Quick Start Guide

RX65N Group

Cloud Kit for RX65N Microcontroller Group
CK-RX65N v2 with DA16600 Pmod Board
Quick Start Guide

Renesas RX Family
RX600 Series

Renesas Electronics
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General Precautions in the Handling of Microprocessing Unit and Microcontroller 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 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.

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Precautions

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

Renesas RX Family

CK-RX65N v2 with DA16600 Pmod Board

Contents

Figures

Tables

1. Kit Contents

The following components are included in the kit:

1. CK-RX65N v2 board
2. Micro USB device cable (type-A male to micro-B male) x2
3. Micro USB host cable (type-A female to micro-B male)
4. USB-C device cable (type-C male to type-C male)
5. US159-DA16600EVZ Pmod board

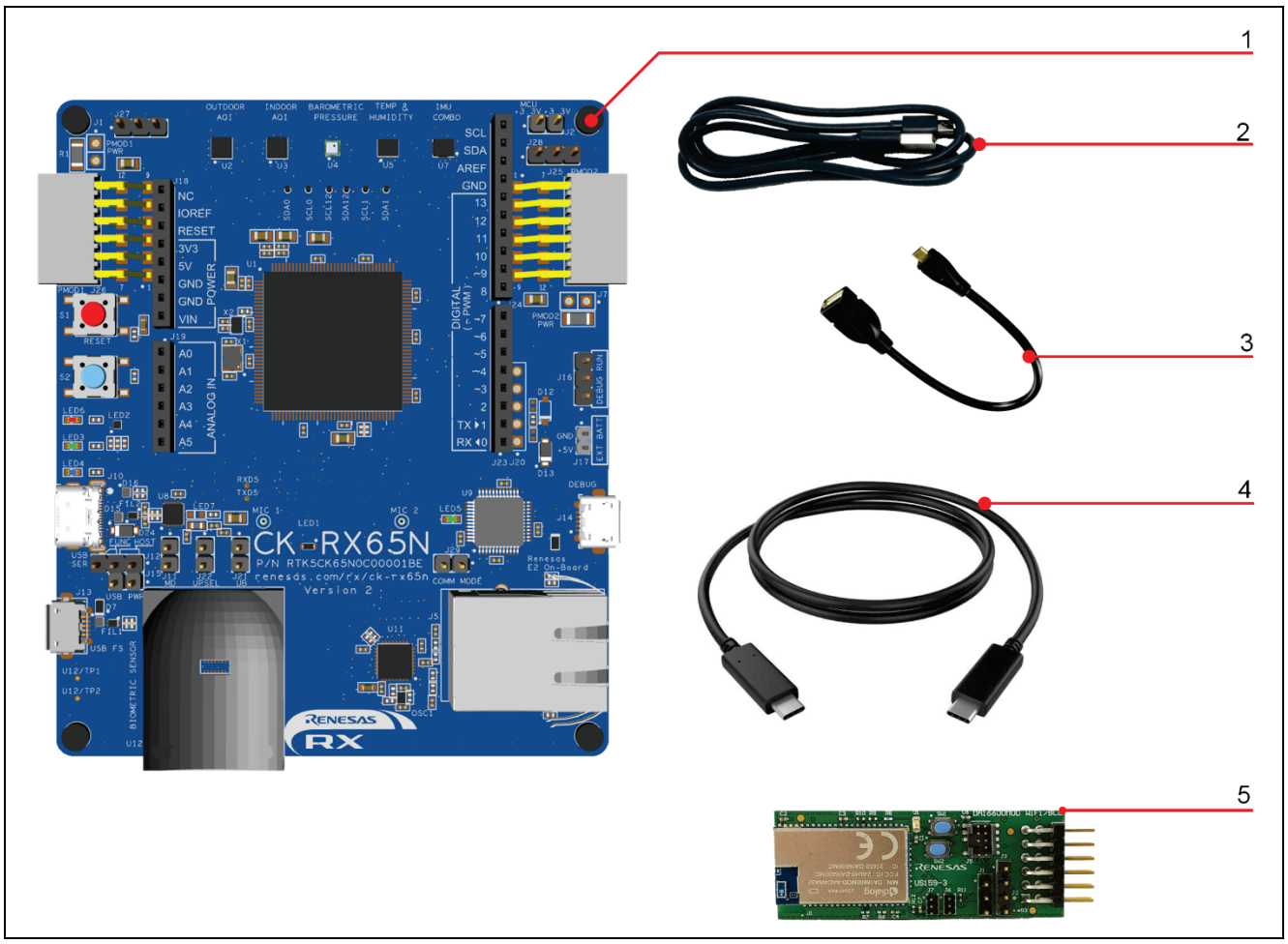

Figure 1. CK-RX65N v2 Kit Contents

2. Ordering Information

- CK-RX65N v2 kit orderable part number:

  RTK5CK65N0S08001BE Base kit plus US159-DA16600EVZ Pmod Board

  Note: The underlined character in the orderable part number 1 represents the CK-RX65N v2 kit.

- CK-RX65N v2 board dimensions: 80 mm (width) x 95 mm (length)
- US159-DA16600EVZ Pmod Board dimensions: 14.3 mm (width) × 24.3 mm (length)

3. DA16600 Pmod Board

