a complement representation) by the hexadecimal number.

ROM value in the Flash area not shown in Hex File is calculated assuming that it is a value indicated by Fill Data at the left of the dialog. When starting, FF is set here. Please specify it by two hexadecimal number digits when changing.

[Notes concerning checksum]

This function doesn't calculate the checksum of ROM image written in the FLASH memory in the microcontroller chip. When Hex File is not specified, and the error is detected at the decipherment of Hex File, nothing is displayed.

The SUM value calculated here is not peculiar against Hex File. When another microcontroller is selected, same Hex File might reach another value.

The value specified with Fill Data is not written at the time of writing. This value is used only for the calculation of checksum.

(c) **Erase**: Erase flash memory areas

Flash memory must be in the blank state (0xff) when programming a new program to it. By pushing this button, an erase command is published to FLASH and elimination is performed.

In addition, a blank check does not perform this command.

(d) **Blank Check**: Check that flash memory areas are blank

This button is clicked to check that flash memory is in the blank state (0xff).

(e) **Program & Verify**: Program data to flash memory

This button is clicked to program the Motorola-S or Intel-HEX format file specified in **Hex File** to flash memory in the microcontroller concurrently with verification. An error dialog is displayed, when writing is performed for 512 bytes of every block and a CRC error is detected by the block.

Figure 6-6   CRC error dialog

This dialog If YES is pushed, the block of an error will be resent and it will continue writing. A push on NO interrupts write-in processing.

(f) **Read & Compare**: Compare **Hex File** with data in flash memory in microcontroller

This button is clicked to compare data in the Motorola-S or Intel-HEX format file specified in **Hex File** with data in flash memory in the microcontroller. Like the **[Program & Verify]** processing, the data of FLASH is transmitted for 512 bytes of every block, a CRC error check is performed, and comparison processing is performed.

(g)   Copy: Save data in flash memory in microcontroller to file

This button is clicked to read data from flash memory integrated into the microcontroller and save it as an Motorola-S or Intel-HEX format file. Like *[Read & Compare]* processing, FLASH memory reading is performed for 512 bytes of every block, and a CRC error check is performed similarly.

The output file format can be changed **by right-clicking** in the Copy button. The button name changes by *[Copy]* and *[Copy_i]* whenever right-clicking. The state of *[Copy]* shows Motorola-S format, and the state of *[Copy_i]* shows Intel-HEX format.

Processing begins when the button is *left-clicked*, the folder is specified preservation ahead, the file name is input, and the *[Save]* button is pushed when the form is selected.

(h)   *Full Operation(D+E+B+P)*: Automatic programming

Operation to *[Download]* to *[Program & Verify]* is performed by package.

In the case of a blank chip, processing is performed in order of *[Download]*, *[Blank Check]*, and *[Program & Verify]*. When it is not a blank chip, processing is performed in order of *[Download]*, *[Blank Check]*, *[Erase]*, *[Blank Check]*, and *[Program & Verify]*.

[Notes concerning automatic programming]

At least one sector should be selected in the *Select Sector* area of the main dialog box. If the *[Full Operation (D+E+B+P)]* button is clicked without selecting any sector, the warning message Please Select the area of writing will be opened.

6.3 Motorola-S format decoder specification

Before programming, Motorola-S format Decoder of programmer changes Motorola S format data into binary data, according to the following specification.

(a) The decoder does not error when overlap of addresses occurs.

The decoder does not error about overlap of address. If user writes a data on an address which was already written another data before, former data is overwritten by new data.

(b) Available address

If user writes a data beyond an address range of FLASH memory, programming results in an error. But if an address range of whole FLASH memory does not continue, decoder does not give an error and programming procedure goes on. The data beyond address range of FLASH memory is not programmed or compared.

(c) About the error detected by the decoder.

The error detected by the decoder is the following (1)-(4). When these errors are detected, processing is interrupted by the decoder. Then the line number and the cause of the error are displayed in the dialog window.

(1) file error

The start of the line is not "S".

(2) S-format error

The start of the line is not "S0","S1","S2","S3","S5","S7","S8"and "S9".

(3) decode error

· There are character except "0123456789ABCDEF".("S" is excluded. See (1) and (2).) And, the small letter "abcdef" cannot be used.

· The LENGTH data is different from the length of an actual data row.

· The SUM data is different.

(4) address error

There is data besides the FLASH area.

(d) Other detail

The decoder skips a line. Even if the line is contained only new-line code NL and programming goes on.

A line beginning with "S0","S5","S7","S8" and "S9" is ignored and decoder skips such lines in S format file without error.

