

phyCORE[®]-STM32MP13x

Arm[®] Cortex[®]-A7

The module based on the STM32MP13x processor from STMicroelectronics offers high computing performance with low power consumption. With its size of only 36 mm x 36 mm, full Linux implementation, and multiple, universal power-saving modes it can be used in many applications, for example, IoT.

The phyCORE-STM32MP13x System on Module is fully industrial-grade and features a price-optimized Bill of Material. Direct Solder Connect technology makes the module suitable for high-volume production and further reduces the manufacturing cost of the end application. Pin compatibility between the phyCORE-i.MX 6UL and phyCORE-i.MX 93 enables the development of scalable applications in terms of price/performance ratio.



STM32MP13x Prozessor

- Cost-efficient low-power STMicroelectronics STM32MP13x, Cortex-A7 supports up to 1 GHz frequency
- Arm[®] NEON™ SIMD extension for acceleration of multimedia and signal processing algorithms
- 3.3 V/ 5 V tolerant I/Os, advanced low-power modes

Advanced hardware security

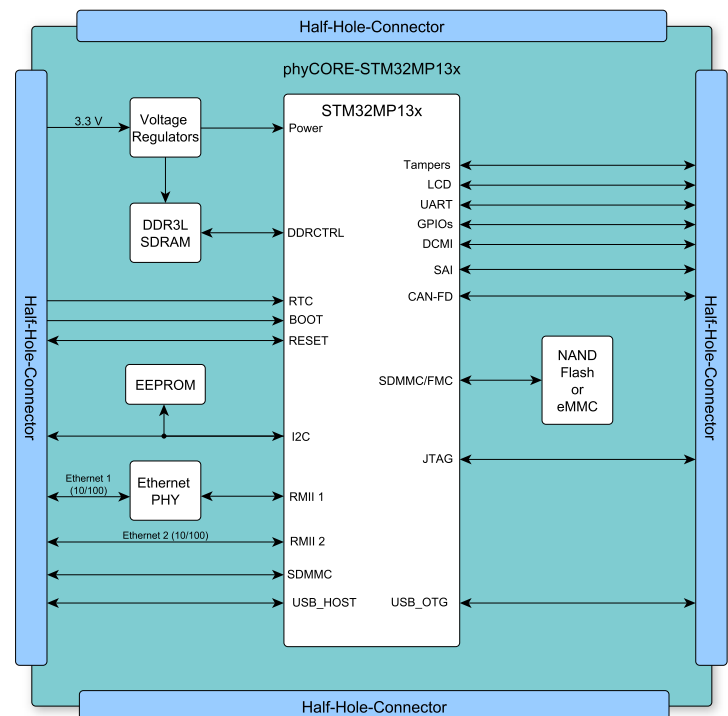
- Various hardware-based security and encryption functions AES 128-256, PKA ECC/RSA, DPA, MD5, HASH (e.g. SHA-1, SHA-256, SHA-512, SHA-3), HMAC
- True random number generator, CRC calculation
- Tamper, WDT, temperature, voltage and frequency monitoring

Integrated functionality

- 4 GB to 256 GB eMMC or 2 GB SLC-NAND Flash
- On-Board Ethernet PHY and voltage conversion
- 159-pin support Dual LAN, Dual USB, Dual CAN FD, UART, I²S /SAI, 12-bit ADC, DFSDM, parallel LCD, camera, etc.
- Dimensions 36 mm x 36 mm
- Product-level resource design fully increases the development efficiency

Product level Linux BSP support

- FCC / CE product reference design
- Global Technical Support



www.phytec.eu/en/phycore-STM32MP13x

Technical Data (preliminary)

Module Configuration

SOC	
Processor	STM32MP13x
Core	32-bit Arm® Cortex®-A7
Processor extension	Arm® NEON™ and Arm® TrustZone®
Clock frequency	650 MHz up to 1 GHz
Cache	L1: 64 kB, L2: 128 kB
Internal RAM	168 kB SRAM
HW Security	Secure boot, TrustZone®, tamper pins, temperature, voltage- and frequency monitoring
HW Crypto Accelerator	AES 128-256, PKA ECC/RSA, DPA, MD5, HASH (SHA-1, SHA-224, ... , SHA-512, SHA-3), HMAC
EXT. MEMORY	
Flash	4 GB up to 256 GB eMMC or 128 MB up to 2 GB NAND Flash
DDR3L	64 MB up to 1 GB
EEPROM	4 kB up to 32 kB
PHYSICAL PROPERTIES	
Dimensions	36 mm x 36 mm x 3 mm
Weight	approx. 6.2 g
Operating temperature	-40 °C to +85 °C
Humidity	95 % rF non condensing
Operating voltage	3.3 V
Power consumption typ.	tbd.
Connector	159 solder pads, 1 mm pitch
SOFTWARE	
Operating system	STM Mainline LTS Linux with TensorFlow Lite native support
Real-time operating system	freeRTOS

phyBOARD®-Segin

Development platform or powerful, industry-compatible SBC

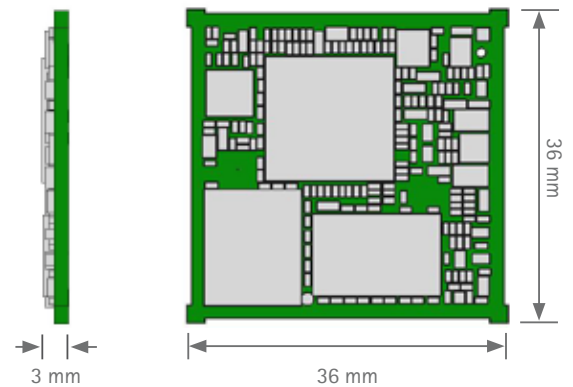


Module Interfaces

MAXIMUM INTERFACES*, **	
Ethernet	1x 10/100 Mbit/s (on-board PHY) / 1x GbE (RGMII)
USB	1x 2.0 OTG, 1x 2.0 host
UART	3x (up to 6)
CAN	1x (up to 2) CAN FD
I²C	1x (up to 4)
SPI	1x (up to 4)
MMC/SD/SDIO	2x
PWM	1x (up to 8)
A/D	2x 12-bit, multi channel
Display	1x parallel up to 24-bit (Full HD (1920 x 1080)@30 fps)
Audio	3x I²S/SAI, 1x S/PDIF, DSFDM filter
Camera	1x parallel 8-bit (up to 16-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.



INTERFACES	
Ethernet	2x 10/100BASE-T
USB	1x USB 2.0 OTG (Micro-AB) 1x USB 2.0 host (Type-A)
Seriell	1x RS-232 or RS-485, 1x CAN (2x pin header 2x5)
Display	18-bit parallel via A/V-expansion board PEB-AV-02
Audio	Stereo IN/OUT (pin header 2x3), mono speaker output (Molex SPOX)
Kamera	1x parallel (phyCAM-P)
Debugging	JTAG via PEB-EVAL-01 adapter
Other	I²C, SPI, Tamper, GPIO (Expansion pin header)
MISCELLANEOUS	
MMC/SD/SDIO	microSD Card Slot
Control elements	3x LED, 2x button
Dimensions	100 mm x 72 mm (Pico-ITX)
Supply Voltage	12 V to 24 V