



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

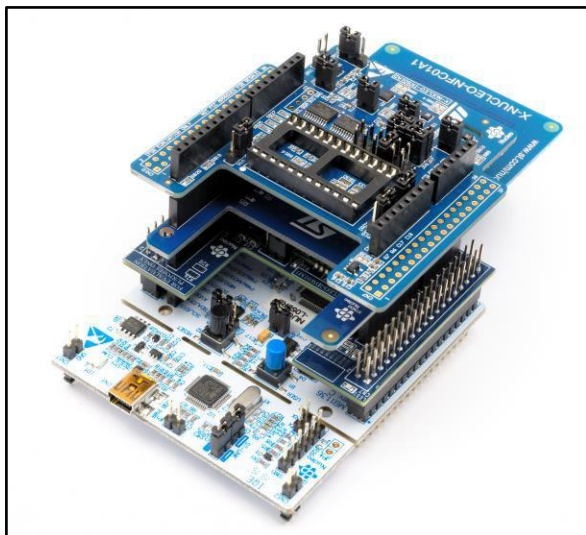
Email & Skype: [info@chipsmall.com](mailto:info@chipsmall.com) Web: [www.chipsmall.com](http://www.chipsmall.com)

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



## STM32 Nucleo pack for IoT node with Wi-Fi, sensors and NFC connected to Microsoft Azure IoT

Data brief



### Description

The P-NUCLEO-AZURE1 STM32 Nucleo pack is a hardware kit composed of the following boards: NUCLEO-L476RG, X-NUCLEO-IDW01M1, X-NUCLEO-ICS01A2 and X-NUCLEO-NFC01A1.

The P-NUCLEO-AZURE1 is supported by the FP-CLD-AZURE1 function pack expansion for the STM32 Open Development Environment. The software package contains ready-to-use binaries to quickly connect the STM32 Nucleo board to a cloud web dashboard for sensor data visualization.

The P-NUCLEO-AZURE1 used with FP-CLD-AZURE1 allows transmitting sensor data to the cloud and receiving commands from cloud applications.

Wi-Fi parameter configuration is also greatly simplified thanks to the supported NFC connectivity, which connects your device to the cloud and lets you jump-start end-to-end IoT development, to help you focus on adding custom functions.

### Features

- NUCLEO-L476RG: STM32 Nucleo-64 development board with STM32L476RG MCU, supporting Arduino UNO R3 and ST morpho connectivity
- X-NUCLEO-IDW01M1: Wi-Fi expansion board based on the SWPF01SA module
- X-NUCLEO-ICS01A2: motion MEMS and environmental sensor expansion board
- X-NUCLEO-NFC01A1: dynamic NFC tag expansion board based on M24SR
- Out-of-the-box software support to connect the device to the Microsoft Azure IoT cloud using the FP-CLD-AZURE1 firmware package
- RoHS compliant



## Kit description

The NUCLEO-L476RG board provides an affordable and flexible way to try out new concepts and to build prototypes with the STM32 MCU. It does not require any separate probes as it integrates the ST-LINK/V2-1 debugger and programmer.

The X-NUCLEO-IDW01M1 is a Wi-Fi expansion board for STM32 Nucleo based on the SPWF01SA module. The on-board CE, IC and FCC certified SPWF01SA module has an embedded STM32 MCU, a low-power Wi-Fi b/g/n SoC with integrated power amplifier and power management and an SMD antenna. The SPWF01SA module is also equipped with 1 MByte of external FLASH for firmware update over-the-air (FOTA).

The X-NUCLEO-IKS01A2 is a motion MEMS and environmental sensor expansion board for the STM32 Nucleo. It is designed around the LSM6DSL 3D accelerometer and 3D gyroscope, the LSM303AGR 3D accelerometer and 3D magnetometer, the HTS221 humidity and temperature sensor and the LPS22HB pressure sensor.

The X-NUCLEO-NFC01A1 is a dynamic NFC tag expansion board for the STM32 Nucleo. It is designed around the M24SR64-Y. The M24SR64-Y device is a dynamic NFC/RFID tag IC with a dual interface. It embeds a 64 Kbit EEPROM memory. It can be operated from an I<sup>2</sup>C interface or by a 13.56 MHz RFID reader or an NFC phone.

The X-NUCLEO-IDW01M1 interfaces with the MCU on the STM32 Nucleo board via the UART serial port on the morpho connector. The X-NUCLEO-IKS01A2 and X-NUCLEO-NFC01A1 support Arduino UNO R3 connectivity.

The FP-CLD-AZURE1 function pack, downloadable at [www.st.com](http://www.st.com), directly connects your IoT node to the Microsoft Azure IoT. The software implements application level functions based on the HTTP protocol and enables communication with Microsoft Azure IoT. You can use it to prototype end-to-end IoT applications together with Microsoft Azure, transmit real-time sensor data and receive commands.

The software runs on the STM32 microcontroller and includes drivers for the Wi-Fi module, sensors and dynamic NFC/RFID tag.

The package bundles examples for transmitting sensor data and controlling the device via Microsoft Azure IoT.

## Revision history

Table 1: Document revision history

Date	Version	Changes
11-May-2017	1	Initial release.

**IMPORTANT NOTICE – PLEASE 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 acknowledgement.

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. 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.

© 2017 STMicroelectronics – All rights reserved