



PHYTEC

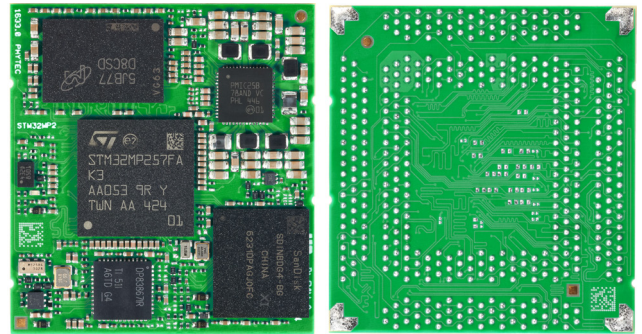
phyFLEX®-STM32MP2x FPSC

High-end Features at an Affordable Price

The 2nd processor generation of the STM32 from STMicroelectronics has been specially developed for industrial applications in Industry 4.0, Smart City, and Smart Building: machine control and operation, IoT gateways, object tracking, and predictive maintenance.

The phyFLEX-STM32MP2x FPSC is a cost-effective, high-performance, and cyber-secure platform. Measuring just 37 mm x 40 mm, it enables particularly compact designs. With a typical power consumption of less than 5 watts, the soldering module is ideal for mobile applications and smart devices.

Pin compatible with phyFLEX-i.MX 8M Plus FPSC, phyFLEX-i.MX 95 FPSC, phyFLEX-i.MX 93 FPSC, and future FPSC products.



STM32MP2x Processor

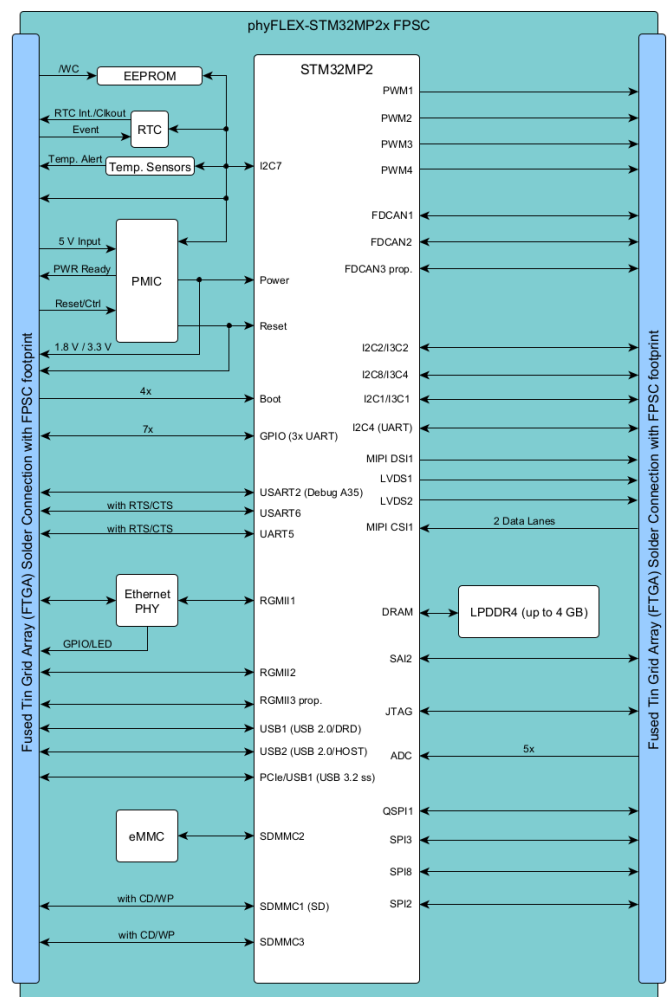
- Single- or dual-core Arm Cortex-A35 with up to 1,5 GHz
- Arm Cortex-M33 (400 MHz) for real-time tasks
- High-end features: PCIe/USB 3.2 Gen 1, 3x Ethernet, 3D GPU, ISP
- Scalable and pin-compatible with all FPSC SoMs

Module Features

- 4 GB to 256 GB eMMC
- On-Board Ethernet PHY and voltage conversion
- HMI design interfaces for Full HD graphics: RGB, LVDS & MIPI-DSI, supported by 3D GPU (13 GFlops)
- Dimensions 37 mm x 40 mm
- Product-level resource design fully increases the development efficiency

Your advantages

- Production-ready Linux BSP
- Reference design for FCC / CE certification
- Global Technical Support
- Full schematic review of your carrier board design



