PicoCore™MX8MP

Computer On Module mit NXP i.MX 8M Plus

Characteristics

- NXP i.MX 8M Plus ARM® Cortex®-A53 Dual/ Quad @1800MHz & ARM® Cortex®-M7 @800MHz
- TFT MIPI-DSI, LVDS (1-2x 4 Lanes / 1x 8 Lanes), DVI
- 2D, 3D and Video Hardware Acceleration
- Touch (analog resistive und PCAP Touch) via I^{2}C
- up to 8GB RAM, max. 32GB eMMC
- Audio Line In/Out, Mic, Headphone (I^{2}S also possible)
- USB 2.0 / 3.0 Device, USB 2.0 / 3.0 Host
- Max. 2x 100/1000Mb Ethernet or RGMII
- PCIe, max. 2 x MIPI-CSI
- 2x SPI, 4x I^{2}C, 4x UART, 2x CAN
- 4x PWM, SPDIF, ESAI, SAI, SSI
- +3.8V up to 5.5VDC with 3W typ.
- 0°C - +70°C, opt. -20°C - +85°C, opt. -40°C - 85°C
- WLAN/ BT 5.0 LE
- 2x100pin, 1.5mm up to 3mm Height
- Available until minimum 2035

Original Size

Description

The PicoCore™MX8MP is based on the NXP i.MX 8M Plus ARM® CPU. The small size (35 x 40mm) makes the module the ideal partner for compact devices. The module features low power dissipation and is ideally suited for secure cloud connections.

The i.MX 8M Plus is a multi-core application processor. The i.MX 8M Plus family focuses on machine learning, advanced multimedia and industrial IoT. This CPU combines high-performance computing, energy efficiency, enhanced system security and embedded security, which is needed to drive the growth of fast-growing edge node computing, streaming multimedia and machine learning applications. At the heart of the processor is a scalable core complex with up to four ARM® Cortex®-A53 cores running at up to 1.8GHz, plus an ARM® Cortex®-M7 core for real-time processing at 800 MHz.

The i.MX 8M Plus features dual image signal processors and two camera inputs for an effective vision system. 2D and 3D graphics provide a rich visual HMI experience. Displays may be connected via MIPI-DSI, LVDS and CRT/DVI.

The PicoCore™ standard uses two connectors (Hirose DF40C) with 100 pins each. This allows for a compact design and a small board-to-board distance.

Block Diagram

On-Board Operating System

The F&S Linux BSP (uboot, buildroot, Yocto, QT, GStreamer) includes a customized kernel and all interface drivers incl. source.

Also available from F&S:

-YOCTO and Buildroot Board Support Package
-Up to two software releases per year (update of uboot, kernel, root file system, toolchain)
-Secure Boot
-RealTime BSP and toolchain for Cortex-M
-Over the air updates and device health information (Q1/2021)
-RGB/LVDS/MIPI Display- and PCAP touch configuration
-Device Tree adaption for carrier board of customer
-Several workshops about the above technologies
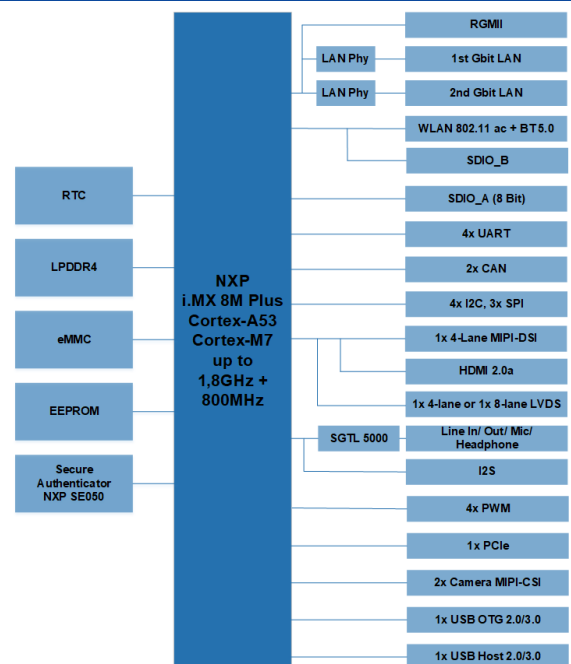
Starterkit

The PicoCore™MX8MP starterkit is available with Linux.

The starterkit contains of a base board with PicoCore™MX8MP module, a cable kit, as well as a 7" TFT with PCAP Touchpanel and access data to the F&S download area.

