ATCA-9305

AdvancedTCA Many-core Processor Blade

Embedded Computing for Business-Critical Continuity™

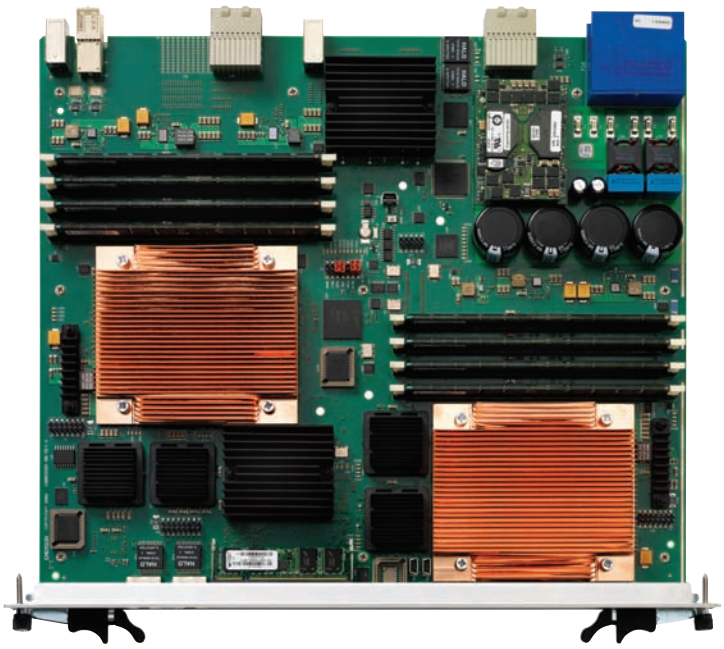
The ATCA-9305 is a 1 and 10 Gigabit processor blade with two many-core Cavium OCTEON 16-core processors

- Two Cavium OCTEON 16-core CN5860 processors operating at 800 MHz
- ATCA-9305-NSP version with 256MB RLDRAM for optimized deep packet inspection performance
- Cost-optimized ATCA-9305-SCP configuration without RLDRAM support
- Freescale MPC8548 PowerQuicc III integrated communications processor operating at 1 GHz
- Hardware acceleration with thread pinning, security, de-/compression, regexp, packet queuing and scheduling functions
- Broadcom BCM56802 10 Gigabit Ethernet (GbE) multilayer switch
- Easy access front panel Ethernet and serial management ports
- Designed to deliver telco-grade reliability
- PCI Express x4 port lane enables design of custom rear transition module with storage
- Full hot swap support

The ATCA-9305 from Emerson Network Power is an AdvancedTCA® (ATCA®) blade based on dual Cavium OCTEON CN5860 processors and the Freescale Semiconductor MPC8548 management processor. The AdvancedTCA specification incorporates the latest trends in high speed interconnect technologies, next generation processors, and improved reliability, manageability and serviceability.

The ATCA-9305 is targeted at security and packet-processing applications in the wireless and transport market segments. This market includes data plane packet-processor, security coprocessor, video compression, and pattern matching. The ATCA-9305 complies with the SCOPE recommended profile for central office ATCA systems, PICMG® 3.0 ATCA mechanical specifications, and E-keying.

This blade is hot-swappable, which allows blades to be replaced by operators or service organizations in the field without bringing down an entire ATCA system. This reduces spares costs and mean time to repair (MTTR), lowering both CapEx and OpEx. The ATCA-9305 also provides an IPMI-based system management interface, which enables operators to pinpoint and fix problems at the blade level, also lowering MTTR and OpEx.

