

Stream it!

Hardware set-up Quick Start Guide

Introduction

This Quick Start Guide assists the user to set up the Stream it! kit and to download the demonstration examples.

The kit includes three different RZ/A1 based streaming demonstrations: streaming videos taken by the camera module, a web server and a web radio.

RZ/A1 is a highly differentiated family of embedded processors positioned between the microcontroller and microprocessor worlds. RZ/A1 embedded processors feature a Cortex-A9 core, are clocked up to 400MHz (1000DMIPS) and offer the world's biggest embedded RAM ranging from 3MB up to 10MB. This feature set makes the RZ/A1 family ideal for embedded HMI applications including video encode/decode and rich multi-layer graphics.

The Stream it! board has been designed with the smallest memory variant of the RZ/A1 family, which is called RZ/A1-L and features 3MB of embedded RAM.

The demonstration examples are built using FreeRTOS and middleware from a number of partner companies such as Oryx Embedded (webserver, webradio) and Consilient Technologies (h.264 video encoding).

Please check the contents in the box using the package content list provided, and notify your supplier if any part is missing.

1. Board layout

Below is a picture of the board with a short explanation of the main components.

The board has been designed based on the smallest RZ/A1-L, and includes only the minimum number of components to make a working solution. For more information about the optional components, please refer to the full user manual.

The **front side** of the board is populated with most of the components necessary to execute the demonstration examples:

- Renesas RZ/A1-L device;
- Renesas DC/DC converter for power supply;
- Camera connector for connection of the CMOS camera (CMOS camera is also part of box content);
- RJ45 Connector with Renesas Ethernet PHY;
- JTAG Connector for connection of debugger;
- Flash Quad SPI;
- Various Quartz;
- Push Buttons: reset and user;
- LED for power on/off visualization and LED for user.

The **back side** of the board contains many optional package footprints that could be populated to expand the functionality if required.

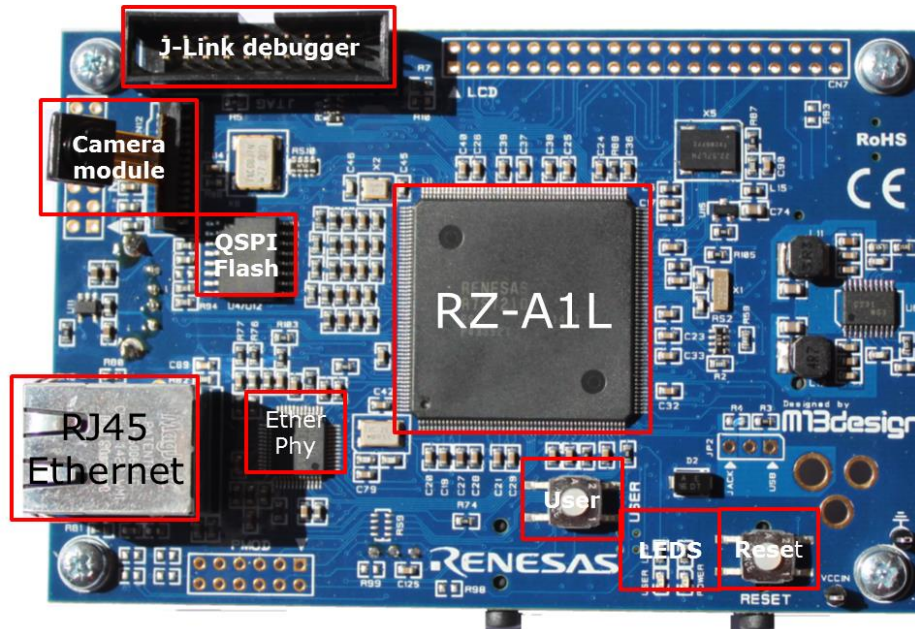
- SD connector;
- Audio output;
- Acceleration sensor;
- EEPROM;
- USB power supply and USB/UART Bridge.

Not mounted are display connector, SDRAM, additional QSPI to increase memory, PMOD connector for connection of various components.

