Spansion Inc.
Application Note

MCU-AN-500103-E-20

F²MC-8FX FAMILY

8-BIT MICROCONTROLLER

ALL SERIES

8FX USB PROGRAMMER

NEW FEATURE

APPLICATION NOTE

Specifications are subject to change without notice. For further information please contact each office.

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1 Introduction

This application note describes the new features of 8FX USB programmer, and introduces how to use check sum and serial number functions.

1.1 New Feature List

1. Check SUM
2. Serial Number
3. Support Intel/Motorola HEX format code
4. Support MB2146-07/08-E

2 Operation Method

This chapter describes Flash programmer tools usage.

2.1 Overview

This version adds the functions of check sum, serial number, log information and support programming Intel format HEX code.

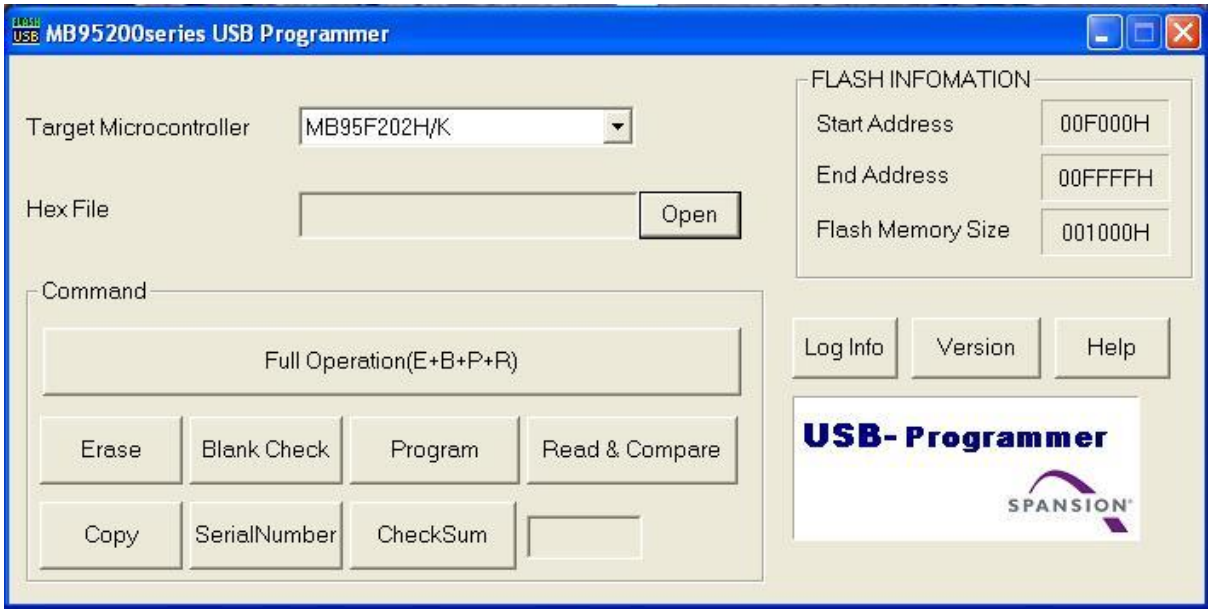

Figure 2-1: Main Interface

2.2 Function of Check Sum

This function calculates the integrality of hex file to make sure that the code downloaded to MCU is correct. Click **Check Sum** and then **Check Sum** dialog box pops up as shown in Figure 2-2.

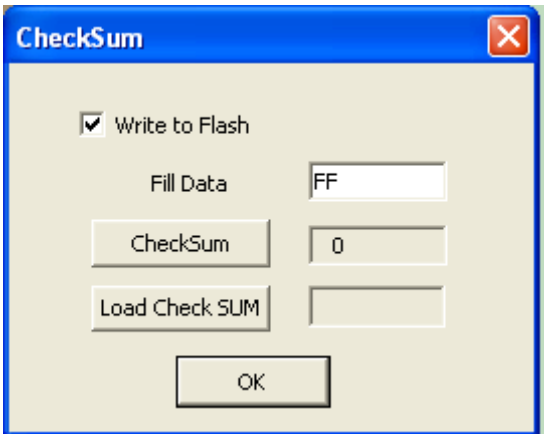

Figure 2-2: Check Sum Dialog

2.2.1 Setting and Result

When a hex file is selected in **Hex File**, the default value of **Fill data** is FF. Click **Check Sum**, the result will be displayed in blank (2) as Figure 2-3. When click **OK**, the result of check sum will be displayed in main GUI, as below Figure 2-4. If need write this value to flash in 0xFFB4~0xFFB5, please enable check box (1). Click **Load Check SUM**, it will load check sum from flash and display in blank (3).

