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S1C31 Family
Flash Programming
Manual Rev.3

arm

SEIKO EPSON CORPORATION

Rev.3.00

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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 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
  - S1C31 Setup Tool Package *3, *4

    Includes Flash loader and Flash Programming tools.

*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 Installing the 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 Installing the S1C31SetupTool package

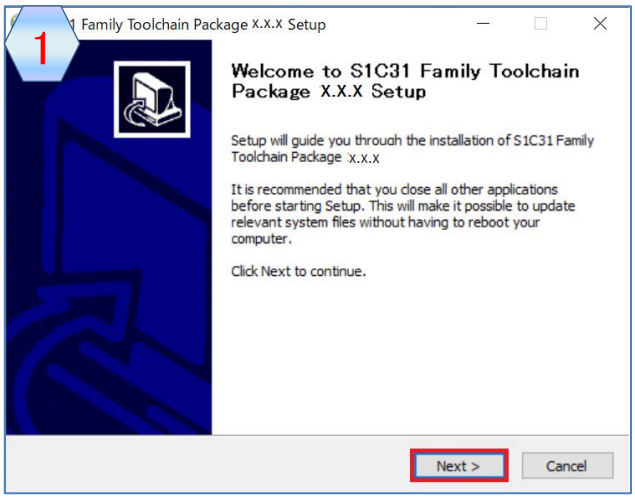
This section describes how to install the S1C31 Setup Tool package required to use the J-Link Software and Documentation Pack.

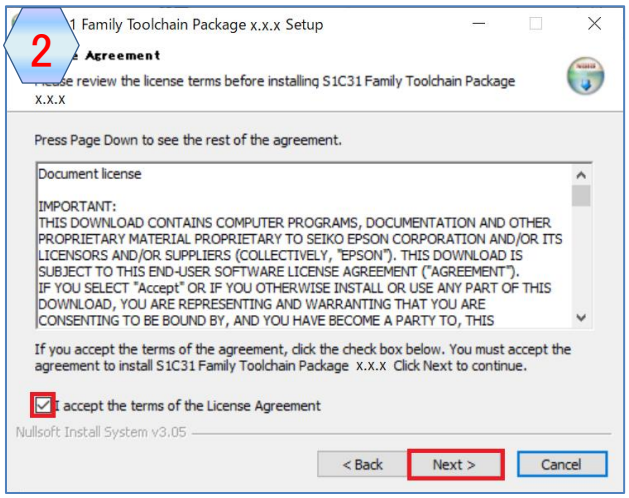
(1) Download S1C31SetupTool.zip from our microcontroller website and unzip it to any folder.

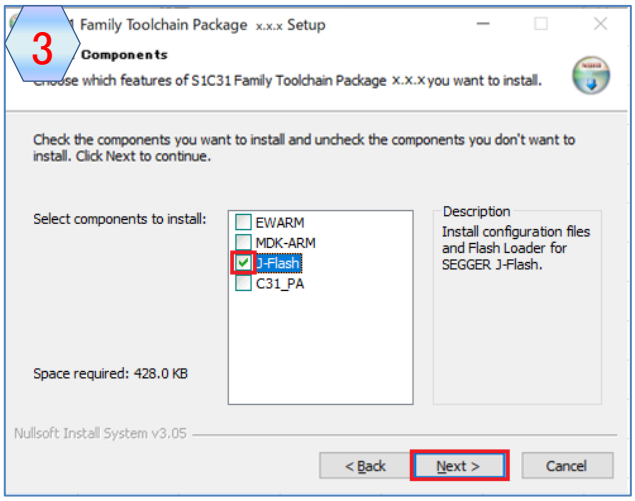
(2) Execute “s1c31ToolchainSetup.exe” from the extracted folder.

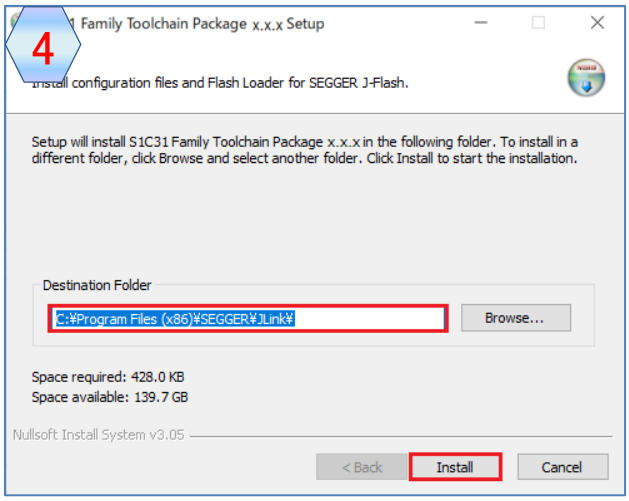
(3) After the installer starts, follow the installer's instructions to perform the installation.

