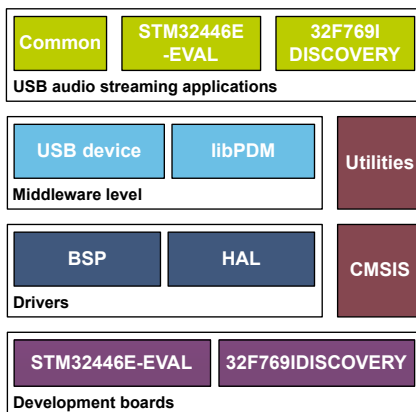


## USB audio streaming software expansion for STM32Cube



### Features

- Compliant with USB 2.0 Audio Class 1.0 standards
- USB audio streaming playback and recording
- Playback sampling rates: 96 kHz (for hi-fi audio), 48 kHz, and 44.1 kHz
- Playback audio resolutions: 24 bits (for hi-fi audio) and 16 bits
- Playback synchronization using feedback
- Recording sampling rates: 96 kHz (for hi-fi audio), 48 kHz, 44.1 kHz, and 16 kHz
- Recording audio resolutions: 24 bits (for hi-fi audio) and 16 bits
- Both recording and playback support several sampling rates set at the compilation stage
- Both recording and playback support multifrequency: switch between sampling rates at runtime upon host request
- Both recording and playback support mute and volume control

### Description

The **X-CUBE-USB-AUDIO** Expansion Package consists of a library and application examples for **STM32446E-EVAL** and **32F769I DISCOVERY** boards acting as USB speaker and recorder.

The **X-CUBE-USB-AUDIO** Expansion Package is extensible; it allows the development of USB audio applications for other STM32 devices and boards.

Product status link

[X-CUBE-USB-AUDIO](#)



## 1 General information

The X-CUBE-USB-AUDIO Expansion Package runs on STM32 microcontrollers based on Arm® cores.

*Note:* Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere.



### 1.1 Ordering information

X-CUBE-USB-AUDIO is available for free download from the [www.st.com](http://www.st.com) website.

### 1.2 What is STM32Cube™?

STM32Cube™ is an STMicroelectronics original initiative to significantly improve designer's productivity by reducing development effort, time and cost. STM32Cube™ covers the whole STM32 portfolio.

STM32Cube™ includes:

- A set of user-friendly software development tools to cover project development from the conception to the realization, among which:
  - [STM32CubeMX](#), a graphical software configuration tool that allows the automatic generation of C initialization code using graphical wizards.
  - STM32CubeProgrammer ([STM32CubeProg](#)), a programming tool available in graphical and command-line versions.
  - STM32CubeMonitor-Power ([STM32CubeMonPwr](#)), a monitoring tool to measure and help in the optimization of the power consumption of the MCU.
- STM32Cube™ MCU Packages, comprehensive embedded-software platforms specific to each microcontroller series (such as STM32CubeF4 for the STM32F4 Series), which include:
  - STM32Cube™ hardware abstraction layer (HAL), ensuring maximized portability across the STM32 portfolio.
  - STM32Cube™ low-layer APIs, ensuring the best performance and footprints with a high degree of user control over the HW
  - A consistent set of middleware components such as RTOS, USB, TCP/IP, and graphics.
  - All embedded software utilities with full sets of peripheral and applicative examples.

## 2 License

X-CUBE-USB-AUDIO is delivered under the *Mix Ultimate Liberty+OSS+3rd-party V1* software license agreement (SLA0048).

The software components provided in this package come with various license schemes as shown in [Table 1](#). For more details, refer to the license agreement of each component.

**Table 1. Software component license agreements**

Software component	Owner	License
Board Support Package (BSP)	STMicroelectronics	<a href="#">BSD-3-Clause</a>
Cortex <sup>®</sup> -M CMSIS	Arm <sup>®</sup>	<a href="#">BSD-3-Clause</a>
HAL STM32F4 and STM32F7	STMicroelectronics	<a href="#">BSD-3-Clause</a>
Library PDM	STMicroelectronics	<a href="#">Image V2</a>
Project examples & Common files	STMicroelectronics	<a href="#">Ultimate Liberty (source release)</a>

## Revision history

**Table 2. Document revision history**

Date	Version	Changes
25-Feb-2019	1	Initial release.

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