

e² studio 2024-04 (2024-04.R20240415-1426)

R20UT5467EG0100

Release Note

Rev.1.00

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Introduction

This document outlines the device support, new features added in 2024-04, fixed issues and open issues in e² studio 2024-04.

Contents

| | |
|--|-----------|
| 1. Product Information | 3 |
| 1.1 Supported Operating Systems | 3 |
| 1.1.1 Windows 64-bit product version | 3 |
| 1.1.2 System requirements | 4 |
| 1.1.3 Linux version | 5 |
| 1.1.4 Mac OS version | 6 |
| 1.2 Supported Toolchains – Windows Hosted | 10 |
| 1.3 Supported Toolchains – Linux Hosted | 13 |
| 1.4 Supported Toolchains – Mac OS Hosted | 13 |
| 2. Device Support | 14 |
| 2.1 Project Generator Support | 14 |
| 2.2 Code Generator Support – Windows Host Only | 23 |
| 2.3 Smart Configurator Support | 26 |
| 3. Smart Manual Support | 30 |
| 4. What is new in this release? | 32 |
| 5. Useful workarounds and information for this e² studio release | 37 |
| 6. Linux version | 53 |
| 6.1 How to install | 53 |
| 6.2 How to run | 53 |
| 6.3 Register toolchain to e ² studio | 53 |
| 6.3.1 GNU ARM Embedded | 54 |
| 6.3.2 Linaro | 55 |
| 6.4 How to build and debug RA applications Overview | 56 |
| 6.4.1 Build | 56 |
| 6.4.2 Debug | 56 |
| 6.5 How to build and debug RZ Linux application Overview | 57 |
| 6.5.1 How to add gdb-server to RZ/A Linux root file system | 57 |
| 6.5.2 Linux C/C++ Project generation and build | 58 |
| 6.5.3 GDB debug by using serial port communication | 59 |

| | |
|---|----|
| 7. Open Issues | 61 |
| 8. Appendix..... | 62 |
| 8.1 Website and Support | 62 |
| 8.2 Web Access and Privacy Policy | 62 |

1. Product Information

1.1 Supported Operating Systems

These operating systems are officially supported by e² studio:

- Windows 10 64-bit
- Windows 11 64-bit

In addition, another official product build is available for Linux. This version supports:

- Ubuntu 20.04 LTS
- Ubuntu 22.04 LTS

Note: No other Linux distributions are officially supported by e² studio.

In addition, another official product build is available for Mac OS. This version supports:

- Mac OS 13 (Ventura)
- Mac OS 14 (Sonoma)

Only RA, DA, RX and RL78 are supported in this release for Mac OS.

e² studio now runs on Java 17 & does not support older Java versions.

1.1.1 Windows 64-bit product version

Please note that 2020-04 and later versions are 64-bit product build versions of the tool.

We would like to state that the workspaces and projects from 7.x versions (32-bit) of e² studio are compatible with 64-bit e² studio.

When opening a workspace from 7.x you will be shown a warning, and this is standard Eclipse behavior. This is shown because some metadata in the workspace can change between versions so a workspace will not always work with older versions of the tool.

- Projects are forward & backward compatible,
- Workspaces work when upgrading but it is not guaranteed to 100% work if you return the workspace to 7.8.

The switch to 64-bit has unfortunately meant that some functions have now been deprecated from the tooling due to this move for the base platform. The removed functionality is listed below:

- HEW Project Convertor
- Renesas RTOS views
- Mylyn integration
- Subversion integration

If you need this functionality, then please remain on e² studio 7.8.

1.1.2 System requirements

For Windows 64-bit version

- System: x64 based processor, 2 GHz or faster, CPU has dual cores or more
 - Windows® 11 (64-bit version)
 - Windows® 10 (64-bit version)
- Memory capacity: We recommend 8 GB or more. At least 4 GB.
- Capacity of hard disk: At least 2 GB of free space.
- Display: Graphics resolution should be at least 1024 x 768, and the mode should display at least 65,536 colors.
- Interface: USB 2.0
- Microsoft Visual C++ 2010 SP1 runtime library ^{*1}
- Microsoft Visual C++ 2015-2019 runtime library ^{*1}

*1. This software will be installed at the same time as the e² studio.

For Linux

- System: x64 based processor, 2 GHz or faster, CPU has dual cores or more
 - Ubuntu 20.04 LTS Desktop (64-bit version)
 - Ubuntu 22.04 LTS Desktop (64-bit version)
- Memory capacity: We recommend 2 GB or more.
- Capacity of hard disk: At least 2 GB of free space.

For Mac OS

- System: 1.8 GHz or faster 64-bit processor. Dual-core or better recommended. Apple Silicon (arm64) processors are only supported.
 - Mac OS 13 (Ventura)
 - Mac OS 14 (Sonoma)
- Memory capacity: 4 GB of RAM; 8 GB of RAM recommended.
- Capacity of hard disk: At least 2 GB of free space.
- A screen resolution of 1280 x 800 or higher.

1.1.3 Linux version

The Linux product version of e² studio is based on the same content as the Windows release.

Therefore, documents of e² studio will be helpful for common usages. There are some differences, the Linux version only supports some different levels of tooling.

The Linux product supports RX, RL78, RH850, RA, RZ and DA.

Synergy, RE and RISC-V MCU are not supported under Linux host OS.

The Code Generator is not supported under the Linux host OS.

For information on how to install the Linux product please refer to FAQ in below URL.

English: <https://en-support.renesas.com/knowledgeBase/19934358>

Japanese: <https://ja-support.renesas.com/knowledgeBase/19934356>

Supported device comparison:

| Device Family | Windows Product Support | Linux Product Support |
|---------------|---------------------------------------|-----------------------|
| EC-1 | Yes | No |
| RA | Yes | Yes |
| RE | Yes | No |
| RH850 | Yes | Yes |
| RL78 | Yes | Yes |
| RX | Yes | Yes |
| RZ | Yes (No RZ/G Linux Platform Tools) | Yes |
| Synergy | Yes | No |
| DA | Yes | Yes |
| RISC-V MCU | Yes | No |

1.1.4 Mac OS version

The Mac OS product version of e² studio is based on the same content as the Windows release.

The MacOS product version only supports the ARM architecture of Apple devices (Apple Silicon).

Therefore, documents of e² studio will be helpful for common usages. There are some differences, the Mac OS version only supports some different levels of tooling.

The Mac OS product supports RA, DA RX and RL78.

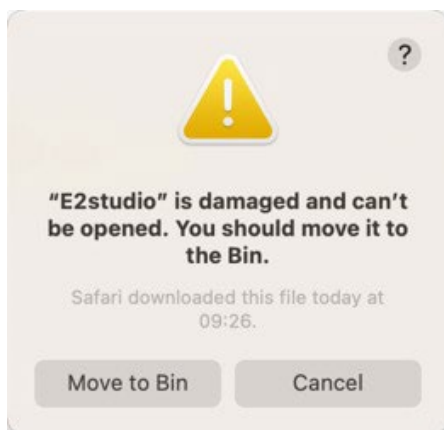
- RA: Toolchain supports GCC and LLVM, debug support is Segger J-link.
- DA: Toolchain supports only GCC, debug support is Segger J-link.
- RX: Toolchain supports only GCC, debug support is E2 Emulator, E2 Emulator Lite and Segger J-link.
- RL78: Toolchain supports only GCC, debug support is E2 Emulator, E2 Emulator Lite and COM port debugging.

To install the e2 studio on Mac OS follow these instructions:

Installation steps

- Download e² studio for macOS.
- Open the browser's download list and locate the downloaded app or archive.
- Extract the archive contents. Use double-click for some browsers or select the 'magnifying glass' icon with Safari.
- Drag the e2studio.app to the Applications folder, making it available in the macOS Launchpad.
- Open e² studio from the Applications folder, by double clicking the icon.
- Add e² studio to your Dock by right-clicking on the icon, located in the Dock, to bring up the context menu and choosing Options, Keep in Dock.

When executing the e2 studio application you may see the following error.



Typically, the problem here is that when the archive file has been download from the web on macOS, macOS's security system is categorizing the application as suspect and is blocking it.

You can avoid this problem by using the following terminal command to mark the application as "valid" after extracting it from the archive file:

```
xattr -d com.apple.quarantine /path/to/E2studio.app
```

replacing "/path/to/E2studio.app" with the actual location of your e2studio application. One easy way of doing this is to drag the E2studio.app icon from your Filer window into the Terminal window, right after typing the initial part of the command.

Once this terminal command is executed, you should be able to double click on "E2Studio.app" again and successfully start the application.

For more details on this issue, please see:

- <https://www.howtogeek.com/803598/app-is-damaged-and-cant-be-opened/>

FSP setup steps

You may also like to install the FSP packs for RA in the e2 studio.

If developing for RA MCUs, it is now necessary to download and install FSP.

Open a browser on:

- <https://github.com/renesas/fsp>

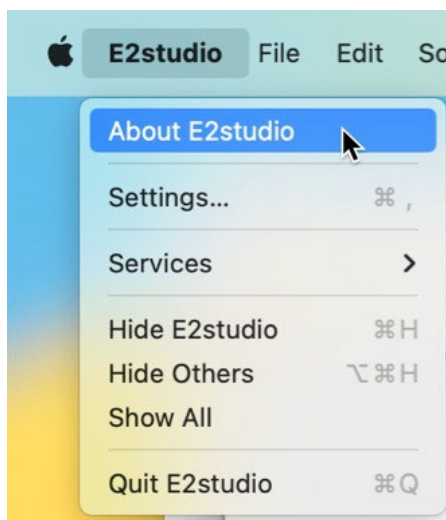
and download the ZIP file containing the packs for the current release – this must be FSP 4.6.0 or later to contain appropriate support for debugging on macOS.

Next steps mean these packs need to be installed to the e2 studio internal support files directory.

This can be manually forced by running the e² studio application and opening the project generator and working through the project generator wizard pages. The project generator can be accessed via the New->Renesas C/C++ project menu entry for the device you are using.

The support files directory is generated for the local machine you are running on. To get this location we can retrieve this from the “About E2studio” dialog. Please see the steps below:

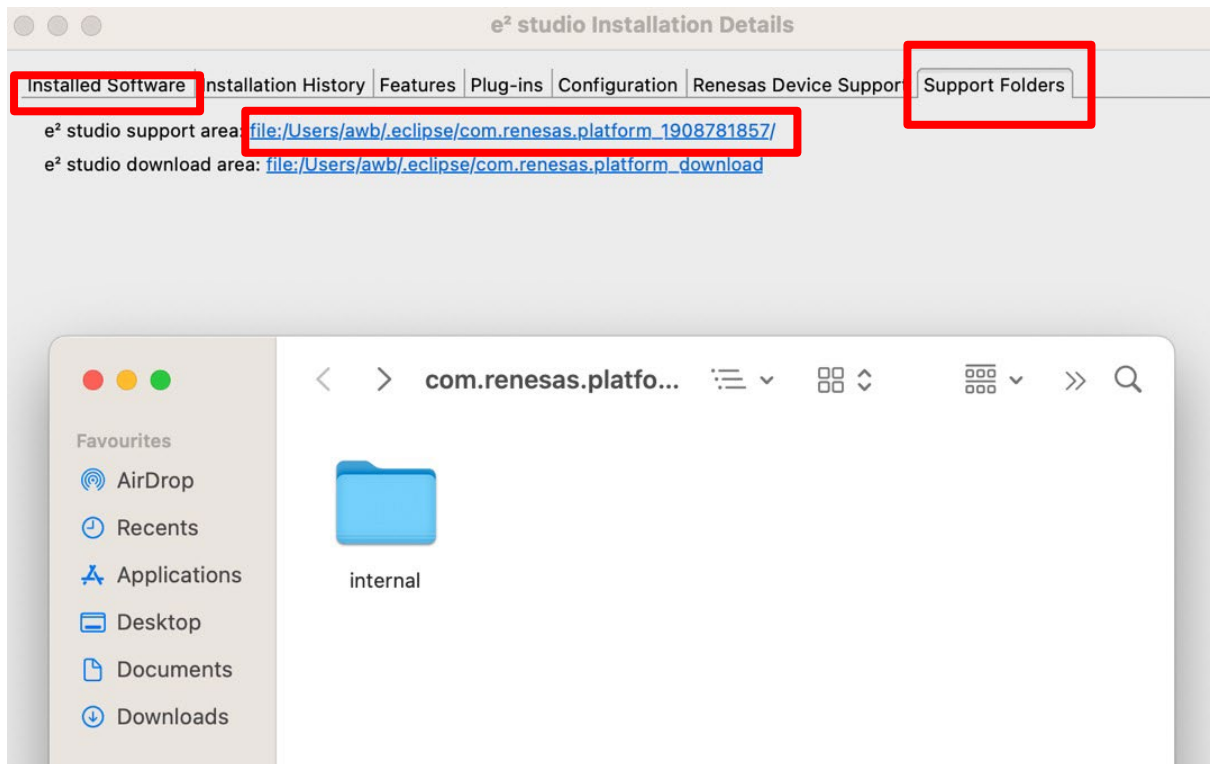
Open the About E2studio dialog:



And click on “Installation Details”:

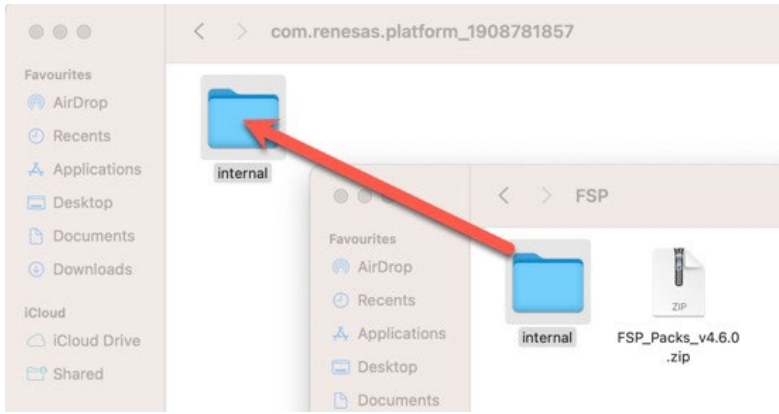


Then select the “Support Folders” tab, and then click on the “e² studio support area:” link to open a Filer window. You should see an “internal folder” here:



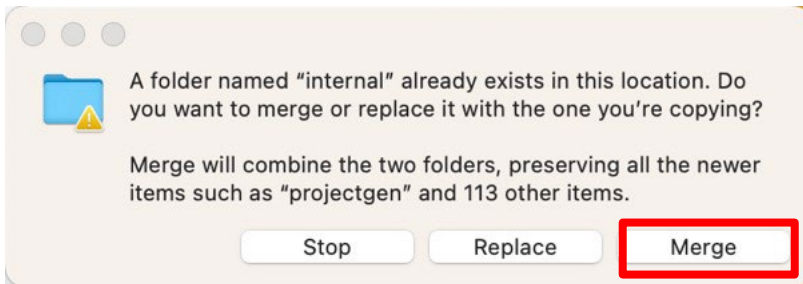
At this point, close the e² studio application.

Now copy the “internal” folder from the temporary directory that you previously extracted the contents of to the “internal” folder in the e² studio support files folder:



[Note that you can copy rather than moving in Filer by drag and dropping with Option key pressed.]

When prompted, select the Merge option:



Pack installation should then be completed, and you can restart the e2 studio application.

Supported device comparison:

| Device Family | Windows Product Support | Mac OS Product Support |
|---------------|---------------------------------------|------------------------|
| EC-1 | Yes | No |
| RA | Yes | Yes |
| RE | Yes | No |
| RH850 | Yes | No |
| RL78 | Yes | Yes |
| RX | Yes | Yes |
| RZ | Yes (No RZ/G Linux Platform Tools) | No |
| Synergy | Yes | No |
| DA | Yes | Yes |
| RISC-V MCU | Yes | No |

1.2 Supported Toolchains – Windows Hosted

The following toolchains are supported in e² studio.

| | Renesas | GNU Arm Embedded (*2) | Renesas GCC/ GNURZ/ARM (*3) | IAR (*4) | Green Hills (*5) | LLVM (*6) | |
|---------------|-------------|-----------------------|-----------------------------|----------|------------------|-----------|-----|
| RL78 | Yes (CC-RL) | No | Yes | Yes | No | Yes | |
| Device Family | RX | Yes (CC-RX) | No | Yes | Yes | No | |
| | RH850 | Yes (CC-RH) | No | No | Yes | Yes | |
| | RZ/ARM | No | No (*1) | Yes | Yes | No | |
| | Synergy/ARM | No | Yes | No | Yes | No | |
| | RA/ARM | No | Yes | No | Yes | No | |
| | RE/ARM | No | Yes | No | Yes | No | |
| | DA/ARM | No | Yes | No | No | No | |
| | RISC-V MCU | No | No | No | No | No | Yes |

Note:

*1: Project converter is available to convert from GNUARM RZ/none to GNU ARM Embedded toolchain.

*2: The GCC toolchains for RZ Family and Renesas Synergy™ are distributed via Arm Developer at <https://developer.arm.com/open-source/gnu-toolchain/gnu-rm> or Launchpad.net at: <https://launchpad.net/gcc-arm-embedded>. They are also available using the “Additional components” page in the e² studio installer. Supported ARM GCC versions vary from device family to device family. Please see the following table for more information:

*3: Legacy GNUARM toolchains are available from <https://llvm-gcc-renesas.com/>. In addition, the latest RX and RL78 Renesas GCC toolchains are available from this website. Also LLVM for RL78 is available from <https://llvm-gcc-renesas.com/>.

*4: The IAR toolchain plugins are available via the “Help”->” IAR Embedded Workbench plugin manager” menu in e² studio. These Eclipse plugins are provided by IAR and are not supported by Renesas.

*5: The Green Hills toolchain plugins are available within the e² studio product. These plugins are provided by Green Hills and are not supported by Renesas.

*6: The RISC-V LLVM toolchain will be available from <https://llvm-gcc-renesas.com/>.

| Device Family | GCC distribution and version |
|---------------------------------------|--|
| RZ/A1, A2 | 9.3.1 (2020 q2) |
| RZ/A3UL | FSP 1.0.0: AArch64 bare-metal 10.3.2021.07 FSP 1.1.0: AArch64 bare-metal 10.3.2021.07 FSP 1.2.0: AArch64 bare-metal 10.3.2021.07 FSP 1.2.1: AArch64 bare-metal 10.3.2021.07 FSP 2.0.0: AArch64 bare-metal 10.3.2021.07 FSP 2.0.1: AArch64 bare-metal 10.3.2021.07 FSP 2.0.2: AArch64 bare-metal 10.3.2021.07 |
| RZ/G1, G2 (Cortex-A) | Linaro 7.4.1 |
| RZ/G2L,G2LC,G2UL, G3S (Cortex-M33) | FSP 1.0.0: 9.2.1(2019q4) FSP 1.1.0: 9.2.1(2019q4) FSP 1.2.0: 9.2.1(2019q4) FSP 1.2.0: 9.2.1(2019q4) FSP 2.0.0: 10.3-2021.10 FSP 2.0.1: 10.3-2021.10 |
| RZ/N2L | FSP 1.0.0: 9.3.1(2020q2) FSP 1.1.0: 9.3.1(2020q2) FSP 1.2.0: 9.3.1(2020q2) FSP 1.3.0: 12.2.Rel1 |
| RZ/T2M | FSP 1.0.0: 9.3.1(2020q2) FSP 1.1.0: 9.3.1(2020q2) FSP 1.2.0: 9.3.1(2020q2) FSP 1.3.0: 12.2.Rel1 FSP 2.0.0: 12.2.Rel1 |
| RZ/T2L | FSP 1.2.0: 9.3.1(2020q2) FSP 1.3.0: 12.2.Rel1 FSP 2.0.0: 12.2.Rel1 |
| RZ/V2L | FSP 1.0.0: 9.2.1(2019q4) FSP 1.1.0: 9.2.1(2019q4) |
| Synergy | SSP 1.6.x: 7.2.1 SSP 1.7.x: 7.2.1 SSP 2.0, 2.1, 2.2 <-> 2.2: 9.2.1 and 7.2.1 SSP 2.3, 2.4: 10.3-2021.10 |
| RA | FSP 3.5.0: 10.3-2021.10 FSP 3.6.0: 10.3-2021.10 FSP 3.7.0: 10.3-2021.10 FSP 3.8.0: 10.3-2021.10 FSP 3.9.0: 10.3-2021.10 FSP 4.0.0: 10.3-2021.10 FSP 4.1.0: 10.3-2021.10 FSP 4.2.0: 10.3-2021.10 FSP 4.3.0: 10.3-2021.10 FSP 4.4.0: 10.3-2021.10 FSP 4.5.0: 10.3-2021.10 FSP 4.6.0: 10.3-2021.10 FSP 5.0.0: 12.2.Rel1 FSP 5.0.1: 12.2.Rel1 |

| | |
|----|------------------------------|
| | FSP 5.1.0: 13.2.Rel1 |
| | FSP 5.2.0: 13.2.Rel1 |
| RE | RE SDK 1.1.0: 6.3.1(2017 q2) |

1.3 Supported Toolchains – Linux Hosted

The following toolchains are supported in e² studio:

- Linaro GCC – tested version 7.3.1-201805
- GNU ARM Embedded 13.2-Rel1
- GNU ARM Embedded 10.3 2021.10
- GCC ARM A-Profile (AArch64 bare-metal) 13.2.Rel1
- GCC for Renesas RL78 4.9.2.202201
- GCC for Renesas RX 8.3.0.202311
- LLVM Embedded Toolchain for Arm 17.0.1
- LLVM for Renesas RL78 17.0.1.202403
- CC-RX V3.06.01
- CC-RL V1.13.01
- CC-RH V2.06.01

1.4 Supported Toolchains – Mac OS Hosted

The following toolchains are supported in e² studio:

- ARM GNU Toolchains for Mac OS
<https://developer.arm.com/downloads/-/arm-gnu-toolchain-downloads>
- GCC for Renesas RX 8.3.0.202311
<https://llvm-gcc-renesas.com/ja/rx-download-toolchains/>
- LLVM for Renesas RL78 17.0.1.202403
<https://llvm-gcc-renesas.com/ja/rl78/rl78-download-toolchains/>

