ZTE C320 OLT - Official Technical Overview & Datasheet

EXECUTIVE SUMMARY

The ZTE C320 Optical Line Terminal (OLT) represents a carrier-grade, compact aggregation platform purpose-built for next-generation fiber-to-the-home (FTTH), fiber-to-the-building (FTTB), and premium enterprise access networks. Positioning itself as the ideal solution for ISPs, municipalities, and private network operators seeking a high-density GPON/XG-PON capable chassis, the C320 delivers exceptional throughput and service intelligence within a space-optimized 6U form factor. Its primary value proposition lies in enabling seamless migration from legacy copper to full-fiber architectures while supporting symmetrical multi-gigabit services for residential, business, and mobile backhaul applications.

Engineered for distributed access architectures, the ZTE C320 OLT reduces central office footprint and power consumption without compromising on scalability or reliability. By integrating advanced traffic management, robust security protocols, and triple-play service awareness, it empowers operators to offer tiered SLAs, low-latency VPNs, and high-definition video delivery. This datasheet details the hardware design, feature set, compliance accreditations, and technical specifications that make the ZTE C320 a benchmark for cost-effective, future-ready optical aggregation.



ARCHITECTURE & DESIGN

The ZTE C320 adopts a modular, high-density chassis architecture with a 6U height supporting up to 8 service slots and 2 dedicated main control switching board slots. The backplane utilizes a non-blocking switching fabric with a total switching capacity of up to 240 Gbit/s, enabling concurrent processing of GPON, XG-PON, and P2P Ethernet services. The design incorporates front-access cabling and hot-swappable components, simplifying field maintenance and upgrades. Redundancy is achieved through 1+1 protection for main control boards (SCUN) and power supply modules, with less than 50 ms switchover time for uninterrupted service delivery. Fan trays operate in N+1 redundancy with intelligent speed control based on real-time thermal sensing, ensuring operation within -5°C to 55°C ambient environments.

Cooling is managed via a front-to-back airflow pattern, aligned with standard telco racks to optimize heat dissipation. The chassis integrates a passive backplane capable of supporting future line cards up to 10 Gbit/s per PON port. Additionally, the design includes distributed power architecture with dual -48 V DC power inputs and optional AC power modules. Lithium-ion battery backup interfaces are available for remote nodes requiring extended holdover. All field-replaceable units (FRUs) are accessible without chassis removal, and the OLT supports remote software image upgrades and configuration rollback via the unified network management system (NetNumen U31).

KEY FEATURES

- Advanced GPON & XG-PON Coexistence: The C320 supports mixed deployment of GPON (2.488 Gbit/s downstream, 1.244 Gbit/s upstream) and XG-PON (9.953 Gbit/s downstream, 2.488 Gbit/s upstream) on the same chassis via combo line cards. This allows operators to offer 1 Gbit/s and 10 Gbit/s tiers simultaneously, leveraging existing fiber distribution networks (ODN) with class B+ to C+ optical budgets.

- Hierarchical QoS & DBA: Implements full HQoS (Hierarchical Quality of Service) per subscriber, per service flow, and per queue level with 8 priority queues per PON port. Dynamic Bandwidth Allocation (DBA) with Type 1 (fixed), Type 2 (assured), Type 3 (non-assured), and Type 4 (best effort) profiles ensures

deterministic latency for voice and real-time gaming. The OLT supports 802.1p, DSCP, and MPLS EXP mapping, with shaping and policing granularity down to 64 kbit/s.

- Comprehensive Protocol & Security Stack: Native support for IPv4/IPv6 dual stack (including DS-Lite, 6RD, and MAP-T) and full Layer 2 VPN (QinQ, EoIP). Security features include anti-DDoS snooping, DHCP Option 82, IGMP/MLD snooping with fast-leave, and AES-128 decryption for GPON channels. Control plane protection (CoPP) prevents overload attacks on the CPU.

- Resilient Ring & Link Protection: Supports G.8032 Ethernet Ring Protection (ERPS) for sub-50ms loop recovery and Type B/C protection across PON trees. Also included: Uplink LACP (802.3ad), MC-LAG to upstream routers, and coordinated maintenance mode for software upgrades without service interruption.

- Intelligent Energy Efficiency: Implements IEEE 802.3az EEE and dynamic PON port sleeping modes during low-traffic periods, reducing per-port power consumption by up to 35% compared to static operation. The system also provides real-time wattage monitoring via SNMP and automatic fan speed scaling based on card temperature.

COMPLIANCE & STANDARDS

The ZTE C320 OLT meets international regulatory and interoperability standards,

including CE (RED), FCC Part 15 Class A, RoHS 2.0 (Directive 2011/65/EU), REACH, and ETSI EN 300 386 for EMC. Environmental compliance covers Telcordia GR-1089-CORE (NEBS Level 3) for surge, electrostatic discharge (IEC 61000-4-2), and radiated immunity (IEC 61000-4-3). Optical interface standards conform to ITU-T G.984 (GPON), G.987 (XG-PON), and G.988 (OMCI), with full interoperability validated for ONUs from multiple vendors. Management protocols include SNMP v1/v2c/v3, NETCONF, and YANG-based data models (OpenConfig compliant). Safety certifications: IEC 62368-1 (CB Scheme), UL 62368-1, and EN 62368-1.

TECHNICAL SPECIFICATIONS

The following table lists the key physical, power, and capacity parameters for the ZTE C320 OLT. All values represent maximum configurations with redundant modules unless otherwise noted.

Parameter	**Specification**
Form Factor	6U (19-inch) chassis, up to 8 service slots + 2 control slots
Switching Capacity	240 Gbit/s (non-blocking backplane)
GPON Ports Max	64 GPON ports (dual-star) or 32 XG-PON ports

Uplink Ports	4 x 10GE SFP+ (fixed) + up to 4 x 10GE via expansion card
Power Supply	1+1 redundant, -48 V DC (nominal) or 100-240 V AC (optional)
Power Consumption	Typical: 450 W, Max: 800 W (fully loaded)
Optical Budget	GPON: Class B+ (28 dB) / Class C+ (32 dB); XG-PON: N1/N2
Operating Temperature	-5°C to 55°C (extended: -40°C with fan kit upgrade)
Management Interfaces	RJ45 10/100/1000 M (out-of-band), mini-USB console, SNMP, NETCONF
Redundancy (Control)	1+1 SCUN boards with hitless switchover (<50 ms)
MTBF (Mean Time Between Failures)	180,000 hours (Telcordia SR-332, 25° C)
Dimensions (H x W x D)	265 mm x 482.6 mm x 260 mm (10.4 in x 19 in x 10.2 in)
Weight (fully loaded)	~14.5 kg (32 lbs)


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