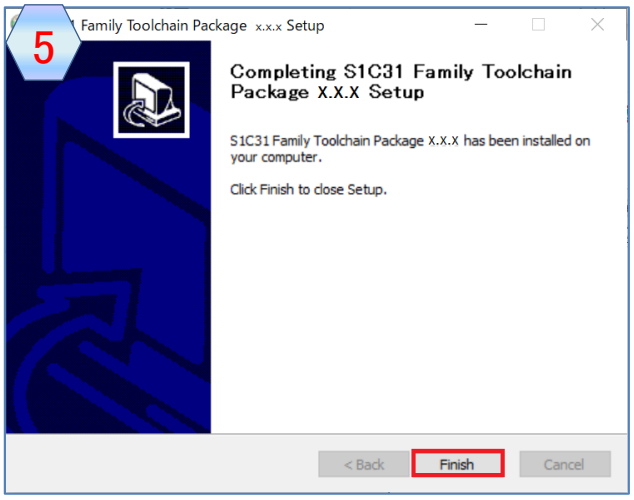
1. Check the installation contents.
2. Check the terms of the license agreement.
3. Select J-Flash.
4. Select installation folder and execute installation.
   Select the folder where you installed the J-Link Software and Documentation Pack in Section 2.1.
5. Exit the installer.






3
Family Toolchain Package x.x.x Setup
Components
Choose which features of S1C31 Family Toolchain Package x.x.x you want to install.
Check the components you want to install and uncheck the components you don't want to install. Click Next to continue.
Select components to install:
EWARM
MDK-ARM
J-Flash
C31_PA
Description
Install configuration files and Flash Loader for SEGGER J-Flash.
Space required: 428.0 KB
Nullsoft Install System v3.05
< Back
Next >
Cancel

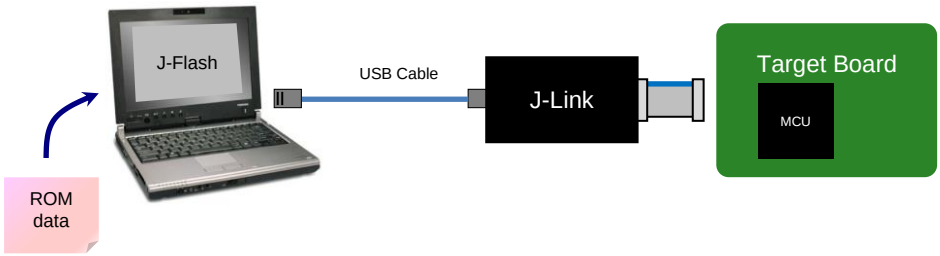

4
Family Toolchain Package x.x.x Setup
Install configuration files and Flash Loader for SEGGER J-Flash.
Setup will install S1C31 Family Toolchain Package x.x.x in the following folder. To install in a different folder, click Browse and select another folder. Click Install to start the installation.
Destination Folder
C:¥Program Files (x86)¥SEGGER¥JLink¥
Browse...
Space required: 428.0 KB
Space available: 139.7 GB
Nullsoft Install System v3.05
< Back
Install
Cancel


5
Family Toolchain Package x.x.x Setup
Completing S1C31 Family Toolchain Package X.X.X Setup
S1C31 Family Toolchain Package X.X.X has been installed on your computer.
Click Finish to close Setup.
< Back
Finish
Cancel

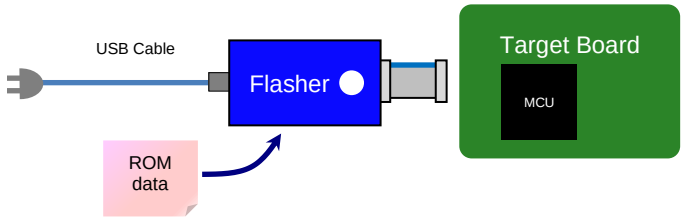
3. System Configuration

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)