2. Device Support

2.1 Project Generator Support

Note: The Renesas SH device family is no longer supported in e² studio.

| Family | Group | Devices |
|--------|-------------|--|
| DA | DA1453x | DA14531(DA14531-00), DA14531-01, DA14533, DA14535,(Debug Support Only) |
| | DA1458x | DA14585, DA14586,(Debug Support Only) |
| | DA1459x | DA14595,(Debug Support Only) |
| | DA1469x | DA14691, DA14695, DA14697, DA14699,(Debug Support Only) |
| | DA1470x | DA14701, DA14705, DA14706, DA14708,(Debug Support Only) |
| | DA16200 | DA16200,(Debug Support Only) |
| | DA16600 | DA16600,(Debug Support Only) |
| EC-1 | EC-1 | R9A06G043 |
| | RA0 | R7FA0E105, R7FA0E107 |
| RA | RA2 | R7FA2A1AB, R7FA2A2AD, R7FA2A2BD, R7FA2E1A5, R7FA2E1A7, R7FA2E1A8, R7FA2E1A9, R7FA2E2A3, R7FA2E2A5, R7FA2E2A7, R7FA2E305, R7FA2E307, R7FA2L1A9, R7FA2L1AB |
| | RA4 | R7FA4E10B, R7FA4E10D, R7FA4E2B9, R7FA4M1AB, R7FA4M2AB, R7FA4M2AC, R7FA4M2AD, R7FA4M3AD, R7FA4M3AE, R7FA4M3AF, R7FA4T1B9, R7FA4T1BB, R7FA4W1AD |
| | RA6 | R7FA6E10D, R7FA6E10F, R7FA6E2B9, R7FA6E2BB, R7FA6M1AD, R7FA6M2AD, R7FA6M2AF, R7FA6M3AF, R7FA6M3AH, R7FA6M4AD, R7FA6M4AE, R7FA6M4AF, R7FA6M5AG, R7FA6M5AH, R7FA6M5BF, R7FA6M5BG, R7FA6M5BH, R7FA6T1AB, R7FA6T1AD, R7FA6T2AB, R7FA6T2AD, R7FA6T2BB, R7FA6T2BD, R7FA6T3BB |
| | RA8 | R7FA8D1AF, R7FA8D1AH, R7FA8D1BF, R7FA8D1BH, R7FA8M1AF, R7FA8M1AH, R7FA8T1AF, R7FA8T1AH |
| RE | RE01B | R7F0E01BD2DNB |
| | RE01_1500KB | R7F0E014D2CFB, R7F0E014D2CFP, R7F0E015D2CFB, R7F0E015D2CFP, R7F0E016D2DBN, R7F0E017D2DBN |
| | RE01_256KB | R7F0E01082CFM, R7F0E01082CFP, R7F0E01082DBH, R7F0E01082DBR, R7F0E01082DNG, R7F0E01182CFM, R7F0E01182CFP, R7F0E01182DBH, R7F0E01182DBR, R7F0E01182DNG |
| RH850 | C1H | R7F701260, R7F701270 |
| | C1M | R7F701263, R7F701271 |
| | C1M-A1 | R7F701278 |
| | C1M-A2 | R7F701275 |
| | D1L1 | R7F701401, R7F701421 |
| | D1L2 | R7F701402, R7F701422 |
| | D1M1 | R7F701404, R7F701405 |
| | D1M1-V2 | R7F701442, R7F701462 |
| | D1M2 | R7F701408, R7F701410, R7F701428, R7F701430 |
| | E1L | R7F701201, R7F701205 |
| | E1M-S | R7F701202, R7F701204 |
| | E1M-S2 | R7F701215, R7F701216 |
| | - | R7F701Z05, R7F701Z06, R7F701Z07 |

| | |
|-------|--|
| F1H | R7F701501, R7F701502, R7F701503, R7F701506, R7F701507, R7F701508, R7F701511, R7F701512, R7F701513, R7F701526, R7F701527, R7F701528, R7F701529, R7F701530, R7F701531, R7F701534 |
| - | R7F701521, R7F701522, R7F701524, R7F701525 |
| F1K | R7F701542, R7F701543, R7F701546, R7F701547, R7F701557, R7F701560, R7F701561, R7F701562, R7F701563, R7F701566, R7F701567, R7F701577, R7F701580, R7F701581, R7F701582, R7F701583, R7F701586, R7F701587, R7F701597, R7F701602, R7F701603, R7F701610, R7F701611, R7F701612, R7F701613, R7F701620, R7F701621, R7F701622, R7F701623 |
| F1KH | R7F701708, R7F701709, R7F701710, R7F701711, R7F701714, R7F701715 |
| F1KM | R7F701644, R7F701645, R7F701646, R7F701647, R7F701648, R7F701649, R7F701650, R7F701651, R7F701652, R7F701653, R7F701684, R7F701685, R7F701686, R7F701687, R7F701688, R7F701689, R7F701690, R7F701691, R7F701692, R7F701693, R7F701694, R7F701695, R7F701760, R7F701762, R7F701764, R7F701A55, R7F701A56, R7F701A57, R7F701A58, R7F701A59, R7F701A60, R7F701A64, R7F701A65, R7F701A66, R7F701A67, R7F701A68, R7F701A69, R7F701A70, R7F701A71, R7F701A72, R7F701A73, R7F701A74, R7F701A75, R7F701A76, R7F701A77, R7F701A78, R7F701A79, R7F701A80, R7F701A81, R7F701A82, R7F701A83, R7F701A84 |
| F1L | R7F701002xAFP, R7F701003xAFP, R7F701006xAFP, R7F701007xAFP, R7F701008xAFP, R7F701009xAFP, R7F701010xAFP, R7F701011xAFP, R7F701012xAFP, R7F701013xAFP, R7F701014xAFP, R7F701015xAFP, R7F701016xAFP, R7F701017xAFP, R7F701018xAFP, R7F701019xAFP, R7F701020xAFP, R7F701021xAFP, R7F701022xAFP, R7F701023xAFP, R7F701024xAFP, R7F701025xAFP, R7F701026xAFP, R7F701027xAFP, R7F701028xAFP, R7F701029xAFP, R7F701030xAFP, R7F701032xAFP, R7F701033xAFP, R7F701034xAFP, R7F701040, R7F701041, R7F701042, R7F701043, R7F701044, R7F701045, R7F701046, R7F701047, R7F701048, R7F701049, R7F701050, R7F701051, R7F701052, R7F701053, R7F701054, R7F701055, R7F701056, R7F701057 |
| F1M | R7F701544, R7F701545, R7F701548, R7F701549, R7F701552, R7F701553, R7F701564, R7F701565, R7F701568, R7F701569, R7F701572, R7F701573 |
| P1H-C | R7F701370AEEBG, R7F701371EABG, R7F701372EABG, R7F701396EABG |
| P1L-C | R7F701388, R7F701389, R7F701390, R7F701391 |
| P1M | R7F701304, R7F701305, R7F701310, R7F701311, R7F701312, R7F701313, R7F701314, R7F701315, R7F701318, R7F701319, R7F701320, R7F701321, R7F701322, R7F701323 |
| P1M-C | R7F701373xABG, R7F701374xAFP, R7F701397xABG |
| P1M-E | R7F701375, R7F701376, R7F701377, R7F701378, R7F701379, R7F701380, R7F701381, R7F701382, R7F701383, R7F701384, R7F701385, R7F701386 |

| | | |
|------------|---------|---|
| | - | R7F701060xAFF, R7F701062xAFF, R7F701064xAFF, R7F701065xAFF, R7F701067xAFF, R7F701069xAFF, R7F701071xAFF |
| | U2A-EVA | R7F702Z19A, R7F702Z19B |
| | U2A16 | R7F702300, R7F702300A, R7F702300B |
| | U2A6 | R7F702302 |
| | U2A8 | R7F702301, R7F702301A, R7F702301B |
| | U2B10 | R7F70254x_Fusa, R7F70254x_Performance, R7F702Z21, R7F702Z26 |
| | U2B24 | R7F702Z23, R7F702Z28 |
| | U2B6 | R7F70255x, R7F702Z22 |
| RISC-V MCU | G021 | R9A02G021 |
| | D1A | R5F10CGB, R5F10CGC, R5F10CGD, R5F10CLD, R5F10CMD, R5F10CME, R5F10DGC, R5F10DGD, R5F10DGE, R5F10DLD, R5F10DLE, R5F10DMD, R5F10DME, R5F10DMF, R5F10DMG, R5F10DMJ, R5F10DPE, R5F10DPF, R5F10DPG, R5F10DPJ, R5F10DPK, R5F10DPL, R5F10DSJ, R5F10DSK, R5F10DSL, R5F10TPJ |
| | F12 | R5F10968, R5F1096A, R5F1096B, R5F1096C, R5F1096D, R5F1096E, R5F109AA, R5F109AB, R5F109AC, R5F109AD, R5F109AE, R5F109BA, R5F109BB, R5F109BC, R5F109BD, R5F109BE, R5F109GA, R5F109GB, R5F109GC, R5F109GD, R5F109GE, R5F109LA, R5F109LB, R5F109LC, R5F109LD, R5F109LE |
| | F13 | R5F10A6A, R5F10A6C, R5F10A6D, R5F10A6E, R5F10AAA, R5F10AAC, R5F10AAD, R5F10AAE, R5F10ABA, R5F10ABC, R5F10ABD, R5F10ABE, R5F10AGA, R5F10AGC, R5F10AGD, R5F10AGE, R5F10AGF, R5F10AGG, R5F10ALC, R5F10ALD, R5F10ALE, R5F10ALF, R5F10ALG, R5F10AME, R5F10AMF, R5F10AMG, R5F10BAC, R5F10BAD, R5F10BAE, R5F10BAF, R5F10BAG, R5F10BBC, R5F10BBD, R5F10BBE, R5F10BBF, R5F10BBG, R5F10BGC, R5F10BGD, R5F10BGE, R5F10BGF, R5F10BGG, R5F10BLC, R5F10BLD, R5F10BLE, R5F10BLF, R5F10BLG, R5F10BME, R5F10BMF, R5F10BMG |
| RL78 | F14 | R5F10PAD, R5F10PAE, R5F10PBD, R5F10PBE, R5F10PGD, R5F10PGE, R5F10PGF, R5F10PGG, R5F10PGH, R5F10PGJ, R5F10PLE, R5F10PLF, R5F10PLG, R5F10PLH, R5F10PLJ, R5F10PME, R5F10PMF, R5F10PMG, R5F10PMH, R5F10PMJ, R5F10PPE, R5F10PPF, R5F10PPG, R5F10PPH, R5F10PPJ |
| | F15 | R5F113GK, R5F113GL, R5F113LK, R5F113LL, R5F113MK, R5F113ML, R5F113PG, R5F113PH, R5F113PJ, R5F113PK, R5F113PL, R5F113TG, R5F113TH, R5F113TJ, R5F113TK, R5F113TL |
| | F1A | R5F114GC, R5F114GD, R5F114GE, R5F114GF, R5F114GG |
| | F1E | R5F11KLE, R5F11KLF, R5F11KLG, R5F11LLE, R5F11LLF, R5F11LLG |
| | F23 | R7F123FBG, R7F123FGG, R7F123FLG, R7F123FMG,(Debug Support Only) |
| | F24 | R7F124FBJ, R7F124FGJ, R7F124FLJ, R7F124FMJ, R7F124FPJ |
| | FGIC | RAJ240055, RAJ240057, RAJ240090, RAJ240100, RAJ240310,(Debug Support Only) |

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| G10 | R5F10Y14, R5F10Y16, R5F10Y17, R5F10Y44, R5F10Y46, R5F10Y47 |
| G11 | R5F1051A, R5F1054A, R5F1056A, R5F1057A, R5F1058A |
| G12 | R5F10266, R5F10267, R5F10268, R5F10269, R5F1026A, R5F10277, R5F10278, R5F10279, R5F1027A, R5F102A7, R5F102A8, R5F102A9, R5F102AA, R5F10366, R5F10367, R5F10368, R5F10369, R5F1036A, R5F10377, R5F10378, R5F10379, R5F1037A, R5F103A7, R5F103A8, R5F103A9, R5F103AA |
| G13 | R5F1006A, R5F1006C, R5F1006D, R5F1006E, R5F1007A, R5F1007C, R5F1007D, R5F1007E, R5F1008A, R5F1008C, R5F1008D, R5F1008E, R5F100AA, R5F100AC, R5F100AD, R5F100AE, R5F100AF, R5F100AG, R5F100BA, R5F100BC, R5F100BD, R5F100BE, R5F100BF, R5F100BG, R5F100CA, R5F100CC, R5F100CD, R5F100CE, R5F100CF, R5F100CG, R5F100EA, R5F100EC, R5F100ED, R5F100EE, R5F100EF, R5F100EG, R5F100EH, R5F100FA, R5F100FC, R5F100FD, R5F100FE, R5F100FF, R5F100FG, R5F100FH, R5F100FJ, R5F100FK, R5F100FL, R5F100GA, R5F100GC, R5F100GD, R5F100GE, R5F100GF, R5F100GG, R5F100GH, R5F100GJ, R5F100GK, R5F100GL, R5F100JC, R5F100JD, R5F100JE, R5F100JF, R5F100JG, R5F100JH, R5F100JJ, R5F100JK, R5F100JL, R5F100LC, R5F100LD, R5F100LE, R5F100LF, R5F100LG, R5F100LH, R5F100LJ, R5F100LK, R5F100LL, R5F100MF, R5F100MG, R5F100MH, R5F100MJ, R5F100MK, R5F100ML, R5F100PF, R5F100PG, R5F100PH, R5F100PJ, R5F100PK, R5F100PL, R5F100SH, R5F100SJ, R5F100SK, R5F100SL, R5F1016A, R5F1016C, R5F1016D, R5F1016E, R5F1017A, R5F1017C, R5F1017D, R5F1017E, R5F1018A, R5F1018C, R5F1018D, R5F1018E, R5F101AA, R5F101AC, R5F101AD, R5F101AE, R5F101AF, R5F101AG, R5F101BA, R5F101BC, R5F101BD, R5F101BE, R5F101BF, R5F101BG, R5F101CA, R5F101CC, R5F101CD, R5F101CE, R5F101CF, R5F101CG, R5F101EA, R5F101EC, R5F101ED, R5F101EE, R5F101EF, R5F101EG, R5F101EH, R5F101FA, R5F101FC, R5F101FD, R5F101FE, R5F101FF, R5F101FG, R5F101FH, R5F101FJ, R5F101FK, R5F101FL, R5F101GA, R5F101GC, R5F101GD, R5F101GE, R5F101GF, R5F101GG, R5F101GH, R5F101GJ, R5F101GK, R5F101GL, R5F101JC, R5F101JD, R5F101JE, R5F101JF, R5F101JG, R5F101JH, R5F101JJ, R5F101JK, R5F101JL, R5F101LC, R5F101LD, R5F101LE, R5F101LF, R5F101LG, R5F101LH, R5F101LJ, R5F101LK, R5F101LL, R5F101MF, R5F101MG, R5F101MH, R5F101MJ, R5F101MK, R5F101ML, R5F101PF, R5F101PG, R5F101PH, R5F101PJ, R5F101PK, R5F101PL, R5F101SH, R5F101SJ, R5F101SK, R5F101SL |
| G13A | R5F140FK, R5F140FL, R5F140GK, R5F140GL, R5F140LK, R5F140LL, R5F140PK, R5F140PL |

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| G14 | R5F104AA, R5F104AC, R5F104AD, R5F104AE, R5F104AF, R5F104AG, R5F104BA, R5F104BC, R5F104BD, R5F104BE, R5F104BF, R5F104BG, R5F104CA, R5F104CC, R5F104CD, R5F104CE, R5F104CF, R5F104CG, R5F104EA, R5F104EC, R5F104ED, R5F104EE, R5F104EF, R5F104EG, R5F104EH, R5F104FA, R5F104FC, R5F104FD, R5F104FE, R5F104FF, R5F104FG, R5F104FH, R5F104FJ, R5F104GA, R5F104GC, R5F104GD, R5F104GE, R5F104GF, R5F104GG, R5F104GH, R5F104GJ, R5F104GK, R5F104GL, R5F104JC, R5F104JD, R5F104JE, R5F104JF, R5F104JG, R5F104JH, R5F104JJ, R5F104LC, R5F104LD, R5F104LE, R5F104LF, R5F104LG, R5F104LH, R5F104LJ, R5F104LK, R5F104LL, R5F104MF, R5F104MG, R5F104MH, R5F104MJ, R5F104MK, R5F104ML, R5F104PF, R5F104PG, R5F104PH, R5F104PJ, R5F104PK, R5F104PL |
| G15 | R5F12007, R5F12008, R5F12017, R5F12018, R5F12047, R5F12048, R5F12067, R5F12068 |
| G16 | R5F1211A, R5F1211C, R5F1214A, R5F1214C, R5F1216A, R5F1216C, R5F1217A, R5F1217C, R5F121BA, R5F121BC |
| G1A | R5F10E8A, R5F10E8C, R5F10E8D, R5F10E8E, R5F10EBA, R5F10EBC, R5F10EBD, R5F10EBE, R5F10EGA, R5F10EGC, R5F10EGD, R5F10EGE, R5F10ELC, R5F10ELD, R5F10ELE |
| G1C | R5F10JBC, R5F10JGC, R5F10KBC, R5F10KGC |
| G1D | R5F11AGG, R5F11AGH, R5F11AGJ |
| G1E | R5F10FLC, R5F10FLD, R5F10FLE, R5F10FMC, R5F10FMD, R5F10FME |
| G1F | R5F11B7C, R5F11B7E, R5F11BBC, R5F11BBE, R5F11BCC, R5F11BCE, R5F11BGC, R5F11BGE, R5F11BLC, R5F11BLE |
| G1G | R5F11EA8, R5F11EAA, R5F11EB8, R5F11EBA, R5F11EF8, R5F11EFA |
| G1H | R5F11FLJ, R5F11FLK, R5F11FLL |
| G1K | R5F11VBG, R5F11VLG |
| G1M | R5F11W67, R5F11W68 |
| G1N | R5F11Y67, R5F11Y68 |
| G1P | R5F11Z7A, R5F11ZBA |
| G22 | R7F102G4C, R7F102G4E, R7F102G6C, R7F102G6E, R7F102G7C, R7F102G7E, R7F102G8C, R7F102G8E, R7F102GAC, R7F102GAE, R7F102GBC, R7F102GBE, R7F102GCC, R7F102GCE, R7F102GEC, R7F102GEE, R7F102GFC, R7F102GFE, R7F102GGC, R7F102GGE |
| G23 | R7F100GAF, R7F100GAG, R7F100GAH, R7F100GAJ, R7F100GBF, R7F100GBG, R7F100GBH, R7F100GBJ, R7F100GCF, R7F100GCG, R7F100GCH, R7F100GCJ, R7F100GEF, R7F100GEG, R7F100GEH, R7F100GEJ, R7F100GFF, R7F100GFG, R7F100GFH, R7F100GFJ, R7F100GFK, R7F100GFL, R7F100GFN, R7F100GGF, R7F100GGG, R7F100GGH, R7F100GGJ, R7F100GGK, R7F100GGL, R7F100GGN, R7F100GJF, R7F100GJG, R7F100GJH, R7F100GJJ, R7F100GJK, R7F100GJL, R7F100GJN, R7F100GLF, R7F100GLG, R7F100GLH, R7F100GLJ, R7F100GLK, R7F100GLL, R7F100GLN, R7F100GMG, R7F100GMH, R7F100GMJ, R7F100GMK, R7F100GML, R7F100GMN, R7F100GPG, R7F100GPH, R7F100GPJ, R7F100GPK, R7F100GPL, R7F100GPN, R7F100GSJ, R7F100GSK, R7F100GSL, R7F100GSN |

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| | G24 | R7F101G6E, R7F101G6G, R7F101G7E, R7F101G7G, R7F101G8E, R7F101G8G, R7F101GAE, R7F101GAG, R7F101GBE, R7F101GBG, R7F101GEE, R7F101GEG, R7F101GFE, R7F101GFG, R7F101GGE, R7F101GGG, R7F101GJE, R7F101GJG, R7F101GLE, R7F101GLG |
| | H1D | R5F11NGF, R5F11NGG, R5F11NLF, R5F11NLG, R5F11NME, R5F11NMF, R5F11NMG, R5F11PLF, R5F11PLG, R5F11RMG |
| | I1A | R5F1076C, R5F107AC, R5F107AE, R5F107DE |
| | I1B | R5F10MME, R5F10MMG, R5F10MPE, R5F10MPG |
| | I1C | R5F10NLE, R5F10NLG, R5F10NME, R5F10NMG, R5F10NMJ, R5F10NML, R5F10NML_DUAL, R5F10NPG, R5F10NPJ, R5F10NPL, R5F10NPL_DUAL |
| | I1C-2 | R5F11TLE, R5F11TLG |
| | I1D | R5F11768, R5F1176A, R5F11778, R5F1177A, R5F117A8, R5F117AA, R5F117AC, R5F117BA, R5F117BC, R5F117GA, R5F117GC |
| | I1E | R5F11CBC, R5F11CCC |
| | L12 | R5F10RB8, R5F10RBA, R5F10RBC, R5F10RF8, R5F10RFA, R5F10RFC, R5F10RG8, R5F10RGA, R5F10RGC, R5F10RJ8, R5F10RJA, R5F10RJC, R5F10RLA, R5F10RLC |
| | L13 | R5F10WLA, R5F10WLC, R5F10WLD, R5F10WLE, R5F10WLF, R5F10WLG, R5F10WMA, R5F10WMC, R5F10WMD, R5F10WME, R5F10WMF, R5F10WMG |
| | L1A | R5F11MMD, R5F11MME, R5F11MMF, R5F11MPE, R5F11MPF, R5F11MPG |
| | L1C | R5F110ME, R5F110MF, R5F110MG, R5F110MH, R5F110MJ, R5F110NE, R5F110NF, R5F110NG, R5F110NH, R5F110NJ, R5F110PE, R5F110PF, R5F110PG, R5F110PH, R5F110PJ, R5F111ME, R5F111MF, R5F111MG, R5F111MH, R5F111MJ, R5F111NE, R5F111NF, R5F111NG, R5F111NH, R5F111NJ, R5F111PE, R5F111PF, R5F111PG, R5F111PH, R5F111PJ |
| | 110 | R5F51101, R5F51103, R5F51104, R5F51105, R5F5110H, R5F5110J |
| | 111 | R5F51111, R5F51113, R5F51114, R5F51115, R5F51116, R5F51117, R5F51118, R5F5111J |
| | 113 | R5F51135, R5F51136, R5F51137, R5F51138 |
| | 130 | R5F51303, R5F51305, R5F51305B, R5F51306, R5F51306B, R5F51307, R5F51308 |
| | 13T | R5F513T3, R5F513T5 |
| | 140 | R5F51403, R5F51405, R5F51406 |
| | 210 | R5F52103, R5F52104, R5F52105, R5F52106, R5F52107, R5F52108, R5F5210A, R5F5210B |
| | 21A | R5F521A6, R5F521A7, R5F521A8 |
| | 220 | R5F52201, R5F52203, R5F52205, R5F52206 |
| | 230 | R5F52305, R5F52306 |
| | 231 | R5F52315, R5F52316, R5F52317, R5F52318 |
| | 23E-A | R5F523E5A, R5F523E5S, R5F523E6A, R5F523E6S |
| | 23E-B | R5F523E5B, R5F523E6B |
| | 23T | R5F523T3, R5F523T5 |
| | 23W | R5F523W7, R5F523W8 |
| | 24T | R5F524T8, R5F524TA, R5F524TB, R5F524TC, R5F524TE |
| | 24U | R5F524UB, R5F524UC, R5F524UE |

