



Quick Start Guide Multisensory Enablement Kit i.MX 8QuadXPlus MEK CPU Board

Based on i.MX 8QuadXPlus Applications Processor



Quick Start Guide

GET TO KNOW THE MEK BASED ON i.MX 8QUADPLUS APPLICATIONS PROCESSOR

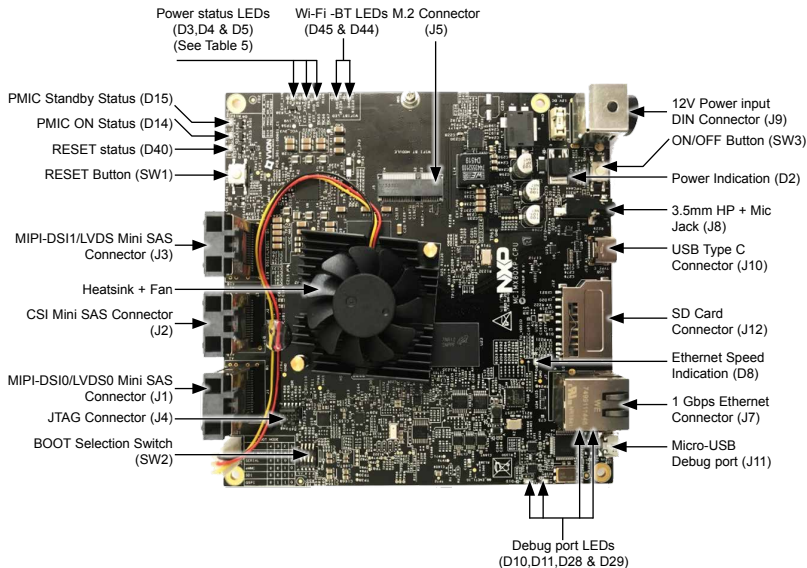


Figure 1: Main interfaces of i.MX 8 QXP MEK CPU Board

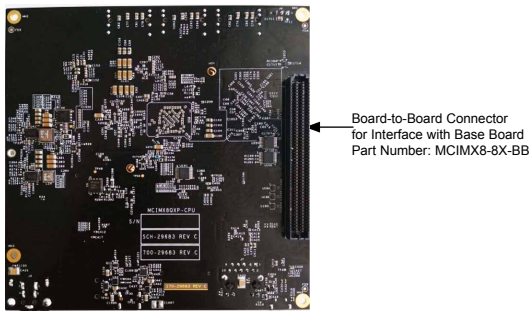


Figure 2: Bottom View of i.MX 8QXP MEK CPU Board



Figure 3: LVDS to HDMI Adaptor Card
Part Number: IMX-LVDS-HDMI

ABOUT THE MULTISENSORY ENABLEMENT KIT BASED ON THE i.MX 8QUADXPLUS APPLICATIONS PROCESSOR

The i.MX 8QuadXPlus Multisensory Enablement Kit (MEK) is an evaluation platform for the i.MX 8QuadXPlus Applications Processor. Hardware design files, software tools and board support packages (BSPs) for Linux®, Android, and FreeRTOS are available for customers to use as references for starting design of their products.

The i.MX 8QuadXPlus MEK consists of a CPU board and an optional base board MCIMX8-8X-BB (ordered separately).

The LVDS to HDMI adapter board is included with the MCIMX8QXP-CPU. Extended Audio features are supported by an Audio card (IMX-AUD-IO) which is included with the base board.

FEATURES

The following features are available with the MEK CPU board based on the i.MX 8QuadXPlus applications processor:

- i.MX 8QuadXPlus processor with 6 cores (4xARM® Cortex®-A35, and 1x Cortex-M4F, and 1x HiFi4 DSP)
- 3GB, 32-bit LPDDR4 with 1.2 GHz clock
- eMMC 5.0, 32GB
- 64MB Octal SPI NOR flash
- SD card Connector
- USB Type-C connector
- 1Gbps Ethernet
- Micro-USB to serial Converter for debug
- 2x mini-SAS MIPI / LVDS connectors (Combo PHY)
- Camera MIPI-CSI through mini-SAS connector
- Sensors including:
 - Accelerometer
 - Gyroscope
 - Pressure Sensor with Altimetry
 - Ambient light sensor
- LEDs for Power and Reset Indication
- M.2 Connector for Wi-Fi/BT (PCIe, USB, UART, I²C and I²S)
- Audio codec (headphone + mic jack)
- JTAG 10-Pin Connector

GETTING STARTED

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

1 Unpacking the Kit

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

ITEM	DESCRIPTION
CPU board	CPU board with i.MX 8QuadXPlus application 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, 1.83M
Worldwide Adapter	Hardware accessory, universal adapter
LVDS to HDMI Adapter Card	PWA, IMX-LVDS-HDMI
JTAG- GEN2, Adapter Card	PWA, JTAG-GEN2
10-WIRE RIBBON CABLE	Cable, Ribbon IDC, 1.27MM, 4", 10POS
USB Type-C cable	Cable -Assembly, USB 3.0 Type-A Female, USB Type-C Male, Shielded, 200mm
SD Card with BSP image	Module, SD Card, 16GB, Class-10
Micro USB Cable	USB Cable, USB A Male to Micro B, for interface to debug port
QSG	Quick Start Guide

Table 1: Contents of the i.MX 8QuadXPlus Multisensory Enablement Kit (more on next page)

2 Optional Accessories

Table 2 lists additional equipment not included with the i.MX 8QuadXPlus MEK.

