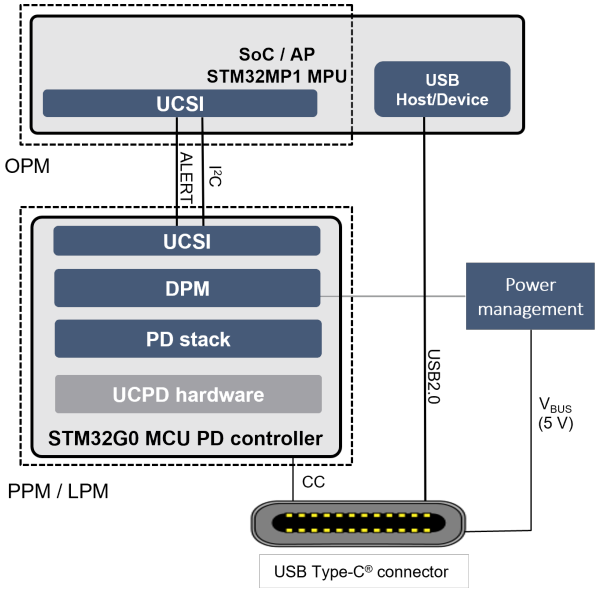
X-CUBE-UCSI

Data brief

STM32 USB power delivery and UCSI (USB Type-C® connector system software interface) software expansion for STM32Cube



Product status link
X-CUBE-UCSI

Features

- Application example files for DRP applications, using the STM32MP135F-DK board and running on an STM32G0 Series microcontroller.
- Compliant with USB Type-C® 1.3, USB power delivery 3.0, and UCSI 1.2 specifications
- Easy portability across different MCU families, thanks to STM32Cube
- Free user-friendly license terms

Description

The X-CUBE-UCSI Expansion Package consists of libraries, drivers, sources, APIs, and an application example running on an STM32G0 Series 32-bit microcontroller acting as a UCSI platform policy manager (PPM) on the STM32MP135F-DK board. The PPM is a combination of hardware and firmware that manages the USB Type-C® connectors on the platform.

The STM32MP1 Series microprocessor has the role of a UCSI OS policy manager (OPM) to interface with the PPM, via I^2C with the UCSI interface.

This application also features the TCPP02-M18/TCPP03-M20 USB Type-C® port protection device.

To discover all the MCU-based solutions for USB Type-C® and power delivery technology, go to the USB-C landing page.

1 General information

The X-CUBE-UCSI Expansion Package runs on the STM32G0 Series 32-bit microcontroller based on the Arm® Cortex®-M0+ core.

Note: Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere.

1.1 Ordering information

X-CUBE-UCSI is available for free download from the *www.st.com* website.

1.2 What is STM32Cube?

STM32Cube is an STMicroelectronics original initiative to improve designer productivity significantly by reducing development effort, time, and cost. STM32Cube covers the whole STM32 portfolio.

STM32Cube includes:

- A set of user-friendly software development tools to cover project development from conception to realization, among which are:
  - STM32CubeMX, a graphical software configuration tool that allows the automatic generation of C initialization code using graphical wizards
  - STM32CubeIDE, an all-in-one development tool with peripheral configuration, code generation, code compilation, and debug features
  - STM32CubeProgrammer (STM32CubeProg), a programming tool available in graphical and command-line versions
  - STM32CubeMonitor (STM32CubeMonitor, STM32CubeMonPwr, STM32CubeMonRF, STM32CubeMonUCPD) powerful monitoring tools to fine-tune the behavior and performance of STM32 applications in real time
- STM32Cube MCU and MPU Packages, comprehensive embedded-software platforms specific to each microcontroller and microprocessor series (such as STM32CubeG0 for the STM32G0 Series), which include:
  - STM32Cube hardware abstraction layer (HAL), ensuring maximized portability across the STM32 portfolio
  - STM32Cube low-layer APIs, ensuring the best performance and footprints with a high degree of user control over hardware
  - A consistent set of middleware components such as RTOS, USB, UCPD library, graphics, and FAT file system
  - All embedded software utilities with full sets of peripheral and applicative examples
- STM32Cube Expansion Packages, which contain embedded software components that complement the functionalities of the STM32Cube MCU and MPU Packages with:
  - Middleware extensions and applicative layers
  - Examples running on some specific STMicroelectronics development boards

1.3 How does this package complement STM32Cube?

The X-CUBE-UCSI Expansion Package is based on the STM32Cube HAL, the hardware abstraction layer for the STM32 microcontroller. The drivers abstract low-level details of the hardware and allow the applications to access the TCPP03-M20 and the TCPP02-M18 functions in a hardware-independent manner. The software helps developers to build a USB power delivery dual role power (DRP) application with a UCSI interface, starting from STM32CubeMX.

2 License

X-CUBE-UCSI is delivered under the SLA0048 software license agreement and its Additional License Terms.

Revision history

Table 1. **Document revision history**

Date	Revision	Changes
23-Jun-2022	1	Initial release.

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