Quick Start
Renesas Starter Kit+ for RZ/A1H

TFT Application Board (Optional)

TMDS (OUT)

Reset Switch

Video IN

USB Func. (Reverse)

LVDS

USB Host

Pmod™

Audio IN/OUT

Pmod™ LCD

SD Card (Reverse, Not Fitted)

JTAG Header

CAN

USB Serial

Ethernet

DC Power Jack

TFT Touch Screen

J-Link LITE ARM

TFT Header

User Switches

Analogue Adjust

Config Switches

User LEDs

Power LEDs
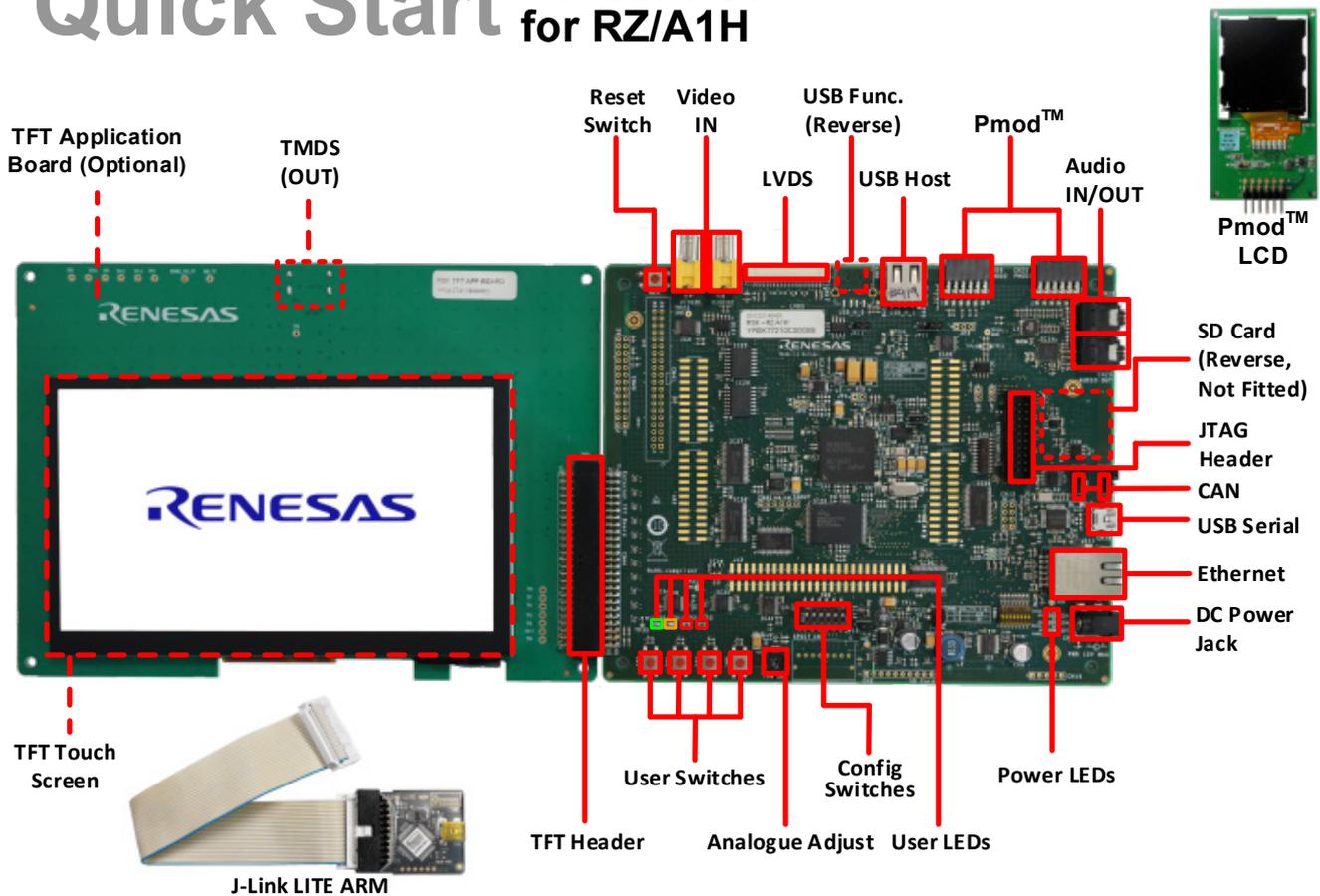
RENESAS

1. Installation

Do not connect the J-Link LITE ARM debugger module or any hardware until the software support has been installed.

1. Software for this Renesas kit is available for download from:

   http://www.renesas.com/rskrza1/install

2. After download the installer will run and display the Welcome dialog box. Follow the on-screen instructions to install the RSK+ software. This process will take several minutes.

