



Quick Start Guide i.MX 8M Mini EVK



ABOUT THE i.MX 8M MINI EVK

The i.MX 8M Mini applications processor is a member of the i.MX 8M family of products focused on delivering an excellent video and audio experience, combining media-specific features with high-performance processing optimized for low-power consumption.

Features

Compute Module:

- i.MX 8M Mini applications processor with up to five cores:
 - 4× Arm® Cortex®-A53
 - 1× Arm Cortex-M4
- 2 GB, 32-bit LPDDR4
- eMMC 5.1, 16 GB
- 32MB QSPI NOR flash
- Power Management IC (PMIC)
- MIMO 1x1 Wi-Fi 802.11a/b/g/n/ac and BT4.1

Base Board:

- MicroSD card connector
- 2 USB2.0 Type-C connectors, Port2 is the only power supply port
- 1 Gbps Ethernet
- Mini-SAS MIPI-DSI connector for display
- Mini-SAS MIPI-CSI connector for camera
- USB to serial converter for debug
- Infrared receiver
- LEDs for power indication and general-purpose use
- M.2 connector for Wi-Fi/BT (PCIe, I²C, etc.)
- 3.5 mm audio jack for amplified speakers

GET TO KNOW THE i.MX 8M MINI EVK

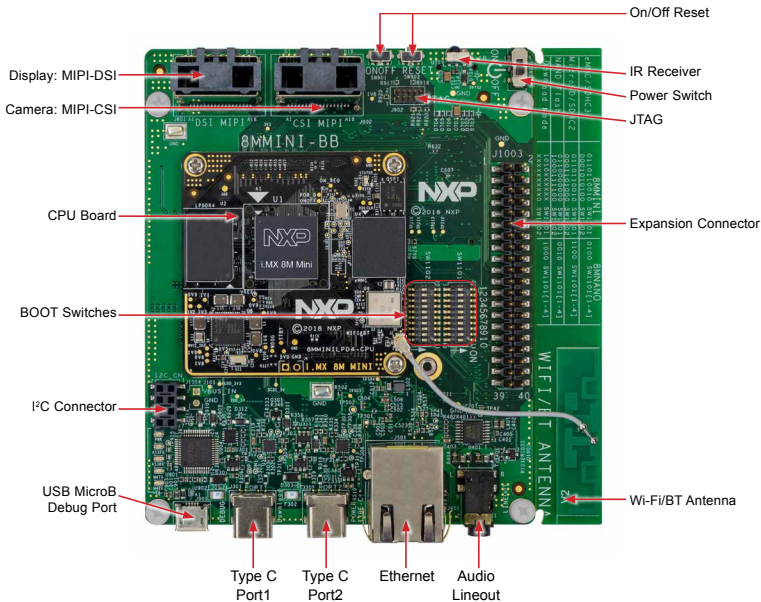


Figure 1: Top view i.MX 8M Mini EVK board

GET TO KNOW THE i.MX 8M MINI EVK CONTINUED

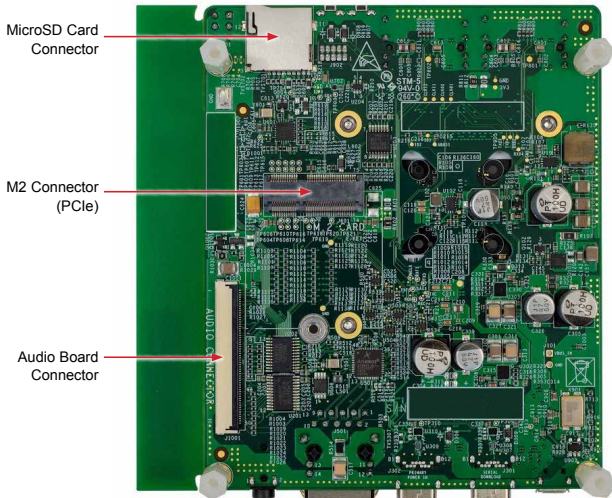


Figure 2: Back view i.MX 8M Mini EVK board

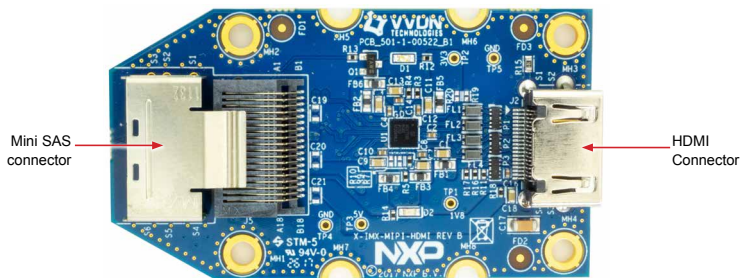


Figure 3: MIPI-DSI to HDMI Adaptor Card (included in the EVK)
Note: (Color of the adaptor card may differ)

GETTING STARTED

Unpack the Kit

The i.MX 8M Mini EVK (8MMINILPD4-EVK) is shipped with the items listed in Table 1. Ensure the items are available in the EVK box.

Table 1 Kit Contents

ITEM	DESCRIPTION
EVK Board	i.MX 8M Mini EVK
IMX-MIPI-HDMI Accessory Card	MIPI-DSI to HDMI adapter board
Power Supply	USB Type C 45W Power Delivery Supply, 5V/3A; 9V/3A; 15V/3A; 20V/2.25A supported
Mini-SAS cable	8" mini-SAS cable
USB Type-C Cable	Cable – Assembly, USB 3.0, Type-C Male to Type-A Male
USB micro-B Cable	Cable – Assembly, USB 2.0, Type-A Male to Micro-B Male
USB Type-C to A Adapter	Adapter – USB 3.0, Type-C Male to Type-A Female
Software	Android BSP image programmed in eMMC
Documentation	Quick Start Guide

Prepare Accessories

