

## Renesas RA Family

# FPB-RA8E1 Quick Start Guide Fast Prototyping Board

## 1. Introduction

The FPB-RA8E1 Fast Prototyping Board provides an entry point for evaluation, prototyping and development with the RA8E1 MCU. Moreover, since this board incorporates an emulator circuit, you can use it for designing your own applications without needing to make further investments in tools. This product includes through-holes for pin headers that allow access to all MCU signal pins, allowing easy prototyping with a breadboard.

## 2. Package Contents

- FPB-RA8E1 Fast Prototyping Board (RTK7FPA8E1S00001BE)
- Quick Start Guide (this document)

## 3. Board Specifications

Item	Specification
Evaluation MCU	Part No: R7FA8E1AFDCFB; package: 144-pin LQFP
	On-chip memory: 1 MB code flash, 544 KB SRAM including 32KB of TCM, 12 KB data flash memory
Board size	Size: 55 mm x 110 mm; thickness: 1.6 mm
Power-supply voltage	Board supply: 5 V. VCC: 3.3 V. MCU operation voltage range 1.68 V to 3.6 V
Power-supply circuit	USB connector: VBUS (5 V input); VBUS is converted to 3.3 V by LDO
	2-pin external power-supply header <sup>*1</sup>
Push switch	Reset switch x 1; User switch x 1
LED	Power indicator: green x 1, User: green x 2, On-board debugger activity: yellow x 1
USB connector	Connector: USB type-C
Pmod™ connector	Connector: right angle type, 12-pins x 2
Arduino™ connector	Connector: 6-pins x 1, 8-pins x 2, 10-pins x 1 The interface is compatible with Arduino™ Uno R3
Camera Interface	20 pins x1 <sup>*1</sup>
MCU header	Header: 50 pins x 2 <sup>*1</sup> , 20 pins x1 <sup>*1</sup>
Emulator	J-Link On-board programmer / debugger

