SI3000 Lumia G16

Iskratel SI3000 Lumia G16 is a 1U GPON OLT that delivers comprehensive network services, performance and scale, optimised for different variants of residential and business access networks. Intelligent wire-speed broadband-access product provides sixteen GPON OLT ports together with four 10GE and six GE (two of them combo) uplink interfaces. Using the latest-generation 80 Gbps network processor, it already operates in flow-based mode and is SDN-ready. With its non-blocking architecture it is designed to meet the rapidly evolving bandwidth demands on passive optical access networks. Advanced network functionalities provide flexible residential and business interconnecting and mobile backhauling within various network topologies.

Key Features and Benefits

- **Standalone** 1U product
- **ITU-T standard 16 GPON OLT** interfaces
- **Standards-**compliant **OMCI** management for managing ONTs
- **1:128** split-ratio support
- **TR-101** and **TR-156** compliant
- **SDN**-ready architecture
- Hierarchical **3-level QoS** support
- **Selective Q-in-Q** and **flexible double VLAN** Tagging
- **User-friendly CLI** – easy configuration using service profiles with support for mass operations
- **Open Door / Power / Mains and User alarms** for easier integration into street cabinets

SI3000 Lumia G16 supports flexible 3-level hierarchical QoS which allows specifying QoS behaviour at multiple policy levels. Every level provides a high degree of granularity in traffic management. Hierarchical policies can be applied and chained at GPON OLT port level, ONT (subscriber level) and at service level. Depending on policy rules, various traffic management techniques, like: shaping, policing, classification, and restricting are provided.

Flexible VLAN tagging (with 8000 remarking rules) in the SI3000 Lumia G16 enables cost-effective 1:1 VLAN (VLAN per user) architectures as operator can use simpler ONT devices with a common ONT configuration.

SI3000 Lumia G16 supports 16 OLT ports, designed with wire speed throughput, intelligent traffic processing and ONT split ratio up to 1:128. While bandwidth demands grow, service disruption becomes increasingly more unacceptable; for traffic protection, product uses two 20GE uplink pairs (LAG) for 1+1 redundancy. For power supply protection, product uses two power inlets of DC type (-48V DC). An external AC/DC converter is optionally available to cover AC powered configurations. For easier integration into street cabinets, the product offers alarms for open door, power-module failure, AC mains failure and user-defined alarms.

Fast, flexible traffic processing (BBF TR-101 and TR-156 compliant) and low power consumption are provided using the latest-generation 80 Gbps network processor.

