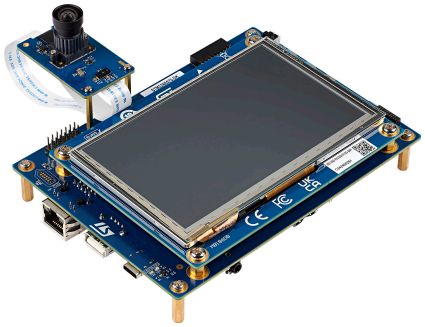
STM32N6570-DK

Data brief

Discovery kit with STM32N657X0 MCU



STM32N6570-DK global view. Picture is not contractual.

Product status link
STM32N6570-DK

Features

- STM32N657X0H3Q Arm® Cortex®-M55-based microcontroller featuring ST Neural-ART Accelerator, H264 encoder, NeoChrom 2.5D GPU, and 4.2 Mbytes of contiguous SRAM, in a VFBGA264 package
- 5" LCD module with capacitive touch panel
- USB Type-C® with USB 2.0 HS interface, dual-role-power (DRP)
- USB Type-A with USB 2.0 HS interface, host, 0.5 A max
- 1-Gbit Ethernet with TSN (time-sensitive networking) compliant with IEEE-802.3-2002
- SAI audio codec
- One MEMS digital microphone
- 1-Gbit Octo-SPI flash memory
- 256-Mbit Hexadeca-SPI PSRAM
- Two user LEDs
- User, tamper, and reset push-buttons
- Board connectors:
  - USB Type-C®
  - USB Type-A
  - Ethernet RJ45
  - Camera module
  - microSD™ card
  - LCD
  - Stereo headset jack including analog microphone input
  - Audio MEMS daughterboard expansion connector
  - ARDUINO® Uno R3 expansion connector
  - STMod+ expansion connector
- On-board STLINK-V3EC debugger/programmer with USB re-enumeration capability: Virtual COM port, and debug port
- Comprehensive free software libraries and examples available with the STM32CubeN6 MCU Package
- Support of a wide choice of Integrated Development Environments (IDEs) including IAR Embedded Workbench®, MDK-ARM, and STM32CubeIDE
- Handled by STM32CubeMonitor-UCPD (STM32CubeMonUCPD) software tool.

1 Description

The STM32N6570-DK Discovery kit is a complete demonstration and development platform for the Arm® Cortex®-M55 core-based STM32N657X0H3Q microcontroller.

The STM32N6570-DK Discovery kit includes a full range of hardware features that help the user evaluate many peripherals, such as USB Type-C®, Octo-SPI flash memory and Hexadeca-SPI PSRAM devices, Ethernet, camera module, LCD, microSD™, audio codec, digital microphones, ADC, flexible extension connectors, and user button. The four flexible extension connectors feature easy and unlimited expansion capabilities for specific applications such as wireless connectivity, analog applications, and sensors.

The STM32N657X0H3Q microcontroller features one USB 2.0 high-speed/full-speed Device/Host/OTG controller, one USB 2.0 high-speed/full-speed Device/Host/OTG controller with UCPD (USB Type-C® Power Delivery), one Ethernet with TSN (time-sensitive networking), four I^2Cs, two I3Cs, six SPIs (of which four I^2S-capable), two SAIs, with four DMIC support, five USARTs, five UARTs (ISO78916 interface, LIN, IrDA, up to 12.5 Mbit/s), one LPUART, two SDMMCs (MMC version 4.0, CE-ATA version 1.0, and SD version 1.0.1), three CAN FD with TTCAN capability, JTAG and SWD debugging support, and Embedded Trace Macrocell™ (ETM).

The STM32N6570-DK Discovery kit integrates an STLINK-V3EC embedded in-circuit debugger and programmer for the STM32 MCU, with a USB Virtual COM port bridge and the comprehensive MCU Package.

2 Ordering information

To order the STM32N6570-DK 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 STM32.

Table 1. List of available products

Order code	Board references	User manual	Target STM32
STM32N6570-DK	• MB1280(1) • MB1854(2) • MB1860(3) • MB1939(4)	UM3300	STM32N657X0H3Q

1. *STMod+ fan-out expansion board*
2. *Camera module (B-CAMS-IMX - Camera module bundle for STM32 boards)*
3. *LCD daughterboard*
4. *Main board*

2.1 Product marking

The sticker located on the top or bottom side of all PCBs provides product information:

- Main board featuring the target device: product order code, product identification, serial number, and board reference with revision.
  Example:

  Product order code
  Product identification
  syywwxxxxx
  MBxxxx-Variant-yzz

- Other boards if any: board reference with revision and serial number.
  Example:

  MBxxxx-Variant-yzz
  syywwxxxxx

On the main board sticker, the first line provides the product order code, and the second line the product identification.

On all board stickers, the line formatted as *"MBxxxx-Variant-yzz"* shows the board reference *"MBxxxx"*, the mounting variant *"Variant"* when several exist (optional), the PCB revision *"y"*, and the assembly revision *"zz"*, for example B01. The other line shows the board serial number used for traceability.

Parts marked as *"ES"* or *"E"* are not yet qualified and therefore not approved for use in production. ST is not responsible for any consequences resulting from such use. In no event will ST be liable for the customer using any of these engineering samples in production. ST's quality department must be contacted prior to any decision to use these engineering samples to run a qualification activity.

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

- On the targeted STM32 that is soldered on the board (for an 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.

Some boards feature a specific STM32 device version, which allows the operation of any bundled commercial stack/library available. This STM32 device shows a *"U"* marking option at the end of the standard part number and is not available for sales.

To use the same commercial stack in their applications, the developers might need to purchase a part number specific to this stack/library. The price of those part numbers includes the stack/library royalties.

2.2 Codification

The meaning of the codification is explained in Table 2.

Table 2. Codification explanation

STM32XXYYZ-DK	Description	Example: STM32N6570-DK
XX	MCU series in STM32 32-bit Arm Cortex MCUs	STM32N6 series
YY	MCU product line in the series	STM32N657
Z	STM32 flash memory size: • 0 for 0-1 Kbyte	0 Kbyte
-DK	Toolkit type: • Discovery kit	Discovery kit

3 Development environment

The STM32N6570-DK board runs with the STM32N657X0H3Q 32-bit microcontroller based on the Arm® Cortex®-M55 core.

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

3.1 System requirements

- Multi-OS support: Windows® 10, Linux® 64-bit, or macOS®
- USB Type-A or USB Type-C® to USB Type-C® cable

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

Linux® is a registered trademark of Linus Torvalds.

Windows is a trademark of the Microsoft group of companies.

3.2 Development toolchains

- IAR Systems® - IAR Embedded Workbench®(1)
- Keil® - MDK-ARM(1)
- STMicroelectronics - STM32CubeIDE

1. *On Windows® only.*

3.3 Demonstration software

The demonstration software, included in the STM32Cube MCU Package corresponding to the on-board microcontroller, is preloaded in the on-board 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	Revision	Changes
08-Nov-2024	1	Initial release.