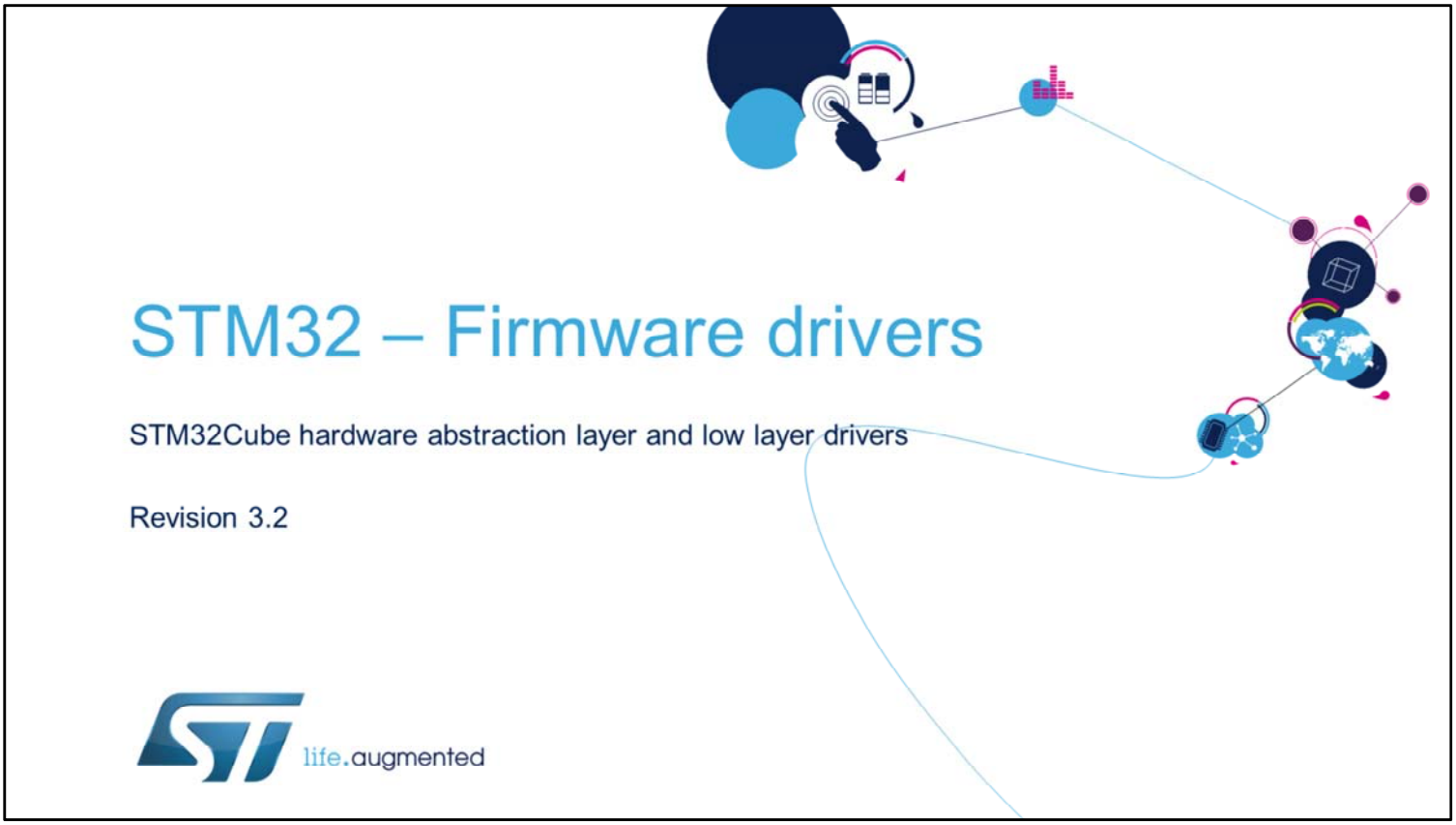
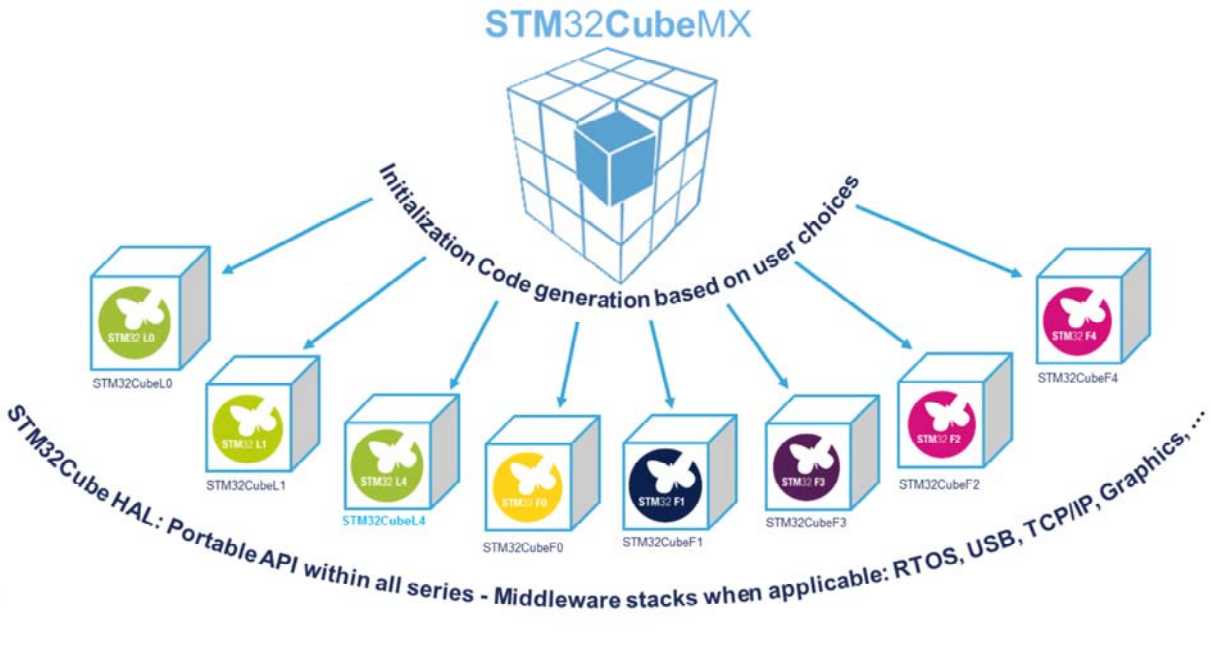
