

RZ/A3M Group

Evaluation Kit for RZ/A3M Microprocessor Group EK-RZ/A3M v1 Quick Start Guide

Renesas RZ Family RZ/A Series

All information contained in these materials, including products and product specifications, represents information on the product at the time of publication and is subject to change by Renesas Electronics Corp. without notice. Please review the latest information published by Renesas Electronics Corp. through various means, including the Renesas Electronics Corp. website (https://www.renesas.com).

Renesas Electronics www.renesas.com

Rev.1.00 May 2025

Notice

- Descriptions of circuits, software and other related information in this document are provided only to illustrate the operation of semiconductor products and application examples. You are fully responsible for the incorporation or any other use of the circuits, software, and information in the design of your product or system. Renesas Electronics disclaims any and all liability for any losses and damages incurred by you or third parties arising from the use of these circuits, software, or information.
- Renesas Electronics hereby expressly disclaims any warranties against and liability for infringement or any other claims involving patents, copyrights, or other intellectual property rights of third parties, by or arising from the use of Renesas Electronics products or technical information described in this document, including but not limited to, the product data, drawings, charts, programs, algorithms, and application examples.
- No license, express, implied or otherwise, is granted hereby under any patents, copyrights or other intellectual property rights of Renesas Electronics or others.
- 4. You shall be responsible for determining what licenses are required from any third parties, and obtaining such licenses for the lawful import, export, manufacture, sales, utilization, distribution or other disposal of any products incorporating Renesas Electronics products, if required.
- 5. You shall not alter, modify, copy, or reverse engineer any Renesas Electronics product, whether in whole or in part. Renesas Electronics disclaims any and all liability for any losses or damages incurred by you or third parties arising from such alteration, modification, copying or reverse engineering.
- 6. Renesas Electronics products are classified according to the following two quality grades: "Standard" and "High Quality". The intended applications for each Renesas Electronics product depends on the product's quality grade, as indicated below.
 - "Standard": Computers; office equipment; communications equipment; test and measurement equipment; audio and visual equipment; home electronic appliances; machine tools; personal electronic equipment; industrial robots; etc.

"High Quality": Transportation equipment (automobiles, trains, ships, etc.); traffic control (traffic lights); large-scale communication equipment; key financial terminal systems; safety control equipment; etc.

Unless expressly designated as a high reliability product or a product for harsh environments in a Renesas Electronics data sheet or other Renesas Electronics document, Renesas Electronics products are not intended or authorized for use in products or systems that may pose a direct threat to human life or bodily injury (artificial life support devices or systems; surgical implantations; etc.), or may cause serious property damage (space system; undersea repeaters; nuclear power control systems; aircraft control systems; key plant systems; military equipment; etc.). Renesas Electronics disclaims any and all liability for any damages or losses incurred by you or any third parties arising from the use of any Renesas Electronics product that is inconsistent with any Renesas Electronics data sheet, user's manual or other Renesas Electronics document.

- 7. No semiconductor product is absolutely secure. Notwithstanding any security measures or features that may be implemented in Renesas Electronics hardware or software products, Renesas Electronics shall have absolutely no liability arising out of any vulnerability or security breach, including but not limited to any unauthorized access to or use of a Renesas Electronics product or a system that uses a Renesas Electronics product. RENESAS ELECTRONICS DOES NOT WARRANT OR GUARANTEE THAT RENESAS ELECTRONICS PRODUCTS, OR ANY SYSTEMS CREATED USING RENESAS ELECTRONICS PRODUCTS WILL BE INVULNERABLE OR FREE FROM CORRUPTION, ATTACK, VIRUSES, INTERFERENCE, HACKING, DATA LOSS OR THEFT, OR OTHER SECURITY INTRUSION ("Vulnerability Issues"). RENESAS ELECTRONICS DISCLAIMS ANY AND ALL RESPONSIBILITY OR LIABILITY ARISING FROM OR RELATED TO ANY VULNERABILITY ISSUES. FURTHERMORE, TO THE EXTENT PERMITTED BY APPLICABLE LAW, RENESAS ELECTRONICS DISCLAIMS ANY AND ALL WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THIS DOCUMENT AND ANY RELATED OR ACCOMPANYING SOFTWARE OR HARDWARE, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE.
- 8. When using Renesas Electronics products, refer to the latest product information (data sheets, user's manuals, application notes, "General Notes for Handling and Using Semiconductor Devices" in the reliability handbook, etc.), and ensure that usage conditions are within the ranges specified by Renesas Electronics with respect to maximum ratings, operating power supply voltage range, heat dissipation characteristics, installation, etc. Renesas Electronics disclaims any and all liability for any malfunctions, failure or accident arising out of the use of Renesas Electronics products outside of such specified ranges.
- 9. Although Renesas Electronics endeavors to improve the quality and reliability of Renesas Electronics products, semiconductor products have specific characteristics, such as the occurrence of failure at a certain rate and malfunctions under certain use conditions. Unless designated as a high reliability product or a product for harsh environments in a Renesas Electronics data sheet or other Renesas Electronics document, Renesas Electronics products are not subject to radiation resistance design. You are responsible for implementing safety measures to guard against the possibility of bodily injury, injury or damage caused by fire, and/or danger to the public in the event of a failure or malfunction prevention, appropriate treatment for aging degradation or any other appropriate measures. Because the evaluation of microcomputer software alone is very difficult and impractical, you are responsible for evaluating the safety of the final products or systems manufactured by you.
- 10. Please contact a Renesas Electronics sales office for details as to environmental matters such as the environmental compatibility of each Renesas Electronics product. You are responsible for carefully and sufficiently investigating applicable laws and regulations that regulate the inclusion or use of controlled substances, including without limitation, the EU RoHS Directive, and using Renesas Electronics products in compliance with all these applicable laws and regulations. Renesas Electronics disclaims any and all liability for damages or losses occurring as a result of your noncompliance with applicable laws and regulations.
- 11. Renesas Electronics products and technologies shall not be used for or incorporated into any products or systems whose manufacture, use, or sale is prohibited under any applicable domestic or foreign laws or regulations. You shall comply with any applicable export control laws and regulations promulgated and administered by the governments of any countries asserting jurisdiction over the parties or transactions.
- 12. It is the responsibility of the buyer or distributor of Renesas Electronics products, or any other party who distributes, disposes of, or otherwise sells or transfers the product to a third party, to notify such third party in advance of the contents and conditions set forth in this document.
- 13. This document shall not be reprinted, reproduced or duplicated in any form, in whole or in part, without prior written consent of Renesas Electronics.
- 14. Please contact a Renesas Electronics sales office if you have any questions regarding the information contained in this document or Renesas Electronics products.
- (Note1) "Renesas Electronics" as used in this document means Renesas Electronics Corporation and also includes its directly or indirectly controlled subsidiaries.
- (Note2) "Renesas Electronics product(s)" means any product developed or manufactured by or for Renesas Electronics.

(Rev.5.0-1 October 2020)

Corporate Headquarters

TOYOSU FORESIA, 3-2-24 Toyosu, Koto-ku, Tokyo 135-0061, Japan www.renesas.com

Contact information

Trademarks

Renesas and the Renesas logo are trademarks of Renesas Electronics Corporation. All trademarks and registered trademarks are the property of their respective owners. For further information on a product, technology, the most up-to-date version of a document, or your nearest sales office, please visit: www.renesas.com/contact/.

