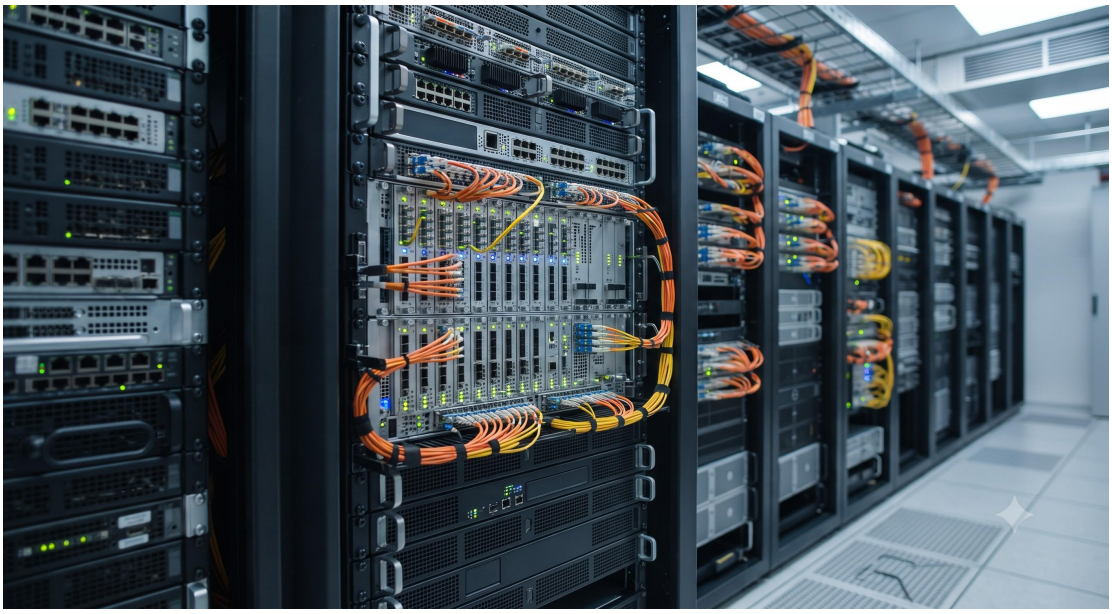
ZTE FWIL 16-Port Flex-PON Service Board Transceiver Compatibility Guide - Official Technical Overview & Hardware Datasheet

ZTE FWIL 16-PORT FLEX-PON SERVICE BOARD TRANSCEIVER COMPATIBILITY GUIDE

OFFICIAL TECHNICAL OVERVIEW & HARDWARE DATASHEET

Document Version: 1.0 | Date: July 2026



EXECUTIVE SUMMARY

The ZTE FWIL 16-Port Flex-PON Service Board is a highly versatile, carrier-grade line card engineered for next-generation Optical Line Terminal (OLT) platforms. This service board is specifically designed to address the convergence of diverse fiber access technologies, offering a flexible and future-proof solution

for network operators building or expanding their Passive Optical Network (PON) infrastructure. Supporting a comprehensive range of transceiver interfaces, the FWIL board simplifies inventory management and enables a seamless migration path from legacy GPON and EPON to advanced XGS-PON, XG-PON, and even 10G-EPON technologies.

This official technical datasheet serves as the definitive reference guide for the ZTE FWIL board's transceiver compatibility. It provides detailed specifications, supported modules, and critical performance parameters required for successful deployment and operation in a modern telecommunications network. By standardizing on a single, high-density service board that accommodates multiple PON standards, operators can achieve significant operational efficiencies and reduce capital expenditure associated with managing multiple hardware platforms.

The FWIL board supports up to 16 Flex-PON ports, each capable of operating at speeds up to 10 Gbps (downlink). This high-density design enables the board to serve a large number of subscribers in a compact footprint, making it ideal for both central office and remote terminal installations. The board operates over various optical media (SMF and MMF) and supports a wide range of distances, from short-range intra-building links to long-haul connections spanning tens of kilometers, providing exceptional deployment flexibility.

HARDWARE ARCHITECTURE & SILICON

The ZTE FWIL 16-Port Flex-PON Service Board is built on a robust and high-performance hardware platform designed for reliability and throughput. At its core is a powerful, purpose-built PON Media Access Control (MAC) ASIC that manages all physical layer and data link layer functions. This silicon is optimized for Flex-PON operation, ensuring line-rate forwarding for all PON protocols without performance degradation.

Key architectural components include:

- **High-Density Port Configuration:** 16 physical interfaces in a standardized form factor. All ports are software-configurable to operate in multiple PON modes (e.g., GPON, XGS-PON, XG-PON).
- **Advanced Optical Integration:** The board includes a sophisticated clock and data recovery (CDR) circuit to ensure signal integrity and low jitter across all supported optical interfaces and link distances.
- **Carrier-Grade Redundancy:** Designed to be hot-swappable and fully redundant in compatible ZTE OLT chassis, supporting system-level failover without service interruption.
- **Robust Thermal Management:** The physical design incorporates an

efficient heat dissipation system, allowing operation in a wide range of environmental conditions without requiring active cooling modifications.