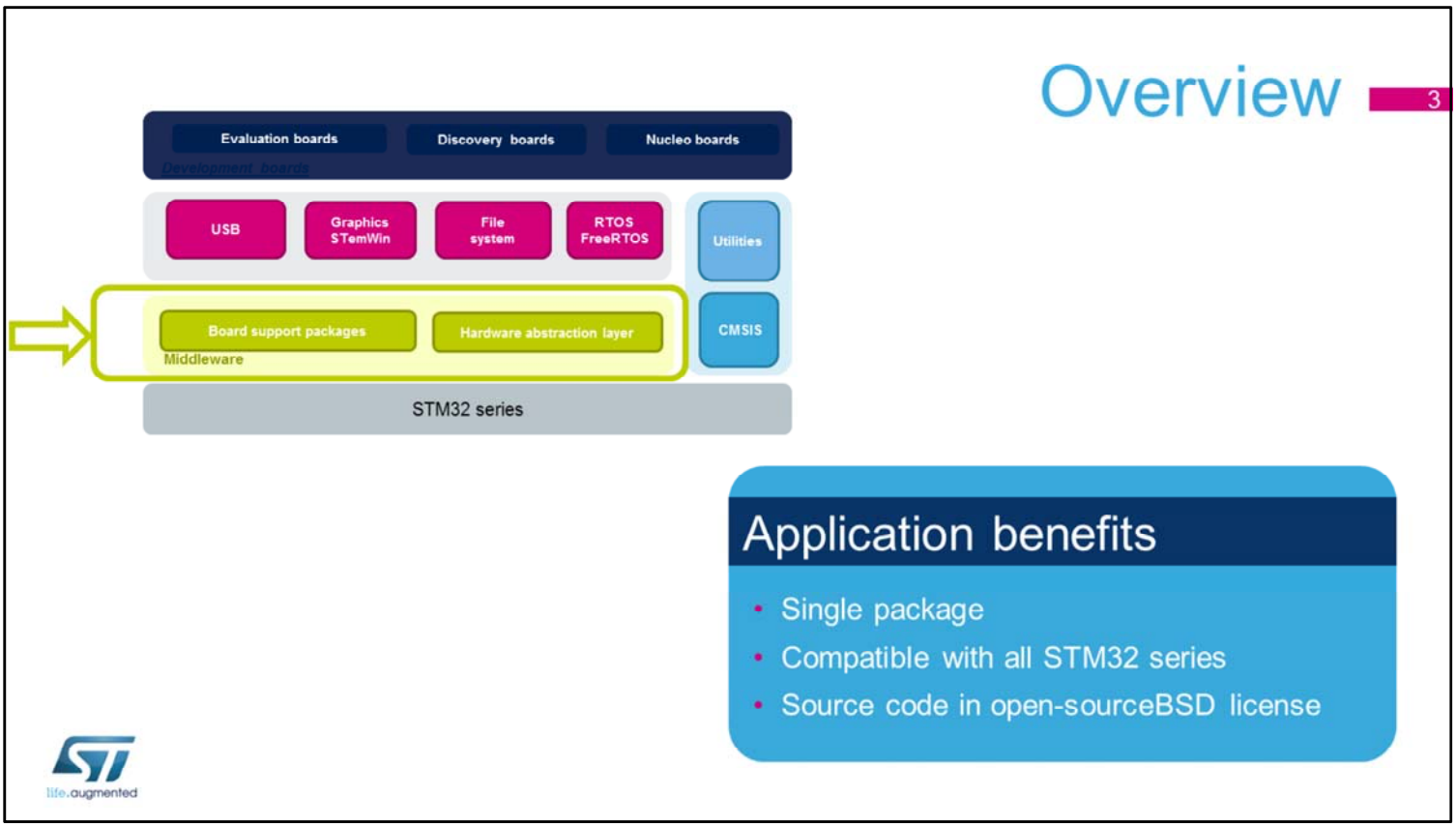