The following items in Table 2 are recommended to run the i.MX 8M Mini EVK.

Table 2 Customer Supplied Accessories

ITEM	DESCRIPTION
HDMI Display	HDMI display that supports a minimum resolution of 1080P60.
HDMI Cable	HDMI cable to connect the HDMI board to HDMI display
Mouse	USB Mouse
USB HUB	2 or 4 port USB Hub

GETTING STARTED CONTINUED

Download Software and Tools

Installation software and documentation are available at www.nxp.com/imx8minievk. The following are available on the website:

Table 3 Software and Tools

ITEM	DESCRIPTION
Documentation	<ul style="list-style-type: none">• Schematics, layout and Gerber files• i.MX 8M Mini EVK Board Hardware User's Guide• Quick Start Guide• Hardware Design Guide• Power Consumption Measurement
Software Development	Linux BSPs, Android BSPs
Demo Images	Copy of the latest Linux and Android BSP images that are available to program on to the eMMC or SD Card. i.MX 8M Mini software can be found at nxp.com/imxsw

SETTING UP THE SYSTEM

The following will describe how to run the pre-loaded Android image on the i.MX 8M Mini EVK.

1 Confirm Boot Switches

The boot switches should be set to boot from the eMMC. See table below

BOOT Device	SW1101	SW1102
eMMC/uSDHC3	0110110001	0001010100

1 = ON 0 = OFF

2 Connect USB Debug Cable

Connect the micro-B end of a USB cable into debug port J1701. Connect the other end of the cable to a PC acting as a host terminal. Two UART connections will appear on the PC, one for M4 core, one for A53 core. The console print will output on "Enhanced COM port," which can be found in "Device Manager" of the PC.

If the serial port is not recognized, download and install updated drivers as listed in the section Debug Serial Console below.

Open the terminal window (i.e., Hyper Terminal or Tera Term), choose the COM port number that corresponds to the "Enhanced COM port" or the highest numbered port and apply the following configuration.

- Baud rate: 115200
- Data bits: 8
- Parity: None
- Flow control: None

SETTING UP THE SYSTEM CONTINUED

3 Connect HDMI Display

The MIPI-DSI to HDMI accessory card and mini SAS cable are needed for evaluating HDMI.

