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

P4754S

STMicroelectronics' new STM32 series redefines entry-level microcontroller performance and value for smart devices everywhere

- *STM32C5 with Cortex®-M33 and 40 nm for enhanced speed and Flash density*
- *Increased performance with cost efficiency*
- *Comprehensive ecosystem to enhance end-device capabilities and accelerate time to market*

Geneva, March 5, 2026 -- STMicroelectronics (NYSE: STM), a global semiconductor leader serving customers across the spectrum of electronics applications, has announced a new generation of entry-level microcontrollers (MCUs) to boost the performance of billions of tiny smart devices throughout factories, homes, cities, and infrastructures while meeting extreme cost, size, and power limitations.

The new STM32C5 series is aimed at consumer and professional devices like smart thermostats, electronic door locks, industrial smart sensors, robotic actuators, wearable electronics, and computer peripherals.

"*The new STM32C5 elevates the precision, speed and reliability of competitively priced MCUs to realize the potential in these opportunities. It builds on two decades of STM32 heritage and is part of our ambition to deliver the broadest, most scalable and secure portfolio from entry-level devices to advanced MCUs that redefine the application reach of embedded systems*," said **Patrick Aidoune, Group Vice President and General Purpose and Automotive Microcontrollers Division General Manager, STMicroelectronics**.

Thanks to an improved design based on ST's proprietary 40nm manufacturing process, the STM32C5 MCUs can run tasks noticeably faster than many entry-level chips used today. This gives products more room to include modern features such as improved sensing, smoother control, and enhanced user experiences—all while keeping dynamic power consumption low.

The STM32C5 MCUs integrate built-in protections that help safeguard products against tampering and cyber risks. These security features support safer connected devices, a growing priority across consumer and industrial markets.

Users of the new STM32C5 series can enjoy an upgraded STM32Cube environment, now with size-optimized, production-grade drivers to leverage the many hardware features. The modernized ecosystem also introduces enhanced

code generation and development tools as well as extended production-ready software examples. Benefiting from continuous updates, the STM32Cube environment is all about helping developers code faster and more efficiently, while maximizing the end-product capabilities.

"At SIT, we work in safety-critical gas and HVAC environments where reliability is essential. For our new generation of Burner Integrated Control platform, choosing the STM32C5 was a natural decision as it provides strong and predictable real-time performance, enabling us to manage combustion, flame detection, and safety interlocks with accuracy, even within a compact footprint. We were able to reuse a large part of our validated firmware, speeding up development, simplifying certification; and the result is a robust and scalable control platform designed for long-term reliability and compliance," explained **Dennis Agnello, Electronics Business Line Director, Heating & Ventilation, SIT Group.**

"*The STM32C5 provides the performance and feature set enabling us to develop a cost-efficient next generation AC charger for both public and private use, fully aligned with latest security, encryption, and interface requirements for metering and EV charging solutions. Throughout the project, ST provided the flexibility and comprehensive ecosystem support we needed to reduce development time and solve key functional and cost challenges to bring our product faster to the market,*" said **Enrique Osorio, R&D Director, Circontrol (Grupo Circutor)**.

STM32C5 MCUs are entering production now, targeting packages from 3mm x 3mm UFQFPN20 to 20mm x 20mm LQFP144. STM32 Nucleo evaluation boards, and a display extension board from Riverdi with TouchGFX development software for building entry-level graphical user interfaces, are ready to assist development.

Prices start at $0.64 for orders of 10,000 units.

Technical information

The new STM32C5 MCUs leverage an innovative implementation of the advanced Arm® Cortex®-M33 embedded processor. While Arm's core delivers advanced performance and efficiency, ST's proprietary 40 nm manufacturing process is cost-efficient, supports higher clock speed, and enables memory above 512Kbyte where lower density technologies are uncompetitive. STM32C5 MCUs come with on-chip Flash from 128Kbyte, making Cortex-M33 performance accessible at an attractive price for entry-level applications otherwise limited to lower-performing Cortex-M0 and Cortex-M23 devices. Devices are available with up to 1Mbyte, providing generous code and data storage for product designers to create sophisticated new features.

Implementing the Arm Cortex-M33 core at the 40 nm node brings improved arithmetic performance to entry-level devices at competitive cost and low power. This accelerates computations such as embedded digital filters in sensor signal conditioning, noise suppression, and debouncing. In addition, the power supply scheme, comprising a single low-dropout (LDO) regulator, permits extra user I/O pins. There is also direct memory access (DMA), which helps save power, sharpen system responses, and simplify software. Moreover, with two instances, each having at least four channels to permit two fetches in parallel, DMA on the STM32C5 is a valuable tool for developers to boost application performance.

The MCUs target SESIP3 and PSA Level 3 security certifications, with memory protection, tamper protection, cryptographic engines (symmetrical encryption with AES and hashing algorithm), and temporal isolation (HDP) to protect processes such as secure boot and firmware update. The STM32C59x and STM32C5A3 variants have additional security including hardware unique key support (HUK), secure key storage and hardware cryptographic accelerators for symmetric and asymmetric operations with protection against side-channel attacks.

Designed for demanding industrial environments, the device delivers robust performance even in harsh networking conditions. It supports a wide ambient temperature range from -40°C to 125°C, with a junction temperature up to 140°C. Even at the maximum operating temperature, the device can run at its maximum rated frequency, ensuring consistent performance across the full temperature range. STM32C5 enables compliance with industrial safety standards, including IEC 61508 SIL-2 and IEC 60335-1/60730-1 Class-B, by integrating essential hardware and software features.

Enhancements to the development ecosystem include a new STM32CubeMX flavor, STM32CubeMX2, which introduces a preview feature that allows faster access to reference code thereby accelerating development and easing code reuse. Also new in the STM32CubeC5 embedded software offer, the latest code-size optimized hardware abstraction layer (HAL2), gives access to all MCU features and allows more of the MCU's memory to be used for application code.

Alex Fabre, Embedded Software Expert at ST Authorized Partner RTONE, has experienced the new tools, commenting: *"STM32 HAL2 makes developing with the STM32C5 and other family members faster and more efficient. It is much lighter, closer to hardware functions, and porting our code to other STM32 MCUs is extremely easy."*

The comprehensive ecosystem also gives developers:

- STM32C5 hardware evaluation tools enabling faster prototyping and offering reference hardware design guidelines
- A new examples library offering faster access to a large number of STM32C5 production-ready code examples, simplifying the use of the STM32C5 features and accelerating development
- A choice of two free integrated development environments (STM32CubeIDE and STM32CubeIDE for VSCODE) for faster development and debug
- STM32Cube ecosystem with optimized porting of popular middleware including FreeRTOS, LwIP, USBX and FileX

More information on the STM32C5 can be found here: www.st.com/stm32c5

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 integrated 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 cloud-connected autonomous things. We are on track to be carbon neutral in all direct and indirect emissions (scopes 1 and 2), product transportation, business travel, and employee commuting emissions (our scope 3 focus), and to achieve our 100% renewable electricity sourcing goal by the end of 2027. Further information can be found at www.st.com

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