

S1C31 Family Application Note

S1C31 Family Flash Programming

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1. Overview

1. Overview

This document describes how to program a ROM data into the internal flash memory of S1C31 MCUs using the SEGGER flash writer tool.

1.1 Working Environment

To program the internal flash memory, prepare the following components:

- Tools Needed
 - PC
 - Windows 7, 8.1 or 10
 - SEGGER J-Link series / Flasher series *1
 - Any debug probe or flash programmer that supports J-Flash software tool can be used.
 - Note: J-Link Base and J-Link EDU do NOT support J-Flash and therefore cannot be used. Also, Flasher that do not support ARM Cortex-M cannot be used.
 - SEGGER J-Flash software tool *2
 - J-Flash is included J-Link Software and Documentation Pack(Ver.6.xx)
 - Target board equipped S1C31 MCU
- Tools Provided by Seiko Epson
 - S1C31xxx Flash Programming Tool Package *3, *4

*1: For details of J-Link, Flasher and J-Flash, refer to the “J-Link User Guide”, “Flasher User Guide” and “J-Flash User Guide” available on the SEGGER web site.

*2: Please download from the SEGGER web site.

*3: Please download from the Seiko Epson microcontroller web site.

*4: This tool package has checked to work with J-Link Software and Documentation Pack Ver.6.44c.

2. Installation

This chapter describes the installation instructions of the software required for the flash programming.

2.1 J-Link Software and Documentation Pack

To install the J-Link Software and Documentation Pack, follow the procedure below.

- (1) Download the J-Link Software and Documentation Pack of Ver.6.xx or later from the SEGGER website.
- (2) Double-click this downloaded the J-Link Software and Documentation Pack(*.exe) to install it. The default installation folder is as follows:

C:\Program Files (x86)\SEGGER\JLink_V6xx

2.2 S1C31xxx Flash Programming Tool Package

To install the S1C31xxx Flash Programming Tool Package, follow the procedure below.

- (1) Download the S1C31xxx Flash Programming Tool Package for the product number that you use (ex. S1C31D50 Flash Programming Tool Package) from the web site of Seiko Epson micro controller.
- (2) Unzip this downloaded S1C31xxx Flash Programming Tool Package (*.zip) in the desired folder. The structure of the unzipped folder is as follows:

- Epson_S1C31xxx	
- setup	
- JLinkDevices.xml	J-Link devices configuration file
- setup.bat	Setup batch file
- unsetup.bat	Un-setup batch file
- FLM	
- S1C31xxxint.FLM	Flash loader
- JFlash	
- S1C31xxxint.jflash	J-Flash project file
- flashS1C31xxx.bin	Sample ROM data to program the internal flash memory

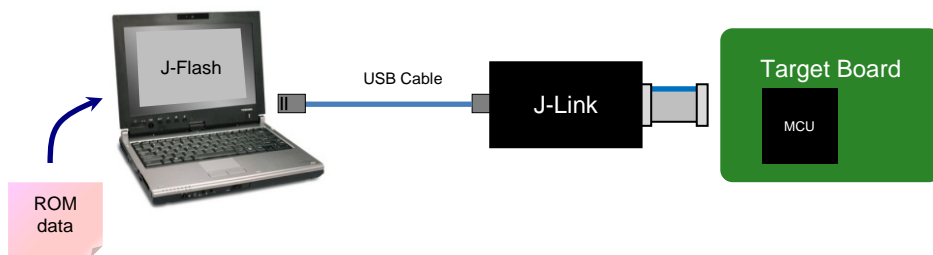
- (3) Copy the entire Epson_S1C31xxx folder to the installation folder of the J-Link Software and Documentation Pack.
- (4) After copying, right-click the Epson_S1C31xxx\setup\setup.bat, and then select “**Run as administrator**”.