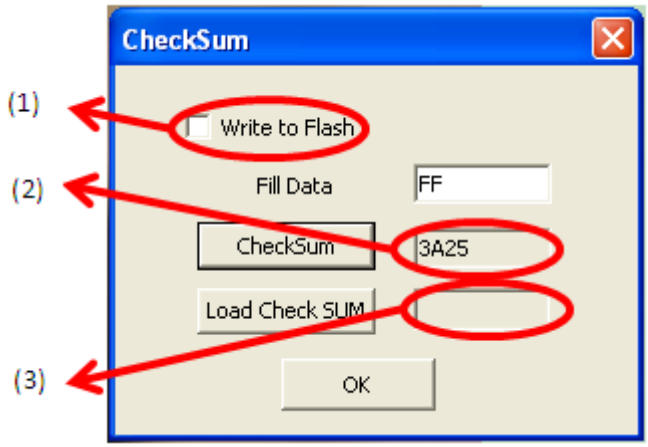

Figure 2-3 Result of Check Sum

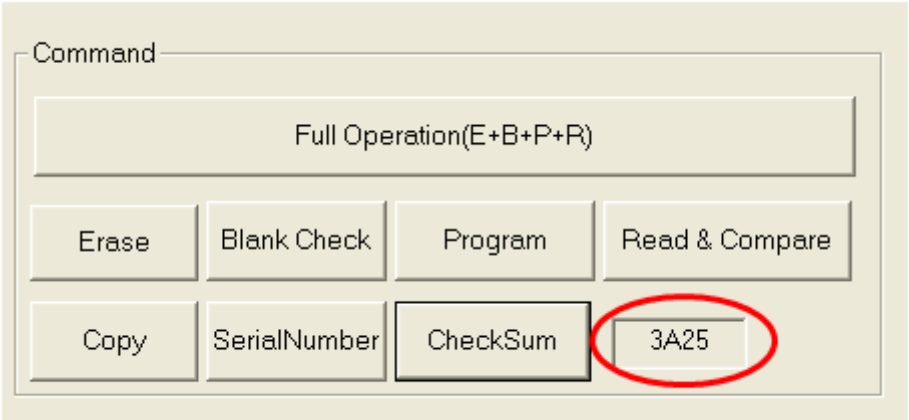

Figure 2-4: Result Displayed in Main GUI

NOTE:

1) The range of Fill data is 00 to FF by hexadecimal.

2) When hex file is changed, the result will be cleared.

2.3 Serial Number module

This function sets serial number and writes it to MCU. It is used to mark the product number. Click **Serial Number** in main GUI, and a dialog box pops up as shown in Figure 2-5.

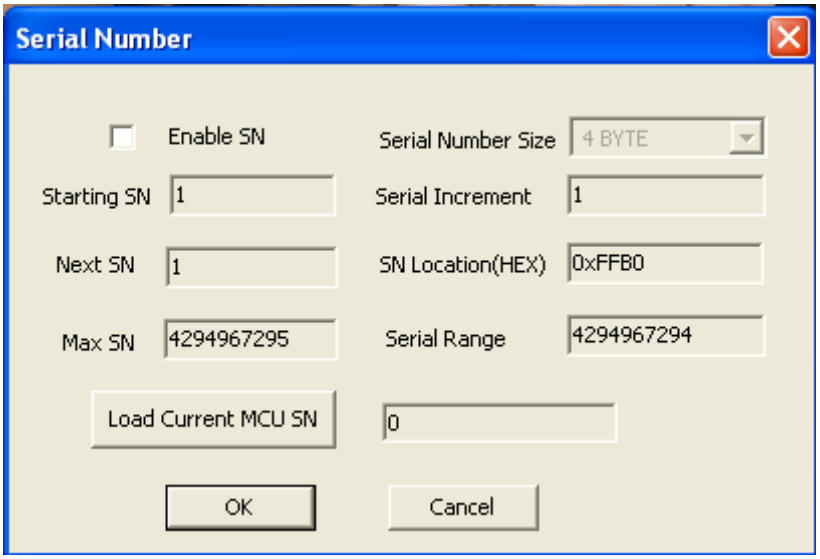

Figure 2-5 Serial Number Dialog

2.3.1 Setting and Result

1) When Serial Number window is opened, it automatically resumes the last programming setting. If there is no setting before, it keeps the default setting as above;
2) Check Enable SN check box to enable serial number function. Then it can set the parameters, as serial number Size, Starting number, and step increment. As shown in Figure 2-6;
3) The parameters in red box are read only.
4) When click **Load Current MCU SN** to display the serial number of current MCU.

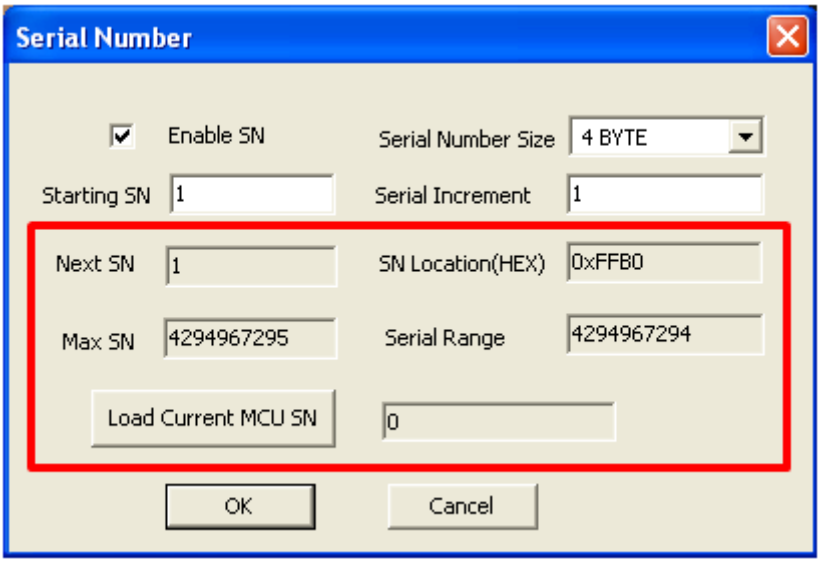

Figure 2-6 serial number setting

2.3.2 Precaution

1) The starting serial number cannot be set over the **Max SN**;
2) When the added Next SN is larger than Max SN, a dialog box pops up warning that "**The serial number is not enough, please set a right number!**"
3) The serial number is written to fixed address 0xFFB0~0xFFB3;
4) If no serial number is written before, click **Load Current MCU SN**, nothing is displayed.
5) If error in program process, the next serial number also adds the increment automatically.

