

Arm® Architecture

miriac® MPX-LS1028A

Compact SoM with TSN, security engine and HMI



System-On-Modules at a glance

- Two 64-bit Arm® Cortex®-A72 cores
- TSN based Real Time Ethernet communication
- Security engine
- Integrated graphics unit for HMI functions
- Small, highly integrated SoM, a perfect fit for IIoT devices and nodes





Product Description

It combines high compute power by two powerful 64-bit Arm® Cortex®-A72 cores with TSN based Real Time Ethernet communication, a security engine and an integrated graphic unit for HMI functions.



Specifications

CPU

Architecture	Arm® Cortex®-A72
Processor	NXP® QorIQ® LS1028A CPU: 2 Arm® Cortex®-A72 64-bit cores at up to 1.5 GHz core frequency
DRAM	Up to 4 GB 32-bit DDR4 ECC RAM 1600 MT/s

Memory

Flash	Up to 256 MB Serial NOR Flash & up to 4 GB Serial NAND Flash
Flash Card	2x SDHC
Boot Flash	SDHC, eMMC, XSPI, NAND Flash
eMMC	8-bit
EEPROM	Yes

Graphic

Graphics Controller	Yes
Display	Display Port 1.3 and eDP1.4

Ethernet

10GbE	1x SXGMII / QXGMII
RGMII	1x
SGMII	4x 1.25 Gbps
QSGMII	1x 5 Gbs
TSN / IEEE 1588	Yes (4 Port TSN Switch on board) IEEE 802.1

High Speed IO

SerDes lanes	4x at 10 Gbps
USB 3.0	2x
PCIe	4x PCIe Gen3
SATA	1x GEN3

IO

Flex SPI	3x
UART	2x
CAN FD	2x
I²C	8x
Audio	Yes (SAI)
GPIOs	Yes
JTAG Debug Interface	Yes

Security / Safety

Security	Trust Architecture
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Operating Condition

Power Supply Voltage	Single 5 V DC input supply voltage range
Typical Power Consumption	5 W
Power Management	Yes
RTC	PCF85063
Temperature	0 °C to 70 °C
Optional Extended Temperature:	-40 °C to +85 °C