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DATASHEET

Network interface	
GPON interface	16 x GPON (2.5/1.25 Gbps)
10GE Ethernet	4 x 10GE SFP+
1GE Ethernet	4 x GE SFP + 2 x GE SFP/RJ-45 (Combo)
PON interface	
GPON	G.984.x (GPON), G.988 (OMCI), TR-247 (GPON certification OLT interoperability), TR-101, TR-156, AES, FEC
Local Management interface	
Console	RS-232 (over Micro USB connector, adapter needed)
Performance	
Switching Capacity	86 Gbps
MAC Table Size	64 k
MAC Learning rate	5000 MAC/s
Number of Multicast Groups	2000
Split ratio	1:128
OLT port characteristics	4096 GEM port-ids, 1024 T-CONT, 128 ONT
Advanced features	
Intelligent Service Access	Flow Awareness, Profile-Based Management
Business Connectivity	L2CP, E-Line, E-LAN, MEF compliant (MEF-9, MEF-14)
Ethernet switching (L2) features	
Switching	IPv4, IPv6, Support for packets up to 1526 bytes
Link Aggregation	Static LAG
Anti-loop protocol	RSTP (802.1w), MSTP (802.1s)
VLAN	4094 simultaneous VLANs, Port based VLAN (Native VLAN), VLAN Remarking, Provider Edge Bridging (802.1ad , Q-in-Q, Selective Q-in-Q), Double VLAN tagging in one step
VLAN service models	Services: 1:1, N:1 (based on TR-156), 8k VLAN remarking rules
IP Multicast support	IGMP v2/v3 Snooping with/without Suppression, Fast Leave for Multiple Clients, IGMP filtering, IGMP Proxy, Multicast CAC, Multicast Group ACL, Static Multicast Groups, MVR, MVR-PEB (patented), IGMP forking, IGMP Querier, Static Multicast client
Quality of Service (per ONT)	L2-L4 Ingress Classification (PCP/802.1p/CoS, MAC, VLAN, ToS/DSCP, DiffServ, IP, TCP/UDP port), Ingress Marking, Ingress Policing (per port, per service), Egress Queuing (up to 32 Queues per ONT, RED, Tail-drop), Egress Scheduling (Strict priority, Weighted Fair Queuing, Low Latency Queuing), Egress Shaping, Connection Admission Control (CAC)
GPON Traffic management	Dynamic buffer management, 8k queues with dynamic allocation
Security features	
User Port isolation	Protected Port (Private Port)
Filtering and DoS prevention	Wirespeed L2-L4 Access Lists, Remote Access Filtering for Telnet/SSH, Application Rate Limiting, Selective overload protection
Storm Control	Per ONT packet-rate control for broadcast, multicast and unicast DLF traffic
MAC spoofing and flooding protection	Port Security, Port Security per VLAN, MAC Source Guard
Port-based security	DHCP Snooping, IP source guard, Dynamic ARP Inspection
Unauthorised DHCP Server prevention	DHCP Filtering, DHCP Options 60 and 43 (for ACS)
User Line Traceability	PPPoIA, DHCP RA with Flexible Option 82, DHCPv6 RA with Interface ID option
Management features	
Management interfaces	CLI (Console, Telnet, SSH), SNMP
IP assignment	DHCP or Static
Management protocols	SNMPv2c, SNMPv3, ACS Client for Auto Configuration Service, Radius client, TACACS+ client, Telnet client, SSH client
Firmware upgrading	FTP, ACS, Dual firmware image
Time Synchronisation	SNTP
Monitoring	Performance and Quality Monitoring, RMON (Etherstats), System resource monitoring, Port Mirroring, On line debugging
Events collecting	Event Log, Error Log, Syslog client
Counters and Statistics	
OLT port	Signal Strength Indication (RSSI) and Digital Diagnostic Monitoring (DDM)
OLT port alarms	LOSi, LOS, LOFi, DOWi, SFi, SDi, LCDGi, RDIi, TF, SUFi, DFi, LOAi, DGi, LOAMi, MEMi, MISi, PEEi, TIWi, TIA, LOKi
ONT alarms	Inactive ONT, LOS, LOF, DOW, DG, SF, SD, LCDG, RD, TF, SUF, LOA, MEM, PEE, OAML
Traffic counters	per VLAN per ONT traffic counters, control protocol counters, traffic type traffic counters
Timing and Synchronisation	
Frequency/Phase synchronisation	Synchronous Ethernet*, IEEE 1588v2 (Precision Time Protocol)*
Dimensions[1]	(H x W x D) 45 x 447 x 235 mm – ETSI rack, 19" rack Note[1]: without cables and protrusions
Environmental conditions	
Safety	EN 60950-1:2006 + A1:2010 + A2:2013 + A11:2009 + A12:2011
EMC	ETSI EN 300 386 V1.6.1 (EN55022 Class B)
Storage	ETS 300 019-1-1, class 1.2 , temperature -50 to 70°C, rel. humidity 10–100%
Transport	ETS 300 019-1-2, class 2.3
Operation	ETS 300 019-1-3, class 3.1E, temperature -40 to 65°C, rel. humidity 5–90% (non-condensing)
Power Supply and Consumption	-42 V to -72V DC, 95 W preliminary estimation (with 16 x SFP)

* Future Release

Ordering code	Description
SBB2880AA	Lumia G16, GPON 1U, 16 OLT ports, 4 x 10GE + 4 x GE + 2 x GE Combo ports (SFP/RJ-45), w/o SFP/SFP+
SBB2122BA	GPON OLT SFP B+, digital RSSI, -40°C to +85C°C, SC/PC simplex connector
SBB2122CA	GPON OLT SFP C+, short reset, digital RSSI, -40°C to 85°C, SC/PC simplex connector

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