Hello, and welcome to this presentation of the STM32Cube firmware drivers including the hardware abstraction layer and low layer drivers.

Introduction

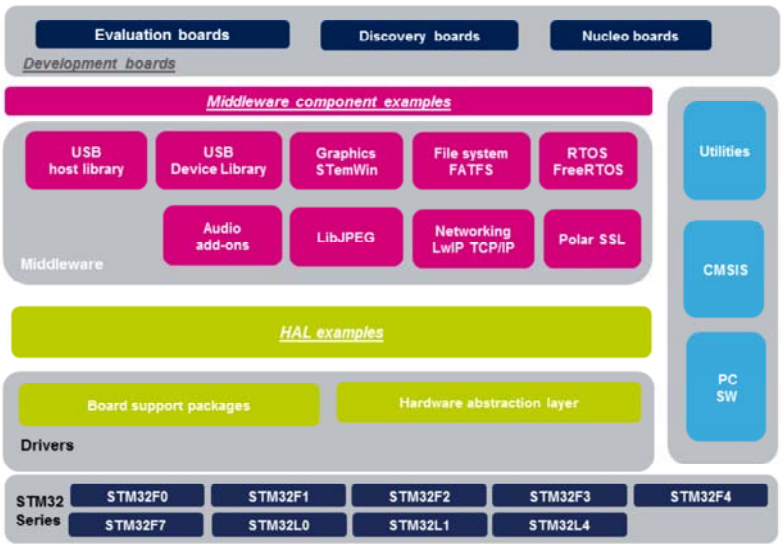


While this presentation is specifically about the STM32L4, the STM32Cube HAL is a platform common to the entire STM32 family of microcontrollers. The STM32L4 firmware package offers the standard HAL as well as low layer drivers and examples.



