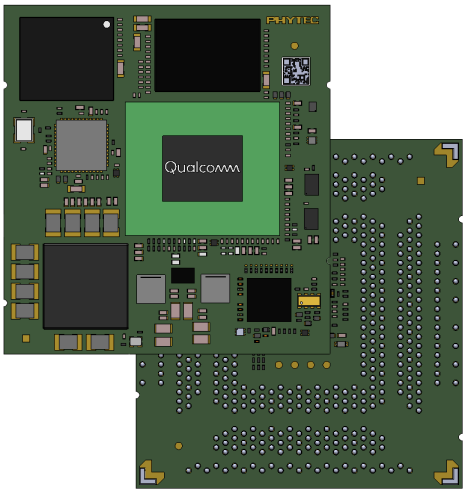
phyFLEX®-IQ-2390 FPSC

Exceptional computing power for a wide range of applications



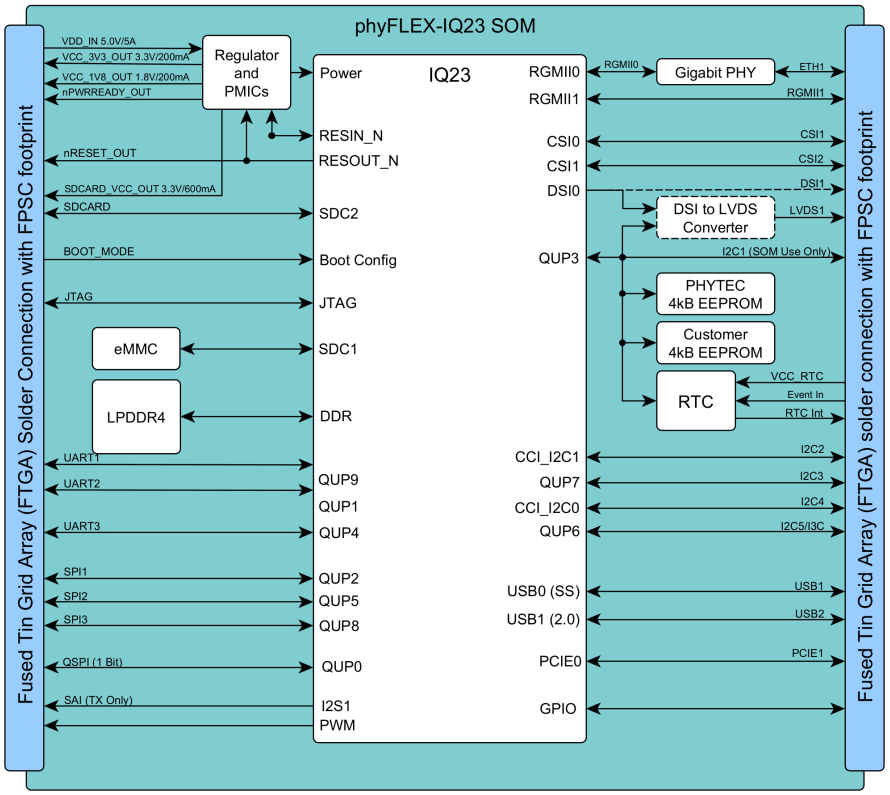
The phyFLEX®-IQ-2390, powered by Qualcomm's® IQ-2390 SoC, boasts exceptional computing performance thanks to its multi-core architecture. The combination of one Arm® Cortex™-A78 core and three additional Arm® Cortex™-A55 cores provides ample processing power for a wide range of applications. Furthermore, the IQ-2390 processor features the RISC-V SiFive E61, a real-time capable processor core that enables real-time applications on the RISC-V core in addition to computationally intensive operations on the A cores.

Thanks to its powerful Adreno 704 GPU, the phyFLEX®-IQ-2390 offers a solid platform for a wide range of multimedia applications. The MIPI-DSI interface allows for easy connection of high-resolution displays, making the module ideal for human-machine interfaces (HMIs) and other demanding graphics applications.

The combination of the dual-camera system with up to 2x 4-lane MIPI-CSI and the two integrated ISPs offers a solution even for demanding vision projects. Thanks to the integration of the Hexagon V66 NPU with up to 1,1 TOPs, AI vision projects can also be easily implemented with the phyFLEX-IQ-2390.

Thanks to its FPSC footprint, the phyFLEX®-IQ-2390 SoM is compatible with existing phyFLEX® Gamma modules, offering further scaling options based on the identical footprint. This allows existing projects to be easily upgraded to a more powerful solution, or new projects to be built on a future-proof foundation without having to worry about future baseboard redesigns.

