life.augmented

STM32™ 32-bit MCU family
Leading supplier of ARM® Cortex®-M microcontrollers

Releasing your creativity

By choosing one of ST's microcontrollers for your embedded application, you gain from our leading expertise in MCU architecture, technology, multi-source manufacturing and long-term supply.

The STM32 portfolio offers an extraordinary variety of options, now including ARM® Cortex®-M cores (M0, M0+, M3, M4 and M7), giving developers flexibility to find the perfect STM32 for their applications. Particular attention is paid to accommodate porting of applications from one device to another.
The binary compatibility combined with the similar pinout assignment, hardware IP proliferation and higher level programming language makes the development job far more convenient when dealing with the STM32 families.

HIGH-PERFORMANCE

HIGH DEGREE OF INTEGRATION AND RICH CONNECTIVITY

- **STM32H7**: highest performance STM32 MCUs with advanced features including DSP and FPU instructions based on Cortex®-M7 with 1 to 2 Mbytes of Flash memory (2020 CoreMark)
- **STM32F7**: very high performance MCUs with advanced features including DSP and FPU instructions based on Cortex®-M7 with 256 Kbytes to 2 Mbytes of Flash memory (1082 CoreMark)
- **STM32F4**: from the access line to high-performance MCUs with advanced features including DSP and FPU instructions based on Cortex®-M4 with 64 Kbytes to 2 Mbytes of Flash memory (608 CoreMark)
- **STM32F2**: mid-range MCUs with excellent price-performance ratio based on Cortex®-M3 with 128 Kbytes to 1 Mbyte of Flash memory (398 CoreMark)

MAINSTREAM

SCALABLE SET OF MCUS FOR A LARGE VARIETY OF APPLICATIONS

- **STM32F3**: upgraded F1 series with various levels of advanced analog peripherals based on Cortex®-M4 with 16 to 512 Kbytes of Flash memory
- **STM32F1**: foundation series based on Cortex-M3 with 16 Kbytes to 1 Mbyte of Flash memory
- **STM32F0**: entry-level MCUs extending to 8-/16-bit world based on Cortex®-M0 with 16 to 256 Kbytes of Flash memory

ULTRA-LOW-POWER

TINY POWER BUDGET APPLICATIONS

- **STM32L4+:** excellence in ultra-low-power with more performance based on Cortex®-M4 with 1 to 2 Mbytes of Flash memory (233 ULPMark-CP / 55 ULPMark-PP / 410 CoreMark)
- **STM32L4**: best-in-class in ultra-low-power with performance based on Cortex®-M4 with 128 Kbytes to 1 Mbyte of Flash memory (347 ULPMark-CP / 121 ULPMark-PP / 273 CoreMark)
- **STM32L1**: market-proven answer for 32-bit applications based on Cortex®-M3 with 32 to 512 Kbytes of Flash memory (81 ULPMark-CP / 93 CoreMark)
- **STM32L0**: perfect fit for 8-/16-bit applications and cost-sensitive designs based on Cortex®-M0+ with 8 to 192 Kbytes of Flash memory (244 ULPMark-CP / 95-ULPMark-PP / 75 CoreMark)

Functional Safety
Design Packages for STM32
(including SIL and Class B standards)

www.st.com/stm32safety

MCU Finder

Free mobile and desktop application to find the right STM32 MCU

Google play
Available on the App Store

www.st.com/stmcufinder

STM32 THE LEADING CORTEX-M PORTFOLIO

Common core peripherals and architecture:
Communication peripherals: USART, SPI, I²C
Multiple general-purpose timers
Integrated reset and brown-out warning
Multiple DMA
2x watchdogs Real-time clock
Integrated regulator PLL and clock circuit
Up to 3x 12-bit DAC
Up to 4x 12-bit ADC (Up to 5 MSPS) or Up to 3x 16-bit ADC (Up to 3.6 MSPS) Depending on series
Main oscillator and 32 kHz oscillator
Low- and high-speed internal RC oscillators
-40 to +85 °C and up to 125 °C operating temperature range
Low voltage 2.0 to 3.6 V or 1.65/1.7 to 3.6 V Depending on series
Temperature sensor

