

# **FLASH Programmer for Toshiba TX and TXZ MCU Operation Manual**

3<sup>rd</sup> EDITION

October, 2017

MTA0-0035-062C

## **RESTRICTIONS ON PRODUCT USE**

DO NOT USE THIS SOFTWARE WITHOUT THE SOFTWARE LISENCE AGREEMENT.

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## **Preface**

Thank you for using Toshiba microcomputer products.

This manual describes how to use the FLASH programmer. Please keep this manual to hand when you use the product.

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- System names are product names are trademarks or registered trademarks of their respective owners.

prefaceE-02

## **Password Management**

FLASH Programmer saves the password information in an internal file in order to automatically search for/set a password. The customer is kindly requested to take care of the files where the password information is saved.  
(Refer to “3.3.6 Password Dialog Box”)

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# Chapter 1

## Introduction

### 1.1 Safety Precautions

This operation manual has important contents to use safely. Before using, please understand contents in this manual.

[Important]

The FLASH Programmer operates using the functions incorporated in each Target Device. Depending on the specifications of the Target Device, some functions may not be available. In such cases, menu items and commands that cannot be used are grayed out or not displayed on the FLASH Programmer screen.

### 1.2 Toshiba FLASH MCU Programming Software (FLASH Programmer)

The Toshiba FLASH MCU Programming Software (hereafter, “FLASH Programmer”) is application software for programming FLASH memory built in Toshiba microcontrollers that included ARM core. The FLASH Programmer can program FLASH memory build in a Toshiba MCU by using the boot program in the MCU.

The FLASH Programmer has the following features:

- GUI (Graphical User Interface) operations
- Initialization using the environment setup dialog box
- Structure that offers flexible support for various MCUs
- Support for RS-232C and USB communication

### 1.3 FLASH Programmer Functions

The FLASH Programmer is a tool for programming FLASH memory built in a Toshiba MCU controlling the boot program in which the single boot mode for operating the MCU.

When the MCU has not started by the single boot mode, it can't be connected.

Please refer to the data sheet for information about the single boot mode.

The FLASH Programmer has the following functions:

- Erase  
Erase the contents of FLASH memory to a blank state.



- Program  
Write the contents of an object file to FLASH memory.
  - Memory Display  
Display the contents of FLASH memory.
  - Verify  
Compare the SUM value of FLASH memory and the SUM value of an object file.
  - Compare  
Compare the contents of FLASH memory with the contents of an object file on a byte-by-byte basis.
  - Blank Check  
Check to see if FLASH memory has been erased.
  - Upload  
Save the contents of FLASH memory to a file.
  - CUI Startup  
This supports to use a batch file.
  - Startup from an Object file  
This supports startup FLASH Programmer by clicking an object file name.
  - Auto searching/setting for Password  
This supports searching and setting password from object file or log file automatically.
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# Chapter 2

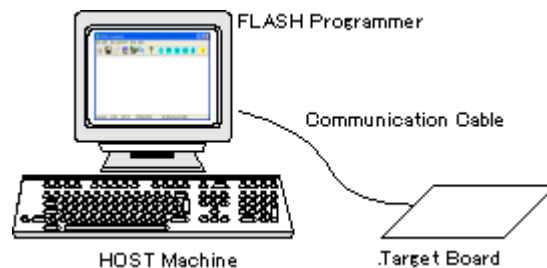
## Setup and Installation

The system for programming FLASH memory is comprised of a host machine, the FLASH Programmer, the FLASH Adapter, and a Target Device.

### 2.1 Setup

#### 2.1.1 Basic Configuration

The FLASH Programmer runs under the following configuration.



- Host Machine

A PC to be used for development. Windows 7 are supported.

- FLASH Programmer

The Windows-version program package (this product).

- Communication Cable

The Target Board and host machine are connected with a following communication cable.

- Serial Cable

- RS-232C cross, fully wired

- [Important]

- Before designing the serial communication interface circuit of the Target Board, please refer to the data sheet so that communication with the Target Device can be established

- Usb Cable

- USB 2.0

- The boot program in the MCU is needed to have a USB interface.

- FLASH Adapter (Target Board)

The Target Board is a board for mounting the Target Device.

- **Target Device**  
A device for programming.

### **2.1.2 Connections and Settings**

- **Connecting the Host Machine and Target Board**  
Connect the host machine and Target Board with a communication cable using a genuine COM port or USB port.

[Important]

Operation cannot be guaranteed if a commercially available USB-to-serial converter or the like is used.

- **Mounting and Setting Up the Device**  
Mount the Target Device on the Target Board. Set the operation mode of the MCU as single boot mode.

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## **2.2 Installation**

Uncompress the archive file only to install the FLASH Programmer. The FLASH Programmer can also be uninstalled deleting the uncompressed files.

### **2.2.1 Operating Environment**

The Windows-version FLASH Programmer requires the following environments.

OS	: Microsoft Windows 7
Host machine	: IBM PC/AT or PC/AT compatible *
Acrobat Reader	: The Help files are provided in PDF format. Acrobat Reader is required for viewing the Help. (Acrobat Reader is a trademark of Adobe Corporation.)

\* Recommended System Environment for Host Machine

CPU	: CPU supporting Windows XP/Windows Vista
Memory	: 1 Gbytes or larger
Hard disk space	: 10 Mbytes or larger
Screen resolution	: 800 × 600 or higher
Screen colors	: 256 colors or more

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### **2.2.2 Uninstalling the FLASH Programmer**

To uninstall the FLASH Programmer, delete the uncompressed folder and files.

[Important]

If there are files in a folder other than those originally installed, delete such files.

(For example) C:\Flash Programmer\bin\FlashPrg.ini
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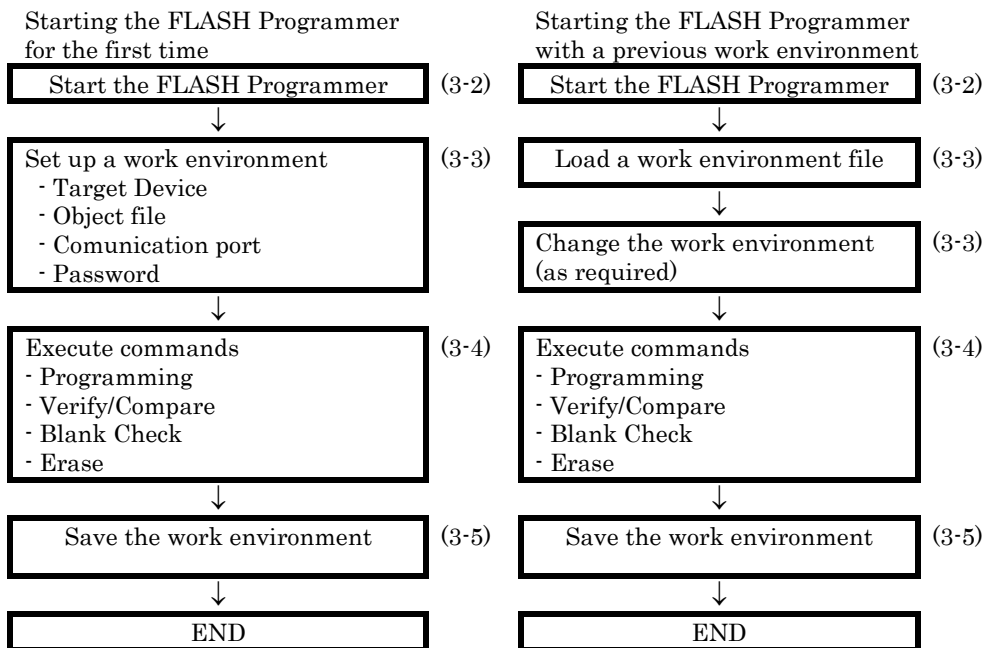
# Chapter 3

## Starting the FLASH Programmer

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### 3.1 Startup Procedure

Follow the steps below for starting and setting up the FLASH Programmer.



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## **3.2 Starting the FLASH Programmer**

The FLASH Programmer can be started in the following ways.

**(1) Starting from the Explorer**

C:\Flash Programmer\bin\FlashProgCM.exe

**(2) Starting from an object file**

See “3.7 Startup from an Object File”.

**(3) Starting from the CUI**

See “3.8 CUI Startup”.

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### 3.3 Building a Work Environment

To set up a work environment, click [Setup File] on the [Setup] menu to open the Setup dialog box.

[Important]

The following setup procedure cannot be set up when connection is established with the Target Device.

(For example)

Power is applied to a Target Board.

#### 3.3.1 The Procedure for Building a Work Environment

The Setup dialog box contains the following sheets for setting work environment details.

[Setup File] sheet	Specify a setup file that has already been created , read , reflect the settings
[Device] sheet	Used to select the Target Device to be programmed.
[Object File] sheet	Used to specify the object file of the program to be written to the FLASH memory.
[Communication] sheet	Used to specify the communication port.

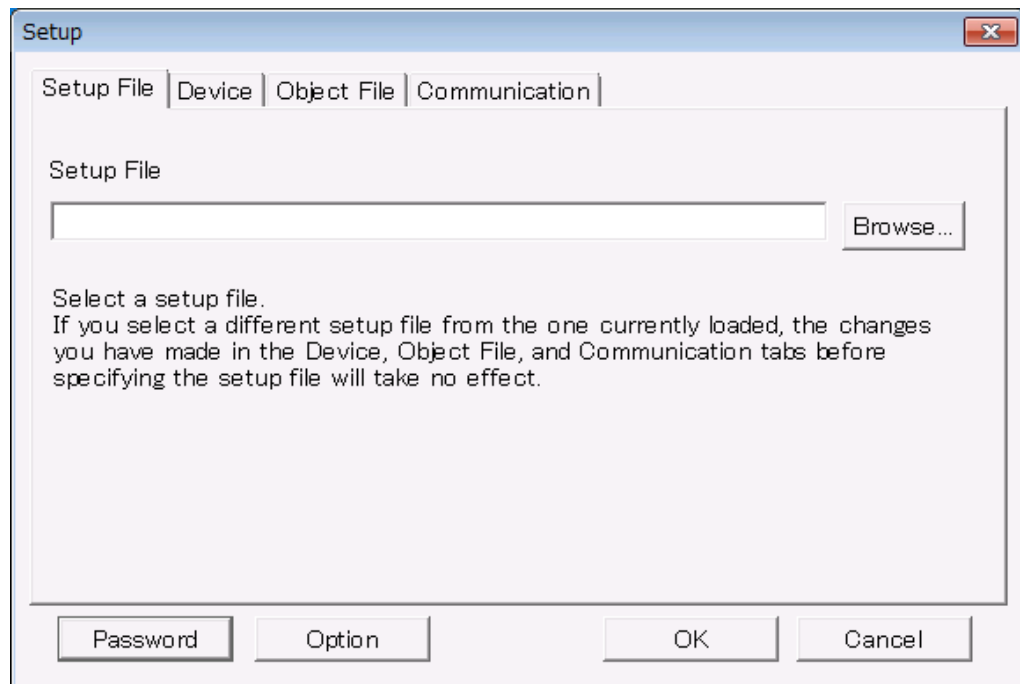
Each of the above sheets has the following four buttons.

[Password] button	Open the Setup Password dialog box for specifying the password already written in the device and the password written in the object file to be written to the FLASH memory.
[OK] button	Checks the settings specified on each sheet and save the settings in the setup file if no problem is found. Then, closes the Setup dialog box.
[Cancel] button	Discards the settings specified on each sheet and restores the original settings. Then, closes the Setup dialog box.
[Option] button	Used to enable or disable the protect function and the erase without password option.

#### 3.3.2 Setup File Sheet

This sheet is used to specify the setup file to be used.

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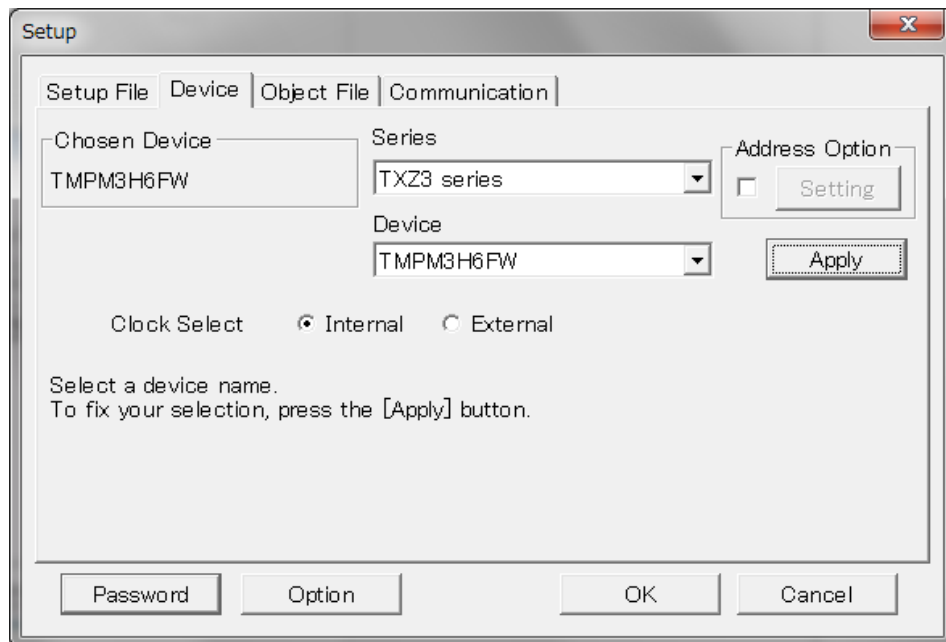
Setup File Sheet

- **Setup File**
  - Specify the full pathname of the setup file to be read.
  - The file should be a text file with an arbitrary extension. The default extension is ".ini".
  - When it starts for the first time, you can leave it blank.
  - When the FLASH Programmer end, a work environment is saved to the setup file (FlashProg.ini).
  - When it starts for the next time, a work environment is contents in the setup file.
- **Browse**
  - This button opens the dialog box for selecting a setup file.



### 3.3.3 Device Sheet

This sheet is used to select the device to be programmed.



Device Sheet

- **Series**  
Select a series name. Selection can only be made from the drop-down list. If the list does not include your desired series name, the definition file may be old or the device may not currently be supported. Check our Web site and download the latest definition file if necessary.
- **Device**  
Select a device name. Selection can only be made from the drop-down list.
- **Clock select**  
Select the clock type from internal or external. When the internal oscillator is not available, these buttons shall appear dimmed.
- **Chosen Device**  
This area shows the currently selected device name. When you select the Target Device from the list and click [Apply], your selection will be displayed in this area.
- **Apply**  
This button is used to fix the device selection made in the Device box.

Simply selecting a device will not implement the new setting. Be sure to click this button and check to see that the selected device is displayed in the Chosen Device area.

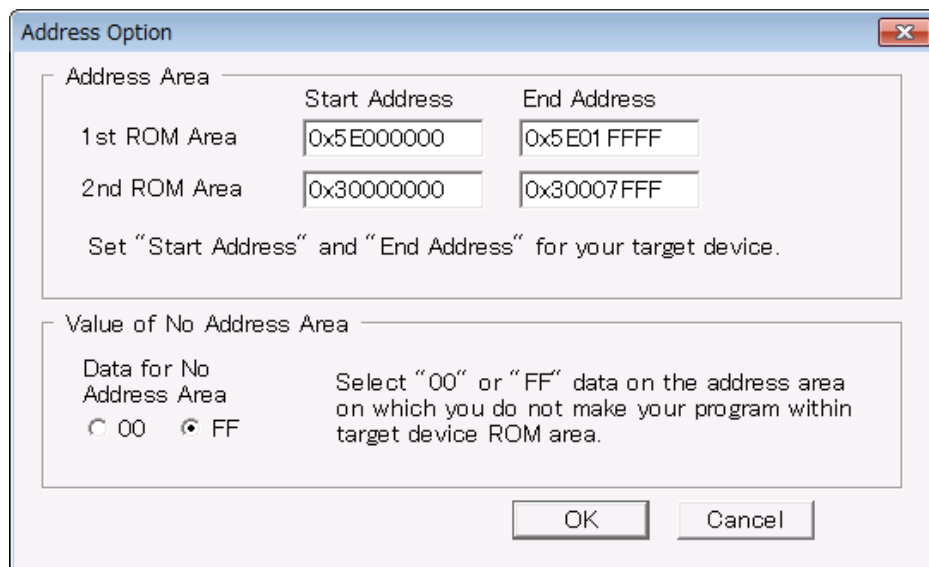
[Important]

Do not click the Apply button after setting the Address Option dialog box (see below). Clicking the Apply button will initialize all the setting details.