2.4 Log Information

This function is used to display the programmer setting and running information. After click **Log Info** in main GUI, the log info dialog pops up as shown in Figure 2-7.

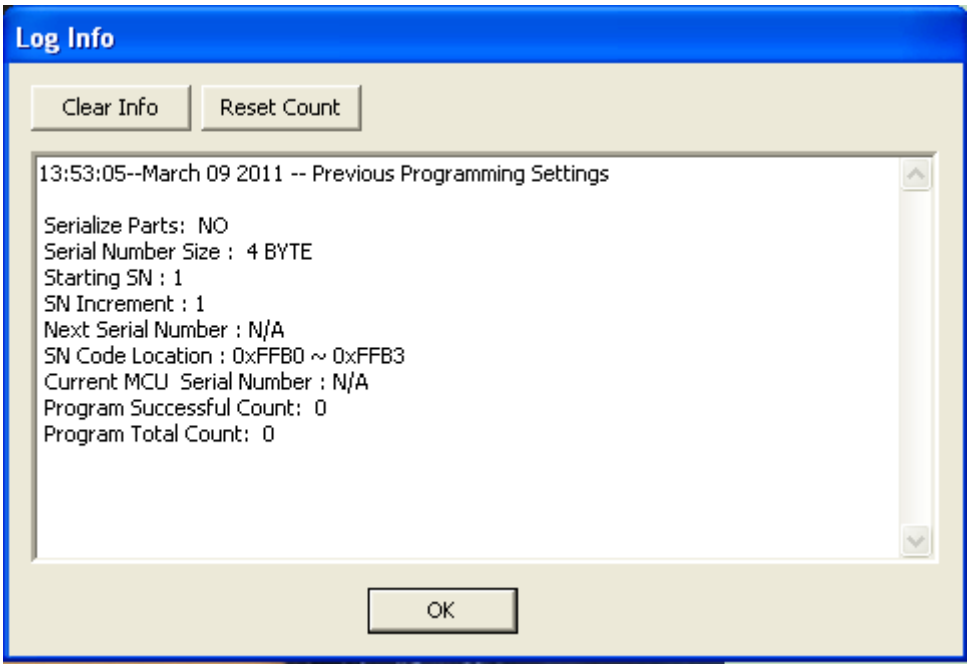

Figure 2-7Log Info Dialog

2.4.1 Usage

1) When **Log Info** dialog box is opened, it loads the previous programmer settings. If no setting has been done before, nothing is displayed.
2) After click **Clear Info**, it clears all information in the dialog box;
3) After click **Reset Count**, it clears the **program total count** and **program successful count**;

2.5 Support Intel HEX code programming

This function supports Intel format HEX code downloading and uploading.

2.5.1 Usage

1) Downloading

Select HEX file as below figure

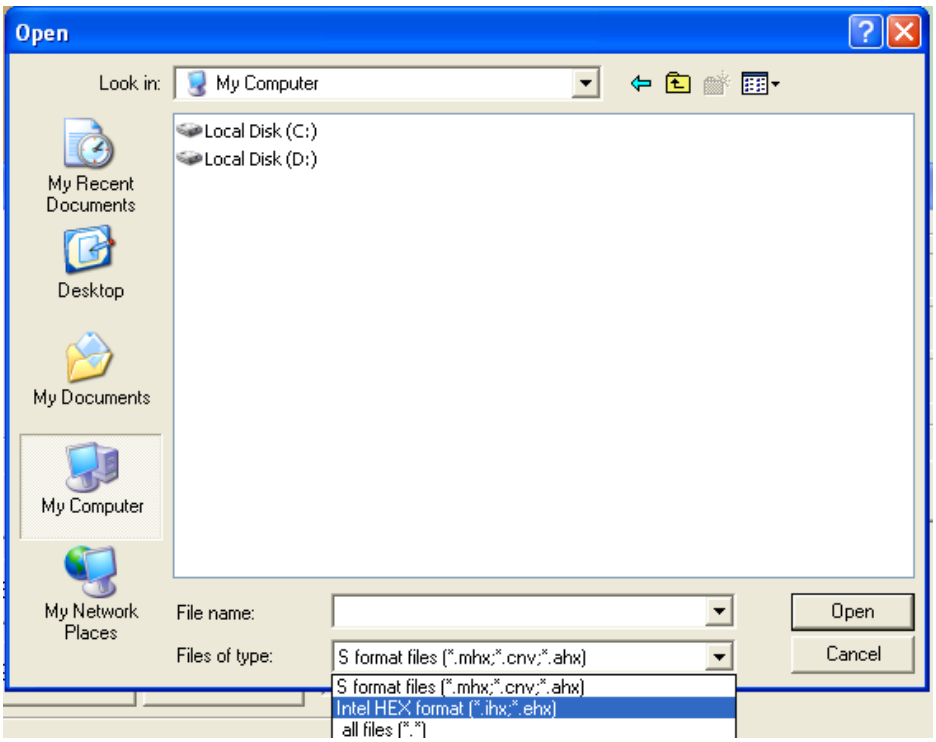

Figure 2-8 select Intel format code

2) Uploading

Execute **COPY** operation, and it can save with Intel format, as below figure.

