**News Release**

No.: REN0802(A)

**New Renesas Synergy™ Low-Power S1JA Microcontrollers with Integrated Programmable Analog Simplify Designs and Reduce BOM for Industrial IoT Sensor Applications**

Düsseldorf, November 27, 2018 – Renesas Electronics Corporation (TSE:6723), a premier supplier of advanced semiconductor solutions, today expanded its Renesas Synergy™ S1 microcontroller (MCU) series with the introduction of the [S1JA MCU Group](https://www.renesas.com/products/synergy/hardware/microcontrollers/s1-series/s1ja-group.html). The ultra-low power S1JA MCUs feature the 48 MHz Arm® Cortex®-M23 core and integrate best-in-class programmable analog and security functions for high-accuracy sensor signal acquisition and conditioning. The S1JA MCUs target cost sensitive and low power Industrial Internet of Things (IIoT) sensor applications such as flow control meters, multisensor systems, headless medical monitors and instrumentation systems, and single-phase electricity meters.

The S1JA Group include five MCUs with up to 256 KB flash memory, up to 32 KB SRAM memory, and a wide operating voltage range of 1.6V to 5.5V. Each MCU integrates a sensor-biasing unit that supplies accurate power to the external sensor, and a highly configurable analog fabric that processes complex algorithms to maximize signal conditioning and precise analog measurements. On-chip analog components include a high accuracy 16-bit analog-to-digital converter (ADC), 24-bit sigma-delta ADC, fast response 12-bit digital-to-analog converter (DAC), rail-to-rail low-offset operational amplifiers, and high-speed/low-power comparators. The S1JA MCUs enable advanced analog configurations from basic functions to more complex analog blocks. As a result, embedded designers are able to reduce BOM cost and PCB size by eliminating several external analog components. Access to capacitive touch enable pins allows designers to develop touch button HMI interfaces, and the S1JA’s memory mirror function enables over the air updates with little software overhead.

Ultra-low power allows the S1JA MCUs to extend battery life for battery-operated portable and battery backup applications. Their best-in-class software standby mode consumes a mere 500nA to enable 20-year battery-operated applications that spend extended periods in sleep mode. In addition, the S1JA’s integrated AES cryptography accelerator, True Random Number Generator (TRNG) and memory protection units provide the fundamental blocks to develop a secure system that connects to the cloud. The Renesas Synergy Software Package (SSP) supports the S1JA MCUs with HAL drivers, application frameworks and RTOS. The SSP also includes six new modules that simplify interconnecting the configurable internal analog blocks. Embedded system designers can use either of the Renesas Synergy development environments--e² studio or IAR Embedded Workbench®--to build and customize their designs.

“The S1JA is the first MCU in the Renesas Synergy Series to offer rich analog features,” said Daryl Khoo, Vice President Product Marketing, IoT Platform Business Division, Renesas Electronics Corporation. “Offering superior programmable analog capabilities gives customers the upmost MCU flexibility to explore algorithms that maximize performance and achieve design goals without adding significant overhead to BOM cost and board space.”

The S1JA Group MCUs can be combined with the ultra-low noise [ISL21090B25](http://www.renesas.com/products/ISL21090B25) precision voltage reference and [ISL32485E](http://www.renesas.com/products/ISL32485E) 5V differential RS-485/RS-422 transceiver to create high precision, ruggedized industrial sensor applications.

**About the Renesas Synergy Platform**

The [Renesas Synergy Platform](https://www.renesas.com/synergy) is a fully supported software/hardware platform that accelerates time to market and removes the obstacles engineers face designing IoT products. By enabling development to begin at the application programming interface level, Renesas reduces the complexity with designing security-aware connected devices and HMI systems with graphical user interfaces and capacitive touch.The Synergy Platform consists of integrated software, development tools and scalable Arm® Cortex®-M-based Synergy MCUs fully accessible through the software APIs. There are no upfront licensing fees or back-end royalties – everything is included in the purchase price of the MCU.

**Availability**

The Renesas Synergy [S1JA MCU Group](https://www.renesas.com/products/synergy/hardware/microcontrollers/s1-series/s1ja-group.html) and [TB-S1JA Target Board Kit](http://renesas.com/synergy/tb-s1ja) are available now from Renesas Electronics’ worldwide distributors. The low-cost TB-S1JA target board allows customers to start their system design by configuring the analog capabilities and programming the MCU.

|  |  |
| --- | --- |
| **S1JA Group MCUs** | **Package** |
| R7FS1JA783A01CFJ | 32-pin QFP |
| R7FS1JA782A01CBT | 36-pin BGA |
| R7FS1JA783A01CNF | 40-pin QFN |
| R7FS1JA783A01CNE | 48-pin QFN |
| R7FS1JA783A01CFM | 64-pin LQFP |

Renesas is demonstrating the new S1JA MCUs in Booth 130 (Hall 10.1) at [SPS IPC Drives](https://www.mesago.de/en/SPS/For_visitors/Welcome/index.htm), November 27-29, 2018 in Nuremberg, Germany.

**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/about/company/profile/global.html) leader in microcontrollers, analog, power, 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).

###

(Remarks) Renesas Synergy is a trademark of Renesas Electronics Corporation. Arm and Arm Cortex are registered trademarks of Arm Limited in the EU and other countries. IAR Embedded Workbench is a registered trademark of IAR Systems AB. All other names of products or services mentioned in this press release are trademarks or registered trademarks of their respective owners.

**Company contact for reader and customer inquiries:**Simone Kremser-Czoer

Renesas Electronics Europe GmbH, Karl-Hammerschmidt-Str. 42, 85609 Aschheim-Dornach

Tel.: +49 89 38070-216  
Email: simone.kremser-czoer@renesas.com  
Web: [www.renesas.com](http://www.renesas.com)

**Agency contact for further media information, text and graphics or to discuss feature article opportunities:**

Alexandra Janetzko / Martin Stummer

HBI Helga Bailey GmbH (PR agency), Stefan-George-Ring 2, 81929 Munich, Germany

Tel.: +49 89 99 38 87-32 / -34

Fax: +49 89 930 24 45

Email: [alexandra\_janetzko@hbi.de](mailto:alexandra_janetzko@hbi.de) / [martin\_stummer@hbi.de](mailto:martin_stummer@hbi.de)

Web: [www.hbi.de](http://www.hbi.de/)