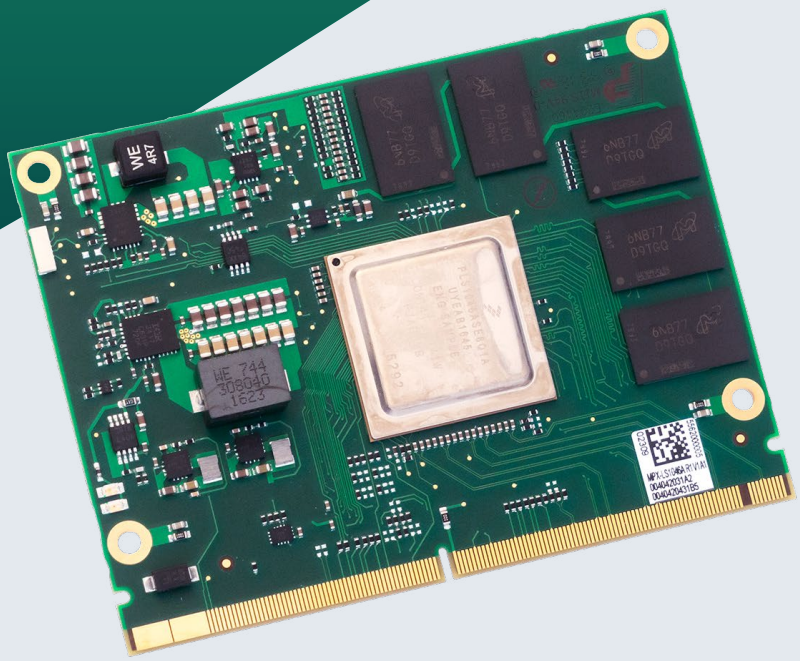
MicroSys
Creating Embedded Systems

Arm® Architecture

miriac® MPX-LS1046A

Low energy class server module with quad Arm® Cortex®-A72 cores and up to two 10 GbE



System-On-Modules at a glance

- 4 Arm® Cortex®-A72 64-bit cores at up to 1.6 GHz core frequency
- Up to 8 GB 64-bit DDR4 ECC RAM at 2100 MTps
- On-board QSPI NOR flash for a reliable boot process
- All on board supply voltages are monitored by a separate µ-controller
- Control of on board voltages and the reset logic offer a wide spectrum of custom functionality, even low level safety functions

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Product Description

New cost effective MPX-2 System on Module form factor, connecting to a standard edge connector (MXM3.0 socket).

Specifications

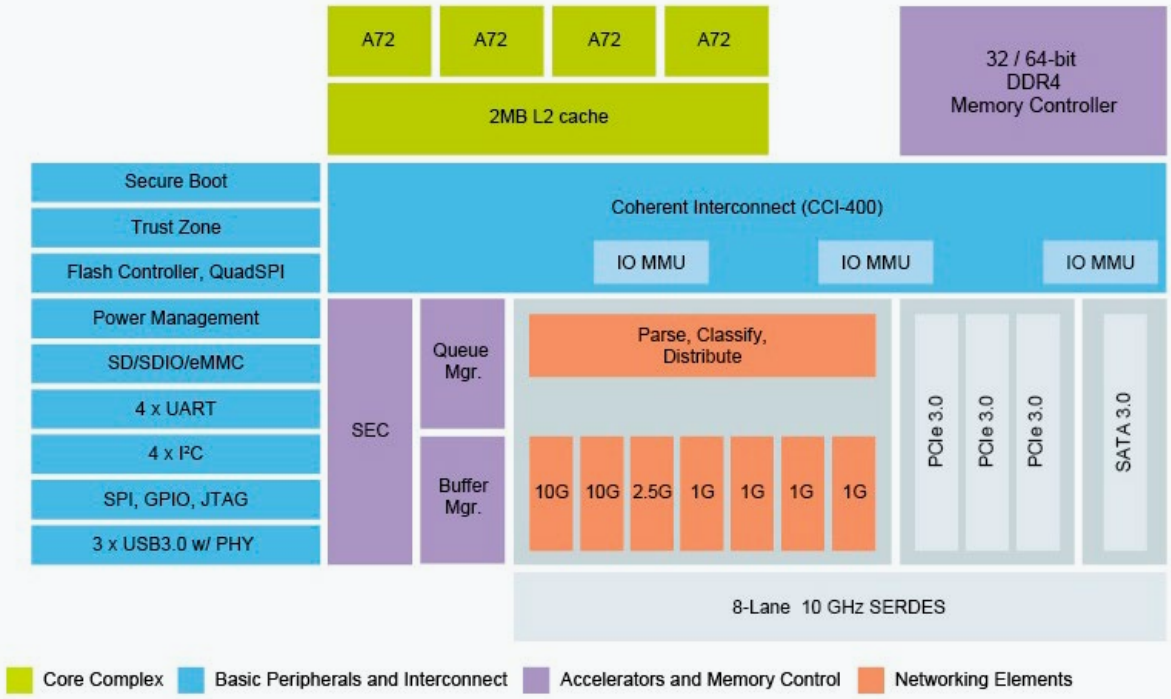
CPU	
Architecture	Arm® Cortex®-A72
Processor	NXP® QorIQ® LS1046A CPU: 4 ARM® Cortex®-A72 64-bit cores at up to 1.6 GHz core frequency
DRAM	Up to 8 GB 64-bit DDR4 ECC RAM at 2100 MT/s
Memory	
Flash	up to 2 GB SLC NAND Flash & up to 64 MB QuadSPI Flash
Flash Card	SDHC
Boot Flash	QSPI, SD/MMC, NAND Flash
eMMC	8-bit
EEPROM	Yes
Ethernet	
10GbE	2x XFI
RGMII	2x
SGMII	5x 1Gbs, 3x 2.5Gbs
QSGMII	1x 5Gbs
TSN / IEEE 1588	Yes
High Speed IO	
SerDes lanes	8x at 10 Gbps
USB 3.0	3x (Host / Client / OTG)
PCIe	3x PCIe Gen3 (x4lane support)
SATA	1x GEN3
IO	
Flex SPI	1x
UART	2x DUART
I²C	2x
GPIOs	Yes
JTAG Debug Interface	Yes
Security / Safety	
Security	Security Engine (SEC) SFP, CSU
Operating Condition	
Power Supply Voltage	Single 5 to 12 V DC input supply voltage range
Typical Power Consumption	7W
Power Management	Yes
RTC	Epson RX-8803LC
Temperature	0 °C to 70 °C
Optional Extended Temperature:	-40 °C to +85 °C