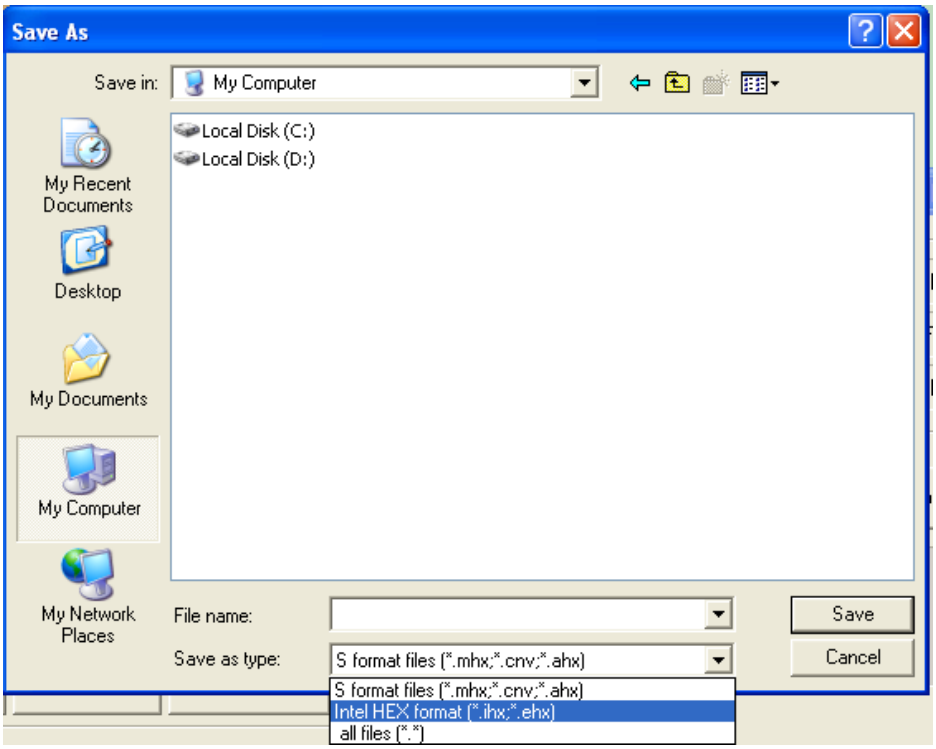

Figure 2-9 save as Intel format code

3 Example

There are two examples to explain how to use check sum and the serial number.

3.1 Example of Check Sum

1) Select the hex file [1]

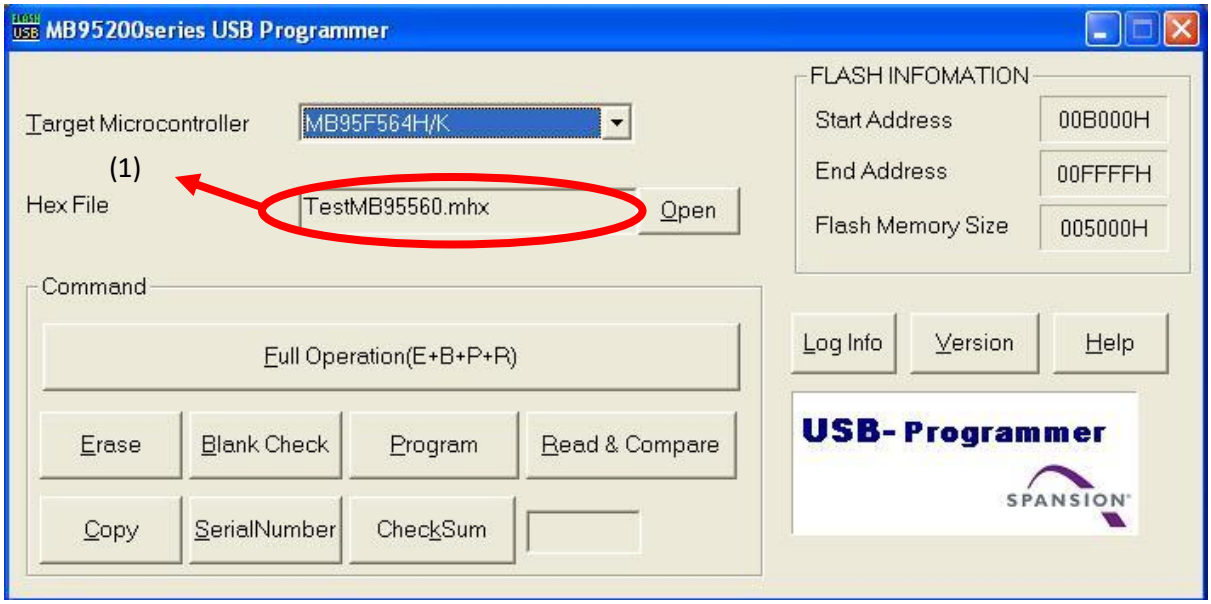

Figure 3-1 Select the HEX File

2) Click **Check Sum** in main GUI, and check sum dialog box is opened, Input AA to **Fill Data**[2], and click **Check Sum**[3], the result display as figure 3-2. Finally, enable the **Write to Flash.**

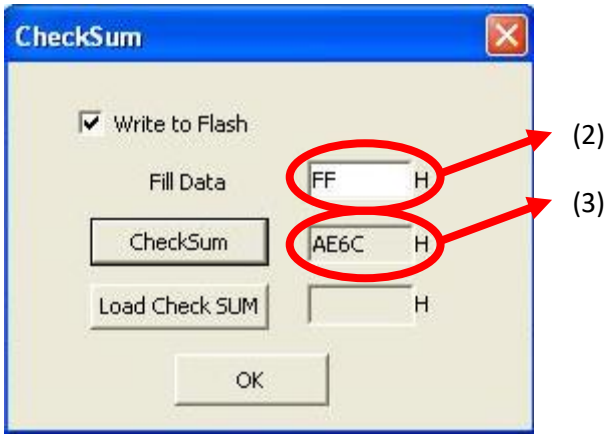

Figure 3-2 Calculate the Check Sum Result

3) Click **OK**, and the result will be displayed as below.(4)