- Address Option:

The Address Option dialog box opens when the Setting button is clicked with its check box selected. This dialog box is used to specify the conditions for calculating the SUM value. For details about SUM calculation, see “5.2 Calculating SUM value”.

-  : Opens the Address Option dialog box.  
 : The Address Option dialog box cannot be opened.



The dialog box is titled "Address Option" and contains two main sections. The first section, "Address Area", has a table with two columns: "Start Address" and "End Address". It contains two rows: "1st ROM Area" with values "0x5E000000" and "0x5E01FFFF", and "2nd ROM Area" with values "0x30000000" and "0x30007FFF". Below the table is a note: "Set 'Start Address' and 'End Address' for your target device." The second section, "Value of No Address Area", has a label "Data for No Address Area" and two radio buttons: "00" and "FF", with "FF" selected. To the right of the radio buttons is a note: "Select '00' or 'FF' data on the address area on which you do not make your program within target device ROM area." At the bottom right are "OK" and "Cancel" buttons.

Address Option Dialog Box

- Address Area group

Specify the memory area (ROM area).

The memory area specified here is effective for the following operations:

- [Edit] – [Verify] (SUM value calculation)
- [Edit] – [Programming] (Programming)
- [File] – [Save As] (Save)

- 1st ROM/2nd ROM Area:

Start Address : Specify the start address of the ROM area.

End Address : Specify the end address of the ROM area.

[Important]

If the memory area of the device for development (\*) is different from FLASH version (smaller), specify the memory area of that device.

(\*) In the case of OTP or MASK type.

■ Value of No Address Area group

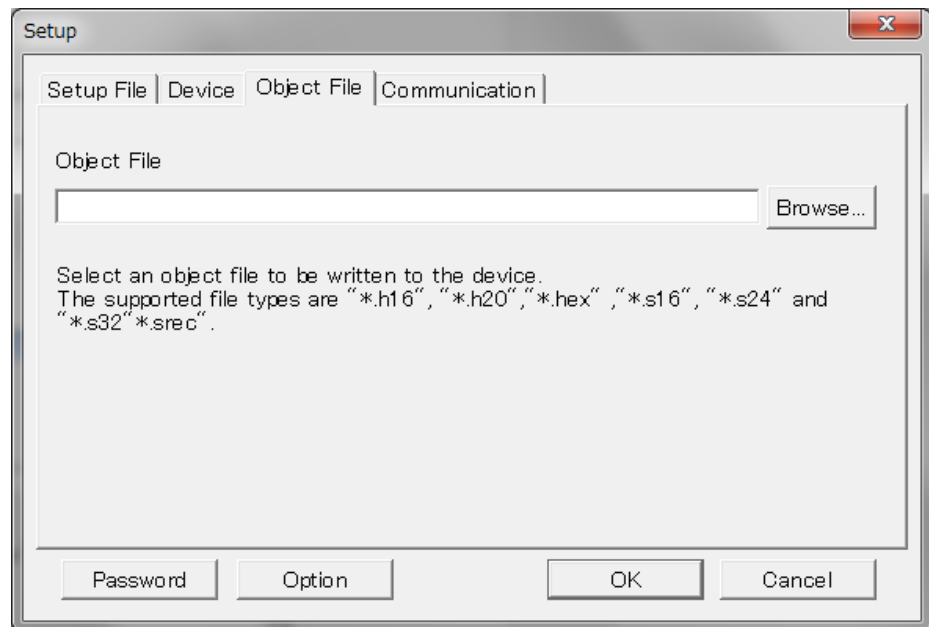
Specify the value to be substituted for blank locations in SUM value calculation.

Blank locations include the following:

- Locations within the area specified in “Address Area” where no data is specified in the object file.
- Non-address locations: If the ROM area of the Target Device is divided into two or more separate areas, non-address locations exist between each ROM area.
- Data for No Address Area
  - 00: Calculate blank locations as 0x00 in SUM value calculation.
  - FF: Calculate blank locations as 0xFF in SUM value calculation.

### 3.3.4 Object File Sheet

This sheet is used to specify the object file of the program to be written to the FLASH memory.



Object File Sheet

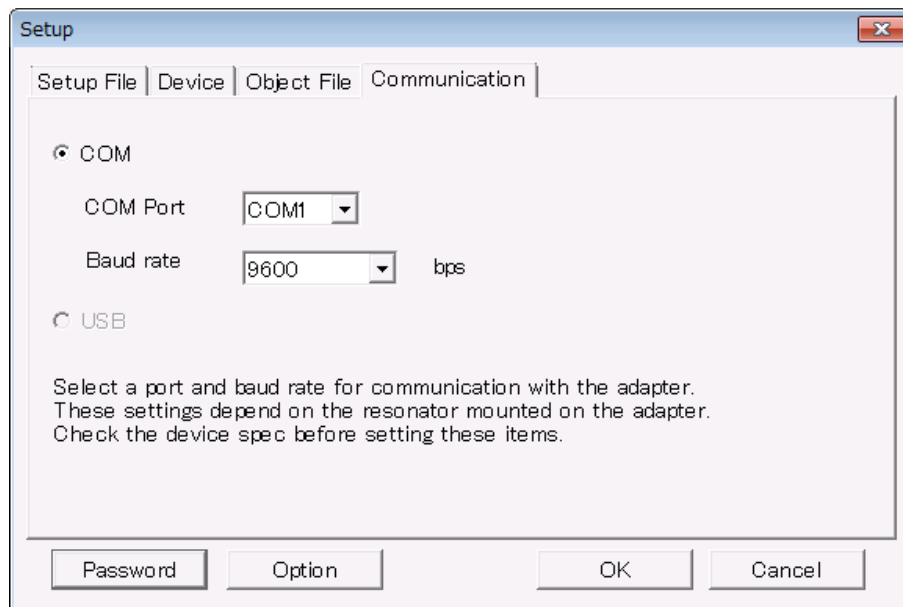
- **Object File**  
Enter the full pathname of the object file to be used.  
The supported file formats are Motorola S format (.s32, .srec), Intel Hex format (.h16) and Extended Intel Hex format (.h20, .hex).
- **Browse**  
This button opens a dialog box for selecting an object file.

#### [Important]

If the contents of the object file being used is changed while the FLASH Programmer is operating, it is necessary to re-load the object file to reflect the changes. To do so, turn off the power to the adapter board and re-establish the connection by selecting [File] – [ReConnect]. Then, select [File] – [Open Object File] to re-load the object file.

### 3.3.5 Communication Sheet

This sheet is used to select the conditions for communication between the host machine and FLASH Adapter.

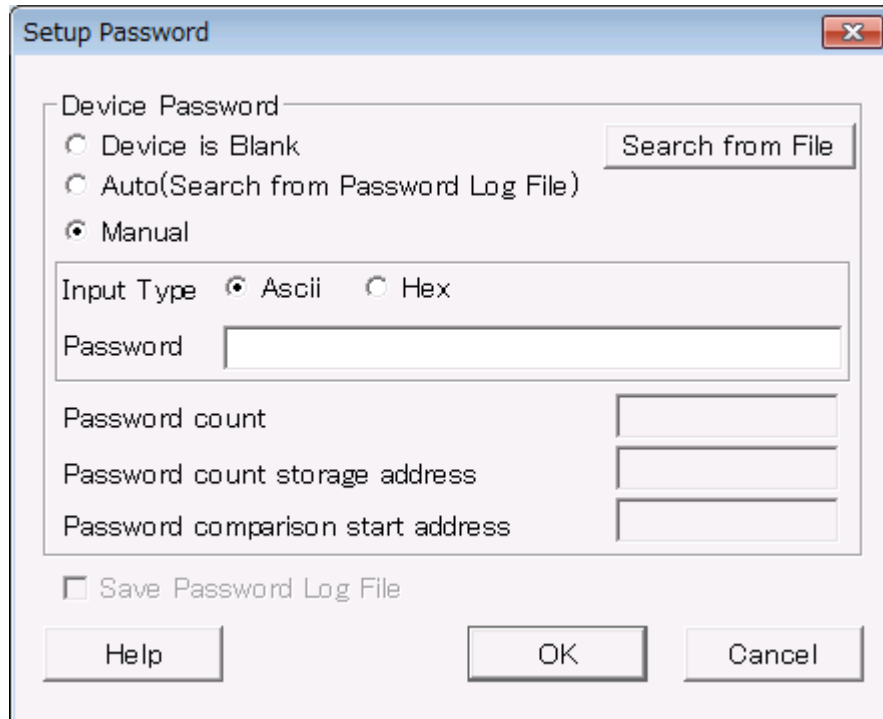


Communication Sheet

- **COM**  
Select when a Target Board and a host machine are connected by serial communication cable.
  - **COM Port**  
Select the COM port to be connected. This selection can only be made from the drop-down list, which displays the COM ports implemented in the host machine.
  - **Baud Rate**  
Select the baud rate for communicating with the Target Device. This selection can only be made from the drop-down list.
- [Important]  
The list displays all baud rates, some of which may not be supported by the host machine or the device. Please refer to the specifications of the host machine and the data sheet of the Target Device to set an appropriate baud rate.
- **USB**  
Select when a Target Board and a host machine are connected by USB communication cable.

### 3.3.6 Password Dialog Box

This dialog box is used to specify password information. For an example of how to set password information, see “6.2 Example of How to Set Password Information”.



Setup Password Dialog Box

#### ■ Device Password group

This is an area for setting the password information already written in the Target Device.

##### ● Search from File

A button to automatically search password from an object file. It automatically searches the password from an object file in which data correspond with Target Device and sets it. The object file can be specified in the File Open dialog box.

##### ● Device is Blank

Select this if the Target Device has already been blank. This automatically sets the password for a blank device. If you select this check box, no other settings are required; do not change other items in the Device Password group.

##### ● Auto(Search from Password Log File)

Select this for automatically searching password from a password log file. If a password log file has password programmed in the Target Device, it automatically searches password from a password log file and sets it,

based on the SUM value of the installed device. This operation is enabled only until the first command is executed after starting FLASH Programmer.

- Manual

Select this for setting an optional password.

Refer to followings to make setting.

<Input Type>

Select whether to enter the Password box in ASCII codes or HEX codes.

ASCII codes are case sensitive to capital or not, but HEX codes are not.

<Password>

Type the password already written in the Target Device. For security reasons, each key input is displayed as “\*.” The “\*” marks in this box indicate that the password is already set.

Input Type	Number of Password Characters
ASCII code	TX00/TX03/TX04 series is up to 12 characters TXZ3/TXZ4 series is up to 255 characters
Hexadecimal code	ASCII code Length x2

[Important]

If the “Device is Blank” option is grayed out, select “Auto” or “Manual”. When the device is blank, the password will be automatically set.

<Password count>

Set the password count.

This group cannot use when the device that the password count is fixed.

<Password count storage address>

Set the address. The content data of this address means password length. This group cannot use when disabling.

The data of Password count storage address and the Password count are the same.

<Password comparison start address>

Set the start address of a FLASH memory area where the password is recorded. The password starts from this address and is comprised of the number of characters specified by the password count storage address.

### ■ Save Password Log File

Select whether the password information should be saved in a password log file. Selecting this check box saves the password information every time the data is programmed into a Target Device.

[Important]

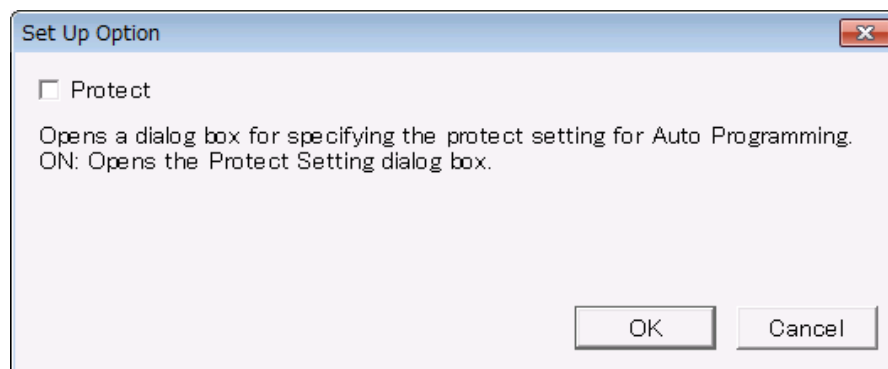
The FLASH Programmer saves the password information in the following files. It is the responsibility of the user to ensure the security of these files.

history.log	Password log file
flashprog.ini	Internal setting file for FLASH Programmer
xxx.ini	User-created work environment file (xxx: File name specified by the user.)

### 3.3.7 Option Dialog Box

This dialog box is used to enable or disable the protect function and the erase without password option.

The protect function varies with each Target Device. For details, refer to the readmexxx.txt file.



Protect Dialog Box

#### ● Protect

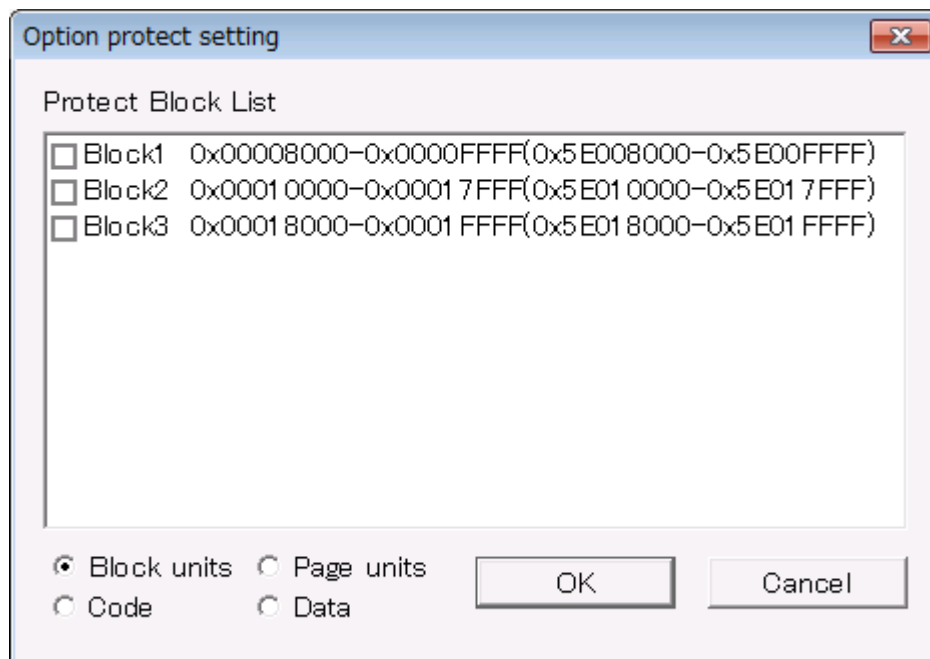
☒ Protect : Enables the protect function in auto programming.

☐ Protect : Disables the protect function in auto programming.

### 3.3.8 Protect dialog box

When the Target Device allows the protect function to be set individually for each block, selecting the Protect check box and then clicking the OK button will open the following dialog box.





☒ Block0 : Enables the protect function in auto programming.

☐ Block0 : Disables the protect function in auto programming.

■ Block units

Displays in block units.

When the Target Device supports both block units and page units, and hasn't data area, this button is available.

■ Page units

Displays in page units.

When the Target Device supports both block units and page units, this button is available.

■ Code

Displays in Code area.

When the Target Device has both Code Area and Data area, this button is available.

■ Data

Displays in Data area.

When the Target Device has both Code Area and Data area, this button is available.

[Important]

The FLASH Programmer sets the protect function after the last sequence of commands specified for Auto Programming is executed. However, if the

[Programming] command is not specified, the protect function will not be set. The protect function takes effect when the FLASH Programmer is exited or the [Re-Connect] command on the File menu is executed.

---

## 3.4 FLASH Programmer Operations

For details, see the following sections:

- 4.4.3 Save As
- 4.5.1 Chip Erase
- 4.5.2 Block Erase
- 4.5.3 Erase/Program
- 4.5.4 Memory Dump
- 4.5.5 Verify
- 4.5.6 Compare
- 4.5.7 Blank Check
- 4.5.8 Protect
- 4.6.1 Auto Programming

---

## 3.5 Saving a Work Environment

After finishing “FLASH Programmer”, the last work environment is saved to setup files. (flashprog.ini). If you want to save the work environment, you can save to setup files as other name. Saved work environments can be restored by loading corresponding setup files.

