ZTE GFCH 16-Port XG-PON and GPON Combo Board - Official Technical Overview & Hardware Datasheet

PRODUCT IDENTIFICATION

The ZTE GFCH is a high-performance, 16-port XGS-PON and GPON Combo OLT interface board, purpose-built for the ZTE ZXA10 C600, C650, and C680 series Optical Line Terminal (OLT) platforms. This service board is a cornerstone of next-generation network upgrades, enabling a seamless, cost-effective migration path from existing GPON infrastructure to the symmetrical 10 Gbps capabilities of XGS-PON. By integrating both standards onto a single, compact line card, the GFCH empowers service providers to deliver ultra-broadband services while protecting prior investments in GPON Optical Network Units (ONUs).



CORE INTERNAL TOPOLOGY

The GFCH board's advanced architecture is meticulously designed for high-throughput, carrier-grade performance. The internal topology is built around several key functional modules that work in concert to process data with maximum efficiency and reliability.

- **Management and Control Module:** The central intelligence of the board, responsible for system configuration, control, and comprehensive card management. It orchestrates all other modules and handles communication with the OLT's main control board.
- **PON MAC Module:** This is the heart of the PON interface, implementing all Physical Layer Operations, Administration, and Maintenance (PLOAM) and media access control functions as defined in the ITU-T G.984.3 standard for GPON and the ITU-T G.989.3 and G.987.3 standards for XGS-PON. It ensures robust and standardized frame processing.
- **Network Processor (NP) Module:** A powerful, programmable processor that handles all data-plane operations on the service layer. It performs service bandwidth management, advanced Quality of Service (QoS) processing, and traffic shaping to meet stringent Service Level Agreements (SLAs). All data processing functions are compliant with the Broadband Forum's TR-156 standard.

- **Optical Module:** The GFCH supports hot-swappable SFP+ optical modules, available in N1/B+ or N2/C+ variants. These modules provide the physical GPON or XGS-PON optical interface, fully compliant with ITU-T G.984.2 and G.9807, respectively. They feature built-in internal multiplexing for Combo port operation and use an SC/UPC optical connector.
- **Clock Module:** This module is responsible for processing the system clock, ensuring precise timing and synchronization across the network. It is fully compliant with critical ITU-T clocking standards, including G.8262 (SyncE), G.8264, and G.781, which are essential for delivering high-quality, jitter-free services.

SWITCHING SUBSYSTEM CAPABILITIES

The GFCH board is engineered to deliver exceptional performance, supporting a broad range of advanced features that make it suitable for demanding, high-density access networks.

- **High Forwarding Capability:** The board provides a total forwarding capability of 200 Gbit/s, ensuring line-rate performance across all 16 ports under full load.
- **Service Flow Capacity:** Capable of managing up to 16,352 service flows per board, allowing for granular service differentiation and control.

- **MAC Address Table:** The board supports a large MAC address table of up to 131,072 entries, ideal for networks with a high density of connected subscribers.

- **Advanced QoS and Traffic Management:** Features a robust Hierarchical Quality of Service (HQoS) engine, CAR (Committed Access Rate) groups, and support for both ONU-based and queue-based shaping to enforce precise bandwidth policies.

- **Comprehensive PON Protection:** Supports a full suite of PON protection mechanisms, including Type B and Type C protection in both single-homing and dual-homing configurations, ensuring carrier-grade network resilience.

- **Rogue ONT Detection and Isolation:** The board provides built-in mechanisms for real-time detection and isolation of rogue Optical Network Terminals (ONTs), proactively preventing them from disrupting services for other subscribers.

- **Precision Time Protocol (PTP):** Supports IEEE 1588v2, enabling the delivery of highly accurate synchronization for mobile backhaul and other latency-sensitive applications.

- **Energy Efficiency:** Features an automatic shutdown function at high temperatures and energy-saving modes for the service board, contributing to a lower Total Cost of Ownership (TCO).

