

Discovery kits with STM32H745XI and STM32H750XB MCUs

Introduction

The [STM32H745I-DISCO](#) and [STM32H750B-DK](#) Discovery kits are complete demonstration and development platforms for STMicroelectronics Arm® Cortex®-M7 and Cortex®-M4 core-based [STM32H745XI](#) (STM32H745XIH6 order code), and Cortex®-M7 core-based [STM32H750XB](#) (STM32H750XBH6 order code) microcontrollers. Both devices feature four I²Cs, six SPIs with three multiplexed simplex I²Ss, two SD/SDIO/SDMMC interfaces, four USARTs, four UARTs, one LPUART, two CAN controllers, three 16-bit ADCs, two 12-bit DACs, four SAIs, 8- to 14-bit digital camera interface, 1 Mbyte (STM32H745XIH6) or 128 Kbytes (STM32H750XBH6) of internal SRAM and 2 Mbytes of flash memory, a USB OTG HS and a USB OTG FS, an Ethernet MAC interface, an FMC interface, a Quad-SPI interface, and SWD debugging support. The [STM32H745I-DISCO](#) and [STM32H750B-DK](#) Discovery kits enable users to get started quickly and develop applications.

In addition, the STM32H745I-DISCO and STM32H750B-DK, shown in [Figure 1](#) and [Figure 2](#), can be used as a reference design for user application prototyping before porting to the final product.

The full range of hardware features available on the board helps users enhance their application development through an evaluation of almost all peripherals (such as USB OTG FS, Ethernet 10/100 Mbit/s, eMMC, USART, SAI audio DAC stereo with audio jack input and output, MEMS digital microphone, SDRAM, Quad-SPI flash memory, and RGB interface LCD with capacitive multi-touch panel). ARDUINO® Uno V3 connectors provide easy connection to extension shields or daughterboards for specific applications.

STLINK-V3E is integrated into the board, as an embedded in-circuit debugger and programmer for the STM32 MCU and the USB Virtual COM port bridge.

The [STM32H745I-DISCO](#) and [STM32H750B-DK](#) boards come with the [STM32CubeH7](#) MCU Package, which provides an STM32 comprehensive software HAL library as well as various software examples.

Figure 1. STM32H745I-DISCO and STM32H750B-DK main boards (top view)

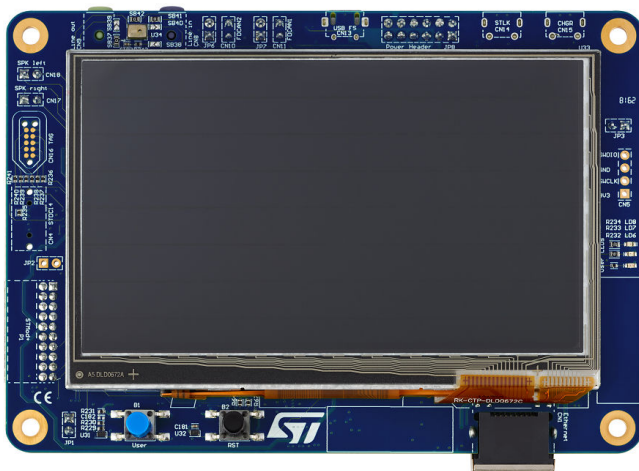
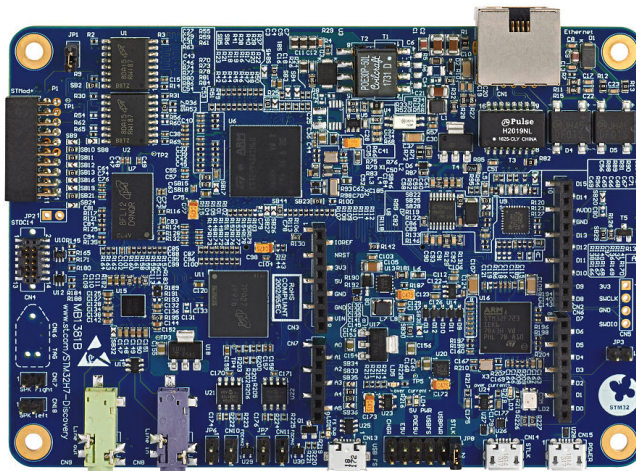


Figure 2. STM32H745I-DISCO and STM32H750B-DK main boards (bottom view)



Pictures are not contractual. PCB colors may differ.

