



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
- **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
- **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
- **STM32F2**: mid-range MCUs with excellent price-performance ratio based on Cortex®-M3 with 128 Kbytes to 1 Mbyte of Flash memory

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 performance based on Cortex®-M4 with 320 Kbytes to 1 Mbyte of Flash memory (217 ULPMark/273 CoreMark)
- **STM32L1**: market-proven answer for 32-bit applications based on Cortex®-M3 with 32 to 512 Kbytes of Flash memory (81 ULPMark/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 (135 ULPMark/75 CoreMark)

ST MCU Finder

Free mobile and desktop application to find the right STM32 MCU

www.st.com/stmcfinder



Functional Safety Design Packages for STM32

(including SIL and Class B standards)

www.st.com/stm32safety



STM32 THE LEADING CORTEX-M PORTFOLIO

Common core peripherals and architecture:
Communication peripherals: USART, SPI, I ² C
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)
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 I ² S 2x FDCAN LCD-TFT
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STM32F7 series – High performance with DSP, FPU, ART Accelerator™ and Chrom-ART Accelerator™

216 MHz Cortex-M7 L1-Cache	Up to 2-Mbytes 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 MIPI-DSI	2x SAI 2x I ² S Up to 3x CAN LCD-TFT
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STM32F4 series – High performance with DSP, FPU, ART Accelerator™ and Chrom-ART Accelerator™

Up to 180 MHz Cortex-M4	Up to 2-Mbytes 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 Camera IF SDIO	Crypto-hash TRNG MIPI-DSI	2x SAI 5x I ² S Up to 2x CAN LCD-TFT
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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	2x I ² S Up to 2x CAN
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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 $\Sigma\Delta$ 4x 12-bit (5 MSPS)
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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	Ethernet HDMI-CEC	SDIO FSMC	2x I ² S 2x CAN
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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
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Ultra-Low-Power

STM32L4 series – Ultra-Low-Power and Performance with DSP, FPU and 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	SHA-256 AES-256 TRNG	2x SAI 2x CAN Up to LCD 8x40
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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
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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
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STM32 ECOSYSTEM

Hardware tools

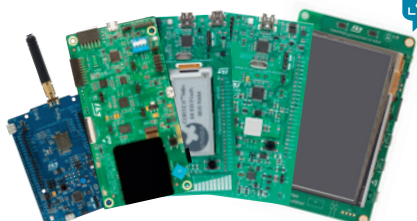
www.st.com/stm32hardwaretools



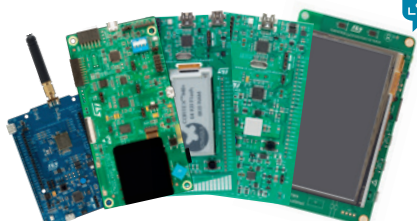
STM32 Nucleo board



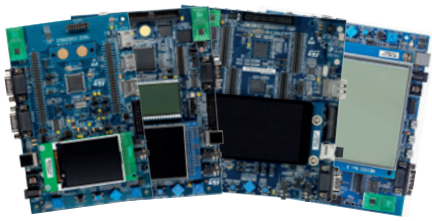
Flexible prototyping



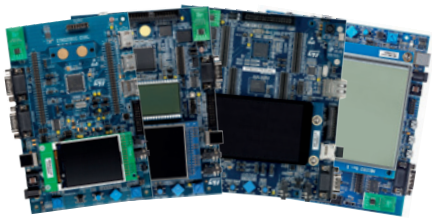
Discovery kit



Creative demos



Evaluation board

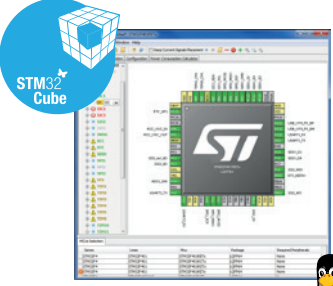


Full-feature evaluation

Software tools


www.st.com/stm32softwaretools

STM32CubeMX



Windows macOS™

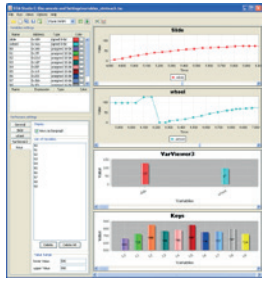
Partners IDEs



Free IDE

Note : Free full version of Keil MDK-ARM on all STM32L0 and STM32F0

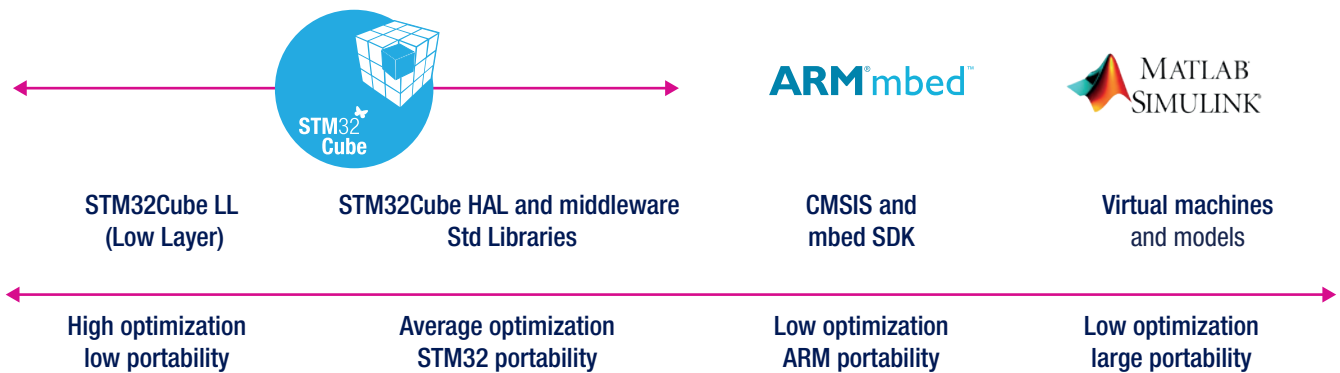
STMStudio





Embedded software

www.st.com/stm32embeddedsoftware



ST COMMUNITY

Ask, learn, share, discuss, become famous and engage with the community of STM32 enthusiasts on community.st.com

