

STM32 32-Bit MCU Family

The Fastest Growing ARM® Cortex™ -M Based Platform

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ADDRESSING THE THREE DIMENSIONS OF MICROCONTROLLER EFFECTIVENESS

High-Performance MCUs with DSP and FPU



- STM32 F4 series based on Cortex-M4, from 84MHz/105 DMIPS up to 180MHz/225 DMIPS
- ART Accelerator™ allowing 0-wait execution from Flash, and 7-layer bus matrix
- Low dynamic consumption: from 140µA/MHz on STM32F401, up to 238µA/MHz on STM32F42x/43x
- Low power consumption in stop mode: 11µA typ on the STM32F401 and less than 350µA on the STM32F405/407/415/417
- HS-USB, IEEE 1588 Ethernet, camera interface

Mixed-Signal MCUs with DSP and FPU



- STM32 F3 series based on Cortex-M4 with up to 72MHz/63 DMIPS (from Flash) or 90 DMIPS (from CCM-SRAM)
- Up to 48-Kbyte SRAM and CCM-SRAM
- Rich analog peripherals plus low-/mid-density memory: 7x comparators, 4x op-amps (PGA), 4x 12-bit ADC (5 MSPS), 3x 16-bit $\Sigma\Delta$ ADC and 2x 3-phase MC timer (144MHz)
- Low power consumption in stop mode: 11µA typ on the STM32F401 and less than 350µA on the STM32F405/407/415/417
- HS-USB, IEEE 1588 ethernet, camera interface

High-Performance MCUs



- STM32 F2 based on Cortex-M3 up to 120MHz/150 DMIPS
- ART accelerator™ and 7-layer bus matrix
- Low dynamic consumption: 188µA/MHz
- HS-USB, IEEE 1588 ethernet, camera

Mainstream MCUs



- Based on Cortex-M3 running up to 72MHz
- Large peripheral set: ADC and DAC, 12 bits, communications peripherals (USART, USB, SPI, I²C)

Entry-Level MCUs



- STM32 F0 based on Cortex-M0 up to 48MHz/38 DMIPS
- ADC and DAC, 12 bits, comparator
- Communication peripherals (USART, SPI, I²C FM+ and HDMI CEC)
- 3-phase motor control

Ultra-Low-Power MCUs



- STM32 L1 ultra-low-power platform
- Low voltage down to 1.65V
- 32MHz processing performance
- Ultra-low static consumption
 - 0.45µA stop mode
 - 0.3µA standby mode

Wireless MCUs, IEEE 802.15.4



- STM32 W based on Cortex-M3 running up to 24MHz
- 2.4GHz IEEE 802.15.4 transceiver and lower MAC with excellent wireless performance:
 - Rx sensibility up to -100 dBm
 - Output power configurable up to +8dBm
- Low-power-mode consumption: 0.4µA with RAM retention



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STM32- PRODUCT LINE


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
External memory interface (FSMC)
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 oscillators
-40 to +85 °C and up to 105 °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

STM32 F4 series - High performance with DSP (STM32F401/405/415/407/417/427/437/429/439)

180 MHz Cortex-M4 with DSP and FPU	Up to 256-Kbyte SRAM	Up to 2-Mbyte Flash	2x USB 2.0 OTG FS/HS	3-phase MC timer	2x CAN 2.0B	SDIO 2x I ² S audio Camera IF	Ethernet IEEE 1588	Crypto/hash processor and RNG	
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STM32 F3 series - Mixed-signal with DSP (STM32F302/303/313/373/383)

72 MHz Cortex-M4 with DSP and FPU	Up to 48-Kbyte SRAM & CCM-SRAM	Up to 256-Kbyte Flash	USB 2.0 FS	2x 3-phase MC timer (144 MHz)	CAN 2.0B	Up to 7x comparator	3x 16-bit ΣΔ ADC	4x PGA	
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STM32 F2 series - High performance (STM32F205/215/207/217)

120 MHz Cortex-M3 CPU	Up to 128-Kbyte SRAM	Up to 1-Mbyte Flash	2x USB 2.0 OTG FS/HS	3-phase MC timer	2x CAN 2.0B	SDIO 2x I ² S audio Camera IF	Ethernet IEEE 1588	Crypto/hash processor and RNG	
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STM32 F1 series - Mainstream - 5 product lines (STM32F100/101/102/103 and 105/107)