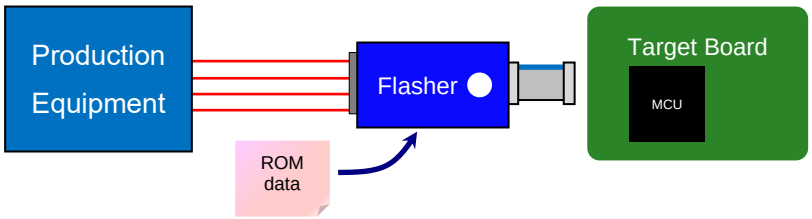


Figure 3.1 Example of Flash Programming System

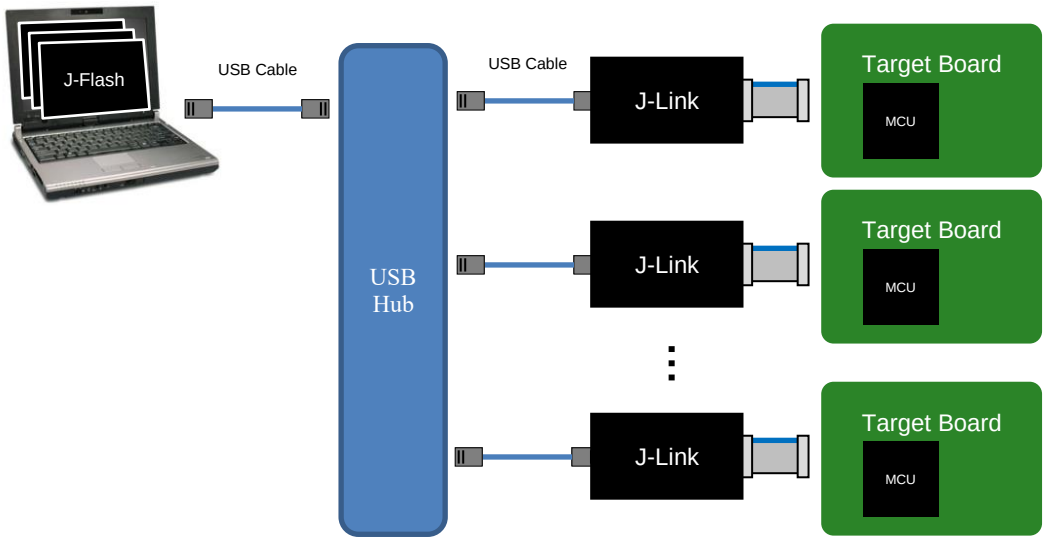


Figure 3.2 Example of Multi Programming System

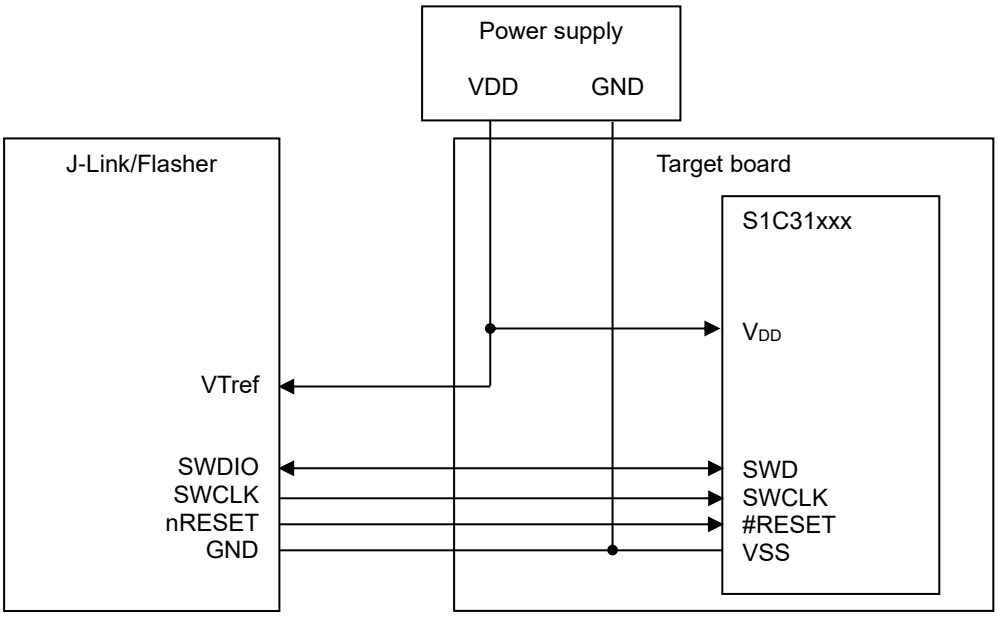


Figure 3.3 Example of Connection Circuit Configuration with Target Board

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

4. Flash Programming

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 from the installation folder of “J-Link Software and Documentation Pack” shown below.

J-Flash project file:
C:\Program Files (x86)\SEGGER\JLink\Samples\JFlash\ProjectFiles\Epson\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 from the installation folder of “J-Link Software and Documentation Pack” shown below.

J-Flash project file:
C:\Program Files (x86)\SEGGER\JLink\Samples\JFlash\ProjectFiles\Epson\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.

Revision History

Attachment-1

Rev. No.	Date	Page	Category	Contents
Rev.1.00	08/31/2017	All	New	New establishment.
Rev.2.00	06/20/2019	All	Modified	Renamed the document title. "S1C31 Family Multi …" to "S1C31 Family Flash…".
			Deleted	Deleted the explanation related to VPP supply.
			Added	Added the flash programming method by "Flasher".
Rev.3.00	2021/01/15	All	Changed	Changed the installer.

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