QuickConnect Studio V1.6.1

Introduction

This release note provides the supported devices and applications for the QuickConnect Studio V1.6.1, and it outlines the new features, kits, and applications. The document also reviews the open and fixed issues from the previous version, QuickConnect Studio V1.5.0.

Contents

1. Overview

The QuickConnect Studio is a unified, browser-based, no-code/low-code embedded system design platform that enables engineers to rapidly prototype and configure hardware and software using products from Renesas and partners.

The platform provides a visual drag-and-drop interface where users can select MCU kits, peripherals across various supported interfaces (Pmods, Arduino, Camera, and USB). The platform automatically generates software that includes drivers, middleware, and reference applications ranging from IoT to Edge AI. Users can customize, compile and debug their application from the browser window leveraging Renesas-managed remote board farms.

The key engineering capabilities of the QuickConnect Studio include the following:

- Hardware-software co-design
- Automatic code generation and customization
- Unified debug interface (direct/remote) using QC-Debug
- Auto-validation of hardware/software design blocks using QC-Docking

2. Browser Requirements

The following are compatible web browsers:

- Google Chrome
- Internet
- Explorer
- Edge
- Firefox
- Safari

3. Supported Kits and Applications

3.1 Supported Kits

Category	Usage	Kit Name
Embedded	Beginner kit	BGK-RA6E2
	AI kit	AIK-RA4E1 AIK-RA6M3
	Cloud connectivity	CK-RA6M3
	Voice kit	VK-RA6E1
	Evaluation kit	EK-RA2A1, EK-RA2A2, EK-RA2E1, EK-RA2E2, EK-RA2L1, EK-RA2L2 EK-RA4E2, EK-RA4M1, EK-RA4M2, EK-RA4M3, EK-RA4W1 EK-RA6E2, EK-RA6M1, EK-RA6M2, EM-RA6M3, EK-RA6M4, EK-RA6M5 EK-RA8D1, EK-RA8D1-HMI, EK-RA8M1, EK-RA8P1 RZ-G2L, RZ-V2L
	Fast prototype	FPB-RA0E1, FPB-RA0E2 FPB-RA2E3 FPB-RA4E1, FPB-RA4E2 FPB-RA6E1, FPB-RA6E2 FPB-RA8E1
	Motor Control kit	MCK-RA4T1
	SOM	FEATHER-RA8M1[1]

Category	Usage	Kit Name
Sensor	Camera	Arducam Mega SPI Camera[2], OV3640 Camera[3]
	Optical sensor	AS7331 Spectral UV, AS7343 Spectral, AS7331_QWIIC
	Proximity	TMF8828 multi-Zone ToF, VCNL4200_MIKROBUS, STM VL53L0X Time of Flight Sensor
	Gas sensor	FECS43 SO2 Gas Sensor, FECS44 Ammonia Gas Sensor, FECS50 H2S Gas Sensor RRH46410 Digital Gas Sensor Module TGS5141 CO Gas Sensor, TGS6810 Combustible/Methane Gas Sensor ZMOD4410 Indoor Air Quality, ZMOD4510 Outdoor Air Quality, ZMOD4450 Refrigeration Air Quality
	Flow sensor	FS1015 Vertical Mount Air Velocity, FS3000 Horizontal Mount Air Velocity
	Temperature/Humidity sensor	HS3001 Temperature/Humidity, HS4001 Temperature/Humidity, SHT40 Temperature/Humidity, MLX90632, MLX90614 Non-Contact Infrared Temperature Sensors, PCT2075 Adafruit Temperature Sensor
	RF Receivers	U-blox NEO-M8 GNSS RF receiver
	Passive Infrared (PIR)	Murata PIR Sensor
	Motion sensor	Bosch BMA456 Step Counter, ICM42688 6-Axis MEMS, ICM42670 6-Axis MEMS[4]
Memory	MRAM	Everspin EVEM064LX MRAM
Audio	Microphone / Headphone	ICS43434 Digital Microphone, DA7212_Mikrobus
Power Management	Power monitor	ISL28022 Digital Power Monitor
Connectivity	BLE	DA14531 Bluetooth, DA14535 Bluetooth
	Wi-Fi	DA16200 Wi-Fi, DA16600 Wi-Fi
	NFC	NXP PN5180A0HN, PTX105R NFC Card Reader[5]
Expansion kit	Arduino	Arduino EDU
Display	LCD panel	Sparkfun OLED Display 128x32px, Adafruit OLED Display 128x64px, MIKROE OLED W Click 96x39px, Grove - Red Quad Alphanumeric Display, Grove - OLED Yellow & Blue Display 128x64px

1. Feather-RA8M1 is a beta release and it supports Zalmotek Robot Dog application only.
2. Arducam Mega SPI Camera currently only works with EK-RA6M4 on Camera streaming and EK-RA8D1-HMI Camera capture application.
3. OV3640 Camera currently only works with EK-RA8D1-HMI on Camera capture application.
4. ICM42670 6Axis MEMS currently only works with AI kits on AI motion detection applications.
5. PTX105R NFC Card Reader currently only works with EK-RA6M4 on NFC based smart lock application.

