

User's Manual

WriteEZ5

Simplified Programming Software

[MEMO]

Windows is either a registered trademark or a trademark of Microsoft Corporation in the United States and/or other countries.

- The information in this document is current as of March, 2010. The information is subject to change without notice. For actual design-in, refer to the latest publications of NEC Electronics data sheets or data books, etc., for the most up-to-date specifications of NEC Electronics products. Not all products and/or types are available in every country. Please check with an NEC Electronics sales representative for availability and additional information.
 - No part of this document may be copied or reproduced in any form or by any means without the prior written consent of NEC Electronics. NEC Electronics assumes no responsibility for any errors that may appear in this document.
 - NEC Electronics does not assume any liability for infringement of patents, copyrights or other intellectual property rights of third parties by or arising from the use of NEC Electronics products listed in this document or any other liability arising from the use of such products. No license, express, implied or otherwise, is granted under any patents, copyrights or other intellectual property rights of NEC Electronics or others.
 - Descriptions of circuits, software and other related information in this document are provided for illustrative purposes in semiconductor product operation and application examples. The incorporation of these circuits, software and information in the design of a customer's equipment shall be done under the full responsibility of the customer. NEC Electronics assumes no responsibility for any losses incurred by customers or third parties arising from the use of these circuits, software and information.
 - While NEC Electronics endeavors to enhance the quality, reliability and safety of NEC Electronics products, customers agree and acknowledge that the possibility of defects thereof cannot be eliminated entirely. To minimize risks of damage to property or injury (including death) to persons arising from defects in NEC Electronics products, customers must incorporate sufficient safety measures in their design, such as redundancy, fire-containment and anti-failure features.
 - NEC Electronics products are classified into the following three quality grades: "Standard", "Special" and "Specific". The "Specific" quality grade applies only to NEC Electronics products developed based on a customer-designated "quality assurance program" for a specific application. The recommended applications of an NEC Electronics product depend on its quality grade, as indicated below. Customers must check the quality grade of each NEC Electronics product before using it in a particular application.
 - "Standard": Computers, office equipment, communications equipment, test and measurement equipment, audio and visual equipment, home electronic appliances, machine tools, personal electronic equipment and industrial robots.
 - "Special": Transportation equipment (automobiles, trains, ships, etc.), traffic control systems, anti-disaster systems, anti-crime systems, safety equipment and medical equipment (not specifically designed for life support).
 - "Specific": Aircraft, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems and medical equipment for life support, etc.
- The quality grade of NEC Electronics products is "Standard" unless otherwise expressly specified in NEC Electronics data sheets or data books, etc. If customers wish to use NEC Electronics products in applications not intended by NEC Electronics, they must contact an NEC Electronics sales representative in advance to determine NEC Electronics' willingness to support a given application.
- (Note 1) "NEC Electronics" as used in this statement means NEC Electronics Corporation and also includes its majority-owned subsidiaries.
- (Note 2) "NEC Electronics products" means any product developed or manufactured by or for NEC Electronics (as defined above).

(M8E0909E)

PREFACE

Target Readers	This manual is intended for users who use the WriteEZ5 when designing and developing a system using an NEC Electronics on-chip flash memory microcontroller.
Purpose	<p>This manual is intended to give users an understanding of the basic specifications and correct use of the WriteEZ5.</p> <p>By using the WriteEZ5, programs can be easily erased from or written to the flash memory of an NEC Electronics on-chip flash memory microcontroller, or can be verified on Windows™ screens, while the microcontroller is mounted on the user board.</p>
Organization	<p>This manual includes the following sections.</p> <ul style="list-style-type: none">• Overview• Operation using WriteEZ5• Usage examples• Troubleshooting
How to Read This Manual	<p>To understand the overall functions and usage of the WriteEZ5, read this manual in the order of the CONTENTS.</p> <p>Be sure to read CHAPTER 2 OPERATION USING WriteEZ5 because this chapter presents important information for using the WriteEZ5.</p> <p>It is assumed that the readers of this manual have general knowledge of electricity, logic circuits, and microcontrollers.</p> <p>In the explanations of the operation of the applications, it is also assumed that the readers have sufficient knowledge of Windows.</p> <p>For the usage and terminology of Windows 2000, Windows XP, and Windows Vista refer to each Windows manual.</p>

Conventions

Note: Footnote for item marked with **Note** in the text

Caution: Information requiring particular attention

Remark: Supplementary information

Numeral representation: Binary ... xxxx or xxxxB

Decimal ... xxxx

Hexadecimal ... 0xxxxH or xxxxH

“ ”: Any character or item on screen

: Name of button

[]: Menu

< >: Dialog box name

Terminology

The meanings of the terms used in this manual are as follows.

Term	Meaning
Target device	NEC Electronics on-chip flash memory microcontroller
Target system	User-designed board on which NEC Electronics on-chip flash memory microcontroller is mounted

CONTENTS

CHAPTER 1 OVERVIEW	7
1.1 License Agreement	7
1.2 File Composition	7
1.3 Operation Environment	7
1.4 System Configuration	8
1.5 About Parameter File	8
1.6 Usage	8
1.7 Cautions	9
1.8 Others	9
CHAPTER 2 OPERATION USING GUI SOFTWARE	10
2.1 WriteEZ5 Main Window	10
2.2 Toolbar	11
2.3 Menus	11
2.3.1 [File] menu	11
2.3.2 [Device] menu	13
2.3.3 [View] menu	23
2.3.4 [Help] menu	24
CHAPTER 3 USAGE EXAMPLE	25
CHAPTER 4 TROUBLESHOOTING	32

CHAPTER 1 OVERVIEW

WriteEZ5 is simplified programming software for NEC Electronics All Flash 78K0, 78K0R, V850 microcontroller. Programming environment can be made easily by adding digital circuit of simple serial communication to microcontroller.

Refer to the sample digital circuit for reference on PDF files.

(Note: This sample circuit is an example. There is no guarantee of proper operation)

1.1 License Agreement

Before viewing or downloading the simplified programming circuit, simplified programming software, or this document, you must read and accept the license agreement conditions below.

- The simplified programming circuit, simplified programming software, and this document are subject to change without notice.
- NEC Electronics does not grant any guarantee or license regarding the intellectual property rights or other rights of NEC Electronics or third parties when using the simplified programming circuit, simplified programming software, or information in this document. NEC Electronics assumes no liability for the infringement of the rights of third parties arising from the use of the above.
- The simplified programming circuit, simplified programming software, and information in this document are provided for illustrative purposes in semiconductor product operation and application examples. Therefore, the use of this information when designing equipment shall be done under the full responsibility of the customer. NEC Electronics assumes no responsibility for losses incurred by customers or third parties arising from the use of this information.

1.2 File Composition

- WEZ5_UM_e.pdf This file
- WEZ5_MCU.pdf..... Support microcontrollers list
- WriteEZ5.exe Simplified programming software
- wez5ctl.dll Control DLL file
- Circuit folder..... Simplified programming circuit

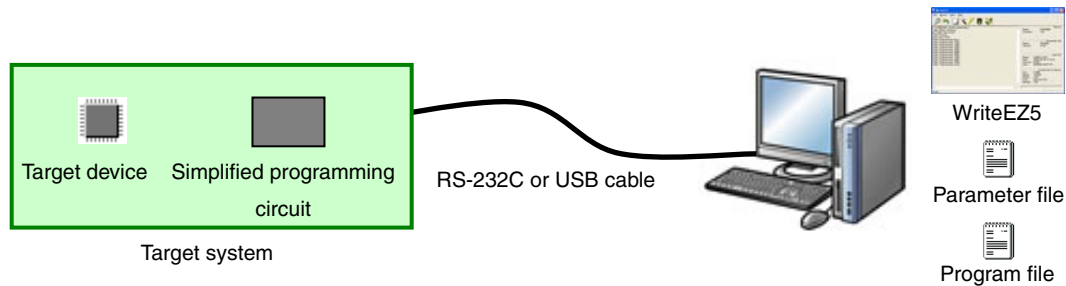
1.3 Operation Environment

- Windows2000/XP (32bit edition)/Vista (32bit edition)
Please use Windows by an administrator right.
- RS-232C port or the port changed from USB (2.0 or 1.1) to RS-232C

1.4 System Configuration

The system configuration is as given in the diagram below.

