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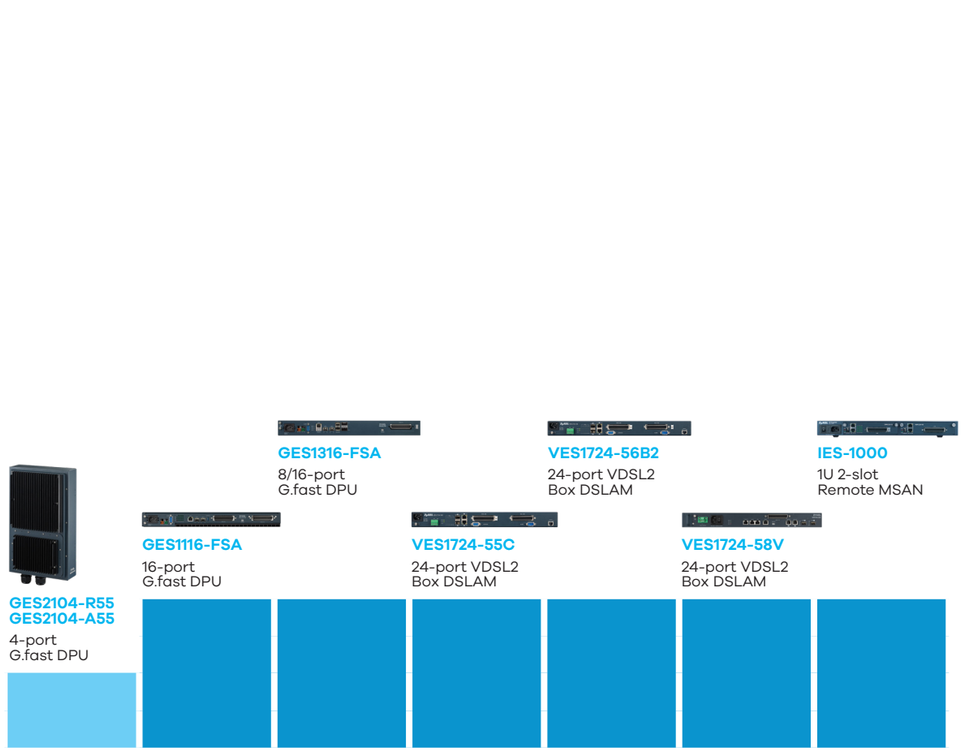


