life.augmented

STM32 32-bit MCUs
ARM Cortex™-M core
Releasing your creativity

STM32

STM32 platform

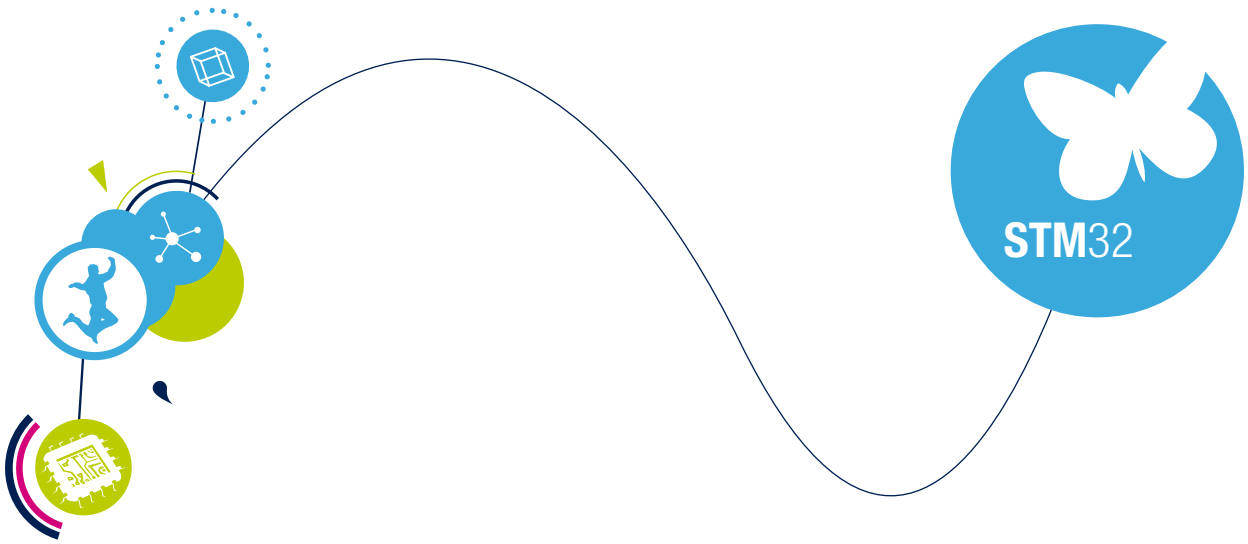
32-bit Flash microcontrollers powered by the ARM® Cortex™-M processor

The STM32 family of 32-bit Flash microcontrollers based on the ARM Cortex™-M processor is designed to offer new degrees of freedom to MCU users. By bringing a complete 32-bit product range that combines high-performance, real-time, low-power and low-voltage operation, while maintaining full integration and ease of development, the STM32 family helps you create new applications and design in the innovations you have long been dreaming about.

