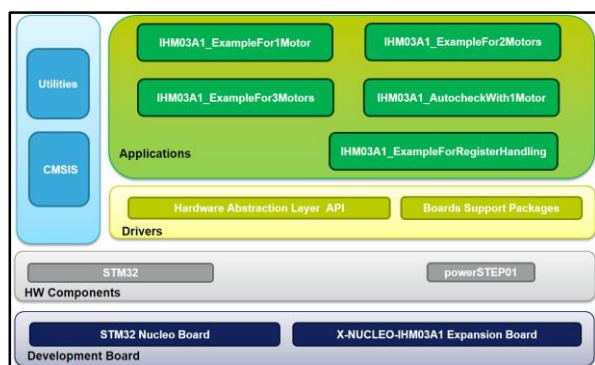# X-CUBE-SPN3

High power stepper motor driver software expansion for STM32Cube
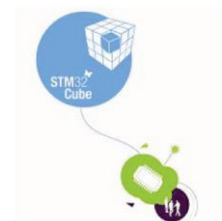
Data brief

Features

- Complete middleware to build applications using the powerSTEP01 device
- Sample, single stepper motor control application for a X-NUCLEO-IHM03A1 board when plugged to NUCLEO-F401RE, NUCLEO-F030R8, NUCLEO-F334R8 or NUCLEO-L053R8 board
- Easy portability across different MCU families, thanks to STM32Cube
- Free, user-friendly license terms

Description

The X-CUBE-SPN3 is an expansion software package for STM32Cube. The software runs on the STM32 and includes driver recognition for the powerSTEP01 device. The expansion is built on STM32Cube software technology to ease portability across different STM32 microcontrollers. It is compatible with the NUCLEO-F401RE, NUCLEO-F030R8, NUCLEO-F334R8 and NUCLEO-L053R8 boards connected to one, two or three X-NUCLEO-IHM03A1 STM32 expansion boards.

The software comes with a sample implementation of the drivers to control one stepper motor.

The expansion is built on STM32Cube software technology to ease portability across different STM32 microcontrollers. Information regarding STM32Cube is available on www.st.com at *http://www.st.com/stm32cube*.

For further information contact your local STMicroelectronics sales office

What is STM32Cube?

STMCube™ represents the STMicroelectronics initiative to make developers' lives easier by reducing development effort, time and cost. STM32Cube covers the STM32 portfolio.

STM32Cube version 1.x includes:

- STM32CubeMX, a graphical software configuration tool that allows the generation of C initialization code using graphical wizards.
- A comprehensive embedded software platform specific to each series (such as the STM32Cube for the STM32 series), which includes:
  - the STM32Cube HAL embedded abstraction-layer software, ensuring maximized portability across the STM32 portfolio
  - a consistent set of middleware components such as RTOS, USB, TCP/IP and graphics
  - all embedded software utilities with a full set of examples

How does this software complement STM32Cube?

This software package is based on the STM32CubeHAL hardware abstraction layer for the STM32 microcontroller. The package extends STM32Cube by providing a board support package (BSP) for the STM32 expansion board based on powerSTEP01. The drivers abstract low-level details of the hardware and allow the middleware components and applications to access stepper motor driver functions and data.

It allows complete management of the powerSTEP01 by providing a full set of APIs, and offers the following features:

- powerSTEP01 read/write registers

- STM32 Nucleo and expansion board configuration (GPIOs, PWMs, IRQs, etc.)

- Motion commands

- FLAG and BUSY interrupts handling (alarm reporting)

- Daisy chain handling

- Sample applications to drive up to three stepper motors.

Revision history

Table 1: Document revision history

Date	Rev	Changes
09-Feb-2015	1	First release.
09-Jun-2015	2	Updated: features on the cover page and detailed description section.
01-Mar-2016	3	Updated cover page image Added NUCLEO-F334R8 compatibility information

IMPORTANT NOTICE – PLEASE READ CAREFULLY