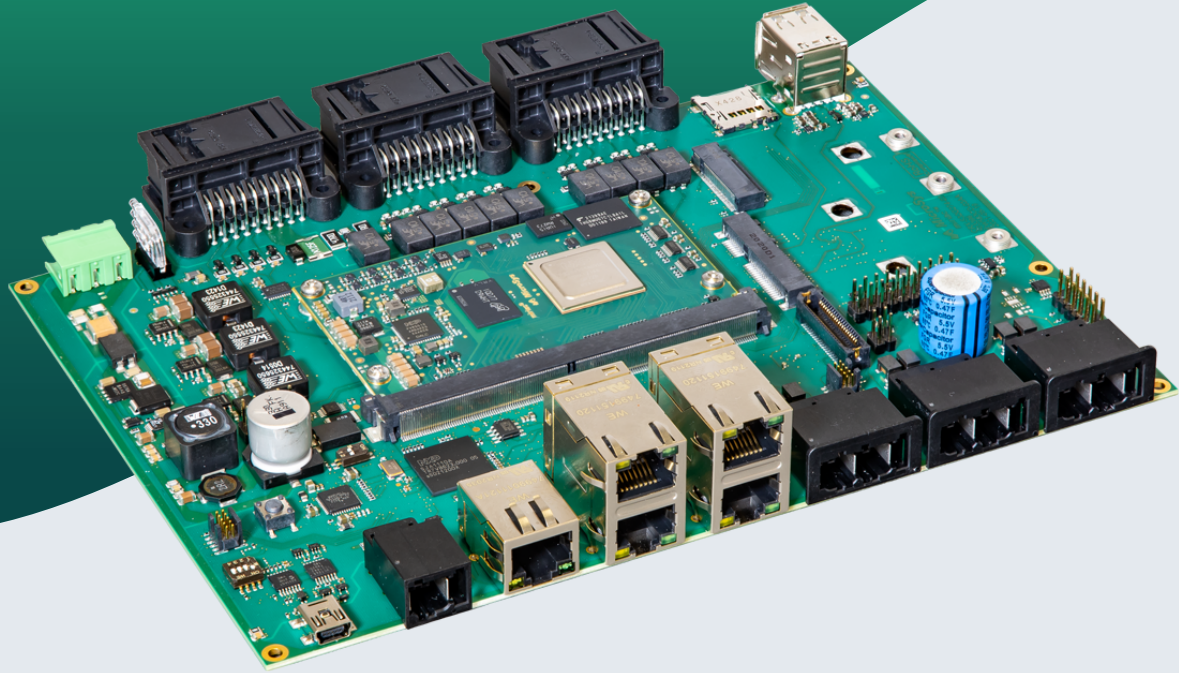SBC Arm® Architecture

miriac® SBC-S32G399A

NXP® S32G399A processor based SBCs for vehicle network computing

Highlights

- 8 Arm® Cortex®-A53 cores

- 4 Arm® Cortex®-M7 lockstep cores for real-time applications

- Automotive Ethernet Switch SJA1110

- Time Sensitive Networking (TSN)

- Automotive Buses: CAN, FlexRay, LIN

NXP Gold Partner

Product Description

The miriac® SBC-S32G399A Single Board Computer is based on NXP's S32G399A vehicle network processor. It integrates a miriac® MPX-S32G399A System on Module designed by MicroSys. The system combines numerous high speed Ethernet interfaces for automotive networking - provided by the SJA1110 automotive switch - with standard automotive busses like Flexray (2x), LIN (8x) or CAN (16x plus 2x CAN FD). It is a communication and compute thoroughbred for innovative automotive and industrial sensor fusion applications.

Features

CPU	
Architecture:	Arm® Cortex®-A53
Processor:	NXP® S32G399A CPU: 8 Arm® Cortex®-A53 64-bit cores, 4 Arm® Cortex®-M7 dual-cores
DRAM:	4 GB 32-bit soldered LPDDR4 RAM at 3200 MT/s
Memory	
Flash:	64 MB QSPI Flash
Flash Card:	Yes
Boot Flash:	Boot select: XSPI, eMMC or external SD card
eMMC:	16 GB
Ethernet	
1GbE:	1x
1000BASE-T1:	1x
100 Mb:	1x
100BASE-T1:	6x
TSN / IEEE 1588:	Yes
High Speed IO	
USB 2.0:	1x
miniUSB:	1x
Operating Condition	
Power Supply Voltage:	Single +12 V DC power input (+9 to +36 V)
Optional Power Supply Voltage:	Single DC power input (+6 V to +36 V)
RTC:	Yes
RTC-Buffer:	Supercap
Temperature:	0 °C to 70 °C
Mechanical	
Dimensions:	200 mm x 140 mm
Software / Additional	
Software Support:	- Linux
	- VxWorks (on request)

