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ZX4500P with OpenArchitect Switch Management

Extensible Managed Switch for PICMG 2.16 CPSB Chassis



The ZX4500P with OpenArchitect™ is an extensible managed switch for embedded high-availability Ethernet in CarrierClass™ telecommunications systems. The 6U switch provides line-rate Layer 2 switching, Layer 3 IP routing, at line-rate, plus Layer 4-7 packet classification and filtering for telco chassis based on the PICMG 2.16 CompactPCI Packet Switching Backplane (CPSB) standard. The integrated OpenArchitect software environment provides a broad range of "out-of-the-box" protocols to establish extensible routing, control and management policies. The switch also eases and enhances remote manageability by incorporating the Intelligent Platform Management Interface (IPMI) standard.

High Performance Embedded Switching

The ZX4500P with OpenArchitect combines the performance of a silicon-based switching fabric with flexibility of software-managed routing policies. The switching fabric component integrates 24 10/100-Mbit Ethernet ports and dual 1-gigabit Ethernet ports. The switching fabric maintains the forwarding table on silicon, providing the capability to switch and route 6.6 million packets per second - full line rate performance on every port.

100% Compliant with PICMG 2.16

The CompactPCI Packet Switching Backplane (CPSB) standard developed by the PCI Industrial Computer Manufacturer Group's subcommittee 2.16 (PICMG 2.16) defines an embedded Ethernet environment for telco chassis. This environment includes two switch fabric slots that create a dual star Ethernet network to the 18 node slots. Placing the ZX4500P in a fabric slot provides embedded Ethernet services to each node card across the Packet Switching Backplane of the chassis. A rear transition board (RTB) can be added to provide four external 10/100-Mbit Ethernet ports in addition to the already available front-access dual 1-gigabit Ethernet ports. A standard configuration is ZX4500Ps placed in both fabric slots for creating a redundant, high availability system.

Features

- 6U PICMG 2.16 Fabric slot compliant
- Twenty-four 10 / 100 Mbps Fast Ethernet ports
- Two 1000 Mbps Gigabit Ethernet ports
- Layer 2 Switching
- Layer 3 IP Routing
- Layer 2-7 Packet Classification / Filtering
- 6.6 Million Packets per second (Line-rate)
- IPMI
- Auto MDI-X
- Motorola MPC8240 PowerPC processor w/ 603e
- PCI-to-PCI bridge to host
- Fully HotSwap Compliant
- PICMG 2.16 Node slot compliant

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The ZX4500P, and a corresponding RTB, can also be used in a node slot as a "stand alone" switch providing addition external Ethernet ports. This configuration produces two Ethernet ports connected to the Packet Switching Backplane, 22 external 10/100-Mbit Ethernet ports and dual front access 1-gigabit Ethernet ports.

OpenArchitect Switch Management

The OpenArchitect software component - open source Linux, IP protocol stack, control applications and the OA Engine - runs on an embedded Motorola MPC8240 PowerPC microprocessor. OpenArchitect provides extensive managed IP routing protocols and other open standards for switch management. Examples include network services; Virtual Redundant Router Protocol; Routing Information Protocol; Open Shortest Path First; Border Gateway Protocol; IP Multicast, Quality of Service and Class of Service; access control lists; and management via Simple Network Management Protocol MIBs, Common Open Policy Services and web.

OpenArchitect also provides system and IP protocol software for the related ZX4500 switch for standard CompactPCI chassis, so configuration scripts and applications developed for that switch also work with the ZX4500P.

Extensible Customization of Routing Policies

The OpenArchitect software environment enables rapid porting of other UNIX/Linux-based protocols, including open source RFCs. It also enables the development of application-specific protocol configuration scripts. This extensibility and access to the open source networking software provides OEMs and integrators low cost, rapid development environment for creating new value-added services.

Powerful CarrierClass Features

The ZX4500P has High Availability hardware features for advanced telco applications. The switch implements the PICMG 2.1 Full Hotswap support. This feature provides field replaceable capabilities where a switch can fail and be replaced without impacting the operational performance of a chassis.

Also supported is the new Intelligent Platform Management Interface (IPMI) standard for message-based interfaces that monitoring the physical health characteristics of the ZX4500P. The switch provides operational status information to an IPMI management application. End customers benefit with advanced notice of potential problems.

The ZX4500P also implements the Media Dependent Interface called Auto MDI-X. This IEEE standard makes cabling - especially between switches - faster and less error prone.

Connectors	Gigabit - Two1000BaseFX fiber LC connectors on Front Panel 10/100 - 4 or 22 RJ-45 connectors on Rear Transition Board
Media	10/100 Mbps - Category 5 UTP Gigabit - multi-mode fiber
Compliance	PCI 2.0 Compliant PICMG 2.1 Full Hot Swap compliant PICMG 2.16 Fabric Slot compliant
Mac Addresses	8k
VLANs	up to 63 concurrent IEEE 802.1q VLANs
Maximum Channels	Stackable to 30 ZX4500s and 720 ports
Packet Switch Rate	6.6 million packets per second
Memory	Main: 64 MB SDRAM Buffer: 32 MB SDRAM Application: 32 MB Flash ROM Boot: 512 KB Flash ROM
Power	2.7A @ 5V 2.34A @ 3.3V Power = 21.22W
Humidity	Maximum of 90%, non-condensing
Certifications	UL, cUL, CE
Safety (Pending)	UL1950, 3rd edition CAN/CSA C22.2 No. 950-95 IEC 950 2nd Edition with Amdts. No. 1 • 2 • 3 • 4 EN60950 with Amdts 1 • 2 • 3 • 4 • 11 EN45001
EMC/EMI (Pending)	FCC Part 15, EN55022 & EN50082-1 (EN61000-3-2, EN61000-3-3, EN6100-4-2, EN61000-4-3, ENV50204, EN61000-4-4, EN61000-4-6, EN61000-4-11), CISPR 22, VCCI, AS/NZS 3548, CNS 13438 - Class A
Dimensions	160mm x 233.5mm (6U formfactor)
LEDs	Channel status LEDs, OK to Pull, Power, Clock, OK, Internal/External Fault
Manufacture	Designed and manufactured in the USA

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