QLS1046-4GB-DK – Development Kit for Qormino® QLS1046-4GB

The QLS1046-4GB-DK is a high performance evaluation and development platform that supports Qormino QLS1046-4GB module, a processing platform featuring a LS1046A Quad Core 64-bit ARM® Cortex® A72 processor and a compact 4GB DDR4 memory with 72 bits bus (64 bits data / 8 bits ECC) on an optimized substrate.

PROCESSING PLATFORM OVERVIEW

Qormino QLS1046-4GB combines a massive amount of performances on a sized-optimized platform:

- LS1046A Microprocessor, a Quad Cortex A72 running at up to 1.8GHz, totaling 32,000+ CoreMarks®,
- 4GB DDR4 Memory with 72 bits incl. 8 bits of ECC,
- Built-in DDR4 bus layout between processor and memory allowing up to 2100MT/s

QLS1046-4GB module features high-speed interfaces, 10 Gbit Ethernet, PCIe Gen. 3, SATA 3.0, USB 3.0 and various low-speed interfaces (UART, SPI, I²C…) which provide a perfect combination for a range of Aerospace and Defense applications.

Qormino QLS1046-4GB which is optimized for SWaP constraints (Size, Weight & Power) is manufactured on a 44 x 26 mm substrate, and benefits of the Teledyne e2v Obsolescence Management plan with 15+ years availability.

DEVELOPMENT KIT OVERVIEW

The QLS1046-4GB-DK development kit is a high-performance computing, evaluation, and development platform that supports Qormino QLS1046-4GB processing module.

The development kit consists in a daughter board, which features Qormino module and its minimum required external functions, including proximity power supplies, flash memories, clock, and microcontroller supervisor. The daughter board contains in particular a 32MB NOR flash memory and a 1GB NAND flash memory that can be used to store software and data.

The daughter board is plugged onto a motherboard that features the PHYs and interface connectors associated with the many different communication interfaces offered by Qormino module. The motherboard also includes configuration switches to setup the development kit functionality.

The development kit is integrated in a 19’’/1U rack enclosure with integrated fans and mains power supply (230/115Vac compatible). Some connectors are externally available on the rack front panel, and some connectors are internally available when disassembling the rack cover.

HARDWARE KIT CONTENT

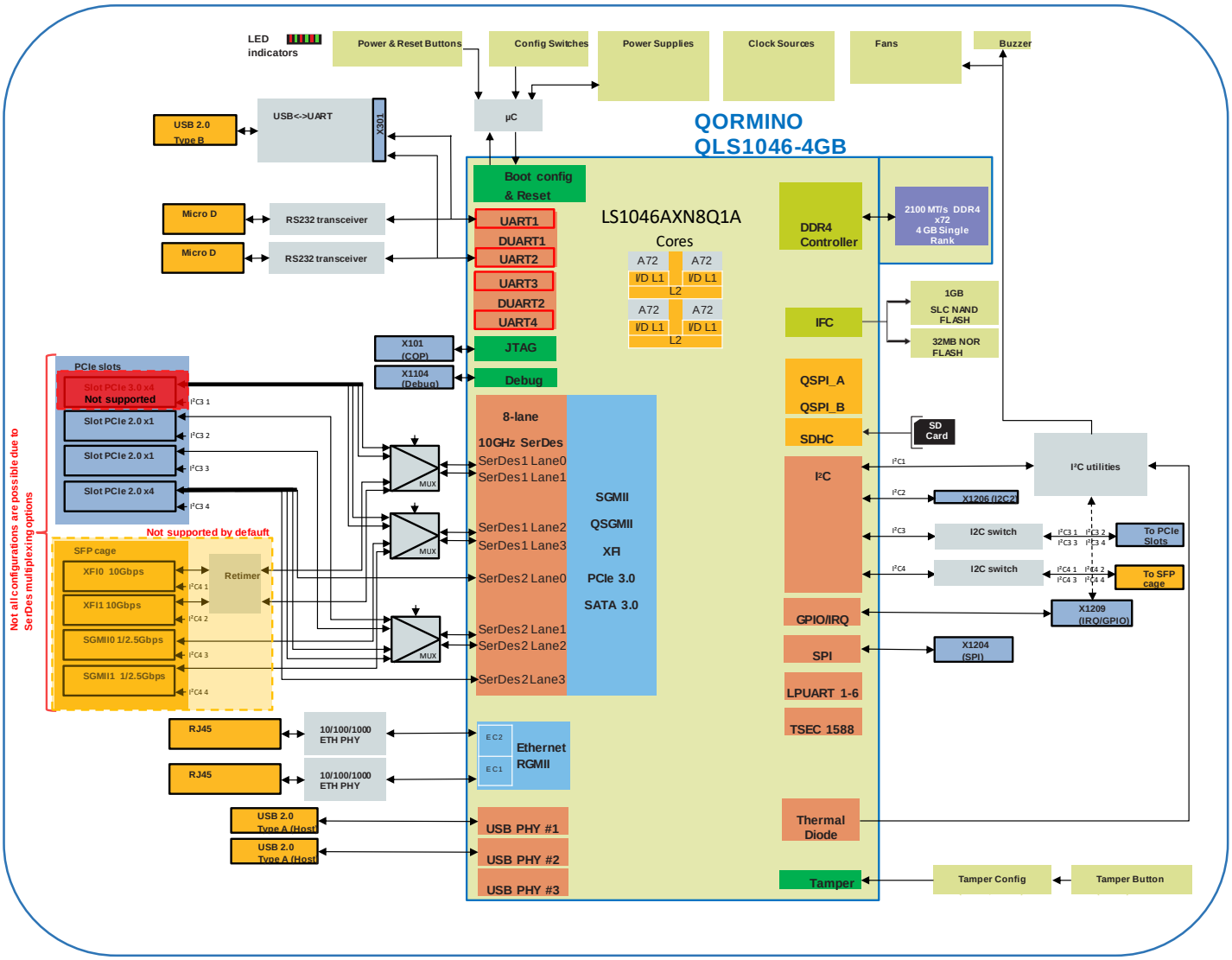
QLS1046-4GB-DK development kit contains:

