

# SI3000 Lumia

The High-Performance Broadband  
Access and Aggregation Node

**ISKRATEL**



# Make the Right Access Network Decision

Access networks have advanced a great deal over the last 10 years. The ability to have a last-mile fiber and hybrid FTTx subscriber access has become a reality. Widely available networking equipment is realizing the former distant dream of overall connectivity. Areas of subscribers with insufficient broadband connectivity are rapidly shrinking with wide spread deployments of FTTH and FTTx.

Modern business and private communications no longer have to suffer line interruptions or insufficient bandwidth. The SI3000 Lumia is introducing 100 Mb/s access as the standard in subscriber connectivity.

The last mile is the contact point of the communication infrastructure owner with the subscribers. It is the only true monetization source and is therefore essential for healthy growth and development.

**Iskratel believes that the main driving force behind access network innovation consists of four factors:**

1. Deployment of fiber access closer to the subscribers.
2. Combining the access and aggregation functions in a single node.
3. Moving the network intelligence to the access segment.
4. An open-access infrastructure.

## STANDARD BROADBAND ACCESS

Passive content consumers	■■■■
Inadequately supported business users	■■■■
Operator as a vertically integrated service provider	■■■■
Focus on technology and capabilities	■■■■
Pure DSL access	■■■■
Asymmetrical access	■■■■
Centralized edge intelligence	■■■■
Mix of PPPoE & IP	■■■■
Static amount of traffic per user – typically up to 10 Mb/s	■■■■
VLAN-based traffic awareness single device -> single service	■■■■
Aggregation of long-distance DSL access lines	■■■■

**SEE THE MAIN RESULTS OF THE ACCESS EVOLUTION IN THE TABLE:**

# Why Choose the Iskratel SI3000 Lumia?

**/High Capacity/** The Iskratel SI3000 Lumia is an access node, designed to provide high-capacity broadband fiber, DSL and hybrid (fiber+DSL) subscriber access. What makes it different from currently available access nodes, is a strong dedication to three access-scenario deployments:

- FTTH
- FTTx hybrid access
- VDSL2 from CO

**/Combination of open access and aggregation/** The Iskratel SI3000 Lumia is the next evolutionary step in last-mile access and aggregation. Its role in the access network expands beyond the combined access and aggregation node.

The SI3000 Lumia acts as an open-access enabler that makes it possible for subscribers to choose their service provider. Open access has for a long time been desired by users and is becoming widely requested by governments in the EU and other countries. Furthermore, the SI3000 Lumia makes wholesale and open-access business models possible. It turns the last-mile access infrastructure into an asset that is offered on the open market.

**/Flow awareness/** Session-flow awareness enables distributed data-flow processing. The SI3000 Lumia introduces a BRAS-free access-network architecture, known as the Intelligent Service Architecture (ISA). Due to flow awareness, the SI3000 Lumia is ready for services that require QoS on demand. Payable, over-the-top services,

such as video distribution over the web are already becoming an interesting new revenue source.

**/Software independence/** The SI3000 Lumia uses a single suite of software, regardless of the technology used in the access network. This results in easier and faster upgrades and simplified deployment of the SI3000 Lumia nodes in the network.

## The Iskratel SI3000 Lumia access node ensures higher infrastructure profitability.

- *New revenues ensured by the most competitive service offering: HDTV, VoD, Video conferencing, peer-to-peer transfers*
- *Churn reduction. By giving subscribers the optimum amount of required bandwidth.*
- *Lower TCO. By reducing the need for expensive IP edge network elements.*
- *Secure investment. By offering an end-to-end SI3000 Lumia and fiber/DSL CPE solution*
- *Reduced ROI time.*

**/Compatibility/** The SI3000 Lumia is equipped with a technology-agnostic feature set and is consequently easy to deploy. The subscriber boards are compatible with the SI3000 MSAN access nodes.