General Precautions in the Handling of Microcontroller Unit and Microprocessor Unit Products

The following usage notes are applicable to all Microprocessing unit and Microcontroller unit products from Renesas. For detailed usage notes on the products covered by this document, refer to the relevant sections of the document as well as any technical updates that have been issued for the products.

1. Precaution against Electrostatic Discharge (ESD)

A strong electrical field, when exposed to a CMOS device, can cause destruction of the gate oxide and ultimately degrade the device operation. Steps must be taken to stop the generation of static electricity as much as possible, and quickly dissipate it when it occurs. Environmental control must be adequate. When it is dry, a humidifier should be used. This is recommended to avoid using insulators that can easily build up static electricity. Semiconductor devices must be stored and transported in an anti-static container, static shielding bag or conductive material. All test and measurement tools including work benches and floors must be grounded. The operator must also be grounded using a wrist strap. Semiconductor devices must not be touched with bare hands. Similar precautions must be taken for printed circuit boards with mounted semiconductor devices.

2. Processing at power-on

The state of the product is undefined at the time when power is supplied. The states of internal circuits in the LSI are indeterminate and the states of register settings and pins are undefined at the time when power is supplied. In a finished product where the reset signal is applied to the external reset pin, the states of pins are not guaranteed from the time when power is supplied until the reset process is completed. In a similar way, the states of pins in a product that is reset by an on-chip power-on reset function are not guaranteed from the time when power is supplied until the power is supplied until the power reaches the level at which resetting is specified.

3. Input of signal during power-off state

Do not input signals or an I/O pull-up power supply while the device is powered off. The current injection that results from input of such a signal or I/O pull-up power supply may cause malfunction and the abnormal current that passes in the device at this time may cause degradation of internal elements. Follow the guideline for input signal during power-off state as described in your product documentation.

4. Handling of unused pins

Handle unused pins in accordance with the directions given under handling of unused pins in the manual. The input pins of CMOS products are generally in the high-impedance state. In operation with an unused pin in the open-circuit state, extra electromagnetic noise is induced in the vicinity of the LSI, an associated shoot-through current flows internally, and malfunctions occur due to the false recognition of the pin state as an input signal become possible.

5. Clock signals

After applying a reset, only release the reset line after the operating clock signal becomes stable. When switching the clock signal during program execution, wait until the target clock signal is stabilized. When the clock signal is generated with an external resonator or from an external oscillator during a reset, ensure that the reset line is only released after full stabilization of the clock signal. Additionally, when switching to a clock signal produced with an external resonator or by an external oscillator while program execution is in progress, wait until the target clock signal is stable.

6. Voltage application waveform at input pin

Waveform distortion due to input noise or a reflected wave may cause malfunction. If the input of the CMOS device stays in the area between V_{IL} (Max.) and V_{IH} (Min.) due to noise, for example, the device may malfunction. Take care to prevent chattering noise from entering the device when the input level is fixed, and also in the transition period when the input level passes through the area between V_{IL} (Max.) and V_{IH} (Min.).

7. Prohibition of access to reserved addresses

Access to reserved addresses is prohibited. The reserved addresses are provided for possible future expansion of functions. Do not access these addresses as the correct operation of the LSI is not guaranteed.

8. Differences between products

Before changing from one product to another, for example to a product with a different part number, confirm that the change will not lead to problems. The characteristics of a microprocessing unit or microcontroller unit products in the same group but having a different part number might differ in terms of internal memory capacity, layout pattern, and other factors, which can affect the ranges of electrical characteristics, such as characteristic values, operating margins, immunity to noise, and amount of radiated noise. When changing to a product with a different part number, implement a system-evaluation test for the given product.

Renesas EK-RZ/A3M Disclaimer

By using this EK-RZ/A3M, the User accepts the following terms, which are in addition to, and control in the event of disagreement, with Renesas' General Terms and Conditions available at <u>renesas.com/legal-notices</u>.

The EK-RZ/A3M is not guaranteed to be error free, and the entire risk as to the results and performance of the EK-RZ/A3M is assumed by the User. The EK-RZ/A3M is provided by Renesas on an "as is" basis without warranty of any kind whether express or implied, including but not limited to the implied warranties of good workmanship, fitness for a particular purpose, title, merchantability, and non-infringement of intellectual property rights. Renesas expressly disclaims any implied warranty.

Renesas does not consider the EK-RZ/A3M to be a finished product and therefore the EK-RZ/A3M may not comply with some requirements applicable to finished products, including, but not limited to recycling, restricted substances and electromagnetic compatibility regulations. Refer to Certifications section, for information about certifications and compliance information for the EK-RZ/A3M. It is the kit User's responsibility to make sure the kit meets any local requirements applicable to their region.

Renesas or its affiliates shall in no event be liable for any loss of profit, loss of data, loss of contract, loss of business, damage to reputation or goodwill, any economic loss, any reprogramming or recall costs (whether the foregoing losses are direct or indirect) nor shall Renesas or its affiliates be liable for any other direct or indirect special, incidental or consequential damages arising out of or in relation to the use of this EK-RZ/A3M, even if Renesas or its affiliates have been advised of the possibility of such damages.

Renesas has used reasonable care in preparing the information included in this document, but Renesas does not warrant that such information is error free nor does Renesas guarantee an exact match for every application or parameter to part numbers designated by other vendors listed herein. The information provided in this document is intended solely to enable the use of Renesas products. No express or implied license to any intellectual property right is granted by this document or in connection with the sale of Renesas products. Renesas reserves the right to make changes to specifications and product descriptions at any time without notice. Renesas assumes no liability for any damages incurred by you resulting from errors in or omissions from the information included herein. Renesas cannot verify, and assumes no liability for, the accuracy of information available on another company's website.

Precautions

This Evaluation Kit is only intended for use in a laboratory environment under ambient temperature and humidity conditions. A safe separation distance should be used between this and any sensitive equipment. Its use outside the laboratory, classroom, study area, or similar such area invalidates conformity with the protection requirements of the Electromagnetic Compatibility Directive and could lead to prosecution.

The product generates, uses, and can radiate radio frequency energy and may cause harmful interference to radio communications. There is no guarantee that interference will not occur in a particular installation. If this equipment causes harmful interference to radio or television reception, which can be determined by turning the equipment off or on, you are encouraged to try to correct the interference by one or more of the following measures:

- Ensure attached cables do not lie across the equipment.
- · Reorient the receiving antenna.
- Increase the distance between the equipment and the receiver.
- · Connect the equipment into an outlet on a circuit different from that which the receiver is connected.
- · Power down the equipment when not in use.
- Consult the dealer or an experienced radio/TV technician for help.
- Note: It is recommended that wherever possible shielded interface cables are used.

The product is potentially susceptible to certain EMC phenomena. To mitigate against them it is recommended that the following measures be undertaken:

- The user is advised that mobile phones should not be used within 10 m of the product when in use.
- The user is advised to take ESD precautions when handling the equipment.

The Evaluation Kit does not represent an ideal reference design for an end product and does not fulfill the regulatory standards for an end product.



