STM32L4 - Welcome

Revision 2.0

STM32 L4

ST life.augmented

Hello, and welcome to the STM32L4 training session.

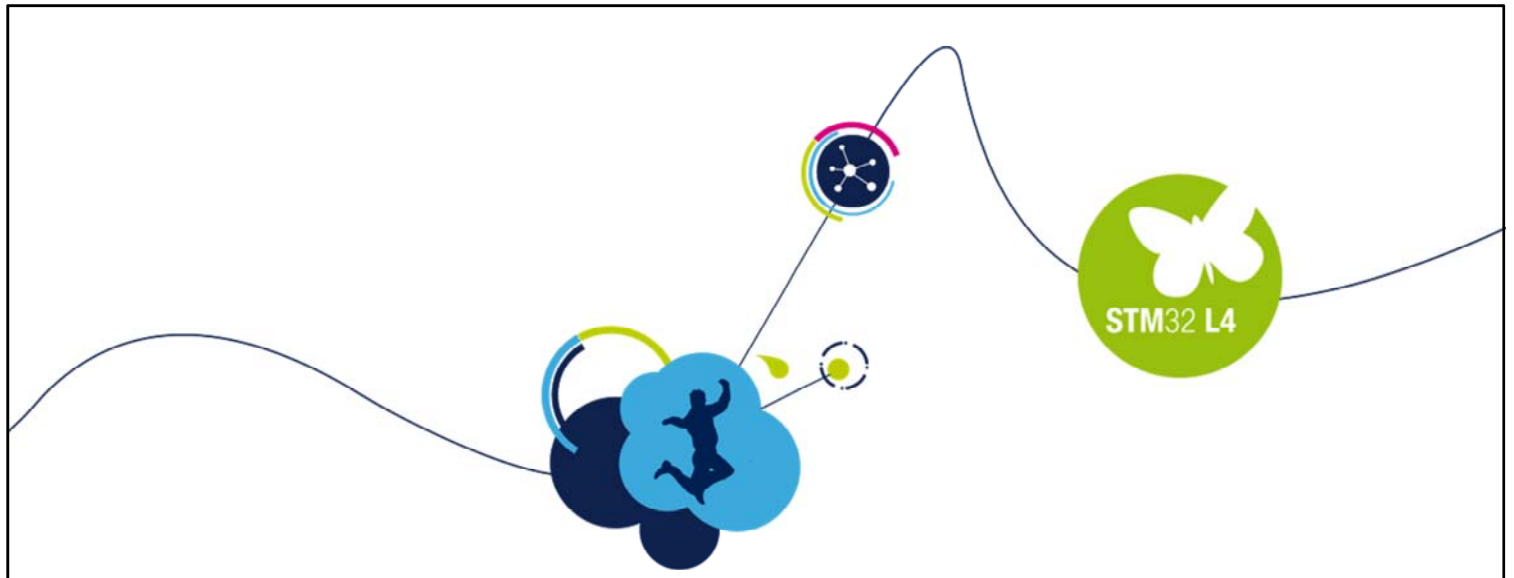# Training session organization

- Introduction
- System
- Memory
- Security & Safety
- Analog
- Communication & Peripherals
- Watchdogs & Timers
- Ecosystem
- Next steps

This session is organized to provide you with the most important information to ensure that you can develop your application as easily as possible. You will find a technical description of all the STM32L4 modules including peripherals and development tools organized into specific sections: system, memory, security, analog, peripherals, watchdog and timers and ecosystem.

You can browse each section separately and learn about each module in the order of your choice and at your convenience.

This session also allows you to search directly for a key word and you will have a direct access to the sections covering this information.

STM32L4 MCU series
Excellence in ultra-low-power with performance

Now, let's take a closer look at the STM32L4 series of ultra-low-power microcontrollers.

