QUICK START GUIDE

i.MX 8M Mini LPDDR4 EVKB

i.MX 8M Mini LPDDR4 EVKB

ABOUT THE i.MX 8M MINI LPDDR4 EVKB

Like all members of the i.MX 8M product family, the i.MX 8M Mini applications processor is focused on delivering excellent video and audio experiences. This processor combines media-specific features with high-performance processing that is 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
- LPDDR4 32-bit, 2 GB
- eMMC 5.1, 32 GB
- QSPI NOR flash, 32 MB
- Power Management IC (NXP PCA9450AA)
- Azurewave AW-CM358SM (NXP 88W8987): Wi-Fi5 (802.11ac) and Bluetooth 5.1

Base Board:

- MicroSD card connector
- 2 USB2.0 Type-C connectors, Port2 is the only power supply port
- 1 Gbit/s 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/Bluetooth (PCIe®, I^2C, etc.)
- 3.5 mm audio jack for amplified speakers

GET TO KNOW THE i.MX 8M MINI LPDDR4 EVKB

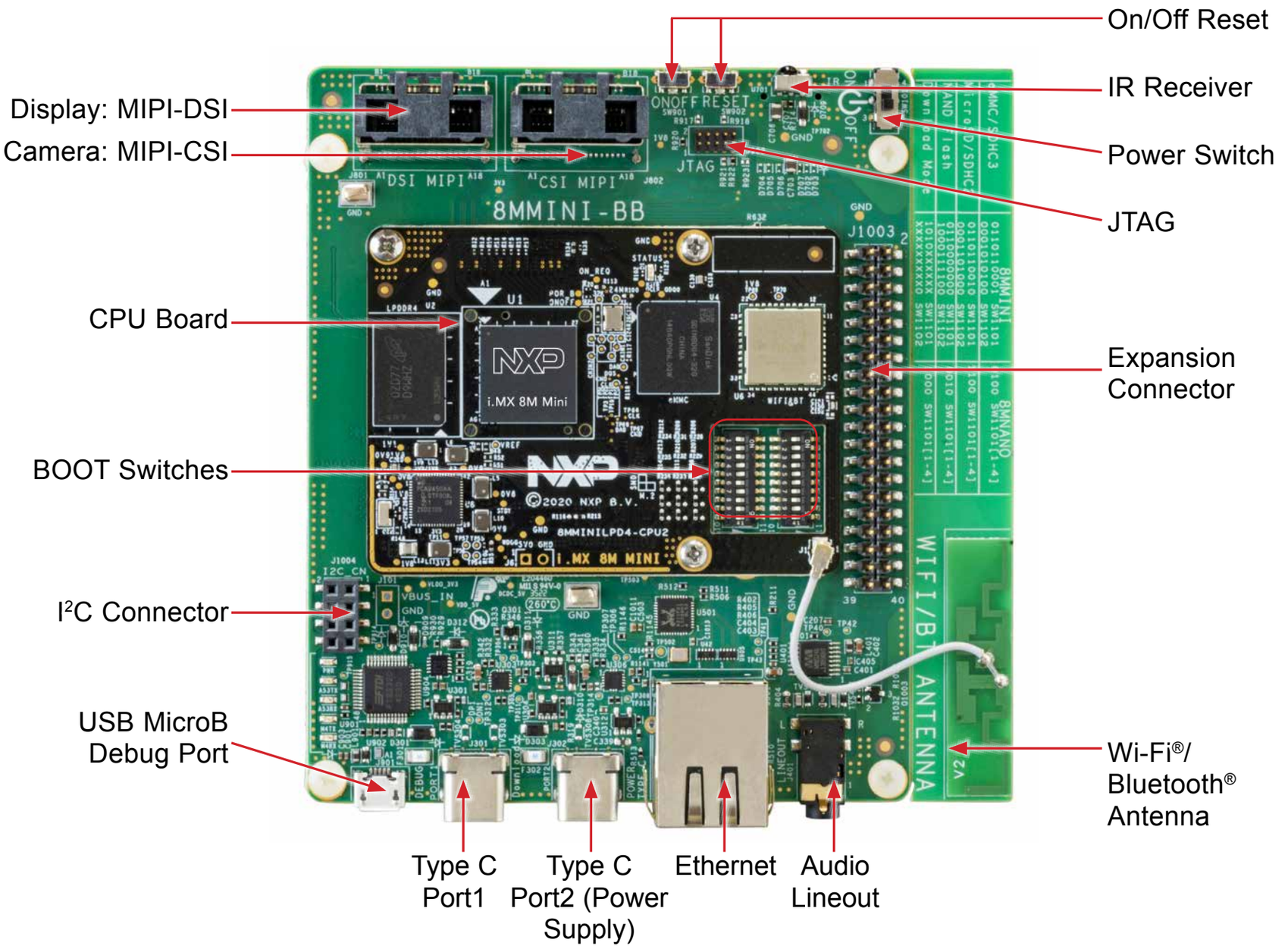


Figure 1: Top view i.MX 8M Mini LPDDR4 EVKB

