



# ZX8100 Series

## 40G Ethernet ATCA Hub Switch

### OVERVIEW

The ZX8100 from ZNYX Networks is a complete ATCA 3.1 hub solution for 40G with advanced features. With 674 Gbps of switching capacity, the ZX8100 delivers non-blocking 40G performance for up to 12 ATCA payload blades, and supports a variety of egress configurations.

The ZX8100 hub switch offers an “out-of-the-box” virtual environment directly on the switch control processor for system application management eliminating the need to be hosted on a compute blade, reducing system infrastructure costs and complexity. A 64-bit Intel® Architecture (IA) control processor enables the ZX8100 to be the first switch to use the new OpenArchitect® 4 (OA4) operating system by ZNYX.

OpenArchitect uses open source, industry compatible APIs for networking. By using the Linux networking API, the interface is similar to a standard Linux® server with a common set of utilities and tools. Software developers have the flexibility to choose protocol stacks since OpenArchitect provides many of the industry-standard switching and routing protocols, and can support any Linux-compatible third-party protocol stack.

A site for a Mid-size Single AMC with support for PCIe x4 and dual 10G/40G connections is provided. Custom mezzanine configurations are possible for hosting FPGA (field-programmable gate arrays) or network processors for packet processing, flow-based routing, and traffic congestion management with up to 80G of throughput supported.

### BENEFITS

- Non-blocking 40G performance for up to 12 ATCA payload blades
- Fastest failover performance possible in packet-switched networks
- Easy integration with third-party protocol stacks
- Flexible customization through modular design
- Substantial TCO savings

### FEATURES

- Mid-size Single AMC with support for PCIe x4 and dual 10G/40G connections
- Intel® Xeon® processor E3-1105C v2 (4C/8T) at 1.8 GHz
- OpenArchitect®4 operating system with KVM
- Host application management on embedded processor
- PacketVectoring™ stateless load-balancing

### APPLICATIONS

- Core telecommunications server platforms
- IMS servers
- Enterprise-class security appliances

The ZX8100 is a highly integrated 40G hub switch with the Intel® Xeon® processor E3-1105C v2 paired with Intel Communications Chipset 89xx series for 14 slot ATCA 3.1 solutions. With 674Gbps of switching capacity, the ZX8100 delivers non-blocking 40G performance for up to 12 ATCA payload blades, and supports a variety of egress configurations.

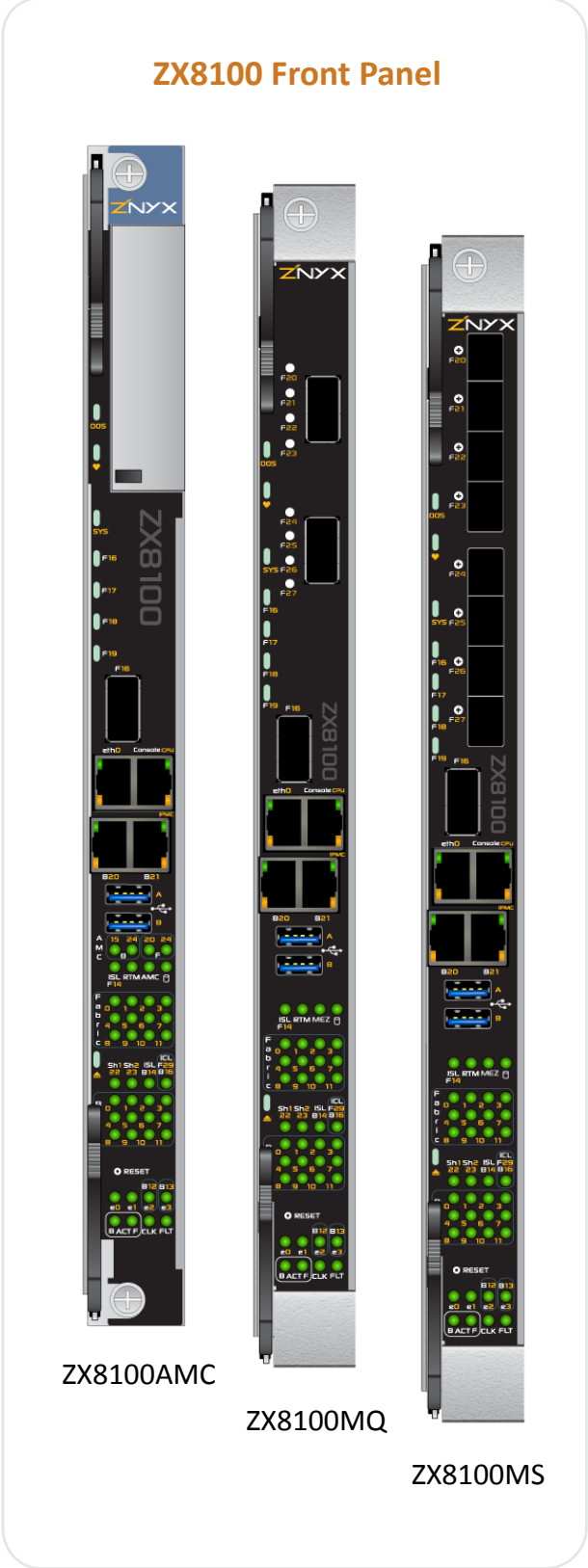
Featuring two DDR3 DIMM sockets (8GB with ECC memory standard, support for up to 16GB), the ZX8100 also offers an mSATA SSD (55GB standard, up to 512GB available), and a Broadcom® Trident Plus 674G for the switch fabric. Virtualized interfaces for switch and system manager reduce cabling complexity. The ZX8100 also supports the Oracle® RTM specification ensuring compatibility with a wide range of RTMs from multiple vendors.

