Getting Started Guide

IAR KickStart Kit™ for Renesas R-IN32M4-CL

This guide briefly describes how to get started using IAR Embedded Workbench® with the I-jet Lite debug interface, to run an example application on the target system R-IN32M4-CL2 Starter Kit board.

For more detailed information, see the *IAR Embedded Workbench® IDE Project Management* and *Building Guide* and *C-SPY® Debugging Guide* under USER GUIDES in IAR Information Center (Figure 2).

Hardware Features

R-IN32M4-CL2 Starter Kit board

- R-IN32M4-CL2 Cortex-M4 device
- User LEDs
- User SWs
- Reset button
- Trace connector 20 pin 0.05”
- 2xEthernet (RJ45) connectors
- USB micro B connector for USB-Serial converter
- Power up through USB-mini B connector , I-jet Lite (pin 11/13 Trace connector) or with external power supply(Not mounted)
- RoHS/CE compliant

I-jet Lite debug probe

- MCU support: ARM7/9/11, Cortex-M/A/R devices
- JTAG/SWD /SWO debugging support
- Flash download into supported evaluation boards
- Up to 5V target interface voltage
- MIPI-20 cable and USB-micro cable included
- Fully integrated with IAR Embedded Workbench (v6.70 or later)
- RoHS/CE compliant (used with starter kit only)*

** For more advanced debugging features, please choose IAR I-jet debug probe.*

Install IAR Embedded Workbench for ARM

1. Download the software and documentation for theR-IN32M4-CL2 Starter Kit board from **www.iar.com/kit_updates**(the internet access is needed).
2. Run the `software .exe` file, it may take a while for the installation files to unpack.
3. Follow the prompt instructions to install the product. We recommend that you use the default directories on your installation.
4. After installation, start IAR Embedded Workbench. Unless you already have an activated valid license, a License Wizard will start.
5. Select **Register with IAR Systems to get an evaluation license.**

Figure 1 - Register to get an evaluation license

6. Select `IAR Embedded Workbench for ARM` and click **Next**.
7. Click **Register** and select a Time limited or Code size limited evaluation license. Then complete and submit the registration to get your license number, which will be delivered to you via e-mail within a few minutes.
8. Activate the license received above in the License Wizard window.

   You may register both the time or code size limited evaluation licenses, active and switch in between from the License Manager. For more information, read the Licensing Guide, under USER GUIDES in IAR Information Center for ARM .

   For the latest updates on software and documentation, please visit **www.iar.com/kit_updates**.

Set up the evaluation board

1. Connect your computer and the I-jet Lite debug probe using the USB-micro cable (packing with the I-jet Lite). Do not connect the I-jet Lite to the evaluation board yet.

   The “USB” LED on the front side of the I-jet Lite will be lit with green when Windows completes searching for a USB driver.
2. Connect the I-jet Lite to the Trace connector.
3. Connect your computer and the USB-micro B connector using the USB-micro cable.

Running example applications

We assume that you have some working knowledge of the IAR Embedded Workbench IDE. For a quick introduction, see the documents and tutorials under **GETTING STARTED** (Figure 2).

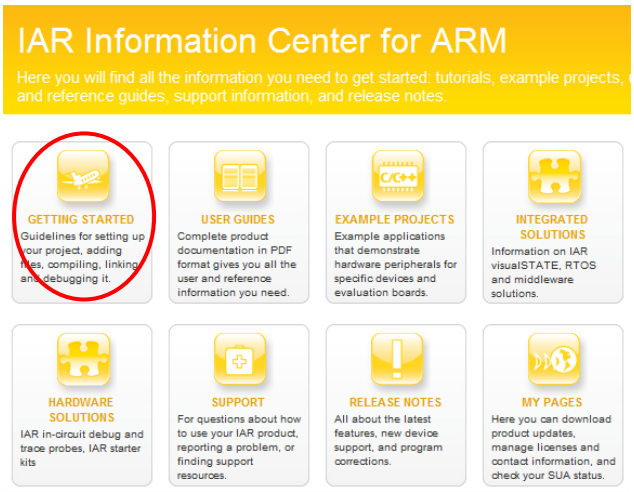

Figure 2- IAR Information Center for ARM

1. From the **Start** menu, start the IAR Embedded Workbench IDE by choosing **All Programs> IAR Systems> IAR Embedded Workbench for ARM x.xx >IAR Embedded Workbench.** You will get straight into the IAR Information Center for ARM.

