

ZTE Ethernet Switch Command Line Reference - Official Technical Overview & Hardware Datasheet

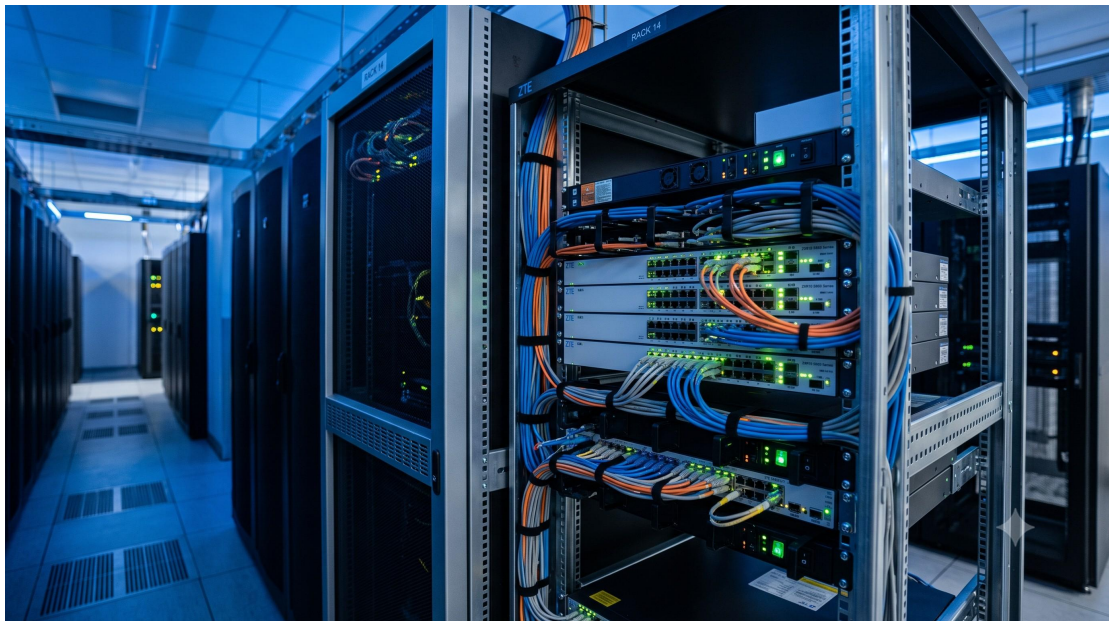
ZTE ETHERNET SWITCH COMMAND LINE REFERENCE: OFFICIAL TECHNICAL OVERVIEW & HARDWARE DATASHEET

EXECUTIVE SUMMARY

This document serves as the authoritative technical datasheet for the ZTE Ethernet Switch Command Line Reference platform. Designed for network administrators, systems engineers, and IT procurement specialists, this document provides a comprehensive overview of the hardware architecture, command-line interface (CLI) capabilities, and technical specifications that define this carrier-grade switching solution. The ZTE Ethernet Switch combines robust hardware engineering with an intuitive, industry-standard command-line interface, enabling precise control over complex network infrastructures. This datasheet details the physical attributes, performance parameters, and operational features that position the ZTE Ethernet Switch as a versatile and reliable foundation for enterprise, data center, and telecommunications networks.

The ZTE Ethernet Switch CLI is engineered for efficiency and power, providing a hierarchical structure of commands that facilitate comprehensive device

configuration, monitoring, and troubleshooting. From basic connectivity setup to advanced routing protocols and quality of service (QoS) policies, the command-line interface offers granular control. The hardware is architected to support a wide range of deployment scenarios, from compact edge installations to high-density core aggregation points, ensuring that the CLI's capabilities are fully leveraged by a robust and scalable physical platform. This document is structured to guide the reader through the system's core attributes, beginning with a high-level architectural overview, moving through detailed specifications, and concluding with practical ordering and deployment information.



ARCHITECTURE AND CHASSIS DESIGN

The ZTE Ethernet Switch is built upon a modular and resilient hardware

architecture, emphasizing high availability, scalability, and performance. The chassis design is a critical component, providing the physical foundation for all system modules and ensuring efficient cooling, power distribution, and signal integrity.

CHASSIS MODELS AND FORM FACTORS

The product line offers a range of chassis options to accommodate diverse network requirements, from space-constrained wiring closets to high-capacity data center cores. The primary form factors include compact 1RU (Rack Unit) and 2RU models, as well as larger modular chassis systems for core deployments. The 1RU and 2RU fixed-configuration switches are designed for high-density 1/10/25/40/100 Gigabit Ethernet port densities, while the modular chassis supports a variety of line cards, supervisor modules, and fabric cards for extensive scalability and redundancy.

