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STM32 hardware debugging & programming tools

Discover the STLINK portfolio

STM32

User-friendly hardware and software tools to simplify application development

STLINK portfolio

Debugging & programming

STLINK-V3MINIE

STLINK-V3PWR

ST-LINK/V2

STLINK-V3SET

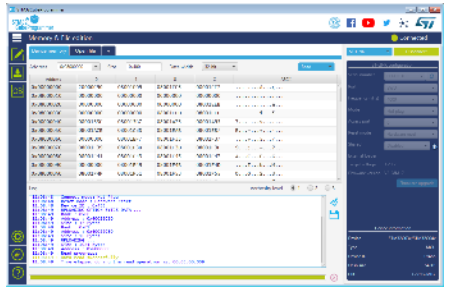
STLINK-V3MODS

..and expansion boards!

STM32CubeProgrammer SW tool

Code & hardware programming

STM32CubeProg



STM32 CubeProgrammer

STM32HSM HW security module

Authentication & license generation

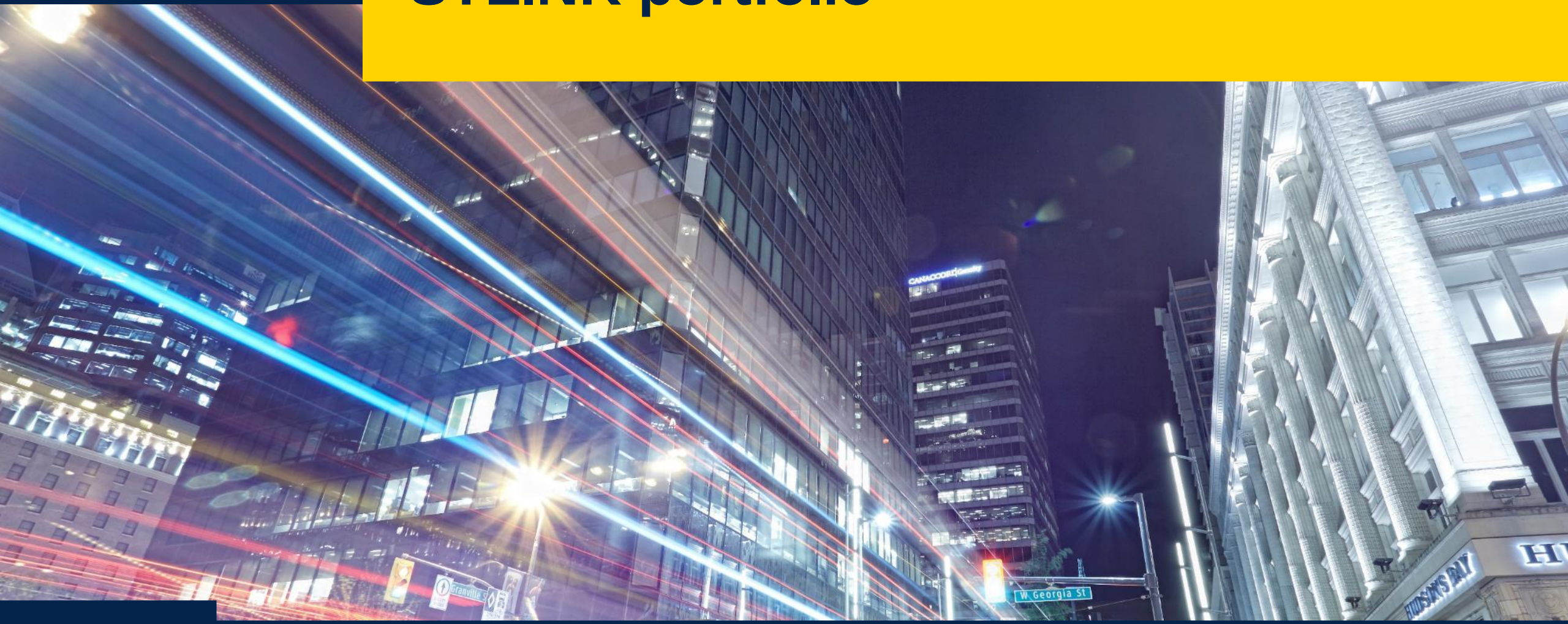
STM32HSM-V2

Third-party programming systems

From prototyping to mass production

ACROVIEW · DediProg · Data I/O · Algocraft · BPM · eps · DATAMAN · HI-LO SYSTEMS · PE micro · RK-SYSTEM · Phyton · SECURE THINGZ · SEGGER It simply works! · SMH Technologies · XELTEK