FIVE REASONS TO CHOSE THE STM32 PLATFORM

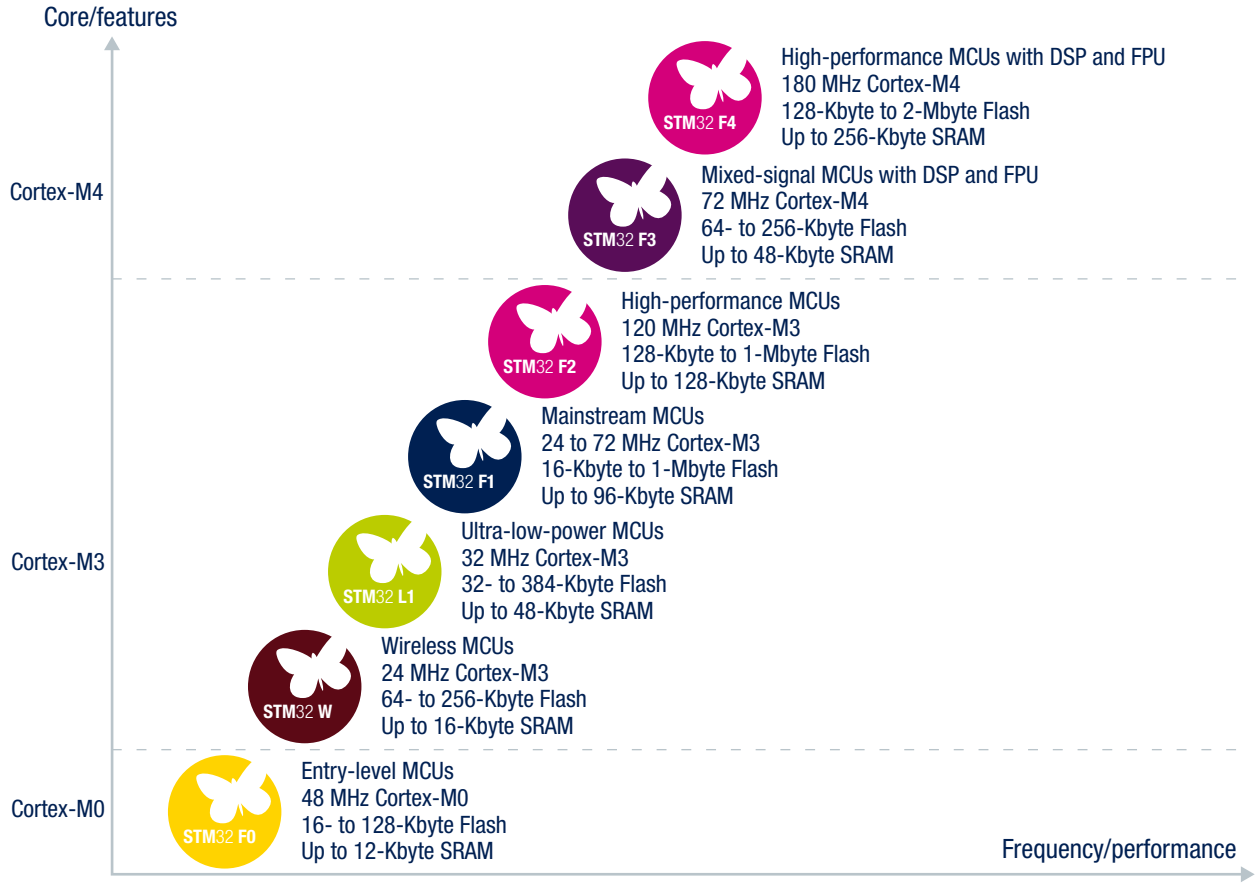
More than 420 compatible devices

Real-time performance Cortex Intelligent Processors by ARM	Outstanding power efficiency	Superior and innovative peripherals	Maximum integration	Extensive ecosystem
ART Accelerator, Chrom-ART Accelerator, CCM-SRAM, Multi-AHB bus matrix, Excellent real-time up to 180 MHz/225 DMIPS zero-wait state execution performance from Flash	< 1 µA RTC in V_{BAT} mode, ultra-low dynamic power consumption 140 µA/MHz 1.65 to 3.6 V V_{DD}, 0.45 µA Stop mode and 0.3 µA Standby mode	USB-OTG High Speed, camera interface, Ethernet, CAN, TFT controller, crypto/hash processor, PGA, sigma-delta 16-bit ADC and 12-bit ADC (up to 5 MSPS), external memory interface, CEC	Reset circuitry, voltage regulator, internal RC oscillator, PLL	ARM + ST ecosystem (eval boards, discovery kits, software libraries, RTOS)

