

## Introduction

This guide is intended to help you to get started quickly when using the 3DK2218U. It will cover how to:

1. Install the software tools
2. Build an executable file
3. Program the FLASH
4. Connect to the 3DK and debug the file in HEW

## ① Software Installation

Insert the 3DK Software Tools CDROM in your drive, it should automatically run the menu program. If it does not:

- Open "**My Computer**" from your desktop
- Locate and open the CDROM drive
- Double-click the "**autorun.exe**" icon to run the program.

Once the menu program is running:

- Select H8S/2218U from the drop down list.
- The buttons suffixed with the '>' symbol will display a popup menu when clicked. The content above the separator in these menus changes dynamically, depending on the selected 3DK device.
- If you do not have full versions of the Renesas tools already installed, you should install the trial versions by clicking the "**Install Tools >**" button and complete the installations in the following order for:
  - 1) FDT 3.2
  - 2) HEW 3.1
- Click the "**Add 3DK Support**" to install the HEW project generator.



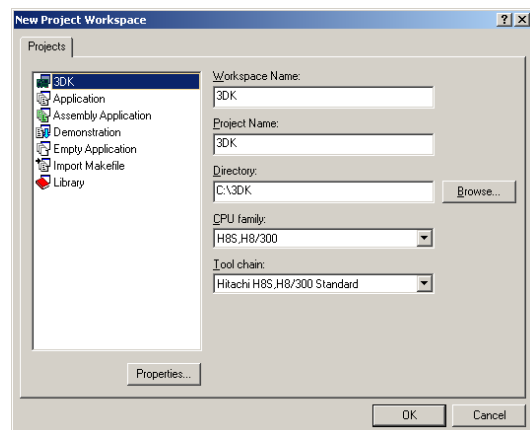
## Documentation

The CD's menu program will automatically detect if you need to install the Acrobat Reader when you first select a PDF document from the Manuals popup menu. Alternatively, you may install Acrobat Reader manually from the CD's menu program by selecting "**Manuals >**", "**Acrobat Reader**".

## ② Generating a Test Project

Once you have installed the required software you can quit the menu program and start High Performance Embedded Workshop (HEW).

- Start HEW3.1 by using the Start Menu to navigate to and select "**High performance Embedded Workshop**".
- In the "**Welcome**" dialog box, select "**Create a new project workspace**" and click "**OK**".
- In the "**New Project Workspace**" dialog box, change the directory to a suitable location.
- Enter the Workspace Name, "**3DK2218U**".
- Enter the Project Name, "**3DK2218U**".
- Select the CPU Family for the 3DK: "**H8S,H8/300**".
- Select the Toolchain: "**Hitachi H8S, H8/300 Standard**".
- Select the Project Type "**3DK2218U**" for your 3DK.
- Click "**OK**".



This will start the 3DK Project Generator wizard, which will set up the correct environment for your 3DK.

- Select the "**Tutorial**" project workspace from the options listed and click "**OK**".
- The list of project files to be included is displayed. Click "**Finish**".
- In the "**Project generator information**" dialog box, click "**OK**".

You will see a list of project files appear in the Workspace window, showing that the Project Generator has created the project for you.

Now build the tutorial program and integrated HMon monitor:

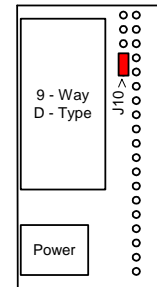
- Ensure that the project workspace is set to the following:



- Select the "**Build**", "**Build All**" menu item to build the program.
- When the build is complete, proceed to the next section to program your 3DK with the project.