### 3.5.1 Saving a Work Environment (Saving a Setup File)

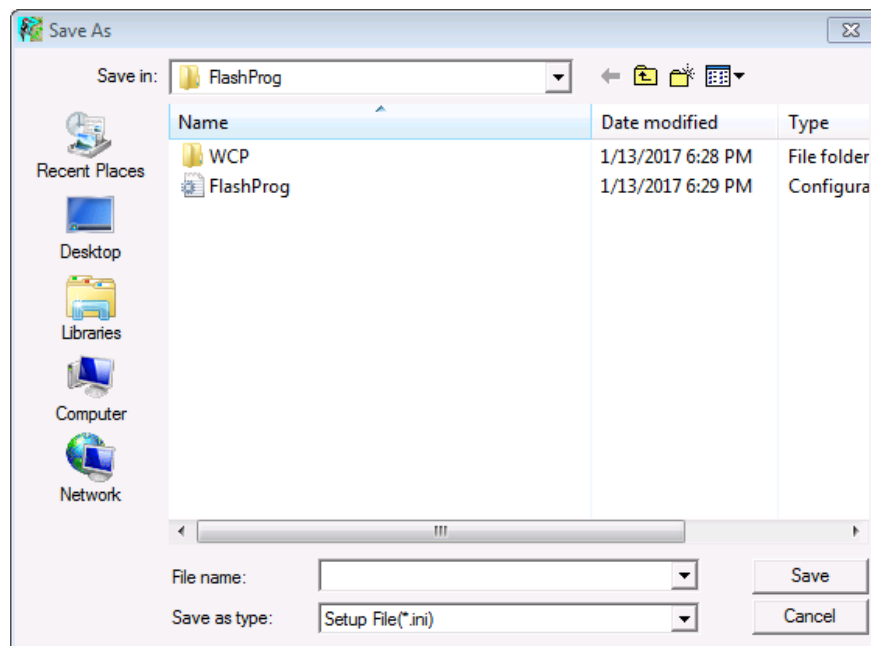
A work environment (setup file) can be saved by using [Save As Setup File] on the [Setup] menu. Do not use file name “flashprog.ini”.

Saves the setup file under a new file name in [Setup] - [Save As Setup File]. When the Save As Setup File dialog box opens, specify the file name under which to save the setup file.

### 3.5.2 Save As Setup File Dialog Box

This dialog box is used to save a setup file in text file format. The default extension is “.ini”.

---



Save As Setup File Dialog Box

- **Save in:**  
Specify the folder in which to save the setup file.
- **File name:**  
Specify the file name.
- **Save as type:**  
Specify the type of file. The following may be specified.
 

*.ini	Setup File
*.*	All Files
- **Save**  
This button saves the current work environment settings under the file name specified in the File name: box. You can specify any file name and extension. If “\*.ini” is specified in the Save as type: box, an .ini extension will automatically be added to the file name.
- **Cancel**  
This button closes the dialog box without saving the current work environment settings.

### 3.5.3 Restoring a Work Environment (Loading a Setup File)

When a work environment is saved in a file (setup file), it can be restored by loading this setup file. A setup file can be loaded in the following two ways.

(1)	From the Setup menu	Select [Setup] – [Setup File]. The Setup dialog box opens with the Setup File sheet displayed. When you select your desired setup file in this sheet, the setup file is loaded to restore the work environment.
(2)	From the File menu	Select [File] – [Open]. The Open Setup File dialog box opens. Specify your desired setup file by using the Look in: and File name: boxes. Clicking [OK] loads the setup file and restores the work environment.

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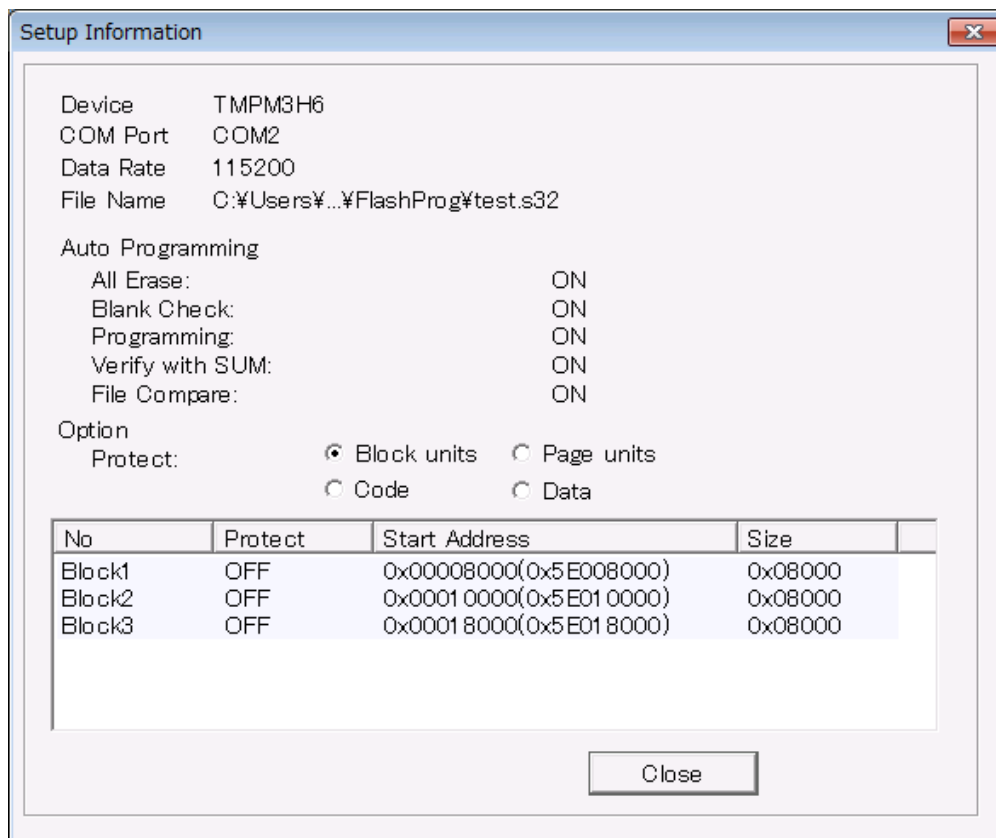
## 3.6 Checking the Saved Work Environment

To check the current work environment, click [Setup Information] or [Setup Information 2] on the [View] menu in the FLASH Programmer's main window to open the Setup Information dialog box or the Setup Information 2 dialog box. This dialog box supports you to check the work environment settings.

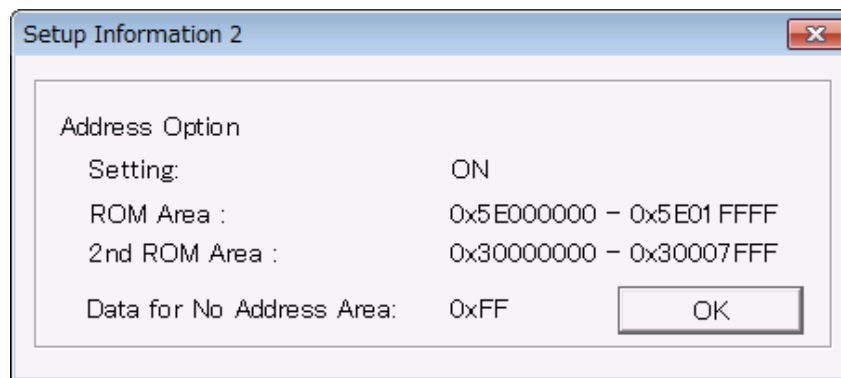
### 3.6.1 Setup Information Dialog Box

This dialog box is used to check the details of the FLASH Programmer's work environment (setup file). In addition to the work environment settings, it also shows the status of programming sequences.

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Setup Information Dialog Box1



Setup Information 2 Dialog Box2

### 3.7 Startup from an Object File

In addition to specifying an execution module, the FLASH Programmer can also be started by clicking an object file name. When the FLASH Programmer is started, Auto Programming sequence is executed.

[Supplement]

- \* The Setup sheet and the Auto Programming dialog box must be set before starting the FLASH Programmer.

- \* It is necessary to associate an object file with the FLASH Programmer. This can be done by using “Folder Option” in the Control Panel of the Windows.

### 3.8 CUI Startup

This chapter explains how to start the FLASH Programmer using the CUI.

In addition to GUI operation using a mouse, the FLASH Programmer can also be started by specifying an object file from the command prompt. When the FLASH Programmer is started using the CUI, Auto Programming sequence is executed.

[Execution Format]

```
>flashprogm.exe <object file name> [,<parameter>]
```

[Supplement]

- \* Separate the execution module name (flashprogm.exe) and the object file name with a space.

- \* The message parameters

MSG_ON	Displays a message box after completing an Auto Programming sequence. After it is displayed, pressing the OK button exits FLASH Programmer.
MSG_OFF	Exits FLASH Programmer automatically without displaying a message box after completing an Auto Programming sequence.

- \* The Setup sheet and the Auto Programming dialog box must be set before starting the FLASH Programmer using the CUI.

- \* When started by the CUI, the FLASH Programmer outputs the execution result (return value) as shown below, which can be used in a batch file. For an example of how to set a batch file, see “6.4 Batch File Setting Example”.

Return Value	Meaning
0	Startup failure (FLASH Programmer already started no definition file, etc.)
1	Normal termination (Execution sequence completed normally)
2	Abnormal termination (Execution sequence terminated abnormally)
3	Forceful termination

# Chapter 4

## GUI Reference

### 4.1 Graphical User Interface (GUI)

This chapter describes the operations of GUI (Graphical User Interface) in the windows of the FLASH Programmer. The first section describes basic GUI operations common to all windows. The windows are then described individually.

### 4.2 Operations Common to All Windows

This section describes basic GUI operations common to all windows.

The FLASH Programmer allows the user to execute one function by multiple methods, including a toolbar button, pull-down menu, and shortcut keys. This provides the option of selecting the easiest method for executing each function.

#### 4.2.1 Title Bar Buttons and Icons

Almost all FLASH Programmer windows and dialog boxes have the standard Windows system icon, Minimize button, Maximize button, and Close button on the title bar.

You can use these buttons in standard Windows operations.

#### 4.2.2 Toolbar

The FLASH Programmer's main window has the FLASH Programmer toolbar.

#### 4.2.3 Entering Numerical Values in a Window

Fields in windows and dialog boxes for entering address values, variable values, and the like accept the following input types.

Hexadecimal values should be entered with the prefix "0x" as shown below. The prefix may be represented either in upper case or lower case.

<i>Prefix</i>	<i>Base</i>	<i>Example</i>
None	Base 10	16
0x	Base 16	0x10

#### 4.2.4 Help Displays

The FLASH Programmer has detailed Help features like ordinary Windows applications. The following Help items are available.



- View the Operation Manual

Clicking [FLASH Programmer Help] on the [Help] menu opens this document (Operation Manual).

- View Help for Dialog Boxes

Clicking the Help button in each dialog box opens a Help dialog box.

#### 4.2.5 Shortcut Keys

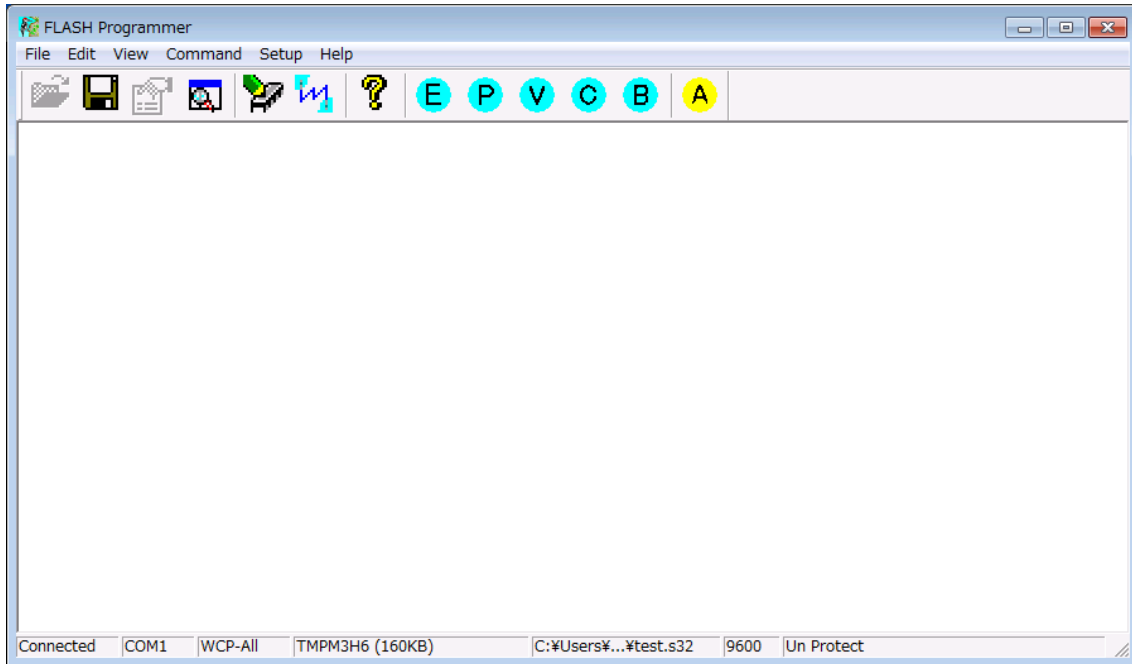
Frequently used functions can be performed using shortcut keys.

The shortcut key settings are shown below.

<i>Key Operation</i>	<i>Function</i>
Ctrl+O	[File]-[Open]
Ctrl+S	[File]-[Save As]
Ctrl+R	[File]-[ReConnect]
Ctrl +I	[View]-[Setup Information]
Ctrl +A	[Command]-[Auto Programming]
Ctrl +E	[Setup]-[Setup File]
F1	[Help]-[FLASH Programmer Help]

### 4.3 Main Window

This is the basic window of the FLASH Programmer.



Main Window

- Title Bar

The title bar shows the name of the program (FLASH Programmer).

- Menu Bar

The menu bar is located directly beneath the title bar. Almost all FLASH Programmer functions can be run from the menu bar. See “4.3.1 Menu Bar” for details.

- Toolbar

The toolbar contains buttons related to file, setup, and programming operations. See “4.3.2 Toolbar” for details.

- Status Bar

The status bar, which displays the status of the FLASH Programmer, is located at the bottom of the main window. The following items are displayed from left to right in the order shown.

Connection Status:

Shows the status of connection between the host machine and Target Device.

Accessing	Trying to establish a connection.
Connected	Established a connection and ready to execute programming command operations.

If the connection is disrupted while the FLASH Programmer is operating, commands may not be accepted even if the status bar is indicating the “Connected” state. For details, see “6.5 Re-establishing the Connection”.

#### Operating Mode:

Shows the operating mode of FLASH Programmer at startup. (WCP-All)  
Refer to “5.1 Operating mode”

#### Communication Port:

Shows the communication port to be connected.

#### Device Name:

Shows the name of the Target Device selected.

#### Object File Name:

Shows the name of the object file for reprogramming to the FLASH memory.

#### Baud rate:

Shows the baud rate via serial port.

#### Protect

Shows the protect status. This item is indicated only when the Target Device supports the protect function.

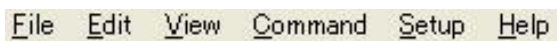
Un Protect      There is no protection block.

All Protect      All Block are protected.

other      Display protected block numbers  
When mouse cursor is on, display protected address by tool hit window.

### 4.3.1 Menu Bar

The menu bar is located directly beneath the title bar. Almost all FLASH Programmer functions can be run from the menu bar.



Menu Bar

#### ■ File menu

Open	Opens a dialog box to specify a setup file.
Open Object File	Opens a dialog box to specify an object file.
Save As...	Saves the contents of FLASH memory under a new file name.(Motorola S Format)
ReConnect	Attempts to reconnect with the FLASH Adapter without exiting the FLASH Programmer.
Exit	Exits the FLASH Programmer.

#### ■ Edit menu

Chip Erase	Erases the entire FLASH memory.
Block Erase	Erases a specified block of the FLASH memory.
Erase/Program	Erases the FLASH memory and then programs it with the contents of an object file. When this item is displayed as "Program", erase operation is not performed.
Memory Dump	Displays 24 lines of FLASH memory data in 16-byte units.
Verify	Compares the SUM values of object file data and FLASH memory data.
Compare	Compares the object file contents and FLASH memory contents byte by byte.
Blank Check	Checks to see whether or not the mounted device is blank.
Protect	Protect/Unprotect a block.

#### ■ View menu

Setup Information	Displays the current setup information.
Setup Information 2	Displays the address option settings.

#### ■ Command menu

Auto Programming	Opens the Auto Programming dialog box for automatically programming the FLASH memory.
------------------	---

■ Setup menu















Setup File	Opens the Setup dialog box to specify the setup file to be used.
Device	Opens the Setup dialog box to specify the Target Device to be used.
Object File	Opens the Setup dialog box to specify the object file to be written to the FLASH memory.
Communication	Opens the Setup dialog box to specify the baud rate.
Password	Opens the Setup dialog box to set the password.
Option	Opens the Set Up Option dialog box to enable or disable the protect function and the erase without password option.
Save As Setup File	Opens the Save As Setup dialog box to save the setup file under a new file name.