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| 26T | R5F526T8, R5F526T9, R5F526TA, R5F526TB, R5F526TF, R5F526TF_DUAL |
| 610 | R5F56104, R5F56106, R5F56107, R5F56108 |
| 621 | R5F56216, R5F56217, R5F56218 |
| 62G | R5F562G7, R5F562GA |
| 62N | R5F562N7, R5F562N8 |
| 62T | R5F562T6, R5F562T7, R5F562TA |
| 630 | R5F56307, R5F56308, R5F5630A, R5F5630B, R5F5630D, R5F5630E |
| 631 | R5F56316, R5F56317, R5F56318, R5F5631A, R5F5631B, R5F5631D, R5F5631E, R5F5631F, R5F5631G, R5F5631J, R5F5631K, R5F5631M, R5F5631MF, R5F5631N, R5F5631P, R5F5631PF, R5F5631W, R5F5631Y, R5S56310 |
| 634 | R5F5634B, R5F5634B_5V, R5F5634D, R5F5634D_5V, R5F5634E, R5F5634E_5V |
| 63N | R5F563NA, R5F563NB, R5F563ND, R5F563NE, R5F563NF, R5F563NK, R5F563NW, R5F563NY |
| 63T | R5F563T4, R5F563T5, R5F563T6, R5F563TB, R5F563TB_5V, R5F563TC, R5F563TC_5V, R5F563TE, R5F563TE_5V |
| 64M | R5F564MF, R5F564MG, R5F564MJ, R5F564ML |
| 651 | R5F56514, R5F56517, R5F56519, R5F5651C, R5F5651C_DUAL, R5F5651E, R5F5651E_DUAL R5F56519DMB, R5F5651EDMB, R5F5651EDMB_DUAL,(Debug Support Only) |
| 65N | R5F565N4, R5F565N7, R5F565N9, R5F565NC, R5F565NC_DUAL, R5F565NE, R5F565NE_DUAL R5F565N9DMB, R5F565NEDMB, R5F565NEDMB_DUAL,(Debug Support Only) |
| 65W-A | R5F565WE, R5F565WE_DUAL, |
| 660 | R5F56604A, R5F56604B, R5F56604C, R5F56604D, R5F56604E, R5F56604F, R5F56604G, R5F56604H, R5F56609A, R5F56609B, R5F56609C, R5F56609D, R5F56609E, R5F56609F, R5F56609G, R5F56609H |
| 66N | R5F566ND, R5F566ND_DUAL, R5F566NN, R5F566NN_DUAL |
| 66T | R5F566TA, R5F566TAXXFL, R5F566TE, R5F566TEXXFL, R5F566TF, R5F566TK |
| 671 | R5F56719, R5F56719_DUAL, R5F5671C, R5F5671C_DUAL, R5F5671E, R5F5671E_DUAL |
| 71M | R5F571MF, R5F571MG, R5F571MJ, R5F571ML |
| 72M | R5F572MD, R5F572MD_DUAL, R5F572MN, R5F572MN_DUAL |
| 72N | R5F572ND, R5F572ND_DUAL, R5F572NN, R5F572NN_DUAL |
| 72T | R5F572TF, R5F572TK |
| - | R0E5571MLDMBXX,(Debug Support Only) |

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| | A1 | R7S721000, R7S721000_DualSPI, R7S721001, R7S721001_DualSPI, R7S721010, R7S721010_DualSPI, R7S721011, R7S721011_DualSPI, R7S721020, R7S721020_DualSPI, R7S721021, R7S721021_DualSPI, R7S721030, R7S721030_DualSPI, R7S721031, R7S721031_DualSPI, R7S721034, R7S721034_DualSPI |
| | A2 | R7S921040, R7S921041, R7S921042, R7S921043, R7S921045, R7S921046, R7S921047, R7S921048, R7S921051, R7S921052, R7S921053, R7S921056, R7S921057, R7S921058 |
| | A3UL | R9A07G063U01GBG, R9A07G063U02GBG,(Debug Support Only) |
| | G1E | R8A77450, R8A77450_Core1,(Debug Support Only) |
| | G1M | R8A77430, R8A77430_Core1,(Debug Support Only) |
| | G2L | R9A07G044C12GBG_CM33, R9A07G044C22GBG_CM33, R9A07G044L13GBG_CM33, R9A07G044L14GBG_CM33, R9A07G044L23GBG_CM33, R9A07G044L24GBG_CM33, R9A07G044LC_M33, R9A07G044L_M33 |
| | G2UL | R9A07G043U11GBG_CM33, R9A07G043U12GBG_CM33 |
| | G3S | R9A08G045S33GBG_CM33, R9A08G045S37GBG_CM33, R9A08G045S31GBG_CM33, R9A08G045S35GBG_CM33 |
| | N2L | R9A07G084M04, R9A07G084M08 |
| RZ | T1 | R7S910001, R7S910002, R7S910006, R7S910007, R7S910011, R7S910013, R7S910015, R7S910015_M3, R7S910016, R7S910016_M3, R7S910017, R7S910017_M3, R7S910018, R7S910018_M3, R7S910025, R7S910026, R7S910027, R7S910028, R7S910035, R7S910036, R7S910101, R7S910102, R7S910106, R7S910107, R7S910111, R7S910113, R7S910115, R7S910115_M3, R7S910116, R7S910116_M3, R7S910117, R7S910117_M3, R7S910118, R7S910118_M3, R7S910125, R7S910126, R7S910127, R7S910128, R7S910135, R7S910136 |
| | T1-M | R7S910020, R7S910021, R7S910022, R7S910023, R7S910120, R7S910121, R7S910122, R7S910123 |
| | T2L | R9A07G074M01, R9A07G074M04, R9A07G074M05, R9A07G074M08 |
| | T2M | R9A07G075M01, R9A07G075M05, R9A07G075M21_CPU0, R9A07G075M21_CPU1, R9A07G075M22_CPU0, R9A07G075M22_CPU1, R9A07G075M24_CPU0, R9A07G075M24_CPU1, R9A07G075M26_CPU0, R9A07G075M26_CPU1, R9A07G075M27_CPU0, R9A07G075M27_CPU1, R9A07G075M28_CPU0, R9A07G075M28_CPU1 |
| | V2L | R9A07G054L13GBG_CM33, R9A07G054L13_M33, R9A07G054L14GBG_CM33, R9A07G054L14_M33, R9A07G054L23GBG_CM33, R9A07G054L23_M33, R9A07G054L24GBG_CM33, R9A07G054L24_M33 |
| | S1JA | R7FS1JA783A01CFM, R7FS1JA783A01CNE, R7FS1JA783A01CNF, R7FS1JA782A01CBT, R7FS1JA783A01CFJ |
| | S124 | R7FS124762A01CLM, R7FS124763A01CFL, R7FS124763A01CFM, R7FS124772A01CLM, R7FS124773A01CFL, R7FS124773A01CFM, R7FS124773A01CNB, R7FS124773A01CNE, R7FS124773A01CNF |
| Synergy | S128 | R7FS128782A01CLM, R7FS128783A01CFJ, R7FS128783A01CFL, R7FS128783A01CFM, R7FS128783A01CNE, R7FS128783A01CNG |
| | S3A1 | R7FS3A17C2A01CLK, R7FS3A17C3A01CFB, R7FS3A17C2A01CBJ, R7FS3A17C2A01CLJ, R7FS3A17C3A01CFM, R7FS3A17C3A01CFP, R7FS3A17C3A01CNB |
| | S3A3 | R7FS3A37A2A01CLK, R7FS3A37A3A01CFB, R7FS3A37A2A01CBJ, R7FS3A37A2A01CLJ, R7FS3A37A3A01CFP, R7FS3A37A3A01CFM, R7FS3A37A3A01CNB |

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| S3A6 | R7FS3A6782A01CLJ, R7FS3A6783A01CFL, R7FS3A6783A01CFM, R7FS3A6783A01CFP, R7FS3A6783A01CNE, R7FS3A6783A01CNF |
| S3A7 | R7FS3A77C2A01CLK, R7FS3A77C3A01CFB, R7FS3A77C2A01CBJ, R7FS3A77C3A01CFP, R7FS3A77C2A01CLJ, R7FS3A77C3A01CFM, R7FS3A77C2A01CNE, R7FS3A77C3A01CNB |
| S5D3 | R7FS5D37A2A01CLJ, R7FS5D37A3A01CFP, R7FS5D37A3A01CFM, R7FS5D37A3A01CNE |
| S5D5 | R7FS5D57A2A01CLK, R7FS5D57A3A01CFB, R7FS5D57A3A01CFP, R7FS5D57C2A01CLK, R7FS5D57C3A01CFB, R7FS5D57C3A01CFP |
| S5D9 | R7FS5D97C2A01CBG, R7FS5D97C3A01CFC, R7FS5D97C2A01CLK, R7FS5D97C3A01CFB, R7FS5D97C3A01CFP, R7FS5D97E2A01CBG, R7FS5D97E3A01CFC, R7FS5D97E2A01CLK, R7FS5D97E3A01CFB, R7FS5D97E3A01CFP |
| S7G2 | R7FS7G27H2A01CBD, R7FS7G27G2A01CBD, R7FS7G27H2A01CBG, R7FS7G27G2A01CBG, R7FS7G27H2A01CFC, R7FS7G27H3A01CFC, R7FS7G27G2A01CFC, R7FS7G27G3A01CFC, R7FS7G27H2A01CLK, R7FS7G27G2A01CLK, R7FS7G27H3A01CFB, R7FS7G27G3A01CFB, R7FS7G27G3A01CFP |

2.2 Code Generator Support – Windows Host Only

| Family | Group | Devices |
|--------|-------|--|
| | D1A | R5F10CGB, R5F10CGC, R5F10CGD, R5F10CLD, R5F10CMD, R5F10CME, R5F10DGC, R5F10DGD, R5F10DGE, R5F10DLA, R5F10DLE, R5F10DMD, R5F10DME, R5F10DMF, R5F10DMG, R5F10DMJ, R5F10DPE, R5F10DPF, R5F10DPG, R5F10DPJ, R5F10TPJ |
| | F12 | R5F10968, R5F1096A, R5F1096B, R5F1096C, R5F1096D, R5F1096E, R5F109AA, R5F109AB, R5F109AC, R5F109AD, R5F109AE, R5F109BA, R5F109BB, R5F109BC, R5F109BD, R5F109BE, R5F109GA, R5F109GB, R5F109GC, R5F109GD, R5F109GE, R5F109LA, R5F109LB, R5F109LC, R5F109LD, R5F109LE |
| RL78 | F13 | R5F10A6A, R5F10A6C, R5F10A6D, R5F10A6E, R5F10AAA, R5F10AAC, R5F10AAD, R5F10AAE, R5F10ABA, R5F10ABC, R5F10ABD, R5F10ABE, R5F10AGA, R5F10AGC, R5F10AGD, R5F10AGE, R5F10AGF, R5F10AGG, R5F10ALC, R5F10ALD, R5F10ALE, R5F10ALF, R5F10ALG, R5F10AME, R5F10AMF, R5F10AMG, R5F10BAC, R5F10BAD, R5F10BAE, R5F10BAF, R5F10BAG, R5F10BBC, R5F10BBD, R5F10BBE, R5F10BBF, R5F10BBG, R5F10BGC, R5F10BGD, R5F10BGE, R5F10BGF, R5F10BGG, R5F10BLC, R5F10BLD, R5F10BLE, R5F10BLF, R5F10BLG, R5F10BME, R5F10BMF, R5F10BMG |
| | F14 | R5F10PAD, R5F10PAE, R5F10PBD, R5F10PBE, R5F10PGD, R5F10PGE, R5F10PGF, R5F10PGG, R5F10PGH, R5F10PGJ, R5F10PLE, R5F10PLF, R5F10PLG, R5F10PLH, R5F10PLJ, R5F10PME, R5F10PMF, R5F10PMG, R5F10PMH, R5F10PMJ, R5F10PPE, R5F10PPF, R5F10PPG, R5F10PPH, R5F10PPJ |
| | F15 | R5F113GK, R5F113GL, R5F113LK, R5F113LL, R5F113MK, R5F113ML, R5F113PG, R5F113PH, R5F113PJ, R5F113PK, R5F113PL, R5F113TG, R5F113TH, R5F113TJ, R5F113TK, R5F113TL |
| | F1E | R5F11KLE, R5F11KLF, R5F11KLG, R5F11LLE, R5F11LLF, R5F11LLG |
| | G10 | R5F10Y14, R5F10Y16, R5F10Y17, R5F10Y44, R5F10Y46, R5F10Y47 |
| | G11 | R5F1051A, R5F1054A, R5F1056A, R5F1057A, R5F1058A |
| | G12 | R5F10266, R5F10267, R5F10268, R5F10269, R5F1026A, R5F10277, R5F10278, R5F10279, R5F1027A, R5F102A7, R5F102A8, R5F102A9, R5F102AA, R5F10366, R5F10367, R5F10368, R5F10369, R5F1036A, R5F10377, R5F10378, R5F10379, R5F1037A, R5F103A7, R5F103A8, R5F103A9, R5F103AA |

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| G13 | R5F1006A, R5F1006C, R5F1006D, R5F1006E, R5F1007A, R5F1007C, R5F1007D, R5F1007E, R5F1008A, R5F1008C, R5F1008D, R5F1008E, R5F100AA, R5F100AC, R5F100AD, R5F100AE, R5F100AF, R5F100AG, R5F100BA, R5F100BC, R5F100BD, R5F100BE, R5F100BF, R5F100BG, R5F100CA, R5F100CC, R5F100CD, R5F100CE, R5F100CF, R5F100CG, R5F100EA, R5F100EC, R5F100ED, R5F100EE, R5F100EF, R5F100EG, R5F100EH, R5F100FA, R5F100FC, R5F100FD, R5F100FE, R5F100FF, R5F100FG, R5F100FH, R5F100FJ, R5F100FK, R5F100FL, R5F100GA, R5F100GC, R5F100GD, R5F100GE, R5F100GF, R5F100GG, R5F100GH, R5F100GJ, R5F100GK, R5F100GL, R5F100JC, R5F100JD, R5F100JE, R5F100JF, R5F100JG, R5F100JH, R5F100JJ, R5F100JK, R5F100JL, R5F100LC, R5F100LD, R5F100LE, R5F100LF, R5F100LG, R5F100LH, R5F100LJ, R5F100LK, R5F100LL, R5F100MF, R5F100MG, R5F100MH, R5F100MJ, R5F100MK, R5F100ML, R5F100PF, R5F100PG, R5F100PH, R5F100PJ, R5F100PK, R5F100PL, R5F100SH, R5F100SJ, R5F100SK, R5F100SL, R5F1016A, R5F1016C, R5F1016D, R5F1016E, R5F1017A, R5F1017C, R5F1017D, R5F1017E, R5F1018A, R5F1018C, R5F1018D, R5F1018E, R5F101AA, R5F101AC, R5F101AD, R5F101AE, R5F101AF, R5F101AG, R5F101BA, R5F101BC, R5F101BD, R5F101BE, R5F101BF, R5F101BG, R5F101CA, R5F101CC, R5F101CD, R5F101CE, R5F101CF, R5F101CG, R5F101EA, R5F101EC, R5F101ED, R5F101EE, R5F101EF, R5F101EG, R5F101EH, R5F101FA, R5F101FC, R5F101FD, R5F101FE, R5F101FF, R5F101FG, R5F101FH, R5F101FJ, R5F101FK, R5F101FL, R5F101GA, R5F101GC, R5F101GD, R5F101GE, R5F101GF, R5F101GG, R5F101GH, R5F101GJ, R5F101GK, R5F101GL, R5F101JC, R5F101JD, R5F101JE, R5F101JF, R5F101JG, R5F101JH, R5F101JJ, R5F101JK, R5F101JL, R5F101LC, R5F101LD, R5F101LE, R5F101LF, R5F101LG, R5F101LH, R5F101LJ, R5F101LK, R5F101LL, R5F101MF, R5F101MG, R5F101MH, R5F101MJ, R5F101MK, R5F101ML, R5F101PF, R5F101PG, R5F101PH, R5F101PJ, R5F101PK, R5F101PL, R5F101SH, R5F101SJ, R5F101SK, R5F101SL |
| G13A | R5F140FK, R5F140FL, R5F140GK, R5F140GL, R5F140LK, R5F140LL, R5F140PK, R5F140PL |
| G14 | R5F104AA, R5F104AC, R5F104AD, R5F104AE, R5F104AF, R5F104AG, R5F104BA, R5F104BC, R5F104BD, R5F104BE, R5F104BF, R5F104BG, R5F104CA, R5F104CC, R5F104CD, R5F104CE, R5F104CF, R5F104CG, R5F104EA, R5F104EC, R5F104ED, R5F104EE, R5F104EF, R5F104EG, R5F104EH, R5F104FA, R5F104FC, R5F104FD, R5F104FE, R5F104FF, R5F104FG, R5F104FH, R5F104FJ, R5F104GA, R5F104GC, R5F104GD, R5F104GE, R5F104GF, R5F104GG, R5F104GH, R5F104GJ, R5F104GK, R5F104GL, R5F104JC, R5F104JD, R5F104JE, R5F104JF, R5F104JG, R5F104JH, R5F104JJ, R5F104LC, R5F104LD, R5F104LE, R5F104LF, R5F104LG, R5F104LH, R5F104LJ, R5F104LK, R5F104LL, R5F104MF, R5F104MG, R5F104MH, R5F104MJ, R5F104MK, R5F104ML, R5F104PF, R5F104PG, R5F104PH, R5F104PJ, R5F104PK, R5F104PL |
| G1A | R5F10E8A, R5F10E8C, R5F10E8D, R5F10E8E, R5F10E8A, R5F10EBC, R5F10EBD, R5F10EBE, R5F10EGA, R5F10EGC, R5F10EGD, R5F10EGE, R5F10ELC, R5F10ELD, R5F10ELE |
| G1C | R5F10JBC, R5F10JGC, R5F10KBC, R5F10KGC |
| G1D | R5F11AGG, R5F11AGH, R5F11AGJ |
| G1E | R5F10FLC, R5F10FLD, R5F10FLE, R5F10FMC, R5F10FMD, R5F10FME |
| G1F | R5F11B7C, R5F11B7E, R5F11BBC, R5F11BBE, R5F11BCC, R5F11BCE, R5F11BGC, R5F11BGE, R5F11BLC, R5F11BLE |
| G1G | R5F11EA8, R5F11EAA, R5F11EB8, R5F11EBA, R5F11EF8, R5F11EFA |
| G1H | R5F11FLJ, R5F11FLK, R5F11FLL |

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| | H1D | R5F11NGF, R5F11NGG, R5F11NLF, R5F11NLG, R5F11NME, R5F11NMF, R5F11NMG, R5F11PLF, R5F11PLG, R5F11RMG |
| | I1A | R5F1076C, R5F107AC, R5F107AE, R5F107DE |
| | I1B | R5F10MME, R5F10MMG, R5F10MPE, R5F10MPG |
| | I1C | R5F10NLE, R5F10NLG, R5F10NME, R5F10NMG, R5F10NMJ, R5F10NML, R5F10NML_DUAL, R5F10NPG, R5F10NPJ, R5F10NPL, R5F10NPL_DUAL |
| | I1C-2 | R5F11TLE, R5F11TLG |
| | I1D | R5F11768, R5F1176A, R5F11778, R5F1177A, R5F117A8, R5F117AA, R5F117AC, R5F117BA, R5F117BC, R5F117GA, R5F117GC |
| | I1E | R5F11CBC, R5F11CCC |
| | L12 | R5F10RB8, R5F10RBA, R5F10RBC, R5F10RF8, R5F10RFA, R5F10RFC, R5F10RG8, R5F10RGA, R5F10RGC, R5F10RJ8, R5F10RJA, R5F10RJC, R5F10RLA, R5F10RLC |
| | L13 | R5F10WLA, R5F10WLC, R5F10WLD, R5F10WLE, R5F10WLF, R5F10WLG, R5F10WMA, R5F10WMC, R5F10WMD, R5F10WME, R5F10WMF, R5F10WMG |
| | L1A | R5F11MMD, R5F11MME, R5F11MMF, R5F11MPE, R5F11MPF, R5F11MPG |
| | L1C | R5F110ME, R5F110MF, R5F110MG, R5F110MH, R5F110MJ, R5F110PE, R5F110PF, R5F110PG, R5F110PH, R5F110PJ, R5F111ME, R5F111MF, R5F111MG, R5F111MH, R5F111MJ, R5F111PE, R5F111PF, R5F111PG, R5F111PH, R5F111PJ |
| | 110 | R5F51101, R5F51103, R5F51104, R5F51105, R5F5110H, R5F5110J |
| | 111 | R5F51111, R5F51113, R5F51114, R5F51115, R5F51116, R5F51117, R5F51118, R5F5111J |
| | 113 | R5F51135, R5F51136, R5F51137, R5F51138 |
| | 130 | R5F51303, R5F51305 |
| | 230 | R5F52305, R5F52306 |
| RX | 231 | R5F52315, R5F52316, R5F52317, R5F52318 |
| | 23T | R5F523T3, R5F523T5 |
| | 24T | R5F524T8, R5F524TA, R5F524TB, R5F524TC, R5F524TE |
| | 24U | R5F524UB, R5F524UC, R5F524UE |
| | 64M | R5F564MF, R5F564MG, R5F564MJ, R5F564ML |
| | 651 | R5F56514, R5F56517, R5F56519 |
| | 65N | R5F565N4, R5F565N7, R5F565N9 |
| | 71M | R5F571MF, R5F571MG, R5F571MJ, R5F571ML |
| RZ | T1 | R7S910001, R7S910002, R7S910006, R7S910007, R7S910011, R7S910013, R7S910015, R7S910016, R7S910017, R7S910018, R7S910025, R7S910026, R7S910027, R7S910028, R7S910035, R7S910036, R7S910101, R7S910102, R7S910106, R7S910107, R7S910111, R7S910113, R7S910115, R7S910116, R7S910117, R7S910118, R7S910125, R7S910126, R7S910127, R7S910128, R7S910135, R7S910136 |

