FiberHome AN5516-06 Mid-Range OLT Backplane Bus Rate and Port Densities - Official Technical Overview & Hardware Datasheet

EXECUTIVE SUMMARY

The FiberHome AN5516-06 is a carrier-class, medium-capacity optical line terminal (OLT) engineered for central office deployments where large-capacity chassis would be underutilized. As a member of the AN5516 family, the -06 variant shares a unified software and service card ecosystem with higher-density siblings while occupying a compact 6U rack footprint with six service slots . This document provides a definitive technical reference for the AN5516-06, with particular emphasis on two architectural parameters that govern its deployment economics: backplane bus rate and achievable port densities. The platform supports a unified PON access model spanning EPON, GPON, 10G PON, and P2P, enabling operators to migrate from legacy PON technologies to next-generation 10G solutions within a single chassis .



HARDWARE ARCHITECTURE & SILICON

The AN5516-06 is built upon a modular, high-availability chassis architecture designed for carrier-grade service continuity. The backplane serves as the central interconnect fabric, and its rated capacity varies across documentation depending on the specific switching card configuration and measurement methodology. For the AN5516-06 platform, the backplane exchange capacity is commonly cited at 720 Gbit/s in comparative specification tables across the AN5516 series . Certain configuration-specific datasheets reference a backplane bus switching capacity of up to 3.76 Tbit/s when paired with advanced HSWD switch cards, though the base platform specification for the -06 variant aligns more conservatively with the 720 Gbit/s figure . The core switch card capacity, distinct from the backplane rating, is specified at 512 Gbit/s for the standard HSWA/HSWB control board configuration . This differentiation is critical for

procurement evaluation: the backplane represents the theoretical maximum fabric capability, while the control board switching capacity defines the actual line-rate forwarding ceiling for deployed services.

The chassis accommodates two core switch card slots, six service card slots, two uplink card slots, and redundant power and fan units. All cards and PON optical modules support hot-swapping, and the system provides 1+1 redundancy for core control and switching modules . The control plane is managed by redundant main control boards, ensuring seamless failover in mission-critical access networks.

KEY FEATURES & ROUTING LOGIC

Unified PON Platform: The AN5516-06 concurrently hosts GPON, EPON, 10G EPON, XG-PON, XGS-PON, and P2P service cards, enabling a seamless migration path from legacy PON technologies to next-generation 10G solutions within a single chassis .

High-Density Port Configurations: The six service slots of the -06 chassis support a maximum of 96 PON ports in a single frame under EPON/GPON mixed configurations . In 10G PON configurations, the system supports up to 96 10G G/EPON ports, 48 XG-PON ports, or 48 GPON/XGS-PON Combo ports .

Ethernet port density reaches 96 GE optical or electrical ports .

Carrier-Grade Redundancy: The platform provides 1+1 protection for service cards, controller cards, and uplink cards, with end-to-end protection including uplink RSTP/LACP and downlink PON port millisecond-level switching . PON Type B/C protection is supported for access-side resiliency .

Layer 3 Routing Capabilities: The AN5516-06 supports static routing, RIP, OSPF, and VRRP, enabling the platform to participate in dynamic routing topologies and provide resilient gateway services to subtended ONUs .

Synchronization: IEEE 1588v2 and 1PPS+ToD clock interfaces are supported, addressing the precise timing requirements of mobile backhaul and enterprise synchronization applications .

Green Energy Design: An 8-level temperature-controlled intelligent fan system supports free-port sleep mode, reducing operational power consumption below industry average levels .

COMPLIANCE & STANDARDS

ITU-T G.984 (GPON): Full compliance including G.988 OMCI for management

and control.

IEEE 802.3 (EPON): Full compliance with IEEE 802.3-2005 and extended OAM functions.

ITU-T G.987 (XG-PON) and G.9807 (XGS-PON): Compliance with 10G PON standards for next-generation access.

IEEE 1588v2: Precision time protocol support for mobile backhaul and synchronization-critical services.

MEF and Ethernet Standards: IEEE 802.1Q (VLAN), IEEE 802.1ad (Q-in-Q), and related carrier Ethernet specifications are supported in software.

TECHNICAL SPECIFICATIONS

The following table consolidates the verified technical parameters of the AN5516-06 platform, drawing from carrier datasheet and product description sources.

Parameter	**Specification**
Form Factor	19-inch rack-mount, 6U height
Chassis Slots	10 total: 2 core switch, 6 service, 2 uplink, plus power/fan/common interface slots
Backplane Exchange Capacity	720 Gbit/s (base platform

	specification); up to 3.76 Tbit/s with HSWD switch card configuration
Control Board Switching Capacity	512 Gbit/s (HSWA/HSWB standard configuration)
Maximum PON Ports (per frame)	96 PON ports (EPON/GPON mixed); 96 × 10G G/EPON; 48 × XG-PON; 48 × Combo PON
Maximum Ethernet Ports	96 GE optical or electrical
Uplink Interfaces	10GE optical, GE optical/electrical, STM-1/E1 options
Layer 3 Protocols	Static routing, RIP, OSPF, VRRP
Synchronization	IEEE 1588v2, 1PPS+ToD
Redundancy	1+1 core switch, controller, uplink card; hot-swappable cards and PON modules
Power Supply	Dual hot-swappable redundant DC (-48V) or AC (220V/110V)
Operating Temperature	Long term: 0°C to 45°C; Short term: -5° C to 55°C
Dimensions (H×W×D)	265.9 mm × 480 mm × 242 mm (subrack with mounting ears)
MAC Address Table	32K (HSWA/HSWB)

IPv4 Routing Table	8K (HSWA)
IPv6 Routing Table	4K (HSWA)

ORDERING SKU INFORMATION

Base chassis configurations are available with DC (-48V) or AC (220V/110V) power options. Typical deployment bundles include the chassis, redundant HSWA/HSWB control boards, dual power supplies, fan unit, and a selection of GPON or EPON service cards with Class C+ optics. Uplink card options include 1×10GE+4×GE, 2×10GE+2×GE, and 6×GE configurations .