Figure 1-1. System Configuration



1.5 About Parameter File

To use this program, parameter file that is defined timing and parameters for programming target flash microcontroller is needed. Please download it from NEC Electronics website.

- NEC Electronics Microcontrollers website
<http://www.necel.com/micro/en/ods/> --> Click "Version-up Service"
 Please use the parameter file (PR5xxxx or PRMxxxx) on "WEZ5_MCU.pdf"

1.6 Usage

A summary of how to use WriteEZ5 is provided below. For details, refer to **CHAPTER 2 OPERATION USING GUI SOFTWARE, CHAPTER 3 USAGE EXAMPLE.**

- <1> Connect programming circuit to COM port on PC and then switch on PC
- <2> Run WriteEZ5
- <3> Select program file by [Load] command on [File] menu
- <4> Select parameter file and COM port number and frequency by [Setup...] on [Device] menu
- <5> Execute commands from [Device] menu
 - [Blank Check] command: Initiate a blank check of flash memory
 - [Erase] command: Erase data on flash memory
 - [Program] command: Program data on flash memory
 - [Verify] command: Transmits the specified user program to the target device and verifies the data written to the flash memory
 - [Security] command: Program security flag of the target microcontroller
 - [Checksum] command: Read out the checksum from flash memory
 - [Autoprocure (EPV)] command: Execute [Erase] and [Program] commands
 - [Signature read] command: Read out the signature information which is device name, flash memory information and etc from flash memory
 - [Get Security settings] command: Read the settings for the security functions for the target microcontroller and displays the result in the [Security flag settings] area on the [Advanced] tab in the Device Setup dialog.
- <6> When each command terminate normally, display "...finish"

1.7 Cautions

- In case of a RS-232C connection, check the cable type which you are using. (WriteEZ5 only supports straight cable.)
- The Target reset message function is not supported for 78K0/Kx2-L.
- A programming error may occur on 78K0/Kx2-L depending on PC/OS/device drivers. If error occurs, please do the followings.
 - <1> Program once again
 - <2> Use a different PC
- The speed of COM port that is selected on Device Setup window is fixed 115,200bps for 78K0 (Except 78K0/Kx2-L) and 78K0R. 78K0/Kx2-L is fixed 125,000bps.
- Select 9,800bps or 19,200bps or 38,400bps for the speed of COM port on Device Setup window for V850.

1.8 Others

- For users who use FT232 USB-Serial conversion chip made by Future Technology Devices International Ltd. If programming speed is so slow, change below settings.
 - <1> Open the device manager window and select "Port(COM,LPT) --> USB Serial Port(COMx)"
 - <2> Select PortSettings tab on Properties window and select Advanced Settings.
 - <3> Set LatencyTime(msec) to "2" on Advanced Settings window.

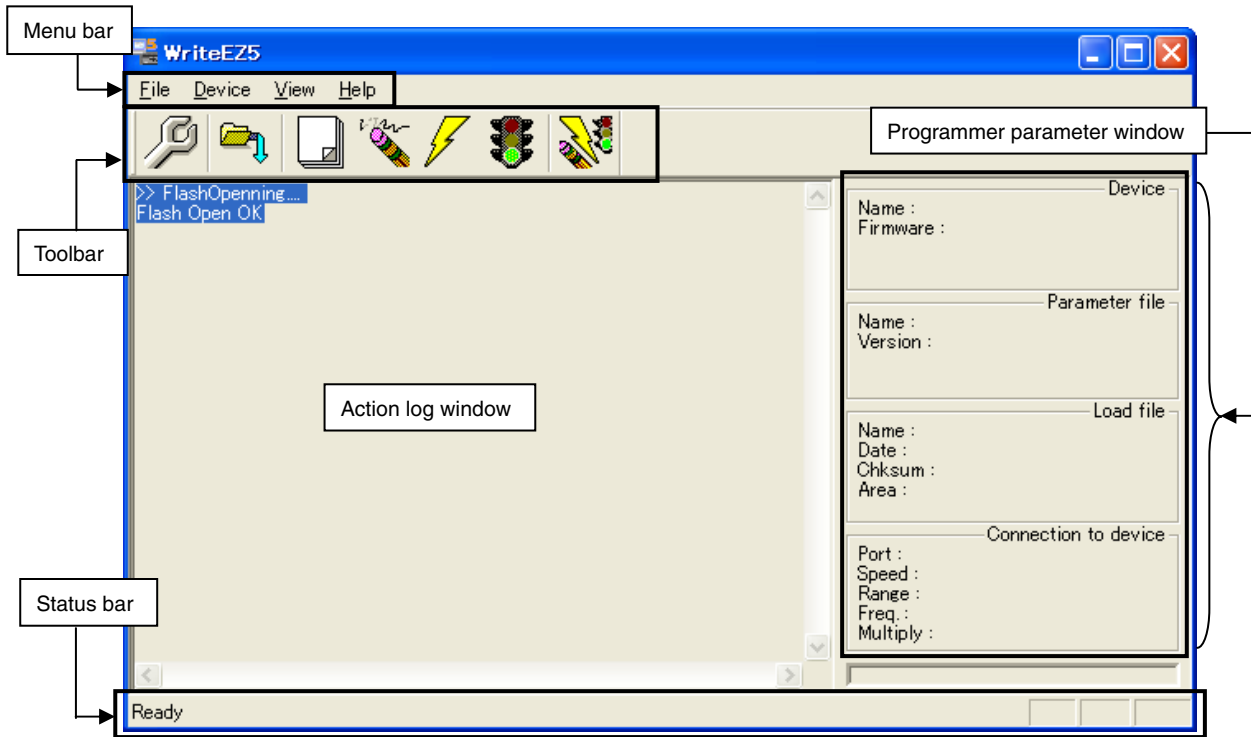
CHAPTER 2 OPERATION USING GUI SOFTWARE

2.1 WriteEZ5 Main Window

- WriteEZ5 main window

When the WriteEZ5 is started normally, the following screen appears.

Figure 2-1. WriteEZ5 Main Window










This window consists of the following items.

Name	Description of Display
Menu bar (displayed at the top)	Displays menu items executable by the WriteEZ5.
Toolbar (displayed under the menu bar)	Displays frequently used commands as icons.
Action log window (displayed under the toolbar)	Displays an WriteEZ5 action log.
Programmer parameter window (displayed to the right of the action log window)	Displays programming parameter settings.
Status bar	Displays status.

2.2 Toolbar

The toolbar contains buttons to start the most important procedures of the WriteEZ5.

Table 2-1. Toolbar Buttons

	[Device] – [Setup...] button
	[File] – [Load...] button
	[Device] – [Blank check] button
	[Device] – [Erase] button
	[Device] – [Program] button
	[Device] – [Verify] button
	[Device] – [Autoprocedure (EPV)] button

2.3 Menus

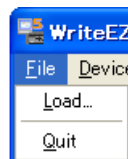
Depending on the actual device status or device type, some menu items may be enabled or disabled.