3.2 Supported Applications

Applications might only apply to limited MCUs because of MCU resources.

Application Category	Usage	Application Name
Quick-Start Code Snippet	Wired communication	USBX peripheral human interface, USBX host Mass storage, USBX device Mass storage, Sensor Data Logger (Wired)
	Arduino	Arduino GPIO, Arduino PWM, Arduino interrupt, Arduino Analog
	Network	NetX Duo FTP Client
	Getting started	Quick Start Example, Blink LEDs, Low Power Mode, MRAM Test Suite using EVEM064LX
Functional Building Block	Edge AI	AI motion detection, AI motion detection over BLE, Object detection,
	Camera	Wired Live Camera Feed, Video playback with LVGL, Image playback with LVGL
	Audio	Audio data logger (wired), Audio playback with LVGL
	Sensor connectivity	Sensor Data over BLE, Sensor Data USB logger, Sensor Data to AWS cloud, Sensor Data to AdafruitIO
	HMI	Sensor to OLED Display
	Data logger	LittleFS QSPI MQTT logger
System Reference Design	Smart Home	NFC-based smart lock application
	Smart City	Distracted driving detection, driver monitoring system, Line crossing object counting (Security Area Intrusion Detection)
	Smart Building	Elevator passengers Counting, Safety Helmet, and vest detection
	Robotics	Zalmotek Robotic Dog

4. New for this Release

4.1 Features

- Support for RZ MPU AI SDK v5.0.0
- Direct Debugging Support for RA4, RA2, RA0-based kits
- Support for FSP v6.1.0
- Added support for Grove interfaces
- Infrastructure updates
  - Hosted SEGGER Tunnel Server in Renesas managed AWS Cluster to improve Remote Debugging Performance.
- Platform updates
  - Added the Clear button to remove the selected application from the Application Configuration panel.

4.2 Kits

- MCK-RA4T1 Motor Control Evaluation Board
- STM VL53L0X Time of Flight Sensor
- Bosch BMA456 Step Counter
- u-blox NEO-M8 GNSS RF Receiver
- Murata PIR Sensor
- Melexis MLX90614 Non-contact Infrared Temperature Sensors
- Everspin EVEM064LX MRAM module
- HMI Displays
  - Sparkfun OLED Display 128x32px
  - Adafruit OLED Display 128x64px
  - MIKROE OLED W Click 96x39px
  - Grove - Red Quad Alphanumeric Display
  - Grove - OLED Yellow & Blue Display 128x64px

4.3 Applications

- RA MCU Applications
  - Sensor data to OLED display
  - Sensor data logger (wired)
- RZ/V2L Applications
  - Distracted driving detection
  - Driver monitoring system
  - Line crossing object counting (security area intrusion detection)
  - Elevator passenger counting
  - Safety helmet, vest detection

5. Known Limitations

Direct Debugging support is limited and supports the following MCU device families:

MCU Series[1]	MCU Devices
RA0	RA0E1, RA0E2
RA2	RA2A1, RA2A2, RA2E1, RA2E2, RA2E3, RA2L1, RA2L2
RA4	RA4M1, RA4M2[2], RA4M3[2], RA4E1[2], RA4W1
RA6	RA6E1[2], RA6E2, RA6M3, RA6M4[2], RA6M5[2], RA6T1, RA6M1, RA6M2
RA8	RA8D1, RA8E1, RA8M1, RA8P1

1. Keep the MD pin jumper in the Open state in all the RA MCU kits before initiating a direct debug session.
2. Clear the TZ boundaries before the debug session using RFP. For details, refer to Reset TZ Boundaries section in the *QCS User Manual*.

6. Fixes and Improvements

- User can clear the QCS application selection in the Application Configuration menu.
- An automatic disabling of the Build icon to avoid users triggering the build process multiple times during the current build process.

7. Support and Contacts

- Follow this link to a knowledge base of FAQs for the QuickConnect Studio.
- For more information and queries, reach out to qcstudio@dm.renesas.com.

8. Revision History

Revision	Date	Description
1.00	Nov 5, 2025	Initial release.

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