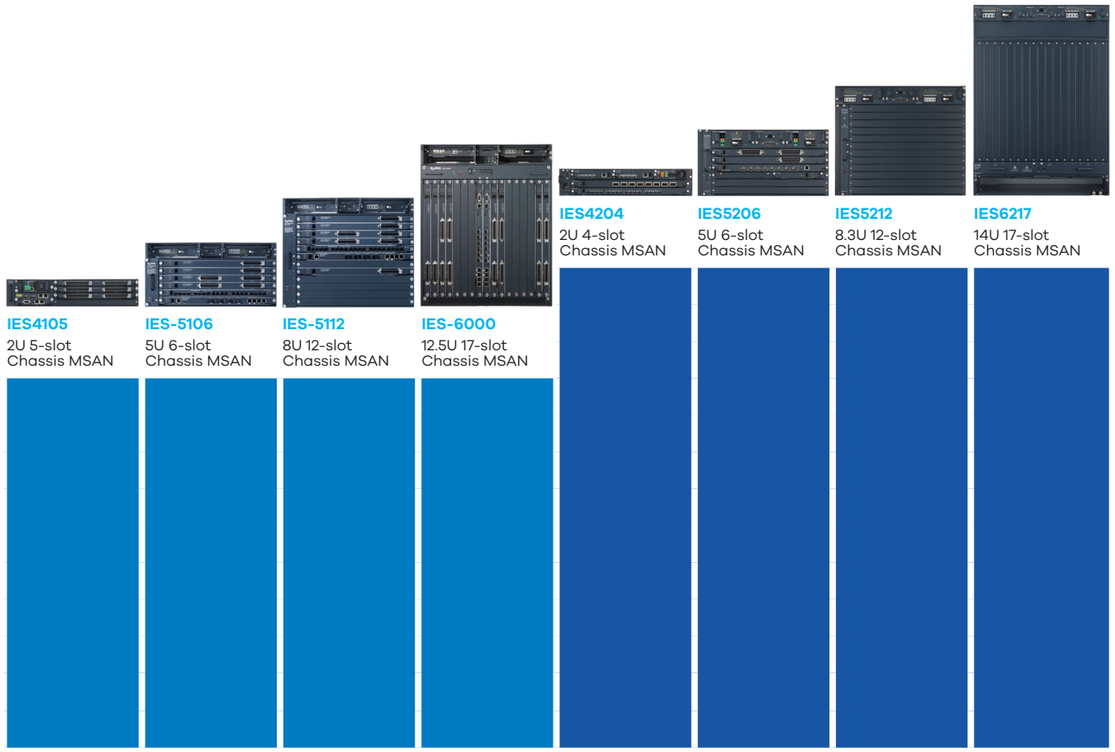
MSAN/DSLAM

Quick Sales Guide

MSAN/DSLAM product portfolio

OSP	Remote/central





Port density																
ADSL2+	-	-	-	-	-	-	24	128	360	720	1152	-	-	-	-
ADSL2+ Combo	-	-	-	-	-	-	-	-	240	480	768	-	-	-	-
SHDSL	-	-	-	-	-	-	32	-	240	480	768	-	-	-	-
VDSL2	-	-	-	-	24	24	-	96	240	480	768	-	-	-	-
VoIP	-	-	-	-	-	24	-	256	360	720	1152	-	-	-	-
VDSL2/ Vectoring	-	-	-	24	-	-	-	-	-	-	-	96	192	2 x 192	3 x 192
1G AON	-	-	-	-	-	-	-	-	120	240	384	80	200	400	600
PON	-	-	-	-	-	-	-	-	-	-	-	32	64	160	-*
10G PON	-	-	-	-	-	-	-	-	-	-	-	16	32	-	-
G.fast	4 (106 MHz)	16 (106 MHz)	8 (212 MHz)/ 16 (106 MHz)	-	-	-	-	-	-	-	-	-	-	-	-

* By project request

MSAN/DSLAM key features

Category	Model	Key features
Central MSAN 	IES-6000	• Maximum 1152-port VoIP density, 1152-port ADSL2+ density, 768-port ADSL2+ combo density, 768-port SHDL density, 768-port VDSL2 density, or 384-port Gigabit Ethernet density • Flexible ACL, VLAN-aware DHCP, and anti-IP/MAC address spoofing to prevent malicious attacks • DHCP option 82 and PPPoE IA features support versatile IP address assignment • Full redundancy of management card and power module • Comprehensive QoS to enhance triple-play experience • Field-proven IGMP snooping and proxy for IPTV deployments • Sophisticated OAM&P features • Temperature-hardened for flexible installation
	IES6217	• Maximum 192x3-port vectoring VDSL density, 600-port Gigabit Ethernet density • Flexible ACL, VLAN-aware DHCP, and anti-IP/MAC address spoofing to prevent malicious attacks • DHCP option 82 and PPPoE IA features support versatile IP address assignment • Board-Level Vectoring (BLV) and System-Level Vectoring (SLV) • Full redundancy of management card and power module • Comprehensive QoS enhanced triple-play experience • Field-proven IGMP snooping and proxy for IPTV deployments • Sophisticated OAM&P features • Temperature-hardened for flexible installation
	IES-5112	• Maximum 720-port ADSL2+ density, 480-port ADSL2+ combo density, 480-port SHDSL density, 480-port VDSL2 density, 720-port VoIP density, or 240-port Gigabit Ethernet density • Flexible ACL, VLAN-aware DHCP, and anti-IP/MAC address spoofing to prevent malicious attacks • DHCP option 82 and PPPoE IA features support versatile IP address assignment • Full redundancy of management card and power module • Comprehensive QoS to enhance triple-play experience • Field-proven IGMP snooping and proxy for IPTV deployments • Sophisticated OAM&P features • Temperature-hardened for flexible installation
	IES5212	• Maximum 192x2-port vectoring VDSL density, 400-port Gigabit Ethernet density, or 160-port GPON density • Flexible ACL, VLAN-aware DHCP, and anti-IP/MAC address spoofing to prevent malicious attacks • DHCP option 82 and PPPoE IA features support versatile IP address assignment • Board-Level Vectoring (BLV) and System-Level Vectoring (SLV) • Full redundancy of management card and power module • Comprehensive QoS enhanced triple-play experience • Field-proven IGMP snooping and proxy for IPTV deployments • Sophisticated OAM&P features • Temperature-hardened for flexible installation
	IES-5106	• Maximum 360-port ADSL2+ density, 240-port ADSL2+ combo density, 240-port SHDSL density, 240-port VDSL2 density, 360-port VoIP density, or 120-port Gigabit Ethernet density • Flexible ACL, VLAN-aware DHCP and anti-IP/MAC address spoofing to prevent malicious attack • DHCP option 82 and PPPoE IA features support versatile IP address assignment • Comprehensive QoS to enhance triple-play experience • Field-proven IGMP snooping and proxy for IPTV deployments • Sophisticated OAM&P features • Temperature-hardened for flexible installation
	IES5206	• Maximum 192-port vectoring VDSL density, 200-port Gigabit Ethernet density, 64-port GPON density or 32-port XGS-PON density • Supports symmetric XGS-PON for residential, cloud, and enterprise services • Flexible ACL, VLAN-aware DHCP, and anti-IP/MAC address spoofing to prevent malicious attacks • DHCP option 82 and PPPoE IA features support versatile IP address assignment • Board-Level Vectoring (BLV) and System-Level Vectoring (SLV) • Full redundancy of management card and power module • Comprehensive QoS enhanced triple-play experience • Field-proven IGMP snooping and proxy for IPTV deployments • Sophisticated OAM&P features • Temperature-hardened for flexible installation

