RZ/A2M Group

RZ/A2M Software Package (Arm Development Studio) Quick Start Guide

1. Introduction

This is the Quick Start Guide for the RZ/A2M Software Package which works on RZ/A2M Evaluation Board Kit (RTK7921053S00000BE).

This document describes how to run each executable sample project included in the package.

2.   Preparation

2.1   Environment

RZ/A2M Software Package can be used on the following environment. Please check your environment before continuing.

- Target Device: RZ/A2M
- Target Board: RZ/A2M Evaluation Board Kit (RTK7921053S00000BE)
- IDE: Arm® Development Studio (hereinafter called "Arm DS")
- Tool Chain: Arm Compiler 6
- Download Tool: SEGGER J-Links 6.48 or later

The IDE is available from the following site.

https://developer.arm.com/tools-and-software/embedded/arm-development-studio/downloads

The Download Tool is available from the following site.
https://www.segger.com/downloads/jlink/#J-LinkSoftwareAndDocumentationPack

2.2   Virtual Serial Port Connection

Connect CN5 on the RZ/A2M SUB board to a Windows™ PC, this provides a USB virtual serial port.

When the RZ/A2M SUB board is first connected, the PC will look for a suitable driver. This driver is installed during the installation process and the PC should automatically find and install it. The PC will report it is installing a driver and report a driver has been installed successfully. The COMx port number allocated to the virtual serial port can be confirmed in Windows™ Device Manager.

2.3   Serial Terminal

— Start a serial terminal program (such as PuTTY, HyperTerminal or Tera Term) using the following configuration:

    Baud Rate: 115200

    Data Bits: 8

    Parity: None

    Stop Bits: 1

    Flow Control: None

    COM Port: As shown in Windows™ Device Manager.

3. Trying sample application

3.1 Importing Software Package into IDE

This package is distributed as an archive file. Build project of this package can be imported into Arm Development Studio(following Arm DS) from the Project Import Menu. User can import the project to Arm DS by the following procedure in this section.

⎯ Obtain the package to use.
⎯ Extract the contents of the package.
⎯ Extract the individual projects to a short path. Here, it is "C: \ Work \ rza2m-simple-apl-swpkg".
⎯ Launch Arm DS from the start menu.
⎯ Set the top directory which has each sample project sub-directory for the workspace directory. These 2 steps are shown in Figure 3-1.
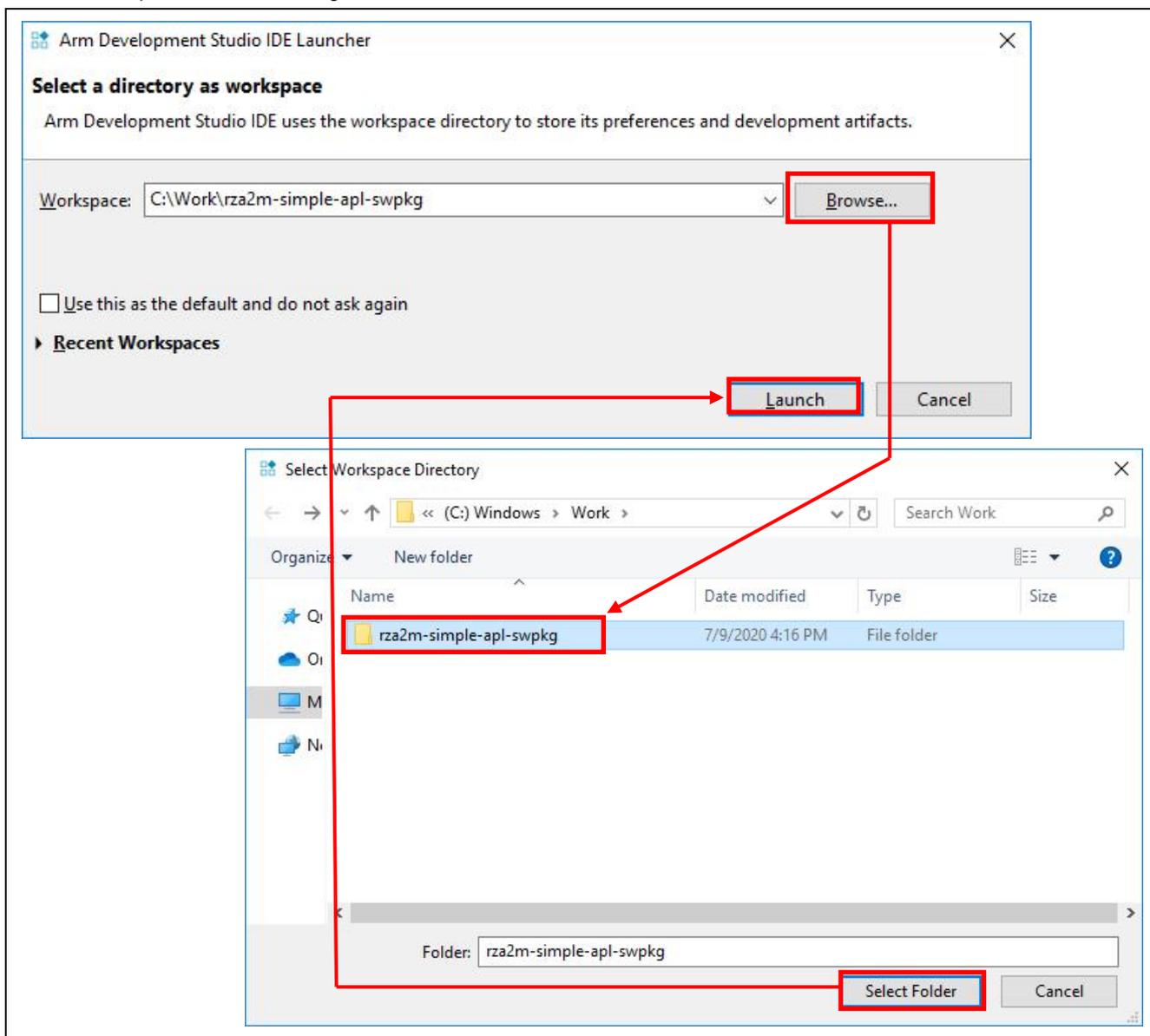

