DTS INSIGHT

TMPR454 Internal Flash Memory Instructions Manual

DTS INSIGHT CORPORATION

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Revision History

Edition	Date of issue	Description
1st Edition	May 10, 2013	• Initial publication

Contents

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
TMPR454	2.50	--

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 Execute the Initializing Script

You need to execute the initializing script (TMPR454_flash_init.mvw) when downloading to the flash memory.

This script is optimized for downloading to on-chip flash of adviceLUNA.

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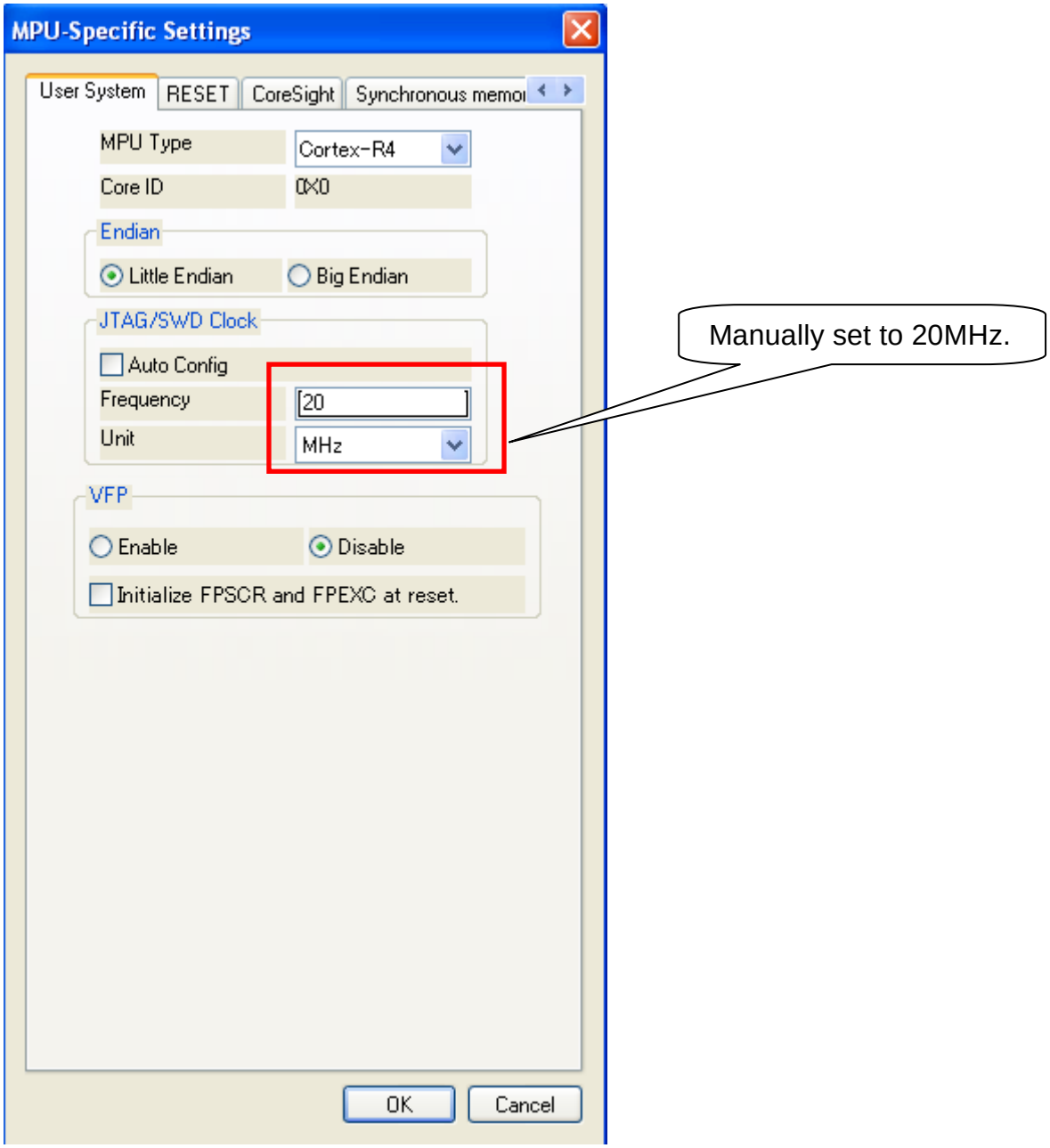
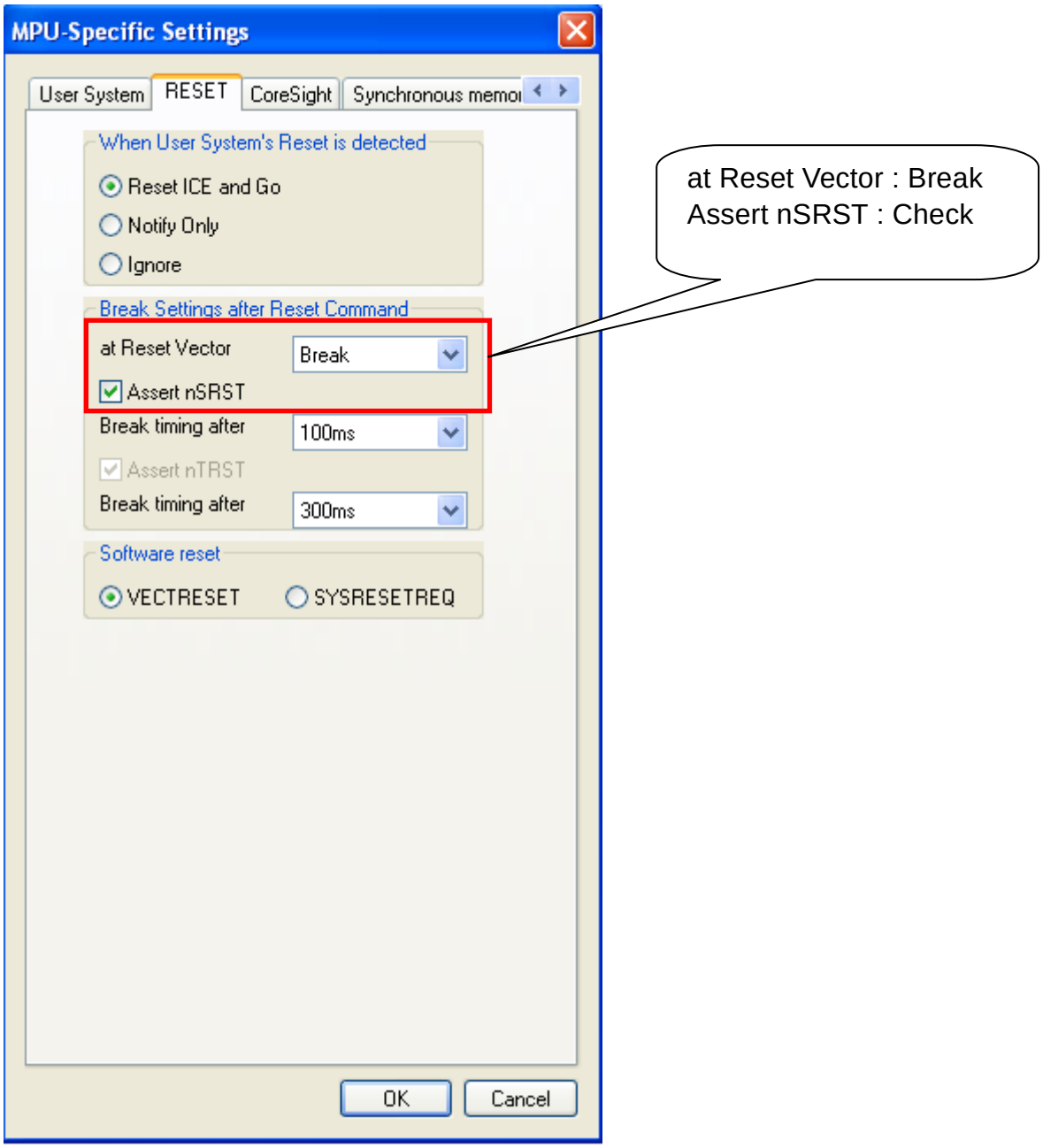
* It is installed in c:\ydc\microVIEW-PLUS\mpv\hlx600 folder as a default.