Category	Model	Key features
Central MSAN 	IES4204	• Maximum 96-port vectoring VDSL density, 80-port Gigabit Ethernet density, 32-port GPON density, or 16-port XGS-PON density • Supports symmetric XGS-PON for residential, cloud, and enterprise services • Flexible ACL, VLAN-aware DHCP, and anti-IP/MAC address spoofing to prevent malicious attacks • DHCP option 82 and PPPoE IA features support versatile IP address assignment • Full redundancy of management cards and power module • Comprehensive QoS enhanced triple-play experience • Field-proven IGMP snooping and proxy for IPTV deployments • Sophisticated OAM&P features • Temperature-hardened for flexible installation
Remote MSAN/ DSLAM 	IES4105	• Maximum 128-port ADSL2+ density, 96-port VDSL2 density, or 256-port VoIP density • Flexible ACL, VLAN-aware DHCP, and anti-IP/MAC address spoofing to prevent malicious attacks • DHCP option 82 and PPPoE IA features support versatile IP address assignment • Comprehensive QoS enhanced triple-play experience • Field-proven IGMP snooping and proxy for IPTV deployments • Sophisticated OAM&P features • Temperature-hardened for flexible installation
	IES-1000	• Maximum 24-port ADSL2+ density, or 32-port SHDSL density • Two Fast Ethernet interfaces for uplink • Supports 802.1p QoS, priority queuing, 802.1q VLAN tag, and multicast • 1U, DC or AC power, and built-in POTS splitter • 2 FE electrical interface for uplinks and subtending
	VES1724-56B2 VES1724-55C VES1724-58V	• Maximum 24-port VDSL2 density (VES1724-56B2, VES1724-58V), 24-port VoIP density (VES1724-58V), or 24-port vectoring VDSL density (VES1724-55C) • Complies with VDSL2 standards including ITU-T G.993.2, G994.1, and G.997.1 • VDSL2 bonding and G.INP • SIP and H.248 for smooth voice over IP migration (VES1724-58V) • AC or DC dual-power with battery charge (VES1724-58V) • Fanless design for energy-saving and energy-saving and extended product life (VES1724-56B2, VES1724-55C) • Comprehensive QoS enhanced triple-play experience • Sophisticated OAM&P features • Temperature-hardened for flexible installation
	GES1316-FSA GES1116-FSA	• G.fast with G.vectoring and VDSL2/35b fallback (GES1316-FSA) • Multi-service interfaces including G.fast, VDSL2, GPON, and fiber-based GbE • Flexible ACL, VLAN-aware DHCP, and anti-IP/MAC address spoofing to prevent malicious attacks • Field-proven IGMP snooping and proxy for IPTV deployments • Comprehensive QoS enhanced triple-play experience • Sophisticated OAM&P features • AC/DC dual-power with battery charge function • Fanless design for energy-saving and extended product life • Temperature-hardened for flexible installation
OSP 	GES2104-R55/A55	• G.fast with G.vectoring and VDSL2 fallback • Multi-service interfaces including G.fast, VDSL2, GPON, and fiber-based GbE services • Flexible ACL, VLAN-aware DHCP, and anti-IP/MAC address spoofing to prevent malicious attacks • Field-proven IGMP snooping and proxy for IPTV deployments • Comprehensive QoS enhanced triple-play experience • Sophisticated OAM&P features • Environmental-hardened for flexible installation • Fanless design for energy-saving and extended product life

