DTS INSIGHT

TMPM358 Internal Flash Memory Instructions Manual

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1 Introduction

This is a brief manual for writing to on-chip flash memory.

For details of ICE operating instructions, see the microVIEW-PLUS User's Manual (Common Edition) and microVIEW-PLUS User's Manual (MPU-Specific Edition).

2 Supported SLX (ZX) Versions

Device Model	Supported Versions	
	SLX600	ZX600
TMPM358FDTFG	2.51	--

3 Advance Preparation

3.1 Security

Do not enable the security of built-in flash memory.

Enabling the security causes debug communication failure. ICE cannot be used.

The security becomes enabled if all of the following conditions are satisfied.

(For details, see a data sheet of SoC.)

- SECBIT register bit is set 1.
- All protect bits for writing the built-in flash memory and erase protection are set 1.

3.2 Initialization of On-chip RAM

Because of the specification of ECC of MPU, you have to initialize RAM after resetting MPU.

If you do not initialize the on-chip RAM, download by setting a memory dump of RAM area or a Setting up User RAM for ICE cannot be done.

Fill the memory by using a fill command.

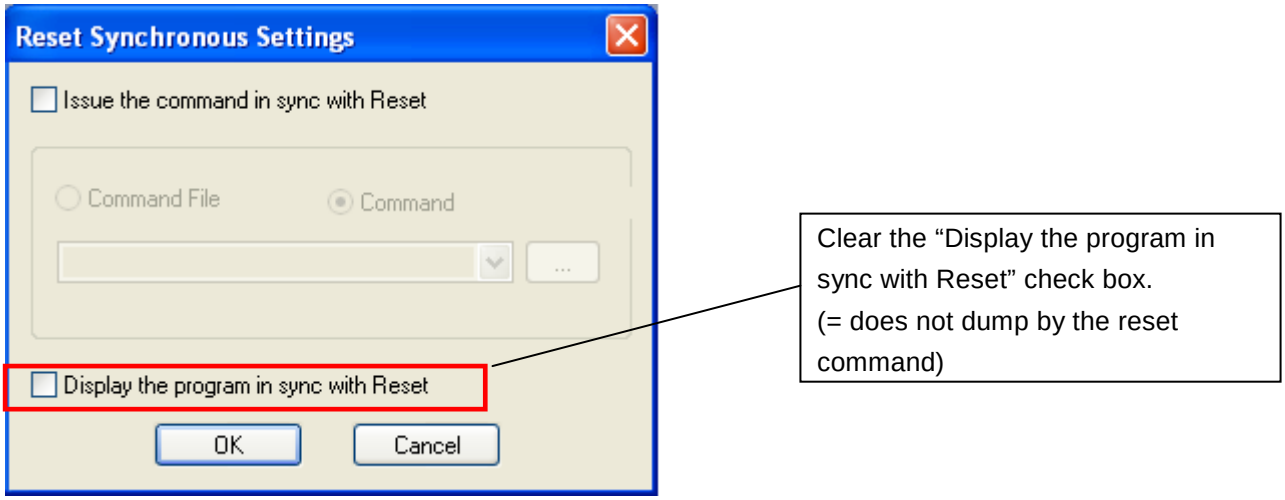
Example of microVIEW-PLUS command:

```
fill 0x20000000,,0x8000 l 0x0 off
```

3.3 When Correct Address is not set in the Vector Table

microVIEW-PLUS dumps a reset vector area to display a program (disassemble display) after connecting by reset commands.
In case nothing is recorded in the built-in flash memory (a vector table is 0xFFFFFFFF), 0xFFFFFFFE will be dumped and “ICE Error No.f58: Sticky error may occur.

[Provision]
Right-click the Reset button on the toolbar, and then open the Reset Synchronous Settings dialog box.



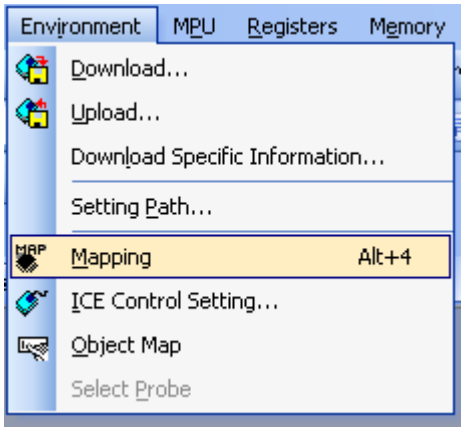
After downloading the program to the internal flash memory (correct vector table values are written), select this check box again.