STM32CubeL4 gathers, in a single package, all the generic embedded software components required to develop an application on STM32L4 microcontrollers. In line with the STMCube™ initiative, this set of components is highly portable, not only within the STM32L4 series, but also to other STM32 series. STM32CubeL4 is fully compatible with STM32CubeMX used to generate the initialization code. The package includes the hardware abstraction layer and low layer drivers that cover the microcontroller hardware, together with an extensive set of examples running on ST development boards.

Key features



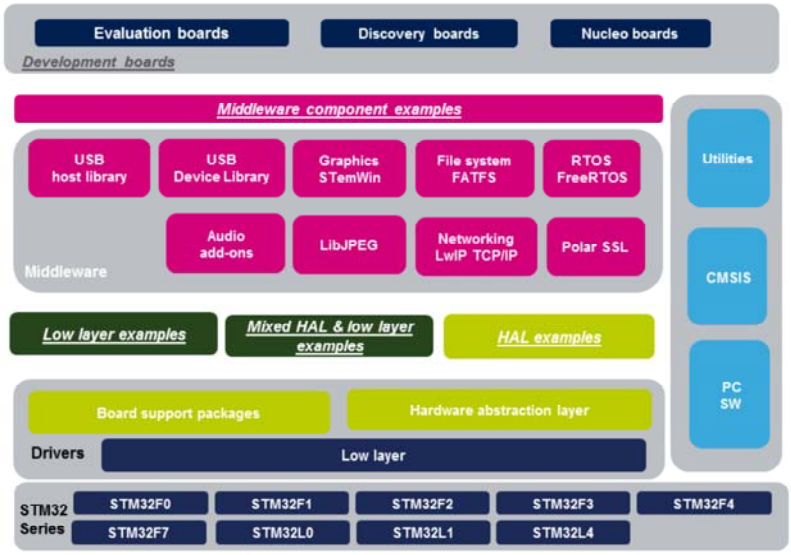
The STM32CubeL4 package also contains a set of middleware components:

- Full USB Host and Device stack supporting many classes:
  - Host classes: HID, MSC, CDC, Audio, and MTP
  - Device classes: HID, MSC, CDC, Audio, DFU, LPM, and BCD
- STemWin, a professional graphical stack solution available in binary format and based on STMicroelectronics partner solution SEGGER emWin
- CMSIS-RTOS implementation with FreeRTOS open-source solution
- FAT file system based on open-source FatFS solution
- Touch sensing library

They come with free and user-friendly license terms. Several applications and demonstrations implementing

all these middleware components are also provided in the STM32CubeL4 package.

