1. **News Release**

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**Renesas Synergy™ AE-CLOUD2 Kit Speeds Global LTE**

**IoT Connectivity Development**

*Cloud Kit Connects IoT Sensor Devices to Major Enterprise Cloud Service Providers Using Global 4G/LTE Cat-M1 and NB-IoT Cellular Networks with Built-In GPS support*

Düsseldorf, September 26, 2018 – Renesas Electronics Corporation (TSE: 6723), a premier supplier of advanced semiconductor solutions, today announced the Renesas Synergy™ AE-CLOUD2 kit, a complete hardware and software reference design that allows embedded developers to quickly evaluate cellular connectivity options and build Low Power Wide Area (LPWA) cellular Internet of Things (IoT) applications. The AE-CLOUD2 kit together with the new Synergy Software Package (SSP) version 1.5.0 simplifies connecting IoT sensor devices to enterprise cloud services using 4G/LTE Cat-M1 and Cat-NB1, also called NB-IoT, with fallback to 2G/EGPRS cellular networks. The kit’s rich functionality accelerates prototyping cellular-enabled IoT devices for asset tracking, retail and agriculture monitoring, smart cities/utilities, mobile healthcare, and industrial automation.

Each AE-CLOUD2 hardware kit includes a Synergy S5D9 microcontroller (MCU) baseboard, tri-mode cellular modem with cellular and GPS antennas, Wi-Fi, Ethernet, and various sensors such as lighting, microphone, temperature, humidity, pressure, air quality, geomagnetic, accelerometer, and gyroscope. For cellular access, developers simply insert a SIM card with data plan purchased from a local cellular carrier. The hardware kit’s software allows developers to provision the kit to connect to a 4G/LTE IoT cellular network and their preferred cloud service provider: Amazon Web Services*™*, Google Cloud Platform*™*, Microsoft Azure™ or Medium One Cloud. Users can visualize their sensor data on a customizable, password-protected dashboard.

The AE-CLOUD2 hardware kit ensures excellent EMC performance, having passed global RF emissions tests. In addition, the AE-CLOUD2 kit complies with global regulatory certifications for FCC, CE, RoHs, WEEE and Japan MIC. The kit’s fully optimized hardware/software saves developers months of design time and resources creating a scalable, energy efficient and secure end-to-end LPWA cellular IoT application that can be used anywhere in the world.

“Renesas is the first MCU supplier to deliver a 4G/LTE Cat-M1/Cat-NB1-based reference design kit that is certified to operate globally, uses Wi-Fi and Ethernet, and offers cloud service example projects. The kit’s wide array of sensors, global cellular modem, and GPS capability opens the door to countless IoT monitoring and control applications for deployment on a broad scale,” said Daryl Khoo, Vice President Product Marketing, IoT Platform Business Division, Renesas Electronics Corporation. “Developers can use the kit to build prototypes and then reuse the hardware and software from the kit as reference building blocks to accelerate their own production applications.”

**Key Features of AE-CLOUD2 Kit**

* Synergy S5D9 MCU baseboard
* Quectel ultra-low power BG96 cellular module supports 4G/LTE Cat-M1, Cat-NB1, and 2G/EGPRS
* Sensors for sampling and sending measurement data to the cloud:
	+ Renesas ISL29035 digital light sensor for ambient/infrared light measurement
	+ Bosch BMI160 MEMS sensor for acceleration and gyroscopic measurement
	+ Bosch BMM150 MEMS three-axis geomagnetic sensor for compass navigation
	+ Bosch BME680 MEMS sensor for gas, temperature, humidity, and pressure measurements
	+ Knowles SPM0687LR5H-1 analog microphone for sound and voice capture

**Key Features of SSP version 1.5.0**

* Customizable production grade software
* ThreadX® real-time-operating system (RTOS)
* NetX Duo™ Message Queue Telemetry Transport (MQTT) and NetX Secure™ Transport Layer Security (TLS) for secure communications with cloud services
* Support for HTTPS Client and HTTP 1.1 Client
* Wireless Frameworks for connecting to LTE IoT networks and cloud services
* SSP Cellular Framework provides APIs to provision, configure and communicate with cellular network for data communication
* Example projects for Amazon, Microsoft, Google, and Medium One, including reference code and instructions for connecting AE-CLOUD2 to each cloud service using Ethernet, Wi-Fi, or LTE IoT cellular

Renesas is demonstrating the AE-CLOUD2 kit in booth 727 at [Arm TechCon](https://www.armtechcon.com), October 17-18, 2018, San Jose Convention Center.

**Pricing and Availability**

The AE-CLOUD2 Kit is available now from Renesas Electronics’ worldwide distributors with a recommended resale price of USD $199.00. To jumpstart your IoT connectivity application with the AE-CLOUD2 kit and cloud service example projects, please visit: <http://renesassynergy.com/ae-cloud2>. Also, download SSP version 1.5.0 (no charge) at <http://www.renesassynergy.com/ssp>.

(Pricing and availability are subject to change without notice.)

**About Renesas Electronics Corporation**

Renesas Electronics Corporation ([TSE: 6723](https://www.jpx.co.jp/english/)) delivers trusted embedded design innovation with complete semiconductor solutions that enable billions of connected, intelligent devices to enhance the way people work and live—securely and safely. A [global](https://www.renesas.com/en-hq/about/company/profile/global.html) leader in microcontrollers, analog, power, and SoC products and integrated platforms, Renesas provides the expertise, quality, and comprehensive solutions for a broad range of Automotive, Industrial, Home Electronics, Office Automation and Information Communication Technology applications to help shape a limitless future. Learn more at [renesas.com](https://www.renesas.com).

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