2. You can download the example projects from the web site of Renesas Electronics. **http://www.renesas.eu/products/soc/fa_lsi/r-in32m4/peer/solution_kit.jsp**

3. Download `r-in32m4-iar_samplesoft.zip` to your computer and extract the file.

   Note: You need register with Renesas to get the download.

4. Double Click `Device\Renesas\RIN32M4\Source\Project\IAR_StarterKit_CL2\osless_sample\IAR\main.eww` under `r-in32m4_samplesoft` directory to launch IAR Embedded Workbench.

5. `osless sample` is loaded and choose `RAM Debug` build configuration.

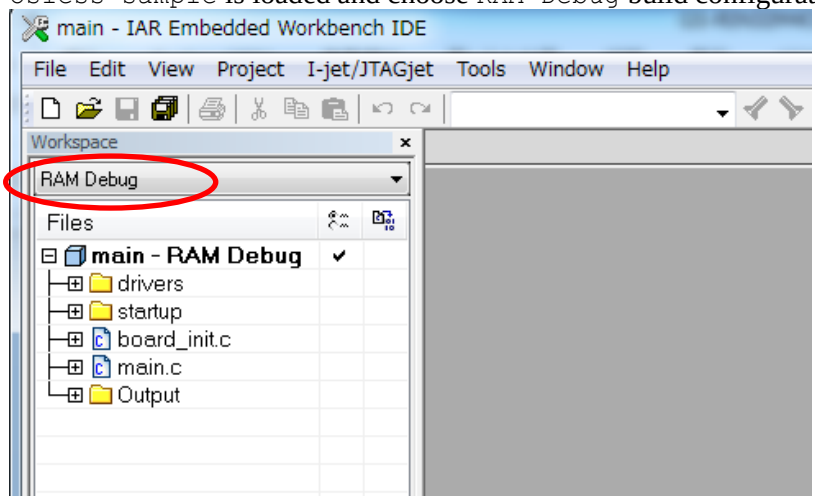

Figure 3 - Build configuration

6. Choose **Project>Make** or click the button on the toolbar. The project should be compiled and linked without errors.

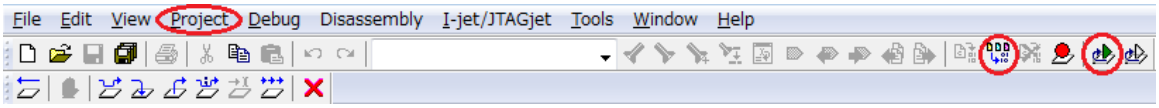

Figure 4 – IAR Embedded Workbench IDE - Toolbar

7 Click the button to download your program to the evaluation board. The file `main.c` is now open in the Editor window and the program is stopped at the start.

8 Open a terminal program on your PC. Select the desired COM with settings: 115200bps, 8-data bits, no parity, 1- stop bit (115200-8-N-1). We assume that you have installed FT232R USB UART driver on your computer.

9 Click the button to start the application. The LEDs are lit on the evaluation board. You can toggle the LEDs by typing number ‘0’ to ‘7’ into the terminal program..

10 To explore the C-SPY debugging features or change the I-jet Lite settings, choose the **View** and **I-jet/JTAGjet** menu.

