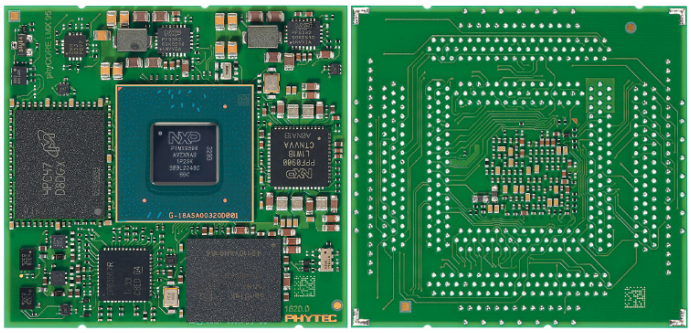
phyFLEX-i.MX 95x FPSC

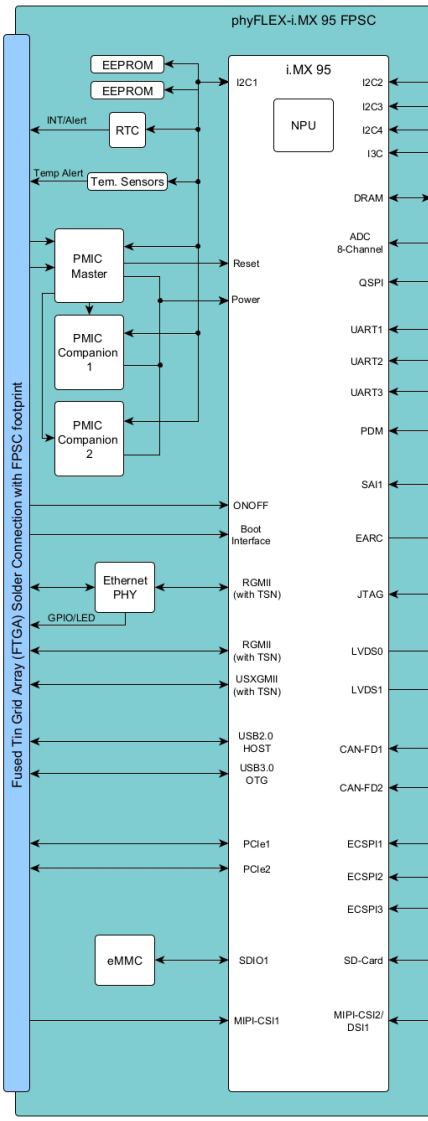
Combines powerful graphics and AI with energy efficiency and security

Our phyFLEX-i.MX 95x FPSC offers a powerful and versatile solution for industrial applications. The module combines camera interfaces, NPU, ISP, and connectivity to cloud services to enable real-time processing capabilities for autonomous vehicles, robotics, and industrial applications. With cutting-edge performance, integrated security features, and support for machine learning, it enables fast and reliable processing of sensor data and informed on-site decision-making. Thanks to high-quality X7R capacitors and industrial design features, the module is particularly suitable for demanding environments. With Yocto Linux and an integrated update system, the module also offers a flexible and secure software environment for developers.

The phyFLEX-i.MX 95x FPSC is scalable and pin-compatible with FPSC-Gamma based products like the phyFLEX-i.MX 8M Plus FPSC.



FPSC



i.MX 95x Processor

- Hexa Core Arm Cortex™-A55 with up to 2,0 GHz
- Thanks to FPSC, pin-compatible with phyFLEX-i.MX 8M Plus FPSC
- Easy soldering using FTGA soldering technology
- Up to 3 displays simultaneously (1x 4-lane MIPI DSI, 1x 8-lane or 2x 4-lane LVDS)
- eIQ Neutron NPU with 2 TOP/s
- Integrated Image Signaling Processor for processing high-resolution camera data

Module Features

- Easy soldering using FTGA soldering technology
- Sophisticated energy management
- Fully TSN-capable Ethernet
- Selectable IO voltage between 1,8 V or 3,3 V.
- All processor interfaces are available on the SOM connection

Your Advantages

- Ready adapted Linux operating system
- Only one device design for different performance configurations
- Product Lifecycle Management program
- Global Technical Support

