ZHONE®
Bandwidth Changes Everything™

✓ *Unmatched scalability, with initial 400G backplane and non-blocking 20G to every slot*

✓ *Superior intelligence and security with proven SLMS access operating system software*

✓ *Intuitive, comprehensive management, with CLI, WebUI, ZMS, and new Smart OMCI*

✓ *Flawless delivery of multi-play services over any FTTx or MSAP architecture*

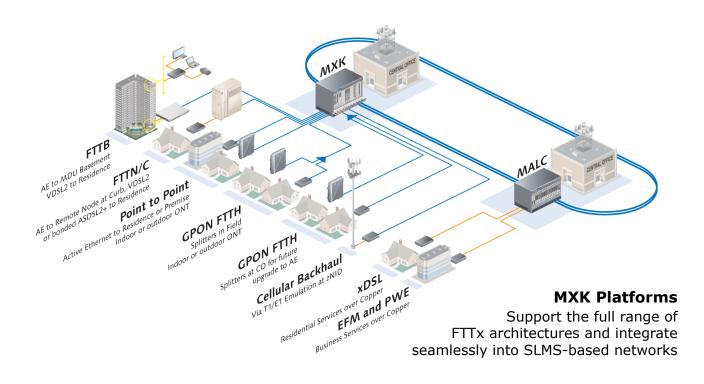✓ *Industrial temperature hardened*

Zhone's MXK Terabit Access Platforms — truly scalable solutions for high-bandwidth applications

Demands on access networks are increasing at an accelerating rate, requiring a clean-sheet approach to a truly scalable multi-service architecture. Zhone's MXK™ intelligent terabit access concentrator reflects this new approach, with non-blocking capacity of up to 3,600 100Mbps GPON subscribers or 360 1G Active Ethernet subscribers per chassis. Beyond sheer bandwidth, MXK platforms leverage Zhone's well-proven SLMS access operating system for sophisticated service intelligence, to guarantee high quality of experience for subscribers, along with ease of management to address rising costs of network operation.

The MXK delivers these fundamental advances in access networking while meeting the full spectrum of baseline carrier-class requirements for multi-service hardware and software. For residential triple play and high-bandwidth business services over any FTTx architecture, the MXK solution sets a new performance benchmark for the industry.

The MXK family offers a wide range of options for FTTx solutions. It supports Active Ethernet and GPON line cards, and interoperates with indoor and outdoor ONTs. Supporting Active Ethernet and GPON on the same chassis allows service providers to configure their networks with maximum flexibility and efficiency, using a combination of GPON splitters and dedicated fiber connections.

FTTB
AE to MDU Basement
VDSL2 to Residence

FTTN/C
AE to Remote Node at Curb, VDSL2
or bonded ASDSL2+ to Residence

Point to Point
Active Ethernet to Residence or Premise
Indoor or outdoor ONT

GPON FTTH
Splitters in Field
Indoor or outdoor ONT

GPON FTTH
Splitters at CO for future
upgrade to AE

Cellular Backhaul
Via T1/E1 Emulation at zNID

xDSL
Residential Services over Copper

EFM and PWE
Business Services over Copper

MXK Platforms
Support the full range of
FTTx architectures and integrate
seamlessly into SLMS-based networks

MXK Chassis

The MXK family includes three fully-integrated form factors: 319 (19"
rack x 3RU, with 7 slots for line cards), 819 (19" rack x 8RU, with 14 slots
for line cards), and 823 (23" rack x 8RU, with 18 slots for line cards). The
chassis support both front and rear power options and are equipped with
a cable management tray, easy fan access, and redundant power feeds.

MXK Uplink Cards

MXK uplink cards offer a mix of multiple 10G and 1G interfaces to suit a
variety of network designs. The two configurations currently available are
2x10G + 8x1G and 8x1G. The cards support both copper and fiber SFPs,
link aggregation, link redundancy, and the EAPS ring interface.

MXK Line Cards

The MXK platform supports GPON and Active Ethernet line cards for
FTTX applications as well as seamless, same-chassis support of MSAN
services including ADSL2 + , VDSL2, G.SHDSL EFM, POTS, and T1/E1
PWE.

The 4- and 8-port GPON OLT line cards provide standards-based support
of 2.5Gbps downstream and 1.25 Gbps upstream bandwidth. The largest
MXK chassis can support up to 9,216 ONTs using Class B + or C optics.

The Active Ethernet line cards provide up to 360 ports per chassis of 100/1000BT copper or 100/1000Mb fiber-based services. Operators can use a wide variety of SFPs on the same card.

SLMS

Zhone's SLMS (Single Line Multi-Service) access operating system provides intelligent functionality across all the company's hardware products. Driven by 8 years of experience in commercial operation and collaboration with 700+ service providers worldwide, Zhone's SLMS delivers functionality critical to today's access networks in advanced networking, quality of experience, voice, security, and management.