MSAN/DSLAM feature matrix

		Central MSAN						
		IES6217	**IES5212**	**IES5206**	**IES4204**	**IES-6000**	**IES-5112**	**IES-5106**
Product name		14U 17-slot Temperature-Hardened Chassis MSAN	8.3U 12-slot Temperature-Hardened Chassis MSAN	5U 6-slot Temperature-Hardened Chassis MSAN	2U 4-slot Temperature-Hardened Chassis MSAN	12.5U 17-slot Temperature-Hardened Chassis MSAN	8U 12-slot Temperature-Hardened Chassis MSAN	5U 6-slot Temperature-Hardened Chassis MSAN
Power		-36 to -72 V DC	-36 to -72 V DC	-36 to -72 V DC or 100 to 240 V AC	-36 to -72 V DC or 100 to 240 V AC battery charger	-36 to -72 V DC	-36 to -72 V DC	-36 to -72 V DC
Power redundancy		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Operating temperature		-40°C to 65°C	-40°C to 65°C	-40°C to 65°C	-40°C to 65°C	-40°C to 65°C	-40°C to 65°C	-40°C to 65°C
Operating humidity		10% to 95% RH	10% to 95% RH	10% to 95% RH	10% to 95% RH	10% to 95% RH	10% to 95% RH	10% to 95% RH
Slot	**Uplink**	2/1	2	2/1	2	2/1	2	1
	Downlink	15/16	10	4/5	2	15/16	10	5
Interface								
Uplink	**1000BASE- SX/LX**	8	8	8	4 + 4	4	4	4
	10000BASE-SX/LX/ZX	8	8	8	4 + 4	2	2	2
Downlink	**10G PON interface**	-	-	32 XGS-PON	16 XGS-PON	-	-	-
	PON interface	-	160	64	32	-	-	-
	GE interface	600	400	200	80	384	240	120
	VDSL2 interface	192 x 3 (Vectoring)	192 x 2 (Vectoring)	192 (Vectoring)	96 (Vectoring)	768	480	240
	ADSL2+ interface	-	-	-	-	1152	720	360
	ADSL2+ combo interface	-	-	-	-	768	480	240
	G.SHDSL.bis interface	-	-	-	-	768	480	240
	VoIP interface	-	-	-	-	1152	720	360
PON								
Maximum splitter ratio		GPON 1 : 128	GPON 1 : 128	10G PON: 1 : 256 GPON: 1 : 128	10G PON: 1 : 256 GPON: 1 : 128	-	-	-
Type B protection		Yes	Yes	Yes	Yes	-	-	-
AES		Yes	Yes	Yes	Yes	-	-	-
SFP digital diagnostic management		Yes	Yes	Yes	Yes	-	-	-
QoS								
802.1p priority queue		8	8	8	8	8	8	8
802.1q tag-based VLAN		Yes	Yes	Yes	Yes	Yes	Yes	Yes
SPQ/WFQ		Yes	Yes	Yes	Yes	Yes	Yes	Yes
DBA		Yes	Yes	Yes	Yes	-	-	-
Security								
IGMP v2, v3		Yes	Yes	Yes	Yes	Yes	Yes	Yes
IGMP fast leave		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Multicast VLAN		Yes	Yes	Yes	Yes	Yes	Yes	Yes
MLDv1 & MLDv2 snooping and proxy		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Management								
SNMP v2c, v3		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Web management		Yes	Yes	Yes	Yes	Yes	Yes	Yes
CLI management		Yes	Yes	Yes	Yes	Yes	Yes	Yes
EMS management		NetAtlas EMS	NetAtlas EMS	NetAtlas EMS	NetAtlas EMS	NetAtlas EMS	NetAtlas EMS	NetAtlas EMS
Physical specifications								
Dimensions (WxDxH)(mm/in.)		440 x 275 x 622/ 17.32 x 10.83 x 24.49	440 x 275 x 370/ 17.32 x 10.83 x 14.57	440 x 275 x 222/ 17.32 x 10.83 x 8.74	440 x 285 x 89/ 17.32 x 11.22 x 3.5	440 x 250 x 544/ 17.32 x 9.84 x 21.41	440 x 250 x 363/ 17.32 x 9.84 x 14.29	440 x 250 x 215/ 17.32 x 9.84 x 8.46
Weight (kg/lb.)		25.5/56.22	15.5/34.17	13/28.66	10.6/23.37	15/33.07	13.34/29.41	10.2/22.49