■ Help menu

FLASH Programmer	Displays the Help file.
Help	
Version	Displays a dialog box showing version information.

---


### 4.3.2 Toolbar

 Docked Toolbar	
<i>Button</i>	<i>Menu command</i>
 Select Setup File	[File]-[Open]
 Save As Memory	[File]-[Save As]
 View Setup Information	[View]-[Setup Information]
 Setup	[Setup]-[Setup File]
 Auto Programming	[Command]-[Auto Programming]
 ReConnect	[File]-[Reconnect]
 FLASH Programmer Help	[Help]-[FLASH Programmer Help]
 Erase	[Edit]-[]
 Programming	[Edit]-[]
 Verify	[Edit]-[]
 Compare	[Edit]-[]
 Blank Check	[Edit]-[]
 Auto Programming	[Command]-[Auto Programming] Execute the programming sequences in Automatically without display dialog box

### 4.3.3 Executing FLASH Programming

To write the specified object file to the FLASH memory, click the [Auto Programming] button on the toolbar or [Auto Programming] on the [Command] menu.

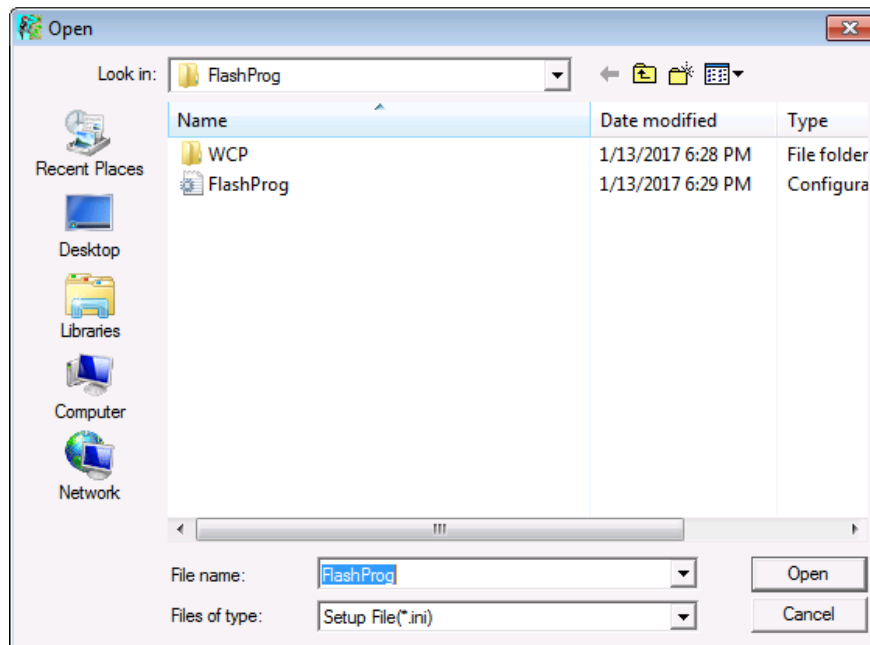
#### ■ Auto Programming

Click the  button on the toolbar or [Auto Programming] on the [Command] menu to open the Auto Programming dialog box and automatically program the FLASH memory. In this dialog box, the FLASH programming sequence can be specified.

## 4.4 File Menu

### 4.4.1 Open File

This dialog box is used to load a setup file.

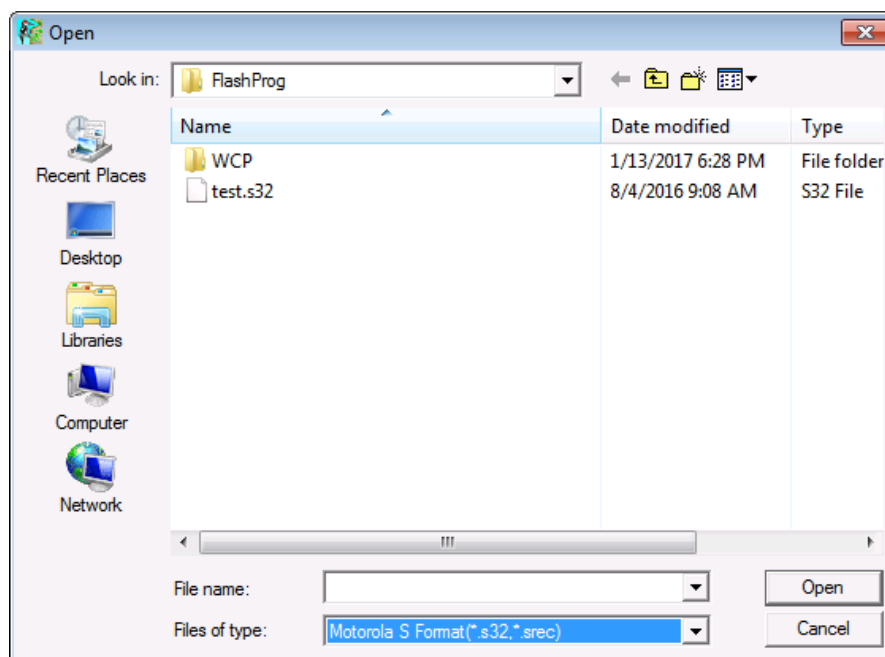


Open File Dialog Box

- **Look in:**  
Specify the folder in which the setup files to be loaded resides.
- **File name:**  
Specify the name of the setup file to be loaded.
- **Files of type:**  
Select the type (extension) of the setup file to be loaded. The following may be specified.
  - Setup File (\*.ini)
  - All Files (\*.\*)

### 4.4.2 Open Object File

This dialog box is used to specify the object file to be written to the FLASH memory.



Open Object File Dialog Box (with Motorola S Format specified)

- Look in:  
Specify the folder in which the object files to be loaded resides.
- File name:  
Specify the name of the object file to be loaded.
- Files of type:  
Select the type of the object file to be loaded. The following may be specified.  
iHEX Format (\*.h16, \*h20, \*.hex)  
Motorola S Format (\*.s32, \*.srec)  
All Files (\*.\*)

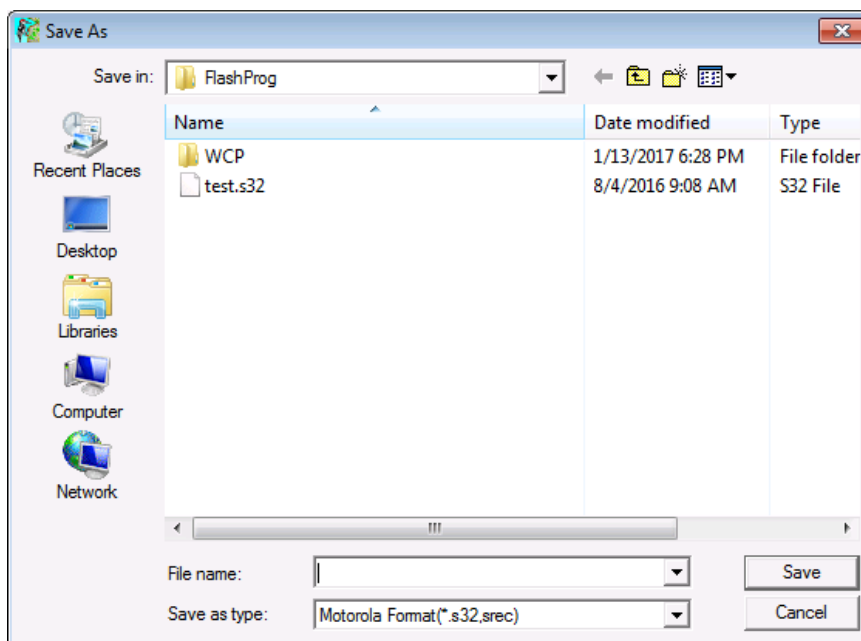
#### [Important]

If the contents of the object file being used is changed while the FLASH Programmer is operating, it is necessary to re-load the object file to reflect the changes. To do so, turn off the power to the adapter board and re-establish the connection by selecting [File] – [ReConnect]. Then, select [File] – [Open Object File] to re-load the object file.



#### 4.4.3 Save As

This dialog box is used to convert the FLASH memory contents into object format and save them in a new file for future reuse.

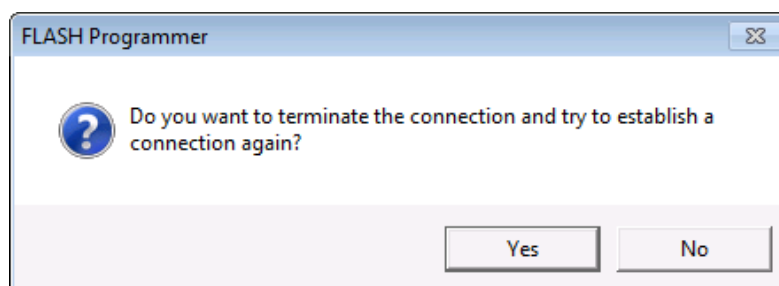


Save As Dialog Box

- **Save in:**  
Specify the folder where the file is to be saved.
- **File name:**  
Specify the file name under which to save the object file. The extension will automatically be added.
- **Save as type:**  
Select the type of the object file to be saved. Only Motorola S Format may be specified

#### 4.4.4 ReConnect

The ReConnect command attempts to re-connect with the Target Device without exiting the FLASH Programmer.



#### 4.4.5 Exit

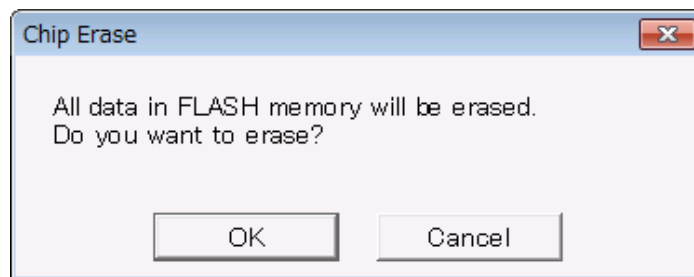
The Exit command is used to exit the FLASH Programmer.

---

### 4.5 Edit Menu

#### 4.5.1 Chip Erase

The entire FLASH memory is erased to “0xFF.”

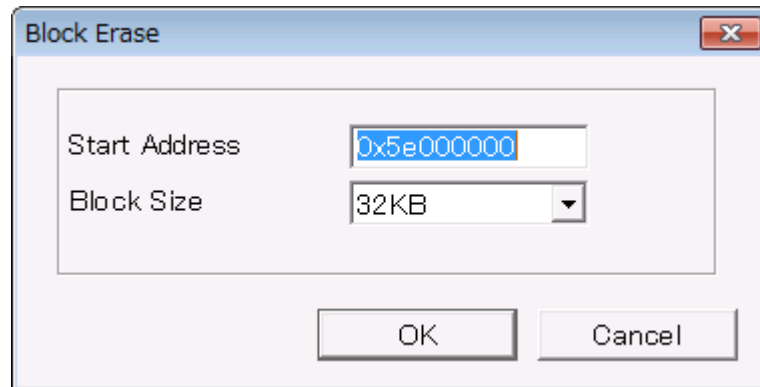


Chip Erase Dialog Box

- **OK**  
Click this button to erase the entire FLASH memory.
  - **Cancel**  
Click this button to close the dialog box without erasing the FLASH memory and go back to the main window.
-

### 4.5.2 Block Erase

This dialog box is used to erase the FLASH memory contents on a block unit. The block start address and size depends on the Target Device type, so refer to the data sheet of the Target Device before setting these fields. And “Block Size” has some type only mentioned later. If they do not conform to the device specifications, an error will occur.



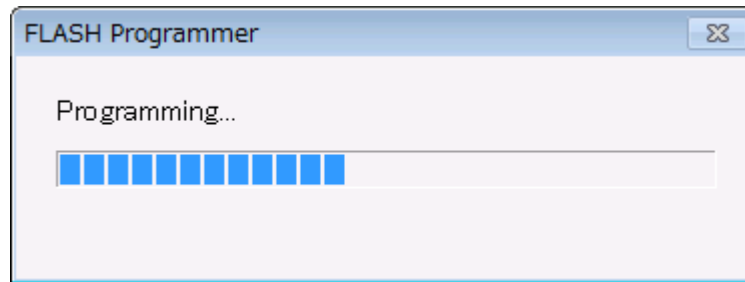
Block Erase Dialog Box

- **Start Address**  
Type the start address of the block to be erased. Be sure to specify the address in hex starting with a 0x prefix.
- **Block Size**  
Select the size of the block to be erased from the list using the ▼ button.  
Block Size: 4KB, 8KB, 16KB, 32KB, 64KB, 128KB  
Depending on a device, only the support size is displayed.
- **OK**  
Click this button to execute the erase operation.
- **Cancel**  
Click this button to close the dialog box without erasing the specified block and go back to the main window.

### 4.5.3 Erase/Program

The Erase/Program command erases and then programs the FLASH memory. When part of the FLASH memory is reprogrammed, the relevant block is automatically erased and then programmed.

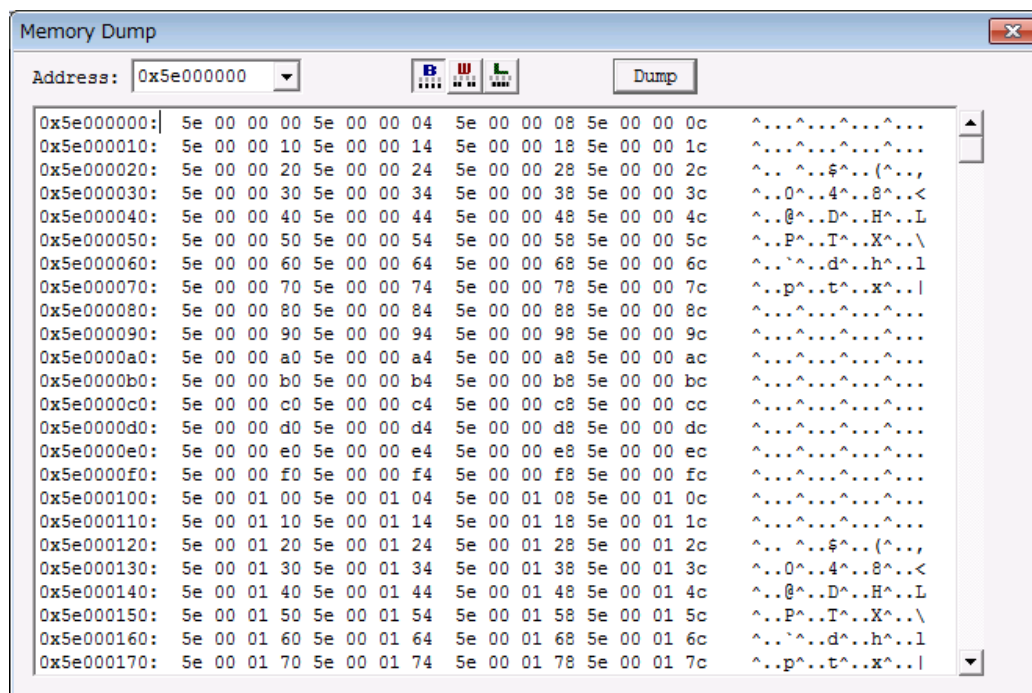
When this command is displayed as “Program”, erase operation is not performed. If a program error occurs by overwriting the FLASH memory, erase the relevant block and then program it again.



Programming Dialog Box

### 4.5.4 Memory Dump

The Memory Dump window displays the contents of memory. Only the Target Device's internal ROM area can be displayed. If an address outside of that area is specified, no data can be displayed.

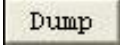





Data display area

ASCII Data Display area

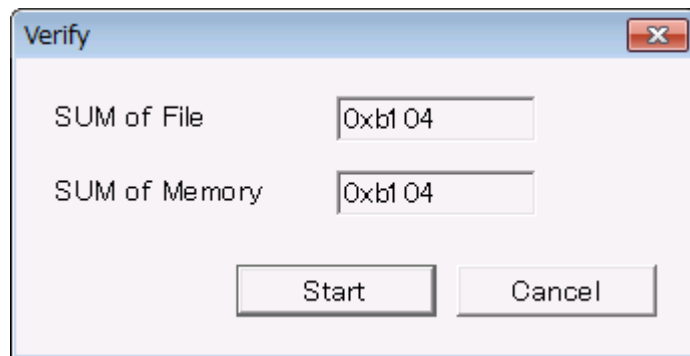
## Memory Dump Window

## ■ Toolbar

<i>Button</i>	<i>Function</i>
Address:	This box is used to specify the display starting address.
 Dump	Displays the memory contents.
 Byte	Displays data in byte units.
 Word	Displays data in word units.
 Long	Displays data in long units.