STLINK portfolio



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STLINK-V3 tools for more efficient debugging

STLINK-V3SET

STLINK-V3PWR

STLINK-V3MODS

STLINK-V3MINIE

Easier **Faster** **More flexible**

- Standalone probe or on-board module
- Direct support of power-constrained IoT products (1.65 - 3.3 V)
- Virtual COM port and multi-path bridge
- Secure programming with STM32HSM, Trusted package creator and STM32CubeProgrammer software tools
- Large choice of STM32 software tools among partner offering

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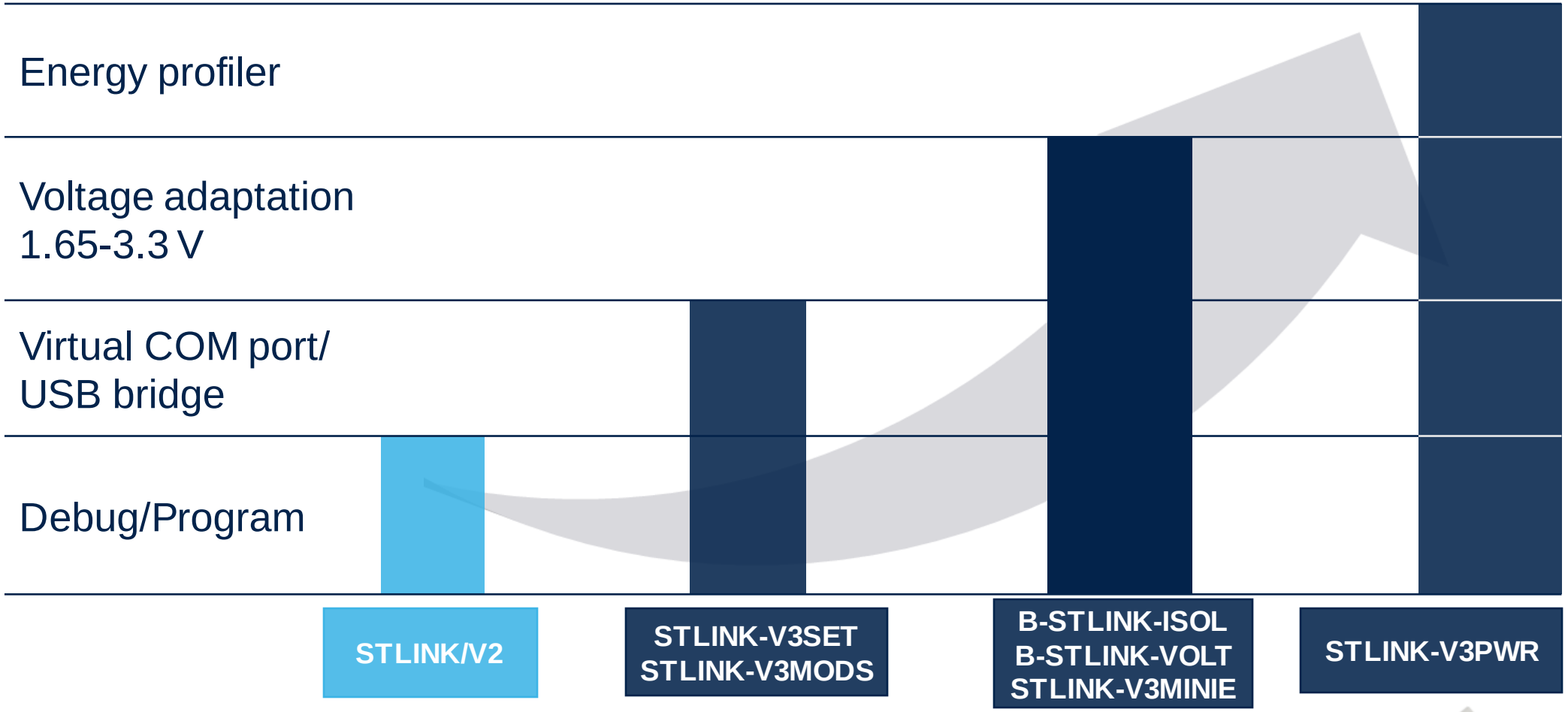
STLINK evolution



