

Display module software expansion for STM32Cube



Features

- Software building block supporting the addition of display modules
- Simple “hello world” example available on the QVGA X-NUCLEO-GFX01M1 STM32 Nucleo expansion board connected to the NUCLEO-G071RB STM32 Nucleo development board
- Easy portability across STM32 microcontrollers with STM32CubeMX in the STM32Cube ecosystem
- Free and user-friendly license terms

Description

The X-CUBE-DISPLAY STM32Cube Expansion Package runs on the STM32 microcontroller. It offers a complete project example enabling easy and simple use of the STM32 display module extensions for STM32 Nucleo boards. It includes an STM32CubeMX configuration project, as well embedded software extending Nucleo boards with graphic user interface capability, including display, joystick control and external memory management.

Additionally, demonstration binaries are provided as joint resources while more advanced examples are available with the TouchGFX Designer tool, part of the X-CUBE-TOUCHGFX Expansion Package.

X-CUBE-DISPLAY supports the QVGA X-NUCLEO-GFX01M1 STM32 Nucleo expansion board combined with the NUCLEO-G071RB STM32 Nucleo development board.



1 General information

The X-CUBE-DISPLAY 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-DISPLAY is available for free download from the www.st.com website.

1.2 Product summary

- X-CUBE-DISPLAY: STM32Cube Expansion Package for display modules
- X-NUCLEO-GFX01M1: QVGA display module for STM32 Nucleo
- NUCLEO-G071RB: STM32 Nucleo-64 development board

1.3 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 conception to realization, among which are:
 - STM32CubeMX, a graphical software configuration tool that allows the automatic generation of C initialization code using graphical wizards
 - STM32CubeIDE, an all-in-one development tool with peripheral configuration, code generation, code compilation, and debug features
 - STM32CubeProgrammer (STM32CubeProg), a programming tool available in graphical and command-line versions
 - STM32CubeMonitor (STM32CubeMonitor, STM32CubeMonPwr, STM32CubeMonRF, STM32CubeMonUCPD) powerful monitoring tools to fine-tune the behavior and performance of STM32 applications in real-time
- STM32Cube MCU and MPU Packages, comprehensive embedded-software platforms specific to each microcontroller and microprocessor series (such as STM32CubeG0 for the STM32G0 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 PD, and FAT file system
 - All embedded software utilities with full sets of peripheral and applicative examples
- STM32Cube Expansion Packages, which contain embedded software components that complement the functionalities of the STM32Cube MCU and MPU Packages with:
 - Middleware extensions and applicative layers
 - Examples running on some specific STMicroelectronics development boards

1.4 How does this package complement STM32Cube?

The [X-CUBE-DISPLAY](#) Expansion Package supports the addition of display modules on top of selected STM32 Nucleo development boards. This Expansion Package is based on the STM32CubeHAL, the hardware abstraction layer for the STM32 microcontroller. It extends [STM32Cube](#) by providing a board support package (BSP) for the [X-NUCLEO-GFX01M1](#) STM32 Nucleo expansion board. The Expansion Package includes a “hello world” example that fetches images from the external memory and displays them on the display screen. Entry graphic user interface demonstration is also provided as a related resource and more advanced TouchGFX-based examples are available with the TouchGFX Designer tool in the [X-CUBE-TOUCHGFX](#) Expansion Package.

2 License

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

The software components provided in this package come with different license schemes as shown in [Table 1](#).

Table 1. Software component license agreements

Software component	Owner	License
Cortex [®] -M CMSIS	Arm Limited	Apache License 2.0
STM32 HAL	STMicroelectronics	BSD-3-Clause
Board support package (BSP)	STMicroelectronics	BSD-3-Clause
Applications	STMicroelectronics	Ultimate Liberty (source release)

Revision history

Table 2. Document revision history

Date	Version	Changes
8-Oct-2020	1	Initial release.

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