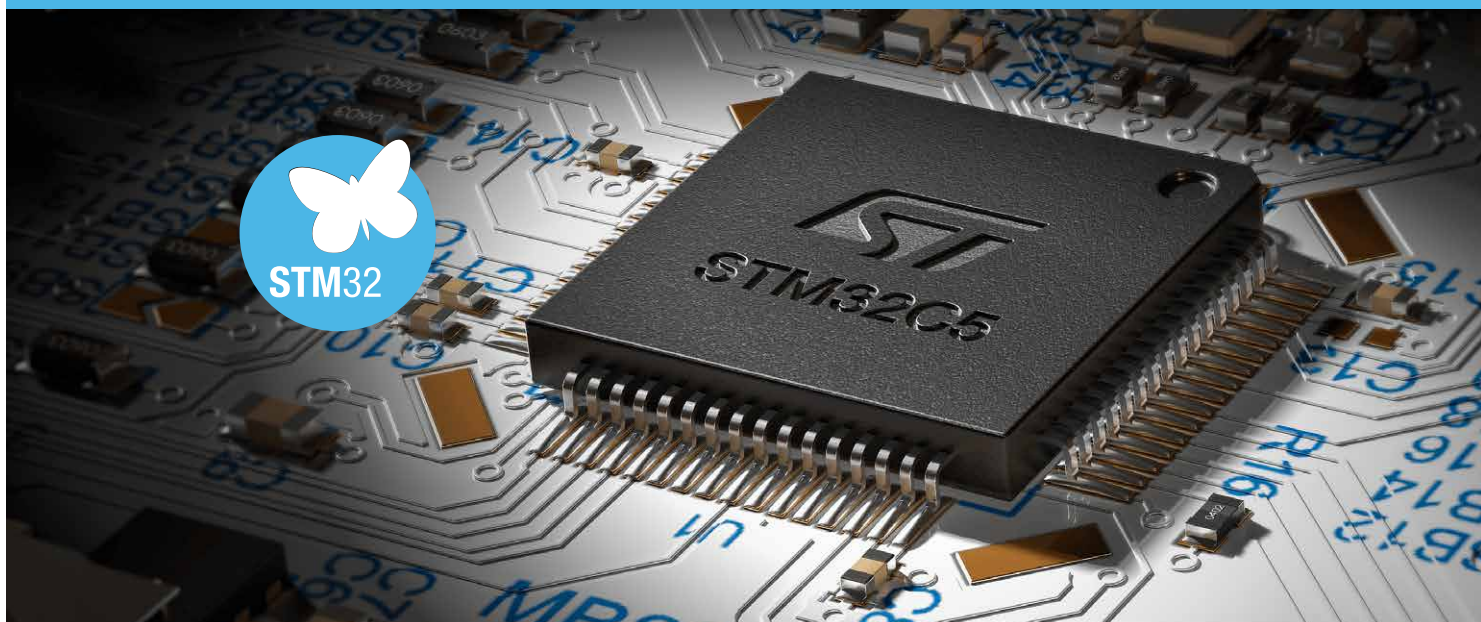




# STM32C5 series

Upgrade your entry-level design without raising your budget



**Time to set new performance standards for cost-sensitive devices in embedded applications while ensuring design simplicity in development**

Powered by an Arm® Cortex®-M33 core and ST's 40 nm flash platform, the STM32C5 series sets new performance standards for cost sensitive designs, redefining the DNA of entry-level microcontrollers.

Running at 144 MHz and delivering 593 CoreMark, it offers up to three times the performance of typical Cortex M0+ devices on the market.