Specifications

Mechanical

Dimensions	45 mm x 62 mm
Connector Type	230 pin 0.5 mm pitch

Software / Additional

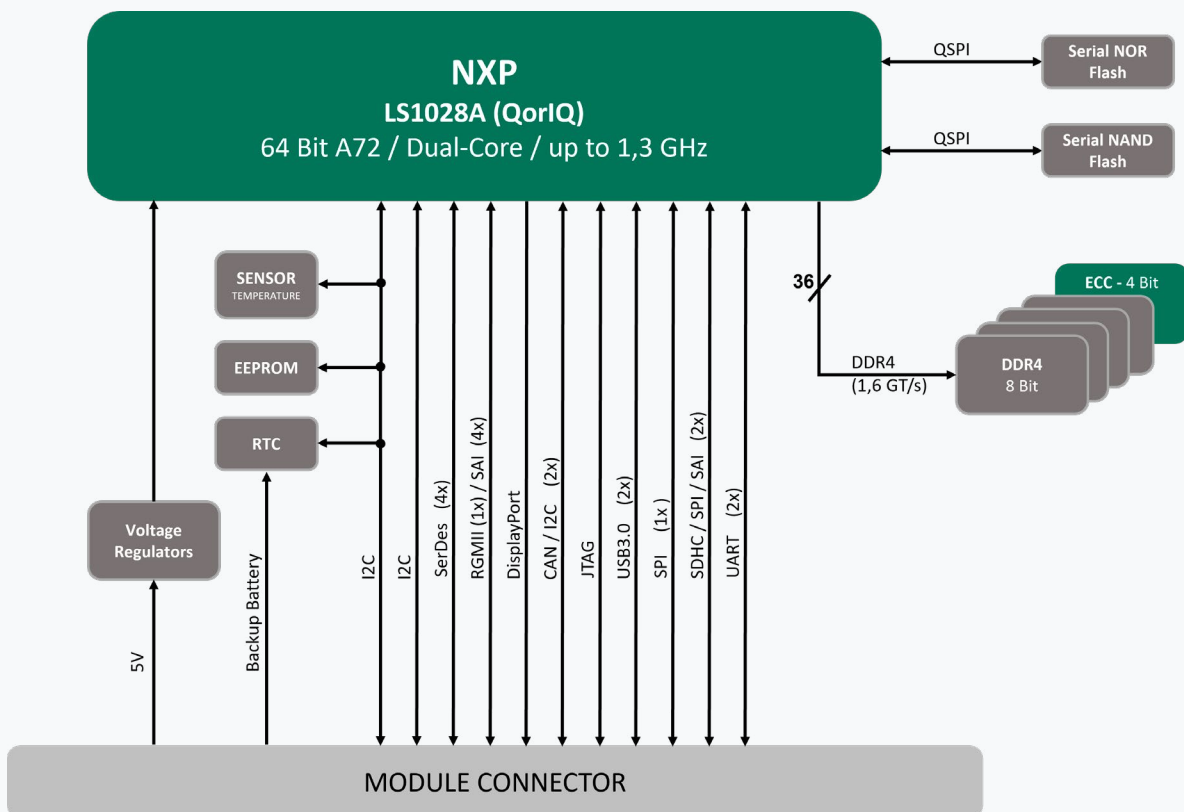
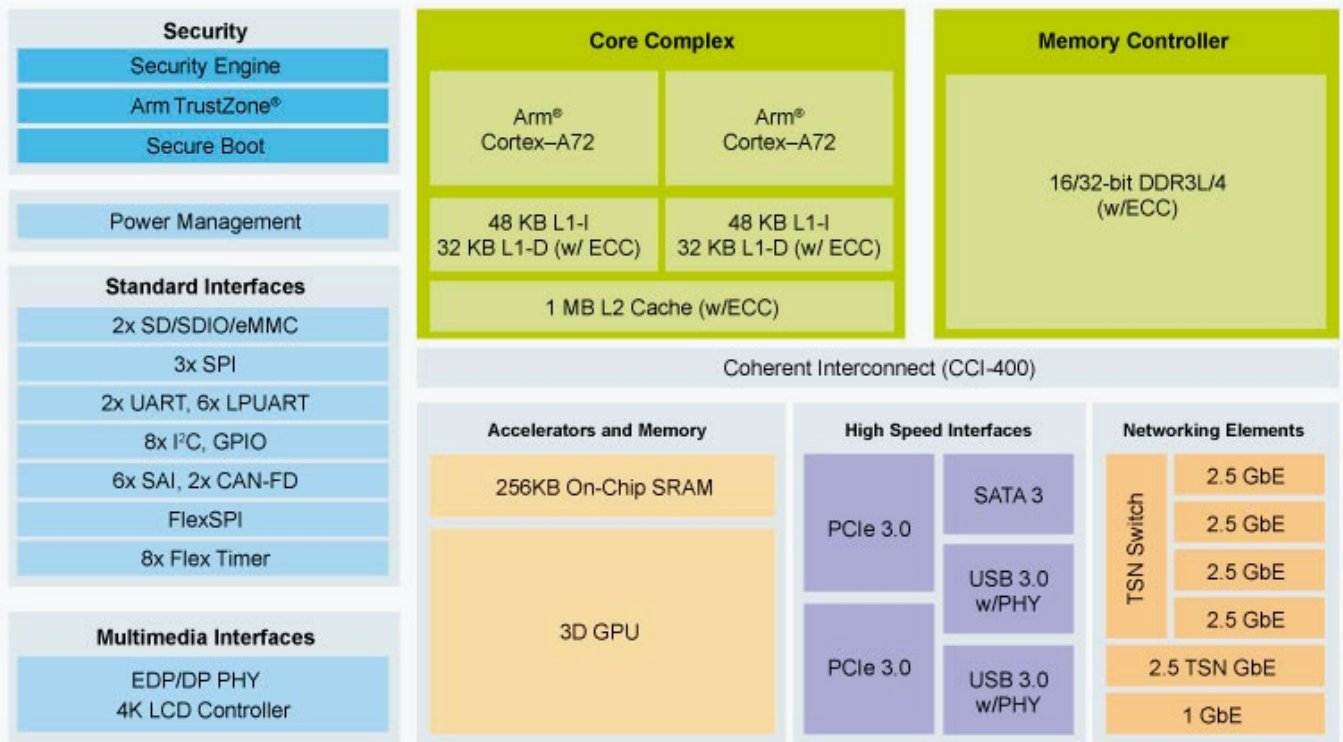
Software Support	<ul style="list-style-type: none">■ Linux■ VxWorks (on request)■ Others (on request)
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Additional	<p>Graphics processing unit:</p> <ul style="list-style-type: none">■ Supports Geometry rate 100 Mtri/sec, Pixel rate 650 Mpixel/sec, GFLOPS(32-bit high precision) = 10.4■ Supports OpenGL ES 3.0, 2.0, 1.1■ Supports OpenCL 1.1, 1.2■ Compatible variants available with QorIQ® LS1018A■ Temperature sensor■ Dev Kit available for immediate start, includes power supply, cables■ Linux on SD card
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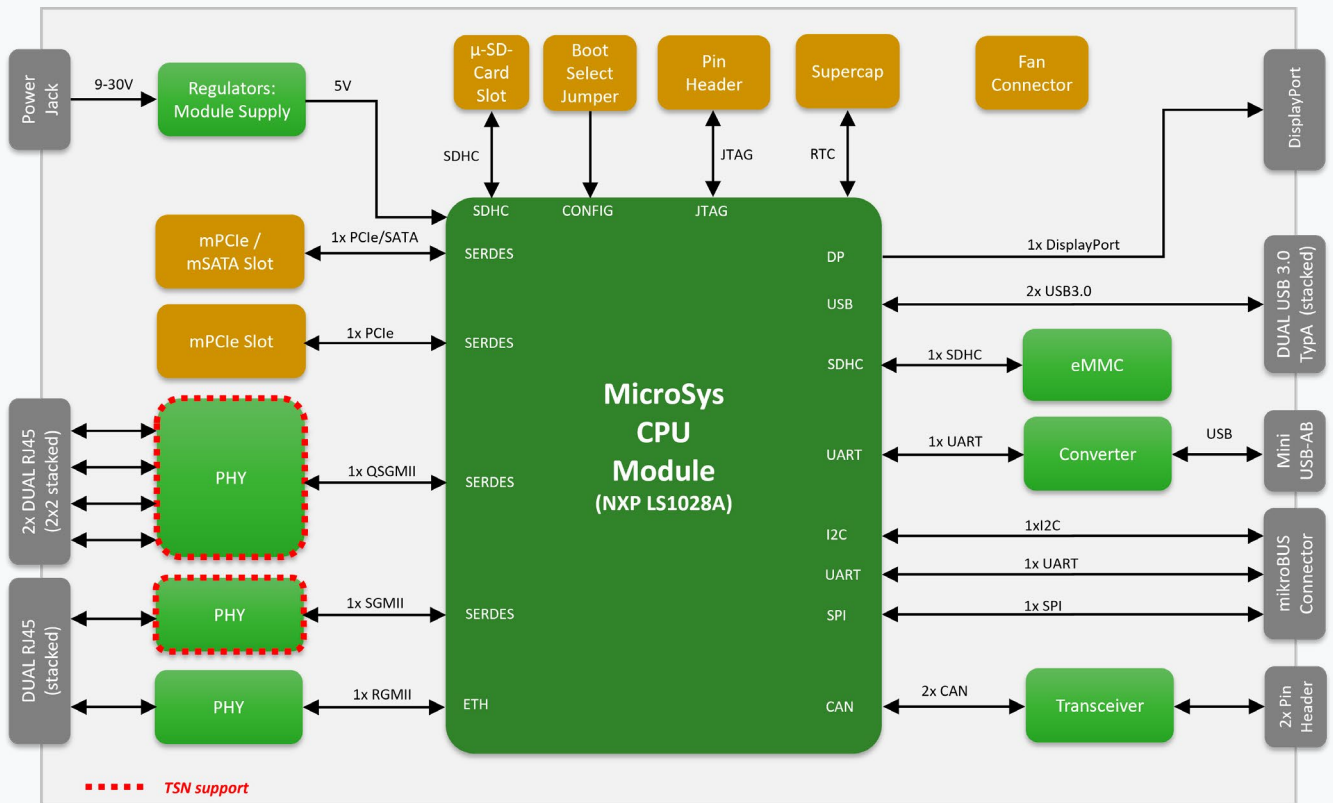
General note:

Our standard product versions offer what we consider to be the optimum configuration in terms of performance, price, usage and TDP. The product features lists specify the maximum range of functions per interface. However, not all interfaces or functions are always available in parallel. Flexible SERDES multiplexing is one of the reasons for this. In addition, we provide multiple memory expansion options and are also happy to accommodate specific customer wishes. So do not hesitate to contact us directly to discuss your desired configuration.

Block diagram



Block diagram





Order Information

Name	Code	Description	Status
miriac® MPX-LS1028A	857001	2 Arm® Cortex®-A72, 1.3 GHz, 4 GB DDR4 w ECC, 16 MB NOR Flash, 512 MB Nand Flash, 0 °C to 70 °C, w SEC	active
Development Kit basic for miriac® MPX-LS1028A	857602	2 Arm® Cortex®-A72, 1.3 GHz, 4 GB DDR4 w ECC, 16 MB NOR Flash, 512 MB Nand Flash, 0 °C to 70 °C, w SEC, Carrier Board, Linux BSB, accessories	active



Related Products

Name	Code	Description	Status
miriac® SBC-LS1028A-TSN		Single Board Computer based on NXP® QorIQ® LS1028A CPU	active



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