Renesas RZ Family

EK-RZ/A3M v1

Contents

1.	Introduction	7
1.1	Assumptions and Advisory Notes	7
2.	Kit Contents	8
3.	Kit Assembly	9
4.	Overview of the Quick Start Example Project	10
4.1	Quick Start Example Project Flow	10
5.	Quick Start Example Project	11
5.1	Connecting and Powering Up the EK-RZ/A3M Board	11
5.2	Running the Quick Start Example Project	12
6.	Customizing the Quick Start Example Project	21
6.1	Downloading and Installing Software and Development Tools	21
6.2	Downloading and Importing the Quick Start Example Project	21
6.3	Modifying, Generating, and Building the Quick Start Example Project	25
6.4	Setting Up Debug Connection between the EK-RZ/A3M board and Host PC	
6.5	Downloading and Running the Modified Quick Start Example Project	
6.6	Firewall Dialog	
7.	Next Steps	31
8.	Website and Support	31
Rev	vision History	

Figures

Figure 1.	EK-RZ/A3M Kit Contents	. 8
Figure 2.	Kit Assembly	. 9
Figure 3.	Quick Start Example Project Flow	10
Figure 4.	Connecting the EK-RZ/A3M Board to the Host PC via USB Debug	11
Figure 5.	MIPI Display: Getting Started	12
Figure 6.	MIPI Display: Home Screen	12
Figure 7.	MIPI Display: QSEP menu	13
Figure 8.	USB Serial Device in Windows Device Manager	13
Figure 9.	Selecting the Serial Port on Tera Term	14



Figure 10.	Select 115200 on the Speed Pulldown	14
Figure 11.	Serial Console: Welcome and Main Menu	15
Figure 12.	Serial Console: Kit Information	15
Figure 13.	MIPI Display: Kit Information	16
Figure 14.	MIPI Display: User LED Control	16
Figure 15.	Serial Console: User LED Control	17
Figure 16.	Serial Console: Quad-SPI Speed Test	17
Figure 17.	Serial Console: Quad-SPI Speed Test Results	18
Figure 18.	MIPI Display: Quad-SPI Speed Test	18
Figure 19.	MIPI Display: LCD Demonstration	19
Figure 20.	Serial Console: LCD Demonstration	19
Figure 21.	Serial Console: Next Steps	20
Figure 22.	MIPI Display: Next Steps	20
Figure 23.	Creating a New Workspace	21
Figure 24.	Launching the Workspace	22
Figure 25.	Importing the Project	22
Figure 26.	Importing Existing Projects into the Workspace	23
Figure 27.	Clicking Next to Import Existing Projects into the Workspace	23
Figure 28.	Selecting the Root Directory	24
Figure 29.	Finish Importing the Quick Start Example Project	24
Figure 30.	Opening the FSP configuration	25
Figure 31.	Open Perspective	25
Figure 32.	Modifying the Configuration Settings	26
Figure 33.	Saving the Configuration Changes	27
Figure 34.	Building the Project	27
Figure 35.	Successful Build Output	28
Figure 36.	Connecting the EK-RZ/A3M Board to the Host PC via USB Debug Port	28
Figure 37.	Selecting the Debug Option	29
Figure 38.	Selecting the Debug Image	29
Figure 39.	Opening the Debug Perspective	30
Figure 40.	Executing the Project	30



1. Introduction

This Quick Start Guide (QSG) provides:

- An overview of the Quick Start example project that the EK-RZ/A3M board comes pre-programmed with.
- Instructions for running the Quick Start example project.
- Instructions for importing, modifying, and building the Quick Start example project using Flexible Software Package (FSP) and e² studio Integrated Development Environment (IDE).

1.1 Assumptions and Advisory Notes

- 1. **Tool experience**: It is assumed that the user has prior experience working with IDEs such as e² studio and terminal emulation programs such as Tera Term.
- 2. **Subject knowledge**: It is assumed that the user has basic knowledge about microprocessors, embedded systems, and FSP to modify the example project described in this document.
- Default jumper settings: Prior to running the Quick Start example project or programming the EK-RZ/A3M board, default jumper settings must be used. Refer to the EK-RZ/A3M user's manual for the default jumper configuration.
- 4. **Screenshots**: The screenshots provided throughout this document are for reference. The actual screen content may differ depending on the version of software and development tools used.



2. Kit Contents

The following components are included in the kit:

- 1. EK-RZ/A3M v1 board
- 2. USB-C to USB-C cable
- 3. USB-C to USB-A cable
- 4. USB-C to USB-A female host cable
- 5. MIPI Graphics Expansion Board 2
- 6. Display mounting hardware (spacers and fixing screws)



Figure 1. EK-RZ/A3M Kit Contents



3. Kit Assembly

Attach the MIPI Graphics Expansion Board 2 to the EK-RZ/A3M using the screws and spacers provided as shown below:



Figure 2. Kit Assembly

4. Overview of the Quick Start Example Project

The Quick Start Example Project (QSEP) allows the user to change the frequency and intensity of the onboard user LED1 (blue) using the user buttons (SW1 and SW2). The supported frequencies are 1 Hz, 5 Hz, and 10 Hz and the supported intensities are 10%, 50%, and 90%.

When the EK-RZ/A3M board running the QSEP is connected to a host PC via USB debug J10, the welcome menu is displayed on a terminal console. The QSEP can also be navigated using the MIPI Graphics Expansion Board 2.

4.1 Quick Start Example Project Flow



Figure 3. Quick Start Example Project Flow



5. Quick Start Example Project

This section lists the requirements and instructions to power up the EK-RZ/A3M board and run the Quick Start example project.

Hardware Requirements

- EK-RZ/A3M board
- MIPI Graphics Expansion Board 2
- USB-A to USB-C cable
- A PC with at least 1 USB port

Software Requirements

- Windows® 10 operating system
- USB Serial Drivers (included in Windows 10)
- Tera Term (or similar) terminal console application

5.1 Connecting and Powering Up the EK-RZ/A3M Board

- 1. Connect the MIPI Graphics Expansion Board 2 to J32 on the EK-RZ/A3M
- 2. Connect the type-C end of the USB-C cable to USB Debug port (J10) of the EK-RZ/A3M board.
- 3. Connect the other end of this cable to the USB port of the host PC. Power LED (LED4) illuminates, indicating that the EK-RZ/A3M board is powered on.



Figure 4. Connecting the EK-RZ/A3M Board to the Host PC via USB Debug



5.2 Running the Quick Start Example Project

To run the Quick Start example project, use the following instructions:

- 1. On power up or RESET, the three user LEDs will take on the following states:
 - LED1 blue Blinking at 1 Hz frequency and at 10% intensity
 - LED2 green Steady, full intensity
 - LED3 red Off
- Press the user button (SW1) on the EK-RZ/A3M board to change the intensity of the user LED1 (blue). With every press of the user button (SW1), the intensity will switch from 10% to 50% to 90% and cycle back.
- Press the user button (SW2) on the EK-RZ/A3M board to change the blinking frequency of the user LED1 (blue). With every press of the first user button (SW2), the frequency will switch from 1 Hz to 5 Hz to 10 Hz and cycle back.
- 4. Upon connecting the EK-RZ/A3M to power, the following screen will appear on the MIPI display.

Getting started	
INSTRUCTIONS	
1) Tap MENU on the top left to view the application menu & tap icons to launch applications. 2) Tap X on the top right to return to the home screen or close the application menu.	
NOTES	
1) Serial console can be used to drive menu. 2) Memory performance demo controlled by serial console.	
DISCLAIMER	
The Quick Start Example Project is provided for demonstration only. Refer to renesas.com and the EK-RZ/A3M Quick Start Guide for the full disclaimer text.	

