Discovery kit with STM32MP257F MPU

Introduction

The STM32MP257F-DK Discovery kit is designed as a complete demonstration and development platform for the STMicroelectronics STM32MP257F microprocessor based on Arm® dual-core Cortex®-A35 at 1.5 GHz and Cortex®-M33 at 400 MHz, and the STPMIC25 companion chip.

It leverages the capabilities of the STM32MP257F microprocessor to allow users to develop easily applications using STM32 MPU OpenSTLinux Distribution (such as STM32MP2Starter).

The STM32MP257F-DK Discovery kit, shown in Figure 1 and Figure 2, is used as a reference design for the user application development. It cannot be considered as the hardware design of a final application. The hardware features of the Discovery kit are available for users to develop their applications: USB, Ethernet, microSD™ card, user buttons, Wi-Fi®, Bluetooth® LE, LVDS, and HDMI® and CSI for a camera module. Extension headers allow the easy connection of a third-party board for a specific application.

STLINK-V3EC is integrated on the board as an embedded in-circuit debugger for the STM32 MPU and the USB Virtual COM port bridge.

Figure 1. STM32MP257F-DK top view

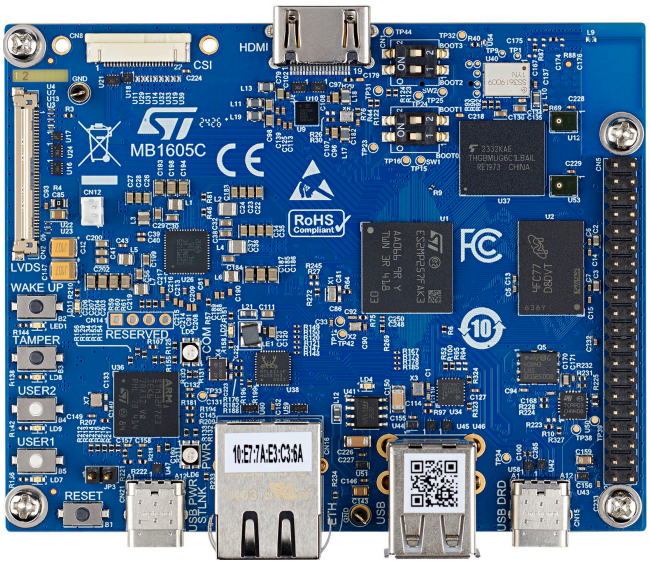
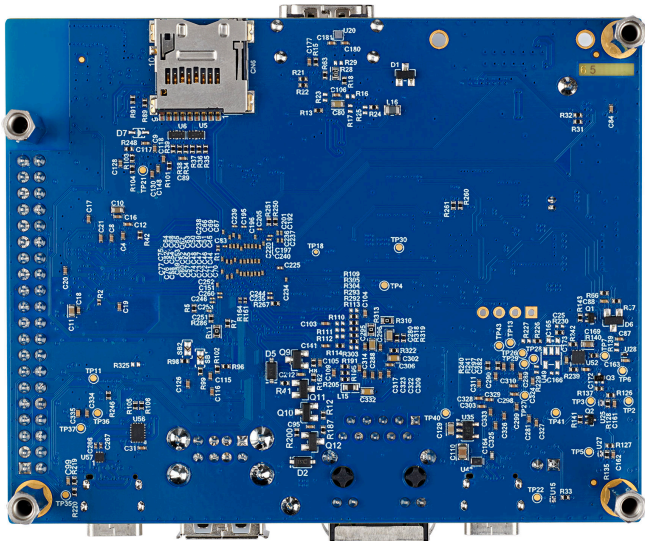


Figure 2. STM32MP257F-DK bottom view



Pictures are not contractual.

1 Features

- STM32MP257FAK3 microprocessor based on the Arm® dual-core Cortex®-A35 at 1.5 GHz and Cortex®-M33 at 400 MHz in a VFBGA424 package
- STMicroelectronics power management STPMIC25
- 32-Gbit LPDDR4 DRAM
- 64-Gbit eMMC v5.1
- 1-Gbit/s Ethernet (RGMII)
- Two USB 2.0 high speed
- USB 3.0 SuperSpeed PD (DRP/DRD)
- Wi-Fi® 802.11b/g/n
- Bluetooth® LE
- Four user LEDs
- Two user, one tamper, and one reset push-buttons
- Wake-up button
- Four boot pin switches
- Board connectors:
  - Ethernet RJ45
  - Two stacked USB 2.0 HS Type-A
  - USB 3.0 USB Type-C® PD
  - microSD™ card holder
  - Dual-lane MIPI CSI-2® camera module expansion connector
  - HDMI®
  - LVDS
  - GPIO expansion connector
  - VBAT for power backup
- On-board STLINK-V3EC:
  - Debugger with USB re-enumeration capability: Virtual COM port and debug port
  - Board power source through USB Type-C® (recommended to connect to 5 V/3 A USB host port)
- Mainlined open-source Linux® STM32 MPU OpenSTLinux Distribution and STM32CubeMP2 software with examples
- Linux® Yocto Project®, Buildroot, and STM32CubeIDE as development environments

STM32 Arm Cortex MPUs are based on the Arm® Cortex®-A and Cortex®-M processors.

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

2 Ordering information

To order the STM32MP257F-DK Discovery kit, refer to Table 1. Additional information is available from the datasheet and reference manual of the target STM32.

Table 1. Ordering information

Order code	Board references	Target STM32
STM32MP257F-DK	MB1605(1)	STM32MP257FAK3

1. *Subsequently called main board in the rest of the documentation.*

2.1 Codification

The meaning of the codification is explained in Table 2.

Table 2. Codification explanation

STM32MP2XXY-DK	Description	Example: STM32MP257F-DK
STM32MP2	MPU series in STM32 Arm Cortex MPUs	STM32MP2 series
XX	MPU product line in the series	STM32MP257 product line
Y	Option: • F: Secure boot, cryptography hardware, maximal frequency	Secure boot, cryptography hardware, 1.5 GHz
DK	Discovery kit	Discovery kit

3 Development environment

3.1 System requirements

- Multi-OS support: Windows® 10 and 11, 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 tools

- Linux® Yocto Project®
- Buildroot
- STMicroelectronics - STM32CubeIDE

3.3 Demonstration software

The STM32 MPU OpenSTLinux Distribution and STM32CubeMP2 base demonstration software are preloaded in the microSD™ to demonstrate the device peripherals in standalone mode easily. The latest versions of the demonstration source code and associated documentation can be downloaded from *www.st.com*.

3.4 EDA resources

All board design resources, including schematics, EDA databases, manufacturing files, and the bill of materials, are available from the STM32MP257F-DK product page at *www.st.com*.

4 Conventions

Table 3 provides the conventions used for the ON and OFF settings in the present document.

Table 3. ON/OFF convention

Convention	Definition
Jumper JPx ON	Jumper fitted
Jumper JPx OFF	Jumper not fitted
Jumper JPx [1-2]	Jumper fitted between pin 1 and pin 2
Solder bridge SBx ON	SBx connections closed by 0 Ω resistor
Solder bridge SBx OFF	SBx connections left open
Resistor Rx ON	Resistor soldered
Resistor Rx OFF	Resistor not soldered
Capacitor Cx ON	Capacitor soldered
Capacitor Cx OFF	Capacitor not soldered

5 Safety recommendations

5.1 Targeted audience

This product targets users with at least basic electronics or embedded software development knowledge such as engineers, technicians, or students. This board is not a toy and is not suited for use by children.

5.2 Handling the board

This product contains a bare printed circuit board and like all products of this type, the user must be careful about the following points:

- The connection pins on the board might be sharp. Be careful when handling the board to avoid hurting yourself
- This board contains static-sensitive devices. To avoid damaging it, handle the board in an ESD-proof environment.
- While powered, do not touch the electric connections on the board with your fingers or anything conductive. The board operates at a voltage level that is not dangerous, but components might be damaged when shorted.
- Do not put any liquid on the board and avoid operating the board close to water or at a high humidity level.
- Do not operate the board if dirty or dusty.

6 Quick start

Before installing and using the product, accept the evaluation product license agreement from the *www.st.com/epla* webpage.

6.1 Getting started

Follow the sequence below to configure the STM32MP257F-DK Discovery kit and launch the demonstration application (refer to Figure 4 and Figure 5 for component location).

To start using this board, follow the steps below:

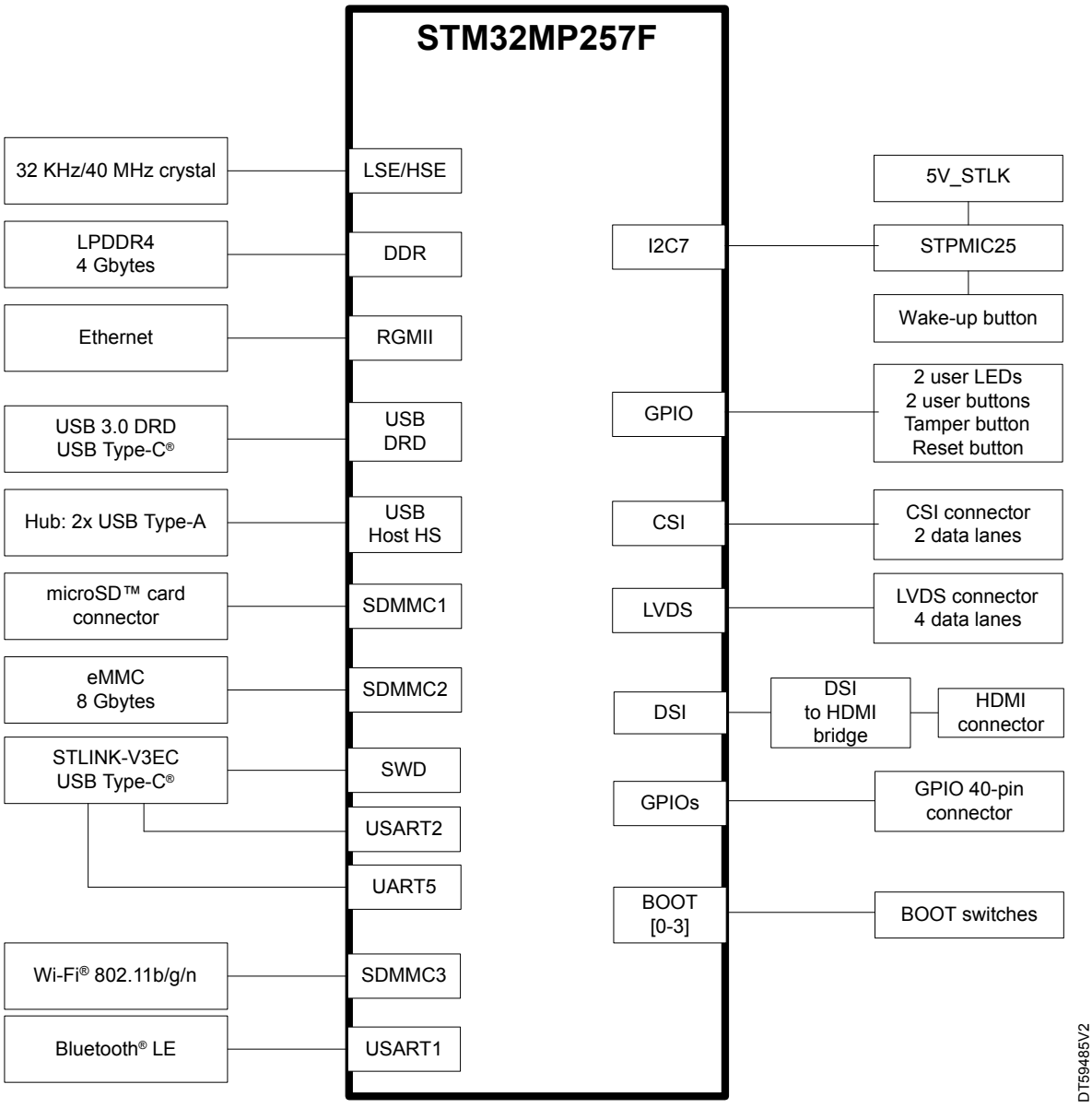
- To identify correctly all device interfaces from the host PC, install the evaluation USB driver available on the *www.st.com* website, before connecting the board.
- To power the board, connect the Discovery kit to a 5 V/3 A USB Type-C® charger with its cable through the USB connector (CN21) or to the computer with USB Type-C®. As a result, the 5V_PWR (LD11) and POWER (LD6) green LEDs light up, and the COM LED (LD5) blinks.
- The software demonstration and several software examples, which allow the user to use the evaluation features, are available on the STM32MP2 series webpage.
- Develop an application using the available examples.

