

Sound terminal software expansion for STM32Cube

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|----------------------|---|
| Application | X-CUBE-SOUNDTER1 |
| Middleware | Sound Terminal Biquad Calculator |
| Hardware Abstraction | STM32Cube Hardware Abstraction Layer (HAL) |
| Hardware | STM32 Nucleo expansion boards X-NUCLEO-CCA01M1 (Translate) |
| | STM32 Nucleo development board |



Features

- Complete driver and middleware to build applications using [STA350BW](#) Sound Terminal[®] device
- Control of [STA350BW](#) Sound Terminal to implement basic functions and advanced DSP management
- User-friendly BSP interface for an easy configuration of the device functions (initialization, audio playback, volume and mute control) and biquadratic filter management
- Dedicated middleware to facilitate biquadratic filter design based on standard filter typologies and parameters
- Easy portability across different MCU families thanks to [STM32Cube](#)
- Free, user-friendly license terms
- Sample implementation available on [X-NUCLEO-CCA01M1](#) board when connected to a [NUCLEO-F401RE](#), [NUCLEO-F072RB](#), [NUCLEO-L053R8](#), [NUCLEO-L476RG](#) or [NUCLEO-F746ZG](#) board.

Description

[X-CUBE-SOUNDTER1](#) is an expansion software package for [STM32Cube](#). The software runs on the STM32 and includes drivers for audio data playback using the [STA350BW](#) Sound Terminal[®] device.

It includes drivers and BSP layers designed to exploit all the device features such as tone management, biquadratic filter configuration and initialization, and volume and mute control, as well as the basic initialization routines and audio control functions.

The expansion is built on [STM32Cube](#) software technology to ease portability across different STM32 microcontrollers and comes with examples demonstrating the capabilities of the [X-NUCLEO-CCA01M1](#) when connected to a [NUCLEO-F401RE](#), [NUCLEO-F072RB](#), [NUCLEO-L053R8](#), [NUCLEO-L476RG](#) or [NUCLEO-F746ZG](#) board.

| Product summary | |
|---|----------------------------------|
| Sound Terminal software expansion for STM32Cube | X-CUBE-SOUNDTER1 |
| Sound Terminal 2.1-channel high-efficiency digital audio system | STA350BW |
| Sound Terminal expansion board based on STA350BW for STM32 Nucleo | X-NUCLEO-CCA01M1 |

1 Detailed description



What is STM32Cube?

STM32Cube™ 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 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 is based on the STM32CubeHAL hardware abstraction layer for the STM32 microcontroller. The package extends [STM32Cube](#) by providing a component driver designed to exploit the [STA350BW](#) advanced features, a board support package (BSP) for the [X-NUCLEO-CCA01M1](#) expansion board and dedicated middleware components to ease biquadratic filter design and management.

The drivers abstract the low-level details of the hardware to allow the middleware components and applications to access the device in a hardware-independent manner.

The package also includes a sample application that the developer can use to start experimenting with the code. The application is designed to enable audio sample playback using the on-board STA350BW device and to allow the full control of the device at runtime, implementing functions such as audio output, volume and mute control, equalization and filter setup.

The demo requires at least one passive, 8 Ω speaker, but, for stereo reproduction, you need two speakers, to be directly attached to the on-board connectors.

Revision history

Table 1. Document revision history

| Date | Version | Changes |
|-------------|---------|--|
| 16-Nov-2015 | 1 | Initial release. |
| 15-Jul-2016 | 2 | Updated cover page features and description. |
| 17-Apr-2018 | 3 | Updated cover image. |

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