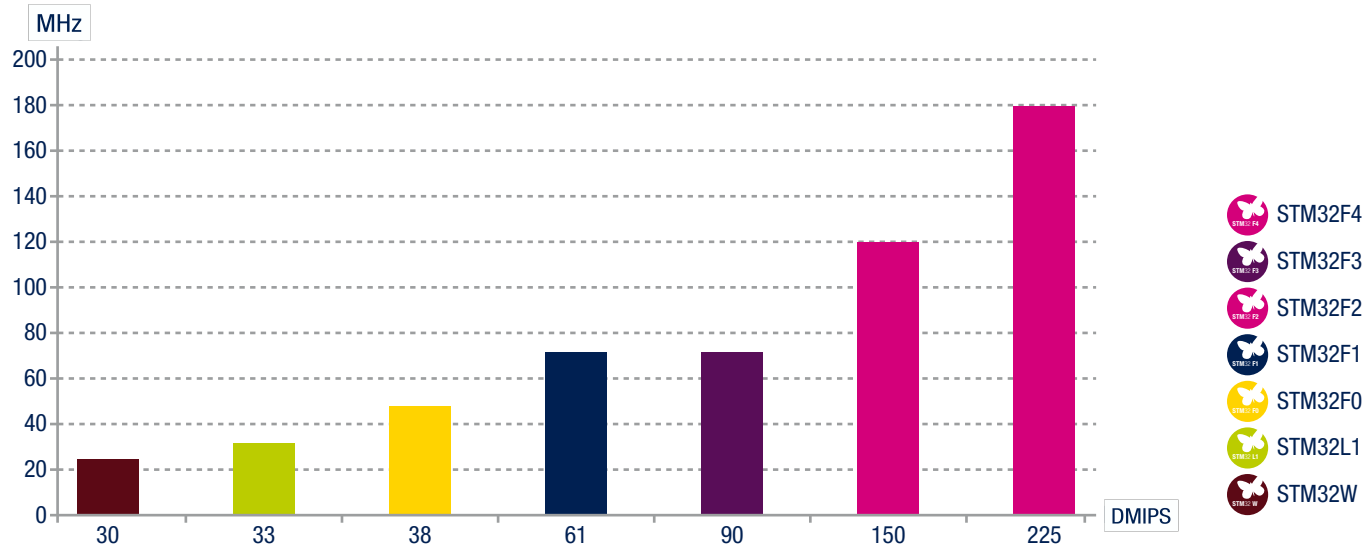


STM32, A SOLID FOUNDATION FOR GROWTH

With the STM32, ST offers a comprehensive portfolio of advanced MCUs that we are committed to extending in capability, competitive pricing and features to cover the needs of developers.



STM32 PERFORMANCE



ADDRESSING THE THREE DIMENSIONS OF MICROCONTROLLER EFFECTIVENESS

With its broad range of products, the STM32 addresses the **three dimensions** of microcontrollers: **performance, low power and integration for cost efficiency**

High-performance MCUs with DSP and FPU

- STM32 F4 series based on Cortex-M4, from 84 MHz/105 DMIPs up to 180 MHz/225 DMIPS
- ART Accelerator™ allowing 0-wait execution from Flash, and 7-layer bus matrix
- Low dynamic consumption: from 140 µA/MHz on STM32F401, up to 238 µA/MHz on STM32F42x/43x
- Low power consumption in Stop mode:
  11 µA typ on the STM32F401 and less than 350 µA 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 72 MHz/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 ∑Δ ADC and 2x 3-phase MC timer (144 MHz)

High-performance MCUs

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

Mainstream MCUs

- Based on Cortex-M3 running up to 72 MHz
- Large peripheral set: ADC and DAC, 12 bits, comm peripherals (USART, USB, SPI, I²C and more), multiple timers, maximum integration

Entry-level MCUs

- STM32 F0 based on Cortex-M0 up to 48 MHz/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 1.65 V
- 32 MHz processing performance
- Ultra-low static consumption
  - 0.45 µA Stop mode
  - 0.3 µA Standby mode

Wireless MCUs, IEEE 802.15.4

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

STM32 PRODUCT LINES

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 I²S audio Camera IF	Ethernet IEEE 1588	Crypto/ hash processor and RNG

STM32 F4

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

STM32 F3

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 I²S audio Camera IF	Ethernet IEEE 1588	Crypto/ hash processor and RNG

STM32 F2

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 I²S audio	Ethernet IEEE 1588