7 Hardware layout and configuration

7.1 Hardware block diagram

STM32MP257F-DK is designed around the STM32MP257FAK3 microprocessor in the VFBGA424 package. The hardware block diagram (refer to Figure 3) illustrates the connection between the microprocessor and its peripherals, such as Ethernet, CSI camera connector, USB Type-C® DRP and USB Type-A connectors, GPIO expansion, and embedded ST-LINK.

Figure 3. STM32MP257F-DK hardware block diagram



7.2 Hardware board layout

Figure 4 and Figure 5 help users locate these features on the STM32MP257F-DK board.

Figure 4. STM32MP257F-DK PCB layout (top side)

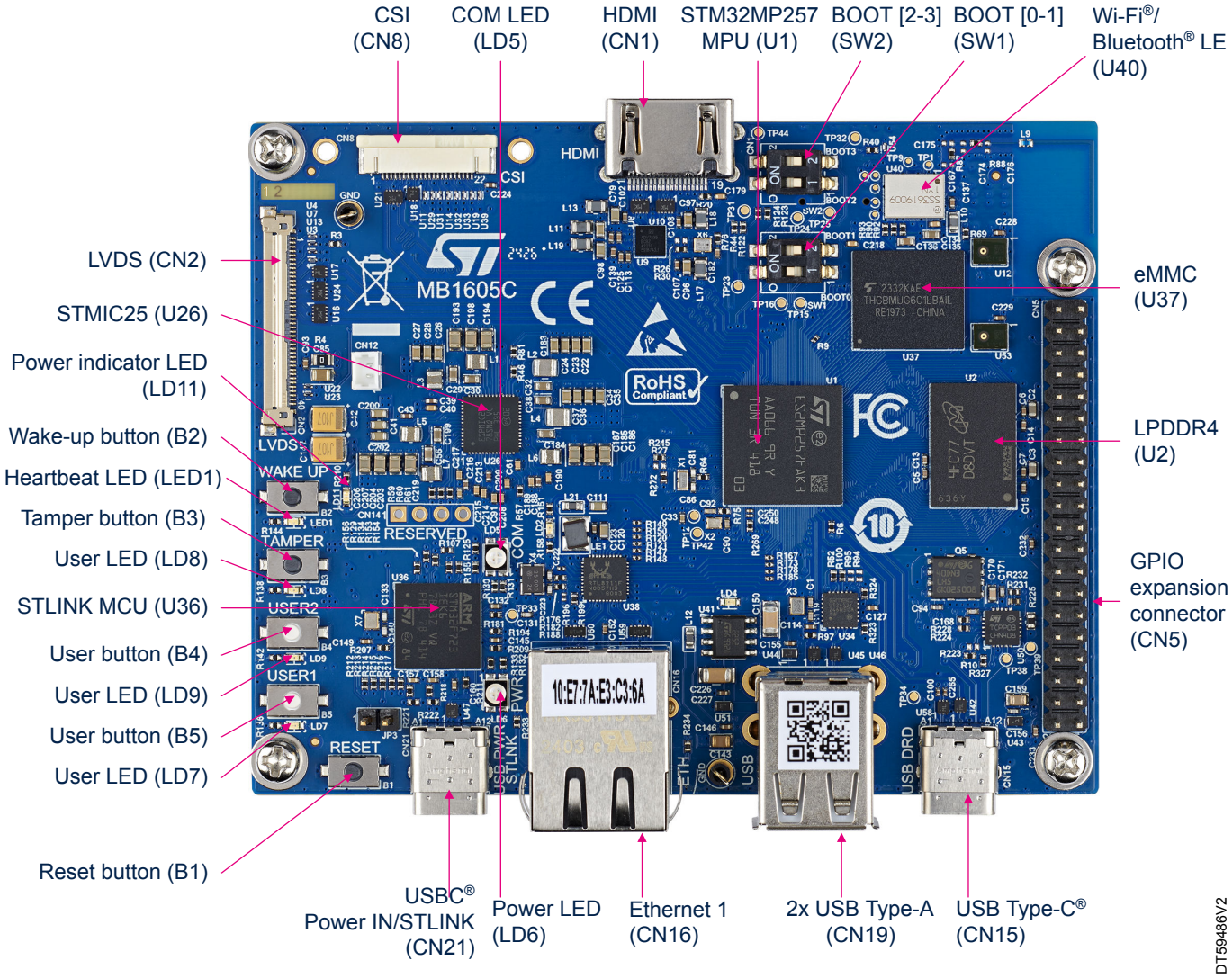
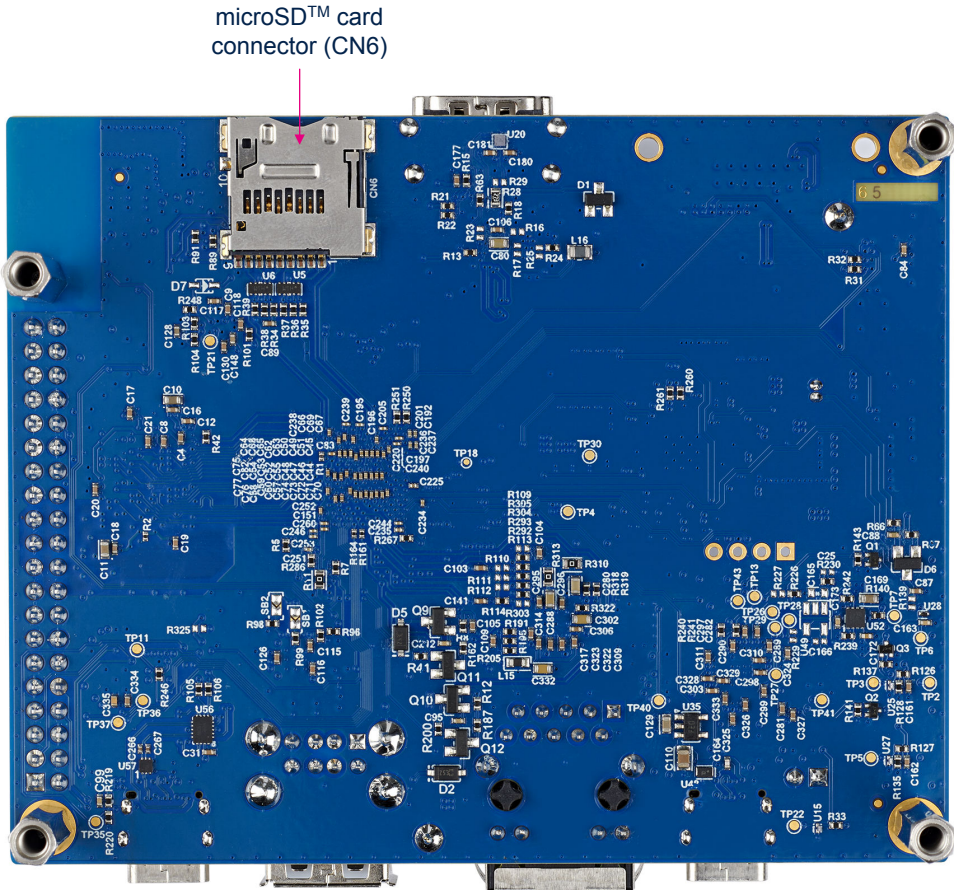
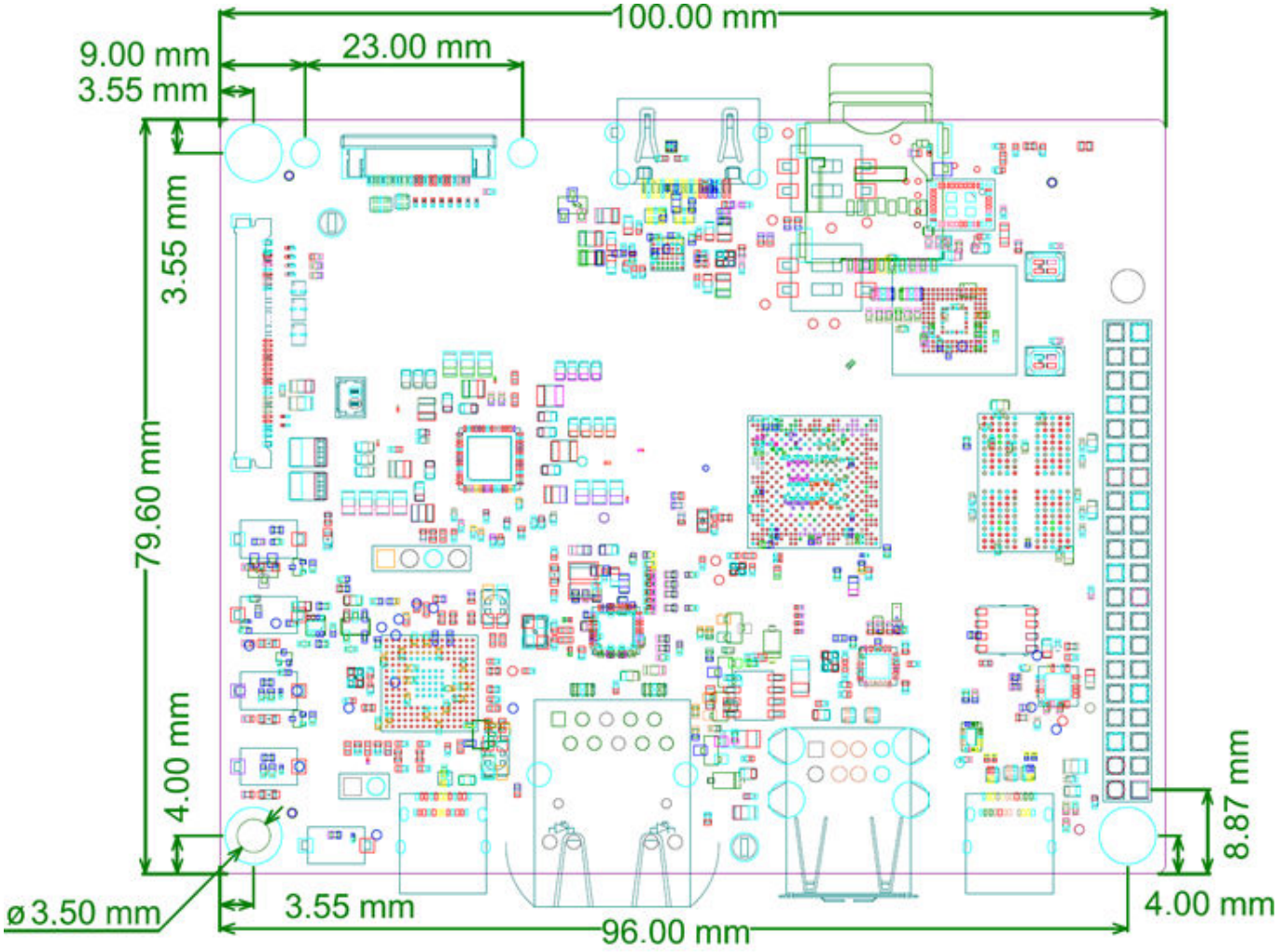


Figure 5. STM32MP257F-DK PCB layout (bottom side)



7.3 Mechanical drawing

Figure 6. STM32MP257F-DK Discovery kit mechanical dimensions (in millimeters)



7.4 Embedded STLINK-V3EC

This section gives some information about the implementation of STLINK-V3EC on this board.

