PicoCore™MX7ULP

Computer On Module with NXP i.MX 7ULP

Characteristics

- NXP i.MX 7ULP applications processor Cortex®-A7 & -M4 – up to 720MHz
- 1GB LPDDR3 RAM, 64MB SPI Flash, 32GB eMMC
- LCD Interface for TFT: MIPI-DSI
- USB 2.0 OTG
- 5x UART, 3x I²C, SPI
- Audio LINE IN/ OUT/ MIC/ Headphone
- up to 72 Digital I/O
- SDIO (SD Card Slot, external)
- Touch (4-wire and PCAP via I²C, external)
- WLAN IEEE802.11b/g/n/ BT 5.0 LE
- Linux (Yocto)
- 5V (1W typ.)/ 4.2V Battery, 2x 80Pin
- 35 x 40mm
- 0°C - +70°C (-20°C - +85°C opt.)

Original Size

Description

The first member of the new and compact PicoCore™ COM product family by F&S Elektronik Systeme is offered with the NXP i.MX 7ULP ARM® based applications processor (AP).

Further PicoCore™ COMs will follow. The module is based on an i.MX 7ULP applications processor implementing the heterogeneous multicore processing architecture with ARM® Cortex®-A7 core and ARM® Cortex®-M4 core. NXP enables its heterogeneous concept with Linux running on the ARM® Cortex®-A7 core and FreeRTOS running on the ARM® Cortex®-M4 core. The AP offers 3D and 2D graphics accelerator for media applications.

Another option is an onboard WLAN/BT5.0 LE module (pre-certified). The PicoCore™ standard uses two plug connectors (Hirose DF40C) with 80 pins each. This enables a compact shape and short board-to-board distance. The available operating system is Linux (Yocto); it has already been ported by the experienced software team of F&S Elektronik Systeme. Bootloader, customized interface drivers and all tools needed for development are ready to download.

Several security functions were made available by F&S's customized Linux OS.

PicoCORE™MX7ULP will be available until minimum 2028.

Block Diagram

On-Board Operating System

The F&S Linux BSP (uboot, Buildroot, Yocto, QT, GStreamer) includes the customized kernel and all interface drivers including source. A Cross Compiler Toolchain for the creation of own bootloaders, kernels and further software is available.

For an easy start of development, F&S offers the following workshops:
Linux on F&S Modules (Standard Workshop)

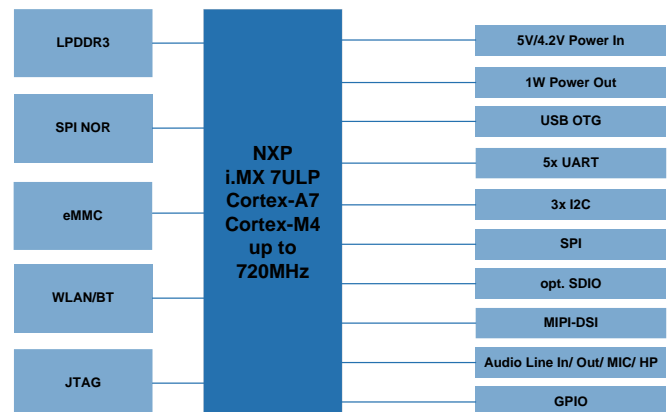Additional Workshops:
Linux – Qt5 Workshop
Linux – Asymmetric Multiprocessing
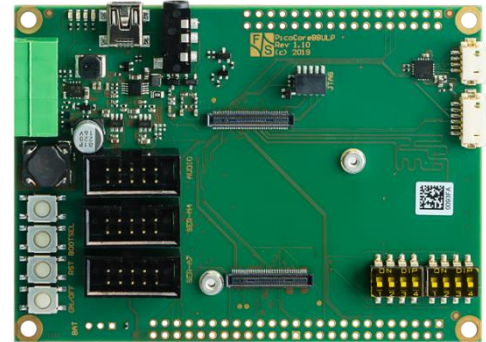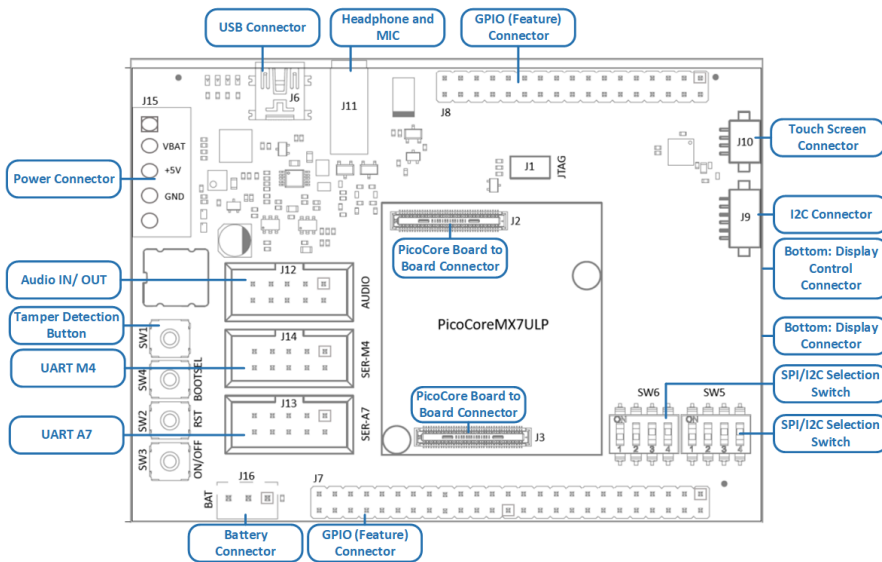**Linux – Secure Boot**