Notes:

Windows™ 10 / 8.1 users may see "User Account Control" dialog box. If applicable, enter the administrator username and password, then click 'Yes'.

The Windows™ driver signing dialog box may be displayed. Please accept the driver to continue.

Users may see a Renesas trust certificate dialog box. If applicable select the checkbox to trust the certificate.

If prompted to update the J-Link firmware at any point within this guide, please select the option to update the firmware.

The Segger J-Link LITE included with this kit is dedicated for use with this RSK+. It cannot be used for any other boards and products.

2. Connection

3. Connect the J-Link LITE ARM debugger module to the connector marked 'CN14 ARM JTAG 20' on the silk screen ('JTAG Header' on the diagram) using the ribbon cable.

4. Connect the J-Link LITE ARM debugger module to a spare USB port of your PC. The green LED on the debugger will flash.

5. An icon will appear in the Windows™ toolbar and installation will complete. Note that administrator privileges are required to install the drivers.

6. The green LED on the J-Link LITE ARM debugger will illuminate.

7. Connect the Pmod™ LCD to CN25 (PMOD1) connector.

8. Ensure pins 2 and 3 of the PWR_SEL header are shorted to configure the board for use with a 5V power supply.

9. Connect a centre-positive +5V power supply to the connector marked PWR and apply the power.

3. Importing Sample Code into e^2 studio

e^2 studio integrates various tools such as compiler, assembler, debugger and editor into a common graphical user interface.

10. Start e^2 studio:

    Windows™ 8.1: From Apps View ⊕, Renesas Electronics e2studio > e2 studio

    Windows™ 10: Start Menu > All Apps > Renesas Electronics e2studio > e2 studio

Note: A firewall warning may be displayed for 'eclipse.exe'.
Select the 'Private networks, such as my home or work network' option and click 'Allow access'.

11. If the 'Select a workspace' dialog box appears, browse to a suitable location to save your new workspace. Click 'OK'.

12. If the 'Toolchain registration' dialog box appears, select the available toolchains and click 'Register'.

13. In the 'Code Generator Registration' dialog box, click 'OK'. A 'Code Generator COM component register' message box will be displayed with the text "Please restart e2 studio to use Code Generator". Click 'OK'.

14. In the 'Restart e2 studio' message box, click 'OK'. e^2 studio will be restarted due to first-time registration of the Code Generator COM components.

15. In the e^2 studio Welcome screen, click 'Workbench', which is the last item on the right-hand column.

16. Right-click in the Project Explorer window and select 'Import…'.

17. Select 'General > Existing Projects into Workspace' and click 'Next'.

18. Click the 'Browse' button, and locate the following project directory:
    'C:\Renesas\Workspace\RSK\RSK+RZA1_V4'

19. Ensure the 'Copy projects into workspace' option is ticked and then click 'Finish'.

4. Programming and Debug

20. Left click the Tutorial project to select it, then click the arrow next to the build button (hammer icon) and select 'HardwareDebug' from the drop-down menu.

21. e^2 studio will now build the project. Once this is complete, debugging can be started by clicking the arrow next to the debug button (bug icon) and selecting 'Debug Configurations…'.

22. Click the symbol next to the entry 'Renesas GDB Hardware Debugging' to expand the list. Select the configuration entry that matches the current project.

23. The debug configurations control page will contain settings for the device selected during project creation. There is no need to alter the default configurations.
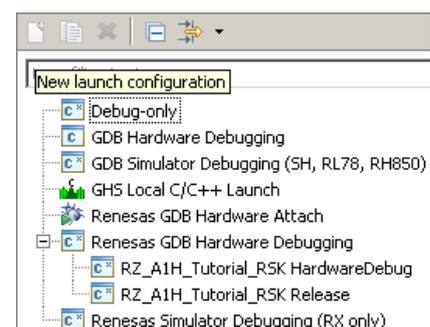
24. In the 'Debugger' tab, verify that the 'Debug hardware' selected is 'J-Link ARM' and the 'Target Device' is R7S721001_DualSPI.
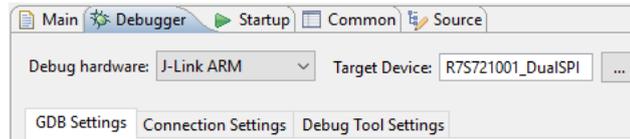
25. Click the 'Debugger' tab, then the 'Connection Settings' secondary tab. Review the settings listed in the screenshot below.
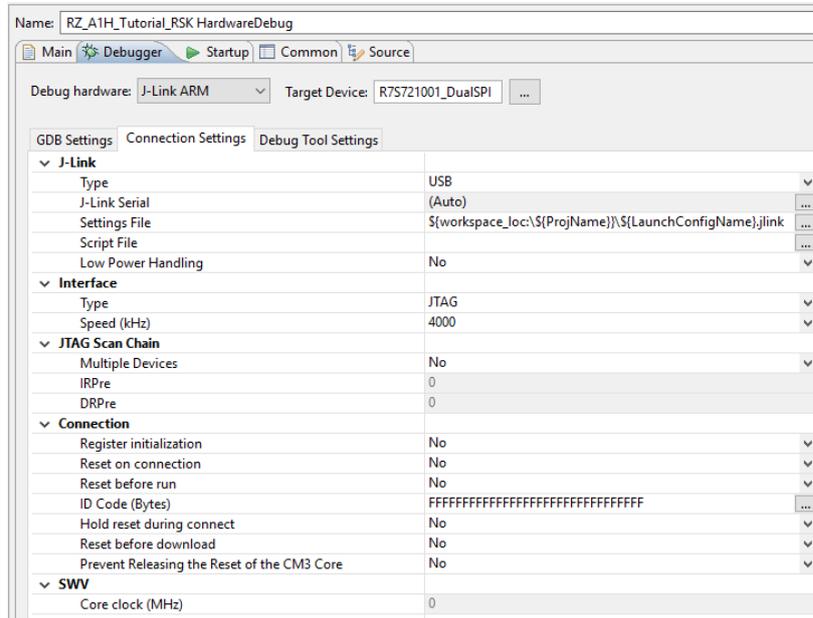
26. Click the 'Debug' button to download the code to the target and begin debugging.