Figure 5. MIPI Display: Getting Started

5. Press the 'X' on the top right corner of the MIPI display to return to the home screen.



Figure 6. MIPI Display: Home Screen



6. Press the 'Menu' icon on the top left corner of the MIPI display to open the QSEP menu.



Figure 7. MIPI Display: QSEP menu

- 7. The MIPI display can be used to navigate the QSEP, however, it is recommended to open a serial console before proceeding to experience the full QSEP.
- 8. On the host PC, open Windows Device Manager. Expand **Ports (COM & LPT)**, locate **USB Serial Device (COMxx)** and note down the COM port number for reference in the next step.
 - Note: USB Serial Device drivers are required to communicate between the EK-RZ/A3M board and the terminal application on the host PC. When the board is connected to the PC for the first time, J-Link drivers are installed. If asked to restart the computer, please do so.

🗄 Device Manager	_	\times
<u>F</u> ile <u>A</u> ction <u>V</u> iew <u>H</u> elp		
✓ 🗄 GBR-		^
> 🕠 Audio inputs and outputs		
> 🕡 Audio Processing Objects (APOs)		
> 🤪 Batteries		
> 📓 Biometric devices		
> 🚯 Bluetooth		
> 👰 Cameras		
> 💻 Computer		
> 👝 Disk drives		
> 🖙 Display adapters		
> 🎽 Firmware		
> 🖵 FortiDeviceGuard		
> 🛺 Human Interface Devices		
> 🥅 Keyboards		
> 📗 Mice and other pointing devices		
> 🛄 Monitors		
> 🖵 Network adapters		
🗸 🛱 Ports (COM & LPT)		
💭 Intel(R) Active Management Technology - SOL (COM3)		
JLink CDC UART Port (COM29)		
> 🚍 Print queues		
> Processors		
> 🔐 Security devices		
> 🔚 Sensors		
> 📑 Software components		
Software devices		~

Figure 8. USB Serial Device in Windows Device Manager



Renesas RZ Family

9. Open Tera Term, select Serial and COMxx: USB Serial Device (COMxx) and click OK.

Figure 9. Selecting the Serial Port on Tera Term

10. Using the **Setup** menu pull-down, select **Serial Port** and ensure that the speed is set to **115200**, as shown below.

		ection		×
Port:	COM29	~	New setting	0
Speed:	115200	~		
Data:	8 bit	~	Cancel	
Parity:	none	~		
Stop bits:	1 bit	~	Help	
Flow control:	none	\sim		
Device Friendly N Device Instance I Device Manufact Provider Name: S Driver Date: 6-6-7 Driver Version: 1.	D: USB\VID_1366 turer: SEGGER SEGGER 2019		msec/line t (COM29) 4&MI_00\6&29DC7	78D
	20020300000			0

Figure 10. Select 115200 on the Speed Pulldown



11. Complete the connection. The 'welcome and main menu' screen will be displayed. If no text appears, press the RESET button on the EK-RZ/A3M.



Figure 11. Serial Console: Welcome and Main Menu

12. Press 1 on the serial console or navigate using the MIPI display menu to open the **Kit Information Page** which displays the kit name, ordering part number, RZ device part number, and the user LED's current blinking frequency and intensity.



Figure 12. Serial Console: Kit Information

13. The following screen appears on the MIPI display





Figure 13. MIPI Display: Kit Information

- 14. Press space or press 'X' on the MIPI display to return to the 'welcome and main menu' screen.
- 15. Press **2** or navigate using the MIPI display menu to open the **User LED Control Page.** This application allows the user to control the blinking frequency and intensity of each user LED using the MIPI display.



Figure 14. MIPI Display: User LED Control

16. Use the sliders on the MIPI display to change the blinking frequency and intensity of each user LED. The values of the blinking frequency and intensity for each user LED are displayed on the serial console.



🔟 COM29 - Tera Term VT		_	×
File Edit Setup Control Window KanjiCode Help 2. USER LED CONTROL			^
a) Red LED blinking frequency (Hz): b) Red LED blinking intensity (%):	1 50		
c) Green LED blinking frequency (Hz):d) Green LED blinking intensity (%):	1 50		
e) Blue LED blinking frequency (Hz):f) Blue LED blinking intensity (%):	1 50		
> Press space bar to return to MENU.			Ų



- 17. Press space or press 'X' on the MIPI display to return to the 'welcome and main menu' screen.
- 18. Press **3** on the serial console to open the **Quad-SPI Speed Test.** This application demonstrates the read and write performance to and from the Quad-SPI flash memory.

Note: There is no option to navigate to the Quad-SPI Speed Test using the MIPI display



Figure 16. Serial Console: Quad-SPI Speed Test

- 19. Enter the block size in the range of 2 KB to 64 KB and press tab.
 - Note: If invalid input characters (keys other than 0 to 9 and **tab**) or out of range values are entered, error messages will appear. Re-enter valid inputs and press **tab**. Pressing **space** will display the 'welcome and main menu' screen.



COM29 - Tera Term VT	_		\times
<u>F</u> ile <u>E</u> dit <u>S</u> etup C <u>o</u> ntrol <u>W</u> indow <u>K</u> anjiCode <u>H</u> elp			
3. QUAD-SPI SPEED TEST			
Compare the write and read times to and from external Quad-SPI flash	memo	ry	
> Enter the text block size (in multiples of 2 KB, max 64 KB) and press tab to continue : 34			
Generated a text block of 34 KB in SRAM			
Writing the text block to external Quad-SPI flash memory Writing to flash completed			
Reading the text block from external Quad-SPI flash memory Reading from flash completed			
Operation/Flash Quad-SPI			
 Write 32869 Read 1262			
Note: Times are in microseconds Press space bar to return to MENU.			

Figure 17. Serial Console: Quad-SPI Speed Test Results

20. The following screen will appear on the MIPI display.

QUAD-SPI SPEED TEST

IMPORTANT

Requires serial console connection to execute test

INSTRUCTIONS

Connect Serial Terminal Emulator to DEBUG1 (J10) Connection settings Speed 115200, Data 8-bit, Parity None, Stop 1-bit, Flow Control None

NOTE

Menu & Close icons Disabled

Figure 18. MIPI Display: Quad-SPI Speed Test



- 21. Press **space** or press '**X**' on the MIPI display to return to the 'welcome and main menu' screen.
- 22. Press **4** or navigate using the MIPI display menu to open the LCD demonstration. The Renesas RZ logo will appear on the MIPI display. Press anywhere on the screen to make a colored square appear at the touch point.



Figure 19. MIPI Display: LCD Demonstration

23. Up to five touch points can be displayed at a time with their coordinates output on the serial console.



Figure 20. Serial Console: LCD Demonstration



24. Press space or press 'X' on the MIPI display to return to the 'welcome and main menu' screen.25. Press 5 or navigate using the MIPI display menu to open the Next Steps page.



Figure 21. Serial Console: Next Steps

26. The following screen will appear on the MIPI display.

NEXT STEPS		X
Visit the following URLs to learn about the kit and the R download tools and documentation, and get support	Z family of MCUs,	
EK-RZ/A3M resources: RZ product information: RZ/A3M product information:	renesas.com/ek-rza3m renesas.com/rz renesas.com/rza3m	

Figure 22. MIPI Display: Next Steps



6. Customizing the Quick Start Example Project

This section lists the requirements and instructions for customizing the Quick Start example project.