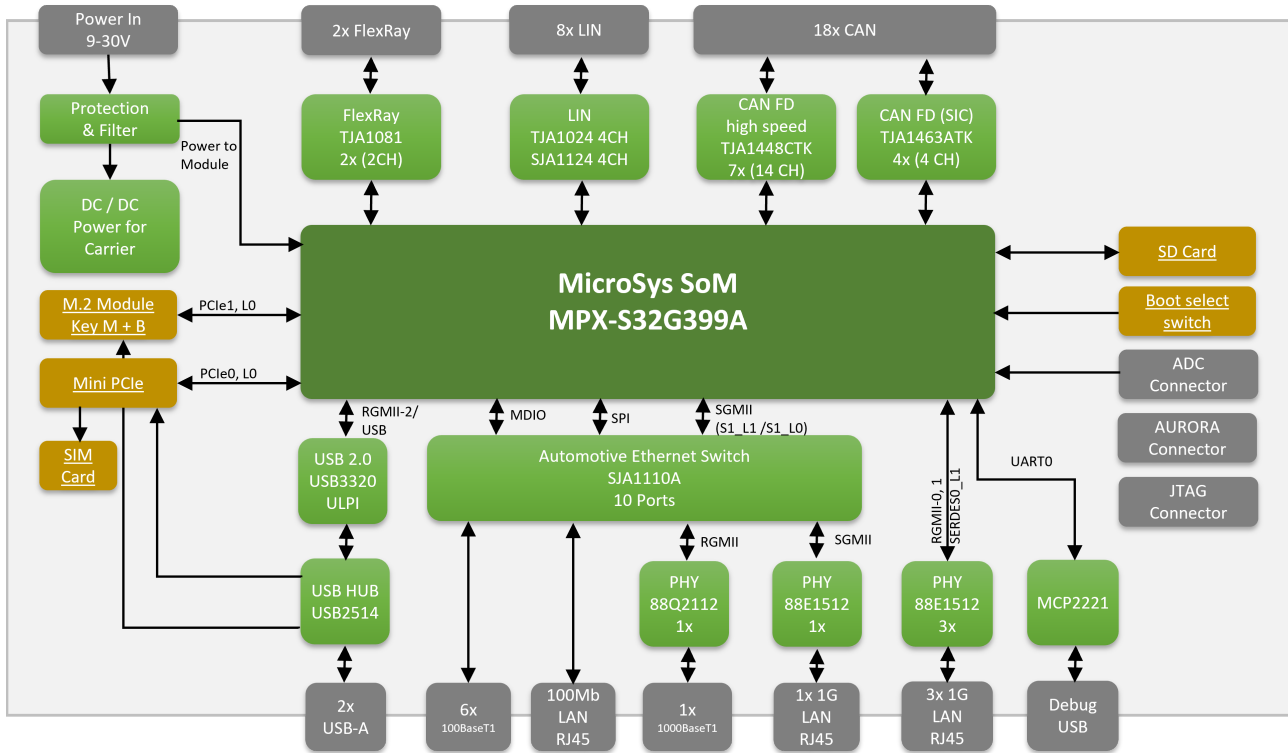|	
	- Others (on request)
Additional:	Development Kit for immediate start up; includes power supply, Linux pre-installed

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

Power In
9-30V

2x FlexRay

8x LIN

18x CAN

Protection
& Filter

Power to
Module

DC / DC
Power for
Carrier

FlexRay
TJA1081
2x (2CH)

LIN
TJA1024 4CH
SJA1124 4CH

CAN FD
high speed
TJA1448CTK
7x (14 CH)

CAN FD (SIC)
TJA1463ATK
4x (4 CH)

M.2 Module
Key M + B

PCIe1, L0

Mini PCIe

PCIe0, L0

SIM
Card

MicroSys SoM
MPX-S32G399A

SD Card

Boot select
switch

ADC
Connector

AURORA
Connector

JTAG
Connector

RGMII-2/
USB

MDIO

SPI

SGMII
(S1_L1 /S1_L0)

UART0

USB 2.0
USB3320
ULPI

Automotive Ethernet Switch
SJA1110A
10 Ports

RGMII-0, 1
SERDES0_L1

USB HUB
USB2514

RGMII

SGMII

PHY
88Q2112
1x

PHY
88E1512
1x

PHY
88E1512
3x

MCP2221

2x
USB-A

6x
100BaseT1

100Mb
LAN
RJ45

1x
1000BaseT1

1x 1G
LAN
RJ45

3x 1G
LAN
RJ45

Debug
USB

miriac® SBC-S32G3

Order Info

Name	Code	Description	Status
Development Kit basic for miriac® MPX-S32G399A	8629	• miriac® MPX-S32G399A • CRX-S32G • incl.BSP and accessories	active
AIP-S32G399A Development Kit basic for miriac® MPX-S32G399A + 1x Hailo-8™	TBD	• miriac® MPX-S32G399A • CRX-S32G • 1x Hailo-8™ M.2 AI Acceleration Module (NGFF M.2 2242/2260/2280 Key M Card) • incl.BSP and accessories	TBD

Related Products

Name	Description	Image
miriac® MPX-S32G274A	Vehicle gateway platform with massive native CAN support	
miriac® AIP-S32G274A	High-performance embedded AI platforms	
miriac® AIP-S32G399A	High-performance embedded AI platforms	
miriac® MPX-S32G399A	MicroSys' 2nd Gen of System-on-Modules for vehicle networks based on the NXP® S32G399A processor	
miriac® SBC-S32G274A	NXP® S32G274A processor based SBCs for vehicle network computing	

MicroSys
Creating Embedded Systems

NXP Gold Partner