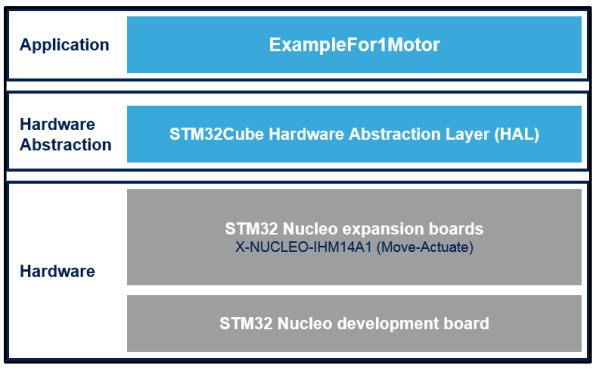
X-CUBE-SPN14

Stepper motor driver software expansion for STM32Cube

Data brief



Features

- A driver layer for complete management of the STSPIN820 (low power stepper motor driver) device integrated in the X-NUCLEO-IHM14A1 expansion board
- Device parameter read and write modes, 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 stand-by management
- Fault interrupt handling
- Single stepper motor control sample application
- Easy portability across different MCU families, thanks to STM32Cube
- Free, user-friendly license terms

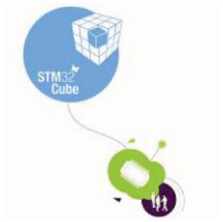
Description

The X-CUBE-SPN14 expansion package for STM32Cube gives you full control of stepper motor operations.

When combined with one or more X-NUCLEO-IHM14A1 expansion boards, this software allows a compatible STM32 Nucleo board to control one or more stepper motors.

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

The software comes with a sample implementation for one stepper motor. It is compatible with STM32 NUCLEO-F401RE, NUCLEO-F334R8, NUCLEO-F030R8 or NUCLEO-L053R8 boards with an X-NUCLEO-IHM14A1 expansion board mounted on top.



What is STM32Cube?

STMCube™ is designed by STMicroelectronics to reduce development effort, time and cost across the entire 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 STM32CubeF4 for the STM32F4 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 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 STSPIN820.

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 offers the following features:

- device parameter read and write modes
- 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 stand-by management
- fault interrupt handling

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

Revision history

Table 1: Document revision history

Date	Version	Changes
17-Oct-2017	1	Initial release.

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