<sup>\*1</sup> Not populated

## 4. Board Layout

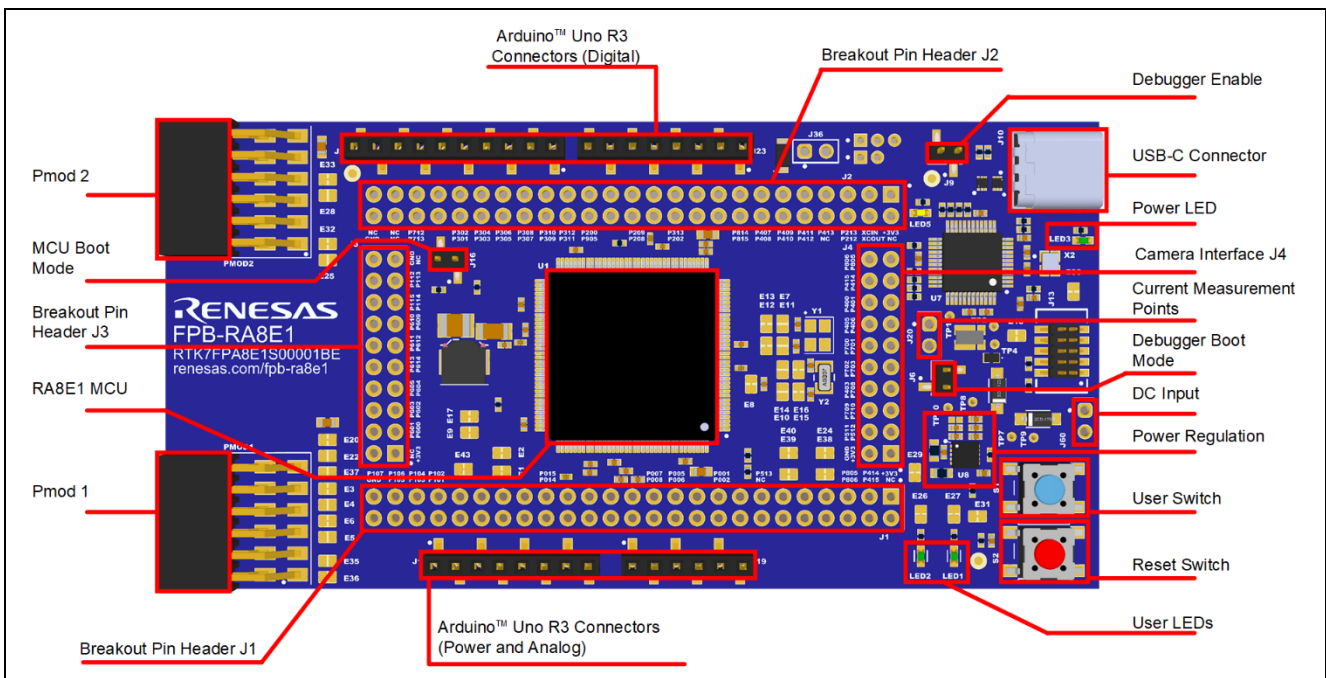


Figure 1. FPB-RA8E1 Board Layout

### 5. Arduino Interface

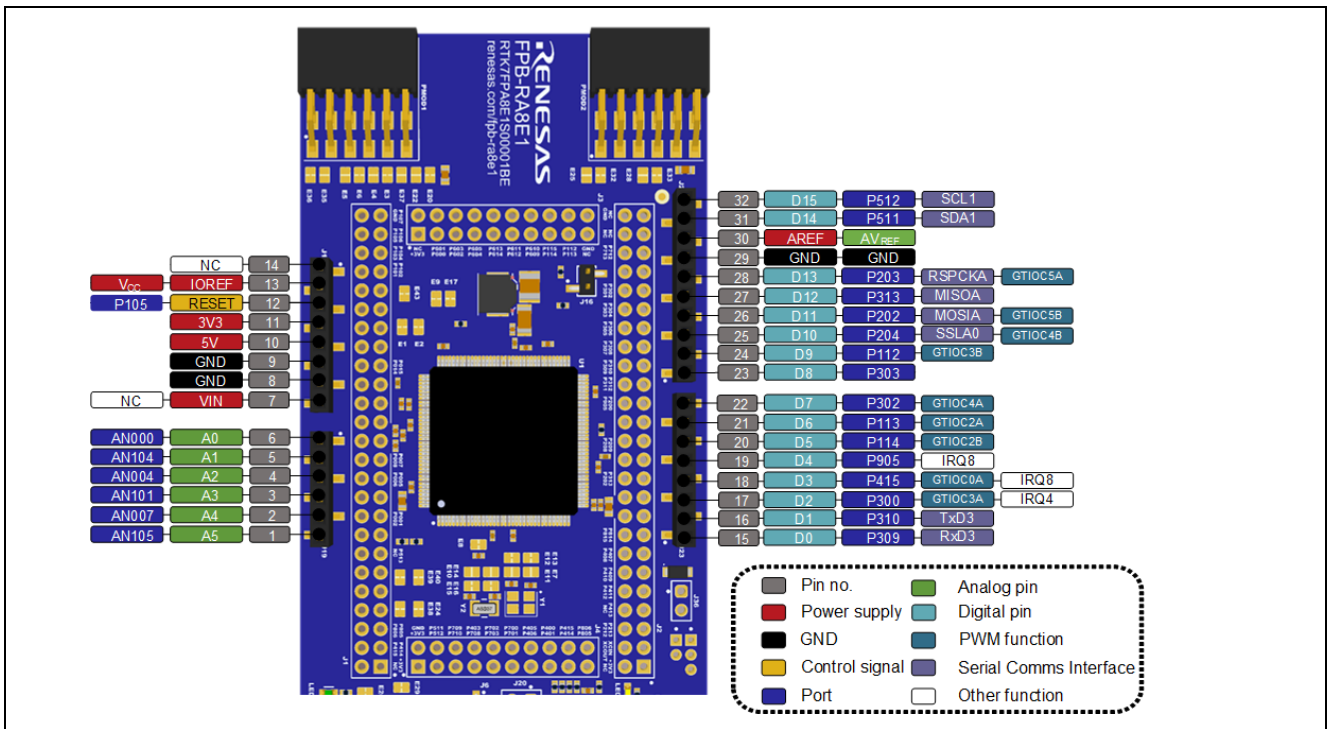


Figure 2. FPB-RA8E1 Arduino Interface

### 6. Pmod Interface

The FPB-RA8E1 Fast Prototyping Board has two Pmod connectors. Pmod 1 supports the Type 2A interfaces and can also be configured for Type 3A and Type 6A. Pmod 2 supports Type 2A interfaces and Pmod 2 can also be configured for Type 3A.

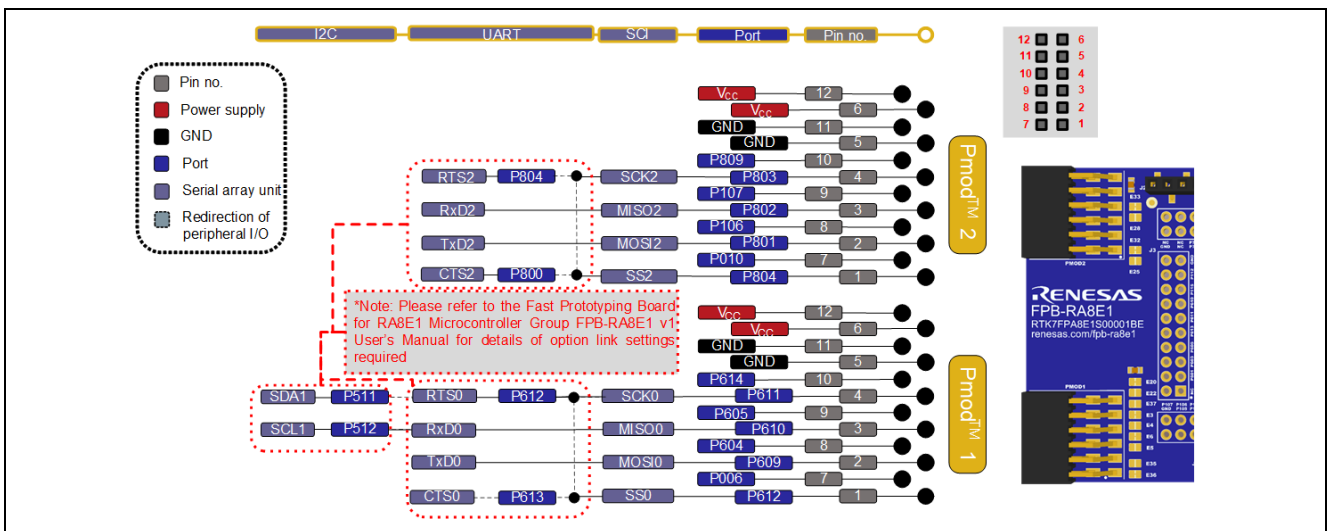


Figure 3. FPB-RA8E1 Pmod Interface

### 7. Power Up Behavior

When the board is powered using USB, the green LED marked LED3 will illuminate. In addition, the LEDs (LED1 and LED2) will count upwards in a binary sequence at a rate of 1 Hz, with the LEDs representing 1 or 0. When the user switch (S1) is pressed, the counting frequency is increased to 10 Hz. Future presses will cycle between the two rates.

### 8. Note on Using the Board

Before using this board, download the user's manual from the web site at [renesas.com/fpb-ra8e1](http://renesas.com/fpb-ra8e1), and check the full specifications.

