



Bandwidth Changes Everything™

Quick Reference Pocket Guide

Bandwidth Changes Everything!™



THE IP ZHONE

Healthcare • Education • Military and Government • Small and Large Business • Public Utility • Residential

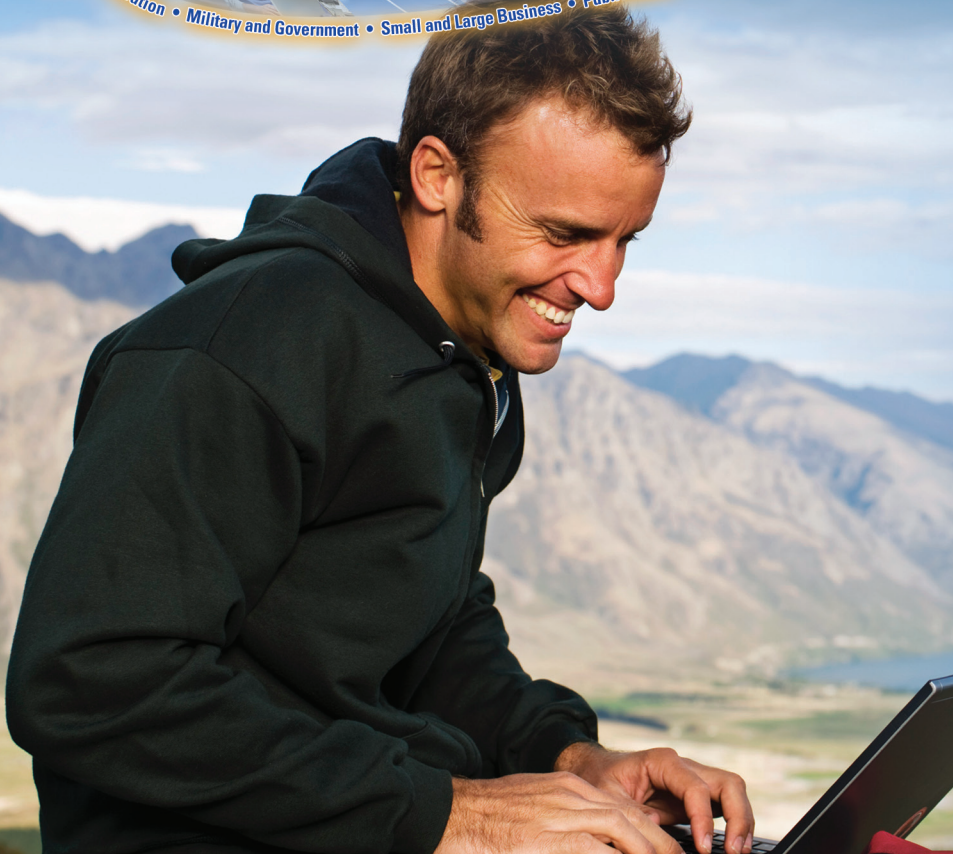


LEARN MORE
Experience the
Network
of the Future... Today

THE IP ZPHONE

• Sports • Music • Medical • Education

• Military and Government • Small and Large Business • Public Utility • Residential



THE IP ZHONE

@ ZHONE[®]
FIBERCELL™

@ ZHONE[®]
FIBERHOME™

IP ZHONE

In 2010, Zhone introduced the **IP ZhoneSM** brand with a multi-service access convergence premise. Our goal is to help customers build their network of the future by delivering an all-IP high performance end-to-end multi-service solution optimized for their ever-growing bandwidth needs, such that **bandwidth will never be a constraint**.

Zhone's market-leading MXK™ MSAN platform is the cornerstone of the IP Zhone strategy, ultimately serving as the enabling next-generation broadband solution for service providers and several vertical markets including public utilities, first responders, hospitality, etc. and complemented by a broad range of ONUs, ONTs and CPEs to service a multitude of operator and end-user needs.

