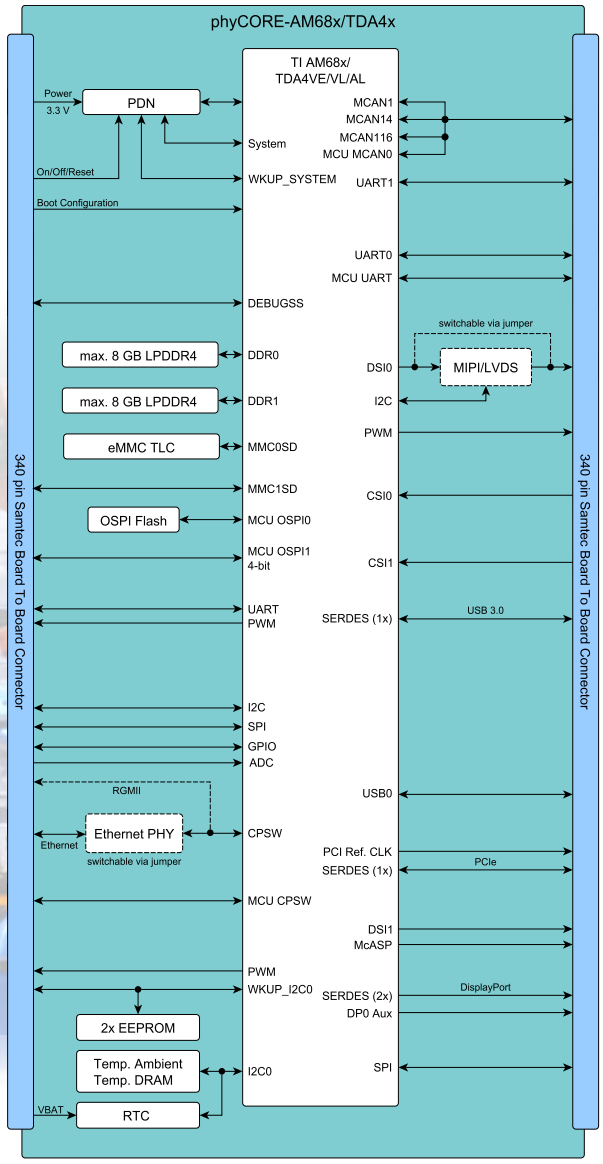
phyCORE®-AM68x/TDA4x

Arm® Cortex®-A72/-R5F

The AM68x or TDA4VE/AL/VL processor features system integration, scalability and cost savings. The processor combines, among others, dedicated deep learning accelerators, vector processing units and general-purpose microprocessors, as well as an integrated imaging subsystem, making the phyCORE-AM68x/TDA4x an excellent solution for various industrial applications, such as Robotics, Machine Vision, Radar.
The integration of e.g. memory, Ethernet PHY, DSI-to-LVDS bridge on the SOM reduces the complexity, scope and cost of product developments, while the pinout ensures that all functions of the controller can be used.

phyCORE®



Highlights

- Especially suited for image processing and AI tasks in industrial environments.
- Image processing
  - 2 camera interfaces
  - Control of up to 8 cameras
  - Internal ISP for image pre-processing
- Industrial interfaces, e.g.:
  - CAN FD
  - GB-Ethernet with TSN
- Heterogeneous system consisting of multiple processing units
  - Reduction of overall system costs and replacement of several system components of the overall system by integrating several system tasks into one processor
- Display interfaces
  - 3 different interfaces are available, MIPI-DSI, LVDS and DP
  - Use of up to 2 displays at the same time
- 50 GFlops graphics for high quality graphics requirements
- 2 DSP units for signal processing and AI
- Safety
  - Supports TI's functional safety concept
  - Internal safety zone with 2x Cortex®-R5F

www.phytec.eu/en/phycore-am68x-tda4x

Technical Data (preliminary)

Module Configuration

SOC	
Processor	TI AM68x or TDA4VE
Core	2x Arm® Cortex®-A72
Coprocessor	6x Arm® Cortex®-R5F
Clock frequency	2 GHz (Cortex-A72), 1 GHz (Cortex-R5F)
DSP	2x C7x 1 GHz
L1 Cache	32 KB data, 48 KB code with ECC
L2 Cache	1 MB with ECC
Internal RAM	4 MB SRAM with ECC
HW Security	3DES, DES, AES, RNG, MD-5, PKA, SHA, RSA-4k
EXT. MEMORY	
eMMC	up to 256 GB TLC eMMC
LPDDR4	up to 2 x 8 GB
NOR Flash	64 MB (Octal SPI/Quad SPI Flash)
EEPROM	32 KB
PHYSICAL PROPERTIES	
Dimensions	59 mm x 53 mm x 8,3 mm
Weight	30 g
Operating temperature	-40 °C to +85 °C
Humidity	95 % rF non condensing
Operating voltage	3.3 V
Power consumption typ.	tbd.
Connector	Samtec (2x 120 Pins, 1x 100 Pins), 0.5 mm pitch
SOFTWARE	
Operating system	Linux
Real-time operating system	freeRTOS

