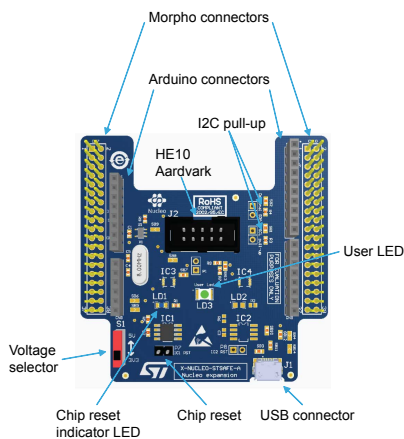


STSAFE-A100 microcontroller expansion board



Features

- Ready-to-use printed circuit board [STSAFE-A100](#) secure element.
- [STSAFE-A100](#) prepersonalized with an evaluation configuration
- Morpho connectors for easy connection to STM32 Nucleo boards
- ARDUINO® connectors for connection to ARDUINO®-compatible microcontroller boards
- HE10 Aardvark™ connector for connection to a Total Phase Aardvark™ adaptor.
- Voltage selector to select the 3.3 V or 5 V power supply
- Chip reset jumper to force the chip reset stage
- USB connector for connection to a Nucleo board over USB
- User LED for use in applications

Description

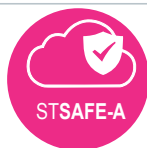
The [STSAFE-A100](#) Nucleo expansion board, [X-NUCLEO-STSA100](#), is intended for evaluation of the [STSAFE-A100](#) secure element.

It is designed to allow easy and fast software development using STMicroelectronics' STM32 Nucleo boards, which support both ARDUINO® and ST morpho connectivity.

The board hosts a personalized [X-NUCLEO-STSA100](#) device usable in association with the [STSW-STSA100](#) software package.

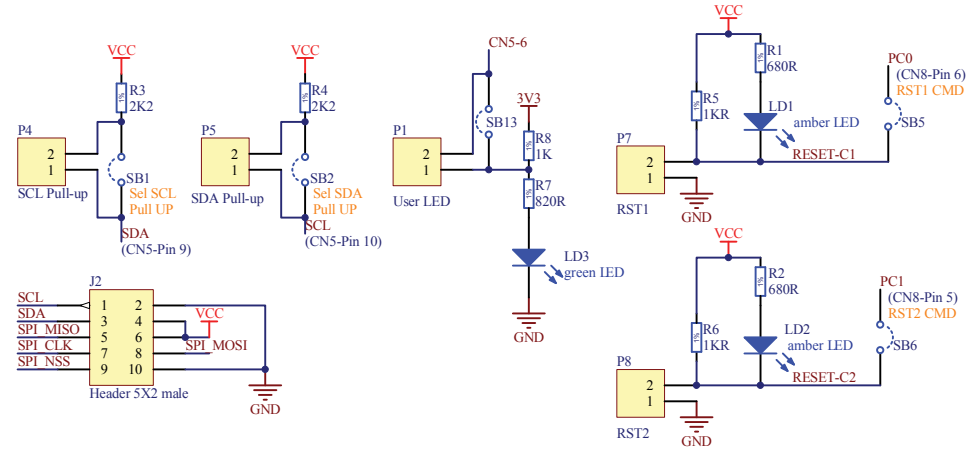
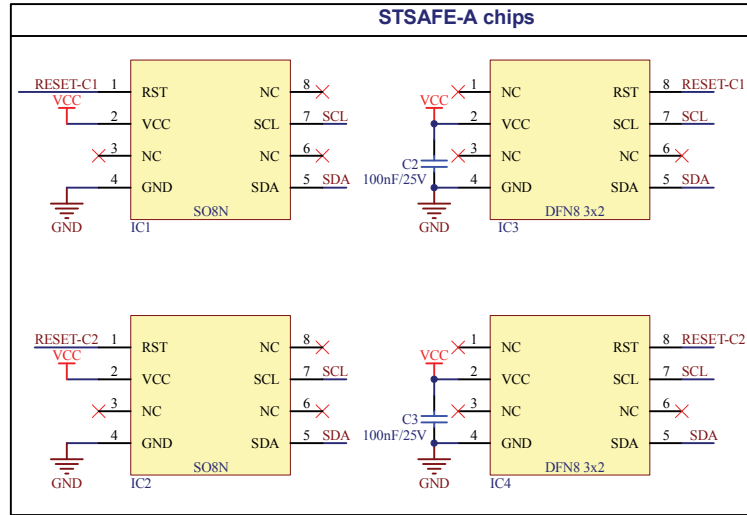
Product status link

