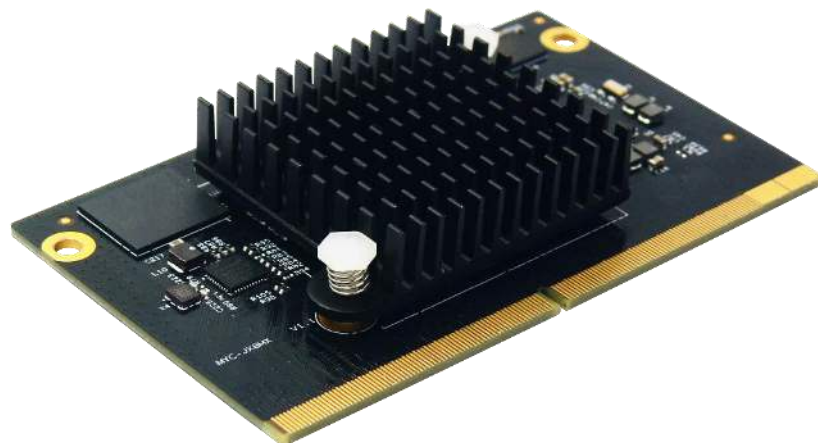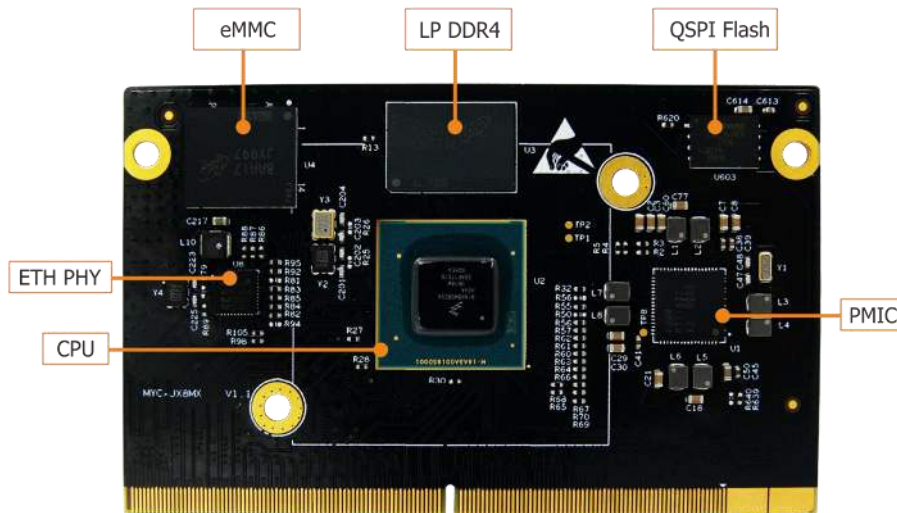# MYC-JX8MX CPU Module

Overview

- ✓ NXP i.MX 8M Quad Application Processor based on 1.3 GHz Arm Cortex-A53 and 266MHz Cortex-M4 Cores
- ✓ 1GB / 2GB LPDDR4, 8GB eMMC Flash, 256Mbit QSPI Flash
- ✓ On-board Gigabit Ethernet PHY
- ✓ ROHM Power Management IC (PMIC)
- ✓ 0.5mm pitch 314-pin MXM 3.0 Expansion Connector
- ✓ Supports Working Temperature Ranging from -25°C to 80°C
- ✓ Supports Running Yocto Linux, Ubuntu Linux, Android

Measuring 82mm by 52mm, the **MYC-JX8MX CPU Module** provides an outstanding embedded solution for Scanning/Imaging, Building Automation and Smart Home, Human Machine Interface (HMI), Machine Vision and more other consumer and industrial applications which requires high multi-media performance.

The **MYC-JX8MX** is based on NXP i.MX8M Quad processor featuring 1.3GHz quad ARM Cortex-A53 cores and a real-time ARM Cortex-M4 co-processor. It is a minimum system integrated with CPU, LPDDR4, eMMC, QSPI Flash, GigE PHY and PMIC. All controller signals are brought out through one 0.5mm pitch 314-pin MXM 3.0 Expansion Connector. It is a Linux-ready ARM SoM ideal for your next embedded design and provided with Linux and Android software packages for development.