#### 4.5.5 Verify

This dialog box is used to compare the SUM value of the FLASH memory and the SUM value of the specified object file. The FLASH SUM value is calculated from the entire FLASH memory. Address locations not specified in the object file can be calculated as the value specified in the Address Option dialog box. SUM value comparison can be used for simple verification of the data written to the FLASH memory and version management.

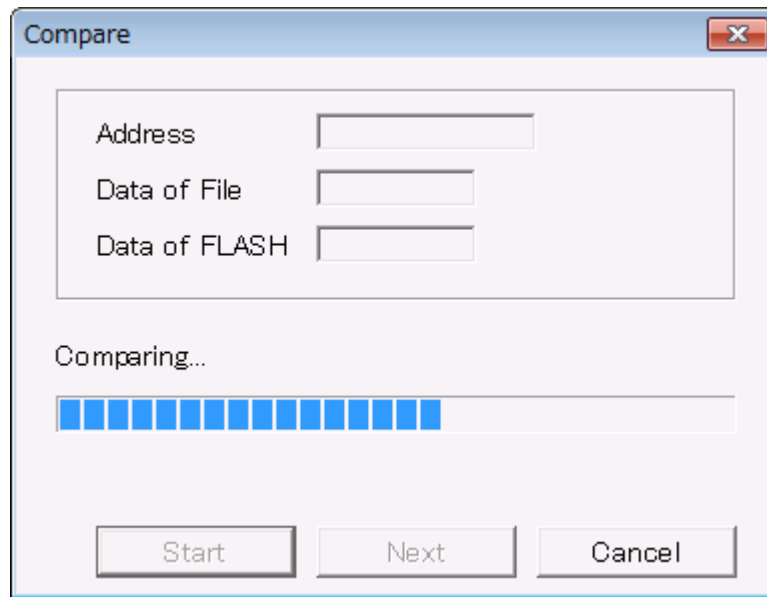


Verify Dialog Box

- **SUM of File**  
The SUM value of the object file is displayed.
- **SUM of Memory**  
The SUM value of the FLASH memory is displayed.
- **Start**  
Click this button to execute verification by SUM value and display the results.
- **Cancel**  
Click this button to terminate the operation, close the dialog box, and then go back to the main window.

#### 4.5.6 Compare

This dialog box is used to compare the FLASH memory contents and the contents of the specified object file on a byte-by-byte basis. If a mismatch is detected, comparison will be stopped and the address, object file data, and FLASH memory data will be displayed. The comparison may then be continued. Address locations not specified in the object file are not compared.

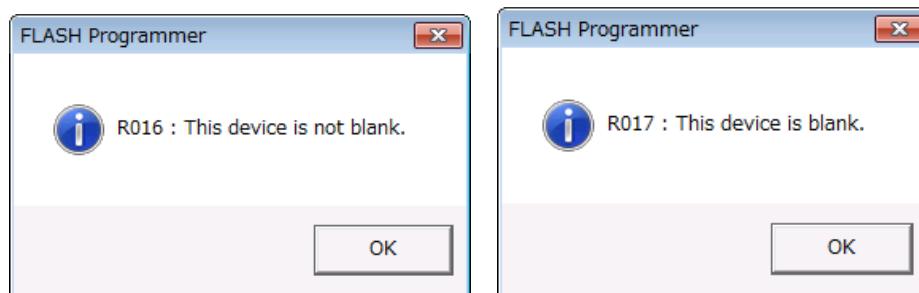


Compare Dialog Box

- **Address**  
Displays the address where a mismatch occurred.
- **Data of File**  
Displays the mismatched data (object file) in hex. 0x is omitted.
- **Data of FLASH**  
Displays the mismatched data (FLASH memory) in hex. 0x is omitted.
- **Start**  
Click this button to start a comparison.
- **Next**  
After a mismatch occurred, this button is available. Click this button to continue the comparison.
- **Cancel**  
Click this button to terminate the operation, close the dialog box, and then go back to the main window.

#### 4.5.7 Blank Check

Whether or not the Target Device is blank can be checked.

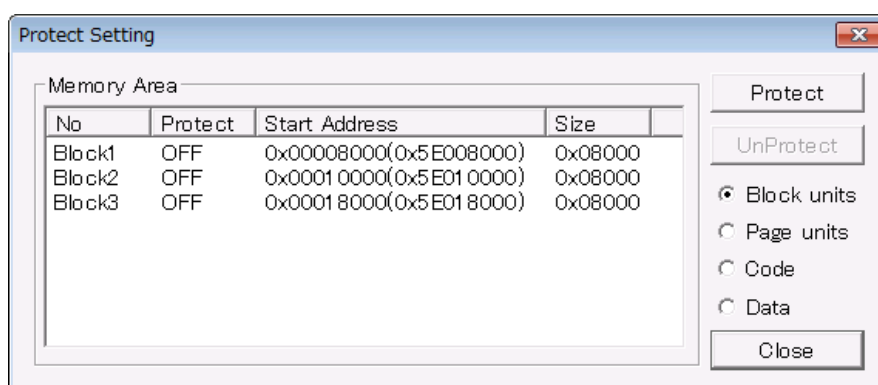


When the Target Device is blank

When the Target Device is not blank

#### 4.5.8 Protect

This dialog box is used to protect/unprotect every block.



Protect Setting Dialog Box

- **Protect**  
Protect selected block in Memory Area.
- **UnProtect**  
UnProtect selected block in Memory Area.  
Erase all memory data and unprotect all block when all blocks are protected.
- **Block units**  
Displays in block units.  
When the Target Device supports both block units and page units, and hasn't data area, this button is available.
- **Page units**  
Displays in page units.  
When the Target Device supports both block units and page units, this button is available.
- **Code**  
Displays in Code area.  
When the Target Device has both Code Area and Data area, this button is available.

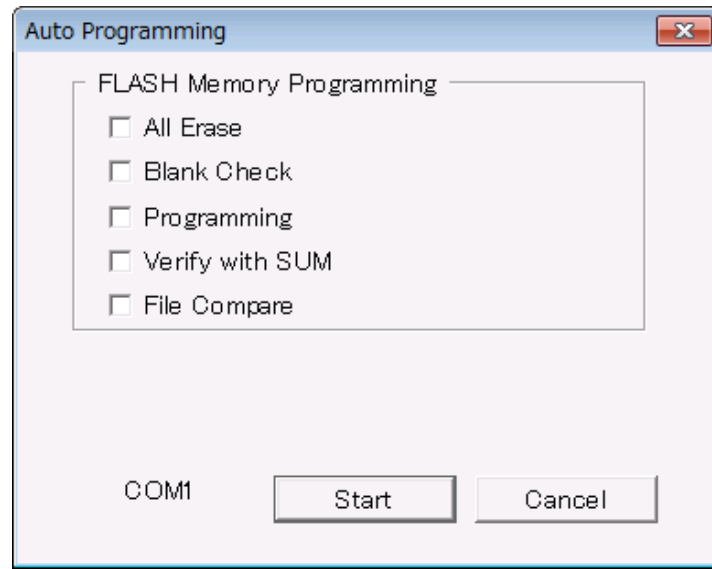


- Data  
Displays in Data area.  
When the Target Device has both Code Area and Data area, this button is available.
- Close  
Close the dialog box.

## 4.6 Command Menu

### 4.6.1 Auto Programming

This dialog box is used to specify the operations to be performed in the auto programming sequence. For details about each operation, see “4.5 Edit Menu”.



Auto Programming Dialog Box

#### ■ FLASH Memory Programming group

##### ■ All Erase

Erase the entire FLASH memory.

This function is the same as “4.5.1 Chip Erase”.

##### ■ Blank Check

Check whether the device is blank.

This function is the same as “4.5.7 Blank Check”.

##### ■ Programming

Writes the contents of the specified object file to the FLASH memory.

This function is the same as “4.5.3 Erase/Program”.

##### ■ Verify with SUM

Compare the SUM value of the Target Device and the SUM value of the object file.

This function is the same as “4.5.5 Verify”.

##### ■ File Compare

Compare the entire contents of the FLASH memory and the contents of the object file on a byte-by-byte basis.

This function is the same as “4.5.6 Compare”.

## [Reference]

“All Erase” and “Programming”

When the “Erase/Program” command is displayed on the Edit menu instead of “Programming”, the same operation is performed regardless of whether or not “All Erase” is selected.

<i>“All Erase”</i>	<i>“Programming”</i>	<i>Operation</i>	<i>Erase Count</i>
OFF	ON	Erases and then programs the FLASH memory.	Once
ON	ON	Same as above	Once

## [Important]

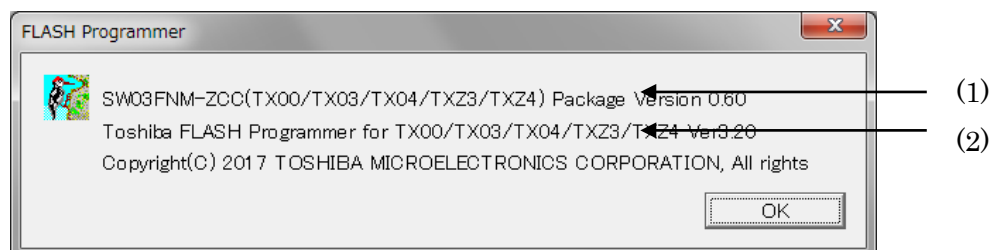
“All Erase” and the protect function

When the protect function is enabled, operation varies depending on whether or not “All Erase” is selected, as shown below.

<i>“All Erase”</i>	<i>Operation (“Programming” = ON)</i>
ON	Automatically cancels the protect function and erases the FLASH memory.
OFF	Displays a warning message and stops the execution sequence.

## 4.7 Version Information Dialog Box

This dialog box displays the version information of the FLASH Programmer.



Version Information Dialog Box

- OK  
Close the dialog box.
- Display Area
  - (1) Shows the version of the product package.
  - (2) Shows the version of the FLASH Programmer execution module.

# Chapter 5

## Supplementary Information

This chapter provides supplementary information regarding the FLASH Programmer.

### 5.1 Operating mode

#### 5.1.1 Operating mode & Password

Selecting the Target Device decide Operating Mode automatically. Operating mode status is displayed in Main Window status bar. Password setting depends on operating mode as following.

Table 5.1 Relationships between Operating Modes and Password Setting.

Operating Mode	Device Password
WCP All	Required

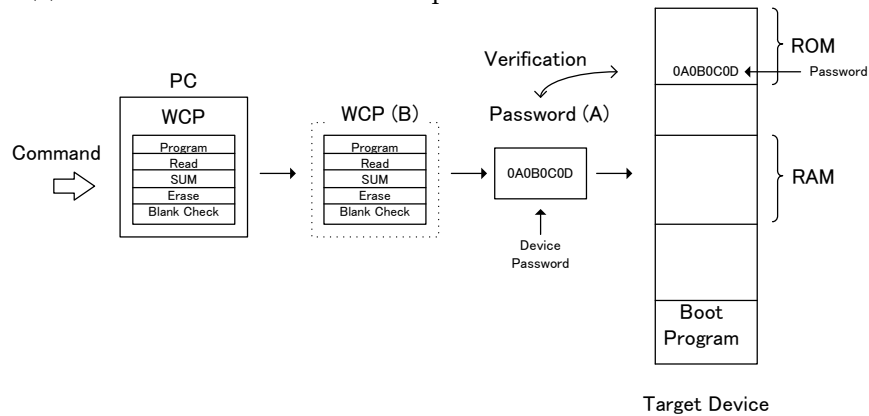
Password and operating mode have following relationship.

WCP-All:

In WCP-All mode, the FLASH Programmer transfers the entire write control program (WCP) to the on-chip RAM of the Target Device, and FLASH memory commands (read, program, etc.) are implemented by executing the WCP on the RAM. When the WCP is transferred to the RAM, password verification is performed.

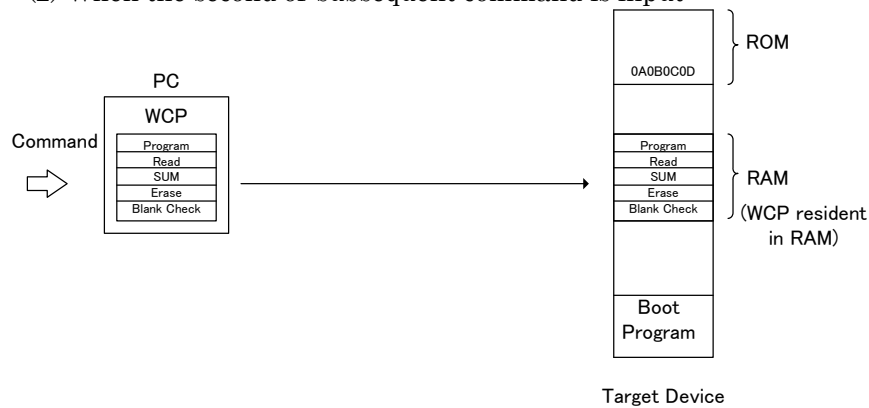
In this operating mode, the first command input transfers the entire WCP containing all function modules to the RAM and the WCP always resides there. Therefore, password verification is performed only at the first command input.

(1) When the first command is input



- 1) When the first command is input, the FLASH Programmer sends the Password (indicated as (A) in the above figure) to the Target Device. This Password is compared to the Password written in the Target Device.
- 2) If the password verification is successful, the FLASH Programmer transfers the entire WCP (indicated as (B) in the above figure) to the on-chip RAM of the Target Device.
- 3) After the WCP has been transferred, the first command is executed.

(2) When the second or subsequent command is input



- 1) Once the WCP has been transferred to the RAM where it stays resident, the FLASH Programmer controls programming operations on the ROM (FLASH memory) via the WCP. In this case, password verification is not performed at each command input.

### 5.1.2 Commands Supported in Each Operating Mode

The table below shows the commands that can be used in each operating mode. Unsupported commands are grayed out on the FLASH Programmer screen.

Command		Operating Mode
		WCP-All
Edit Menu	Chip Erase	O
	Block Erase	*
	Program	O
	Memory Dump	O
	Verify	O
	Compare	O
	Blank Check	O
Command- Auto programming Menu	All Erase	O
	Blank Check	O
	Programming	O
	Verify with SUM	O
	File Compare	O

O: Supported

\*: Not supported when the Edit menu is grayed out

X: No supported

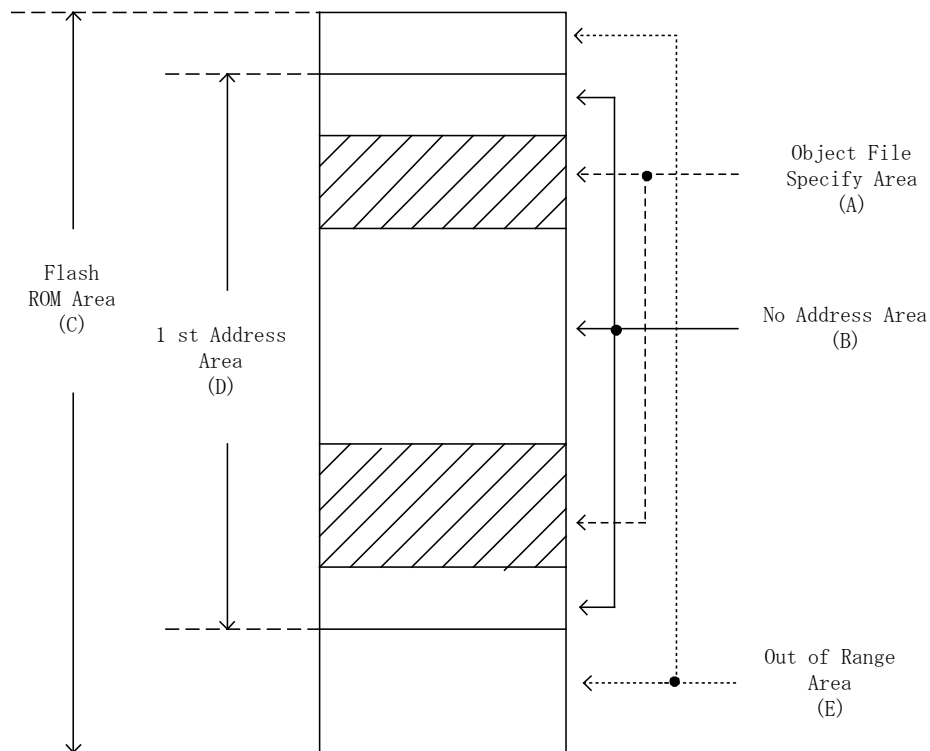
## 5.2 Calculating SUM value

The Address Option dialog box provides various options for calculating the SUM value.