2.3 Smart Configurator Support

| Family | Group | Devices | | |
|------------|--------|--|---|---|
| RH850 | C1M-A2 | R7F701275 | | |
| | F1KH | R7F701708, R7F701709, R7F701710, R7F701711, R7F701714, R7F701715 | | |
| | | R7F701644, R7F701645, R7F701646, R7F701647, R7F701648, R7F701649, R7F701650, R7F701651, R7F701652, R7F701653, R7F701684, R7F701685, R7F701686, R7F701687, R7F701688, R7F701689, R7F701690, R7F701691, R7F701692, R7F701693, R7F701694, R7F701695, R7F701760, R7F701762, R7F701764 | | |
| | F1KM | R7F701694, R7F701695, R7F701760, R7F701762, R7F701764 | | |
| | U2A16 | R7F702300, R7F702300A, R7F702300B | | |
| | U2A6 | R7F702302 | | |
| | U2A8 | R7F702301, R7F702301A, R7F702301B | | |
| | U2B6 | R7F70255x | | |
| RISC-V MCU | G021 | R9A02G021 | | |
| RL78 | F23 | R7F123FBG, R7F123FGG, R7F123FLG, R7F123FMG | | |
| | F24 | R7F124FBJ, R7F124FGJ, R7F124FLJ, R7F124FMJ, R7F124FPJ | | |
| | G15 | R5F12007, R5F12008, R5F12017, R5F12018, R5F12047, R5F12048, R5F12067, R5F12068 | | |
| | | R5F1211A, R5F1211C, R5F1214A, R5F1214C, R5F1216A, R5F1216C, R5F1217A, R5F1217C, R5F121BA, R5F121BC | | |
| | G16 | R7F102G4C, R7F102G4E, R7F102G6C, R7F102G6E, R7F102G7C, R7F102G7E, R7F102G8C, R7F102G8E, R7F102GAC, R7F102GAE, R7F102GBC, R7F102GBE, R7F102GCC, R7F102GCE, R7F102GEC, R7F102GEE, R7F102GFC, R7F102GFE, R7F102GGC, R7F102GGE | | |
| | G22 | R7F100GAF, R7F100GAG, R7F100GAH, R7F100GAJ, R7F100GBF, R7F100GBG, R7F100GBH, R7F100GBJ, R7F100GCF, R7F100GCG, R7F100GCH, R7F100GCJ, R7F100GEF, R7F100GEG, R7F100GEH, R7F100GEJ, R7F100GFF, R7F100GFG, R7F100GFH, R7F100GFJ, R7F100GFK, R7F100GFL, R7F100GFN, R7F100GGF, R7F100GGG, R7F100GGH, R7F100GGJ, R7F100GGK, R7F100GGL, R7F100GGN, R7F100GJF, R7F100GJG, R7F100GJH, R7F100GJJ, R7F100GJK, R7F100GJL, R7F100GJN, R7F100GLF, R7F100GLG, R7F100GLH, R7F100GLJ, R7F100GLK, R7F100GLL, R7F100GLN, R7F100GMG, R7F100GMH, R7F100GMJ, R7F100GMK, R7F100GML, R7F100GMN, R7F100GPG, R7F100GPH, R7F100GPJ, R7F100GPK, R7F100GPL, R7F100GPN, R7F100GSJ, R7F100GSK, R7F100GSL, R7F100GSN | | |
| | | G23 | R7F101G6E, R7F101G6G, R7F101G7E, R7F101G7G, R7F101G8E, R7F101G8G, R7F101GAE, R7F101GAG, R7F101GBE, R7F101GBG, R7F101GEE, R7F101GEG, R7F101GFE, R7F101GFG, R7F101GGE, R7F101GGG, R7F101GJE, R7F101GJG, R7F101GLE, R7F101GLG | |
| | | | 110 | R5F51101, R5F51103, R5F51104, R5F51105, R5F5110H, R5F5110J |
| | | | 111 | R5F51111, R5F51113, R5F51114, R5F51115, R5F51116, R5F51117, R5F51118, R5F5111J |
| | | 113 | R5F51135, R5F51136, R5F51137, R5F51138 | |
| RX | | 130 | R5F51303, R5F51305, R5F51305B, R5F51306, R5F51306B, R5F51307, R5F51308 | |
| | | | R5F513T3, R5F513T5 | |
| | 140 | R5F51403, R5F51405, R5F51406 | | |
| | 230 | R5F52305, R5F52306 | | |
| | 231 | R5F52315, R5F52316, R5F52317, R5F52318 | | |
| | 23E-A | R5F523E5A, R5F523E5S, R5F523E6A, R5F523E6S | | |

| | | |
|---------|-------|--|
| | 23E-B | R5F523E5B, R5F523E6B |
| | 23T | R5F523T3, R5F523T5 |
| | 23W | R5F523W7, R5F523W8 |
| | 24T | R5F524T8, R5F524TA, R5F524TB, R5F524TC, R5F524TE |
| | 24U | R5F524UB, R5F524UC, R5F524UE |
| | 26T | R5F526T8, R5F526T9, R5F526TA, R5F526TB, R5F526TF, R5F526TF_DUAL |
| | 64M | R5F564MF, R5F564MG, R5F564MJ, R5F564ML |
| | 651 | R5F56514, R5F56517, R5F56519, R5F5651C, R5F5651C_DUAL, R5F5651E, R5F5651E_DUAL |
| | 65N | R5F565N4, R5F565N7, R5F565N9, R5F565NC, R5F565NC_DUAL, R5F565NE, R5F565NE_DUAL |
| | 660 | R5F56604A, R5F56604B, R5F56604C, R5F56604D, R5F56604E, R5F56604F, R5F56604G, R5F56604H, R5F56609A, R5F56609B, R5F56609C, R5F56609D, R5F56609E, R5F56609F, R5F56609G, R5F56609H |
| | 66N | R5F566ND, R5F566ND_DUAL, R5F566NN, R5F566NN_DUAL |
| | 66T | R5F566TA, R5F566TE, R5F566TF, R5F566TK |
| | 671 | R5F56719, R5F56719_DUAL, R5F5671C, R5F5671C_DUAL, R5F5671E, R5F5671E_DUAL |
| | 71M | R5F571MF, R5F571MG, R5F571MJ, R5F571ML |
| | 72M | R5F572MD, R5F572MD_DUAL, R5F572MN, R5F572MN_DUAL |
| | 72N | R5F572ND, R5F572ND_DUAL, R5F572NN, R5F572NN_DUAL |
| | 72T | R5F572TF, R5F572TK |
| | A2 | R7S921040, R7S921041, R7S921042, R7S921043, R7S921045, R7S921046, R7S921047, R7S921048, R7S921051, R7S921052, R7S921053, R7S921056, R7S921057, R7S921058 |
| | A3UL | R9A07G063U01GBG, R9A07G063U02GBG |
| | N2L | R9A07G084M04, R9A07G084M08 |
| | T2L | R9A07G074M01, R9A07G074M04, R9A07G074M05, R9A07G074M08 |
| | T2M | R9A07G075M01, R9A07G075M05, R9A07G075M21_CPU0, R9A07G075M21_CPU1, R9A07G075M22_CPU0, R9A07G075M22_CPU1, R9A07G075M24_CPU0, R9A07G075M24_CPU1, R9A07G075M26_CPU0, R9A07G075M26_CPU1, R9A07G075M27_CPU0, R9A07G075M27_CPU1, R9A07G075M28_CPU0, R9A07G075M28_CPU1 |
| | G2L | R9A07G044C12GBG_CM33, R9A07G044C22GBG_CM33, R9A07G044L13GBG_CM33, R9A07G044L14GBG_CM33, R9A07G044L23GBG_CM33, R9A07G044L24GBG_CM33, R9A07G044LC_M33, R9A07G044L_M33 |
| | G3S | R9A08G045S33GBG_CM33, R9A08G045S37GBG_CM33, R9A08G045S31GBG_CM33, R9A08G045S35GBG_CM33 |
| | G2UL | R9A07G043U11GBG_CM33, R9A07G043U12GBG_CM33 |
| | V2L | R9A07G054L13GBG_CM33, R9A07G054L13_M33, R9A07G054L14GBG_CM33, R9A07G054L14_M33, R9A07G054L23GBG_CM33, R9A07G054L23_M33, R9A07G054L24GBG_CM33, R9A07G054L24_M33 |
| Synergy | S1JA | R7FS1JA783A01CFM, R7FS1JA783A01CNE, R7FS1JA783A01CNF, R7FS1JA782A01CBT, R7FS1JA783A01CFJ |

| | | |
|----|-------|--|
| | S124 | R7FS124762A01CLM, R7FS124763A01CFL, R7FS124763A01CFM, R7FS124772A01CLM, R7FS124773A01CFL, R7FS124773A01CFM, R7FS124773A01CNE, R7FS124773A01CNF |
| | S128 | R7FS128782A01CLM, R7FS128783A01CFJ, R7FS128783A01CFL, R7FS128783A01CFM, R7FS128783A01CNE, R7FS128783A01CNG |
| | S3A1 | R7FS3A17C2A01CLK, R7FS3A17C3A01CFB, R7FS3A17C2A01CBJ, R7FS3A17C2A01CLJ, R7FS3A17C3A01CFM, R7FS3A17C3A01CFP, R7FS3A17C3A01CNB |
| | S3A3 | R7FS3A37A2A01CLK, R7FS3A37A3A01CFB, R7FS3A37A2A01CBJ, R7FS3A37A2A01CLJ, R7FS3A37A3A01CFP, R7FS3A37A3A01CFM, R7FS3A37A3A01CNB |
| | S3A6 | R7FS3A6782A01CLJ, R7FS3A6783A01CFL, R7FS3A6783A01CFM, R7FS3A6783A01CFP, R7FS3A6783A01CNB, R7FS3A6783A01CNE, R7FS3A6783A01CNF |
| | S3A7 | R7FS3A77C2A01CLK, R7FS3A77C3A01CFB, R7FS3A77C2A01CBJ, R7FS3A77C3A01CFP, R7FS3A77C2A01CLJ, R7FS3A77C3A01CFM, R7FS3A77C2A01CNB, R7FS3A77C3A01CNB |
| | S5D3 | R7FS5D37A2A01CLJ, R7FS5D37A3A01CFP, R7FS5D37A3A01CFM, R7FS5D37A3A01CNB |
| | S5D5 | R7FS5D57A2A01CLK, R7FS5D57A3A01CFB, R7FS5D57A3A01CFP, R7FS5D57C2A01CLK, R7FS5D57C3A01CFB, R7FS5D57C3A01CFP |
| | S5D9 | R7FS5D97C2A01CBG, R7FS5D97C3A01CFC, R7FS5D97C2A01CLK, R7FS5D97C3A01CFB, R7FS5D97C3A01CFP, R7FS5D97E2A01CBG, R7FS5D97E3A01CFC, R7FS5D97E2A01CLK, R7FS5D97E3A01CFB, R7FS5D97E3A01CFP |
| | S7G2 | R7FS7G27H2A01CBD, R7FS7G27G2A01CBD, R7FS7G27H2A01CBG, R7FS7G27G2A01CBG, R7FS7G27H2A01CFC, R7FS7G27H3A01CFC, R7FS7G27G2A01CFC, R7FS7G27G3A01CFC, R7FS7G27H2A01CLK, R7FS7G27G2A01CLK, R7FS7G27H3A01CFB, R7FS7G27G3A01CFB, R7FS7G27G3A01CFP |
| | RA0 | R7FA0E105, R7FA0E107 |
| | RA2 | R7FA2A1AB, R7FA2A2AD, R7FA2A2BD, R7FA2E1A5, R7FA2E1A7, R7FA2E1A8, R7FA2E1A9, R7FA2E2A3, R7FA2E2A5, R7FA2E2A7, R7FA2E305, R7FA2E307, R7FA2L1A9, R7FA2L1AB |
| | RA4 | R7FA4E10B, R7FA4E10D, R7FA4E2B9, R7FA4M1AB, R7FA4M2AB, R7FA4M2AC, R7FA4M2AD, R7FA4M3AD, R7FA4M3AE, R7FA4M3AF, R7FA4T1B9, R7FA4T1BB, R7FA4W1AD |
| RA | | R7FA6E10D, R7FA6E10F, R7FA6E2B9, R7FA6E2BB, R7FA6M1AD, R7FA6M2AD, R7FA6M2AF, R7FA6M3AF, R7FA6M3AH, R7FA6M4AD, R7FA6M4AE, R7FA6M4AF, R7FA6M5AG, R7FA6M5AH, R7FA6M5BF, R7FA6M5BG, R7FA6M5BH, R7FA6T1AB, R7FA6T1AD, R7FA6T2AB, R7FA6T2AD, R7FA6T2BB, R7FA6T2BD, R7FA6T3BB |
| | RA6 | |
| | RA8 | R7FA8D1AF, R7FA8D1AH, R7FA8D1BF, R7FA8D1BH, R7FA8M1AF, R7FA8M1AH, R7FA8T1AF, R7FA8T1AH |
| RE | RE01B | R7F0E01BD2DNB |

RE01_1500KB R7F0E014D2CFB, R7F0E014D2CFP, R7F0E015D2CFB,
R7F0E015D2CFP, R7F0E016D2DBN, R7F0E017D2DBN

RE01_256KB R7F0E01082CFM, R7F0E01082CFP, R7F0E01082DBH,
R7F0E01082DBR, R7F0E01082DNG, R7F0E01182CFM,
R7F0E01182CFP, R7F0E01182DBH, R7F0E01182DBR,
R7F0E01182DNG

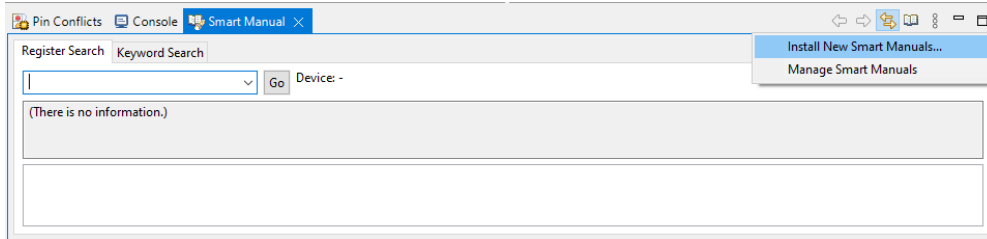
3. Smart Manual Support

Smart manual support is delivered independently of e² studio releases when available. The following devices are available as of January 2023:

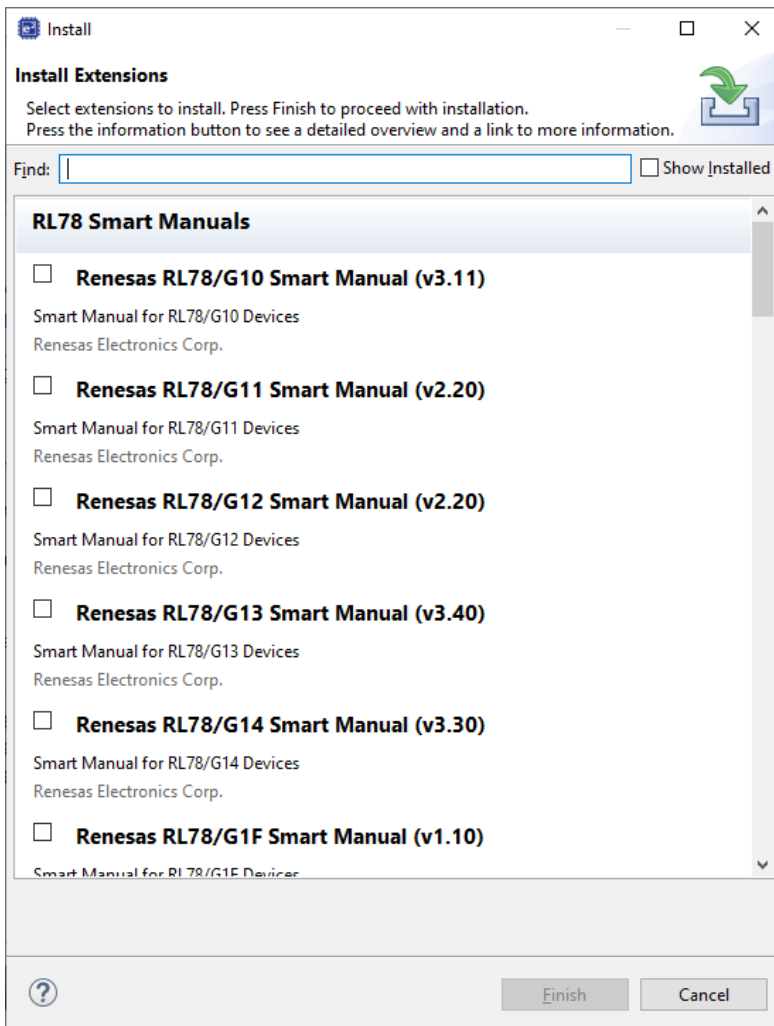
- RX110
- RX111
- RX113
- RX130
- RX13T
- RX140
- RX210
- RX220
- RX230
- RX231
- RX23E-A
- RX23E-B
- RX23W
- RX24T
- RX24U
- RX26T
- RX62G
- RX62T
- RX631
- RX63N
- RX63T
- RX64M
- RX651
- RX65N
- RX660
- RX66T
- RX66N
- RX671
- RX71M
- RX72M
- RX72N
- RX72T
- RL78/G10
- RL78/G11
- RL78/G12
- RL78/G13
- RL78/G14
- RL78/G15
- RL78/G16
- RL78/G1F
- RL78/G22
- RL78/G23
- RL78/G24
- RL78/L12
- RL78/L13
- RZ/A1H
- RZ/A1L
- RZ/A2M
- RZ/T1
- RZ/T2L
- RZ/T2M
- RZ/N2L
- RA2E1
- RA2E2
- RA2L1
- RA4E1
- RA4E2
- RA4M2
- RA4M3
- RA4T1
- RA6E1
- RA6E2
- RA6M4
- RA6M5
- RA6T2
- RA6T3

To view the Smart Manual support in e² studio please use the following method:

1. Please open the Smart Manual view. Available on the Renesas Views->Solution Toolkit->Smart Manual menu from the Menu bar.
2. Then use the “Install new Smart Manual...” option seen in the figure below:



3. A dialog is then displayed which shows all available Smart Manuals.



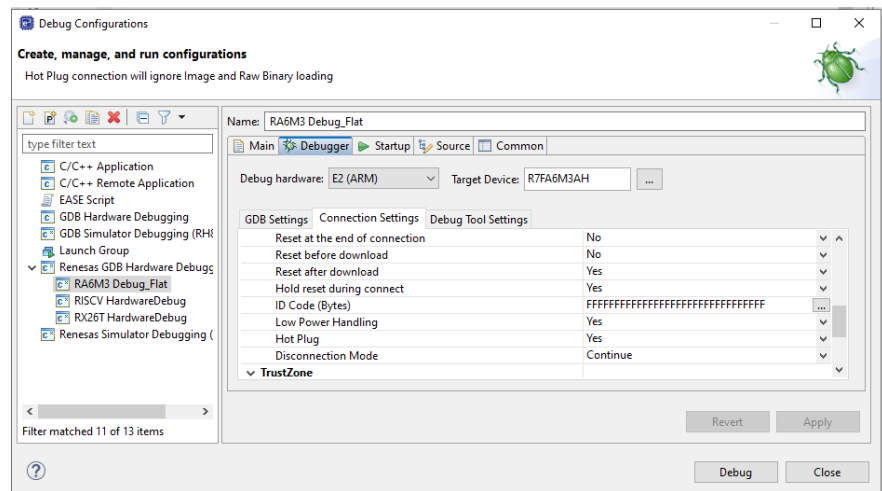
4. What is new in this release?

| Component | Device | Description |
|-------------|----------|---|
| Application | RX, RL78 | The e2 studio MacOS version now supports the RL78 and RX device family. |

When using the hot plug feature, the debugger load module setting needs to be changed to download symbols only.

This is improved in 2024-04 and the image file will not be downloaded automatically, when the hotplug debug connection mode is specified.