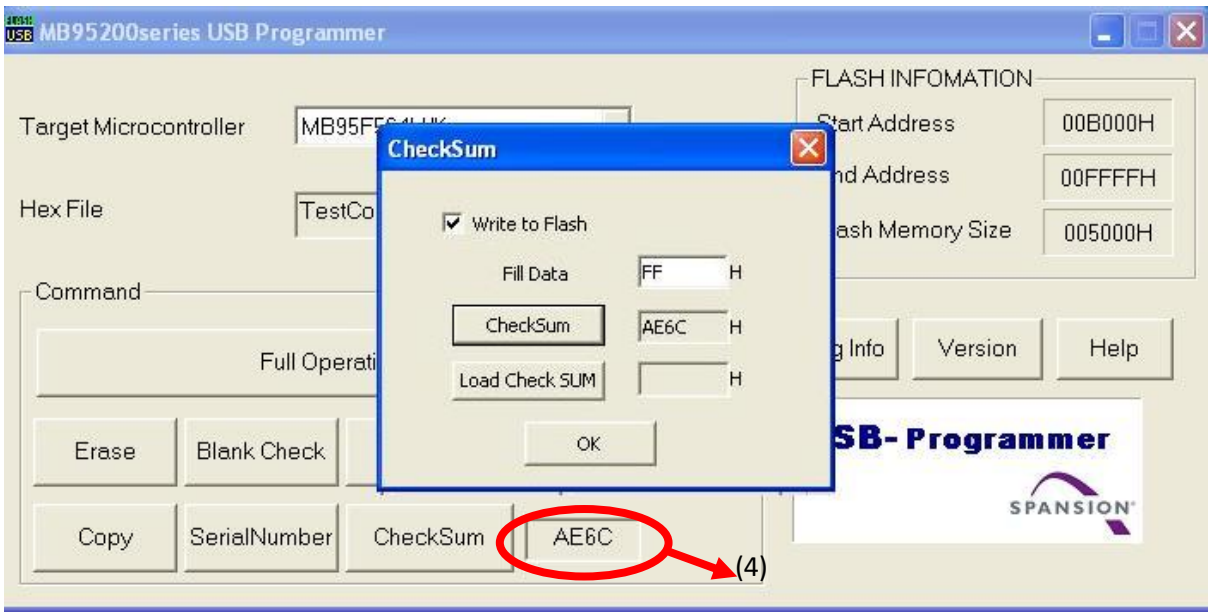

Figure 3-3 Result Displayed in Main GUI

4) Execute the Program, the check sum value has been written to flash, and open the check sum dialog box again, click the **Load Check SUM**, the result display in blank (5) as figure 3-4.

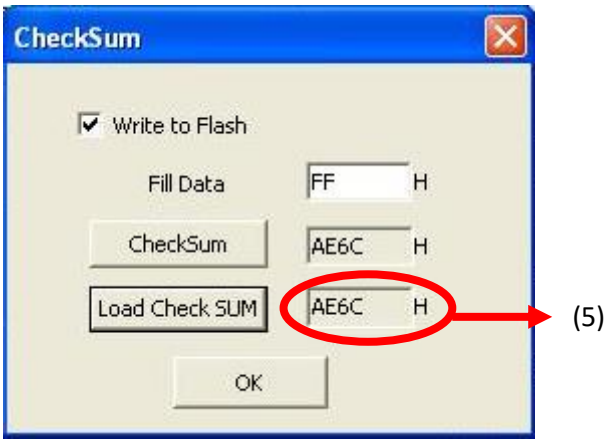

Figure 3-4 Result Displayed in Check Sum dialog box

3.2 Example of Serial Number

3.2.1 Set Parameter

1) The parameters are set as below:

Serial number size 3 BYTE

Starting SN 1234

Serial Increment 2

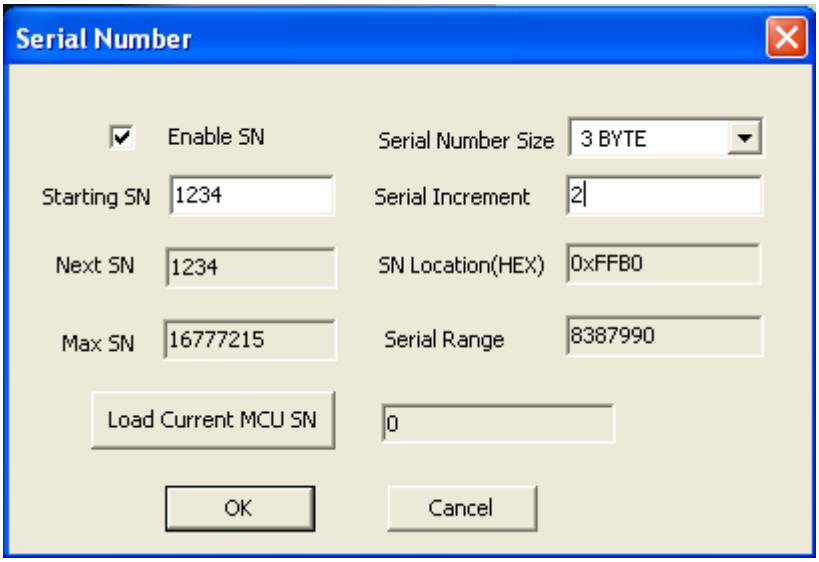

Figure 3-5 Serial Number Setting

2) Click **OK**, and **Log Info** dialog box displays the setting information as below:

