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

<table>
<thead>
<tr>
<th>Wake-up time</th>
<th>V_BAT 2 nA / 200 nA*</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 µs</td>
<td></td>
</tr>
<tr>
<td>14 µs</td>
<td>Shutdown 8 nA / 200 nA*</td>
</tr>
<tr>
<td>14 µs</td>
<td>Standby 34 nA / 280 nA*</td>
</tr>
<tr>
<td>5 µs</td>
<td>Standby + 8-Kbytes RAM 200 nA / 340 nA*</td>
</tr>
<tr>
<td>4 µs</td>
<td>Stop 2 (full retention) 720 nA / 950 nA*</td>
</tr>
<tr>
<td>6 cycles</td>
<td>Stop 1 (full retention) 3.2 µA / 3.4 µA*</td>
</tr>
<tr>
<td></td>
<td>Sleep 8 µA/MHz** / 20µA/MHz</td>
</tr>
<tr>
<td></td>
<td>Run at 24 MHz 28 µA/MHz** / 79 µA/MHz</td>
</tr>
<tr>
<td></td>
<td>Run at 80 MHz 35 µA/MHz** / 90 µ/MHz</td>
</tr>
</tbody>
</table>

* without RTC / with RTC  ** external SMPS

STM32L4 ONLINE TRAINING
www.st.com/stm32l4-online-training

ST COMMUNITY
community.st.com/stm32
HARDWARE TOOLS

STM32L4 Ecosystem
Available now

A full set of evaluation boards enables flexible prototyping as well as full STM32L4 evaluation.

Commercial part numbers:

STM32L4A6 BLOCK DIAGRAM

Connectivity
USB OTG Crystal less, 1x SD/SPI/MMC, 3x SPI, 4x PC, 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

Display
Arm® Cortex®-M4 CPU

Parallel Interface

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

320-Kbyte RAM

Art® AcceleratorTM

Up to 1-Mbyte Flash with ECC

DMA

I/Os
Up to 136 I/Os

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

LCD driver 8 x 40

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SOFTWARE TOOLS

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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.

STM32 PORTFOLIO

Order code: FLSTM32L41018
For more information on ST products and solutions, visit www.st.com/stm32l4