R-Car H2/M2/E2/V2H
Serial Flash Memory Instructions Manual

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Revision History

Edition	Date of issue	Description
1st Edition	September 30, 2013	• Initial publication
2nd Edition	January 28, 2013	• Add Supported H2X600IK Version • Add Serial Flash Memory Model for R-Car M2 • Add Serial Flash Memory Model for R-Car E2 • Add Serial Flash Memory Model for R-Car V2H
3th Edition	October 31,2016	• Add Serial Flash Memory Model for R-Car H2/M2 Winbond(W25Q256FV)

Contents

1   Introduction

This is a brief manual for writing to serial flash memory of R-Car H2/M2/E2/V2H.

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 H2X/SLX Versions

Please refer to the "3 Supported Serial Flash Memory Models".

3   Supported Serial Flash Memory Models

Serial flash memories on the following table are supported.

MPU	Supported serial flash memory models		Supported Versions	
	Manufacturer	Model	adviceLUNAII H2X600IK	adviceLUNA SLX600
R-Car H2/M2	Spansion	S25FL512S	1.01	2.51
	Spansion	S25FL032P		
	Spansion	S25FL064P		
	Spansion	S25FL128S		
	Spansion	S25FL256S		
	winbond	W25Q256FV	1.51	3.50
R-Car M2	Winbond	W25Q128FV	1.10	3.10
	EON	EN25Q(H)128		
R-Car E2	Winbond	W25Q64FV	1.10	3.10
	Spansion	S25FL164K		
	Spansion	S25FL512S		
	Spansion	S25FL032P		
R-Car V2H	Spansion	S25FL032P	1.11	3.11

* Programming to serial flash memory by using Quad Serial Peripheral Interface (QSPI) of R-Car H2/M2/E2/V2H is supported. Programming using other peripheral is not supported.

4 Advance Preparation

4.1 Setting of QSPI Pin of R-Car H2/M2/E2/V2H

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(adviceLUNA) or ¥mpv¥H2X600(adviceLUNAll) folder, in a folder where the microVIEW-PLUS is installed. (C:¥YDC¥microVIEW-PLUS as default)
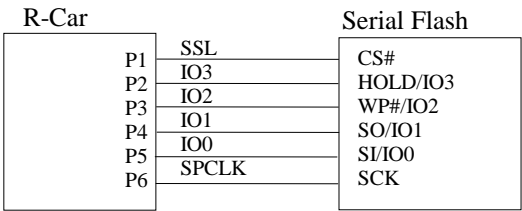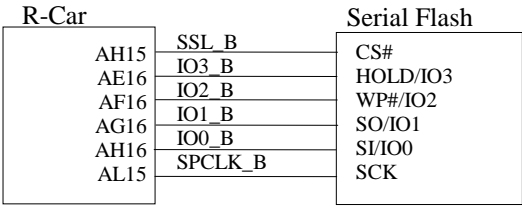
This script is for reference. Please make necessary changes when using it.

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
R-Car / Serial Flash: P1–SSL–CS#, P2–IO3–HOLD/IO3, P3–IO2–WP#/IO2, P4–IO1–SO/IO1, P5–IO0–SI/IO0, P6–SPCLK–SCK	Use a script,"R-Car_M2_spi_init.mvw"
R-Car / Serial Flash: AH15–SSL_B–CS#, AE16–IO3_B–HOLD/IO3, AF16–IO2_B–WP#/IO2, AG16–IO1_B–SO/IO1, AH16–IO0_B–SI/IO0, AL15–SPCLK_B–SCK	Use a script,"R-Car_M2_spi_b_init.mvw"

For R-Car E2:

Use a script,"R-Car_E2_spi_init.mvw".

For R-Car V2H:

Use a script,"R-Car_E2_spi_init.mvw".