## ISKRATEL SI3000 LUMIA HIGH-PERFORMANCE ACCESS

- Active subscribers that produce and share content
- Dedicated business-subscriber policies and support
- Wholesale and open-access models
- Focus on OPEX cuts and ensures the highest level of end-user experience
- FTTH and FTTx hybrid access options
- Symmetrical communications determines the needs of today's subscribers
- Distributed edge intelligence
- All-IP based on DHCP
- Increasing amount of traffic per user – reaching 100 Mb/s
- Flow-based traffic awareness  
single device -> multiple services
- Aggregation of subtending FTTx access nodes

*Building access networks with Iskratel guarantees the use of modern networking concepts, high capacity future-oriented infrastructure development and existing equipment compatibility.*

# SI3000 Lumia: the High Performance Composition



**SI3000 LUMIA**  
The high-performance access node

Every SI3000 Lumia node represents an integral IP entity in the operator's access network. Every node consists of a central blade, which acts as the node's brain and network connectivity interface, subscriber blades with end-user fiber or VDSL2 ports and the housing.

## THE CENTRAL BLADE



## THE FIBER BLADE



## THE VDSL2 BLADE



## SI3000 LUMIA HOUSING

The central blade performs two roles. It acts as an Ethernet switch and as a management blade for the entire SI3000 Lumia node.

The central blade is designed as a non-blocking aggregation matrix for subscriber blades. As a member of the new generation of the Iskratel access product family, it enables GE and multiple 10-Gbit/s uplink connectivity.

The blade is equipped with an IPMI-based shelf-management system, diagnostic mechanisms and the possibility to switch off the unused port in cases when no devices are connected to the blade.

**SI3000 Lumia central blade options:**

The central blade interconnects the SI3000 Lumia in all four

typical network topologies – star, ring, chain and full-mesh. Its advantage lies in the support for a large ring topology. The EAPS functionality ensures high network resiliency with recovery within a 50-ms time period and allows the deployment of rings with tens of nodes. In addition, the included versions of the STP protocol enable all of the listed network topologies.

	Compact central blade for MEB 6 and MEB 10 enclosures	Large central blade for MEB 18 and MEB 20 enclosures
Back panel interfaces for subscriber-blade interconnection	1 High Speed interface	3 High Speed interfaces
Uplink connectivity	1X10 GE interface 4XGE interface	2X10 GE interface 8XGE interface

The SI3000 Lumia is the optimal building block for various FTTH deployments. Its fiber access is equipped with 24 point-to-point fiber-access ports. They are capable of providing the subscribers with the most bandwidth-demanding services in the field of real-time data streaming (3D HDTV, VoD, Online Video Gaming, Video Conferencing etc.).

The fiber blade is available as a compact single-slot version or as a double-slot price-optimized version.

**What makes the SI3000 Lumia fiber blade unique?**

- Traffic and protocol processing flexibility for simplified traffic management.
- The use of compact SFP transceivers means a high subscriber-port density: 2 square meters suffice for a staggering 11,000 fiber ports.
- Compact SFP transceivers allow quick diagnostics of the optical line.
- Fiber patching between the ODF and SI3000 Lumia is greatly simplified with the 300-mm ETSI/19" rack.

The VDSL2 connection serves as a cost-optimized way of ensuring an access infrastructure, capable of delivering up to 100 Mb/s for bandwidth-consuming services. With its fully standards-compliant technology, the deployment of VDSL2 network access with Iskratel SI3000 Lumia serves as an optimal solution for residential and business subscribers. The VDSL2 blade is an optimal choice when deploying broadband access in combination with the Iskratel Innbox home gateway. Interoperability with third-party networking equipment is guaranteed. A single SI3000 Lumia VDSL2 port gives an up to 150 Mb/s aggregated data rate on short lines. A multimegabit service is available, even on lines longer than 3.5 km.

**What makes the SI3000 Lumia VDSL2 blade unique?**

- Excellent noise protection for high data-transfer rates and undisturbed streaming.
- Flexible networking functions for any VLAN scheme or IP-connectivity model.
- Advanced QoS functions for the optimal performance of real-time applications and traffic shaping.
- Assured subscriber-line security.
- Rich multicast feature-set for the optimal IPTV distribution in vertical, wholesale and open-access environments
- ADSL2+ backward compatibility

**The SI3000 Lumia comes with an ETSI 300/19" compatible enclosure available in four different versions:**

Every SI3000 Lumia housing is provided with a shelf-management unit that ensures different hardware-related parameter measurements, configuration of the system functions and the appropriate temperature for a fully equipped shelf during operation.