2.3.1 [File] menu

After clicking the [File] menu, the following pull-down menu is displayed.

Commands related to file operation appear here.

Figure 2-2. [File] Menu

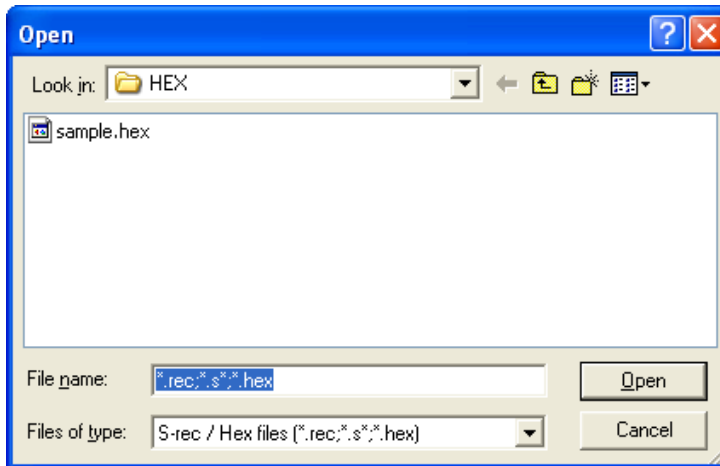


(1) [Load] command



The [Load] command allows you to select a program file. The selected program file will be programmed into the device's flash memory by executing the [Program] command or [Autoprocedure (EPV)] command.

Figure 2-3. HEX File Selection Window



The most recently used directory from which a file has been loaded will be offered in this window as the default selection. After loading the user program, the checksum is calculated and the result is displayed in the programmer parameter window.

[Open] button

Selects a user program as a program to be written to the target device.

[Cancel] button

Closes the window without selecting a program.

(2) [Quit] command

The [Quit] command terminates the WriteEZ5 WriteEZ5. Clicking the [X] button on the right side of the task bar also terminates the WriteEZ5 WriteEZ5.

User settings are saved in the WriteEZ5.INI^{Note} file so that the WriteEZ5 will start up next time with the same settings.

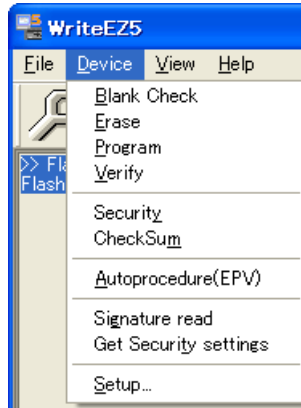
Note WriteEZ5.INI is created in the Windows folder.

2.3.2 [Device] menu

Clicking the [Device] menu displays the following pull-down menu.

This pull-down menu mainly consists of commands for programming the target device, such as erase, program, and verify.

Figure 2-4. [Device] Menu



(1) [Blank Check] command



The [Blank Check] command initiates a blank check of the target device. If the flash memory of the target device is erased, the blank check terminates successfully. If the flash memory is not completely erased, “not blank” is displayed. Erase the flash memory of the target device before starting programming.

(2) [Erase] command



The [Erase] command initiates the erase procedure for the target device.

While erasing the contents in the flash memory is in progress, the progress is displayed in the action log window, indicating the operation of the programmer.

The [Blank Check] command that is executed before the [Erase] command is executed in accordance with the setting of ‘Command options’ on the Advance tab of the [Device] > [Setup...] menu.

After completing the [Erase] command, the WriteEZ5 displays the target device command execution result.

(3) [Program] command

The [Program] command transmits the specified user program to the target device and writes them to the flash memory.

After execution of the [Program] command, verification to detect a communication error of the user program to the target device is executed in accordance with the setting of 'Command options' on the Advance tab of the [Device] > [Setup...] menu.

While programming is in progress, the progress is displayed in the action log window, indicating the operation of the programmer. This progress indicates the progress of programming the target device as a percentage.

After completing the [Program] command, the WriteEZ5 displays the target device command execution result.

(4) [Verify] command

The [Verify] command transmits the specified user program to the target device and verifies the data written to the flash memory of the target device.

While verification is in progress, the progress is displayed in the action log window, indicating the operation of the programmer. This progress indicates the progress of verifying the target device as a percentage.

After completing the [Verify] command, the WriteEZ5 displays the target device command execution result.

(5) [Security] command

The [Security] command initiates the programming of the security flag of the target device. Set 'Security flag settings' on the Advance tab of the [Device] > [Setup...] menu.

(6) [Checksum] command

The [Checksum] command initiates the reading of the checksum values of the target device. This value differs from the value displayed in the parameter window in the main window.

(7) [Autoprocedure (EPV)] menu

The [Autoprocedure (EPV)] command sequentially executes the [Erase] and [Program] commands explained above.

After execution of the [Autoprocedure (EPV)] command, to verify the checksum values of the data written to the flash memory of the target device and the program file to detect a communication error of the user program while it is being transmitted, specify automatic execution of the [Checksum] command after execution of the [Program] command, using the Command options on the Advance tab of the [Device] > [Setup...] menu.

During EPV, the progress status of the programmer operation is displayed in the action log window. Refer to **CHAPTER 5 USAGE EXAMPLE** for the selected command, and its execution operation and message.

After completing the [Autoprocedure (EPV)] command, the WriteEZ5 displays the target device command execution result.

(8) [Signature read] command

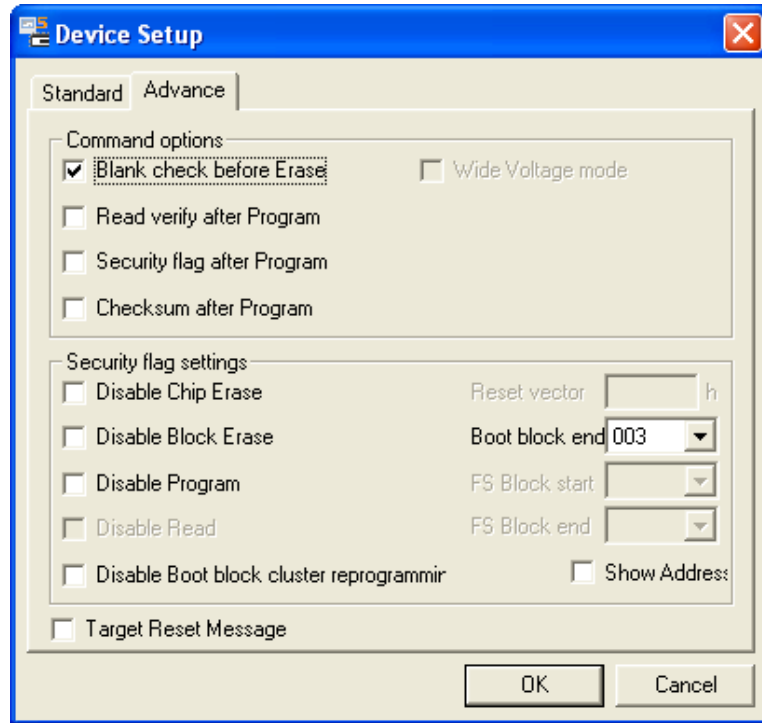
The [Signature read] command reads the target signature information (such as device name and flash memory information).

(9) [Get Security settings] command

The [Get Security settings] command reads the Security flag information of the target device, and reflects the result in the Advanced Setup menu.

