VersaClock 7 EEPROM Conversion: Enabling the VC7 Evaluation Board for EEPROM Loading

This document explains how to enable EEPROM loading on a VersaClock 7 (VC7) RC31012, RC31008, RC21012, or RC21008 evaluation board (EVB) using Renesas IC Toolbox (RICBox).

Contents

1. Using RICBox Command Line Interface (CLI)

With RICBox started, click Create new project and select the product variant that matches your evaluation board. During the setup wizard, click Finish. Start the CLI by navigating to the Tools menu in the upper left of part of RICBox and then click CLI.

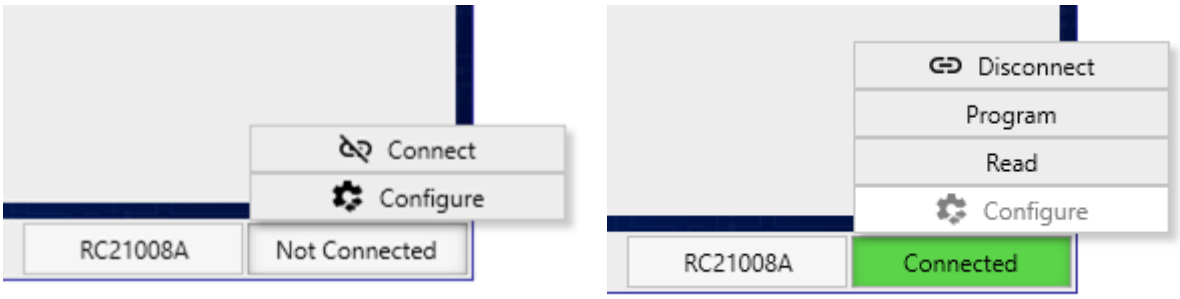
In the CLI, type the following command,

```
evb enable conversion to 001
```

Close the CLI window.

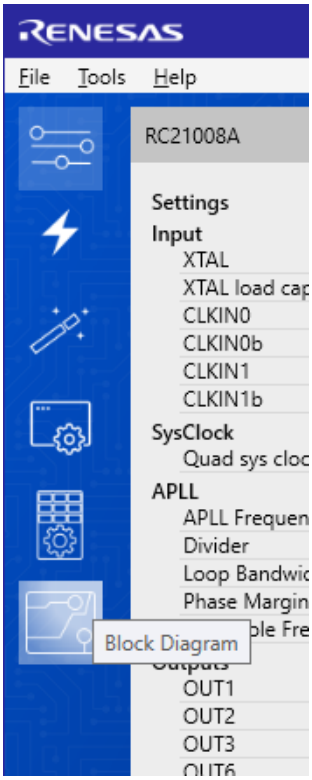
2. Connecting to the Evaluation Board

In the lower right of RICBox GUI, click on the “Not Connected” button. When the button expands, click “Connect” to connect to the VC7 on the evaluation board. The “Not Connected” button will turn into a green “Connected” button.

