

Figure 1. R8C/Tiny SKP

1. Mini R8C StarterKit Plus Software Install

- a) Please insert the enclosed CD into your computer's CD-ROM drive. The CD should auto-start, displaying the SKP Picker Install Screen. Follow the directions in the installation windows to install the Renesas tools.
 - i) If the installation screen does not appear, please browse the CD root folder and double-click on "SKP-Installer.exe".
 - Do not plug the In-Circuit Debugger into your USB port until instructed to in Section 2, USB Driver Installation.
 - The installation process requires a valid SKP serial number. Locate the label on the PC board or on the side of your box.
 - During the installation process, you may be prompted to restart your computer. Do not restart until the SKP installer has completed installation of all of the software items.
 - During the SKP install, dialog boxes will appear asking if you would like to install the development tools or not. The development tools will allow you to evaluate the different features of the R8C/Tiny MCU and the software development environment (debugger, compiler, linker, etc.).
 - Also during the installation process, the AutoUpdater installer will launch. You can cancel or configure at any time during the install process.

2. USB Driver Installation

When you connect the RTA-FoUSB-MON In-Circuit Debugger (ICD) to your computer for the first time, Windows will recognize this new device and will request the drivers. Follow the steps below to install the drivers. Administrator privileges are required to install the driver on a Windows 2000/XP machine.

- a) Verify that the Target/Bus Power Mode selector is in the USB position (Figure 1).
- b) Connect one end of the mini USB cable into the ICD and the other end into your PC's USB port. The red "Power" LED on the ICD will light up and the yellow "Status" LED will blink about 2-3 times per second.
- c) If using Windows 98, ME or 2000, no intervention by the user is needed. When the ICD is plugged in, Windows automatically attaches the correct driver for your device and it is ready to use. Skip to step 2.e).
- d) If using Windows XP, the first time a FoUSB device is plugged into a different USB port the Windows XP "Found New Hardware Wizard" window will appear.
 - i) Select the option "Install the software automatically (recommended)". Windows will then begin installing the USB driver.
 - ii) Another screen will probably appear stating that this driver has not been XP certified by Microsoft. Click the "Continue Anyway" button. (We did not participate in Microsoft XP driver certification program.)
 - iii) When the driver is installed, you will be able to click "Finish" to close the wizard.
- e) The driver files (.sys and .inf) are always located under the FoUSB install directory (For example: C:\Renesas\FoUSB\USB Drivers) in case you are having trouble with the automatic driver installer.

NOTE: If you have problems installing the drivers or your PC will not recognize the ICD, please see the "Troubleshooting" section of the RTA-FoUSB-MON user's manual for details.

3. Demo Program

The following instructions are specific for the SKP8CMINI-17 kit. Substitute MINI-15 in place of MINI-17 for the SKP8CMINI-15 kit.


The kit ships with a demo program that runs on the board when connected to the ICD (RTA-FoUSB-MON).

As there is no connector polarity on the Mini R8C board, please verify the position of the Mini R8C and RTA-FoUSB-MON as shown in Figure 1.

- a) If not already done in step 2, plug one end of the USB cable into the RTA-FoUSB-MON and the other into a USB socket on your PC.
- b) Plug the mini R8C board into the TARGET connector of the RTA-FoUSB-MON as shown in Figure 1. The demo should run!
- c) The demo has two modes of operation: light and temperature. Switch S1 is used to determine which demo is running.
 - i) Light: If S1's actuator is towards pushbutton S2, the light demo is running. The LED's sequential blink speed varies depending on the light level detected using the CdS Cell (the brighter it is, the faster the blink speed becomes and vice versa). Pressing S2 changes the blinking sequence of the LEDs.
 - ii) Temperature: If S1's actuator is away from S2, the temperature demo is running. Temperature is sampled and the LEDs are lit based on rising or falling temperature. When the temperature of the Thermistor stays constant, the yellow LED is lit. When the temperature increases, the Red LED is lit, and when the temperature decreases, the Green LED is lit.

4. HEW (IDE) Quick-Start

HEW integrates various tools such as the compiler, assembler, debugger, and editor into a common Graphical User Interface. To learn more on how to use HEW, open the HEW manual navigator on your computer (Start > (All) Programs > Renesas High-performance Embedded Workshop > Manual Navigator).