Security

To maintain tight security in the last mile, the MXK platform mounts considerable defenses, powered by all of Zhone's SLMS security features, including multicast control lists, secure bridging, broadcast suppression, dynamic IP filtering, SSH and SFTP, and RADIUS authentication.

Management

The MXK product line integrates fully into the Zhone Management System (ZMS). Using ZMS, thousands of MXK nodes can be managed from remote locations. Customer provisioning, auto discovery, alarm aggregation, and maintenance can easily be performed without any service interruption.

Smart OMCI

Unlike vendors who have dodged the complexity of the ITU's G984.4 standard for GPON ONT management, Zhone provides a simple and clean interface to a fully standards-compliant OMCI implementation. Zhone's Smart OMCI™ approach allows the MXK OLT to interoperate with any vendor's ONT, yielding rapid ONT and service extension without OLT software upgrades. With Smart OMCI you can configure, obtain stats and support alarms on any ONT without hassle.

Cabinets

Zhone offers a full line of outside cabinets engineered specifically to support MXK platforms. Multiple configurations are available for deployments from small to large scales, with a wide range of powering, protection, and line termination options.

Technical Specifications

Dimensions

- MXK 319
  - 3U: 5.25 x 17.25 x 11.15 in. / 13.3 x 43.8 x 28.3 cm
  - Line Cards: 7; front card access
- MXK 819
  - 8U: 13.97 x 17.25 x 11.15 in. / 35.5 x 43.8 x 28.3 cm
  - Line Cards: 14; front card access
- MXK 823
  - 8U: 13.97 x 21.18 x 11.15 in. / 35.5 x 53.8 x 28.3 cm
  - Line Cards: 18; front card access

Power

- DC: -43.75V to -62V
- Dual (A / B redundant) power feeds

Interfaces

- MXK-UPLINK-2x10G-8x1GE:Uplink with 2 x 10G and 8 x 1G Ethernet Ports
- MXK-UPLINK-8x1GE:Uplink with 8 x 1G Ethernet Ports
- MXK-UPLINK-4X1GE:uplink with 4 x 1G Ethernet Ports

Standards Support

- Bridging 802.1D
- VLAN 802.1Q with 802.1p
- Multicast IGMP v2 and v3 (Snooping, proxy)
- ITU G.984.1- 984.4 OMCI
- IEEE 802.3ah
- IEEE 802.3ad LACP
- DHCP Relay
- RSTP
- EAPS

Management

- Unit Level
  - Terminal for Command Line Interface (CLI)
  - Web GUI-based Management
- Network Level
  - ZMS (Zhone Management System) via SNMP v2c for GUI, with CORBA IDL or XML OSS Gateway machine interface for OSS integration
  - Fully ITU standards-compliant Smart OMCI implementation for ONT management

Regulatory Compliance

- Safety: UL 60950-1; CSA 60950-1; EN 60950-1
- Emissions: EN 55022A*; PART 15A (FCC)
- Immunity: GR-1089-CORE, Issue 3*; SR-3580, Issue 1*; ATT-TP-76200, Issue 14*; VZ.TPR.9205, Issue 3*
- Environmental: GR-63-CORE, Issue 3*
- *In process

Operating Requirements

- Ambient operating temperature: -40° C to +65° C
- Relative operating humidity: up to 85% (non-condensing)
- GR-487 compliant
- Designed for outside plant deployment

Uplinks & Line Cards

- Uplinks:
  - 2 x 10G Ethernet + 8 x 1G Ethernet
  - 8 x 1G Ethernet
  - 4 x 1G Ethernet
- Optical Based Line Cards:
  - 4 Port GPON OLT
  - 8 Port GPON OLT
  - 20 Port Active Ethernet (High Performance/ High Density options)
- Copper Based Line Cards:
  - 24 port G.SHDSL EFM
  - 48 port ADSL
  - 72 port ADSL
  - 48 port ADSL + Splitter
  - 48 port ADSL + POTS combo
  - 24 port VDSL2
  - 24 port VDSL2 + Splitter
  - 24 port VDSL2 + POTS combo
  - 24 port T1/E1 EFM
  - 24 port T1/E1 PWE
  - 72 port POTS

Ordering Information

MXK Chassis

MXK-CHASSIS-819	8U, 19" Rack, 14 line-card slots, 2 uplink
MXK-CHASSIS-823	8U, 23" Rack, 18 line-card slots, 2 uplink
MXK-CHASSIS-319	3U, 19" Rack, 7 line-card slots, 2 uplink

Uplink Controllers

MXK-UPLINK-2x10G-8x1GE	Uplink with 2 x 10G and 8 x 1G Ethernet Ports
MXK-UPLINK-8x1GE	Uplink with 8 x 1G Ethernet Ports
MXK-UPLINK-4X1GE	uplink with 4 x 1G Ethernet Ports

