



XSIGHT LABS E-SERIES

E1-Server

OVERVIEW

The Xsight Labs E1-Server is a highly integrated platform for compute, networking, and storage, purpose-built to address the challenges of scaling data centers and AI-driven, compute-intensive applications. Part of the E-Series product family, the E1 redefines performance, efficiency, and adaptability for next-generation infrastructure.

Featuring up to 64 Arm® N2 cores, the E1-Server delivers 800 Gbps of accelerated networking, wire-speed inline security, advanced storage offloads, and versatile PCIe configurations and connectivity. Its open, standards-based programming model and configurable architecture, including a high-speed coherent interconnect and 32 MB of on-chip RAM, ensure seamless integration and efficient packet processing and support for diverse edge use-cases.

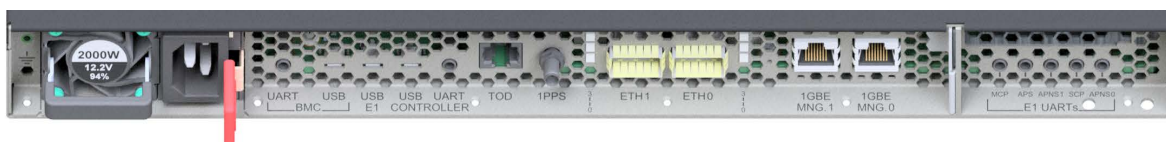
With a scalable, multi-core architecture that unifies control and data planes, the E1-Server supports frameworks such as XDP, DPDK, and SPDK, enabling innovation in software-defined networking (SDN), storage (SDS), security applications, and network infrastructure services.

The E1-Server is available as a 1RU evaluation and development platform, optimized for edge deployments. This compact, rack-mount-ready system demonstrates exceptional compute density, power efficiency, and network performance, making it ideal for scale-out edge and security applications.

1 RU E1-Server



E1-Server Back Panel

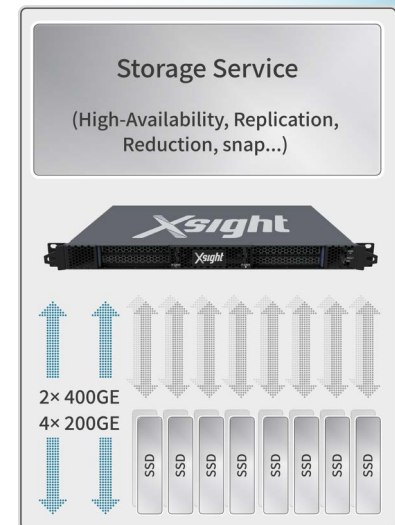
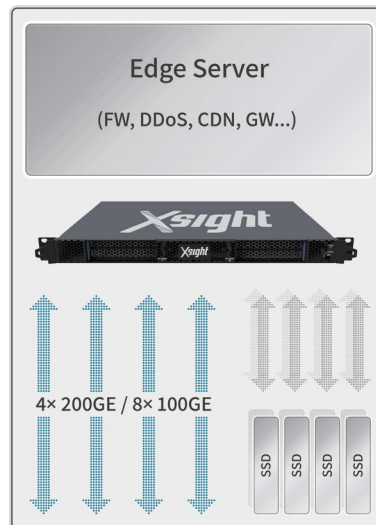


EDGE SERVER CONSIDERATIONS

The Xsight Labs E1-Server is an ideal fit for edge servers, offering exceptional power efficiency through its Arm N2 cores, which deliver market-leading performance per watt. This efficiency enables high compute density in edge data centers, a critical requirement for environments where services are deployed at telecommunications exchange points or remote points-of-presence to enhance proximity to consumers. Additionally, the integrated network controllers in the E1-Server significantly boost network service performance, minimizing the need for external controllers and reducing both space and power demands. Designed to address networking bottlenecks and optimize effective latency, the E1-Server excels in environments where edge services prioritize network performance and programmability, ensuring seamless operation at points of interconnect.