FPSC



Highlights

- Up to 16GB LPDDR4X RAM
- Up to 128GB on-board eMMC
- 1x Gigabit Ethernet PHY (signals brought out to connector as differential pairs)
- 2x 4KB I2C EEPROM (one for customer use and one for PHYTEC's use)
- 1x On-board RTC
- 537 Pin FTGA footprint: An FPSC size M footprint

https://www.phytec.eu/en/produkte/system-on-modules/phyflex-iq-2390-fpsc/

Technical Data

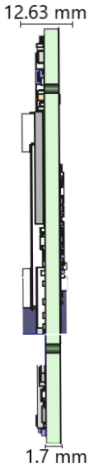
Module Configuration

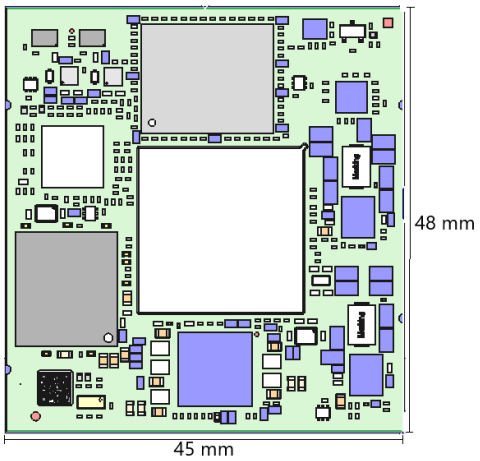
Processor	Qualcomm® IQ2390
Core(s)	Arm® Cortex™ A78 / 3x A55
Additional Core(s)	SiFive E61 RISC-V MCU at 600 MHz
Clock frequency	1.9 GHz / 1.8 GHz
AI/DPS	Qualcomm® Hexagon™ v66A compute Digital Signal Processor (cDSP)
Graphics	3 D GPU (Adreno 704 at 845 MHz)
Video Processing	1080p @ 30 fps
Security Accelerators	Secure boot, secure debug, secure key provisioning, TrustZone, Qualcomm® Trusted Execution Environment, hardware-supported KeyStore
EXT. MEMORY	
eMMC	32 GB up to 128 GB
LPDDR4	2 GB up to 16 GB
EEPROM	2x 4KB I2C
PHYSICAL PROPERTIES	
Dimensions	45 mm x 48 mm x ? mm
Weight	tbd.
Operating temperature	-30 °C to +85 °C
Humidity	95 % RH non condensing
Operating voltage	tbd.
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
USB	1x 3.1 Dual Role, 1x 2.0 Dual Role
UART	9x
PCIe	1x Gen2
I²C	10x, 2x dedicated I2C
SPI	7x
MMC/SD/SDIO	1x
ePWM	15x
Display	1x OLDI/LVDS; 1x MIPI-DSI (not simultaneously supported)
Camera	2x MIPI CSI-2
Audio	4x I2S, 1x SWR, 2x DMIC
Debugging	Yes
RTC	Yes

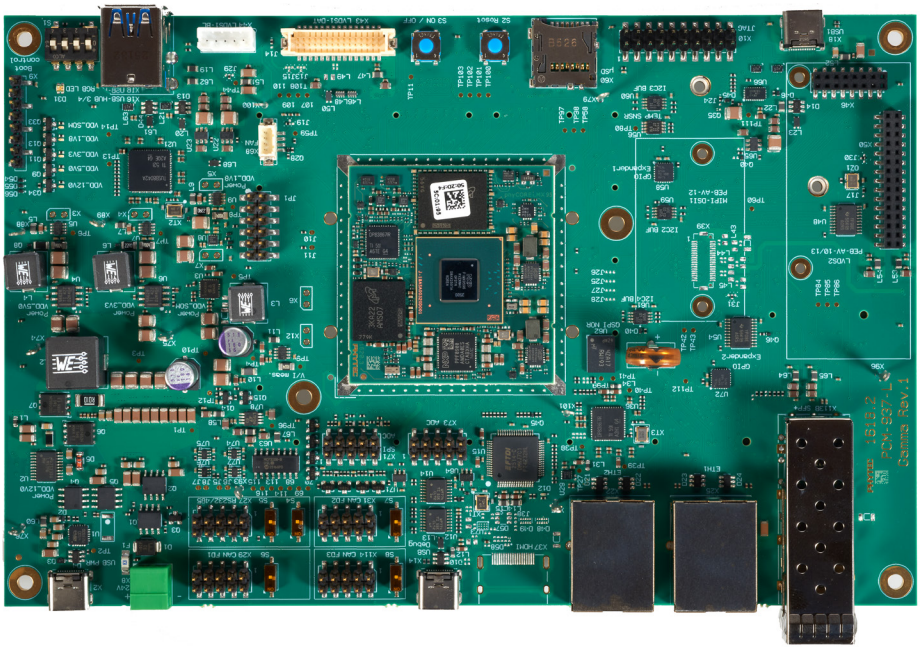
Some of the features listed are not available simultaneously due to the multiplexing options of the various processor pins. Refer to the hardware manual for further information on available multiplexing options and section 1.4 of this datasheet for the pinout of signals.





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