

PicoCore™MX93

Computer On Module with NXP i.MX 93

Characteristics

- NXP i.MX 93 ARM® Cortex®-A55 Single/ Dual
- @1700MHz & ARM® Cortex®-M33 @250MHz
- TFT RGB (18 Bit), MIPI-DSI (4 lanes), LVDS (1x 24 Bit)
- 2D, microNPU
- Touch (analog resistive und PCAP Touch) via I²C
- up to 2GB RAM, max. 32GB eMMC
- Audio Line In/Out, Mic, Headphone (I²S also possible)
- USB 2.0 Device, USB 2.0 Host
- Max. 2x 100/1000Mb Ethernet or RGMII
- MIPI-CSI, parallel camera, 4x ADC, SDIO, RTC
- max. 6x SPI, 6x I²C, 7x UART, 2x CAN-FD
- 4x PWM, Watchdog, 1x SPDIF, 1x eSAI, 4x SAI, 1x SSI
- WIFI6 / BT 5.2
-
- 5V (+3.8V up to 5.5V) with 3W typ.
- 0°C - +70°C, opt. -20°C - 85°C, -40°C - 85°C
- 2x100pin, 1.5mm up to 3mm Height
- Available until minimum 2035

Description

The PicoCore™MX93 is based on the NXP i.MX 93 ARM® CPU. The small size (35 x 40mm) makes the module the ideal partner for compact devices.

This PicoCore is compatible to PicoCore with i.MX8MM, 8MN, 8MP CPU.

The i.MX 93 applications processors deliver efficient machine learning (ML) acceleration and advanced security with integrated EdgeLock® secure enclave to support energy-efficient edge computing.

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 2 ARM® Cortex®-A55 cores running at up to 1.7GHz, plus an ARM® Cortex®-M33 core for real-time processing at 250 MHz.

With a junction temperature of 125 degrees, this CPU is particularly suitable for applications with higher temperatures. Displays may be connected via MIPI-DSI, LVDS and also RGB is possible. Also available are CAN-FD and WIFI6/ BT5.2 module. PicoCore™MX93 will be available minimum up to 2035.

On-Board Operating System



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

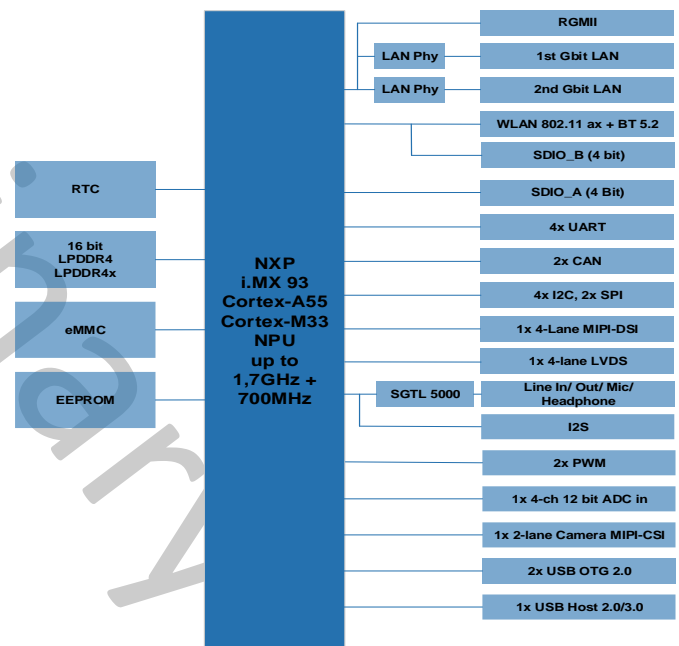
Also available from F&S:

- 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

Original Size



Block Diagram



Starterkit

The PicoCore™MX93 starterkit is available with Linux.

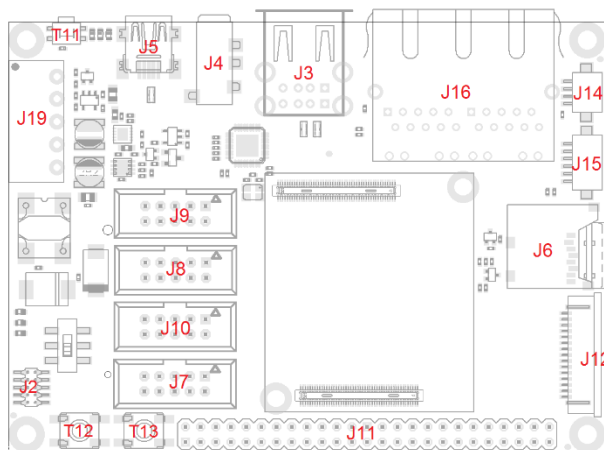
The starterkit contains:

base board with PicoCore™MX93 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 : PCIe (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

PicoCoreMX93-V2-LIN **

Cortex®-A55 – 1500MHz Single-Core, 1GB RAM, 8GB eMMC, 1x Ethernet, LVDS, MIPI-DSI, RTC, 0°C - +70°C, Linux

PicoCoreMX93-V3XI-LIN

Cortex®-A55 – 1500MHz Dual-Core, 1GB RAM, 4GB eMMC, Audio, 2x Ethernet, LVDS, -40°C - +85°C, Linux

PicoCoreMX93-V5I-LIN

Cortex®-A55 – 1500MHz Dual-Core, 2GB RAM, 8GB eMMC, Audio, 2x Ethernet, WLAN/BT*, MIPI-DSI, -20°C - +85°C, Linux

PicoCoreMX93-V4XI-LIN

Cortex®-A55 – 1500MHz Dual-Core, 1GB RAM, 8GB eMMC, Audio, 2x Ethernet, WLAN/BT*, LVDS, -40°C - +85°C, Linux

* WLAN/BT: -30°C - +85°C

Minimum Order Quantity for Special Versions:

Customer-specific software: 500 pieces
Assembly Variant: 1000 pieces

** MOQ: 500pcs

Technical Data

Power Supply:	5V (+3.8 up to 5.5VDC)
Power Consumption:	3W typ.
Interfaces (Maximum):	2x Gigabit Ethernet or RGMII 1xUSB2.0Host, 1xUSB2.0Device Audio Line In/ Out/ Mic or I2S 8x Serial, 6x I ² C, 2x CAN-FD 6x SPI, 1x SDIO, 4x PWM, Watchdog, 1x SPDIF, 1x eSAI, 4x SAI, 1x SSI, 1x QSPI, RTC
Display:	RGB (18 Bit), LVDS (1x 24 Bit), MIPI-DSI (4 Lanes)
Camera:	MIPI-CSI, parallel camera
RAM:	LPDDR4 up to 2GB
Program Memory:	eMMC up to 32GB
Processor:	Single/ Dual ARM® Cortex®-A55-1700MHz & Cortex®-M33 -250MHz
WLAN/BT	WiFi6 /BT 5.2
Temperature Range:	0°C - +70°C, (-20°C+85°C, -40°C +85°C)*
Size:	35mm x 40mm x 8mm
Plug Connector:	2x 100pol Hirose
Weight:	about 10g

Standard Versions/ Order Notations

PicoCore™ MX93-SKIT-LIN

Base board, PicoCoreMX93-V4XI-LIN, cables, 7" TFT with PCAP Touch, access to docu and software

