



QorIQ® Layerscape® LX2160A Communications Processor

The Layerscape LX2160A SoC delivers the high-performance needed for compute-intensive networking applications. Equipped with sixteen Arm®v8 Cortex®-A72 CPU cores, 28 GHz SerDes technology and low FinFET power, this processor supports up to 100 Gbit/s Ethernet and the latest PCIe Gen4 technology.

OVERVIEW

The LX2160A has everything needed for compute-intensive networking applications in a single chip. Sixteen 64-bit Armv8 A72 cores, high integration, and low power make it well-suited for applications that install datacenter-like processing into the highly-constrained power and board space budgets of networking equipment. An innovative caching structure stores packets on-chip until software is ready, minimizing external memory usage for lower latency, lower power, smaller footprint, and lower cost solutions. General-purpose processing capability is complemented with a 50 Gbit/s security engine and a 100 Gbit/s compression/compression engine. The wire rate I/O processor has 18 integrated MACs including dual 100 Gbit Ethernet ports and a 130Gbit/s L2 switch. The LX2120A and LX2080A are pin-compatible family members that support 12 and 8 cores, respectively.

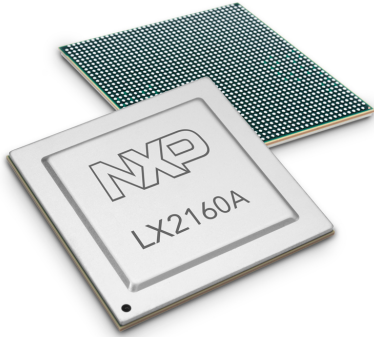
FEATURES

- ▶ 16 64-bit Armv8 Cortex-A72 CPU cores, running up to 2.2 GHz
- ▶ 16MB cache
- ▶ 2 x DDR4 72b including ECC, to 3200 MT/s, maximum capacity of 256 GB
- ▶ 2 MB packet caching buffer
- ▶ 24 SerDes lanes, operating up to 28 GHz
- ▶ Up to 16 Ethernet ports
- ▶ Supported Ethernet speeds include 1, 2.5, 10, 25, 40, 50, and 100 Gbit/s
- ▶ 130 Gbit/s Layer 2 Ethernet switch
- ▶ Up to 24 PCIe Gen4 lanes, supporting ports as wide as x8
- ▶ 50 Gbit/s security accelerator
- ▶ 100 Gbit/s data compression/decompression engine
- ▶ 4 x SATA3.0
- ▶ Secure boot and Arm TrustZone technology
- ▶ SD, eMMC, 2 x DUART, 6 x I2C, 2 x USB3.0, 2 x CAN (FD optional)



TARGET APPLICATIONS

The LX2160A addresses traditional networking control and data plane applications as well as networking equipment running virtualized network functions.



APPLICATION	EXAMPLES	RELEVANT FEATURES
Network function virtualization	<ul style="list-style-type: none"> Enterprise customer premise equipment Service provider edge routers 	<ul style="list-style-type: none"> DPDK, OVS, Virtio application interfaces Direct assignment Virtualized acceleration Standard install environment: UEFI, ONIE, ACPI, uboot
White box switching	<ul style="list-style-type: none"> Control plane for L2 switches in TOR and EOR applications Host VMs on the switch 	<ul style="list-style-type: none"> 50 Gbit/s IPsec offload Datacenter-friendly 25 GE ports ONL, ONSL Switch APIs
Storage controller	<ul style="list-style-type: none"> RAID controller All flash arrays Intelligent storage accelerator 	<ul style="list-style-type: none"> 100 Gbit/s compression 50 Gbit/s IPsec Dedup RAID 5/6
5G packet processing	<ul style="list-style-type: none"> C-RAN Macro base station 	<ul style="list-style-type: none"> PDCP, transport, MAC/RLC software High performance IPsec elephant flow LTE Air crypto Hardware QoS

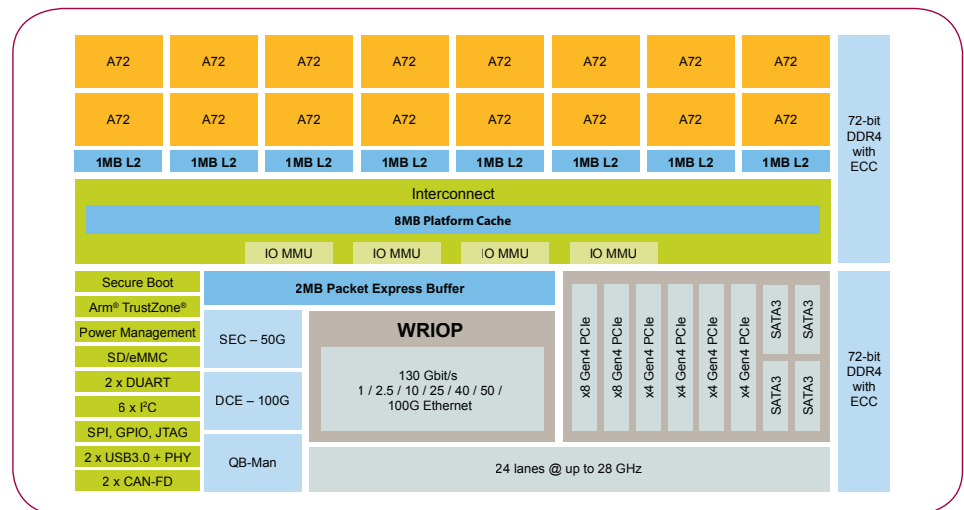
RELATED SOFTWARE

► Linux® SDK for QorIQ® Processors

► Linux® SDK for QorIQ® Processors

CodeWarrior® Development Software for ARMv8 64-bit based QorIQ Series Processors

LAYERSCAPE LX2160A BLOCK DIAGRAM



LAYERSCAPE LX2 FAMILY MEMBERS

	LX2160A	LX2120A	LX2080A
Cores	16	12	8
L2 cache	8 MB	6 MB	8 MB
SerDes	24 at up to 28 GHz		
PCIe	6 x Gen4		
DDR	2 x DDR4, 3200 MT/s, 256 GB capacity		
Plat cache + PEB	10 MB		
WRIOP	130 Gbit/s L2 switch 2 x 40/50/100 GE + 16x 1/2.5/10/25 GE		
SEC	50 Gbit/s		
DCE	100 Gbit/s		
Package	40 x 40 mm, 1517 pins		

www.nxp.com/LX2160

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