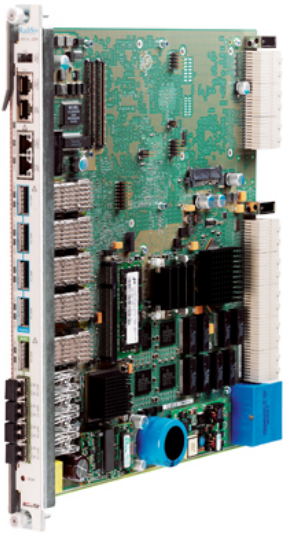


PROMENTUM ATCA-2210

ATCA Switch and Control Module



FEATURE SUMMARY

- Single slot ATCA PICMG 3.0/3.1 compliant module
- Industry first 10GE fabric in AdvancedTCA – highest bandwidth user plane connectivity per node slot
- Highly integrated fabric module
 - 10GE fabric interface
 - 1GE base interface
 - Optional COM Express site with SAS storage
 - Optional Network Timing Sub-system
 - Optional Shelf Manager
- 20-port 10GE PICMG 3.1 (option 9) fabric switch
 - 14 10GE links to user slots
 - 4 10GE links for external connections (up/cross links) as front I/O
- 24-port GE PICMG 3.0 Base switch
 - 14 1GE links to user slots
 - 1GE link to redundant switch blade
 - 1 10GE and 4 1GE links for external connections (up/cross links) as front I/O

PRELIMINARY

PRODUCT DESCRIPTION

The ATCA-2210 is an industry first 10 Gigabit (10GE) capable AdvancedTCA switch and control module. It is ideal for next generation network elements in 3G-wireless and wire-line infrastructure. It meets or exceeds the switching requirements for applications like Radio Network Controllers (RNC/BSC), Media Gateways, IMS (CSCF, Application and Media servers) and IPTV.

The ATCA-2210 is architected to be the heart of a cost-effective ATCA platform, providing highly integrated, centralized common equipment functions – switching, shelf management, network timing and system management functionalities. It incorporates innovative and modular design to provide a highly configurable solution. For example, the designer can configure the switch to suit the requirements for the architecture by choosing optional capabilities like network timing and system management as needed.

The NEBS compliant carrier grade ATCA-2210 includes comprehensive switching and blade management software.

10GE FABRIC TO ENABLE HIGHEST FABRIC INTERCONNECTIVITY IN ADVANCEDTCA

The ATCA-2210 module is a PICMG 3.0/3.1 (Option 9) compliant switch providing 10GE node-to-node connectivity. With 10GE becoming wide spread in enterprise networks, it has become the cost effective high bandwidth switching technology for next generation architectures in carrier grade solutions. Integrated silicon support for priority queues, packet classification and flow control enable implementing stringent timing (TDM) sensitive applications like Media Gateways using this fabric technology.

The ATCA-2210 incorporates a 20-port 10GE switch using 14 ports for node connectivity (19" or 23" rack sizes), 4 ports for up/cross links and the remaining 2 ports for internal use. The four 10GE uplinks enable designers to implement full non-blocking multi-shelf system solutions for up to 4 shelves. The switch silicon is capable of supporting both 1GE and 10GE through auto negotiate function and hence the node slots can automatically connect to the switch in either of these two modes. This enables use of legacy line cards with 1GE node connectivity. The switch supports both front and rear I/O for its fabric up/cross links. It has four 10GE interfaces (XFP connectors) in the front and three 10GE electrical (CX-4) or four 1GE optical interfaces (SFP connectors) in the rear.

1GE ETHERNET BASE SWITCHING WITH ONE 10GE AND SIX 1GE UP/CROSS LINKS

The ATCA-2210 incorporates a 24-port 1GE Ethernet switch, which provides PICMG 3.0 compliant Gigabit Ethernet connectivity. The base interface uses 14 ports for node connectivity (supports 19" and 23" racks), 6 ports for up/cross links, 1 port for redundant switch slot, 1 port for shelf manager, 1 port for onboard COM Express site and 1 port for local management processor. Like the fabric interface, the switch supports both front and rear I/O for the base interface. There are one 10GE (XFP), four 1GE (SFP) in the front and four 1GE (SFP) in the rear. As a build option, the front 4 ports can be diverted to the rear for rear I/O.