STLINK-V3SET a scalable debugger/programmer

STLINK-V3SET

$35

Easier	• JTAG / SWD / SWV (STM32 debug) • SWIM (STM8 debug) • Drag and drop flash programming • Virtual COM port
Faster	• Performance boost (vs STLINK/V2) • Optimized algorithms • USB 2.0 High Speed interface
More flexible	• Extension boards • Multi-path bridge (through adapter board)

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STLINK-V3SET addresses multiple needs

Adapter board

Connector formats:
STDC-14
JTAG-20

Easy addition of multi-path bridge and debug connector formats

USB to:
- UART
- SPI
- CAN
- I2C

:
GPIOs

STLINK-V3SET

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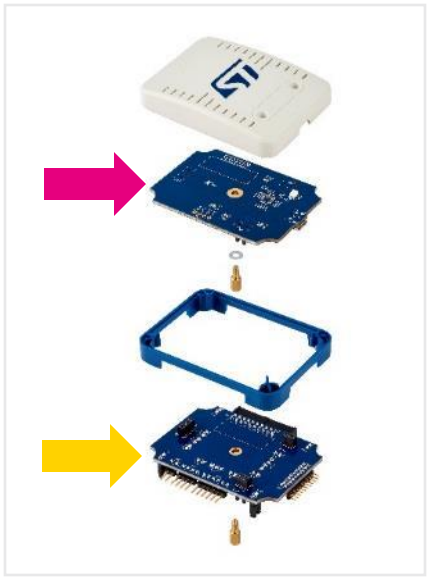
STLINK-V3SET close-up



A ready-to-use module for your custom boards STLINK-V3MODS

STLINK-V3SET

STLINK-V3MODS

$8.25

Performance boost (vs STLINK/V2)	• JTAG / SWD /SWV debug interfaces • USB 2.0 High Speed interface
Small size, small price	• Footprint 15 x 30 mm • Price below $9
Multi-path bridge	• Virtual COM port • Drag and drop programming • USB to UART / SPI / I2C / CAN / GPIOs

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STLINK extension boards

B-STLINK-VOLT

$20

Voltage adaptation

- 1.65 – 3.3 V voltage adaptation for debug / virtual COM port / bridge signals
- Compatible with STLINK-V3SET casing

B-STLINK-ISOL

$40

Galvanic isolation & voltage adaptation

- 1.65 – 3.3 V galvanic isolation and voltage adaptation for debug / virtual COM port / bridge signals
- Compatible with STLINK-V3SET casing

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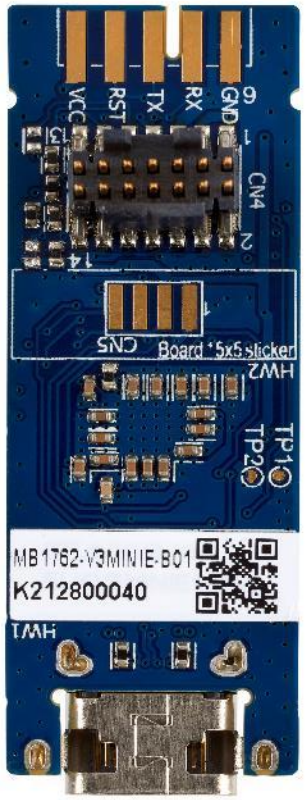
The small probe that makes a big difference
STLINK-V3MINIE