When this menu can be specified, be sure to check the security by executing the [Get Security settings] command immediately before the security command is executed, and specify any additional security.

Figure 2-5. Device Setup Window – Advance Tab

**(10) [Setup...] command**

The [Setup...] command is used to perform flash memory writing settings in accordance with the user environment, and command option settings. Each time the WriteEZ5 is started, the parameter file (.PRM) that were used last are read, and their setting contents are displayed. Settings can be changed in accordance with the user environment, except for the parameters that are dimmed.

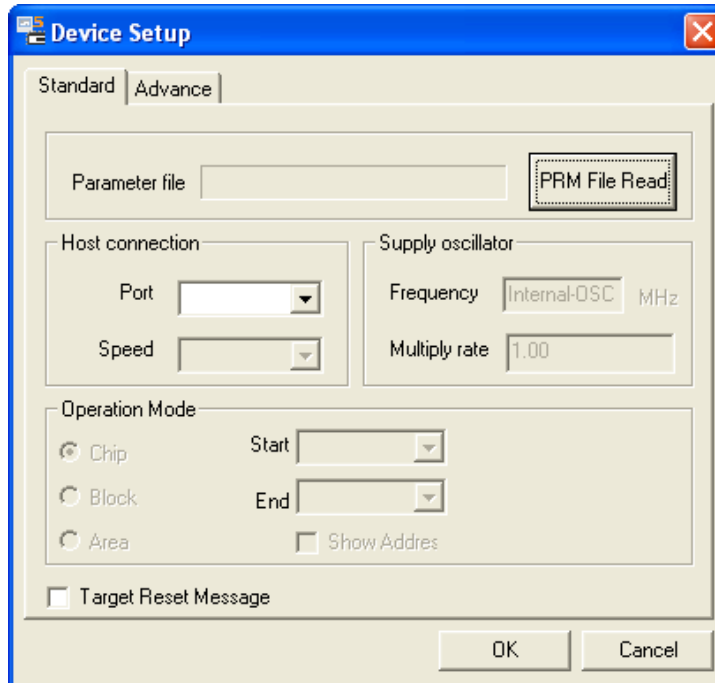
(a) Standard setup

This menu is used to set the rewriting environment of the target device's flash memory.

The mode of communication with the target device and the operating clock of the device differ depending on the device used. Refer to the manual of the device used for details.

The following window opens.

Figure 2-6. Device Setup Window – Standard Tab



This window shows all basic options that can be set in accordance with the user environment and target device.

[OK] button]

Saves the settings in the Standard and Advance tabs and closes the window.

[Cancel] button]

Closes the window without saving the settings in the Standard and Advance tabs.

<1> Parameter file

This file holds parameters and timing data required to rewrite the flash memory of the target device. Do not modify the data in the parameter file because the data is related to the guarantee of rewrite data.

The parameter file is protected by the checksum function. If the checksum result indicates an error, the WriteEZ5 does not accept the parameter file.

Figure 2-7. Device Setup Window – Parameter File Selection

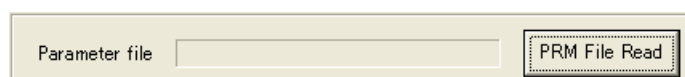
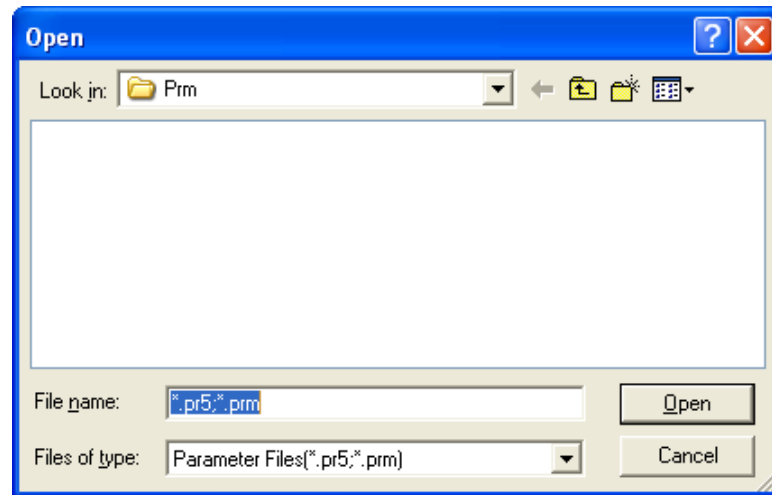


Figure 2-8. Parameter File Selection Window

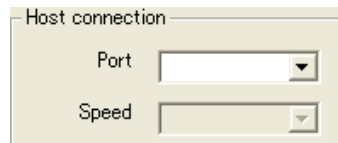
**[PRM File Read] button]**

A window for specifying a parameter file is displayed. Specify the target file and click **[Open]**.

<2> Host connection

Select the communication channel for host machine, in this area.

Figure 2-9. Device Setup Window – Host Connection

**[Port box]**

Select the communication channel for host machine.

- COM1 to COM256

Remark The selectable port can be checked with the Device Manager.

[Speed box]

Select the communication rate of the communication channel.

- 9,600 bps
- 19,200 bps
- 38,400 bps
- 115,200 bps
- 125,000 bps

Remark 78K0R and 78K0 (Except 78K0/Kx2-L) are fixed 115,200 bps. 78K0/Kx2-L is fixed 125,000 bps.

For V850, select 9,800 bps, 19,200 bps, or 38,400 bps.

<3> Supply oscillator

Under [Supply oscillator], set up the clock to be supplied to the target device.

Figure 2-10. Device Setup Window – Supply Oscillator

[Frequency box]

Sets the clock frequency of the target system.

Remark For details about which communication speeds can be entered, see the user's manual for your device.

[Multiply rate]

Sets the division rate or multiplication rate of the target device.

If the target device includes the PLL circuit, input the division rate or multiplication rate depending on the environment used.

Since the division rate or multiplication rate varies depending on the device, set it by checking the device specifications.

If the target device does not include the PLL circuit, select “1.0”.

The default setting is displayed by the parameter file in the initial screen.

<4> Operation Mode

The flash memory may be divided into blocks or areas depending on the target device.

This menu is used to select the operation mode of the flash memory. Some devices do not have either or both division modes Block and Area. In this case, a mode that is not available cannot be selected.

Figure 2-11. Device Setup Window – Operation Mode Selection

[When Chip is selected]

The entire flash memory area of the target device is subject to rewrite processing.

[When Block is selected]

Specify the Block number range subject to rewrite processing by using Start/End.

The Start/End list boxes display the Block number where the flash memory of the target device is configured.

[When Area is selected]

Specify the Area number range subject to rewrite processing by using Start/End.

The Start/End list boxes display the Area number where the flash memory of the target device is configured.

[Show Address check box]

Specifies whether numbers or addresses are displayed in the Start/End list boxes.

If this check box is checked, addresses are displayed.

If it is not checked, numbers are displayed.

<5> **Target Reset Message**

By checking the Target Reset Message check box, the window promoting the reset operation manually is displayed even when the reset signal cannot be connected to the target cable.

Figure 2-12. Device Setup Window – Target Reset Message



Caution The Target reset message function is not supported for 78K0/Kx2-L.

