

Fiberhome AN5516 OLT Configuration Handbook - Official Technical Overview & Hardware Datasheet

CARRIER-GRADE OPTICAL ACCESS PLATFORM: FIBERHOME AN5516 SERIES

EXECUTIVE SUMMARY

The FiberHome AN5516 Series represents a paradigm shift in carrier-grade optical access infrastructure, delivering a unified, high-density platform engineered to meet the stringent demands of next-generation FTTx, enterprise, and mobile backhaul networks. This document serves as the definitive technical reference for network architects, systems integrators, and procurement specialists, detailing the platform's architectural prowess, hardware specifications, and deployment versatility.

As global bandwidth consumption accelerates, driven by 4K/8K video, IoT proliferation, and cloud-based services, the AN5516 Series provides a future-proof foundation. It uniquely supports the simultaneous co-existence of EPON, GPON, 10G-EPON, XG-PON, and XGS-PON service boards within a single subrack, enabling a seamless, pay-as-you-grow migration strategy from legacy networks to symmetric 10G architectures. This multi-terabit backplane platform is designed to guarantee the 99.999% uptime demanded by modern Service Level Agreements (SLAs), incorporating full hardware redundancy

across control, switching, and power subsystems .



ARCHITECTURE & CHASSIS DESIGN

The AN5516 Series is architected around a non-blocking, high-capacity backplane that ensures wire-speed packet forwarding across all service slots. The platform is available in multiple chassis variants, catering to a wide spectrum of deployment scenarios, from dense central offices to space-constrained remote nodes .

* **AN5516-01 (Large Capacity):** The flagship 16-slot chassis, designed for high-density central offices, offering a massive 3.2 Tbps switching capacity and supporting up to 256 PON ports . Its deep but compact form factor (620 x 480 x 270 mm) allows for the installation of up to three subracks in a single standard

equipment rack .

* ****AN5516-06 (Medium Capacity):**** A 6-slot chassis that occupies the strategic "sweet spot" for suburban central offices and street cabinets. It provides a 720 Gbps backplane exchange capacity and is ideal for aggregating traffic from a few thousand subscribers .

* ****AN5516-04 (Compact/Small Capacity):**** A highly compact 2-slot chassis (2U height) designed for extreme space efficiency in remote nodes, rural extensions, or private network markets like broadcast and TV . Despite its small footprint, it supports up to 32 PON ports and a full suite of uplink options .

The chassis design philosophy emphasizes modularity and front-access for all interfaces, simplifying installation, cabling, and maintenance. The core logic resides on redundant main control and switching boards (e.g., HSWA, HSUB), which are deployed in a 1+1 active/standby configuration. This ensures millisecond failover in the event of a hardware failure, maintaining uninterrupted service for subscribers .

HARDWARE FEATURES & INTERFACES

****Line Card Ecosystem:****

The AN5516 platform supports a comprehensive suite of service boards, allowing for granular customization based on subscriber density and service

requirements.

* ****EC8B (EPON Card):**** An 8-port EPON OLT interface board, often deployed with PX20+ optical transceivers to achieve a 32 dB optical budget, supporting a maximum split ratio of 1:64 and a reach of up to 20 km . It features a dedicated ASIC for hardware-based MAC processing and supports advanced Dynamic Bandwidth Allocation (DBA) for efficient upstream traffic management .

* ****GC8B (GPON Card):**** An 8-port GPON interface board conforming to ITU-T G.984 standards. When equipped with Class C+ optics, it provides a comparable 32 dB optical budget and supports split ratios up to 1:128, maximizing port density and subscriber capacity .

* ****10G PON Cards (XG2B, etc.):**** Supports XG-PON (asymmetric 10G/2.5G) and XGS-PON (symmetric 10G) standards, enabling the ultra-high bandwidth required for enterprise services and mobile fronthaul .

****Flexible Uplink Cards:****

The platform accepts a variety of uplink cards to connect to the Broadband Metro Area Network (BMAN) or core routers. Options include cards with combinations of 10GE SFP+ ports and GE (optical/electrical) ports, providing a high-speed, resilient backhaul .

* ****HSUA/HSUB/HSUC:**** These cards provide the system interfaces, typically offering a combination of 2x10GE and 2xGE or 8xGE ports, with support for link

aggregation (LACP) for uplink protection .

