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 I²C)
- 2x Ethernet 10/ 100/ 1000MBit
- 1x USB 2.0 Device, 1x USB 3.0 Host
- 2x CAN, 4x I²C, 2x SPI, 4x Serial
- GPIO, PWM, SDIO (SD-Card)
- Audio I²S, Camera MIPI-CSI
- WLAN 2.4-5GHz/ BT 5.0 LE
- 5V with 4W typ., 0°C + 70°C (-40°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
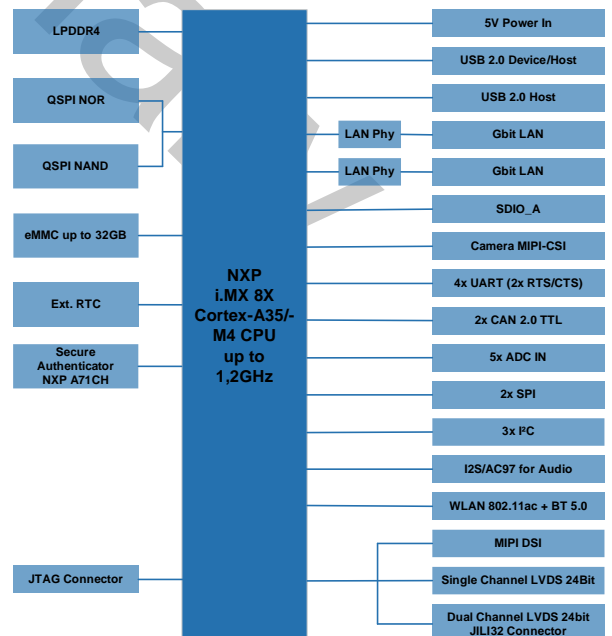
On-Board Operating System

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)
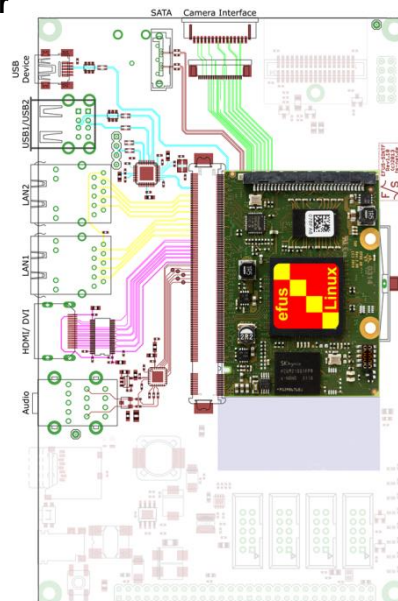F&S Support, free of charge

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$_{DC}$/ ±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 I²C
	2x SPI
	1x I²S (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 , -40°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, I²C, 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, I²C, CAN, Serial, PCIe,
MIPI-CSI, RTC, LVDS,
WLAN, BT 5.0, -20°C - +85°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**

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