11 To stop C-SPY, click the button.

12 To exit C-SPY, click the button.

Board overview

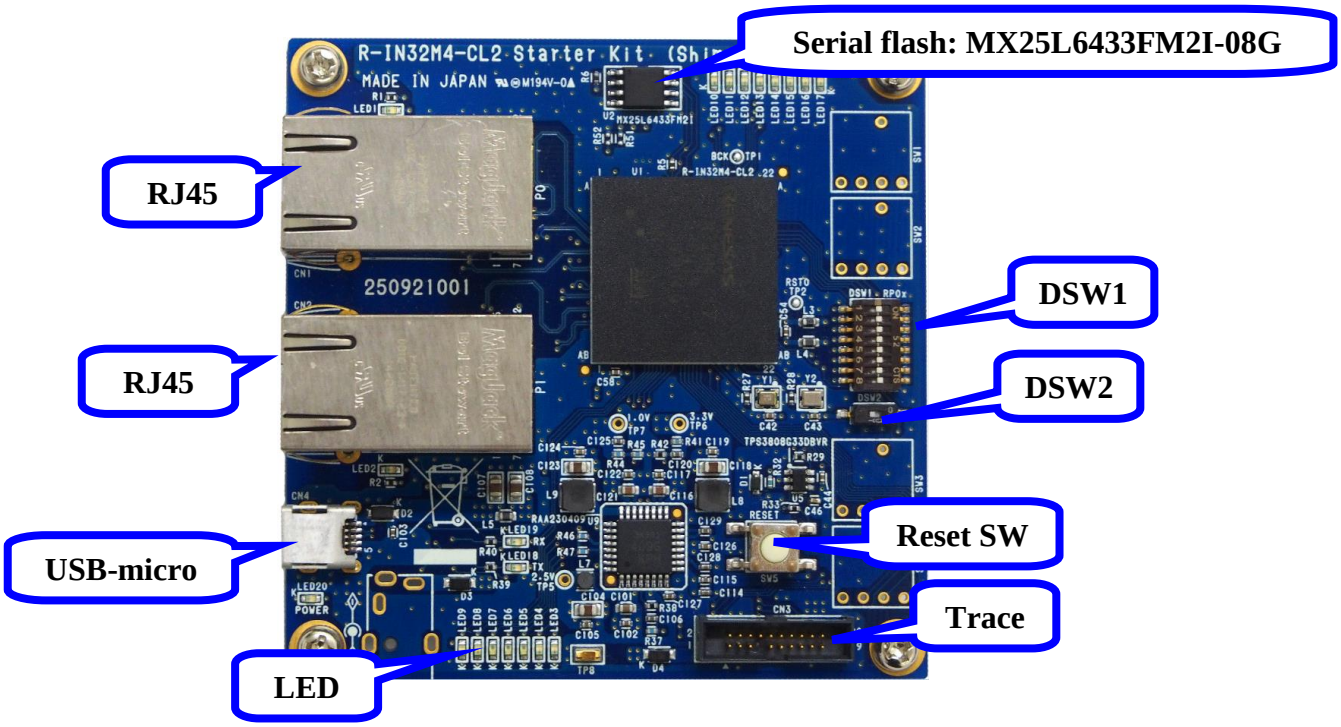

Figure 5 – R-IN32M4-CL2 Board Lite layout

Switch description

Switch	Description
DSW1	8xUser SWs: connected to GPIO (use with MCU internal pull-up / ON=”Low” / OFF=”High”) 1: Connected to RP00 2: Connected to RP01 3: Connected to RP02 4: Connected to RP03 5: Connected to RP04 6: Connected to RP05 7: Connected to RP06 8: Connected to RP07
DSW2	Boot mode ON : External RAM Boot Off: External Serial Flash ROM Boot (Default)

Table 1: Switch settings

Target power supply for the evaluation board

We recommend supplying power via USB connector for further use of the evaluation board.

*Note: The power supply via debug probe may cause voltage drop / current limitation from USB VBUS power (5V 500MA max.)

Troubleshooting
If you are unable to find the cause of a problem, try resetting the evaluation board by using the reset button on the board. Then restart the C-SPY Debugger in the IAR Embedded Workbench IDE. You can also try disconnecting and reconnecting the power to the evaluation board, pressing the reset button and then restarting C-SPY.

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• Welcome letter • R-IN32M4-CL2 Starter Kit board • I-jet Lite with USB-micro cable and MIPI20 cable • USB-micro cable(for power supply) • Ferrite cores* **Used for kit CE test, not needed for general SW/board evaluation*	IAR Systems, IAR Embedded Workbench, C-SPY, visualSTATE, IAR KickStart Kit, I-jet, IAR and the IAR Systems logotype are trademarks or registered trademarks owned by IAR Systems AB. All other trademarks or registered trademarks mentioned in this document are the properties of their respective owners. © Copyright 2016 IAR Systems AB Part number: GS-RIN32M4CL2-2 The second edition: March 2016