Starterkit

PicoCore™MX7ULP-SKIT is available with Linux. The starterkit (PicoCoreMX7ULP-SKIT-LIN) consists of a base board with plugged-on PicoCoreMX7ULP-V4, a cable kit, access data to the download area (documentation and software).

Schematic data are available for download.

Our support forum with more than 3000 registered customers is always online for help.

Workshops

For an easy start of development, F&S offers the following Linux workshops:

- Linux on F&S Modules
- Linux – Qt5 Workshop
- Linux – Asymmetric Multiprocessing
- Linux – Secure Boot

More information is available on our website.

Technical Data

Power Supply:	+5V$_{DC}$/ 4.2V Battery
Power Consumption:	1W (typ.)
Interfaces:	5x Serial
	1x USB2.0 OTG
	4x I²C
	1x SPI
	1x SDIO (SD-Card, external)
	Audio Line In/ Out/ Mic/ Headphone
TFT LCD Interface:	MIPI-DSI 2 lane
RAM:	LPDDR3 up to 1GB
Program Memory:	QSPI NOR up to 64MB
	eMMC up to 32GB
Processor:	ARM Cortex®-A7-720MHz & Cortex-M4
WLAN/BT:	AzureWave and BT 5.0 LE
Temperature Range:	0°C - +70°C , (-20°C - +85°C Opt.)
Size:	35mm x 40mm x 8mm (LxBxH)
Plug Connector:	2x 80pol Hirose DF40C
Weight:	~10g

Standard Versions/ Order Notations

PicoCoreMX7ULP-V4-LIN
Cortex®-A7-720MHz + -M4, 1GB RAM, 1MB QSPI NOR Flash, 4 GB eMMC, WLAN/BT, Audio Codec, USB OTG, 5x UART, 4x I2C, SPI, RTC, MIPI DSI, 0° + 70°C, Linux

PicoCoreMX7ULP-V1-LIN
Cortex®-A7-720MHz + -M4, 512MB RAM, 1MB QSPI NOR Flash, 4 GB eMMC, SDIO, USB OTG, 5x UART, 4x I2C, SPI, I2S (Audio), RTC, MIPI DSI, 0° + 70°C, Linux

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

Standard Versions/ Order Notations

PicoCore™MX7ULP-SKIT-LIN
Starterkit including PicoCoreMX7ULP-V4-LIN, base board, 3.5" MIPI display, WLAN/BT antenna, cable kit, access data to software and documentation