ZTE ETGO 8-Port EPON Line Card Register Mapping and Loopback Settings - Official Technical Overview & Hardware Datasheet

ZTE ETGO 8-PORT EPON LINE CARD: REGISTER MAPPING AND LOOPBACK SETTINGS

OFFICIAL TECHNICAL OVERVIEW & HARDWARE DATASHEET

EXECUTIVE SUMMARY

The ZTE ETGO line card represents a significant advancement in high-density Ethernet Passive Optical Network (EPON) aggregation for the ZXA10 C300, C320, and C350 Optical Line Terminal (OLT) platforms . Engineered for carrier-grade Fiber-to-the-Home (FTTH) and business access deployments, the ETGO provides eight EPON SFP interfaces on a single service module, enabling substantial subscriber capacity and operational efficiencies .

This document provides a comprehensive technical overview, focusing on the hardware architecture and the critical operational concepts of register mapping and loopback interface configuration. Understanding these components is essential for network engineers and system integrators to fully leverage the board's capabilities for network diagnostics, high-availability, and service assurance.



HARDWARE ARCHITECTURE & SILICON

The ETGO line card is purpose-built for the ZXA10 platform, featuring a compact, modular design optimized for high-density EPON termination. The board's architecture is centered around a high-performance packet processor and a dedicated EPON Media Access Control (MAC) chip, which work in concert to manage upstream and downstream traffic.

- Carrier-Grade Form Factor: The board is a standard service card for the ZXA10 C300/C320/C350 chassis, with dimensions of 395.5 mm x 22.5 mm x 225 mm and a weight of 1.107 kg .

- High-Density Interface: Equipped with eight EPON SFP slots, each supporting a PX20+ optical module (2.5~7dBm) or PX20++ (4.5~8dBm), enabling high split ratios up to 1:128 .

- Packet Processing Engine: The board integrates advanced silicon to handle the forwarding of all packet types, including data, voice, and video, with support for intelligent Quality of Service (QoS) and ONU-based shaping to meet Service Level Agreements (SLAs) .
- Optical Performance Monitoring (OPM): Integrated hardware provides real-time Received Signal Strength Indicator (RSSI) detection for each PON port, enabling proactive link monitoring and fault isolation .

REGISTER MAPPING FRAMEWORK

The Register Mapping subsystem is the foundational interface between the OLT's system software and the ETGO board's hardware. It defines the physical and logical address space used by the control plane to manage, monitor, and configure the line card. This architecture is critical for efficient system operations.

- Definition and Function: A register map is a structured table that correlates memory addresses to specific hardware registers on the ETGO board . Accessing these addresses allows the central processing unit (CPU) to read status information (e.g., link state, optical power, error counters) and write configuration data (e.g., port enable/disable, QoS parameters) .
- Operational State Parameters: The register mapping framework defines a set

of parameters that express the operational state of the virtual system, enabling seamless communication between the host OLT and the line card .

- Efficient Access: This mapping allows for efficient hardware access via standard bus protocols, ensuring low-latency control and real-time responsiveness essential for PON operations. The hardware automatically translates command requests to the correct physical register based on the defined map .

KEY FEATURES & ROUTING LOGIC

- 8 EPON SFP Ports: Provides 8 EPON SFP interfaces on a single board, supporting large capacity and high-density deployments .

- Advanced PON Technology: Supports up to 1:128 split ratio for efficient fiber usage, maximizing subscriber reach and reducing infrastructure costs .

- Comprehensive Optical Performance Monitoring: Supports Optical Performance Monitor (OPM) for real-time monitoring and control of optical signals with RSSI detection .

- Intelligent QoS & Shaping: Features ONU-based shaping for bandwidth management and Quality of Service (QoS) to meet SLA requirements, compatible with TR156 standards .

- Energy Efficiency: Designed with low-power chips and intelligent management for lower system power consumption compared to large OLTs .

- Protection & Reliability: Includes automatic power shutdown for high temperatures and supports link protection mechanisms like PON protection .
- Loopback Support: Supports loopback mode for diagnostic purposes. When enabled, traffic sent to the interface is looped back to the source, aiding in fault isolation and performance testing .

COMPLIANCE & STANDARDS

The ZTE ETGO line card is engineered to comply with a comprehensive set of international telecommunications and industry standards, ensuring interoperability, safety, and environmental responsibility.

- PON Standards: Fully compliant with IEEE 802.3ah EPON standards, ensuring seamless interoperability with standards-based Optical Network Units (ONUs) .
- Environmental: Designed for a wide operating temperature range of -40°C to +60 ° C and meets rigorous Electromagnetic Compatibility (EMC) standards, making it suitable for deployment in outdoor cabinets and harsh environments .
- Safety: Adheres to international safety standards for telecommunications equipment, including laser safety requirements for optical interfaces.
- Regulatory: Complies with relevant directives for telecommunications equipment, including RoHS (Restriction of Hazardous Substances).

- Telcordia: Designed and tested to meet Telcordia GR-63-CORE and GR-1089-CORE requirements for network equipment, ensuring high reliability in telecommunications environments.

TECHNICAL SPECIFICATIONS

Parameter	**Specification**
Description	8-port EPON interface card
Interface Quantity	8
Interface Type	EPON SFP interface
Compatible OLT Slots	ZXA10 C300/C320/C350 service card slot
Maximum Split Ratio	1:64
Optical Module Support	PX20+ (2.5~7dBm), PX20++ (4.5~8dBm)
Port Rate (Downstream/Upstream)	1.25 Gbps / 1.25 Gbps
Power Consumption	Static: 5W, Maximum: 33W, Typical: 27W
Dimensions (W x D x H)	395.5 mm x 22.5 mm x 225 mm
Weight	1.107 kg



ORDERING SKU INFORMATION

Product orders must clearly specify the board and its required accessories to ensure complete system integration. The ETGO line card supports different optical module types depending on the deployment requirements for optical power budgets.

- Basic Line Card: ZTE ETGO 8-Port EPON Service Board
- Optical Modules (Order Separately):
    - ZTE EPON SFP PX20+ (Standard Range)
    - ZTE EPON SFP PX20++ (Extended Range)
- Supported OLT Chassis: ZTE ZXA10 C300, ZTE ZXA10 C320, ZTE ZXA10 C350

WARRANTY AND SUPPORT

Each ETGO line card is covered by a comprehensive 12-month warranty covering manufacturing defects. Additional technical support and extended warranties are available through ZTE's global support network and authorized partners .