

## Renesas RA Family

# EK-RA4M2 Example Project Bundle

### Introduction

This document describes the contents of the Example Project Bundle for the EK-RA4M2 kit. The Example Projects contained within the bundle show how to write code for the various Renesas Flexible Software Package (FSP) modules supported by the EK-RA4M2 kit.

Flexible Software Package is an optimized software package designed to provide easy to use, scalable, high quality software for embedded system design. The primary goal is to provide lightweight, efficient drivers that meet common use cases in embedded systems. FSP code quality is enforced by peer reviews, automated requirements-based testing, and automated static analysis. FSP provides uniform and intuitive APIs that are well documented. Each module is supported with detailed user documentation including example code. FSP modules can be used on any MCU in the RA family, provided the MCU has any peripherals required by the module. FSP modules can be configured at build-time to optimize the size of the module for the feature set required by the application.

### Supported Kit

EK-RA4M2

### Supported FSP Version

FSP v3.5.0 or later

### Supported Toolchains

- e<sup>2</sup> studio Integrated Development Environment (IDE), default toolchain is GCC Arm Embedded
- Keil MDK with Arm compiler toolchain
- IAR EWARM with IAR toolchain for Arm

## 1. Using the Example Projects

To use EK-RA4M2 Example Projects follow the steps mentioned in the following documents:

- Example Project Usage Guide  
[https://github.com/renesas/ra-fsp-examples/blob/master/example\\_projects/Example%20Project%20Usage%20Guide.pdf](https://github.com/renesas/ra-fsp-examples/blob/master/example_projects/Example%20Project%20Usage%20Guide.pdf)
- e<sup>2</sup> studio AC6 porting Guide  
<https://en-support.renesas.com/knowledgeBase/19375553>

Users that are new to the FSP are recommended to refer to the section **Starting Development > Tutorial: Your First RA MCU Project – Blinky** in the [RA FSP Documentation](#) prior to attempting to debug an example project.

## 2. List of Example Projects Supported on Different Toolchains in the Bundle

EK-RA4M2 Example Projects	e <sup>2</sup> studio/GCC	e <sup>2</sup> studio/AC6	Keil MDK	IAR
adc	Supported	Supported via port from GCC		
adc_gpt_periodic_samplng	Supported	Supported via port from GCC		
agt	Supported	Supported via port from GCC	Supported	Supported
audio_playback_pwm	Supported	Supported via port from GCC		
cac	Supported	Supported via port from GCC		
can	Supported	Supported via port from GCC		
cpp	Supported	Supported via port from GCC		

<b>EK-RA4M2 Example Projects</b>	<b>e<sup>2</sup> studio/GCC</b>	<b>e<sup>2</sup> studio/AC6</b>	<b>Keil MDK</b>	<b>IAR</b>
crc	Supported	Supported via port from GCC		
dac	Supported	Supported via port from GCC		
dmac	Supported	Supported via port from GCC	Supported	Supported
doc	Supported	Supported via port from GCC		
elc	Supported	Supported via port from GCC		
FileX_block_media_qs pi_LevelX	Supported	Supported via port from GCC		
flash_hp	Supported	Supported via port from GCC	Supported	Supported
freertos	Supported	Supported via port from GCC	Supported	Supported
gpt	Supported	Supported via port from GCC	Supported	Supported
gpt_input_capture	Supported	Supported via port from GCC		
icu	Supported	Supported via port from GCC	Supported	Supported
iic_master	Supported	Supported via port from GCC		
iic_slave	Supported	Supported via port from GCC	Supported	Supported
iwdt	Supported	Supported via port from GCC		
lpm	Supported	Supported via port from GCC		
mbed_crypto	Supported	Supported via port from GCC		
NetX_crypto	Supported	Supported via port from GCC		
qspi	Supported	Supported via port from GCC		
qspi_blockmedia_usb_ composite	Supported	Supported via port from GCC		
_quickstart	Supported	Supported via port from GCC		
rtc	Supported	Supported via port from GCC	Supported	Supported
sci_i2c	Supported	Supported via port from GCC		
sci_spi	Supported	Supported via port from GCC		
sci_uart	Supported	Supported via port from GCC	Supported	Supported
ssi	Supported	Supported via port from GCC		
trustzone/agt	Supported	Supported via port from GCC	Supported	Supported
trustzone/doc	Supported	Supported via port from GCC	Supported	Supported
trustzone/iic_master	Supported	Supported via port from GCC	Supported	Supported
trustzone/rtc	Supported	Supported via port from GCC	Supported	Supported
trustzone/usb_phid	Supported	Supported via port from GCC	Supported	Supported
usb_composite	Supported	Supported via port from GCC		
usb_hcdc	Supported	Supported via port from GCC		
usb_hhid	Supported	Supported via port from GCC		
usb_hmsc	Supported	Supported via port from GCC		
usb_hvnd	Supported	Supported via port from GCC		
usb_pcdc	Supported	Supported via port from GCC		
usb_phid	Supported	Supported via port from GCC		
usb_pvnd	Supported	Supported via port from GCC		
USBX_hcdc_acm	Supported	Supported via port from GCC		
USBX_hhid	Supported	Supported via port from GCC		
USBX_hmsc	Supported	Supported via port from GCC		
USBX_pcdc_acm	Supported	Supported via port from GCC		

<b>EK-RA4M2 Example Projects</b>	<b>e<sup>2</sup> studio/GCC</b>	<b>e<sup>2</sup> studio/AC6</b>	<b>Keil MDK</b>	<b>IAR</b>
USBX_phid	Supported	Supported via port from GCC		
vee_flash	Supported	Supported via port from GCC		
wdt	Supported	Supported via port from GCC	Supported	Supported
wifi	Supported	Supported via port from GCC		

**Note:** Additional example projects other than those mentioned above, maybe available in the example project bundle. However, they are supported only with older version of FSP due to technical issues found during regression testing with the latest version.

**Website and Support**

Visit the following URLs to learn about key elements of the RA family, download components and related documentation, and get support.

RA Product Information	<a href="http://www.renesas.com/ra">www.renesas.com/ra</a>
RA Product Support Forum	<a href="http://www.renesas.com/ra/forum">www.renesas.com/ra/forum</a>
RA Flexible Software Package	<a href="http://www.renesas.com/FSP">www.renesas.com/FSP</a>
Renesas Support	<a href="http://www.renesas.com/support">www.renesas.com/support</a>

**Revision History**

Rev.	Date	Description	
		Page	Summary
1.00	Jan.26.21	—	First release document
1.01	Feb.02.21	—	USB_PHID TZ EP added
1.02	Mar.10.21	—	Added support for QuickStart, USB COMPOSITE, USB HVND, and USB PVND
1.03	Apr.06.21	—	Added support for FSP v2.4.0
1.04	May.03.21	—	Added support for FSP v3.0.0
1.05	May.13.21	—	Added support for FSP v3.0.0 (2).
1.06	Jun.16.21	—	Added support for FSP v3.0.0 (4).
1.07	Jul.12.21	—	Added support for FSP v3.1.0 (1).
1.08	Jul.26.21	—	Added support for FSP v3.1.0 (2).
1.09	Aug.30.21	—	Added support for FSP v3.1.0 (3).
1.10	Sep.10.21	—	Added support for FSP v3.2.0.
1.11	Sep.29.21	—	Added support for FSP v3.3.0 (2).
1.13	Oct.20.21	—	Added support for FSP v3.4.0 (2).
1.14	Dec.20.21	—	Added support for FSP v3.5.0 (2).

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