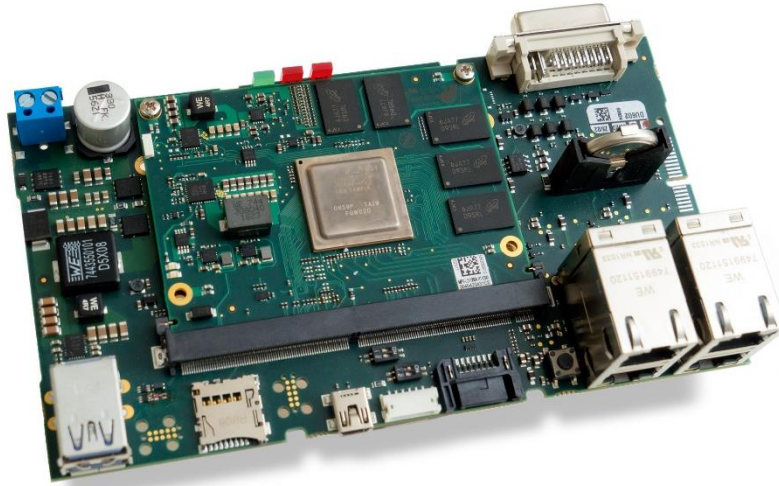


## miriac™ SBC-LS1046A Single Board Computer Product Description



### Introduction

The **miriac**® SBC-LS1046A Single Board Computer is a NXP QorIQ™ LS1046A quad core ARM Cortex A72 based complete system solution by MicroSys. NXP's LS1046A and LS1026A (two cores) 64-bit high performance CPUs offer integrated packet processing acceleration and high speed peripherals including 10Gb Ethernet, PCIe Gen3, SATA 3.0 and USB 3.0 for a wide range of Industry 4.0 applications.

MicroSys introduces a new miriac™ System on Module MPX-2 definition applied in the new SBC series. It is the successor of the proven MPX SoM specification that was introduced in 2000. It 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 offers an excellent combination of protocol and interface support based on the LS1046A CPU that holds four ARM® Cortex® A72 64cores running up to 1.6 GHz.

The system supports up to 8 GB soldered ECC DDR4 RAM, up to 2GB NAND Flash memory and 4 1GbE ports (incl. IEEE Std 1588™ precision time protocol for network synchronization over Ethernet). Furthermore it holds one UART (TTL), two USB 3.0 interfaces, an additional USB-UART port for debug purposes. One miniPCIe interface is available and by an optional PCIe slot (1x edge card connector) additional external hardware might be integrated. Access to external data media is provided by the SATA and a microSD Card connector.

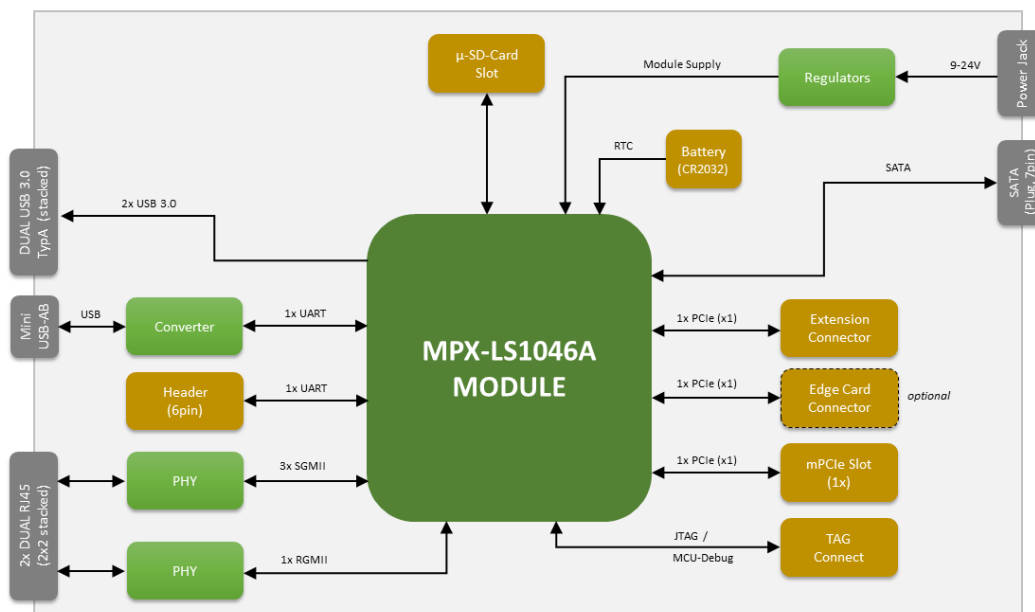
NXP's QorIQ technology is a perfect fit for any application requiring very high performance but low power on a small form factor system. The system is production ready, if it fits the target environment. Conduction cooling can be implemented.

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**

- 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
- 4x 10/100/1000 Mbps Ethernet ports
- 2 x USB 3.0/2.0
- 1 x USB to UART (debugging)
- 1 x UART (TTL)
- 1 x miniPCIe
- 1x SATA
- 1x PCIe via extension connector, optional: 1x PCIe via edge card connector,
- 1 x microSD Card slot
- 1 x JTAG/MCU-Debug
- 1 x CR2032 battery (for RTC)
- Single +9 - +24 V power input
- Dev Kit for immediate start up, e.g. power supply, cables (optional)

**Graphic 1: SBC-LS1046A Block Diagram**


SBC-LS1046A: Version 1.3.0 – 2017-05-17

**Software-Support:** Linux, Microware OS-9; (VxWorks, MicroC/OS-II, QNX or others on request)

Order #	Order text	Status
855903	miriac SBC-LS1046A Single Board Computer LS1046A@up to 1.6GHz, up to 4GB DDR4 RAM, min. 512 MB Flash memory	available
855913	miriac SBC-LS1046A Development Kit for MPX-LS1046A SoM, includes order# 855904 (1,2GHz, 2GB DDR4 (64Bit), ECC, 512 MB Flash), Linux BSP, accessories	available
855916	miriac SBC-LS1046A Development Kit for MPX-LS1046A SoM, includes order# 855907 (1,6GHz, 4GB DDR4 (64Bit), ECC, 512 MB Flash), Linux BSP, accessories	available

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

**MicroSys** Electronics GmbH  
 Muehlweg 1  
 82054 Sauerlach  
 Germany, [www.microsys.de](http://www.microsys.de)

Phone +49 (0)8104 801-0  
 Hotline +49 (0)8104 801-130  
 Fax +49 (0)8104 80-110  
 Email [info@microsys.de](mailto:info@microsys.de)