Hardware Requirements

- EK-RZ/A3M board
- USB-A to USB-C cable
- A PC with at least 1 USB port

Software Requirements

- Windows® 10 operating system
- e² studio IDE 2025-01 (or later)
- RZ/A FSP v3.4.0 (or later)
- SEGGER J-Link[®] USB drivers
- Quick Start example project

6.1 Downloading and Installing Software and Development Tools

Before the Quick Start example project can be modified, it is necessary to download and install software and development tools on the host PC.

The FSP, J-Link USB drivers, and e² studio are bundled in a downloadable platform installer available on the FSP webpage at <u>renesas.com/rz/fsp</u>. New users are recommended to use the **Quick Install** option provided in the installation wizard, to minimize the amount of manual configuration needed.

There is no need to download and install software, development tools, and drivers separately.

6.2 Downloading and Importing the Quick Start Example Project

- 1. Download and extract the Quick Start example project to a local directory on the host PC.
 - The Quick Start example project (source code and project files) is available in the EK-RZ/A3M Example Projects Bundle that is available in the **Downloads** tab of EK-RZ/A3M webpage at <u>renesas.com/ek-rza3m</u>
 - Download and extract the example projects bundle (xxxxxxxxxxek-rza3mexampleprojects.zip) to a local directory on the host PC.
 - Browse to the Quick Start example project at xxxxxxxxxxek-rza3mexampleprojects\ek_rza3m_quickstart\quickstart_ek_rza3m_ep
- 2. Launch e² studio.
- 3. Browse to the Workspace where the project file is to be imported. Enter the name in the Workspace dialog box to create a new workspace.

e² studio Launcher	×
elect a directory as workspace	
e^2 studio uses the workspace directory to store its preference	es and development artifacts.
Workspace: C:\Users\Renesas\e2studio\Workspace	✓ Browse
_	
Use this as the default and do not ask again	
Recent Workspaces	
	Launch Cancel

Figure 23. Creating a New Workspace



4. Click Launch.

📴 e ^z studio L	auncher	Х
Select a dire	ectory as workspace	
e ² studio us	es the workspace directory to store its preferences and development artifacts.	
Workspace:	C:\Users\Renesas\e2studio\Workspace	
Use this a	s the default and do not ask again	
Recent We	orkspaces	
	Launch Cancel	
	Launch	

Figure 24. Launching the Workspace

5. Click **Import** from the **File** drop-down menu.

۷ 😰	/orkspace - e ² studio		
File	Edit Source Refactor Navigate	Search Project	Renesa
	New	Alt+Shift+N >	h Config
	Open File		
	Open Projects from File System		
	Recent Files	>	E \$
	Close Editor	Ctrl+W	
	Close All Editors	Ctrl+Shift+W	
	Save	Ctrl+S	existing o
	Save As		I
R	Save All	Ctrl+Shift+S	I
	Revert		
	Move		
	Rename	F2	I
8	Refresh	F5	I
	Convert Line Delimiters To	>	
₿	Print	Ctrl+P	
2	Import		
4	Export		
	Properties	Alt+Enter	
	Switch Workspace	>	
	Restart		I
	Exit		

