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STM32L4 Series
Ultra-low-power and performance

STM32™ ultra-low-power at 100 DMIPS with DSP and FPU

ULTRA-LOW-POWER EXCELLENCE

The STM32L4 microcontroller is based on a new ultra-low-power platform featuring FlexPowerControl which extends flexibility to reach optimized power consumptions:
With an EEMBC ULPBench score of 177 ULPBench™-CP, the STM32L4 outperforms the market in the ultra-low-power domain.

WITH PERFORMANCE

Offering up to 1 Mbyte of Flash (dual bank) memory and 128 Kbytes of SRAM, the STM32L4 unleashes the ARM® Cortex®-M4 power efficiency with floating point unit (FPU) and DSP instructions.
It delivers 100 DMIPS / 273 CoreMark thanks to the ST ART Accelerator™ at 80 MHz.
The entire system performance is optimized using a multi-AHB bus matrix and DMA controllers.

OUTSTANDING LOW-POWER MODES

Wake-up time		
	VBAT	2 nA / 200 nA*
250 µs	Shutdown	8 nA / 200 nA*
14 µs	Standby	28 nA / 280 nA*
14 µs	Standby + 16-Kbytes RAM	200 nA / 450 nA*
5 µs	Stop 2 (full retention)	1.0 µA / 1.28 µA*
4 µs	Stop 1 (full retention)	4.3 µA / 4.7 µA*
6 cycles	Sleep	26 µA / MHz
	Run at 24 MHz	84 µA / MHz
	Run at 80 MHz	102 µA / MHz

* without RTC / with RTC

STM32L486 BLOCK DIAGRAM

Parallel Interface
FSMC 8-/16-bit (TFT-LCD, SRAM, NOR, NAND)

Display
LCD driver 8 x 40

Timers
17 timers including:
2 x 16-bit advanced motor control timers
2 x ULP timers
7 x 16-bit-timers
2 x 32-bit timers

I/Os
Up to 114 I/Os
Touch-sensing controller

ARM® Cortex®-M4 CPU
80 MHz
FPU
MPU
ETM

DMA

ART Accelerator™

Up to 1-Mbyte Flash with ECC Dual Bank

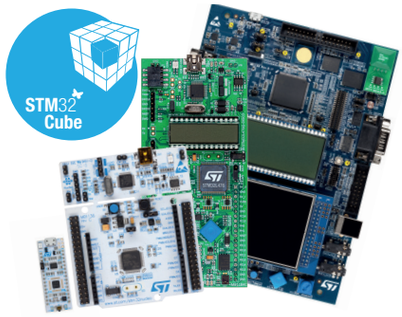
128 Kbytes RAM

Connectivity
USB OTG
1x SD/SDIO/MMC,
3x SPI, 3x I²C,
1x CAN, 1x Quad SPI,
5x USART + 1 x ULP UART,
1 x SWP

Digital
AES (256-bit), TRNG,
2 x SAI,
DFSDM (8 channels)

Analog
3x 16-bit ADC,
2 x DAC,
2 x comparators,
2 x Op amps
1 x Temperature sensor

HARDWARE TOOLS



A full set of evaluation boards enables flexible prototyping as well as full STM32L4 evaluation. Commercial part numbers:
NUCLEO-L432KC (32 pins);
NUCLEO-L476RG (64 pins);
STM32L476G-DISCO; STM32L476G-EVAL

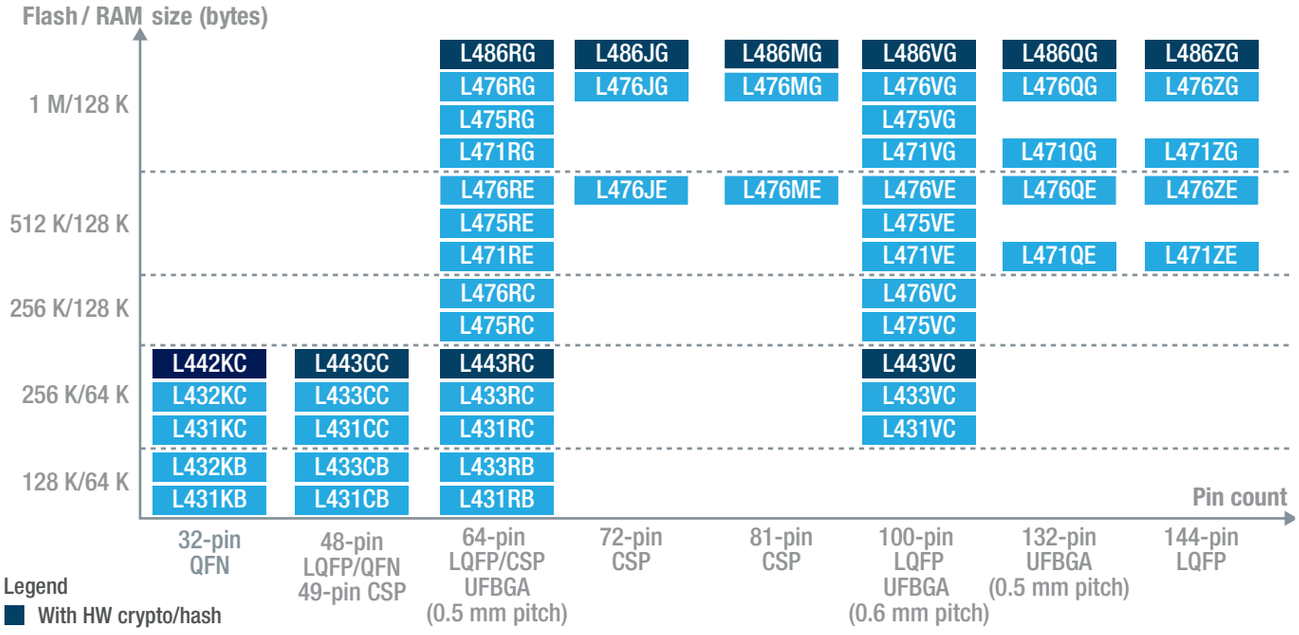
SOFTWARE TOOLS

STM32CubeMX enables fast development thanks to its MCU clock configurator, power consumption calculator and code generation tools.

SMART PERIPHERALS

- Low-power UART and I²C communication interfaces
- Low-power time counter (16-bit low-power timers)
- Up to 7 SPIs including Quad-SPI supporting software execution
- Independent peripheral communication clock separate from main system clock
- Digital filters for sigma-delta modulators supporting digital microphone (PDM to PCM conversion w/ HW filter)

STM32L4 PORTFOLIO



Legend
■ With HW crypto/hash

MIX
Paper from responsible sources
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