Key features with LL



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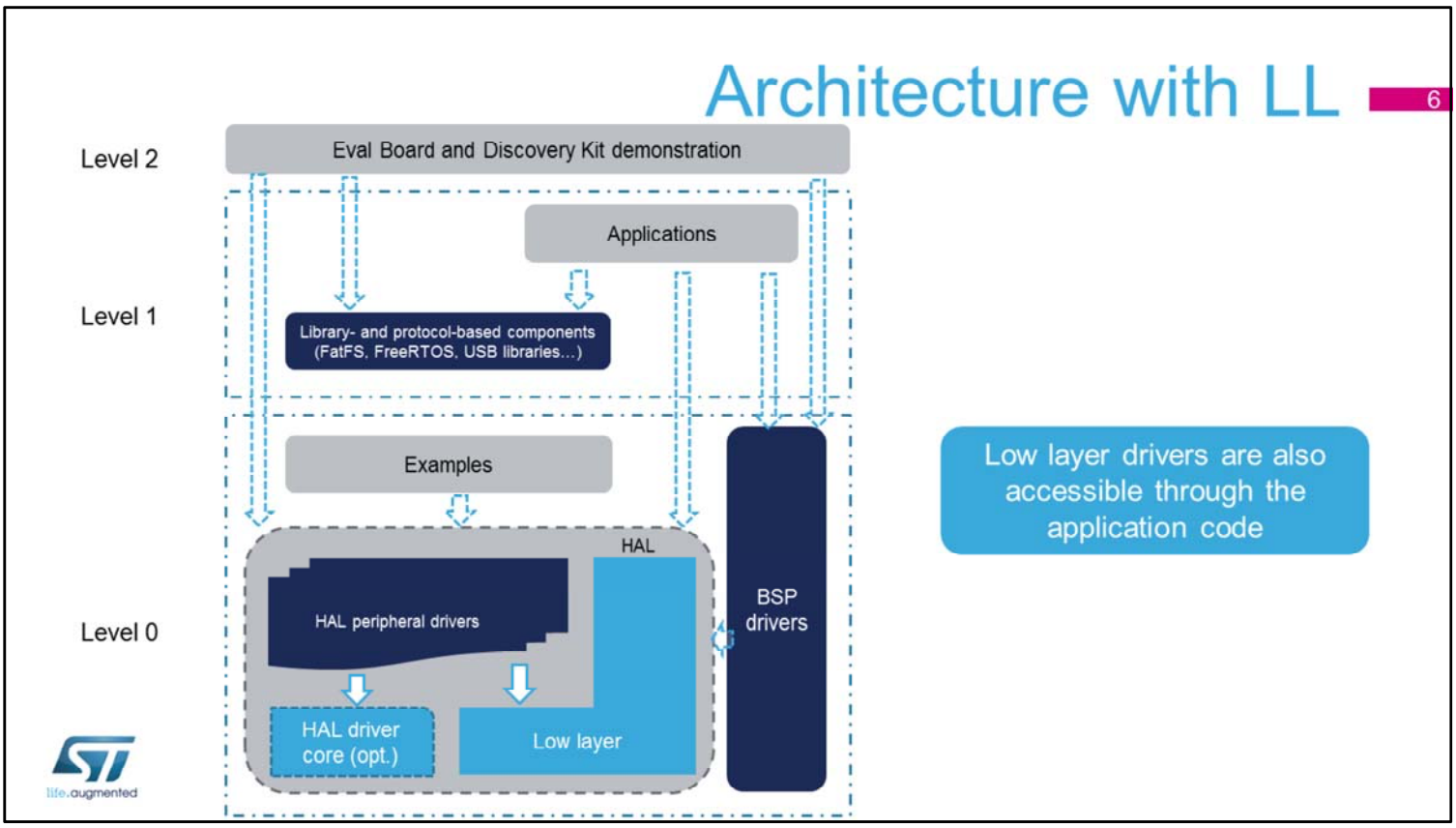
Low layer drivers are included in the STM32CubeL4 package along with some examples using either the HAL, low layer drivers or both.



The STM32L4 firmware architecture allows applications to directly access HAL peripheral drivers or low layer drivers without using HAL peripheral drivers.