****Optical Specifications (PX20+ vs. Class C+):****

The reach and reliability of the PON system are defined by the optical power budget of the transceivers.

- * ****PX20+ (EPON):**** Offers a total optical budget of approximately 32 dB, with a transmit power of +3.0 to +7.0 dBm and a receive sensitivity of -30 to -32 dBm. This allows for a 1:64 split over 20 km of fiber with a comfortable safety margin .

- * ****Class C+ (GPON):**** Provides a similar 32 dB optical budget, enabling high split ratios and extended reach critical for mass-market residential FTTH deployments .

COMPLIANCE & STANDARDS

The FiberHome AN5516 Series is engineered to comply with the most stringent international and industry-specific standards, ensuring global interoperability and carrier-grade reliability.

- * ****Access Standards:**** Fully conforms to IEEE 802.3ah (EPON), IEEE 802.3av (10G-EPON), and ITU-T G.984 series (GPON) .

- * ****Network Protocols:**** Line-rate support for IPv4/IPv6 dual-stack, OSPF,

BGP, VRRP, and IGMPv2/v3 (snooping and proxy) for advanced routing and multicast services .

* ****Management & Security:**** Supports comprehensive out-of-band (Console, EMS) and in-band (GE) management interfaces. Hardware-based ACLs, MAC address security, and broadcast storm control are implemented to secure the edge network .

* ****Environmental & Safety:**** The platform is built to operate reliably under extreme conditions, with a standard operational temperature range of -40°C to +65°C and humidity tolerance of 5% to 95% (non-condensing). It supports dual -48V DC power inputs with full redundancy, and variants support optional AC power for specific deployments .

TECHNICAL SPECIFICATIONS

Parameter	AN5516-01 (Large)	AN5516-06 (Medium)	AN5516-04 (Compact)
Form Factor	16-Slot Chassis	6-Slot Chassis	2-Slot Chassis (2U)
Backplane/Exchange Capacity	3.2 Tbit/s	720 Gbit/s	128 Gbit/s
Control Board Capacity	1920 Gbit/s	512 Gbit/s	-

Max PON Ports (GPON)	256	96	32
Max ONU Subscribers	8,192+	12,288	1,024
Power Supply	Dual -48V DC (Redundant)	Dual -48V DC (Redundant)	Dual -48V DC / Optional AC
Operating Temp Range	-40°C to +65°C	-40°C to +65°C	-40°C to +65°C
Dimensions (H x W x D)	620 x 480 x 270 mm (11U)	550 x 460 x 380 mm (6U)	88 x 443 x 239.5 mm (2U)

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ORDERING OPTIONS & SKU GUIDE

The AN5516 series is a highly modular system. For procurement and engineering planning, it is essential to understand the component ordering structure. Systems are configured on a per-project basis, selecting the appropriate chassis, main control/uplink cards, service boards, and optics.

****Typical Configuration Components:****

1. ****Chassis Assembly:**** AN5516-01, AN5516-06, or AN5516-04 subrack. Includes backplane, power distribution, and fan tray.
2. ****Core Switch & Uplink Cards:**** HSUB, HSUA, or HSUC cards. These define the primary switching capacity and uplink connectivity (10GE/GE). Installed in dedicated slots (e.g., slots 9 and 10). 1+1 redundancy is highly recommended.
3. ****Service Boards:****
 - * ****EC8B:**** 8-port EPON board. Requires compatible SFP transceivers (PX20/PX20+).
 - * ****GC8B / GCOB:**** 8/16-port GPON board. Requires Class B+ or Class

C+ optical modules.

- * **XG2B / XS8C:** 2/8-port 10G PON boards for high-bandwidth 10G-EPON or XG(S)-PON services.

4. **Optical Transceivers:** SFP modules with specific optical parameters (e.g., PX20+, Class C+) to match the required optical budget and distance.

5. **Power Supply Units (PSUs):**

- * **PWRD:** DC Power Module (-48V).

- * **PWRA:** AC Power Module (optional for AN5516-04) .

Engineers can standardize on a single chassis type (e.g., AN5516-06) and populate it with a mix of GPON (GC8B) for residential FTTH and EPON (EC8B) for enterprise/B2B services, all managed under a single Element Management System (UNM2000) .