STM32 F1

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

STM32 F0

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

STM32 L1

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

STM32 W

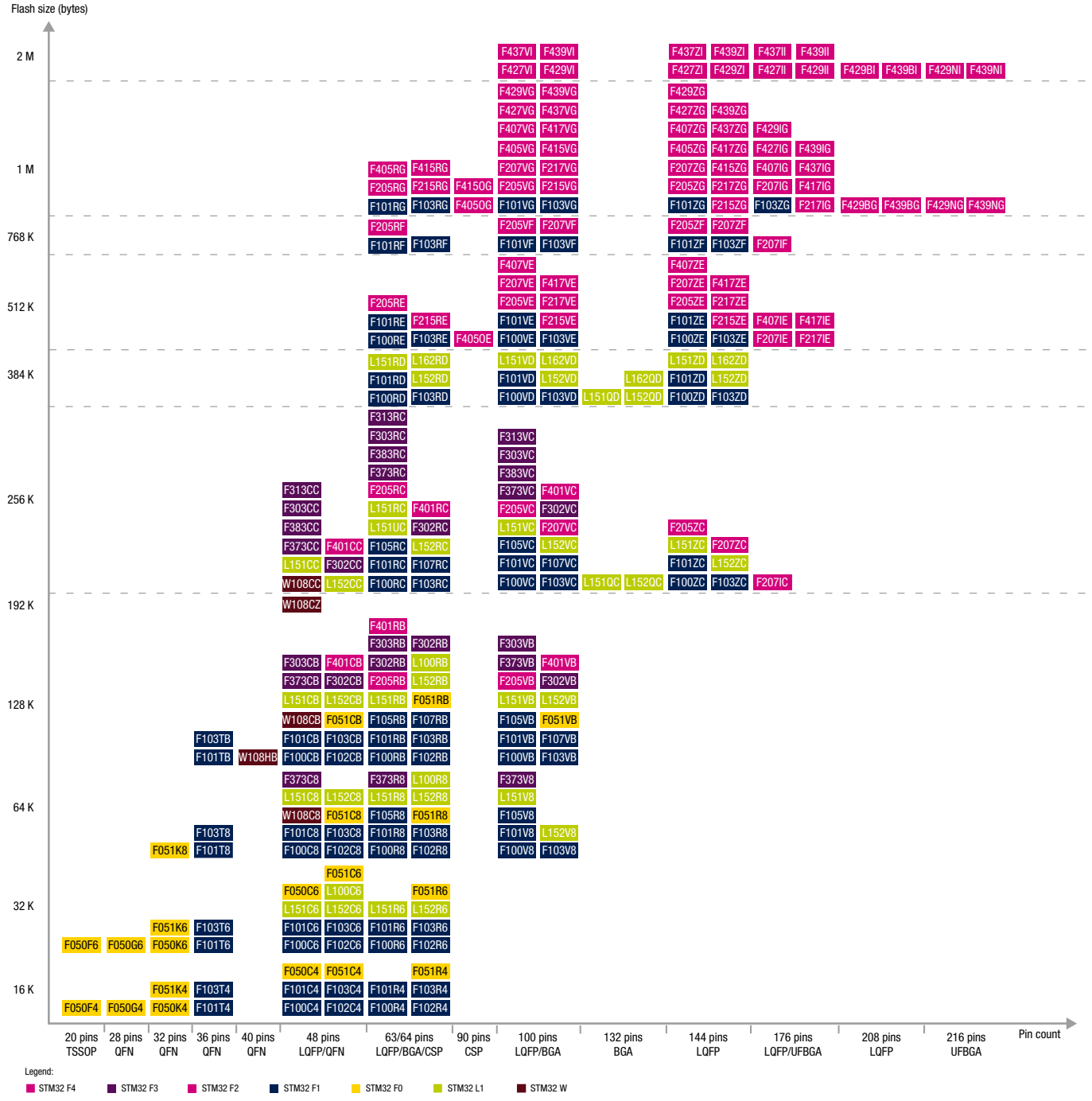
Abbreviations:

FS:	Full speed	MSI:	Multi-speed internal oscillator	VScal:	Voltage scaling
HS:	High speed	RNG:	Random number generator	FPU:	Floating point unit
MC:	Motor control	SDIO:	Secure digital input/output	DSC:	Digital signal controller
PGA:	Programmable gain amplifier				

STM32, THE OPTIMAL PLATFORM CHOICE

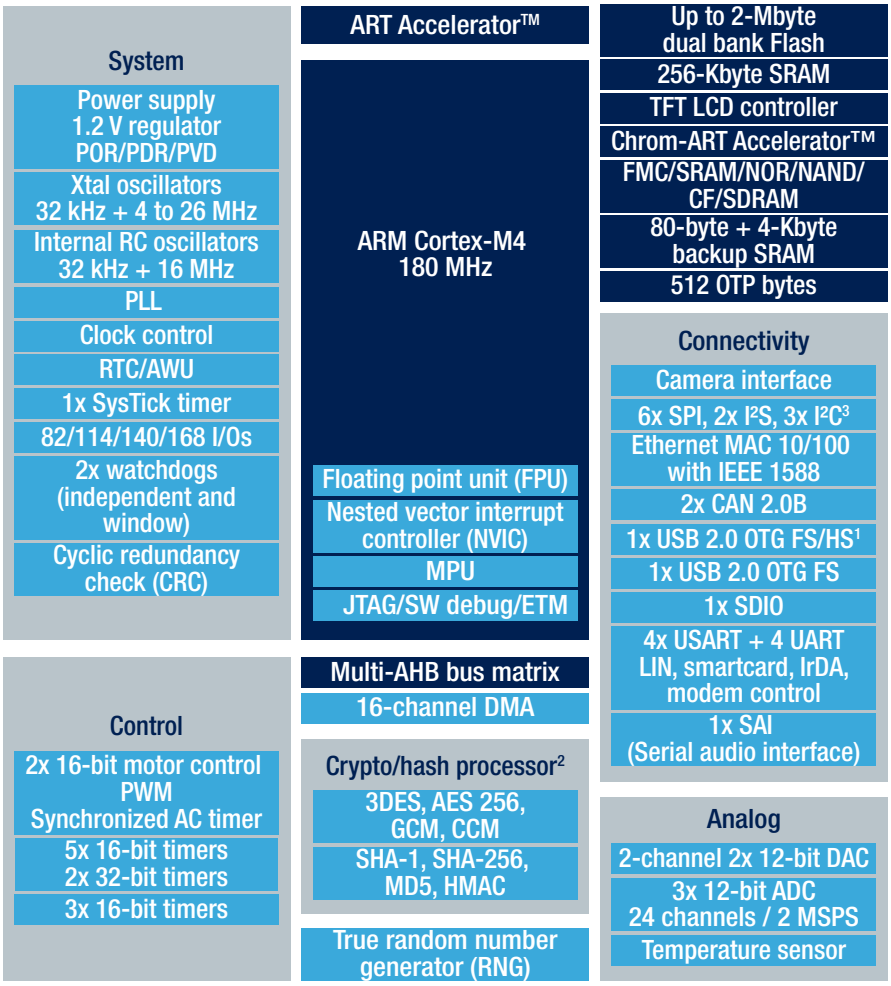
The STM32 is the optimal choice to support many applications with the same platform.
All product lines in the seven series are pin-to-pin and software compatible, making it easy to upgrade to a higher or downgrade to a lower memory size. Numerous applications may be addressed using the sole STM32 platform.

