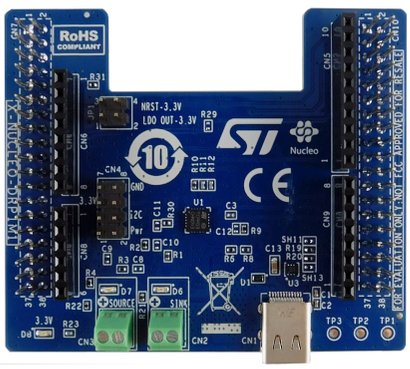
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X-NUCLEO-DRP1M1

Data brief

USB Type-C™ Power Delivery dual role power (DRP) and dual role data (DRD) expansion board based on TCPP03-M20 for STM32 Nucleo



Features

- Support for all USB Type-C™ Power Delivery SPR profiles up to 100 W
- Management of Dual Role Data/Power configuration
- USB 2.0 Dual Role Data compliant according to STM32 USB data capability
- 8/20 µs surge, overvoltage, overcurrent protection and discharge for V_{BUS}
- Short to V_{BUS} protection for CC1 and CC2 configuration channel pins
- ESD protection (IEC61000-4-2 level 4 ± 8 kV contact discharge) for CC1, CC2, D+ and D-
- Overvoltage, overcurrent protection and discharge for V_{CONN}
- Common mode filter on D+/D- data lines
- Three power modes to optimize current consumption
- Compliant with Programmable Power Supplies (PPS)
- Free comprehensive development firmware library
- Compliant with STM32 Nucleo-64 boards featuring an STM32 with UCPD

Description

The X-NUCLEO-DRP1M1 expansion board allows evaluating the features of TCPP03-M20 and the USB Type-C™ features and protections required for V_{BUS} and CC lines suitable for dual role power (DRP) applications.

The expansion board can be stacked on top of any STM32 Nucleo-64 with Power Delivery (UCPD) peripheral embedded in their microcontrollers.

The X-NUCLEO-DRP1M1 effectively demonstrates the dead battery and Sink operation, thanks to the integrated ST715PU33R LDO linear regulator that supplies the connected STM32 Nucleo development board. It also demonstrates USB Type-C™ Source operation when a compatible external Source is connected to the board.

Moreover, the expansion board allows Dual Role Data functionalities for sourcing devices.

The X-NUCLEO-DRP1M1 is compliant with the USB Type-C™ and Power Delivery specifications 3.1 standard power range (SPR) and is USB-IF certified as a 100 W DRP solution supporting programmable power supply (PPS).

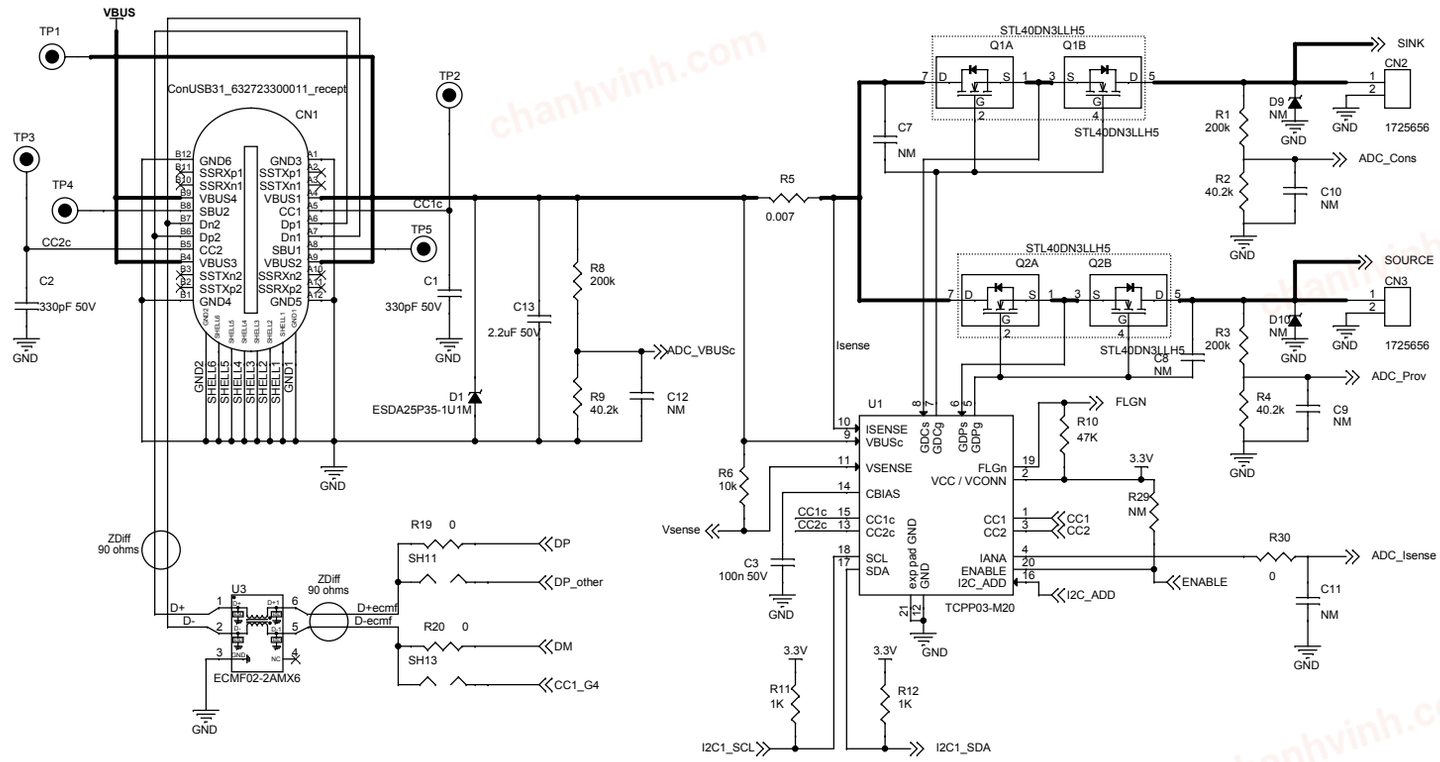
The companion software package (X-CUBE-TCPP) contains the application examples for development boards embedding UCPD-based microcontrollers (NUCLEO-G071RB, NUCLEO-G474RE and NUCLEO-G0B1RE).