1. ULP leader and performance booster

2. Innovation

3. Integration and safety

4. Great investment

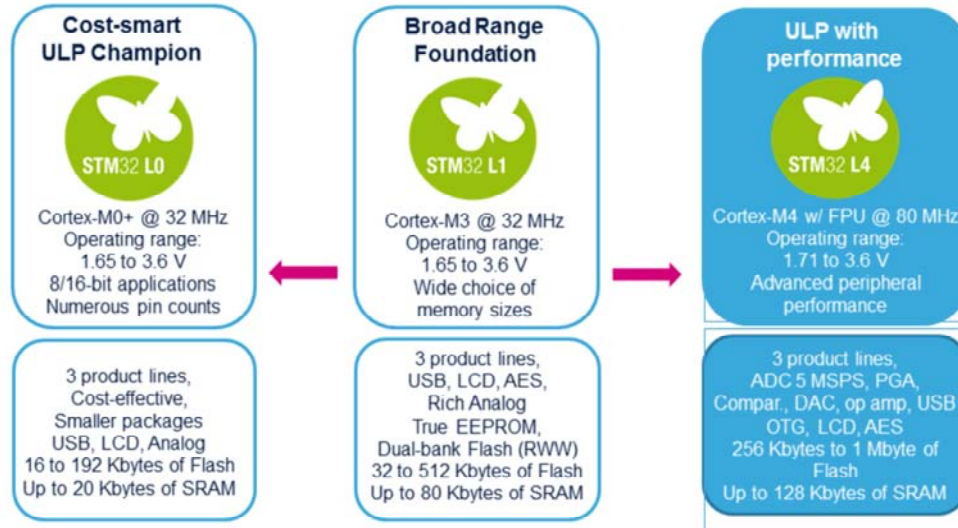These are the 4 major points that characterize the STM32L4 series:

It's the leader in ultra-low-power microcontrollers and in boosting performance: ST has built a new architecture to reach best-in-class, ultra-low-power figures thanks to its high flexibility. Moreover, the STM32L4's performance shatters the competition in the ultra-low-power world. It delivers 100 DMIPS based on its ARM Cortex-M4 core with a floating-point unit and ST's adaptive real-time memory accelerator at 80 MHz.

Innovation leadship: To address a large market range, several innovations on its architecture are implemented and smart peripherals are embedded.

Integration and safety features: 1 Mbyte of Flash memory and 128 Kbytes of SRAM along with safety and security features, smart and numerous peripherals, advanced and low-power analog circuits in packages as small as 3.8 x 4.4 mm.