SI3000 Lumia backplane capacity reaches 284 Gb/s.

MEB20	MEB18	MEB10	MEB6
20-slot enclosure (9U) for ETSI rack mounting	18-slot enclosure (9U) for 19" rack mounting	10-slot enclosure (6U) for mid&small shelter deployments, ETSI 300 and 19" rack mounting	6-slot enclosure for street cabinet deployments, ETSI 300 and 19" rack mounting

# SI3000 Lumia Management

The SI3000 Lumia introduces a new perspective for dealing with complex network environments. The trend in network-element management dictates a migration away from a scattered element-by-element manipulation to a holistic management based on an Iskratel SI3000 Network Management system application, called the SI3000 Management Center.

Using the SI3000 Management Center eases the network management with an effective GUI and full compatibility with different product versions. The full SNMP write ability gives network administrators the ability to completely adapt the networking parameters in a very simple way – using only user- and service-centric profiles.

**Fast and hassle-free introduction of newly installed SI3000 Lumia nodes is supported with a well-proved auto-configuration solution.**

In cases of smaller deployments the SI3000 Lumia may also be managed using the integrated Element Management System via CLI, SNMP or a web-based GUI.

## SI3000 Lumia Deployment Options

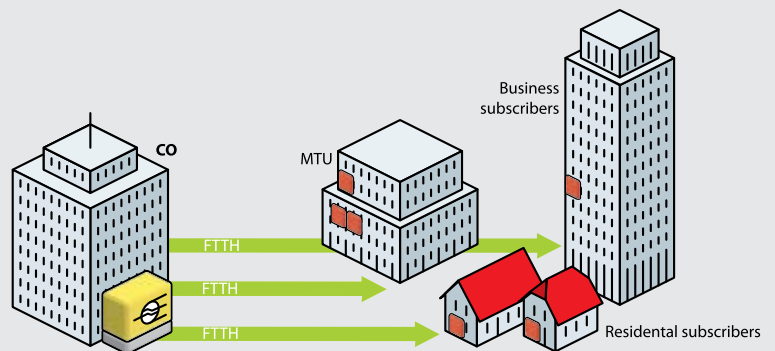
### Fiber-to-the-Home

Suitable for: Incumbents, alternative operators, municipal networks, power utilities, green-field deployments

To spread the fiber-access network to every subscriber, residential or business, means to decide for the most simple, flexible architecture and long-term future-proof investment. Separate optical fiber is laid from the CO location to every individual user so that each users can be long-term provided with an "unlimited" dedicated transmission rate (100 Mb/s or 1 Gb/s today and more in the future).

#### Choosing the FTTH deployment:

- *Low latency for real-time HDTV streaming and gaming*
- *Symmetrical bandwidth for high-speed internet, business VPN, videoconferencing, cloud computing, user-content sharing and collaboration*
- *Readiness for today's and future service provisioning (3D HDTV, Quad HDTV, Ultra HDTV, etc.)*
- *Unsurpassed reliability nearly eliminates OPEX*