[Important]

The address area specified in the object file must be within the range specified in the Address Area field of the Address Option dialog box. If this rule is not observed, the SUM value cannot be calculated properly.

### 5.2.1 When the ROM area is not separated



FLASH ROM Area(C):

ROM areas of the target device that specified in "Device sheet".

1st Address Area (D):

The ROM areas of the target device. (If the Target Device being developed is a mask or OTP version and the ROM area is different from that of the FLASH version, specify the ROM area of the Target Device.)



No Address Area (B):

\*The area except for the area specified by the object file in the ROM area that the Target Device have.

Object file Area (A):

The area t specified by the object file.

Out of Range Area (E):

The difference between a FLASH ROM Area(C) and an Address Area (D).

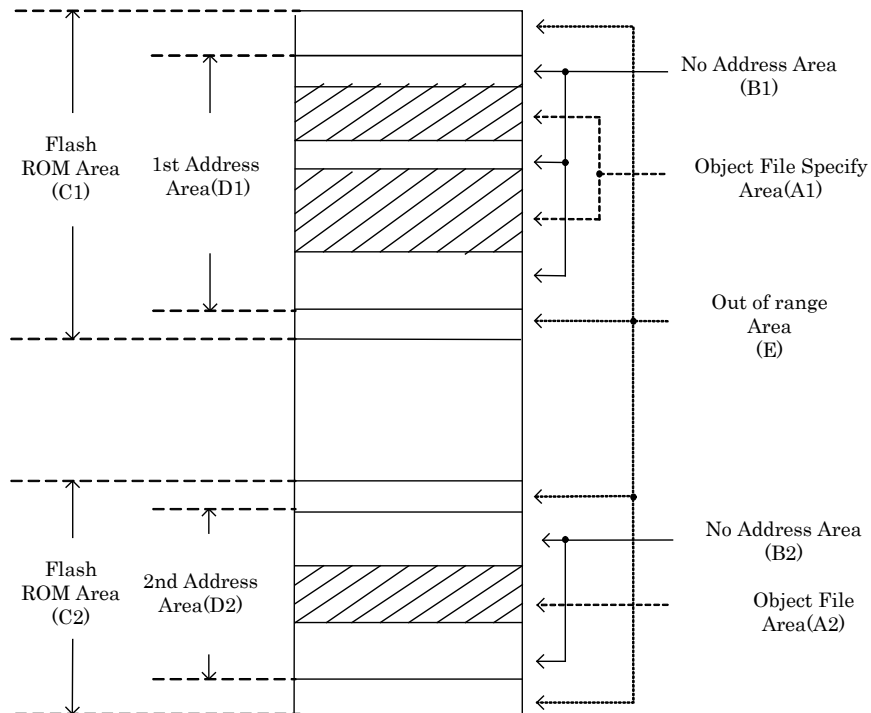
Relation between “Address Option” and the SUM value

	Address Option		
	Select		Clear
Value of No address Area	00	FF	-
SUM of File on Verifying	A+B (00)	A+B (FF)	A+B (FF)
SUM of Memory on Verifying	A+B (00)+E (00)	A+B (FF)+E (00)	
Writing area on Programming	A, B (00), E (00)	A, B (FF), E (00)	A

B (xx): Fill B area with 0x00 or 0xFF.

E (00): Fill E area with 0x00.

### 5.2.2 When the ROM area is separated into two locations



FLASH ROM Area (C1/C2):

ROM Area of the Target Device specified in the Device sheet

1st Address Area (D1):

The first half of the ROM area of the Target Device being developed

(If the Target Device being developed is a mask or OTP version and the ROM area is different from that of the FLASH version, specify the ROM area of the Target Device.)

2nd Address Area (D2):

The latter half of the Target Device's ROM area

(When the Target Device for development is a mask or OTP version and has a different ROM area, specify the ROM area of this device.)

No Address Area (B1/B2):

Empty area that is generated when the area specified in the object file does not cover the entire ROM area of the Target Device

Object File Area (A1/A2):

The area specified in the object file

Non-Specified Area (E):

The difference between “FLASH ROM Area” and “Address Area”

SUM Values according to the Address Option Setting (Address Option = “Select”)

Value of No address Area	00	FF
SUM of File value for Verify operation	$A1 + B1(00) + A2 + B2(00)$	$A1 + B1(FF) + A2 + B2(FF)$
SUM of Memory value for Verify operation	$A1 + B1(00) + A2 + B2(00) + E(00)$	$A1 + B1(FF) + A2 + B2(FF) + E(00)$
Areas programmed by Programming operation	A1, B1(00), A2, B2(00), E(00)	A1, B1(FF), A2, B2(FF), E(00)

Relation between “Address Option” and the SUM value (Address Option = “Clear”)

Value of No address Area	00	FF
SUM of File value for Verify operation	$A1 + B1(00) + A2 + B2(00)$	$A1 + B1(FF) + A2 + B2(FF)$
SUM of Memory value for Verify operation		
Areas programmed by Programming operation	A1, A2	A1, A2

Bx (xx): Fill Bx area with 0x00 or 0xFF.

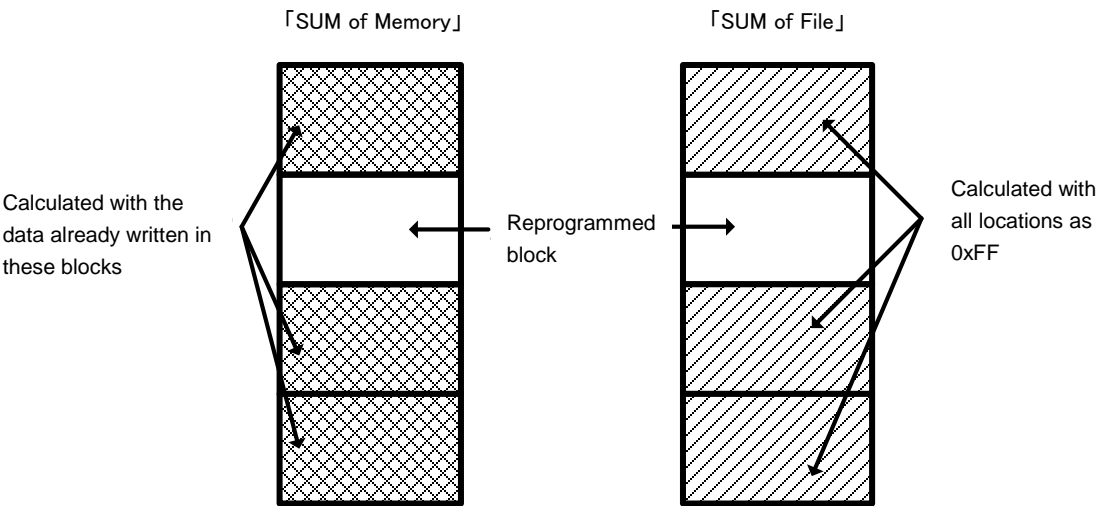
E (00): E area with Fill 0x00.

5.2.3 Partial Reprogramming of ROM and SUM Values

If a programmed device is partially reprogrammed, a verify error may occur. This is because the verify operation compares the “SUM of Memory” and “SUM of File” values, which are calculated differently as shown below.

SUM of Memory	=	SUM value of the reprogrammed block (*)	+	SUM value of other blocks (SUM value of the data already written in these blocks)
SUM of File	=	SUM value of the reprogrammed block (*)	+	SUM value of other blocks (calculated with all locations as 0xFF)

(\*): In the reprogrammed block, locations where no object data exists are calculated as 0xFF.



## 5.3 Password

### 5.3.1 Password Structure

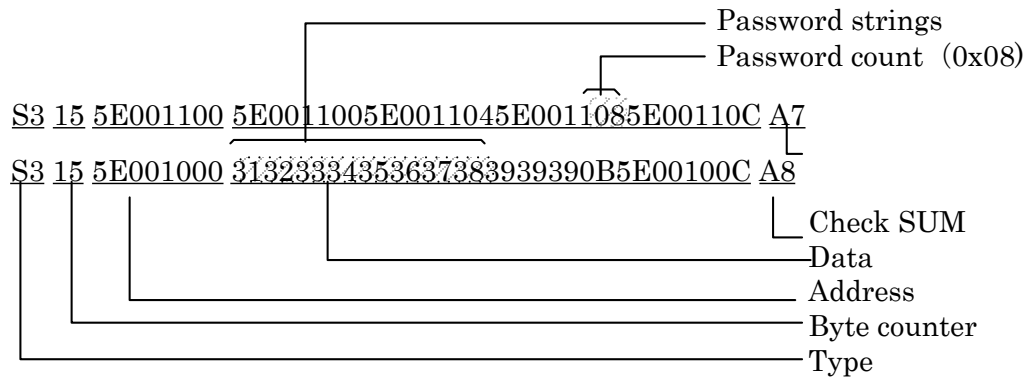
Toshiba FLASH microcontrollers allow a consecutive data string (8 bytes or longer) in the FLASH memory to be set as a password. Password verification is performed by comparing the password string sent from the FLASH Programmer with the password string in the FLASH memory. Followings are examples for searching the password from Object File when a Target Device is TXZ3/TXZ4 series.

■ In the case of Motorola S record format

(Read this chapter after understanding Motorola S record format.)

Example

Password count storage address	: 0x5E00110B
Password comparison start address	: 0x5E001000
Password	: 3132333435363738

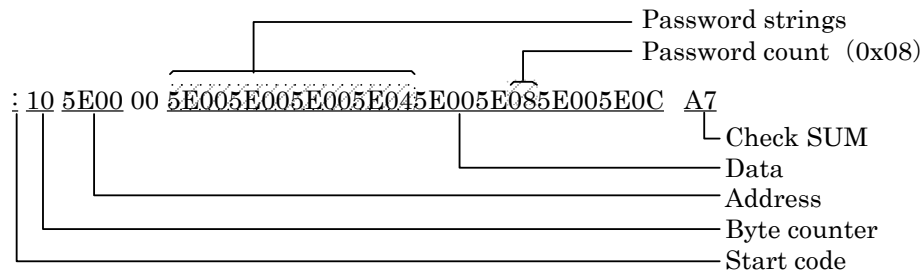


■ In the case of Intel HEX format

(Read this chapter after understanding Intel HEX format.)

Example

Password count storage address	: 0x5E005E0B
Password comparison start address	: 0x5E005E00
Password	: 5E005E005E005E04



### 5.3.2 Limitations on Password Setting

Password information to be specified in the Setup Password dialog box is subject to some limitations. The limitations vary with each Target Device. Some examples are shown below.

TX00/TX03/TX04 series

- The password must be comprised of 12 bytes or less.
- The same data other than 0xFF must not be continued.

TXZ3/TXZ4 series

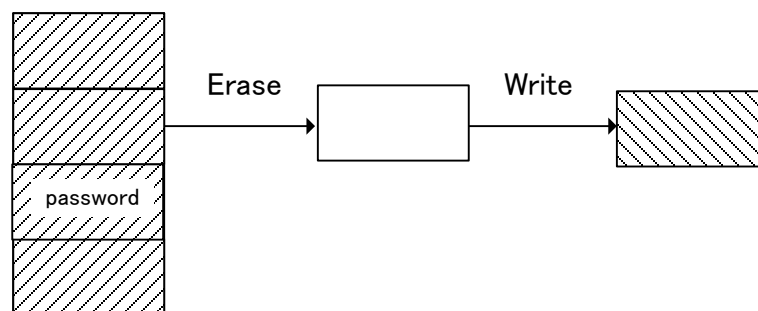
- The password must be comprised of 8 to 255 bytes.
- The same value must not be contained in more than 3 consecutive bytes.

For details about password setting and limitations, refer to the data sheet of the Target Device.

### 5.3.3 Avoiding Password Errors in Partial Reprogramming of ROM

When it is necessary to reprogram part of the ROM data, the FLASH Programmer erases the block to be reprogrammed and then writes new data to this block. At this time, password verification is required for both erase and writes operations. Make sure that the password is placed in a block which is not to be reprogrammed.

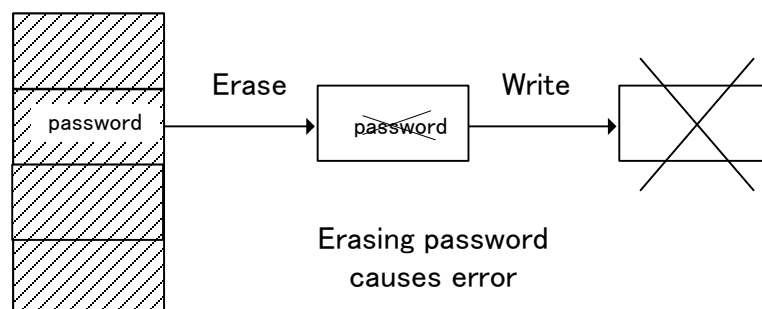
Before write



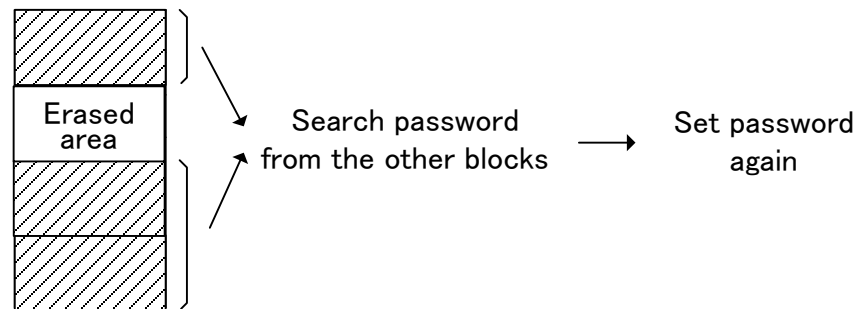
Password error condition:

If the block in which the password is written is reprogrammed, no problem occurs up to the block erase operation. However, erasing the block causes the password information to be lost and a password error will occur in the next write operation.

Before write



If a password error occurs, find another password sequence in the original object file used. Find this password sequence in an unease block and set it as the new password.





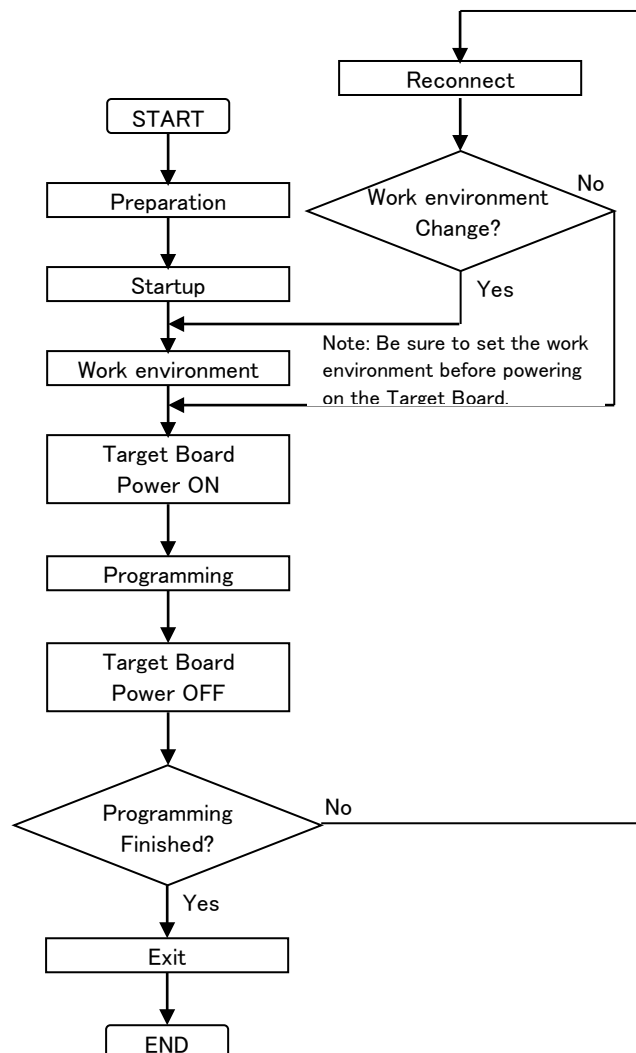
# Chapter 6

## Operation Procedures and Examples

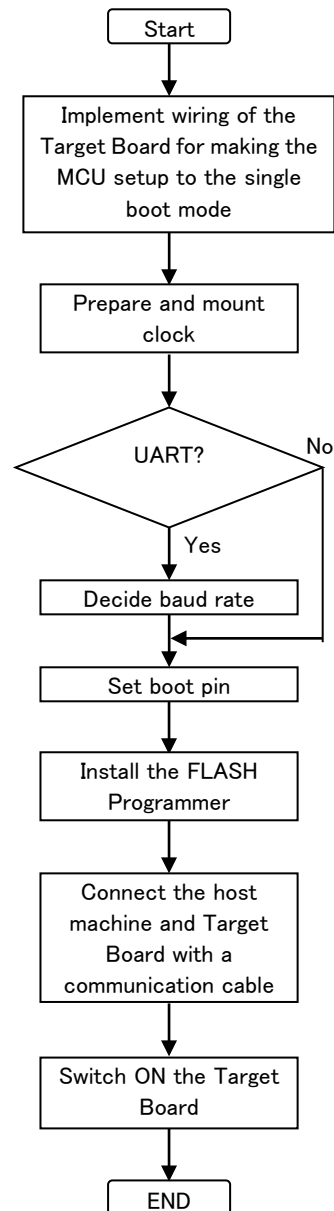
This chapter explains the basic procedure for programming FLASH memory.

