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

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

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)

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.
**STM32 THE LEADING CORTEX-M PORTFOLIO**

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### STM32H7 series — High performance with DSP, Double-precision FPU, JPEG Codec and Chrom-ART Accelerator™
- 400 MHz Cortex-M7
- L1-Cache
- Up to 2-Mybyte dual-band Flash
- Up to 1-Mybyte SRAM
- 2x USB 2.0 OTG FS/HS
- 2x 16-bit advanced MC timer
- DFSDM
- HDMI-CEC
- Ethernet
- S/PDIF
- Crypto-hash
- TRNG
- 4x SAI
- 2x FS
- 2x I²S
- 2x FDCAN
- LCD-TFT
- MIPI-DSI

### STM32F7 series — High performance with DSP, FPU, ART Accelerator™ and Chrom-ART Accelerator™
- 216 MHz Cortex-M7
- L1-Cache
- Up to 2-Mybyte dual-band Flash
- Up to 512-Kbyte SRAM
- 2x USB 2.0 OTG FS/HS
- 2x 16-bit advanced MC timer
- DFSDM
- HDMI-CEC
- Camera IF SDIO
- Crypto-hash
- TRNG
- 2x SAI
- 2x I²S
- LCD-TFT
- MIPI-DSI

### STM32F4 series — High performance with DSP, FPU, ART Accelerator™ and Chrom-ART Accelerator™
- Up to 180 MHz Cortex-M4
- Up to 2-Mybyte dual-band Flash
- Up to 384-Kbyte SRAM
- 2x USB 2.0 OTG FS/HS
- 2x 16-bit advanced MC timer
- DFSDM
- HDMI-CEC
- Camera IF SDIO
- Crypto-hash
- TRNG
- Up to 3x CAN
- 2x SAI
- 5x I²S
- LCD-TFT
- MIPI-DSI

### STM32F2 series — High performance with ART Accelerator™
- 120 MHz Cortex-M3
- CPU
- Up to 1-Mybyte 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

### STM32F3 series — Mixed-signal with DSP and FPU
- 72 MHz Cortex-M4
- Up to 512-Kbyte SRAM
- Up to 80-Kbyte CAM-RAM
- USB 2.0 FS
- 3x 16-bit advanced MC timer
- 3x DAC
- 7x comp.
- 4x PGA
- FSMC
- CAN
- HR-Timer
- 4x 16-bit ΣΔ
- 4x 12-bit (5 MSPS)

### STM32F1 series — Mainstream
- Up to 72 MHz Cortex-M3
- CPU
- Up to 1-Mybyte 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

### STM32F0 series — Entry-level
- 48 MHz Cortex-M0
- CPU
- Up to 256-Kbyte Flash
- 20-byte backup data
- 2.0 FS device
- Crystal less
- Comp.
- HDMI-CEC
- DAC

### 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-Mybyte dual-band 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
- AES-256
- TRNG
- CAN
- 8x40

### STM32L4 series — Ultra-Low-Power and Performance with DSP, FPU, ART Accelerator™ and Chrom-ART Accelerator™
- 80 MHz Cortex-M4
- CPU
- Up to 1-Mybyte dual-band 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
- AES-256
- TRNG
- 2x CAN

### 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

### 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 ECOSYSTEM

Hardware tools
www.st.com/stm32hardwaretools

STM32 Nucleo board
Flexible prototyping

Discovery kit
Creative demos

Evaluation board
Full-feature evaluation

Software tools
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STM32CubeMX
Partner IDEs
STM32CubeMonitor-Power
STMStudio

STM32Cube HAL and middleware
STMicroelectronics Std Peripherals Libraries
CMSIS and mbed SDK
Virtual machines and models

Configure and generate code
Compile and debug
Monitor

Embedded software
www.st.com/stm32embeddedsoftware

STM32Cube LL
(Low Layer)
High optimization
Low portability

STM32Cube HAL and middleware
STM32 Std Peripherals Libraries
Average optimization
STM32 portability

CMSIS and mbed SDK
Low optimization
ARM portability

Virtual machines and models
Low optimization
Large portability

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