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 ULPMark score of 447 ULPMark-CP and 167 ULPMark-PP, the STM32L4 outperforms the market in the ultra-low-power domain.

WITH PERFORMANCE

Offering up to 1 Mbyte of Flash (dual bank) memory and up to 320 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		
	V_{BAT}	2 nA / 200 nA*
250 µs	Shutdown	8 nA / 200 nA*
14 µs	Standby	34 nA / 280 nA*
14 µs	Standby + 8-Kbytes RAM	200 nA / 340 nA*
5 µs	Stop 2 (full retention)	720 nA / 950 nA*
4 µs	Stop 1 (full retention)	3.2 µA / 3.4 µA*
6 cycles	Sleep	8 µA/MHz** / 20µA/MHz
	Run at 24 MHz	28 µA/MHz** / 79 µA/MHz
	Run at 80 MHz	35 µA/MHz** / 90 µ/MHz

* without RTC / with RTC ** external SMPS

STM32L4 ON-LINE TRAINING
www.st.com/stm32l4-online-training

ST COMMUNITY
community.st.com/stm32

STM32L4A6 BLOCK DIAGRAM

Connectivity
USB OTG Crystal less,
1x SD/SDIO/MMC,
3x SPI,
4x I²C,
2x CAN,
1x Quad SPI (Dual Flash),
5x USART + 1 x ULP UART

Digital
AES (256-bit),
SHA (256-bit),
TRNG, 2 x SAI,
DFSDM (8 channels),
Camera I/F, Chrom-ART

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

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

DMA

ART Accelerator™

Up to
1-Mbyte Flash
with ECC
Dual Bank

320-Kbyte
RAM

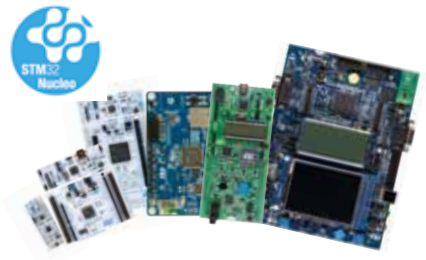
Display
LCD driver 8 x 40

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 136 I/Os
Touch-sensing controller

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

HARDWARE TOOLS



A full set of evaluation boards enables flexible prototyping as well as full STM32L4 evaluation. Commercial part numbers:

STM32 nucleo boards

	L476RG		L4A6ZG
L432KC	L452RE	L452RE-P	L496ZG-P
L412KB	L412RB-P	L433RC-P	L496ZG
32 pins	64 pins		144 pins

STM32 discovery kits

L4A6AG L496AG
L476VG B-L475E

STM32 eval boards

L476ZG

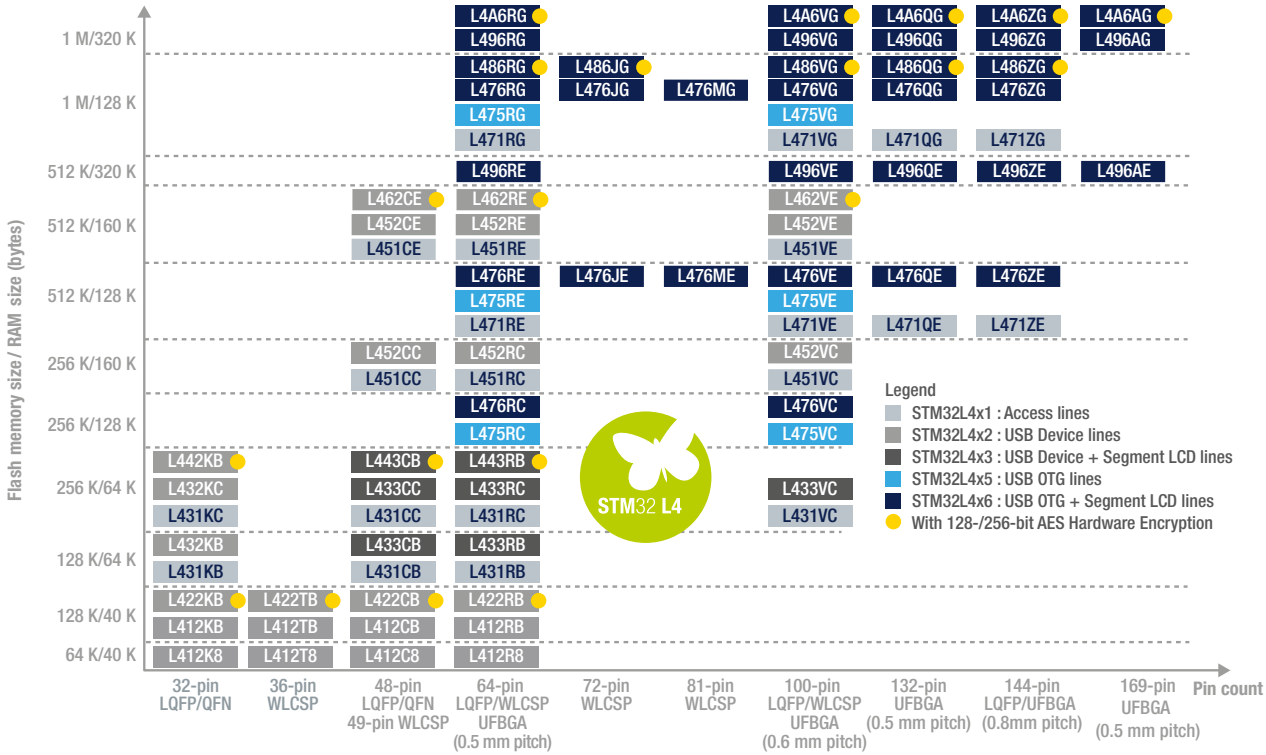
SOFTWARE TOOLS

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

EMBEDDED SOFTWARE

The STM32CubeL4 MCU Package includes the STM32Cube HAL and low-layer (LL) APIs peripheral drivers, plus a consistent set of middleware components (RTOS, USB, FatFS, graphics and STM32 touch sensing). All embedded software utilities come with a full set of examples running on STMicroelectronics boards.

STM32L4 PORTFOLIO



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