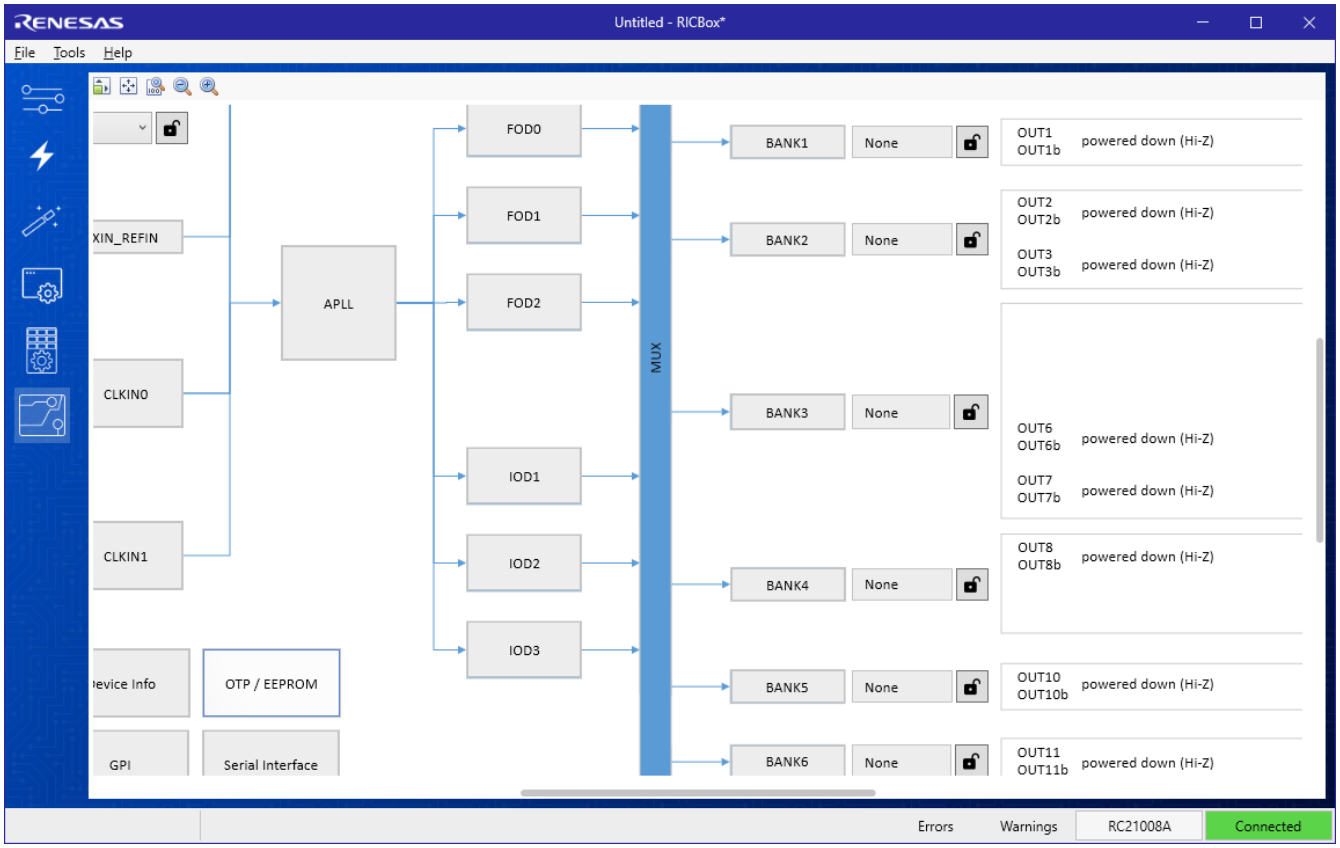


3. Accessing the OTP/EEPROM

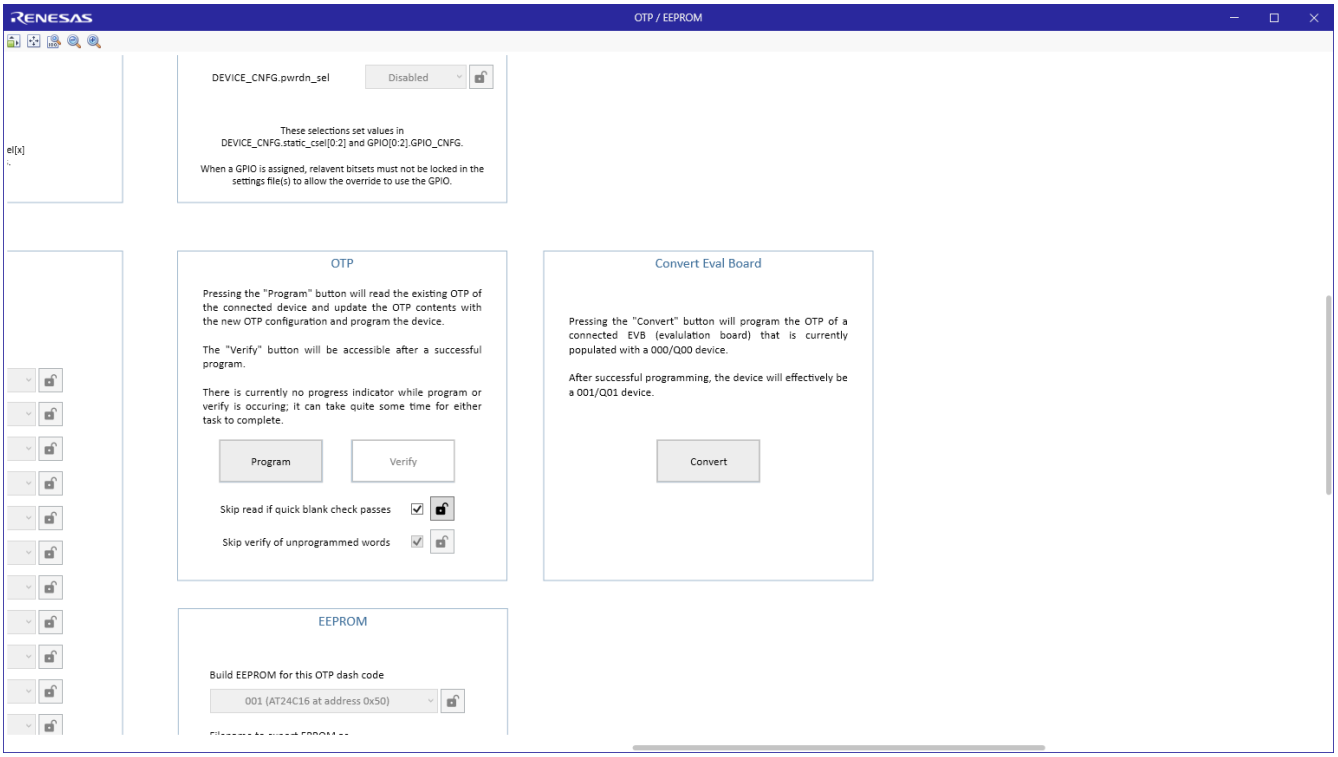
On the left side of the RICBox GUI, click the Block Diagram button to view the main block diagram of the VC7.



In the block diagram, click on the “OTP/EEPROM” button to bring up the OTP/EEPROM sub-diagram.