STM32 PORTFOLIO



STM32 F4 SERIES BLOCK DIAGRAM

This block diagram shows all the available peripherals. For exact product content, refer to the device summary.



Notes:
1. HS requires an external PHY connected to the ULPI interface
2. Crypto/hash processor on STM32F415, STM32F417, STM32F437 and STM32F439
3. With digital filter feature

APPLICATIONS

- Industrial
  - PLC
  - Inverters
  - Printers, scanners
  - Industrial networking
  - Solar inverters
- Building and security
  - Alarm systems
  - Access control
  - HVAC
  - Power meters
- Medical
  - Glucose meters
  - Portable medical care
  - VPAP, CPAP
  - Patient monitoring
- Appliances
  - 3-phase motor drives
  - Application control
  - User interfaces
  - Induction cooking
- Consumer
  - Home audio
  - Gaming
  - PC peripherals
  - Digital cameras, GPS

SUPERIOR AND INNOVATIVE PERIPHERALS

Peripherals	STM32 F4 series	STM32 F3 series	STM32 F2 series	STM32 F1 series	STM32 F0 series	STM32 L1 series	STM32 W series
The need for speed							
USB FS	12 Mbit/s	12 Mbit/s	12 Mbit/s	12 Mbit/s	Consumer electronics control for consumer devices	12 Mbit/s	-
USB HS	480 Mbit/s	-	480 Mbit/s	-	-	-	-
USART	Up to 11.25 Mbit/s	Up to 9 Mbit/s	Up to 7.5 Mbit/s	Up to 4.5 Mbit/s	Up to 6 Mbit/s	Up to 4 Mbit/s	Up to 1 Mbit
SPI	Up to 42 Mbit/s	Up to 18 Mbit/s	Up to 30 Mbit/s	Up to 18 Mbit/s	Up to 18 Mbit/s	Up to 16 Mbit/s	Up to 12 Mbit/s
I²C	400 kHz	1 MHz	400 kHz	400 kHz	1 MHz	400 kHz	400 kHz
GPIO toggling	Up to 60 MHz	Up to 18 MHz	Up to 60 MHz	Up to 18 MHz	Up to 12 MHz	Up to 16 MHz	Up to 12 MHz
3-phase MC timer	180 MHz PWM timer clock input	144 MHz PWM timer clock input	120 MHz PWM timer clock input	72 MHz PWM timer clock input	48 MHz PWM timer clock input	-	-
SDIO	Up to 48 MHz	-	Up to 48 MHz	Up to 48 MHz	-	Up to 48 MHz	-
I²S	From 8 kHz to 192 kHz sampling frequencies	From 8 kHz to 192 kHz sampling frequencies	From 8 kHz to 192 kHz sampling frequencies	From 8 kHz to 192 kHz sampling frequencies	From 8 kHz to 192 kHz sampling frequencies	From 8 kHz to 192 kHz sampling frequencies	-
Camera interface	Up to 54 Mbyte/s at 54 MHz	-	Up to 48 Mbyte/s at 48 MHz	-	-	-	-
Crypto/hash processor	AES-256 up to 149.33 Mbyte/s	-	AES-256 up to 106 Mbyte/s	-	-	AES-128 up to 2.4 Mbyte/s	AES-128 up to 2.4 Mbyte/s
FSMC	Up to 60 MHz	-	Up to 60 MHz	Up to 36 MHz	-	Up to 32 MHz	-

SUPERIOR AND INNOVATIVE PERIPHERALS (CONT'D)