## KEY FEATURES

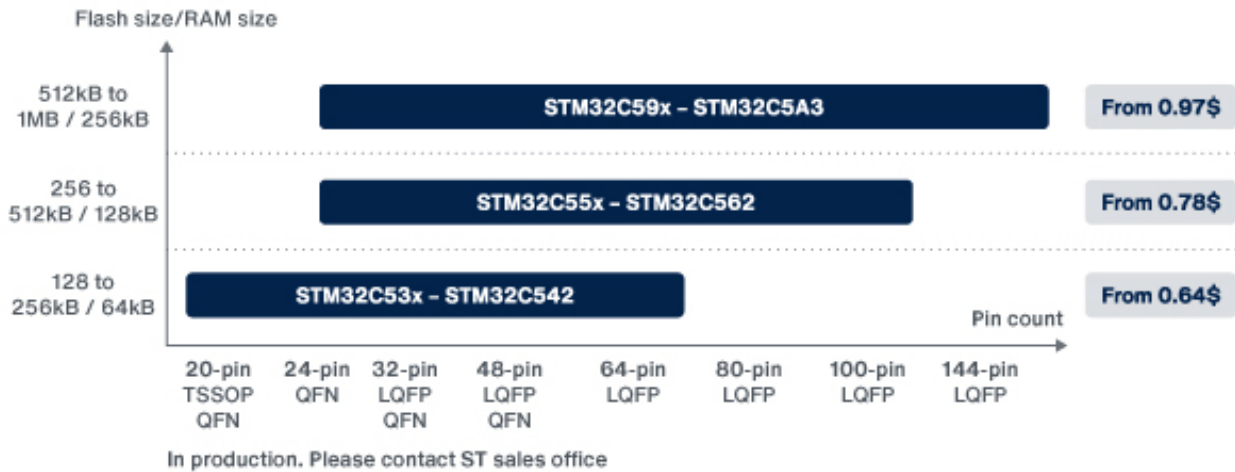
- 144 MHz Arm® Cortex®-M33 core with FPU and DSP
- Up to 593 CoreMark
- Up to 256 Kbytes of RAM, 1 Mbyte of flash
- 2.7–3.6 V, <100 µA/MHz dynamic power
- Ambient temperature up to 125°C without impact
- Ethernet, USB, I3C, FDCAN, OCTOSPI
- Up to 3x ADC, 2x DAC, 2x COMP, OPAMP
- PSA L3 / SESIP3 target certification
- Optional SCA-resistant hardware crypto with key storage

- Coupling & chaining bridge with symmetric and asymmetric crypto accelerator

## KEY APPLICATIONS

- Smart homes and appliances: home appliances, thermostats, smoke detectors, door locks, sensors
- Factory automation: sensors, controllers, robotics, PLCs
- Entertainment: gaming accessories, keyboards

## STM32C5 portfolio



### STM32Cube: bringing major optimizations and a more intuitive workflow

#### STM32CubeMX2: a new configuration experience

STM32CubeMX2 introduces a refreshed, modern user experience that simplifies MCU configuration. It includes a more capable command-line interface, allowing developers to automate key parts of their workflow. A new live code preview feature lets users immediately see how a configuration change affects the generated code, and then copy and paste the relevant snippets into their projects without regenerating the entire code base.

#### HAL2

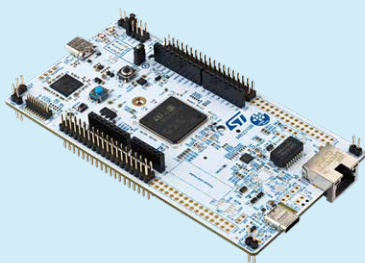
With HAL2, flash usage is significantly reduced, with savings of up to 59% on some peripherals such as RCC. Resource management is optimized, and HAL2 works directly with low-level APIs, enabling developers to call them more quickly and further optimize their applications. The updated HAL is IEC 61508/SC2 ready and MISRA C compliant, which helps teams developing safety-related systems. It is also designed for portability, making it easier to reuse application code across future STM32 microcontrollers that support HAL2. To accelerate development, ST provides production-ready example projects that show how to implement

STM32C5 features and use HAL2 to build richer, more differentiated applications.

#### A more intuitive developer journey

The developer journey is further improved through updates to STM32CubeIDE and STM32Cube IDE for VS Code, leveraging CMake to bring STM32CubeMX2/HAL2 projects into your favorite IDE.

New getting-started guides support developers who have no prior experience with STM32 devices, helping them ramp up quickly.



#### Dedicated STM32 Nucleo boards to start prototyping

- [NUCLEO-C5A3ZG](#)  
USB-C FS and Ethernet 10/100(RMII), 144-pin MCU, Arduino and ST-Morpho144 Ifs, M.2 serial memory IF
- [NUCLEO-C542RC](#) and [NUCLEO-C562RE](#)  
USB-C FS and FDCAN, 64-pin MCU, Arduino and ST-Morpho64 IFS



Get started with  
STM32C5 MCU