27. A firewall warning may be displayed for 'e2-server-gdb.exe'. Select the option for 'Private networks, such as my home or work network', and click 'Allow access'.

28. A User Account Control dialog box may be displayed. Enter the administrator username/password, then click 'Yes'.

29. e^2 studio will ask you to change to the 'Debug Perspective', click 'Yes'.

30. Once the code has been downloaded, click the 'Resume' button to run the code up to the first line of the main function, R_RIIC_rza1h_rsk_init(); click the 'Resume' button to run the target through the code.

31. Refer to the LCD display, a countdown will be displayed. Press SW1, SW2 or SW3 and the text 'STATIC' will appear near the bottom of the LCD panel, before being replaced with 'TESTTEST' one character at a time.

32. Rotate the analogue adjust control (RV1). The rate of flashing of LED0 will vary.

33. Click the 'Suspend' button. The program will stop, and the source code will be opened at the current program counter.

5. Running the TFT Touchscreen Sample Program

34. To disconnect from the target board, click the 'Disconnect' button on the toolbar; then select the C/C++ perspective (at the top right) to return to the editor view.

35. Power down the RSK+.

36. The TFT Touchscreen sample is programmed into the RSK+ NOR FLASH. To run the program from NOR FLASH, first ensure that all SW6 switches are set to the ON position.

37. Connect the RSK TFT App Board to the RSK on CN44.

38. Connect a USB cable between the USB Serial connector (CN18) on the RSK+ and an available USB port on the host PC.

39. Use any serial terminal (e.g. HyperTerminal, Tera Term or PuTTY), select the appropriate COM port and set the baud-rate to 115200 bps, Data bits to 8, Stop bits to 1, Parity to None and Flow as None.

40. Re-apply power to the RSK+.

41. The program responds to up to five simultaneous finger presses on the touchscreen, by colouring the screen in the touch locations in various colours. The co-ordinates of all five concurrent touches are displayed in the serial terminal.
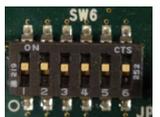
6. MAC Address

When running any Ethernet software, a unique MAC address should be used. A unique Renesas allocated MAC address is attached to the RSK+RZA1H PCB as a sticker, and should always be used with this device to ensure full compatibility when using other Renesas hardware on a common Ethernet connection.

7. Next Step

After you have completed this quick start procedure, please review the tutorial code and sample code that came with the kit. You can review the other samples in the default folder "C:\Renesas\Workspace\RSK\RSK+RZA1_V4" using Project Explorer. The Tutorial Manual will help you understand the device and the development process using Renesas development tools.

The Hardware manual supplied with this RSK+ is current at the time of publication. Please check for any updates to the device manual from the Renesas internet site at www.renesas.com/rsk+rza1h. To learn more on how to use e² studio, open the program's help files by using Help > Help Contents.

8. User Manuals

Windows™ 8.1: From Apps View ⊕, Renesas Electronics Tools
Windows™ 10: Start Menu > All Apps > Renesas Electronics Tools

9. Compiler Support

The version of the compiler provided with this RSK is a fully functional GNU compiler.

Support for the GNU ARM Embedded Compiler is available from https://gcc-renesas.com

10. Support

Online technical support and information is available at: http://www.renesas.com/rskrza1

The Hardware Manual supplied with this RSK is current at the time of publication. Please check for any updates and additional content from the Renesas internet site at: http://www.renesas.com/rskrza1

Technical Contact Details

America: techsupport.america@renesas.com
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