X-NUCLEO-IDB05A2



Data brief

Bluetooth low energy expansion board based on the BLUENRG-M0 module for STM32 Nucleo



Features

- STM32 Nucleo expansion board based on the BlueNRG-M0 Bluetooth v4.2 compliant, FCC and IC certified module (FCC ID: S9NBNRGM0AL; IC: 8976C-BNRGM0AL)
- BlueNRG-M0 main features:
 - Embedded Bluetooth low energy protocol stack (GAP, GATT, SM, L2CAP, LL, RFPHY)
 - Embedded BlueNRG-MS network processor
 - On-board chip antenna
- Small form factor: 11.5 mmx13.5 mm
- Equipped with Arduino UNO R3 connector
- Scalable solution capable of cascading multiple boards for larger systems
- Free comprehensive development firmware library and samples for BlueNRG-MS, compatible with STM32Cube firmware
- RoHS compliant

Description

The X-NUCLEO-IDB05A2 Bluetooth low energy expansion board is based on the BlueNRG-M0 BLE network processor module.

The BlueNRG-M0 is Bluetooth v4.2 compliant, FCC and IC certified (FCC ID: S9NBNRGM0AL; IC: 8976C-BNRGM0AL). It supports simultaneous master/slave roles and can behave as a Bluetooth low energy sensor and hub device at the same time.

The BlueNRG-M0 provides a complete RF platform in a tiny form factor, with integrated radio, antenna, high frequency and LPO oscillators.

The X-NUCLEO-IDB05A2 is compatible with the ST morpho (not mounted) and Arduino UNO R3 connector layout.

The X-NUCLEO-IDB05A2 interfaces with the STM32 microcontroller via the SPI pin and allows changing the default SPI clock, SPI chip select and SPI IRQ by replacing a resistor on the expansion board.

Product summary			
Bluetooth low energy expansion board based on the BLUENRG-M0A module for STM32 Nucleo	X-NUCLEO- IDB05A2		
Very low power network processor module for Bluetooth low energy v4.2	BlueNRG-M0		
Bluetooth Low Energy Network Processor supporting Bluetooth 4.2 core specification	BlueNRG-MS		
Applications	Cloud Connectivity		
	Factory Automation		
	Smart Farming		
	Wireless Connectivity		

1 Formal notices required by the U.S. Federal Communications Commission ("FCC")

Any changes or modifications to this equipment not expressly approved by STMicroelectronics may cause harmful interference and void the user's authorization to operate this equipment.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including any interference that may cause undesired operation.

This device uses, generates and radiates radio frequency energy. The radio frequency energy produced by this device is well below the maximum exposure allowed by the Federal Communications Commission (FCC).

The X-NUCLEO-IDB05A2 expansion board embeds the BlueNRG-M0 certifed module (FCC ID: S9NBNRGM0AL).



2 Formal notices required by the Industry Canada ("IC")

English:

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

French:

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The X-NUCLEO-IDB05A2 expansion board embeds the BlueNRG-M0 certifed module (IC: 8976C-BNRGM0AL).



3 Schematic diagrams

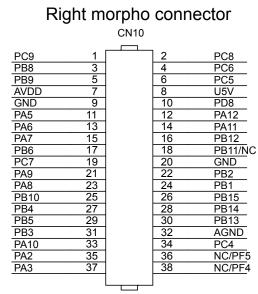
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Figure 1. X-NUCLEO-IDB05A2 circuit schematic - ST morpho and Arduino UNO R3 connectors

Left morpho connector					
		CN7			
PC10	1		2	PC11	
PC12	3		4	PD2	
VDD	5		6	E5V	
BOOT0	7		8	GND	
NC/PF6	9		10	NC/	
NC/PF7	11		12	IOREF	
PA13	13		14	RESET	
PA14	15		16	+3V3	
PA15	17		18	+5V	
GND	19		20	GND	
PB7	21		22	GND	
PC13	23		24	VIN	
PC14	25		26	NC/	
PC15	27		28	PA0	
PH0/PF0/PD0	29		30	PA1	
PH1/PF1/PD1	31		32	PA4	
VLCD/VBAT	33		34	PB0	
PC2	35		36	PC1	
PC3	37		38	PC0	

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HEADER 19x2 Pass-Through: Female on Bottom and Male on Top

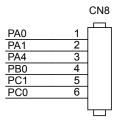


HEADER 19x2 Pass-Through: Female on Bottom and Male on Top

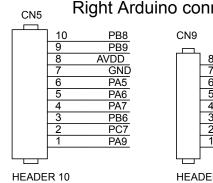
Left Arduino connector



Pass-Through: Male on Bottom and Female on Тор

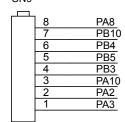


HEADER 6 Pass-Through: Male on Bottom and Female on Тор



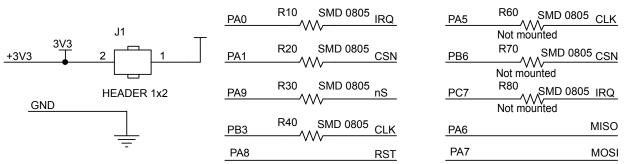
Pass-Through: Male on Bottom and Female on Тор

Right Arduino connector

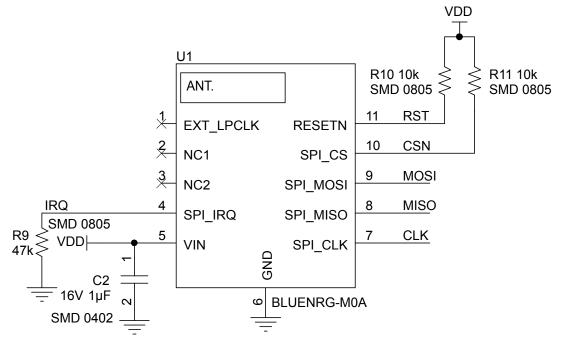


HEADER 8 Pass-Through: Male on Bottom and Female on Тор

Figure 2. X-NUCLEO-IDB05A2 circuit schematic - STM32 Nucleo connections





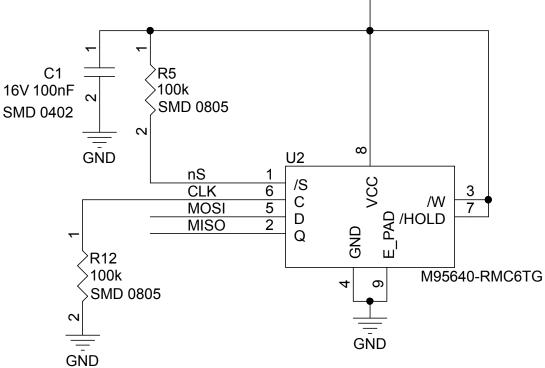




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Figure 4. X-NUCLEO-IDB05A2 circuit schematic - EEPROM

3V3



Revision history

Table 1. Document revision history

Date	Version	Changes
07-Apr-2020	1	Initial release.

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