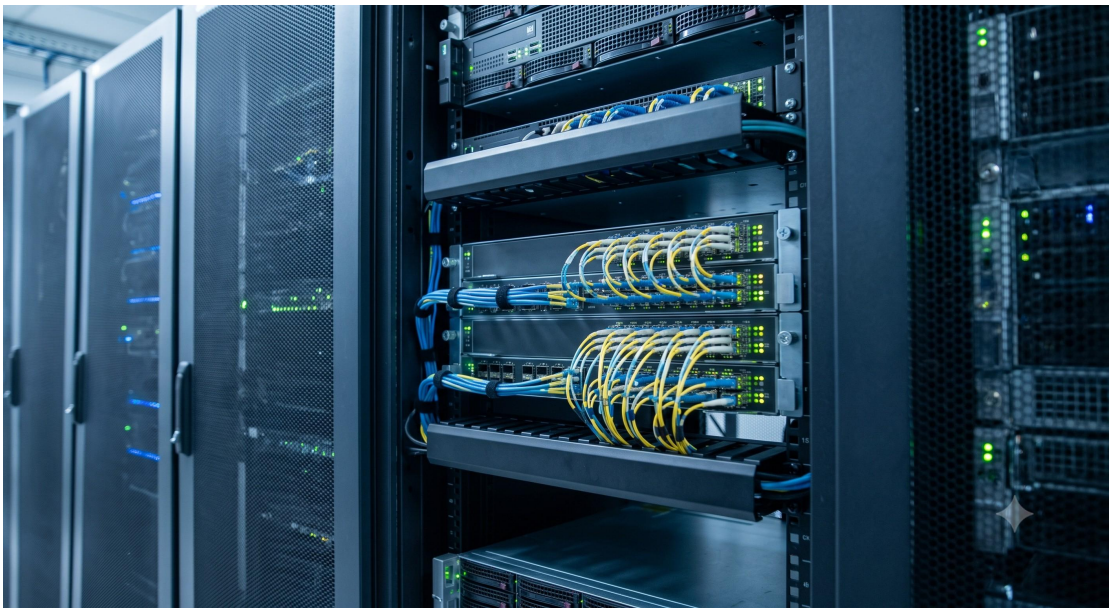
H902GPSF 16-Port GPON Interface Card - Official Technical Overview & Hardware Datasheet

PRODUCT IDENTIFICATION

The H902GPSF is a high-density, 16-port GPON interface card engineered for the Huawei MA5800 series multi-service access platform. Designed for fiber-to-the-home (FTTH) network architectures, this interface card represents a critical building block for carriers seeking to deliver high-bandwidth, low-latency GPON access services to a large subscriber base. It is the next-generation service board optimized for the Huawei MA5800 OLT (Optical Line Terminal) chassis, offering enhanced operational efficiency and robust subscriber management capabilities. The card is also referenced in documentation as the H901GPSF, with the H902 designation typically representing a later hardware revision with optimized power characteristics.



CORE INTERNAL TOPOLOGY & HARDWARE ARCHITECTURE

The H902GPSF is built around a powerful network processor that provides a non-blocking forwarding capability of 40 Gbit/s. This ensures that all 16 GPON ports can operate at full line rate without contention, delivering a total upstream bandwidth of 1.244 Gbit/s and downstream bandwidth of 2.488 Gbit/s per port . The board integrates a sophisticated hardware engine that supports up to 16,384 GEM (GPON Encapsulation Mode) ports and 16,368 service flows, enabling granular traffic management for thousands of simultaneous subscribers .

SWITCHING SUBSYSTEM CAPABILITIES

The hardware architecture includes a robust Layer 2 switching engine with a

MAC address table size of 16,384 entries, efficiently handling subscriber device addressing and forwarding decisions . While primarily optimized for Layer 2 GPON aggregation, the board supports extensive Layer 3 capabilities, including a Routes/ARP (Address Resolution Protocol) table of 65,536 entries, making it suitable for advanced IP-aware access networks .

OPERATIONAL ADVANTAGES

The H902GPSF is engineered for maximum operational flexibility. Each of the 16 GPON ports supports a maximum split ratio of 1:128, allowing a single port to serve up to 128 Optical Network Units (ONUs), a critical feature for high-density, cost-effective deployments . The board incorporates advanced traffic management, including ONU-based shaping and queue-based shaping, to guarantee Quality of Service (QoS). Each GPON port supports up to 1024 T-CONTs (Transmission Containers), enabling the creation of highly customized service-level agreements (SLAs) for different subscriber tiers . The board's capabilities include controlled optical signal transmission, temperature querying with high-temperature alarm, and automatic shutdown at high temperature for enhanced hardware protection .