GET TO KNOW THE i.MX 8M MINI LPDDR4 EVKB CONTINUED

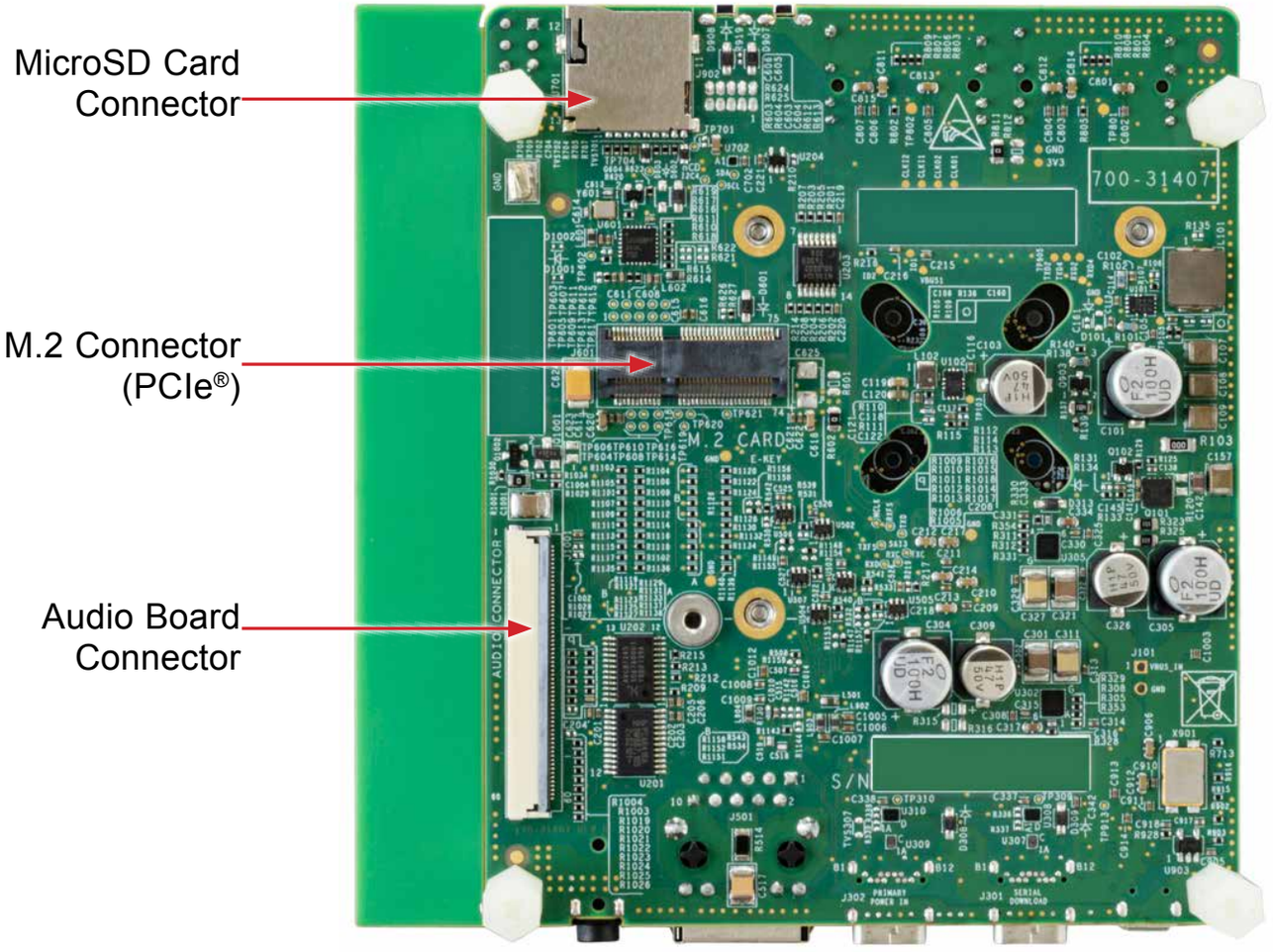


Figure 2: Back view i.MX 8M Mini LPDDR4 EVKB

GET TO KNOW THE i.MX 8M LPDDR4 EVKB CONTINUED

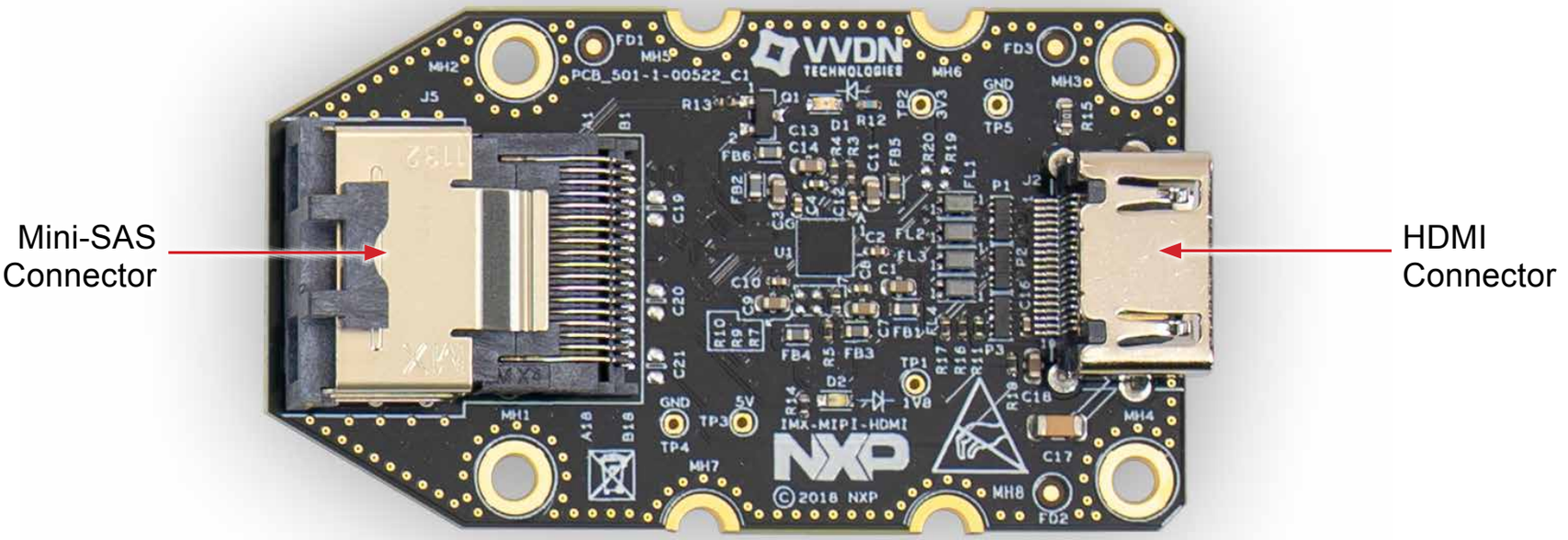


Figure 3: MIPI-DSI to HDMI Adaptor Card (included in the EVK)
Note: (Color of the adaptor card may differ)

GETTING STARTED

Unpack the Kit

The i.MX 8M Mini LPDDR4 EVKB (8MMINILPD4-EVKB) is shipped with the items listed in Table 1. Ensure the items are available in the EVK box.