Figure 3-1 Arm DS launching

⸺ Click "Import projects…" in the Project Explorer of Arm DS. This is shown in Figure 3-2.
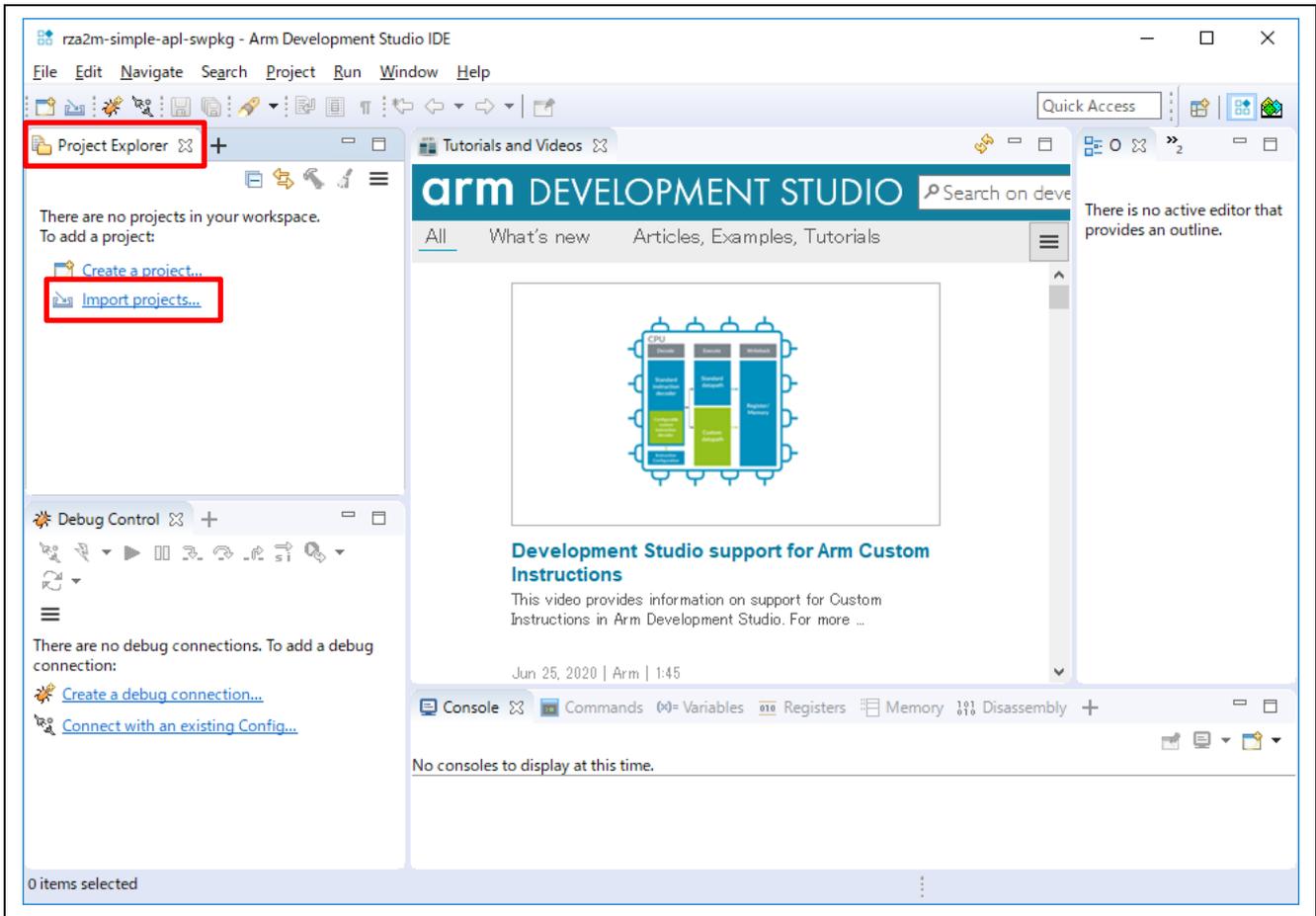

Figure 3-2 Project import

⎯ Under 'Import' window, select General > Existing Projects into Workspace and click 'Next'. This is shown in Figure 3-3.
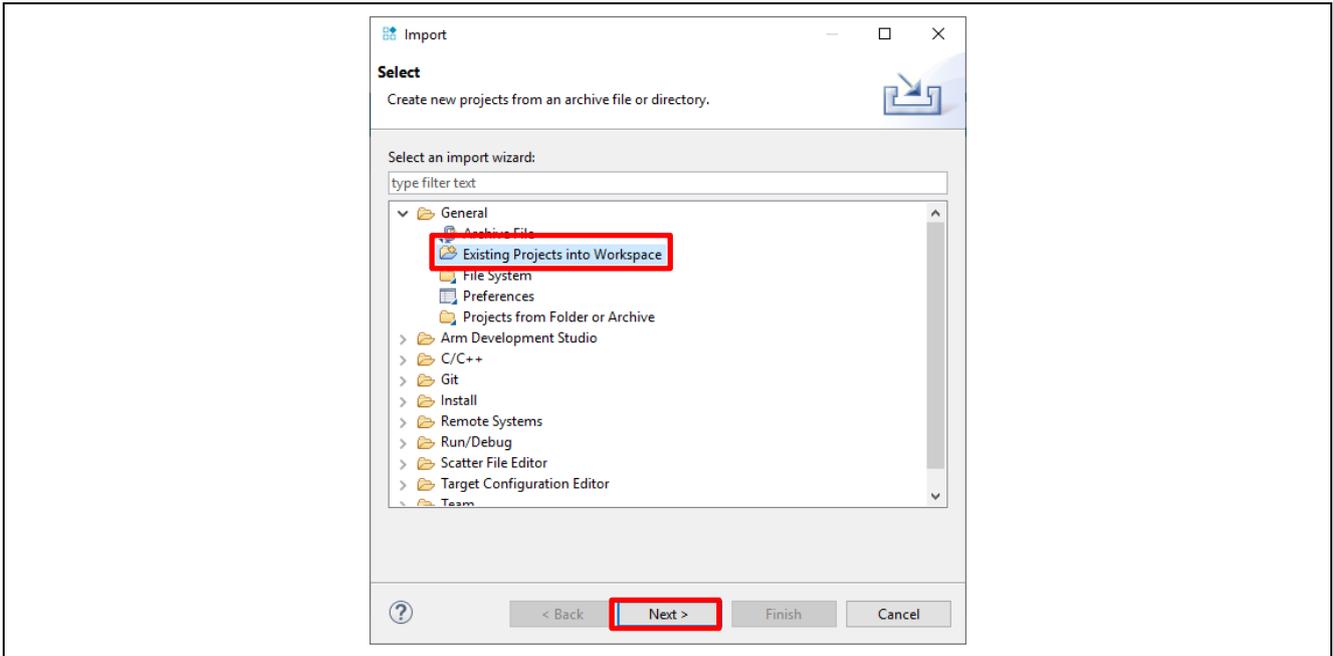

