

# efus™MX8X

Computer On Module with NXP i.MX 8X

## Characteristics

- NXP i.MX 8QuadXPlus/ DualXPlus (2x/ 4x ARM® Cortex®-A35 & Cortex®-M4)
- Video 1080p and 4k
- up to 2GB RAM, 512MB QSPI NAND, 64GB eMMC
- TFT up to FullHD (2x LVDS) or 1x LVDS, 1x MIPI-DSI
- Touch (4 wire/ PCAP via I<sup>2</sup>C)
- 2x Ethernet 10/ 100/ 1000MBit
- 1x USB 2.0 Device, 1x USB 3.0 Host
- 2x CAN, 4x I<sup>2</sup>C, 2x SPI, 4x Serial
- GPIO, PWM, SDIO (SD-Card)
- Audio I<sup>2</sup>S, Camera MIPI-CSI
- WLAN 2.4-5GHz/ BT 5.0 LE
- 5V with 4W typ., 0°C + 70°C (-20°C +85°C)
- 230 pin finger contact (MXM2)
- Linux



## Description

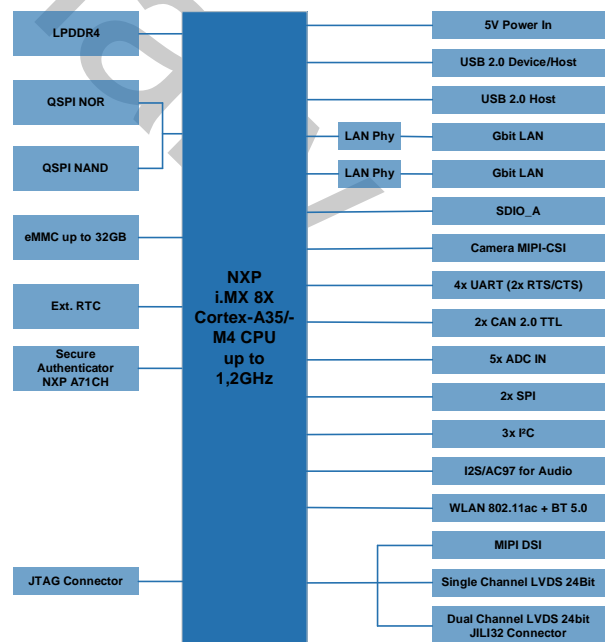
efus™MX8X is another compact and powerful module in efus™ form factor.

It is very well suited for safe cloud connections, industrial automation and control, HMI, robotics, building control, display audio, infotainment, and telematics applications. Extending the scalable range of the i.MX 8 series, the i.MX 8X with ARM® Cortex®-A35 and -M4 is comprised of common subsystems and architecture from the higher-end i.MX 8 family. Along with the attribute of an easy baseboard (EasyLayout), efus™ has a size of 47x62mm only and is therefore suitable for compact housings.

efus™MX8X is based on a NXP i.MX 8QuadXPlus/ DualXPlus (2x/ 4x Cortex®-A35 & Cortex®-M4). Special features of this CPU are: ARM® Cortex®-M4F core for real-time processing, 1x Tensilica® HiFi 4 DSP, 2x-4x Vec4-Shader GPU, Vulkan, Video: 4K H.265 dec | 1080p H.264 enc / dec.

Cortex®-M4 (with FreeRTOS) can be used for fast control and regulation functions or for processing fast interface protocols. WLAN/ BT with antenna socket is optional. Another characteristic of the NXP i.MX 8X is its long availability up to 2028. efus™MX8X is as far as possible pin compatible to all other efus™ product family members.

## Block Diagram



## On-Board Operating System



Windows 10 IoT Core is in preparation.



Linux Buildroot and Yocto are supported. The F&S Linux BSP comes with uboot, Devicetree, QT and GStreamer.

All interface drivers including source are included. F&S offers security features by NXP, for example "secure boot". For a quick and easy design start, F&S offers multiple workshops, which can be found online.

## Starterkit

efus™MX8X-SKIT consists of a base board with common plug connectors and a efus™MX8X module.

LVDS is available on a 30 poles plug connector.

