High-Quality Chinese OEM Dual-Mode XPON ONU Hardware Selection Matrix - Official Technical Overview & Hardware Datasheet

EXECUTIVE SUMMARY

This document serves as the definitive technical overview and hardware datasheet for the High-Quality Chinese OEM Dual-Mode XPON ONU product family. Designed for global telecommunications carriers, managed service providers, and enterprise network architects, this selection matrix provides a comprehensive framework for evaluating and deploying next-generation optical network units. These platforms uniquely integrate both GPON and EPON technologies within a unified hardware architecture, enabling service providers to seamlessly transition or consolidate their fiber access networks without the need for disparate CPE inventories. By offering a flexible, high-performance, and cost-effective solution, this OEM portfolio addresses the critical need for network simplification, operational expenditure reduction, and future-proof investment protection in the increasingly competitive broadband market.



HARDWARE ARCHITECTURE & SILICON

The foundational architecture of the Dual-Mode XPON ONU series is built upon a purpose-built, high-integration system-on-chip (SoC) that houses a powerful packet forwarding engine, a robust network processor, and a sophisticated traffic management unit. This silicon is specifically engineered to handle the distinct framing, encapsulation, and management protocols of both GPON (G.984) and EPON (802.3ah) standards concurrently, with a hardware-based switching matrix that ensures line-rate, non-blocking performance across all subscriber-facing interfaces. The physical layer design prioritizes resilience and operational stability, incorporating a redundant power input scheme with overvoltage and surge protection to safeguard against common environmental hazards. This architecture enables the ONU to operate as a highly efficient gateway, offloading CPU-intensive tasks to hardware accelerators for features

like QoS, VLAN tagging, and packet filtering, thereby preserving processing power for advanced management and value-added services.

KEY FEATURES & ROUTING LOGIC

- Dual-Mode XPON Convergence: Automated detection and seamless operation over both GPON and EPON OLTs, providing a universal CPE for diverse network infrastructures. This feature allows for a single stock-keeping unit (SKU) to be deployed across multiple network types, drastically simplifying logistics and field engineering.
- Layer 3 Routing Capabilities: Integrated hardware-accelerated routing engine supporting static routing, RIP v1/v2, and policy-based routing. This enables the ONU to function as a customer-edge router, offloading routing tasks from the OLT and core network, thus enhancing overall network efficiency and scalability.
- Advanced Quality of Service (QoS): Multi-level hierarchical QoS with hardware-based queue management and scheduling. Supports 802.1p, DSCP, and ToS classification, with up to 8 priority queues per port, ensuring deterministic performance for latency-sensitive applications such as VoIP, IPTV, and cloud-based services.
- Comprehensive Security Suite: Carrier-grade security features including MAC address filtering, IP/MAC binding, ARP inspection, and hardware-based IPsec acceleration. These features provide robust protection against subscriber-side

threats and unauthorized network access, ensuring the integrity of the access network.

- Zero-Touch Provisioning (ZTP) & Remote Management: Full support for TR-069/TR-369 management protocols, allowing for automated provisioning, configuration, and firmware upgrades from a centralized network management system (NMS). This significantly reduces truck rolls and accelerates service turn-up times, leading to substantial operational savings.

COMPLIANCE & STANDARDS

The Dual-Mode XPON ONU series is engineered and rigorously tested to meet the most stringent international standards for telecommunications equipment. This commitment to compliance ensures seamless interoperability and guarantees that the hardware meets the regulatory requirements for deployment in major global markets. The platform adheres to the following key standards:

- ITU-T G.984.x (GPON) and IEEE 802.3ah (EPON) standards.
- IEEE 802.1Q (VLAN), IEEE 802.1p (CoS), and IEEE 802.1ad (Q-in-Q).
- IEEE 802.3 (Ethernet) and IEEE 802.3u (Fast Ethernet) for all copper interfaces.
- ITU-T G.987 (XG-PON) interoperability and G.988 (ONU management and control interface).

- Safety: IEC 60950-1 / IEC 62368-1 (Information technology equipment - Safety).

- EMC: FCC Part 15, CE Mark (EN 55032, EN 55035), and VCCI standards for electromagnetic compatibility.

- Environmental: RoHS and WEEE compliant for environmentally conscious manufacturing and disposal.

TECHNICAL SPECIFICATIONS

Parameter	**Specification**
Form Factor	Compact Desktop / 1RU Rack-Mountable Chassis
XPON Interface	1 x SC/APC or SC/UPC (GPON/EPON Dual-Mode)
Subscriber Interfaces	4 x 10/100/1000Base-T (RJ45), 1 x POTS (FXS), 2 x USB 2.0
Switching Capacity	8.8 Gbps (Non-Blocking)
Throughput (IPv4)	Up to 6.5 Mpps (64-byte packets)
Packet Buffer	1 MB (Dynamic Shared Memory Allocation)
System Memory (RAM)	256 MB DDR3 SDRAM
Flash Storage	128 MB NAND Flash

Power Supply	External 12V DC, 2A, (Dual-Redundant Input Optional)
Power Consumption	Typical: < 6W, Maximum: < 10W
Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Operating Humidity	10% to 90% (Non-Condensing)
MTBF	> 100,000 Hours at 25°C
LED Indicators	PWR, LOS, XPON, LAN1-4, VoIP, USB
Dimensions (W x D x H)	160 mm x 110 mm x 35 mm (6.3" x 4.3" x 1.4")
Weight	Approx. 0.35 kg (0.77 lbs)