- 1 x 19"/1U rack with integrated mains supply, motherboard, and electrical interfaces
- 1 x daughter board featuring Qormino QLS1046-4GB assembled on the motherboard
- 1 x AC power cord (EU format)
- 1 x USB stick containing documentations & S/W files
- 1 x Micro-D 9 to Sub-D 9 serial cable
- 1 x right angle PCIe board adapter
- 1 x specific JTAG cable adapter
- QA Test Report

Optional:

- JTAG Probe
- SD Card

QLS1046-4GB-DK BLOCK DIAGRAM



Ethernet

- Two 10/100/1000 Mbps Ethernet links with RJ45 connectors

PCI Express

- One PCIe 2.0 x4 connection*
- Two PCIe 2.0 x1 connections*

(*) Not all configurations possible due to SerDes multiplexing options of LS1046A processor

USB

- Two USB 2.0 type A (host) connections

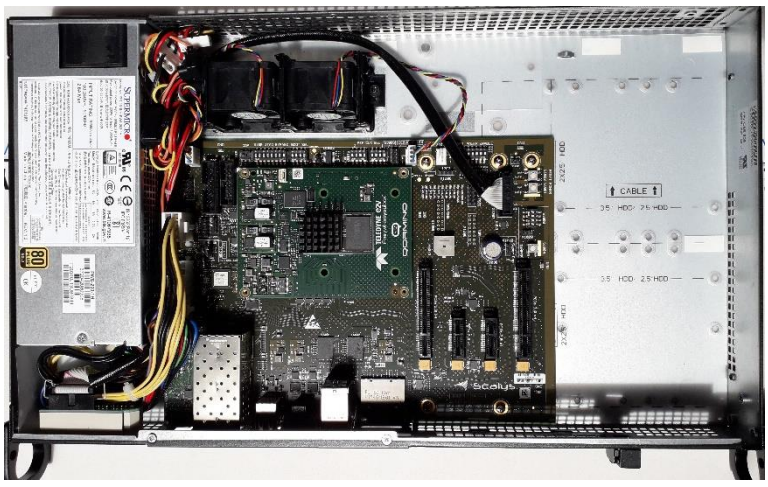
Serial

- Two Serial RS232 interfaces with Micro-D connectors, which can alternatively be used as Virtual COM Ports (VCP) through one USB 2.0 type B connector

Other peripheral interfaces

- One SD card slot
- One SPI interface
- One I²C interface
- Interrupt / GPIO connector

QLS1046-4GB-DK Internal View



QLS1046-4GB-DK Front Panel View