Product summary	
USB Type-C power delivery dual role power (DRP) and dual role data (DRD) expansion board based on TCPP03-M20	X-NUCLEO-DRP1M1
USB Type-C power delivery sink software expansion for STM32Cube	X-CUBE-TCPP
STM32 Nucleo-64 development board with STM32G071RB MCU	NUCLEO-G071RB
Applications	USB Type C and Power Delivery

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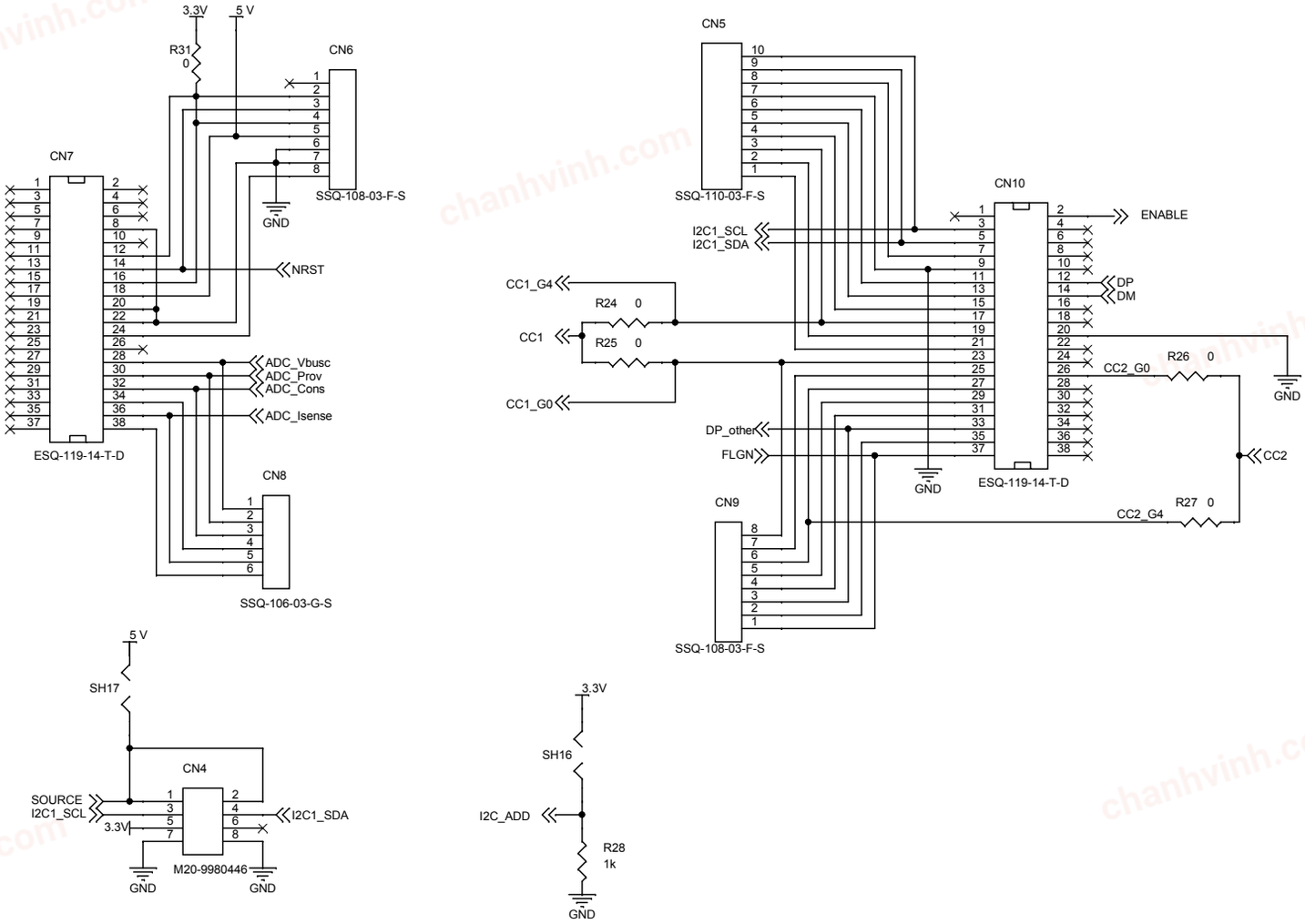
1 Schematic diagrams