SWITCHING AND BLADE MANAGEMENT SOFTWARE

The ATCA-2210 module design incorporates a powerful PowerQUICC processor for its local management functions. This processor is used for managing the switching silicon and is also the host for the switching and blade management software. The ATCA-2210 comes complete with L2/L3 software for powerful networking capabilities for the base and fabric interfaces. It takes full advantage of all the silicon supported functions such as priority queues, VLAN tagging, per port flow control, multi-cast groups, link aggregation, forwarding table entries, etc. Blade management software included with the ATCA-2210 provides Application Programming Interfaces (API) to set-up and control these functions.

- Wire-speed L2 and L3 switching
 - Support for 4K IEEE 802.1Q VLANs
 - Packet classification/filtering
 - Link Aggregation
 - CoS and port mirroring
 - Blade management through CLI and SNMP
 - Integrated Shelf Management
 - HPI 1.1 compliant programmatic interface
- Integrated PICMG COM Express site with optional SAS/SATA storage support for on board system management or co-processing functions
- Rear Transition Module for rear I/O capability
- CGLinux Operating System

The switching software includes support for Layer 2 (IEEE 802.3), spanning tree protocol (STP-IEEE 802.1D), Rapid STP (RSTP-IEEE 802.1W), Multiple STP (MSTP-IEEE 802.1S), VLAN support (IEEE 802.1Q), GARP and GMRP (IEEE 802.1D) and GVRP (IEEE 802.1Q), flow control in accordance with 802.3 clauses 31 and 33, and switch statistics. Other functions include switch fabric watchdog, MAC address assignment, Jumbo frame support and multicast/broadcast.

Limited Layer 3 software is also supported in the fabric interface. This support includes switching of frames with arbitrary upper-layer protocols, wire-speed layer 3 packet routing based on flexible packet classification, IPv4/IPv6 and IP Multicast, forwarding up to 8K layer 3 routing table entries, DiffServ processing, including flexible Microflow classification and filtering, metering, and priority/congestion management, etc.

The ATCA-2210 supports a choice of interfaces for system manager – CLI, SNMP and RMCP along with being SA Forum HPI1.1 compliant.

HIGHLY INTEGRATED COMMON EQUIPMENT

The ATCA-2210 is architected to enable performance solutions and yet be cost effective. It incorporates many of the functions that would otherwise take up revenue producing node slots in a platform. Examples of these functions include system management (used for OAMP/FCAPS), network timing for synchronization and clocking and shelf management.

OPTIONAL ONBOARD COM EXPRESS SITES TO ENABLE A PENTIUM OR POWERPC CPU WITH SAS/SATA DISK SUPPORT

The ATCA-2210 includes an onboard COM Express site with support for a SAS/SATA 2.5" disk. COM Express is a PICMG standard enabling a modular processor and memory module without front panel requirement. Typically, the I/O for the COM Express module is included in the baseboard. The PICMG compliant COM Express site in ATCA-2210 enables a Pentium™ or PowerPC™ compute module to run a system manager application in the same slot as the switch slot. Such integration saves valuable revenue producing slots for the platform configuration. For logging and other data storage purposes, the COM Express site also supports 24x7 capable SAS/SATA drives. The COM Express module is independent of the switch's local management processor and can be redundant with the COM Express module in the standby switch. The two COM Express sites in the switch slots are interconnected through the backplane for redundancy support.

OPTIONAL NETWORK TIMING SUB-SYSTEM (NTS)

The ATCA-2210 includes integrated support for synchronization and clocking as specified in the AdvancedTCA standard. It is capable of providing Stratum 3 timing for the shelf based on external BITS/SSU or clock input (8 KHz or 19 MHz), recovered clocks from a line cards or a local stable clock. The I/O for BITS/SSU/clocks is included in the Rear Transition Module. The NTS is capable of supporting multi-shelf architectures. The NTS is compliant with GR-499-CORE, GR-1244-CORE, GR-253-CORE, G.703, G.783, G.803, G.812, and G.813 standards specifications.