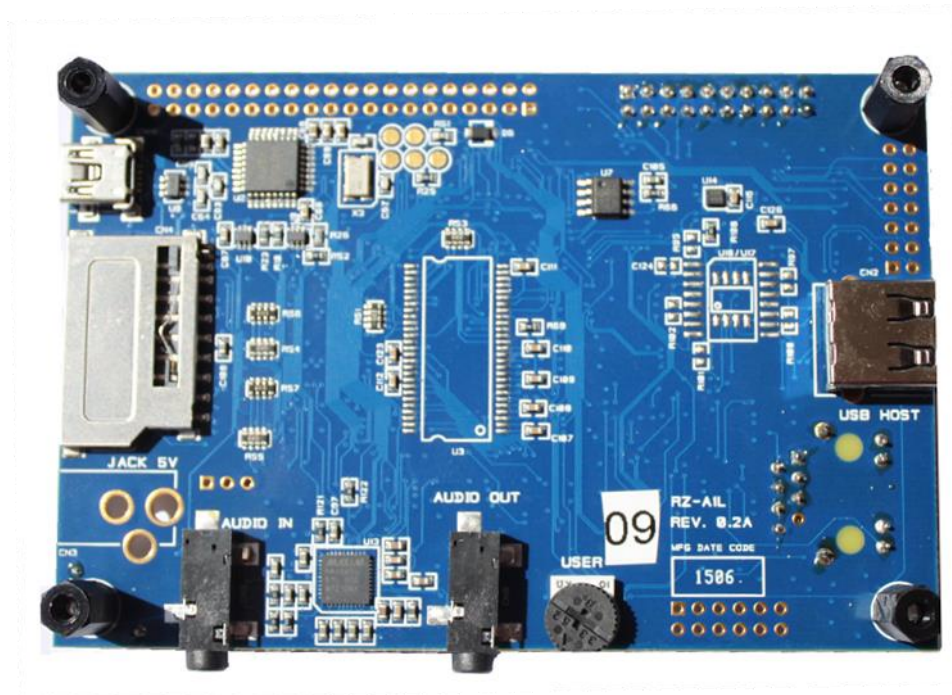
Stream it!

Hardware set-up Quick Start Guide

Stream it! board top view



Stream it board back view



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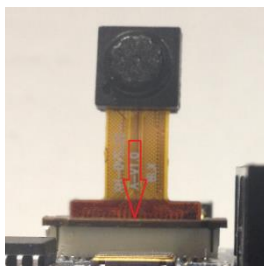
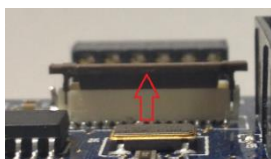
Hardware set-up Quick Start Guide

2. Initial board configuration

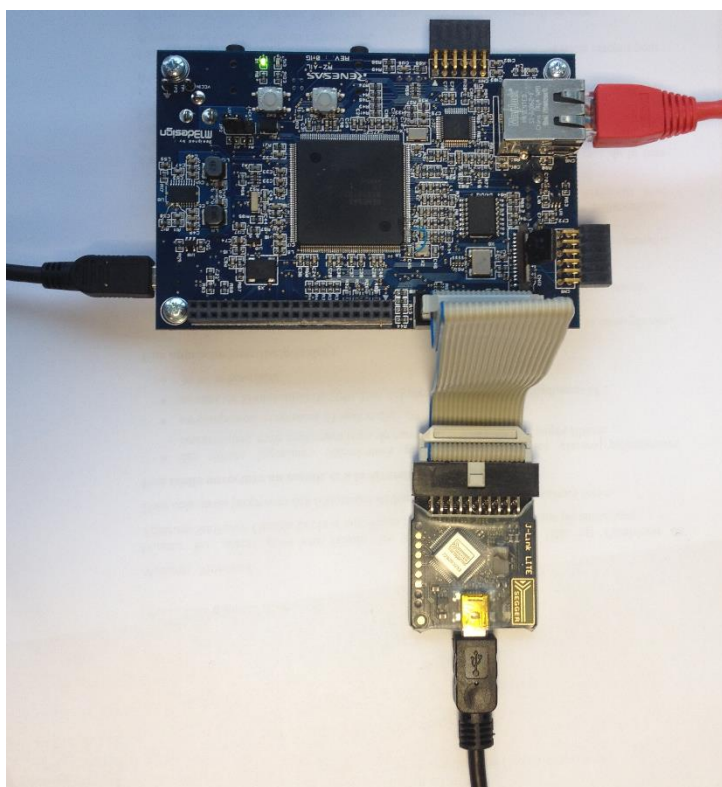
Please ensure that the initial hardware configuration is set up as below.