STM32CubeL4 firmware package

STM32L4 devices	
STM32L4A6xx	STM32L4A6RG, STM32L4A6VG, STM32L4A6QG, STM32L4A6ZG, STM32L4A6AG
STM32L496xx	STM32L496RG, STM32L496VG, STM32L496QG, STM32L496ZG, STM32L496AG
STM32L486xx	STM32L486RG, STM32L486JG, STM32L486VG, STM32L486QG, STM32L486ZG
STM32L476xx	STM32L476RG, STM32L476JG, STM32L476VG, STM32L476QG, STM32L476ZG, STM32L476RE, STM32L476JE, STM32L476VE, STM32L476QE, STM32L476ZE, STM32L476RC, STM32L476VC
STM32L475xx	STM32L475RG, STM32L475VG, STM32L475RE, STM32L475VE, STM32L475RC, STM32L475VC
STM32L471xx	STM32L471RG, STM32L471JG, STM32L471VG, STM32L471QG, STM32L471ZG, STM32L471RE, STM32L471JE, STM32L471VE, STM32L471QE, STM32L471ZE
STM32L462xx	STM32L462CE, STM32L462RE, STM32L462VE
STM32L452xx	STM32L452CC, STM32L452RC, STM32L452VC, STM32L452CE, STM32L452RE, STM32L452VE
STM32L451xx	STM32L451CC, STM32L451RC, STM32L451VC, STM32L451CE, STM32L451RE, STM32L451VE
STM32L443xx	STM32L443CC, STM32L443RC, STM32L443VC
STM32L433xx	STM32L433CC, STM32L433RC, STM32L433VC, STM32L433CB, STM32L433RB
STM32L442xx	STM32L442KC
STM32L432xx	STM32L432KC, STM32L432KB
STM32L431xx	STM32L431CC, STM32L431KC, STM32L431RC, STM32L431VC, STM32L431CB, STM32L431KB, 32L431RB

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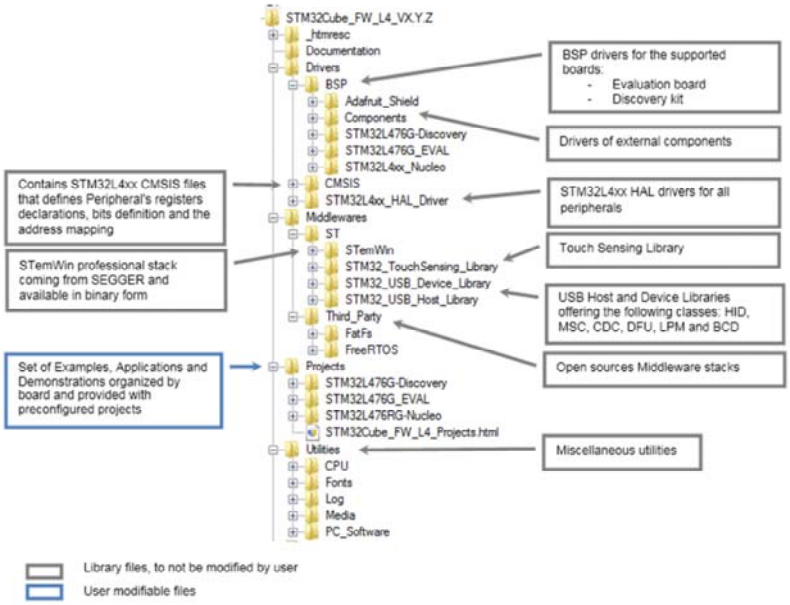
STM32Cube offers a highly portable hardware abstraction layer (HAL) built around a generic architecture. It allows developers to implement application functions by building on layers, such as the middleware layer, without requiring any in-depth knowledge of the MCU used. This improves the re-usability of the library code and guarantees an easy portability to other devices.
In addition, thanks to its layered architecture, the STM32CubeL4 offers full support of all STM32L4 microcontrollers. The user has only to define the correct macro in the stm32l4xx.h file.

STM32CubeL4 firmware package

Board	STM32L4 devices suported
STM32L476G-EVAL	STM32L476xx
32L476GDISCOVERY	STM32L476xx
NUCLEO-L476RG	STM32L476xx
32L496GDISCOVERY	STM32L496xx