Long-term and advantageous investment: This new series of STM32 microcontrollers benefits from the pin-to-pin compatibility of the STM32 family and its ecosystem.
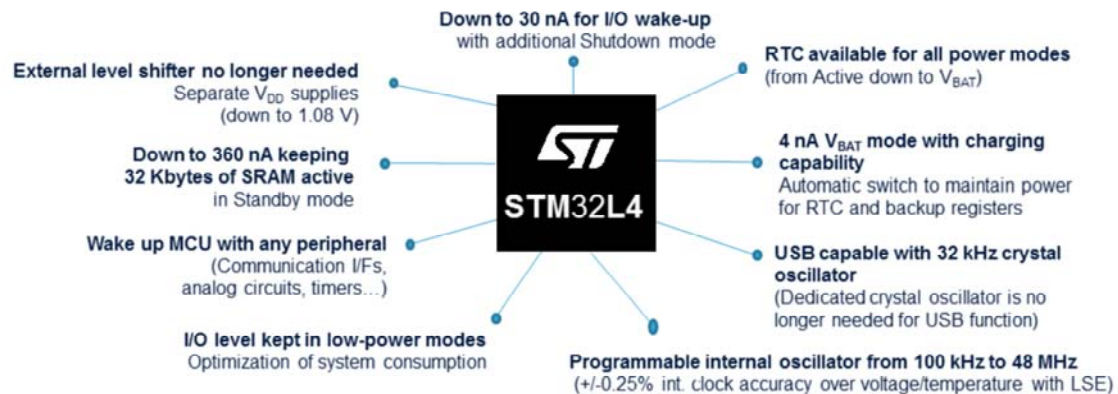
The STM32L4 series completes the ultra-low-power family of microcontrollers developed by STMicroelectronics. It is the result of a major effort based on our previous work for STM32L0 and L1 ultra-low-power microcontrollers.
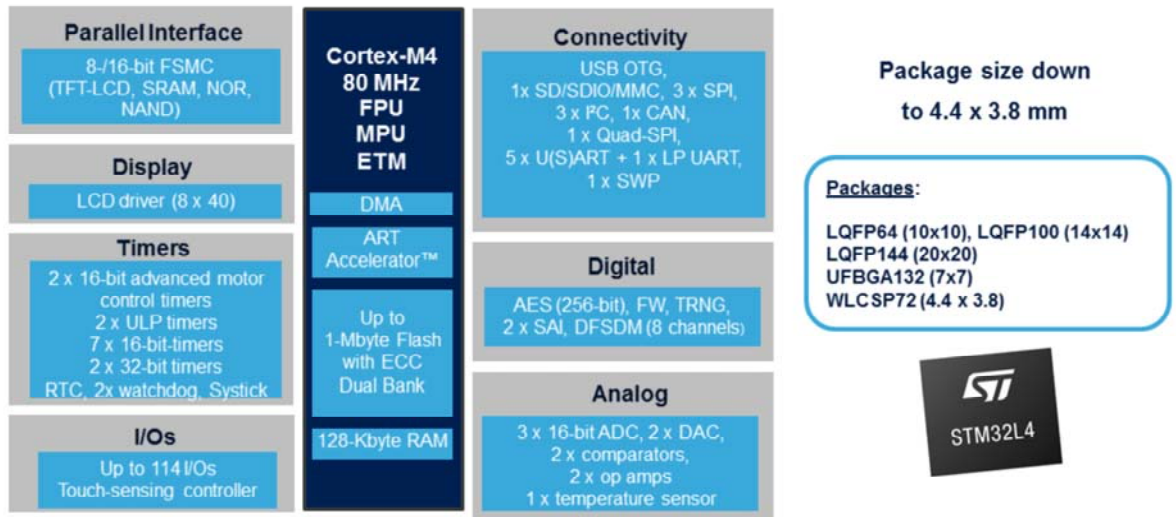
The STM32L4 is based on a new platform optimized to reduce power consumption and increase flexibility typically with its I/O level kept in low-power modes, the backup SRAM in Standby mode, the flexibility of wake-up sources in Stop mode, the ultra-low power consumption in Shutdown mode, the separated VDD supply, the VBAT domain with charging capability and the multi-speed internal RC oscillator programmable from 100 kHz to 48 MHz.

High integration

High integration with high memory size in small packages

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

Display
LCD driver (8 x 40)

Timers
2 x 16-bit advanced motor control timers
2 x ULP timers
7 x 16-bit-timers
2 x 32-bit timers
RTC, 2x watchdog, Systick

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

Cortex-M4 80 MHz FPU MPU ETM
DMA
ART Accelerator™
Up to 1-Mbyte Flash with ECC Dual Bank
128-Kbyte RAM

Connectivity
USB OTG,
1x SD/SDIO/MMC, 3 x SPI,
3 x I²C, 1x CAN,
1 x Quad-SPI,
5 x U(S)ART + 1 x LP UART,
1 x SWP

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

Analog
3 x 16-bit ADC, 2 x DAC,
2 x comparators,
2 x op amps
1 x temperature sensor

Package size down to 4.4 x 3.8 mm

Packages:
LQFP64 (10x10), LQFP100 (14x14)
LQFP144 (20x20)
UFBGA132 (7x7)
WLCSP72 (4.4 x 3.8)

