EchoLife ONT Product Portfolio - Official Technical Overview & Hardware Datasheet

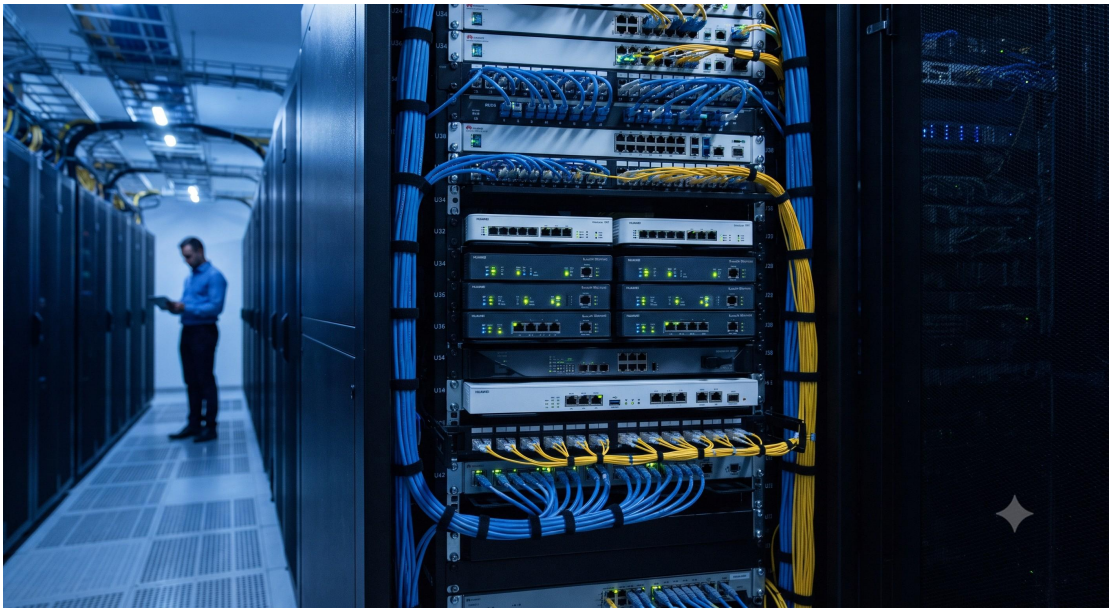
EXECUTIVE SUMMARY

The Huawei EchoLife Optical Network Terminal (ONT) portfolio represents a comprehensive, carrier-grade family of user-side devices engineered for Fiber-to-the-Home (FTTH) and Fiber-to-the-Building (FTTB) deployments. As a critical component of Huawei's all-optical access solution, the EchoLife series leverages Gigabit-capable Passive Optical Network (GPON) and Ethernet Passive Optical Network (EPON) technologies to deliver ultra-broadband access to residential, Small Office/Home Office (SOHO), and enterprise users .

Designed to meet the stringent requirements of modern telecommunications networks, the portfolio encompasses bridging-type, routing-type, and gateway ONTs, providing a versatile range of solutions that address diverse deployment scenarios. From compact, high-performance bridging units to feature-rich gateways with integrated Wi-Fi and Voice over IP (VoIP) capabilities, the EchoLife series ensures high-fidelity service delivery for data, voice, and high-definition video applications .

This document provides a comprehensive technical overview of the Huawei EchoLife ONT Product Portfolio, detailing its architectural design, hardware

features, technical specifications, and compliance standards, establishing it as the definitive reference for network architects, procurement specialists, and systems engineers.



ARCHITECTURE & CHASSIS DESIGN

The EchoLife ONT portfolio is architected around a unified hardware and software platform that prioritizes performance, reliability, and service agility. The core design philosophy centers on a high-performance forwarding engine capable of delivering wire-speed throughput for both upstream and downstream traffic, ensuring an exceptional user experience for bandwidth-intensive applications such as 4K/8K video streaming, online gaming, and large file transfers .

Form Factor and Industrial Design: The portfolio features a range of compact, aesthetically pleasing form factors optimized for diverse installation environments. Desktop and wall-mountable configurations are available across the series, with dimensions varying by model to accommodate space-constrained deployments. For instance, the EG8040C-10 measures 160 mm x 110 mm x 30 mm, while the enterprise-focused EG8040H6 has a footprint of 168 mm x 115 mm x 30 mm, enabling flexible integration into home gateways and enterprise wiring closets . The use of natural heat dissipation materials in the upper shell ensures passive cooling, enhancing reliability and energy efficiency .

Optical Interface and Transceivers: At the heart of the ONT is the optical interface, which typically features an SC/UPC or SC/APC connector. The devices are equipped with Class B+ optical transceivers, providing a receiver sensitivity of -27 dBm and an overload optical power of -8 dBm. This ensures robust performance across a wide range of optical link budgets, with upstream and downstream wavelengths standardized at 1310 nm and 1490 nm, respectively . Many models also incorporate a Wavelength Blocking Filter (WBF), compliant with G.984.5, to protect against out-of-band optical interference .