Integrated into the ZX8100, Intel® QuickAssist Technology assists with the performance demands of hardware acceleration encryption / decryption and other workloads, such as compression / decompression.

**OpenArchitect Management Software**

Bundled at no additional fee, OpenArchitect® 4 (OA4) on ZNYX ATCA switches is an environment that provides both control plane management software and user VMs. The control plane management software, developed by ZNYX Networks, is a scalable management and Ethernet routing software platform that delivers comprehensive routing capabilities, L4-7 filtering, plus Class-of-Service features.

OA4 also offers an extensible environment using the Linux API capable of supporting open source, third-party or proprietary protocol stacks and routing applications. The OpenArchitect/HA software provides a high-speed, fault tolerant, end-to-end IP transparent failover solution for the complete transport layer within the ATCA chassis. Failover policies can be provisioned on a switch-to-switch, VLAN-to-VLAN, or port-to-port basis.



### Line Rate Packet Vectoring

Deploying complex switching rules to perform line rate packet distribution for load balancing, filtering for security, or classification for Quality of Service (QoS) is simple with OpenArchitect's unique switch management environment. Commands from well-known Linux utilities including **iptables** and **tc** can be mapped into the switch silicon for line rate operation.

OpenArchitect includes a stateless load balancing application, PacketVectoring™. With PacketVectoring, incoming traffic to the chassis can be divided and distributed across multiple SBCs and virtual machines (VMs) at line rate.

### Virtualization Simplified

The x86 control processor includes an “out-of-the-box” virtual environment for hosting system management applications. This allows for the system management software to be run directly on the switch control processor, eliminating the need for an additional SBC in the chassis. Virtualized management ports allow a single cable to control the Ethernet Switch Fabric and the system manager, reducing management complexity.

OA4 delivers substantial savings with its ability to quickly deliver virtual environments. The ZX8100 hub switch can support multiple IA virtual environments to run an application's chassis-management function without adding the cost of processors on daughter cards, or needing to dedicate separate SBCs. The switch management function of OpenArchitect runs in its own environment, taking only a small portion of the processing power of the Intel® Xeon® processor.

### Fastest Failover Performance

Continuous “five 9's” or better operation is a challenging high availability (HA) requirement in most networks, making hardware redundancy a must. Software facilities are equally critical to enable automatic, rapid re-convergence of the network around failed components. OpenArchitect/HA fills this need with the fastest failover performance possible in packet-switched networks. Instead of convergence in seconds or minutes, which is typical for STP/RSTP failover schemes, OpenArchitect/HA can failover in milliseconds – often faster than the dual-SONET standard of 50 milliseconds.