1. Connect the camera: Install the OV7670 camera module into the connector:

Carefully lift up the brown border, slide the flex cable into the connector (make sure you put it in the correct direction) and then push the plastic border down again to secure the camera module.



2. Connect the Ethernet cable to the Stream it! board RJ45 connector and to your PC (or router):
3. Connect the JLINK probe to the RZ board and to your PC
4. Connect the USB mini cable to CN10 and to your PC (the USB link is used for both the hyper-terminal and power supply function).
5. Here is the final set up you should have.

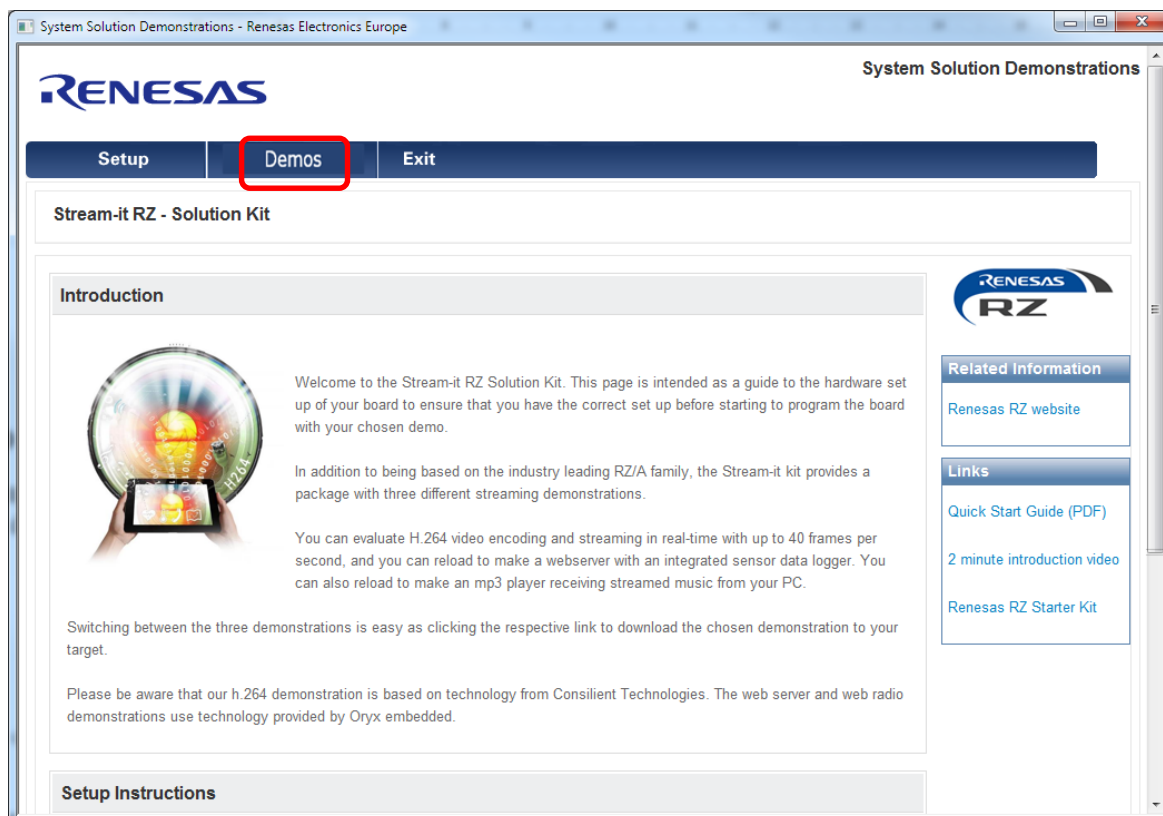


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Hardware set-up Quick Start Guide