- a) Launch HEW from the Start menu (Start > (All) Programs > Renesas > High-performance Embedded Workshop > High-performance Embedded Workshop).
- b) In the “Welcome!” dialog box:
 - i) Verify “Create a new project workspace” is selected.
 - ii) Click <OK>.
- c) In the “New Project Workspace” Dialog box:
 - i) Verify the “CPU family” is set to “M16C”.
 - ii) Select “R8C/17 StarterKit Plus” (Figure 2).
 - iii) Enter “skptestr8c17” for the Workspace Name (the Project Name will auto fill to “skptestr8c17”).
 - iv) Click <OK>.
- d) On the “R8C/17 StarterKit Plus – Step 1” Window:
 - i) Click <Next>.
- e) On the “R8C/17 StarterKit Plus – Step 2” Window:
 - i) Select “SKP DEMO”.
 - ii) Click <Finish>.
- f) In the “Project generator information” Window:
 - i) Click <OK>.
- g) Click the “Build” icon, , to compile, assemble and link the project. HEW will look similar to Figure 3.
- h) After ensuring there are no errors, proceed to Section 5, HEW (Debugger) Quick-Start.

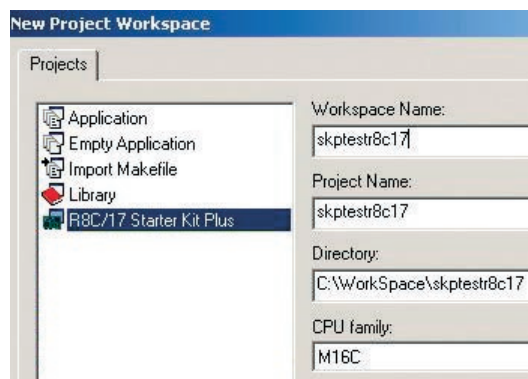


Figure 2. New Project Workspace in HEW

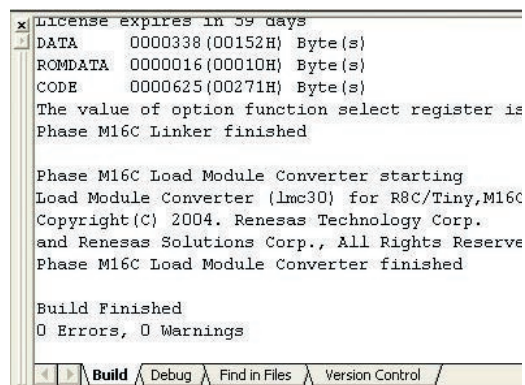


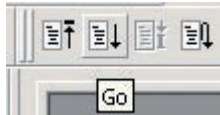
Figure 3. HEW with the skptestR8C project compiled

5. HEW (Debugger) Quick-Start

- a) Connect the SKP to the PC as shown in Figure 1.
- b) Pull down the session menu and select M16C_R8C_FoUSB (or SessionM16C_R8C_FoUSB). The “Init” dialog box should open.
 - If requested to save the session, click <Yes>.
- c) The first time you open a debug session, you need to define the target:
 - i) Click <Refer>...>
 - ii) Select the R8C/Tiny series folder.
 - iii) Select the MCU using Table 1.
 - iv) Select USB and click <OK>.
 - If the message appears “We should download new firmware”, click <OK>.
 - If you get an error, check connections
- d) From the “Debug” pull-down menu, select “Download Modules > All Download Modules”

Table 1.
SKP8CMINI-15 – R5F21154
SKP8CMINI-17 – R5F21174

- e) Click on the “Go” icon to start the program. This program is similar to the Demo program, but the LEDs blink in a different sequence.



- f) Click on the “Stop” icon  to halt the program.

- g) From the “File” pull-down menu, select “Exit”. If requested to save workspace and/or session, click <Yes>.

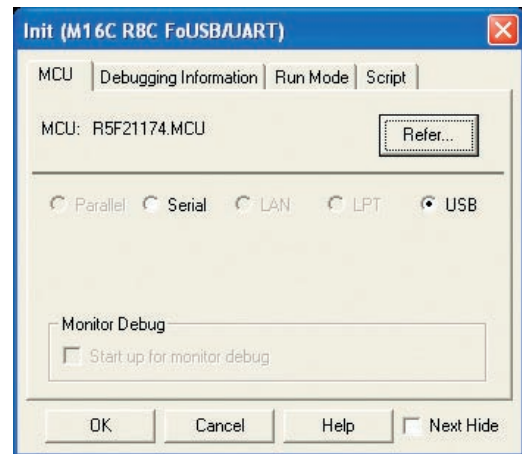


Figure 4. FoUSB Connect Menu

6. Downloading (re-loading) the Demo Program using the Flash-over-USB™ Programmer

In Section 5, the original demo program was erased and the SKP board was programmed with a different program. You can use the Flash-over-USB Programmer to restore the original demo program.