Figure 3-3 Menu of 'Import' window

⎯ Select "Browse…" at the right of "Select root directory:", and "Browse for Folder" dialog box will be appeared.
⎯ Select the top directory which has each sample project sub-directory, and click "Select Folder". These 2 steps are shown in Figure 3-4.
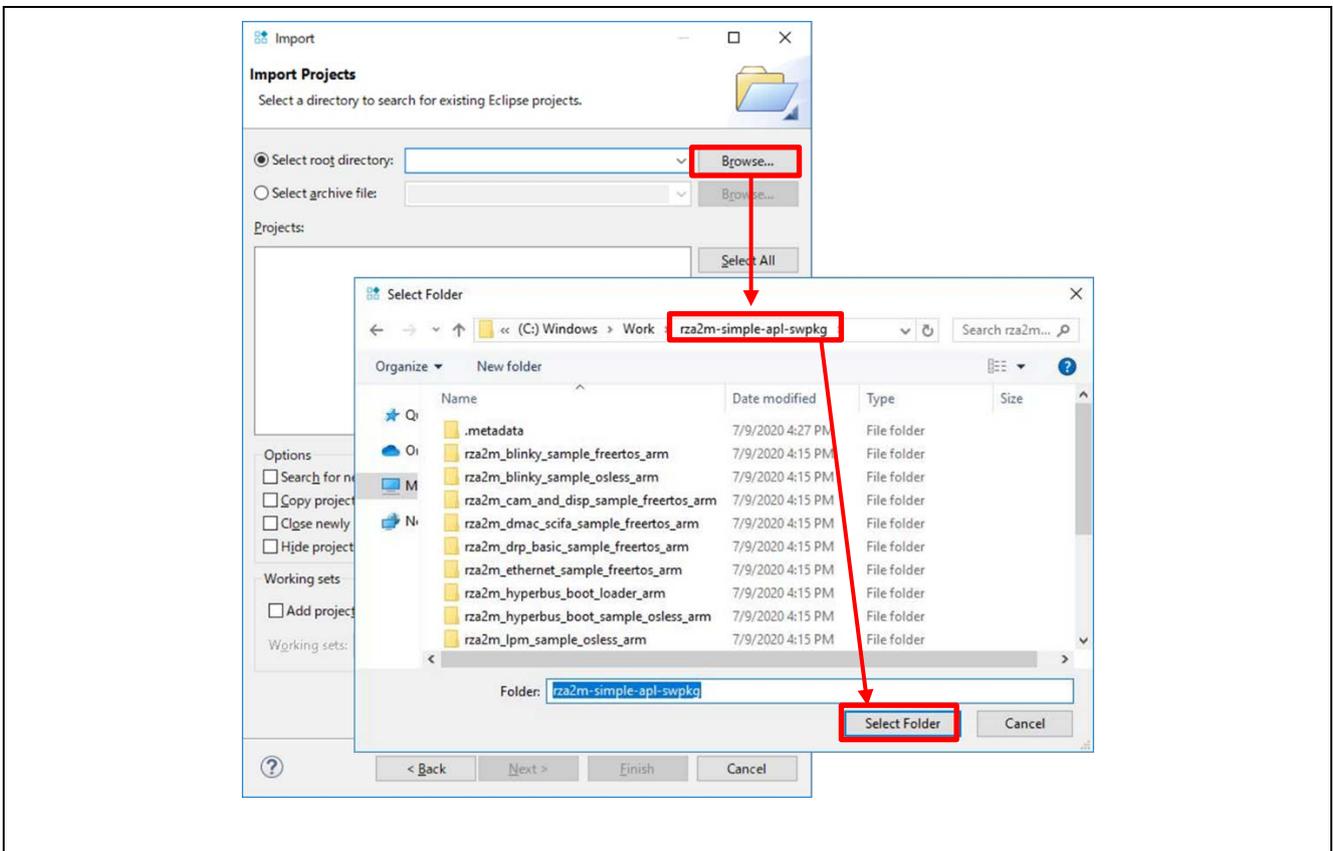