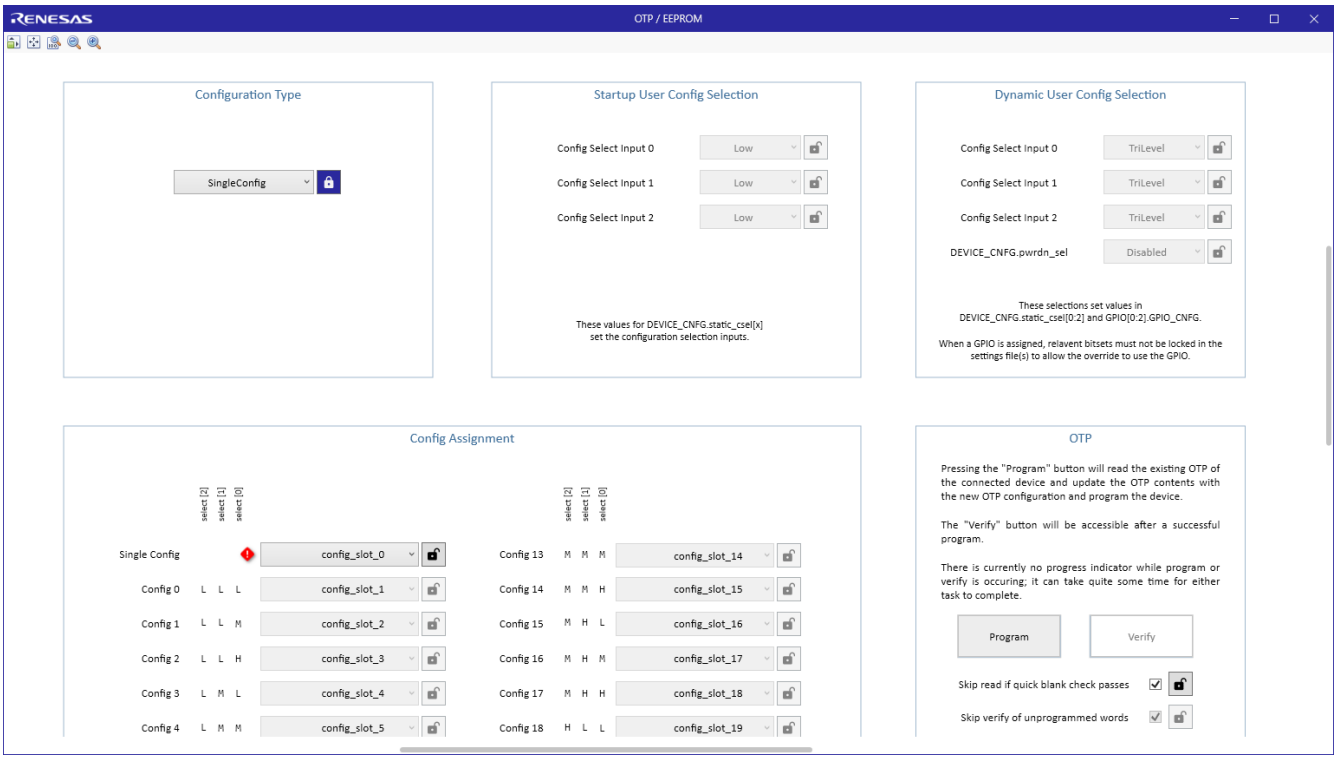
In the sub-diagram, scroll to the right to find the hidden “Convert” button.



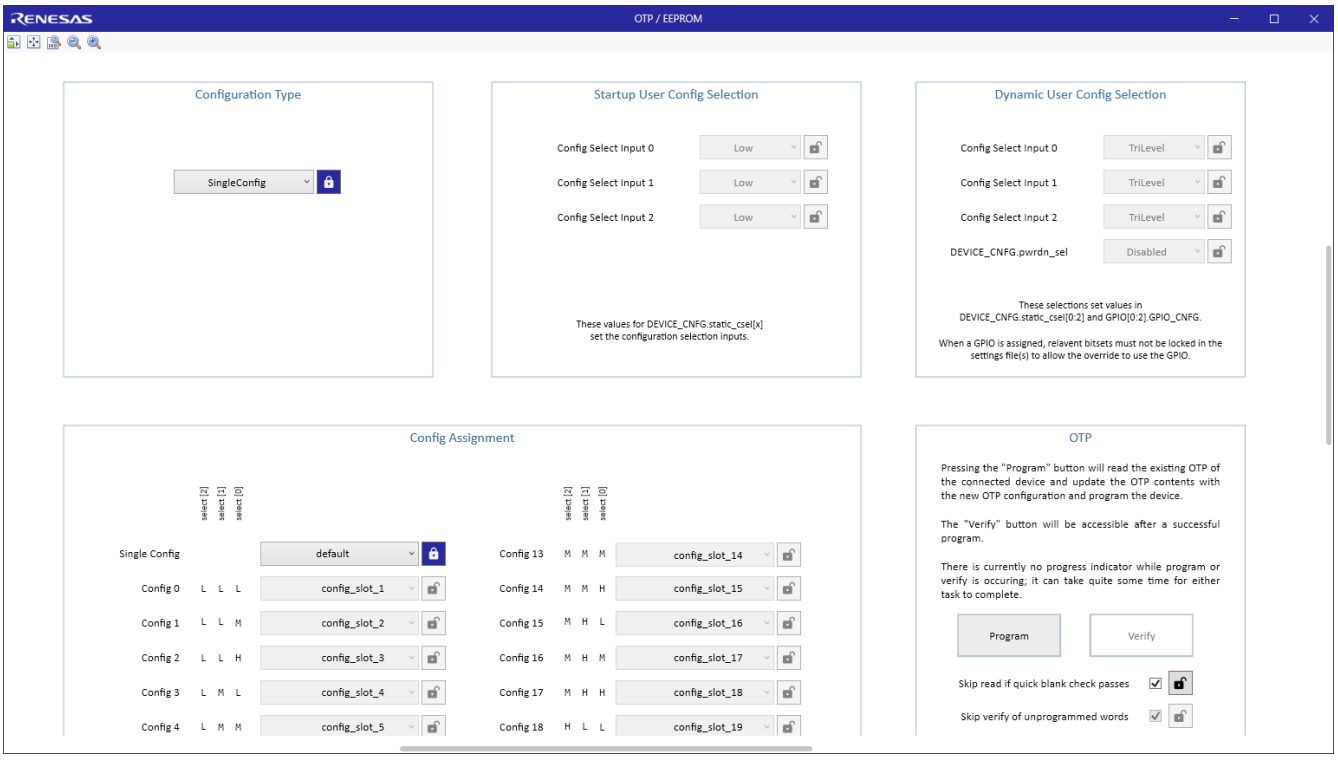
Click on the Convert button to enable the VC7 to load from EEPROM.