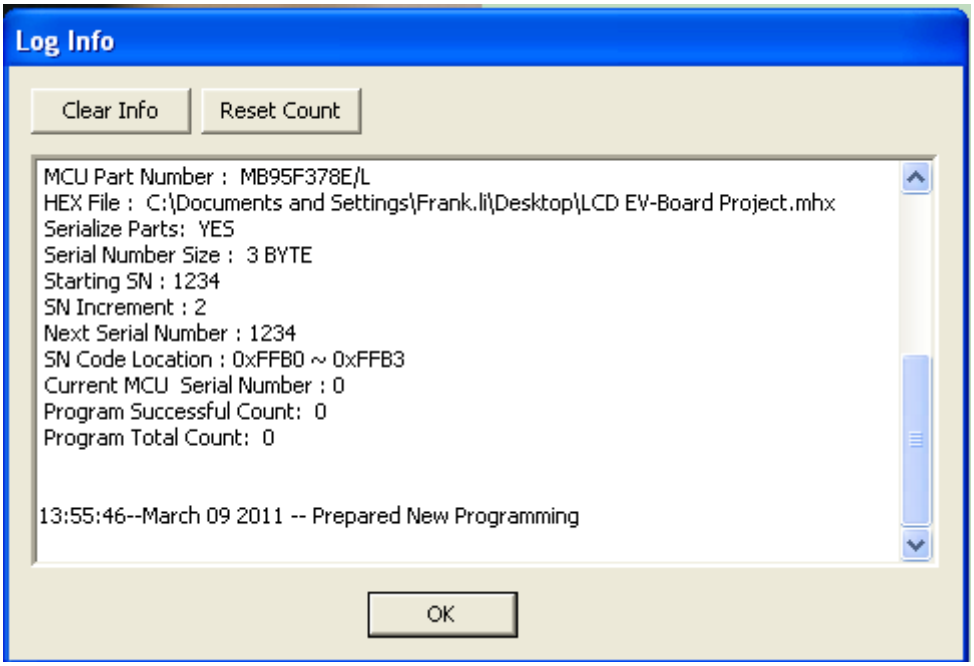

Figure 3-6 Log Info of Setting

3.2.2 Full Operation Program

1) Click **Full Operation** and the program is executed as below:

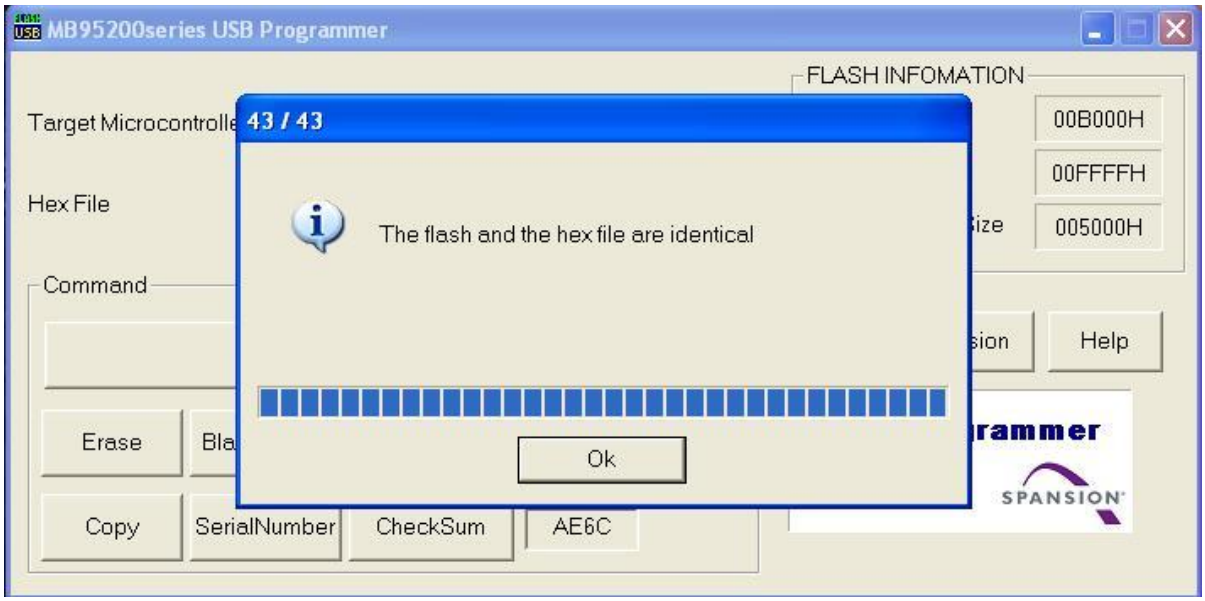

Figure 3-7 Programming Process

Or Click **Erase** + **Program** in turn, and the program also download the serial number.

2) Then the **Log Info** Dialog box is displayed as below.