# SPECIFICATIONS

	20 slots duplication		18 slots duplication		10 slots	6 slots
	no	yes	no	yes		
No. of slots for service blades	19	18	17	16	9	5
Max. fiber-access ports						
Double-density blade	456	432	408	384	216	120
Single-density blade	216	216	192	192	96	48
Max. VDSL2 ports	608	576	544	512	288	120
Max. 1Gb uplinks/aggregation ports	8	16	10	20	10	10
<b>Local Management interface over Ethernet Switch Blade</b>						
Console	RS232, RJ-45					
Giga Ethernet	1000 BaseT, RJ-45 – Management port for whole chassis					
<b>Intelligent Platform Management Interface (IPMI) features</b>						
Service-blade identification	Position in chassis, serial number, service contact person					
Identification of chassis	Geographical, topological position, role of application					
Blade status information	Power-consumption, temperature, voltage					
Blade management	Active, standby and fail status reading, activation, remote reset and shutdown					
Fan management	Status of fans, rotation speed configuration and automatic adaptation					
<b>Dimensions</b>						
20-slot chassis	(H x W x D) 622 x 500 x 233 (*) mm – ETSI rack					
18-slot chassis	(H x W x D) 622 x 450 x 233 (*) mm – 19" rack					
10-slots chassis, 6U	(H x W x D) 267 x 450 x 233 (*) mm – ETSI rack, 19" rack					
6-slots chassis, 4U	(H x W x D) 178 x 450 x 233 (*) mm – ETSI rack, 19" rack					
	* 233 mm without cables, 275 mm with cables					
<b>Environmental conditions</b>						
Safety	IEC 60950-1:2001, UL 60950-1					
EMC	EN 300 386:2001 v1.3.1, EN55022 Class A, FCC Class A (Class B for 1U chassis)					
Storage	As in ETS 300 019-1-1, class 1.2, temperature -25 to 55°C, rel. humidity 5–100%					
Transport	As in ETS 300 019-1-2, class 2.3					
Operation	As in ETS 300 019-1-3, class 3.1E, temperature -5 to 55°C, rel. humidity 5–90%					
<b>Other</b>						
Supply voltage	-48V or -60V DC					

## ISKRATEL

Iskratel, d.o.o., Kranj

Ljubljanska c. 24a, SI 4000 Kranj, Slovenia  
Phone: +386 (0)4 207 2000, Fax: +386 (0)4 207 2712

e-mail: [info@iskratel.si](mailto:info@iskratel.si)  
[www.iskratel.com](http://www.iskratel.com)

## ISKRATEL Group

Iskratel Electronics, Ljubljanska cesta 24a, SI 4000 Kranj, Slovenia, phone: +386 (0)4 207 34 96, fax: +386 (0)4 207 29 91, e-mail: [info-ite@iskratel.si](mailto:info-ite@iskratel.si), [www.iskratel-electronics.si](http://www.iskratel-electronics.si)  
Iskrateling, Ljubljanska cesta 24a, SI 4000 Kranj, Slovenia, phone: +386 (0)4 207 62 76, fax: +386 (0)4 207 62 77, e-mail: [info@iskrateling.si](mailto:info@iskrateling.si), [www.iskrateling.com](http://www.iskrateling.com)  
Monis, Oktyabrskoy revolucii str. 99, UA – 61157 Harkov, Ukraine, phone: +380 577 15 80 00, fax: +380 577 15 80 16, e-mail: [monis@monis.com.ua](mailto:monis@monis.com.ua), [www.monis.com.ua](http://www.monis.com.ua)  
Iskrauraltel, Komvuzovskaya str. 9a, 620137 Yekaterinburg, Russian Federation, phone: +7 343 210 69 51, fax: +7 343 341 52 40, e-mail: [iut@iskrauraltel.ru](mailto:iut@iskrauraltel.ru), [www.iskrauraltel.ru](http://www.iskrauraltel.ru)  
Iskrabel, Harkovskaya str. 1/601, BY - 220073 Minsk, Belarus, phone: +375 17 213 03 36, fax: +375 17 251 74 59, e-mail: [phtin@iskrabel.by](mailto:phtin@iskrabel.by)  
Iskracom, Naurizbay batyra 17, office 213, 050004 Almaty, Kazakhstan, phone: +7 327 2917 166, fax: +7 327 2917 166, e-mail: [iskracom@mail.ru](mailto:iskracom@mail.ru)  
ITS Iskratel Skopje, Kej 13 Noemvri, Kula 4, 1000 Skopje, Macedonia, phone: +389 2 323 53 00, fax: +389 2 323 53 99, e-mail: [info@its-sk.com.mk](mailto:info@its-sk.com.mk), [www.its-sk.com.mk](http://www.its-sk.com.mk)