MSAN/DSLAM feature matrix

		Remote MSAN/DSLAM					OSP
		IES4105	IES-1000	VES1724-56B2 VES1724-55C VES1724-58V	GES1316-FSA	GES1116-FSA	GES2104-R55/A55
Product name		2U 5-slot Temperature-Hardened Chassis Remote MSAN	1U 2-slot Remote MSAN and Line Cards	24-port Temperature-Hardened VDSL2 Box DSLAM	8/16-port Temperature-Hardened G.fast DPU	16-port Temperature-Hardened G.fast DPU	4-port Environmental-Hardened G.fast DPU
Power		-36 to -72 V DC or 100 to 240 V AC or dual power	-36 to -72 V DC or 100 to 240 V AC	-36 to -72 V DC or 100 to 240 V AC	-36 to -72 V DC or 100 to 240 V AC battery charger	-36 to -72 V DC or 100 to 240 V AC battery charger	100 to 240 V AC or reverse power feeding
Operating temperature		-40°C to 65°C	0°C to 50°C	-40°C to 65°C	-40°C to 60°C	-40°C to 65°C	-40°C to 65°C
Operating humidity		10% to 95% RH	10% to 95% RH	10% to 95% RH	10% to 95% RH	10% to 95% RH	10% to 95% RH
Slot	**Uplink**	1	-	-	-	-	-
	Downlink	4	-	-	-	-	-
Interface							
Uplink	**100BASE-SX/LX**	-	2	-	-	-	-
	1000BASE-SX/LX	2	-	2	-	-	1
	10000BASE-SX/LX/ZX	-	-	-	2	2	-
Downlink	**VDSL2 interface**	96	-	24	-	-	-
	ADSL2+ interface	128	24	-	-	-	-
	G.SHDSL.bis interface	-	32	-	-	-	-
	VoIP interface	256	-	24 (IES1724-58V)	-	-	-
	G.fast interface	-	-	-	8/16	16	4
QoS							
802.1p priority queue		8	8	8	8	8	8
802.1q tag-based VLAN		Yes	Yes	Yes	Yes	Yes	Yes
SPQ/WFQ		Yes	Yes	Yes	Yes	Yes	Yes
Security							
IGMP v2, v3		Yes	Yes	Yes	Yes	Yes	Yes
IGMP fast leave		Yes	Yes	Yes	Yes	Yes	Yes
Multicast VLAN		Yes	Yes	Yes	Yes	Yes	Yes
MLDv1 & MLDv2 snooping and proxy		Yes	-	Yes	Yes	Yes	Yes
Management							
SNMP v2c, v3		Yes	-	Yes	Yes	Yes	Yes
Web management		Yes	Yes	Yes	Yes	Yes	Yes
CLI management		Yes	Yes	Yes	Yes	Yes	Yes
EMS management		Yes	Yes	Yes	Yes	Yes	Yes
Physical specifications							
Dimensions (WxDxH)(mm/in.)		441.2 x 262 x 88.8/ 17.37 x 10.31 x 3.5	440 x 320 x 44/ 17.32 x 12.60 x 1.73	440 x 250 x 44.35/ 17.32 x 9.84 x 1.75	440 x 250 x 44.25/ 17.32 x 9.84 x 1.73	440 x 250 x 44.25/ 17.32 x 9.84 x 1.73	438 x 216 x 104/ 17.24 x 8.5 x 4.09
Weight (kg/lb.)		3.2/7.05	3.7/8.16	4.7/10.36	6.0/13.23	6.0/13.23	13/28.66

