

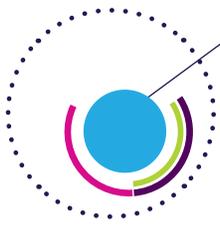


life.augmented

STM32F7 series

ARM[®] Cortex[®]-M7 powered Releasing your creativity





STM32[®] high performance

Very high performance 32-bit MCU with DSP and FPU

The STM32F7 with its ARM[®] Cortex[®]-M7 core is the smartest MCU and has the best performance of the 32-bit STM32 family.

PERFORMANCE

The STM32F7 delivers 1082 CoreMark/462 DMIPS executing from embedded Flash thanks to the ST ART Accelerator™ at 216 MHz and up to twice the DSP performance, without compromising on power efficiency. External memory can be used with no performance penalty thanks to the L1 cache (I/D 4KB+4KB). Fully pin-to-pin and code compatible with the STM32F4 and the STM32 ecosystem.

Benefits: Allows creation of more responsive, innovative applications, running on either on-chip or off-chip memories. Easy upgrade for existing designs based on STM32F4.



SMART ARCHITECTURE WITH NEW PERIPHERAL SET

The STM32F7 optimizes the system performance by combining brand-new peripherals around the Cortex-M7, with a superior interconnect architecture with AXI and multi AHB bus matrix, multiple DMA and the Chrom-ART Accelerator™ hardware.

Benefits: Concurrent, high-speed data transfers between bus masters and slaves without loading the CPU.

Large SRAM with overloading architecture

- 320 Kbytes including 64 Kbytes of Data TCM RAM
- 16 Kbytes of instruction TCM RAM
- 4 Kbytes of backup SRAM

Benefits: Support for large data buffers, critical real-time data routines and backup.

New peripheral sets

- Two SAI (with SPDIF output support), three I2S half-duplex and SPDIF input
Benefit: Multiple audio channel input and output support.
- 2x USB OTG with dedicated power supply
Benefit: Enables USB communication even when the MCU is powered at 1.8 V.
- Dual QuadSPI interface:
Benefit: Connect cost-effective memories with only 1, 4 or 8 data pins.

POWER EFFICIENT

- Up to 6 CoreMark/mW at 1.8 V
- 100 µA typical in Stop mode with all SRAM saved

Benefit: Put more innovation and creativity in power-constrained applications.

	LQFP100	14 x 14 x 1.4 mm
	LQFP144	20 x 20 x 1.4 mm
	LQFP176	24 x 24 x 1.4 mm
	LQFP208	28 x 28 x 1.4 mm
	UFBGA176	10 x 10 x 0.6 mm (pitch 0.65)
	TFBGA216	3 x 13 x 1.2 mm (pitch 0.8)
	WLCSP143	< 5.9 x 4.6 mm

STM32F7 ECOSYSTEM

Hardware tools

STM32 Nucleo board



Flexibility prototype
Available in Q4/2015

Discovery kit



Creative demos
STM32F746G-DISCO

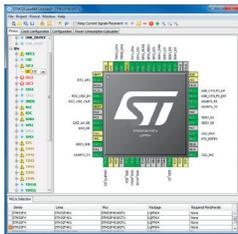
Evaluation board



Full-feature evaluation
STM32F756G-EVAL2
STM32F746G-EVAL2

Software tools

STM32CubeMX



Configure and generate code

Partner IDEs



Compile and debug

STMStudio



Monitor

Embedded Software



STM32Cube

Average optimization
STM32 portability



CMSIS and
Mbed SDK

Low optimization
ARM portability

STM32Java



Virtual machines
and models

Low optimization
large portability

UP TO TWO LINES FOR MORE PERFORMANCE

ARM® Cortex®-M7 – 216 MHz • ART Accelerator™ • L1 cache: 4K+4K data and instruction cache • Chrom-ART Accelerator™ • Single Precision FPU • 2 x USB 2.0 OTG FS/HS • SDIO • 2 x CAN • I²S + audio PLL • 2 x SAI • 2 x 12-bit DAC • SPDIF-RX • 16- and 32-bit timers	 Product	FCPU (MHz)	Flash (bytes)	RAM (KB)	Ethernet I/F IEEE 1588	Quad SPI	Camera I/F	FMC	TFT LCD controller
	STM32F746*	216	512 K to 1 M	320	•	•	•	•	•
	STM32F745	216	512 K to 1 M	320	•	•	•	•	•

Note: * Crypto/hash hardware on STM32F756 devices only

STM32F756 BLOCK DIAGRAM



ST MCU FINDER

Free Android application to find the right STM32 MCU.



www.st.com/stmcfinder



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