Figure 25. Importing the Project



6. In the **Import** dialog box, select **General**, and then select **Existing Projects into Workspace**.

Select Choose import wizard. Select an import wizard: type filter text Select an import wizard: Select an	Choose import wizard.	Choose import wizard. Select an import wizard: type filter text CMSIS Pack CMSIS Pack CMSIS Pack Existing Projects into Workspace File System Projects from Folder or Archive Rename & Import Existing C/C++ Project into Workspace Renesas CS+ Project for CA78K0R/CA78K0 Renesas CS+ Project for CC-RX and CC-RL Pie C/C++ Pinstall Pie Nomph Pie Run/Debug	🖸 Import —	
Select an import wizard: type filter text General General CMSIS Pack CMSIS Pack Existing Projects into Workspace File System Preferences Projects from Folder or Archive Rename & Import Existing C/C++ Project into Workspace Renesas CS+ Project for CA78K0R/CA78K0 Renesas CS+ Project for CC-RX and CC-RL > C/C++ > Install > Comph > Run/Debug	Select an import wizard: type filter text Select an import wizard: type filter text Select an import wizard: Select an import exist General Select an import file Select an import for CC-RX and CC-RL Select an import for CC-RX and CC-RL Select an import file Select	Select an import wizard: type filter text CMSIS Pack CMSIS Pack Stisting Projects into Workspace File System Preferences Projects from Folder or Archive Rename & Import Existing C/C++ Project into Workspace Renesas CS+ Project for CA78K0R/CA78K0 Renesas CS+ Project for CC-RX and CC-RL Project for CC-RX and CC-RL Project for CC-RX and CC-RL Project for CC-RX and CC-RL		
type filter text Image: General Image: Genera Imag	type filter text Image: General Image: Genera Imag	type filter text Image: General Image: Genera Imag	Choose import wizard.	
✓ Seneral ^ ↓ Archive File ✓ CMSIS Pack ☑ Existing Projects into Workspace ↓ File System □ Preferences □ Projects from Folder or Archive ☆ Rename & Import Existing C/C++ Project into Workspace ☑ Renesas CS+ Project for CA78K0R/CA78K0 ☑ Renesas CS+ Project for CC-RX and CC-RL > ➢ C/C++ > ➢ Install > ➢ Comph > ➢ Run/Debug	✓ Seneral ∧ ✓ Archive File ✓ ✓ CMSIS Pack ✓ ✓ Existing Projects into Workspace ✓ ✓ File System ✓ ✓ Projects from Folder or Archive ✓ ✓ Rename & Import Existing C/C++ Project into Workspace ✓ ✓ Renesas CS+ Project for CA78K0R/CA78K0 ✓ ✓ Renesas CS+ Project for CC-RX and CC-RL ✓ ✓ Install ✓ ✓ Oomph ✓ ✓ Run/Debug ✓	✓ Seneral ∧ ✓ Archive File ✓ ✓ CMSIS Pack ✓ ✓ Existing Projects into Workspace ✓ ✓ File System ✓ ✓ Projects from Folder or Archive ✓ ✓ Rename & Import Existing C/C++ Project into Workspace ✓ ✓ Renesas CS+ Project for CA78K0R/CA78K0 ✓ ✓ Renesas CS+ Project for CC-RX and CC-RL ✓ ✓ Install ✓ ✓ Oomph ✓ ✓ Run/Debug ✓	Select an import wizard:	
 	 	 	type filter text	
 Image: Archive File Image: CMSIS Pack Image: Existing Projects into Workspace Image: File System Image: Project for Archive Image: Project for CAr8k0R/CA78K0 Image: Renesas CS+ Project for CC-RX and CC-RL Image: P	 Image: CMSIS Pack Image: CMSIS Pack Image: Existing Projects into Workspace Image: File System Image: Project for Archive Image: Project for CA78K0R/CA78K0 Image: Renesas CS+ Project for CC-RX and CC-RL Image: Pro	 Image: CMSIS Pack Image: CMSIS Pack Image: Existing Projects into Workspace Image: File System Image: Project for Archive Image: Project for CA78K0R/CA78K0 Image: Renesas CS+ Project for CC-RX and CC-RL Image: Pro	🗸 🔁 General	^
 Existing Projects into Workspace File System Preferences Projects from Folder or Archive Rename & Import Existing C/C++ Project into Workspace Renesas CS+ Project for CA78K0R/CA78K0 Renesas CS+ Project for CC-RX and CC-RL C/C++ Install Oomph Run/Debug 	 Existing Projects into Workspace File System Preferences Projects from Folder or Archive Rename & Import Existing C/C++ Project into Workspace Renesas CS+ Project for CA78K0R/CA78K0 Renesas CS+ Project for CC-RX and CC-RL C/C++ Install Oomph Run/Debug 	 Existing Projects into Workspace File System Preferences Projects from Folder or Archive Rename & Import Existing C/C++ Project into Workspace Renesas CS+ Project for CA78K0R/CA78K0 Renesas CS+ Project for CC-RX and CC-RL C/C++ Install Oomph Run/Debug 		
 File System Preferences Projects from Folder or Archive Rename & Import Existing C/C++ Project into Workspace Renesas CS+ Project for CA78K0R/CA78K0 Renesas CS+ Project for CC-RX and CC-RL C/C++ Install Oomph Run/Debug 	 File System Preferences Projects from Folder or Archive Rename & Import Existing C/C++ Project into Workspace Renesas CS+ Project for CA78K0R/CA78K0 Renesas CS+ Project for CC-RX and CC-RL C/C++ Install Oomph Run/Debug 	 File System Preferences Projects from Folder or Archive Rename & Import Existing C/C++ Project into Workspace Renesas CS+ Project for CA78K0R/CA78K0 Renesas CS+ Project for CC-RX and CC-RL C/C++ Install Oomph Run/Debug 	CMSIS Pack	
Image: Preferences Image: Projects from Folder or Archive Image: Projects from Folder or Archive Image: Project for CA78K0R/CA78K0 Image: Project for CC-RX and CC-RL	Image: Preferences Image: Projects from Folder or Archive Image: Projects from Folder or Archive Image: Project for CA78K0R/CA78K0 Image: Project for CC-RX and CC-RL	Image: Preferences Image: Projects from Folder or Archive Image: Projects from Folder or Archive Image: Project for CA78K0R/CA78K0 Image: Project for CC-RX and CC-RL		
 Projects from Folder or Archive Rename & Import Existing C/C++ Project into Workspace Renesas CS+ Project for CA78K0R/CA78K0 Renesas CS+ Project for CC-RX and CC-RL C/C++ Install Oomph Run/Debug 	 Projects from Folder or Archive Rename & Import Existing C/C++ Project into Workspace Renesas CS+ Project for CA78K0R/CA78K0 Renesas CS+ Project for CC-RX and CC-RL C/C++ Install Oomph Run/Debug 	 Projects from Folder or Archive Rename & Import Existing C/C++ Project into Workspace Renesas CS+ Project for CA78K0R/CA78K0 Renesas CS+ Project for CC-RX and CC-RL C/C++ Install Oomph Run/Debug 	🗀 File System	
 Rename & Import Existing C/C++ Project into Workspace Renesas CS+ Project for CA78K0R/CA78K0 Renesas CS+ Project for CC-RX and CC-RL C/C++ Install Omph Run/Debug 	 Rename & Import Existing C/C++ Project into Workspace Renesas CS+ Project for CA78K0R/CA78K0 Renesas CS+ Project for CC-RX and CC-RL C/C++ Install Omph Run/Debug 	 Rename & Import Existing C/C++ Project into Workspace Renesas CS+ Project for CA78K0R/CA78K0 Renesas CS+ Project for CC-RX and CC-RL C/C++ Install Omph Run/Debug 		
Penesas CS+ Project for CA78K0R/CA78K0 Penesas CS+ Project for CC-RX and CC-RL > ▷ C/C++ > ▷ Install > ▷ Oomph > ▷ Run/Debug	Penesas CS+ Project for CA78K0R/CA78K0 Penesas CS+ Project for CC-RX and CC-RL > ▷ C/C++ > ▷ Install > ▷ Oomph > ▷ Run/Debug	Penesas CS+ Project for CA78K0R/CA78K0 Penesas CS+ Project for CC-RX and CC-RL > ▷ C/C++ > ▷ Install > ▷ Oomph > ▷ Run/Debug		
Renesas CS+ Project for CC-RX and CC-RL > > C/C++ > Install > > Oomph > > Run/Debug	Renesas CS+ Project for CC-RX and CC-RL > > C/C++ > Install > > Oomph > > Run/Debug	Renesas CS+ Project for CC-RX and CC-RL > > C/C++ > Install > > Oomph > > Run/Debug		
> > > C/C++ > > Install > >> Oomph > >> Run/Debug	> > > C/C++ > > Install > >> Oomph > >> Run/Debug	> > > C/C++ > > Install > >> Oomph > >> Run/Debug		
> > Install > >> Oomph > >> Run/Debug	> > Install > >> Oomph > >> Run/Debug	> > Install > >> Oomph > >> Run/Debug		
> > Comph > > Run/Debug	> 🤄 Oomph > 🇀 Run/Debug	> 🤄 Oomph > 🇀 Run/Debug	> 🦢 C/C++	
> 🗁 Run/Debug	> 🗁 Run/Debug	> 🗁 Run/Debug		
Team	Team V	Team V		
			L Ca Team	· · · ·
			? < Back Next > Finish	Cancel
? < Back Next > Finish Cancel	Output Seck Next > Finish Cancel	Over the second seco		

Figure 26. Importing Existing Projects into the Workspace

7. Click Next.



Figure 27. Clicking Next to Import Existing Projects into the Workspace



8. Click **Select root directory** and click **Browse** to go to the location of the Quick Start example project folder.

Import	– 🗆 X
Import Projects	
Select a directory to search for existing Eclipse projects.	
	-
Select root directory:	✓ Browse
○ Select archive file:	∽ Browse
Projects:	
	Select All
	Deselect All
	Refresh
Options	
Search for nested projects	
Copy projects into workspace	
Close newly imported projects upon completion	
Hide projects that already exist in the workspace	
Working sets	
Add project to working sets	New
Working sets:	 Select
Compared Reserved Action (1997) Compared Reserved Action	Cancel

Figure 28. Selecting the Root Directory

9. Select the Quick Start example project and click **Finish.**

Import Projects Select a directory to search for existing Eclipse projects. Select root directory: C:\Renesas\Workspace\quickstart_ek_rza3m Browse Projects: Q quickstart_ek_rza3m_ep C:\Renesas\Workspace\quickstart_ek_rza3 Select All Deselect All Refresh Options Search for nested projects Gopty projects into workspace Select gets Cligse newly imported projects upon completion Hijde projects that already exist in the workspace Working sets Negu Select
O Select archive file: Browse Projects: quickstart_ek_rza3m_ep C:\Renesas\Workspace\quickstart_ek_rza3 Select All Deselect All Refresh Options Gopy projects into workspace Clyse newly imported projects upon completion Hide projects that already exist in the workspace Working sets Add project to working sets New
C C C C C C C C C C C C C
Gearch for nested projects Gopy projects into workspace Clgse newly imported projects upon completion Hide projects that already exist in the workspace Working sets Add project to working sets
Add project to working sets

Figure 29. Finish Importing the Quick Start Example Project



6.3 Modifying, Generating, and Building the Quick Start Example Project

This section provides instructions to modify the Quick Start example project. The Quick Start example project can be modified by editing the source code and reconfiguring the properties of the MCU peripherals, pins, clocks, interrupts, and so forth.

