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 IPs proliferation and higher level programming language makes the development job far more convenient when dealing with the STM32 families.

HIGH-PERFORMANCE

STM32 F7 STM32 F4 STM32 F2

HIGH DEGREE OF INTEGRATION AND RICH CONNECTIVITY

- **STM32F7**: very high performance MCUs with advanced features
  Cortex®-M7 with 256 Kbytes to 2 Mbytes of Flash
- **STM32F4**: from access to the high performance up to advanced features with DSP and FPU instructions
  Cortex®-M4 with 64 Kbytes to 2 Mbytes of Flash
- **STM32F2**: mid-range MCUs with excellent price-performance ratio
  Cortex®-M3 with 128 Kbytes to 1 Mbyte of Flash

MAINSTREAM

STM32 F3 STM32 F1 STM32 F0

SCALABLE SET OF MCUS FOR A LARGE VARIETY OF APPLICATIONS

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

ULTRA-LOW-POWER

STM32 L4 STM32 L1 STM32 L0

TINY POWER BUDGET APPLICATIONS

- **STM32L4**: excellence in ultra-low-power with performance
  Cortex®-M4 with 128 Kbytes to 1 Mbyte of Flash (205 ULPMark/273 CoreMark)
- **STM32L1**: market-proven answer for 32-bit applications
  Cortex®-M3 with 32 to 512 Kbytes of Flash
- **STM32L0**: perfect fit for 8-/16-bit applications and cost-down designs
  Cortex®-M0+ with 8 to 192 Kbytes of Flash (161 ULPMark/75 CoreMark)

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

SIL Ready ClassB Ready

www.st.com/stm32safety

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)
Main oscillator and 32 kHz oscillator
Low-speed and high-speed internal RC oscillator
-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

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 2xI²S Up to 3x CAN LCD-TFT	STM32 F7

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 5xI²S Up to 2x CAN LCD-TFT	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	2xI²S Up to 2x CAN	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 4x12-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	Ethernet HDMI-CEC	SDIO FSMC	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 Performance with DSP, FPU and ART Accelerator™

80 MHz Cortex-M4 CPU	Up to 1-Mbyte dual-bank Flash	Up to 128-Kbyte SRAM	USB 2.0 OTG FS	2x 16-bit advanced MC timer	DFSDM Op-amps comp.	Quad-SPI FSMC SDIO	AES-256 TRNG	2x SAI 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 Timer LP-UART	TRNG AES-128	LP ADC 12-/16-bit LCD 8x48 / 4x52	STM32 L0

ST MCU Finder

Free mobile application to find the right STM32 MCU

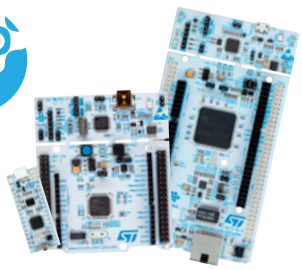
www.st.com/stmcufinder

STM32 ECOSYSTEM

Hardware tools

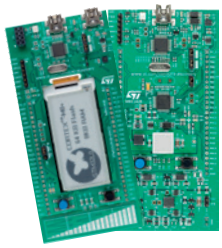
www.st.com/stm32hardwaretools

STM32 Nucleo board



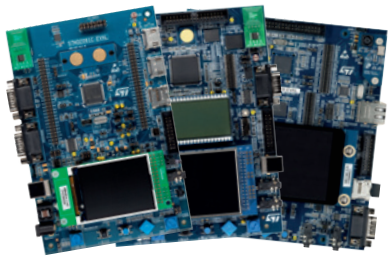
Flexible prototyping

Discovery kit



Creative demos

Evaluation board

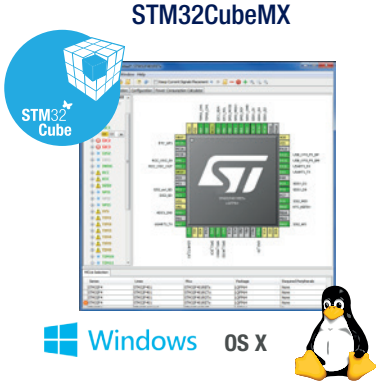


Full-feature evaluation

Software tools

www.st.com/stm32softwaretools

STM32CubeMX



Partners IDEs

IAR SYSTEMS, CooCox, I SYSTEM, SEGGER, TASKING, KEILABS, EMPROG, Rowley Associates, ac6, ARM KEIL Microcontroller Tools, atollic, ARM mbed

Free IDE

STMStudio

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

Configure and generate code | Compile and debug | Monitor

Embedded Software

www.st.com/stm32embeddedsoftware

STM32Cube

STM32Cube LL (Low Layer)

STM32Cube HAL and middleware Std Libraries

ARM mbed

CMSIS and Mbed SDK

MATLAB SIMULINK

Virtual machines and models

High optimization low portability | Average optimization STM32 portability | Low optimization ARM portability | Low optimization large portability

Order code: BRSTM320916