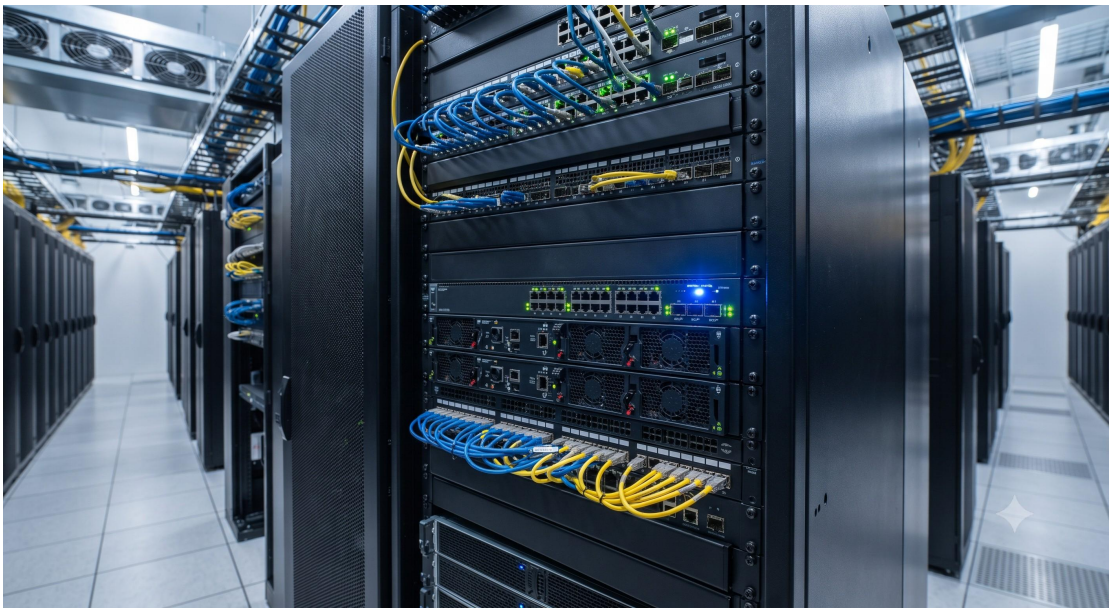
Ultra-Low Latency Packet Buffering Engine Factsheet: ZTE ZXR10 5960 Series All-Flash Switch Interface Latency Performance Sheet

ULTRA-LOW LATENCY PACKET BUFFERING ENGINE FACTSHEET: ZTE ZXR10 5960 SERIES ALL-FLASH SWITCH INTERFACE LATENCY PERFORMANCE SHEET

EXECUTIVE SUMMARY

The ZTE ZXR10 5960 Series represents a paradigm shift in data center Top-of-Rack (ToR) switching, engineered specifically to unlock the full performance potential of all-flash storage arrays and latency-sensitive financial applications. As the industry transitions towards NVMe-over-Fabrics and high-frequency trading environments, network latency has emerged as the primary bottleneck. The ZXR10 5960 Series addresses this challenge with a purpose-built, ultra-low latency forwarding architecture, delivering deterministic sub-microsecond switching performance without compromising on throughput or carrier-class reliability. This document provides a detailed technical overview and interface latency performance datasheet for the ZXR10 5960 Series All-Flash Switch portfolio.



HARDWARE ARCHITECTURE & SILICON

The ZXR10 5960 Series is built upon a next-generation, programmable forwarding engine designed for line-rate, non-blocking performance across all port densities. The core of the platform is a high-efficiency switching fabric that leverages advanced memory architectures to minimize serialization and queuing delays. Key architectural components include:

- **High-Performance ASIC:** Utilizes a custom-designed silicon chip that integrates packet forwarding, security, and quality-of-service (QoS) functions. This ASIC is optimized for low-latency cut-through switching, enabling immediate packet forwarding decisions.
- **On-Chip Packet Buffer:** Employs a sophisticated, dynamically allocated on-chip buffer mechanism that significantly reduces the latency incurred by

traditional external memory lookups. This ensures predictable performance even under micro-burst traffic conditions typical of all-flash environments.

- **Low-Latency SerDes:** Integrates high-speed Serializer/Deserializer (SerDes) technology with optimized signal integrity, minimizing the physical layer transmission delay across the backplane and front-panel ports.

KEY FEATURES & ROUTING LOGIC

The platform is designed not just for speed but for intelligent, low-latency traffic management:

- **Ultra-Low, Deterministic Latency:** Provides sub-microsecond switching latency for 10GE, 25GE, 40GE, and 100GE interfaces, crucial for NVMe and RoCE (RDMA over Converged Ethernet) deployments. The architecture guarantees minimal jitter, ensuring predictable application performance.

