

INDUSTRIAL OPERATION

Fully qualified for industrial operation, the LS1028A family is designed and tested to run continuously in high-temperature environments for 10 years. Devices are available for extended temperature operation supporting a junction temperature between -40 and 105 °C, and are also available with support for junction temperatures up to 125 °C.

ENABLEMENT FOR FACTORY AUTOMATION

Open Industrial Linux® provides real-time processing performance on the LS1028A with support for bare-metal applications or Xenomai Linux with an RTOS co-kernel. Open Industrial Linux also provides protocol support for Time-Sensitive Networking and synchronization with IEEE® 1588.

PRODUCT LONGEVITY

The LS1028A is part of the NXP 15-year product longevity program, ensuring a stable supply of the LS1028A for long life industrial designs. Visit www.nxp.com/productlongevity for details.

DEVELOPMENT PLATFORM

The LS1028A reference design board (RDB) provides the ability to evaluate the capabilities of the LS1028A family of SoCs and get a jump-start on your embedded design. Contact your NXP sales representative for details.

RELATED SOFTWARE

- ▶ Linux SDK for Layerscape Processors
- ▶ Open Industrial Linux SDK with support for real-time applications
- ▶ CodeWarrior® Development Software for Arm v8 64-bit based Layerscape series processors
- ▶ Uboot
- ▶ UEFI

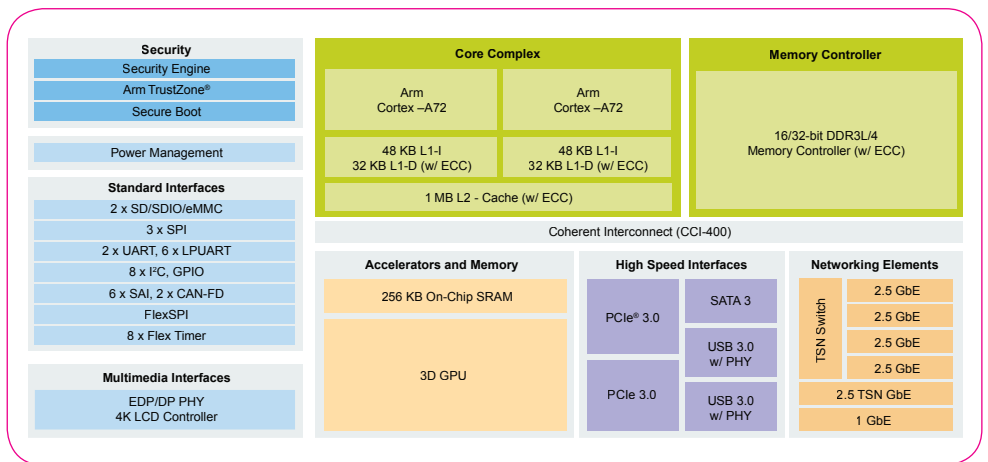
FEATURE LIST

FEATURES	BENEFITS
Dual 64-bit Arm®v8 Cortex®-A72 Cores with NEON™ SIMD and floating point unit	High single-threaded floating point and integer performance for control applications
4 Switched TSN-enabled Ethernet interfaces 10/100/1000/2500 Mbit/s	Low latency, deterministic Ethernet communications for OT and IT systems, deployed in daisy-chain, ring, or star topologies
1 TSN-enabled Ethernet Interface 10/100/1000/2500 Mbit/s	TSN endpoint capabilities for control applications, with scalable bandwidth
1 Ethernet Interface 10/100/1000 Mbit/s	Low-power Ethernet for IT or console communications
Integrated 3D GPU, 4K LCD Controller, DP/eDP Phy	High-resolution graphics for human machine interfaces
Trust Architecture	Secure key storage, use secure boot to create a trusted platform for industrial IoT applications
Security Engine with Cryptographic Offload	Cryptographic and public key hardware accelerators offload math-intensive operations from the CPU
2 x PCIe® Gen 3.0 controllers, up to four SerDes lanes running at 8 GHz root, complex and endpoint support	High-bandwidth, low-latency communication to host processors, industrial communication ICs, and Wi-Fi® chipsets for gateways
2 x USB 3.0 interfaces with integrated PHY host and device mode support	High-speed USB allows interconnection to many different peripheral devices, and the integrated PHY removes additional components from the design
4 x 10 GHz SerDes lanes	Flexible interconnect to support SATA 3.0, PCIe 3.0, 1 Gb and 2.5 Gb Ethernet

LS1028A SOC FAMILY — SCALABLE PROCESSING WITH GRAPHICS

FEATURES	LS1028A	LS1027A	LS1018A	LS1017A
Arm® core	2 x Cortex®-A72	2 x Cortex-A72	1 x Cortex-A72	1 x Cortex-A72
DDR	32-bit/16-bit DDR3L/DDR4 + ECC	32-bit/16-bit DDR3L/DDR4 + ECC	32-bit/16-bit DDR3L/DDR4 + ECC	32-bit/16-bit DDR3L/DDR4 + ECC
GPU	1 x GC7000UltraLite	-	1 x GC7000UltraLite	-
Ethernet	4 x 2.5 G/1 G switched Eth (TSN enabled) 1 x 2.5 G/1 G Eth (TSN enabled) 1 x 1 G Eth	4 x 2.5 G/1 G switched Eth (TSN enabled) 1 x 2.5 G/1 G Eth (TSN enabled) 1 x 1 G Eth	4 x 2.5 G/1 G switched Eth (TSN enabled) 1 x 2.5 G/1 G Eth (TSN enabled) 1 x 1 G Eth	4 x 2.5 G/1 G switched Eth (TSN enabled) 1 x 2.5 G/1 G Eth (TSN enabled) 1 x 1 G Eth
PCIe	2 x Gen 3.0 Controllers (RC or EP)	2 x Gen 3.0 Controllers (RC or EP)	2 x Gen 3.0 Controllers (RC or EP)	2 x Gen 3.0 Controllers (RC or EP)
USB	2 x USB 3.0 with PHY (Host or Device)	2 x USB 3.0 with PHY (Host or Device)	2 x USB 3.0 with PHY (Host or Device)	2 x USB 3.0 with PHY (Host or Device)

LAYERSCAPE LS1028A BLOCK DIAGRAM



To learn more, visit nxp.com/LS1028A

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