

## NXP i.MX 8XLITE Evaluation Kit User Guide

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i.MX 8XLITE Evaluation Kit  
User Guide



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## ABOUT THE i.MX 8XLITE EVALUATION KIT

The i.MX 8XLite applications processor is a member of the i.MX 8 family, providing a range of cost-performance scaling, high levels of software reuse and a dedicated Hardware Security Module (HSM) targeting automotive telematics and vehicle-to-everything (V2X) applications.

Its flexible architecture allows both high performance and low power consumption, as well Time-Sensitive Networking (TSN) makes the i.MX 8XLite SoC suitable for a wide variety of industrial applications, such as infrastructure and building control.

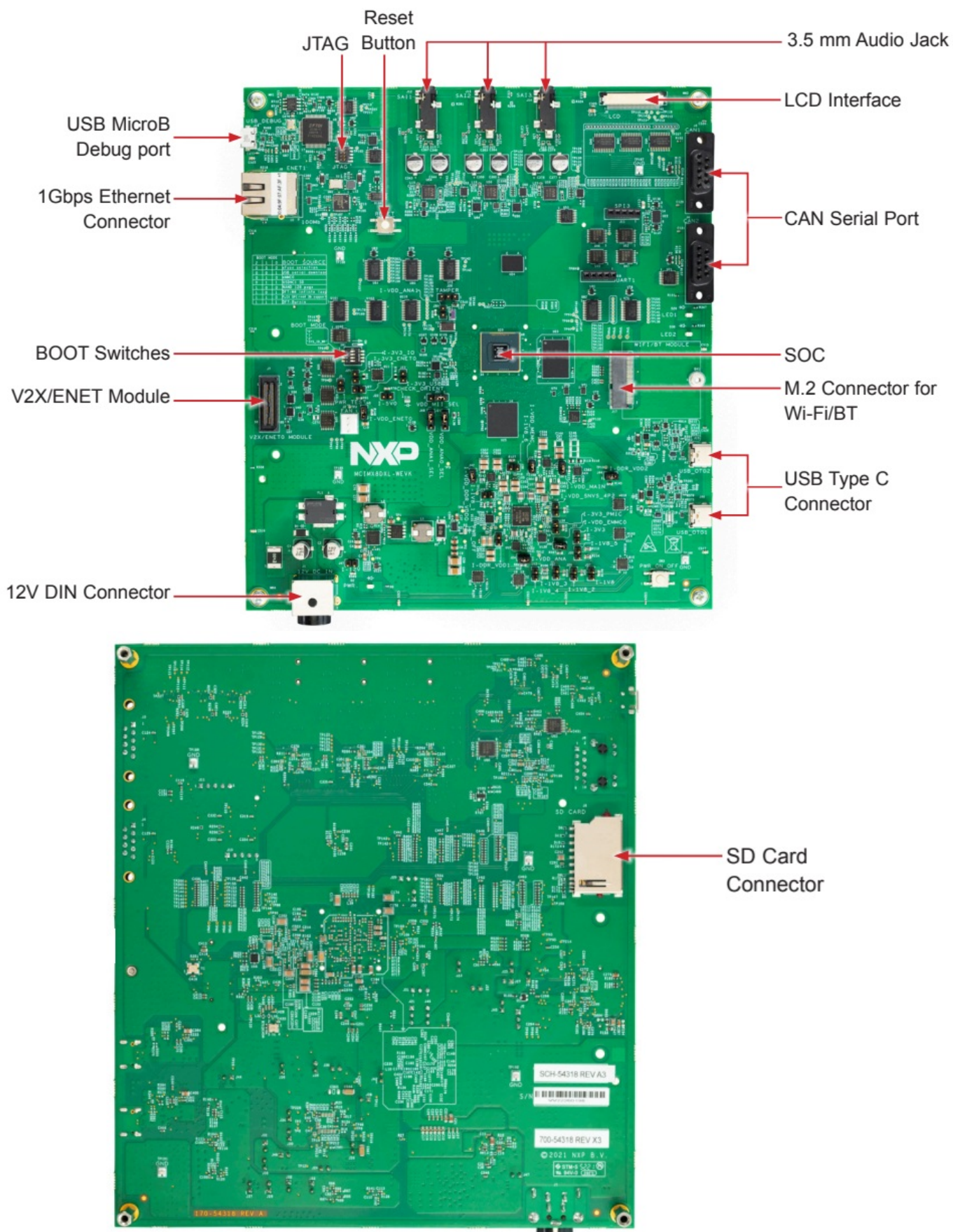
Further resources are available on i.MX 8XLite PSP including hardware design files, software tools, board support packages (BSPs) for Linux®, freeRTOS™, and documentation on the i.MX 8XLite application processor.

