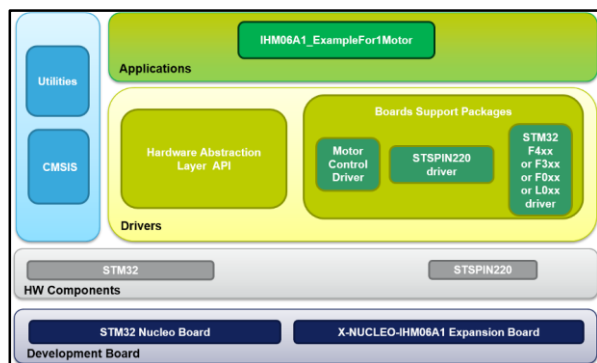


Low voltage stepper motor driver software expansion for STM32Cube

Data brief



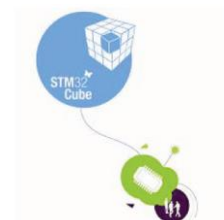
Description

The X-CUBE-SPN6 expansion package for STM32Cube gives you full control of low voltage stepper motor operation. When combined with one or more X-NUCLEO-IHM06A1 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 low voltage stepper motor. It is compatible with STM32 NUCLEO-F401RE, STM32 NUCLEO-F334R8, STM32 NUCLEO-F030R8 or STM32 NUCLEO-L053R8 boards with an X-NUCLEO-IHM06A1 expansion board mounted on top.

Features

- A driver layer for complete management of the STSPIN220 (low voltage stepper motor driver) device integrated in the X-NUCLEO-IHM06A1 expansion board
- Read and write of the 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 interrupts handling
- Sample single, low voltage, stepper motor control application
- osxMotionFX (iNEMOEngine PRO) real-time motion sensor data fusion (under OPEN.MEMS license) to combine the output from multiple MEMS sensors.
- Easy portability across different MCU families, thanks to STM32Cube
- Free, user-friendly license terms



What is STM32Cube?

STM32Cube™ 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 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 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 offers the following 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.

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