Peripherals	STM32 F4 series	STM32 F3 series	STM32 F2 series	STM32 F1 series	STM32 F0 series	STM32 L1 series	STM32 W series
The need for analog							
ADC conversion time	0.41 µs (2.4 MSPS)	0.2 µs (5 MSPS), (50 kSPS)	0.5 µs (2 MSPS)	1 µs (1 MSPS)	1 µs (1 MSPS)	1 µs (1 MSPS)	5.3 µs (188 kSPS)
ADC accuracy	12-bit	12- or 16-bit	12-bit	12-bit	12-bit	12-bit	12-bit
DAC	2-channel, 12-bit	2- channel, 12-bit	2-channel, 12-bit	2-channel, 12-bit	1-channel, 12-bit	2-channel, 12-bit	-
The need for connectivity							
CAN	Up to 2 independent CAN	1 independent CAN	Up to 2 independent CAN	Up to 2 independent CAN	-	-	-
Ethernet	10/100 Mbit/s MAC with hardware IEEE 1588	-	10/100 Mbit/s MAC with hardware IEEE 1588	10/100 Mbit/s MAC with hardware IEEE 1588	-	-	-
USB	Full speed and high speed host, device or OTG	Full speed devices	Full speed and high speed host, device or OTG	Full speed and high speed host, device or OTG	Full speed devices and clock recovery	Full speed devices	-
CEC bus	-	Consumer electronics control for consumer devices	-	Consumer electronics control for consumer devices	Consumer electronics control for consumer devices	-	-
Flexible static memory	4 independent banks, 8/16-bit data bus, supports SRAM, PSRAM, NAND and NOR Flash, parallel graphic LCD	-	4 independent banks, 8/16-bit data bus, supports SRAM, PSRAM, NAND and NOR Flash, parallel graphic LCD	4 independent banks, 8/16-bit data bus, supports SRAM, PSRAM, NAND and NOR Flash, parallel graphic LCD	-	4 independent banks, 8/16-bit data bus, supports SRAM, PSRAM, NAND and NOR Flash, parallel graphic LCD	-
Camera interface	8- to 14-bit parallel	-	8- to 14-bit parallel	-	-	-	-
RF	-	-	-	-	-	-	2.4 GHz IEEE 802.15.4 transceiver and lower MAC

MOTOR CONTROL

The STM32 is perfectly suited to 3-phase brushless single or dual motor control:

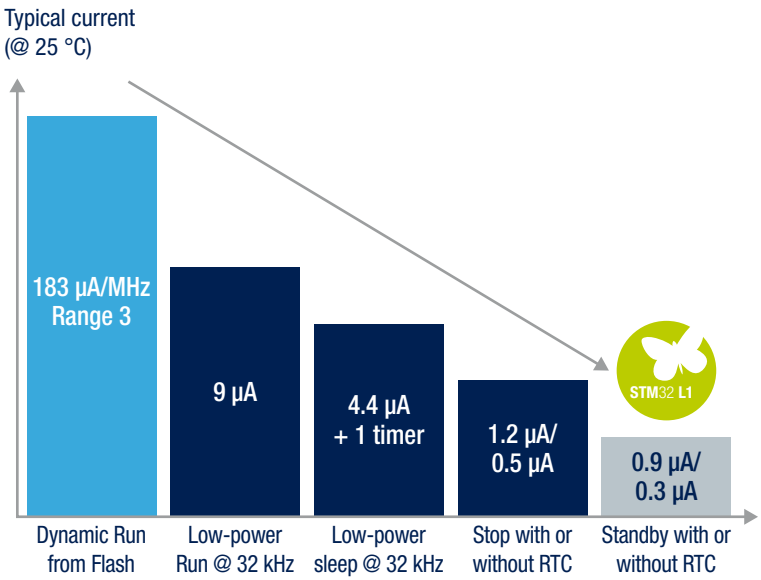
- Advanced PWM timer, fast ADC, high-performance core
- Class B compliancy with the EN/IEC 60335-1 norm
- Single or dual motor control

The STM32's motor control ecosystem brings:

- Free 3-phase motor control software development kit (firmware and graphical customization tool) supporting AC induction motors (sensored) and PMSM motors (sensorless, Hall sensor or encoder) for vector control (field oriented control)
- Full developer vector drive PMSM motor control kits (hardware and firmware) based on the STM32F103 (order code: STM3210B-MCKIT) or STM32F100 (order code: STM32100B-MCKIT)
- Digital PFC and dual FOC drive demo, free RTOS example
- STM Studio tool to monitor data in the user code when the motor control algorithm is running

ULTRA-LOW-POWER

STM32 L1 – Ultra-low-power modes



Notes:
- POR/PDR on
- RAM content preserved ■
- Wake-up time from Stop < 8 µs
- Run and Sleep consumption value are independent of V_{DD}
- Stop and Standby values measured at V_{DD} = 1.8 V
- Low-power Run and low-power Sleep are measured with Flash off
- Backup register byte preserved ■

Development tools

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.

