

STM32U5 SERIES

The flagship of ultra-low power MCUs with advanced performance and security



Discover the secure, high-performance, and ultra-low power STM32 microcontrollers that will revolutionize your design.

The STM32U5 microcontrollers combine the Arm® Cortex®-M33 core with power-saving features and advanced security to meet the most demanding power/performance requirements for smart applications, including wearables, personal medical devices, home automation, and industrial sensors.

Offering up to 2 Mbytes of Flash (dual bank) memory and 786 Kbytes of SRAM, the STM32U5 microcontrollers take performance to the next level.

The STM32U5 offers 8 packages (from 48 to 169 pins) and supports up to 125°C ambient temperature.

BEST-IN-CLASS POWER CONSUMPTION

- Energy benchmark:
 - 535 ULPMark-CP
 - 149 ULPMark-PP
 - 58 ULPMark-CM
 - 133,000 SecureMark-TLS
- LPBAM (Low Power Background Autonomous Mode), an innovative autonomous power mode, with peripherals and DMA working in stop mode
- Key performance indicators include:
 - 110 nA in shutdown mode
 - 300 nA in standby mode
 - 1.7 µA in stop mode 3 with 16 Kbytes of SRAM
 - 6.6 µA in stop mode 2 with 786 Kbytes of SRAM
 - Down to 19 µA/MHz in active mode

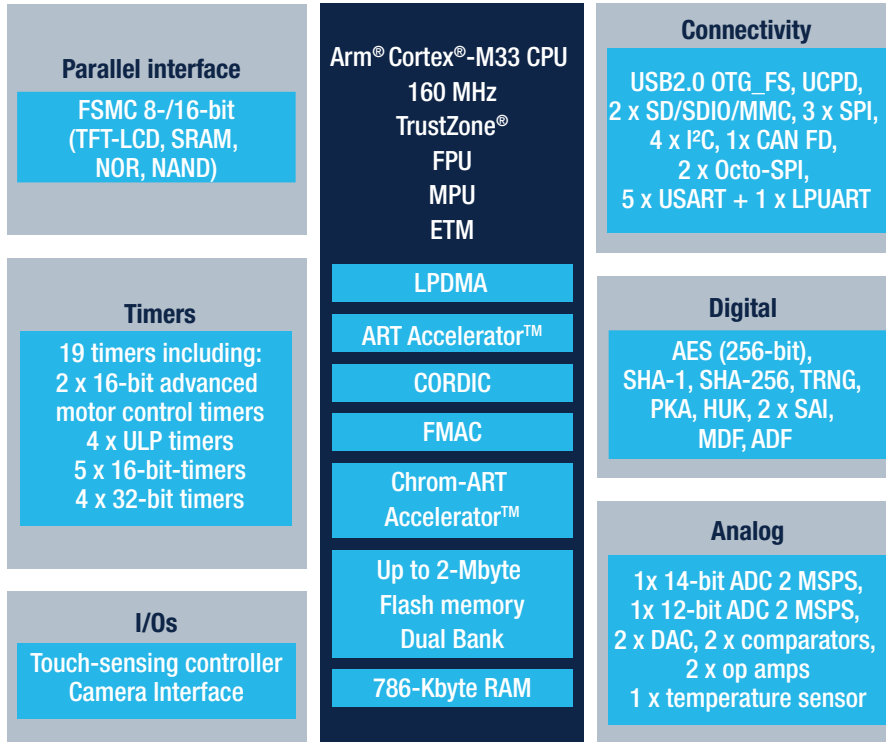
ENHANCED SECURITY

- Arm's TrustZone® technology
- AES encryption and Public Key Accelerator (PKA) side-channel hardware-resistant
- Secure data storage with a Hardware Unique Key (HUK)
- Active tamper detection
- Targeting PSA and SESIP assurance level 3

ENHANCED PERFORMANCE

- Arm Cortex-M33 running at 160 MHz
- 240 DMIPS and 651 CoreMark scores
- Mathematic accelerators FMAC and Cordic

STM32U585 block diagram



Hardware tools

Evaluation board

Full-featured development platform



STM32U575I-EV *

Discovery kit

Flexible prototyping with wireless connectivity



B-U585I-IOT02A

STM32 Nucleo boards

An affordable and flexible way to try out new concepts



NUCLEO-U575ZI-Q*

Note: * Available in Q3-2021

STM32Cube ecosystem

The STM32Cube ecosystem is a complete software solution for STM32 MCUs and MPUs, including STM32CubeMX to configure, generate code, calculate power consumption; STM32CubeIDE to configure, develop, compile and debug; STM32CubeProgrammer to program internal or external memories through JTAG or bootloader interfaces; and STM32CubeMonitor-Power to display power consumption.

A one-stop-shop solution, STM32Cube embedded software package includes MCU drivers, middleware (USB, TLS, Crypto, touch sensing, file system, TF-M and RTOS), as well as project examples for IAR, Keil and STM32CubeIDE. TF-M is an open-source reference code to implement a Trusted Execution Environment (TEE) as specified in Arm PSA.

The STM32Trust framework combines ST's knowledge, design tools, and ready-to-use software to build strong cyber-protection into new IoT devices, leveraging industry best practices.

www.st.com/stm32trust

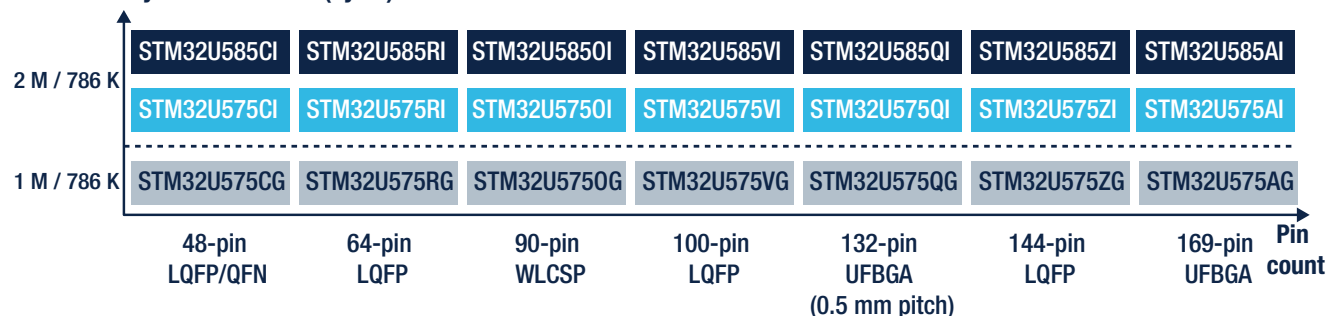
STM32 COMMUNITY

community.st.com/stm32



STM32U5 Portfolio

Flash memory size / RAM size (bytes)



Legend: without HW crypto with HW crypto Available in Q3-2021



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