**Before applying power to the board, please ensure that jumper J10 is fitted as follows (Pin 1 is indicated by an arrow on the silk-screen):**

	PIN CONNECTIONS
J10 (RS232 Rx Jumper)	Fitted (1 – 2)

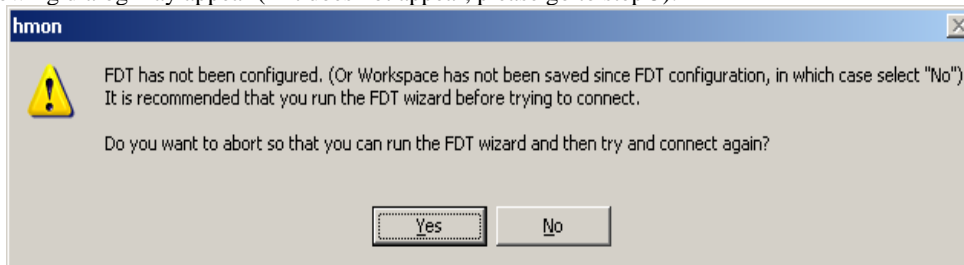


## ③ Programming the Board

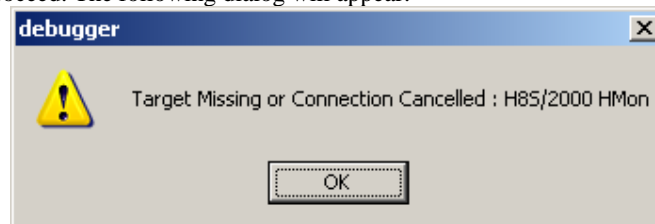
- 1) Ensure that the 3DK is connected to COM1, the USB cable connects the 3DK to the pc and power is applied to the 3DK.
- 2) Change to the debug session by choosing "**SessionH8\_300\_HMon**" from the drop down session menu.




- 3) If prompted to save session, click "**No**".
- 4) The following dialog may appear (if it does not appear, please go to step 5):

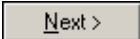


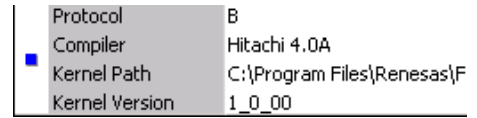
Click "Yes" to proceed. The following dialog will appear:

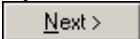


Click "Ok" to continue with configuring the FDT.

- 5) Click on the magic wand in the control bar, to ensure FDT is configured. 
- 6) If FDT has not been set up then the FDT configuration wizard will appear. Follow steps below to setup FDT. If FDT is configured, proceed to step i. to verify the settings.


- a. Select your device from the drop down menu.
- b. Click on the Kernels for your 3DK. These are denoted by a .3DK after the version. If these are not listed, use the “Browse” button to locate \Kernels\ProtB directory in FDT in your program files directory. Navigate to your device and then browse down to the device specific FDT configuration file.
- c. Click the “Next” button. 
- d. Select USB Direct to connect to your 3DK, and click “Next”. (This is because the BOOT Mode download is done using USB connection.)
- e. The CPU Crystal Frequency of the 3DK should be preset to the default value, click “Next” to accept the settings.
- f. Configure the settings to User Mode. Click “Next”.
- g. Configure the settings to Automatic Protection and Advanced Messaging.
- h. Click “Finish” to accept the settings.
- i. FDT is now configured for use with the 3DK. By clicking on the wand, you may open the Flash Properties window. The FDT settings may be inspected using the category Tabs.

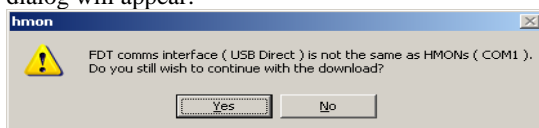
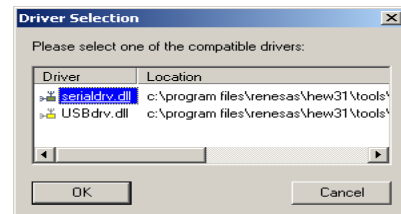
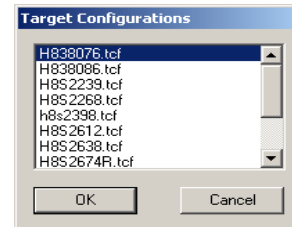


- j. Click on the **Kernel** tab, verify that the path is set to the Kernels for your 3DK and the device operating frequency is set to 24MHz. The kernels are denoted by a .3DK after the version. If these parameters require changing, double-click the path in the window to open the wizard and select the Kernels for your 3DK
- k. Click the “Next” button. 
- l. Enter the Frequency for the 3DK as 24 and click “Finish”
- m. Select the **Communications** tab and verify that USB Direct is selected. Should these settings require alteration, double-click the required parameter, make the required change and click “Finish” to close the wizard.
- n. Click on the **Device** tab, and verify the device is set to H8S/2218UF. The device selected is determined by the choice of kernels, previously selected.