The IP Zhone provides the foundation for NGN (Next Generation Networks) and Triple Play networks. The IP Zhone is about achieving true interconnectivity and providing highly flexible, scalable and reliable solutions for high-speed broadband, voice and entertainment for consumers and businesses.

And, today, we're delivering on the promise of the IP Zhone with an advanced all-IP multi-service product portfolio that is ideally suited for any combination of broadband, voice and entertainment. Besides the industry-leading MXK MSAN and OLT, the IP Zhone is brought to life through a broad range of outdoor and indoor zNID™ ONTs based on Zhone's embedded SLMS™ architecture and managed by Zhone Management System (ZMS™) and Zhone EZ Touch Provisioning™ solutions to provide high-performance multi-service solutions for service providers and their customers.

Bottom-line, IP Zhone exemplifies Zhone's commitment to:

- **Building the network of the future... today!**
- **Building the fastest, highest quality all-IP multi-service networks in the world!**

The IP Zhone Product Grid

CO

CAB/RT

**Zhone
FiberHome
MSAN**



**MXK
319
819
823**



**Zhone
FiberCell
MSAN**



**MXK
319
819
823**



CAB/OPX

CAB/OPX

**Zhone
MultiService
MSAN**



**MALC
319
719
723**



CAB/OPX

NODE/CURB/BLDG

PREMISES



XP/MX/MXP/MXK



zNID ONT
AE/GPON



zNID ONT
AE/GPON



MXK 194/198



zNID ONT
MDU
AE/GPON



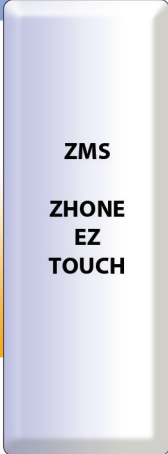
ETHX EAD
CPE



XP/MX/MXP



ADSL2+
VDSL2,
EFM/EoC, POTS
T1/E1, ISDN



ZMS

**ZHONE
EZ
TOUCH**

MXK - MSAN & OLT

	MXK 823/819	MXK 319	MXK 194/198
Physical			
Configuration	Chassis	Chassis	Fixed 1U
Size	8U x 19 or 23" rack	3U x 19" rack	1U x 19"
Power	-48V DC	-48V DC	-48V DC
Uplink Slots	2	2	N/A
Line Card Slots	18/14	7	N/A
Ambient Temperature	-40C to +65C	-40C to +65C	-40C to +65C
Card Replace	Hot Swap	Hot Swap	N/A
Uplinks			
10 Gig.E	•	•	•
Gig.E	•	•	•
EAPS	•	•	•
LAGG / LACP	•	•	•
RSTP	•	•	•
Management			
ZMS/CLI	•	•	•
Web GUI	•	•	•
EZ Touch	•	•	•



MXK Chassis



	MXK 823/819	MXK 319	MXK 194/198
Data Features			
Layer 2 Bridging	•	•	•
Layer 3 Routing	•	•	•
DHCP Sever/Relay	•	•	•
802.1p QoS	•	•	•
802.1Q VLAN	•	•	•
E-TREE	•	•	•
E-LAN	•	•	•
E-LINE	•	•	•
Policing	•	•	•
Video Features			
IGMP Snooping	•	•	•
IGMP Proxy	•	•	•
MVR	•	•	•
RF Video Overlay	•	•	•
Voice Features			
MGCP	•	•	
SIP	•	•	
H.248	•	•	



MXK 194 / 198

MXK - MSAN & OLT

Access/Line Cards (subs)	MXK 823/819	MXK 319	MXK 194/198
TDM / Copper			
POTS	72-1296/1008	72-504	N/A
POTS/ADSL2+	48-384/288	48-144	N/A
POTS/VDSL2	24-432/336	24-168	N/A
T1/E1 PWE	24-432/336	24-168	N/A
DSL / Copper			
ADSL2+	ADSL2+ 48-1296/1008	ADSL2+ 48-504	N/A
ADSL2+ W/splitters	48-384/288	48-144	N/A
VDSL2	24-432/336	24-168	N/A
VDSL2 W/splitters	24-432/336	24-168	N/A
EFM / Copper			
T1/E1 EFM	24-432/336	24-168	N/A
EFM G.SHDSL	24-432/336	24-168	N/A
Fiber			
GPON-4*	256-4608/3584	256-1792	256
GPON-8*	512-9216/7168	512-3584	512
Active Ethernet	20-360/280	20-140	N/A