MYC-JX8MX CPU Module Top-view (delivered with heatsink by default)

A development board **MYD-JX8MX** is also available for evaluating the **MYC-JX8MX CPU Module**. It takes full features of the i.MX8M processor to provide rich peripheral interfaces and signals through connectors and headers. It is a solid reference design for users to develop their own carrier boards when using the MYC-JX8MX as their controller boards; it is also a complete evaluation platform for i.MX8M based solutions. MYIR offers **MY-CAM003M MIPI Camera Module** and **MY-LVDS070C 7-inch LCD Module** as options for the board.
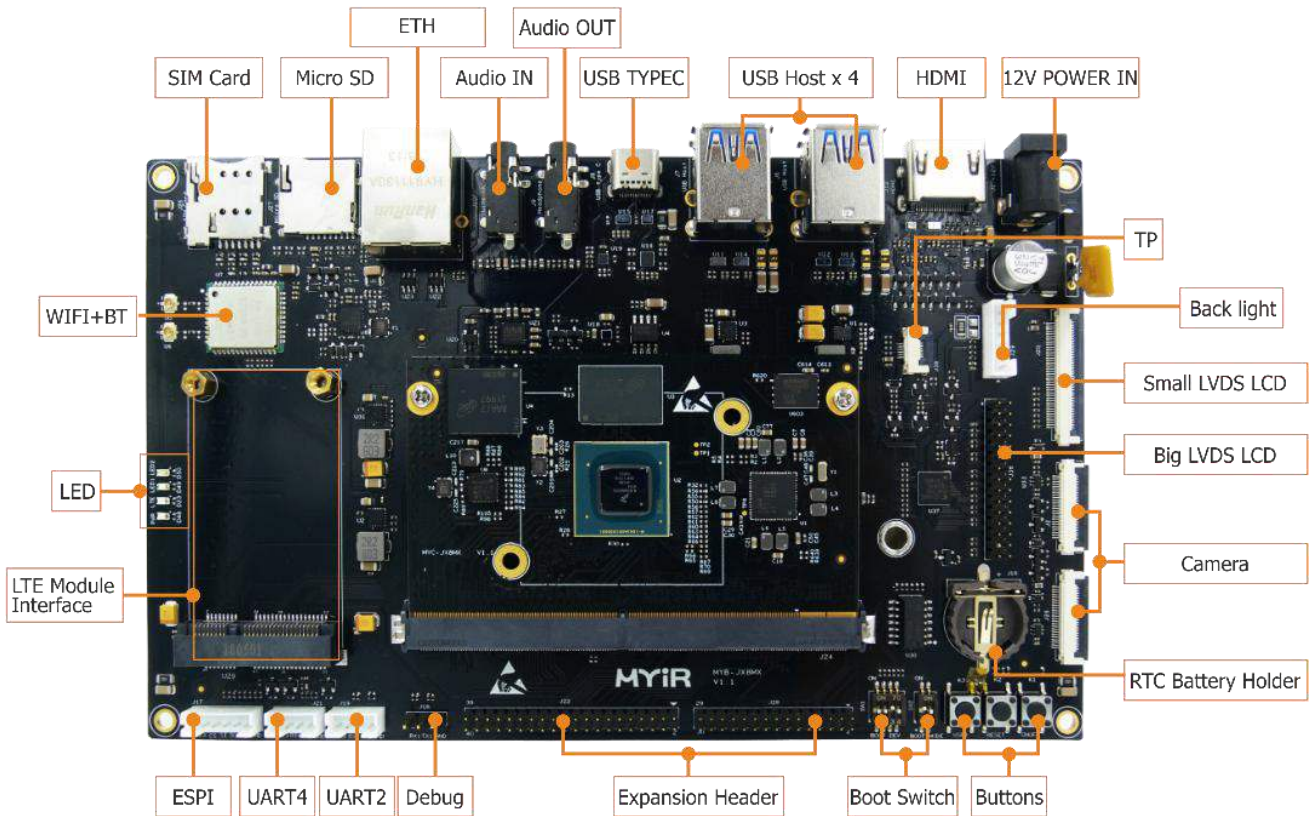
MYD-JX8MX Development Board Top-view
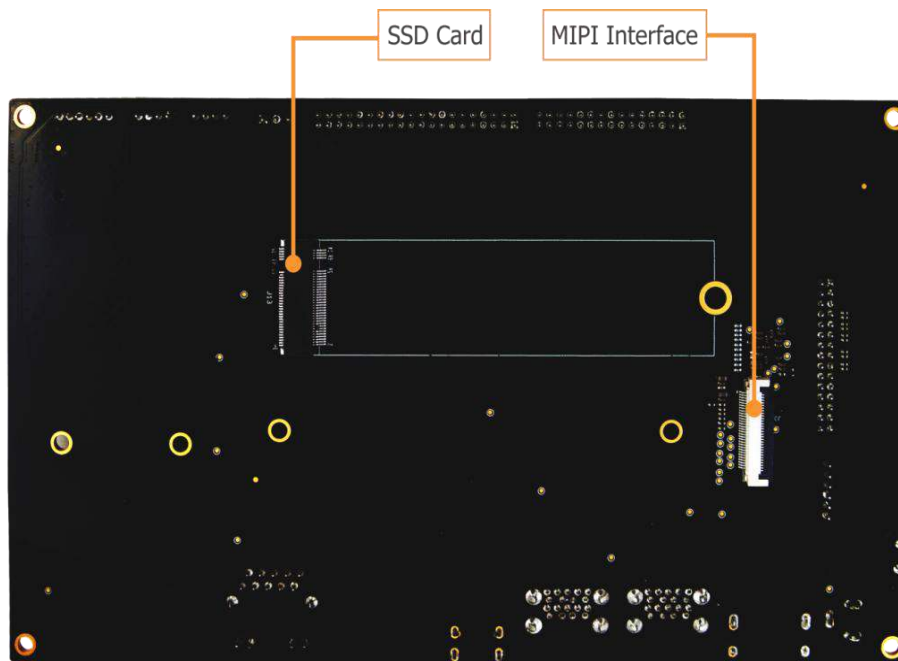
MYD-JX8MX Development Board Bottom-view