Figure 3-4 Select root directory

— Confirm your target project is checked, then click 'Finish'. This is shown in Figure 3-5.
  (Note: Projects in Figure 3-5 are just sample. From here, please read the project name as your target project name.)
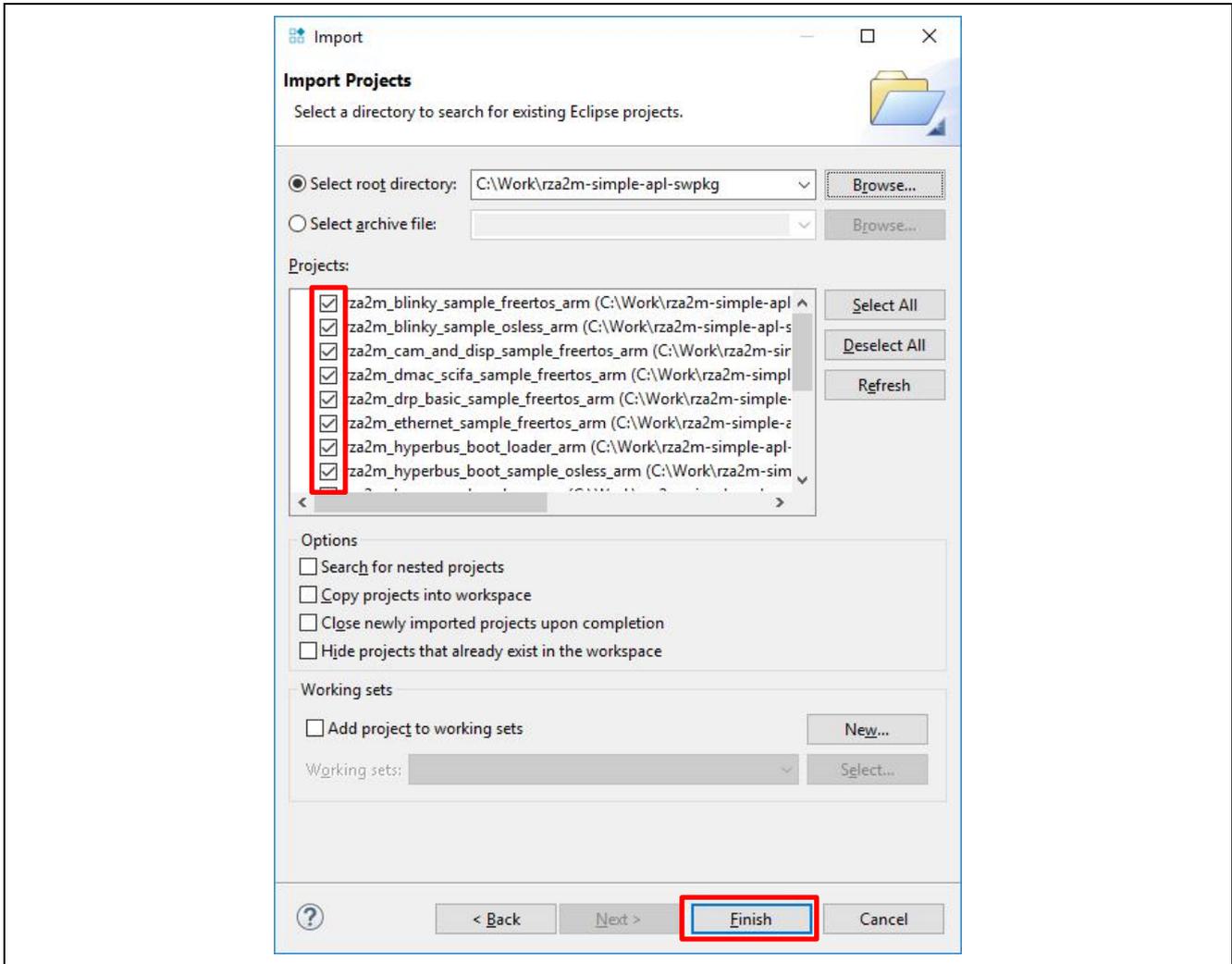

Figure 3-5 Import target project

— Now, target projects are imported, and user can see them in the Project Explorer window. This is shown in Figure 3-6.
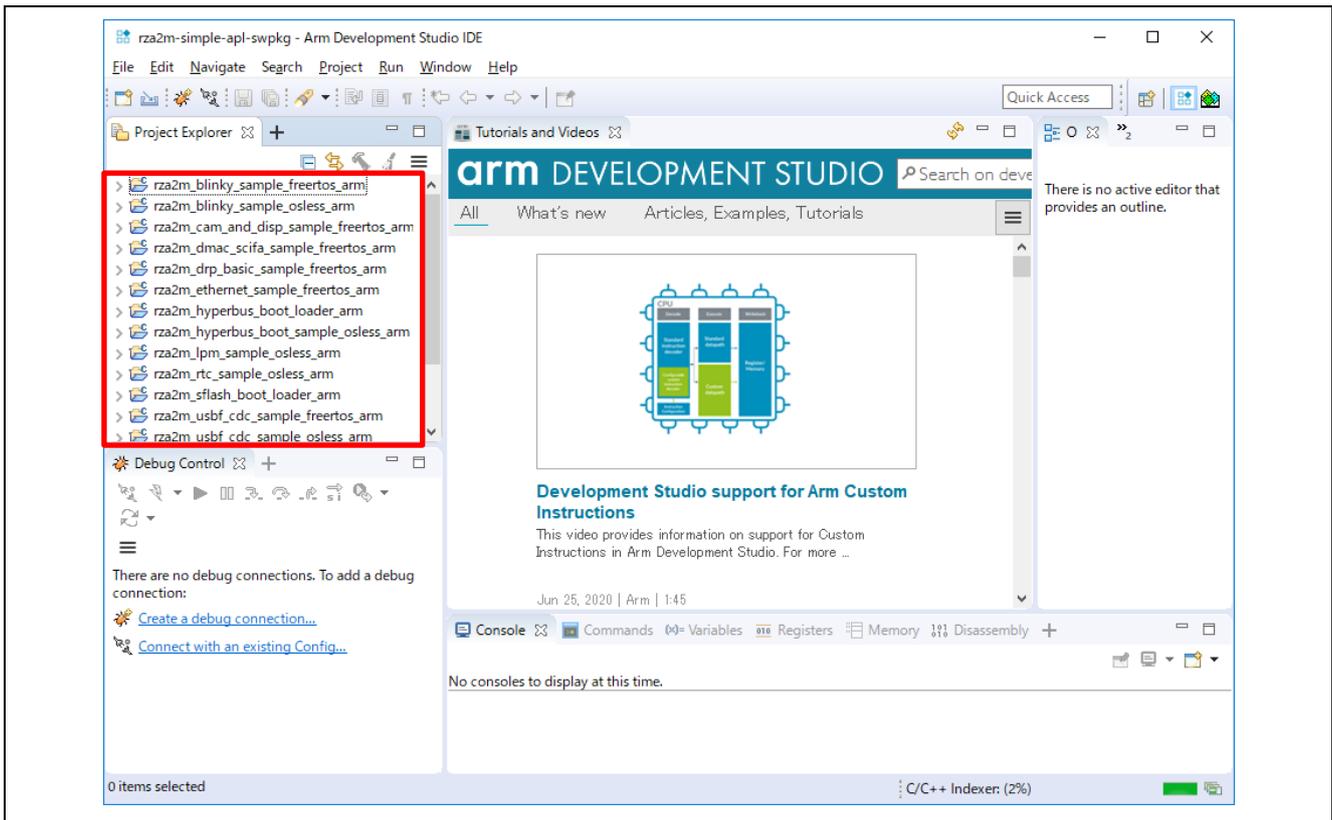

