FiberHome AN5516-01 Large-Scale OLT Platform - Official Technical Overview & Hardware Datasheet

PRODUCT IDENTIFICATION

The FiberHome AN5516-01 is a premier, large-capacity carrier-class Optical Line Terminal (OLT) platform engineered for the rigorous demands of next-generation telecommunications networks. Designed as a central office (CO) equipment cornerstone, this platform facilitates high-speed, multi-service FTTx (Fiber to the x) deployments, providing a future-proof foundation for broadband, voice, IPTV, and enterprise data services . It serves as a critical aggregation point, bridging the optical access network with the core IP/MPLS infrastructure.



CORE INTERNAL TOPOLOGY

At the heart of the AN5516-01 is a high-availability, modular chassis architecture designed for non-blocking performance and seamless scalability. The platform utilizes a standard 19-inch form factor, occupying 10U to 11U of rack space to optimize density in telecom facilities .

The chassis is structured with a sophisticated backplane that provides immense switching capacity, up to 3.2 Tbit/s in the standard configuration . The system's intelligence and forwarding engine reside on redundant Core Switching and Control Cards (such as the HSWA or HSWD series), which can achieve a combined switching capacity of up to 1.92 Tbit/s in load-sharing mode . This architecture ensures line-rate, wire-speed forwarding for both Layer 2 and Layer 3 traffic, eliminating internal bottlenecks and guaranteeing consistent performance even under peak loads.

SWITCHING SUBSYSTEM CAPABILITIES

The AN5516-01 is not merely an access device but a powerful aggregation and switching platform. Its core capabilities include:

- Massive Backplane Bandwidth: With a backplane exchange capacity of 3.2 Tbit/s, the system supports high-density service boards without oversubscription .

- High-Density Port Support: The chassis supports up to 16 universal service slots, enabling a single unit to host up to 256 GPON ports. With a standard 1:64 split ratio, this translates to connectivity for over 16,384 subscribers .
- Versatile Uplink Interfaces: Uplink boards provide a range of high-speed connectivity options, including multiple 10GE (SFP+) and GE ports (optical/electrical), facilitating resilient connections to the core network .
- Advanced Packet Processing: The system supports a vast number of MAC addresses (up to 288K) and substantial IPv4/IPv6 routing tables (up to 128K), making it suitable for complex, large-scale network topologies .

OPERATIONAL ADVANTAGES

The FiberHome AN5516-01 is built for operational excellence and long-term investment protection:

- Hybrid Access & Smooth Evolution: The platform supports a unified access architecture for GPON, EPON, 10G PON (XG-PON/XGS-PON), and P2P interfaces. This allows operators to seamlessly upgrade to 10G services by deploying Combo PON cards without changing the underlying Optical Distribution Network (ODN), significantly reducing migration costs .
- Carrier-Grade Hardware Redundancy: The system is engineered for 99.999% uptime. It features 1+1 redundancy for all critical components, including control boards, switching fabric, power supplies (-48V DC), and fan

trays. All boards and optical modules are hot-swappable for zero-downtime maintenance .

- Advanced Cooling and Power Efficiency: Intelligent, temperature-controlled fan trays dynamically adjust speeds based on real-time thermal telemetry. The use of high-performance, low-power chipsets and support for idle port sleep modes contribute to a lower total cost of ownership and reduced OPEX .

SPECIFICATION MATRIX

Parameter	**Specification**
Form Factor	19-inch Rack-mountable Chassis (10U-11U)
Service Slots	16 Universal Slots
Backplane Switching Capacity	3.2 Tbit/s
Control Board Switching Capacity	Up to 1.92 Tbit/s
Max GPON Ports	256
Max 10G PON Ports	128
Uplink Interfaces	10GE, GE (Optical/Electrical)
MAC Address Table	Up to 288K
IPv4 Routing Table	Up to 128K
Power Supply	Dual Hot-Swappable Redundant -48V DC

Operating Temperature	0°C to 45°C (Long-term) / -5°C to 55°C (Short-term)
Compliance	ITU-T G.984/G.987, IEEE 802.3ah, IEEE 1588v2

REGULATORY COMPLIANCE

The FiberHome AN5516-01 adheres to a comprehensive set of international standards, ensuring interoperability and regulatory compliance for global deployment. Key standards include:

- ITU-T G.984 (GPON) and G.987 (10G-PON) .
- IEEE 802.3ah (EPON) .
- IEEE 1588v2 for precise clock synchronization, supporting 1PPS+TOD clock input for mobile backhaul applications .
- MEF-compliant Carrier Ethernet service delivery.