- **Flexible Backplane Interface:** The board interfaces with the OLT chassis backplane via a high-bandwidth, low-latency bus, enabling non-blocking communication with the control and switching fabric.

KEY FEATURES & ROUTING LOGIC

The FWIL board's primary strength lies in its software-defined versatility, allowing a single hardware SKU to support multiple PON standards. This capability dramatically simplifies procurement and supply chain management.

- **Multi-Protocol PON Support:** Per-port programmability supports:
  - **GPON:** ITU-T G.984 standard, operating at 2.5 Gbps downlink and 1.25 Gbps uplink.
  - **XG-PON:** ITU-T G.987 standard, providing 10 Gbps downlink and 2.5 Gbps uplink.
  - **XGS-PON:** ITU-T G.9807 standard, delivering 10 Gbps symmetric bandwidth.
  - **10G-EPON:** IEEE 802.3av standard, for 10 Gbps operation over Ethernet PON.
- **Flex-PON Logic:** The board utilizes intelligent firmware to detect the

connected Optical Network Unit (ONU) and automatically configure the port to the appropriate PON mode, simplifying deployment and reducing configuration errors.

- **Transceiver Compatibility:** The FWIL board is specifically designed to interface with a wide array of industry-standard transceivers, including SFP, SFP+, and SFP28 form factors, covering both copper (RJ-45) and fiber optic (LC) interfaces, as detailed in the specifications section below.

- **Enhanced OAM Features:** Comprehensive Operations, Administration, and Maintenance (OAM) capabilities, including Digital Optical Monitoring (DOM) support, allow for proactive network monitoring, fault isolation, and performance management.

- **Advanced Security:** Supports AES-128 encryption for downstream traffic to ensure secure data transmission over the PON.

COMPLIANCE & STANDARDS

The ZTE FWIL 16-Port Flex-PON Service Board is engineered to meet the rigorous demands of global telecommunications standards, ensuring seamless interoperability in multi-vendor environments and compliance with regional regulatory requirements.

- **ITU-T Standards:** Full compliance with G.984 (GPON), G.987 (XG-PON), and

G.9807 (XGS-PON) standards, ensuring interoperability with standard-compliant ONUs.

- **IEEE Standards:** Compliance with IEEE 802.3av for 10G-EPON and relevant clauses for Ethernet transmission.

- **Transceiver Multi-Source Agreements (MSAs):** Adherence to SFP, SFP+, and SFP28 MSAs guarantees compatibility with a vast ecosystem of transceivers from various suppliers, subject to validation by ZTE.

- **Regulatory Compliance (Emissions & Safety):**

  - **EMC:** FCC Part 15 (Class A), EN 300 386, and CISPR 22/32.

  - **Safety:** UL/CSA 60950-1 and IEC/EN 60950-1, ensuring safe operation.

  - **Laser Safety:** Certified as Class 1 laser products under IEC/EN 60825-1, safe for operation.

- **Network Equipment Building Standards (NEBS):** Designed to meet Level 3 NEBS requirements for carrier-grade reliability and environmental robustness, suitable for central office deployment.

TECHNICAL SPECIFICATIONS



Parameter	Specification
Port Configuration	16 x Flex-PON Ports
Supported Transceiver Form Factors	SFP, SFP+, SFP28
Supported PON Standards	GPON (G.984), XG-PON (G.987), XGS-PON (G.9807), 10G-EPON (IEEE 802.3av)
Downlink Speed (Max)	10 Gbps per port (XGS-PON/10G-EPON)
Uplink Speed (Max)	10 Gbps per port (XGS-PON)
Supported Fiber Types	SMF (OS2), MMF (OM3/OM4)
Supported Wavelengths	850 nm, 1310 nm, 1490 nm, 1550 nm
Typical Transmission Distance (SMF)	Up to 20 km (GPON/XGS-PON), Up to 40 km (XG-PON with ER optics)

Transceiver Interface Type	LC Duplex / RJ-45
Digital Optical Monitoring (DOM)	Supported
Power Consumption (Max)	~120 W (Fully populated with optics)
Form Factor	Proprietary ZTE OLT Chassis Line Card
Hot-Swappable	Yes
Operating Temperature	0°C to 55°C
Storage Temperature	-40°C to 70°C
MTBF (Predicted)	> 500,000 hours

ORDERING SKU INFORMATION

For procurement and inventory management, the ZTE FWIL 16-Port Flex-PON Service Board is identified by specific Stock Keeping Unit (SKU) numbers, depending on the target region and required software features. Operators are advised to consult their ZTE sales representative for the most current and specific SKU information. The base product code for the FWIL board is FWIL-16P, with additional suffixes indicating software licensing and regional compliance.

| Part Number | Description |

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| **FWIL-16P-BAS** | Base hardware board with 16 Flex-PON ports. Includes support for GPON and XGS-PON. |

| **FWIL-16P-ENT** | Enterprise edition with full feature set, including advanced OAM, enhanced security, and support for all PON protocols (GPON, XG-PON, XGS-PON, 10G-EPON). |

| **FWIL-16P-RES** | Board with a reserved software license for future technology upgrades (e.g., 25G PON), ensuring investment protection. |

| **Compatible Transceivers** | See [TABLE_1] for a list of supported transceiver models and part numbers from ZTE and third-party vendors. |