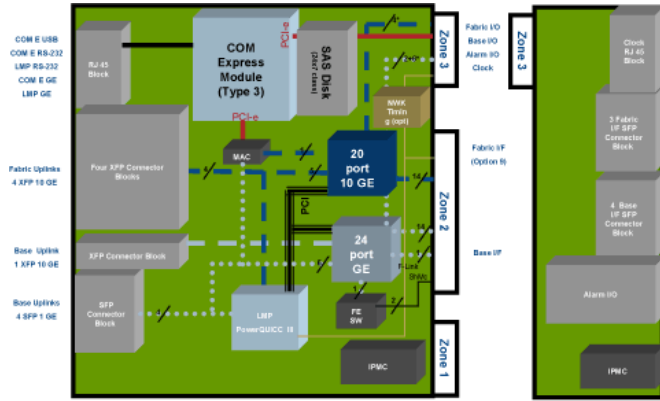
INTEGRATED SHELF MANAGEMENT

The ATCA-2210 contains integrated ATCA shelf management, providing a cost-effective way to control the shelf hardware, per PICMG 3.0, without requiring additional modules. The shelf manager implements IPMI management, FRU management, shelf environment management for power, thermal, and e-keying functions according to SAForum HPI 1.1 compliant interfaces. However, this shelf management function of the module may be disabled to support use of the ATCA-2210 switch with a different shelf manager.

The powerful architecture of the shelf manager is capable of supporting multiple shelves and makes it ideal for building multi-shelf systems in a rack with a unified shelf management.

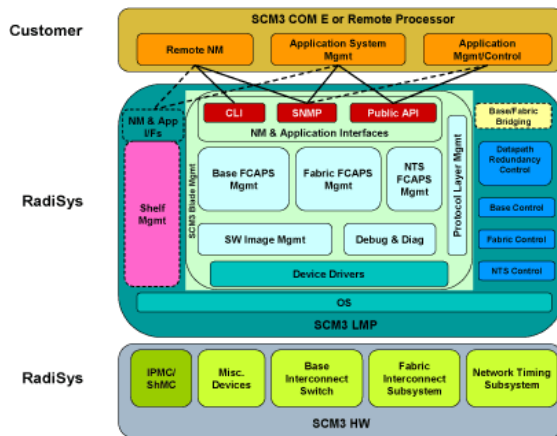
Overall, the ATCA-2210 is a state-of-the-art switch and control module capable of providing significant performance improvement over the current generation. Its high performance (10GE switching), high integration (saving costly node slots) and innovative architecture (configure per need) makes it unique and ideal for RNC/BSC, Media Gateways, IMS and IPTV network elements.

ATCA-2210 Hardware Block Diagram



Note: Connections shown are logical connections; not all connections are shown
 * - Build Option