- **Non-Blocking Forwarding:** Supports full line-rate forwarding on all ports simultaneously, ensuring that bandwidth and latency are not compromised when the switch is operating at maximum capacity.

- **Advanced Data Center Features:** Fully supports Data Center Bridging (DCB) protocol family, including Priority-based Flow Control (PFC), Enhanced Transmission Selection (ETS), and Quantized Congestion Notification (QCN). These protocols are essential for building lossless, low-latency Ethernet fabrics

required for storage traffic .

- **RoCE and NVMe-oF Ready:** The switch architecture is optimized for remote direct memory access (RDMA) traffic, supporting RoCEv2 to enable efficient, low-latency communication between servers and all-flash storage systems.

COMPLIANCE & STANDARDS

The ZXR10 5960 Series is designed to meet the rigorous demands of modern data centers, complying with a comprehensive set of industry standards:

- **IEEE Standards:** Fully complies with IEEE 802.1Q (VLAN), IEEE 802.1p (QoS), IEEE 802.3ad (Link Aggregation), IEEE 802.1Qbb (PFC), IEEE 802.1Qaz (ETS), and IEEE 802.1Qau (QCN) .
- **IETF Standards:** Supports MPLS, LDP, VPLS, VPWS, and MPLS L3 VPN, providing the flexibility to be deployed in carrier-grade MPLS metro networks .
- **RoCE/DCB:** Optimized to support RoCE (RDMA over Converged Ethernet) and DCB protocol family, confirming to the requirements for lossless Ethernet in data center networks .
- **Security:** Adheres to stringent security standards including 802.1x, Radius, TACACS+ for user authentication, and features advanced CPU protection mechanisms .

TECHNICAL SPECIFICATIONS

The following table details the key technical specifications and interface latency performance characteristics of the ZXR10 5960 Series. The values represent typical performance achieved under laboratory conditions.

Parameter	**Specification**
Switching Capacity (Max)	Up to 6.4 Tbps (5960-4M-HC)
Packet Forwarding Rate (Max)	Up to 3,200 Mpps (5960-4M-HC)
Port-to-Port Latency (Typical)	Sub-microsecond (< 1 µs) for 10GE/25GE/40GE/100GE interfaces
Form Factor	1RU (Fixed) / 2RU (Modular) Standard 19-inch Rack
Power Supply	Modular Dual Hot-Swappable: AC (110/220V), DC (-48V), HVDC (240/336V)
Cooling	Front-to-Back Airflow, Smart Fan Speed Control
Operating Temperature	-5°C to 45°C (depending on model)
Mean Time Between Failures (MTBF)	> 300,000 Hours



ORDERING SKU INFORMATION

Below is a non-exhaustive list of available models and associated port configurations. For a complete ordering guide, please refer to the official ZTE Price List and Product Catalogue.

- **ZXR10 5960-56QU-HC:** 8 x 100GE QSFP28 and 48 x 25GE SFP28 ports with 2 x 10GE SFP+ ports. Switching capacity: 4 Tbps, Forwarding Rate: 2,000 Mpps .
- **ZXR10 5960-32LC-H:** 32 x 40GE QSFP+ ports. Switching capacity: 2.56 Tbps, Forwarding Rate: 1,440 Mpps .
- **ZXR10 5960-64DL-H:** 48 x 10GE SFP+ and 4 x 40GE QSFP+ ports. Switching capacity: 1.28 Tbps, Forwarding Rate: 960 Mpps .
- **ZXR10 5960-72NL-H:** 48 x 10GE BASE-T and 6 x 40GE QSFP+ ports.

Switching capacity: 1.44 Tbps, Forwarding Rate: 1,080 Mpps .

- **ZXR10 5960-4M-HC:** Modular switch supporting up to 5 line cards with flexible 25GE, 40GE, and 100GE interfaces. Switching capacity: 6.4 Tbps, Forwarding Rate: 3,200 Mpps .

INDUSTRY OUTLOOK

As all-flash arrays proliferate, the network infrastructure must evolve to eliminate latency bottlenecks. The ZTE ZXR10 5960 Series is positioned as a critical component in this evolution, offering the ultra-low latency, high reliability, and advanced feature set required to build next-generation data centers. It delivers a future-proof architecture that supports emerging technologies like NVMe-oF, ensuring that enterprises can harness the full potential of their storage investments. For detailed deployment guides and network ROI matrices, please contact your local ZTE representative.