Figure 3-6 Confirmation on 'Project Explorer' window

3.2   Build to target board

— Select your target project by left clicking on it, then click to build button (hammer icon). This is shown in Figure 3-7.
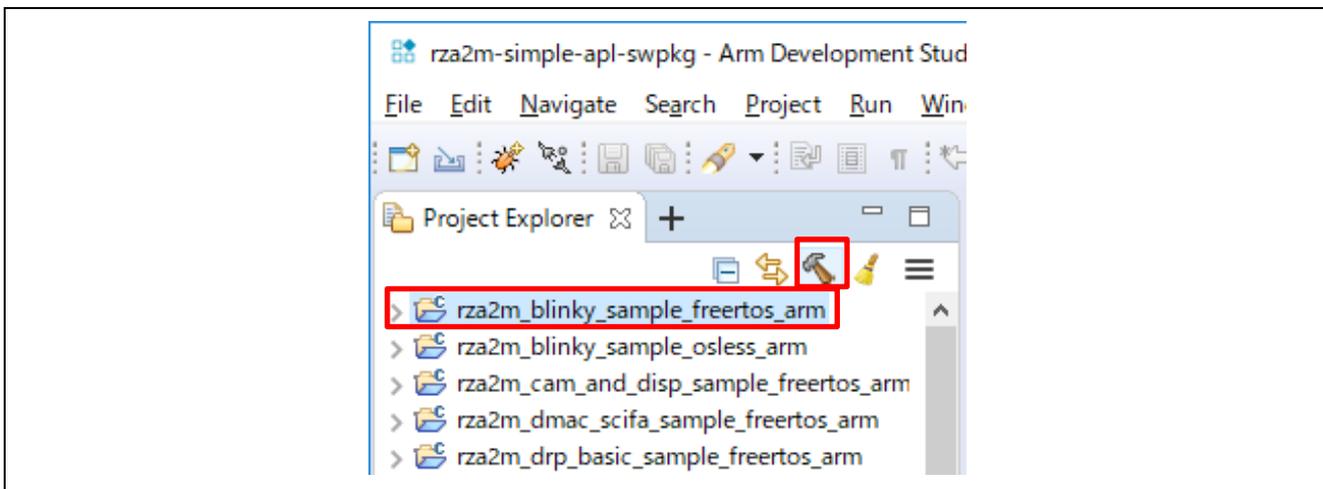

Figure 3-7 Build the target project

— Arm DS tool build the project, and the build status can be confirmed in Console window
(Note: Please mind the length of your workspace path. If the path is too long, there is a possibility of build error.) This is shown in Figure 3-8.
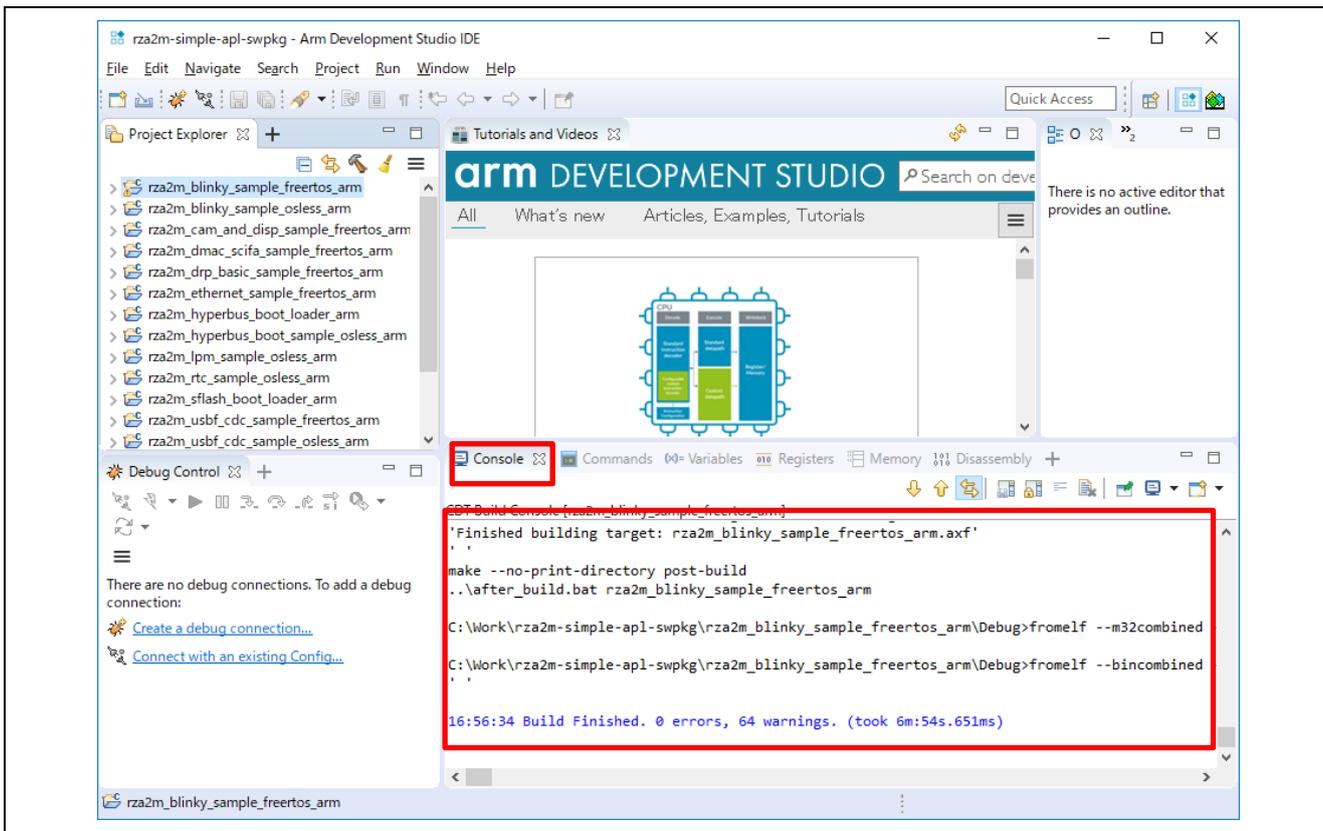