1 Features

- Arm® Cortex® core-based microcontroller with 2 Mbytes (STM32H745XIH6) or 128 Kbytes (STM32H750XBH6) of flash memory and 1 Mbyte of RAM, in a TFBGA240+25 package
- 4.3" RGB interface LCD with touch panel connector
- Ethernet compliant with IEEE-802.3-2002, and PoE
- USB OTG FS
- SAI audio codec
- One MEMS digital microphone
- 2× 512-Mbit Quad-SPI NOR flash memory
- 128-Mbit SDRAM
- 4-Gbyte on-board eMMC
- 1 user and reset push-button
- STMod+ fan-out expansion board
- 2× CAN FDs
- Board connectors:
 - USB FS Micro-AB connectors
 - ST-LINK Micro-B USB connector
 - USB power Micro-B connector
 - Ethernet RJ45
 - Stereo headset jack including analog microphone input
 - Audio header for external speakers
 - Tag-Connect™ (TAG) 10-pin footprint
 - Arm® Cortex® 10-pin 1.27 mm pitch debug connector over STDC14 footprint
 - ARDUINO® Uno V3 expansion connectors
 - STMod+
- Flexible power-supply options:
 - STLINK-V3E USB connector, USB FS connector
 - 5 V delivered by RJ45 (Power over Ethernet)
 - 5 V delivered by ARDUINO® or external connector
 - USB charger
 - USB power
- On-board STLINK-V3E debugger/programmer with USB re-enumeration capability: mass storage, Virtual COM port, and debug port
- Comprehensive free software libraries and examples available with the [STM32CubeH7 MCU Package](#)
- Support of a wide choice of Integrated Development Environments (IDEs) including IAR Embedded Workbench®, MDK-ARM, and STM32CubeIDE

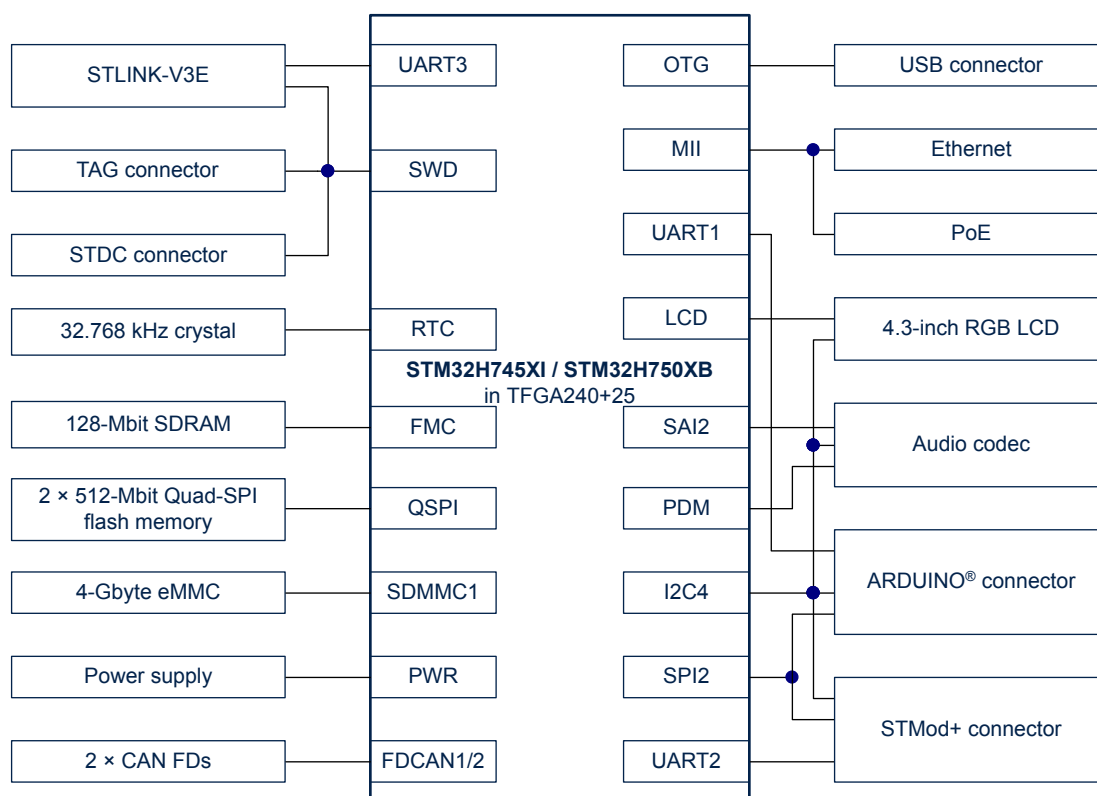
Note: *Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere.*