STLINK-V3MINIE

$11

More performance at a lower price (vs STLINK/V2)

- JTAG / SWD / SWV debug interfaces
- USB Type-C High Speed interface

Easier in-the-field firmware update

- Virtual COM port
- Tiny size: 15 x 42 mm
- 3D printer files for custom casing

Direct support of power-constrained IoT products

Voltage adaptation 1.65-3.3V

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STLINK overview

	STLINK/V2	STLINK-V3MODS	STLink-V3MINIE	STLINK-V3SET	B-STLINK-VOLT B-SLINK-ISOL	STLINK-V3PWR
MCUs supported	STM32 STM8	STM32	STM32	STM32 STM8	STM32	STM32
Casing	Yes	(on-board module)	STL file	Yes	V3SET extension	Yes
USB	Full Speed (12 Mbit/s)	High Speed (480 Mbit/s)	High Speed (480 Mbit/s)	High Speed (480 Mbit/s)	V3SET extension	High Speed (480 Mbit/s)
SWD max read data rate	150 Kbytes/s	800 Kbytes/s	800 Kbytes/s	800 Kbytes/s		475 Kbytes/s
Virtual COM port	No	16 MHz	16 MHz	16 MHz	10 MHz	12 MHz
Multi-path bridge	No	Yes	No	Yes	Yes	Yes
Target voltage	3.3 V	3.3 V	1.65-3.3 V	3.3 V	1.65-3.3 V	1.6-3.6 V
Energy profiler	No	No	No	No	No	Yes
Price	$21	$8.25	$11	$35	$20 / $40	$95

Software support and product references

STLINK-V3MINIE / V3MODS STLINK-V3SET / V3PWR
STM32CubeMonitor STM32CUBEMON
STM32CubeProgrammer STM32CUBEPROG
STM32CubeIDE
IDE toolset MDK-ARM
IDE toolset EWARM

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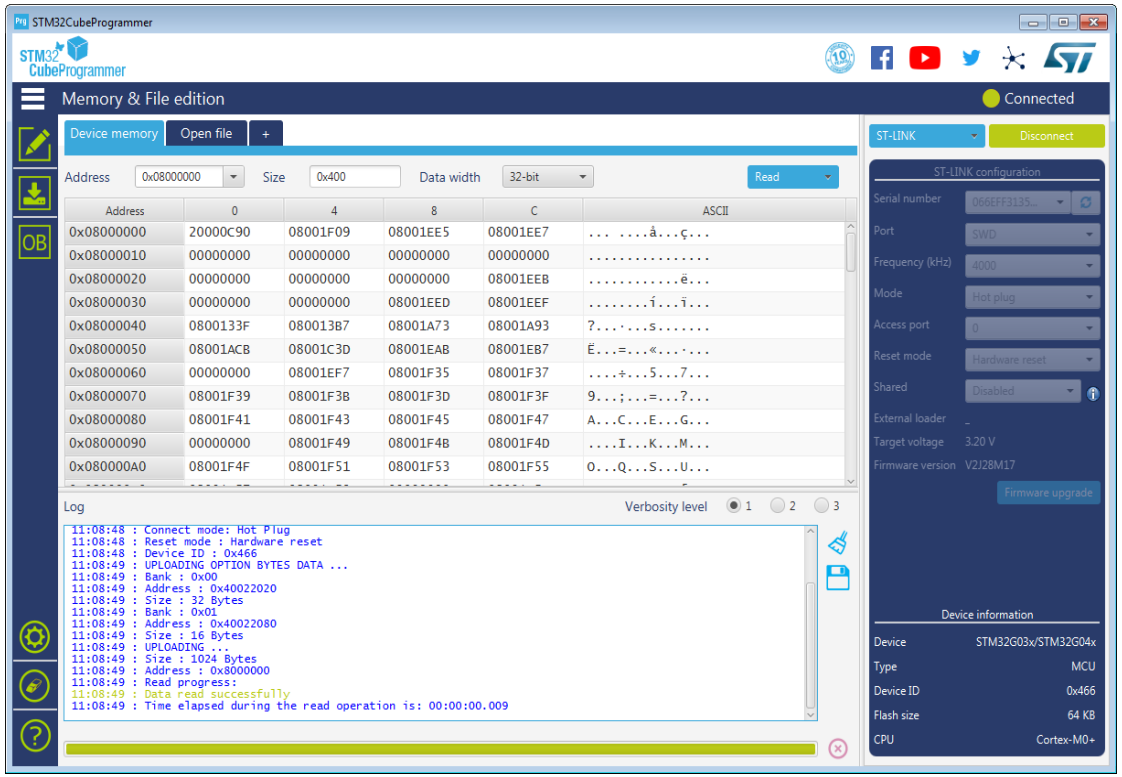
STM32CubeProgrammer software tool