[X-NUCLEO-STSA100](#)

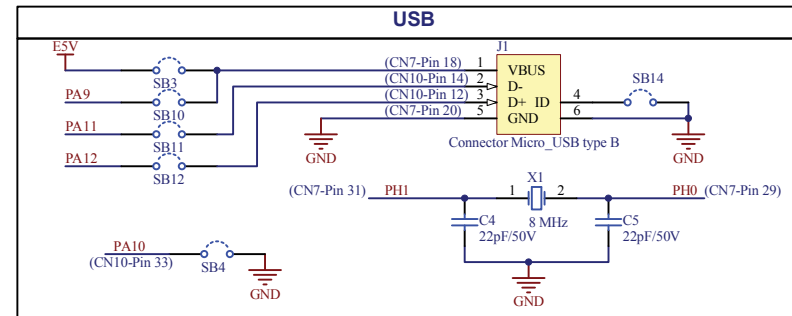
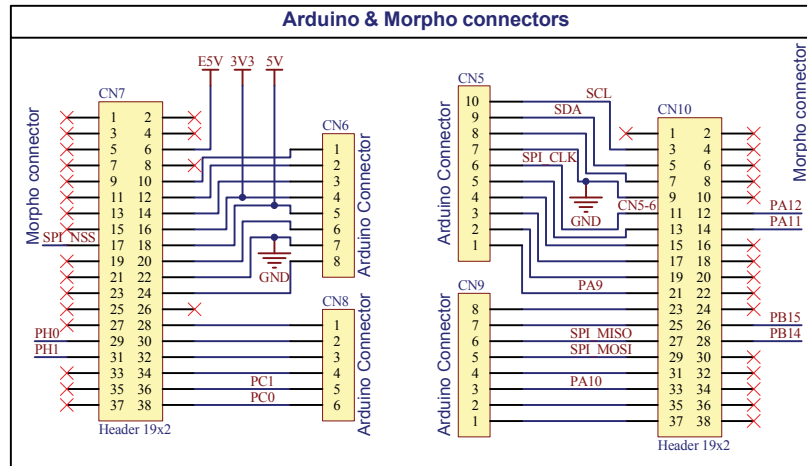
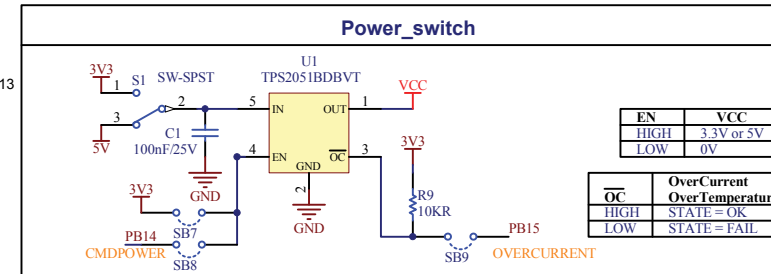


1 X-NUCLEO-STSA100 expansion board schematic

Figure 1. Schematic diagram



Default values:
 SB2, SB1, SB3, SB7,
 SB10, SB11, SB12, SB13
 mounted with 0 Ohms
 P1, P4, P5 and P8 not
 mounted



2 Connector-pin correspondence

The table below shows the correspondence between the pins and the connectors.