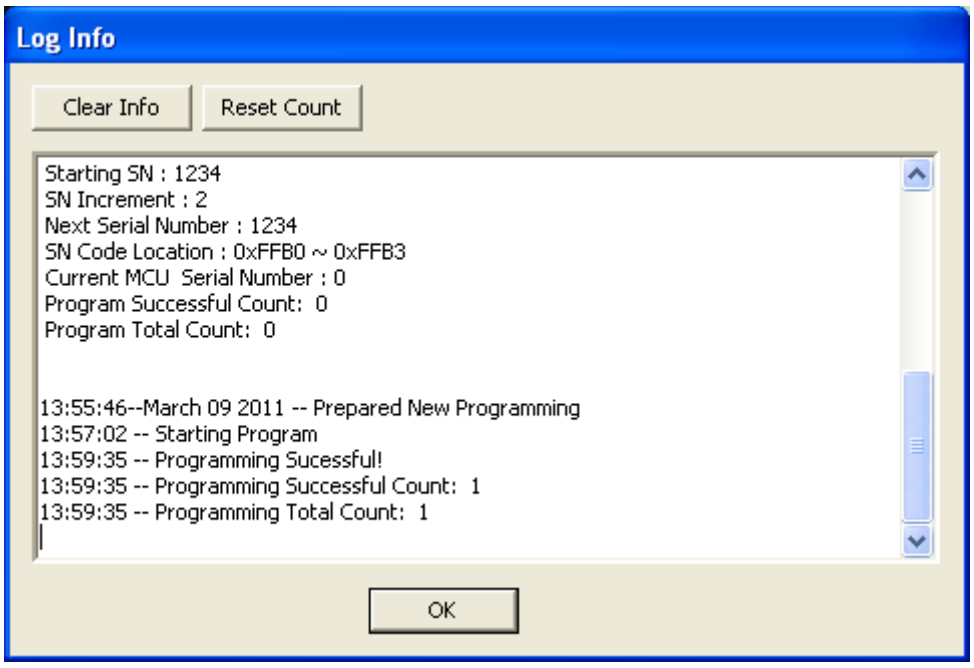

Figure 3-8 Log Info of Process

3.2.3 Validation

1) Open **Serial Number** dialog box again, **Next SN** adds Serial Increment automatically.(1) Click **Load Current MCU SN**, if the loaded number is the same as the value written at last time, it means that the value is written successfully. (2)

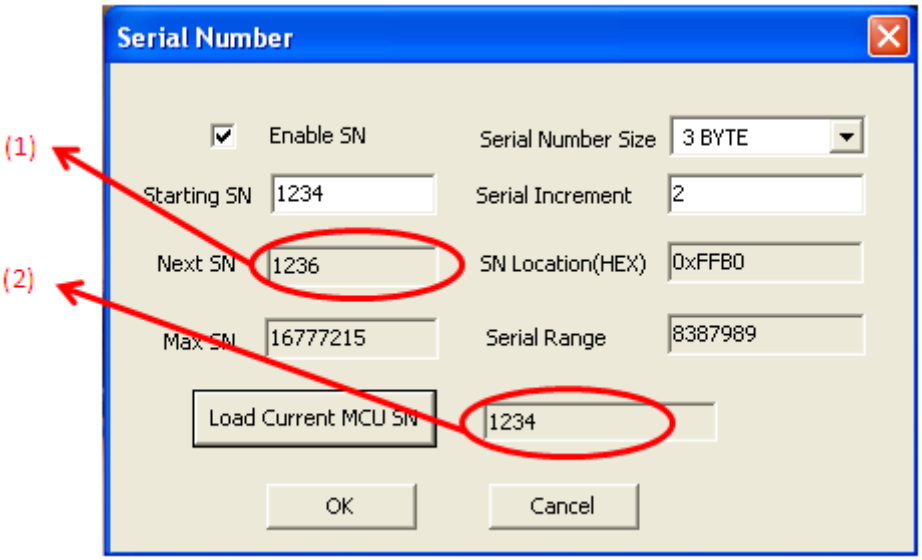

Figure 3-9 Serial Number Dialogs

2) Click **OK, Log Info** dialog box pops up, displaying the current setting and updated parameters as below:

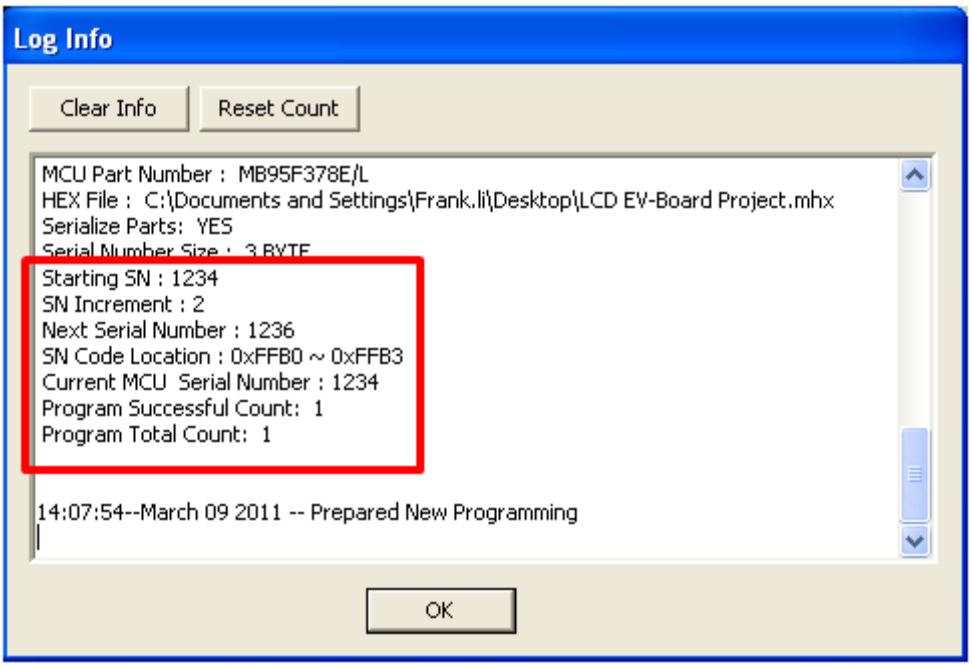

Figure 3-10 Log Info dialog

3) When **Serial Number** dialog box is opened again, it can load previous program settings, therefore; this tool is very convenient when used to program MCU in batches.