STM32L4

This block diagram of the STM32L4 highlights the main sections of the microcontroller covered in this training session and their modules. The STM32L4 proposes a wide variety of features that are required to develop flexible and complex applications such as industrial control, motor control, consumer, appliance, metering, medical, gaming, printers, audio and digital camera applications. The STM32L4 is also adapted to a wide panel of use cases.
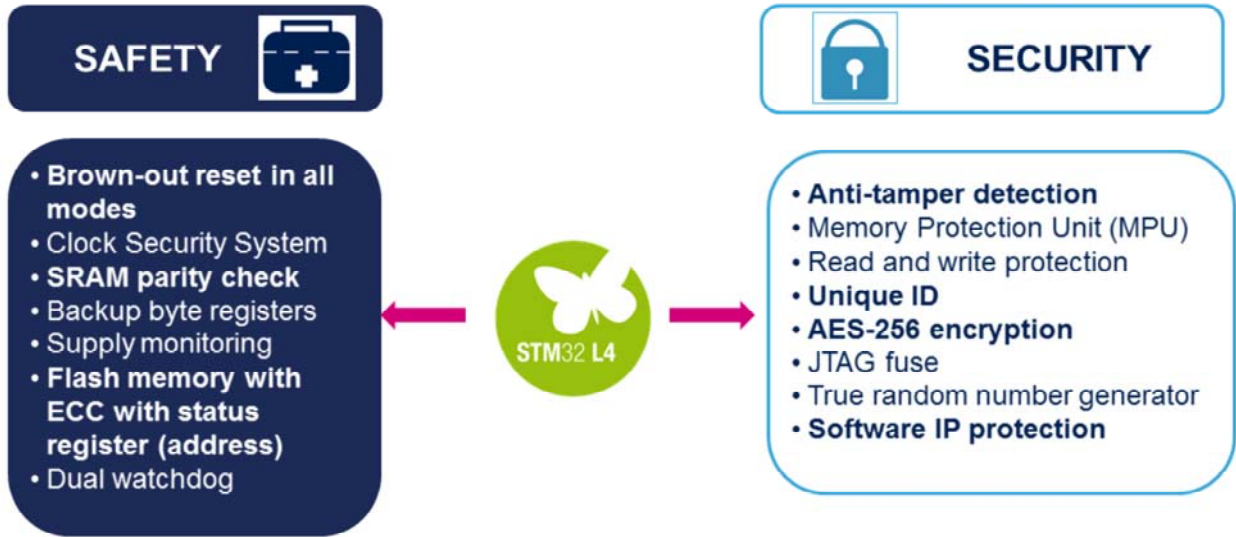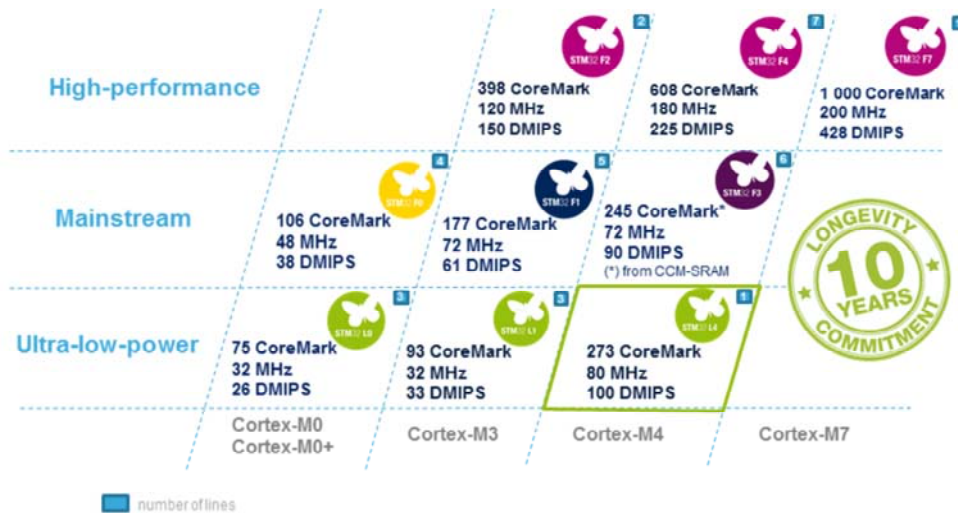
The STM32L4 microcontroller includes many safety features and embeds specialized hardware for developing secure applications.

The STM32L4 series benefits from ST's long experience in developing STM32 microcontrollers as well as its pin compatibility and rich ecosystem based on its hardware and software tools already used throughout the STM32 MCU family.

Now let's get started with the training. Do not hesitate to follow the events and news about this product on our website at www.st.com.
Enjoy!