4 Setting the Memory Mapping

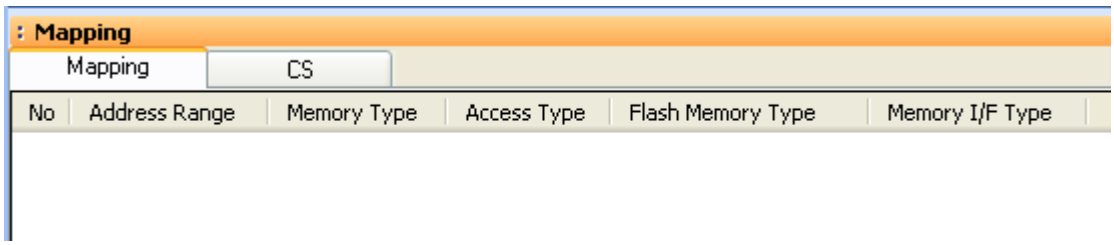
4.1 Setting up Flash Memory Mapping

In case of using the function of download to flash memory or software break, the previous settings of flash memory mapping is necessary.

Open the memory mapping window by clicking **Environments** – **Mapping**.

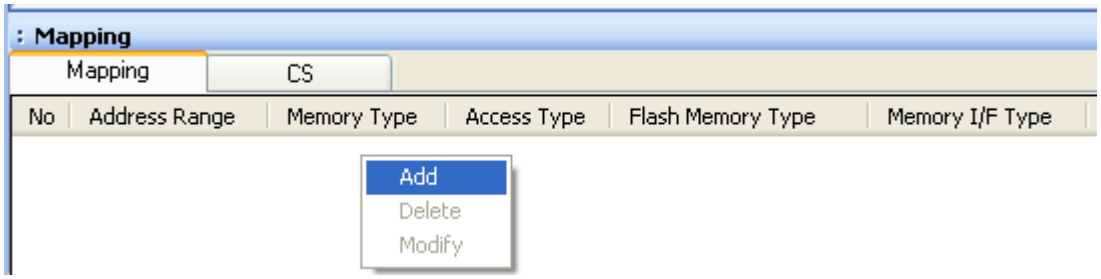


Memory map window as below is opened.

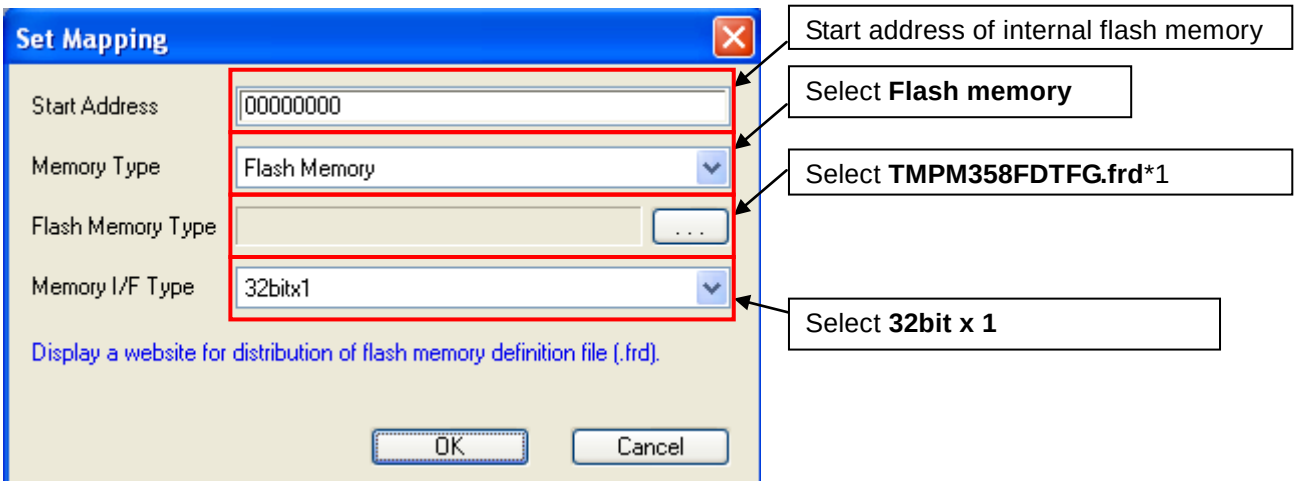


Set the mapping.

Right-click on the memory mapping window, and then select **Add**.



Configure the setting as the example below.



* Select the flash memory definition file (.frd) in accordance with your flash memory.

4.2 Setting up User RAM for ICE

You can increase a download speed for flash memory by mapping a user RAM for ICE.