Hardware Specification

The MYC-JX8MX CPU Module is using NXP's 17 x 17 mm, 0.65 mm pitch, FCBGA bare die package i.MX 8M Quad

Application Processor (MIMX8MQ6CVAHZAB) which is based on 1.3GHz quad Arm Cortex-A53 and 266MHz Cortex-M4 cores.

The **i.MX 8M family** of applications processors (i.MX 8M Dual / 8M QuadLite / 8M Quad) represent NXP's latest market of connected streaming audio/video devices, scanning/imaging devices, and various devices requiring high-performance, low-power processors. The i.MX 8M processors feature advanced implementation of a dual/quad Arm® Cortex®-A53 core, which operates at speeds of up to 1.3 GHz. A general-purpose Cortex®-M4 core processor is for low-power processing. The DRAM controller supports 32-bit/16-bit LPDDR4, DDR4, and DDR3L memory. There are a number of other interfaces for connecting peripherals, such as WLAN, Bluetooth, GPS, displays, and camera sensors. The i.MX 8M Quad and i.MX 8M Dual processors have hardware acceleration for video playback up to 4K, and can drive the video outputs up to 60 fps. Although the i.MX 8M QuadLite processor does not have hardware acceleration for video decode, it allows for video playback with software decoders if needed.
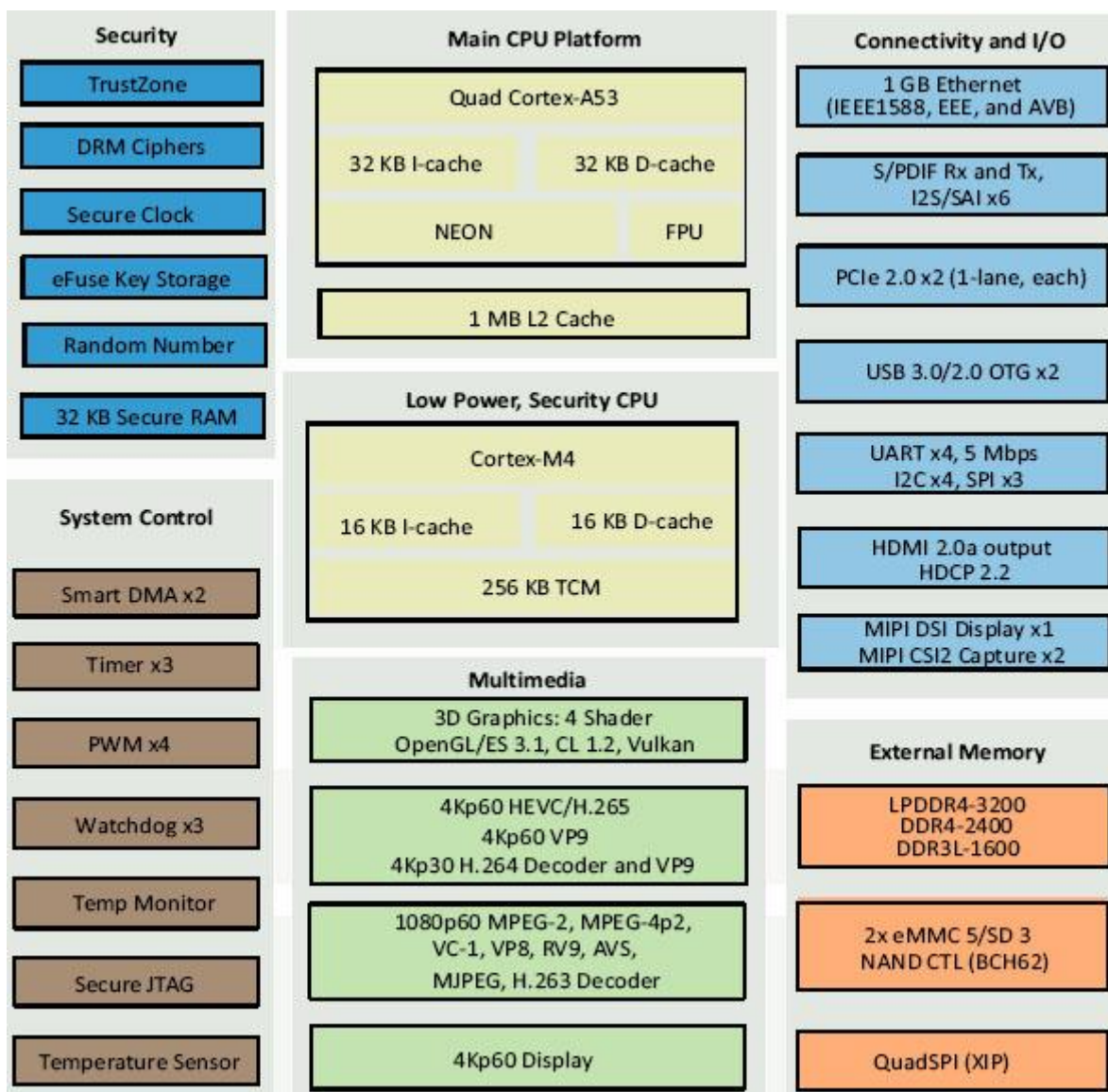
i.MX 8M System Block Diagram

Mechanical Parameters
- Dimensions: 82mm x 50mm
- PCB Layers: 10-layer design

- Power supply: +5V/0.5A
- Working temperature: -25~80 Celsius

Processor

- NXP i.MX 8M Quad Processor based on 1.3GHz Quad ARM Cortex-A53 and 266MHz Cortex-M4 cores (MIMX8MQ6CVAHZAB by default)

Memory

- 1GB / 2 GB LPDDR4 (supports up to 4GB LPDDR4)
- 8GB eMMC Flash (supports up to 64GB eMMC)
- 256Mbit QSPI Flash

Peripherals and Signals Routed to Pins

- One 10/100/1000M Ethernet PHY
- Power Management IC (ROHM BD71837MWV)
- 0.5mm pitch 314-pin MXM 3.0 Expansion Connector
  - 1 x 10/100/1000Mbps Ethernet
  - 3 x Serial ports
  - 3 x I2C
  - 2 x SPI
  - 4 x PWM
  - 3 x USB 3.0
  - 2 x PCIe
  - 6 x I2S / SAI
  - 2 x MIPI Camera Sensor Interface
  - 1 x JTAG
  - 1 x HDMI 2.0a output
  - Up to 108 GPIOs