Figure 3-8 Confirmation build status

3.3　　Download to the evaluation board

— Download to the evaluation board using J-Link (or J-Link Lite). This section describes the "rza2m_blinky_sample_freertos_arm" project, but the same applies to other projects. When "LoadFlash_JLink.bat" in the rza2m_blinky_sample_freertos_arm\ FlashTools folder is executed, the following command prompt screen will start. This is shown in Figure 3-9.
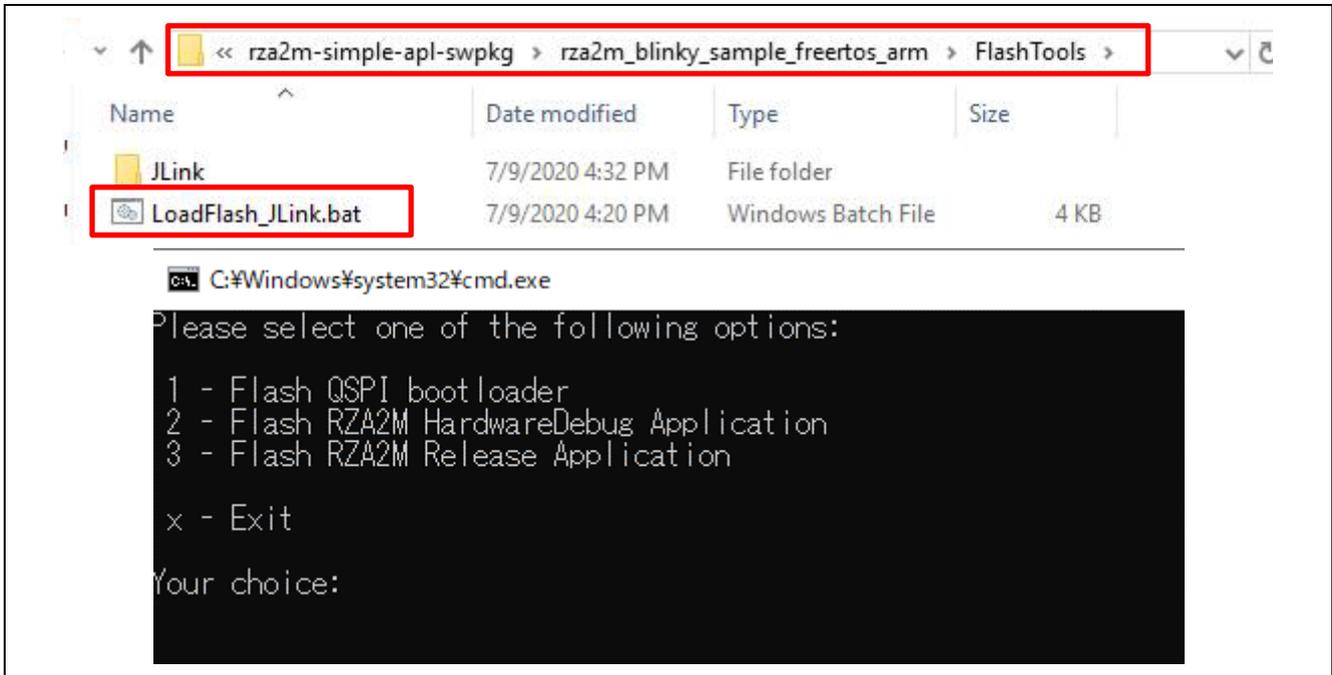

Figure 3-9 Start downloading to the evaluation board

⎯ This step only needs to be performed once. Since the boot program needs to be downloaded once for the board in the initial state, enter "1" and enter the return key. Then enter the key once and enter "y" when "[Y, N]?" Appears. This is shown in Figure 3-10.
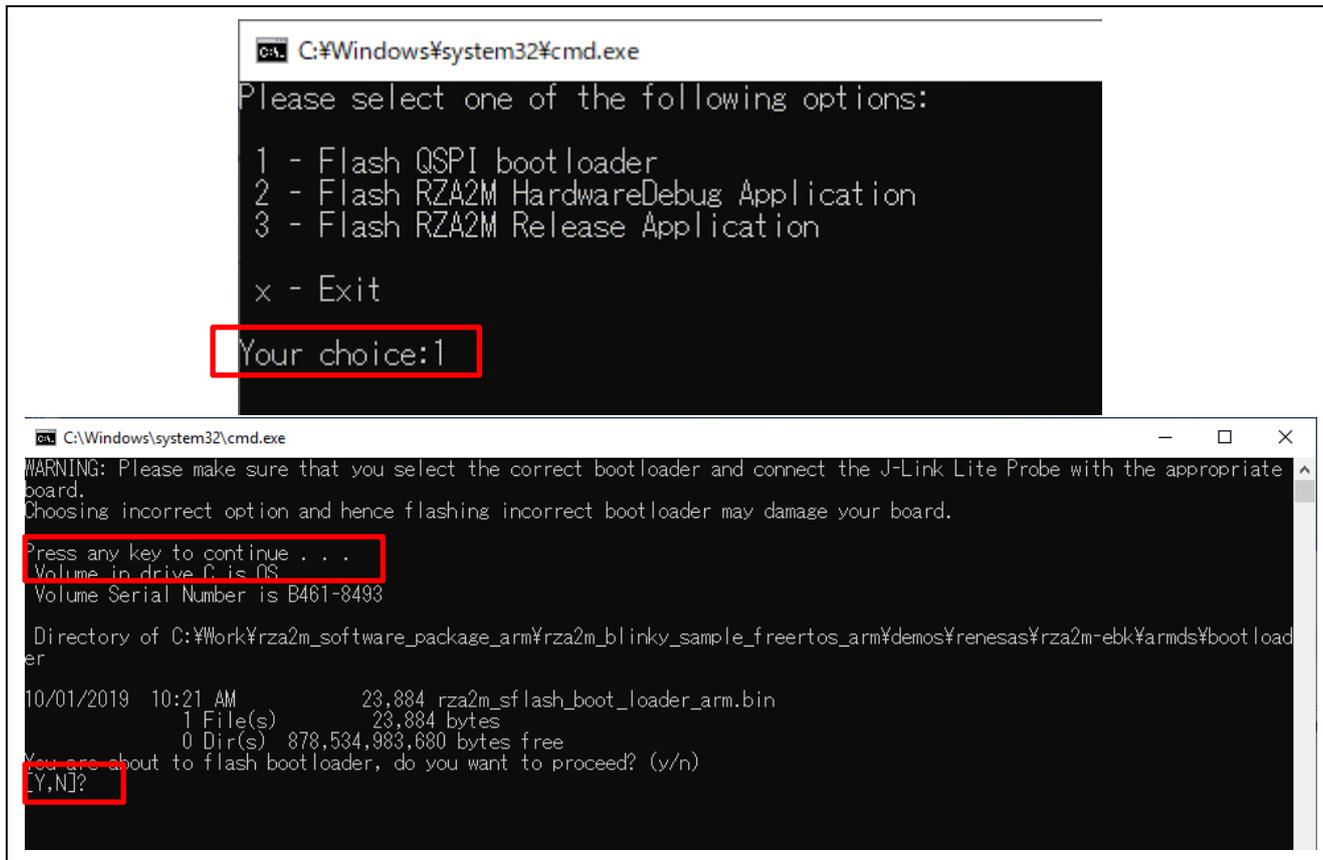