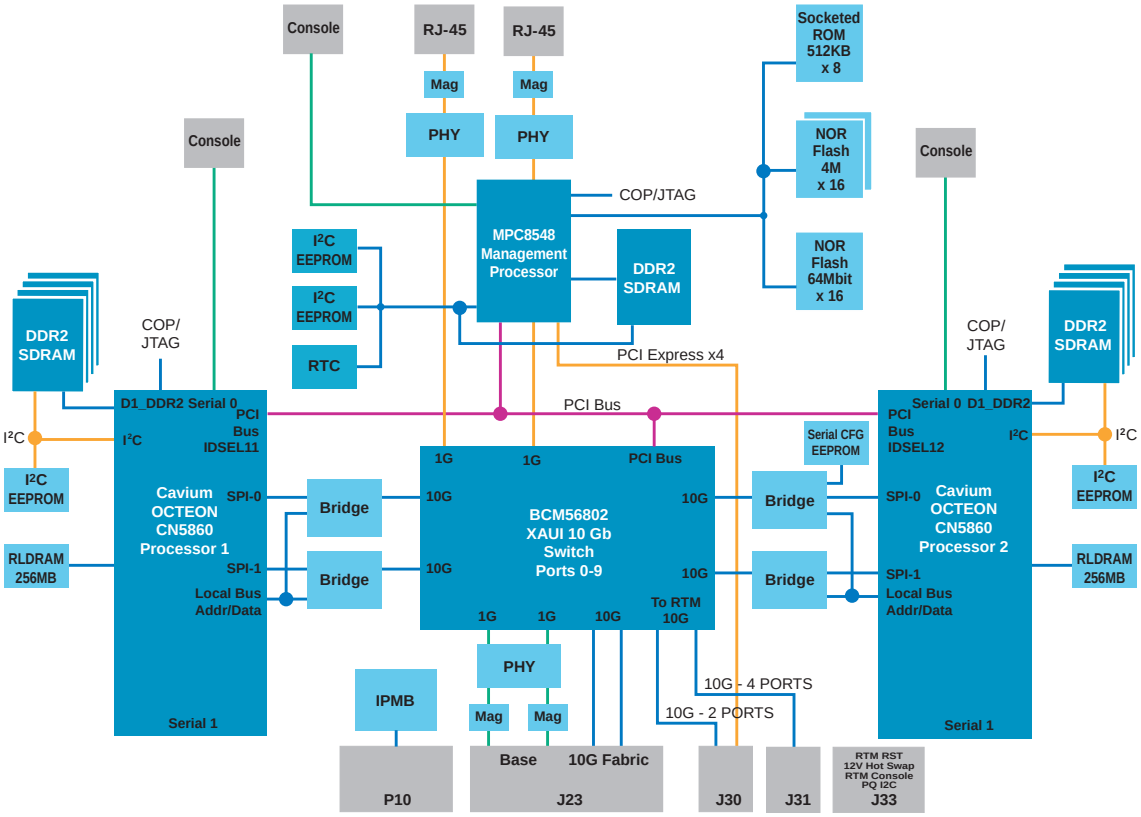


RoHS 6/6 COMPLIANT

AdvancedTCA®

EMERSON™ Network Power

Block Diagram



Standard Networking Support

- PICMG 3.0, Dual, redundant Gigabit Ethernet (GbE) pair (1.0Gbps) – Base Interface
- PICMG 3.1, Option 1 – Dual, redundant Gigabit Ethernet pair (1.0Gbps) – Fabric Interface
- PICMG 3.1, Option 9 – Dual, redundant 10 Gigabit Ethernet pair (10.0Gbps) – Fabric Interface
- Redundant 1/10 GbE links to backplane fabric interface
- Broadcom BCM56802 10GbE multilayer switch with Integrated 10GbE XAUI SerDes and 1GbE SGMII PHY
- Two Altera Stratix II GX bridges per processor for SPI-4.2 high-speed interconnect and XAUI
- Management Processor Freescale PowerQuicc III MPC8548

Processor Complex

Surrounding the dual Cavium OCTEON many-core processing units is an array of high performance components that combine to deliver unparalleled packet processing performance. Features include:

- Up to 16GB DDR2 SDRAM per processor (32GB per board)
- Up to 256MB RLDRAM per processor
- CN5860 packet interfaces using SPI-4.2 configuration
- PCI bus operation in 64-bit PCI-X mode
- Redundant GbE links to base channel on backplane and front panel GbE port

Software Support

The ATCA-9305 is provided with the following software:

- Universal Boot (U-Boot)
- Linux Support Package (LSP) for Wind River PNE 2.0
  - for Cavium OCTEON processors and management processor
- Blade Services Software
  - Hardware Platform Management including local IPMC, LED, EKeying and blade extraction software
  - Firmware upgrade utility
  - Local management access (SNMP, CLI)
  - L2 switching and L3 routing management software

