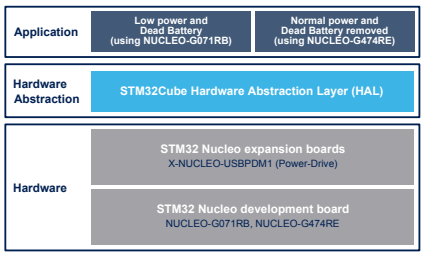
X-CUBE-USBPDM1

Data brief

USB Type-C Power Delivery sink software expansion for STM32Cube



Features

- Binary and source application example files for the X-NUCLEO-USBPDM1 USB Type-C Power Delivery sink expansion board connected to a NUCLEO-G071RB or NUCLEO-G474RE development board
- Package compatible with STM32CubeMX
- Easy portability across different MCU families, thanks to STM32Cube
- Free user-friendly license terms

Description

The X-CUBE-USBPDM1 software package contains the binary and source files of the demo application example for the USB Type-C Power Delivery sink expansion board for STM32 Nucleo (X-NUCLEO-USBPDM1), featuring the TCPP01-M12 USB type-C port protection device.

The expansion board is plugged onto an STM32 Nucleo development board (NUCLEO-G071RB or NUCLEO-G474RE) with STM32 microcontroller that executes the code.

X-NUCLEO-USBPDM1 USB Type-C receptacle can be connected to any Type-C source. The X-CUBE-USBPDM1 selects the highest and closest power profile to the value indicated by the binary file from the power profiles available on the source.

Product summary	
USB Type-C Power Delivery sink software expansion for STM32Cube	X-CUBE-USBPDM1
USB Type-C Power Delivery sink expansion board based on TCPP01-M12 for STM32 Nucleo	X-NUCLEO-USBPDM1
STM32 Nucleo-64 development board with STM32G071RB/ STM32G474RE MCUs	NUCLEO-G071RB/ NUCLEO-G474RE
USB type-C port protection	TCPP01-M12
Applications	Medical and Healthcare Power Supplies and Converters Smart Home USB Type-C and Power Delivery Wearable

1 Detailed description

1.1 What is STM32Cube?

STM32Cube is a combination of a full set of PC software tools and embedded software blocks running on STM32 microcontrollers and microprocessors:

- STM32CubeMX configuration tool for any STM32 device; it generates initialization C code for Cortex-M cores and the Linux device tree source for Cortex-A cores
- STM32CubeIDE integrated development environment based on open-source solutions like Eclipse or the GNU C/C++ toolchain, including compilation reporting features and advanced debug features
- STM32CubeProgrammer programming tool that provides an easy-to-use and efficient environment for reading, writing and verifying devices and external memories via a wide variety of available communication media (JTAG, SWD, UART, USB DFU, I2C, SPI, CAN, etc.)
- STM32CubeMonitor family of tools (STM32CubeMonRF, STM32CubeMonUCPD, STM32CubeMonPwr) to help developers customize their applications in real-time
- STM32Cube MCU and MPU packages specific to each STM32 series with drivers (HAL, low-layer, etc.), middleware, and lots of example code used in a wide variety of real-world use cases
- STM32Cube expansion packages for application-oriented solutions

RELATED LINKS

STM32CubeMonUCPD: Monitoring and configuration software tool for STM32 USB-C and Power Delivery 3.0 applications

AN5225: USB Type-C™ Power Delivery using STM32xx Series MCUs and STM32xxx Series MPUs

UM2552: Managing USB power delivery systems with STM32 microcontrollers

AN5418: How to build a simple USB-PD sink application from STM32CubeMX

Youtube video STM32G0: Create a USB Power delivery sink application in less than 10 minutes

1.2 How does this software complement STM32Cube?

This software is based on the STM32CubeHAL, the hardware abstraction layer for the STM32 microcontroller. The package extends STM32Cube by providing a board support package (BSP) for the X-NUCLEO-USBPDM1 USB Type-C Power Delivery sink expansion board.

The drivers abstract low-level details of the hardware and allow the applications to access the TCPP01-M12 functions in a hardware-independent manner.

The software helps developers to build a very simple USB power delivery sink example, starting from STM32CubeMX.

Revision history

Table 1. Document revision history

Date	Version	Changes
19-Dec-2019	1	Initial release.
17-Jun-2020	2	Added Section 1.2 How does this software complement STM32Cube?. Text changes throughout the document.