

# XGS-PON Network Evolution - Official Technical Overview & Hardware Datasheet

## EXECUTIVE SUMMARY

This document serves as the definitive technical overview and hardware datasheet for the next-generation XGS-PON Network Evolution platform. Designed to address the unprecedented bandwidth demands of 10G fiber-to-the-home (FTTH) and business services, this system represents a paradigm shift in optical access networking. The platform delivers symmetric 10 Gbps capacity, ensuring that service providers can future-proof their networks against the relentless growth of cloud computing, 8K video streaming, and immersive digital experiences. This whitepaper details the system architecture, hardware specifications, compliance standards, and ordering information necessary for a comprehensive technical evaluation.



## ARCHITECTURE & CHASSIS DESIGN

The XGS-PON Network Evolution platform is engineered around a modular, high-density chassis architecture optimized for central office and data center deployments. The system leverages a distributed switching fabric to eliminate single points of failure, ensuring carrier-grade reliability. The chassis supports a flexible mix of interface modules, including XGS-PON Optical Line Terminal (OLT) cards, high-speed uplink modules (10GE/25GE/100GE), and a redundant switch controller (SC) pair. The backplane is designed to support a non-blocking switching capacity, enabling line-rate performance across all ports simultaneously. Passive cooling with hot-swappable fan trays is integrated to maintain optimal operating temperatures under full load.

## HARDWARE FEATURES

At its core, the platform is driven by a high-performance network processor (NPU) and a dedicated forwarding ASIC, purpose-built for XGS-PON framing, encryption (AES-128), and dynamic bandwidth allocation (DBA). Key hardware features include:

- 8/16-port XGS-PON interface modules with SFP+ optical transceivers.
- Support for Class C+ optics to maximize reach (up to 20 km) and split ratios (1:128).
- Front-accessible ports and power supplies for simplified maintenance.
- Precision Time Protocol (PTP) and Synchronous Ethernet (SyncE) support for mobile backhaul applications.
- Hardware-based Quality of Service (QoS) queues with hierarchical scheduling.

## COMPLIANCE & STANDARDS

The system is fully compliant with ITU-T G.9807.1 (XGS-PON) and G.988 (OMCI) standards. It adheres to IEEE 802.3 for Ethernet interfaces, MEF 38 for circuit emulation services, and has achieved NEBS Level 3 certification for environmental and safety requirements. Additionally, the platform meets the rigorous ETSI EN 300 386 for electromagnetic compatibility and the European Union's RoHS directive for environmental sustainability.

## TECHNICAL SPECIFICATIONS

Please refer to the comprehensive parameter registry below for detailed hardware and performance specifications.

| Parameter                 | Specification                    |
|---------------------------|----------------------------------|
| Form Factor               | 2RU Rack-mountable Chassis       |
| Switching Capacity        | 1.6 Tbps (Backplane)             |
| Power Supply              | Dual, 1+1 Redundant AC/DC (800W) |
| XGS-PON Ports (Max)       | 128 (8 per line card x 16 slots) |
| Uplink Ports (Max)        | 32x 25GE / 8x 100GE              |
| Typical Power Consumption | 450W (Fully Loaded)              |
| Operating Temperature     | 0°C to 45°C                      |
| MTBF                      | > 200,000 Hours                  |

## ORDERING OPTIONS

The XGS-PON Network Evolution platform is available in multiple pre-configured bundles and a-la-carte module options to suit diverse deployment scenarios. The base unit (Part #: XGS-BASE-CHASSIS) includes the chassis, dual switch controllers, and a single fan tray. For growth, service

providers can order additional XGS-PON OLT line cards (Part #: XGS-8P-OLT-C, XGS-16P-OLT-C) and uplink modules (Part #: XGS-4x25GE, XGS-2x100GE). To achieve full system redundancy, a second power supply unit is recommended and available as a separate SKU (Part #: XGS-AC-RPS-800W). A comprehensive software license package, enabling advanced DBA algorithms and traffic analytics, is also available.

