Discovery kit with STM32F746NG MCU
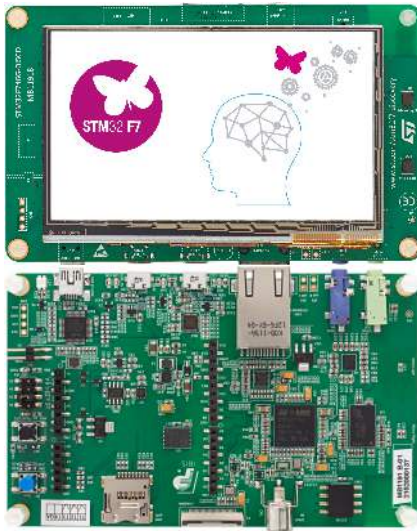
Board top and bottom views. Pictures are not contractual.

arm MBED

Features

- STM32F746NGH6 Arm® Cortex® core-based microcontroller with 1 Mbyte of Flash memory and 340 Kbytes of RAM, in BGA216 package
- 4.3" RGB 480×272 color LCD-TFT with capacitive touch screen
- Ethernet compliant with IEEE-802.3-2002
- USB OTG HS
- USB OTG FS
- SAI audio codec
- Two ST-MEMS digital microphones
- 128-Mbit Quad-SPI Flash memory
- 128-Mbit SDRAM (64 Mbits accessible)
- Two user and reset push-buttons
- Board connectors:
  - Camera
  - microSD™ card
  - RF-EEPROM daughterboard connector
  - 2×USB with Micro-AB
  - Ethernet RJ45
  - SPDIF RCA input connector
  - Audio line in and line out jack
  - Stereo speaker outputs
  - ARDUINO® Uno V3 expansion connectors
- Flexible power-supply options: ST-LINK, USB V_{BUS} or external sources
- Power supply output for external applications: 3.3 V or 5 V
- Comprehensive free software libraries and examples available with the STM32Cube MCU Package
- On-board ST-LINK/V2-1 debugger/programmer with USB re-enumeration capability: mass storage, Virtual COM port, and debug port
- Support of a wide choice of Integrated Development Environments (IDEs) including IAR™, Keil®, GCC-based IDEs, and Arm® Mbed™

DB2582 - Rev 3 - December 2019
For further information contact your local STMicroelectronics sales office.

www.st.com

1   Description

The 32F746GDISCOVERY Discovery kit is a complete demonstration and development platform for STMicroelectronics Arm® Cortex®-M7-core-based STM32F746NG (STM32F746NGH6 order code) microcontroller.

The 32F746GDISCOVERY Discovery kit is used as reference design for user application development before porting to the final product, thus simplifying the application development.

The Discovery kit enables a wide diversity of applications taking benefit from audio, multi-sensor support, graphics, security, video and high-speed connectivity features.

The ARDUINO® connectivity support provides unlimited expansion capabilities with a large choice of specialized add-on boards

The 32F746GDISCOVERY board is provided with the STM32CubeF7 MCU package, which offers an STM32 comprehensive software HAL library as well as various software examples.

2 Ordering information

To order the 32F746GDISCOVERY Discovery kit, refer to Table 1. For a detailed description, refer to its user manual on the product web page. Additional information is available from the datasheet and reference manual of the target microcontroller.

Table 1. List of available products

Order code	Board reference	User manual	Target STM32
STM32F746G-DISCO	MB1191	UM1907	STM32F746NGH6

2.1 Product marking

Evaluation tools marked as "ES" or "E" are not yet qualified and therefore not ready to be used as reference design or in production. Any consequences deriving from such usage will not be at ST charge. In no event, ST will be liable for any customer usage of these engineering sample tools as reference designs or in production.

"E" or "ES" marking examples of location:

- On the targeted STM32 that is soldered on the board (for illustration of STM32 marking, refer to the STM32 datasheet "Package information" paragraph at the *www.st.com* website).
- Next to the evaluation tool ordering part number that is stuck or silk-screen printed on the board.

2.2 Codification

The meaning of the codification is explained in Table 2.

Table 2. Codification explanation

STM32F7XXY-DISCO	Description	Example: STM32F746G-DISCO
STM32F7	MCU series in STM32 32-bit Arm Cortex MCUs	STM32F7 Series
XX	MCU product line in the series	STM32F746
Y	STM32 Flash memory size: • E for 512 Kbytes • G for 1 Mbyte	1 Mbyte
DISCO	Discovery kit	Discovery kit

The order code is mentioned on a sticker placed on the top side of the board.

3 Development environment

3.1 System requirements

- Windows® OS (7, 8 and 10), Linux® 64-bit, or macOS®
- USB Type-A to Mini-B cable

Note: *macOS® is a trademark of Apple Inc. registered in the U.S. and other countries.*

3.2 Development toolchains

- Keil® MDK-ARM[1]
- IAR™ EWARM[1]
- GCC-based IDEs
- Arm® Mbed™[2] online[3] (see mbed.org)

Note:
1. *On Windows® only.*
2. *Arm and Mbed are registered trademarks or trademarks of Arm Limited (or its subsidiaries) in the US and or elsewhere.*
3. *Refer to the www.mbed.com website and to the "Ordering information" section to determine which order codes are supported.*

3.3 Demonstration software

The demonstration software, included in the STM32Cube MCU Package corresponding to the onboard microcontroller, is preloaded in the STM32 Flash memory for easy demonstration of the device peripherals in standalone mode. The latest versions of the demonstration source code and associated documentation can be downloaded from www.st.com.

Revision history

Table 3. Document revision history

Date	Version	Changes
4-Jun-2015	1	Initial release.
29-Jun-2015	2	Updated *Section : Features* adding 2 bullets: mbed-enabled, supported by a wide choice of integrated development environments. Added mbed-enabled logo. Updated *Section : Description*. Updated *Section 1: System requirements* adding OS at windows. Updated *Section 2: Development toolchains* adding ARM$^{®}$mbed™ online.
16-Dec-2019	3	Revised the entire document and reorganized Section Features, Section 1 Description, Section 2 Ordering information and Section 3.2 Development toolchains. Removed *Section 5: Technology partners*.

IMPORTANT NOTICE – PLEASE READ CAREFULLY

STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST's terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers' products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. For additional information about ST trademarks, please refer to www.st.com/trademarks. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.