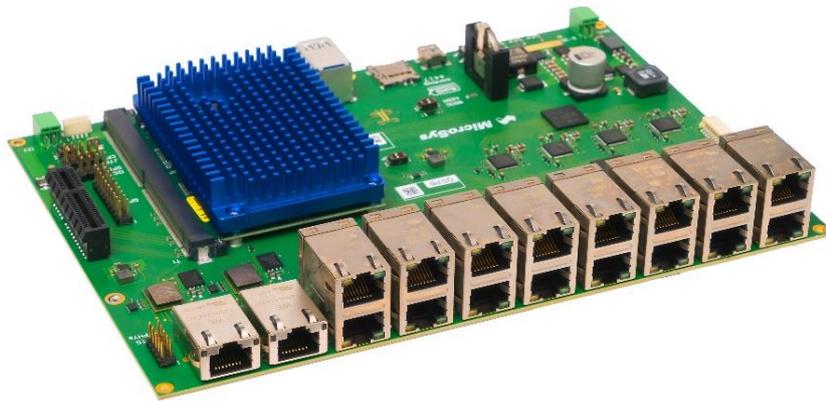


miriac™ SBC-LS1046A-TSN

Single Board Computer

Product Description



Introduction

The **miriac**® SBC-LS1046A-TSN platform is part of a system family to address the increasing communication demand in industrial applications. For that the carrier offers the support of the Time Sensitive Networking Standard (TSN) and holds a high-performance networking infrastructure. It integrates for example 1x 10Gbit and up to 6x 1Gbit Ethernet ports, 1x PCIe x4 port and 8x 1Gbit TSN connectors (driven by 2 switches) for reliable real time communication over Ethernet.

The SBC-LS1046A-TSN is a NXP QorIQ™ LS1046A quad core ARM® Cortex® A72 based complete system solution. NXP's LS1046A 64-bit high performance CPUs offer integrated packet processing acceleration and high speed peripherals including 10Gb Ethernet, PCIe Gen3, and USB 3.0 for a wide range of Industry 4.0 applications.

The MPX-2 System on Module specification addresses the support of NXP's QorIQ Layerscape (ARM) Architecture and Power Architecture (PowerPC) on the same module form factor. The SoMs integrate a standard MXM Edge Connector (like SMARC) to link to carrier boards. It offers up to 16 high speed channels (SMARC-2:4) and by that a flexible and high performance I/O infrastructure at attractive price levels.

The development kit offers a fast means to implement rugged designs with the aim to withstand extreme and harsh environments. Typical applications are found in automotive, industrial automation, medical, railways & transportation, construction and defense market segments. The flexible miriac MPX module carrier concept in combination with the provided board support

packages of operating systems, is an excellent platform for rapid prototyping.

Those designs are quickly serial production ready. Software development environments are an integral part of the product. Middleware to address market specific requirements like field bus solutions (e.g. EtherCAT or Profinet) embedded graphics (e.g. XiBase9, Qt) or SPS environments like IEC 61131-3 conform programming can be provided on request.

Key system features

The SBC-LS1046A-TSN offers an excellent combination of compute power, high speed communication at a low power envelope. The LS1046A quad core CPU is running at up to 1.6 GHz.

The system supports up to 8 GB soldered ECC DDR4 RAM and up to 2GB NAND Flash memory. Furthermore, it holds two USB 3.0 interfaces and an additional miniUSB-UART port for debug purposes. By two extension connectors additional external hardware might be integrated. Access to external data is provided by a microSD Card connector.

NXP's QorIQ technology is a perfect fit for any application requiring very high performance but low power on a small form factor system. The system is production ready, if it fits the target environment. Conduction cooling can be implemented.

