Source measurement unit (SMU) and debugger/programmer for STM32 microcontrollers

STLINK-V3PWR global view. Picture is not contractual.

Product status link
STLINK-V3PWR

Features

- 1-Quadrant source measurement unit with high resolution, and measurement flexibility:
  – Programmable voltage source from 1.6 to 3.6 V
  – Output current rating 500 mA with over-current protection (OCP) at 550 mA
  – Programmable sampling rate from 1 SPS to 100 kSPS
  – Dynamic measurement:
    ◦ 100 nA to 550 mA current / 160 nW to 1.65 W power measurements
    ◦ 50 kHz bandwidth / 1.6 MHz acquisition / 2% accuracy
    ◦ Compatible with EEMBC® ULPMark™ tests
- Auxiliary output voltage source from 1.6 to 3.6 V under up to 2 A (no current measurement, OCP at 2.5 A)
- Debugging of embedded applications:
  – JTAG / Serial Wire Debug (SWD):
    ◦ SWD (Serial Wire Debug) and SWV (Serial Wire Viewer) communication support up to 10 MHz
    ◦ JTAG communication support up to 20 MHz
  – UART interface on Virtual COM port (VCP) with frequency up to 12 MHz
  – Multi-path bridge USB to SPI/I^{2}C/CAN/GPIOs
  – Integrated level shifter I/O voltage 1.6 to 3.6V adaptable
- Four bi-color LEDs providing probe state
- Three STDC14 to MIPI10 / STDC14 / MIPI20 flat cables with 1.27 mm pitch connectors
- Four cables (two male/male and two male/female)
- USB Type-C® connector:
  – Powered through USB Type-C® (5 V/3 A maximum)
  – USB 2.0 high-speed interface
  – Probe firmware update through USB
- Direct support from STM32CubeMonitor-Power software tool

DB4859 - Rev 1 - January 2023
For further information contact your local STMicroelectronics sales office.

www.st.com

1 Description

STLINK-V3PWR is a two-in-one standalone debugger probe and a source measurement unit (SMU) designed to synchronize code execution with a power consumption of STM32 applications in real time. This tool is specifically adapted for power consumption optimization (patent pending).

STLINK-V3PWR can be used as a standalone source measurement unit to supply power and measure the current consumption of the target application. The product keeps the output voltage constant during fast current transient from very low current to high current.

STLINK-V3PWR is also a standalone debugging and programming probe for STM32 microcontrollers. The product embeds a multi-path bridge interface with an integrated level shifter to adapt to the target application I/Os voltage.

STLINK-V3PWR USB Type-C® connector allows data communication with the host PC and sinks up to 5 V/3 A to supply both the probe and the target application, via the SMU and the auxiliary output.

2 Ordering information

To order the STLINK-V3PWR SMU and in-circuit debugger/programmer for STM32, refer to Table 1. For a detailed description of the board, refer to its user manual on the product web page.

Table 1. Ordering information

Order code	Reference	User manual	Description
STLINK-V3PWR	STLINK-V3PWR	UM3097	Debug board for STM32 microcontrollers including simultaneous current measurement

3 Development environment

STLINK-V3PWR embeds an STM32 32-bit microcontroller based on the Arm® Cortex®-M core.

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

3.1 System requirements

- Multi-OS support: Windows® 10, Linux® 64-bit, or macOS®
- USB Type-A or USB Type-C® to USB Type-C® cable

Note: *macOS® is a trademark of Apple Inc., registered in the U.S. and other countries and regions.*

Linux® is a registered trademark of Linus Torvalds.

Windows is a trademark of the Microsoft group of companies.

3.2 Development toolchains

- IAR Systems® - IAR Embedded Workbench®[1]
- Keil® - MDK-ARM[1]
- STMicroelectronics - STM32CubeIDE

1. *On Windows® only.*

Revision history

Table 2. Document revision history

Date	Revision	Changes
27-Jan-2023	1	Initial release.

IMPORTANT NOTICE – READ CAREFULLY