Modular chassis platforms feature a central backplane that provides high-speed data paths and power distribution to all installed modules. The backplane is designed to support non-blocking switching fabric, ensuring that all ports can operate at line-rate without contention. Key physical attributes of the chassis include:

- * Rack Mounting: Standard 19-inch EIA rack-mountable designs with front or rear cable management options.
- * Cooling: Field-replaceable, hot-swappable fan trays with variable-speed fans for optimized thermal management and energy efficiency.
- * Power Supply: Hot-swappable, load-sharing power supply units (PSUs) with support for 1+1 or N+N redundancy configurations, available in both AC and DC power variants.

FRONT AND REAR PANEL LAYOUT

The front panel of the switch provides clear access to all user-facing interfaces, including Ethernet ports, console ports, management Ethernet ports, and USB ports. Status LEDs are strategically placed to provide immediate visual feedback on port link status, activity, speed, and system health (power, fan, and temperature).

The rear panel typically houses the power supply units, a console port, and an out-of-band management Ethernet port, facilitating secure and isolated device administration. In modular chassis, the rear panel supports the installation of fabric modules and additional power supplies. The physical layout is designed for intuitive operation and efficient cable management, minimizing installation time and reducing the risk of human error.

HARDWARE FEATURES

The ZTE Ethernet Switch is distinguished by a comprehensive set of hardware features that ensure optimal performance, security, and operational flexibility. These features are seamlessly integrated with the command-line interface, allowing administrators to unlock the full potential of the hardware.

HIGH-PERFORMANCE SWITCHING FABRIC

At the core of the system is a high-capacity, non-blocking switching fabric. This architecture is implemented using advanced ASIC (Application-Specific Integrated Circuit) technology, enabling wire-speed packet forwarding and filtering across all ports. The switching fabric supports a wide range of forwarding capabilities, including Layer 2 switching, Layer 3 routing, multicast forwarding, and access control lists (ACLs), all processed at line-rate.

INTERFACE PORT CONFIGURATIONS

The ZTE Ethernet Switch offers a flexible range of interface port configurations to support diverse network media and connectivity needs. Common port types include:

- * RJ-45 Ports: For 10/100/1000BASE-T copper connections, supporting auto-negotiation, auto-MDI/MDIX, and Power over Ethernet (PoE) on select models.
- * SFP/SFP+ Ports: Small Form-factor Pluggable (SFP) and enhanced SFP+ ports for fiber optic connections, supporting a wide variety of transceivers for 1000BASE-X, 10GBASE-SR/LR/ZR, and 25GBASE-SR/LR.
- * QSFP Ports: Quad Small Form-factor Pluggable (QSFP) and QSFP+ ports for high-density 40/100 Gigabit Ethernet uplinks, often utilized in core and aggregation layers.

REDUNDANCY AND HIGH AVAILABILITY

To meet the demands of mission-critical network environments, the ZTE Ethernet Switch incorporates robust redundancy and high-availability features. These are designed to minimize network downtime and ensure continuous operation.

- * Power Supply Redundancy: Hot-swappable, load-sharing power supplies provide N+1 or N+N redundancy, protecting against single power supply failures.
- * Fan Redundancy: Hot-swappable fan trays with N+1 redundancy ensure

continuous cooling even in the event of a fan failure.

- * **Modular Chassis Redundancy:** For modular platforms, the supervisor modules and fabric modules can be configured in a 1+1 redundancy model, ensuring that a single module failure does not impact overall system operation.
- * **Link Aggregation (LAG):** The switch supports IEEE 802.3ad Link Aggregation, allowing multiple physical ports to be combined into a single logical link for increased bandwidth and redundancy.

COMPLIANCE AND STANDARDS

The ZTE Ethernet Switch is designed and validated to comply with a stringent set of industry standards and regulatory requirements, ensuring interoperability, safety, and environmental responsibility.

- * **IEEE STANDARDS:** Compliance with IEEE 802.3 (Ethernet), 802.3ab (1000BASE-T), 802.3z (1000BASE-X), 802.3ae (10GBASE-SR/LR), 802.3ba (40/100GBASE-SR/LR), 802.3ad (Link Aggregation), 802.1D (Spanning Tree), 802.1w (Rapid Spanning Tree), 802.1s (Multiple Spanning Tree), 802.1Q (VLAN), 802.1p (Class of Service), and 802.1x (Port-based Network Access Control).
- * **IETF STANDARDS:** Full support for a wide range of IP networking protocols, including IPv4 and IPv6, OSPF, BGP, RIP, ISIS, PIM, VRRP, and DHCP.
- * **SECURITY STANDARDS:** Compliance with IEEE 802.1X, RADIUS, TACACS+,

and SSHv2 for robust network access control and secure remote administration.