6.4   Intel-Hex format decoder specification

Before programming, Intel-Hex format Decoder of programmer changes Intel-Hex format data into binary data, according to the following specification.

(a)   The decoder does not error when overlap of addresses occurs.

The decoder does not error about overlap of address. If user writes a data on an address which was already written another data before, former data is overwritten by new data.

(b)   Available address

If user writes a data beyond an address range of FLASH memory, programming results in an error. But if an address range of whole FLASH memory does not continue, decoder does not give an error and programming procedure goes on. The data beyond address range of FLASH memory is not programmed or compared.

(c)   About the error detected by the decoder

The error detected by the decoder is the following (1)-(4). When these errors are detected, processing is interrupted by the decoder. Then the line number and the cause of the error are displayed in the dialog window.

(1) file error

The start of the line is not ":".

(2) decode error

There are character except "0123456789ABCDEF".(":" is excluded. See (1).) And, the small letter "abcdef" cannot be used.

The record type is not 00, 01, 02, 03, 04, and 05.

The length of the data string that turns out by the number of data is different from the length of an actual data string.

The SUM data is different.

(3) record error

When not is in number 0 of data at 01 records.

When not is in number 2 of data at 02 records.

When not is in number 4 of data at 03 records.

When not is in number 2 of data at 04 records.

When not is in number 4 of data at 05 records.

(4) address error

There is data besides the FLASH area.

(d)   Other detail

The decoder skips a line. Even if the line is contained only new-line code NL and programming goes on.

The decipherment processing ends when end record (01) is processed. It is invalid no matter what it is written after this record.

The record from 01 to 05 is not used to process the offset address value. Moreover, the error judgment to it is not done.

6.5   Special specification

Now, there is no kind to which special specification is applied.

7. SECURITY FUNCTION

The access to the flash memory is limited when the protection code "0001H" is written at a specific address of the flash memory, and the kind in which the flash security function is provided cannot read/be written in the flash memory from which external terminal.

The lock of the function cannot be released until the chip is erased when the flash memory is protected once. Please refer to the hardware manual for details.

After all flash memory area is erased, it is necessary to input reset to the microcomputer again to write it in the flash memory.

Please write it in the flash memory as follow.

1. **Download**: Execution of downloading

2. **Erase**: Erase flash memory areas

3. **Full Operation (D+E+B+P)**: Automatic programming (or After **Download**: Execution of downloading, **Program & Verify**: Program data to flash memory)

* It is necessary to input reset to the microcomputer in the execution of **[Download]** or **[Full Operation (D+E+B+P)]**.

8. OPERATING ENVIRONMENT

Required equipment :

▫ IBM PC compatible machine equipped with the RS-232C port

▫ RS-232C cable (commercial item)

OS :

▫ The Japanese version and English version of Windows XP/Vista/7/8

* There is fault that some characters are not displayed correctly, in Windows Vista. However, we are checking that the program is performing normal operation.

Memory size :

▫ More than the memory quantity that OS recommends

Hard disk :

▫ (Availability) Not less than 10 MB

NOTICE: The operations of all models that meet the above conditions may not be ensured.

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9. OTHERS

A) Setting of voice output

The setting of voice generated when an error occurs and processing is terminated normally can be changed.

Select the *[Sound]* tab in the setup window that opens when the *[Set Environment]* button is clicked.

- To output sound, put a check in the **Enable sound** checkbox.
- Check the status of sound output. Select **ERROR** or **END** in the sound column.
- Select **Wave** or **Beep** as the type of sound to be output in **Sound type**.
- Set the voice file to be output in the **Wave** file column only when **Wave** is selected. When the *[Open]* button is clicked, the File Open window is opened. Select the **Wave** file to be output. The *[Play]* button is used to play the set **Wave** file. The *[Stop]* button is used to stop the **Wave** file.

B) Setting of tooltips display

The tooltips display can be enabled or disabled.

Select the *[Tooltips]* tab in the setup window that opens when the *[Set Environment]* button is clicked.

When a checkmark is put in the **tooltips** checkbox to move the mouse cursor over the contents such as buttons in the dialog window, simple help (the full path of a file for Hex File) is displayed.

C) Error messages

Many error messages are displayed owing to the setting mistake of hardware and software.

The case where an error is outputted in addition even if it checks these in detail, please tell the person in charge of software acquisition origin a detailed condition.

