# Eight PON Port GPON OLT for Residential and Small Enterprise FTTH Applications

The GigaMux 5200 GPON optical line terminal (OLT) provides eight downstream 1000M PON ports, four upstream GE combo ports and two upstream 10GE ports for internet backhaul. At an ultra-compact 1RU, each PON supports up to 128 customers with a potential 1,024 ONUs supported, depending on configuration.

Combining advanced networking technologies and strong Ethernet functionality, it permits operators to offer SLAs that deliver high levels of customer service with simplified operation.

The GigaMux 5200 is ideal for FTTP networks in both residential and small enterprise applications, and can be combined with other networking solutions from Sorrento Networks, including DWDM. This enables service providers to create a full suite of services appropriate to residential, small and large Enterprises, and fixed and mobile carriers.



> GigaMux 5200 optical line terminal (OLT)



GigaMux 5100 OLT

Optical splitter

End-user ONUs
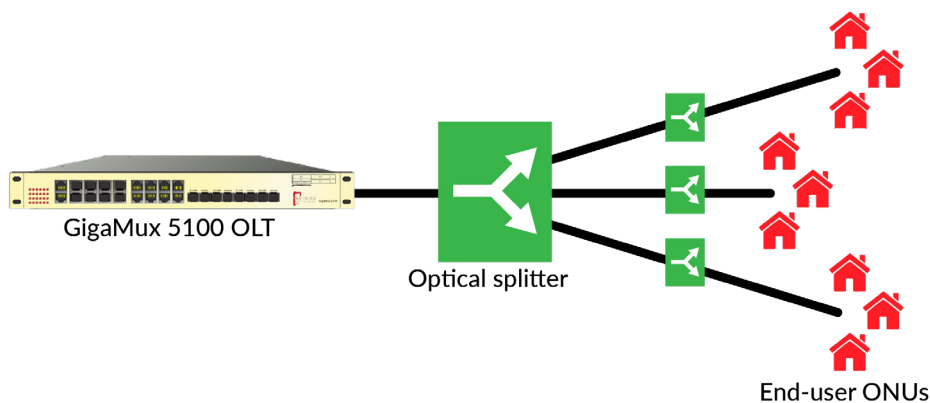
> *The GigaMux 5200 often utilises mutli-level splitting in FTTH and FTTP applications.*

## The GigaMux 5200 solution offers:

> A switching capacity of up to 102Gbps

> 8 * PON, 4 * 1GE & 2 * 10GE ports

> An ultra-compact 1RU unit

> Extensive protection against cyber threats

> Flexible network management options

> Ultra-low latency

> Interoperability with other products in the GigaMux family

## Highlights

> Large-scale NGBN operation system

> 128 customers per PON port with up to a maximum of 1,024 customers

> Carrier-class network stability and resiliency

> Redundancy protection for both fibre and OLT

> Low power consumption

> Ultra-low latency

> Rich security features to protect users and devices

> Hot pluggable module design

> 20km transmission distance capability (with future planned enhancements)

> Dynamic bandwidth distribution

> Hardware-based packet forwarding for effective feature detection and packet filtering

> Supports BFD, FlexLink, auto linkage aggregation and Ethernet Ring protection

> Network management options include SSH v2, SNMP v3, CLI, web browser and RMON

# Product Specification

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|---|---|
| Switch Capacity | 102Gbps |
| Throughput (IPv4/IPv6) | 75.88Mbps |
| Service Ports | 8*PON, 4*GE FX+4*GE TX, 2*10GE SFP+ |
| Redundancy | Dual power supply: Can be double AC, double DC or AC+DC |
| Power Supply | AC: Input 100 ~ 240V, 47 ~ 63Hz<br>DC: Input -36V ~ -75V |
| Power Consumption | ≤85W |
| Outline Dimensions | 440mm × 44mm × 380mm |
| Maximum Weight | ≤3kg |
| Enviornmental Parameters | Working temperature: 15°C ~ 55°C<br>Storage temperature: -40°C ~ 70°C<br>Relative humidity 10% ~ 90%, non-condensing |

# Business Features

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|---|---|
| PON Features | **GPON**<br>• ITU-T standards compliant<br>• TR-101 compliant solution for FTTx OLT applications<br>• High splitter rate, each PON port supports 128*ONU<br>• Maximum transmission distance of 20km<br>• Upstream FEC & downstream FEC (Forward Error Correction)<br>• ONU identifier authentication: SN / SN+PASSWD<br>• Bandwidth allocation mechanism<br>• Five types of T-CONT bandwidth<br>• Static bandwidth allocation<br>• Dynamic bandwidth allocation<br>• GPON feature parameter<br>• 4096 port-IDs per GPON MAC (downstream and upstream)<br>• 1024 Alloc -IDs per GPON MAC (upstream) |
| L2 Features | **MAC**<br>• MAC black hole<br>• Port MAC limit<br><br>**VLAN**<br>• 4K VLAN entries<br>• Port-based/MAC-based/IP subnet-based VLAN<br>• Port-based QinQ and selective QinQ (StackVLAN)<br>• VLAN swap and VLAN remark and VLAN translate<br>• GVRP<br>• Based on ONU service flow VLAN add, delete, replace<br><br>**Spanning Tree Protocol**<br>• IEEE 802.1D Spanning Tree Protocol (STP) |

