

**R-Car H2/M2**  
**Serial Flash Memory Instructions Manual**

**DTS INSIGHT CORPORATION**

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# Revision History

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## 1 Introduction

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This is a brief manual for writing to serial flash memory of R-Car H2/M2.

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

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## 2 Supported SLX (ZX) Versions

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Device Model	Supported Versions	
	SLX600	ZX600
R-Car H2	2.51	--
R-Car M2	2.51	--

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## 3 Supported Serial Flash Memory Models

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Serial flash memories on the following table are supported.

MPU	Supported serial flash memory models	
	Manufacturer	Model
R-Car H2/M2*	Spansion	S25FL512S
	Spansion	S25FL032P
	Spansion	S25FL064P
	Spansion	S25FL128S
	Spansion	S25FL256S

\* Programming to serial flash memory by using Quad Serial Peripheral Interface (QSPI) of R-Car H2/M2 is supported. Programming using other peripheral is not supported.

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## 4 Advance Preparation

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### 4.1 Setting of QSPI Pin of R-Car H2/M2

Set the QSPI pin before programming the QSPI.

Example of how to set the pin is shown below.

#### Example of how to set the pin:

##### - Start up with QSPI boot mode

Start up with QSPI boot mode in case there is a boot program. Make sure that the setting of QSPI pin is completed.

##### - Execute the script for reference

If there is no boot program and you cannot set the pin, execute the script for reference and set the pin.

**Script file is installed in %mpv%HLX600 folder, in a folder where the microVIEW-PLUS is installed. (C:%YDC%microVIEW-PLUS as default)**

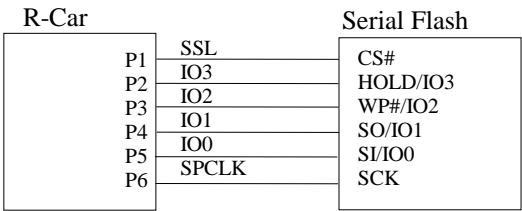
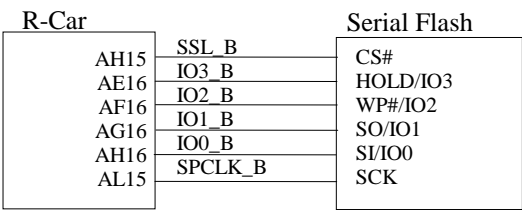
**This script is for reference. Please make necessary changes when using it.**

#### For R-Car H2:

Use a script, "R-Car\_H2\_spi\_init.mvw".

**For R-Car M2:**

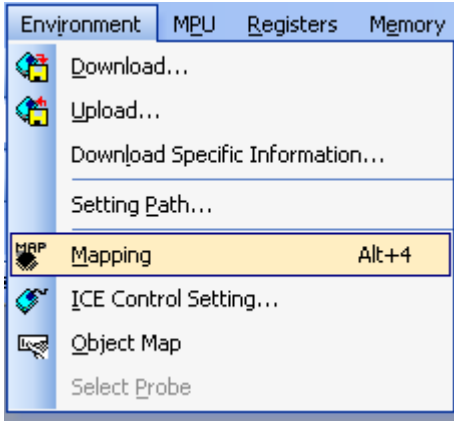
There are two kinds of scripts depending on the pin connected the serial flash.

Example of circuit diagram	Name of script for reference
 <p>The diagram shows an R-Car component on the left with pins P1 through P6. On the right is a Serial Flash component with pins CS#, HOLD/IO3, WP#/IO2, SO/IO1, SI/IO0, and SCK. Lines connect the R-Car pins to the Serial Flash pins as follows: P1 to CS#, P2 to IO3, P3 to IO2, P4 to IO1, P5 to IO0, and P6 to SPCLK.</p>	<p>Use a script, "R-Car_M2_spi_init.mvw"</p>
 <p>The diagram shows an R-Car component on the left with pins AH15, AE16, AF16, AG16, AH16, and AL15. On the right is a Serial Flash component with pins CS#, HOLD/IO3, WP#/IO2, SO/IO1, SI/IO0, and SCK. Lines connect the R-Car pins to the Serial Flash pins as follows: AH15 to SSL_B, AE16 to IO3_B, AF16 to IO2_B, AG16 to IO1_B, AH16 to IO0_B, and AL15 to SPCLK_B.</p>	<p>Use a script, "R-Car_M2_spi_b_init.mvw"</p>