Attention: *Before using STLINK-V3EC, ensure that the complete system is well-configured and up-to-date with the STLINK-V3EC function. For detailed information about the STLINK-V3EC features such as drivers, firmware upgrades, USB interface selection, and LED management, refer to the technical note Overview of ST-LINK derivatives (TN1235).*

7.4.1 Description

To debug the onboard STM32MP257 device, the STLINK-V3EC programming and debugging tool is integrated in STM32MP257F-DK. The embedded STLINK-V3EC supports only SWD and VCP for STM32 devices. For information about the debugging and programming features of STLINK-V3EC, refer to the user manual *ST-LINK/V2 in-circuit debugger/programmer for STM8 and STM32* (UM1075) and to the corresponding technical note Overview of ST-LINK derivatives (TN1235).

7.4.2 STLINK-V3EC deactivation (Reset mode)

It is simple to deactivate the STLINK-V3EC function by putting a jumper on the JP3 header, to connect STLK_NRST to GND. Programming, debugging, and monitoring through ST-LINK are impossible in this Reset state, where all STLINK-V3EC PIOs are in high impedance.

7.4.3 Drivers

Before connecting STM32MP257F-DK to a Windows® PC via the USB, a driver for STLINK-V3EC must be installed (it is not required for Windows 10® and above). It is available from the *www.st.com* webpage.

If STM32MP257F-DK is connected to the PC before the driver is installed, some STM32MP257F-DK interfaces might be declared *Unknown* in the PC device manager. In this case, the user must install the dedicated driver files, and update the driver of the connected device from the device manager.

7.4.4 STLINK-V3EC firmware upgrade

STLINK-V3EC embeds a firmware upgrade mechanism for in-place upgrades through the USB port. Firmware might evolve during the lifetime of the STLINK-V3EC product (addition of new functionalities, bug fixes, or support of new microprocessor families). Therefore, it is recommended to visit the *www.st.com* website periodically before starting to use STM32MP257F-DK to stay up-to-date with the latest firmware version.

7.4.5 Use of STLINK-V3EC to program and debug the on-board STM32

To debug the on-board STM32, no specific hardware configuration is required. Programming through STLINK-V3EC is not supported with microprocessor products.

7.4.6 LED signification

Refer to the technical note *Overview of ST-LINK derivatives* (TN1235).

7.5 Power supply

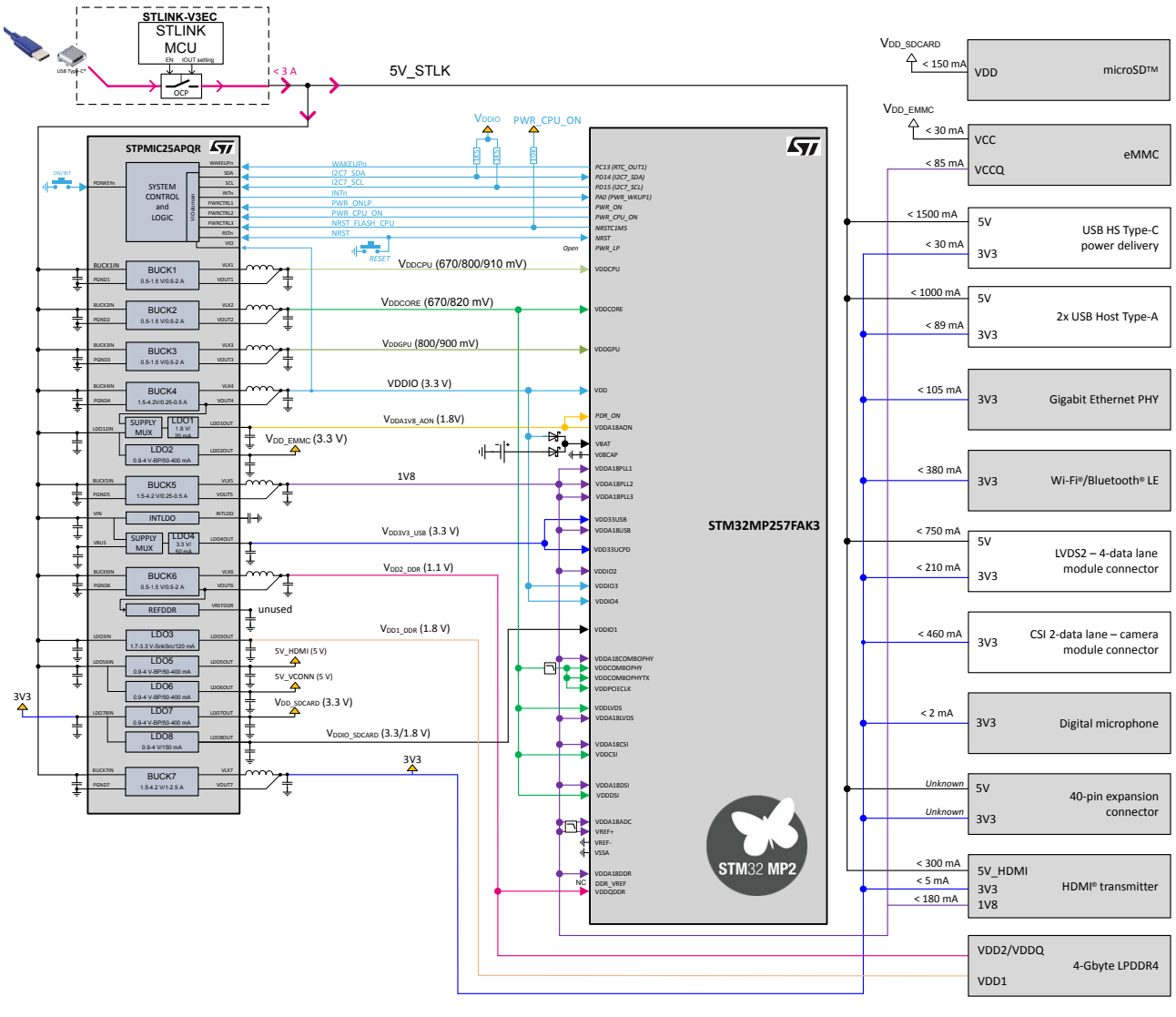
This product is not delivered with a power supply.

A power supply unit or auxiliary equipment complying with the EN 62368-1:2014+A11:2017 standard and safety extralow voltage (SELV/ES1) with limited power capability (LPS/PS2) must power this equipment.

7.5.1 Power diagram

Figure 7 describes the power architecture, under which functions can be safely used on the STM32MP257F-DK product. In any case, ensure the total power budget of the application always conforms to the 5 V power source, if not, malfunction can occur. For detailed configuration, refer to the relevant function description and technical application notes.

Figure 7. Power diagram



7.5.2 5 V power supply

The STM32MP257F-DK Discovery kit is designed to be powered by a 5V power source. It is recommended to use a power supply able to source 15 W such as:

- VBUS 5 V connected to the CN21 connector through a USB Type-C® to USB Type-C® cable. The USB_PWR_CC1 and USB_PWR_CC2 lines are connected to PC3 and PC4 of the ST-LINK MCU respectively to check what is connected to CN21 and control features enabling:
  - Legacy cable
  - Personal computer
  - 5 V DC power source at 3 A

  Depending on the current needed on the devices connected to the USB port, and the board itself, power limitations can prevent the system from working as expected. The user must ensure that the STM32MP257F-DK Discovery kit is supplied with the correct power source depending on the current needed. It is recommended to use a USB Type-C® to USB Type-C® cable.

7.5.3 STPMIC25APQR power management

For general information concerning STPMIC25APQR, refer to the datasheet on the *www.st.com* website.

For the boot on the SD™ card (DK application), the STPMIC25APQR nonvolatile memory is programmed to enable LDO7 and LDO8.

For information about STPMIC25APQR nonvolatile memory (NVM), refer to the application note *How to use STPMIC25 for a wall adapter powered application on STM32MP25x lines MPUs* (AN5727).

Note: STPMIC25DPQR part number is also available. There is no need to program the nonvolatile memory: LDO7 and LD08 are enabled by default. Fully compatible with STPMIC25APQR.

STPMIC25APQR supply

- VDDCPU (BUCK1) used to supply the CPU1 of the STM32MP257
  - Value: 670 mV LPLV-STOP1
  - Value: 800 mV RUN at 1.2 GHz
  - Value: 910 mV RUN at 1.5 GHz
- VDDCORE (BUCK2) used to supply the digital logic of the STM32MP257
  - Value: 670 mV LPLV-STOP
  - Value: 820 mV RUN
- VDDGPU (BUCK3) used to supply the GPU of the STM32MP257
  - Value: 800 mV RUN at 800 MHz
  - Value: 900 mV RUN at 900 MHz
- VDDIO (BUCK4) used to supply the VDD domains of the STM32MP257
  - Value: 3.3 V
- 1V8 (BUCK5) used to supply the 1.8V analog domain of the STM32MP257
  - Value: 1.8 V
- VDD2_DDR (BUCK6) used to supply the LPDDR4
  - Value: 1.2 V
- 3V3 (BUCK7) used to supply some of the 3.3V domains of the STM32MP257F-DK peripherals
  - Value: 3.3 V
- VREF_DDR provides the DDR reference voltage
  - Value: 0.6 V
- VDDA1V8_ON (LDO1) used to supply the 1.8 V always ON domain of the STM32MP257
  - Value: 1.8 V
- VDD_EMMC (LDO2) used to supply the eMMC memory
  - Value: 3.3 V
- VDD1_DDR (LD03) used to supply the LPDDR4
  - Value: 0.6 V

- VDD3V3_USB (LD04) used to supply the USB PHY of the STM32MP257
  - Value: 3.3 V
- 5V_HDMI (LDO5) provides the 5 V on the HDMI® connector
  - Value: 5 V
- 5V_VCONN (LDO6) provides the 5 V on the VCONN 1 W feature
  - Value: 5 V
- VDD_SDCARD (LDO7) used to supply the microSD™ card
  - Value: 3.3 V
- VDDIO_SDCARD (LDO8) used to supply the I/O of the microSD™ card
  - Value: 3.3 V or 1.8 V

7.6 Clock sources

7.6.1 LSE clock reference

The LSE clock reference on the STM32MP257FAK3 microprocessor is provided by the external crystal X2:

- 32.768 kHz crystal

7.6.2 HSE clock reference

The HSE clock reference on the STM32MP257FAK3 microprocessor is provided by the external crystal X4:

- 40 MHz crystal

7.7 Reset sources

The reset signal of STM32MP257F-DK is active LOW. The internal pull-up of the STM32MP2 forces the NRST signal to a high level.