https://www.phytec.de/p/som/phyflex-imx-95x-fpsc/

Technical Data

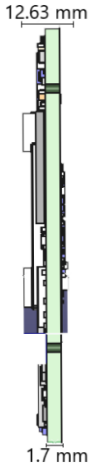
Module Configuration

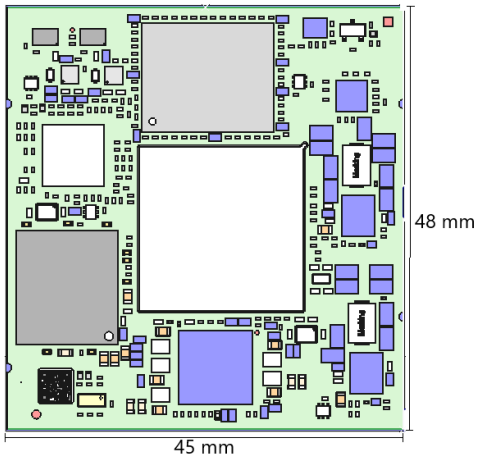
Processor	NXP i.MX 95x
Core(s)	Dual-, quad- or hexa-core Arm® Cortex®-A55
Additional Core(s)	1x Arm® Cortex®-M33, 1x Arm® Cortex®-M7
Clock frequency	up to 2.0 GHz (A55), 333 MHz (M33), 800 MHz (M7)
L1 Cache	A55: 32 kB instruction, 32 kB data; M33: 16 kB Code, 16 kB System Cache
L2 Cashe	A55: 64 kB per core
Graphics	Mali-G310 V2 GPU
Video Processing	1x 4 Lane Mipi DSI, 1x8 or 2x4 Lane LVDS
GPU	Arm® Mali-G310 V2 GPU, 3D GPU, OpenGL® ES 3.2, Vulkan® 1.3, OpenCL 3.0
NPU	eIQ Neutron 2.0 TOP/s up to 1.0 GHz
Crypto	AES, PKC (RSA-4096, ECDSA), SHA-256, HMAC: AES-CMAC, CTR for AES
HW Security	Secure boot, TrustZone, SNVS, SRTC, EdgeLock® secure enclave
Security Extended Features	EdgeLock® secure enclave, Inline Encryption for DDR, OTFAD, V2X including PQC
EXT. MEMORY	
eMMC	up to 256 GB TLC
LPDDR5	4 GB up to 16 GB
EEPROM	4 kB - 32 kB (User EEPROM) + 4 kB (Factory EEPROM)
PHYSICAL PROPERTIES	
Dimensions	45 mm x 48 mm x 13 mm
Weight	tbd.
Operating temperature	-40 °C to +85 °C
Humidity	95 % RH non condensing
Operating voltage	5.0 V
Power consumption typ.	tbd.
PCB connection	FTGA with FPSC–Gamma 1.1 footprint, 1.27 mm pitch
SOFTWARE	
Operating system	Linux (Yocto based)
Real-time OS	freeRTOS

Module Interfaces

Ethernet	1x GbE, 1x GbE RGMII, 1x 10 GbE USXGMII (all with TSN)
USB	1x USB2.0, 1x USB 3.0 (all dual-role)
UART	up to 8x
CAN	up to 5x CAN FD
PCIe	2x Gen3 1 Lane
I²C	up to 8x
SPI	up to 8x
MMC/SD/SDIO	up to 2x
ePWM	up to 3x
Display	up to 2x LVDS 8/4-lane (up to 1080p or 1920x1200 or 2x720p), 1x MIPI DSI D-PHY 1.2 (4kp30 or 3840 x 1440p60)
Camera	up to 2x MIPI CSI-2
Audio	up to 5x SAI, SPDIF, MQS, PDM
ADC	up to 8 (12-bit)
Debugging	JTAG

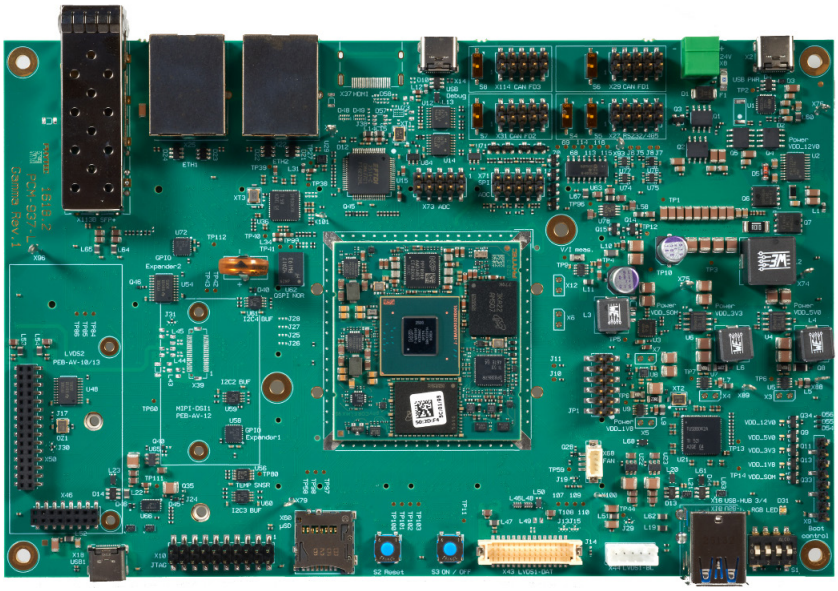
* Due to multiplexing, not all interfaces may be fully available.
** Due to the exclusive use of individual interfaces on the module, the maximum number may differ from the processor specification.
Blue font indicates the maximum number or additional interfaces when pin compatibility according to the FPSC standard is NOT required





Libra Development Board FPSC

Versatile Development Platform for FPSC Modules



INTERFACES	
Ethernet	2x 1 GbE (all RJ45) (TSN support)
USB	1x USB 2.0 (Type-A), 1x USB 2.0 (Type-C)
Serial	1x RS-232 or RS-485, 2x CAN FD (3x pin header 2x5)
Display	1x LVDS
Debugging	JTAG (Expansion sockets) 1x USB 2.0 Debug (Type-C)
Various	I²C, SPI, GPIO, ADC (Expansion connectors)
MISCELLANEOUS	
MMC/SD/SDIO	microSD Card Slot
User Control	3x LED, 1x RGB LED, 2x button
Dimensions	230 mm x 140 mm
Supply Voltage	24 V or USB-C