STM32L5 series

Excellence in ultra-low power with more security

The STM32L5 series is the answer for embedded applications requiring more security and a lower power consumption. It adds more security with Arm® Cortex®-M33 and its TrustZone® technology as well as ST’s security implementation while using our best-in-class ultra-low power technology.

Offering up to 512 Kbytes of Flash (dual bank) memory and 256 Kbytes of SRAM, the STM32L5 reaches an upgraded level of performance.

The STM32L5 offers a large portfolio with 7 packages (from 48 to 144 pins) and supports up to 125°C ambient temperature.

POWER CONSUMPTION
- EEMBC ULPBench®: 370 ULPMark-CP score
- Embedded SMPS step-down converter (optional)
- Best power consumption with full flexibility:
  - 17 nA in shutdown mode
  - 3 µA in stop mode with full SRAM and peripheral states retention and with 5 µs wake-up time

A FULL SET OF SECURITY FEATURES
- Flexible hardware and software secure isolations with TrustZone®
- Enhanced security services:
  - Dedicated secure user memory space for secure boot and root of trust
  - Symmetric and asymmetric crypto

INTEGRATION, SIZE, PERFORMANCE
- Better application responsiveness:
  - Performance: +20% versus Cortex®-M4
  - New ART Accelerator™: now supporting also external memory
- Achieving 165 DMIPS, 442 CoreMark scores and 370 ULPMark-CP
- High integration and innovation: large memory, USB Type-C™ with Power Delivery controller, CAN FD

www.st.com/stm32l5
STM32L562 block diagram

**Connectivity**
- USB Device Crystal-less, USB Type-C and PD, 1x SD/SDIO/MMC, 3x SPI, 4x PC, 1x CAN FD, 1x Octo-SPI, 5x USART + 1x LPUART

**Analog**
- 2x 12-bit ADC 12/16 bits, 2x comparators, 2x op amps, 1x temperature sensor

**Timers**
- 14 timers including:
  - 2x 16-bit advanced motor control timers
  - 2x LPUART timers
  - 3x 16-bit-timers
  - 2x 32-bit timers

**I/Os**
- Up to 115 I/Os
- Touch-sensing controller

**DMA**
- ART Accelerator™

**Encryption**
- AES (256-bit), PKA, SHA-1, SHA-256, CRC, OTFDEC

**STM32Cube Ecosystem**
Full set of software tools including STM32CubeMX to configure, generate code, calculate power consumption; STM32CubeIDE to configure, develop, compile and debug; STM32CubeProgrammer to program internal or external memories through JTAG or bootloader interfaces; and STM32CubeMonitor-Power to display power consumption.

One-stop-shop STM32Cube embedded software package with user-friendly license terms including MCU drivers, middleware (USB, TLS, Crypto, touch sensing, file system, TF-M and RTOS), project examples for IAR, Keil and STM32CubeIDE IDEs. TF-M is an open-source reference code to implement a Trusted Execution Environment (TEE) as specified in Arm PSA.

**STM32L5 Portfolio**
Flash memory size / RAM size (bytes)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>512 K / 256 K</td>
<td>STM32L552CE</td>
<td>STM32L552RE</td>
<td>STM32L552ME</td>
<td>STM32L552VE</td>
<td>STM32L552OE</td>
<td>STM32L552E</td>
</tr>
<tr>
<td>256 K / 256 K</td>
<td>STM32L552CC</td>
<td>STM32L552RC</td>
<td>STM32L552VC</td>
<td>STM32L552QC</td>
<td>STM32L552ZC</td>
<td>STM32L552E</td>
</tr>
</tbody>
</table>

Legend: [ ] without HW crypto [ ] with HW crypto

**Hardware tools**

**Discovery kit**
Flexible prototyping with on-board Energy meter

**Evaluation board**
Full feature development platform

**STM32 Nucleo-144 development board**
An affordable and flexible way to try out new concepts

The STM32Trust ecosystem combines knowledge, design tools, and ready-to-use original ST software to build strong cyber-protection into new IoT devices, leveraging industry best-practices.

www.st.com/stm32trust

STM32 Cube Ecosystem
STM32Cube IDEs, TF-M and RTOS, project examples for IAR, Keil and STM32CubeIDE IDEs. TF-M is an open-source reference code to implement a Trusted Execution Environment (TEE) as specified in Arm PSA.

STM32L5 ON-LINE TRAINING
www.st.com/stm32l5-online-training

ST COMMUNITY
community.st.com/stm32

Order code: FLSTM32L50420

For more information on ST products and solutions, visit www.st.com/stm32

© STMicroelectronics - April 2020 - All rights reserved

ST and ST logo are trademarks or registered trademarks of STMicroelectronics International NV or its affiliates in the EU and/or other countries. For additional information about ST trademarks, please refer to www.st.com/trademarks. All other product or service names are the property of their respective owners.