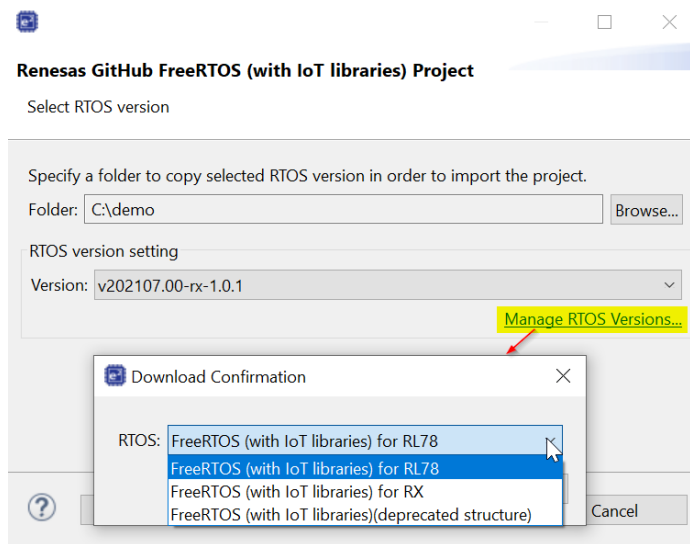
Debugging All



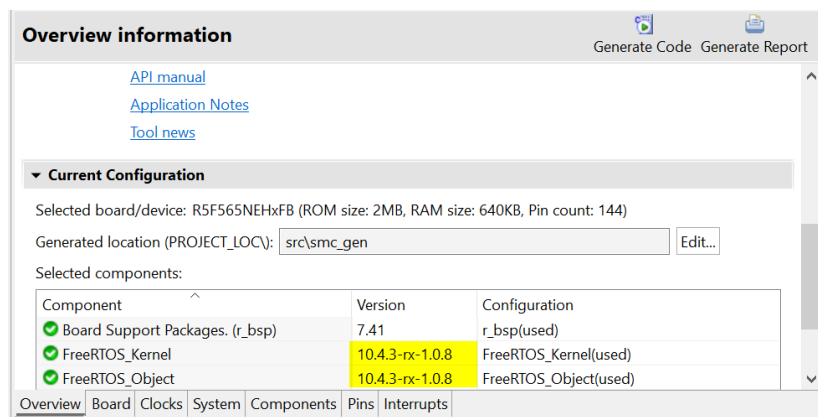
Some improvements of the RX Smart Configurator in this version which has been updated to version V2.21.0.

Smart Configurator RX

* Version of FreeRTOS configuration at Overview tab of Smart Configurator is displayed with information from FreeRTOS software package.

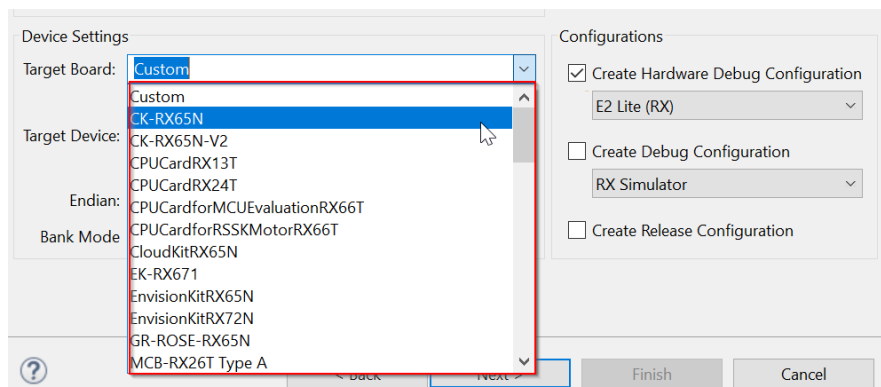


* When using Renesas GitHub FreeRTOS import feature, it can download the FreeRTOS software package for RL78.

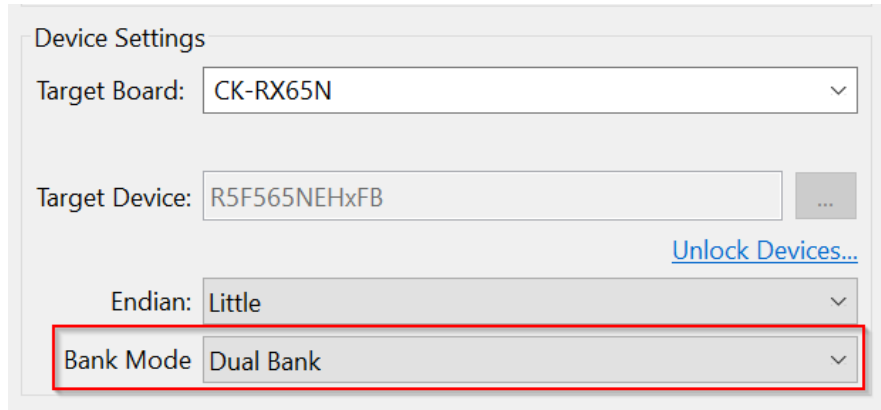


Improved Smart Configurator device selection for DUAL devices. From 2024-04 version, the DUAL boards are removed from Target Board selection.

Project Generation RX



Please use Bank Mode for Dual setting:

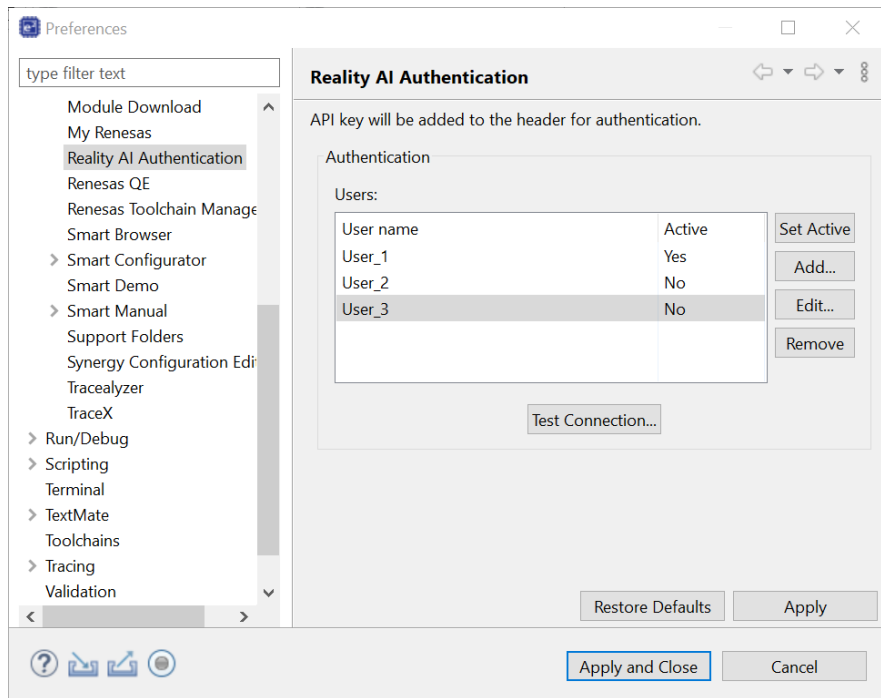


Reality AI authentication multiple key handling

The Reality AI plugins now have the capability to support multiple authentication keys for multi-user development. The keys are stored in the workspace so they are particular for the user of the machine in use. The feature is available within the Renesas preferences area under "Reality AI Authentication".

Reality AI

RX, RL78,
RA



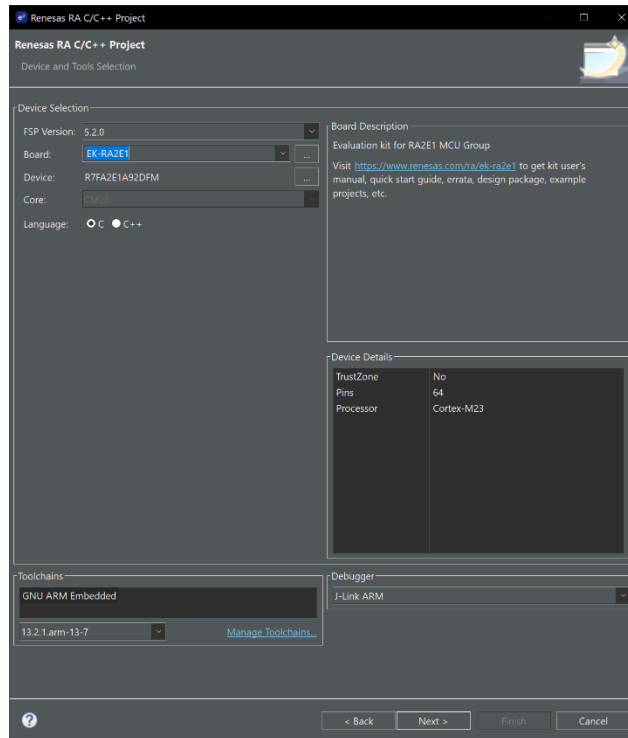
Stack Analysis View

RX, RL78,
RH850

The Stack Analysis View on Linux will support all devices with Renesas CC-RX, CC-RL, CC-RH compilers from 2024-04.

It is now possible to manage your toolchains from the FSP Project Generator. Allowing you to add a toolchain to e2 studio when creating a new project.

Toolchain Management RA, RZ



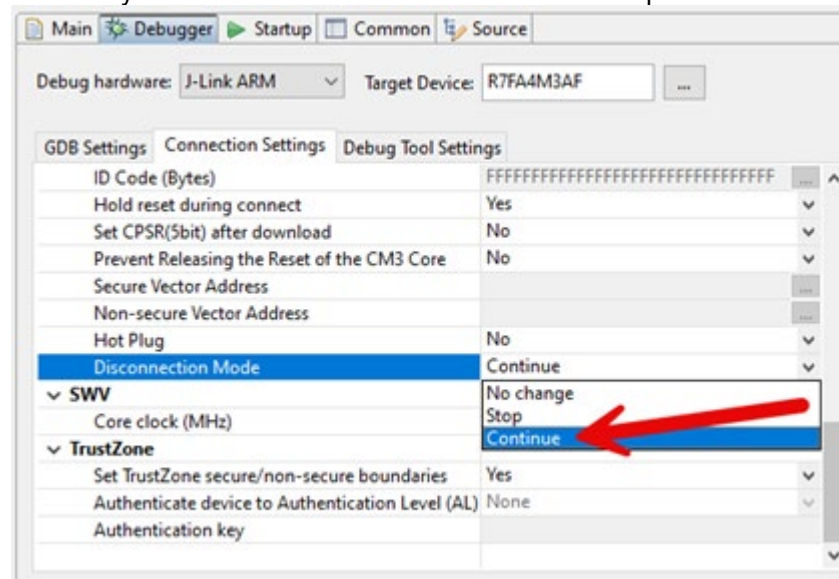
When disconnecting from the debugger the default operation for "Disconnection Mode" is now "Continue".

This is the case for RA debug connections using both J-Link and E2/E2-Lite emulators.

This will allow the device to continue to run.

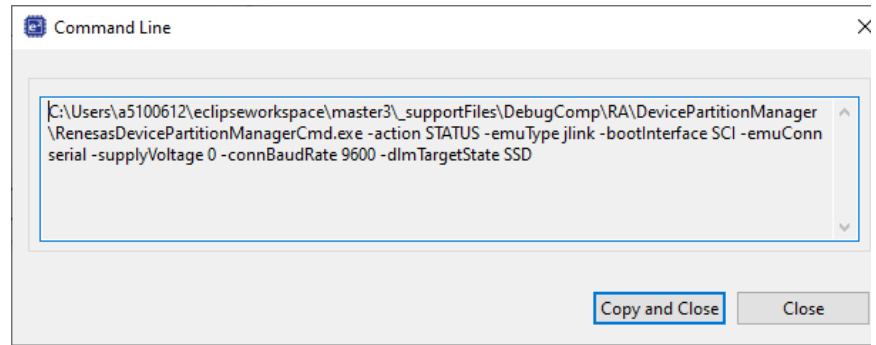
Previously the default "Disconnection Mode" was "Stop".

Debugging RA



A new button "Show Command Line" is now available in the Renesas Device Partition Manager Dialog which will give the user a preview of the command line generated from the the selections made in the dialog in a separate "Command Line" dialog. This command line can then be copied from the "Command Line" dialog so it can be pasted and run from a command line console.

RDPM RA



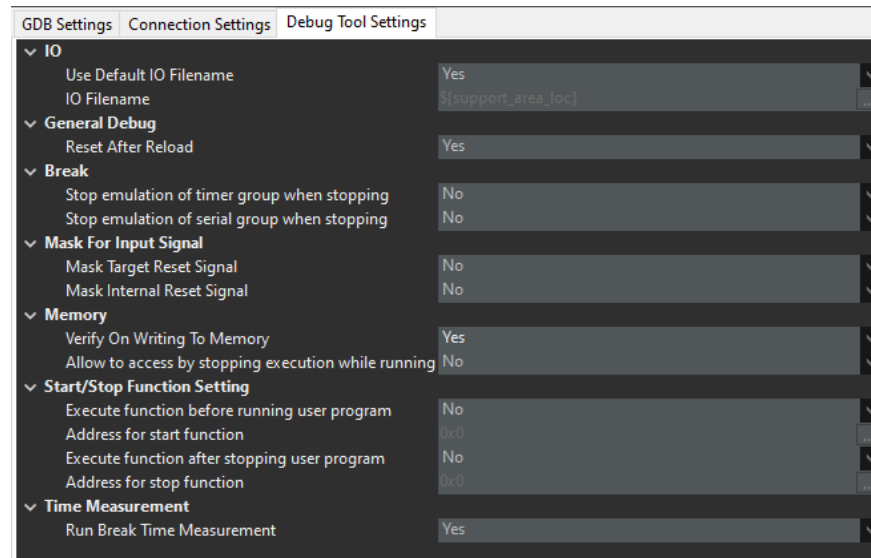
Smart Configurator RISC-V MCU

The Smart Configurator for RISC-V MCU has been updated to use the latest BSP package version which is now at version v1.10.

RISC-V MCU now supports a new option under the "Memory" section in the "Debug Tool Settings" of the debug configuration called "Allow to access by stopping execution while running" for both J-Link and E2/E2LITE.

This option is by default set to "No" which does not interfere with a running program and prevents memory access. Setting this option to "Yes" will allow memory access by temporarily halting the running program.

Debugger RISC-V MCU



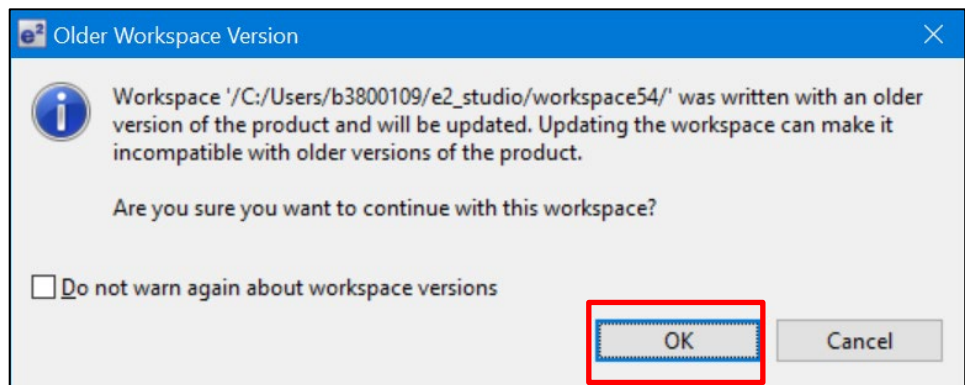
5. Useful workarounds and information for this e² studio release

Please visit the Renesas FAQ for e² studio for the latest up to date information:

[Online FAQ link.](#)

| ID | Component | Workaround or information |
|----|---------------------------------|---|
| | Application | When using the check for updates feature within e ² studio and updating from 7.0.x to 7.1.x the initial restart after the update fails. An error message is displayed. Subsequent launches of e ² studio work without issue. This is caused by the update to Java. |
| | SH support | The Renesas SH device family is no longer supported in e ² studio. If you need to use the SH device support, please use e ² studio 5.4 or earlier. |
| | Importing old projects into 6.x | All projects being migrated into the latest e ² studio from e ² studio 5.4 and earlier versions will need to be migrated to the new builder plugins. The new builder plugins have different user interface pages and different option IDs. |

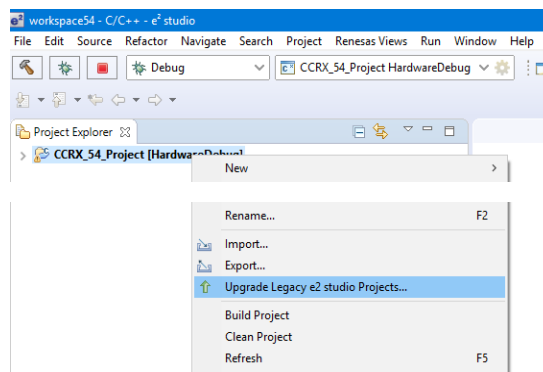
Upon opening an older workspace, the following dialog would be displayed:



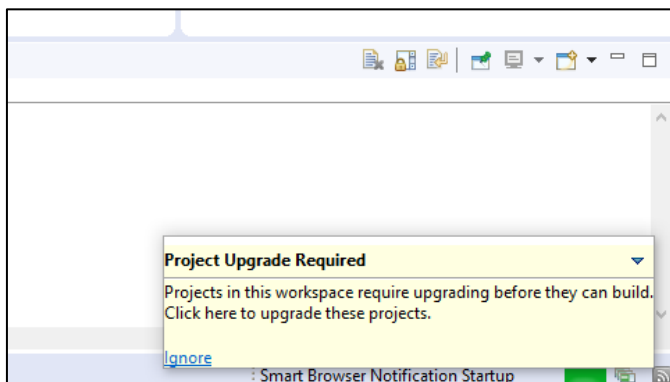
Clicking OK will update the workspace to the newer e² studio.

Importing an existing project to the workspace or opening a workspace with old projects will automatically start the legacy project upgrade procedure.

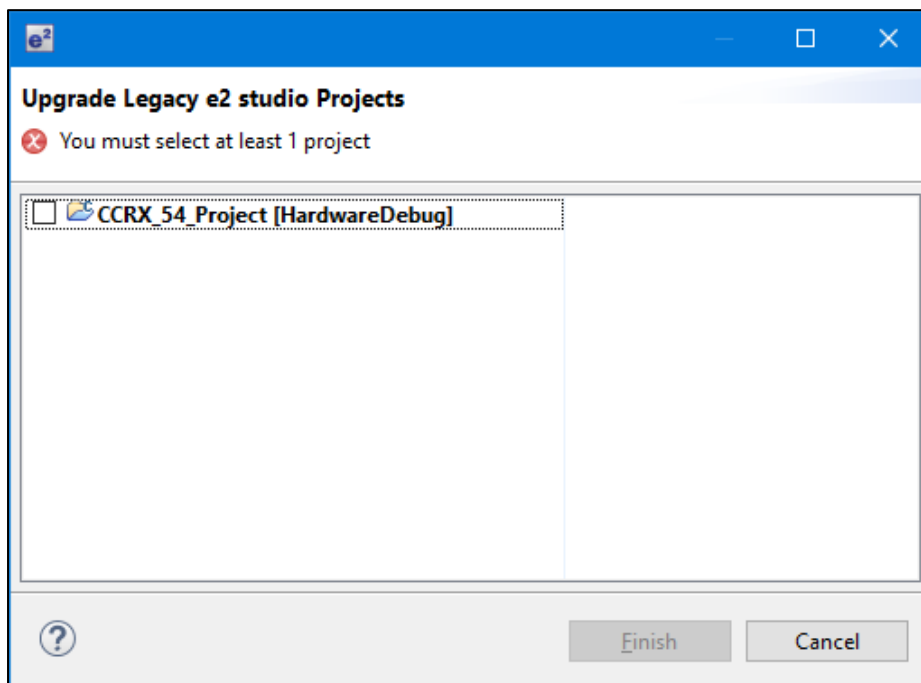
If for some reason this process does not start it is also possible to launch the “Upgrade Legacy of e2 studio Projects...” from the project context menu.



The automatic system pops up a message bubble in the bottom left of the e² studio application window.



After selecting the menu item or clicking the bubble the following dialog will be shown:

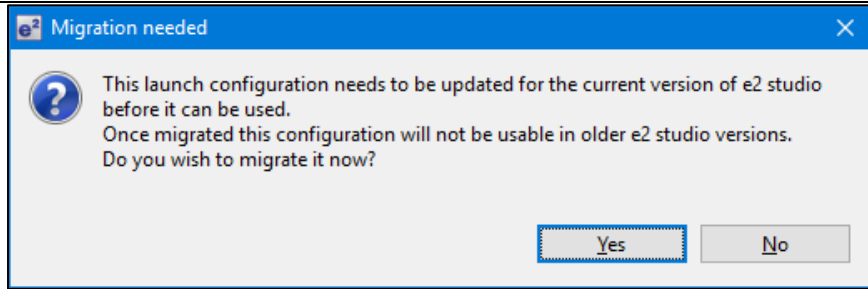


To upgrade the project, click the corresponding check box and then click Finish. Note, this will update the project to the latest build plugins and options. Before doing this, you should ensure your project is backed up as this operation is not reversible.

It is possible to upgrade multiple projects in a single operation.

For the GCC toolchains for RX, RL78 and GNUARM-NONE have been made to the build options which mean we cannot guarantee the same binary output after upgrade. Please consider this before upgrading.

Another consideration for migration is that debug configurations when opened in 6.0 will also need to be migrated. The following message will be displayed.



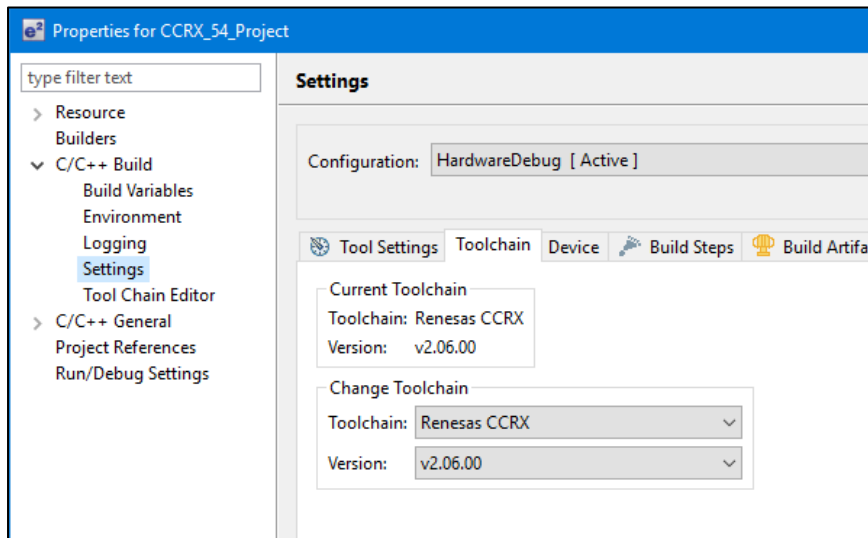
Please ensure that your projects are backed up or in revision control before migration allowing you to return to older versions if required.