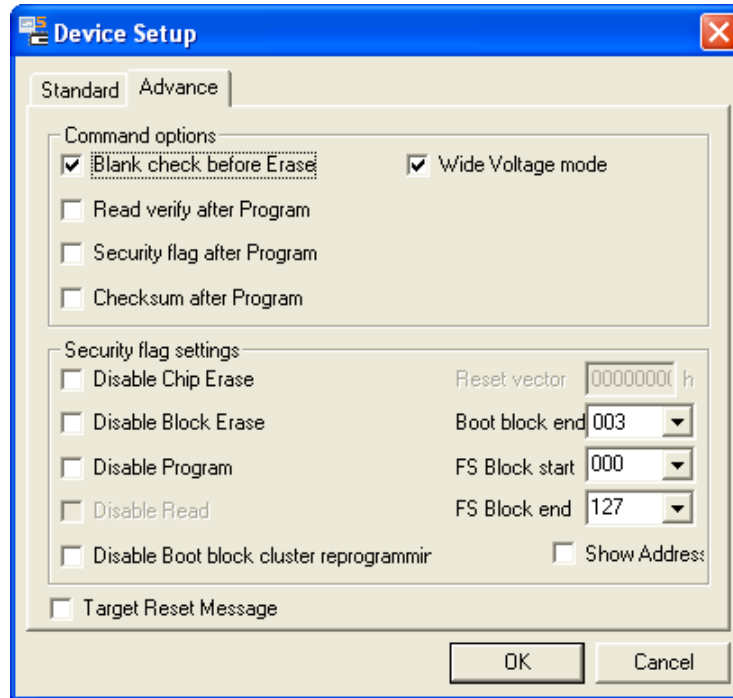
Remark The Target Reset Message check box is common to Standard and Advance tabs.

(b) Advance setup

This menu is used to specify command options and security flag setting.

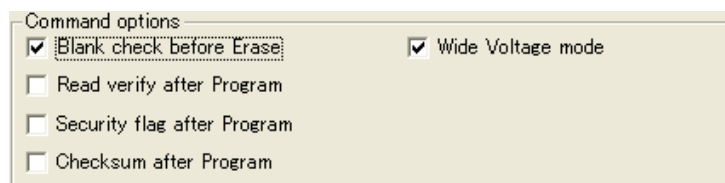
The Advance tab is displayed by clicking Advance.

Figure 2-13. Device Setup Window – Advance Tab

**<1> Command options**

Specify the options for the WriteEZ5 flash processing commands in this area.

Figure 2-14. Device Setup Window – Command Options

**[Blank check before Erase check box]**

If this check box is checked, a blank check is performed before execution of the [Erase] and [Autoprocedure (EPV)] commands. If the result of the blank check is OK, erase processing is not executed.

[Read verify after Program check box]

If this check box is checked, the written data is transmitted from the programmer, and verification is executed with the data written to the flash memory after execution of the [Program] and [Autoprocedure (EPV)] commands.

[Security flag after Program check box]

If this check box is checked, automatic programming of the selected security flag is executed after execution of the [Program] and [Autoprocedure (EPV)] commands.

[Checksum after Program check box]

If this check box is checked, the flash memory checksum values of the target device are read from the target device after execution of the [Program] and [Autoprocedure (EPV)] commands.

This value differs from the value displayed in the parameter window in the main window.

[Wide Voltage mode check box]

Select whether to write data in the wide voltage mode.

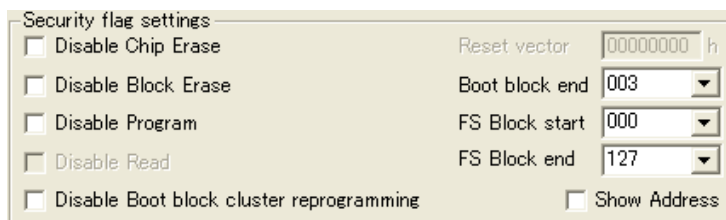
If this check box is selected, data is written in the wide voltage mode.

If this check box is not selected, data is not written in the wide voltage mode.

<2> Security flag settings

The <Security flag settings> dialog box is used to specify which security function is valid. For details about each security feature, see the user's manual for your device.

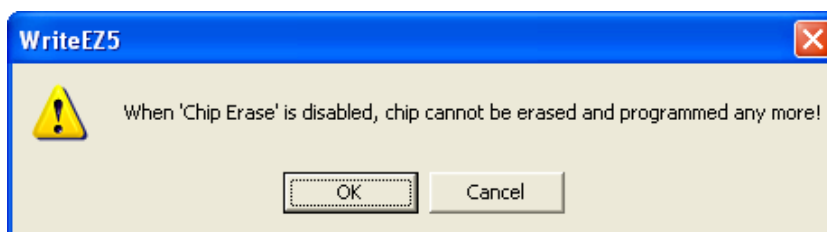
Figure 2-15. Device Setup Window – Security Flag Settings

**[Disable Chip Erase check box]**

If this check box is checked, the [Erase] command becomes invalid in the entire flash memory area of the target device.

At this time, the warning message shown below is displayed.

Figure 2-16. Device Setup Window – Disable Chip Erase Warning



Caution Be aware that if the security flag is set in the target device, neither erasing nor writing to the device can be enabled afterward.

[Disable Block Erase check box]

If this check box is checked, the [Erase] command becomes invalid in all the blocks of the flash memory selected under Operation Mode in the Standard Setup menu.

This setting is cleared by the [Erase] command when Chip was selected under Operation Mode.

[Disable Program check box]

If this check box is checked, the [Program] command becomes invalid, as does the [Erase] command in all the blocks of the flash memory selected under Operation Mode in the Standard Setup menu.

The [Erase] command for the entire flash memory area is valid.

This setting is cleared by the [Erase] command when Chip was selected under the Operation Mode.

[Disable Read check box]

If this check box is checked, the [Read] command ^{Note} becomes invalid.

This setting is cleared by the [Erase] command when Chip was selected under the Operation Mode.

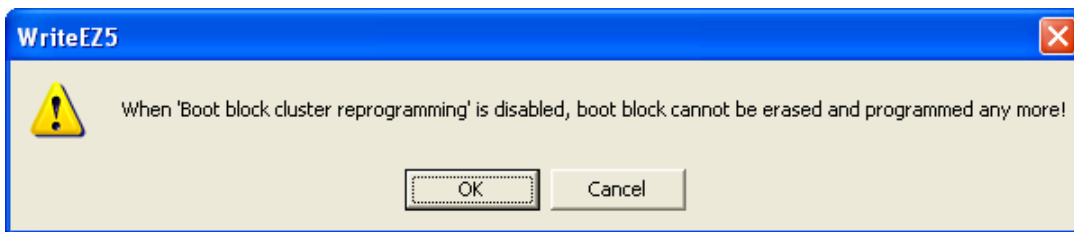
Note WriteEZ5 does not support the [Read] command.

[Disable Boot block cluster reprogramming check box]

If this check box is checked, the boot area is set with the boot block set in the Boot block cluster setting as the last block.

At this time, the warning message shown below is displayed.

Figure 2-17. Device Setup Window – Disable Boot Block Cluster Reprogramming Warning



Caution Be aware that if the security flag is set in the target device, the boot area cannot be rewritten to the device afterward.

[Reset vector box]

If an address is entered, the reset vector is changed to the specified address. Note that this setting is cleared by the deletion command when “Chip” is selected under the Operation Mode. The initial value is 000000h.

[Boot Block end list box]

If the [Disable Boot block cluster reprogramming] check box is selected, also select the block number from the [Boot Block end] list box. This list box shows the block numbers where the flash memory in the target device is set up.

[FS Block start/FS Block end list box]

For the flash shield window feature, select the blocks to specify for the [FS Block start] and [FS Block end] list boxes. This feature makes it possible to write only in the specified range during flash memory self-programming. This feature has no effect on writing performed by a programmer. Because it is not possible to write outside the specified range, accidental writing can be prevented during flash memory self programming.