Line Cards

MXK-GPONX4-IO	GPON Line Card with 4 OLT Ports, SFP based
MXK-GPONX8-IO	GPON Line Card with 8 OLT Ports, SFP based
MXK-AEX20-FE/GE-2S	Active-Ethernet Line Card with 20 SFP based Ports
MXK-AEX20-FE/GE	Single Slot Active-Ethernet Line Card, SFP based, supporting 20 customers
MXK-AEX20-FE/GE-CSFP	MXK ACTIVE ETHERNET LINE CARD SUPPORTING 20 CUSTOMERS, 100/1000MBPS, CSFP MSA compliant
MXK-VDSL2-BCM-17A-24	MXK VDSL2 LINE CARD; BROADCOM BASED; SUPPORTS UP TO 17A PROFILE; 24 PORTS; SINGLE SLOT
MXK-VDSL2+POTS-PKT-BCM-17A-24	MXK VDSL2 PLUS POTS COMBO CARD; BCM BASED; SUPPORTS UP TO 17A PROFILE; 24 PORTS; SINGLE SLOT
MXK-VDSL2-SPLTR600-BCM-17A-24	MXK VDSL2 SPLITTER CARD W/600 OHM; BROADCOM BASED UP TO 17A PROFILE; 24 PORTS; SINGLE SLOT
MXK-VDSL2-SPLTR900-BCM-17A-24	MXK VDSL2 SPLITTER CARD W/900 OHM; BROADCOM BASED UP TO 17A PROFILE; 24 PORTS; SINGLE SLOT
MXK-PWE-T1/E1-24	MXK, T1/E1 24 PORT PSEUDO WIRE LINE CARD
MXK-POTS-72	MXK POTS CARD WITHOUT SPLITTER, 72 PORTS
MXK-ADSL2+-SPLTR900-BCM-48A-2S	ADSL2+ CARD WITH 900 OHM SPLITTER, 48 PORTS, ANNEX A, USING BROADCOM CHIPSET
MXK-ADSL2+-SPLTR600-BCM-48A-2S	ADSL2+ CARD WITH 600 OHM SPLITTER, 48 PORTS, ANNEX A, USING BROADCOM CHIPSET
MXK-ADSL2+-POTS-BCM-48A-RNG-2S	MXK ADSL2+ LINE CARD WITH POTS, ANNEX A/M, 48 PORTS, 2 SLOT WIDE CARD WITH INTEGRATED RINGER
MXK-ADSL2+-POTS-BCM-48A-2S	MXK ADSL2+ LINE CARD WITH POTS, ANNEX A/M, 48 PORTS, 2 SLOT WIDE CARD
MXK-ADSL2+-BCM-72A	MXK ADSL2+ CARD WITHOUT SPLITTER, 72 PORTS, ANNEX A, USING BROADCOM CHIPSET,ROHS
MXK-EFM-SHDSL-24	24 port SHDSL EFM line card
MXK-EFM-T1/E1-24	24 port T1/E1 EFM line card

Accessories

MXK-UPLINK-BLANK	Blank End Panel to cover unused Uplink Slot
MXK-BLANK-ENDPANEL	Blank End Panel to cover unused Line Slot
MXK-FANTRAY-823	REPLACEMENT FANTRAY ASSY FOR MXK 823 CHASSIS
MXK-FANTRAY-819	REPLACEMENT FANTRAY ASSY FOR MXK 819 CHASSIS

ZMS

ZMS-NMS-TR1	ZMS TIER 1 LIC. (1-5K); CLIENT/SERVER SW W/CONFIG, FAULT, REAL-TIME STATS & DIAG FUNCT & ORACLE DB
ZMS-NMS-TR1-STNDBY	ZMS COLD STANDBY TIER 1 LIC. (1-5K); ZMS AND ORACLE DATABASE, REQUIRES PURCHASE OF ZMS-NMS-TR1
ZMS-NMS-TR2	ZMS TIER 2 LIC. (1-50K); CLIENT/SERVER SW W/CONFIG, FAULT, REAL-TIME STATS & DIAG FUNCT & ORACLE DB
ZMS-NMS-TR2-STNDBY	ZMS COLD STANDBY TIER 2 LIC. (1-50K); ZMS AND ORACLE DATABASE, REQUIRES PURCHASE OF ZMS-NMS-TR2
ZMS-NMS-TR3	ZMS TIER 3 LIC. (50K+); CLIENT/SERVER SW W/CONFIG, FAULT, REAL-TIME STATS & DIAG FUNCT & ORACLE DB
ZMS-NMS-TR3-STNDBY	ZMS COLD STANDBY TIER 3 LIC. (50K+); ZMS AND ORACLE DATABASE, REQUIRES PURCHASE OF ZMS-NMS-TR3
ZMS-NMS-OSSGW	ZMS OSS GATEWAY CORBA IDL INTERFACE. REQUIRES CORRESPONDING VERSION OF ZMS NMS.
ZMS-NMS-XML-OSSGW	ZMS OSS GATEWAY XML INTERFACE. REQUIRES CORRESPONDING VERSION OF ZMS NMS.

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