## FEATURES

The following features are available with the EVK board based on the i.MX 8XLite applications processor:

- i.MX 8DualXLite applications processor with three cores: two A35 cores + one Cortex-M4 general purpose
- 16-bit LPDDR4-2400 (1200 MHz), 1 GB
- eMMC 5.1, 32 GB
- FlexSPI NOR flash, 64 MB
- Power Management IC (PMIC)
- SD card Connector
- JTAG 10-Pin Connector
- 1Gbps Ethernet with TSN
- SD Card connector
- 2 USB2.0 Type-C connectors
- Micro-USB to serial Converter for debug
- LEDs for power indication and general purpose use
- M.2 Connector for Wi-Fi/BT (PCIe3.0 x1 , USB, UART, I2C and I2S)
- 3x 3.5 mm audio jack
- 2x CAN serial port
- V2X / ENET Module connector
- Parallel LCD Interface connector

## GET TO KNOW THE i.MX 8XLite EVK



**Figure 2:** Bottom View of i.MX 8X Lite EVK

## STEP-BY-STEP INSTRUCTIONS

This section describes how to use the EVK and the required accessories to develop applications using the kit.

### Unpacking the Kit

The EVK is shipped with the items listed in Table 1. Ensure the items are available in the i.MX 8XLite EVK.

ITEM	DESCRIPTION
CPU board	CPU board with i.MX 8XLite applications processor, memory and PMIC
Power supply	Power supply, 12V DC, 11.5A, Level VI, With DIN 4 Pin Output Type
AC Power cord	IEC cable assembly with locking system for IEC C14 inlet, US version, 1.8 3M
Worldwide Adapter	Hardware accessory, universal adapter
USB Type-C cable	Cable — Assembly, USB 3.0, Type-C Male to Type-A Male for Serial Download

ITEM	DESCRIPTION
SD Card with BSP image	Module, SD Card, 16GB, Class-10
USB Type-B cable	Cable — Assembly, USB 2.0, Type-A Male to Micro-B Male for interface to debug port
Wi-Fi module	M.2 form factor Wi-Fi / Bluetooth module

Table 1: Contents of the i.MX 8XLite EVK

## Optional Accessories

ITEM	DESCRIPTION
USB HUB	2 or 4 port USB Hub

Table 2: Customer provided optional accessories

Download Software and tools ([www.nxp.com/imx8xlite](http://www.nxp.com/imx8xlite))



ITEM	DESCRIPTION
Documentation	<ul style="list-style-type: none"> <li>• Schematics, layout and Gerber files</li> <li>• Quick Start Guide</li> <li>• Hardware Developer's Guide</li> <li>• Applications Processor Reference Manual</li> </ul>
Software Development	Linux' BSPs, freeRTOS™
Demo Images	Copy of the latest Linux BSP images that are available to program on to the eMMC, SD or SPINOR

Table 3: Software and documentation available

## SETTING UP THE SYSTEM

The following will describe how to run a Linux image on the i.MX 8XLite EVK.

### Confirm Boot Switches

The boot switches should be set to boot from the SD Card. See table below and configure the Boot switch SW1:

BOOT DEVICE	SW1		
USHD1 SD	BOOT_MODE[2]	BOOT_MODE[1]	BOOT_MODE[0]
	0	1	1

1=ON 0=OFF

### Setting up the System SD Card

Insert the MicroSD card into socket J6 on the EVK CPU Board.

### Connect USB Debug Cable

Connect the micro-B end of a USB cable into debug port J19. Connect the other end of the cable to a PC acting as a host terminal. On Windows, 2 UART connections will appear on the PC. The console print will output on "Enhanced COM port," which can be found in "Device Manager" of the PC. On Linux, 4 UART connections will appear. Two of them are used as serial console. The serial port drivers for the debug port connection can be found on this webpage: <https://www.ftdichip.com/Drivers/VCP.htm>.

Open the terminal window (i.e., Hyper Terminal or Tera Term), choose the COM port number that corresponds to the "Enhanced COM port" on Windows or the ttyUSBx for Linux which corresponds to the serial console, and apply the following configuration.

- Data bits: 8
- Baud rate: 115200
- Stop bit: 1
- Parity: None
- Flow control: None

### **Connect Ethernet Cable (Optional)**

Connect an Ethernet cable to the Ethernet Jack J8 (close to the Debug port).

### **Wi-Fi/Bluetooth Module (Optional)**

Connect the M.2 form factor Wi-Fi Bluetooth module with E-key to the M.2 Connector J17.