These list boxes show the block numbers the block numbers where the flash memory in the target device is set up. The entire flash area is selected by default.

[Show Address check box]

Specify whether to display numbers or addresses in the [Boot Block end], [FS Block start], and [FS Block end] list boxes. If the [Show Address] check box is selected, addresses are displayed. If the check box is not selected, block numbers are displayed.

<3> **Target Reset Message**

By checking the Target Reset Message check box, the window promoting the reset operation manually is displayed even when the reset signal cannot be connected to the target cable.

Figure 2-18. Device Setup Window – Target Reset Message



Caution The Target reset message function is not supported for 78K0/Kx2-L.

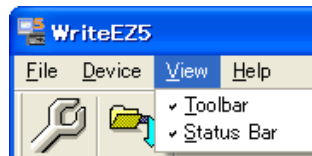
Remark The Target Reset Message check box is common to Standard and Advance tabs.

2.3.3 [View] menu

Clicking the [View] menu displays the following pull-down menu.

This menu consists of commands for setting whether to display the toolbar and status bar.

Figure 2-19. [View] Menu



(1) [T]oolbar command

Checking the [T]oolbar command displays the toolbar. Unchecking the command hides the toolbar.

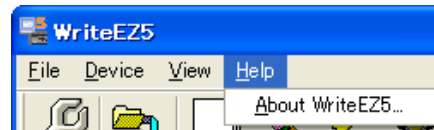
(2) [S]tatus Bar command

Checking the [S]tatus Bar command displays the status bar. Unchecking the command hides the status bar.

2.3.4 [Help] menu

Clicking the [Help] menu displays the following pull-down menu.

Figure 2-20. [Help] Menu



(1) [About WriteEZ5...] command

The [About WriteEZ5...] command opens the following program entry window and indicates the version.

Clicking terminates the display.

Figure 2-21. About WriteEZ5 Window



CHAPTER 3 USAGE EXAMPLE

This chapter explains a series of basic operations of the WriteEZ5, taking a case where the μ PD78F0588 is used as the target device as an example. This chapter covers how to start the system, execute the [Autoprocedure (EPV)] command, and program the target device.

Refer to **CHAPTER 2 OPERATION USING WriteEZ5** for the other commands and applications.

The conditions of the series of operations described in this chapter are as follows.

- Target system

Target device: μ PD78F0588

Voltage level: 5 V

Communication: UART

Simplified writing circuit: FT232BM, which is manufactured by FTDI (and uses an FTDI driver)

- WriteEZ5

Parameter file: 78F0588.prm

Clock setting: None (Internal OSC)

Port: COM5 (125,000 bps)

Operation mode: Chip

Write HEX: sample.hex

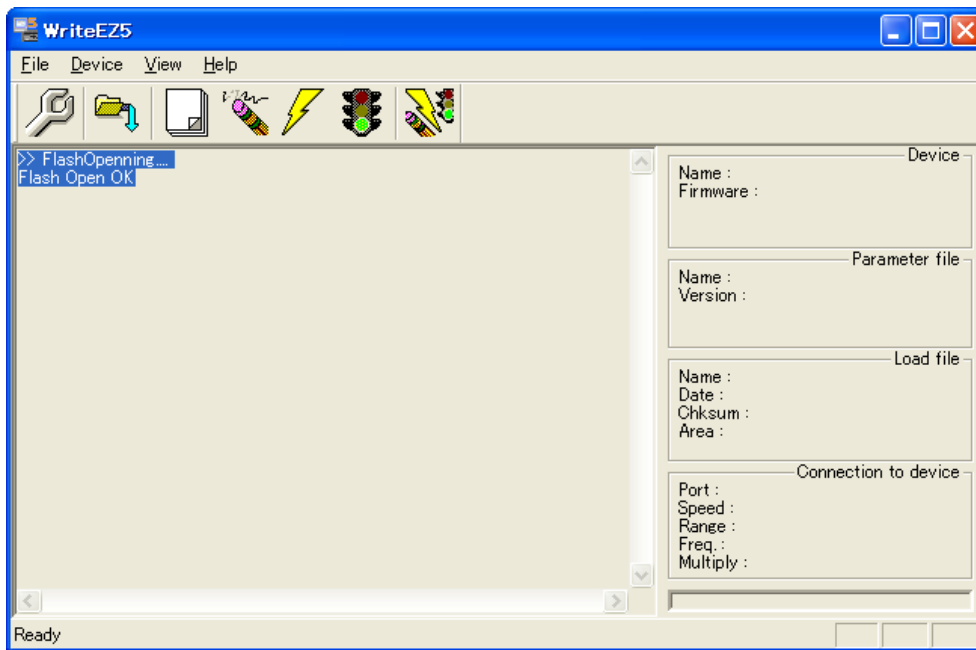
Option setting: Blank check before Erase

(1) Preparing the hardware and software

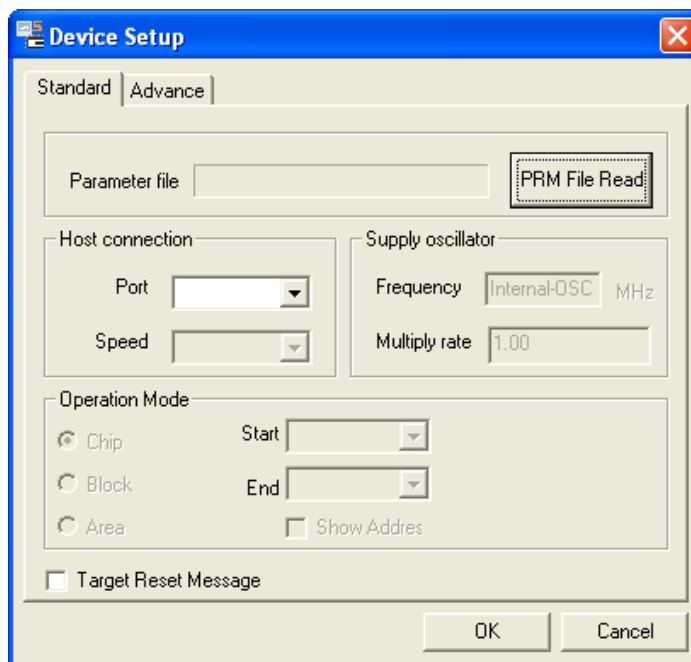
Prepare WriteEZ5, the parameter file, the simplified writing circuit, and the target system in which the microcontroller is installed as described in **CHAPTER 1 OVERVIEW**. Use an RS-232C or USB cable to connect the target system to a computer, and then turn the target system on. Next, obtain and install any necessary drivers.

(2) Starting the WriteEZ5

Start the WriteEZ5.

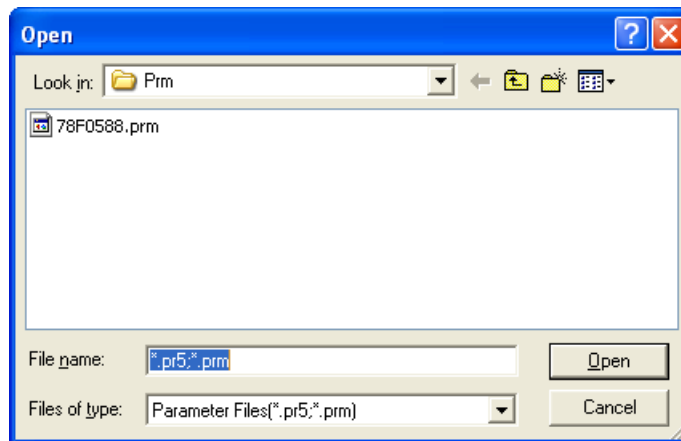
Figure 3-1. GUI Software Main Window**(3) Setting the programming environment**

- <1> Select [Device] → [Setup] from the menu bar.
- <2> The Standard tab of the Device Setup window for device setup is activated.