Included in the CK-RX65N v2 kit is the DA16600 Pmod board. The Pmod board connects to the CK-RX65N v2 board using the Pmod 2 port. Some of the key features of the Pmod board are as follows:

- 3.3 V supply voltage
- Integrated chip antenna
- Cortex-M4F+ at 30 MHz to 160 MHz and Cortex M0+ at 16 MHz
- 802.11b/g/n radio PHY, 2.4 GHz
- Bluetooth 5.1 core qualified
- SoC runs full OS and TCP/IP stack
- Memory: 256 kB ROM, 512 kB RAM, 8 kB OTP, 48 B retention memory and 32 Mb SPI Flash
- RF regulatory certifications: FCC, IC, CE, KC, TELEC, and SRRC
- Wi-Fi Alliance certifications:
  Wi-Fi CERTIFIED b/g/n,
  WPA, WPA2, and WPA3
- Standardized Type 3A Pmod connector supports an expanded UART interface
- LED (D1) to aid in user software debug
- 10-pin 1.27 mm pitch Arm® Cortex-Debug connector (J2) for software development and debug support

Table 1. CK-RX65N v2 Pmod 2 and DA16600 Pmod Board Port Assignments

CK-RX65N v2 Pmod 2 Port Assignments			**DA16600 Pmod Board Port Assignments**		
Pin	**Option Type-3A (UART)**	**Signal/Bus**	**Pin**	**Option Type-3A (UART)**	**Signal/Bus**
J25-1	CTS	PJ5 (CTS2)	1	CTS	GPIOA10
J25-2	TXD	P50 (TXD2)	2	TXD	GPIOC7_TXD_HOST
J25-3	RXD	P52 (RXD2)	3	RXD	GPIOC6_RXD_HOST
J25-4	RTS	P54 (RTS2)	4	RTS	GPIOA2
J25-5		GND	5		GND
J25-6		+3.3 V	6		+3.3 V
J25-7		P31 (IRQ1-DS)	7		INT
J25-8		PA1	8		RESET
J25-9		P32	9		P0_8
J25-10		P33	10		P0_9
J25-11		GND	11		GND
J25-12		+3.3 V	12		+3.3 V