Specifications

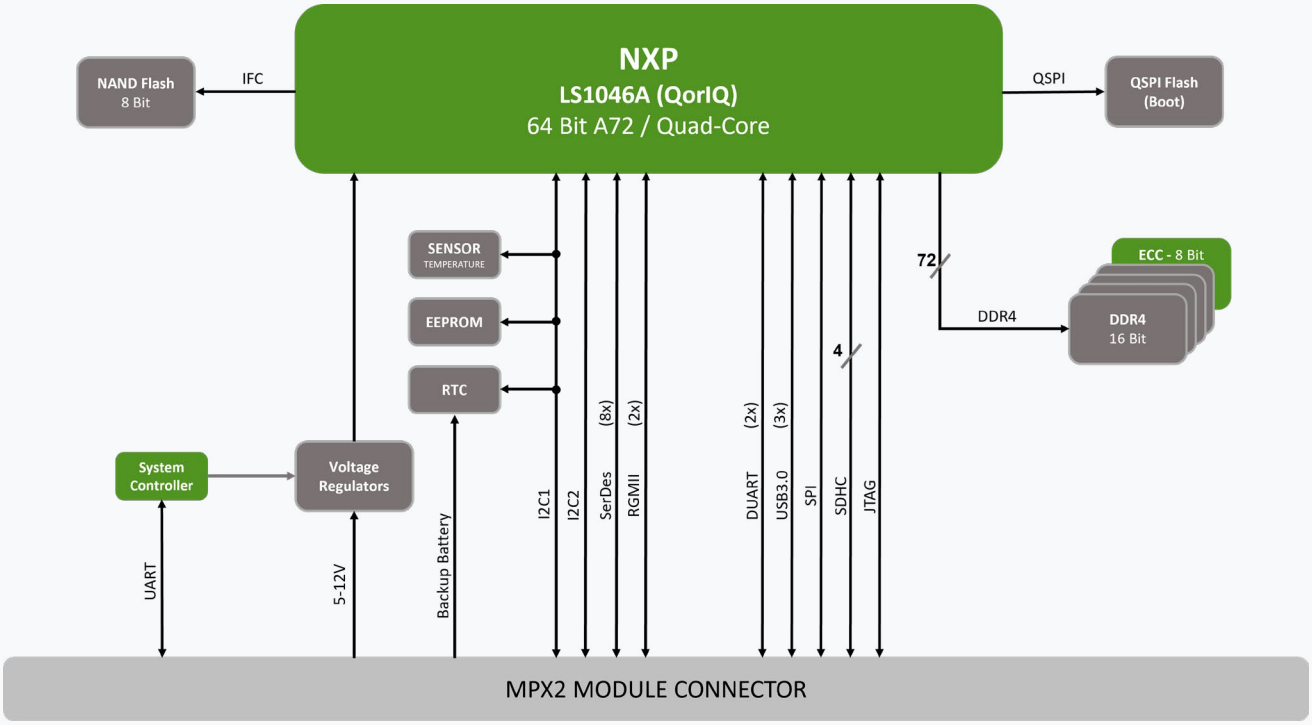
Mechanical	
Dimensions	62 mm x 82 mm
Connector Type	MPX-2 for MXM3.0 socket
Software / Additional	
Software Support	■ Linux ■ VxWorks (on request) ■ Others (on request)
Additional	■ Compatible variants available with QorIQ LS1023A, LS1043A, LS1048A, LS1088A ■ Temperature sensor ■ Dev Kit available for immediate start, includes power supply, cables. Linux on SD card

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



→ QorIQ LS1046A Processor Block Diagram



Order Information

Name	Code	Description	Status
miriac® MPX-LS1046A	855610	4 Arm® Cortex®-A72, 1.6 GHz, 4 GB DDR4 w ECC, 16 MB NOR Flash, 512 MB NAND Flash, 0 °C to 70 °C, w/o SEC	active
Development Kit basic for miriac® MPX-LS1046A	855917	4 Arm® Cortex®-A72, 1.6 GHz, 4 GB DDR4 w ECC, 16 MB NOR Flash, 512 MB NAND Flash, 0 °C to 70 °C, w/o SEC	active
miriac® MPX-LS1046A	855615	4 Arm® Cortex®-A72, 1.6 GHz, 4 GB DDR4 w ECC, 16 MB NOR Flash, 512 MB NAND Flash, 0 °C to 70 °C, w/o SEC, MCU 10 Gbit/s	active
Development Kit pro for miriac® MPX-LS1046A	856411	4 Arm® Cortex®-A72, 1.6 GHz, 4 GB DDR4 w ECC, 16 MB NOR Flash, 512 MB NAND Flash, 0 °C to 70 °C, w/o SEC	active

Related Products

Name	Code	Description	Status
miriac® SBC-LS1046A	855917	Single Board Computer based on NXP® QorIQ® LS1046A CPU	active

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