4.2 Setting the Memory Mapping

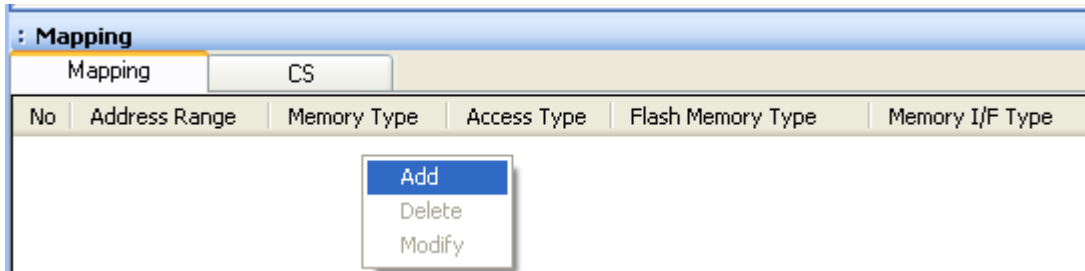**4.2.1** Setting up Flash Memory Mapping
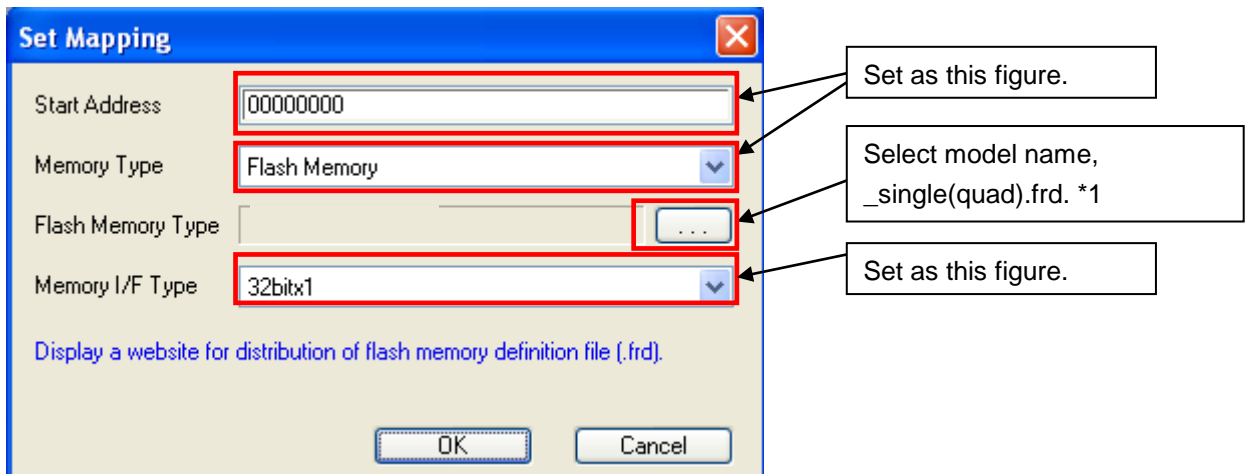Open the memory mapping window by clicking **Environments** – **Memory mapping**.
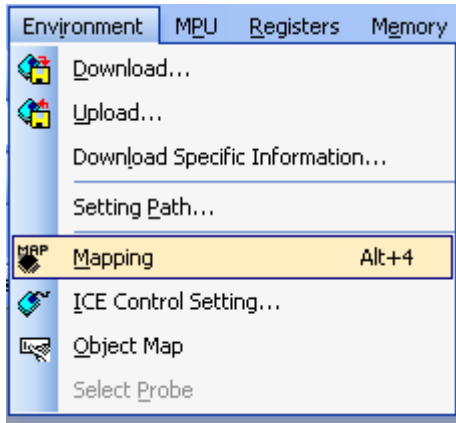
Memory map window as below is opened.

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

Configure the setting as the example below.

Set as this figure.

Select model name, _single(quad).frd. *1

Set as this figure.

*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	R-Car / Serial Flash SSL — CS# SPCLK — SCK MOSI/IO0 — SI/IO0 MISO/IO1 — SO/IO1 IO2 — WP#/IO2 IO3 — HOLD/IO3	Select "_single.frd"
4bit	R-Car / Serial Flash SSL — CS# SPCLK — SCK MOSI/IO0 — SI/IO0 MISO/IO1 — SO/IO1 IO2 — WP#/IO2 IO3 — HOLD/IO3	Select "_quad.frd"

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

4.2.2 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.
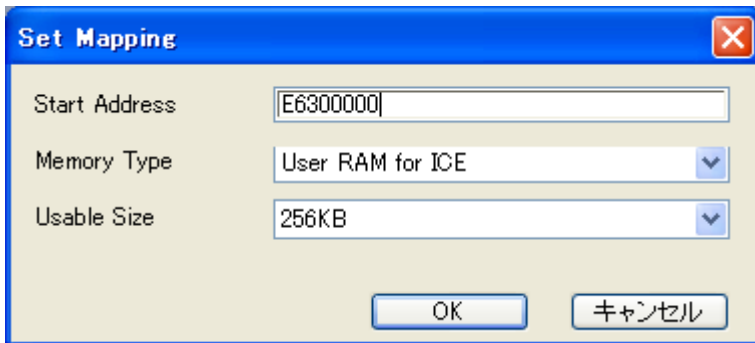
4.3　Setting up User RAM for ICE
Make sure to set the user RAM for ICE when using R-Car H2/M2/E2/V2H.

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..

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

7   Software Break in Flash Memory

Not Supported.

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

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.