### 6.1 Flowcharts

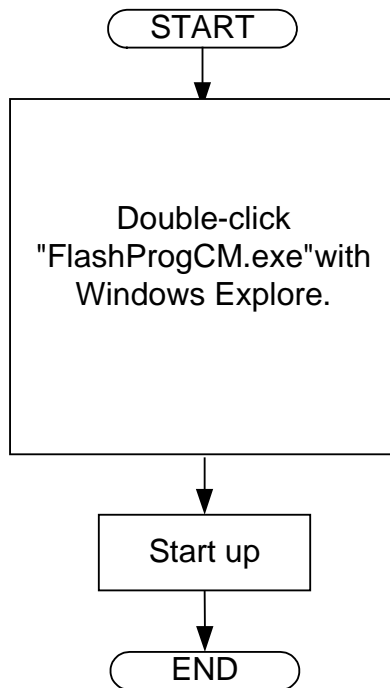
#### 6.1.1 Overall Programming Procedure



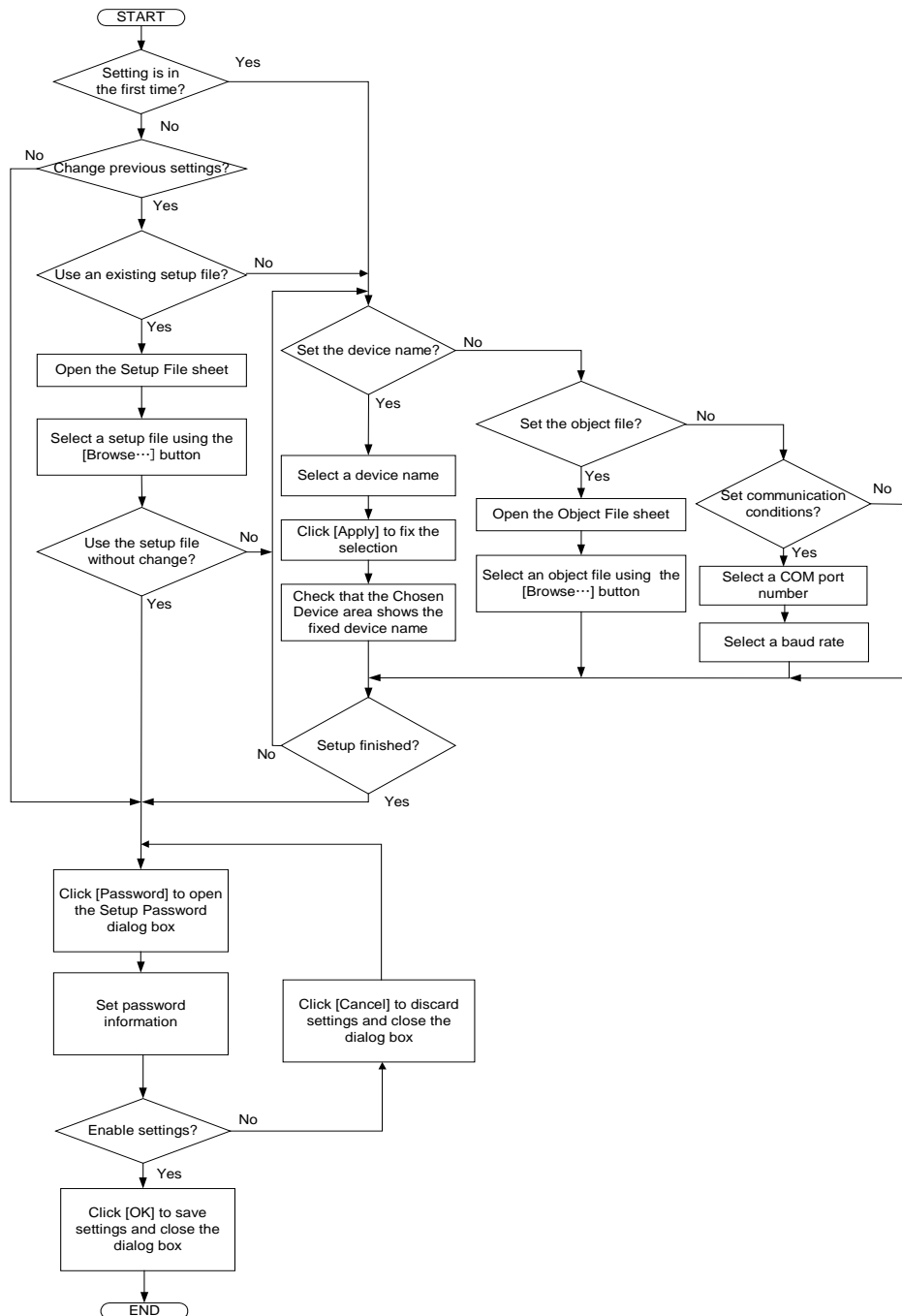
### 6.1.2 Preparation



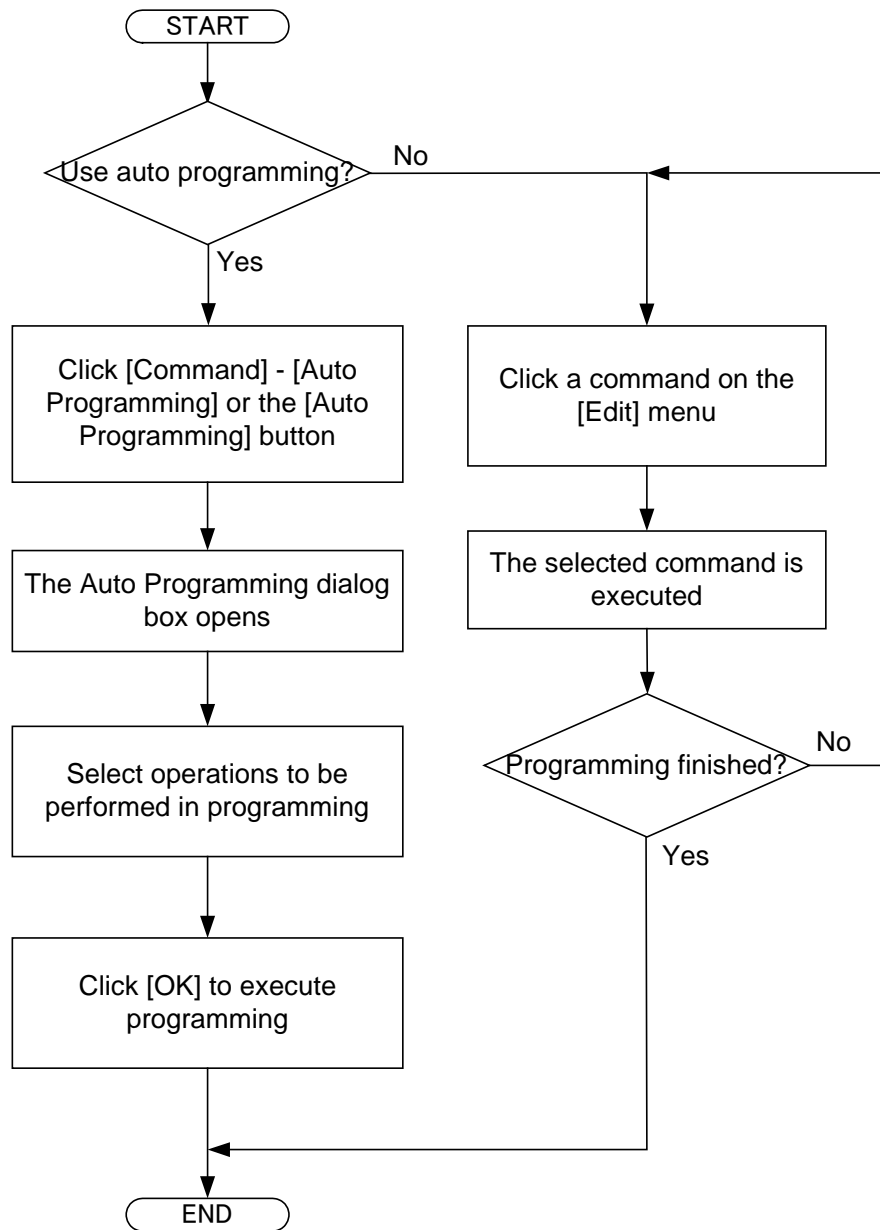
### 6.1.3 Start Up

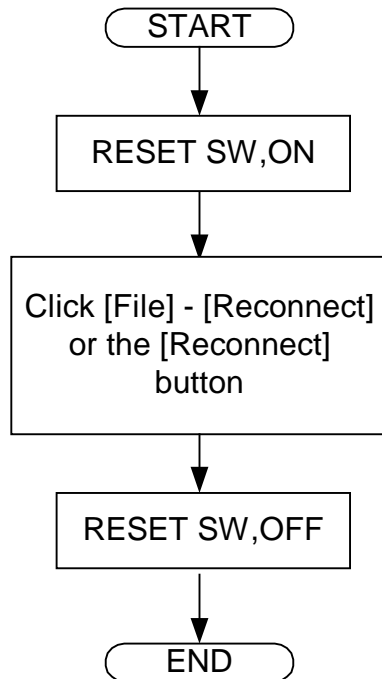
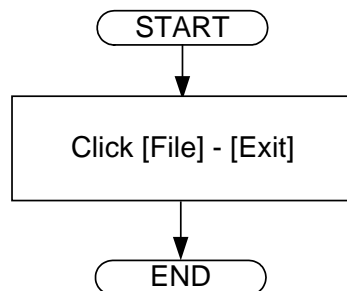


## 6.1.4 Work Environment SetUp



## 6.1.5 Programming



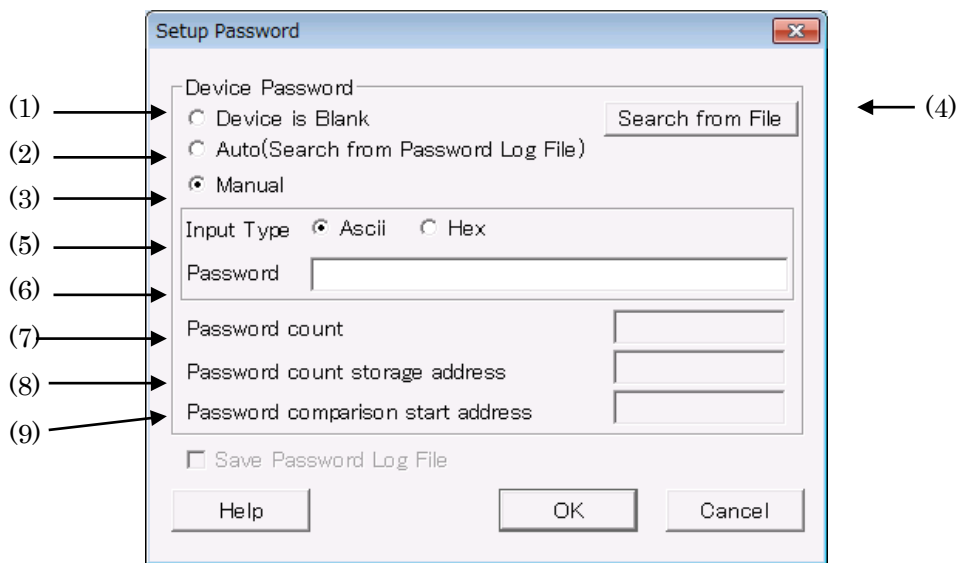
**6.1.6 Reconnect****6.1.7 Exit**

## 6.2 Example of How to Set Password Information

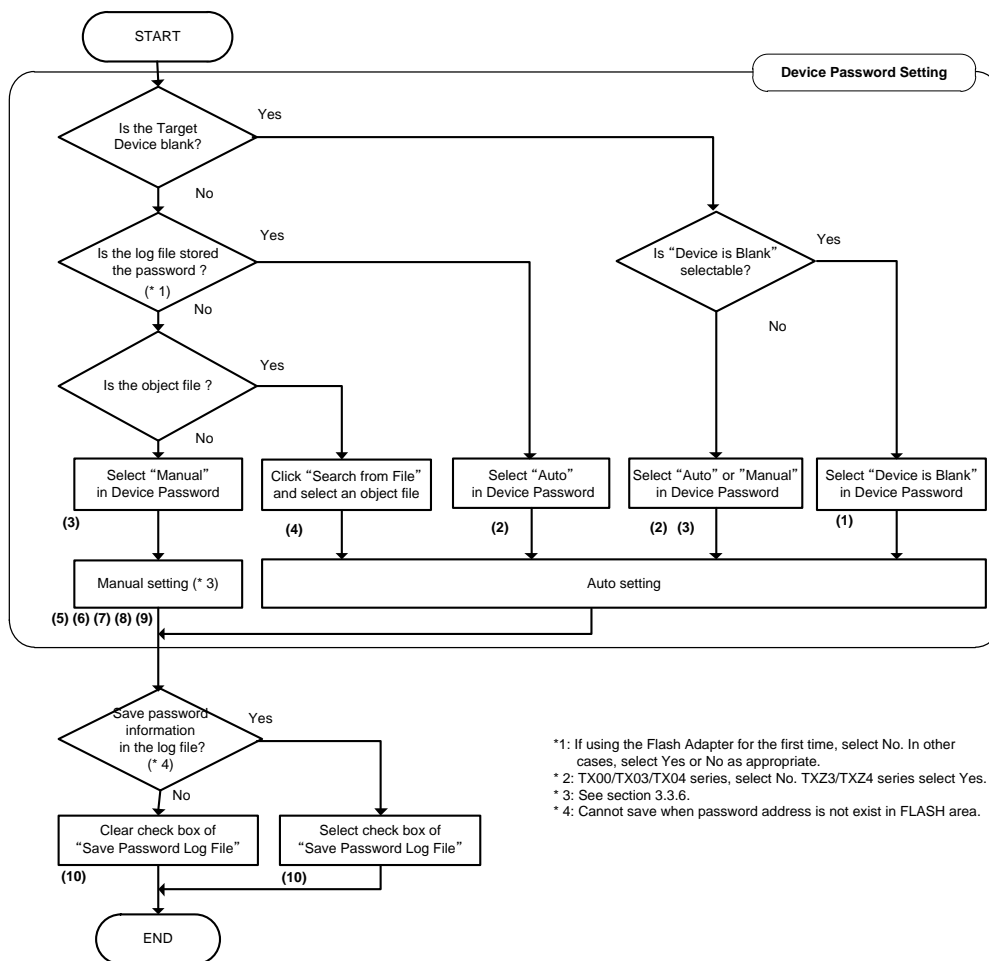
This section provides an example of how to set password information.

It is assumed that the device type and object file have already been set up and the FLASH Adapter is powered on with connection established (immediately after startup).

Follow the flowchart below to set password information.



Setup Password Dialog Box





### 6.3 Example of How to Calculate the SUM Value

Following is an example of a setting when developing TMPM330FD (FLASH ROM: 512K).

[Setup]- [Device/Address Option].