4. Generating an EEPROM File

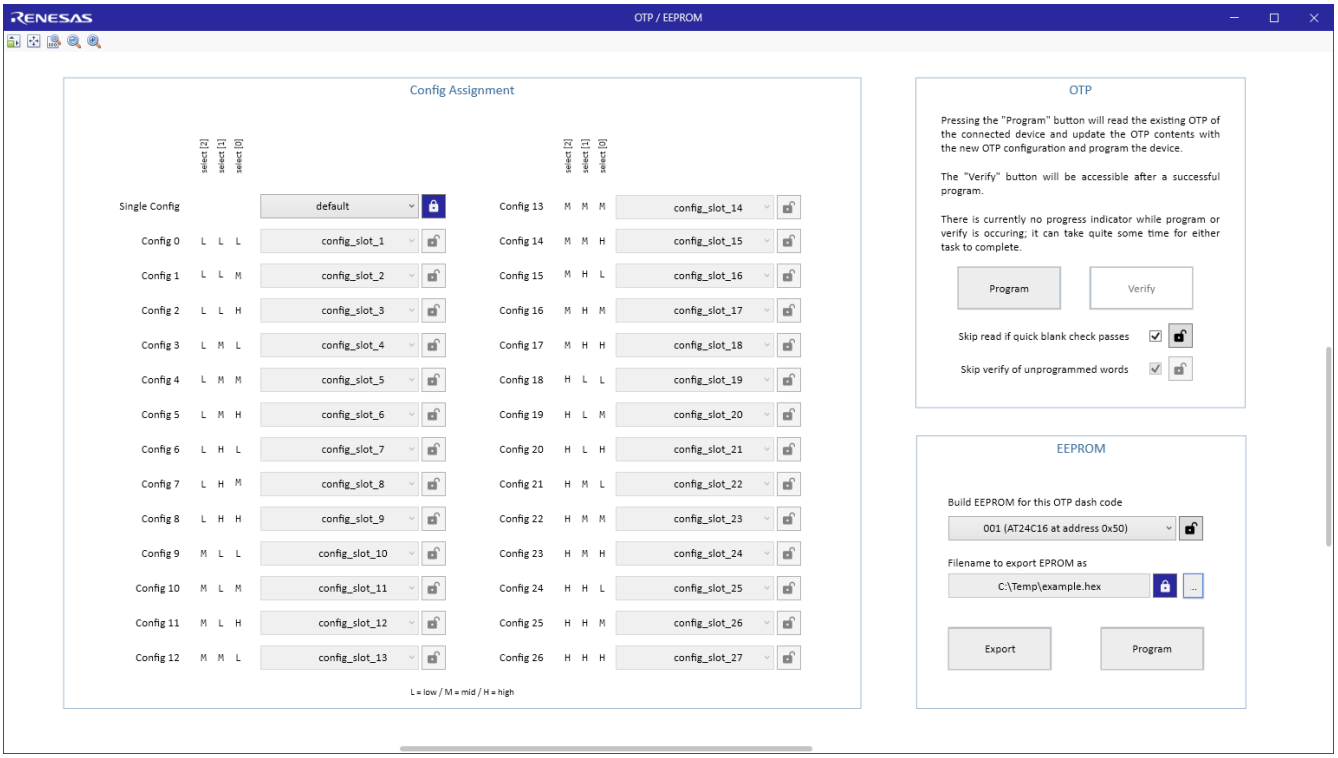
Use RICBox to create your config and save the Project. When ready, click on the “OTP/EEPROM” button to open the sub-diagram. Use the scroll bars to adjust the GUI so the “Configuration Type” section is visible. For the following example, a single config is created. In the “Configuration Type” section, choose “SingleConfig”.