The starterkit includes a cable kit and a 7" LVDS display with PCAP touch panel. A customized Linux image is pre-installed, including display drivers, so you can start with your starterkit immediately. You will also receive access to our download area for documentation and software. Documents like schematic and BOM list of the base board are available for download.

Our forum with 3000 registered customers offers example programs and is always online for your support requests.



efus™ stands for 20 years of experience in the RISC boards sector

**easy**

starterkits  
 customized operating systems  
 (Linux, WEC 7, WEC 2013)  
 F&S Support, free of charge

**functional**

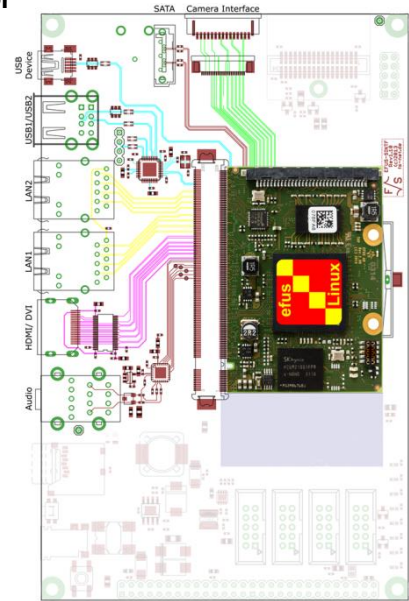
many interfaces  
 expandable with wireless modules (ReDesign)  
 easy baseboard  
 based on "EasyLayout" standard

**universal**

visualization  
 communication  
 control

**small**

47 x 62mm only  
 5V supply



**Accessories**

**Workshop**

Workshops for F&S Boards with Linux

**MXM-2 Connector**

For connecting efus™ modules via goldfinger contacts

**efus™ Latch**

Allows to mount efus™ modules on the base board

Detailed information on our accessories is available on our homepage.

**Technical Data**

Power Supply:	+5V <sub>DC</sub> / ±5%
Power Consumption:	3W (typ.)
Interfaces:	2x Ethernet 10/100/1000MB 4x Serial 1x USB3.0 Host 1x USB2.0 Device 2x CAN2.0 2x I <sup>2</sup> C 2x SPI 1x I <sup>2</sup> S (Audio Codec, external) 1x SDIO (SD-Card, external) Camera Interface (MIPI-CSI)
RTC	high accuracy RTC
TFT LCD Interface:	24bit LVDS up to FullHD or 18 Bit LVDS on MXM2 (MIPI-DSI 4 lanes)
RAM:	LPDDR4 up to 2GB
Program Memory:	QSPI NAND up to 512MB QSPI NOR Flash eMMC up to 64GB
Processor:	ARM Dual/ Quad-Core Cortex®-A35- 1.2GHz & Cortex®-M4F
WLAN/ BT	IEEE802.11 ac/a/b/g/n Standard (2.4/ 5 GHz) BT2.1+EDR/ 5.0 LE with antenna socket
Temperature Range:	0°C - +70°C , (-20°C - +85°C optional)
Size:	47mm x 62.1mm x 11mm (l x b x d)
Weight:	about 15g

**Standard Versions/ Order Notations**

**efusMX8X-V1-LIN**

Dual-Core ARM® Cortex®-A35 – 1.2GHz + Cortex®-M4  
 1GB RAM, 4GB eMMC, Ethernet, USB, SPI, I<sup>2</sup>C, CAN, Serial, PCIe,  
 MIPI-CSI, RTC, LVDS, 0°C - +70°C, Linux

**efusMX8X-V4-LIN**

Quad-Core ARM® Cortex®-A35 – 1.2GHz + Cortex®-M4  
 1GB RAM, 4GB eMMC,  
 1MB QSPI NOR Flash, 256MB QSPI NAND Flash,  
 2x Ethernet, USB, SPI, I<sup>2</sup>C, CAN, Serial, PCIe,  
 MIPI-CSI, RTC, LVDS,  
 WLAN, BT 5.0, 0°C - +70°C, Linux

**efusMX8X-SKIT-LIN**

efus™MX8X-V4-LIN, base board, display, cable kit, access data to  
 documentation and software

**Minimum Order Quantity for Special Versions**

Customer-Specific Software	500 pieces
Assembly Variant	1000 pieces