3. System Configuration

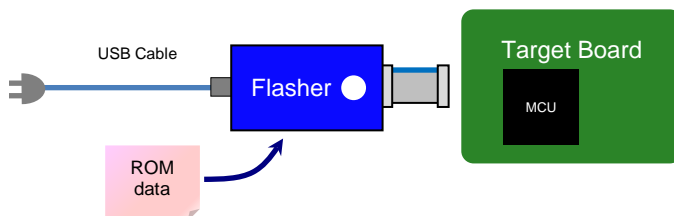
3. System Configuration

Figure 3.1 and 3.2 shows examples of the flash programming system. Figure 3.3 shows an example of the circuit configuration showing the connection of J-Link/Flasher, target board and external power supply (stabilized power supply, etc.).

- PC connection (J-Link or Flasher)



- Stand-alone (Flasher)



- Production Equipment (Flasher)

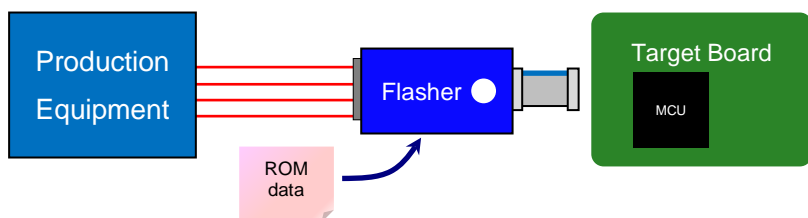


Figure 3.1 Example of Flash Programming System

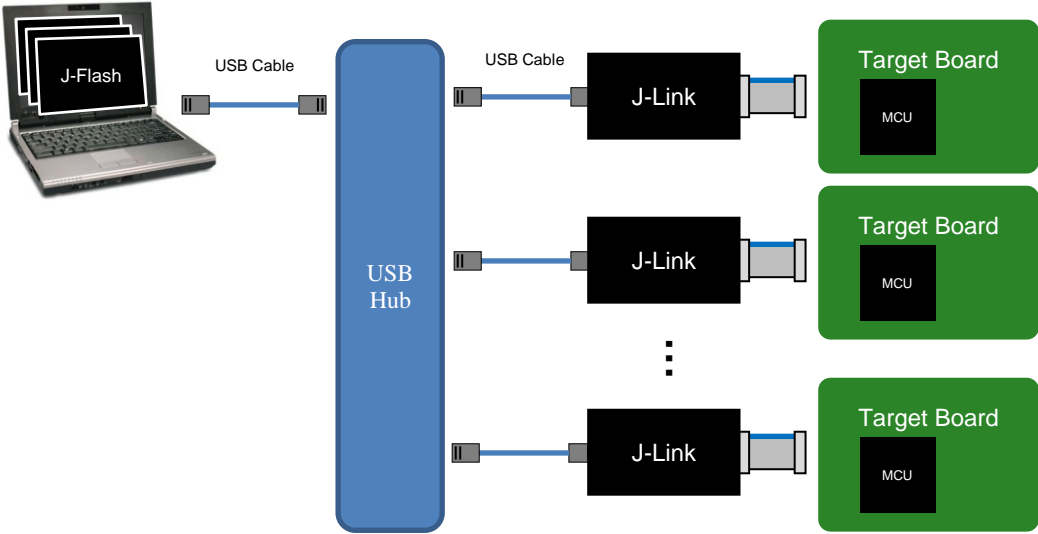


Figure 3.2 Example of Multi Programming System

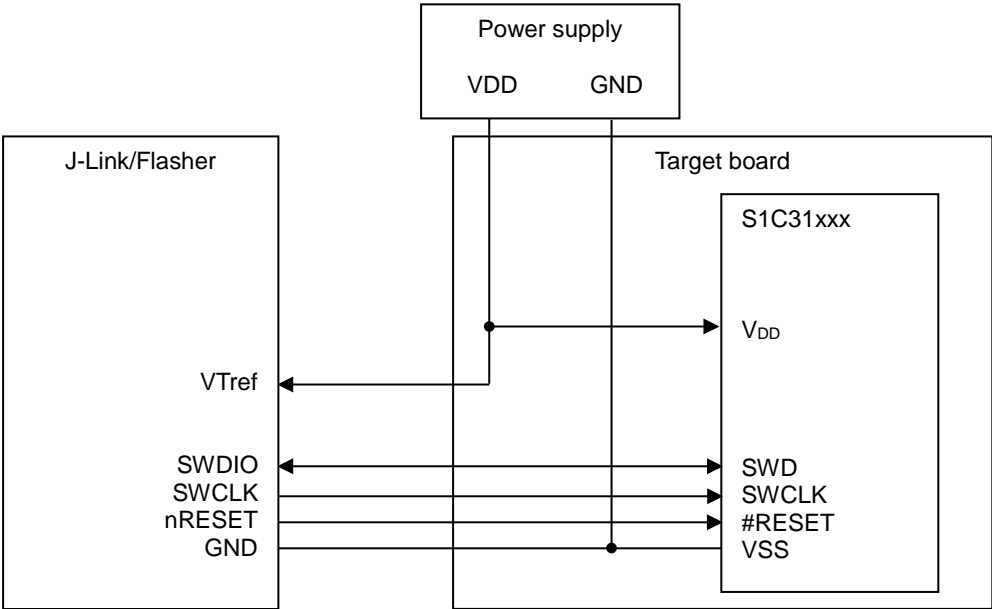


Figure 3.3 Example of Connection Circuit Configuration with Target Board

* For the voltage value of VDD, refer to the technical manual of the target S1C31 MCU model.

4. Flash Programming

4. Flash Programming

This chapter describes the procedure of the flash programming.

4.1 Flash Programming with PC (J-Link or Flasher)

This section describes the procedure of flash programming by direct ROM data transmission from PC.

- (1) Launch the “SEGGER - J-Link V6.xx > J-Flash V6.xx” from start menu on Windows.
- (2) Close the “Welcome to J-Flash” dialog displayed after launching J-Flash.
- (3) Select the menu “File > Open project” on J-Flash, and open the J-Flash project file copied to the installation folder of “J-Link Software and Documentation Pack” shown below.

J-Flash project file:

C:\Program Files (x86)\SEGGER\JLink_V6xx\Epson_S1C31xxx\JFlash\S1C31xxxint.jflash

- (4) Select the menu “File > Open data file” on J-Flash to open a ROM data (*.bin). Then, enter “0” in the displayed the “Enter start address” dialog and click the “OK” button.