Toolchain Management

Before e² studio 6.0 the toolchain management facility automatically upgraded or downgraded the imported project to the latest tools installed on the host machine.

This no longer happens in the latest e² studio. Instead the toolchain remains the same and user operation is the only way to change the toolchain version.

This operation is now available within the build settings on the toolchain tab. An example of CCRX is shown below:



If the particular toolchain version does not exist and build is performed, then an error message is displayed, and the build will fail.

RZ Toolchain

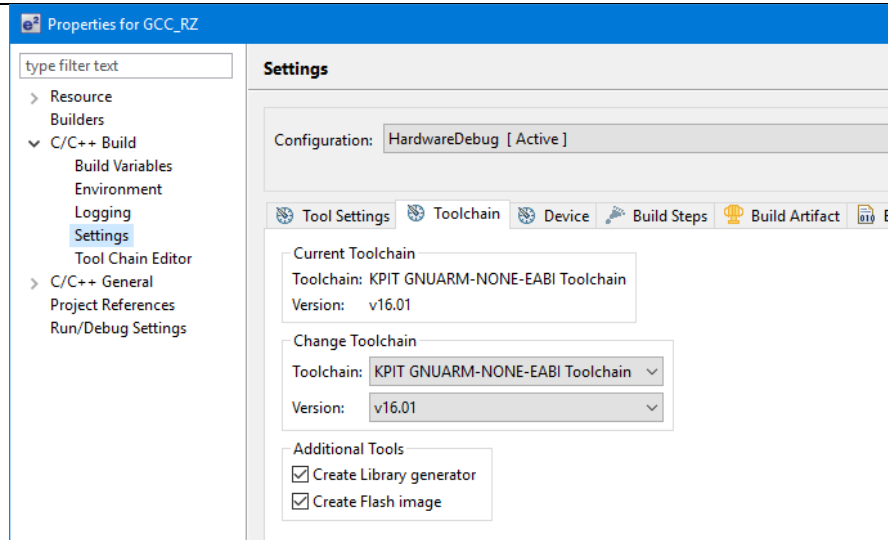
The now legacy KPIT GNU ARM-NONE toolchain is still supported within the e² studio product but now using the gnuarmeclipse plugins.

In addition RZ within e² studio now supports the GNU ARM Launchpad toolchain. Available from <https://launchpad.net/gcc-arm-embedded>.

One drawback of this toolchain is that it does not have a standard library builder provided in the same manner as the legacy KPIT ARM-NONE toolchain. To use this feature for ARM Launchpad and gain access to the more efficient optlib libraries a further download is required.

This can be downloaded within the e² studio installer or directly from here: <https://lvm-gcc-renesas.com/rz/rz-download-toolchains/>

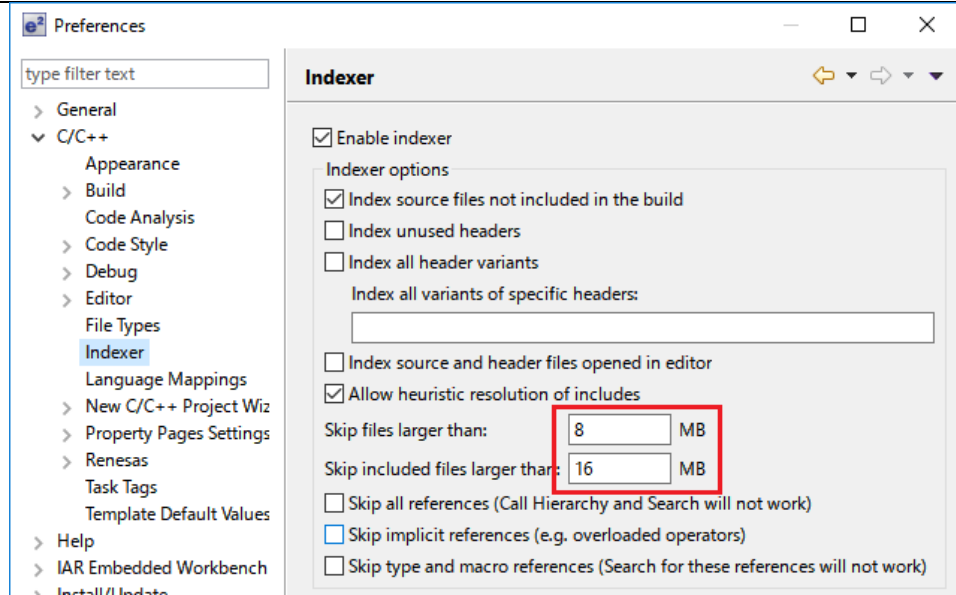
Once integrated it is possible to integrate the library generator from the toolchain tab of the build settings page.



See “Create Library generator” option. Once checked the library generator (libgen) is added to the available tool settings.

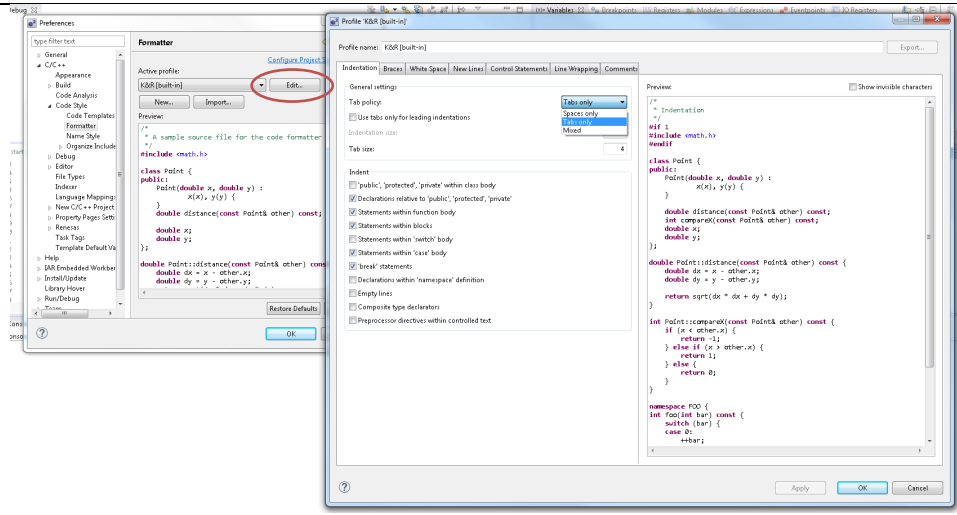
| | |
|---------------------|---|
| QE compatibility | If QE for TCP/IP V1.0.0 is used, please update it to V1.0.1. Other QE series can be used with e ² studio 6.0. |
| | <p>What is QE? https://www.renesas.com/qe</p> |
| | <p>Details of QE for TCP/IP https://www.renesas.com/qe-tcpip</p> |
| 5954 Application | <p>If you experience the error message “org.eclipse.swt.SWTError: No more handles” this can be caused by certain multi-monitor software and the Eclipse framework.</p> <p>If this error occurs there are 2 workarounds:</p> <ol style="list-style-type: none"> 1. Use a single monitor display. 2. Uninstall the multiple monitor software from your graphics chipset vendor and revert to the standard Windows multi-monitor feature. |
| 6981 RL78 Debugging | <p>When debugging IAR C source file with an OCD emulator (E1), the Monitor program area (0x00002-0x00003) is used.</p> <p>Therefore, this area must be excluded from usable address space. Please add '-HFF' in the linker option.</p> <ol style="list-style-type: none"> 1. Open Property. 2. Select [C/C++ build]-[Settings] at left side. 3. Select 'IAR RL78 Xlink linker' at right side, add '-HFF' at the textbox 'command'. <p>Not doing this will cause problems with connection and download when using interrupts.</p> |
| NA Application | <p>If you are experiencing slow building of projects within e² studio there are some possibilities to improve.</p> <p>The system environment will attempt to find the make.exe tool via the system environment. If you ensure the directory, make resides in is at the start of the path variable it will find it more quickly. Especially important if there are network drives in the path.</p> |

| | | |
|------|-------------|---|
| | | <p>In the project properties, C/C++ Build tab, behavior tab you can switch on parallel build. This will take advantage of the multi-cores on your host machine if it has them.</p> |
| NA | RZ GCC | <p>In 3.0 the KPIT GCC RZ toolchain was supported at version 14.01. This version is no longer supported within e² studio.</p> <p>KPIT modified the name of their ARM toolchain to be ARM-none-eabi to follow standard ARM naming convention like other GCC toolchain vendors.</p> <p>The ARM-none toolchain is available at versions 14.01, 14.02 and 16.01 from the www.gcc-renesas.com website. The binaries in the 14.01 version are identical to those used in the 14.01 RZ toolchain.</p> <p>Once the toolchain is installed your projects will be imported and ported to ensure there is as little disruption as possible due to this change.</p> |
| NA | KPIT GCC | <p>The KPIT toolchains are now no longer supported by the www.kpitgnutools.com website. Support is now available from the llvm-gcc-renesas.com website.</p> <p>In addition, there are two new releases for the GNU toolchains for RX and RL78. These are now named Renesas GCC for RX and Renesas GCC for RL78.</p> <p>Both integrate into e² studio and can be selected from the project wizard.</p> |
| 1922 | Application | <p>Symptoms: Project fails to build in first instance after archive project import (not from HEW)</p> <p>Conditions: If an archived project is imported, it may fail to build the first time, due to a residual .d file.</p> <p>Workaround: Clean and Build a second time.</p> |
| 2762 | CODAN | <p>When using assembly code within a C source file, CODAN errors can be observed in the editor. Even though the project builds successfully, or even after rebuild index.</p> <p>Indexer buffer can be insufficient to process whole project. Please try giving larger values for the following configurations.</p> <p>Open preferences dialog through "Window"->"Preferences" menu. In "C/C++" -> "Indexer" tree, you will indexer configuration as shown below:</p> |



Put larger values for each red-framed variables, then rebuild project or rebuild index.

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| 2728 | GDB | <p>Step into does not always work when using the CC-RX 1.02.01 toolchain.</p> <p>To ensure this behaves correctly you will need to use CC-RX 2.00.00 or greater as this issue with the debug information is corrected in this release.</p> |
| NA | Eventpoints | <p>If eventpoints do not always work just after they are set, you can use the "Apply to Target" toolbar button in the Eventpoint view to send the Eventpoints to the target manually. This will always ensure the debugger target has all the required eventpoint updates before execution starts.</p> |
| 5772 | IAR Plugins | <p>The IAR Plugin Manager is included in e² studio and provides support for RX, RL78, RH850 and RZ (ARM).</p> <p>This tool simplifies installation and configuration of IAR toolchain plugins. You can access this through Help -> IAR Embedded Workbench plugin manager.</p> |
| 6184 | RL78/CC-RL debugging | <p>When the load module for RL78/G10 which created at CC-RL is debugged in E1, please specify the following option:</p> <p>[Linker] -> [Device] -> "Set enable/disable on-chip debug by link option"</p> |
| 7217 | Application | <p>The restore default settings does not restore all the options set during project generation. Instead, it sets the defaults to the base settings for the device family in use.</p> |
| 7524 | RZ/T1 Debugging | <p>In a RZ/T1 RAM-based project, the "Reload" function does not work.</p> <p>Reloading or re-downloading during debugging resets the device and the RAM content is erased.</p> <p>To continue the debugging, disconnect and connect the debugger again.</p> |
| | Use spaces as tabs | <p>Eclipse and CDT both have settings for use spaces as tabs. The option on the Editor preferences page conflicts with the CDT formatter settings.</p> <p>To change the use spaces as tabs option in e² studio please use this page:</p> |

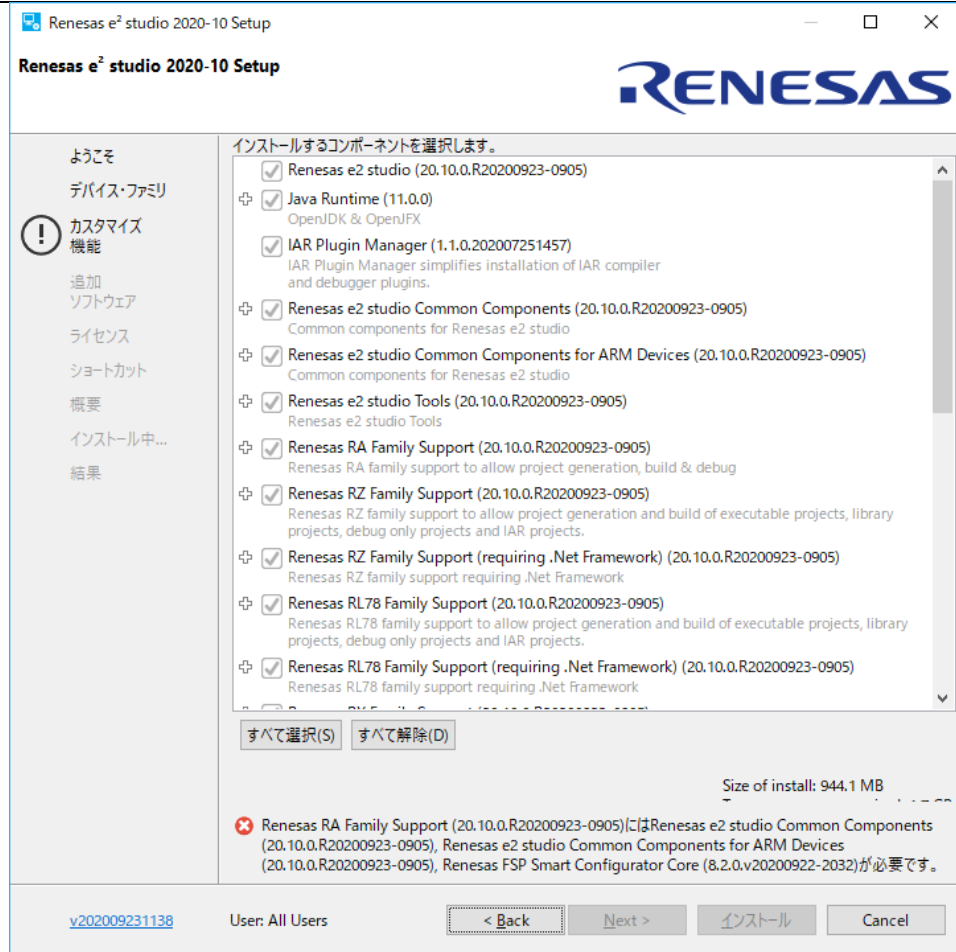


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| <p>Installer problems</p> | <p>In some situations, the AVG virus checker appears to interfere with the e² studio installation process. If you experience such a problem, please temporarily disable the AVG tool and try the installation again.</p> |
| <p>Antivirus</p> | <p>In some situations, the Norton anti-virus tool can interfere with the building of Renesas Synergy projects. If possible, please disable the antivirus program when building Renesas Synergy projects on systems with Norton Antivirus installed.</p> |
| <p>Green Hills RH850 Projects</p> | <p>When debugging the RH850 object built with the Green Hills compiler in e² studio, specify the following option for the compiler option: -gtws</p> <p>The GUI setting menu is as follows. [GHS C Compiler for V800 Standalone]-[Debugging Option] "Generate Target-Walkable Stack" -> On</p> <p>If this option is not specified, Step Over and Step Return may not work properly.</p> |
| <p>17052 Debugging</p> | <p>When debugging using a project with duplicate filenames that are in different source folders problems can be seen with breakpoint setting.</p> <p>When a breakpoint is set at a source line in this file it will also stop at the same source line in the other same named file when execution passes through.</p> |
| <p>18505 RZ debugging</p> | <p>When debugging with RZ/T1 in certain situations you may experience problems stepping:</p> <p>If the following conditions are met:</p> <ol style="list-style-type: none"> 1. Code is located close to address 0x0 2. There is very little library code included into the project 3. There are unused functions in the program <p>The possibility arises that the code cannot be debugged. This due to --gc-sections linker option which removes the unused functions but not the related debug information.</p> <p>There are several solutions to this problem:</p> <ol style="list-style-type: none"> a. disable --gc-sections until those functions are used b. remove the unused functions |

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| RZ GCC Build | <p>In the latest e² studio, the RZ import functionality has been improved. However, there are still possibilities of older projects causing problems when imported into e² studio.</p> <p>In older versions of the RZ build plugins the FPU option was not being handled correctly. When setting the “Soft” Floating point ABI the command line was still receiving <code>-mfpu=vfpv3</code> incorrectly. This can now cause problems with older start-up code in older RZ projects.</p> <p>After import if you see an error relating to this please add <code>-mfpu=vfpv3</code> to the “Other Assembler Flags” page of the Assembler tool.</p> <p>In addition, when migrating some RZ/A1 projects you may experience import problems unless you build the project in 5.4 first.</p> | |
| RZ DS-5 Project Import | <p>When a DS-5 project is imported into e² studio the environment variables for Path and TCInstall are copied from the DS-5 environment.</p> <p>This is not correct. The way to correct this problem is to delete both paths and replace them with correct values to your toolchain. If you are unsure how to correct this, please create a new project and copy the values from this to the converted project.</p> | |
| RX & RL78 GCC Project Import | <p>When importing a KPIT RL78/RX Library C/C++ project from e² studio 5.4 or before the build artifact settings are not correct.</p> <p>The output prefix should be set to “lib” but is in fact empty.</p> | |
| RZ/G debug | <p>In the case of debugging Linux application for RZ/G, the following error messages are shown in GDB server console when pushing [Step in] button or [Step Over] button.</p> <p>These messages can be ignored because the Step debugging should work properly even with these messages.</p> <p>Examples of error messages:</p> <pre>PassthroughTargetCommunication::sendResponse error 42 46 PassthroughTargetCommunication::sendResponse error 10 15 PassthroughTargetCommunication::sendResponse error 42 46</pre> | |
| 21863 | RX & RL78 Debugging | <p>In previous releases there were some problems with stepping in some situations when using the CCRX and CCRL toolchains.</p> <p>A fix has been made to the debug object converter. To see this improvement please clean and rebuild the project. The debug information will then be updated, and the stepping will be more correct and reliable.</p> |
| Code Generator registration | <p>When using multiple installations of e² studio on your machine you may find that subsequent installations do not work correctly with the code generator.</p> <p>The effect is that the code generator cannot be created or added to projects. Existing projects can be used by the code generator views appear empty.</p> <p>If this is the case, then the code generator must be manually registered. To do this execute the following tool:</p> <p>e.g. <code>C:\Renesas\e2_studip\eclipse\plugins\com.renesas.cg_2.11.0.v20180601-1047\CodeGenerator\Tools\register COM.bat</code></p> | |

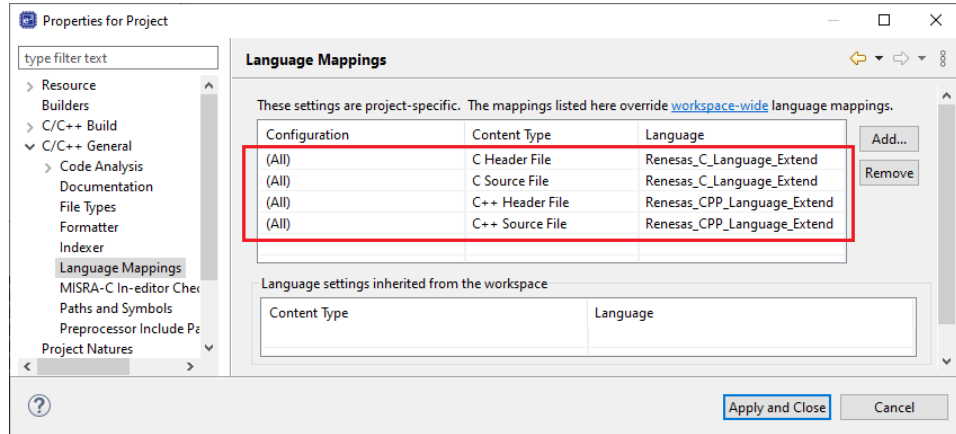
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| 25278 | Synergy debugging | <p>When loading Symbols from multiple .elf files compiled using the IAR toolchain, the user will need to add ".text" before place in FLASH_region command inside the .icf Script.</p> <p>e.g.</p> <pre> .text": place in FLASH_region { block LOCK_LOOKUP, ro, ro section .rodata, block QSPI_NON_RETENTIVE_INIT_BLOCK, block RAM_INIT_CODE, block USB_DEV_DESC_BLK }; </pre> |
| 25273 | RZ Device Migration | <p>When changing the device from a RZ/A1 and attempting to swap to a RZ/T1 the device migration is not successful.</p> <p>The source code is not migrated successfully, and the build fails. This is due to the different start-up code structure between these devices.</p> <p>In this case please create a new project and copy the required source to the newly created project.</p> |
| 25195 | RZ/A2M Smart Configurator | <p>When creating a project of RZ / A2M, the following Warning is displayed in the Problems view for the src / renesas / configuration folder.</p> <p>"Invalid project path: Include path not found"</p> <p>[Workaround]</p> <p>Delete the specification of this folder with the compile option include path setting.</p> |
| 24883 | R2/A2M | <p>RZ / A2M project generated by e² studio does not support GCC ARM 7.x or later. Please use GCC ARM 6.3.</p> |
| 27913 | GDB server RL78 | <p>When debugging with an EZ cube, real-time refresh significantly slows down debugging features and it makes e² studio look like suspended.</p> |
| 12123 | Linker Script Editor | <p>The Linker Script Editor may report errors when using some Wild Identifiers such as 1file.o and *filename.o .</p> <p>Although these are valid file names and valid identifiers according to the Linker Script syntax, they need to be quoted when using the Linker Script Editor. (e.g. "1file.o" and "*filename.o").</p> |
| RZ/G Linux Platform Tools | <p>When using RZ/G Linux Platform Tools, gnu.io.rtxx plug-ins should be installed same as Nebula plug-ins.</p> <p>Please follow the below steps to install gnu.io.rtxx plug-ins.</p> <p>Start the e² studio and select [Help] -> [Install New Software] from the menu bar to open the [Install] dialog box.</p> <p>Click on the [Add] button, enter "GNU RXTX Plugin Update Site" as a name and "http://rtxx.qbang.org/eclipse/" as a location, and click on the [OK] button.</p> <p>Select [RXTX 2.1-7r4] -> [RXTX End-User Runtime] from the list, click on the [Next] button, confirm the license, and install the plug-ins.</p> | |