Figure 3-2. Device Setup Window – Standard Tab

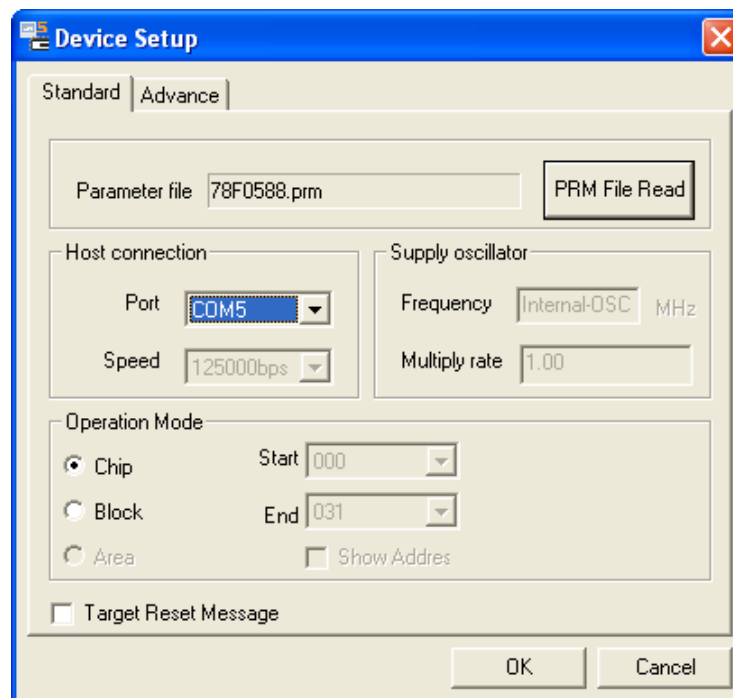
- <3> Click **PRM File Read** to open the parameter file selection window.
 In this case, select the parameter file for the μ PD78F0588, then click **Open**.

Figure 3-3. Parameter File Selection



- <4> Set the items in the Host connection, Supply oscillator, Operation Mode fields so that the WriteEZ5 is adjusted to the user programming environment.
 Here, assume that the settings shown below are set.

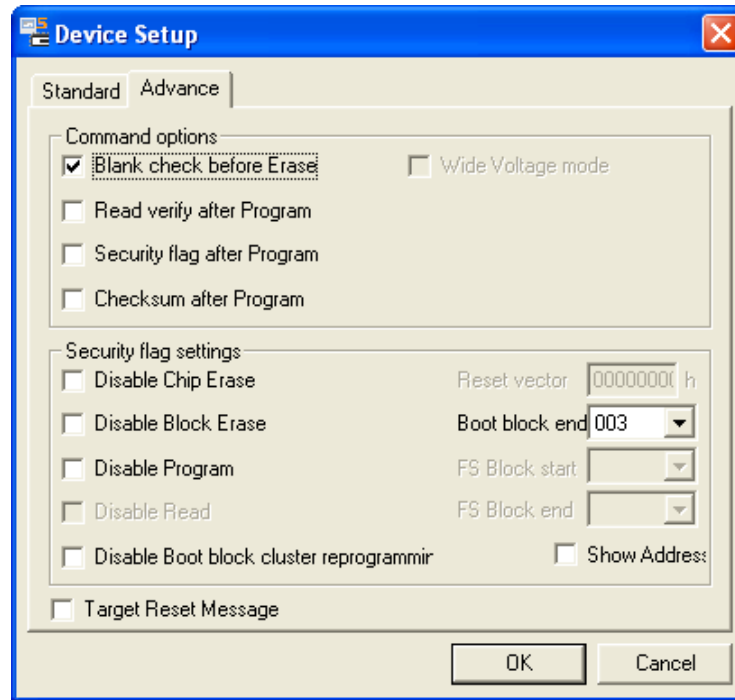
Figure 3-4. Device Setup Window – Standard Tab <After Setting>



Remark The selectable port can be checked with the Device Manager.

<5> Switch to the Advance tab.

Figure 3-5. Device Setup Window – Advance Tab



<Command options>

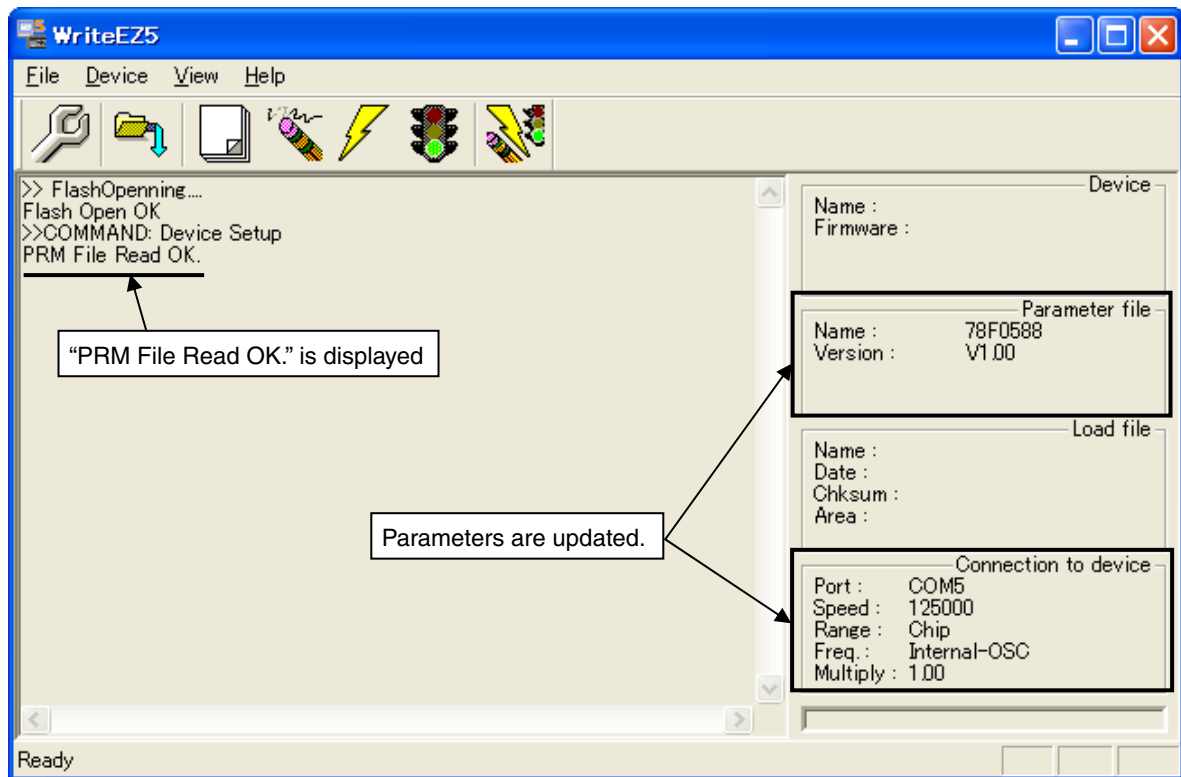
Blank check before Erase: Checked

<Security flag settings>

These settings are not used in this example.