User-friendly tool compatible with multiple platforms (Windows, Linux, macOS)



- STLINK direct support (JTAG, SWD)
- Option bytes program & upload
- Internal / external flash services
- Bootloader interface support (USB, UART, SPI, I2C, CAN)
- Automatic mode
- Command line interface for scripting
- API DLL for custom integration
- Trusted package creator (secure programming)

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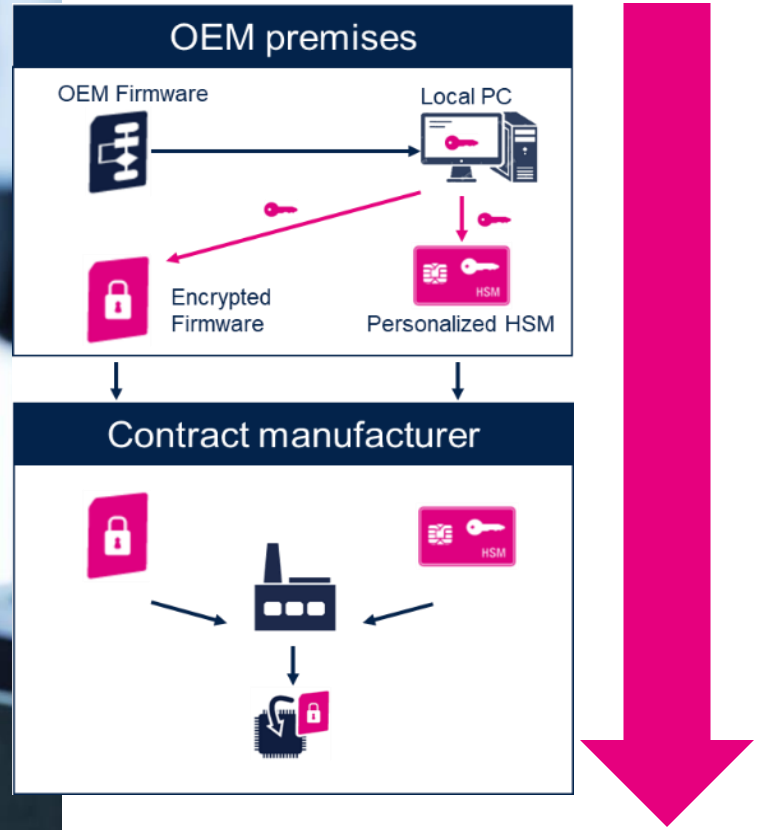
Secure your production flow with secure firmware install (SFI)

Protect application firmware at the contract manufacturer



End-to-end security programming

Complete toolset to encrypt OEM binaries with the STM32 Trusted Package Creator software

Securely flash the STM32 with licenses from a STM32HSM at the programming partner location

Control the number of devices programmed with the firmware

Secure the STM32 programming flow in untrusted areas

STM32HSM, a hardware secure module for secure firmware installation (SFI)

STM32HSM-V2xx
(license number from 25 units to 1Mu)

Secure storage of OEM firmware encryption key and license counter (SFI operations)

License generation engine with smartcard format

Identification of genuine firmware and STM32 products

Direct support from STM32CubeProgrammer and Trusted Package Creator software tools