*Assumes 64 splits



MXK Chassis

1U-SLMS

	MX-150	MPX-150	XP-170	MX-160	MX-260	MPX-160	MPX-260
CTTP	X	X	X	X	X	X	X
SHDSL EFM			24-PORT				
ADSL2+	48-PORT	48-PORT		24-PORT (Fallback)	24-PORT (Fallback)	24-PORT (Fallback)	24-PORT (Fallback)
VDSL2				24-PORT (30a)	24-PORT (30a)	24-PORT (30a)	24-PORT (30a)
POTS	48-PORT (Splitters)	48-PORT (VoIP)		24-PORT (Splitters)	24-PORT (Splitters)	24-PORT (VoIP)	24-PORT (VoIP)
GPON					1-PORT SC/APC		1-PORT SC/APC
FE/GE UPLINK PORTS	2x FE/GE SFP 2X FE/GE RJ45	2x FE/GE SFP 2X FE/GE RJ45	2x FE/GE SFP 2X FE/GE RJ45	4x FE/GE SFP 2X FE/GE RJ45	3x FE/GE SFP 2X FE/GE RJ45	4x FE/GE SFP 2X FE/GE RJ45	3x FE/GE SFP 2X FE/GE RJ45
GPON UPLINK PORTS					1x GPON SC/UPC		1x GPON SC/UPC

	MX-180	MX-280	MPX-180	MPX-280
CTTP	X	X	X	X
ETTP	X	X	X	X
FTTP	X	X	X	X
POTS			24-PORT (VoIP)	24-PORT (VoIP)
ACTIVE ETHERNET	24-PORT FE SFP	24-PORT FE SFP	24-PORT FE SFP or RJ45	24-PORT FE SFP or RJ45
FE/GE UPLINK PORTS	4x FE/GE SFP 2X FE/GE RJ45	3x FE/GE SFP 2X FE/GE RJ45	4x FE/GE SFP 2X FE/GE RJ45	3x FE/GE SFP 2X FE/GE RJ45
GPON UPLINK PORTS		1x GPON SC/APC		1x GPON SC/APC



1U SLMS PLATFORM

MALC - MSAN

MALC 723/719/319	
Physical	
Configuration	Chassis
Size	7U x 19 or 23" rack 3U x 19" rack
Power	-48V DC
Power Options	NA
Uplink Slots	2
Line Card Slots	19/15/8
Ambient Temperature	-40C to +65C
Card Replace	Hot Swap
Uplinks	
Gig.E	•
Gig.E RPR	•
10/100 Base-T	•
T1/E1	•
OC3/STM - 1	•
Management	
ZMS/CLI	•
Web GUI	•

MALC 723/719/319	
Data Features	
Layer 2 Bridging	•
Layer 3 Routing	•
DHCP Sever/Relay	•
802.1p QoS	•
802.1Q VLAN	•
Video Features	
IGMPv 2 Aware	•
Active Query	•
Access Control	•
RTSP Unicast	•
Video Bridging	•
Video Routing	•
RF Video Overlay	•
Voice Features	
GR-303 / V5.2	•
Voice Gateway	•
Emergency Standalone (ESA)	•