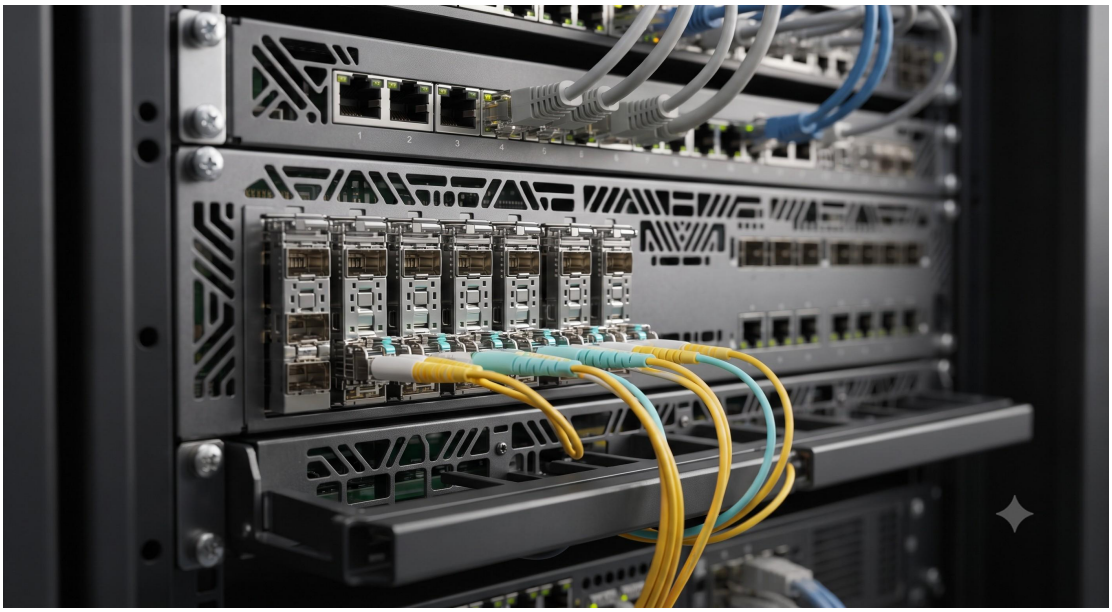
Parameter	**Specification**

Model Name	GFCH / GFCH P01
Port Configuration	16-port XGS-PON & GPON Combo
Optical Interface	SFP+ with built-in internal multiplexing, SC/UPC connector
Optical Module Options	N1/B+ or N2/C+
Forwarding Capability	200 Gbit/s
Maximum Split Ratio	1:128 (GPON & XGS-PON)
Supported ONU Types	XGS-PON, XG-PON, GPON
Maximum Frame Size	2052 bytes (9216 bytes with Jumbo Frame)
MAC Address Table	131,072
PON Protection	Type B & Type C (Single-homing & Dual-homing)
Clock Synchronization	ITU-T G.8262, G.8264, G.781
Precision Time Protocol	IEEE 1588v2
Dimensions (L x H x W)	393.1 mm × 23.9 mm × 214 mm
Weight	~1.72 kg
Power Consumption	Static: 48 W / Maximum: 106 W
Operating Temperature	-40° C to +55° C
Hot Swappable	Yes

REGULATORY COMPLIANCE

The ZTE GFCH board is designed and tested to meet the highest standards of global telecom and safety regulations.

- **PON Standards:** ITU-T G.984.3 (GPON), ITU-T G.987.3 (XG-PON), ITU-T G.989.3 (XGS-PON), ITU-T G.984.2 (GPON optical interface), ITU-T G.9807 (XGS-PON optical interface).
- **Data Processing:** Compliant with Broadband Forum TR-156 for service layer data processing.
- **Synchronization:** ITU-T G.8262, G.8264, and G.781 for system clock processing.
- **Environmental:** Designed to operate reliably in a wide range of environmental conditions.



ORDERING INFORMATION

The GFCH board is available with different optical module options and is compatible with the full ZTE ZXA10 C600 series OLT family.

- **Board Model:** GFCH / GFCH P01
- **Supported OLT Chassis:** ZTE ZXA10 C600, C620, C650, C680
- **Optical Module Options:** N1/B+ (XGS-PON N1 / GPON B+) or N2/C+ (XGS-PON N2 / GPON C+)
- **Maximum Split Ratio:** 1:128 for both GPON and XGS-PON
- **Supported ONU Types:** XGS-PON, XG-PON, and GPON ONUs
- **Key Features:** OLS (Optical Line Supervision), ALS (Automatic Laser Shutdown) function, and hot-swappable capability.

For detailed configuration, pricing, and availability, please contact your ZTE sales representative or authorized distribution partner.