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| 32564 | MyRenasas | <p>Due to differences in the login data between 7.8 and the 2020-04 e² studio (or later) version the FreeRTOS download feature does not work in 7.7/8 if the user has logged into MyRenasas or changed their login data details using 2020-04. If you previously used 7.7/8 prior to using 2020-04 and have not changed your login details, then both versions will work correctly.</p> <p>If you need to use MyRenasas in older versions of e² studio after logging in using 2020-04 then you will need to close all e² studio instances and delete the file "%USERPROFILE%\eclipse\org.eclipse.equinox.security\secure_storage". Be aware that doing this will remove stored passwords for any Eclipse-based application.</p> |
| 32543 | QE | <p>When updating e² studio versions using an installer any installed QE tools are removed and then must be reinstalled. To preserve QE tools during an update use the "Check for Updates" function in the "Help" menu to perform an in-place online update.</p> |
| 30613 | RH850 | <p>When viewing flash memory in the Memory View, it can be confusing as the values for this memory type can be random for unwritten blank flash memory regions.</p> <p>This can then result in many false positives for memory changes, resulting in more memory changes than expected. (red text)</p> <p>To fix this the debugger supports detection and filling of blank addresses areas with a user specified hex byte value.</p> <p>There is currently no user interface support for this feature. So, you need to add the following command parameters to the additional commands section of the debug configuration. The GDB command line option is: -uBlankFlashFill=BB with the blank fill value being 0xBB. Specifying this value enables the feature, by default it is off.</p> |
| 37443 | RA (Linux) | CMSIS Pack Import feature does not work for RA on Linux |
| 36999 | RA | Deleting the Debug folder from an NS project causes build failure when reference NSC guard functions. |
| 36007 | RA | <p>When debugging a secure and non-secure project - the Non-secure callable functions do not have debug information.</p> <p>This means you cannot set breakpoints in the secure function.</p> |
| 35767 | RA, RZ (Linux) | When importing an image using the "Image" Rendering on Linux Host the action fails. If you need to import an image on Linux please use the Raw Image memory rendering instead. |
| 38324 | RA | <p>When upgrading an e² studio 2020-04 or 2020-07 containing RA Family support to 2020-10 or later using the installer you may encounter on the features page.</p> <p>To avoid this, you either need to re-select RA on the Device Family selection page or uncheck and check again "Renesas FSP Smart Configuration Core" on the Features page.</p> |



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| <p>IDE- 39932</p> <p>RX</p> | <p>The Renesas ITRON debug views is only supported with e² studio 32bit version such as 7.8.0 currently. Enabling the Renesas ITRON debug views on e² studio 64bit version is under planning.</p> |
| <p>IDE- 42025</p> <p>RL78</p> | <p>After conversion of legacy GCC projects to LLVM, the generated linker_script and start.S files should be moved to src folder. "generate" folder needs to be deleted and the path to the linker script from Settings-> Linker-> Linkerscript should be change to "\${ProjDirPath}/src/linker_script.ld"</p> |
| <p>RA</p> | <p>When migrating from FSP versions before 3.0 the way pin configuration files are handled has changed. Previously the projects maintained ".pincfg" files within the project directory which contained the pin data. When migrating to FSP 3.0 and the subsequently saving the migrated configuration.xml the pin data is migrated from these files to the configuration.xml file. The ".pincfg" files will still appear in the pin tab until they are subsequently removed.</p> |
| <p>IDE- 44277</p> <p>All</p> | <p>From e² studio 2021-07 the RTOS debugging integration has been switched off by default due to some debug stability problems. This feature can be unstable with some RA projects. If you wish to switch this back as it may work for you, you can do so from the debug configuration settings pages. This can be accessed via the Run->Debug Configurations menu item or via the project context menu Debug As->Debug Configurations.</p> |

IDE-43524 Symbols of inline assembler instruction could not be resolved on C/CPP standard language. They can be resolved on Renesas C/CPP Language Extend. +Renesas C/CPP Language Extends are added in Language Mappings of new project on e² studio v2021-07. +Renesas C/CPP Language Extends need to be added manually, if old project is imported to e² studio v2021-07.



IDE-43405 RA, Synergy Microsoft have updated and improved the TraceX tool which can now be downloaded from the Microsoft Store. If you are using a new version of TraceX when configuring the tool, ensure you have checked the "Use TraceX installed from Microsoft Store" option. If you are using an older version, then uncheck this box. The configuration dialog is available in the preferences dialog. (Window->Preferences) (Renesas->TraceX category)

IDE-34814 RL78, RX The CCRX and CCRL build components now support multiple output formats for Converter tool instead of one format as previous version. If you migrate an old project to the new e² studio and then return to the old e² studio with the old output format. You will need to modify the settings as desired.

IDE-43454 RA, RZ The Linux installer for e² studio cannot be run as root by default, including using "sudo". If you wish to run it as root, then you need to add "--appimage-extract-and-run" as the 1st argument. e.g., "sudo ./e2studio_installer-2021-07.AppImage --appimage-extract-and-run"

IDE-47790 RH850 Synchronous mode is supported in e² studio 2022-01 for debugging RH850 multi-core devices. There is no need to manually switch between synchronous mode and asynchronous mode, and the mode automatically switches to the optimum mode depending on the debug operation.

Basic specifications for mode switching:
 When all cores are stopped and [Resume All], the operation mode becomes synchronous mode.
 Resume for one core switches to asynchronous mode and continues in asynchronous mode until all cores have stopped.
 Always use sync mode under the following conditions:
 * In that case, the operation of the [Resume] button will be the same as the operation of the [Resume All] button.

- Software breakpoint has been set.
- Connected with a hot plugin connection.
- Connected with a Initial Stop State debugging enabled.

Synchronous mode specifications:

- The [Resume All] button executes all cores.
- When a core is suspended due to a breakpoint or the [Suspend] button, all cores are suspend.
- For the [Step Into] button, all cores will step in.
- For the [Step Over] button, all cores will be executed. Then, when the currently active core completes the step over execution, all cores will be suspend.
- For the [Step Return] button, all cores will be executed. Then, when the currently active core completes the step return execution, all cores will be suspend.

Asynchronous mode specifications:

- [Resume] button executes the currently active core.
- Suspend on one core due to a breakpoint or the [Suspend] button does not affect the behavior of the other cores.
- Unable to set software breakpoints.

Specifications of each button related to execution control:

- [Resume] button: Switch to asynchronous mode and run the core currently being debugged.
- [Suspend] button: In asynchronous mode, stop the core currently being debugged. In synchronous mode, stop all cores.
- [Resume all] button: Switch to synchronous mode and run all cores.
- [Suspend all] button: Stop all cores and switch to synchronous mode.

Limitations:

- When use Step Into in synchronous mode, cores that are not debugged are also stepped, but the execution addresses of those cores are not reflected in the debug view. Check the register view for the correct PC value.

IDE- RX
48013

The following BSP packages have been removed from the RX Smart Configurator:

- r_bsp_gcc_v1.00.zip
 - r_bsp_gcc_v1.10.zip
 - r_bsp_gcc_v1.20.zip
 - r_bsp_gcc_v1.30.zip
 - r_bsp_iar_v1.00.zip
 - r_bsp_iar_v1.10.zip
 - r_bsp_iar_v1.20.zip
 - r_bsp_user_v1.10.zip
 - r_bsp_user_v1.20.zip
 - r_bsp_user_v1.30.zip
 - r_bsp_v3.80.zip
 - r_bsp_v3.91.zip
 - r_bsp_v4.00.zip
-

- r_bsp_v4.01.zip
- r_bsp_v5.20.zip
- r_bsp_v5.21.zip
- r_bsp_v5.40.zip
- r_bsp_v5.50.zip
- r_bsp_v5.61.zip
- r_bsp_v5.62.zip
- r_bsp_v5.63.zip
- r_bsp_v5.64.zip

To continue using the above listed BSP packages, please use the download function in Smart Configurator to download the exact version.

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| IDE-46896 | GCC Plugins | <p>Projects imported from Windows fail when being built in Linux.</p> <p>If copying a project with its build output directory between Windows & Linux, or moving it to a new location, you need to do a clean and rebuild to avoid build errors.</p> <p>If storing a project under version control avoid including the build output directories. At a minimum exclude the *.d files which may contain system specific paths.</p> |
| FSP Smart Configurator | <p>When using the FSP Smart Configurator the linker script is now generated in the build configuration folder rather than the script folder.</p> <p>This change should be automatically picked up when the project content is generated from the FSP Smart Configurator tool. This should ensure that existing projects continue to work as expected.</p> <p>When using the IAR toolchain for your project this new behavior can cause issues. In this case the IAR linker uses the "memory_regions.icf" file available in the script folder rather than the script file generated in the build configurations folder. To work around this please delete the file present in the script folder, then the tool will use the file in the build configuration folder.</p> | |
| IDE-55553 | RL78 GCC | <p>The RL78 GCC toolchain has been deprecated in favor of the RL78 LLVM toolchain. This toolchain offers much better performance and is recommended for new projects.</p> |
| IDE-59034 | Synergy Configurator | <p>The Synergy Package view will need to be opened manually from version 2023-01 onwards, as it is not opened by default (since Synergy now uses a different Pin Configurator than in earlier e² studio versions). The Synergy Package view is named "Synergy Package (experimental)".</p> |

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| Synergy Configurator | Renesas Synergy no longer supports Synergy Software Platform (SSP) version 1.x. |
| | Only Synergy Software Platform (SSP) version 2.0 and later will be available for new Synergy projects. Existing Synergy 1.x projects will prompt to upgrade upon opening them in the Synergy Configurator, if a later version (2.0 or later) is available. This means that it is no longer possible to build SSP 1.x projects in e ² studio 2023-01. |

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| Synergy Configurator | The Pin Editor component for Renesas Synergy projects has been modified to use the same pin configurator as the RA device family. Any existing projects that were using the Synergy Pin Editor will have their projects automatically upgraded upon opening them in the Renesas Synergy Configurator. This will allow Synergy users to access the more advanced feature set of the RA pin configurator and enjoy an updated user experience. |
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| IDE-62045 | GreenHills | Plugins for GHS Multi are no longer installed with e ² studio. Please see the GHS Multi manual for instructions on how to install the plugins if you want to use them. |
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| IDE-61688 | Application | Toolbar buttons with functions that are accessible via a menu item have been hidden by default for new workspaces. You can add them back via Windows -> Perspective -> Customize Perspective This change will not impact perspectives in existing workspaces unless the perspective is reset. |
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| IDE-66781 | Reality AI integration | The base production URL of Reality AI is changed. So e2 studio 2023-01, 2023-04 and 2023-07 versions can no longer use Reality AI functionalities. |
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| IDE-59440 | Debugging RA | Disconnect an RA board with the "Continue" option (allowing the user code to execute after disconnecting from JLink) does not work when using semihosting. |
| | | To work around this, make sure you have conditional code for when the debugger is not connected, e.g. |
| | | <pre>semihosting_printf(...) { if (CoreDebug->DHCSR & CoreDebug_DHCSR_C_DEBUGEN_Msk) { printf(...); } } #ifdef semihosting #SAFE_PRINTF(...) semihosting_printf(...) #else #SAFE_PRINTF(...) printf(...) #endif</pre> |
| | | Additionally, the use of an updated hard-fault handler to catch this situation would also help. |

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| IDE-68935 | Installer | <p>Installation for all users and running e2 studio from the installer can cause problems with access to support files and workspace locations.</p> <p>This issue occurs when a local administration user installs e2 studio and runs for the first time. If this user also creates a workspace, subsequent different users with lower privileges may experience problems when trying to open that workspace.</p> <p>Depending on installation configuration you may see an error like "Error extracting synergy support files". To avoid this issue subsequent users should create a new workspace.</p> |
| IDE-69167 | Installer | <p>When installing the platform installer for RA on Windows you may experience issues with GCC toolchain compilation if e2 studio is installed in a long path.</p> <p>Examples problems include not being able to find system include header files. The workaround for this issue is to install e2 studio in a shorter directory structure.</p> <p>e.g., c:\users\username\appdata\local\programs\renesas\e2_studio\toolchains\gcc_arm\arm-gnu-toolchain-12.2.mpacbti-rel1-mingw-w64-i686-arm-none-eabi to c:\renesas\e2_studio\toolchains\gcc_arm\arm-gnu-toolchain-12.2.mpacbti-rel1-mingw-w64-i686-arm-none-eabi</p> |
| IDE-76022 | RA Debugging | <p>RTOS threads may not correctly show call stacks when stepped after being Paused. Linux only.</p> |

6. Linux version

6.1 How to install

For information on how to install the Linux product please refer to FAQ below.

English : <https://en-support.renesas.com/knowledgeBase/19934358>

Japanese : <https://ja-support.renesas.com/knowledgeBase/19934356>

6.2 How to run

- A. Run 'terminal' application of Linux.
- B. Move installed directory and Run 'e² studio' binary file.

6.3 Register toolchain to e² studio

6.3.1 Renesas C Compiler (CC-RX / CC-RL / CC-RH)

If you want to use the Renesas C Compiler (CC-RX / CC-RL / CC-RH), you will need to obtain an installer for the toolchain and install and register it with the e² studio.

1. Downloading Renesas C Compiler and Renesas License Manager

The Renesas C Compiler installer is available from Renesas product page below.

- CC-RX
<https://www.renesas.com/software-tool/cc-compiler-package-rx-family>
- CC-RL
<https://www.renesas.com/software-tool/c-compiler-package-rl78-family>
- CC-RH
<https://www.renesas.com/software-tool/c-compiler-package-rh850-family>

In addition, the Renesas License Manager is necessary to use Renesas C Compiler as licensed edition. Also, Renesas C Compiler can be used without the Renesas License Manager. In this case, the Renesas C Compiler will work as an evaluation edition. The Renesas License Manager for Linux is available from the product page above. If you would like to know more about license, please see the following page.

<https://www.renesas.com/software-tool/compiler-licenses>

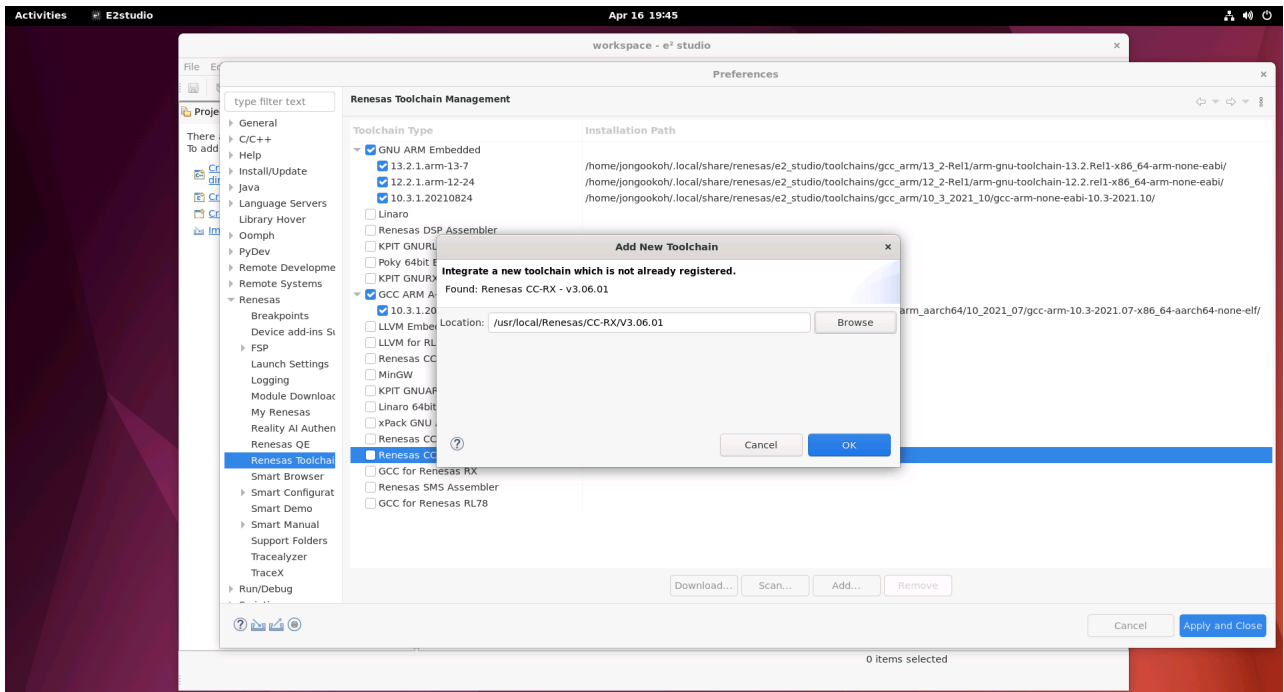
2. Installing Renesas C Compiler and Renesas License Manager

Please refer to the text file enclosed in the Renesas C Compiler and the Renesas License Manager for the Renesas C Compiler and the Renesas License Manager installation.

And license registration is described in the Release Note of the Renesas License Manager. Please refer it.

3. Registering Renesas C Compiler

After the Renesas C Compiler installation is complete, start e² studio, execute the [Help – Add Renesas Toolchains] menu, and select "Add..." Press the button and enter the path where the Renesas C Compiler is installed to register.



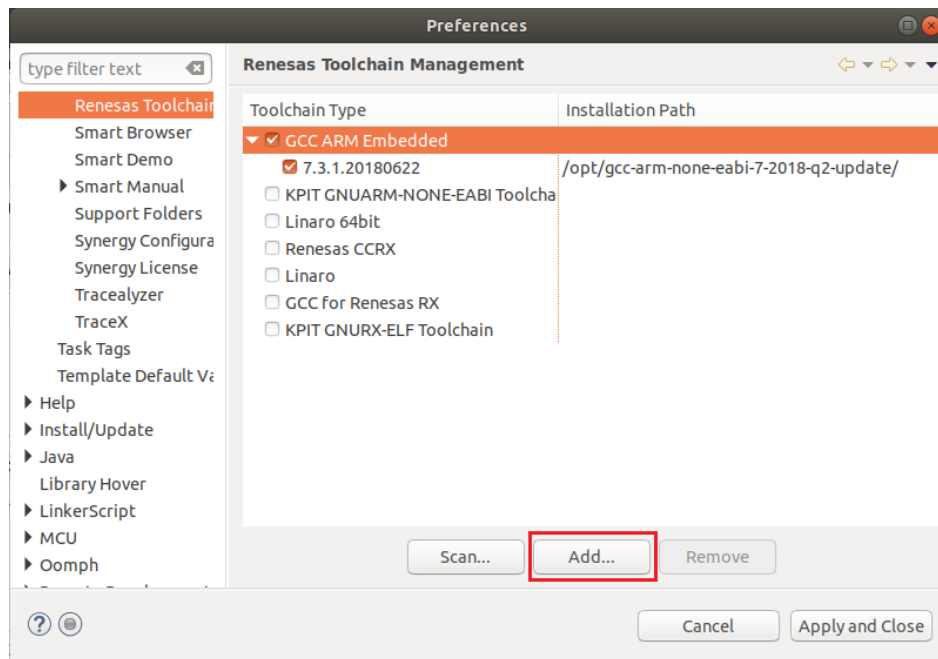
6.3.2 GNU ARM Embedded

Install the GNU ARM Embedded toolchain to a shared folder as follows:

```
sudo mkdir -p /opt
cd /opt
sudo tar jxf ~/Downloads/gcc-arm-none-eabi-7-2018-q2-update-linux.tar.bz2
```

(assuming the toolchain has been downloaded to your Downloads folder)

On first invocation you will be prompted to specify a workspace location, you will also be advised that there are no new toolchains available for integration. Open the Renesas Toolchain Management preference page using the Help → Add Renesas Toolchains menu item, then click on the Add... button and navigate to the root folder of the GNU ARM Embedded toolchain installation at /opt/gcc-arm-none-eabi-7-2018-q2-update in order to register the toolchain with e² studio:



6.3.3 Linaro

- A. Download and extract a toolchain package file to arbitrary directory.
- B. Run 'e² studio' and select 'Help – Add Renesas Toolchains'
- C. Select 'Toolchain Type' and 'Add' Location of toolchain.