## 4.2 Setting the Memory Mapping

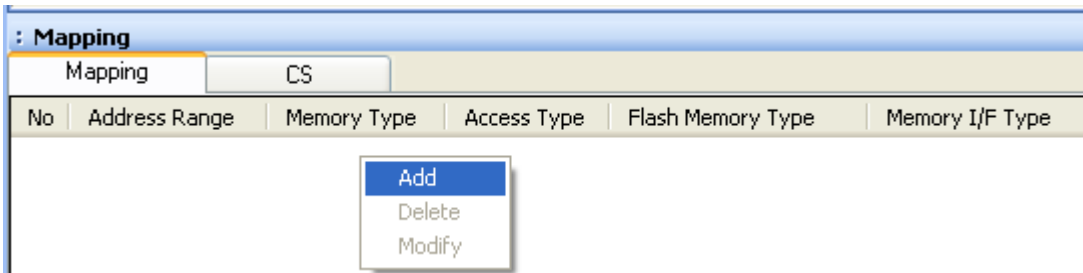
### 4.3 Setting up Flash Memory Mapping

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



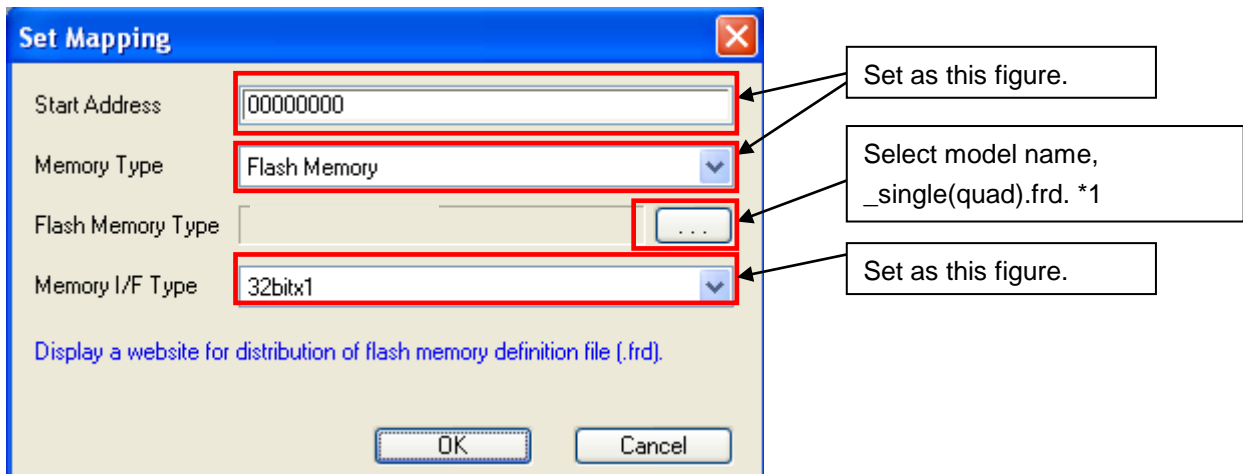
Memory map window as below is opened.

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





Configure the setting as the example below.



\*1: Set either one of the single or quad depending on the signal connection between R-Car H2/M2 and serial flash device.

The following table shows the details.

Connection between R-Car and serial flash can do by data width 1 bit or 4bit.

Connection data width	Example of circuit diagram	Setting for each flash memory
1bit		Select “_single.frd”
4bit		Select “_quad.frd”

**\* If you cannot confirm the connection between R-Car and serial flash, use \_single.frd.**

## Notes and Points for Mapping Flash Memory

**Set the memory mapping on the serial flash memory area only when downloading to the serial flash memory or erasing the sector.**

If you want to program a flash on the AREA0 (CS0) area in R-CarH2/M2, erase the memory mapping of serial flash, and then make the necessary settings. The following figure shows the setting example.

Example of memory mapping when programming the serial flash:

Mapping		CS		
No	Address Range	Memory Type	Access Type	Flash Memory Type
0	00000000-03FFFFFF	Flash Memory	---	R-Car M2 S25FL512S single

Example of memory mapping when programming the AREA0 (CS0) flash:

Mapping		CS		
No	Address Range	Memory Type	Access Type	Flash Memory Type
0	00000000-07FFFFFF	Flash Memory	---	SPANSION S29GL512N

**You cannot set both memory mappings at once.**

**If you need to change the memory mapping, erase the old mapping setting, and then make the necessary settings.**

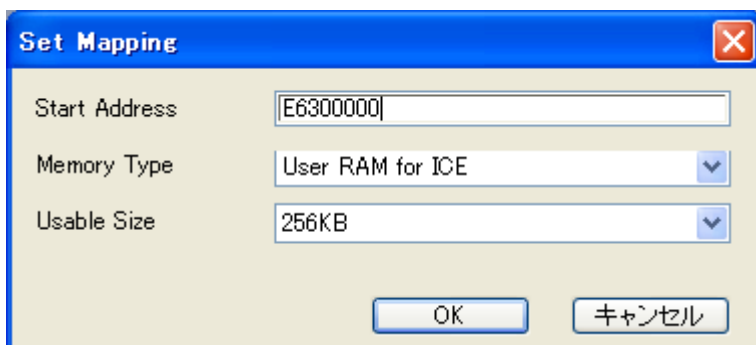
## 4.4 Setting up User RAM for ICE

**Make sure to set the user RAM for ICE when using R-Car H2/M2.**

For User RAM for ICE, specify an area where can be read/written/fetched.

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

The following example is for when setting 256KB from 0xE6300000..



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## **5 Erase the Flash Memory**

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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 the microVIEW-PLUS User's Manual (MPU-Specific Edition) for other contents.

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## **6 Download to Flash Memory**

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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 the microVIEW-PLUS User's Manual (MPU-Specific Edition) for other contents.

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## **7 Software Break in Flash Memory**

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Not Supported.

(Because of the specification of R-Car H2/M2, fetch from the serial flash is not available.)

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## 8 Notes & Points

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### 8.1 Memory Dump on the Serial Flash Memory

Not Supported.

### 8.2 Past Downloaded Data

If the downloaded data of serial flash memory is not by sector, an area which is not the downloaded target within the sector is displayed as ALL 0xFF, instead of the past downloaded data.

**Therefore, if there is more than one file which is stored in the same sector, you need to create image files and download the images all at once instead of download the file separately.**