## SPECIFICATIONS

### 40G FABRIC INTERFACE

- ATCA 3.1
- Broadcom® Trident Plus BCM56486 674Gbit
- 12 payload slots support 1G/10G/40G
- Two 10G/40G links to AMC (fat pipes)
- 40G ISL (Inter-Switch Link)
- Layer 2, IPv4 and IPv6 switching
- VLANs with flexible Class of Service (CoS)
- MPLS, Double Tagged VLANs
- Content Aware Processor (CAP) for packet vectoring with OpenArchitect/PV

### 1G BASE INTERFACE

- Broadcom Hurricane BCM56142 34Gbit
- 12 payload slots GigE
- Two GigE ports to AMC
- Two shelf manager 10/100 Ethernet
- Two GigE ports front panel
- Two GigE ports to RTM

### CONTROL PROCESSOR

- OpenArchitect 4 Linux switch control software
- Intel® Xeon® processor E3-1105C v2 (4C/8T) at 1.8GHz
- Out-of-box virtualization for hosting system management application
- Two DDR3 DIMM sockets (8GB total memory standard, support for up to 16GB)
- mSATA SSD (55GB SSD standard, up to 512GB)
- Virtualized interfaces for management of switch and system manager
- 1GigE OOB
- Front console RS-232

### AMC

- Mid-size Single AMC
- Two GigE ports to base interface
- PCIe x4 Gen 2 interface
- Two 10G/40G links to Fabric interface
- SATA II interface

### PIGEON POINT IPMC

- ATCA 3.0 compliant
- Ethernet port networked to front panel, RTM and base interface for flexible management connectivity
- Serial-over-LAN (SOL)

### RTM

- Oracle RTM compatible
- PCIe x8 Gen 2 interface
- Two GigE ports to base interface
- GigE Out of Band (OOB)

## NETWORKING

### LAYER 2 AND LAYER 3

- Wire-speed L2/L3 switching
- Wire-speed L2-L7 Packet Classification
- IEEE 802.1Q VLANs
- IEEE 802.1P Class-of-Service
- IEEE 802.3ad Link Aggregation (static)
- IEEE 802.1D Spanning Tree (STP)
- IEEE 802.1D-2004 Rapid Spanning Tree (RSTP)
- Virtual Router Redundancy Protocol (VRRP)
- Link Aggregation Control Protocol (LACP)
- Common Open Policy Service (COPS)
- Differentiated Services (DiffServ)
- Sophisticated load balancing
- Port Mirroring in hardware

### MANAGEMENT

- Linux shell interface (bash, et.al.)
- SNMP management (v1, v2, v3)
- Secure Shell daemon (SSH v2)
- DHCP server / client / relay
- Network Time Protocol (NTP) client
- Web server (HTTPD) for browser access

## ENVIRONMENTAL

- Normal operating temperature: 5°C to 40°C
- Short-term operating temperature: -5°C to 55°C
- Ambient temperature, storage: -40°C to 70°C
- Operating voltage: -39V to -72V
- Ambient humidity (non-condensing) operating/storage: 5% to 90%

## SAFETY STANDARDS

- UL 60950 1st Edition – United States
- CAN/CSA 22.2 No 60950-1 1st Edition – Canada
- IEC 60950-1 : 2001 First Edition – International
- EN 60950 (1992) Amendments 1, 2, 3, 4, & 11 – European Union

## POWER CONSUMPTION

- Maximum Power Consumption (estimated): 200W with 8GB RAM and no RTM installed
- Power Consumption per Gigabit (estimated): 0.3W per Gigabit

## HAZARDOUS SUBSTANCES

- RoHS Compliant (6 of 6) – European Union
- WEEE Directive – European Union

## ADDITIONAL FEATURES

### OPENARCHITECT® LED STATUS DISPLAY

- CLK indicates OS health
- Active indicates Active switch
- Standby indicates Standby switch
- Fault indicates a Fault condition has been detected

### TELCO COMPLIANCE ENGINEERING STANDARDS

- Designed for NEBS / ETSI

## ORDERING INFORMATION

ZX8100 ATCA 3.1 40G 14 SLOT ETHERNET SWITCH – PART NO. ZX8100AMC

ZX8100 MEZZANINE CARD WITH TWO 40G QSFP CONNECTORS – PART NO. ZX8100MQ

ZX8100 MEZZANINE CARD WITH EIGHT 10G SFP+ CONNECTORS – PART NO. ZX8100MS