Figure 3-10 Downloading the boot program (1/2)

⎯ When the download is completed successfully, the following will be displayed on the command prompt.This is shown in Figure 3-11.
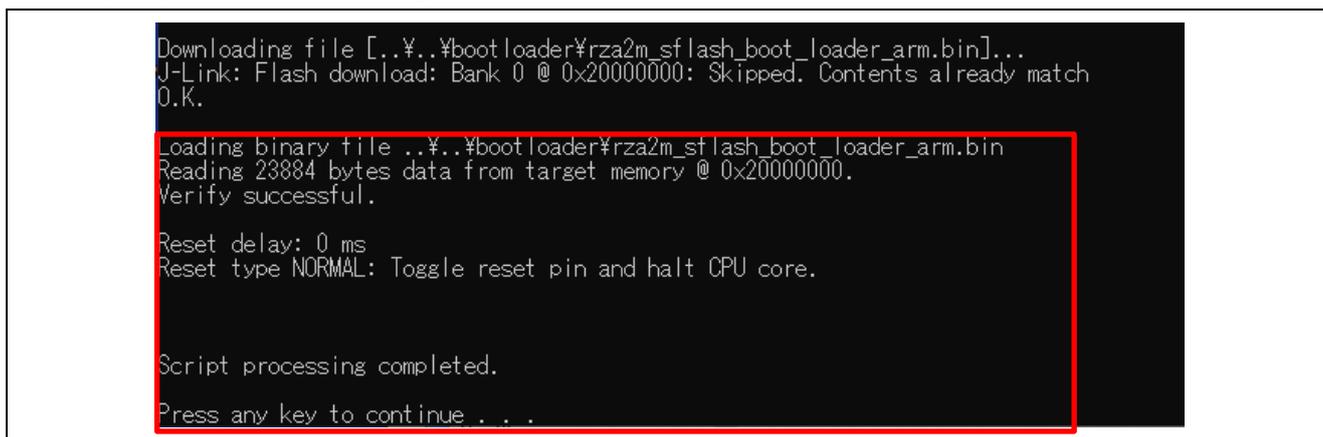
Figure 3-11 Download boot loader program (2/2)

To download the target program, enter "2" (or "3" for the release version) and enter the return key. You can continue after downloading the boot program. After that, when "[Y, N]?" Is displayed, enter "y". Then, the target program will be downloaded. This is shown in Figure 3-12.
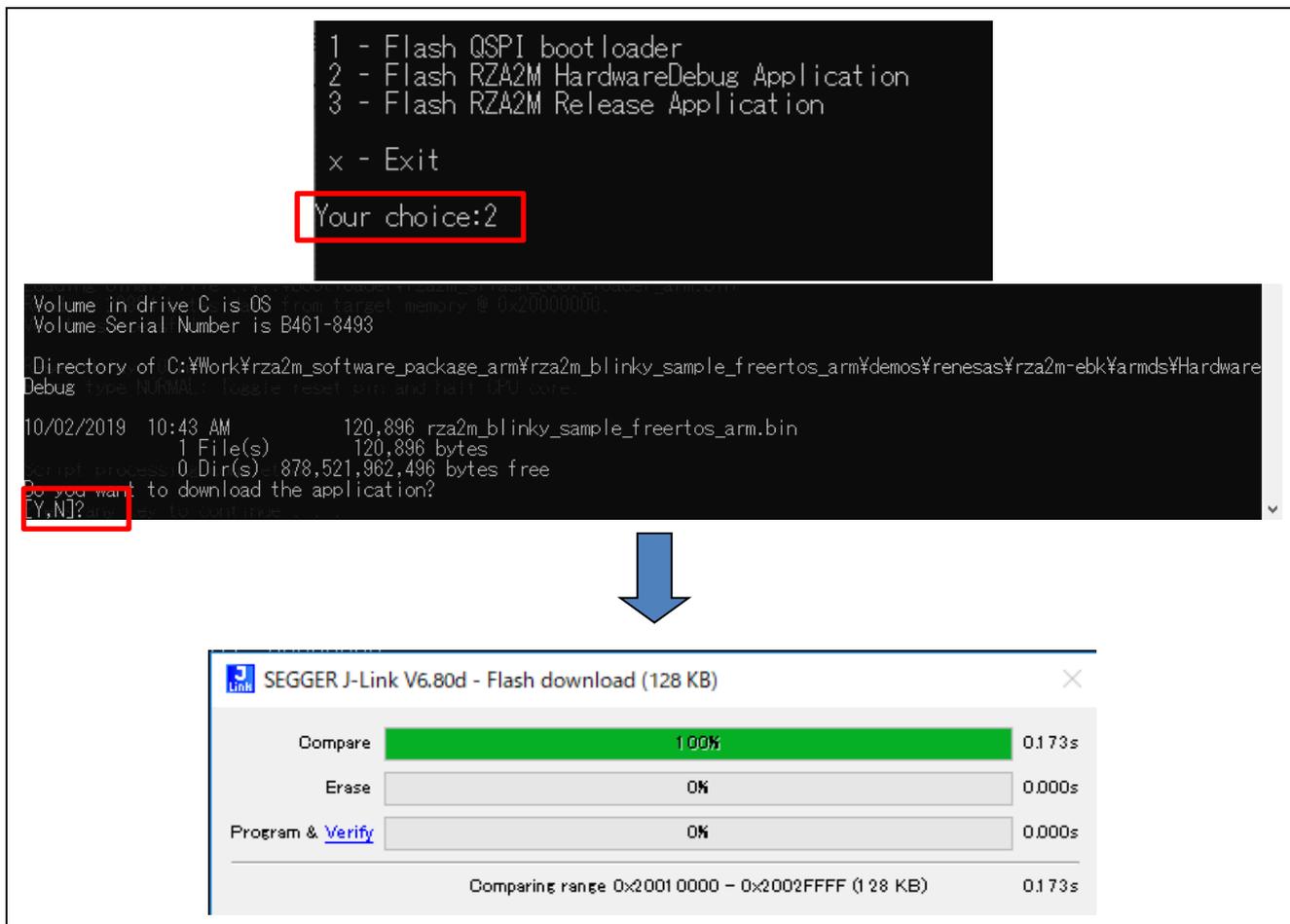
Figure 3-12 Download target program (1/2)