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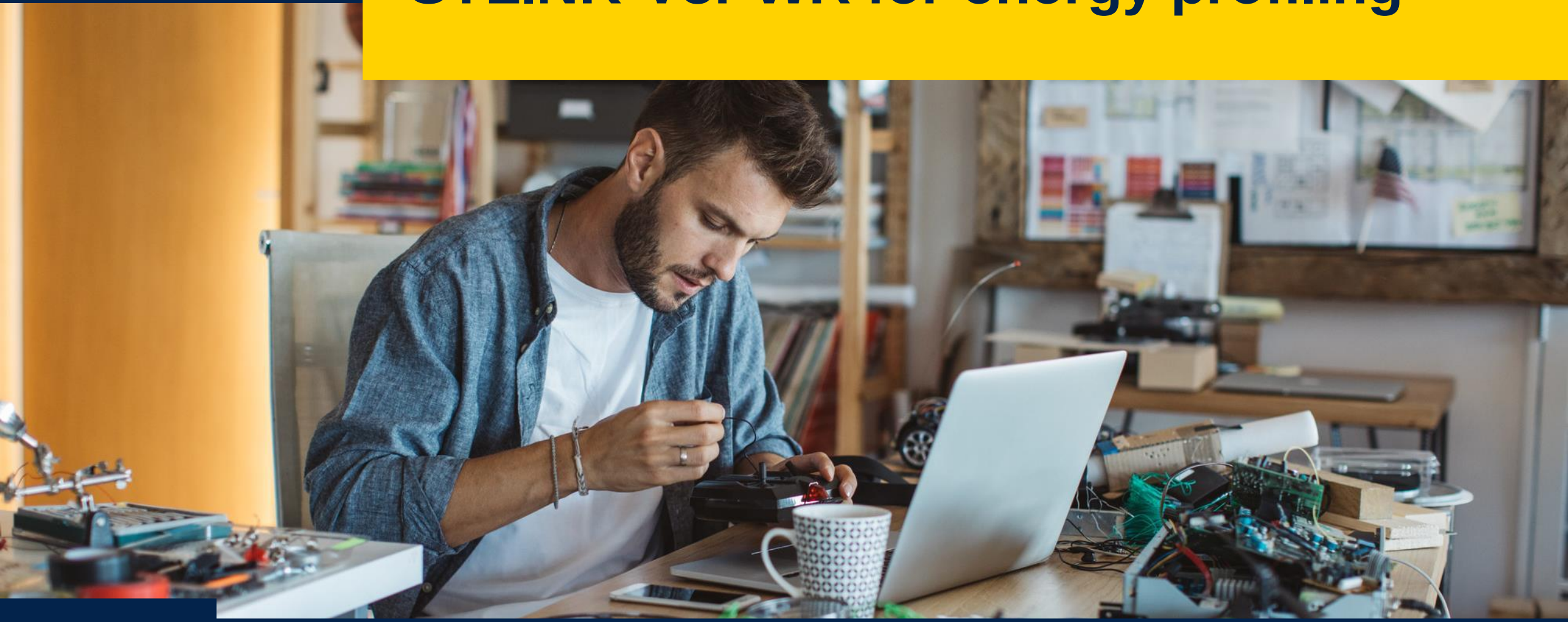
STLINK-V3PWR for energy profiling



