

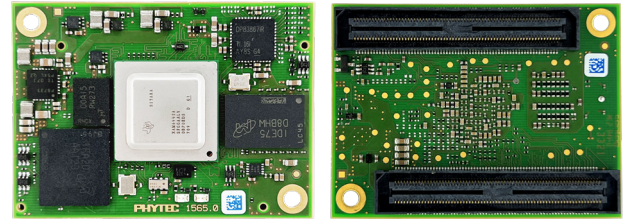


phyCORE[®]-AM64x

Arm[®] Cortex[®]-A53/-R5F/-M4F

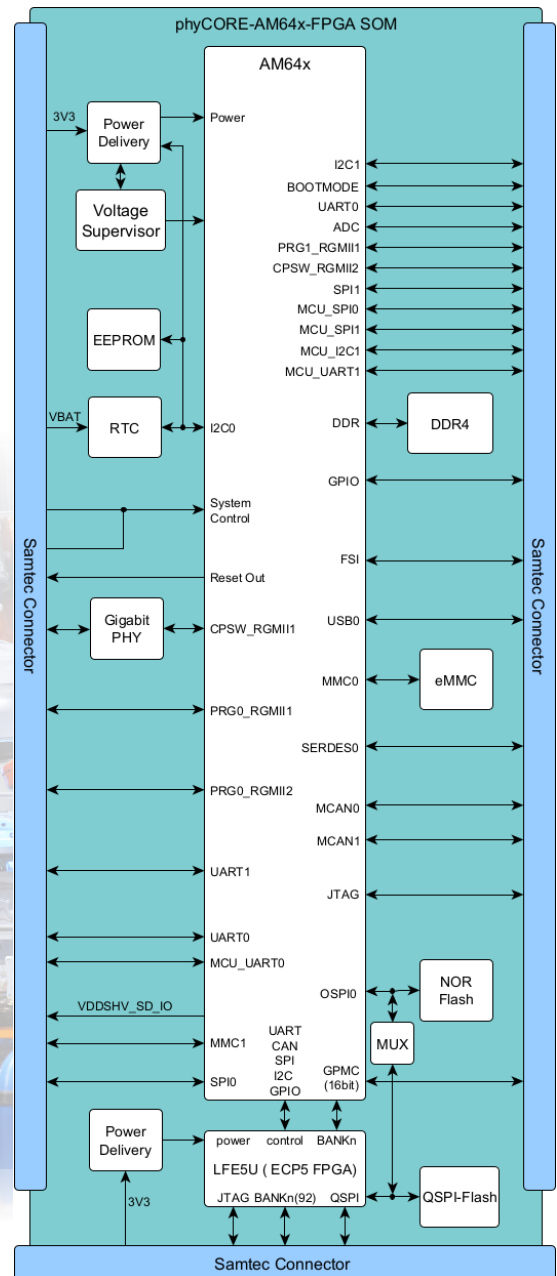
Designed for industrial communication, controls and smart manufacturing applications.

The phyCORE-AM64x is a robust and reliable headless embedded solution for industrial communication applications. The 50 mm x 37 mm SOM has an extensive 280-pin interconnect that supports common communication protocols such as CAN, EtherCAT[®], UART, I2C, but also automation-specific interfaces such as ePWM, eCAP and eQEP. Due to the heterogeneous architecture of the TI AM64x processor, you can run the majority of your application using Linux and



Highlights

- Single- or dual-core Arm[®] Cortex[®]-A53 (up to 1 GHz)
- Up to 4x Cortex[®]-R5F cores (up to 800 MHz) for real-time processing
- 1x isolated Cortex[®]-M4F MCU (up to 400 MHz) for general purposes, safety and critical tasks
- 4x PRU-ICSSG industrial Ethernet interfaces, usable with different communication protocol stacks (TSN, EtherCAT[®], PROFINET[®], EtherNet/IP[™] and others)
- No additional license costs for industrial protocol stacks
- ePWM, eCAP and eQEP supported



www.phytec.eu/en/phycore-

SOC	
Processor	TI AM6411, TI AM6412, TI AM6421, TI AM6422, TI AM6441, TI AM6442
Core(s)	up to 2x Arm® Cortex®-A53
Additional core(s)	up to 4x Arm® Cortex®-R5F, Arm® Cortex®-M4F
Clock frequency	up to 1 GHz (A53), up to 800 MHz (R5F), up to 400 MHz (M4F)
Subsystem	2x Gb Industrial Communication Subs. (PRU_ICSSG)
L2 Cache	256 kB with ECC
Cryptogr. acceleration	3DES, AES, DRBG, MD5, PKA, SHA-1, SHA-2
HW Security	Secure boot, Arm TrustZone®, ext. firewall, secure watchdog/timer/IPC, dedicated security cntlr., etc.
Functional Safety	Hardware Integrity: SIL 2 (IEC61508 certification) Systematic capability: up to SIL 3