RELEVANT STANDARDS

- The Linux Foundation
- Service Availability Forum™ (SA Forum), Hardware Platform Interface (HPI) - Rev. B

SOFTWARE AVAILABLE FROM PARTNERS

- 6WINDGate from 6WIND

Intelligent Platform Management Control

The PICMG 3.0 ATCA standard specifies a low-level, environmental management architecture referred to as intelligent platform management interface (IPMI). The ATCA-9305 blade implements this functionality using an off-the-shelf hardware and software based IPM controller that monitors all local, blade-specific environmental information. Management access to this information is provided through the SA Forum defined HPI interface.

Rear Transition Modules

There are four RTMs available for the ATCA-9305:

- Configuration 1 supports 18 GbE interfaces via SFP modules
- Configuration 2 supports 2 10GbE interfaces via SFP+ modules plus 12 1GbE interfaces via SFP modules
- Configuration 3 supports six (6) 10GbE interfaces via SFP+ modules plus a 4GB flash disk
- Configuration 4 supports a 4GB flash disk

Six 10GbE interfaces plus one PCI Express x4 interface are available on the Zone 3 connector to support custom RTM implementations

Clocking

- ST Microelectronics M41T00 real time clock (RTC)
- I^2C bus compatible and super cap backup

Hardware

PROCESSOR COMPLEX

- Two Cavium OCTEON CN5860 16-core processors running at 800 MHz
- Up to 16GB ECC-protected DDR2 SDRAM per processor
- Up to 256MB RLDRAM per processor
- 64MB soldered NOR flash provides CN5860 code storage and non-volatile memory

MANAGEMENT PROCESSOR COMPLEX

- Freescale PowerQuicc III MPC8548 at 1 GHz
- 32KB instruction and data L1 caches
- 64-bit PCI operating at 66 MHz
- 2GB DDR2 SDRAM SO-CDIMM with ECC
- 2 x 4MB soldered NOR flash
- 512KB socketed ROM
- Two I^2C EEPROMs for user NVRAM and initialization

BASE AND FABRIC INTERFACES

- Dual star configuration
  - Option 1 fabric interface
  - Option 9 fabric interface
  - Dual 10GBASE-BX4 MAC connection to both processors via 10G switch
- Base interface
  - Dual 10/100/1000BASE-T MAC/PHY

EXTERNAL INTERFACES

- Front panel
  - One serial console port for the MPC8548 management processor
  - One serial console port per OCTEON processor
  - Two 10/100/1000BASE-T Ethernet ports accessible via RJ-45 connectors

POWER REQUIREMENTS

- Dual-redundant –48 V rail
- Input range: 39.5 – 72 VDC
- Max Power 200 Watts

THERMAL CHARACTERISTICS

- Operating range: –5 °C to 55 °C

RELEVANT BLADE SIZE

- 8U form factor, 280 mm X 322.5 mm, single slot

RELEVANT STANDARDS

- PICMG 3.0 (form factor, IPMI, base interface, hot swap, RTM)
  - PICMG 3.1, Option 1
  - PICMG 3.1, Option 9