MALC Chassis



Line Cards (subs)	MALC 723/719	MALC 319
TDM / Copper		
POTS	48-912/720	48-384
POTS/ADSL2+	48-432/384	48-192
ISDN	24-432/384	24-192
T1/E1 PWE	24-432/384	24-192
T1/E1 ATM	32-640/512	32-256
DS3/E3 subtending	4-80/64	4-32
DSL / Copper		
ADSL2+	48-960/768	48-384
ADSL2+ with splitters	48-432/384	48-192
ReachDSL	24-480/384	24-192
G.SHDSL 2 wire	12-960/768	12-384
VDSL2	24-480/384	24-192
Ethernet / Copper		
EFM T1/E1 PKT	24-480/384	24-192
EFM G.SHDSL	24-480/384	24-192
Service Cards		
MTAC with POTS ringer	•	•
Enhanced MTAC (integrated test)	•	
Voice Gateway	8 or 32 T1/E1	8 or 32 T1/E1

*Assumes 64 splits

zNID Optical Network Terminal (ONT)

GPON Indoor

Model	WAN	POTS	T1 / E1	FE	GE	RF VIDEO	WiFi	USB 2.0
2402	GPON				2			
2403	GPON				2	YES		
2424	GPON	2			4			
2425					4	YES		
2426	GPON	2			4		YES	YES
2427	GPON	2			4	YES	YES	YES
2501	GPON				1			
2504	GPON				4			
2510A	GPON	2		4				
2511	GPON	2		4		YES		
2516	GPON	2			4		YES	
2517	GPON	2			4	YES	YES	
2520	GPON	4		4				
2543	GPON	2			4	YES		
5114	GPON	2		4	4			4
5120	GPON	2		4	4			8
8224	GPON		24		4			
8324	GPON	24	24		4			



zNID-GPON 2425



zNID-GPON 2543



zNID-GPON 2424

GPON Outdoor

Model	WAN	POTS	GE	RF Video	HCNA	MoCA	T1/E1	USB 2.0	PPPoE
4220	GPON	2	2					YES	YES
4221	GPON	2	2	YES				YES	YES
4222	GPON	2	2		YES			YES	YES
4223	GPON	2	2	YES	YES			YES	YES
4224	GPON	2	2		YES			YES	YES
4226	GPON	2	6					YES	YES
4240	GPON	4	2					YES	YES
4241	GPON	4	2	YES				YES	YES
4242	GPON	4	2		YES			YES	YES
4243	GPON	4	2	YES	YES			YES	YES
9108	GPON	8	9					YES	YES
9208	GPON	8	9			YES		YES	YES
9308	GPON	8	9	YES		YES		YES	YES
9440	GPON		5				4	YES	YES
9444	GPON	4	5				4	YES	YES
9480	GPON		9				8	YES	YES
9488	GPON	8	9				8	YES	YES



GPON Outdoor

zNID Optical Network Terminal (ONT)

Active Ethernet Indoor

Model	WAN	POTS	FE	GE	USB 2.0	PPPoE
2204	Eth		3	1	4	4
2244	Eth	4	3	1	4	4
2284	Eth	8	3	1	4	4
2402	Eth			2		4
2424	Eth	2		4		4
2426	Eth	2		4	4	4






ZNID-GPON 2424

Active Ethernet Outdoor

Model	WAN	POTS	GE	HCNA	MoCA	T1/E1	USB 2.0	PPPoE
4220	GigE	2	2				YES	YES
4222	GigE	2	2	YES			YES	YES
4226	GigE	2	6				YES	YES
4240	GigE	4	2				YES	YES
4242	GigE	4	2	YES			YES	YES
9108	GigE	8	9				YES	YES
9208	GigE	8	9		8		YES	YES
9440	GigE		5			4	YES	YES
9444	GigE	4	5			4	YES	YES
9480	GigE		9			8	YES	YES
9488	GigE	8	9			8	YES	YES

Cabinets

Pad Mount	Pole Mount	Wall Mount	Battery Option	Rectifier	Alarms	Protection	HVAC	Capacity
	5200	•	•	•	•	•	•	200 - 1800 Ports
	4300	•	•	•	•	•	•	50-300 Ports
	Raptor XP	•	•		•	•		48 Ports ADSL2+
	MALC XP	•	•		•	•		48 Ports POTS, 48 Ports ADSL2+



Customer Premise Equipment (CPE)