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

For an easy start of development we also offer workshops.
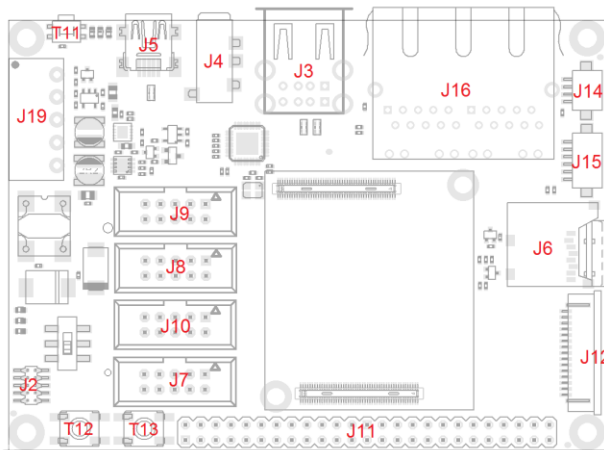
J1 : PicoCore
J2 : JTAG
J3 : 2x USB Host
J4 : Audio (HP + MIC)
J5 : USB OTG
J6 : µSD
J7 : CAN
J8 : UART_A (RXD / TXD)
J9 : UART_B (RXD / TXD)
J10: UART_C (Komplett)
J11: GPIO
J12: MIPI-CSI (Camera)
J13: MIPI-DSI (2CH / 4Lanes)
J14: Display (BLPWM...)
J15: I2C für Touch
J16: 2x ETH
J17: MPCIe (Bottom)
J18: SIM (Bottom)
J19: Power
T11: On/Off oder Reset
T12: Reset
T13: BOOTSEL
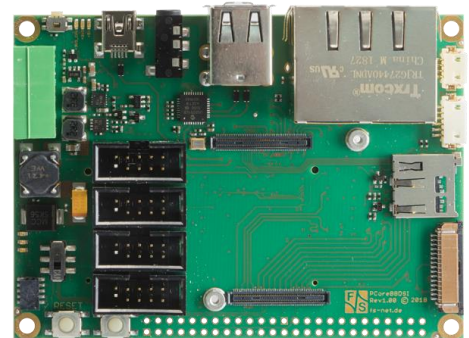
Workshops

For an easy start we offer multiple Linux workshops.

- Linux on F&S modules

- Linux – Qt5 workshops

- Linux – asymmetric multiprocessing

- Linux – Secure Boot

More accessories can be found on our website.

Standard Versions/ Order Notations

PicoCoreMX8MP-V1-LIN
Cortex®-A53 – 1800MHz Quad-Core, 1GB RAM, 4GB eMMC
Flash, I2S, Ethernet (RGMII), LVDS, MIPI-DSI 0°C - +70°C,
Linux   (planned)

PicoCoreMX8MP-V2-LIN
Cortex®-A53 – 1800MHz Quad-Core, 1GB RAM, 4GB eMMC
Flash, Audio, Ethernet, LVDS (2x 4 Lanes) 0°C - +70°C, Linux
                                         (planned)

PicoCoreMX8MP-V3I-LIN
Cortex®-A53 – 1600MHz Quad-Core, 2GB RAM, 8GB eMMC,
2k EEPROM, Audio, 2x Ethernet, WLAN/BT, DVI, MIPI-DSI,
-20°C - +85°C, Linux

PicoCoreMX8MP-V3XI-LIN
Cortex®-A53 – 1600MHz Quad-Core, 2GB RAM, 8GB eMMC,
2k EEPROM, Audio, 2x Ethernet, WLAN/BT, DVI, MIPI-DSI,
-40°C - +85°C, Linux

Minimum Order Quantity for Special Versions:
Customer-specific software: **500 pieces**
Assembly Variant: **1000 pieces**

Technical Data

Power Supply:	+3.8 up to 5.5VDC
Power Consumption:	3W typ.
Interfaces-Fix:	1-2x Ethernet or RGMII
	1x USB Host, 1x USB Device, 1 Serial
	Audio Line In/ Out/ Mic/ HP
Display:	1-2x LVDS 24Bit up to FullHD, MIPI-DSI up to 4 Lanes, DVI
Camera:	1-2x MIPI-CSI up to 4 Lanes
Interfaces-Flex:	4x Serial, 4x I²C, 2x CAN,
(All feature cannot be used simultaneously due to multiple occupancy of pins. Please refer to list in hardware documentation.)	3x SPI, 2x SDIO, 4x PWM, Watchdog, 1x SPDIF, 1x eSAI, 4x SAI,1x SSI, 1x QSPI, 1x RMII, 2x SDIO
RAM:	LPDDR4 up to 8GB
Program Memory:	eMMC up to 32GB
Processor:	Dual/ Quad ARM® Cortex®-A53-1800MHz & ARM® Cortex®-M7 -800MHz
WLAN/BT	WLAN 802.11ac/ BT 5.0
Temperature Range:	0°C - +70°C (opt. -20°C - +85°C / -40°C - +85°C)
Size:	35mm x 40mm x 8mm
Plug Connector:	2x 100pol Hirose DF40C
Weight:	about 10g

Standard Versions/ Order Notations

PicoCoreMX8MP-V4I-LIN
Cortex®-A53 – 1600MHz Quad-Core, 2GB RAM, 8GB
eMMC, 2k EEPROM, Audio, 2x Ethernet, WLAN/BT,
LVDS, MIPI-DSI, -20°C - +85°C, Linux

PicoCore™MX8MP-SKIT-LIN
Base board, PicoCoreMX8MP-V4I-LIN, cables, 7" TFT with
PCAP Touch, access to docu and software