If you download a program without executing this initializing script, the download will be failed.

3.3 MPU-Specific Settings

Notes and Points for when setting MPU-specific settings of [MPU] menu:

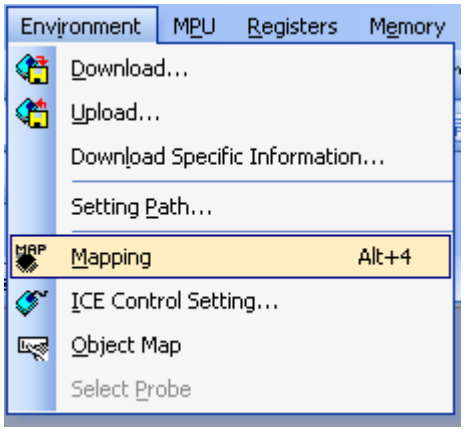



MPU-Specific Settings
User System
RESET
CoreSight
Synchronous memo
When User System's Reset is detected
Reset ICE and Go
Notify Only
Ignore
Break Settings after Reset Command
at Reset Vector
Break
Assert nSRST
Break timing after
100ms
Assert nTRST
Break timing after
300ms
Software reset
VECTRESET
SYSRESETREQ
OK
Cancel
at Reset Vector : Break
Assert nSRST : Check

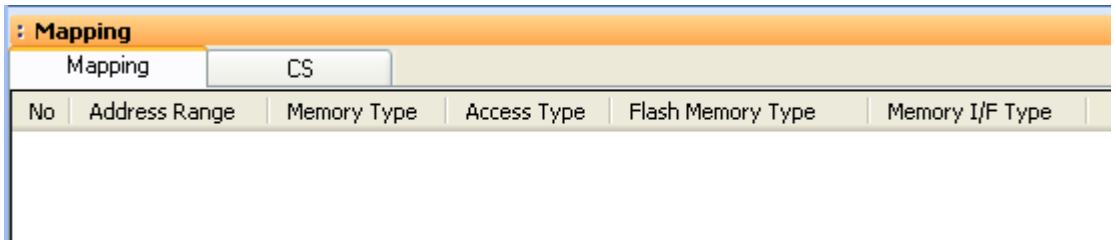
4 Setting the Memory Mapping

4.1 Setting up Flash Memory Mapping

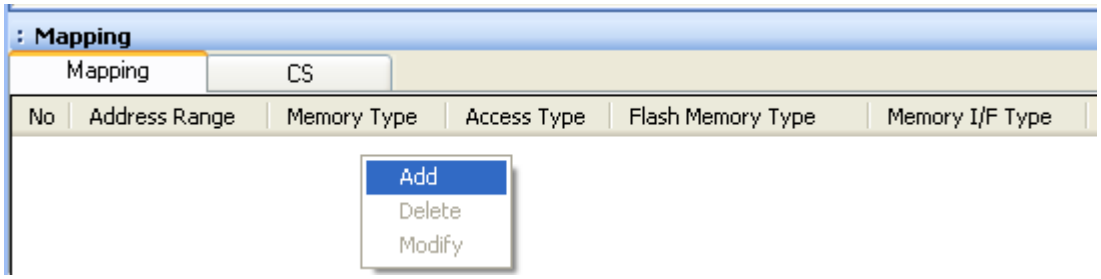
Open the memory mapping window by clicking **Environments** – **Mapping**.