### **Connect Power Supply**

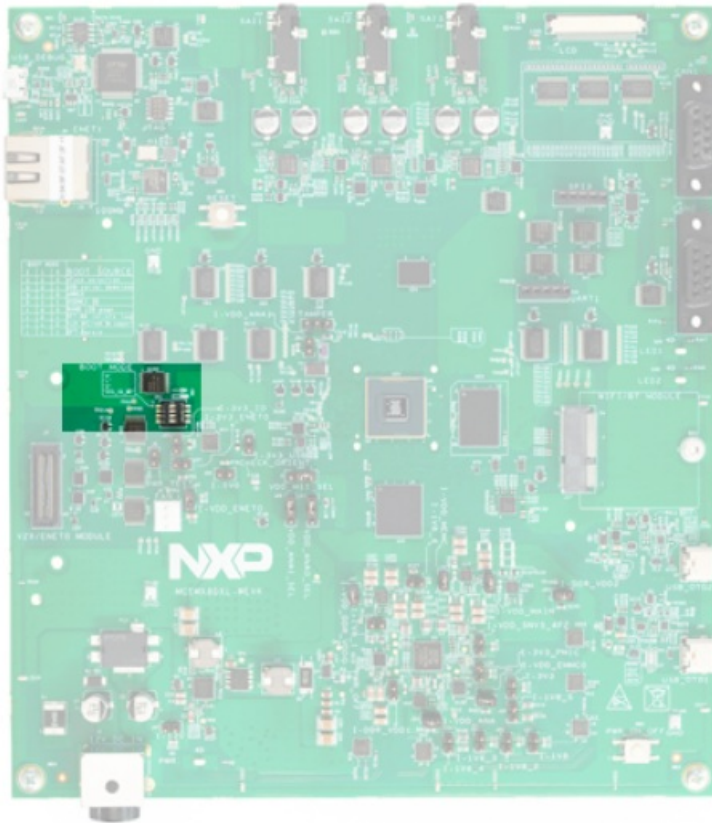
Connect the plug of the 12V power supply to the DIN connector J1. When power is connected to the EVK, it will automatically begin the boot sequence.

**CAUTION:** To avoid damage, do not hot plug the daughter cards while the CPU card power is ON

## **BOOT PROCESS FOR LINUX® IMAGE**

### **Boot Process**

- Switch SW1 to ON, ON, OFF, ON (from 1-4 bit) to boot from the SD card, as shown in Figure 4. The first three switches named “0”, “1”, “2” are used to choose the BOOT mode. The last one named “SYS\_ID\_WP” is used for write protection of the System ID memory (the ON position, by default, prevent write operation to such memory).
- Power on the EVK board.
- During the boot process, there will be console prints on the terminal window of the PC (if connected).
- To work from the terminal window on the host PC, press ‘Enter’ at the terminal window to get the command prompt. Account name: root, password none.



**Figure 3: BOOT MODE switch of i.MX 8X Lite EVK**

#### DIP SWITCH CONFIGURATION

Table 4 shows the switch (SW1) configuration of boot mode for i.MX 8X Lite EVK.

BOOT_MODE[2]	BOOT_MODE[1]	BOOT_MODE[0]	BOOT MODE
0	0	0	BOOT From eFuse
0	0	1	USB Serial Download
0	1	0	EMMCO
0	1	1	USHDC1 SD
1	0	1	Reserved
1	1	0	FlexSPI
1	1	1	Reserved

Table 4: Boot MODE Pin Settings for i.MX 8X Lite EVK

#### BUTTON FUNCTIONS

Table 5 shows the switch (SW1) configuration of boot mode for i.MX 8X Lite EVK

ITEM	DESCRIPTION
SW1	EVK BOOT selection switch • Used for boot configuration according to SCU boot mode
SW2	EVK RESET button • Pressing of the button will reset the system and begin a boot sequence
SW3	EVK ON/OFF button • Press and hold for 0.5sec for On, press and hold for 5sec to turn off.

**Table 5:** i.MX 8XLite EVK board button operations

## SUPPORT

Visit [www.nxp.com/support](http://www.nxp.com/support) for a list of phone numbers within your region.

## WARRANTY

Visit [www.nxp.com/warranty](http://www.nxp.com/warranty) for complete warranty information.

## HOME PAGE

Visit [www.nxp.com/imx8xlite](http://www.nxp.com/imx8xlite) for more information


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## Documents / Resources

	<p><a href="#">NXP i.MX 8XLite Evaluation Kit</a> [pdf] User Guide i.MX 8XLite Evaluation Kit, i.MX 8XLite, Evaluation Kit</p>
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## References

- [VCP Drivers - FTDI](#)
- [NXP® Semiconductors Official Site | NXP Semiconductors](#)
- [i.MX 8XLite Applications Processors for Telematics, V2X and Industrial Control | NXP Semiconductors](#)
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