VECTOR

FBL Updater RH850

Technical Reference

Hardware specific information

Version 1.0

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Status	Released

Document Information

History

Author	Date	Version	Remarks
Sebastian Loos	2018-06-26	1.00.00	Initial Version

Reference Documents

No.	Source	Title	Version
[1]	Vector	TechnicalReference_FBL_Updater.pdf	1.xx.xx

Caution
We have configured the programs in accordance with your specifications in the questionnaire. Whereas the programs do support other configurations than the one specified in your questionnaire, Vector´s release of the programs delivered to your company is expressly restricted to the configuration you have specified in the questionnaire.

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1 Introduction

This document will give a brief overview on the Renesas RH850 specific aspects of the FBL Updater. A general description of the updater can be found in [1].

1.1 Theory of operation

To ensure a reset-safe update process, the Set-Reset-Vector ability of the FlashLib (FCL) is used.

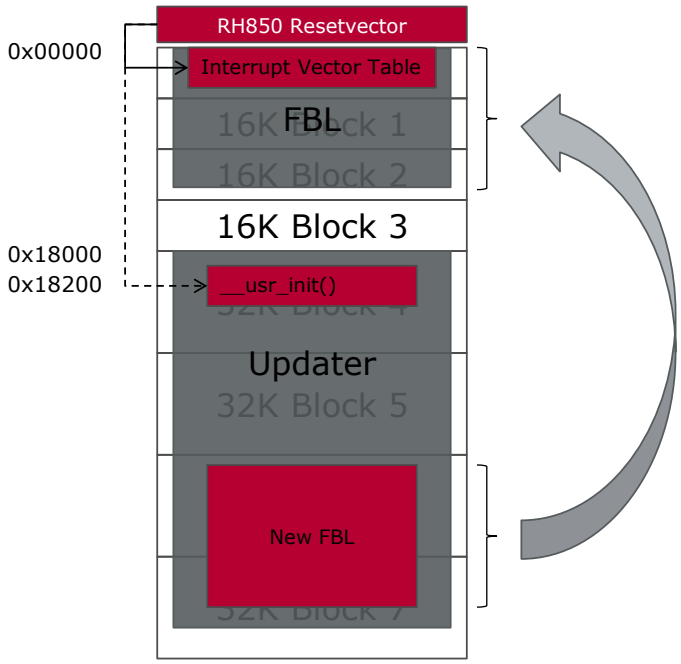

Figure 1-1 Typical configuration for reset-safe Updater

Prior to erasing the (old) FBL, the Updater will set the reset vector to its own starting address as shown in Figure 1-1. If the whole update process is successful finished, it will set the reset vector back to the FBL.

This will avoid that if the update process gets interrupted by e.g. a power-down reset a partially deleted or partially written bootloader gets executed.

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2 Integration

2.1 Flash Driver Settings

The RH850 Updater uses the Set-Reset-Vector-Api, which means it requires a Flash Driver which is compiled with

```
#define FLASH_ENABLE_SET_RESETVECTOR_API
```

2.2 New Bootloader

It may be required that the image of the new FBL is aligned according to the flash segment size (0x100). To ensure this, a batch file is provided (FblUpd_Prepare_Hw.bat). It will be used by the other provided preparing batch scripts.

3 Configuration

Caution
Add all necessary initializations (especially: Oscillator, PLL settings) to the initialization routine `ApplFblUpdHwInit(`. If the System clock is not set as expected by the FlashLib, the Updater will not be able to write the flash memory.

This is especially necessary if the Updater shall be reset-safe, because if it is re-started from a reset, the PLL is not initialized. If the Updater is started by the FBL, the FBL has already initialized the PLL.

The following Reset Vectors need to be configured in the upd_hw_cfg.h:

- `#define FBL_UPD_FBL_RESET_VECTOR_ADDR`
  Is usually set to 0x00000, which is the default entry address of the RH850.
- `#define FBL_UPD_UPDATER_RESET_VECTOR_ADDR`
  Entry address of the Updater. Can usually be configured to `_usr_init`.

Note
Reset Vectors have to be aligned to multiples of 0x200.

4 Contact

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