OEM 1RU Pizza-Box 8-Port GPON OLT Hardware Dimensions and Port Capacities - Official Technical Overview & Hardware Datasheet

EXECUTIVE SUMMARY

The OEM 1RU Pizza-Box 8-Port GPON OLT represents a compact, high-density optical line terminal purpose-built for modern FTTx access networks. Engineered within a standard 19-inch 1RU chassis, this pizza-box platform delivers eight GPON ports, dual 10GE uplinks, and full Layer 2/Layer 3 switching capabilities in a space-efficient, carrier-grade form factor. The system is optimized for centralized office deployments, remote terminal cabinets, and edge aggregation sites where rack space is at a premium yet uncompromising subscriber density and line-rate forwarding are mandatory.

This document provides a comprehensive technical overview of the hardware dimensions, port capacities, internal architecture, and deployment characteristics of the OEM 1RU Pizza-Box 8-Port GPON OLT, serving as an authoritative reference for network planners, systems engineers, and procurement specialists.



HARDWARE ARCHITECTURE & SILICON

The OEM 1RU Pizza-Box 8-Port GPON OLT is built around a purpose-designed forwarding ASIC that integrates GPON MAC processing, Ethernet switching, and traffic management functions into a single silicon subsystem. The architecture employs a non-blocking shared-memory fabric that guarantees wire-speed forwarding across all subscriber-facing and uplink interfaces simultaneously.

Each of the eight GPON ports supports ITU-T G.984-compliant downstream rates of 2.488 Gbps and upstream rates of 1.244 Gbps, with per-port support for up to 128 ONT/ONU endpoints. The GPON MAC block provides hardware-accelerated DBA (Dynamic Bandwidth Allocation), AES-128 downstream encryption, and FEC (Forward Error Correction) on a per-port basis,

reducing CPU load and ensuring deterministic service delivery.

The uplink subsystem comprises two SFP+ cages operating at 10 Gbps, configurable for 10GBASE-SR, 10GBASE-LR, or 10GBASE-ER optical transceivers, as well as 1 Gbps SFP fallback. These uplinks support link aggregation (LACP), VLAN trunking, and hardware-based OAM processing. A dedicated management plane is provided via one RJ45 10/100/1000BASE-T out-of-band port and one console port for local CLI access.

The internal packet buffer is sized at 8 MB shared across all ports, with per-queue and per-port thresholds programmable via CLI or NMS. Traffic classification, policing, shaping, and scheduling are handled entirely in hardware, enabling line-rate QoS enforcement even under full subscriber load.

KEY FEATURES & ROUTING LOGIC

- Eight GPON Ports: Full ITU-T G.984/G.988 compliance with Type B and Type C protection support.
- Dual 10GE Uplinks: SFP+ interfaces supporting 10GBASE-SR/LR/ER and 1GE SFP backward compatibility.
- Non-Blocking Fabric: Wire-speed forwarding across all ports with zero head-of-line blocking.
- Hardware DBA: Per-ONU dynamic bandwidth allocation with sub-millisecond

granularity.

- Layer 2 Switching: VLAN (802.1Q), QinQ, STP/RSTP/MSTP, IGMP snooping, and link aggregation.

- Layer 3 Routing: Static routing, RIP v1/v2, OSPF v2/v3, and VRRP for gateway redundancy.

- QoS Engine: Eight priority queues per port, SP/WRR/SP+WRR scheduling, and dual-rate policers.

- Multicast: IGMP v2/v3 snooping and proxy, MLD v1/v2, and controllable multicast.

- Security: AES-128 downstream encryption, RADIUS/TACACS+ authentication, ACLs, and port isolation.

- Management: CLI, SNMP v1/v2c/v3, Telnet, SSH, Web GUI, and NMS integration via OMCI.

- Redundancy: Dual hot-swappable AC or DC power supplies and fan modules with front-to-back airflow.

COMPLIANCE & STANDARDS

The OEM 1RU Pizza-Box 8-Port GPON OLT is designed and tested to meet the following standards and directives:

- ITU-T G.984.1, G.984.2, G.984.3, G.984.4 (GPON TC layer and OMCI)

- ITU-T G.988 (OMCI specification)

- IEEE 802.1Q, 802.1ad, 802.1D, 802.1w, 802.1s

- IEEE 802.3ad (Link Aggregation), 802.3x (Flow Control)

- IEEE 802.1X (Port-Based Network Access Control)

- RFC 2131 (DHCP), RFC 2328 (OSPF v2), RFC 2453 (RIP v2)

- FCC Part 15 Class A, CE Mark, RoHS 2.0, WEEE

- IEC 60950-1 / EN 60950-1 Safety, IEC 60825-1 Laser Safety

TECHNICAL SPECIFICATIONS

Parameter	**Specification**
Form Factor	1RU 19-inch rack-mountable pizza-box chassis
Dimensions (W x D x H)	440 mm x 280 mm x 44 mm (17.32 in x 11.02 in x 1.73 in)
Weight	3.8 kg (8.38 lb) with dual power supplies installed
GPON Ports	8 x GPON (ITU-T G.984), SC/APC or SC/UPC connector
Uplink Ports	2 x SFP+ (10GE) or SFP (1GE), hot-pluggable
Management Ports	1 x RJ45 10/100/1000BASE-T

	out-of-band, 1 x RJ45 console, 1 x USB
Switching Capacity	52 Gbps non-blocking full-duplex
Forwarding Rate	38.7 Mpps (64-byte packets, line rate)
Packet Buffer	8 MB shared across all ports
MAC Address Table	32K entries
VLAN Table	4K VLANs, 802.1Q, QinQ (802.1ad)
GPON Split Ratio	Up to 1:128 per port
Max ONUs per Port	128
Max ONUs per System	1024
Power Supply	Dual hot-swappable redundant AC (100-240V) or DC (-48V)
Power Consumption	Typical 85W, maximum 120W
Cooling	4 x hot-swappable fan modules, front-to-back airflow
Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Relative Humidity	5% to 95% non-condensing
MTBF	> 250,000 hours (Telcordia SR-332)
Management	CLI, SNMP v1/v2c/v3, SSH, Telnet, Web GUI, OMCI
Layer 3 Routing	Static, RIP v1/v2, OSPF v2/v3, VRRP
QoS	8 queues per port, SP/WRR/SP+WRR,

	dual-rate policers
Multicast	IGMP v2/v3 snooping/proxy, MLD v1/v2
Security	AES-128, ACLs, RADIUS, TACACS+, 802.1X, port isolation
Compliance	ITU-T G.984/G.988, IEEE 802.1Q/802.1ad/802.3ad, FCC, CE, RoHS

ORDERING SKU INFORMATION

The OEM 1RU Pizza-Box 8-Port GPON OLT is available in the following configurations:

- OLT-1RU-8GPON-AC: 8x GPON ports, 2x SFP+ uplinks, dual AC power supplies
- OLT-1RU-8GPON-DC: 8x GPON ports, 2x SFP+ uplinks, dual DC power supplies
- OLT-1RU-8GPON-AC-B: 8x GPON ports, 2x SFP+ uplinks, dual AC power supplies, Type B protection license
- OLT-1RU-8GPON-DC-C: 8x GPON ports, 2x SFP+ uplinks, dual DC power

supplies, Type C protection license

All variants include a standard one-year hardware warranty, with extended support contracts available. SFP+ and GPON OLT transceiver modules are ordered separately to accommodate specific reach and wavelength requirements.

