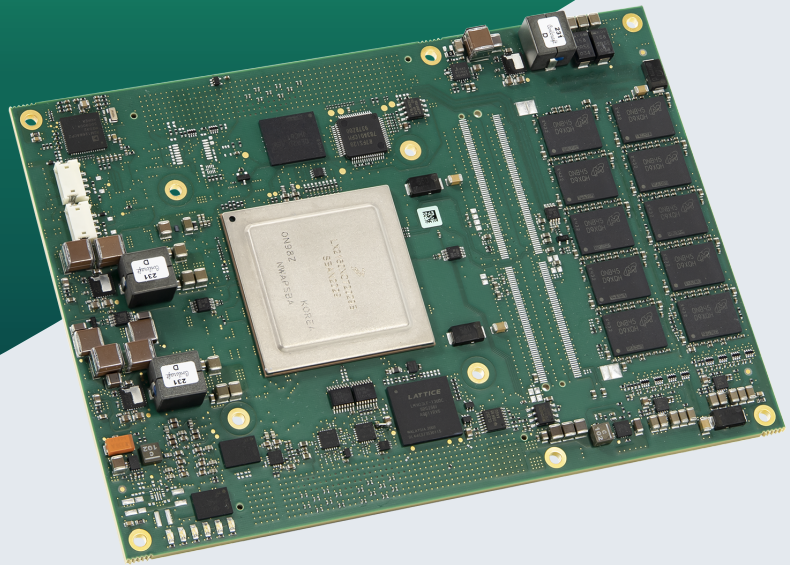SoMs Arm® Architecture

miriac® MPX-LX2160A

Rugged edge server class SoM for high-end communication applications

Highlights

- NXP® Layerscape® LX2160A with 16 Arm® Cortex®-A72 64-bit cores up to 2.2 GHz

- 24 SerDes lanes (PCIe Gen3 x8, 100 GbE/40 GbE/25 GbE/10 GbE, SATA)

- 2x DDR4 controllers (up to 3200 MT/s with ECC) support up to 128 GB DDR4 RAM, ECC

- Boot select: XSPI, eMMC or external SD card

- Single 5-12 V DC input supply voltage range

Product Description

NXP's flagship processor, the LX2160A, offers 16 Arm® Cortex®-A72 cores at 2.2GHz. In addition, the LX2160A offers 24 SerDes lanes (PCIe Gen3 x8, 100 GbE/40 GbE/25 GbE/10 GbE, SATA) and up to 128 GB DDR4 RAM driven by 2x DDR4 controllers (up to 3200 MT/s with ECC). This means that the MPX-LX2160A module is designed for applications that are highly compute-intensive and require numerous high-speed I/O.

Features

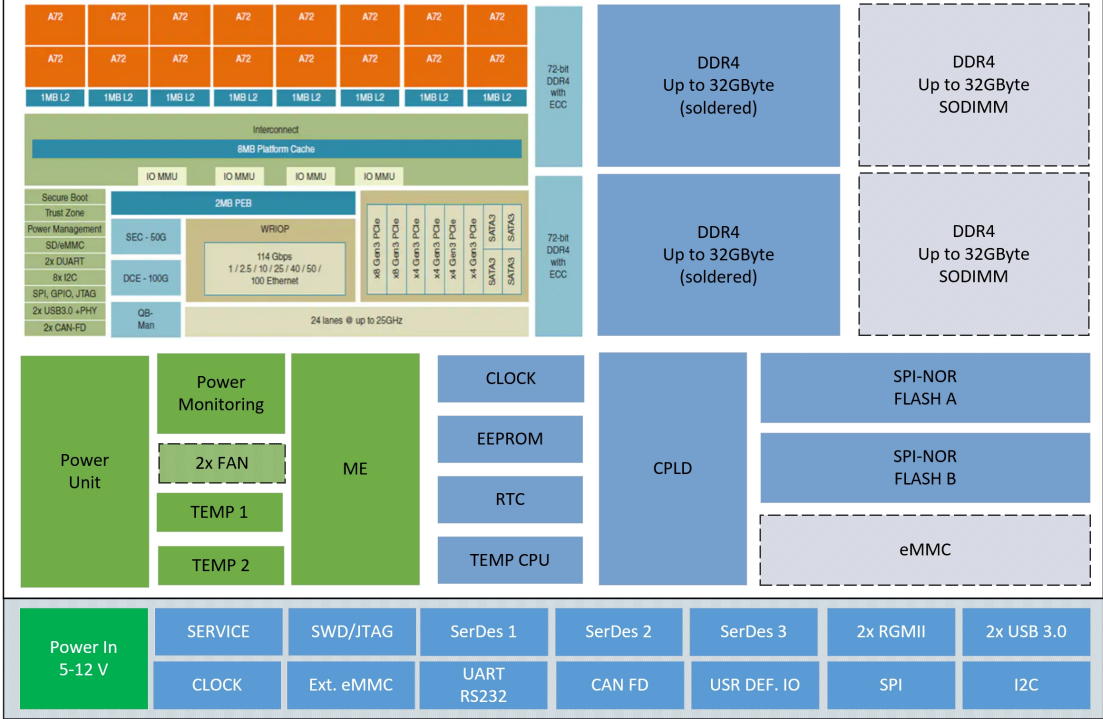| CPU	
Architecture:	Arm® Cortex®-A72
Processor:	NXP® Layerscape® LX2160A with 16 Arm® Cortex®-A72 64-bit cores up to 2.2 GHz
DRAM:	Up to 128 GB DDR4 RAM & optional ECC, up to 3200MT/sec Up to 4 ranks using a combined design: discrete & SODIMM
Memory	
Flash:	Up to 2 Gb Octal SPI Flash at up to 200MHz, double operation / golden image
Flash Card:	Interface for external SD card
Boot Flash:	Boot select: XSPI, eMMC or external SD card
eMMC:	Up to 256 GB, HS400, JEDEC 5.1 standard support
Ethernet	
100GbE:	Yes
40GbE:	Yes
25GbE:	Yes
10GbE:	Yes
100BASE-T1:	Yes
High Speed IO	
SerDes lanes:	24 SerDes lanes (PCIe Gen3 x8, 100GbE/40GbE/25GbE/10GbE, SATA)
USB 3.0:	2x
USB 2.0:	Yes
PCIe:	PCIe Gen3 x8
SATA:	Yes
Security / Safety	
Security:	Secure boot, trust zone
Operating Condition	
Power Supply Voltage:	Single 5 to 12 V DC input supply voltage range
Typical Power Consumption:	25 W