ADSL2 +SERIES

Model	WAN	Annex	10/100 Eth	WiFi (Power)	USB	Phone Filter	TR-69	Dying Gasp
1511-A1	ADSL2+	A,L,M	1				YES	YES
1512-A1	ADSL2+	A,L,M	4				YES	YES
1512-B1	ADSL2+	B,L,M	4				YES	YES
1518-A1	ADSL2+	A,L,M	4	802.11 b/g Normal			YES	YES
6219-X1	ADSL2+	A,L,M	4	802.11 b/g High-Power		YES	YES	YES
6381-A5	Reach DSL/ ADSL2+	A, Reach DSL	1		1	YES		
6511-A1	ADSL2+	A,L,M	1			YES	YES	YES
6512-A1	ADSL2+	A,L,M	4			YES	YES	YES
6518-A1	ADSL2+	A,L,M	4	802.11 b/g/n (1x1) Normal		YES	YES	YES
6519-A1	ADSL2+	A,L,M	4	802.11 b/g/n (2x2) Normal		YES	YES	YES
6519-A2	ADSL2+	A,L,M	4	802.11 b/g/n (2x2 5dB) High-Power	1	YES	YES	YES

VDSL2 SERIES

Model	WAN	Profile	10/100 Eth	WiFi (Power)	USB	TR-69	Dying Gasp	DSLAM
6718-A1	VDSL2/ ADSL2+ Gigabit Ethernet	8,12,17	4	Normal	Host 2.0	Y	Y	MXK, MX BitStorm HP

SHDSL SERIES

Model	WAN	Profile	10/100 Eth	WiFi (Power)	USB	TR-69	Dying Gasp	DSLAM
1740-A3		4						

Ethernet Access Devices (EADs)

	3400 Series	3200 Series	3100 Series	3000 Series	2200 Series	2100 Series	TNE	SNE	ENE
WAN Interface	SHDSL.bis 11.4 Mbps	SHDSL.bis 11.4 Mbps	SHDSL.bis 11.4 Mbps	SHDSL.bis 11.4 Mbps	DS3 45Mbps	SHDSL.bis 5.7 Mbps	T1 1,544 Mbps	SHDSL 2.3 Mbps	E1 2,048 Mbps
WAN Ports	4 or 8	1, 2, or 4	4	1, 2 or 4	1 or 2	1 or 2	1, 2, 4 or 8	1, 2 or 4	1, 2, 4 or 8
Bandwidth (at max ports)	Up to 91.2 Mbps	Up to 45.6 Mbps	Up to 45.6 Mbps	Up to 45.6 Mbps	Up to 90 Mbps	Up to 11.4 Mbps	Up to 12 Mbps	Up to 9.2 Mbps	Up to 16 Mbps
T1 / E1	2		2	2					
Loop Bonding	802.3ah EFM N2N	802.3ah EFM	802.3ah EFM	802.3ah EFM	N2N	N2N	N2N	N2N	N2N
LAN Interfaces 10/100 Base-T	4	4	4	4	4	1 or 2	1 (1/2 port) 4 (4/8 port)	1	1 (1/2 port) 4 (4/8 port)
Management	CLI, Web, SNMP	CLI, Web, SNMP	CLI, Web, SNMP	CLI, Web, SNMP	CLI, Web, SNMP	CLI, Web, SNMP	CLI, Web, SNMP (4/8 port)	Unmanaged	CLI, Web, SNMP (4/8 port)
QoS	802.1p	802.1p	802.1p	802.1p	802.1p	802.1p	802.1p		802.1p
Layer 2 Layer 3	Bridging Routing	Bridging Routing	Bridging Routing	Bridging Routing	Bridging L3 aware	Bridging L3 aware	Bridging L3 aware	Bridging	Bridging L3 aware
Voice Ports		4 or 8							

SkyZhone™



The industry's first metro Wi-Fi system designed to cost effectively deliver high-capacity, high-reliability, multi-service networks. Features:

- 802.11n, all-MIMO antenna architecture, integrated DSL backhaul, and line powering.
- Designed to address the challenges most directly affecting system operational costs and performance.
- Fully integrated with Zhone's MALC multi-service access platform

