



Press release
Communiqué de presse
Comunicato stampa
新闻稿 / 新聞稿
プレスリリース
보도자료

T4445S

STMicroelectronics and AWS collaborate for secure IoT connections to the AWS cloud

FreeRTOS and ST's STM32U5 microcontrollers and STSAFE-A110 secure element, combined with proven Arm® TF-M firmware in AWS-qualified FreeRTOS foundational reference implementation, help connect IoT devices to AWS IoT Core easily and securely

Geneva, May 11, 2022 – STMicroelectronics (NYSE: STM), a global semiconductor leader serving customers across the spectrum of electronics applications, has created a new AWS FreeRTOS-qualified, TF-M-based reference implementation, working in conjunction with [Amazon Web Services \(AWS\), an ST Authorized partner](#), to easily and securely connect Internet of Things (IoT) devices to the AWS cloud.

“FreeRTOS, backed by our long-term support libraries, is the perfect platform for connecting resource-constrained devices to powerful cloud services,” said Dave Kranzler, GM, IoT Devices, AWS. *“Working with ST to integrate industry-standard Arm open-source secure TF-M software and the STM32U5 MCU’s security features lets developers quickly build edge-to-cloud solutions that resist cyber threats.”*

“The superior security built into our STM32U5 MCUs supports the creation of trusted IoT devices to connect to the AWS cloud,” said Daniel Colonna, Marketing Director, Microcontroller Division, STMicroelectronics. *“Our qualified reference platform represents a significant investment in software integration that saves development time and costs while simplifying compliance with PSA Certified security guidelines.”*

The jointly created solution combines ST's [STM32U5 ultra-low-power microcontrollers \(MCUs\)](#), [FreeRTOS open-source real-time operating system](#), and Arm® trusted-firmware for embedded systems (TF-M). The reference implementation is realized on ST's [B-U585I-IOT02A discovery kit for IoT nodes](#) with STM32U5 MCUs, which contains rich features including USB, Wi-Fi®, and Bluetooth® Low Energy connectivity, as well as multiple sensors. The [STSAFE-A110 secure element](#) support is being added and comes pre-loaded with IoT object credentials. It helps secure and simplifies attachment between the connected objects and the AWS cloud.

FreeRTOS comprises a kernel optimized for resource-constrained embedded systems and software libraries for connecting various types of IoT endpoints to the AWS cloud or other edge devices. AWS's long-term support (LTS) is maintained on

FreeRTOS releases for two years, which provides developers with a stable platform for deploying and maintaining their IoT devices.

The Arm TF-M firmware simplifies protecting embedded systems, including services for secure boot, secure storage, cryptography, and attestation, forming the basis of a trusted execution environment (TEE) on the device. Designed for Arm v8-M architectures, TF-M integrates readily with TrustZone® on ST's STM32U5 MCUs, which feature the Arm Cortex®-M33 core.

ST's STM32U5 MCUs target demanding IoT-edge applications, featuring the advanced 160MHz Cortex-M33 core with Arm TrustZone technology and Armv8-M mainline security extension, up to 2Mbytes on-chip Flash, and extreme power-saving features. With hardware cryptographic accelerators, secure firmware installation and update, and enhanced resistance to physical attacks, the MCUs have achieved [PSA Certified Level-3 and SESIP 3 certifications](#). Also, their extreme energy-saving design simplifies powering the application and extends battery lifetime in remote applications. Highlights include three different stop modes that maximize opportunities to operate at the lowest possible power and ST's batch-acquisition mode that captures peripheral data even while the core is powered down.

The STSAFE-A110 EAL5+ certified secure element brings an authentication scheme and personalization service that allow an automated and secured attachment of connected objects to the AWS cloud. It safely relieves the historical burden on IoT-device makers to protect secret credentials during product manufacture.

ST will release a version of the reference implementation based on STM32Cube tools and software in Q3 this year, which will further simplify IoT design leveraging seamless integration with the rest of the [STM32 ecosystem](#).

STM32 is a registered trademark of STMicroelectronics International NV or its affiliates in the EU and/or elsewhere. In particular, STM32 is registered in the US Patent and Trademark Office

About STMicroelectronics

At ST, we are 48,000 creators and makers of semiconductor technologies mastering the semiconductor supply chain with state-of-the-art manufacturing facilities. An independent device manufacturer, we work with more than 200,000 customers and thousands of partners to design and build products, solutions, and ecosystems that address their challenges and opportunities, and the need to support a more sustainable world. Our technologies enable smarter mobility, more efficient power and energy management, and the wide-scale deployment of the Internet of Things and 5G technology. ST is committed to becoming carbon neutral by 2027. Further information can be found at www.st.com.

For further information, please contact:

Michael Markowitz
Director Technical Media Relations
Tel: +1 781 591 0354
michael.markowitz@st.com