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|---|---|
| L2 Features | **Spanning Tree Protocol**<br>• IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)<br>• IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)<br><br>**Port**<br>• Bi-directional bandwidth control<br>• Static link aggregation and LACP (Link Aggregation Control Protocol)<br>• Port and traffic mirroring |
| Security Features | **User Security**<br>• Anti-ARP-spoofing and flooding<br>• IP Source Guard create IP+VLAN+MAC+Port binding<br>• Port isolation<br>• MAC address binds to port and port MAC address filtration<br>• IEEE 802.1x and AAA/Radius authentication<br>• TACACS+ authentication<br>• DHCP anti-attack flood attack automatic suppression<br>• ONU isolation control<br><br>**Device Security**<br>• Anti-DOS attack (such as ARP, Synflood, Smurf, ICMP attack), ARP detection, worm and Msblaster worm attack<br>• SSHv2 Secure Shell<br>• SNMP v3 encrypted management<br>• Security IP login through Telnet<br>• Hierarchical management and password protection of users<br><br>**Network Security**<br>• User-based MAC and ARP traffic examination<br>• Restrict ARP traffic of each user and force-out user with abnormal ARP traffic<br>• Dynamic ARP table-based binding<br>• Supports IP+VLAN+MAC+Port binding<br>• L2 to L7 ACL flow filtration mechanism on the 80 bytes at the head of user-defined packet<br>• Port-based broadcast/multicast suppression and auto-shutdown risk port<br>• URPF to prevent IP address counterfeit and attack<br>• DHCP Option82 and PPPoE+ upload user physical location<br>• Plaintext authentication of OSPF, RIPv2 and MD5 cryptograph authentication |
| IP Routing | **IPv4**<br>• ARP proxy DHCP relay, DHCP server, static route<br><br>**IPv6**<br>• ICMPv6 redirection DHCPv6 and ACLv6 configured tunnel 6to4<br>• IPv6 and IPv4 tunnels |
| Service Features | **ACL**<br>• Standard and extended ACL<br>• Time range ACL |

# Business Features Continued

| Service Features | **ACL**<br>• Packet-based filtering on source/destination MAC address, source/destination, IP address, port, protocol, VLAN, VLAN range, MAC address range, or invalid frame. System supports concurrent identification at most 50 service traffic<br>• Support packet filtration of L2 ~ L7 even deep to 80 bytes of IP packet head<br><br>**QoS**<br>• Rate-limit to packet sending/receiving speed of port or self-defined flow and provide general flow monitor and two-speed tri-color monitor of self-defined flow<br>• Priority remark to port or self-defined flow and provide 802.1P, DSCP priority and Remark<br>• CAR (Committed Access Rate), traffic shaping and flow statistics<br>• Packet mirror and redirection of interface and self-defined flow<br>• Super queue scheduler based on port and self-defined flow. Each port/flow supports 8 priority queues and scheduler of SP, WRR and SP+WRR<br>• Congestion avoid mechanism, including tail-drop and WRED<br><br>**IPv6**<br>• SA/DA Classification MLD Snooping<br><br>**Multicast**<br>• IGMPv1/v2/v3<br>• IGMPv1/v2/v3 snooping<br>• IGMP Filter<br>• MVR and cross VLAN multicast copy<br>• IGMP fast leave<br>• IGMP proxy<br>• PIM-SM/PIM-DM/PIM-SSM<br>• PIM-SMv6PIM-DMv6, PIM-SSMv6<br>• MLDv2/MLDv2 snooping |
| Reliability | **Loop Protection**<br>• EAPS and GERP (recover-time <50ms)<br>• Loopback-detection<br><br>**Link Protection**<br>• FlexLink (recover-time <50ms)<br>• RSTP/MSTP (recover-time <1s)<br>• LACP (recover-time <10ms)<br>• BFD |

| Reliability | **Device Protection**<br>• VRRP host backup<br>• Double fault-tolerant backup of host program and configuration files<br>• PON card/fan hot-swappable<br>• 1+1 power hot backup |
| Maintenance | **Network Maintenance**<br>• Telnet-based statistics<br>• RFC3176 sFlow LLDP<br>• 802.3ah Ethernet OAM<br>• RFC 3164 BSD syslog Protocol<br>• Ping and Traceroute<br><br>**Network Maintenance**<br>• Command-line interface (CLI), console, Telnet and web browser-based application<br>• Configuration system configuration with SNMPv1/v2/v3<br>• RMON (Remote Monitoring) 1/2/3/9 groups of MIB<br>• NTP (Network Time Protocol) |