QorIQ LS1046A and LS1026A Processors

Quad 64-bit core processor with integrated packet processing acceleration and high speed peripherals including 10 Gb Ethernet, PCIe® Gen3, SATA 3.0 and USB 3.0 for a wide range of networking, storage, security and industrial applications.

TARGET APPLICATIONS

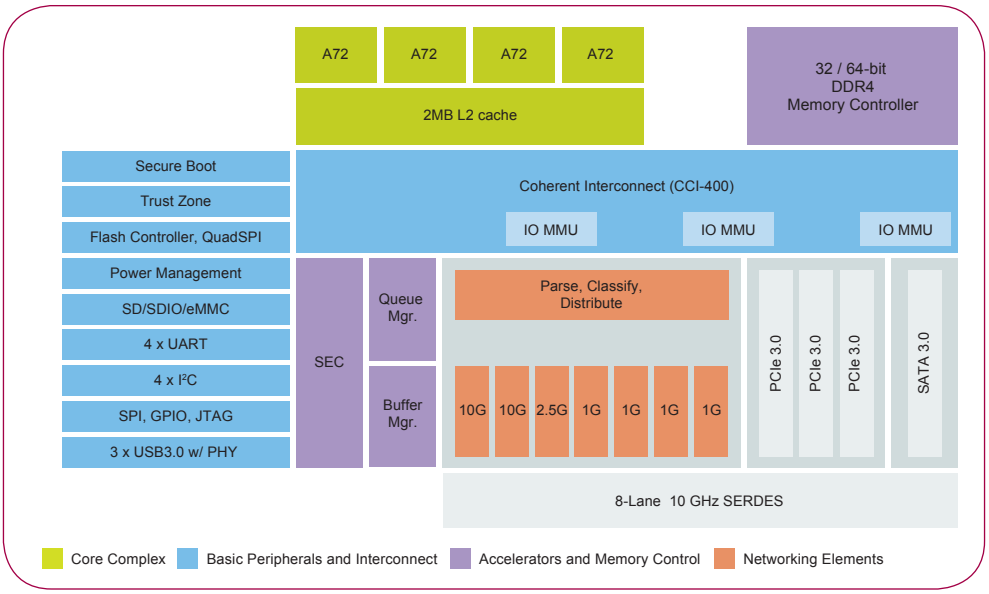
The LS1046A and LS1026A processors are perfectly suited for a range of embedded applications that require high CPU, packet processing performance, and high-speed interfaces such as 10 Gb Ethernet, PCI Express, SATA and USB.

- Enterprise routers and switches
- Linecard controllers
- Network attached storage
- Security appliances
- Virtual customer premise equipment (vCPE)
- Service providers gateways
- Single board computers

OVERVIEW

The QorIQ LS1046A processor integrates four 64-bit ARM® Cortex-A72 cores with packet processing acceleration and high-speed peripherals. The impressive performance of more than 32,000 CoreMarks®, paired with 10 Gb Ethernet, PCIe Gen. 3, SATA 3.0, USB 3.0 and QSPI interfaces provides a perfect combination for a range of enterprise and service provider networking, storage, security and industrial applications. The LS1046A and LS1026A are available in a 23 x 23 mm package and they are pin-compatible with the LS1023A, LS1043A and LS1088A SoCs providing unprecedented performance scaling for 64-bit ARM processors, ranging from dual-A53 through octal-A53 to quad-A72 core processors, while maintaining hardware and software compatibility. This flexible scaling enables customers to leverage their existing software and reuse hardware design for faster time-to-market.

QorIQ LS1046A PROCESSOR BLOCK DIAGRAM



QorIQ LS1046A FEATURES

Features	Benefits
Four ARM® Cortex®-A72 cores 2 MB L2 cache	• Performance in excess of 32,000 CoreMarks® • Total power under 10 W at 1.2 GHz for convection cooled designs
Packet processing acceleration	• Efficient packet classification and distribution; hardware work scheduling, shaping, and buffer management, offloading the general purpose processors to concentrate their processing cycles on value added operations.
Integrated security engine	• High-speed security protocol processing, including IPsec, SSL, DTLS, and IKE • SEC also supports high speed XORing for RAID 5 acceleration
ARM TrustZone® and NXP QorIQ trust architecture	• Secure boot, secure debug, tamper detection, secure key storage
Rich connectivity • Two 10 Gigabit Ethernet controllers • One 2.5 Gigabit Ethernet controller • Four 1 Gigabit Ethernet controllers • Three PCIe® 3.0 Controllers, x 4, x 2, x 1 • Three USB 3.0 with integrated PHY • SATA 3.0 controller • Quad SPI	• High versatility that enables support for 802.11ac modules and high bandwidth connectivity for ASICs, 4G/LTE, SATA and low-cost NAND/NOR Flash • Multiple USB 3.0 for redundant WAN fail over, storage and configuration • Advanced XFI, Quad SGMII for maximum Ethernet flexibility
Support for hardware-based virtualization	• Enables partitioning of physical and virtual resources on LS1046A multicore devices for increased system flexibility

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