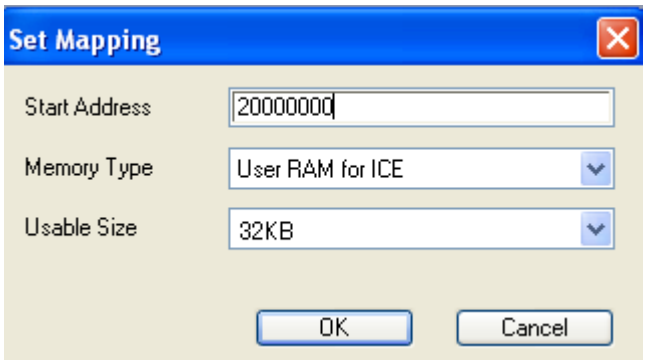
You can download the data to flash memory without the mapping setting.

For User RAM for ICE, specify an area where ICE can occupy.

*** To set the user RAM for ICE, you need to initialize the RAM area. For details, see Section 3.2 "Initialization of On-chip RAM".**

The following example is for when setting 32KB from 0x20000000.

For the actual settings, refer to the MPU memory map of yours.



5 Erase the Flash Memory

For details, see the microVIEW-PLUS User's Manual (MPU-Specific Edition).

Details of memory mapping settings are described on this manual. Please refer to microVIEW-PLUS User's Manual (MPU-Specific Edition) for other contents.

6 Download to Flash Memory

For details, see the microVIEW-PLUS User's Manual (MPU-Specific Edition).
Details of memory mapping settings are described on this manual. Please refer to microVIEW-PLUS User's Manual (MPU-Specific Edition) for other contents.

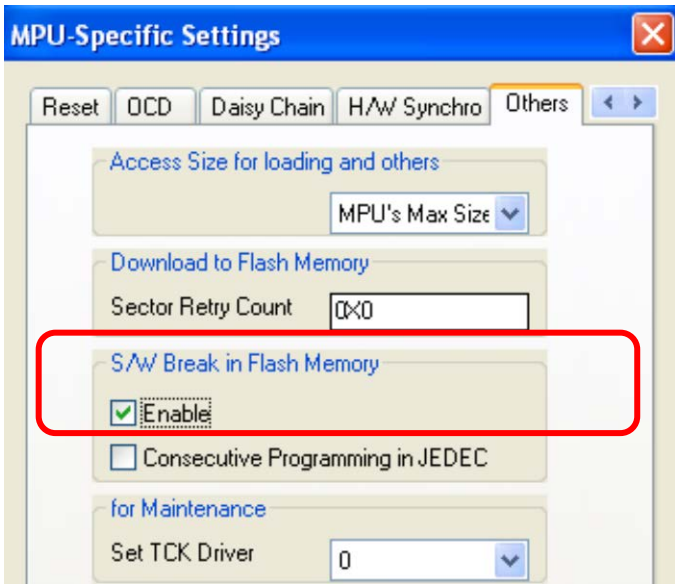
7 Software Break in Flash Memory

For details, see the microVIEW-PLUS User's Manual (MPU-Specific Edition).

Details of memory mapping settings are described on this manual. Please refer to microVIEW-PLUS User's Manual (MPU-Specific Edition) for other contents.

You are not allowed to set up software break in the flash memory in the initial state. In case you try to set up software break in the flash memory with the disabled status, it results in "ICE Error No. 8c4: Set Software Break Verify Error".

To enable software break setting for flash memory, select the **Enable** check box of S/W Break in Flash Memory on the Others tab of the MPU-Specific Settings dialog box.



8 Notes & Points

8.1 Operation Mode

Select a single chip mode for the operation mode.
If you select a single boot mode, the access to JTAG and SWD cannot be established. Therefore you cannot use the ICE.

8.2 Address Conversion for User Boot

Do not program the flash memory (*1) if you switch from Block 0 to Block 1 of MACRO 0 by using the address conversion for user boot.
If you did it, data of blocks other than the block 0 and block 1 cannot be read correctly. As a result, the old programming data may be destroyed.

8.3 Verify check

Make sure to do a verify check when programming the flash memory (*1), regardless of you did or didn't do a verify setting of microVIEW-PLUS.

8.4 ECC Error

A verify error occurs if ECC error was detected while programming a flash memory (*1).
In such cases, write the flash memory again.

8.5 Error at Memory Dump and Download

The following error message may be shown if you did not initialize the on-chip RAM.
For memory dump: "ICE Error No.f58: Sticky error occurred. Reset the target."
For downloading to flash memory: “ICE Error No.1e51: Memory test error of RAM for ICE”
In such cases, initialize the RAM area in accordance with Section 3.2 “Initialization of On-chip RAM”.

*1: Programming which is accompanied by downloading to the on-chip flash memory, erasing the on-chip flash memory, and software break setting on the on-chip flash memory.