Table 1. Detailed list of connectors

Connector	Pin number	Function
CN5	1	Connected to CN10-21 PA9: USB power signal.
CN5	2	Connected to CN10-19
CN5	3	Connected to CN10-17
CN5	4	Connected to CN10-15
CN5	5	Connected to CN10-13
CN5	6	Connected to CN10-11 Nucleo user LED LD2 signal or SPI_CLK signal. Remove SB13 to avoid any disturbance of the SPI clock.
CN5	7	GND, connected to CN10-9
CN5	8	Connected to CN10-7
CN5	9	SDA pin for I2C communication with extension board chips
CN5	10	SCL pin for I2C communication with extension board chips
CN6	1	Connected to CN7-10
CN6	2	Connected to CN7-12
CN6	3	Connected to CN7-14
CN6	4	3V3 supply from Nucleo board. Connected to CN7-16.
CN6	5	5V supply from Nucleo board. Connected to CN7-18.
CN6	6	Connected to CN7-20.
CN6	7	GND. Connected to CN7-22.
CN6	8	Connected to CN7-24.
CN7	6	E5V: power supply from J1 USB connector (SB3 must be populated) to power the Nucleo STM32. Nucleo JP5 needs also to be placed in E5V position to be operational.
CN7	10	Connected to CN6-1
CN7	12	Connected to CN6-2
CN7	14	Connected to CN6-3
CN7	17	SPI NSS signal
CN7	16	See CN6-4.
CN7	18	See CN6-5.
CN7	20	Connected to CN6-6
CN7	22	See CN6-7.
CN7	24	See CN6-8.
CN7	28	Connected to CN8-1.
CN7	29	8 MHz oscillator PH0 signal for USB.
CN7	30	Connected to CN8-2.
CN7	31	8 MHz oscillator PH1 signal for USB.

Connector	Pin number	Function
CN7	32	Connected to CN8-3.
CN7	34	Connected to CN8-4.
CN7	36	PC1. Connected to CN8-5.
CN7	38	PC0. Connected to CN8-6.
CN8	1	See CN7-28.
CN8	2	See CN7-30.
CN8	3	See CN7-32.
CN8	4	See CN7-34.
CN8	5	See CN7-36.
CN8	6	See CN7-38.
CN9	1	Connected to CN10-37.
CN9	2	Connected to CN10-35.
CN9	3	PA10: Pin to be used to design a USB OTG device with host capability. SB4 needs also to be shorted. Connected to CN10-33.
CN9	4	Connected to CN10-31.
CN9	5	SPI_MOSI signal, connected to CN10-29.
CN9	6	SPI_MISO signal, connected to CN10-27.
CN9	7	Connected to CN10-25.
CN9	8	Connected to CN10-23.
CN10	3	See CN5-10.
CN10	5	See CN5-9.
CN10	7	See CN5-8.
CN10	9	See CN5-7.
CN10	11	See CN5-6.
CN10	12	PA12: Data – USB signal
CN10	13	See CN5-5.
CN10	14	PA11: Data + USB signal
CN10	15	See CN5-4.
CN10	17	See CN5-3.
CN10	19	See CN5-2.
CN10	21	See CN5-1.
CN10	23	See CN9-8.
CN10	25	See CN9-7.
CN10	26	PB15: OVERCURRENT signal from the 3.3 V/5 V voltage regulator. 0 = Failure, 1=OK. SB9 must be present (not present by default).
CN10	27	See CN9-6.
CN10	28	PB14: CMDPOWER signal to the 3.3 V/5 V voltage regulator. 0 = Disable, 1 = Enable. SB8 must be present and SB7 removed (not present by default).
CN10	29	See CN9-5.
CN10	31	See CN9-4.
CN10	33	See CN9-3.

Connector	Pin number	Function
CN10	35	See CN9-2.
CN10	37	See CN9-1.

Information related to STM32 Nucleo boards

The STM32 Nucleo boards are Arm[®]-based.

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



Revision history

Table 2. Document revision history

Date	Version	Changes
04-Feb-2019	1	Initial release.

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