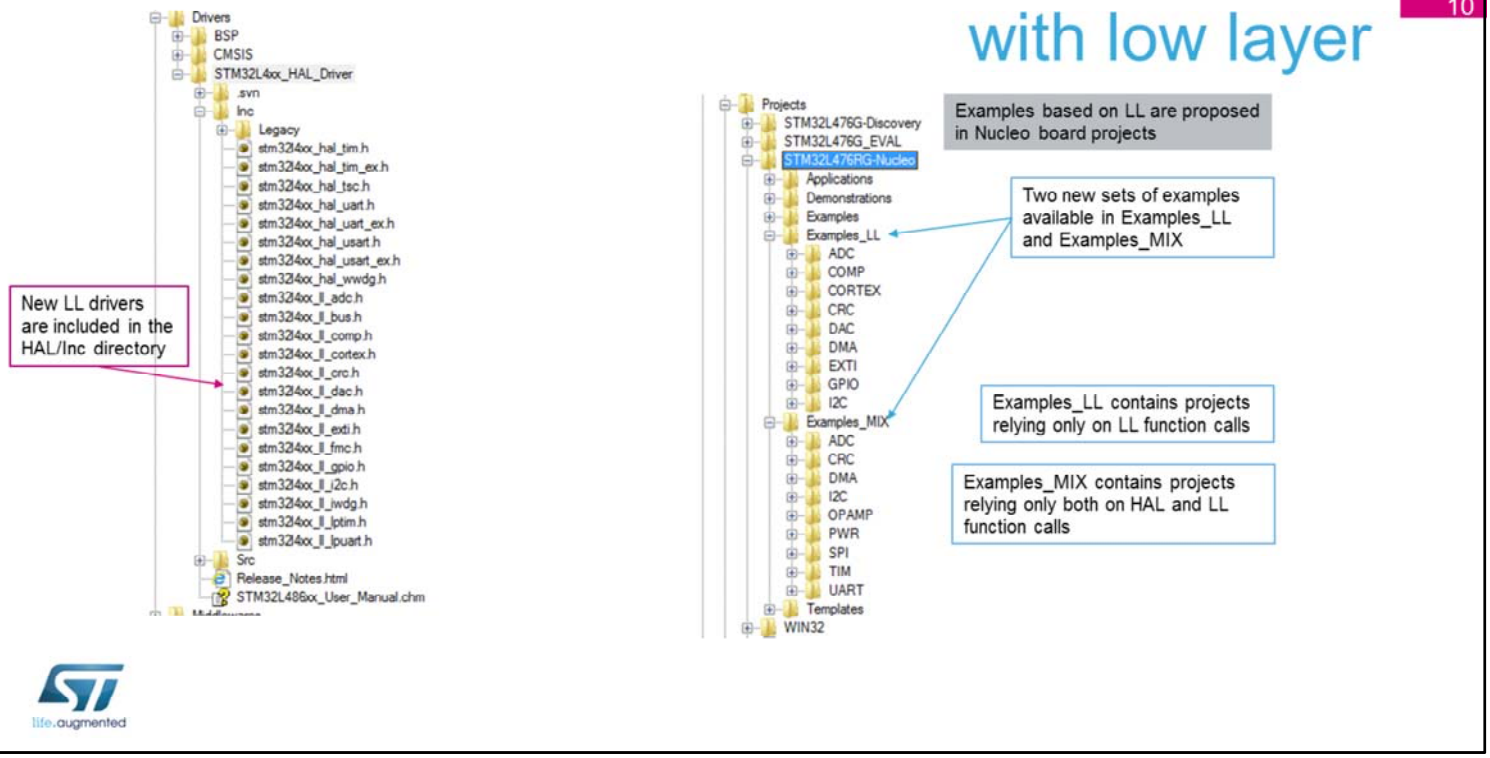
STM32CubeL4 features a rich set of examples and applications at all levels, making it easy to understand and use any HAL driver and/or middleware component. These examples run on the ST development boards listed in this table.

Firmware package structure



The STM32CubeL4 firmware solution comes in a single ZIP file having the structure shown in this slide for all STM32 series.

Firmware package structure with low layer



The STM32L4 Nucleo board supports these examples of low layer drivers.

References

- For more details, please refer to following sources
  - UM1860 – User manual
  - DB2163 – Product specifications
  - TN0072 – Product technical note
  - RN0094 – Product release note
- Download the STM32CubeL4 from ST website www.st.com

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For more information about STM32L4 firmware, please refer to the STM32cube user manual “Getting started with STM32CubeL4 for STM32L4 Series” and as well as the other documentation listed on this slide available on our website at www.st.com.
Thank you.