High-performance

STM32H7 series – High performance with DSP, Double-precision FPU, JPEG Codec and Chrom-ART Accelerator™

400 MHz Cortex-M7 L1-Cache	Up to 2-Mbyte dual-bank Flash	Up to 1-Mbyte SRAM	2x USB 2.0 OTG FS/HS	2x 16-bit advanced MC timer HR timer	DFSDM HDMI-CEC Ethernet S/PDIF	Quad-SPI FMC MDIO Camera IF SDIO	Crypto-hash TRNG	4x SAI 3x I²S 2x FDCAN LCD-TFT	3x 16-bit ADC Op-amps comp.	STM32 H7

STM32F7 series – High performance with DSP, FPU, ART Accelerator™ and Chrom-ART Accelerator™

216 MHz Cortex-M7 L1-Cache	Up to 2-Mbyte dual-bank Flash	Up to 512-Kbyte SRAM	2x USB 2.0 OTG FS/HS	2x 16-bit advanced MC timer	DFSDM HDMI-CEC Ethernet S/PDIF	Quad-SPI FMC MDIO Camera IF SDIO	Crypto-hash TRNG Up to 3x CAN	2x SAI 2x I²S LCD-TFT MIPI-DSI	STM32 F7

STM32F4 series – High performance with DSP, FPU, ART Accelerator™ and Chrom-ART Accelerator™

Up to 180 MHz Cortex-M4	Up to 2-Mbyte dual-bank Flash	Up to 384-Kbyte SRAM	2x USB 2.0 OTG FS/HS	2x 16-bit advanced MC timer	DFSDM HDMI-CEC Ethernet S/PDIF	Quad-SPI FMC MDIO Camera IF SDIO	Crypto-hash TRNG Up to 2x CAN	2x SAI 5x I²S LCD-TFT MIPI-DSI	STM32 F4

STM32F2 series – High performance with ART Accelerator™

120 MHz Cortex-M3 CPU	Up to 1-Mbyte Flash	Up to 128-Kbyte SRAM	2x USB 2.0 OTG FS/HS	2x 16-bit advanced MC timer	Ethernet	FSMC Camera IF SDIO	Crypto-hash TRNG Up to 2x CAN	2x I²S	STM32 F2

Mainstream

STM32F3 series – Mixed-signal with DSP and FPU

72 MHz Cortex-M4	Up to 512-Kbyte Flash	Up to 80-Kbyte SRAM CCM-RAM	USB 2.0 FS	3x 16-bit advanced MC timer	3x DAC 7x comp. 4x PGA	FSMC CAN	HR-Timer	ADC 3x 16-bit ΣΔ 4x 12-bit (5 MSPS)	STM32 F3

STM32F1 series – Mainstream

Up to 72 MHz Cortex-M3 CPU	Up to 1-Mbyte Flash	Up to 96-Kbyte SRAM	USB 2.0 OTG FS	2x 16-bit advanced MC timer	HDMI-CEC Ethernet	FSMC SDIO	2x I²S 2x CAN	STM32 F1

STM32F0 series – Entry-level

48 MHz Cortex-M0 CPU	Up to 256-Kbyte Flash	Up to 32-Kbyte SRAM 20-byte backup data	USB 2.0 FS device Crystal less	Comp. HDMI-CEC	CAN DAC	STM32 F0

Ultra-Low-Power

STM32L4+ series – Ultra-Low-Power and more Performance with DSP, FPU, ART Accelerator™ and Chrom-ART Accelerator™

120 MHz Cortex-M4 CPU	Up to 2-Mbyte dual-bank Flash	Up to 640-Kbyte SRAM	USB 2.0 OTG Crystal less	2x 16-bit advanced MC timer	DFSDM Op-amps comp.	2x Octo-SPI FSMC SDIO 2x SAI	SHA-256 AES-256 TRNG CAN	MIPI-DSI LCD-TFT Chrom-GRC™	STM32 L4+