* REGULATORY COMPLIANCE: The product family adheres to global regulatory standards, including:

- * Safety: UL, CSA, IEC 60950-1, IEC 62368-1.
- * EMC: FCC Part 15 (Class A), EN 55032, EN 55024, CISPR 32, VCCI.
- * Environmental: RoHS (Restriction of Hazardous Substances), WEEE (Waste Electrical and Electronic Equipment), and REACH compliance.
- * NEBS: Selected models are designed to meet NEBS (Network Equipment-Building System) Level 3 standards for use in telecommunications central offices.

TECHNICAL SPECIFICATIONS

This section provides a comprehensive registry of the physical, environmental, and performance characteristics of the ZTE Ethernet Switch. These specifications are critical for network planning, deployment, and operational management. The values provided are typical for the platform; specific models may vary.

Parameter	Specification
Form Factor	1RU / 2RU Fixed Chassis or Modular (e.g., 4/8/10-Slot)

Switching Capacity	Up to 12.8 Tbps (for high-end modular models)
Forwarding Rate	Up to 9.5 Bpps (for high-end modular models)
Power Supply	1+1 Redundant, Hot-swappable AC/DC (e.g., 100-240V AC, -48V DC)
Operating Temperature	0°C to 45°C (32°F to 113°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Relative Humidity	10% to 90% (non-condensing)
Power Consumption	Varies by configuration (e.g., 200W - 1500W)
MTBF	> 300,000 hours (at 25°C)
Network Protocols	Full IPv4/IPv6 Routing Suite: BGP, OSPF, ISIS, RIP, PIM, VRRP, etc.
Management	CLI (SSHv2, Telnet), SNMPv1/v2c/v3, RMON, Syslog, Netconf, RESTCONF
Security	IEEE 802.1X, RADIUS, TACACS+, ACLs, MAC Authentication Bypass
Standards Compliance	IEEE 802.3, 802.1Q, 802.1p, 802.1D, 802.1w, 802.1s, 802.3ad, 802.1x, RoHS, NEBS Level 3 (select models)

ORDERING OPTIONS

The ZTE Ethernet Switch platform offers a variety of ordering options to match specific network requirements, from small branch offices to large data centers.

This section details the primary SKU components available for procurement.

CHASSIS AND BUNDLED SYSTEMS

Base system SKUs include the chassis, power supplies, and fan trays, with options for AC or DC power, and varying port densities. These are often ordered as complete, pre-configured systems to simplify procurement and deployment.

* EXAMPLE 1RU FIXED SWITCH SKU: ZTE-ES-1RU-48P-4SFP+ (48 x 1G RJ-45 PoE+ ports, 4 x 10G SFP+ uplinks, AC PSU).

* EXAMPLE MODULAR CHASSIS SKU: ZTE-ES-MOD-4SLOT-CH (4-slot modular chassis, includes backplane, 2x AC PSUs, 1x fan tray).

LINE CARDS AND MODULES

For modular platforms, a wide selection of line cards is available, offering various port densities and interface types. This allows for granular port

customization and pay-as-you-grow scalability. Example line cards include:

- * 48-PORT 1/10G SFP+ LINE CARD: Provides 48 SFP+ ports, supporting 1G and 10G optics.
- * 24-PORT 40G QSFP+ LINE CARD: Delivers 24 QSFP+ ports for high-speed uplinks.
- * 8-PORT 100G QSFP28 LINE CARD: Offers 8 QSFP28 ports for core interconnects at 100G.

ACCESSORIES AND PERIPHERALS

A comprehensive list of accessories is also available, including:

- * SFP/SFP+/QSFP+ Transceivers: A full range of fiber and copper transceivers for different media types and distances.
- * Rack Mount Kits: For 19-inch and 23-inch EIA racks.
- * Power Cords: Regional AC power cords and DC power cables.
- * Console Cables: USB-to-RS-232 and RJ-45-to-DB-9 console adapters.

SOFTWARE LICENSING

Advanced software features, such as advanced routing protocols (e.g., BGP,

OSPF), MPLS, and network virtualization (VXLAN), are enabled via software license keys, providing flexible options to tailor the feature set to the deployment requirements.