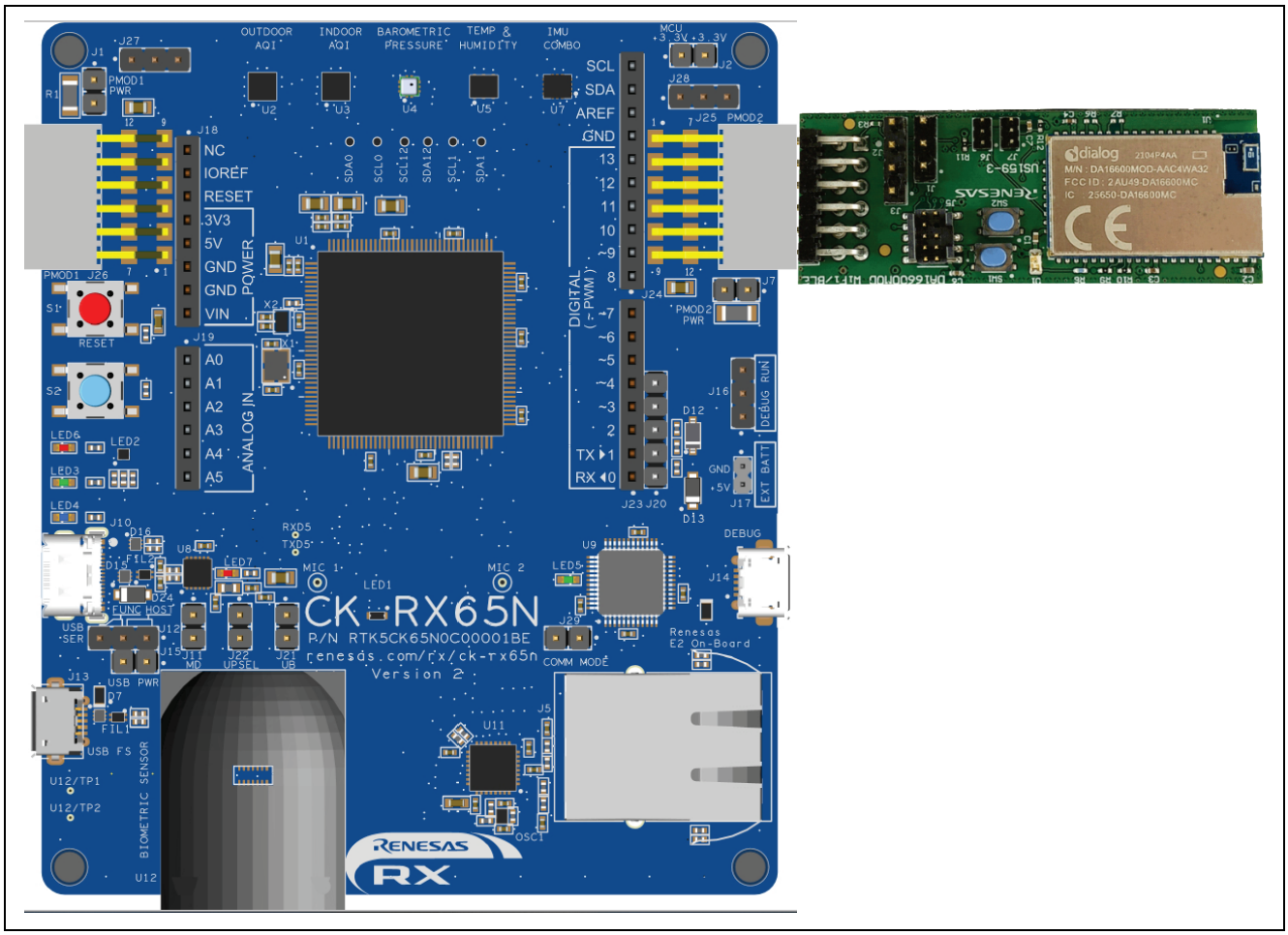

Figure 2. CK-RX65N v2 Connected with DA16600 Pmod Board

4. Next Steps

To learn more about the CK-RX65N v2 kit and the Quick Start Example Project (QSEP), refer to the CK-RX65N v2 User's Manual, Quick Start Guide, and design package available in the Documentation and Software Downloads tabs respectively of the CK-RX65N v2 webpage at renesas.com/rx/ck-rx65n.

5. Website and Support

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

CK-RX65N Resources	renesas.com/rx/ck-rx65n
Cloud Application Notes	renesas.com/cloudsolutions
RX Cloud Solution Portal	renesas.com/rx/cloudsolutions
RX Product Support Forum	renesas.com/rx/forum
RX Product Information	renesas.com/rx
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Revision History

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		Page	Summary
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