ZTE GTGH 16-Port GPON Line Card Optical Transceiver Power Class Parameters - Official Technical Overview & Hardware Datasheet

EXECUTIVE SUMMARY

The ZTE GTGH is a high-density 16-port GPON service line card engineered for deployment in ZXA10 C300, C320, and C350 optical line terminal platforms. This document provides a definitive technical overview of the GTGH hardware architecture, with primary emphasis on the optical transceiver power class parameters that determine link budget, split ratio viability, and overall PON reach. The line card supports pluggable SFP optical modules in B+, C+, and C++ power classes, enabling operators to align transceiver selection with specific outside plant loss profiles and service tier requirements. With a per-card maximum split ratio of 1:128 and a transmission reach of 20 km, the GTGH delivers carrier-grade GPON access for FTTH, FTTB, and FTTX deployments.



HARDWARE ARCHITECTURE & SILICON

The GTGH line card integrates five functional subsystems on a single modular PCB: a control module for software loading and board management, a switching module for convergence of the 16 GPON port signals, an interface module for GPON-to-Ethernet message conversion, a power supply module for intra-board power distribution, and a clock module for synchronization reference distribution. The card occupies a single slot in the host chassis and measures 395.5 mm × 22.5 mm × 225 mm (H × W × D), with a typical weight of 1.0 kg. Power consumption is rated at 5 W static, 55 W typical, and 65 W maximum, reflecting the low-power GPON MAC silicon that reduces consumption by approximately 30% versus industry average. The GTGH is available in G and K variant designations, both compatible with the ZXA10 C300 and C320 shelves.

KEY FEATURES & ROUTING LOGIC

- High-Density Port Configuration: 16 GPON ports per card, each supporting a maximum split ratio of 1:128, yielding a theoretical ceiling of 2,048 ONU connections per line card.
- Traffic Management Depth: Each PON port supports 1,024 T-CONTs and 4,096 GEM ports, with H-QoS enforcement across 1,024 queues and up to 356 schedulers per port.
- Discard and Coloring: Color-sensitive RED and WRED discard algorithms are implemented for congestion management and service-level differentiation.
- Timing Distribution: The card receives 1PPS+TOD signals and propagates them to subtended ONUs via the PON channel, supporting synchronized timing services.
- Energy Efficiency: The GPON MAC chipset delivers a 30% reduction in power consumption relative to industry baseline, with static draw as low as 5 W.
- ONU Power Saving: Support for ONU energy-saving management as defined in ITU-T G.987.3.

COMPLIANCE & STANDARDS

The GTGH line card and its associated optical transceivers are designed to

comply with the ITU-T G.984 series GPON recommendations, including G.984.4 OMCI management and G.988 ONU management and control interface specifications. The optical interface parameters align with GPON physical layer requirements for single-mode fiber operation in the 1490 nm downstream and 1310 nm upstream wavelength windows. The card supports AES-128 downstream encryption as standardized for GPON confidentiality.

TECHNICAL SPECIFICATIONS

The following table consolidates the primary electrical, mechanical, and optical power class parameters for the GTGH line card. Optical values are presented per-port and vary by selected SFP power class.

Parameter	**Specification**
Form Factor	Modular line card for ZXA10 C300 / C320 / C350 chassis
Port Count	16 × GPON ports (SFP)
Max Split Ratio	1:128 per PON port
Max Reach	20 km
Port Rate	Tx: 2.488 Gbit/s; Rx: 1.244 Gbit/s
Wavelength	Tx: 1490 nm; Rx: 1310 nm
Connector Type	SC/PC or SC/UPC (module dependent)

Fiber Type	Single-mode
Power Consumption	5 W (static); 55 W (typical); 65 W (maximum)
Dimensions (H × W × D)	395.5 mm × 22.5 mm × 225 mm
Weight	1.0 kg
B+ Class – Min Output Power	1.5 dBm
B+ Class – Max Output Power	5.0 dBm
B+ Class – Receiver Sensitivity	-28.0 dBm
B+ Class – Overload Optical Power	-8.0 dBm
B+ Class – Extinction Ratio	10 dB
C+ Class – Min Output Power	3.0 dBm
C+ Class – Max Output Power	7.0 dBm
C+ Class – Receiver Sensitivity	-32.0 dBm
C+ Class – Overload Optical Power	-12.0 dBm
C+ Class – Extinction Ratio	8.2 dB
C++ Class – Min Output Power	4.5 dBm
C++ Class – Max Output Power	8.0 dBm
C++ Class – Receiver Sensitivity	-30 dBm @ 10E-10 (C++), -32 dBm @ 10E-10
C++ Class – Overload Optical Power	-15.0 dBm
C++ Class – Extinction Ratio	8.2 dB
T-CONT per PON Port	1,024

GEM Ports per PON Port	4,096
Queues per PON Port	1,024
Schedulers per PON Port	Up to 356
Traffic Management	H-QoS; color-sensitive RED/WRED
Timing	1PPS + TOD received and distributed to ONUs via PON
Encryption	AES-128 downstream
Standards Compliance	ITU-T G.984 series; G.988 OMCI; G.987.3 (ONU power saving)

ORDERING SKU INFORMATION

The GTGH line card is orderable in multiple configurations distinguished by the bundled optical transceiver power class. The base board part number is common across variants, with the SFP class specified at the line-item level. Standard configurations include GTGH with 16× B+ SFP modules, GTGH with 16× C+ SFP modules, and GTGH with 16× C++ SFP modules. The K-variant and G-variant designations denote hardware revision generations; both are compatible with ZXA10 C300 and C320 chassis. Operators should specify the required power class at procurement to ensure alignment with the planned splitter cascade loss budget.