START TODAY WITH STM32-DISCOVERY KITS

Discovery kits are the cheapest and quickest way to discover the STM32 family.
These quick-start evaluation boards embed an ST-LINK or ST-LINK/V2 debug probe and are supported by IDE from Atollic, Keil, IAR and TASKING.

STM32 F4 series (order code: STM32F4DISCOVERY with STM32F407VGT6 MCU)

To discover the STM32 F4 series, the STM32F4-Discovery highlights the performances of the F4 series with audio (input, output) and USB Host capabilities.
Expand the functionality of the STM32F4 Discovery kit with Ethernet connectivity, LCD Display and a 1.3 mega pixel Camera board (order codes: STM32F4DIS-BB, STM32F4DIS-LCD and STM32F4DIS-CAM)

STM32F4DISCOVERY

STM32 F3 series (order code: STM32F3DISCOVERY with STM32F303xx MCU)

The STM32F3-Discovery is the perfect kit to discover not only the richness of the STM32 F3 series, but also ST's MEMS gyroscope and e-compass.

STM32F3DISCOVERY

STM32F0DISCOVERY

STM32 F1 series (order code: STM32VLDISCOVERY with STM32F100RB MCU)

Based on the STM32 F1 series Value line, the STM32 Value line Discovery kit will satisfy hobbyists, first-time developers and students.

STM32 F0 series (order code: STM32F0DISCOVERY with STM32F051R8 MCU)

Discover the STM32 F0 series based on the Cortex-M0 core. A prototyping board is included for easy connection of additional components and modules.

STM32 L1 series (order codes: STM32L152C-DISCO with STM32L152RCT6 MCU and STM32L100C-DISCO with STM32L100RCT6 MCU)

Based on the STM32 L1 series, the STM32L1-Discovery kit includes a 6-digit LCD display, a touch-sensing slider, 2 LEDs, a user button and current measurement.

STM32VLDISCOVERY

STM32L152C-DISCO

STM32 EVOPRIMER

Play, explore and develop applications on the EvoPrimer with Raisonance toolset, free demos and an online community at www.stm32circle.com to stimulate creative designs.
Order codes:
STM3240GPRIMER (STM32 F4 series)
STM3210CPRIMER (STM32 F1 series Connectivity line)
STM3210GPRIMER (STM32 F1 series Performance line)
STM32L15PRIMER (STM32 L1 series)

STM32-COMSTICK

Evaluate STM32 networking features of the STM32 Connectivity line with STM32-ComStick (order code: STM32-COMSTICK).
This kit includes an integrated debugging/programming capability via USB and unlimited Hitex HiTOP5 and TASKING VX C compilers.

STM32W RF CONTROL KIT

Low-cost RF control kit: The STM32W RF Control Kit is a low-cost and quick way to get started using STM32W-based point-to-point wireless control applications.
Order code: STM32WC-RFCKIT

STARTER KITS 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 STM32F207IGH6 STM32F407IGH6	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

EVALUATION BOARDS FOR STM32

Evaluation boards from ST implement the complete range of device peripherals for STM32 devices.

Part number	Featured product
STM3240G-EVAL	STM32F407IGH6
STM32303C-EVAL	STM32F303VCT6
STM32373C-EVAL	STM32F373VCT6
STM3220G-EVAL	STM32F207IGH6
STM3210C-EVAL	STM32F107VCT6
STM3210E-EVAL	STM32F103ZGT6
STM32100B-EVAL	STM32F100VBT6B
STM32100E-EVAL	STM32F100ZET6B
STM320518-EVAL	STM32F051R8T6
STM3241G-EVAL	STM32F417IGH6
STM3221G-EVAL	STM32F217IGH6
STM32429I-EVAL*	STM32F429NIH6U
STM32439I-EVAL*	STM32F439NIH6U
STM32L152D-EVAL	STM32L152ZDT6

STM320518-EVAL

STM3240G-EVAL

STM32L152D-EVAL

STM32F373C-EVAL

Note: * Available in Q3/2013

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

STM32W108C-SK

STM32W108C-KEXT

STM32 SOFTWARE DEVELOPMENT TOOLS

Third-party solutions come complete with IDE, C/C++ compiler, debugger and JTAG/SWD debug probes. Available from main tools providers, including Atollic, IAR, Keil, Raisonance and TASKING.

