SolderCore™8ULP

Computer On Module with NXP i.MX 8ULP

Characteristics

- NXP i.MX 8ULP applications processor
  1-2x Cortex®-A35- 1GHz & -M33- 216MHz
  HIFI4 DSP – 600MHz
  2D/ 3D GPU OpenGL/CL 3.1
- 2GB LPDDR4x32 RAM, 32GB eMMC
- 24 bit RGB, MIPI-DSI 4 lanes, EPDC (EInk)
- MIPI-CSI
- 2x USB 2.0 OTG, 1x LAN, FlexCAN, 2x SDIO
- 133x GPIO, these can be used alternatively:
- 4x+4x UART, 4x+2x I²C, 2x I³C, 2x+2x SPI, 6x+6x I2S
- Linux (Yocto)
- 5V (tbd typ.)/ 4.2V Battery, 220 Solder Pads
- 35 x 35mm
- 0°C - +70°C (-40°C - +85°C opt.)

Description

F&S is offering boards with connectors for more than 20 years. In addition, a "direct soldering module" according to the OSM standard is now also offered. Based on the experience with this solderable module, the SolderCore module was developed. This makes it possible to connect all important interfaces to a carrier board with a module that is only 35x35mm in size. The extremely power-saving SoC i.MX8ULP is particularly suitable for portable, battery-operated devices. A small, compact module is therefore the ideal solution for this CPU.
Despite the low power consumption, the CPU offers considerable GPU power (2D and 3D).

The SoM is available in both consumer and industrial versions.

On-Board Operating System

The F&S Linux BSP (uboot, Yocto, …) 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 several Linux workshops.

Starter kit

The SolderCore8ULP is a solder-on module.
For this reason, the starter kit consists of a carrier board with a soldered-on PC module. The carrier board leads all interfaces of the PC to solder pads (suitable for cables or pin headers) so that they can be easily connected to external hardware.

SolderCore8ULP is available with Linux.
The starter kit (SolderCore8ULP-SKIT-LIN) consists of:

Base board with soldered SolderCore8ULP-V1-LIN, a cable kit, a 3.5" MIPI display with cables, access data to the download area (documentation and software).

Schematic data of the base board are available for download.

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

SolderCore – NXP i.MX8ULP CPU

i.MX 8ULP

Timers	Application Domain		A35 Connectivity
System Timers	Up to 2 x Arm® Cortex®-A35		4 x UART
Watch Dog			4 x I²C · I³C
DMA	32 KB I-cache	32 KB D-cache	2 x FlexSPI/SPI
Security	512 KB L2 cache		6 x I²S
High Performance Crypto			2 x USB 2.0 OTG
64 KB RAM	Arm Neon™	FPU	FlexIO
	Arm TrustZone™	ETM	10/100 ETH
			3 x MMC5.0/SDIO

Flex Domain			
32b LPDDR3, 4(x)	Cadence® Tensilica® HiFi 4 DSP	2D/3D GPU	DMA
MIPI DSI/CSI	24-bit RGB · EPDC	64 KB SRAM	I²S x 8/SPDIF

Security – Batt Domain			Clock and Power Mgmt System		
Tamper Detection	Secure RTC	Secure Storage	Power Manager	CLK/RST	PLL/OSC

Timers	Real-Time Domain			M33 Connectivity
32-bit Timer x2	Arm Cortex-M33F			2 x UART
System Timers	DSP Extensions			2 x I²C · I³C
Watch Dog x4	32 KB/32 KB I/D-cache			2 x FlexSPI/SPI
Access and IPC	DAP	MPU	FPU	FlexIO
RDC				6 x I²S
Secure JTAG	2 x TMR		2 x UART	FlexCAN
SEMA4/MsgUnit	4 x I²S	Cadence® Tensillica® Fusion DSP	2 x SPI	4 x SPDIF/DigMIC
EdgeLock™ secure enclave	DigMic		2 x I²C	**External Memory**
Secure Boot				Octal SPI (OTFAD)
eFuses/OTP	2 x 12-bit ADC		2 x 12-bit DAC	**Internal Memory**

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$_{DC}$ (2.7V-5.5V)
Power Consumption:	tbd (typ.)
Possible Interfaces:	8x UART (Serial)
	2x USB2.0 OTG, 6x I²C
	2x I³C, 4x SPI, 6x I²S
	2x SDIO, 1x LAN, FlexCAN
	MIPI-CSI
TFT LCD Interface:	MIPI-DSI (4 lane),
	24 Bit RGB, Colour EPD
RAM:	LPDDR4 x32 up to 2GB
Program Memory:	eMMC up to 32GB
Processor:	1-2x ARM Cortex®-A35- 1GHz
	& Cortex-M33- 216MHz
	& HIFI4/Fusion DSP
Temperature Range:	0°C - +70°C ,
	(-40°C - +85°C opt.)
Size:	35mm x 35mm x 3mm (LxWxH)
Solder Pads:	220 contacts
Weight:	~8g

Standard Versions/ Order Notations

SolderCore™8ULP-V1-LIN

Dual Cortex®-A35- 1GHz & -M33- 216MHz
1GB RAM, 4 GB eMMC
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

SolderCore™8ULP-SKIT-LIN

Starterkit including SolderCore8ULP-V1-LIN, base board, 3.5" MIPI display, cable kit, access data to software and documentation