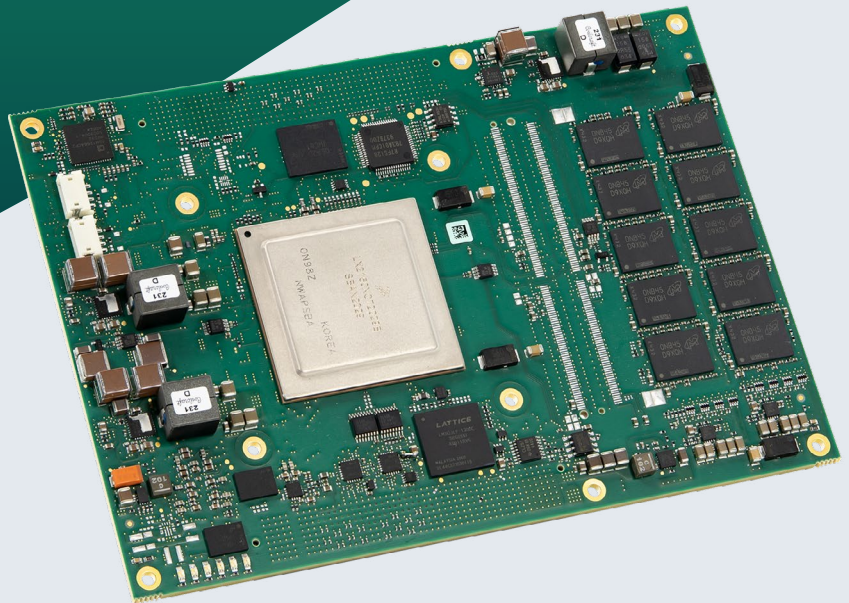


Arm® Architecture

# miriac® MPX-LX2160A SoM

Rugged edge server class SoM for  
high-end communication applications



## System-On-Modules at a glance

- 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.



## Specifications

### 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<br>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 |
| 1GbE        | Yes |
| 1000BASE-T1 | Yes |

### High Speed IO

|              |                                                    |
|--------------|----------------------------------------------------|
| SerDes lanes | 24x (PCIe Gen3 x8, 100GbE/40GbE/25GbE/10GbE, SATA) |
| USB 3.0      | 2x                                                 |
| USB 2.0      | Yes                                                |
| PCIe         | PCIe Gen3 x8                                       |
| SATA         | Yes                                                |

### IO

|                      |     |
|----------------------|-----|
| Flex SPI             | 1x  |
| UART                 | 2x  |
| CAN FD               | 2x  |
| I²C                  | 6x  |
| GPIOs                | Yes |
| JTAG Debug Interface | Yes |

### Security / Safety

|          |                    |
|----------|--------------------|
| Security | Trust Architecture |
| Safety   | Lockstep / ASIL    |

### 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                               |



# Specifications

## Mechanical

|                |                 |
|----------------|-----------------|
| Dimensions     | 155 mm x 110 mm |
| Connector Type | MXM3.0          |

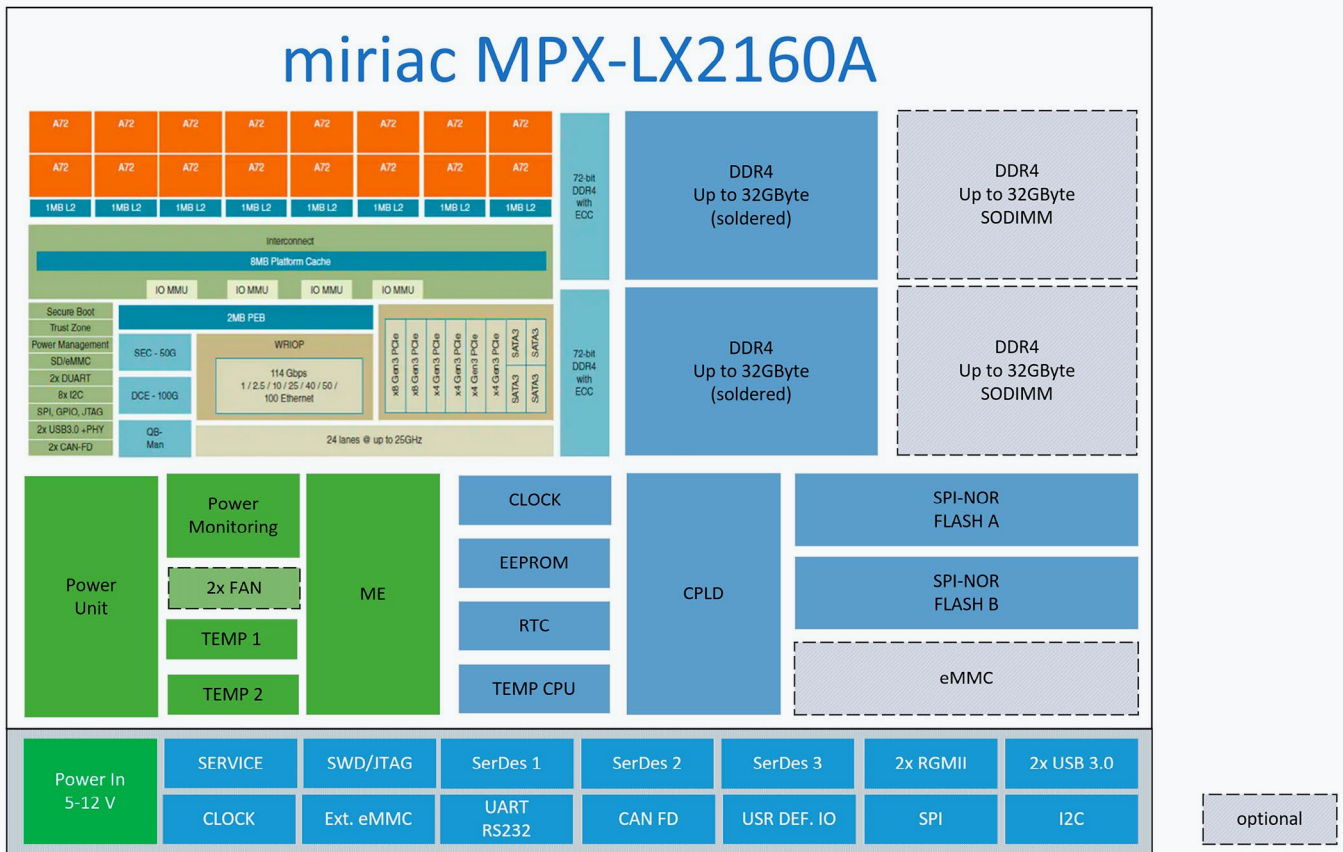
## Software / Additional

|                  |                                                                                                                                                                                                                                                                                   |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Software Support | <ul style="list-style-type: none"><li>■ Linux</li><li>■ VxWorks (on request)</li><li>■ Others (on request)</li></ul>                                                                                                                                                              |
| Additional       | <ul style="list-style-type: none"><li>■ Temperature sensors, cooling controller, RTC, Management Engine</li><li>■ All I/O pins available on SEARAY™ Connectors</li><li>■ Development Kit available for immediate start; includes power supply, cables; Linux on SD card</li></ul> |

### 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





## Order Information

| 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                | Code   | Description                                                       | Status |
|---------------------|--------|-------------------------------------------------------------------|--------|
| miriac® SBC-LX2160A | 859702 | Single Board Computer based on NXP® Layerscape® LX2160A Processor | active |

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