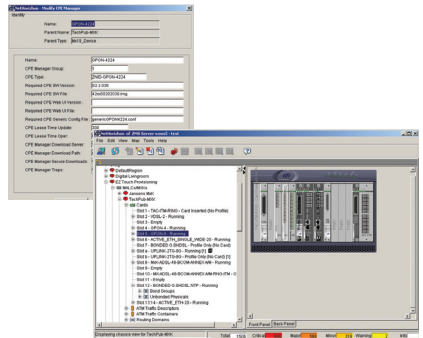
Zhone Management System (ZMS)

Zhone's ZMS is a highly scalable platform that offers full configuration and management capabilities with an open northbound interface for automated service provisioning from the customer's OSS/BSS system. The platform can be configured for high availability with an additional remote server for disaster recovery. The ZMS application utilizes Oracle's WebLogic and Oracle database to provide state-of-the-art software infrastructure for advanced management capabilities.

Zhone's ZMS supports full Fault, Configuration, Administration, Performance and Security (FCAPS) implementation. ZMS's FCAPS functionality enables quick turn-up of devices, advanced tools for increased productivity, real-time traffic and service monitoring and historical data collection for trending and analysis.

ZMS OSS Gateway provides an open standards-based Corba or XML interface for seamless integration into existing and new service provider Operations Support Systems (OSS). The interface provides for bi-directional transfer of management information for tasks such as automated flow through provisioning, inventory management, device configuration, capacity and status of various network entities.

We will be releasing a new low-cost version of ZMS for small network deployments. This new version of ZMS is a virtual appliance that will run on any x86 platform with a native Windows, MAC OS or Linux operating system. It will have full ZMS functionality but will not support OSS integration for automated service provisioning. The ZMS virtual appliance will support 500 or 1000 subscribers (ZMS VA500 and ZMS VA1000), and will offer simplified system administration. ZMS virtual appliance is not only a good solution for small customers, but a great solution for larger customers that want to delay purchasing a ZMS server until their networks expand. The customer can run ZMS Virtual Appliance on an existing PC.



Zhone EZ Touch Provisioning

Zhone EZ Touch Provisioning is Zhone's end-to-end provisioning and management solution for subscriber services. It offers automatic discovery, software upgrade, and service provisioning when the customer premise equipment (CPE) is initially connected to the network. As Zhone EZ Touch Provisioning evolves it will continue to provide more streamlined operations to help lower the service provider's costs associated with activating and managing subscriber services.



Zhone EZ Touch Provisioning is an end-to-end solution with software components residing in the OA&M infrastructure of the Zhone devices, as well as on the ZMS platform. This architecture provides a highly scalable and extensible model for provisioning and managing subscriber services. This effectively enables service providers to remotely configure, provision and manage either a single device or multiple devices concurrently in a manual or automated fashion. Service providers benefit tremendously from a reduced Total Cost of Ownership (TCO) owing primarily to the recurring OPEX savings derived from auto-provisioning, remote configuration and a host of other features enabled by EZ Touch.

Global Service and Support

Zhone's GSS organization has an expert team providing full Professional Services, Training, Field Service & Support including a Technical Assistance Center (TAC) backed by a Warranty, Repair & Replacement program. Zhone is extending its Professional Services program with the introduction of its turn-key Zhone EZ FiberService™ offering as part of its new Zhone EZ Service portfolio. Zhone EZ FiberService will deliver turn-key installation and support program for Zhone's global customers as they deploy next-generation FTTx networks. Given the

complexity & flexibility of our products, combined with the nuances of fiber connectivity, Zhone is focused on providing service providers the additional guidance and help they need to deploy successful FTTx solutions in a timely and effective manner. Zhone has developed a comprehensive 7-step solution for the new Zhone EZ FiberService offering to make it easy and turn-key for the service providers to deploy and provision their FTTx networks.



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FIBERCELL™

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Z H O N E®

Bandwidth Changes Everything™

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