— Once the bootloader has been downloaded, click the 'Resume' button to run the target program. This is shown in Figure 3-13.
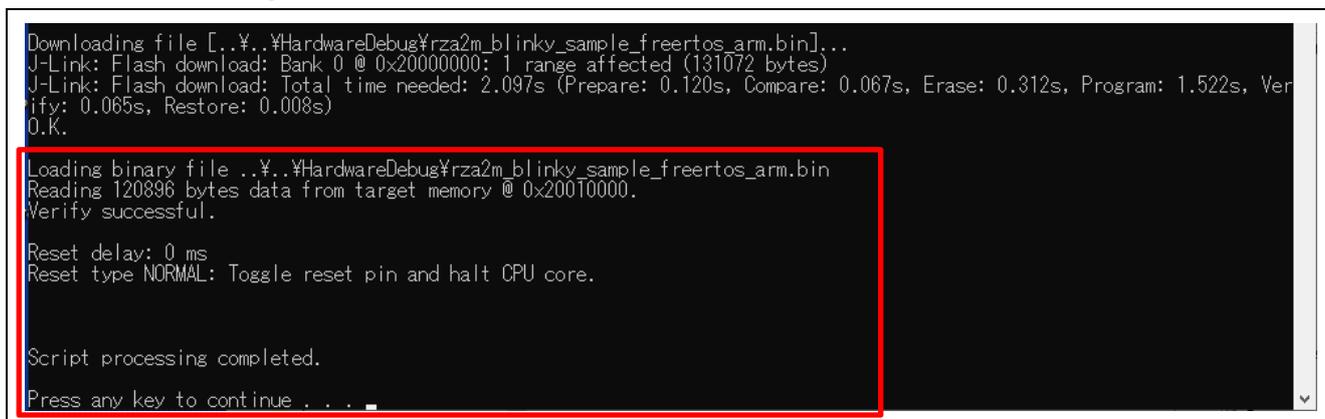
Figure 3-13 Download target program (2/2)

4. Support

Online technical support and information is available at https://www.renesas.com

Technical Contact Details

America: techsupport.america@renesas.com

Europe: https://www.renesas.com/eu/en/support/contact.html

Japan & global: https://www.renesas.com/support/contact.html

Revision History

		Description	
Rev.	**Date**	**Page**	**Summary**
1.00	Nov. 29, 2019	—	First edition issued
1.01	Sep. 30, 2020	—	Updated for V4.00 package

General Precautions in the Handling of Microprocessing Unit and Microcontroller Unit Products

The following usage notes are applicable to all Microprocessing unit and Microcontroller unit products from Renesas. For detailed usage notes on the products covered by this document, refer to the relevant sections of the document as well as any technical updates that have been issued for the products.

1. Precaution against Electrostatic Discharge (ESD)

   A strong electrical field, when exposed to a CMOS device, can cause destruction of the gate oxide and ultimately degrade the device operation. Steps must be taken to stop the generation of static electricity as much as possible, and quickly dissipate it when it occurs. Environmental control must be adequate. When it is dry, a humidifier should be used. This is recommended to avoid using insulators that can easily build up static electricity. Semiconductor devices must be stored and transported in an anti-static container, static shielding bag or conductive material. All test and measurement tools including work benches and floors must be grounded. The operator must also be grounded using a wrist strap. Semiconductor devices must not be touched with bare hands. Similar precautions must be taken for printed circuit boards with mounted semiconductor devices.

2. Processing at power-on

   The state of the product is undefined at the time when power is supplied. The states of internal circuits in the LSI are indeterminate and the states of register settings and pins are undefined at the time when power is supplied. In a finished product where the reset signal is applied to the external reset pin, the states of pins are not guaranteed from the time when power is supplied until the reset process is completed. In a similar way, the states of pins in a product that is reset by an on-chip power-on reset function are not guaranteed from the time when power is supplied until the power reaches the level at which resetting is specified.

3. Input of signal during power-off state

   Do not input signals or an I/O pull-up power supply while the device is powered off. The current injection that results from input of such a signal or I/O pull-up power supply may cause malfunction and the abnormal current that passes in the device at this time may cause degradation of internal elements. Follow the guideline for input signal during power-off state as described in your product documentation.

4. Handling of unused pins

   Handle unused pins in accordance with the directions given under handling of unused pins in the manual. The input pins of CMOS products are generally in the high-impedance state. In operation with an unused pin in the open-circuit state, extra electromagnetic noise is induced in the vicinity of the LSI, an associated shoot-through current flows internally, and malfunctions occur due to the false recognition of the pin state as an input signal become possible.

5. Clock signals

   After applying a reset, only release the reset line after the operating clock signal becomes stable. When switching the clock signal during program execution, wait until the target clock signal is stabilized. When the clock signal is generated with an external resonator or from an external oscillator during a reset, ensure that the reset line is only released after full stabilization of the clock signal. Additionally, when switching to a clock signal produced with an external resonator or by an external oscillator while program execution is in progress, wait until the target clock signal is stable.

6. Voltage application waveform at input pin

   Waveform distortion due to input noise or a reflected wave may cause malfunction. If the input of the CMOS device stays in the area between V_{IL} (Max.) and V_{IH} (Min.) due to noise, for example, the device may malfunction. Take care to prevent chattering noise from entering the device when the input level is fixed, and also in the transition period when the input level passes through the area between V_{IL} (Max.) and V_{IH} (Min.).

7. Prohibition of access to reserved addresses

   Access to reserved addresses is prohibited. The reserved addresses are provided for possible future expansion of functions. Do not access these addresses as the correct operation of the LSI is not guaranteed.

8. Differences between products

   Before changing from one product to another, for example to a product with a different part number, confirm that the change will not lead to problems. The characteristics of a microprocessing unit or microcontroller unit products in the same group but having a different part number might differ in terms of internal memory capacity, layout pattern, and other factors, which can affect the ranges of electrical characteristics, such as characteristic values, operating margins, immunity to noise, and amount of radiated noise. When changing to a product with a different part number, implement a system-evaluation test for the given product.

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