The sources of reset are:

- The reset button B1 (black button)
- STPMIC25APQR
- The embedded STLINK-V3EC
- STM32MP257FAK3

7.8 Boot options

At startup, the boot pins select the boot source used by the internal bootROM. Table 4 describes the configurations of the boot pins.

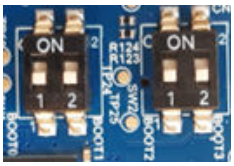
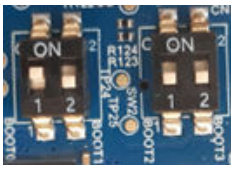
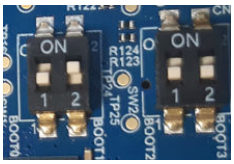
Table 4. Boot mode pin simplified table

Boot 3	Boot 2	Boot 1	Boot 0	Boot mode Cortex®-A35	Boot mode Cortex®-M33
0	0	0	0	Forced USB boot for flash programming	Forced USB boot for flash programming
0	0	0	1	SD card on SDMMC1	-
0	0	1	0	eMMC on SDMMC2	-
0	0	1	1	Development boot	
0	1	0	0	-	-
0	1	1	1	-	SD card on SDMMC1
1	0	0	0	-	eMMC on SDMMC2
1	0	1	1	-	-

Note: For the complete table, refer to the STM32MP257 datasheet.

Table 5 shows the configurations of the boot-related SW1 and SW2 switches.

Table 5. Boot mode SW1 and SW2 switches example of Cortex®-A35

BOOT0 BOOT1 BOOT2 BOOT3	Boot pin selection	Boot mode
	BOOT0: 0 BOOT1: 0 BOOT2: 0 BOOT3: 0	Forced USB boot for flash programming
	BOOT0: 1 BOOT1: 0 BOOT2: 0 BOOT3: 0	SD card on SDMMC1
	BOOT0: 0 BOOT1: 1 BOOT2: 0 BOOT3: 0	eMMC on SDMMC2

7.9 LEDs

7.9.1 Description

The LD11 LED turns green when the power cable is inserted into the CN21 connector.

Two general-purpose color LEDs (LED1 and LD9) are available as light indicators:

- The blue LED (LED1) is used as the Linux® Heartbeat LED, which is blinking as long as Linux® is alive on the Cortex®-A.
- The orange LED (LD9) is used as a STM32Cube example verdict LED.

The two indicator LEDs, the red (LD7) and green (LD8) LEDs are either connected to the STM32MP257 MPU.

The LEDs (LD5 and LD6) are used as ST-LINK indicator status. Refer to Section 7.4.6.

7.9.2 Operating voltage

The I/O level drives all the LEDs. They operate in the 3.3 V voltage range.

7.9.3 LED interface

Table 6 describes the I/O configuration of the LED interfaces.

Table 6. I/O configuration of the LED interfaces

I/O	Configuration
PH4	PH4 is connected to the red LED (LD7). Active low.
PH5	PH5 is connected to the green LED (LD8). Active high.
PH6	PH6 is connected to the orange LED (LD9). Active high.
PH7	PH7 is connected to the blue LED (LED1). Active high.

7.10 Buttons

7.10.1 Description

The STM32MP257F-DK Discovery kit provides five buttons:

1. USER1 button (B5):
   - Used at boot time by U-Boot to enter the USB programming mode with STM32CubeProgrammer
   - Can be used at runtime for Linux® on STM32MP25
   - Can be used at runtime for Linux® examples or STM32Cube examples
2. USER2 button (B4):
   - Used at boot time by U-Boot to enter the Android™ Fastboot mode
   - Can be used at runtime for STM32Cube examples on STM32MP25
3. Tamper button (B3):
   - Allows the detection of case opening as a security event
4. Wake-up button (B2):
   - Allows the platform to be woken up from any low-power mode
   - Connected to STPMIC25APQR PONKEYn, which generates a wake-up signal on STM32MP257FAK3 pin PA0
5. Reset button (B1):
   - Used to reset the Discovery kit

7.10.2 I/O interface

Table 7 describes the I/O configuration of the physical user interface.

Table 7. I/O configuration of the physical user interface

I/O	Configuration
PC5	USER1 user button (B5)
PC11	USER2 user button (B4)
-	Wake-up button (B2). Connected to the PONKEYn pin of the STPMIC25APQR
PZ2	TAMPER button (B3)
NRST	Reset button (B1), active low

7.11 eMMC flash memory

The 8-Gbyte eMMC flash memory is compatible with eMMC v5.1.

The eMMC RSTn (NRSTC1MS, active LOW) is the reset for eMMC. The embedded footprint is also compatible with other eMMC references in the 153-ball package. Check the compatibility of the memory datasheet with the MB1605 schematics. The SDMMC2 is a bootable interface.

Table 8. eMMCflash memory I/O interface

I/O	Configuration
PE15	CMD (eMMC.SDMMC2_CMD)
PE14	CLK (eMMC.SDMMC2_CK)
PE13	D0(eMMC.SDMMC2_D0)
PE11	D1(eMMC.SDMMC2_D1)
PE8	D2(eMMC.SDMMC2_D2)
PE12	D3(eMMC.SDMMC2_D3)
PE10	D4(eMMC.SDMMC2_D4)
PE9	D5(eMMC.SDMMC2_D5)
PE6	D6(eMMC.SDMMC2_D6)
PE7	D7(eMMC.SDMMC2_D7)
NRSTC1MS	RSTn

8 Board connectors

This chapter explains the functions, peripherals, and interfaces of the board. Refer to Features, Hardware layout and configuration, Figure 4, and Figure 5 of STM32MP257F-DK top and bottom layout views.

8.1 USB Host

8.1.1 Description

The STM32MP257F-DK Discovery kit provides two USB 2.0 HS host ports (dual-USB sockets CN19) through the use of a USB hub. The USB hub has full power management for each USB port. No I/O is needed from STM32MP257.

8.1.2 USB Host interface

Table 9 describes the I/O configuration for the USB Host user interface.

Table 9. I/O configuration of the USB Host interfaces

I/O	Configuration
USB_HS_DP	USBIN_P
USB_HS_DM	USBIN_N

Figure 8 shows the USB Type-A connector (CN19) pinout.

Figure 8. USB Type-A connector (CN19) pinout

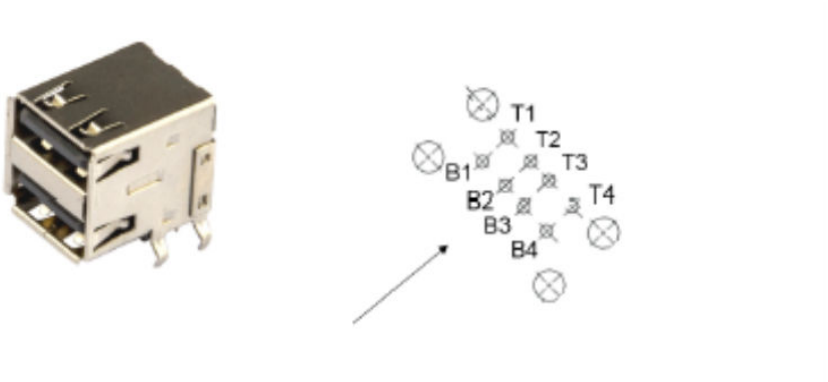


Table 10 describes the USB Host connector (CN19) pinout.

Table 10. USB Host connector (CN19) pinout

Pin	Pin name	Signal name	Function
T1	T1	VBUS	VBUS
T2	T2	USB1CN_N	DM
T3	T3	USB1CN_P	DP
T4	T4	GND	GND
B1	B1	VBUS	VBUS
B2	B2	USB2CN_N	DM
B3	B3	USB2CN_P	DP
B4	B4	GND	GND

8.2 USB 3.0 USB Type-C®

8.2.1 Description

The STM32MP257F-DK Discovery kit supports USB 3.0 SuperSpeed (SS) communication. The USB connector is a USB Type-C® connector (CN15).

The STM32MP257F-DK Discovery kit supports USB Type-C® Source mode.

8.2.2 Operating voltage

The STM32MP257F-DK Discovery kit supports a 5 V USB voltage from 4.75 to 5.25 V.

8.2.3 USB HS Source

When a USB Device connection to the USB Type-C® connector (CN15) of STM32MP257F-DK is detected, the Discovery kit starts behaving as a USB Host.

8.2.4 USB Type-C® connector

Figure 9 shows the pinout of the USB Type-C® connector (CN15).

Figure 9. USB Type-C® connector (CN15) pinout

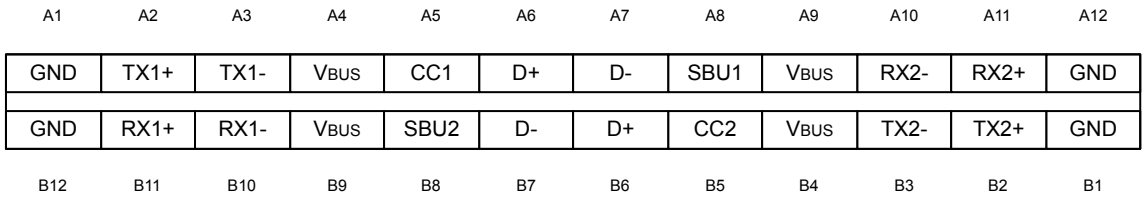


Table 11 describes the pinout of the USB Type-C® connector (CN15).

Table 11. USB Type-C® connector (CN15) pinout

Function	I/O	Signal name	Pin name	Pin	Pin	Pin name	Signal name	I/O	Function
GND	-	GND	GND	A1	B12	GND	GND	-	GND
TX1+	COMBOPHY_TX1P	USB3TX_P	TX1+	A2	B11	RX1+	USB3RX_P	COMBOPHY_RX1P	RX1+
TX1-	COMBOPHY_TX1N	USB3TX_N	TX1-	A3	B10	RX1-	USB3RX_N	COMBOPHY_RX1N	RX1-
VBUS	-	-	VBUS	A4	B9	VBUS	-	-	VBUS
CC1	-	(1)	CC1	A5	B8	SBU2	-	-	SBU2
D+	USB3DR_DP	USBDR_P	D+	A6	B7	D-	USBDR_N	USB3DR_DM	D-
D-	USB3DR_DM	USBDR_N	D-	A7	B6	D+	USBDR_P	USB3DR_DP	D+
SBU1	-	-	SBU1	A8	B5	CC2	(1)	-	CC2
VBUS	-	VBUSc	VBUS	A9	B4	VBUS	VBUSc	-	VBUS
RX2-	COMBOPHY_RX1N	USB3RX_N	RX2-	A10	B3	TX2-	USB3TX_N	COMBOPHY_TX1N	TX2-
RX2+	COMBOPHY_RX1P	USB3RX_P	RX2+	A11	B2	TX2+	USB3TX_P	COMBOPHY_TX1P	TX2+
GND	-	GND	GND	A12	B1	GND	GND	-	GND

1. *The CCx pins from CN15 are connected to the CCxc pins of the USB-C® Power Delivery protection for dual-role power.*

8.3 microSD™ card

8.3.1 Description

The CN6 slot for the microSD™ card is routed to the STM32MP257FAK3 SDIO port (SDMMC). This interface is fully compliant with version 6.0 of the SD memory card specifications.