Table 1 Kit Contents

ITEM	DESCRIPTION
EVKB Board	i.MX 8M Mini LPDDR4 EVKB
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 LPDDR4 EVKB.

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
MX8-DSIOLED1/ MX8-DSI-OLED1A	MIPI-DSI 1080p OLED display

GETTING STARTED CONTINUED

Download Software and Tools

Installation software and documentation are available at www.nxp.com/imx8mminievk. The following are available on the website:

Table 3 Software and Tools

ITEM	DESCRIPTION
Documentation	• Schematics, layout and Gerber files • i.MX 8M Mini LPDDR4 EVKB 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 www.nxp.com/imxlinux and www.nxp.com/imxandroid

SETTING UP THE SYSTEM

The following steps will describe how to run the pre-loaded Android image on the i.MX 8M Mini LPDDR4 EVKB.

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 J901. 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 the M4 core, one for the 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 titled, "Debug Serial Console."

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 EVKB (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.

Warning: Do not plug-in or remove the Mini-SAS devices while the board is powered on. This may cause damage to the board and devices.

4 Connect Mouse

Connect the mouse to J301 (USB Type-C Port 1) 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 Port 2), 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 before you see the Android desktop. Congratulations, you are up and running.

ADDITIONAL INFORMATION

Boot Switches

SW1101 and 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 the corresponding values as listed in Table 4.

Table 4 Boot Device Settings

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

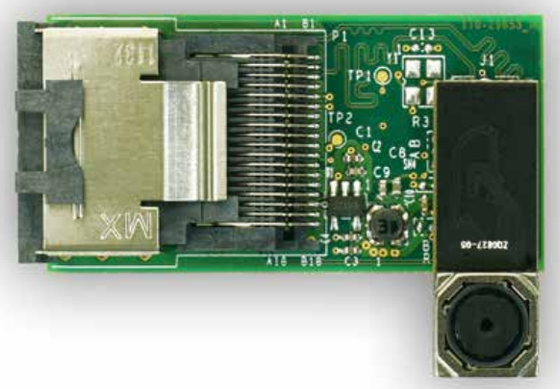
Note: 1 = ON 0 = OFF X = Don't Care

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/MX8-DSI-OLED1A: MIPI-DSI 1080P OLED DISPLAY	MINISASTOCSI: MIPI-CSI CAMERA MODULE
Use this OLED display for display and touchscreen support.	Use this 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-EVKB	WLAN 2.4 GHz Mode 802.11b/g/n	2412 MHz – 2472 MHz	18.5dBm
	WLAN 5 GHz Mode 802.11a/n/ac	5180 MHz – 5825 MHz	15dBm
	BLE	2402 MHz – 2480 MHz	4dBm
	Bluetooth BR/EDR	2402 MHz – 2480 MHz	4dBm

EUROPEAN DECLARATION OF CONFORMITY (Simplified DoC per Article 10.9 of the Radio Equipment Directive 2014/53/EU)
This apparatus, namely 8MMINILPD4-EVKB, 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/i.MX8MMINI**

www.nxp.com/iMX8MMINIEVK

NXP and the NXP logo are trademarks of NXP B.V. All other product or service names are the property of their respective owners. The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by NXP Semiconductors is under license. Arm and Cortex are trademarks or registered trademarks of Arm Limited (or its subsidiaries) in the US and/or elsewhere. The related technology may be protected by any or all of patents, copyrights, designs and trade secrets. All rights reserved. © 2023 NXP B.V.

Document Number: 8MMINILPD4EVKBQSG REV 2 Agile Number: 926-47712 REVC