Figure 1. **X-NUCLEO-DRP1M1 schematic diagram (1 of 3)**



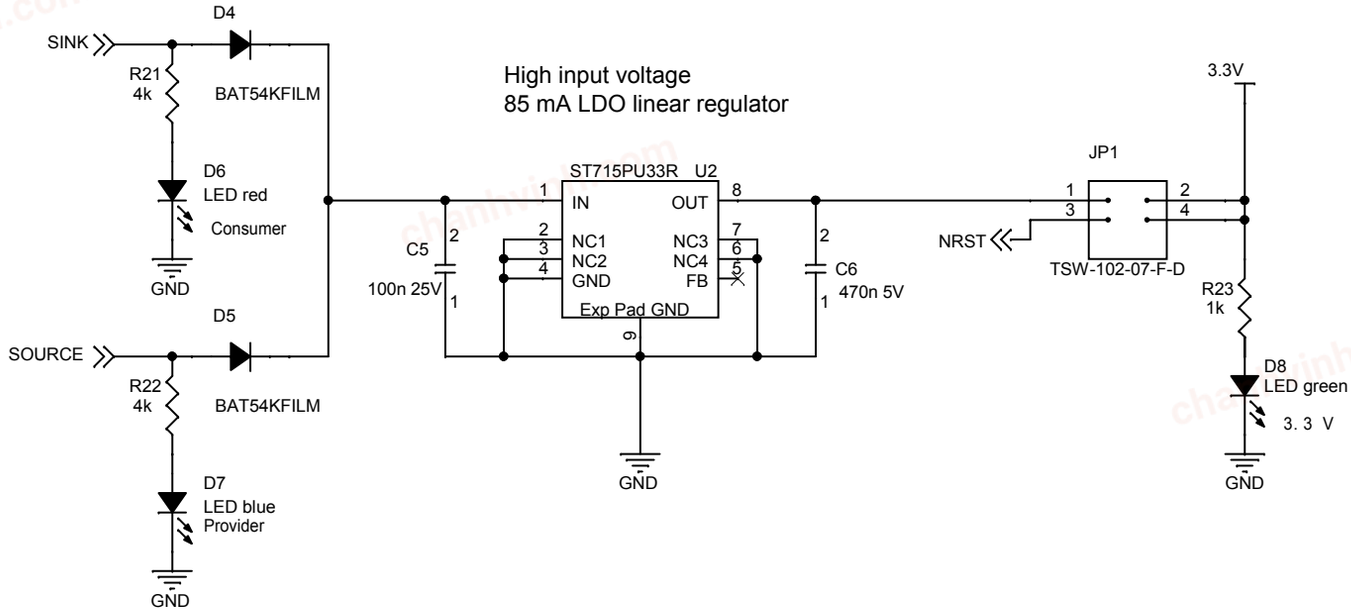
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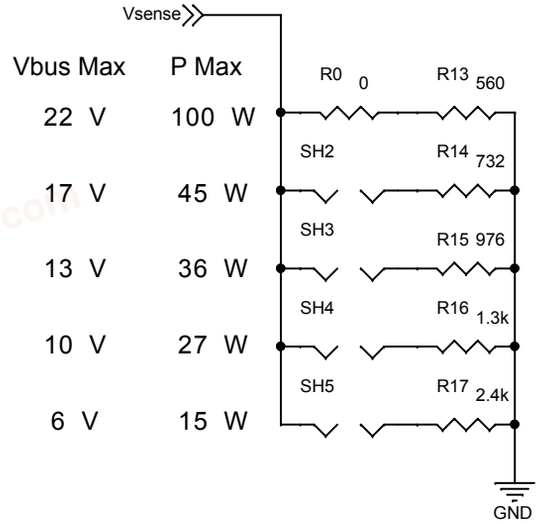
Figure 2. X-NUCLEO-DRP1M1 schematic diagram (2 of 3)



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Figure 3. **X-NUCLEO-DRP1M1 schematic diagram (3 of 3)**





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Revision history

Table 1. **Document revision history**

Date	Revision	Changes
28-Jun-2021	1	Initial release.

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