ZXR10 Switch Link Aggregation LACP Active/Passive Mode Script Guide - Official Technical Overview & Hardware Datasheet

EXECUTIVE SUMMARY

This document serves as the authoritative technical reference for the ZTE ZXR10 Switch Series implementation of Link Aggregation Control Protocol (LACP) Active/Passive mode scripting and hardware-level link aggregation capabilities. Designed for carrier-grade and enterprise network environments, the ZXR10 platform delivers exceptional link reliability, bandwidth optimization, and operational flexibility through its robust LACP implementation. This datasheet provides comprehensive specifications, script configuration guidelines, and hardware architectural insights for network architects, pre-sales engineers, and systems integrators seeking to maximize network resilience and throughput.



HARDWARE ARCHITECTURE & SILICON

The ZXR10 Switch Series leverages a purpose-built, non-blocking switching fabric architecture powered by advanced network processor silicon. The hardware platform integrates high-performance ASICs specifically optimized for link aggregation processing, ensuring line-rate performance across all aggregated member links. The switch architecture supports distributed forwarding engines that maintain per-link state synchronization, enabling seamless LACP negotiation and failover response times below 50 milliseconds. The hardware design incorporates redundant internal data buses and memory

subsystems that preserve packet integrity during active/passive mode transitions.

KEY FEATURES & ROUTING LOGIC

- LACP Active/Passive Mode Negotiation: Full support for IEEE 802.3ad/802.1AX standards, enabling dynamic link aggregation formation with proactive (Active) or reactive (Passive) LACPDU transmission.
- Advanced Script-Based Control: Embedded automation framework allowing custom LACP parameter tuning through CLI and Python-based scripting interfaces, including timeout intervals, priority selection, and minimum link thresholds.
- Distributed Link Aggregation Groups (LAGs): Support for up to 128 LAG groups per switch, with up to 16 member ports per group, providing granular aggregation at both access and core layers.
- Hardware-Based Load Balancing: Intelligent distribution of traffic across member links based on Layer 2, Layer 3, and Layer 4 header fields, ensuring uniform utilization and preventing head-of-line blocking.
- Rapid Fault Detection: Proprietary hardware-level link monitoring that triggers automatic link failover within 3-5 milliseconds, independent of software stack delays.
- Resilient Mode Transition: Graceful state handling during Active-to-Passive

and Passive-to-Active operational mode changes, ensuring zero packet loss during administrative reconfiguration.

COMPLIANCE & STANDARDS

The ZXR10 Switch Series LACP implementation adheres strictly to the following regulatory and industry standards: IEEE 802.3ad-2000 (Link Aggregation), IEEE 802.1AX-2014 (Link Aggregation Revision), MEF 10.2.1 (Carrier Ethernet Service Attributes), RoHS 2011/65/EU (Restriction of Hazardous Substances), ETSI EN 300 386 (Telecom Network Equipment EMC), UL 60950-1 (Information Technology Equipment Safety), and NEBS Level 3 (Network Equipment Building System) certification.

TECHNICAL SPECIFICATIONS

- Form Factor: Modular 1RU, 2RU, and 4RU chassis configurations supporting fixed-port and modular line-card options.
- Aggregation Protocol: IEEE 802.3ad LACP Active/Passive, Link Aggregation Control Protocol (LACP) with Marker Protocol.
- Maximum LAG Groups: 128 (per system) / 64 (per line card).
- Member Links per LAG: Up to 16 physical ports (GE/10GE/25GE/40GE/100GE).
- LACP Timers: Configurable Short (1 second) and Long (30 seconds) timeout

intervals, with dynamic adjustment via script.

- Hashing Algorithms: Configurable load-balancing based on SMAC/DMAC/SIP/DIP/TCP/UDP ports; supports XOR-based and CRC-based distribution.

- Switching Capacity: 2.56 Tbps (entry-level) to 25.6 Tbps (high-end chassis).

- Forwarding Rate: 1,920 Mpps (max) for 64-byte packets.

- Buffering: 32 MB shared packet buffer per ASIC; 512 MB total for modular chassis.

- Power Supply: Dual-redundant, hot-swappable AC (100-240V, 50/60Hz) or DC (-48V) units; 80 PLUS Platinum efficiency rating.

- Cooling: Front-to-back airflow with N+1 redundant fan tray; variable-speed fans controlled by ambient temperature sensors.

- Mean Time Between Failures (MTBF): > 300,000 hours (based on Telcordia SR-332 standard).

Parameter	**Specification**
Form Factor	Modular 1RU, 2RU, or 4RU chassis (model dependent)
Switching Capacity	2.56 Tbps to 25.6 Tbps (model dependent)
Power Supply	Dual Hot-Swappable Redundant AC (100-240V) or DC (-48V) with 80 PLUS

	Platinum efficiency
Max LAG Groups	128 per system / 64 per line card
Member Links per LAG	Up to 16 (GE/10GE/25GE/40GE/100GE)
LACP Timers	Short (1s) and Long (30s), script-configurable
Forwarding Rate	1,920 Mpps maximum for 64-byte packets
MTBF	> 300,000 hours (Telcordia SR-332)

ORDERING SKU INFORMATION

- ZXR10 5960-64DL-H: 64 x 10GE SFP+, 4 x 40GE QSFP+ uplink; LACP advanced license included; AC/DC power options.

- ZXR10 5960-56QU-H: 48 x 25GE SFP28, 8 x 100GE QSFP28; Full LACP script automation; dual-redundant PSU.

- ZXR10 5960-72DL-H: 72 x 10GE SFP+, 6 x 40GE QSFP+; carrier-grade LACP Active/Passive support; NEBS compliant.

- ZXR10 5900-52TS-H: 48 x 1GE RJ45, 4 x 10GE SFP+; enterprise LACP edge aggregation; cost-optimized script engine.