  Note: the peripheral signals brought out to the expansion interface are listed in maximum number. Some signals are reused. Please refer to the processor datasheet.
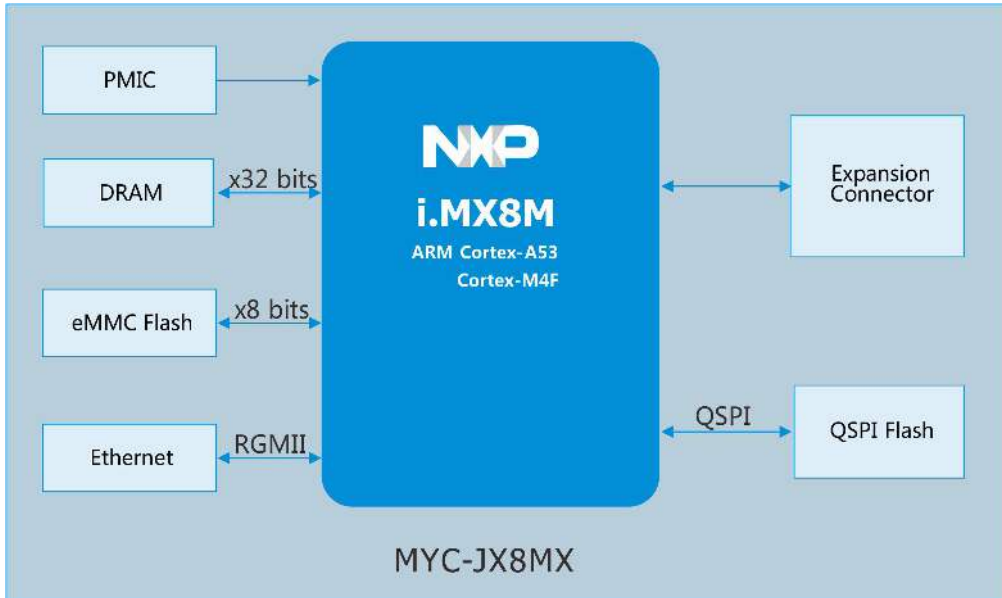
MYC-JX8MX CPU Module Function Block Diagram
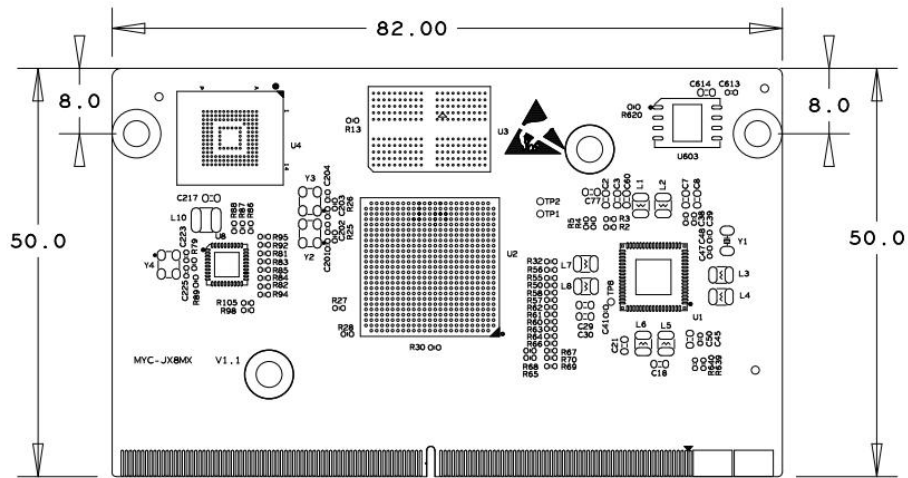
MYC-JX8MX Dimensions Chart

Software Features

MYIR's MYC-JX8MX CPU module supports running Yocto Linux, Ubuntu Linux, Android OS and is provided with both software packages for user development. Many peripheral drivers are in source code to help accelerate customers' designs. The software packages provided are characterized as following:

Item	Features	Description	Source Code Provided
Bootstrap program	U-boot	The primary bootstrap	YES
Linux kernel	Image	Based on NXP official 2019.04-4.19.35-1.1.0 version	YES
Drivers	PMIC	BD71873PMIC driver	YES
	USB Host	USB Host driver	YES
	USB OTG	USB OTG driver	YES
	I2C	I2C Bus driver	YES
	SPI	SPI Bus driver	YES
	Ethernet	10/100/1000M Ethernet driver	YES
	MMC	MMC/eMMC/TF card driver	YES
	HDMI	HDMI Display driver	YES
	LCD	MIPI-LVDS driver	YES
	PWM	PWM driver	YES
	RTC	RTC driver	YES
	IO	GPIO driver	YES
	Touch	Capacitive touch screen driver	YES
	Audio	WM8904 driver	YES
	Camera	Ov5640 driver	YES
	WiFi & BT	6222B/QCA6174 driver	YES
	Watchdog	Watchdog driver	YES
	4G LTE Module	Supports Quectel's EC20 using USB driver	YES
	M.2	NVME driver	YES
File System	Yocto rootfs	Including QT5.12	YES
		Common file system for terminal	YES
Application Programs	GPIO KEY	Key example	YES
	GPIO LED	LED example	YES
	NET	TCP/IP Sokect C/S example	YES
	RTC	RTC example	YES
	UART	UART example	YES
	Audio	Audio example	YES
	LCD	LCD example	YES
	Camera	Dual camera display example	YES
Compiler Tool Chain	Cross compiler	Yocto GCC 8.3.0 Hardfloat	BINARY