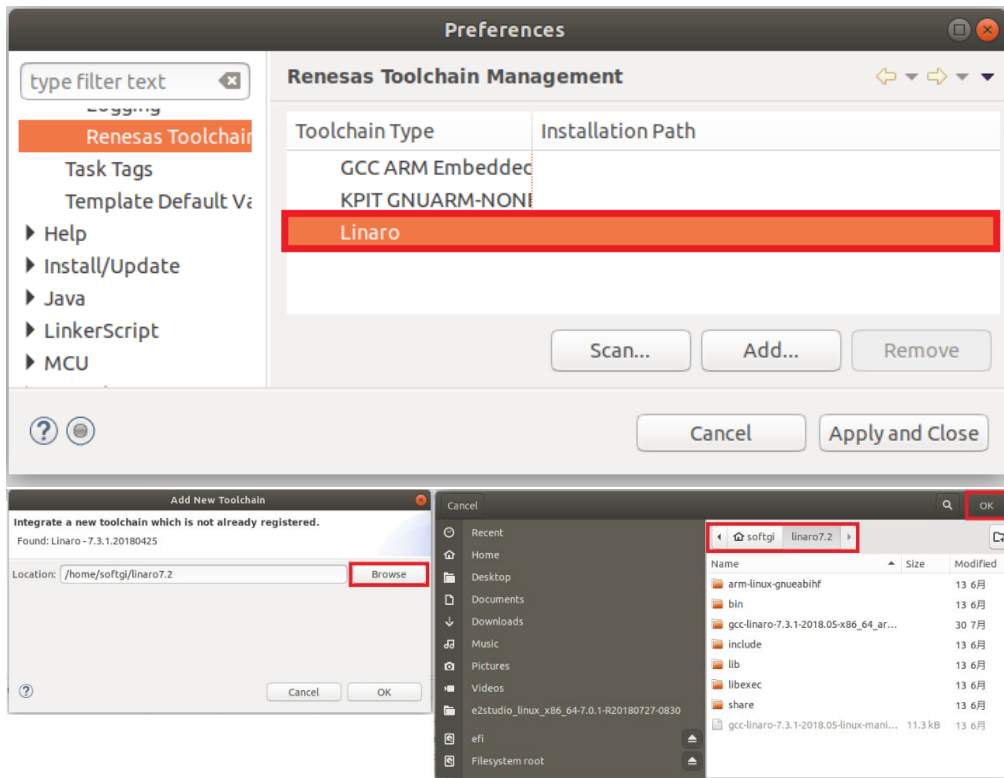


Figure 2. Register Toolchain: Browse toolchain location

- D. Click checkbox of added toolchain and restart e² studio.

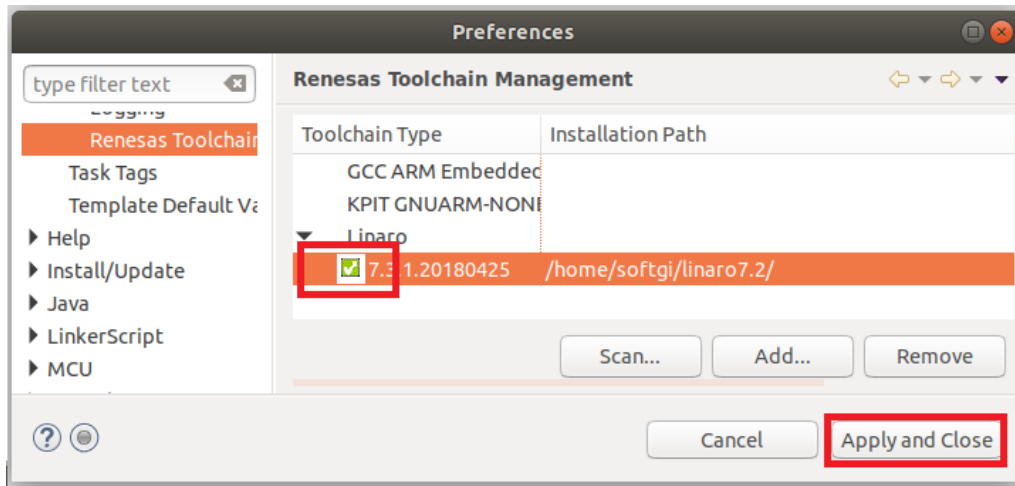


Figure 3. Register Toolchain: ex) Linaro

6.4 How to build and debug RA applications Overview

6.4.1 Build

Open the New project wizard and choose an RA project.

If this is unavailable it is likely the FSP has not been installed correctly. In this case, quit e² studio, reinstall the pack(s) and restart e² studio again.

Once the wizard completes a sample project will have been created, as well as a debug configuration for connecting the debugger.

6.4.2 Debug

Once the project has successfully built and produced a build artefact for debug, open the Debug Configurations dialog and a browse to the Renesas Hardware Debug section.

The debug configuration will match the project name – check that the settings are correct and hit Debug to connect to the device.

Checks if connection fails.

If the debug connection fails, it is often for one of two reasons:

1. If using a virtual machine, make sure that the device is tied into the VM rather than the host machine.
2. If the Segger library has not installed as part of the FSP correctly open the “/home/user/.eclipse/com.renesas.platform_XXXXXXX/DebugComp/RA/ARM/Segger” folder and copy and paste the 'libjlinkarm.so' into the other Segger folders - e.g. 'Segger_v6.50.1'. Alternatively, take the latest file from the Segger Tools installation folder and install it in the same place.

6.5 How to build and debug RZ Linux application Overview

e² studio for Linux supports building and debugging Linux applications for devices of RZ/A Group and RZ/G Group. For debugging by GDB (the GNU Project Debugger), please add Linux programs gdb-server program to Linux file system of devices and run as background process automatically. (ssh-server, tcf-agent will be needed for connection between host system and target device.) For detail about building Linux image for RZ family devices, refer to embedded Linux wiki pages (<https://elinux.org>) or Renesas Rulz web pages about RZ family (<https://community.renesas.com/>). Descriptions in below is based on RZ/A1H case.

6.5.1 How to add gdb-server to RZ/A Linux root file system

- Build root file system of RZ/A1 Linux-4.9 BSP.
(path example: ~/rza_linux-4.9_bsp/, command example: ./build.sh buildroot)
- Move to 'buildroot-***' directory in 'output'.
(path example: ~/rza_linux-4.9_bsp/output/buildroot-2017.02)
- Run menuconfig (make menuconfig) and add gdb-server.
(Select 'Toolchain—Copy gdb server to the Target' menu)

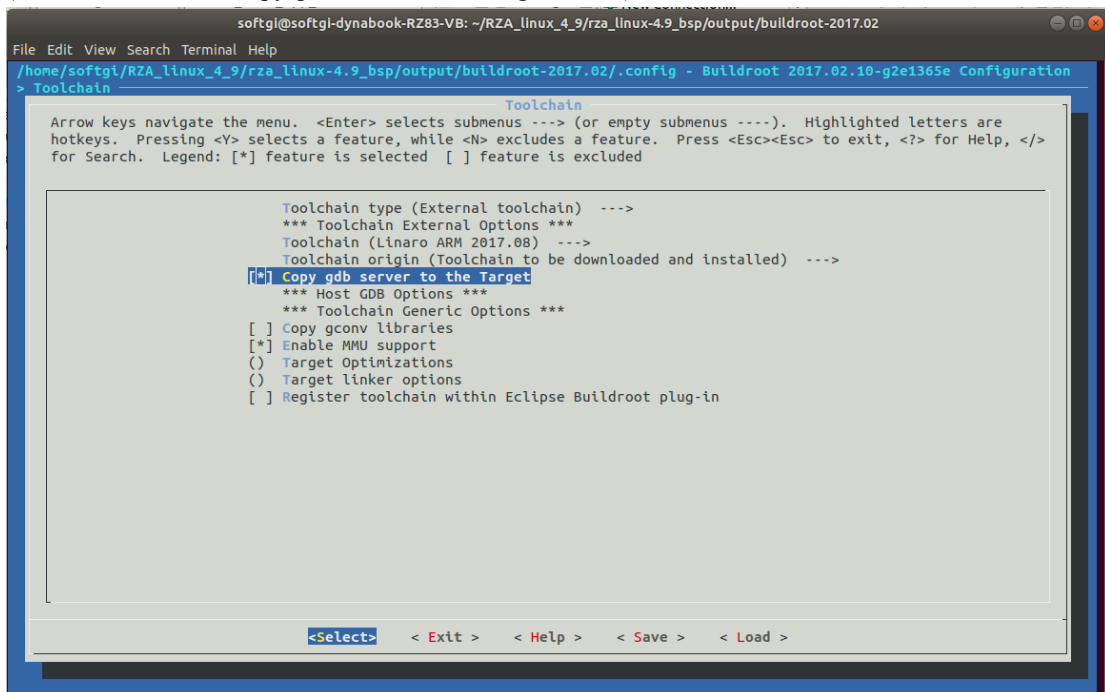


Figure 4. Menuconfig: set 'copy gdb server to the target'

- Move to 'target' directory in 'output' of 'buildroot-****'.
(path example: ~/rza_linux-4.9_bsp/output/buildroot-2017.02/output/target)
- Add new file with a line as command at '/etc/init.d' directory

```
File name: S51gdbserver
Command: /usr/bin/gdbserver --multi --remote-debug /dev/ttySC0
```

- Delete or disable below contents from etc/inittab.

```
# Put a getty on the serial port
# ttySC0::respawn:/sbin/getty -L ttySC0 115200 vt100 # GENERIC_SERIAL
```

- Move 'Linux-4.9 BSP root' (path example: ~/rza_linux-4.9_bsp/) and build root file system again. Download root file system at target device.

6.5.2 Linux C/C++ Project generation and build

- A. Connect target device which is run as Linux, via Serial port.
- B. Select ‘File – New - RZ Linux C/C++ project’ menu and make new RZ/A1H Linux C/C++ project. In phase of ‘RZ Linux connection settings’, the serial port which is used for connecting target device, will be selected automatically.

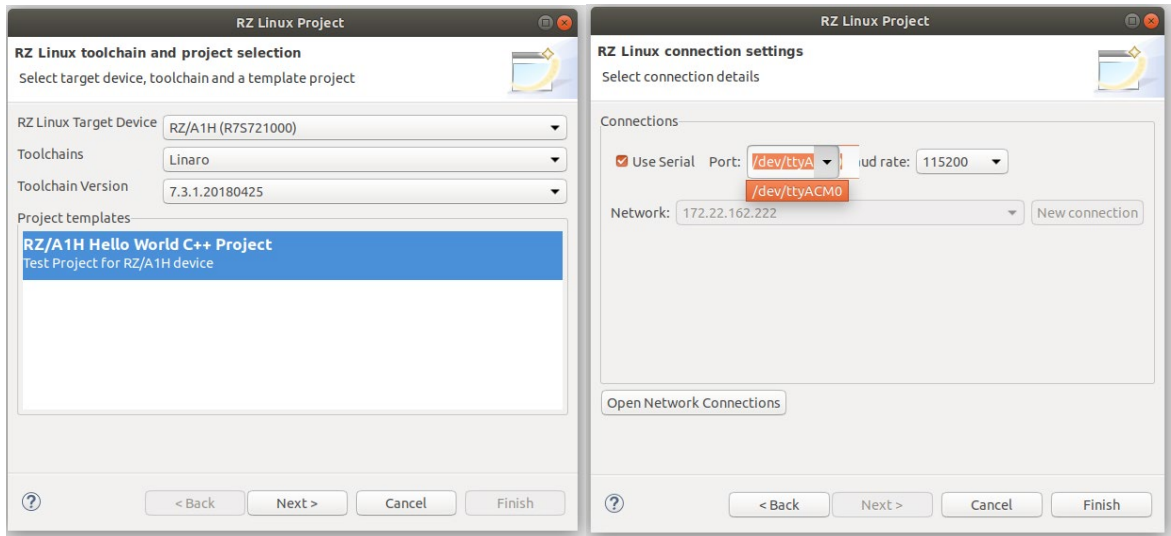


Figure 5. New RZ Linux project & connection setting: Serial port

- C. After editing codes, build by selecting ‘Build Project’ in right-click menu or push  button.

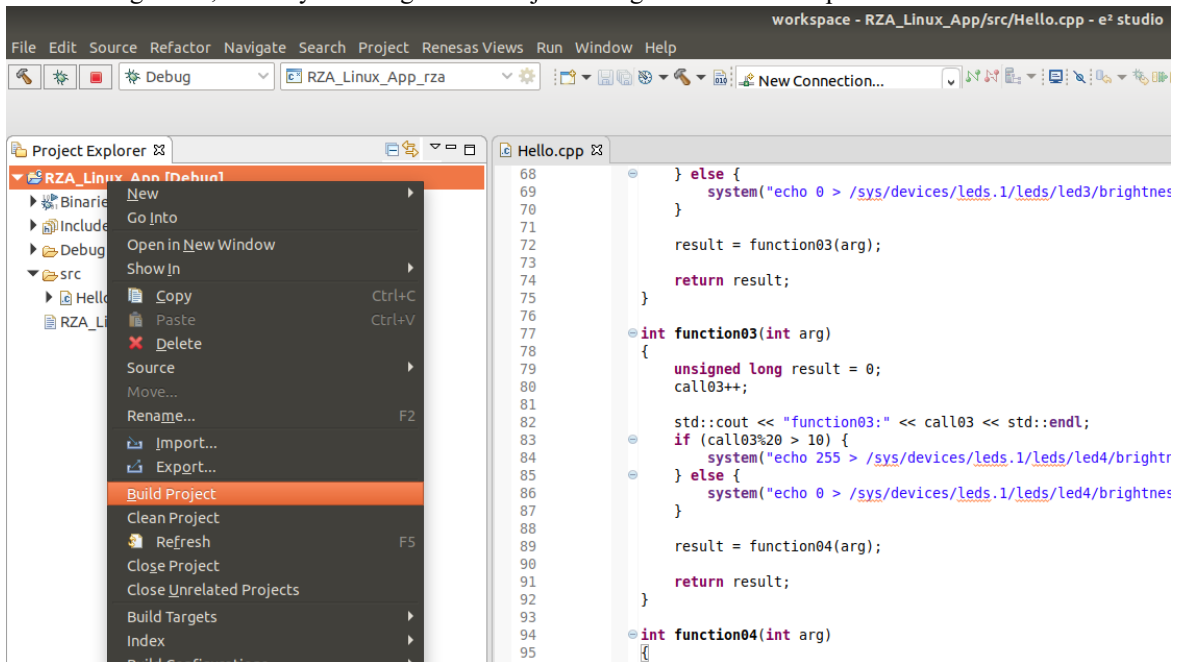


Figure 6. Build Project

6.5.3 GDB debug by using serial port communication

- A. Terminate all processes use serial port communication such as Minicom.
- B. Open ‘Configuration’ and check ‘Serial’ is selected as ‘Connection’.

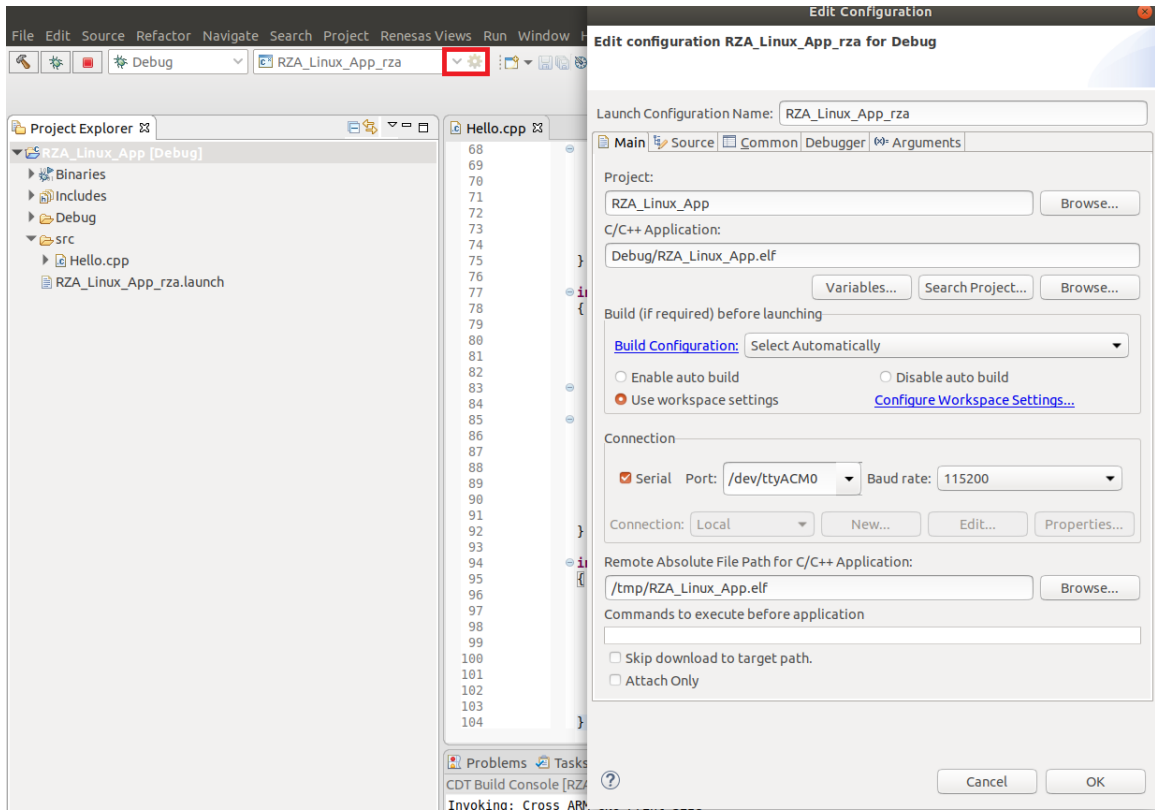



Figure 7. Connection configuration: Serial

- C. Run debug by push button . It takes 10 or more seconds for transferring binary files to target device. Pop up message for switching to debug perspective will be shown after transferring binary files.

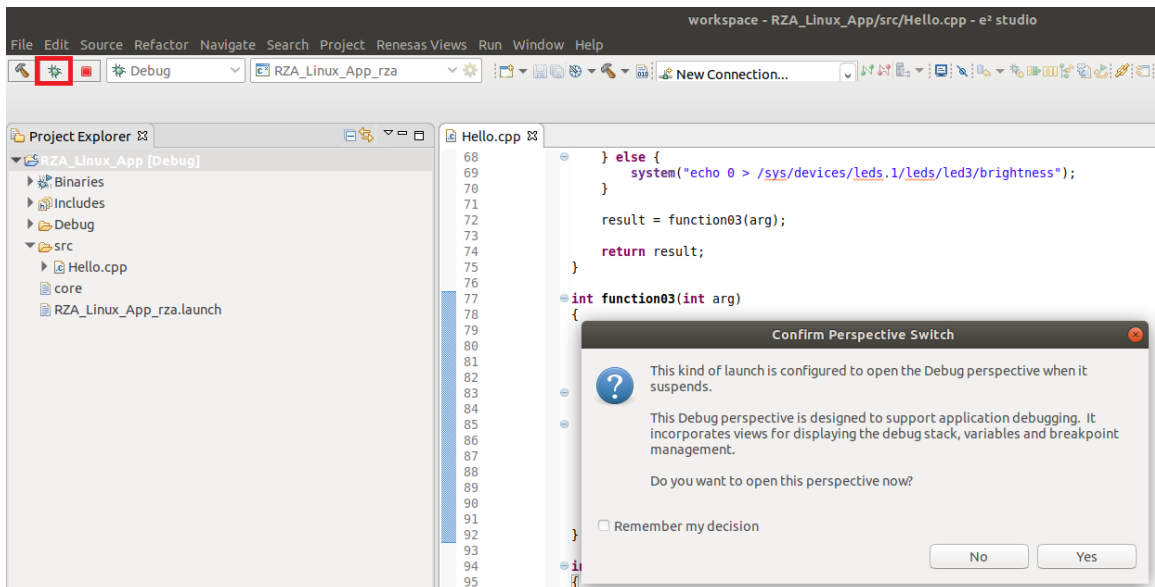


Figure 8. Debug: Perspective Switch

D. ‘Debug Perspective’ provides ways for flow control and configurations.

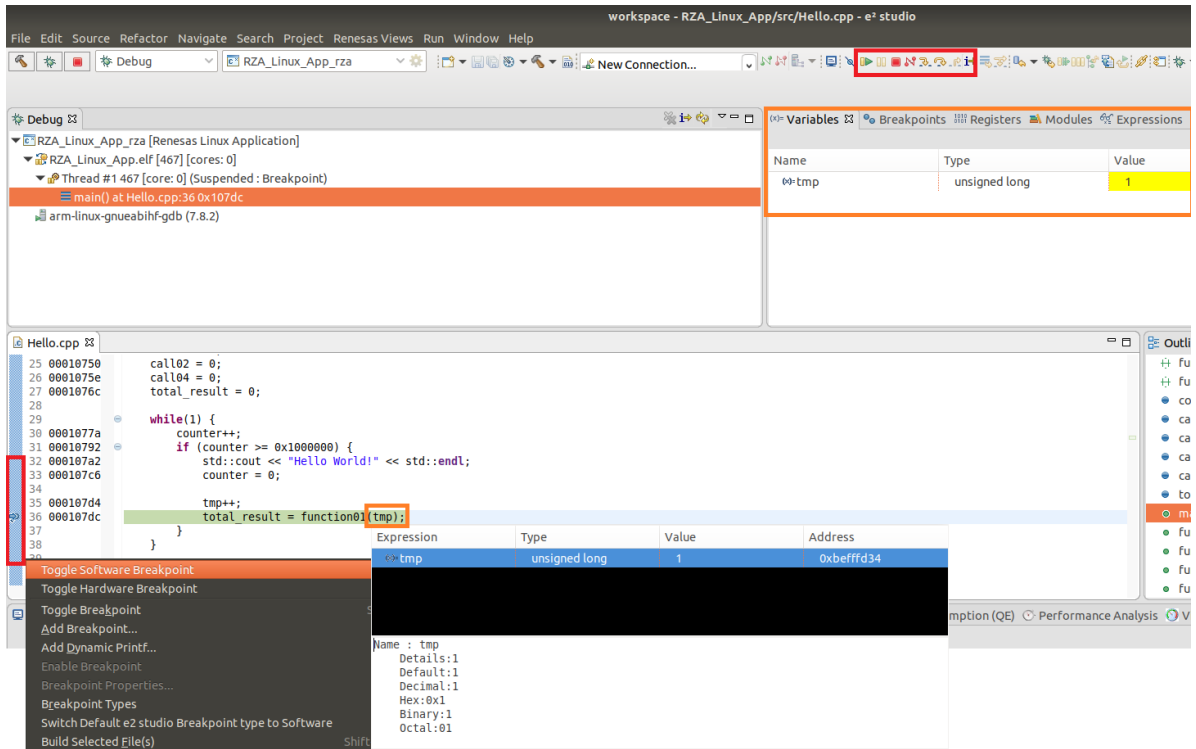


Figure 9. Debug: Control buttons, views, setting break point

7. Open Issues

[Open issues in the e² studio product will be kept up to date here:](#)

Please visit to see the latest open issue list.

8. Appendix

8.1 Website and Support

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Inquiries

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Corporate Headquarters

TOYOSU FORESIA, 3-2-24 Toyosu,
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