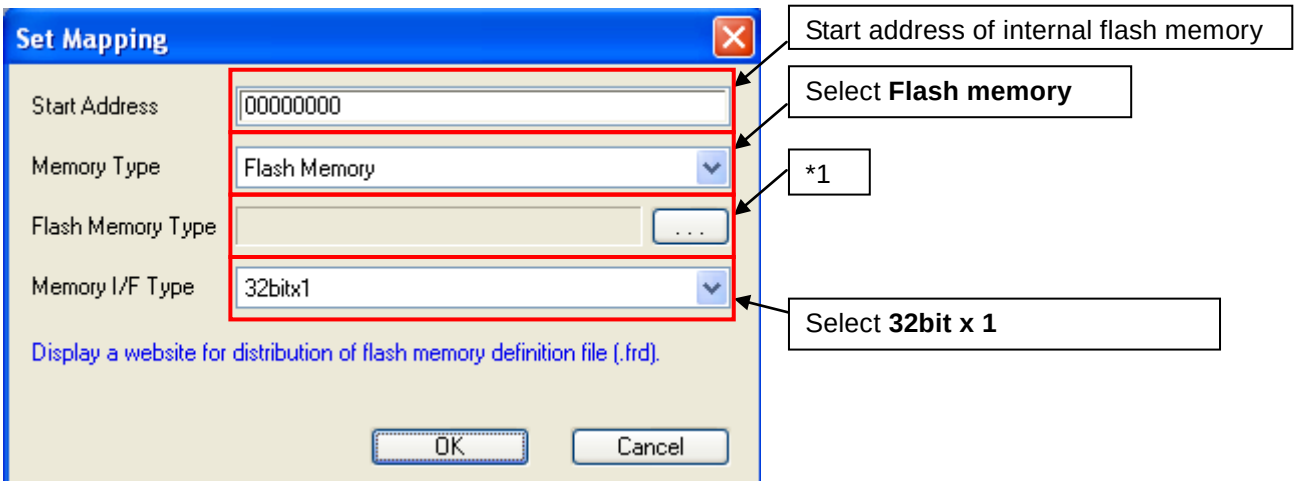
Memory map window as below is opened.



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



Configure the setting as the example below.



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

Set the flash memory mapping for both Macro 0 and Macro 1.

Use the flash definition file on the table below.

Macro	Flash definition file
0	TMPR454F10TFG_MACRO0.frd
1	TMPR454F10TFG_MACRO1.frd

4.2 Setting up User RAM for ICE

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

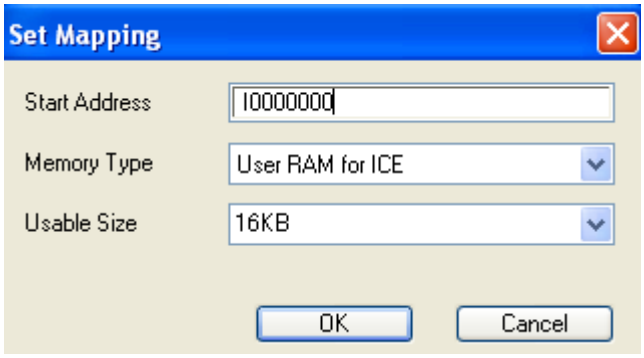
You can download the data to flash memory without the mapping setting.

If you executed the initializing script on Section 3.2, SYSRAM area cannot be used for User RAM for ICE.

For User RAM for ICE, specify an area within CPURAM0/1 where ICE can occupy.

(For details of the area, see data sheet of SoC.)

The following example is for when setting 16KB from 0x10000000.



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.