- a) Connect the SKP to the PC as shown in Figure 1. (Described in detail in steps 3a) and 3b.)
- b) Start the Flash-over-USB Programmer (Start > (All) Programs > Renesas > Flash-over-USB Ver. x.xx > FoUSB Programmer) or double-click on the “FoUSB” icon on your desktop.
- c) The first time the FoUSB Programmer is run on your computer:
 - i) Click on “Select MCU” button.
 - ii) Select R8C/Tiny series.
 - iii) Then select the appropriate group and part number as shown in Table 1.
 - iv) Click <OK>.
 - v) Click <OK> as requested until you are returned to the Flash-over-USB main menu.
- d) Each subsequent time the FoUSB Programmer is run: If the “Unlocked” window appears, click <OK>.

- e) Click <Open> when the Flash-Over-USB main menu appears.
- f) Browse to the “C:\Renesas\SKP8CMINI17\Sample_Code\ Demo\Demo1\Release” folder.
- g) Select “Demo1.mot” and click <Open>.
 - i) When the ID Code dialog box appears, click <OK>.
- h) Click <Program> to open the Program Flash window.
- i) Click <Program> to download the demo program.
- j) When the FoUSB dialog box “Program completed Successfully” appears, click <OK> (Figure 5).
- k) Click <Exit> to close Flash-over-USB Programmer and the demo program should start.

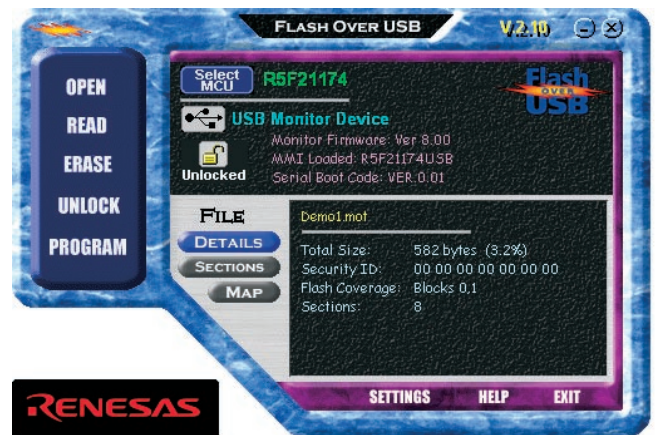


Figure 5. Flash-over-USB Programmer Main Menu after loading the Demo Code

For more information on how to use the Flash-over-USB Programmer, click on the “Help” button.

7. What’s the next step?

After you have completed this quick-start procedure, please review the tutorials that came with the kit. The tutorials will help you understand and jumpstart the software development process using Renesas’ development tools.

You can access the tutorials from the Start Menu (Start > (All) Programs > Renesas > SKP8CMINI > Tutorial 1 – Development Process or Tutorial 2 – Creating a New Project) or from (Start > (All) Programs > Renesas > SKP8CMINI > Document Description), which also lists other documents that come with the SKP. To check for any updates to the StarterKit Plus, use the (Start > (All) Programs > Renesas > SKP8CMINI > Check for Kit Updates) shortcut. This will take you to a kit-specific page on the Renesas website which provides links to any available update downloads.

8. HEW4/C-Compiler

The High-performance Embedded Workshop User Manual will show you how HEW4 integrates various tools such as the compiler, assembler, debugger and editor into a common Graphical User Interface. To access the manual on your computer, go to the HEW menu (Start > (All) Programs > Renesas > High-performance Embedded Workshop > Manual Navigator).

Included in the SKP is the Evaluation Version of the NC30WA v.5.30.02 C-compiler. The limitations are:

1. No support or warranty without the purchase of a full license.
2. After 60 days, code size limited to 64 Kbytes.
3. See the Compiler Release Notes, accessible from (Programs > Renesas > SKP8CMINI17) for details.

For recent updates, go to www.renesas.com/skp or, for assistance, email techsupport.rta@renesas.com

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