3. Running the demos

After you have completed this quick hardware set up procedure, please work through the demonstration examples by selecting “Demos” from the demo application as below and referring to the “Demo Quick Start Guide” found on each page.



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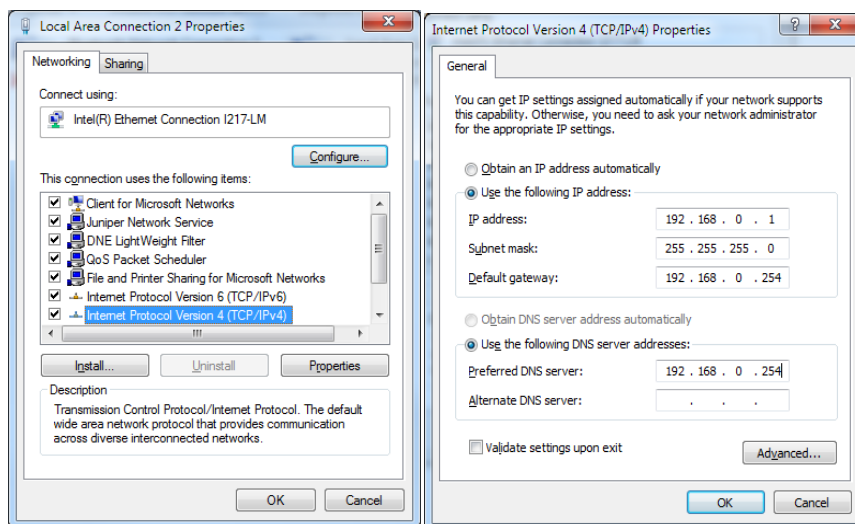
Hardware set-up Quick Start Guide

4. Fixed IP appendix

If your network configuration does not support DHCP or if you wish to directly connect the board to your PC, you will need to allocate a fixed IP for your PC to test the Stream it! kit.

1. Please follow the procedure below.

- a) Disconnect your PC from the network.
- b) Open your network properties.
- c) Select IPV4 properties.
- d) Set or make a note of the fixed IP address. This example uses 192.168.0.1).



5. Board usage limitations

- When a Camera module is mounted, the external bus cannot be used (don't activate the SDRAM => Keep P2.0 to input or driven high).
- When using the second QSPI (U16 or U17) make sure R1 is populated and don't use the SDRAM.
- When SDRAM is used the second QSPI cannot be used, make sure R1 is not populated.
- When using an external TFT (thru CN7) the SD card as well as the Ethernet cannot be used. Please make sure no SD card is in the slot if you use the TFT.

Summary:

- To disable Ethernet PHY keep P2.7 as input or driven low (pull-down on board to keep PHY reset active).
- To disable SDRAM keep P2.0 as input or driven high (pull-up on board to keep CS3 inactive).
- To disable second QSPI (if it is mounted on the board) remove R1 or don't populate either U17 or U16.

6. What next

Please review the documentation, schematics and project source code from the “[Project source files and documentation](#)” link on each demo page.

Stream it!

Hardware set-up Quick Start Guide

7. Support

In case of issues while operating the board, please check if there is any update available on Renesas website or contact Renesas.

Online technical support and information is available at:

www.renesas.com

Technical contact details:

America: techsupport.america@renesas.com

Europe: software_support@lm.renesas.com

Japan: csc@renesas.com

Stream it!

Hardware set-up Quick Start Guide

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Hardware setup Quick Start Guide