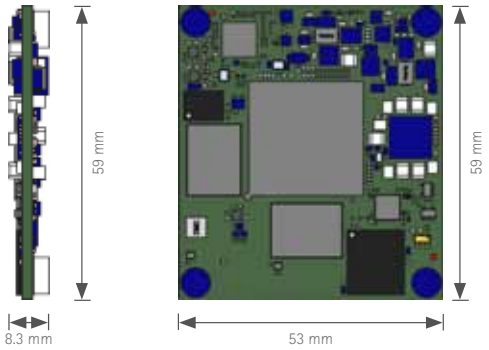
Ordering Information

Module	PCM-074
Carrier board / SBC	PB-04128 (phyBOARD®- Izar)
Development Kit	KPB-04128

Module Interfaces

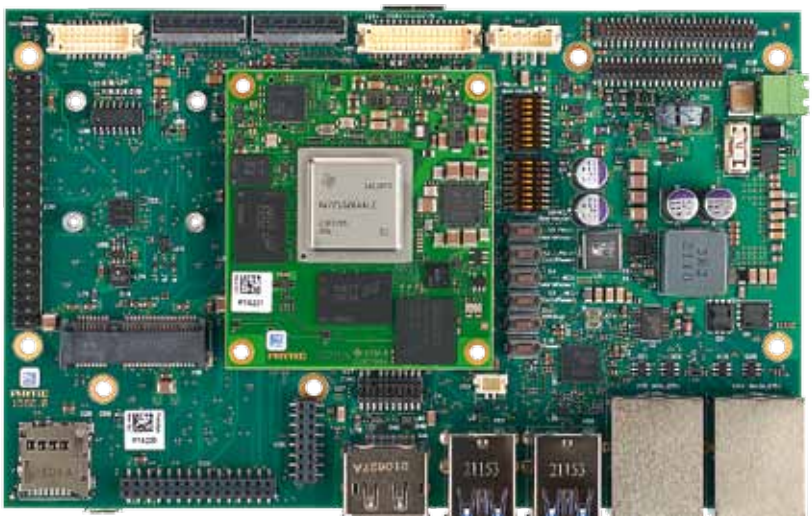
MAXIMUM INTERFACES*,**	
Ethernet	2x GbE (1x on-board PHY / 1x RGMII)
USB	1x USB 2.0, 1x USB 3.1 (DRD)
UART	up to 13
CAN	up to 11x CAN FD
PCI / PCIe	1x PCIe 3.0 (4 lanes)
I²C	up to 9
SPI	up to 9, 1x QSPI
MMC/SD/SDIO	1
PWM	up to 11
GPMC	1
Display	1x MIPI-DSI, 1x LVDS or MIPI-DSI, up to 1x DP
Audio	up to 2x McASP
Kamera	2x MIPI CSI-2 v1.3 (partly v2.0)
A/D	up to 16x 12-bit
Debugging	JTAG, UART
RTC	on-board

* 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.



phyBOARD®-Izar

Development platform or powerful, industry-compatible SBC



INTERFACES	
Ethernet	2x 10/100/1000BASE-T
USB	1x USB 2.0 host (Type-A) 4x USB 3.0 host (Type-A)
Serial	1x RS-232 or RS-485, 4x CAN FD (Hirose DF13)
Display	1x LVDS (2x 4-lane, FFG/FPC con.), DP
Camera	2x MIPI CSI-2 (phyCAM-M)
Audio	via A/V-expansion board PEB-AV-15
Wireless	Mini PCIe for Wi-Fi/BI
Debugging	JTAG (pin header)
Other	Expansion pin header (I²C, Ethernet, UART, PWM, ADC), Raspberry Pi HAT connector
MISCELLANEOUS	
MMC/SD/SDIO	microSD Card Slot
Security	TPM chip
Control elements	1x RGB-LED, 6x reset button
Dimensions	160 mm x 100 mm
Supply Voltage	12 V to 24 V