

---

# Universal ADSL2+ / VDSL2 Blade - SGT

The universal vectoring ready 64 port (or 32 port, different variant) VDSL2 blade (SGT) in combination with system-level vectoring engine blade represents next-generation DSL performance enhancement technology for existing cooper pairs. With its fully standard compliant feature set and flexible network processor, product successfully fills gap between nowadays operator's service models and future needs that always requires modifications or extensions. The product fits in existing SI3000 MSAN (MEA) and Lumia (MEC) modular shelves of all sizes. When VDSL vectoring is required, Lumia (MEC) shelves are required.

## Key Features and Benefits

- **Universal ADSL2+, VDSL2, POTS and ISDN product**
- **Vectoring ready (G.993.5)** – enabled by Central Vectoring Engine blade
- **High density** – up to 1216 VDSL ports per shelf
- **BBF TR-101 compliant feature set**
- **ADSL2+ Fallback** - each port independently
- **Excellent Noise protection** - Bit Swapping, SRA, g.INP
- **Traffic Flow Awareness** – for guaranteed QoS & security for voice, video and data
- **Strong Security** feature set – Wirespeed ACL, Port Security, Protected Port, IP Source Guard
- **Flexible VLAN tagging** – single step Q-in-Q Tagging, selective Q-in-Q with exceptions
- **User friendly CLI** – easy configuration using service profiles with support for massive operations
- **Low Power** Consumption



The same universal ADSL2+/VDSL2 blade (compatible to POTS and ISDN markets) from Iskratel enables achievable bit rates on existing cooper lines to 100 Mbps and beyond. Multimegabit service is available even on longer lines - well above 3,5 km. With the automatic ADSL2+ fallback mode, product enables coexistence of VDSL2 and ADSL2+ service per port basis.

Product with VDSL2 vectoring ready building components works hand-by-hand by various noise protection mechanisms as:

- Seamless Rate Adaption (SRA)
- Bit Swap (BS)
- Retransmission (g.INP)

Using one or combination of techniques, achievable data rates are improved, lines are stabilized and as result, services to subscribers are delivered in high quality manner.

Heart of product represents high flexible network processor which guaranties rich L2/L3 features for any service models (VLAN per user, service or hybrid), any physical topology (ring, cascade,...) and possibility of almost any networking feature extensions in the future.

Nowadays product supports feature set as recommended by Broadband forum TR-101 and MEF forum (MEF9 and MEF12) for variety of building scenarios, including residential and business access.

## Technical Specifications

<b>Subscriber interface</b>	
Access interfaces VDSL2	64 (or 32) VDSL2 (G.993.2) ports, over POTS and over ISDN – the same blade
Access interfaces ADSL2+	64 (or 32) ADSL2 (G.992.1, G.992.3, G.992.5), Annex A & Annex B (over POTS and over ISDN), Annex L, Annex M – the same blade
VDSL2 Profiles supported	8a, 8b, 8c, 8d, 12a, 12b, 17a
Max. Downstream Data Rates	100 Mbps (17a), 68 Mbps (12a,b), 50 Mbps (8a-d)
Band plan supported	997 and 998, US0
Noise Protection	Bit-swapping (both directions), Interleaving, RFI notches, Custom PSD mask, INP
Advanced Noise Protection	SRA, Physical Layer Retransmission, G.INP
Crosstalk Protection	UPBO, DPBO, PSD masks, Vectoring Ready (enabled by Central Vectoring Card*)
Line Testing	SELT, DELT
Power Management	L0/L2/L3
Network interface (backplane)	4x GE
Vectoring interface (backplane)	4x 10GE XAUI
Local Management interface	RS232 (over µUSB connector, adapter needed)
<b>Performance</b>	
Throughput	4 Gbps
MAC Table Size	16 k
Packet Buffer Size	128 MB
Number of Multicast Groups	512
<b>Advanced features</b>	
Intelligent Service Access (ISA)	Flow Awareness, Profile-Based Management, Transparent auto-logon (TAL), AAA over RADIUS
Business Connectivity	E-Line, E-LAN, MEF compliant (MEF-9, MEF-14)
<b>Ethernet switching (L2) features</b>	
Switching	IPv4, IPv6, Support for packets up to 1528 Bytes, PVC Switching
Link Aggregation	Static LAG
VLAN	4096 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
IP Multicast support	IGMP v2/v3 Snooping with or without Supression, Fast Leave for Multiple Clients, IGMP filtering, IGMP Proxy, Multicast CAC, Multicast Group ACL, Static Multicast Groups, MVR, MVR-PEB (patented), MPMM and MPMM-PEB (patented), IGMP forking, IGMP Querier
Quality of Service	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), Upstream/Ingress Shaping (per port, per service)*, Egress Queuing (up to 8 Queues per port, RED, Tail-drop), Egress Scheduling (Strict priority, Weighted Fair Queuing, Low Latency Queuing), Egress Shaping, Connection Admission Control (CAC)
<b>Security features</b>	
User Port Isolation	Protected Port (Private Port)
Filtering	Wirespeed L2-L4 Access Lists, Remote Access Filtering, Application Rate Limiting
Storm control	Per-port 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
User Line Tracability	PPPoA, DHCP Relay Agent with Option 82
Unauthorized DHCP Server establishment	DHCP Filtering, DHCP Options 60 and 43
<b>Management features</b>	
Management interfaces	CLI (Console, Telnet, SSH), SNMP, Web (Java) based Element Manager
IP assignment	DHCP or Static
Management protocols	SNMPv2c, SNMPv3, ACS Client for Auto Configuration Service
Firmware upgrading	FTP, ACS
Time Synchronization	SNTP
Monitoring	System resource monitoring, Port Mirroring, On line debugging
Events collecting	Event/ Error Log/Syslog
Other management features	Syslog, Dual firmware image, Performance and Quality Monitoring, RMON (Etherstat), Telnet client, SSH client
<b>Environmental conditions</b>	
Safety	EN60950-1:2006 + Am1:2010 + Am11:2009
EMC	ETSI EN 300 386 V1.5.1 (EN55022 Class A, Class B for 1U chassis)
Storage	ETS 300 019-1-1, class 1.2 , temperature -50 to 70°C, rel. humidity 5–100%
Transport	ETS 300 019-1-2, class 2.3
Operation	ETS 300 019-1-3, class 3.1E, temperature -5 to 55°C, rel. humidity 5–90%
Power consumption	82 W for 17a, 96 W for 8b (all ports equipped)
Power Supply	-42 V to -72V

\* Future Release

Ordering code	Description
SBB1908BA	Universal ADSL2+/VDSL2 blade, 64 ports, vectoring ready, over POTS and ISDN, for MEC and MEA – SGT
SBB1908BF	Universal ADSL2+/VDSL2 blade, 32 ports, over POTS and ISDN, for MEC and MEA – SGT 32