

Low-power MCUs from STM32 series

At the Embedded World 2021 digital exhibition, ST Microelectronics shows the power-saving STM32U5 micro-controller unit (MCU) series with CAN FD connectivity.



STM32U5 MCUs are dedicated for applications in wearables, personal medical devices, home automation, and industrial sensors (Source: ST Microelectronics)

The chips are built upon the Arm Cortex-M33 core. The MCUs introduce an autonomous mode that lets direct memory access and peripherals keep working while the rest of the component sleeps. This avoids powering of unused cells. The MCUs' 40-nm geometry also saves power in dynamic operating and power-saving modes. A dynamic voltage scaling adjusts energy consumption to the workload. These features allow to cut dynamic power consumption to less than 19 $\mu\text{A}/\text{MHz}$. According to the manufacturer, the chips meet the most demanding power and performance requirements for applications including wearables, personal medical devices, home automation, and industrial sensors.

part of the device's RAM, the MCUs can fulfil safety-centric applications. Also, the cybersecurity features were enhanced. The Cortex-M33 core integrates the Arm Trustzone technology and an ST-specific security feature set for encryption, authorization, and internal monitoring.

Improved peripheral features include a greater Flash density, increased cycle life, a 14-bit analog-to-digital converter (ADC), and digital filters. With the error correction code (ECC) memory as

The Azure real-time operating system (RTOS) will be integrated in the STM32Cube software suite available for development of diverse applications. The STM32U5 Internet of Things Discovery Kit enables development of multi-way sensing applications and connection to cloud servers. It combines the MCU with a Wi-Fi module, Bluetooth module, microphones, gesture-detection, magnetometer, accelerometer, gyroscope, Time-of-Flight, as well as the sensors for temperature, humidity, and pressure. Microsoft has chosen this kit as reference board for the Azure Certified Device program.

The kit will be available to order later in the year. Samples of the MCUs are already available. Full production should start in September 2021.

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