STM32L4 series – Ultra-Low-Power and Performance with DSP, FPU, ART Accelerator™ and Chrom-ART Accelerator™

80 MHz Cortex-M4 CPU	Up to 1-Mbyte dual-bank Flash	Up to 320-Kbyte SRAM	USB 2.0 OTG FS	2x 16-bit advanced MC timer	DFSDM Op-amps comp.	Quad-SPI FSMC SDIO 2x SAI	SHA-256 AES-256 TRNG 2x CAN	Up to LCD 8x40	STM32 L4

STM32L1 series – Ultra-Low-Power

32 MHz Cortex-M3 CPU	Up to 512-Kbyte Flash	Up to 80-Kbyte SRAM	Up to 16-Kbyte EEPROM	USB 2.0 FS Device	Op-amps comp.	FSMC SDIO	AES-128	Up to LCD 8x40	STM32 L1

STM32L0 series – Ultra-Low-Power

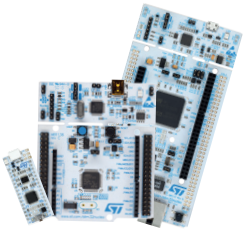
32 MHz Cortex-M0+ CPU	Up to 192-Kbyte SRAM	Up to 20-Kbyte SRAM	Up to 6-Kbyte EEPROM	USB 2.0 FS device Crystal less	DAC comp.	LP ADC 12-/16-bit	TRNG AES-128	LCD 8x48 / 4x52	STM32 L0

STM32 ECOSYSTEM

Hardware tools

www.st.com/stm32hardwaretools

STM32 Nucleo board

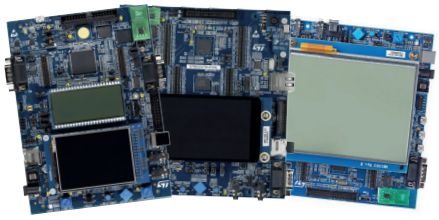


Flexible prototyping

Discovery kit

Creative demos

Evaluation board

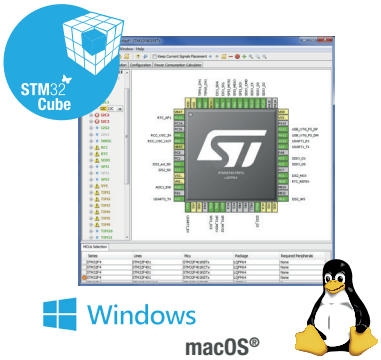


Full-feature evaluation

Software tools

www.st.com/stm32softwaretools

STM32CubeMX



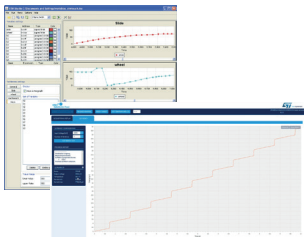
Partner IDEs

SysProgs, IAR Systems, SEGGER, TASKING, RAISONANCE, EMPROG, Rowley Associates, ac6, arm KEIL*, ARDUINO, iSYSTEM, atollic, arm MBED, CooCox

Free IDE

*Only for Cortex-M0 and M0+

STM32CubeMonitor-Power STMStudio



Configure and generate code — Compile and debug — Monitor

Embedded software

www.st.com/stm32embeddedsoftware

STM32Cube LL (Low Layer)	STM32Cube HAL and middleware STM32 Std Peripherals Libraries	CMSIS and mbed SDK	Virtual machines and models
High optimization low portability	Average optimization STM32 portability	Low optimization ARM portability	Low optimization large portability

ST COMMUNITY

Ask, learn, share, discuss, contribute and engage with the community of STM32 enthusiasts on community.st.com/stm32

STM32 EDUCATION

Bring your STM32 project to life with the free educational and training resources on st.com/stm32education

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