Ordering Information	
Marketing Number	Description
OCTEON 5860-NSP based with 512MB RLDRAM	
ATCA-9305-NSP-8GB	ATCA-9305 - 2x CN5860-NSP-800 with 2x 16 cores, 2x 4GB DDR2 memory, 2X 256MB RLDRAM, MPC8548 management processor, no user flash, EBS & ESRS licenses
ATCA-9305-NSP-16GB	ATCA-9305 - 2x CN5860-NSP-800 with 2x 16 cores, 2x 8GB DDR2 memory, 2X 256MB RLDRAM, MPC8548 management processor, no user flash, EBS & ESRS licenses
ATCA-9305-NSP-32GB	ATCA-9305 - 2x CN5860-NSP-800 with 2x 16 cores, 2x 16GB DDR2 memory, 2X 256MB RLDRAM, MPC8548 management processor, no user flash, EBS & ESRS licenses
OCTEON 5860-SCP based	
ATCA-9305-SCP-8GB	ATCA-9305 - 2x CN5860-SCP-800 with 2x 16 cores, 2x 4GB DDR2 memory, MPC8548 management processor, no user flash, EBS & ESRS licenses
ATCA-9305-SCP-16GB	ATCA-9305 - 2x CN5860-SCP-800 with 2x 16 cores, 2x 8GB DDR2 memory, MPC8548 management processor, no user flash, EBS & ESRS licenses
ATCA-9305-SCP-32GB	ATCA-9305 - 2x CN5860-SCP-800 with 2x 16 cores, 2x 16GB DDR2 memory, MPC8548 management processor, no user flash, EBS & ESRS licenses
Rear Transition Modules	
C0010716-00	ARTM-9305 - 18-port 1GbE via SFP
C0010717-00	ARTM-9305 - 2-port 10GbE via SFPP, plus 12-port 1GbE via SFP
ARTM-9305-6X10GE	RTM-9305 - 6x 10GbE SFPP, 4GB flash
ARTM-9305-FLASH	ARTM-9305 - 4GB flash
ATCA-9305 EBS with SRstackware	
SA-EBS-WR-ATCA-9305	Extended blade services software and extended SRstackware protocols based on WR PNE 2.0 Linux - license only
SM-EBS-WR-ATCA-9305	Extended blade services software and extended SRstackware protocols based on WR PNE 2.0 Linux - CD media only
ATCA-9305 Accessories	
C0007662-00	Std, cable, 5-pin USB mini-B plug, 24-in, 9-pin DB FML, purch assy, RoHS, shippable
SFPP-MM-SR-LC	10G fiber single form factor plus (SFPP) module - 850NM, SR, LC connector
SFPP-SM-LR-LC	10G fiber single form factor plus (SFPP) module - 1310NM, LR, LC connector
SFPP-COP-SR-LC	SFP plus copper assembly, 10 Gigabit Ethernet - SR, LC connector
SFPP-MM-SX-LC	1G fiber single form factor (SFP) module - 850NM, SX, LC connector

Regulatory Compliance	
Item	Description
Designed to comply with NEBS	GR-63-CORE, NEBS Physical Protection, Level 3
	GR-1089-CORE, Electromagnetic Compatibility and Electrical Safety — Generic Criteria for Network Telecommunications Equipment. Level 3, Equipment Type 2
Designed to comply with ETSI	ETSI Storage, ETS 300 019-2-1, Class 1.2 equipment, Not Temperature Controlled Storage Locations
	ETSI Transportation, ETS 300 019-2-2, Class 2.3 equipment, Public Transportation
	ETSI Operation, ETS 300 019-2-3, Class 3.2 equipment, Partly Temperature Controlled Locations
EMC	EN-300-386 Electromagnetic compatibility and Radio spectrum Matters (ERM); telecommunication network equipment; ElectroMagnetic Compatibility (EMC) requirements, Telecommunication equipment room (attended)
	FCC 47 CFR Part 15 Subpart B (US), Class A
	EMC Directive 89/336/EEC (EU)
	AS/NZS 3548 (Australia/New Zealand), Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment
	VCCI Class A (Japan), Voluntary Control Council for Interference by Information Technology Equipment
Safety	Compliance to UL/CSA 60950-1, EN 60950-1 and IEC 60950-1 CB Scheme. Marked with U.S. NRTL, Canadian Safety and CE Mark. Safety of information technology equipment, including electrical business equipment
	ETS 300-132-2 Environmental Engineering (EE); Power supply interface at the input to telecommunications equipment; Part 2: Operated by direct current (dc)
RoHS/WEEE compliance	DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

SOLUTION SERVICES

Emerson Network Power provides a portfolio of solution services optimized to meet your needs throughout the product lifecycle. Design services help speed time-to-market. Deployment services include global 24x7 technical support. Renewal services enable product longevity and technology refresh.

Emerson Network Power
Offices: Tempe, AZ U.S.A. 1 800 759 1107 or +1 602 438 5720
Paris, France +33 1 60 92 31 20 • Munich, Germany +49 89 9608 2333 • Tel Aviv, Israel +972 9 9560361
Hong Kong +852 2176 3540 • Shanghai, China +86 21 3395 0289 • Tokyo, Japan +81 3 5403 2730 • Seoul, Korea +82 2 3483 1500
EmersonNetworkPower.com/EmbeddedComputing

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