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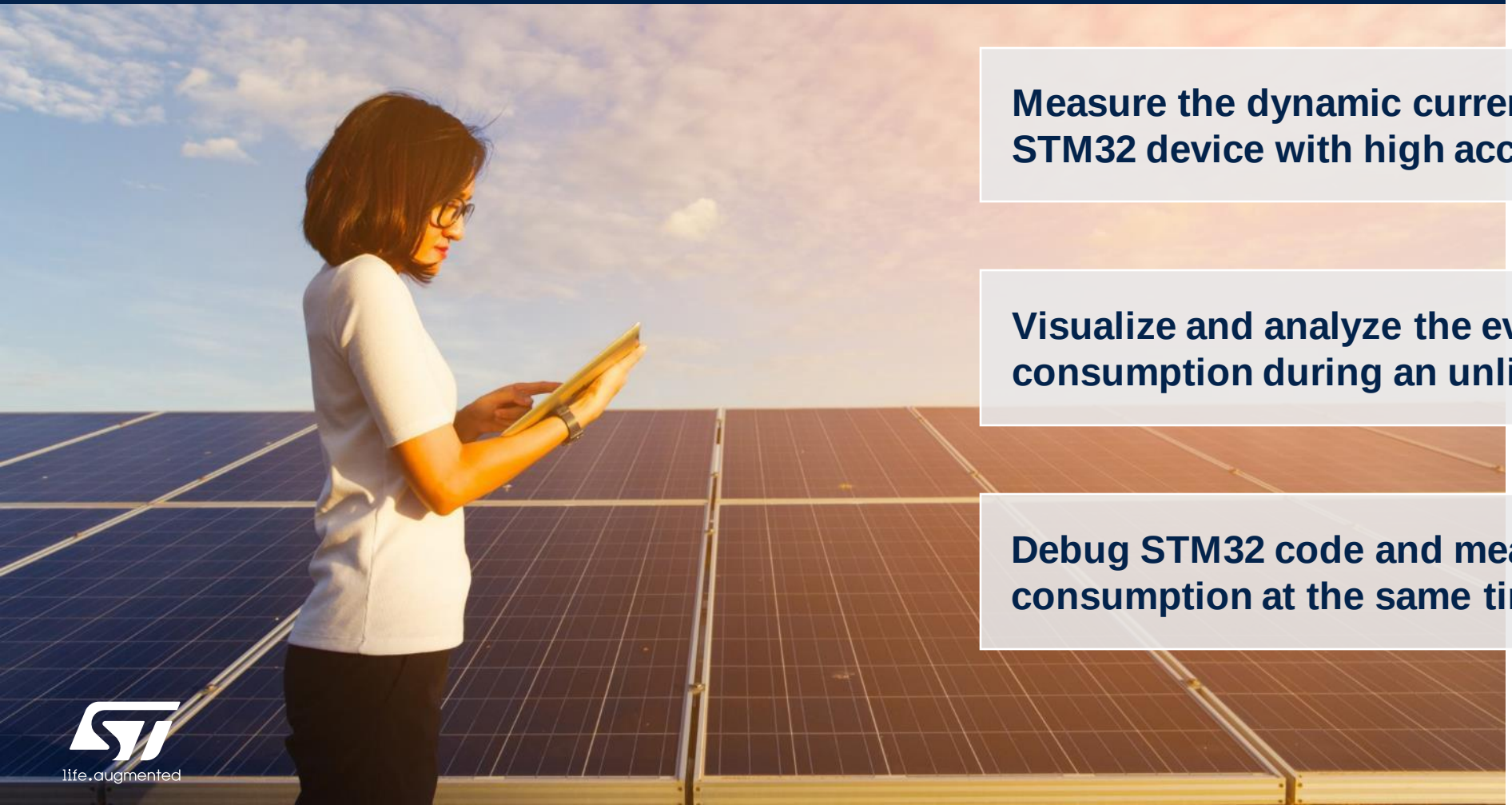
Optimize energy efficiency in STM32 applications

STLINK-V3 Power, a debugger to measure power consumption



Measure the dynamic current consumption of any STM32 device with high accuracy

Visualize and analyze the evolution of power consumption during an unlimited time window

Debug STM32 code and measure current consumption at the same time

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STLINK-V3PWR powerful, user-friendly energy profiler

Debug code and measure energy consumption at the same time

STM32 CubeMonitor-Power

Visualize energy consumption with STM32CubeMonPwr software tool

- Current measurement with wide dynamic range (nA-500mA)
- High accuracy (up to +/-0.5%)
  Resolution up to 2nA
- Programmable output voltage source
  1.6 - 3.6V (under up to 2A)
- Direct support of Keil and IAR IDEs for power profiling
- Programmer with multi-path bridge

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Energy profiling using any STM32 MCU

