

Multisensory Enablement Kit Based on i.MX 8QuadXPlus Applications Processors

The i.MX 8QuadXPlus Multisensory Enablement Kit (MEK) is ideal for safety-certifiable and efficient performance requirements.

The NXP i.MX 8QuadXPlus Multisensory Enablement Kit (MEK) provides a comprehensive platform for quick evaluation and development of the Arm® Cortex® A35 + Cortex-M4F based i.MX 8QuadXPlus, i.MX 8DualXPlus and i.MX 8DualX applications processors as well as the NXP PF8100 power management integrated circuit (PMIC) solution and sensors.

The MEK offers a high-level integration to support graphics, video, image processing, audio, and voice functions. It is complete with highly optimized drivers and software, the i.MX 8X enables broad-based applications for the embedded industrial and automotive markets.

The kit includes an LVDS to HDMI adapter for simple out-of-the-box bring up. It has LPDDR4, eMMC, and QSPI memory options, 10/100/1000 Ethernet port, USB 3.0 connectors and PCIe high-speed interfaces ideal for connected, high performance embedded applications. For audio, video, and HMI evaluations, it brings out LVDS and MIPI-DSI connectors, and a headphone 3.5 mm audio jack.

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.

TARGET APPLICATIONS

- Automotive—instrument cluster, infotainment, display audio, rear seat entertainment, smart antenna, Vehicle-to-Vehicle (V2X), gateway and camera systems
- Industrial vehicle—avionics cockpit display, in-flight entertainment, train and heavy equipment HMI
- Advanced industrial human machine interface (HMI) and control—PLC, I/O controller, home/building control
- Robotics—drone, mobile service robot
- Building Control—fire and security panel, elevator control, HVAC control
- Healthcare—patient monitor
- Networking—specialty gateway, low-end video conference terminal
- Mobile payment—payment systems
- General-purpose HMI solutions

GRAPHICS, VIDEO, AND AUDIO

The MEK has hardware accelerated video, graphics, and audio processing capabilities. The integrated video supports encode and decode for h.264 as well as decode for h.265. The graphics engine and display processor support rich 3D and 2D user interfaces while the Tensilica® HiFi 4 DSP supports audio pre- and post- processing, key word detection and speech recognition for hands-off interaction. Applications like infotainment, clusters, display audio, HMI, surveillance, and robotics can take advantage of the high level of multimedia integration.

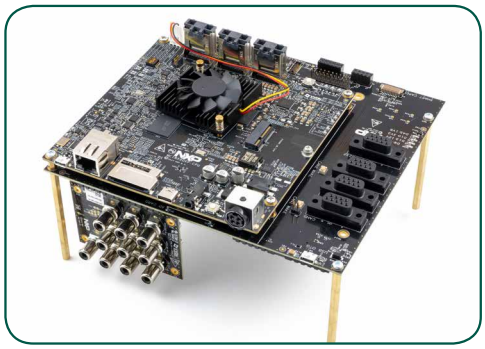
HMI AND CONNECTIVITY

Today, Human Machine Interface (HMI) must respond accurately, and in miliseconds, to touch screen and gesture inputs. Connectivity is a must, demanding increasingly faster and more reliable wired and wireless capabilities associated with security to protect sensitive data and privacy. The i.MX i.MX 8QuadXPlus MEK provides capabilities for development of these key functionalities.

i.MX 8QuadXPlus MEK FEATURES

CPU Board Part Number: MCIMX8QXP-CPU	
Processor	• NXP i.MX 8QuadXPlus • 4x Arm Cortex-A35 @ up to 1.2 GHz • 512 MB L2 cache • Arm Cortex-M4 @ 266 MHz
Power Management	• NXP MMPF8100 PMIC
Memory	• 3 GB LPDDR4 memory, x32 • 32 GB eMMC 5.0 • 64 MB Octal SPI Flash
Display/Camera Connectors	• 2x MIPI-DSI / LVDS connectors • Camera MIPI-CSI
Audio	• Audio Codec • Microphone and headphone jacks
Connectivity	• 1x full-size SD/MMC card slot • 10/100/1000 Ethernet port • 1x USB 3.0 Type C
Debug	• JTAG connector • Serial to USB connector
Additional Feature	• NXP 3-axis accelerometer & eCompass [not populated] • NXP Gyroscope • NXP Light Sensor • NXP Pressure Sensor • RGB LED • Power supply
OS Support	• Linux • Android • FreeRTOS
Expansion Connector	• M.2 Connector (PCIe, USB, UART, I²C and I²S)

i.MX 8QUADXPLUS MEK



i.MX 8QUADXPLUS MEK CONTENTS

CPU board (standalone)

- i.MX 8QuadXPlus MEK CPU board
- Power Supply
- Quick Start Guide
- USB 3.0 Type C to Type A
- USB 2.0 Type A to Type Micro
- LVDS to HDMI Adapter Card

Baseboard (ordered separately)

- i.MX 8/8X Baseboard
- i.MX 8/8X Audio Board

SOFTWARE AND TOOLS

Hardware design files, software tools and board support packages (BSPs) for Linux®, Android and FreeRTOS are available from NXP to use as a reference for starting designs. QNX, Green Hills®, other commercial operating systems, and tools are also available from NXP's ecosystem partners. Additional information can be found at **www.nxp.com/MCIMX8QXP-CPU**.

i.MX 8QuadXPlus MEK Baseboard Features		
Part Number	**Connectivity**	**Expansion Connector**
MCIMX8-8X-BB	• 1x I2C Auxiliary Connector • 1x Tamper Head • 1x Parallel CSI Connector • 1x UART, 2x CAN • 1x uUSB OTG connector • 1x Audio In Connector, • 1x Audio Out Connector • 1x 10/100/1000 Ethernet connector • Muxed w/ Audio port)	• Arduino Connector/ MikroBus Interface

There are a number of accessory boards that pair with the i.MX 8QXP MEK CPU board and baseboard including support for cameras and displays. Visit **www.nxp.com/i.MX8-ACCESSORY-BOARDS** to see the complete list.

www.nxp.com/iMX8X and imxcommunity.org

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Document Number: IMX8QADXPLUSFS REV 0