8.3.2 Operating voltage

The microSD™ card interface is compatible with 1.8 and 3.3 V. All microSD™ card types are supported on STM32MP257F-DK. The UHS-I modes (1.8 V) are supported on this Discovery kit.

8.3.3 microSD™ card interface

The microSD™ card interface is used in the four data lines D[0:3] with one clock (CLK), one command line (CMD), and one card detection signal (uSD_DETECT). The SDMMC1 is a bootable interface. Table 12 describes the I/O configuration for the SDIO interface.

Table 12. I/O configuration for the SDIO interface

I/O	Configuration
PD3	PD3 is connected to SD.uSD_DETECT
PE4	PE4 is connected to SD.SDMMC1_D0
PE5	PE5 is connected to SD.SDMMC1_D1
PE0	PE0 is connected to SD.SDMMC1_D2
PE1	PE1 is connected to SD.SDMMC1_D3
PE3	PE3 is connected to SD.SDMMC1_CK
PE2	PE2 is connected to SD.SDMMC1_CMD

Figure 10 shows the pinout of the microSD™ connector CN6.

Figure 10. microSD™ card connector (CN6)

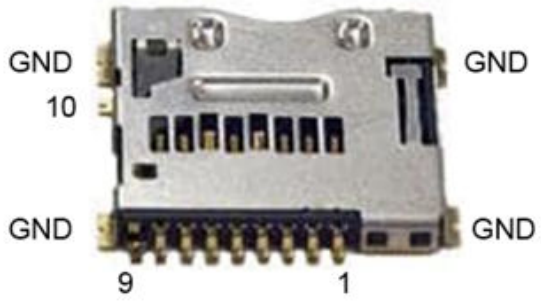


Table 13 describes the pinout of the microSD™ connector (CN6).

Table 13. microSD™ connector (CN6) pinout

Pin	Pin name	Signal name	I/O	Function
1	DAT2	SD.SDMMC1_D2	PE0	SDIO.D2
2	DAT3_CD	SD.SDMMC1_D3	PE1	SDIO.D3
3	CMD	SD.SDMMC1_CMD	PE2	SDIO.CMD
4	VDD	VDD_SD	-	VDD_SDCARD
5	CLK	SD.SDMMC1_CK	PE3	SDIO.CLK
6	VSS	GND	-	GND
7	DAT0	SD.SDMMC1_D0	PE4	SDIO.D0
8	DAT1	SD.SDMMC_D1	PE5	SDIO.D1
9	GND	GND	-	GND
10	CARD_DETECT	SD.uSD_DETECT	PD3	uSD_DETECT active low

8.4 HDMI®

8.4.1 Description

The STM32MP257F-DK Discovery kit offers an HDMI® connection for a TV monitor through the use of an HDMI® transmitter.

The resolution is up to 1080p60 (1920 × 1080).

Input signals are MIPI®/DSI for the video and I2S2 for the audio. Refer to the STM32MP257F datasheet for details.

The control signals are one interruption and one dedicated reset. The Consumer Electronic Control (CEC) is also available through the HDMI® transmitter.

8.4.2 HDMI® I/O interface

Figure 11 shows the pinout of the HDMI® connector (CN1).

Figure 11. HDMI® connector pinout (CN1)

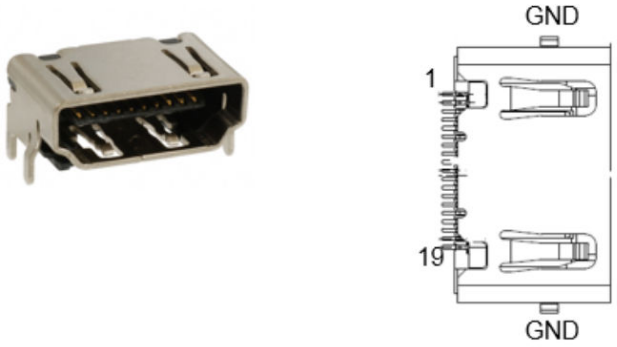


Table 14 describes the HDMI® interface and the pinout of the DSI connector (CN1).

Table 14. HDMI® connector pin assignment (CN1)

Function	GPIO	Signal name	Pin number (CN1)
RX2+	-	HDMI_RX2_P	1
GND	-	GND	2
RX2-	-	HDMI_RX2_N	3
TX1+	-	HDMI_RX1_P	4
GND	-	GND	5
TX1-	-	HDMI_RX1_N	6
RX0+	-	HDMI_RX0_P	7
GND	-	GND	8
RX0-	-	HDMI_RX0_N	9
RXC+	-	HDMI_RXC_P	10
GND	-	GND	11
RXC-	-	HDMI_RXC_N	12
HDMI® consumer electronic control	-	CEC	13
-	-	NC	14
SCL	-	DDC_SCL	15
SDA	-	DDC_SDA	16
GND	-	GND	17
+5V	-	5V_HDMI	18
DET	-	HPD	19

Table 15 describes the I/O configuration for the HDMI® interface.

Table 15. I/O configuration for the HDMI® interface

Function	GPIO	Signal name
Function	**GPIO**	**Signal name**
Interrupt	PB4	HDMI.INT
SCL (I^2C shared)	PF2	I2C2.SCL
SDA (I^2C shared)	PF0	I2C2.SDA
Reset	PB6	HDMI.RST
I^2S CLK	PB0	HDMI_I2S2.CK
I^2S WS	PB3	HDMI_I2S2.WS
I^2S SDO	PB2	HDMI_I2S2.SDO

8.5 LVDS

8.5.1 Description

The STM32MP257F-DK Discovery kit supports one LVDS with four data lanes. The FFC/FPC connector (CN2) is available as an LVDS interface. The B-LVDS7-WSVGA LVDS display, which is not included in the package, can be plugged into CN2.

This display can be purchased at *www.st.com* with the B-LVDS7-WSVGA order code.

8.5.2 LVDS interface

Figure 12. LVDS display connector (CN2)

Table 16 describes the interface and pinout of the LVDS connector (CN2).

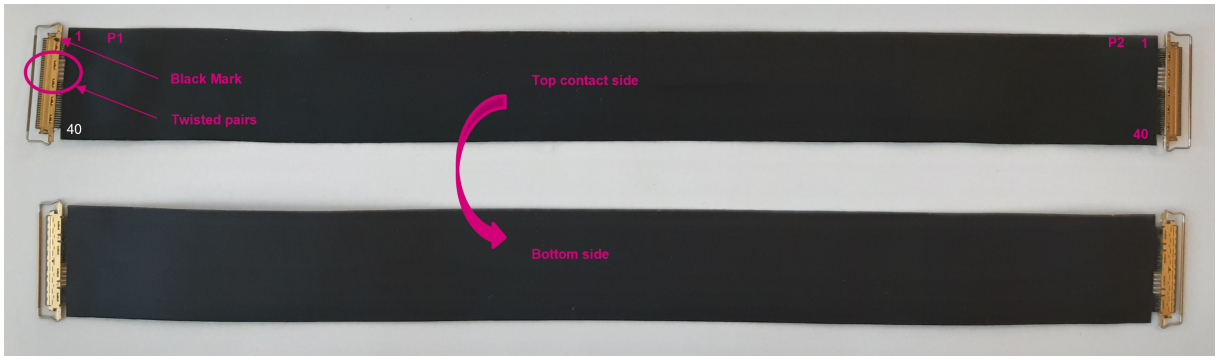
Table 16. LVDS interface and connector (CN2) pinout

Pin	I/O	Signal name	Function
1	-	GND	GND
2	PI6	CTP.INT	INT
3	-	VDD	3V3
4	-	VDD	3V3
5	-	VSS	GND
6	PI0	CTP.RST	RESET
7	PF2	I2C2.SCL	I2C2.SCL shared I^2C
8	PF0	I2C2.SDA	I2C2.SDA shared I^2C
9	-	GND	GND
10	LVDS1.D0_N	LVDS1.D0con_N	Differential LVDS1 data 0
11	LVDS1.D0_P	LVDS1.D0con_P	
12	LVDS1.D1_N	LVDS1.D1con_N	Differential LVDS1 data 1
13	LVDS1.D1_P	LVDS1.D1con_P	
14	LVDS1.2_N	LVDS1.D2con_N	Differential LVDS1 data 2
15	LVDS1.D2_P	LVDS1.D2con_P	
16	LVDS1.CLK_N	LVDS1.CLKcon_N	Differential LVDS1 CLK
17	LVDS1.CLK_P	LVDS1.CLKcon_P	

Pin	I/O	Signal name	Function
18	LVDS1.D3_N	LVDS1.D3con_N	Differential LVDS1 data 3
19	LVDS1.D3_P	LVDS1.D3con_P	
20	-	-	Not connected
21	-	-	Not connected
22	-	-	Not connected
23	-	-	Not connected
24	-	-	Not connected
25	-	-	Not connected
26	-	-	Not connected
27	-	-	Not connected
28	-	-	Not connected
29	-	-	Not connected
30	-	GND	GND
31	-	GND	GND
32	-	VLED	5 V
33	-	VLED	5 V
34	-	VLED	5 V
35	-	VLED	5 V
36	PI4	DISP.LED_EN	Display LED enable
37	PI7	DISP.BLCTRL	Display backlight control
38	-	VSS	GND
39	-	VSS	GND
40	-	VSS	GND

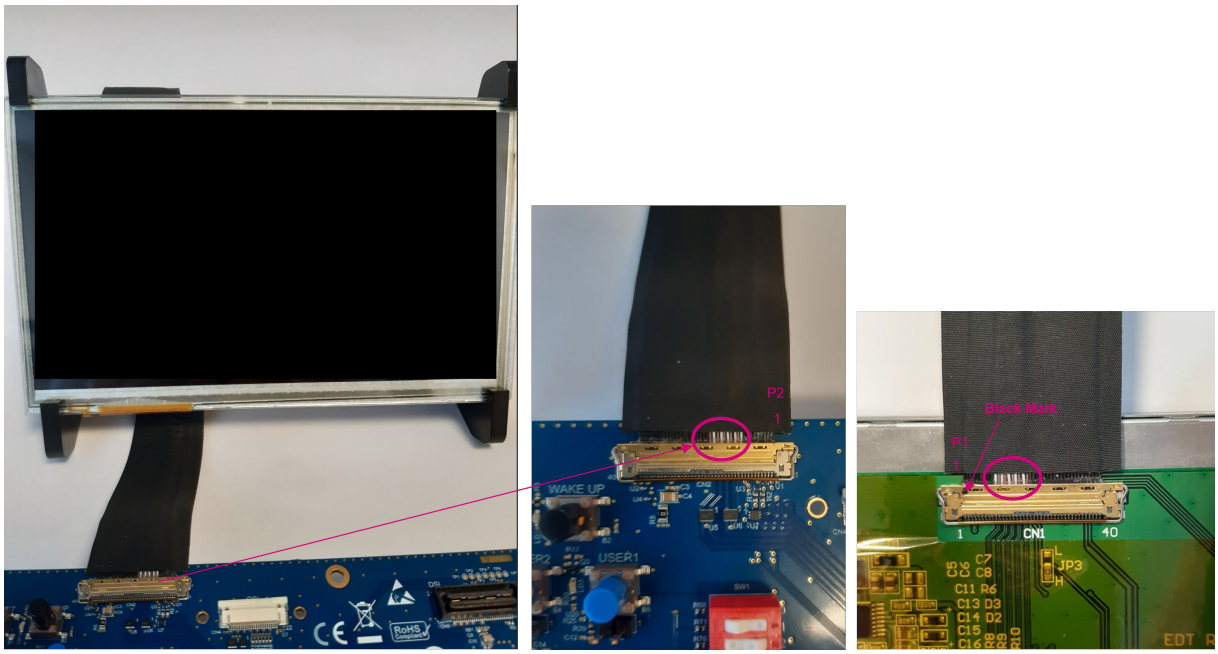
8.5.3 How to connect the LVDS display?

