



QorIQ LS2 Processor Family

QorIQ LS2085A Reference Design Board

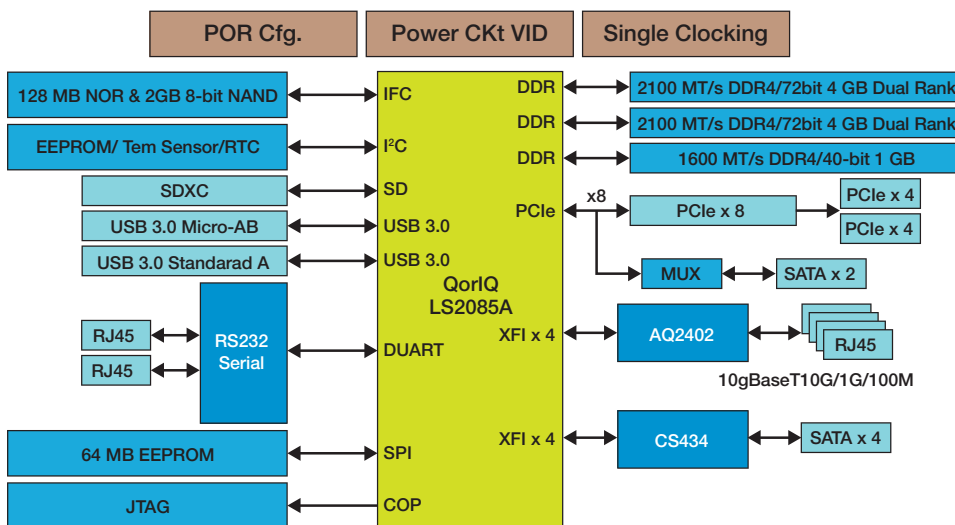
1U form-factor tool for evaluation and design of value-added networking applications

Freescale's QorIQ LS2085A processor is designed to enable network intelligence and capitalize on the emerging trends of networking virtualization. The processor goes beyond the traditional multicore approach, where performance is directly proportional to the number of cores instantiated. Instead, the LS2085A processor adds an intelligent software-aware packet processor, a versatile Layer 2 switch and a management complex that simplifies programming and that delivers unprecedented efficiency and new virtualized networks.

The features and capabilities of the QorIQ LS2085A processor enable designs in enterprise SDN switching and routing, cloud data center switching and wireless cell site routing. With up to eight 64-bit ARM® cores, the processor also enables many control-based applications like control plane functions for branch routers, chassis switches, firewalls and WAN optimization controllers.

The QorIQ LS2085A reference design board (LS2085A RDB) provides a comprehensive platform that enables design and evaluation of the product in all its instantiations: with options for configuring an internal 8-port, L2 switch and the powerful and autonomous 40 Gbps advanced packet processor.

QorIQ LS2085A RDB System Block Diagram



The LS2085A reference design is designed in a 1U form factor and will conform to all requirements for sale worldwide, including certifications for FCC Part 15 Class A.

The QorIQ LS2085A RDB comes pre-loaded with Freescale's board support package (BSP) based on standard Linux kernel. The comprehensive BSP also enables some of the SoCs new capabilities:

- Linux kernel support for DPAA2 containers.
- DPAA2 L2 switch objects
- NADK, a Linux user space environment providing functions and interfaces oriented towards packet processing applications
- Support for an open architecture parallel processing packet engine

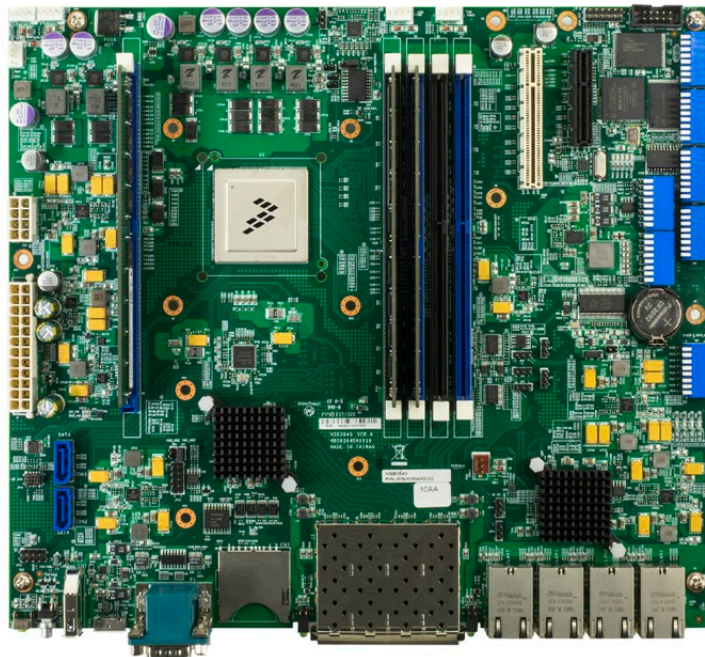
Hardware Features:

- LS2085A CPU Up to 8x ARM Cortex- A57 CPU, up to 2.0 GHz core speed
- Memory
 - SDRAM Supporting dual ranked DIMM slot, two x DDR4 uDIMM x72 support for 4 GB memory per slot, 2.1 GT/s data rate, ECC enable
 - Support for an additional dual rank uDIMM slot. One x 1/2 uDIMM x40 support for 1 GB memory, 1.6 GT/s data rate
 - 128 MB NOR flash, 8-bit
 - 2 GB SLC NAND flash
- PCI Express
 - One standard slot x8 PCIe connector to support 1 x8 PCIe Gen3 or 2x4 PCIe through a connector
- USB 3.0
 - Two USB type A connectors on the front or rear panel connected to a USB PHY; one configured as a host, the second as OTG

- SATA
 - Support for 2xSATA connectors. These will be muxed from the PCIe SERDES and configured through a switch on the board
- Ethernet
 - Support for up to 4-ports of 10 GbE, SFP+
 - Support for up to 4-ports of 10 GbE, copper (4xRJ45)

Software Features:

- U-Boot boot loader
 - Linux kernel with DPAA2 networking support
 - GNU tool chain for ARMv8 technology
 - Large set of standard Linux user space packages including shells, initialization scripts and servers
 - Support for DPAA2
 - Management complex firmware for the DPAA2 architecture
- Linux kernel support for treating DPAA2 containers as plug-and-play busses with VFIO support
 - Integrated control of DPAA2 L2 switch objects
 - NADK, a Linux user space environment providing functions and interfaces oriented towards packet processing applications
 - Support for an open architecture parallel processing packet engine
 - "Service layer" which provides interfaces and APIs for packet processing programs that run on the advanced packet processor
 - Available CodeWarrior tool chain
 - Fully integrated market-ready solutions that integrate Freescale-supplied datapaths (i.e. IP forwarding, IPSec, Netflow, BFD, SDN, ETB OAM and many other networking functions and protocols)
 - Users may also integrate these advanced packet processing datapaths themselves



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For more information, visit freescale.com/QorIQ

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