MicroXplorer

Easily start your STM32 applications with MicroXplorer, a free graphical tool enabling users to select in the ST portfolio an STM32 based on peripherals needed, to configure very easily the pinout based on the operating mode of the peripherals used and then to generate the corresponding C initialization code.
www.st.com/microxplorer

STM Studio

Fine tune, debug and diagnose STM32 applications with STM Studio, a free graphical tool to monitor and visualize variables at run time. Connected to the STM32 via a standard debug probe (such as the ST-LINK/V2), STM Studio reads variables on-the-fly (non intrusive) while the application is running. Different graphic views are available to match the needs of debugging. Numerous other features are available to help diagnose running applications.
www.st.com/stm-studio

Java for STM32

Start developing applications for the STM32 in Java. Benefit from Java and the highly-optimized STM32 Java virtual machine to increase software engineering productivity. Ideal for feature-rich applications with human-machine interfaces and Internet protocol connectivity.
Evaluation kits:
STM3220G-JAVA (for STM32 F2 series)
STM3240G-JAVA (for STM32 F4 series)
Development environment:
STM32-JAVA

STM32 Embedded Target for MATLAB and Simulink

STM32 Embedded Target enables developers to quickly deploy their application models in MATLAB and Simulink to the STM32 F4 series MCUs. It allows you to check the STM32 F4 execution results versus Simulink simulation behavior using PIL testing.
The Simulink blockset library with STM32 F4 peripherals is ready for integration in the final application with the algorithm code generated by Embedded Coder.
www.st.com/stm32-mat-target

Microsoft .NET Micro Framework for STM32

After the NETMF for STM32 F1, the Mountaineer Group (http://www.mountaineer.org/) has ported NETMF to the STM32 F2 and STM32 F4. This port presents drivers for the on-chip peripherals: GPIOs, analog inputs and outputs, I²C, SPI, UARTs, USB, internal Flash, power management, timers, and more.
It is available at the Codeplex site, www.netmf.codeplex.com
ST order codes: STM3240G-ETH/NMF and STM3240G-USB/NMF (STM32 F4 series).

STM32 software solutions

From the hardware abstraction layer, through middleware and up to the application field, the STM32 software ecosystem is extensive, providing a consistent set of solutions, coming from more than 20 partners, based on open-source, or even built in-house.
All STM32 peripherals are functionally covered, including peripheral library, DSP library, crypto library, file systems, USB, Ethernet, Bluetooth, Wi-Fi, display, industrial, audio, motor control, and medical applications.
Contact your local ST sales and marketing office for more information on the solutions described in this document.

Hardware abstraction layer

STM32 standard peripheral library: Complete set of device drivers for all the standard device peripherals, with many examples.
CMSIS DSP library: Standardized interface, with more than 50 math operations (FIR, FFT, matrix, and more) accelerated with DSP instructions.
STM32 crypto library: Software implementation of cryptographic algorithms, optimized for STM32.
STM32 self-test routines Class B norm certification: Complete software for EN/IEC 60335-1 Class B norm.

Middleware

STM32 USB libraries: Complete firmware packages for USB, slave and host, with many covered classes.
STM32 TCP/IP stacks: Several stacks are available, such as LwIP or NicheLite. Partners offer more extensive protocol support, or other communication means such as Wi-Fi.
STemWin graphical library: based on SEGGER emWin graphical library, STemWin is a professional solution, enabling Graphical User Interfaces (GUI) building up with any STM32, and LCD and controller, taking benefit from STM32 Hardware accelerations, whenever possible. It comes with a full set of widgets and services, like remote display and developments tools like on PC simulator and screens designer.
STM32 Bluetooth stack: iAnywhere full Bluetooth stack with many different profiles. With our partner Alpwise.

Application fields

STM32 audio solutions: Full range of audio software bricks, optimized for STM32: MP3 codec, MP3 decoder, WMA decoder, Speex speech codec, ADPCM compression, audio algorithms such as loudness control, channel mixer, 5-band equalizer, iPod/iPhone/iPad interface through iAP (iPod Application Protocol) interface, USB synchronization methods for streaming, and more. Contact your sales office for information on availability for specific STM32 part numbers.
STM32 motor control software: Complete 3-phase motor-control software development kit (firmware and graphical customization tool) supporting single or dual PMSM motors in sensored and sensorless mode and AC induction motors in sensored mode, plus a patented single-shunt algorithm. This SDK is included in the STM32 motor control kits.
STM32 industrial protocols: Full range of supported industrial protocols: Profinet, EtherCAT, Modbus, DeviceNet, CANopen, and more, via our partner network.
STM32 Continua certified solution: Software bricks to build up your Continua medical solution. Provided bricks are USB PHDC class (personal health device class), base framework protocol, glucose agent and thermometer agent. Further agents can be implemented on demand.

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