Figure 13. LVDS display connection step 1



- Check the above cable orientation using the black mark and the white twisted pairs.
- Find the LVDS port on the Discovery kit (CN2) and the one on the display (CN1). One FPC is provided in the LVDS display box.
- On each port, insert the cable as described:

Figure 14. LVDS display connection step 2



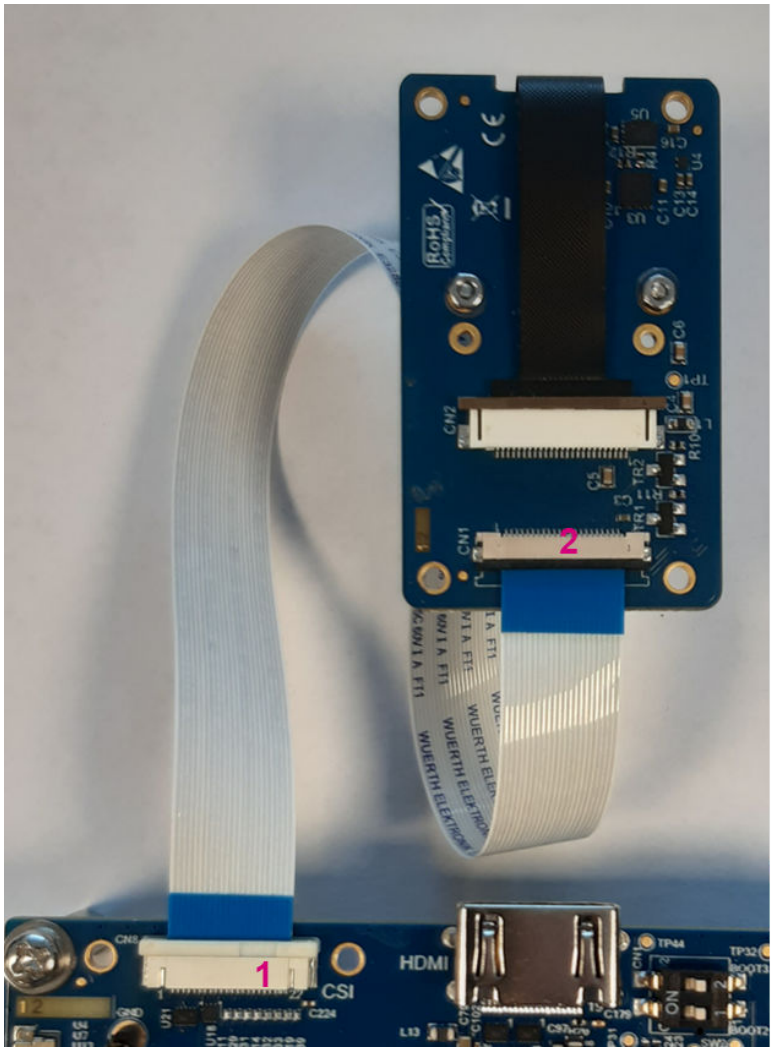
8.6 CSI

8.6.1 Description

The STM32MP257F-DK Discovery kit provides a CSI connector (CN8) to plug an external camera module. The B-CAMS-IMX camera module, not included in the package, can be plugged into CN8.

- The B-CAMS-IMX camera module provides a 5-Mpx image sensor, an inertial motion unit, and a Time-of-Flight sensor
- This camera module can be purchased at *www.st.com* with the B-CAMS-IMX order code.
- Complete documentation can be found at *www.st.com*.

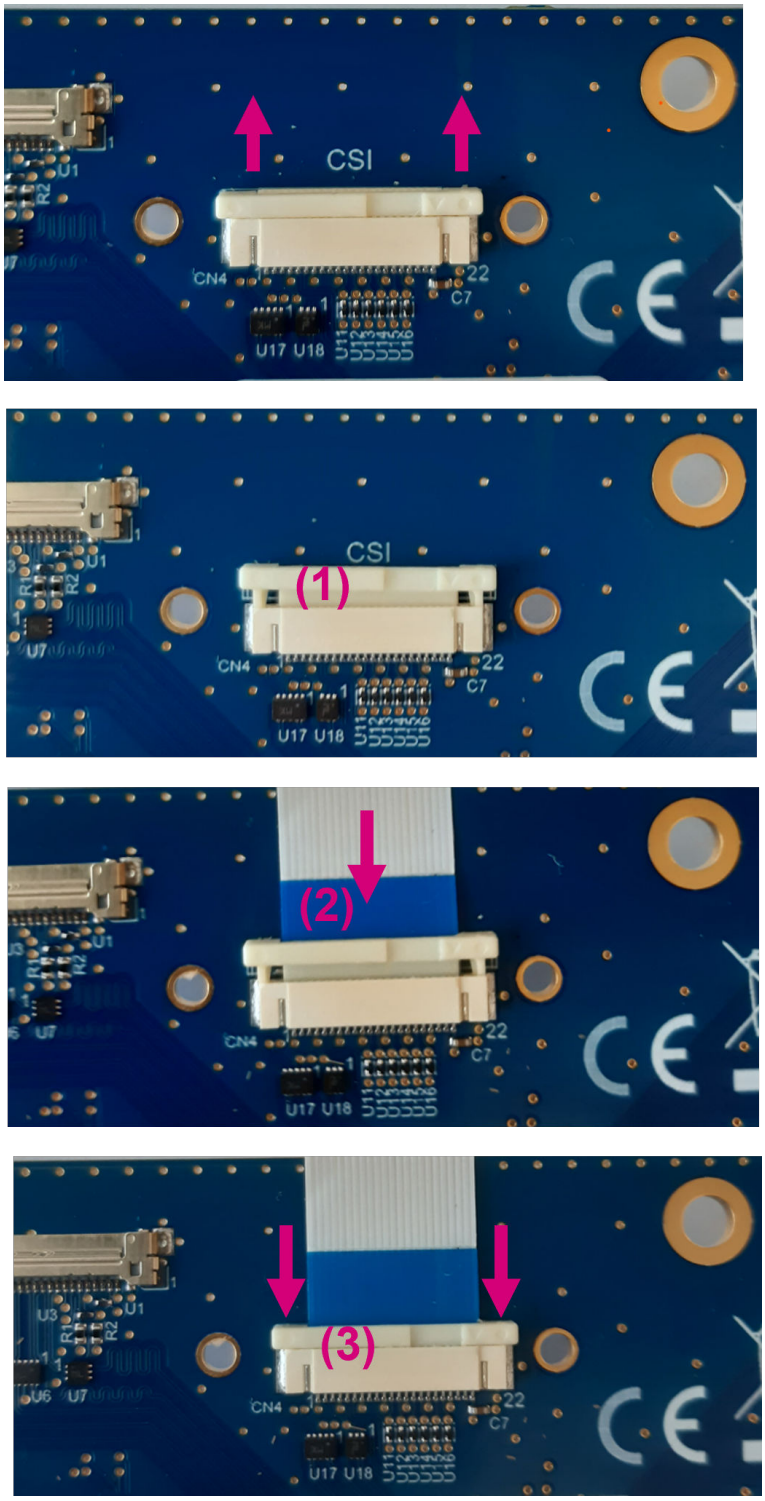
Figure 15. B-CAMS-IMX connected to a target STM32 board



- (1) CSI camera module connector on the target STM32 board
- (2) Camera module connector on B-CAMS-IMX
- FFC cable:
  - 22 to 22-pin FFC: Bottom side (blue)
  - 22 to 22-pin FCC: Top side (contact)
- Make sure that the target STM32 board is not powered.
- Find the camera module connector on STM32MP257F-DK (CN8) and the one on B-CAMS-IMX (CN1).

- On each connector, carefully:

Figure 16. Connecting B-CAMS-IMX to the target STM32 board



  - Lightly pull the white plastic (1) to insert the contact side of the FFC towards the board (2).
  - Push the white plastic to hold the FFC(3).

Table 17 describes the CSI interface and pinout of the CSI connector (CN4).

Table 17. CSI interface and connector (CN4) pinout

Pin	I/O	Signal name	Function
1	-	GND	GND
2	CSI_D0N	CSI.D0_N	MIPI-CSI receiver 1 data Lane 1 negative
3	CSI_D0P	CSI.D0_P	MIPI-CSI receiver 1 data Lane 1 positive
4	-	GND	GND
5	CSI_D1N	CSI.D1_N	MIPI-CSI receiver 1 data Lane 2 negative
6	CSI_D1P	CSI.D1_P	MIPI-CSI receiver 1 data Lane 2 positive
7	-	GND	GND
8	CSI_CKN	CSI.CK_N	clock Lane negative
9	CSI_CKP	CSI.CK_P	clock Lane positive
10	-	GND	GND
11	PB7	CAM.TOF_LPn	Time-of-Flight I^2C enabled in LP mode
12	PB8	CAM.TOF_INT	Time-of-Flight interruption
13	-	GND	-
14	PB9	CAM.IMU_INT1	Inertial motion unit interruption
15	PB10	CAM.IMU_INT2	Inertial motion unit interruption
16	-	GND	GND
17	PB1	CAM.RST	Camera module reset
18	PB11	CAM_EN	Camera module enable
19	-	GND	GND
20	PPF2	I2C2.SCL	I2C2.SCL shared with LVDS touch panel
21	PF0	I2C2.SDA	I2C2.SDA shared with LVDS touch panel
22	-	3V3	3V3

8.7 Gigabit Ethernet

8.7.1 Description

The STM32MP257F-DK Discovery kit offers a 1-gigabit Ethernet feature using an external physical interface device (PHY).

This PHY is connected to the STM32MP257 reduced gigabit medium-independent interface (RGMII), and can be clocked using the 25 MHz from STM32MP257 or a crystal. The default configuration is 25 MHz from the crystal.

The Ethernet PHY is supplied by 3V3. It generates its supply 1V05 and digital/analog 3V3.

The green LED (LD2) on the board blinks to indicate data transmission.

8.7.2 RGMII interface

Table 18 describes the I/O configuration for the Ethernet1 interface.