Up to 72 MHz Cortex-M3 CPU	Up to 96-Kbyte SRAM	Up to 1-Mbyte Flash	USB 2.0 OTG FS	3-phase MC timer	Up to 2x CAN 2.0B	SDIO 2x I ² S audio	Ethernet IEEE 1588	
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STM32 F0 series - Entry level (STM32F050/051)

48 MHz Cortex-M0 CPU	Up to 12-Kbyte SRAM	Up to 128-Kbyte Flash	3-phase MC timer	Comparator	CEC	
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STM32 L1 series - Ultra-low-power (STM32L100/151/152/162)

32 MHz Cortex-M3 CPU	Up to 48-Kbyte SRAM	Up to 384-Kbyte Flash	USB FS device	Up to 12-Kbyte EEPROM	LCD 8x40 4x44	2x comparators	BOR MSI VScal	AES 128-bit	
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STM32 W series - Wireless (STM32W108)

24 MHz Cortex-M3 CPU	Up to 16-Kbyte SRAM	Up to 256-Kbyte Flash	2.4 GHz IEEE 802.15.4 Transceiver	Lower MAC Digital baseband	AES 128-bit	
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Abbreviations:

FS:	Full speed
HS:	High speed
MC:	Motor control
PGA:	Programmable gain amplifier

MSI:	Multi-speed internal oscillator
RNG:	Random number generator
SDIO:	Secure digital input/output

VScal:	Voltage scaling
FPU:	Floating point unit
DSC:	Digital signal controller

Development Tools

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ST's STM32 family of 32-bit ARM Cortex™ -M-core-based microcontrollers are supported by a complete range of low-cost and high-end evaluation software, debugging and programming tools. This complete line includes third-party solutions that come complete with C/C++ compiler, integrated development environment and in-circuit debugger/programmer featuring a JTAG /SWD application interface. Developers can also explore and start applications easily with any of a range of affordable, easy-to-use starter kits.

The superb combination of a state-of-the-art and efficient library of software drivers and extensive support for all major tool providers offers a fast route to best fit and an optimized development process.

Evaluation Boards for STM32

Part Number	Featured Product	Description
STM3210B-SK/HIT STM3210E-SK/HIT	STM32F103RBT6 STM32F103VET6	Hitex kit with unlimited HITOP5, TASKING VX compilers, STM32-PerformanceStick with integrated debugging/programming via USB, extension I/O board with peripheral evaluation features, DashBoard GUI
STM3210C-SK/IAR STM3210E-SK/IAR STM32L152-SK/IAR STM3220G-SK/IAR STM320518-SK/IAR STM3240G-SK/IAR	STM32F107VCT6 STM32F103ZET6 STM32L152VBT6 STM32F207ZGT6 STM32F051R8T6 STM32F407ZGT6	IAR Embedded Workbench for ARM (for up to 32 Kbytes of code), IAR C/C++ compiler, J-Link (USB/JTAG), evaluation board
STM3210C-SK/KEIL STM3210E-SK/KEIL STM3220G-SK/KEI STM3240G-SK/KEI	STM32F107VCT6 STM32F103ZET6 STM32F2071GH6 STM32F4071GH6	Keil RealView MDK with µVision4 (for up to 32 Kbytes of code), ARM C/C++ compiler, ULINK (USB/JTAG), evaluation board
STM3210B-SK/RAIS STM3210C-SK/RAIS	STM32F103VBT6 STM32F107VCT6	Raisonance REva kit with RIDE (debug up to 32 Kbytes of code), GNU C/C++ compiler, modular evaluation hardware with integrated RLink (USB/JTAG)
STM3210B-MCKIT STM32100B-MCKIT	STM32F103VBT6 STM32F100VBT6B	ST motor control starter kit with complete sensor and sensorless libraries, evaluation hardware platform for vector drive of 3-phase brushless magnet synchronous motors, plus Segger J-LINK for host PC interface

STM32W Evaluation Kit

Complete kit to evaluate the capabilities of the STM32W in different configurations: remote control (ZigBee RF4CE stack) and point-to-point network (simplified MAC library).

- Main kit order code:
STM32W108C-SK
(256-Kbyte Flash device)
- Extension kit order code:
STM32W108C-KEXT



STM320518-EVAL



STM3240G-EVAL



STM32L152D-EVAL



STM32F373C-EVAL

For more information go to: <http://bit.ly/19QQ5kh>



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