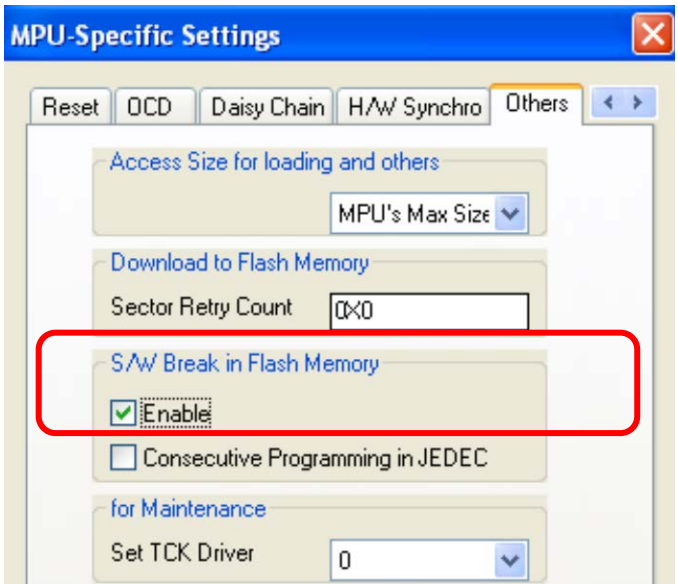
7 Software Break in Flash Memory

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 debug mode for the operation mode.

If you select a normal mode or 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 Block0 to Block1 of MACRO0 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 Overlay Function

Make sure to disable (invalid) the overlay when programming the flash memory (*1).

You cannot program the flash memory if the overlay function is valid.

* It is disabled right after the reset.

(For details, see data sheet of SoC.)

*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.

9 Appendix: ETM Trace Setting

The following setting is required when using ETM trace for TMPR454.

1. Execute the following commands on microVIEW-PLUS. (Make sure to execute this each time after resetting)

```
mem l #0x40020010 = 0x0        → No.1
mem l #apb:0x80004000=0x1      → No.2
```

No.1: Setting FNCSELE (Port E Function Select Register)

Trace signal is multiplexed with GPIO signal. Therefore this setting is necessary.

This is set as 0x0 right after resetting. If you did not change it, you don't need to execute this command.

No.2: CSTF Control Register setting

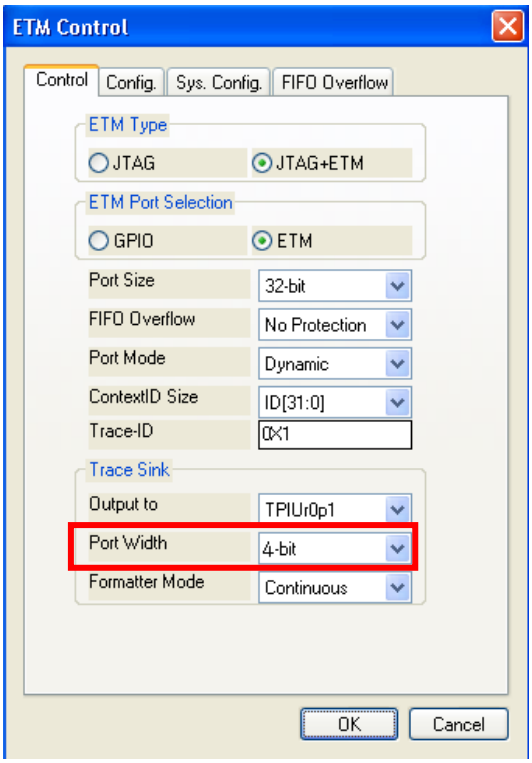
For TMPR454, ETM is connected to TPIU via CSTF.
ETM signal is connected to slave#0 port of CSTF, so you need to activate this connection.

2. Set the output width of trace data of TPIU (Set to 4-bit)

Trace data of TMPR454 is 4-bit (TRACD[3:0]). Set the debugger in accordance with it.

Set as follows by selecting **MPU** – **ETM Control** from a menu bar of microVIEW-PLUS.

(For the settings other than Port Width, leave it as default.)



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