MSAN/DSLAM line card information

Linecard type	Model	Description	IES6217	IES5212	IES5206	IES4204	IES-6000	IES-5112	IES-5106	IES4105	IES-1000
Management and switching cards	MSC1324GB	Management and switching card with 2 10G and 4 GbE combo ports					•	•	•		
	MSC1324GC	Management and switching card with 2 10G and 4 GbE combo ports					•	•	•		
	MSC1280XB	Management card with 8 10G SFP+ open slots	•	•	•						
	MSC1240QA	Management card with 4 10G SFP+ open slots				•					
	MSC1002GA	Management card with 2 GbE combo ports								•	
VDSL line cards	VLC1424G-56	24-port DMT-based VDSL2 line card, Annex A, 30a profile					•	•	•		
	VLC1348G-51	48-port DMT-based VDSL2 line card 17a profile, Annex A/Annex B					•	•	•		
	VLC1348G-53	48-port DMT-based VDSL2 line card 17a profile, Annex A/Annex B					•	•	•		
	VLC1448X-51S	48-port vectoring VDSL2 Annex A line card with built-in ETSI&ANSI POTS splitter, 17a profile	•	•	•	•					
	VLC1448X-51F	48-port dual-line vectoring VDSL2 Annex A line card with built-in ETSI & ANSI POTS splitter, 17a profile				•					
	VLC1448X-51D	48-port dual-line vectoring VDSL2 Annex A line card (over POTS), 17a profile				•					
	VLC1448X-51	48-port vectoring VDSL2 Annex A/B/M/J line card, 17a profile	•	•	•	•					
	VLC1124A-51	24-port VDSL line card, Annex A and 17a profile with built-in splitter								•	
ADSL line cards	ALC1372G-51	72-port Annex A ADSL2/ADSL2+ line card (over POTS)					•	•	•		
	ALC1348G-51C	48-port Annex L and Annex M ADSL2+/VoIP combo card					•	•	•		
	ALC1132A-51	32-port Annex A ADSL2/2+ line card (over POTS) with built-in splitter								•	
	AAM1212-51	12-port Annex A ADSL2/ADSL2+ module (over POTS)									•
VoIP line cards	VOP1164A-61	64-port VoIP line card. H.248 or SIP								•	
	VOP1372G-61 (SIP/H.248)	72-port SIP/H.248 VoIP line card					•	•	•		
Vectoring line card	VEC1001X	192-port vectoring engine card	•	•	•						
GbE line cards	GLC1320G-55	20-port Gigabit Ethernet SFP (1000BASE-FX, 1000BASE-BX, and 1000BASE-LX)					•	•	•		
	GLC1540X-55A	40-port Gigabit Ethernet Line Card with 20 C-SFP/SFP Slots	•	•	•	•					
	GLC1440X-55A	40-port Gigabit Ethernet line card (20 x C-SFP/SFP slots)	•	•	•	•					
GPON line cards	OLC3416B-IA	16-port GPON Line Card	•	•	•						
	OLC3416-42A	GPON line card with 16 GPON SFP open slots	•	•	•						
10G PON line card	OLC3708-43A	10G PON line card with 8 XFP open slots		•	•						
SHDSL line cards	SLC1348G-22	48-port G.SHDSL.bis line card					•	•	•		
	SAM1316-22	12-port G.SHDSL.bis extension module									•

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