arm

6 Hardware layout and configuration

The **STM32H745I-DISCO** and **STM32H750B-DK** Discovery kits are designed around the STM32H745XIH6 and STM32H750XBH6 microcontrollers, respectively. Both microcontrollers are packaged in TFBGA240+25. The hardware block diagram (see [Figure 3](#)) illustrates the connection between the microcontroller and the peripherals (SDRAM, eMMC, Quad-SPI flash memory, CAN FD (FDCAN), LCD RGB connector, USB OTG connectors, UART, Ethernet, audio, TAG connector, STDC connector, ARDUINO® Uno shields, and embedded ST-LINK). [Figure 4](#) and [Figure 5](#) help to locate these features on the **STM32H745I-DISCO** and **STM32H750B-DK** boards.

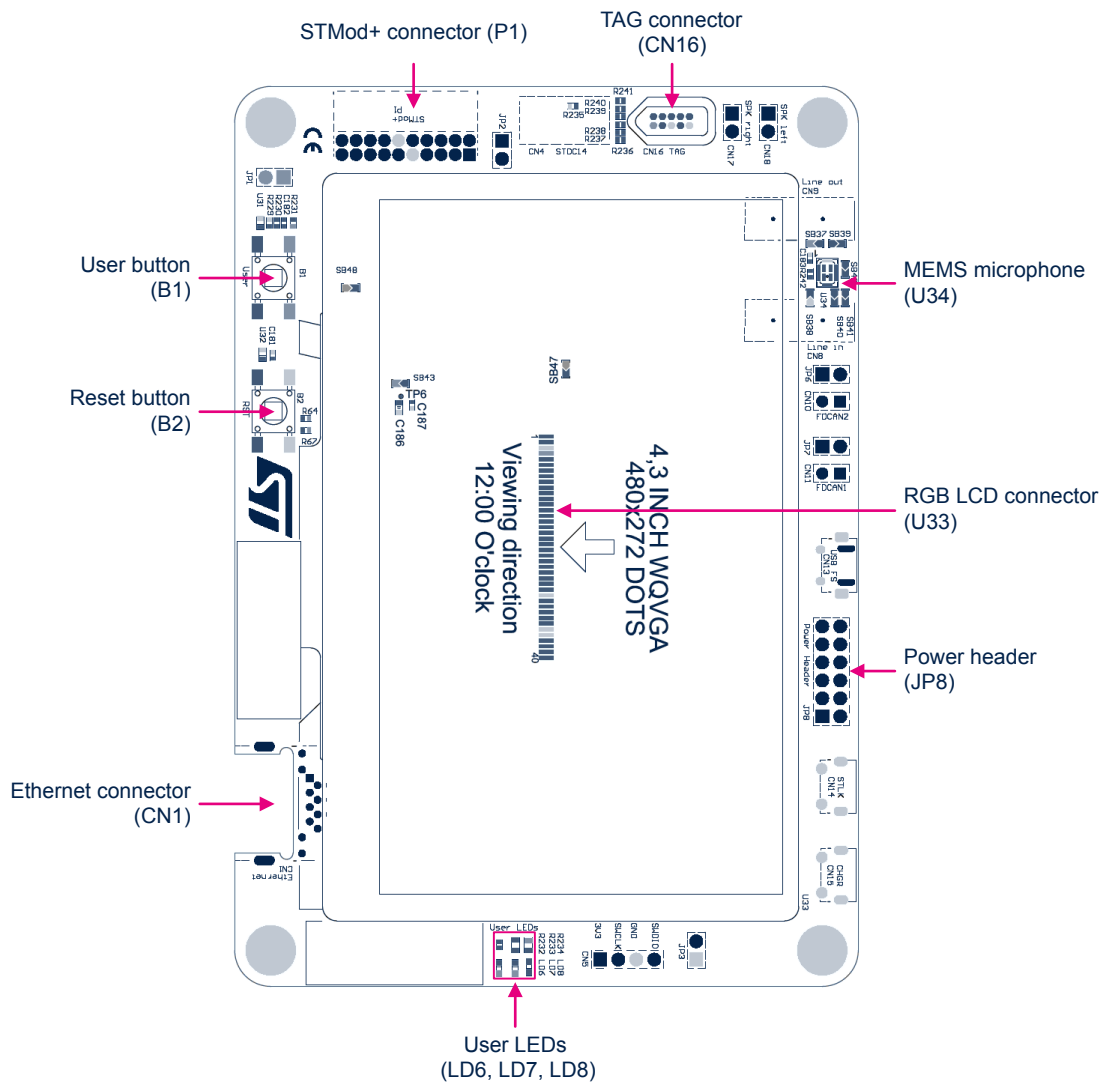
Figure 3. Hardware block diagram



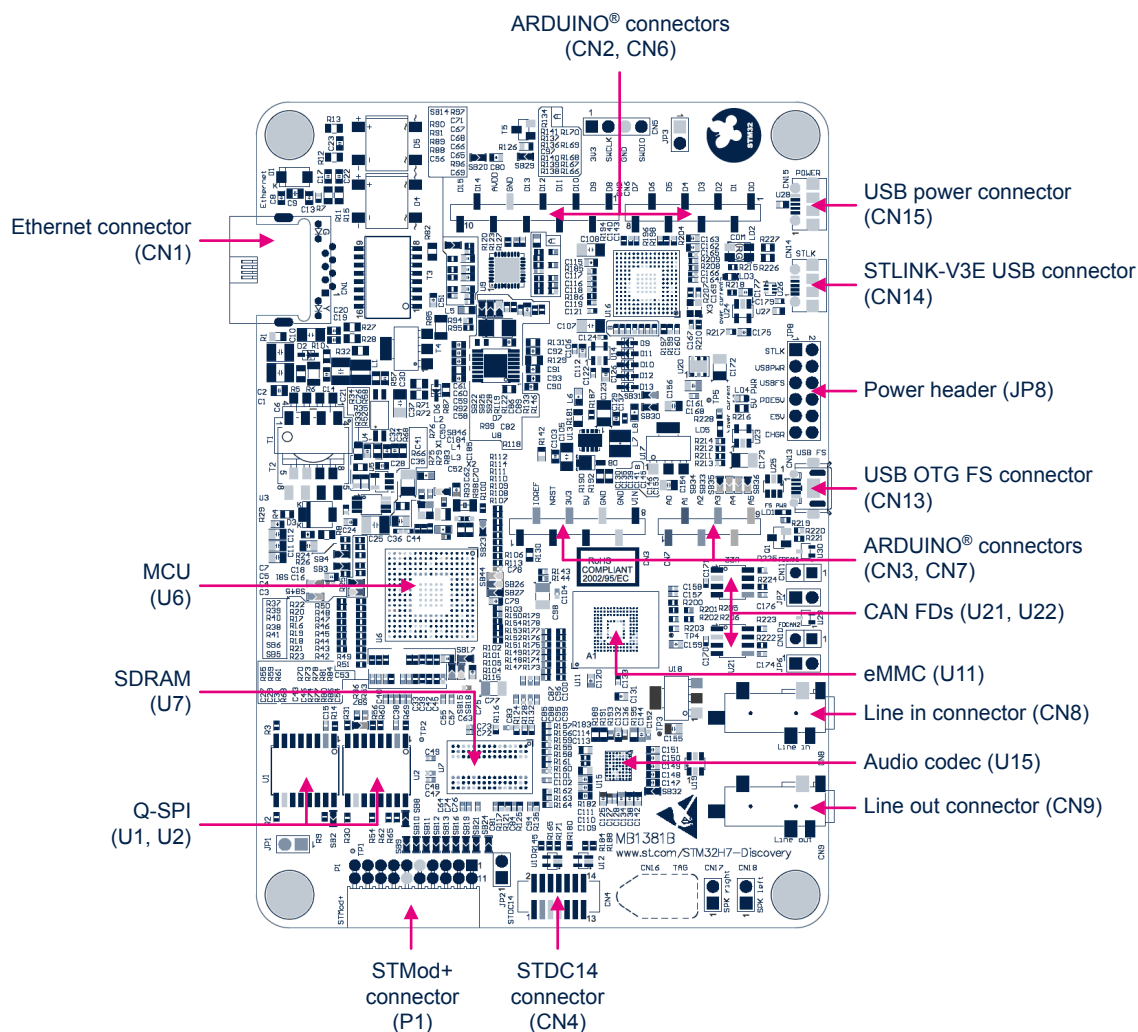
DT71752V1

6.1 STM32H745I-DISCO and STM32H750B-DK layout

Figure 4. STM32H745I-DISCO and STM32H750B-DK Discovery main board top layout



DT71753V1

Figure 5. STM32H745I-DISCO and STM32H750B-DK Discovery main board bottom layout


DT71754V1