ITEM	DESCRIPTION
HDMI Display	HDMI Display would be needed to connect to the LVDS to HDMI Adapter card

Table 2: Equipment provided by customer

SETTING UP THE SYSTEM

1 SD Card

Insert the MicroSD card into socket J12 on the MEK CPU Board.

2 Connect USB Debug Cable

Connect the micro-B end of a USB cable into debug port J11. Connect the other end of the cable to a PC acting as a host terminal.

Open the terminal window (i.e., Hyper Terminal or Tera Term) and apply the following configuration.

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

3 Connect the Headphone (Optional)

Connect the Headphone to the Audio Jack J8 (close to the ON/OFF switch)

4 Connect Ethernet Cable (Optional)

Connect an Ethernet cable to the Ethernet Jack J7 (close to the Debug port).

5 Connect USB type-C Cable (Optional)

Connect the Type C Male connector of the supplied USB Type-C male to Type-A female cable to the Type-C connector J10 (Close to the SD slot)

6 LVDS Adapter Card and Display (optional)

Connect the LVDS to HDMI daughter card to J1 or J3 with the Mini SAS cable supplied in the package.

7 Wi-Fi / Bluetooth Module (Optional)

Connect the M.2 form factor Wi-Fi-Bluetooth module with E-key to the M.2 Connector J5. (Order from Murata)

8 Connect Power Supply

Connect the plug of the 12V power supply to the DIN connector J9. When power is connected to the MEK, 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 SW2 to ON, ON, OFF, OFF (from 1-4 bit) to boot from the SD card, as shown in Figure 4.
- Power on the MEK 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.

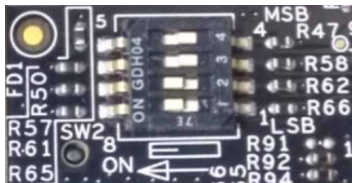


Figure 4: BOOT MODE switch

DIP SWITCH CONFIGURATION

Table 3 shows the switch (SW2) configuration of boot mode for i.MX 8QuadXPlus MEK.

POS-4	POS-3	POS-2	POS-1	BOOT DEVICE
0	0	0	0	BOOT From Fuse
0	0	0	1	Serial Download
0	0	1	0	EMMC0
0	0	1	1	SD1
0	1	1	0	Octal SPI

Table 3: i.MX 8QXP MEK DIP switch configuration (SW1 on SOM)

BUTTON FUNCTIONS

Table 4 shows the functions of the push buttons and switches on the board.

ITEM	DESCRIPTION
SW1	MEK RESET button <ul style="list-style-type: none">Pressing of the button will reset the system and begin a boot sequence
SW2	MEK BOOT selection switch <ul style="list-style-type: none">Used for boot configuration according to SCU boot mode.
SW3	MEK ON/OFF button <ul style="list-style-type: none">Press and hold for 0.5sec for On, press and hold for 5sec to turn off.

Table 4: MEK board button operations

LED STATUS

Table 5 shows the status of LEDs on the board

ITEM	DESCRIPTION
D40	Processor RESET status • ON: i.MX 8QXP is in Reset State , OFF: i.MX 8QXP is in Active State SCU PMIC ON request
D14	• ON: PMIC is ON, OFF: PMIC is OFF
D15	SCU PMIC Standby • ON: PMIC is in Standby mode , OFF: PMIC is in operational mode
D8	Ethernet Speed Indication, ON: 1Gbps, OFF: 10/100Mbps
D2	12V Supply ON
D3	EXT_1V8 Supply ON
D4	EXT_3V3 Supply ON
D5	EXT_5V0 Supply ON
D44	According to M.2 module behavior
D45	According to M.2 module behavior
D28	UART Data RX(Pulses when Transmitting Data via USB)
D29	UART Data TX(Pulses when Receiving Data via USB)
D10	UART Data RX(Pulses when Transmitting Data via USB)
D11	UART Data TX(Pulses when Receiving Data via USB)

Table 5: i.MX 8QXP MEK CPU – LED Status

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WARRANTY

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Get Started

Download installation software and documentation under **"Jump Start Your Design"** at www.nxp.com/IMX8QXPMEK.

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