Yocto Linux Software Features

Item	Features	Description	Source Code Provided
Bootstrap program	U-boot	The primary bootstrap	YES
Linux kernel	Image	Based on NXP official Android 9.0.0 version	YES
Drivers	PMIC	BD71873PMIC driver	YES
	USB Host	USB Host driver	YES
	USB OTG	USB OTG driver	YES
	I2C	I2C Bus driver	YES
	SPI	SPI Bus driver	YES
	Ethernet	10/100/1000M Ethernet driver	YES
	MMC	MMC/eMMC/TF card driver	YES
	HDMI	HDMI Display driver	YES
	LCD	MIPI-LVDS driver	YES
	PWM	PWM driver	YES
	RTC	RTC driver	YES
	IO	GPIO driver	YES
	Touch	Touch Screen driver	YES
	Audio	WM8904 driver	YES
	Camera	Ov5640 driver	YES
	WiFi & BT	6222B/QCA6174 driver	YES
	Watchdog	Watchdog driver	YES
	4G LTE Module	Supports Quectel's EC20 using USB driver	YES
	M.2	NVME driver	YES
File System	Ramdisk	android ramdisk	YES
Application Programs	GPIO KEY	Key example	YES
	GPIO LED	LED example	YES
	NET	TCP/IP Sokect C/S example	YES
	RTC	RTC example	YES
	UART	UART example	YES
	Audio	Primary recorder apk based on Android	YES
	Camera	Primary camera apk based on Android	YES
	WiFi	Primary settings apk based on Android	YES
	BT	Primary settings apk based on Android	YES
	Video	Primary Cactus player based on Android	BIN
Compiler Tool Chain	Cross compiler	4.9.x 20150123	BINARY

Android Software Features

Ubuntu Linux has changed file system based on Yocto Linux and remains uboot, kenrel, dtb, ko and firmware.

Features	Description
Version	Ubuntu 18.04
Desktop	Xfce4
Wifi/bt/NET	Normal function, connman control
4G	Unable to add connman, open manually
CSI/USB camera	Normal function, need to co-operate with gstream
Audio	Can switch output with HDMI
LVDS	Support MYIR's 7-inch Display with 1024 x 600 pixels resolution
Kernel	Support docker configuration

Ubuntu Linux Software Features

Order Information

Product Item	Part No.	Packing List
MYC-JX8MX CPU Module	MYC-JX8MQ6-8E1D-130-E	✓ One MYC-JX8MX CPU Module
	MYC-JX8MQ6-8E2D-130-E	
MYD-JX8MX Development Board	MYD-JX8MQ6-8E1D-130-E	✓ One MYD-JX8MX Development Board ✓ One 12V/2A Power adapter ✓ One WiFi Antenna
	MYD-JX8MQ6-8E2D-130-E	✓ One 4G LTE Antenna ✓ One HDMI Cable ✓ One Quick Start Guide
MY-CAM003M Camera Module	MY-CAM003M	**Add-on Options** ✓ MYD-JX8MX Development Board
MY-LVDS070C LCD Module	MY-LVDS070C	✓ MY-CAM003M Camera Module ✓ MY-LVDS070C 7-inch LCD Module

MYIR Tech Limited

Headquarter Address: Room 04, 6th Floor, Building No.2, Fada Road, Yunli Smart Park, Bantian, Longgang District, Shenzhen, Guangdong, China 518129

Factory Address: Room 201, Block C, Shengjianli Industrial Park, Dafu Industrial Zone, Guanlan, Longhua District, Shenzhen, 518110, China

Website: www.myirtech.com
Email: sales@myirtech.com
Tel: +86-755-22984836