- (5) Connect the target board to PC via J-Link and select the menu “Target > Production Programming” on J-Flash to start programming the ROM data.

4.2 Flash Programming by Stand alone (Flasher)

This section describes the procedure of flash programming with Flasher only.

- (1) Launch the “SEGGER - J-Link V6.xx > J-Flash V6.xx” from start menu on Windows.
- (2) Close the “Welcome to J-Flash” dialog displayed after launching J-Flash.
- (3) Select the menu “File > Open project” on J-Flash, and open the J-Flash project file copied to the installation folder of “J-Link Software and Documentation Pack” shown below.

J-Flash project file:

C:\Program Files (x86)\SEGGER\JLink_V6xx\Epson_S1C31xxx\JFlash\S1C31xxxint.jflash

- (4) Select the menu “File > Open data file” on J-Flash to open a ROM data (*.bin). Then, enter “0” in the displayed the “Enter start address” dialog and click the “OK” button.
- (5) Connect Flasher to PC and select the menu “File > Download config & data to Flasher” on J-Flash to load the ROM data to Flasher.
- (6) Remove Flasher from PC and supply power to Flasher using AC adapter for USB cable supplied with Flasher. Then, make sure that the LED (Ready O. K.) on Flasher is lit green.
- (7) Connect Flasher to the target board and press the “PROG” button on Flasher to start programming the ROM data. The state transition of the LED(Ready O. K.) after the start of programming is shown below.

Blinking(fast): Erasing → Blinking(normal): Programming → Turn on after blinking: Program completed

4.3 Flash Programming in Production Equipment (Flasher)

For how to program in production equipment, refer to the “Flasher User Guide” available on the SEGGER web site.

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