
# ISKRATEL Lumia C16

## CORD®-Compatible Combo PON OLT

ISKRATEL
S&T Group

**Iskratel's Iskratel Lumia C16 is world's first Combo PON (XGS-PON and GPON) OLT that allows operators to avoid an entire investment cycle when transforming towards software-defined, next-generation access. A universal, virtualised Combo PON OLT facilitates cost-effective virtualisation of central-office infrastructure before operators move on to securely introducing fully virtualised next-gen broadband.**

Iskratel Lumia C16 is a one-of-a-kind dual-nature Combo XGS-PON/GPON OLT that arms operators with the right tool to virtualise and cloudify the network at their disposal.

Iskratel Lumia C16 is a dual-nature OLT that operates either as a conventional integrated OLT or as a disaggregated, CORD®- and vOLTHA-compatible pOLT.

Iskratel Lumia C16 uses programmable hardware, reaping all the benefits of its network processor. A mere software upgrade gives the single box two distinct characters. After the upgrade, only configuration options turn it into a fully virtualised pOLT, with vOLT software running in the cloud. Zero hardware upgrade is needed to virtualise the central office, allowing operators to avoid an entire investment cycle.

Iskratel Lumia C16 is a compact OLT optimised for smaller fibre-access deployments. With 16 Combo ports it serves up to 4,096 users and delivers performance optimised for residential and business users alike.

Unlike white-box pOLT boxes, Iskratel Lumia C16 excels in compactness: ETSI-compliant 235 mm depth saves rack space (mounting back-to-back) or fits into street cabinets.


## KEY FEATURES AND BENEFITS

- Super compact Combo PON OLT in 1U format
- Sixteen Combo PON OLT ports with 1:128 split ratio
- Dual nature: Integrated OLT or disaggregated pOLT
- Fully CORD®- and vOLTHA-compatible
- Zero hardware upgrade for virtualisation
- Cost-effective virtualisation of central office
- Seamless transition to virtualised next-gen fibre access
- Network processor-based hardware design
- Easy management and provisioning integration
- Hierarchical multi-level QoS
- Standards-compliant OMCI management (black-box operation)
- Deployment in central office and street cabinets

**Two**
characters: conventional or virtualised operation

**One**
dual-nature box for sustainable fibre access

**Zero**
hardware upgrade to virtualise the central office

## COMMON CHARACTERISTICS

| | |
|---|---|
| **Network interface** | |
| xPON interface | 16× Combo PON interface (GPON 2.5/1.25 Gbps and XGS-PON 10/10 Gbps) |
| 25/10GE Ethernet | 4× 25/10/1GE SFP+ |
| 100GE Ethernet | 2× QSFP28 * * *targeted for product release Q4 2022* |
| **PON interface** | |
| GPON interface | G.984.x GPON, G.988 OMCI, TR-247 GPON certification OLT interop, TR-101, TR-156, AES, FEC, DBA |
| XGS-PON interface | G.9807 (XGS-PON), G.988 (OMCI), TR-101, TR-156, AES, FEC, Dynamic bandwidth allocation (DBA) |
| OLT port characteristics | Split ratio 1:128, 4k GEM port IDs for GPON, 1:265 8k GEM port IDs for XGS-PON, 16k T-CONT, max. 128 GPON ONTs / 256 XGS-PON ONTs per port |
| **Forwarding performance** | |
| Switching capacity | 150 Gbps |
| Packet sizes | Up to 1,600 bytes in GPON mode, 9k in XGS-PON mode |
| **Mechanical and environmental** | |
| Physical dimensions | H 45 mm (1U) × W 447 mm × D 235 mm, ETSI or 19" rack |
| Safety | EN 62368-1: 2014, UL 60950-1/CSA C22.2 No. 60950-1:2007/AMD2:2014 |
| EMC | ETSI EN 300 386 V1.6.1 (Class B), EN 55032:2012, EN 55035:2017, EN 61000-3-2:2014, EN 6100-3-3:2013 |
| Storage conditions | ETS 300 019-1-1, class 1.2, temperature –50..+70 °C, RH 10..100% |
| Transport conditions | ETS 300 019-1-2, class 2.3 |
| Operating conditions | ETS 300 019-1-3, class 3.1E, temperature –40..+65 °C, RH 5..90% non-condensing |
| **Timing and synchronisation** | |
| Frequency, phase sync | Synchronous Ethernet, Stratum3E, IEEE 1588v2 Precision time protocol |
| **Power supply** | |
| Voltage and consumption | From –42 V DC to –60 V DC, 155 W typ. (with 16 SFPs)<br>CoC compliant, Tier 2021, 60% consumption (67% as per Tier-2022 levels) |