MEMORY	
eMMC	4 GB up to 128 GB
DDR4	1 GB up to 2 GB maximal
NOR Flash	64 MB up to 256 MB (Octal SPI/Dual SPI Flash)
EEPROM	4 kB up to 32 kB

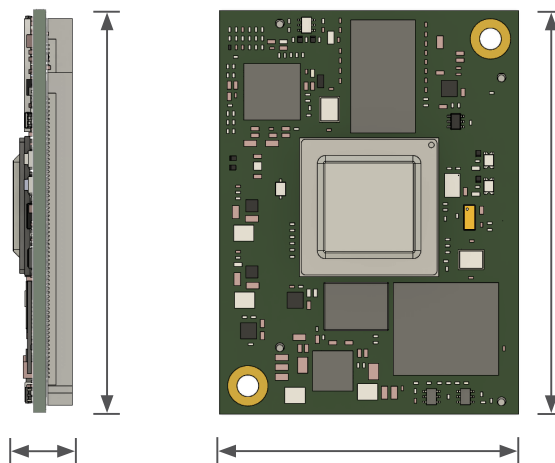
PHYSICAL PROPERTIES	
Dimensions	50 mm x 37 mm x 7.6 mm
Weight	approx. 17 g
Operating temperature	-40 °C to +85 °C
Humidity	95 % rF non condensing
Operating voltage	5.0 V
Power consumption typ.	2.1 W (in idle mode)

Module	PCM-072
Carrier board	PB-07225

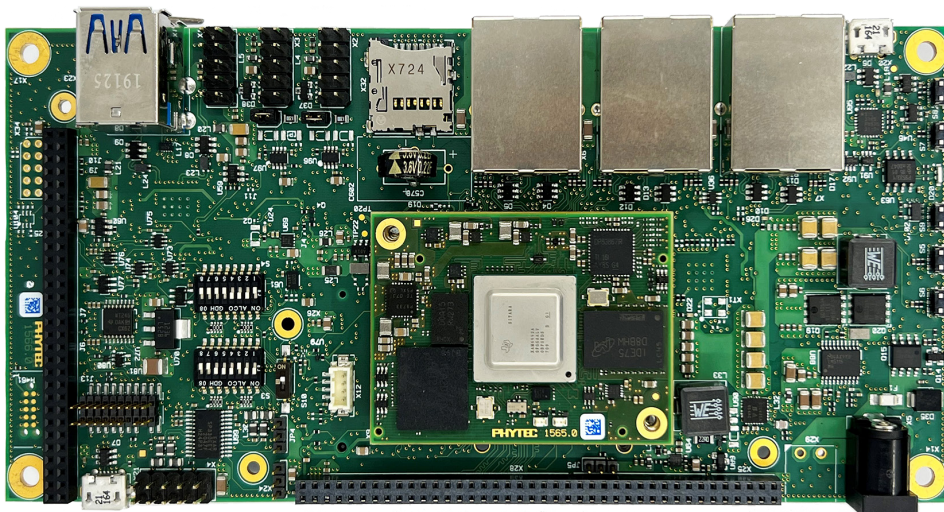
MAXIMUM INTERFACES*,**	
Ethernet	2x Gigabit (1x on-board PHY / 1x RGMII), 4x Gigabit (from PRU-ICSSG)
USB	1x 2.0 Dual Role, 1x 3.1 Dual Role
UART	up to 9
CAN	2x CAN FD
PCI / PCIe	1x PCIe 2.0
I²C	up to 6
SPI	up to 7
MMC/SD/SDIO	1
GPWC	1 (16-bit)
ePWM	up to 9
eCAP, eQEP	up to 3 each
ADC	up to 8 (12-bit)

* Due to multiplexing, not all interfaces may be fully available.

** Due to the exclusive use of individual interfaces on the module, the



Carrier Board phyCORE-AM64x



INTERFACES	
Ethernet	3x 10/100/1000BASE-T (TSN support)
USB	1x USB 2.0 OTG (Micro-AB) 2x USB 3.0 host (Type-A)
Serial	1x RS-232 or RS-485; 1x FSI, 2x CAN FD (4x pin header 2x5)
PCI / PCIe	1x PCIe 2.0 (Mini PCIe)
Debugging	JTAG (pin header), XDS110 (Micro-AB)
Various	I²C, SPI, ADC, GPIO (Expansion sockets)

MISCELLANEOUS	
MMC/SD/SDIO	microSD Card Slot
User Control	2x LED, 1x RGB LED, 5x button