ATCA-2210 Software Architecture Overview



Promentum ATCA-2210 Specifications

Feature	Function	Description	
Physical	Dimensions	8Ux6HPx280mm ATCA, single slot	
	Compliance	PICMG 3.0 and PICMG 3.1	
Ethernet	Base interface links	1GE links to 14 slots	
	Base Up/cross links	1 10GE XFP (front) and 3 1GE SFP (front) or 6 GE SFP to rear	
	Fabric Interface links	XAUI to 14 slots	
	Fabric Up/cross links	4 10GE XFP to front or 4 1GE SFP to the rear	
	L2 (Base & Fabric)		
	Throughput	Wire speed for 64-byte frames (1.5 Mpps per port)	
	Latency	4.33 m s per RFC2544	
	Forwarding Tables	Up to 16K entries (L2/L3), with build option for 48K	
	Packet Buffer Size	2MB with build option for 32 MB	
	VLANs	Up to 4096 IEEE 802.1Q VLANs (MAC/port/subnet/protocol)	
	Link Aggregation	Per IEEE 802.3ad, uplink ports only	
	QoS	Provisioning on L2/3/4 and IEEE 802.1p tag, 1024 Traffic Classes	
	Spanning Tree	802.1d (STP), 802.1w (RSTP), 802.1s (MSTP)	
	L3 (future) Fabric only		
	Packet Forwarding	IPv4, IPv6 and IP Multicast	
	Routing Table	8K entries	
	Routing Protocols	RIPV2, BGP and OSPF	
	DiffServ	Supported	
	Switch Management	CLI	Full-featured CLI for controlling all switch features
		SNMP Agent	SNMPv2c and SNMPv3 Agent
SNMP MIBs		Support for all switch features via standard and enterprise MIBs. Standard MIBs include: RFC1213, RFC1907, RFC2863, RFC2011, RFC2012, RFC2013, RFC1493, RFC2674, RFC2665, RFC2819, IEEE8023-LAG-MIB	
Shelf Management	Operation	HW Mgmt per ATCA PICMG 3.0. Includes IPMI management, FRU HW management, shelf environment management (power, cooling, E-keying), and shelf annunciator management.	
		SAF SAI-HPI-B.01.01 (HPIv1.1) compliant API	
		IPMI over LAN (RMCP/IP) per PICMG 3.0	
	Mgmt Interfaces	SNMP (enterprise MIB) CLI (custom)	
COM Express Site with SAS/SATA support	PICMG COM Express Specification	PICMG COM Express standard Type 3 or Type 5 recommended	
	SAS/SATA	2.5" SAS drive supporting 24x7 operation	
Connectors, Front Panel	Mgmt Ethernet Link	RJ-45 connector (10/100 Ethernet)	
	Serial Console	RJ-45 connector	
	Base Ethernet Uplinks	4 1000Base-SX Small Form Factor LC connectors	
	Base Ethernet Uplink	1 XFP connectors to provide 10GE	
	Fabric Ethernet Uplinks	4 XFP connectors to provide 10GE	
RTM (optional)	Interfaces	2 BITS/SSU (DS1/E1) clock inputs	
		2 reference clock inputs/outputs	
		4 digital alarm relay outputs per PICMG 3.0 DA-15P connector	
		1 digital isolated alarm reset inputs per PICMG 3.0 DA-15P connector	
		3 SFP connectors for Fabric Interface Uplinks	
		4 SFP connectors for Base Interface Uplinks	
Connectors, Backplane	Power, IPMB	ATCA Zone 1, P10 connector	
	Clocking	ATCA Zone 2, J20 connector	
	10GE Fabric	PICMG 3.1 Option 9 compliant	
	Ethernet Base, Fabric	ATCA Zone 2, J24 connector 20, 21, 22, 23, 24	
LEDs	-	Hot Swap (Blu), OOS (Red/Yel), Power Good (Grn), Blade Status (Yel), GbE Port Status (Grn/Yel), GbE Link Status (Grn/Yel)	
Power	-	TBD	
Environment	Ambient Temperature	0° – 55°C (operating), -40° – 70°C (non-operating)	
	Relative Humidity (non-condensing)	5 – 90% (operating), 5 – 90% (non-operating)	
Regulatory	Safety	UL/EN/IEC 60950-1, CSA 22.2	

Warranty -

Two years, parts only

Ordering Information

Toll-Free: 800-950-0044

Phone: 503-615-1100

Support: 866-385-6167

Call for pricing and availability. Refer to the order codes below.

ATCA-2210 Switch and control module with PICMG 3.0 Base interface, PICMG 3.1 10GE Fabric interface, with optional shelf manager, Network Timing and COM Express module with SAS/SATA disk support. Includes blade management and shelf management software.

Order code: A2210-SWH-CFG01

Includes: 4x 1GE SFP (base), 4x 10GE XFP (fabric), 1x 10GE XFP (base)

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