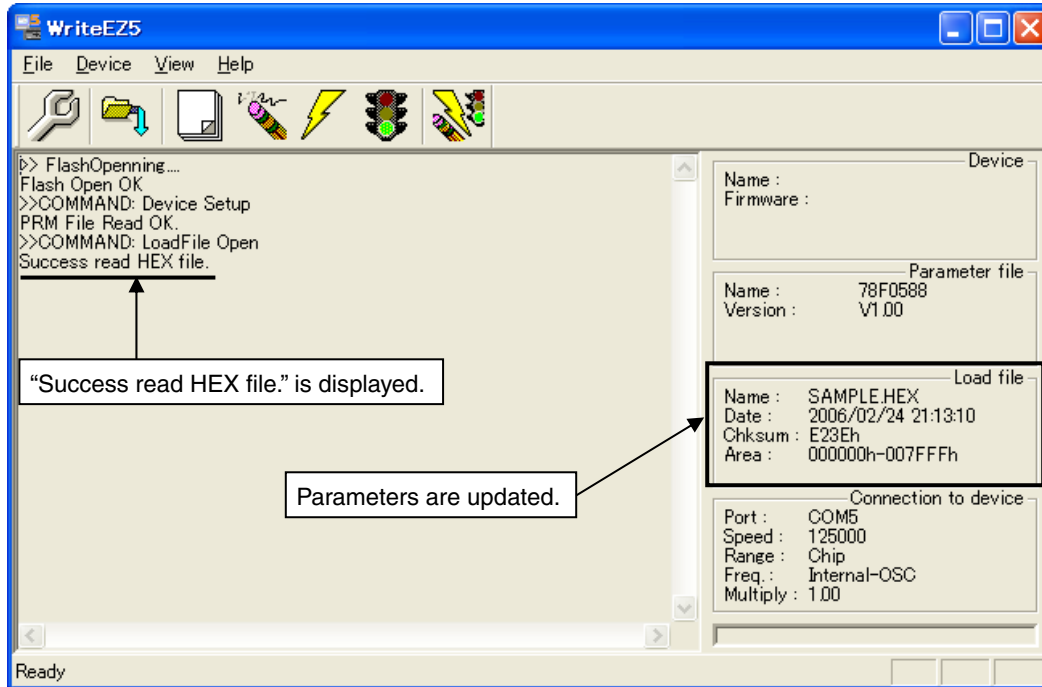
- <6> Click **OK**. The WriteEZ5 sets the parameters.
When the settings are completed, the following screen is displayed.

Figure 3-6. Completion of Parameter Setting



(4) Selecting a user program

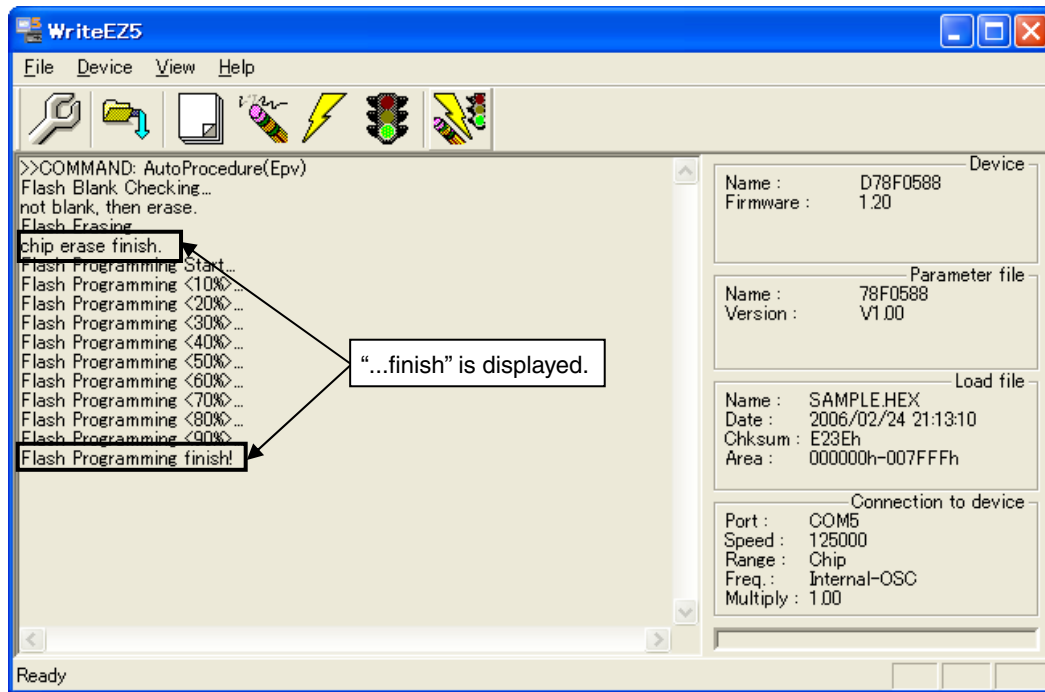
- <1> Select [File] → [Load].
- <2> Select a program file to be written to the target device, then click **Open**.

Figure 3-7. After Loading File**(5) [Autoprocedure (EPV)] command execution**

Select [Device] → [Autoprocedure (EPV)] from the menu bar.

When the [Autoprocedure (EPV)] command is executed, [Erase] → [Program] are executed sequentially for the μ PD78F0588. In this example, "Blank check before Erase" is checked. So, blank check is performed before the execution of the [Autoprocedure (EPV)] command.

Figure 3-8. After EPV Execution

**(6) Terminating the system**

- <1> If other devices need not be programmed, select [File] → [Quit] to terminate the WriteEZ5.
All settings executed so far are saved in the WriteEZ5.INI file, so that those settings can be reused when the WriteEZ5 is restarted.
- <2> Power off the target system.

(7) Restart

When the system is restarted, the same screen as shown in Figure 3-6 appears.

CHAPTER 4 TROUBLESHOOTING

(1) Communication with the target device is not possible.

Cause:

The driver may not be installed correctly.

Action:

Open the Device Manager window and check that the drivers are installed normally.

Cause:

The port list box may not be set correctly.

Action:

Set the port confirmed with the Device Manager.

Cause:

The RS-232C cable might not be straight.

Action:

Use a straight cable.

Cause:

There may be an incorrect connection between the digital circuit and target device.

Action:

Check if the connection is correct.

Pay special attention to the following connections because the connections are confusing:

Connect TXD of the digital circuit to RXD of target device

Connect RXD of the digital circuit to TXD of target device

Cause:

The power or clock may not be supplied to the target device correctly.

Action:

<1> Check that the clock is supplied in the target system.

<2> Check that the power is supplied in the target system.

Cause:

The parameter file selected in the Device Setup window may be incorrect.

Action:

Use a parameter file that matches the target device.

Refer to **1.5 About Parameter File** and **CHAPTER 2 OPERATION USING WriteEZ5** for information about parameter files.

Cause:

The supply oscillator setting selected in the Device Setup window may be incorrect.

Action:

Set the supply oscillator that matches the target device specifications and environment used.

Cause:

The speed list box setting selected in the Device Setup window may be incorrect.

Action:

Set the speed list box correctly by checking the user's manual for the target device.

Cause:

The power supply capacity of the USB port of the personal computer may be low.

Action:

Try using another personal computer or supply power from the target system.

Cause:

Security may be set.

Action:

Check that security is not set.

Published by: NEC Electronics Corporation (<http://www.necel.com/>)

Contact: <http://www.necel.com/support/>