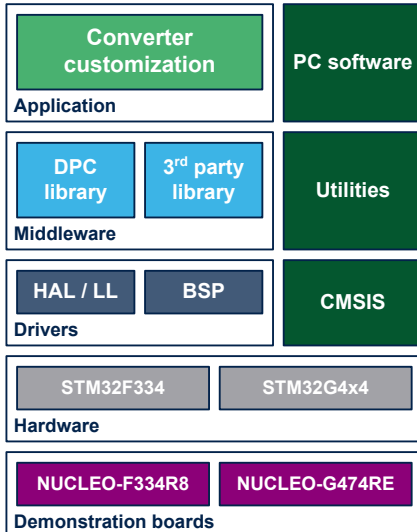


DSMPS software expansion for STM32Cube



Features

- Firmware architecture based on the [STM32Cube](#) HAL and LL libraries
- Numerous topologies for power factor corrector (AC-DC converters)
- Numerous topologies for power supply unit (DC-DC converters)
- Library supporting the full digital loop implementation using the method proposed by Biricha Digital Power Ltd.
- Legacy library supporting the PID method
- Voltage and current control modes availability depending on the topology selected
- Continuous conduction mode implementation
- Full converter customization:
 - Digital filter coefficients generation using the STM32_WDS and STM32_PLD PC software tools from Biricha Digital Power Ltd.
 - Configuration workflow only using the [STM32CubeMX](#) GUI configurator
- Support for [STM32F334](#) and [STM32G4x4](#) microcontrollers
- Converter customization demonstrated on [NUCLEO-F334R8](#) and [NUCLEO-G474RE](#)

Description

The [STM32F334](#) and [STM32G4x4](#) microcontrollers offer the performance of the industry-standard Arm® Cortex®-M4 processor. With [X-CUBE-DPOWER](#), they can run either the legacy control loop algorithm (also known as PID), or a control loop algorithm built after the method proposed by Biricha Digital Power Ltd., an [ST Authorized Partner](#). The latter method is widely recognized as the highest-performance and efficiency method for converters used in building automation, industrial automation, and medical applications.

The X-CUBE-DPOWER Expansion Package allows the user to generate a startup project file directly from the [STM32CubeMX](#) GUI, and initialize the library according to the application needs.

Product status link

[X-CUBE-DPOWER](#)



1 General information

The X-CUBE-DPOWER Expansion Package runs on the STM32F334 and STM32G4x4 microcontrollers based on the Arm® Cortex®-M4 processor.

Note: Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere. All other trademarks are the property of their respective owners.



1.1 Ordering information

X-CUBE-DPOWER is available for free download from the www.st.com website. Retrieve more information about STM32CubeMX on www.st.com.

1.2 What is STM32Cube?

STM32Cube is an STMicroelectronics original initiative to improve designer productivity significantly 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
 - STM32CubeCLT, an all-in-one command-line development toolset with code compilation, board programming, 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 STM32CubeG4 for the STM32G4 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 hardware
 - A consistent set of middleware components such as RTOS, USB Device 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



2 License

X-CUBE-DPOWER is delivered under the [SLA0048](#) software license agreement and its Additional License Terms.

Revision history

Table 1. Document revision history

Date	Revision	Changes
16-Dec-2022	1	Initial release.

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