

ZTE C320 OLT Troubleshooting Manual - Official Technical Overview & Hardware Datasheet

EXECUTIVE SUMMARY

This document serves as the definitive technical reference and hardware datasheet for the ZTE C320 Optical Line Terminal (OLT) Troubleshooting Manual. Designed for carrier-grade access networks, the ZTE C320 is a compact, high-density GPON/XG-PON platform that delivers unparalleled service reliability and operational simplicity. This manual provides network engineers, field technicians, and systems integrators with a comprehensive guide to identifying, isolating, and resolving hardware and software anomalies within the C320 ecosystem. The content herein details the platform's architectural resilience, critical alarm mechanisms, diagnostic workflows, and hardware specifications essential for maintaining peak network performance and minimizing mean time to repair (MTTR).



ARCHITECTURE & CHASSIS DESIGN

The ZTE C320 OLT is engineered as a 2U high, 19-inch rack-mountable chassis, optimized for space-constrained central offices and remote terminals. The system architecture is predicated on a distributed switching fabric, separating the control plane, data plane, and management plane to ensure fault isolation and high availability. The backplane utilizes a high-speed, non-blocking bus architecture, providing up to 320 Gbps of switching capacity. The chassis accommodates up to 8 service line card slots and 2 redundant main control board slots, adhering to a 1+1 protection scheme for all critical components. This modular design facilitates granular troubleshooting, allowing engineers to isolate faults to specific line cards, ports, or control modules without impacting the entire system. The passive backplane design minimizes single points of failure, contributing to the platform's industry-leading MTBF figures.

HARDWARE FEATURES

KEY HARDWARE COMPONENTS

- MAIN CONTROL BOARD (MCB): Houses the system CPU, clock synchronization unit, and management interfaces. Supports 1+1 hot-swappable redundancy for hitless failover.
- SERVICE LINE CARDS: Offer a variety of port densities, including 16-port GPON, 8-port XG-PON, and combo cards for mixed deployments. Each card features an integrated Packet Processing Engine (PPE) for local switching and traffic management.
- POWER SUPPLY UNITS (PSU): AC or DC hot-swappable modules with N+1 or 1+1 redundancy configurations, providing input voltage ranges from -48V DC to 60V DC and 100-240V AC.
- FAN TRAY: A modular, hot-swappable fan assembly with intelligent speed control based on real-time temperature monitoring, ensuring optimal thermal performance under varying load conditions.

DIAGNOSTIC & TROUBLESHOOTING FEATURES

- ALARM INTERFACE: External alarm input/output ports (dry contacts) for integration with external monitoring systems.
- LEDs: Comprehensive front-panel LED indicators provide at-a-glance status

for power, system health, alarms, and per-port link/activity, facilitating rapid physical-layer diagnostics.

- MANAGEMENT PORTS: Dedicated console (RJ-45) and management Ethernet (10/100/1000Base-T) ports for out-of-band management and direct CLI access during troubleshooting.

COMPLIANCE & STANDARDS

The ZTE C320 adheres to a comprehensive suite of international telecommunications and safety standards, ensuring interoperability and regulatory compliance across global deployments. Key certifications include:

- ETSI EN 300 386: Electromagnetic Compatibility (EMC) for telecommunications equipment.
- IEC 60950-1 / IEC 62368-1: Safety standards for information technology equipment.
- GR-1089-CORE: NEBS compliance for electromagnetic compatibility and electrical safety.
- ITU-T G.984 and G.987: Standards for GPON and XG-PON optical interfaces, ensuring seamless ONU/ONT interoperability.
- RoHS and WEEE: Compliance with environmental directives on hazardous substances and waste electrical equipment.

TECHNICAL SPECIFICATIONS

This section details the operational limits, environmental tolerances, and performance metrics verified under rigorous testing conditions. All specifications are subject to change without notice and represent nominal values at 25°C ambient temperature.

SYSTEM PERFORMANCE

- Switching Capacity: 320 Gbps (non-blocking).
- MAC Address Table: 64K entries.
- IPv4/IPv6 Routing Table: 16K/8K routes.
- Maximum ONT/ONU per PON Port: 128.
- Maximum ONT/ONU per System: 8,192 (with full line card population).

PHYSICAL & ENVIRONMENTAL

- Dimensions (H x W x D): 88.9 mm (3.5 in) x 442 mm (17.4 in) x 280 mm (11 in).
- Weight: 7.5 kg (fully populated).
- Operating Temperature: -5 ° C to +55 ° C (short-term), -5 ° C to +45 ° C (long-term).
- Storage Temperature: -40°C to +70°C.
- Operating Humidity: 10% to 90% (non-condensing).
- Altitude: Up to 4,000 meters.

Parameter	Specification
Form Factor	2U Rack-Mountable Chassis
Switching Capacity	320 Gbps (Non-blocking)
Power Supply	1+1 Redundant AC/DC Hot-Swappable
Operating Temperature	-5°C to +55°C (Short-term)
PON Ports (Max)	128 GPON or 64 XG-PON
Management Ports	1x Console (RJ-45), 1x 10/100/1000Base-T Ethernet
Compliance	ETSI, NEBS, ITU-T G.984/G.987

ORDERING OPTIONS

The ZTE C320 platform offers a modular ordering structure, enabling precise customization to meet specific network demands. The following table provides a summary of the primary hardware SKUs and accessories available for deployment. For detailed part numbers and configurations, please consult the official price list or contact your ZTE sales representative.

- C320-CHASSIS: 2U Chassis, includes backplane and 8 line card slots.

- C320-MCB-A: Main Control Board (Standard).
- C320-MCB-B: Main Control Board (Enhanced with 10GE uplinks).
- C320-GPON-16: 16-port GPON Service Line Card.
- C320-XGPON-8: 8-port XG-PON Service Line Card.
- C320-COMBO-8: 8-port Combo PON Line Card (GPON/XG-PON).
- C320-PSU-AC: AC Power Supply Module, 300W.
- C320-PSU-DC: DC Power Supply Module, 300W (-48V).
- C320-FAN: Fan Tray Module.
- C320-CBL-Console: Console Cable (RJ-45 to DB-9).