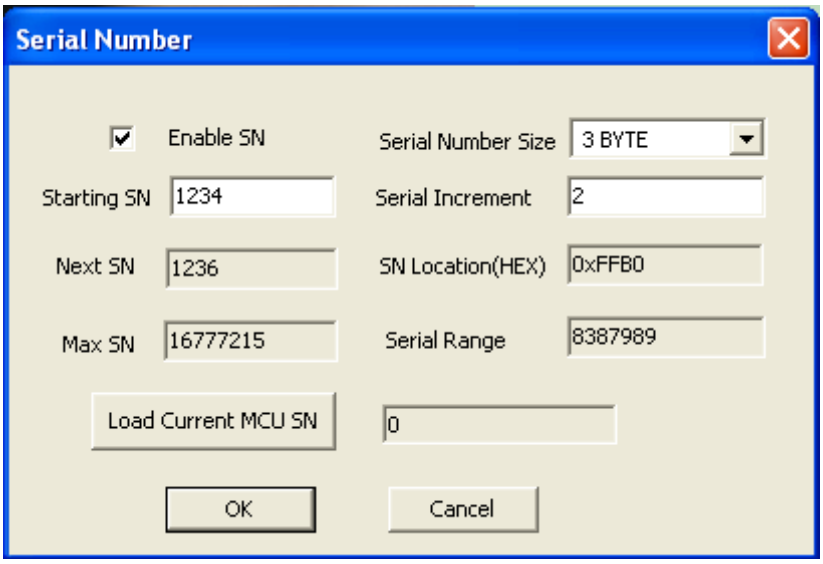

Figure 3-11 Serial Number Setting

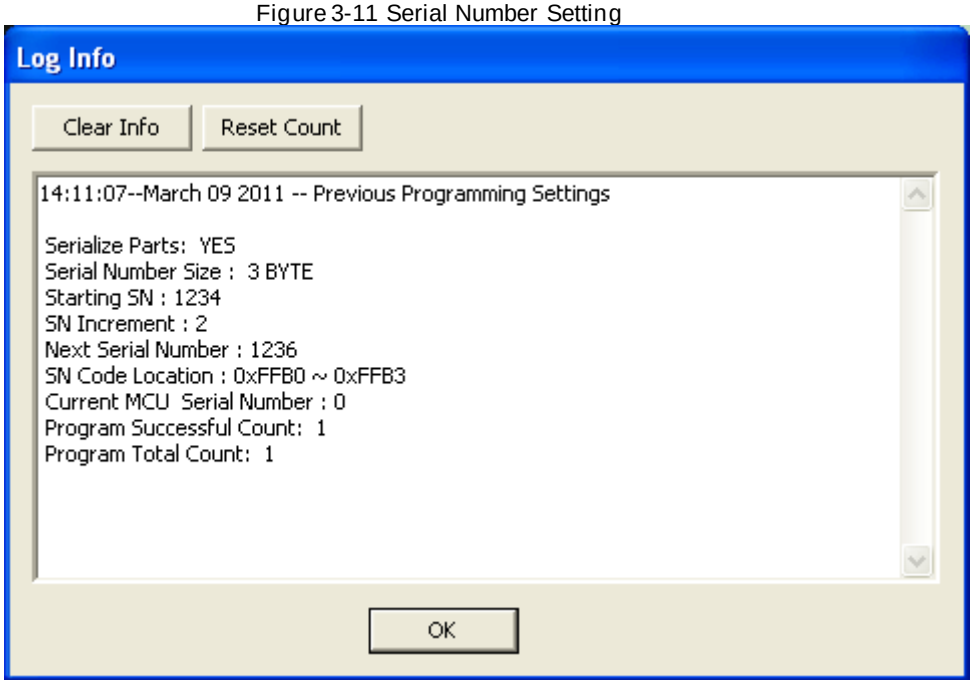

Figure 3-12 Log Info Dialog Box

4 Usage Notice

This chapter introduce the notice when using Serial Number and Check Sum function

4.1 Use Serial Number Notice

1. When enable the Serial Number, user must preserving 0xFFB0~0xFFB3, it used to write the serial number value
2. Re. below code to declare serial number section

```
.SECTION  SERIALNUM, CONST, LOCATE=H'FFB0
.DATA.B   0xFF
.DATA.B   0xFF
.DATA.B   0xFF
.DATA.B   0xFF
```

Figure 4-1 Declare Serial Number Section

3. Before programming, user must check the serial number function whether enable or not, because this programmer saves last parameter automatically.
4. If enable the serial number function, when click ***Copy***, the value of flash 0xFFB0~0xFFB3 is 0xFF all the while; if disable the serial number function, the value of these flash is real value.

4.2 Use Check Sum Notice

1. When enable to write check sum, user must preserving 0xFFB4~0xFFB5， it used to write the check sum value
2. Re. below code to declare the check sum section

```
.SECTION  CHECKSUM, CONST, LOCATE=H'FFB4
.DATA.B   0xFF
.DATA.B   0xFF
```

Figure 4-2 Declare Check Sum Section

3. Before programming, user must check the serial number function whether enable or not, because this programmer saves last parameter automatically.
4. If enable the check sum function, when click ***Copy***, the value of flash 0xFFB4~0xFFB5 is 0xFF all the while; if disable the check sum function, the value of these flash is real value.

5 Additional Information

For more Information on Spansion semiconductor products, visit the following websites:

English version address:

http://www.spansion.com/Products/microcontrollers/Pages/default.aspx

Chinese version address:

http://www.spansion.com/CN/Products/microcontrollers/Pages/index.aspx

Please contact your local support team for any technical question

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Japan: mcu-ticket-jp@spansion.com

Other: http://www.spansion.com/Support/SES/Pages/Ask-Spansion.aspx

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