X-NUCLEO-LPM01A

STM32L562E-DK

STLINK-V3PWR

	Power shield	Energy metering	STLINK-V3 Power
Dynamic current ranges	100nA / 50mA	300nA / 150mA	**nA up to 500mA**
Target MCUs	STM32L0, L4 STM32WB	STM32L0, L4, STM32L5, U5, STM32WB, WL	**All STM32 MCUs**

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Visualize power data with STM32CubeMonPwr tool

Display

Graphical rendering in real-time (up to 100 kSPS)

Acquisition log over large period of time

Analyze

Intuitive zoom and navigation into energy consumption data

Benchmark

Fast computation of EEMBC ULPMark-CP scores

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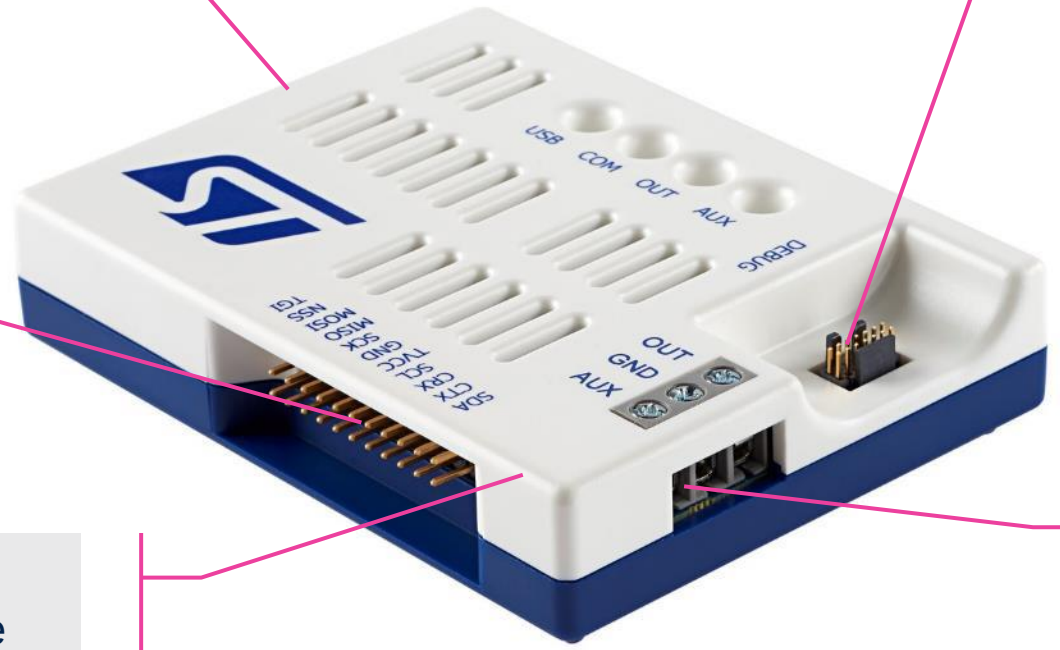
STLINK-V3PWR overview

USB Type-C high-speed interface
- Simultaneous debug and monitoring with STM32CubeMonPwr and IDEs
- Fast programming with STM32CubeProg

Multi-path bridge
USB to UART / SPI / I2C / CAN / GPIOs

Current measurement with wide dynamic range and high accuracy



STLINK-V3PWR

$95

Debugger / Programmer
- SWD / JTAG
- Drag and drop programming
- Virtual COM port

Debug code in sync with power consumption measurements
Programmable voltage supply for target

Software support and product references

	STLINK-V3PWR
STM32CubeMonitor-Power	STM32CubeMonitor-Power **STM32CubeMonPwr**	From release v1.2
STM32CubeProgrammer	STM32CubeProgrammer **STM32CubeProg**	From release v2.13
STM32CubeIDE	STM32CubeIDE	From release v1.12
arm KEIL	IDE toolset MDK-ARM	From release v5.38a
iar	IDE toolset EWARM	From release v9.32.2

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STM32 MCU Developer Zone

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Our technology starts with You

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