

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 overcurrent protection (OCP) at 550 mA
 - Programmable sampling rate from 1 SPS to 100 kSPS
 - Dynamic measurement:
 - A few nA to 500 mA current
 - Up to 1.65 W power measurements
 - 50 kHz bandwidth/1.6 MHz acquisition/down to +/-0.5% 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
 - Multipath bridge USB to SPI/I²C/CAN/GPIOs
 - Integrated level shifter I/O voltage 1.6 to 3.6 V adaptable
- Four bicolor 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/1.5 A minimum)
 - USB 2.0 high-speed interface
 - Probe firmware update through USB
- Direct support from STM32CubeMonitor-Power software tool

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 a fast current transient from a very low current to a high current.

STLINK-V3PWR is also a standalone debugging and programming probe for STM32 microcontrollers. The product embeds a multipath 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.

The ST-LINK firmware upgrade tool ([STSW-LINK007](#)) can update the **STLINK-V3PWR** firmware. For optimal performance, the **STLINK-V3PWR** firmware must be updated to the latest version.

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.
30-Jan-2024	2	Updated Features regarding maximum current, power, and accuracy.

IMPORTANT NOTICE – READ CAREFULLY

STMicroelectronics NV and its subsidiaries (“ST”) reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST’s terms and conditions of sale in place at the time of order acknowledgment.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of purchasers’ products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. For additional information about ST trademarks, refer to www.st.com/trademarks. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2024 STMicroelectronics – All rights reserved