## DISAGGREGATED/VIRTUALISED pOLT OPERATION

| | |
|---|---|
| **Virtualisation and flow provisioning** | |
| Compatibility/compliance | R-CORD 6.0, vOLTHA, ONOS |
| No. of concurrent flows | 64k |
| Northbound interface | Standard OpenOLT adapter, REST/YANG interface |
| Local management interface | CLI (management console) |

## TRADITIONAL/INTEGRATED OLT OPERATION

| | |
|---|---|
| **Switching** | |
| MAC table size and learning | 64k entries, learning rate 5,000 MAC/s |
| Link aggregation | Static LAG, LACP |
| Ring resiliency | ERPS (G.8032v2) |
| Loop prevention | 802.1w RSTP, 802.1s MSTP |
| VLAN | 4,094 VLANs, Port based/Native VLAN, Remarking, Provider-edge bridging (802.1ad, Selective Q-in-Q) |
| **Service models** | |
| VLAN service models | 1:1 and N:1 (TR-156), 8k VLAN remarking rules) |
| IP multicast | 2k groups, IGMP v2/v3 snooping with suppression, Fast leave, IGMP filtering, IGMP proxy, Multicast CAC, Multicast group ACL, Static groups, MVR, IGMP forking, Static client |
| Quality of service | Hierarchical QoS, L2-L4 classification (PCP/CoS, MAC, VLAN, ToS/DSCP, DiffServ, IP, TCP/UDP port), marking, policing, queuing (32 per ONT, Tail-drop), scheduling (Strict, WFQ), shaping, CAC |
| Traffic management | Dynamic buffer management, 8k queues with dynamic allocation |
| Software-defined networking | Flow awareness L1-L4, Per-service flow policing and shaping, Profile-based management |
| **Security** | |
| User-port isolation | Protected port, Private port |
| Filtering and DoS prevention | Wire-speed L2-L4 IPv4/v6 ACL, Telnet/SSH access filtering, App rate limiting, Selective overload protection |
| Storm control | Per ONT packet-rate control for broadcast, multicast and unicast DLF traffic |
| MAC spoofing and flooding | Port security, Port security per VLAN, MAC source guard, MAC forced forwarding |
| Port-based security | DHCP snooping, IP source guard, Dynamic ARP inspection |
| Unauthorised DHCP server | Prevention with DHCP filtering, DHCP options 60 and 43 (for ACS) |
| User-line traceability | PPPoEIA, DHCP RA with flexible option 82, DHCPv6 RA with interface ID option |
| **Management** | |
| Local management console | RS232 (over µUSB connector, adapter needed) |
| Management interfaces | CLI (Console, Telnet, SSH), SNMP, Web (RESTCONF) element manager |
| IP assignment | DHCP or static |
| Management protocols | SNMPv2c, SNMPv3, ACS client, Radius client, TACACS+ client, Telnet/SSH clients, SNTP time sync |
| Firmware upgrade | FTP, ACS, Dual firmware image |
| Monitoring | Performance and quality monitoring, RMON, System resource monitoring, Port mirroring, Online debug |
| Event collection | Event log, Error log, Syslog client |
| **Counters and statistics** | |
| OLT port | Signal strength indication (RSSI), 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, Control-protocol counters, Traffic-type counters |

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ISO 9001 Q-009
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SILVER 2021 ecovadis Sustainability Rating