<https://www.phytec.eu/en/p/som/phyflex-stm32mp2x-fpsc/>

Technical Data

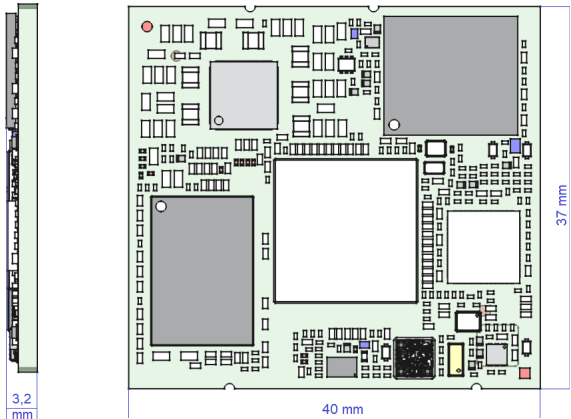
Module Configuration

Processor	STM32MP23x or STM32MP25x
Core	Single- or dual-core Arm Cortex-A35
Additional Cores	Single-core Arm Cortex-M33, single-core Arm Cortex-M0+
Clock frequency	up to 1.5 GHz (A35), 400 MHz (M33), 200 MHz (M0+)
Cache	L1: A35: 32 kB instruction, 32 kB data; M33: 16 kB instruction, 16 kB data L2: A35: 512 kB per
Internal RAM	808 kByte
HW Security	TRNG, secure boot, TrustZone, secure debug, secure RTC, eFuses, tamper detection
HW Crypto Accelerator	SKC (AES-256 (ECB, CBC,CCM, CTR, GCM)), AKC (RSA-4096, ECC-640), Hash (SHA2-512, SHA3- 512, SHAKE256) with HMAC support
EXT. MEMORY	
Flash	4 GB up to 256 GB eMMC
EEPROM	4 kB up to 256 kByte
LPDDR4	0,5 GB up to 4 GByte
PHYSICAL PROPERTIES	
Dimensions	37 mm x 40 mm x 3 mm
Weight	approx. 9 g
Operating temperature	-40 °C to +85 °C
Humidity	95 % RH non condensing

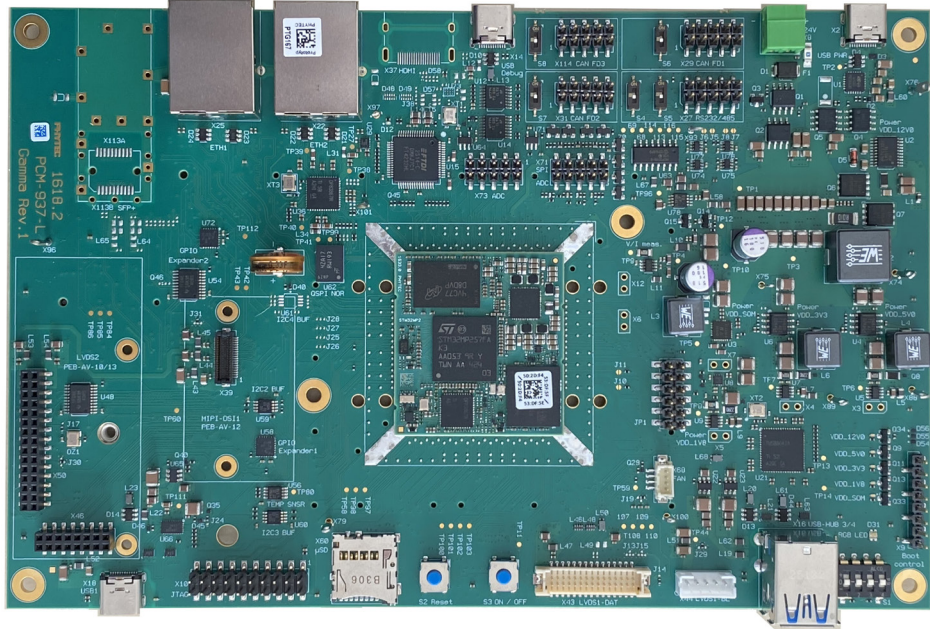
Module Interfaces

PCIe	1x PCIe 1x1 5Gbit/s (alt. USB 3.2ss)
Ethernet	2x GbE (1x on-board PHY/ 1x RGMII) (with TSN and AVB support), up to 3x GbE (1x on- board PHY/ 2x RGMII)**
USB	1x USB 2.0 (host), 1x USB 3.2 Gen 1x1 (dual-role)
UART	3x, up to 9x**
CAN	2x (CAN FD, 1x TTCAN), up to 3x**
I²C	4x, up to 8x**
SPI	3x (+1x OSPI), up to 8x (+2x OSPI)**
MMC/SD/SDIO	2x 4-bit (eMMC 5.1/SD 6.0)
PWM	4x
Display/Camera	2x LVDS, 1x MIPI-DSI, 1xMIPI-CSI

* 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.



Libra Development Board FPSC
Versatile Development Platform for FPSC Modules



INTERFACES	
Ethernet	2x 1 GbE (all RJ45) (TSN support)
USB	2x USB 2.0 (Type-A), 1x USB 2.0 (Type-C)
Serial	1x RS-232 or RS-485, 3x CAN FD (3x pin header 2x5)
Display/ Camera	2x LVDS, 1x MIPI-DSI, 1x MIPI-CSI
Debugging	JTAG (Expansion sockets) 1x USB 2.0 Debug (Type-C)
Various	I²C, SPI, GPIO, ADC, Fan (Expansion connectors)
MISCELLANEOUS	
MMC/SDC/ SDIO/PCIe	microSD Card Slot, M.2 Slot, QSPI-Flash
User Control	Boot-SW, Reset-BTN, On/ Off-BTN, RGB-LED, Power-LEDs
Dimensions	200 mm x 130 mm