

Demonstration firmware for NUCLEO-G431RB enabling STSW-IFAPGUI on X-NUCLEO-OUT16A1 and X-NUCLEO-OUT17A1 expansion boards



Features

- Full control of the **X-NUCLEO-OUT16A1** and **X-NUCLEO-OUT17A1** expansion boards via the **STSW-IFAPGUI** graphical user interface
- Control of:
 - output channel switching frequency and duty cycle configuration
 - both SPI (8-bits w/o parity check and 16-bits with parity check) and GPIO/Parallel Control Modes management
 - both Single and Daisy Chain (only for SPI Mode) management
 - visualization of diagnostic signals
 - GPIO/Parallel Mode: case overtemperature, power good, common junction overtemperature
 - SPI Mode: case overtemperature, power good, common junction overtemperature / communication fault, per-channel overtemperature, MCU freeze

Description

The **STSW-OUT16G4** firmware runs on the **NUCLEO-G431RB** development board and allows controlling the **X-NUCLEO-OUT16A1** and **X-NUCLEO-OUT17A1** expansion boards using the **STSW-IFAPGUI** graphical user interface.

The **STSW-OUT16G4** contains the software routines that enable the USB-based communication between the **NUCLEO-G431RB** and the system where the **STSW-IFAPGUI** runs, and the control of the **X-NUCLEO-OUT16A1** or **X-NUCLEO-OUT17A1** expansion board.

In GPIO/Parallel Mode, the firmware can control a single expansion board. In SPI Mode, the firmware can control 8-bits or 16-bits data width and single expansion board or two stacked boards configured in daisy chaining mode.

The **STSW-IFAPGUI** is based on a common engine and several plug-ins designed to communicate through the USB connection with the application layer running on the **NUCLEO-G431RB** development board stacked with the expansion board.

Product summary	
Demonstration firmware for NUCLEO-G431RB enabling STSW-IFAPGUI on X-NUCLEO-OUT16A1 and X-NUCLEO-OUT17A1 expansion boards	STSW-OUT16G4
Industrial digital output expansion board based on IPS8200HQ for STM32 Nucleo	X-NUCLEO-OUT16A1
Industrial digital output expansion board based on IPS8200HQ-1 for STM32 Nucleo	X-NUCLEO-OUT17A1
STM32 Nucleo-64 development board with STM32G431RB MCU, supports Arduino and ST morpho connectivity	NUCLEO-G431RB
Graphical user interface for the industrial IPS evaluation boards based on STM32 Nucleo	STSW-IFAPGUI
Applications	Industrial Safety Industrial Tools

Revision history

Table 1. Document revision history

Date	Revision	Changes
04-Oct-2024	1	Initial release.

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