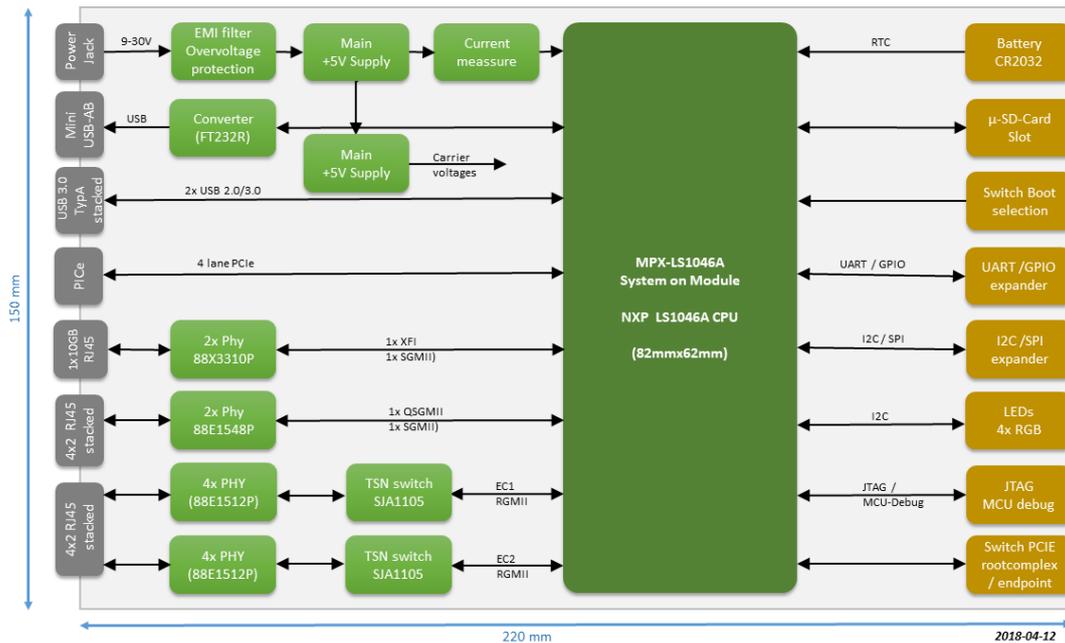
Versions for extended temperature -40°C to +85°C or rugged environments are available on request.

The SBCs are an easy means to check out system variants and guarantee a fast turnaround into series production.

Feature Summary

- The board size is 220mm x 150 mm
- NXP QorIQ LS1046A CPU: 4 ARM® Cortex® A72 64-bit cores at up to 1.6GHz
- up to 8GB 64 Bit soldered ECC DDR4 RAM at 2100MT/s
- up to 2GB SLC NAND and 64MB QuadSPI Flash
- 1x 10Gbit Ethernet
- up to 6x 1Gbit Ethernet (configurable)
- 8x 1Gbit TSN derived from 2 switches
- 2x USB 3.0/2.0
- 1x miniUSB to UART (debugging)
- 1x PCIe x4/x1
- 1x miniSD Card slot (boot option)
- 2x JTAG: JTAG1 to MPX Module (1,8V), JTAG2 interface to components on carrier, 3.3V level
- 1x CR2032 battery (for RTC)
- Single +9 - +36 V power input
- Extension connector JP1 (8 pin header)
 - I2C2 (buffered, 3.3V level)
 - SPI with SPI-SC3# (not buffered, 3.3V level)
- Extension connector JP2 (20 pin header)
 - 3x UART2 (no handshake) or 1x UART1 (handshake)
- Dev Kit for immediate start up, e.g. power supply, cables (optional)

Graphic 1: SBC-LS1046A-TSN Block Diagram



Software-Support: Linux, RTOS: Microware OS-9, others on request

Order #	Order text	Status
856402	miriac SBC-LS1046A-TSN, includes MPX-LS1046A SoM (order # 855607) with 1,6GH, 4GB DDR4 RAM (64Bit), ECC, 512MB Flash	available
856411	miriac SBC-LS1046A-TSN Development Kit for MPX-LS1046A SoM, includes order # 856402, Linux BSP, accessories	available

You are interested in a different variant? You are very welcome to contact us!

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