Table 9-1 Error message

No.	Item	Description
No.001	Message	Download error*1
	Cause	The response of download processing is unusual.
	Action	Please check connection and a setup of hardware.
No.003	Message	Timeout error
	Cause	The response of a command does not come on the contrary.
	Action	Please check connection and a setup of hardware.
No.006	Message	Unable to open COM port
	Cause	Another application is using COM.
	Action	Please check the use situation and port number of a COM port.
No.007	Message	Unable to open Download file
	Cause	m_flash.xxx not found
	Action	Please reinstall this software.
No.009	Message	Unable to gain COM port info
	Cause	It will be in the state where the target COM port can be used.
	Action	Please check the number of a COM port and setup to be used.
No.010	Message	Unable to change COM port setting
	Cause	A communication setup cannot be set as the target COM port.
	Action	Please inform support of condition.
No.011	Message	Communication error
	Cause	The unusual command response was received.
	Action	Please reperform by improving connection and a setup of hardware.
No.012	Message	Read error
	Cause	The response at the time of Read & Compare or copy processing is unusual.

	Action	Please reperform by improving connection and a setup of hardware.
No.013	Message	Program error
	Cause	The response at the time of Program & Verify processing is unusual.
	Action	Please reperform by checking whether a chip is blank.
No.015	Message	COM port write error
	Cause	There is the possibility of the abnormalities of a COM port driver or the port itself.
	Action	Please inform support of condition.
No.016	Message	COM port read error
	Cause	There is the possibility of the abnormalities of a COM port driver or the port itself.
	Action	Please inform support of condition.
No.017	Message	File access error
	Cause	Access of a m_flash.xxx file went wrong.
	Action	Return the folder and file configurations to the installation defaults.
No.018	Message	Erase error *1
	Cause	The response at the time of erase processing is unusual. There is the possibility that a chip is poor.
	Action	Please improve a setup of hardware or exchange chips.
No.101	Message	Please set "hex file"
	Cause	"hex file" not set
	Action	Set "hex file" in the dialog box.
No.105	Message	Key length too short
	Cause	The minimum conditions for key length are not met.
	Action	Prepare a correct security file.
No.106	Message	Key length too long
	Cause	The maximum conditions for key length are not met.
	Action	Prepare a correct security file.
No.107	Message	Illegal security file
	Cause	The security file description is invalid.
	Action	Prepare a correct security file.
No.207	Message	memory is not available
	Cause	Unable to allocate memory for execution
	Action	Quit any running application and retry.
	Message	Not security with Device Protection
	Cause	MCU is not in the device protection mode
	Action	Don't perform Full Chip Erase, and perform Downloading or Full Operation.
*2	Message	Please redo from download operation

*1:   "MCU xxH" is displayed if the error cause is returned from the microcontroller at a download error. "MCU xxH" means:

MCU 02H -> SUM error at downloading

MCU 04H -> Abnormal termination at downloading

*2:   This is an additional message. It is displayed as necessary after other messages are displayed.

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10. CAUTIONS

The PC programming software has the possibility of receiving the influence by the communications cable, the outside environment, and the PC.

Therefore, please evaluate it enough when you use the software.

Please use programming systems of programmer venders when you write two or more devices at the same time.

Please don't use the USB HUB between PC and MCU.

The specifications of the product are subject   to change without notice.

See the following for the notice which differs in each kind.

(1)   The restriction for MB9DF560 series

       ¤   When flash security is on, data reading from TCFLASH will cause the TCFLASH bus err or, and reset will occur by exception.

11. Revision History

Page	Section	Change Results
Revision 1.0		
-	-	Initial Release

V1.0

Colophon

The products described in this document are designed, developed and manufactured as contemplated for general use, including without limitation, ordinary industrial use, general office use, personal use, and household use, but are not designed, developed and manufactured as contemplated (1) for any use that includes fatal risks or dangers that, unless extremely high safety is secured, could have a serious effect to the public, and could lead directly to death, personal injury, severe physical damage or other loss (i.e., nuclear reaction control in nuclear facility, aircraft flight control, air traffic control, mass transport control, medical life support system, missile launch control in weapon system), or (2) for any use where chance of failure is intolerable (i.e., submersible repeater and artificial satellite). Please note that Cypress will not be liable to you and/or any third party for any claims or damages arising in connection with above-mentioned uses of the products. Any semiconductor devices have an inherent chance of failure. You must protect against injury, damage or loss from such failures by incorporating safety design measures into your facility and equipment such as redundancy, fire protection, and prevention of over-current levels and other abnormal operating conditions. If any products described in this document represent goods or technologies subject to certain restrictions on export under the Foreign Exchange and Foreign Trade Law of Japan, the US Export Administration Regulations or the applicable laws of any other country, the prior authorization by the respective government entity will be required for export of those products.

Trademarks and Notice

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