TARGET APPLICATIONS

- Performance/watt edge-compute workloads
- Fully integrated computational storage node
- CDN/WebServer, distributed load-balancer
- VPN access gateways
- DDoS attack mitigation gateways
- Smart City applications



E1 SOC FEATURES

Compute and Memory

- 64 Arm Neoverse N2 v9.0-A cores
- 32MB of internal RAM, presented as System Level Cache or direct-mapped memory, with NUMA and MPAM support
- 4 DDR5 at 5200 MT/s
- Inline AES-XTS memory encryption
- High Speed coherent interconnect

Programmable PCIe Fabric

- 32 PCIe Gen5.0 lanes
- Endpoint and Root-port functionality per PCIe link
- PCIe configuration space emulation
- Software-based MMIO space emulation
- SR-IOV with up to 64K PF/VFs and scalable IOV
- Peer-to-peer PCIe switching with address translation

Accelerated Networking, Storage and Security

- 2x400G, 4x200G or 8x100G/50G/25G/10G port configurations
- Protocol-independent programmable parser and multi-stage exact match lookup with DRAM-backed tables
- Line rate AES-GCM network crypto supporting IPsec ESP and UDP SEC
- Software-activated 3 Tbps DMA engines with cache stashing.
- Stateless offloads: Checksum, RSS, TSO, RoCEv2 iCRC.
- Line rate block storage crypto with AES-XTS
- Storage Protection Information offloads including T10-DIF/DIX, CRC GMAC and SHA2/3, and scrub CRC

Open, Standards-based, Extensible Software

- Arm-based firmware processor with UEFI secure boot, hardware root-of-trust
- UEFI Secure boot with Arm Trusted Firmware (TF-A)
- Arm SystemReady™ certification for running unmodified Linux distros
 - + Debian, Ubuntu, SONiC
- Linux Netdev, VirtIO and Xsight Network Adapter (XNA) drivers
- Custom SDN data planes with Linux, XDP and DPDK/SPDK programming models
- Infrastructure software and reference applications
 - + SONiC with DASH data plane
 - + Virtual Switch
 - + RoCEv2

E1-SERVER KEY FEATURES

Feature	Description
Network	800 Gb/s Ethernet connectivity with two QSFP112 ports Supported port configuration (in some cases requires split cable) • 400GE: 2x 400GBASE-R4 or 1x 400GBASE-R8 • 200GE: 4x 200GBASE-R2 or 2x 200GBASE-R4 • 100GE: 8x 100GBASE-R or 4x 100GBASE-R2 or 2x 100GBASE-R4 or 8x 100GBASE-R • 50GE: 4x 50GBASE-R2 or 8x 50GBASE-R • 25/10GE: 8x 25/10GBASE-R
Connectivity	32 lanes PCIe Gen5.0 supporting • Up to 2 PCIe Add-in-Cards FHFL/FHHL/HHHL • 16-lane MCIO connector
Memory	4 DDR5 5200 Interfaces supporting 4x DIMM slots, up to 512 GB memory.
Storage	• M.2 SSD • 2x 64MB NOR Flash • 2x 1-GB NAND Flash
Management	• Run BMC • 2x1 GE, USB, UART • TPM 2.0 • E-fuse power control for programming E1 E-fuse in-field
Timing and Synchronization	• IEEE 1588v2 • PTP Hardware Clock (PHC)
Other Peripherals	• On-board RTC with a super-cap for up to 2 days of data protection. • Temperature Sensor • JTAG + MIP-34 connected to D-stream, ARM debugger + ARM 20-pin Connector for boundary scan
Form Factor	• 1U Server Box (19-inch) • Length: 720 mm with rack-mount option • Rails • User Friendly Rack Cover – opens from top
Power Supply	• Single PSU: 220V/110V
Thermal	• Fixed Fans • Operating Temp: 0-35°C: Top Cover Closed • Operating Temp: 0-25°C: Top Cover Open

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