[Device]

- \* Series Name: TX03 series
- \* Device Name: TMPM330FD
- \* Address Option: Select ( ☒ Setting )

[Address Option]

- \* 1st ROM area: 0x00000000~0x0007FFFF
- \* Value of No Address area:"00"

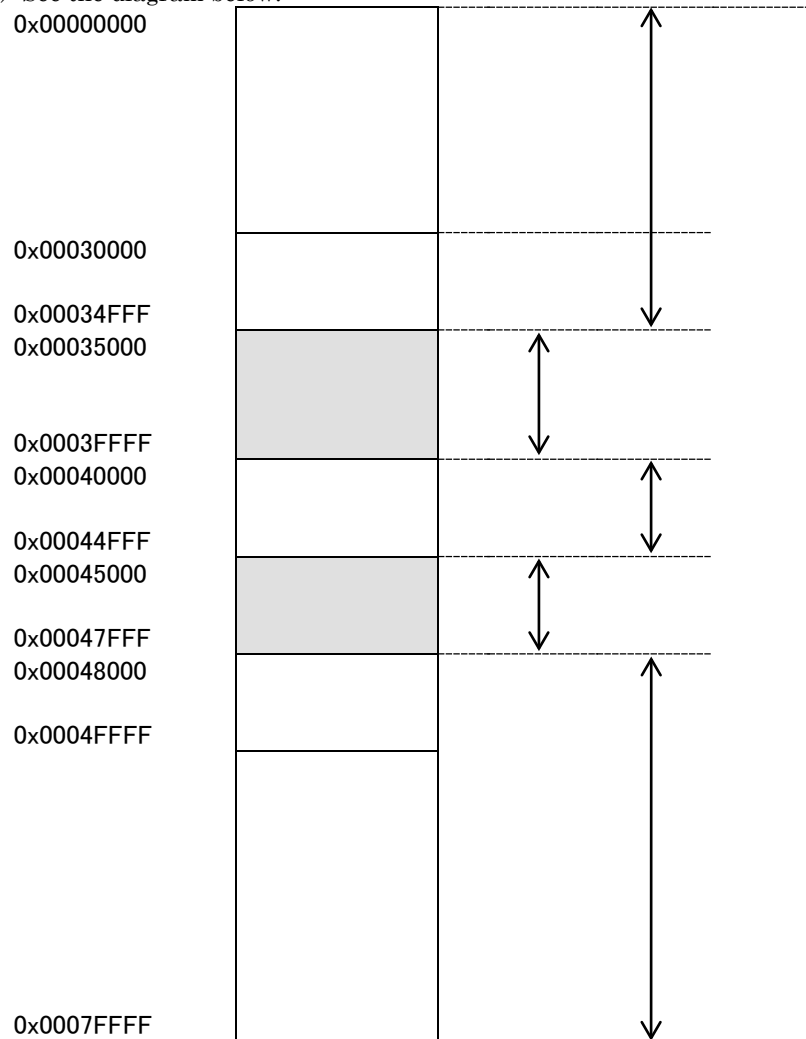
The address area in an object file is taken as the following.

0x00035000~0x0003FFFF

0x00045000~0x00047FFF

	ITEM	SUM Value/Area (*)
(1)	SUM Value of Object File (SUM of File)	(A)+(B:00)
(2)	SUM Value of FLASH Memory (SUM of Memory)	(A)+(B:00)
(3)	Programming Area on "Programming"	(A)+(B:00)
(4)	Saved Area on "Save As"	(A)+(B:00)

(\*): See the diagram below.



■ : Address area specified by object file (A) (B)

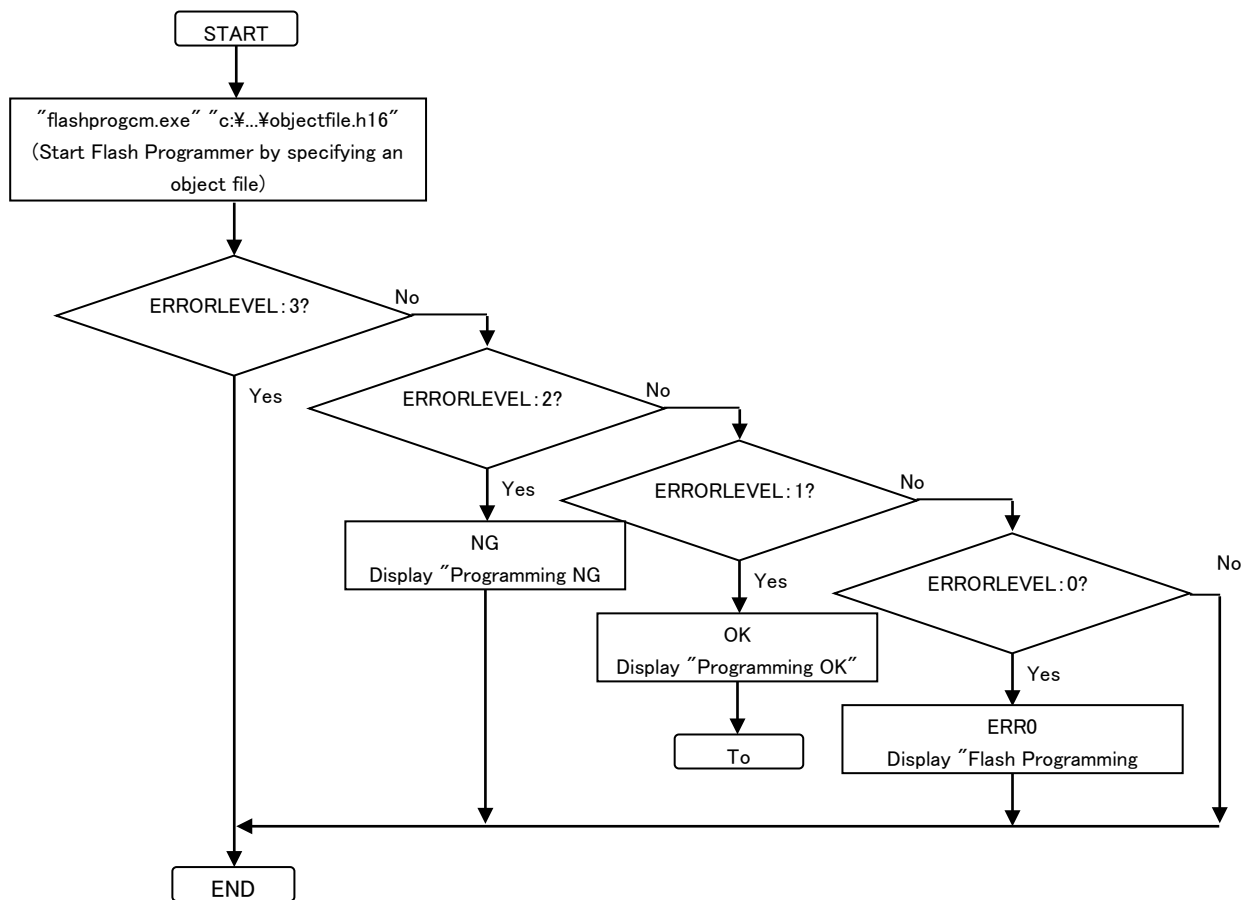
Example calculating SUM value

## 6.4 Batch File Setting Example

The following shows an example of how to set a batch file for starting the FLASH Programmer via the CUI.

```
:START
"flashprogrm.exe" "C:\....\objectfile.h16"
IF ERRORLEVEL 3 GOTO END
IF ERRORLEVEL 2 GOTO NG
IF ERRORLEVEL 1 GOTO OK
IF ERRORLEVEL 0 GOTO ERRO
GOTO END
:OK
ECHO Programming OK
GOTO START
:NG
ECHO Programming NG
GOTO END
:ERRO
ECHO FLASH Programmer Error
:END
```

Flow of Batch File

**Notes:**

Set the execution sequence in advance in the Auto Programming dialog box.

## 6.5 Re-establishing the Connection

If the connection is disrupted while the FLASH Programmer is operating, the status bar continues to indicate "Connected" even if the connection is no longer established. If this occurs, re-establish the connection as explained below. The connection is disrupted in the following cases:

- When the Target Board is powered off
- When the RESET switch is pushed
- When a command is executed even if the password specified in the Setup Password dialog box does not match the password written in the Target Device

Procedure for re-establishing the connection

1. Select [File]-[ReConnect]  
The status indicator shows “Accessing”.
2. The power supply of a Target Board is re-switched on, or is reset.  
The status indicator changes to “Connected” and the connection is re-established.

---

## **6.6. Programming method to specific block**

Programming in a specific block of the flash memory is performed using the following procedure.

1. Confirm a specific block information (start address and block size) with the data sheet.
  2. Prepare the object file with only a specific block.  
For instance, create the object file of Programming, from the starting address of the Programming block to the size range of the block.  
\* Create it by using the section function etc., with the development environment (Assembler or Compiler) used.
  3. Erases a specific block of the flash memory.
  4. Programming the object file prepared Procedure (2).
-

## Chapter 7

# List of Messages

The messages displayed in the FLASH Programmer are listed below.

- E000     Cannot communicate with the adapter.  
          This message happens in following.  
          \* No Power.  
          \* Reset SW On.  
          \* Disconnection of RS232C cable.  
          \* RS232C cable is not straight type.  
          \* Wiring is incorrect
- E001     The communication port cannot be used.
- E002     No response from the device; a timeout occurred.  
          This message happens in following.  
          \* Difference between the password in the device and password in  
          "Setup Password Dialog Box".  
          \* No Power.  
          \* Reset SW On.  
          \* Disconnection of RS232C cable.  
          \* RS232C cable is not straight type.  
              Need to re-connect. Refer to "6.5"
- E006     A command error occurred. (\*\*H was sent.)  
          This message happens in following.  
          \* No Power.  
          \* Reset SW On.  
              Need to re-connect. Refer to "6.5"
- E007     A communication error occurred.
- E008     A SUM value error occurred.
- E009     A device error occurred.
- E010     An ECC error.
- E011     A baud rate change error occurred.
- E013     The specified baud rate is not supported.
-

E016	An illegal data write was attempted. This message happens in programming to no erasing device. Erase data before programming.
E018	A password error occurred.
E022	This device is protected.
E100	The definition file does not exist.
E101	The definition file may be for another program or corrupted. Re-copy definition file (flashprog.def).
E102	The definition file contains undefined or invalid or missing items. Re-copy definition file (flashprog.def).
E109	User setting file not exist. (The specified setup file does not exist.)
E110	The specified setup file may be for another program or corrupted. Select correct setting file. Make setting file again.
E111	The specified setup file contains undefined or invalid or missing items. Select correct setting file. Make setting file again.
E113	Cannot save the specified setup file.
E114	The specified device does not exist in the definition file.
E115	Cannot get device information.
E116	The definition file contains illegal Section. Missing Series or Device name.
E120	Password count storage address not conforming to device spec.
E121	Password comparison start address not conforming to device spec.
E122	Password count not conforming to device spec. Use letters 8-255.
E127	No password is specified in the object file.
E129	The password should be entered in HEX. Use letters 0-9 and A-F.
E130	Password count storage address should be specified in HEX starting with 0x. Use letters 0-9 and A-F.
E131	No Password count storage address is specified.
E132	Password comparison start address should be specified in HEX starting with 0x. Use letters 0-9 and A-F.
E133	No Password comparison start address is specified.
E134	The password contains a 12-byte sequence of the same letter.
E135	No object file is specified.

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E136	The number of password characters requests More than 8 less than 255 bytes.
E137	The number of password characters requests 12 bytes.
E138	Could not find out the Password from Password Log file. Please set the Device Password.
E139	Could not find out the Password Log file. Please set the Device Password.
E140	Password count should be specified in HEX starting with 0x. Use letters 0-9 and A-F.
E141	No Password count is specified.
E142	The number of password and password aren't an equal sign.
E143	The password contains a 3-byte sequence of the same letter.
E200	The specified object file does not exist.
E201	The specified object file is a wrong type.
E202	The specified object file is corrupted. The content of object file is not correct. The format type is not correct, check sum is not right so on.
E203	An error occurred while loading the specified object file.
E205	The specified object file has address not matching device information and cannot be converted.
E210	Cannot create a save file.
E211	Cannot save object.
E213	The object file contains duplicate addresses and cannot be converted.
E300	The specified device folder does not exist.
E303	The WCP file is corrupted.
E304	An error occurred while loading the WCP file.
E305	The WCP file address specified does not conform to device spec.
E306	An Motorola S-record format error was found in the WCP file.
E308	The WCP file does not exist.
E315	The specified block start address or block size does not conform to device spec.
E406	Cannot create an object expansion file.

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E500	Address should be specified in HEX starting with 0x. Use letters 0-9 and A-F.
E501	Start Address should be specified in HEX starting with 0x. Use letters 0-9 and A-F.
E502	Start Address is out of device spec and cannot be read.
E503	End Address should be specified in HEX starting with 0x. Use letters 0-9 and A-F.
E504	End Address is out of device spec and cannot be read.
E505	Start Address is greater than End Address.
E506	No Start Address is specified.
E507	No End Address is specified.
E512	Please set up the device.
E513	The address is out of device spec and cannot be read.
E514	No address is specified.
E515	Set the device password.
E516	Set the object file password.
E517	Cannot change to Single Boot mode.
E523	ROM size cannot divide at 1024(Byte). *Check the device spec.
E902	Cannot start Acrobat Reader.
E999	An application error.
R000	Connected.
R001	Failed to read FLASH memory.
R002	All erased.
R003	The specified range erased.
R006	Programming completed successfully.
R010	The device SUM value and file SUM value matched in Single Boot mode.
R011	The device SUM value and file SUM value did not match in Single Boot mode.

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R012	The device SUM value and file SUM value matched in RAM Loader mode.
R013	The device SUM value and file SUM value did not match in RAM Loader mode.
R014	Device data and file data did not match.
R015	Device data and file data matched completely.
R016	This device is not blank.
R017	This device is blank.
R024	Created a save file.
R026	Failed to set Protect.
R027	Protect/UnProtect status changed.
R310	Finishing the save process...
R311	Getting FLASH memory data...
R312	Aborting processing...
R313	Protecting...
M001	All data in FLASH memory will be erased. Do you want to erase?
M002	All data in the selected block of FLASH memory will be erased. Do you want to erase?
M003	Do you want to continue programming?
M006	Do you want to close the Setup Password dialog box?
M007	The device for which password was set is not the device fixed last. Do you want to change the password setting? You can also set a password using the Password command on the Setup menu.
M010	Do you want to terminate the connection and try to establish a connection again?
M018	area of FLASH ROM is protected! Set UnProtect, before continuing.
M020	This device blocks all protected. Operate [Edit]-[Protect], Set UnProtect before continuing.
M021	If setting UnProtect Block0 or Block1, then all data of FLASH will be erased, Set UnProtect?(Y/N)
M025	This device is protected. Please set "All Erase" ON.
M100	Check the adapter power supply, reset switch, wiring, short pins , resonator and device.

---

- M103 Restart the FLASH Programmer.
  - M104 Get the latest definition file.
  - M105 Check the device name. The definition file may be old or the specified device may not be currently supported. Get the latest definition file.
  - M107 The WCP file may have been deleted. Get the latest WCP file.
  - M108 Check the address of the object file.
  - M109 Check to see if the disk has free space.
  - M110 Check the device spec.
  - M111 Check the password specified in the object file.
  - M120 Specify new settings.
  - M122 Create a new object file.
  - M124 Specify new settings and save them.
  - M125 An error may have occurred while converting the object file. Check the object file and set it again.
  - M127 The specified command is not supported.
  - M132 End Address should be greater than Start Address.
  - M134 The "Save As", "Edit" and "Auto Programming" menu commands can be executed after the password is set.
  - M135 Restart the FLASH Programmer and try executing again. If the error still persists, a system error may have occurred.
  - M137 The specified file path may be invalid or the file may be write-protected or being used by another application.
  - M138 The password setting depends on the device.  
Select a device in the Device tab and press the Apply button to fix your selection. Pressing OK will close the Setup dialog box. Set the password using the Password command on the Setup menu.
  - M139 The password setting depends on the device. Fix your device selection using the Device command on the Setup menu.
  - M141 WCP has already been loaded.  
To change to Single Boot mode, restart the FLASH Programmer and change the mode before loading WCP.
  - M142 No device is specified. Select a device and fix your selection using the Device command on the Setup menu.
  - M143 Check the baud rate of the communication port.
-

- M150 The address option setting depends on the device. Select a device in the Device tab and press the Apply button to fix your selection.
- M152 The device password can be set after an object file has been specified.
- M154 Check to see if \*.wcp exists at the prescribed location.
- M200 Select a device name. To fix your selection, press the [Apply] button. If your desired device name cannot be displayed, the definition file may be old. Get the latest definition file.
- M201 Select an object file to be written to the device. The supported file types are "\*.h16", "\*.h20", "\*.s32" and "\*.srec".
- M202 Select a setup file.  
If you select a different setup file from the one currently loaded, the changes you have made in the Device, Object File, and Communication tabs before specifying the setup file will take no effect.
- M203 Select a port and baud rate for communication with the adapter. These settings depend on the resonator mounted on the adapter. Check the device spec before setting these items.
- M204 Set the password written in the device as Device Password. Set the password written in the object file's source code as Object File Password. The number of characters in the password (within 255 ASCII codes or 255 HEX bytes) should match the value written at Password count storage address. For the object file, set Password count storage address and Password comparison start address as written in the source code.
- M211 Specifies the protect setting for Auto Programming. The setting is reflected after programming.  
ON: Enables the protect function.
- M212 Opens a dialog box for specifying the protect setting for Auto Programming.  
ON: Opens the Protect Setting dialog box.
-