- Note: The specific modifications that can be performed to the Quick Start example project are not prescribed in this QSG. User discretion is advised while modifying the Quick Start example project.
- Once the Quick Start example project is imported, click the configuration.xml file to open the FSP configuration window. The FSP configuration window provides an easy-to-use interface to configure the properties of the MCU peripherals.

Eile <u>E</u> dit <u>N</u> avigate Se <u>a</u> rch <u>P</u> roject Rer ∭ ▼ ≪ ▼ ! 💷 : @ : ☆ ▼ 🏊 ▼			、 : 😭 💀 C/C++ 💠 De	
Project Explorer ×	微 [quickstart_ek_rza3m_ep] FSP Configuratio	n X		- 8
Guickstart_ek_rza3m_ep [Debug]	Stacks Configuration			Generate Project Content
> 🐝 Binaries > 🔊 Includes > 🤒 rza	Threads New Thread Remove	HAL/Common Stacks		tend Stack > 🔊 Remove
> @ rza_gen > @ src > @ bebug > @ ipl > @ rza_cfg	✓ ✓ ✓ HAL/Common	<pre> g_ioport I/O Port (r_ioport) (i) </pre>	 g_mmu MMU Driver on r_mmu i 	 FreeRTOS Port (rm_fre Image: Image and I
 > cript configuration.xml JLinkLog.log quickstart_ek_rza3m_ep Debug_Flat.j quickstart_ek_rza3m_ep Debug_Flat.l rza_cfg.txt ? Developer Assistance 	 FreeRTOS Heap 4 g_i2c_master_switch I2C Mast g_i2c_master1 I2C Master (r_r 			 g_timer0 Timer (r_gtrr
c >	g_activation_event_group Event Grc g_irq_binary_semaphore Binary Sen g_i2c_event_group Event Group < Summary BSP Clocks Pins Interrupts Event	 t Links <u>Stacks</u> Components 		>
Properties X Problems Smart Brow	wser			1 8 - 0
configuration.xml - quickstart_ek_rz	za3m_ep			
Resource Property			Value	^
∽ Info				
derived editable			false true	
cultable		-	true	,

Figure 30. Opening the FSP configuration

 For example, in the Stacks tab of the FSP configuration, the user can click to select modules to modify the configuration settings, as required, in the Properties tab. Figure 32 illustrates modifying the Display Driver configuration.

Note: To access the stack component properties, the **view** must be set to **FSP Configuration**. Use the **Open Perspective** button, if necessary.



Figure 31. Open Perspective



merce quickstate & zashn, performinguartion.xmm1	Bit goting Bit goting Project Explorer Project Explorer Project Explorer Project Explorer Project Explorer Project Explorer Project Explorer Project Subject Project Explorer Project Subject Project Explorer Project Subject Project Explorer Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Project Subject Subject Project Subject Subject Project Subject Sub	-			
Image: Sector in the sector	Project Explore: X Image: Signature of the second seco	📑 mp - qu	iickstart_ek_rza3m_ep/configuration	n.xml - e ^z studio	– 🗆 X
Project Explorer X Image: Stacks Configuration X Image: Stacks Configuration X Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X Image: Stacks Configuration X	Project Explorer X Image: Configuration X Stacks Configuration X Stacks Configuration X Stacks Configuration X Connected Project Stacks Configuration X Stacks Configuration X Stacks Configuration X Connected Project Stacks Configuration X Stacks Configuration X Stacks Configuration X Stacks Components Stacks Configuration X S	Eile Edit	Navigate Search Project Ren	esas <u>V</u> iews <u>R</u> un <u>W</u> indow <u>H</u> e	
* St quickstart_ek_rasa	Stacks Configuration Stacks Configuration Generate Project Stacks Configuration Threads Remove g.displayD Display Driver on r_lcdc Stacks New Stack > Extend Stack > Stacks Configuration g.gipsize	- 🛞 🖌	🗞 • 📮 🕼 🗄 🏘 • 💁 •		🔍 🗄 😰 🛛 🖾 C/C++ 💠 Debug 🏼 🐯 FSP Configuration
 	Subjects Configuration Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subjects Subject Subjects Subjects	Project Expl	lorer X 🗖 🗖	ஓ [quickstart_ek_rza3m_ep] FS	FSP Configuration ×
Sincludes Grassing of Deckeds G	Sincludes Sin		start_ek_rza3m_ep	Stacks Configuration	
Series Value Series Series Value Value Series Value Value Series Series Value Value Series Series Value Value Series Series Value Value Series Series Value Series <p< td=""><td></td><td colspan="2" rowspan="4">includes includes is includes is ra is ra is ra is ra is pebug is pil is ra_cfg is script is configuration.xml ig lickstart_ek_rza3m_ep Debug_Flat.jl ig quickstart_ek_rza3m_ep Debug_Flat.jl ig rac_fg.txt is Developer Assistance Objects in New Official Statements Output of the New Official Statements is a statement of the New Official Statements is a statement of the New Official Statement of the New Officia</td><td>Threads</td><td>g display0 Display Driver on r Icdc Stacks</td></p<>		includes includes is includes is ra is ra is ra is ra is pebug is pil is ra_cfg is script is configuration.xml ig lickstart_ek_rza3m_ep Debug_Flat.jl ig quickstart_ek_rza3m_ep Debug_Flat.jl ig rac_fg.txt is Developer Assistance Objects in New Official Statements Output of the New Official Statements is a statement of the New Official Statements is a statement of the New Official Statement of the New Officia		Threads	g display0 Display Driver on r Icdc Stacks
Image: sector all reg Statemal IRQ C Image: sector all reg State	Image: specific spe			 g i2c master112CN g display0 Display I g gexternal_irq1 Exter g mtu_led_pulse_sI g gspi SPIBSC (r_sp g memory_perform 	Master (r. r. r. y
• g_irq_binary_semaphore Binary Semaphore Bina				 ⊕ g_external_irq5 External_irq5 ext	Image: constraint of the second se
Properties × Problems Smart Browser Image: Smart Browser	Properties × Problems Smart Browser g_display Display Driver on r_lcdc Settings Property Value Common Parameter Checking Default (BSP) Module g_displayO Display Driver on r_lcdc Settings A General Interrupts Interrupts Output Output Color Keying 			g_irq_binary_semaphore E g_i2c_event_group Event I g_update_console_event E <	e Binary Semap at Group t Event Group
g_display Driver on r_lcdc Settings Property Value ~ Common Parameter Checking Default (BSP) ~ Module g_display0 Display Driver on r_lcdc Default (BSP) ~ Module g_display0 Display Driver on r_lcdc > Interrupts > Interrupts > Output > Color Keying	Property Value Common Parameter Checking Module g_display0 Display Driver on r_lcdc Settings Interrupts Interrupts Input Output Output Color Keying Settings Default (BSP) Settings Settings Settings Settings Settings Settings Settings Settings Settings Settings Settings Settings Settings Settings 	-			
Settings Property Value Common Parameter Checking Module g_display0 Display Driver on r_lcdc General Interrupts Input Output Color Keying Input Color Keying Settings Setings Setings Setings	Settings Property Value Common Parameter Checking Default (BSP) Module g_display0 Display Driver on r_lcdc General Interrupts Input Output Color Keying 			/Sel	5 8 L
Settings Common Parameter Checking Default (BSP) Module g_display0 Display Driver on r_lcdc General Interrupts Input Output Color Keying	Vectoring Vectoring Parameter Checking Default (BSP) Vectoring Default (BSP) Vectoring Default (BSP) Vectoring Default (BSP)	g_display(0 Display Driver on r_lcdc		
Parameter Checking Default (BSP) Module g_display0 Display Driver on r_lcdc General Interrupts Interrupts Input Output Color Keying	Parameter Checking Default (BSP) Module g_display0 Display Driver on r_lcdc General Interrupts Interrupts Juput Output Color Keying	Settings	Property		Value
 Module g_display0 Display Driver on r_lcdc General Interrupts Input Output Color Keying 	 Module g_display0 Display Driver on r_lcdc General Interrupts Input Output Color Keying 		✓ Common		
> General > Interrupts > Input > Output > Color Keying	General Interrupts Input Output Color Keying		Parameter Checking		Default (BSP)
> Interrupts > Input > Output > Color Keying	> Interrupts > Input > Output > Color Keying		✓ Module g_display0 Display Driv	er on r_lcdc	
> Input > Output > Color Keying	> Input > Output > Color Keying		> General		
> Output > Color Keying	> Output > Color Keying		> Interrupts		
> Color Keying	> Color Keying				
✓ Pins	✓ Pins				
			✓ Pins		