Table 18. I/O configuration Ethernet1 interface

I/O	Configuration
PA2	PA2 is used as ETH1.NRST active Low.
PA10	PA10 is used as ETH1.MDIO.
PA12	PA12 is used as ETH1.MDINT.
PA9	PA9 is used as ETH1.MDC.
PA11	PA11 is used as ETH1.RX_CTL.
PF1	PF1 is used as ETH1.RXD0.
PC2	PC2 is used as ETH1.RXD1.
PH12	PH12 is used as ETH1.RXD2.
PH13	PH13 is used as ETH1.RXD3.
PA13	PA13 is used as ETH1.TX_CTL.
PA15	PA15 is used as ETH1.TXD0.
PC1	PC1 is used as ETH1.TXD1.
PH10	PH10 is used as ETH1.TXD2.
PH11	PH11 is used as ETH1.TXD3.
PA14	PA14 is used as ETH1.RXCLK.
PC0	PC0 is used as ETH1.GTX_CLK.
PH9	PH9 is used as ETH1.CLK125.
PF3	PF3 is used as ETH1.CLK is not used by default

Figure 17 shows the pinout of the Ethernet connector (CN16).

Figure 17. Ethernet connector (CN16) pinout

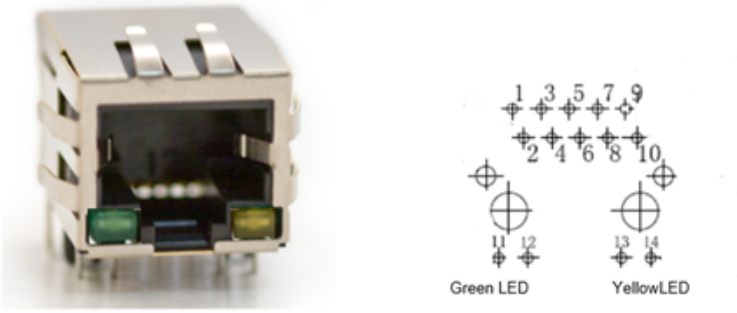


Table 19 describes the Ethernet interface and pinout of the CN16 connector.

Table 19. Ethernet connector (CN16) pinout

Pin number	Pin name	Function
1	TX1+	First bidirectional pair to transmit and receive data
2	TX1-	
3	TX2+	Second bidirectional pair to transmit and receive data
4	TX2-	
5	CT1	Common connected to GND
6	CT2	Common connected to GND
7	TX3+	Third bidirectional pair to transmit and receive data
8	TX3-	
9	TX4+	Fourth bidirectional pair to transmit and receive data
10	TX4-	
11	GA	Green LED anode
12	GC	Green LED cathode
13	YA	Yellow LED anode
14	YC	Yellow LED cathode
15	GND	GND
16	GND	GND

8.8 Wi-Fi® and Bluetooth® LE

The STM32MP257F-DK Discovery kit supports Wi-Fi® 802.11b/g/n and Bluetooth® LE. The wireless module supports these functions. An SDIO for the Wi-Fi® interface and a USART for Bluetooth® drive this module. Audio data use the PCM format.

8.8.1 Wi-Fi® I/O interface

Table 20 describes the I/O configuration for the Wi-Fi® interface.

Table 20. I/O configuration for the Wi-Fi® interface

I/O	Configuration
PI11	PI11 is connected to SDMMC3_D3
PB12	PB12 is connected to SDMMC3_D2
PD13	PD13 is connected to SDMMC3_D1
PB14	PB14 is connected to SDMMC3_D0
PD12	PD12 is connected to SDMMC3_CMD
PB13	PB13 is connected to SDMMC3_CK
PG8	PG8 is connected to WL_REG_ON
PG11	PG11 is connected to WL_HOST_WAKE

8.8.2 Bluetooth® LE I/O interface

Table 21 describes the I/O configuration for the Bluetooth® LE interface.

Table 21. I/O configuration for the Bluetooth® LE interface

I/O	Configuration
PG14	PG14 is connected to USART1_TX
PG15	PG15 is connected to USART1_RX
PI2	PI2 is connected to USART1_RTS
PI3	PI3 is connected to USART1_CTS
PG7	PG7 is connected to BT_PCM_WS
PI5	PI5 is connected to BT_PCM_SDO
PF12	PF12 is connected to BT_PCM_SDI
PG6	PG6 is connected to BT_PCM_CLK
PG4	PG4 is connected to BT_REG_ON
PG2	PG2 is connected to BT_HOST_WAKE
PB15	PB15 is connected to BT_DEV_WAKE
PI8	LP0_32

8.9 VBAT connector

8.9.1 Description

The VBAT connector allows a power mode that maintains critical operations when a power loss occurs on VDDIO.

The VBAT power domain contains the RTC, the backup registers, the retention RAM, and the backup SRAM. To enable VBAT mode, a backup power source must be connected to the VBAT connector.

8.9.2 Operating voltage

The VBAT connector enables external power supply from 2.3 to 3.6 V.

8.9.3 VBAT interface

Table 22 describes the I/O configuration of the VBAT interface.

Table 22. I/O configuration of the VBAT interface (CN12)

I/O	Configuration
1	VBAT
2	GND

Figure 18 shows the pinout of the VBAT connector (CN12).

Figure 18. VBAT connector (CN12) pinout

DT59446V1

Table 23 describes the VBAT interface and pinout of the CN12 connector.

Table 23. VBAT connector (CN12) pinout

I/O	Pin name	Function
1	VBAT	VBAT supply
2	GND	Ground

8.10 GPIO expansion connector

8.10.1 Description

The GPIO pins can be used as GPIOs or alternate functions. The available alternate functions are listed in Table 24. GPIO connector pinout.

Other functions can be mapped on the GPIO connectors, for instance using the STM32CubeMX tool.

The GPIO expansion connector (CN5) offers shield capability.

8.10.2 GPIO expansion connector interface

Figure 19 shows the pinout of the GPIO connectors.

Figure 19. GPIO connectors

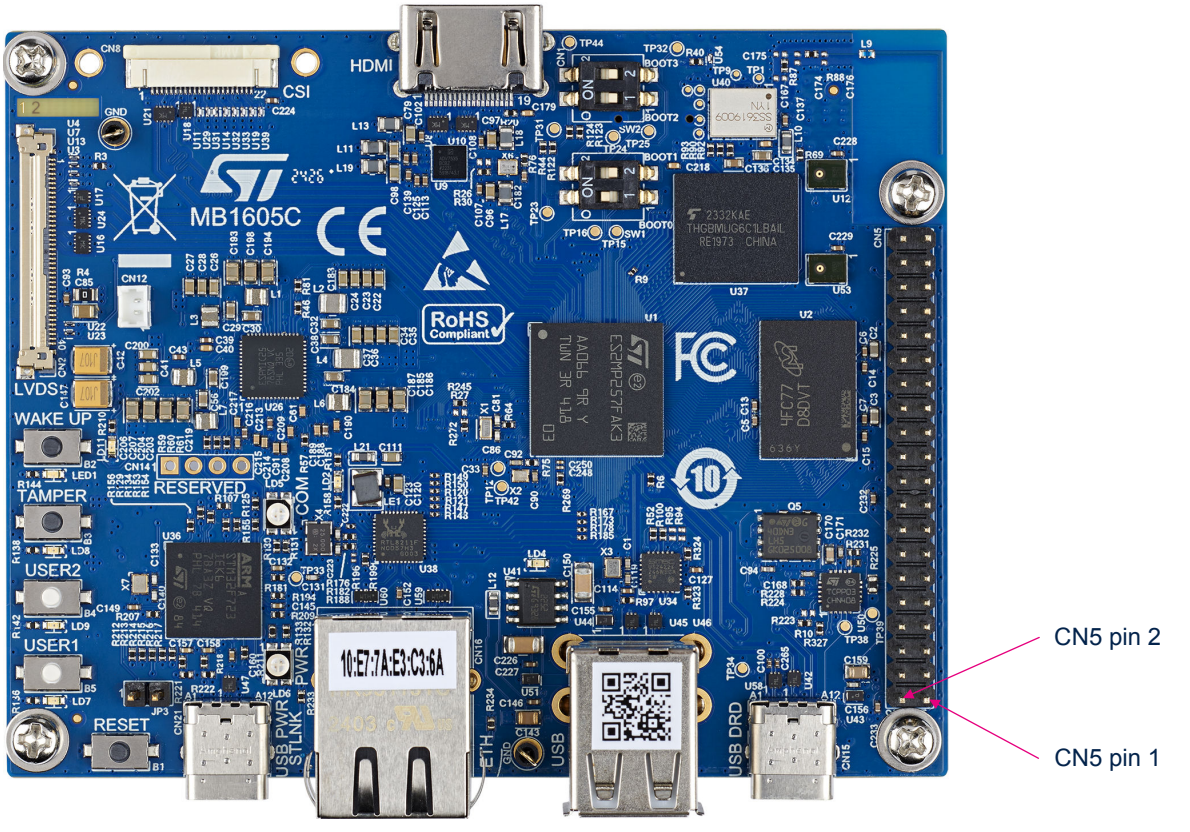


Table 24 describes the pinout of the GPIO connector.

Table 24. GPIO connector pinout

Function	I/O	Pin	Pin	I/O	Function
3V3	-	1	2	-	5 V
GPIO2/I2C8_SDA	PZ3	3	4	-	5 V
GPIO3/I2C8_SCL	PZ4	5	6	-	GND
GPIO4/MC01	PF11	7	8	PF13	GPIO14/USART6_TX
GND	-	9	10	PF14	GPIO15/USART6_RX
GPIO17/USART6_RTS	PG5	11	12	PD2	GPIO18/SAI4_SCKA
GPIO27	PZ9	13	14	-	GND
GPIO22	PZ0	15	16	PZ1	GPIO23
3V3	-	17	18	PZ6	GPIO24
GPIO10/SPI6_MOSI	PC7	19	20	-	GND
GPIO9/SPI6_MISO	PC4	21	22	PZ7	GPIO25
GPIO11/SPI6_SCK	PF7	23	24	PF4	GPIO8/SPI6_NSS
GND	-	25	26	PZ5	GPIO7
I2C2_SDA	PF0	27	28	PF2	I2C2_SCL
GPIO5/TIM8_CH4	PC10	29	30	-	GND
GPIO6/TIM5_CH1	PH8	31	32	PA5	GPIO12/TIM2_CH4
GPIO13/TIM4_CH2	PA1	33	34	-	GND
GPIO19/SAI4_FSA	PD0	35	36	PF15	GPIO16/USART6_CTS
GPIO26	PZ8	37	38	PD1	GPIO20/SAI4_SDA
GND	-	39	40	PB5	GPIO21/SAI4_SDB

9 STM32MP257F-DK I/O assignment

Table 25. STM32MP257F-DK Discovery kit I/O assignment

Ball	Pin	Assignment
AF5	PA0	MP257_WAKEUP
AC19	PA1	GPIO.TIM4_CH2
AF17	PA2	ETH1.NRST
AD18	PA3	TCPP_EN
AG17	PA4	USART2_TX
AE17	PA5	GPIO.TIM2_CH4
AF18	PA6	MDF.SDI6
AE18	PA7	MDF.CCK
AA17	PA8	USART2_RX
AF15	PA9	ETH1.MDC
AE15	PA10	ETH1.MDIO
AD12	PA11	ETH1.RX_CTL
AC13	PA12	ETH1.MDINT
AD14	PA13	ETH1.TX_CTL
AB12	PA14	ETH1.RX_CLK
AE13	PA15	ETH1.TXD0
B13	PB0	HDMI_I2S2.CK
C12	PB1	CAM.RST
A14	PB2	HDMI_I2S2_SDO
B14	PB3	HDMI_I2S2.WS
B15	PB4	HDMI.INT
C14	PB5	GPIO.SAI4_SDB
C13	PB6	HDMI.RST
C11	PB7	CAM.TOF_LPn
D8	PB8	CAM.TOF_INT
F10	PB9	CAM.IMU_INT1
B11	PB10	CAM.IMU_INT2
A11	PB11	CAM.EN
C26	PB12	WL.SDMMC3_D2
A26	PB13	WL.SDMMC3_CK
C27	PB14	WL.SDMMC3_D0
AE6	PB15	BT_DEV_WAKE
AB14	PC0	ETH1.GTX_CLK
AG14	PC1	ETH1.TXD1
AE12	PC2	ETH1.RXD1
AA9	PC3	VCONN_CC2_EN
AC9	PC4	GPIO.SPI6_MISO
AD10	PC5	BUTTON.USER1

