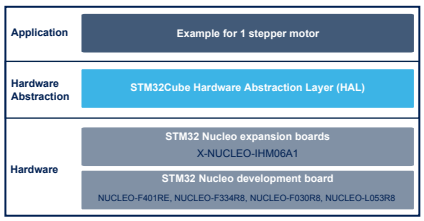
X-CUBE-SPN6

Data brief

Low voltage stepper motor driver software expansion for STM32Cube



Features

- Driver layer for complete management of the STSPIN220 low voltage stepper motor driver integrated in the X-NUCLEO-IHM06A1 expansion board
- Speed profile and step resolution management
- Fault interrupt handling
- Application example for a single stepper motor driving
- Easy portability across different MCU families, thanks to STM32Cube
- Free, user-friendly license terms

Description

The X-CUBE-SPN6 expansion package for STM32Cube gives you full control of the STSPIN220 stepper motor driver.

It is built on top of STM32Cube software technology for easy portability across different STM32 microcontrollers.

When combined with one or more X-NUCLEO-IHM06A1 expansion boards, this software allows a compatible STM32 Nucleo development board to control one or more stepper motors.

The software comes with a sample implementation for one low voltage stepper motor. It is compatible with NUCLEO-F401RE, NUCLEO-F334R8, NUCLEO-F030R8 or NUCLEO-L053R8 development boards with an X-NUCLEO-IHM06A1 expansion board mounted on top.

Product summary	
Low voltage stepper motor driver software expansion for STM32Cube	X-CUBE-SPN6
Low voltage stepper motor driver expansion board based on STSPIN220 for STM32 Nucleo	X-NUCLEO-IHM06A1
Low voltage stepper motor driver	STSPIN220
STM32 Nucleo-64 development board with STM32F401RE/ STM32F334R8/ STM32F030R8/ STM32L053R8 MCUs	NUCLEO-F401RE/ NUCLEO-F334R8/ NUCLEO-F030R8/ NUCLEO-L053R8
Applications	Stepper Motor Industrial Tools

1 Detailed description

1.1 What is STM32Cube?

STM32Cube is a combination of a full set of PC software tools and embedded software blocks running on STM32 microcontrollers and microprocessors:

- STM32CubeMX configuration tool for any STM32 device; it generates initialization C code for Cortex-M cores and the Linux device tree source for Cortex-A cores
- STM32CubeIDE integrated development environment based on open-source solutions like Eclipse or the GNU C/C++ toolchain, including compilation reporting features and advanced debug features
- STM32CubeProgrammer programming tool that provides an easy-to-use and efficient environment for reading, writing and verifying devices and external memories via a wide variety of available communication media (JTAG, SWD, UART, USB DFU, I2C, SPI, CAN, etc.)
- STM32CubeMonitor family of tools (STM32CubeMonRF, STM32CubeMonUCPD, STM32CubeMonPwr) to help developers customize their applications in real-time
- STM32Cube MCU and MPU packages specific to each STM32 series with drivers (HAL, low-layer, etc.), middleware, and lots of example code used in a wide variety of real-world use cases
- STM32Cube expansion packages for application-oriented solutions

1.2 How does this software complement STM32Cube?

This software 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 the STSPIN220.

The drivers abstract low-level details of the hardware and allow the middleware components and applications to access low voltage stepper motor driver functions and data.

It features:

- read and write of device parameters
- GPIO, PWM and IRQ configuration
- micro-stepping, direction position, speed, acceleration, deceleration and torque controls
- automatic full-step switch management
- high impedance or hold stop mode selection
- enable and standby management
- fault interrupt handling

The software package includes an application example to help you to get started.

Revision history

Table 1. Document revision history

Date	Version	Changes
01-Jul-2016	1	Initial release.
18-May-2021	2	Updated all content to reflect new software release.