SPECIFICATION MATRIX

PHYSICAL & ENVIRONMENTAL SPECIFICATIONS

- Dimensions (W x D x H): 399.2 mm x 257.9 mm x 23.3 mm .

- Weight: 0.93 kg (approx.) .

- Operating Temperature Range: -40°C to +65°C .

- Lowest Startup Temperature: -25°C .

POWER CONSUMPTION

- Power Consumption (Static, no load): 25 W .

- Power Consumption (Maximum, full load): 50 W .

- Power Consumption Scope: The power consumption figures are measured under standard conditions: -53.5 V DC operating voltage, 25 ° C ambient temperature. The static power reflects a board with no optical modules installed and all ports idle, while the maximum power reflects a fully configured board under full operational load .

OPTICAL SPECIFICATIONS

- Interface Type: SC/UPC, SC/PC .

- Transmit Wavelength: 1490 nm .

- Receive Wavelength: 1310 nm .

- Port Rate: Upstream: 1.244 Gbit/s, Downstream: 2.488 Gbit/s .

- Maximum Transmission Distance: 20 km .

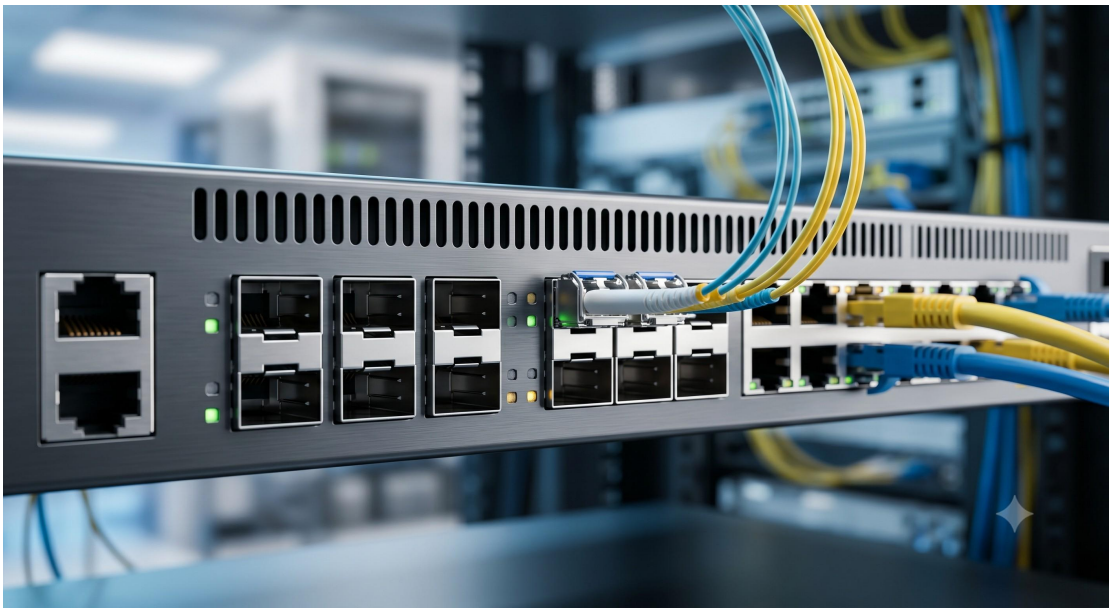
- Supported Optical Modules: Class B+, Class C+, and Class C++ SFP modules

(compatible with B+, C+, C++ standards) .

- Optical Power Budget (Class C+ module): 32 dB .

- Optical Power Budget (Class C++ module): 35 dB .

Parameter	Specification
Forwarding Capability	40 Gbit/s
Port Count	16 x GPON
Port Rate (Downstream / Upstream)	2.488 Gbit/s / 1.244 Gbit/s
Maximum Split Ratio	1:128
Maximum Transmission Distance	20 km
Optical Wavelength (Tx / Rx)	1490 nm / 1310 nm
Optical Interface	SC/UPC
Supported SFP Classes	Class B+, C+, C++
MAC Address Table Size	16,384
Routes / ARP Table Size	65,536
T-CONTs per GPON Port	1,024
ONUs per GPON Port	128
Power Consumption (Static)	25 W
Power Consumption (Max)	50 W
Operating Temperature	-40°C to +65°C
Dimensions (W x D x H)	399.2 mm x 257.9 mm x 23.3 mm



REGULATORY COMPLIANCE & STANDARDS

The H902GPSF is designed to comply with a comprehensive suite of international telecommunications standards, ensuring interoperability and reliability in carrier-grade networks. It supports the ITU-T G.984 series of GPON standards. The board meets rigorous environmental and safety standards, operating reliably under extreme temperatures. Its power efficiency helps operators meet strict environmental regulations and reduce operational expenses. The board also supports Type B and Type C GPON protection schemes, including single and dual homing, providing critical redundancy for high-availability networks .