Ball	Pin	Assignment
AB10	PC6	-
AF9	PC7	GPIO.SPI6_MOSI
AG9	PC8	-
AE9	PC9	-
AG10	PC10	GPIO.TIM8_CH4
AD8	PC11	BUTTON.USER2
AE7	PC12	-
W7	PC13	PMIC_WAKEUPn
B17	PD0	GPIO.SAI4_FSA
A19	PD1	GPIO.SAI4_SDA
D12	PD2	GPIO.SAI4_SCKA
G13	PD3	SD.uSD_DETECT
C18	PD4	-
B18	PD5	-
A18	PD6	-
D20	PD7	-
C16	PD8	-
C15	PD9	-
C17	PD10	-
A15	PD11	-
B26	PD12	WL.SDMMC3_CMD
D25	PD13	WL.SDMMC3_D1
E19	PD14	I2C7.SDA
E15	PD15	I2C7.SCL
B19	PE0	SD.SDMMC1_D2
C19	PE1	SD.SDMMC1_D3
C20	PE2	SD.SDMMC1_CMD
C21	PE3	SD.SDMMC1_CK
B21	PE4	SD.SDMMC1_D0
C22	PE5	SD.SDMMC1_D1
A22	PE6	eMMC.SDMMC2_D6
B22	PE7	eMMC.SDMMC2_D7
C23	PE8	eMMC.SDMMC2_D2
A23	PE9	eMMC.SDMMC2_D5
D22	PE10	eMMC.SDMMC2_D4
B23	PE11	eMMC.SDMMC2_D1
C25	PE12	eMMC.SDMMC2_D3
C24	PE13	eMMC.SDMMC2_D0
B25	PE14	eMMC.SDMMC2_CK
D24	PE15	eMMC.SDMMC2_CMD
AA15	PF0	I2C2.SDA

Ball	Pin	Assignment
AE11	PF1	ETH1.RXD0
AC15	PF2	I2C2.SCL
AF11	PF3	ETH1.CLK
AF10	PF4	GPIO.SPI6_NSS
AA11	PF5	VCONN_CC1_EN
AC7	PF6	-
AB8	PF7	GPIO.SPI6_SCK
AE10	PF8	-
AE8	PF9	-
AE5	PF10	VBUS_DIV
AE4	PF11	MCO1
P4	PF12	BT_PCM_SDI
P2	PF13	GPIO.USART6_TX
P3	PF14	GPIO.USART6_RX
R2	PF15	GPIO.USART6_CTS
AF7	PG0	-
AD4	PG1	TCPP_INTN
AG5	PG2	BT_HOST_WAKE
AA7	PG3	-
AD6	PG4	BT_REG_ON
R3	PG5	GPIO.USART6_RTS
T3	PG6	BT_PCM_CLK
U2	PG7	BT_PCM_WS
L5	PG8	WL_REG_ON
M3	PG9	UART5_TX
M4	PG10	UART5_RX
N2	PG11	WL_HOST_WAKE
N3	PG12	-
P1	PG13	I2C1.SCL
N1	PG14	USART1_TX
K6	PG15	USART1_RX
AC17	PH2	USBSW_OE
AE19	PH3	USBSW_S
AB16	PH4	LED1
AG18	PH5	LED2
AF19	PH6	LED3
AE16	PH7	LED4
AD16	PH8	GPIO.TIM5_CH1
AA13	PH9	ETH1.CLK125
AF14	PH10	ETH1.TXD2
AE14	PH11	ETH1.TXD3

Ball	Pin	Assignment
AF13	PH12	ETH1.RXD2
AG13	PH13	ETH1.RXD3
L7	PI0	CTP.RST
M6	PI1	I2C1.SDA
N5	PI2	USART1_RTS
N7	PI3	USART1_CTS
P6	PI4	DISP.LED_EN
K4	PI5	BT_PCM_SDO
J3	PI6	CTP.INT
J5	PI7	DISP.BLCTRL
U5	PI8	LPO_32
U1	PI9	-
D16	PI10	-
B27	PI11	WL.SDMMC3_D3
T4	PZ0	GPIO.GPIO22
U7	PZ1	GPIO.GPIO23
W5	PZ2	BUTTON.TAMP
Y6	PZ3	I2C8.SDA
V3	PZ4	I2C8.SCL
R5	PZ5	GPIO.GPIO7
V4	PZ6	GPIO.GPIO24
V2	PZ7	GPIO.GPIO25
V1	PZ8	GPIO.GPIO26
U3	PZ9	GPIO.GPIO27

10 STM32MP257F-DK product information

10.1 Product marking

The product and each board composing the product are identified with one or several stickers. The stickers, located on the top or bottom side of each PCB, provide product information:

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

  Single-sticker example:

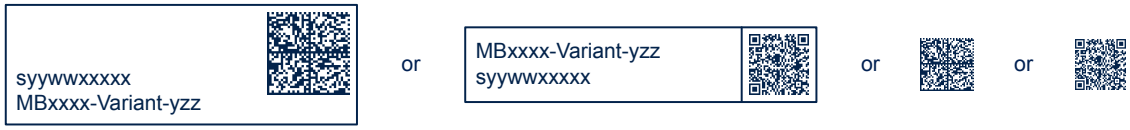
  

  Dual-sticker example:

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

  Examples:

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.

Products and parts labeled as *"ES"* or *"E"* are not yet qualified or feature devices that are not yet qualified. STMicroelectronics disclaims any responsibility for consequences arising from their use. Under no circumstances will STMicroelectronics be liable for the customer's use of these engineering samples. Before deciding to use these engineering samples for qualification activities, contact STMicroelectronics' quality department.

"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 ordering part number of the evaluation tool 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.

10.2 STM32MP257F-DK product history

Table 26. Product history

Order code	Product identification	Product details	Product change description	Product limitations
STM32MP257F-DK	DK32MP257F$AR1	MPU: STM32MP257FAK3 silicon revision "Y"	Initial revision	No limitation.
		MPU errata sheet: *STM32MP23xx/25xx device errata* (ES0598)		
		Board: • MB1605-MP257F-C01 (main board)		

10.3 Board revision history

Table 27. Board revision history

Board reference	Board variant and revision	Board change description	Board limitations
MB1605 (main board)	MP257F-C01	Initial revision	No limitation

11 Federal Communications Commission (FCC) and ISED Canada Compliance Statements

11.1 FCC Compliance Statement

STM32MP257F-DK contains a module from Murata, Model: LBEE5KL1YN

- Contains FCC ID: VPYLB1DX

Part 15.19

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Part 15.21

Any changes or modifications to this equipment not expressly approved by STMicroelectronics may cause harmful interference and void the user's authority to operate this equipment.

Part 15.105

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Note: Use only shielded cables.

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during operation. To ensure compliance, operation at a closer distance than this is not recommended. This transmitter must not be collocated or operating in conjunction with any other antenna or transmitter.

Responsible Party - U.S. Contact Information:

Francesco Doddo
STMicroelectronics, Inc.
200 Summit Drive | Suite 405 | Burlington, MA 01803
USA
Telephone: +1 781-472-9634

11.2 ISED Compliance Statement

STM32MP257F-DK contains a module from Murata, Model: LBEE5KL1YN

- Contains IC: VPYLB1DX

STM32MP257F-DK contient un module de Murata, Modèle: LBEE5KL1YN

- Contient CI : VPYLB1DX

Compliance Statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

ISED Canada ICES-003 Compliance Label: CAN ICES-3 (A) / NMB-3 (A).

Déclaration de conformité

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage ;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Étiquette de conformité à la NMB-003 d'Industrie Canada : CAN ICES-3 (A) / NMB-3 (A).

RF exposure statement

To satisfy ISED RF exposure requirements for mobile devices, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during operation. To ensure compliance, operation at closer than this distance is not recommended. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Pour satisfaire aux exigences ISDE concernant l'exposition aux champs RF pour les appareils mobiles, une distance de séparation de 20 cm ou plus doit être maintenu entre l'antenne de ce dispositif et les personnes pendant le fonctionnement. Pour assurer la conformité, il est déconseillé d'utiliser cet équipement à une distance inférieure. Cet émetteur ne doit pas être co-situé ou fonctionner conjointement avec une autre antenne ou un autre émetteur.

12 UKCA Compliance Statement

SIMPLIFIED UK DECLARATION OF CONFORMITY

Hereby, the manufacturer STMicroelectronics, declares that the radio equipment type “STM32MP257F-DK” is in compliance with the UK Radio Equipment Regulations 2017 (UK S.I. 2017 No. 1206). The full text of the UK Declaration of Conformity is available at the following internet address: *www.st.com*.

13 CE conformity

13.1 Simplified EU compliance statement

Hereby, STMicroelectronics declares that the radio equipment type "STM32MP257F-DK" is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available on demand at the following address: *www.st.com*.

13.2 Déclaration de conformité UE simplifiée

STMicroelectronics déclare que l'équipement radioélectrique du type "STM32MP257F-DK" est conforme à la directive 2014/53/UE.

Le texte complet de la déclaration UE de conformité est disponible sur demande à l'adresse internet suivante : *www.st.com*.

13.3 Warning

EN 55032 / CISPR32 (2012) Class A product

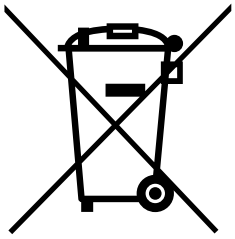
Warning: this device is compliant with Class A of EN55032 / CISPR32. In a residential environment, this equipment may cause radio interference.

Avertissement : cet équipement est conforme à la Classe A de la EN55032 / CISPR 32. Dans un environnement résidentiel, cet équipement peut créer des interférences radio.

14 Product disposal

Disposal of this product: WEEE (Waste Electrical and Electronic Equipment)

(Applicable in Europe)



This symbol on the product, accessories, or accompanying documents indicates that the product and its electronic accessories should not be disposed of with household waste at the end of their working life.

To prevent possible harm to the environment and human health from uncontrolled waste disposal, please separate these items from other type of waste and recycle them responsibly to the designated collection point to promote the sustainable reuse of material resources.

Household users:

You should contact either the retailer where you buy the product or your local authority for further details of your nearest designated collection point.

Business users:

You should contact your dealer or supplier for further information.

Revision history

Table 28. **Document revision history**

Date	Revision	Changes
03-Jan-2025	1	Initial release.
14-Apr-2025	2	Updated: • Bluetooth® Low Energy trademark replaced by Bluetooth® LE • USB 3.0 high-speed (HS) replaced by USB 3.0 SuperSpeed (SS) in USB 3.0 USB Type-C® • SAI2 replaced by SAI4 and RX2/TX2 functions explained in Table 24

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