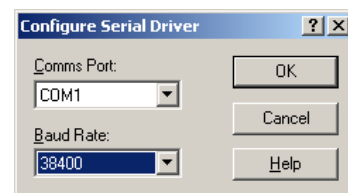


FDT is now configured for use with the 3DK. Save the workspace.

- 7) Choose “Connect”, by clicking on the Connect button. 
- 8) When prompted, select the target configuration file for the H8S/2218U and click “OK”.
- 9) If prompted to select the communication driver for HMon, click on “serialdrv.dll” and click “OK”.  
Do not select USBDrv.dll. This driver is for use with the FDM only. The FDM is not supported by 3DK2218U.
- 10) When prompted, select **COM1**, a **Baud Rate** of **38400** and click “OK”.
- 11) HEW will attempt to connect to the embedded HMon. A connection dialogue box will then appear because embedded HMon is not yet programmed into the 3DK.
- 12) Select the “Download HMon using Boot Mode” radio button and click “OK”.
- 13) While trying to download HMon using Boot mode, the following dialog will appear:



Click "Yes" to continue with the download.



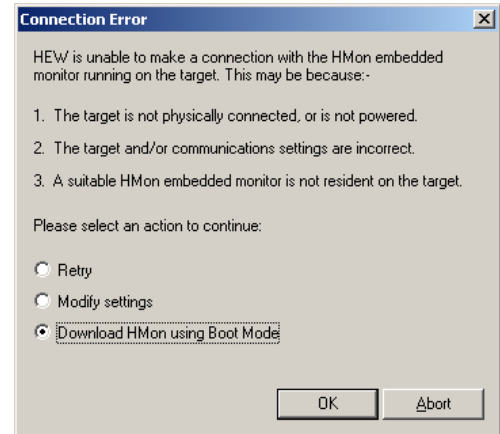
14) As prompted in the dialogue box, put the device in BOOT mode.



- a. Whilst holding down the SW1/BOOT switch, press and release the RES switch. The BOOT LED will then illuminate, indicating that the 3DK has been placed in BOOT mode.
  - b. Click “OK” in the HMon window.
- 15) The 3DK will be programmed with the file previously built. When complete, the user will be prompted to take the 3DK out of BOOT mode, thus placing the board in user mode.

- a. Pressing the RES switch resets the 3DK, and puts it in user mode
- b. Every other USER LED will illuminate to indicate that HMon has initialized on the 3DK.
- c. Click “OK”.

16) HMon is now connected in user mode. The FDT Flash Properties must be re-configured in the Communications tab to the Serial Port (e.g., COM1) for User Mode downloads. Check the Baud Rate setting is not zero. If it is zero, then double-click on the Baud Rate and click Finish. Further builds of the project may be downloaded automatically using User Programming mode without the need for the user to put the board into BOOT mode.



## ④ Running the Debugger

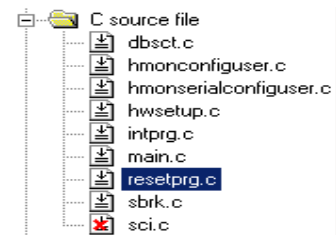
The following procedure explains how to debug the 3DK2218U project in HEW.

- Double-click on the file `ResetPrg.c` in the project window to open the file.

- Click on the “ResetCPU” button, .

The Program Counter will go to the program start address, denoted by a yellow arrow.

```
0d000 | → void PowerON_Reset (void)
      | {
```



To run the program:

- Select the “Debug”, “Reset Go” menu item.
- The User LEDs on the 3DK will start flashing,

***Congratulations!*** You have installed the software; programmed the 3DK and run your first program with the debugger. To continue learning about the tools and the board please read the 3DK Tutorial Manual and supporting User Manuals

## Technical Support

The 3DK is a tool for evaluation purposes only. Technical support is limited to that which is provided on the Renesas Technology Europe’s website at: <http://eu.renesas.com/>