Notice the red error marker for “Single Config”. Click on the pull-down box and select the “default” config.

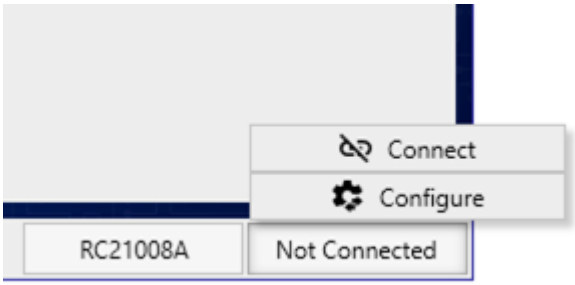


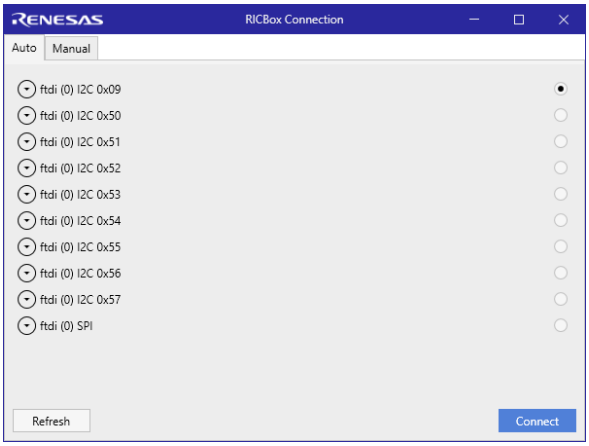
Re-adjust the GUI again to see the EEPROM section. Click on "…" to determine a save location for the EEPROM hex file or type out the full path.



Move the OTP/EEPROM window aside and save the project again.

When ready, use RICBox to scan the devices on the I^{2}C bus. On the main RICBox GUI, check to see if you are connected to the VC7. If connected, go ahead and disconnect. Push the "Not Connected" button and then "Configure". Push "Refresh" to re-scan the I^{2}C bus.





If the EEPROM is detected, then you are ready to program. Refer to the EEPROM user's manual about which jumpers to set to add the EEPROM to the I^{2}C bus.

Click on the Connect button. Go back to the OTP/EEPROM GUI. Click on the Program button to program the EEPROM device. After programming, remove the jumpers to take the FTDI controller off the I^{2}C bus.

Unplug/Plug the USB-C cable to power cycle. The config programmed into the EEPROM should now load. With this conversion, only the AT24C16 EEPROM chip is supported.

5. Revision History

Revision	Date	Description
1.00	Sep 21, 2023	Initial release.

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