

# Layerscape Series: Scalability and Flexibility

## Broadest Portfolio of Arm based SoC Devices

Scalable series of **Multicore** ARM-based SoC Families

LS1012A A53	LS1021A 2x A7	LS1024A 2x A9	LS1023A 2x A53	LS1026A 2x A72	LS1028A 2x A72	LS1043A 4x A53	LS1046A 4x A72	LS1048A 4x A53	LS1088A 8x A53	LS2044A 4x A72	LS2088A 8x A72	LX2160A 16x A72
<b>LS1012A</b>	<b>LS1021A</b>	<b>LS1024A</b>	<b>LS1023A</b>	<b>LS1026A</b>	<b>LS1028A</b>	<b>LS1043A</b>	<b>LS1046A</b>	<b>LS1048A</b>	<b>LS1088A</b>	<b>LS2048A</b>	<b>LS2088A</b>	<b>LX2160A</b>
64-bit ARM 2Gbps Pkt GE, PCIe, SATA 1-2W	32-bit ARM 3x GE Gen2 PCIe 2W	32-bit ARM 2Gbps Pkt 2Gbps Crypto 3-5W	64-bit ARM 1x10GE Gen2 PCIe 3.5-5W	64-bit ARM 2x10GE Gen3 PCIe 6-10W	64-bit ARM Integrated GPU TSN Switch 4- 9W	64-bit ARM 1x 10GE 5x 1GbE Gen2 PCIe 5-8W	64-bit ARM 2x 2.5/10GE 5x 1GbE Gen3 PCIe 8-12W	64-bit ARM 20Gbps Pkt 2x10GE 8x 1GbE Gen3 PCIe 15-20W	64-bit ARM 20Gbps Pkt 2x10GE 8x 1GbE Gen3 PCIe 15-20W	64-bit ARM 8x 1/ 2.5/10GE Gen3 PCIe 20-35W	64-bit ARM 8x 1/ 2.5/10GE 20Gbps Pkt Gen3 PCIe 20-35W	64-bit ARM 25/50/100GE 16x 1/ 2.5 / 10GbE Gen3/4 PCIe 20-30W

← Software Compatible →

Expanded series for performance, power efficiency and lower BOM



# LX2160: ARM Cortex A72 Multicore Processor



Security
Security Engine (50Gbps)
ARM Trust Zone
Security Monitor
Secure Boot

Power Management
------------------

Standard interfaces
2x SD/eMMC
3x SPI
4x UART, 8x I2C
GPIO, JTAG
FlexSPI

Core Complex								
A72	A72	A72	A72	A72	A72	A72	A72	72-bit (64-bit with ECC) Memory Controller
A72	A72	A72	A72	A72	A72	A72	A72	
1 MB L2 Cache	1 MB L2 Cache	1 MB L2 Cache	1 MB L2 Cache	1 MB L2 Cache	1 MB L2 Cache	1 MB L2 Cache	1 MB L2 Cache	72-bit (64-bit with ECC) Memory Controller

Coherent Interconnect		
<b>Accelerators and Memory Control</b> 8 MB Platform Cache Queue-Buffer Manager Data Compression Engine (100Gbps)	<b>High Speed interfaces</b> x8 Gen4 PCIe x8 Gen4 PCIe x4 Gen4 PCIe x4 Gen4 PCIe x4 Gen4 PCIe x4 Gen4 PCIe x4 Gen4 PCIe	<b>Networking Elements</b> 1GbE 25GbE 1GbE 25GbE 1GbE 25GbE 1GbE 25GbE 1GbE 25GbE 10 GbE 10 GbE 10 GbE 10 GbE 100GbE 100GbE 130 Gbps L2 Switch

## Core complex

- 16x 64-bit Cortex-A72 with Neon SIMD engine
- CPU Speed up to 2200 MHz
- Parity and ECC protected 48 KB L1 instruction and 32 KB L1 data cache
- 1 MB L2 cache with ECC protection/Cluster
- 8 MB Platform Cache

## Basic peripheral and Interconnect

- 2x USB 3.0 controllers with integrated PHY
- 2x eSDHC controller supporting SD 3.0 and eMMC 4.5 modes

## Networking elements

- Packet parsing, classification, and distribution
- Queue Management for scheduling, packet sequencing and congestion management
- Hardware buffer management for buffer allocation and de-allocation
- Data compression
- Data Center Bridging Support (iSCSI), TLV, DCBx, ETS(802.1Qaz), PFC(802.1Qbb)
- L2 Switching with 1G, 2.5G, 10G, 25G, 40G, 50G and 100G Ethernet
- Up to two RGMII interfaces
- 6x PCI Express Gen 4 controllers (2 with SR-IOV support)
- 4x SATA Gen 3.0 controllers

## Accelerators and Memory Control

- 2x 64-bit DDR4 Controller with ECC support up to 3.2 GT/s
- Security Engine (SEC)
- Security Subsystem: Secure boot, ARM Trust zone and security monitor

## Package & Qualification

- 16nm FinFet Compact
- 40 x 40mm Flip chip, 1mm pitch, 1517 pins
- Estimated Power 30W VDD (thermal) at 105C, 2.2GHz
- Commercial and Industrial temperature