Connect the mini-SAS cable to J801 on the EVK (MIPI DSI Connector) and connect the other end to J5 on the MIPI to HDMI accessory card. Connect an HDMI cable to J2 (HDMI port) on the MIPI to HDMI accessory card and connect the other end to a HDMI display panel.



Figure 4: Mini-SAS cable connected to the mini-SAS connector (J5) on the MIPI-DSI to HDMI accessory board.

Note: Color may differ

4 Connect Mouse

Connect the mouse to J301 (USB Type-C Port1) through the USB Type-C to A adapter.

5 Connect Power Supply

Connect the USB Type-C plug of the Power Supply to J302 (USB Type-C Port2), then power up the board using switch SW101.

Use only J302 for power delivery to the board.

6 Board Boot Up

As the board boots up, you will see 4 penguins appear in the upper left-hand corner of the monitor, and then you will see the Android logo, then the Android desktop. Congratulations, you are up and running.

ADDITIONAL INFORMATION

Boot Switches

SW1101, SW1102 are the boot configuration switches, the default boot device is eMMC/uSDHC3, as shown in Table 4. If you want to try other boot devices, you need to change the boot switches to corresponding values as listed in Table 4.

Note: 1 = ON 0 = OFF

Table 4 Boot Device settings

BOOT DEVICE	SW1101	SW1102
eMMC/uSDHC3	0110110001	0001010100
MicroSD/uSDHC2	0110110010	0001101000
QSPI NOR Flash	0110xxxxxx	00000x0010
Serial Download Mode	1010xxxxxx	xxxxxxxxx0

Debug Serial Console

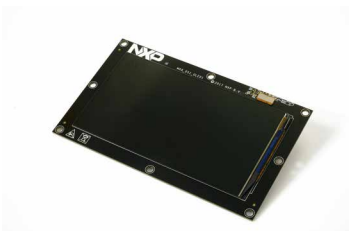
Windows users may need to update the serial drivers on your computer. The drivers can be found at <https://www.ftdichip.com/Drivers/VCP.htm>

ADDITIONAL INFORMATION CONTINUED

Do more with Accessory boards

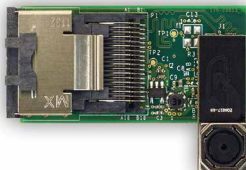
MX8-DSI-OLED1: MIPI MINI-SAS OLED DISPLAY

Use this OLED display for touchscreen support.



MINISASTOCSI: MIPI-CSI CAMERA MODULE

Use this camera MIPI-CSI camera module for machine vision, video streaming and recording.



SUPPORT

Visit www.nxp.com/support for a list of phone numbers within your region.

WARRANTY

Visit www.nxp.com/warranty for complete warranty information.

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.

Attention that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This product has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this product does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment should be installed and operated with a minimum distance 20cm between the radiator and your body.

The following information is provided per Article 10.8 of the Radio Equipment Directive 2014/53/EU:

- (a) Frequency bands in which the equipment operates.
- (b) The maximum RF power transmitted.

PN	RF Technology	(a) Freq Ranges (EU)	(b) Max Transmitted Power
8MMINILPD4-EVK	WLAN 2.4GHz Mode 802.11b/g/n	2412MHz – 2472MHz	19.5dBm
	WLAN 5GHz Mode 802.11a/n/ac	5180MHz – 5825MHz	17dBm
	BLE	2402MHz – 2480MHz	4dBm
	BT DH5 / 2DH5 / 3DH5	2402MHz – 2480MHz	10dBm

EUROPEAN DECLARATION OF CONFORMITY (Simplified DoC per Article 10.9 of the Radio Equipment Directive 2014/53/EU)

This apparatus, namely 8MMINILPD4-EVK, conforms to the Radio Equipment Directive 2014/53/EU.

The full EU Declaration of Conformity for this apparatus can be found at this location: www.nxp.com/1.MX8MMINI

www.nxp.com/iMX8MMINIEVK

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