Figure 32. Modifying the Configuration Settings



3. After the desired modifications are made, click **Generate Project Content**. A dialog box may appear with an option of saving the configuration changes. Click **Proceed**.



Figure 33. Saving the Configuration Changes

- 4. Modify the source files in the */src* folder as needed and save the changes.
- 5. Build the project by clicking the build icon.



Figure 34. Building the Project



6. A successful build produces an output as follows.

Note: Warnings are acceptable for a successful build whereas errors are not.



Figure 35. Successful Build Output

6.4 Setting Up Debug Connection between the EK-RZ/A3M board and Host PC

To program the modified Quick Start example project on to the EK-RZ/A3M board, a debug connection is necessary between the EK-RZ/A3M board and host PC.

- 1. Connect the type-C end of the USB-C cable to USB Debug port (J10) of the EK-RZ/A3M board. Connect the other end of this cable to the USB port of the host PC.
- Note: The EK-RZ/A3M board supports 3 debugging modes. In this section and the following sections, default debugging mode, Debug On-Board, is used. More information on debugging modes is available in EK-RZ/A3M user's manual.



Figure 36. Connecting the EK-RZ/A3M Board to the Host PC via USB Debug Port

2. Verify that the debug LED (LED5) stops blinking and lights up orange indicating that the J-Link drivers are detected by the EK-RZ/A3M board.



Note: The debug LED (LED5) continues to blink when J-Link drivers are not detected by the EK-RZ/A3M board. In that case, make sure that the EK-RZ/A3M board is connected to the host PC through the type-C USB debug port (J10) and that J-Link drivers are installed on the host PC by checking in the Windows Device Manager (expand **Ports (COM & LPT)**, and locate **JLink CDC UART Port**).

6.5 Downloading and Running the Modified Quick Start Example Project

1. In e² studio, click the drop-down menu for the debug icon, select **Debug Configurations** option.



Figure 37. Selecting the Debug Option

2. In the dialog on the left-hand pane, expand the **Renesas GDB Hardware Debugging** and select the built image to debug. In this case, the **quickstart_ek_rza3m_ep Debug_Flat**.

3 🖻 ゆ 🗎 🗙 🖻 🍸 🔹	Name: quickstart_ek_rza3m_ep Debug_Flat			
type filter text	📄 Main 🕸 Debugger 🝺 Startup 🧤 So	ource 🔲 Common		
 C/C++ Application C/C++ Remote Application 	Project:			
SASE Script	quickstart_ek_rza3m_ep			<u>B</u> rowse
C GDB Hardware Debugging	C/C++ Application:			
💽 GDB Simulator Debugging (RH850) 🔜 Launch Group	Debug/quickstart_ek_rza3m_ep.elf			
Renesas GDB Hardware Debugging		<u>V</u> ariables	Search Project	Browse
c* quickstart_ek_rza3m_ep Debug_Flat		-		
🔄 Renesas Simulator Debugging (RX, RL78)	o) <u>Build Configuration:</u> Use Active			~
	O Enable auto build	O Disable auto build	d	
	Use workspace settings	Configure Workspace		



3. Click Debug



6.6 Firewall Dialog

- 1. A firewall warning may be displayed for 'e2- server-gdb.exe'. Check the 'Private networks, such as my home or work network' box and click 'Allow access'.
- 2. A user account control dialog may be displayed. Enter the administrator password and click Yes.
- 3. A dialog box may appear. Click **Switch**.

3 Confirm Perspective Switch	×	
This kind of launch is configured to open the Debug perspective when it suspends.		
This Debug perspective supports application debugging by providing views for displaying the debug stack, variables and breakpoints.		
Switch to this perspective?		
Remember my decision		
Switch No		

Figure 39. Opening the Debug Perspective

4. Press F8 or click Resume icon to begin executing the project.



Figure 40. Executing the Project

5. The modified Quick Start example project is programmed into the EK-RZ/A3M board and is running. The project can be paused, stopped, or resumed using the debug controls.



7. Next Steps

- To learn more about the EK-RZ/A3M kit, refer to the EK-RZ/A3M user's manual and design package available in the Documents and Download tabs respectively of the EK-RZ/A3M webpage at renesas.com/ek-rza3m
- Renesas provides several example projects that demonstrate different capabilities of the RZ MCUs. These example projects can serve as a good starting point for users to develop custom applications. Example projects (source code and project files) for EK-RZ/A3M kit are available in the EK-RZ/A3M Example Projects Bundle. The example projects bundle is available in the Documentation tab of EK-RZ/A3M webpage.
 - Download and extract the example projects bundle (xxxxxxxxxxek-rza3mexampleprojects.zip) to a local directory on the host PC.
 - Refer to the list of all example projects (xxxxxxxxxek-rza3m-exampleprojects.pdf) available inside the example projects bundle.
 - Browse to the desired example project (for example: adc_ek_rza3m_ep) in the example projects bundle (xxxxxxxxxxxek-rza3mexampleprojects\ek rza3m\adc\adc ek rza3m ep)
 - For help on using example projects, refer to Example Project Usage Guide.pdf in the RZ/A Example Repository on GitHub at:
 - https://github.com/renesas/rza-fsp-examples
 - The archived versions of the source code of the example projects are available in the example project repository.

8. Website and Support

Visit the following URLs to learn about the kit and the RZ family of microprocessors, download tools and documentation, and get support.

EK-RZ/A3M Resourcesrenesas.com/ek-rza3mRZ/A3M Product Informationrenesas.com/rza3mRZ Product Informationrenesas.com/rzRenesas Supportrenesas.com/supportRZ/A Flexible Software Package (FSP)renesas.com/fsp

R20QS0087EG0100 Rev.1.00 May.20.25



Revision History

		Description	
Rev.	Date	Page	Summary
1.00	May.20.2025	_	Initial release



EK-RZ/A3M v1 - Quick Start Guide

Publication Date: May.20.25

Published by: Renesas Electronics Corporation

EK-RZ/A3M v1 – Quick Start Guide

