PicoCore™MX8MP

Computer On Module mit NXP i.MX 8M Plus

Characteristics

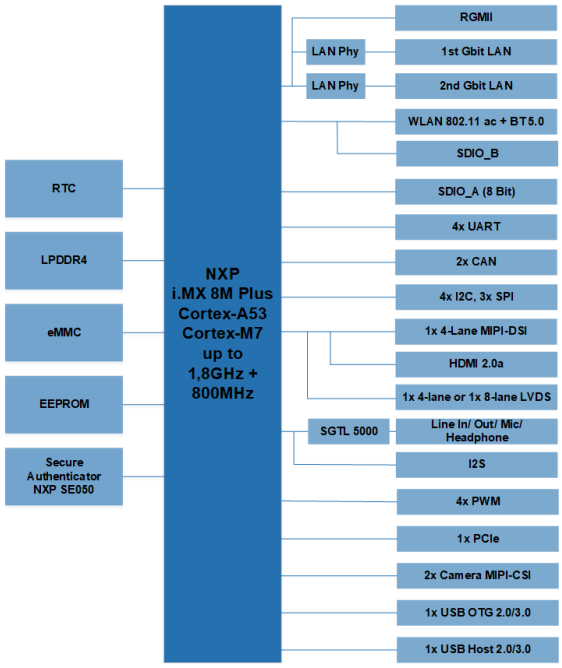
- NXP i.MX 8M Plus ARM® Cortex®-A53 Dual/ Quad @1800MHz & ARM® Cortex®-M7 @800MHz
- TFT MIPI-DSI, LVDS (1-2x 4 Lanes / 1x 8 Lanes), DVI (4k)
- 2D, 3D and Video Hardware Acceleration, NPU
- Touch (analog resistive und PCAP Touch) via I²C
- up to 8GB RAM, max. 64GB eMMC, EEPROM
- Audio Line In/Out, Mic, Headphone (I²S 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, RTC
- 2x SPI, 4x I²C, 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 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, 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 4 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 DVI up to 4k.
The PicoCore™ standard uses two connectors (Hirose DF40C) with 100 pins each, at the PicoCore™MX8MP we have added one connector with 30 pins. 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, Yocto, QT) includes a customized kernel and all interface drivers incl. source.

Also available from F&S:

-YOCTO 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
-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.

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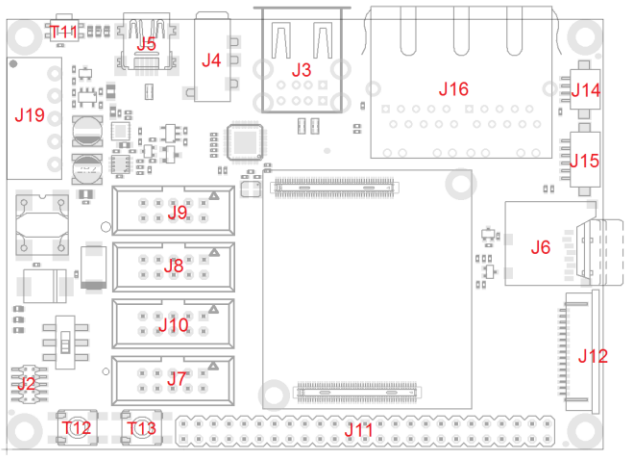
PicoCore™MX8MP Baseboard



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

Heat spreader is available also

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

PicoCoreMX8MPr2-V2-LIN
Cortex®-A53 – 1800MHz Quad-Core, 1GB RAM, 4GB eMMC Flash, Audio, 2x Ethernet, LVDS (2x 4 Lanes) 0°C - +70°C, Linux

PicoCoreMX8MPr2-V3I-LIN
Cortex®-A53 – 1600MHz Quad-Core, 2GB RAM, 8GB eMMC, 2k EEPROM, Audio, 2x Ethernet, WLAN/BT*, DVI (4k), MIPI-DSI, -20°C - +85°C, Linux

PicoCoreMX8MPr2-V3XI-LIN
Cortex®-A53 – 1600MHz Quad-Core, 2GB RAM, 8GB eMMC, 2k EEPROM, Audio, 2x Ethernet, WLAN/BT*, DVI (4k), MIPI-DSI, -40°C - +85°C, Linux

PicoCoreMX8MPr2-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

PicoCoreMX8MPr2-V4XI-LIN
Cortex®-A53 – 1600MHz Quad-Core, 2GB RAM, 8GB eMMC, 2k EEPROM, Audio, 2x Ethernet, WLAN/BT*, LVDS, MIPI-DSI, -40°C - +85°C, Linux

* WLAN/BT: -30°C - +85°C

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, 1x Serial Audio Line In/ Out/ Mic/ HP
Display:	1-2x LVDS 24Bit up to FullHD, MIPI-DSI up to 4 lanes, DVI up to 4k
Camera:	1-2x MIPI-CSI up to 4 Lanes
Interfaces-Flex: **(All feature cannot be used simultaneously due to multiple occupancy of pins. Please refer to list in hardware documentation.)**	4x Serial, 4x I²C, 2x CAN, 3x SPI, 2x SDIO, 4x PWM, Watchdog, 1x SPDIF, 1x eSAI, 4x SAI,1x SSI, RTC 1x QSPI, 1x RGMII, 2x SDIO
RAM:	LPDDR4 up to 8GB
Program Memory:	eMMC up to 64GB, EEPROM
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 1x 30pol Hirose
Weight:	about 10g

Standard Versions/ Order Notations

PicoCore™MX8MP-SKIT-LIN
Base board, PicoCoreMX8MPr2-V4I-LIN, cables, 7" TFT with PCAP Touch, access to docu and software

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

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