HARDWARE FEATURES

The EchoLife ONT portfolio is distinguished by its rich set of hardware features designed to maximize network flexibility and service delivery:

User Network Interfaces (UNIs):

The series offers a versatile array of user-side interfaces to cater to varying customer requirements:

- Ethernet Ports: Multiple Gigabit Ethernet (GE) and Fast Ethernet (FE) ports with auto-negotiation support are standard across the portfolio. High-end models provide up to four GE ports, enabling high-speed LAN connectivity for PCs, TVs, and gaming consoles . The ports support advanced features such as VLAN tagging, tag removal, QinQ VLAN, and MAC address learning, facilitating complex network segmentation and security policies .

- Voice Ports (POTS): Select routing-type and gateway models are equipped with two Plain Old Telephone Service (POTS) ports, supporting a Ringing Equivalence Number (REN) of up to 4 . These interfaces support G.711A/μ, G.729a/b, and G.722 codecs, T.30/T.38 fax modes, and DTMF signaling, ensuring reliable legacy voice and fax integration .

- CATV Port: Certain models in the portfolio (e.g., HG8240H, HG8242H, HG8247H) include a Cable Television (CATV) interface, allowing the simultaneous delivery of RF video signals over the fiber infrastructure .

- USB Port: Select gateway models are integrated with a USB 2.0 port, enabling network-attached storage (NAS) functionality via SAMBA file sharing, DLNA

media streaming, and print server capabilities .

Integrated Wi-Fi Capabilities:

For wireless connectivity, the portfolio includes dual-band Wi-Fi models supporting IEEE 802.11 b/g/n/ac (Wi-Fi 5) and, in some variants, Wi-Fi 6 (802.11ax) . These models feature 2x2 or 4x4 MIMO antenna configurations with antenna gains up to 5 dBi, delivering high-speed wireless connectivity for mobile devices. Advanced features such as band steering, Wi-Fi roaming (802.11k/v), and multiple SSIDs are supported to optimize the home and enterprise wireless experience .

COMPLIANCE & STANDARDS

The EchoLife ONT portfolio is engineered to adhere to a comprehensive suite of international and industry-specific standards, ensuring interoperability, safety, and regulatory compliance:

- Optical Standards: ITU-T G.984.x (GPON) and IEEE 802.3ah (EPON).
- Interface Standards: IEEE 802.3 for Ethernet, ITU-T G.711/G.729 for voice.
- Management Protocols: TR-069 (CWMP), OMCI (ONT Management and Control Interface).
- Safety and EMC: Compliance with international safety standards and EMC

directives for commercial and residential environments.

- Environmental: RoHS (Restriction of Hazardous Substances) compliant.

- Network Protection: Support for Type B protection (single-homing and dual-homing) to ensure network resilience .

Parameter	**Specification**
Form Factor	Desktop or Wall-mountable (e.g., 30 mm - 34 mm H, 105 mm - 225 mm W, 97 mm - 147 mm D)
Optical Interface	SC/UPC or SC/APC; GPON Class B+/EPON PX20+
Optical Power Parameters	Receiver Sensitivity: -27 dBm; Overload Optical Power: -8 dBm
Wavelengths	Upstream: 1310 nm; Downstream: 1490 nm
Power Supply	1+0 or 1+1 Redundant (External AC/DC Adapter), typical 12V DC
Operating Temperature	0°C to 40°C (Standard); -10°C to +55°C (Wide-Temperature Models)
Power Consumption	Static: 2.8 W - 6.8 W; Max: 4.7 W - 24 W (depending on model)
Management Protocols	OMCI, TR-069, Web UI

ORDERING OPTIONS

The EchoLife ONT portfolio is available in a wide array of models, each tailored for specific applications. The primary classifications are:

- Bridging ONTs: (e.g., HG8010H, EG8040C-10) Provide basic 1:1 port-to-port connectivity with high-speed Layer 2 forwarding. Ideal for simple, high-performance broadband access where routing is handled by an external device.
- Routing ONTs: (e.g., EG8041V5, EG8120L5) Integrate Layer 3 routing capabilities, including PPPoE, NAT, DHCP, and firewall functions. They are suited for SOHO and enterprise deployments requiring integrated gateway services .
- Gateway ONTs: (e.g., HG8247W5, HG8245H) Represent the fully-featured product tier, incorporating routing, VoIP, CATV, Wi-Fi, and USB interfaces. These are optimal for advanced residential and enterprise environments demanding a converged triple-play gateway .

Network operators and system integrators can select from this broad portfolio to precisely match the service requirements and CPE strategy of their specific deployment, ensuring optimal performance and cost-efficiency.


SC/UPC