FiberHome AN5516-04 Medium OLT Slot Mapping and Bandwidth Allocation Sheet - Official Technical Overview & Hardware Datasheet

PRODUCT IDENTIFICATION

The FiberHome AN5516-04 is a compact, carrier-grade Optical Line Terminal (OLT) engineered as the small-capacity member of the AN5516 series, complementing the large-scale AN5516-01/06B and medium-sized AN5516-06 platforms . Purpose-built for FTTx deployments in sparsely-populated areas, remote enterprise branches, and campus core networks, this 2U-high chassis provides a robust, future-proof access solution that supports EPON, GPON, 10G PON (XG-PON/XGS-PON), and P2P interfaces within a unified hardware platform .

The AN5516-04 enables network operators to deliver high-bandwidth triple-play services (broadband, voice, video) while ensuring investment protection through its modular architecture and support for hybrid PON technologies.



CORE INTERNAL TOPOLOGY & SLOT MAPPING

The AN5516-04 chassis features a total of five front-accessible slots, organized to support a fully redundant, high-availability architecture .

SLOT CONFIGURATION:

- Service Card Slots (1-2): These two slots host the PON access service cards. Supported cards include GPON (GCOB, GC8B), EPON (EC8B), 10G EPON, XG-PON, and GPON & XGPON Combo interface cards, providing up to 32 PON ports per chassis . The slots utilize a 10G backplane interface per slot .

- Switch/Uplink Card Slots (9-10): These slots accommodate the core switch and uplink cards (HSUA, HSUB, HSUC). These cards serve a dual function: they act as the system's switching fabric and provide the high-speed GE/10GE uplink interfaces to the aggregation or core network . The system supports 1+1

redundancy for these critical cards, ensuring sub-50ms switchover in case of failure .

- Fan Card Slot (21): A dedicated slot for the hot-swappable, intelligent fan unit that manages system cooling .

- Power Card Slots (24-25): These slots accept DC (-48V) power cards (PWRD) with dual protection for redundancy, or a single AC power card (PWRA) for scenarios where AC mains are available .

SWITCHING SUBSYSTEM CAPABILITIES

The switching and bandwidth allocation architecture of the AN5516-04 is designed for high-performance, deterministic traffic management.

SYSTEM PERFORMANCE METRICS:

- Backplane Exchange Capacity: 1.5 Tbit/s, providing a high-bandwidth, non-blocking data plane for all service slots .

- Control Board (Switch Card) Exchange Capacity: Up to 960 Gbit/s (with HSUB/HSWC cards), ensuring wire-speed forwarding for aggregated traffic .

- Switching Capacity (Core Switch Cards in Load Sharing Mode): 488 Gbit/s .

- Forwarding Performance: Supports Layer 2 and Layer 3 wire-speed forwarding for all packet sizes .

- System Table Sizes: 32K MAC addresses, 8K IPv4 routes, 4K IPv6 routes, and 8K

ARP entries to support dense subscriber environments .

DYNAMIC BANDWIDTH ALLOCATION (DBA):

A critical feature of the AN5516-04 is its granular, hardware-based DBA engine. The system allows for the binding of DBA bandwidth templates either to individual ONUs or to an entire OLT slot .

- Bandwidth Granularity: Supports a minimum bandwidth allocation granularity of ≤64 kbit/s, allowing for precise, tiered Service Level Agreements (SLAs) .

- DBA Precision: Achieves a bandwidth allocation precision of ±5% .

- T-CONT Support: The system supports multiple T-CONT (Transmission Container) types, enabling the delivery of fixed-bandwidth (for VoIP), assured-bandwidth (for business data), and best-effort (for residential internet) services from a single PON port .

OPERATIONAL ADVANTAGES

CARRIER-GRADE RELIABILITY:

- Hardware Redundancy: 1+1 redundancy for core control/switch cards and power supply units (DC), coupled with hot-swappable support for all boards and PON optical modules, ensures a Mean Time Between Failures (MTBF) that supports 99.999% uptime SLAs .

- Network Protection: End-to-end protection mechanisms include uplink

dual-homing, RSTP/MSTP ring protection, LACP link aggregation, and PON port Type B/C protection for sub-200ms optical path switching .

ENVIRONMENTAL RESILIENCE:

The platform is designed for deployment in uncontrolled or harsh environments, boasting an extended operating temperature range of -40°C to +65°C and humidity tolerance from 5% to 95% (non-condensing) .

SPECIFICATION MATRIX

Parameter	**Specification**
Form Factor	2U, 19-inch rack-mountable (88mm x 480mm x 241.5mm with 19-inch mounting ears)
Chassis Slots	5 total (2 Service Slots, 2 Switch/Uplink Slots, 1 Fan Slot, 2 Power Slots)
Backplane Exchange Capacity	1.5 Tbit/s
Control Board Exchange Capacity	960 Gbit/s (e.g., with HSUB card)
Maximum PON Ports	32
Maximum ONUs Supported	4,000 (with up to 1:256 split ratio per PON port)
Maximum Transmission Distance	60 km

(PON)	
Power Supply Options	Dual -48V DC hot-swappable (PWRD) or Single AC (PWRA)
Typical Power Consumption (Full Load)	~202W (with 2x HSUB + 2x XS8C)
Operating Temperature	-40°C to +65°C
DBA Granularity	≤ 64 kbit/s

REGULATORY COMPLIANCE

The AN5516-04 platform is designed and certified to meet the stringent requirements of global telecom standards, ensuring seamless interoperability and network integration .

- PON Standards: ITU-T G.984.x (GPON), IEEE 802.3ah (EPON), and ITU-T G.987 (XG-PON) .
- Layer 2 Protocols: IEEE 802.1D (STP), 802.1w (RSTP), 802.1s (MSTP), 802.1Q (VLAN), 802.1ad (Q-in-Q) .
- Layer 3 Protocols: OSPF, VRRP, RIP, and static routing .
- Synchronization: IEEE 1588v2 (Precision Time Protocol), Sync-E, and 1PPS+ToD for mobile backhaul and high-precision timing applications .
- Safety & EMC: Designed to comply with relevant IEC, ETSI, and FCC safety and

electromagnetic compatibility standards.