Power Management:	Yes
RTC:	PCF85263
Temperature:	0 °C to 70 °C
Optional Extended Temperature:	-40 °C to +85 °C
Mechanical	
Dimensions:	155 x 110 mm
Connector Type:	2x high-speed/high-density open-pin-field connectors á 400 pins
Software / Additional	
Software Support:	- Linux
	- VxWorks (on request)
	- Others (on request)
Additional:	- Temperature sensors, cooling controller, RTC, Management Engine
	- All I/O pins available on SEARAY™ Connectors
	- Development 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 Diagrams

miriac MPX-LX2160A

A72	A72	A72	A72	A72	A72	A72	A72	
A72	A72	A72	A72	A72	A72	A72	A72	
1MB L2	1MB L2	1MB L2	1MB L2	1MB L2	1MB L2	1MB L2	1MB L2	

Interconnect
8MB Platform Cache

IO MMU   IO MMU   IO MMU   IO MMU

Secure Boot
Trust Zone
Power Management
SD/eMMC
2x DUART
8x I2C
SPI, GPIO, JTAG
2x USB3.0 +PHY
2x CAN-FD

2MB PEB

SEC - 50G
DCE - 100G
QB-Man

WRIOP
114 Gbps
1 / 2.5 / 10 / 25 / 40 / 50 /
100 Ethernet

x8 Gen3 PCIe   x8 Gen3 PCIe   x4 Gen3 PCIe   x4 Gen3 PCIe   x4 Gen3 PCIe   SATA3   SATA3   SATA3   SATA3

24 lanes @ up to 25GHz

72-bit DDR4 with ECC

72-bit DDR4 with ECC

DDR4
Up to 32GByte
(soldered)

DDR4
Up to 32GByte
(soldered)

DDR4
Up to 32GByte
SODIMM

DDR4
Up to 32GByte
SODIMM

Power Unit

Power Monitoring
2x FAN
TEMP 1
TEMP 2

ME

CLOCK
EEPROM
RTC
TEMP CPU

CPLD

SPI-NOR FLASH A
SPI-NOR FLASH B
eMMC

| Power In 5-12 V | SERVICE | SWD/JTAG | SerDes 1 | SerDes 2 | SerDes 3 | 2x RGMII | 2x USB 3.0 |
| | CLOCK | Ext. eMMC | UART RS232 | CAN FD | USR DEF. IO | SPI | I2C |

optional

miriac® MPX-LX2160A

Order Info

Name	Code	Description	Status
miriac® MPX-LX2160A	858402	16 Arm® Cortex®-A72, 2.0 GHz, 32 GB DDR4 w ECC, 16 MB NOR Flash, 512 MB NAND Flash, 32 GB eMMC, 0 °C to 70 °C, w SEC	active
Development Kit basic for miriac® MPX-LX2160A	859702	16 Arm® Cortex®-A72, 2.0 GHz, 32 GB DDR4 w ECC, 16 MB NOR Flash, 512 MB NAND Flash, 32 GB eMMC, 0 °C to 70 °C, w SEC	active

Related Products

Name	Description	Image
miriac® SBC-LX2160A		

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Gold
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