ATCA-7301

AdvancedTCA Processor Blade
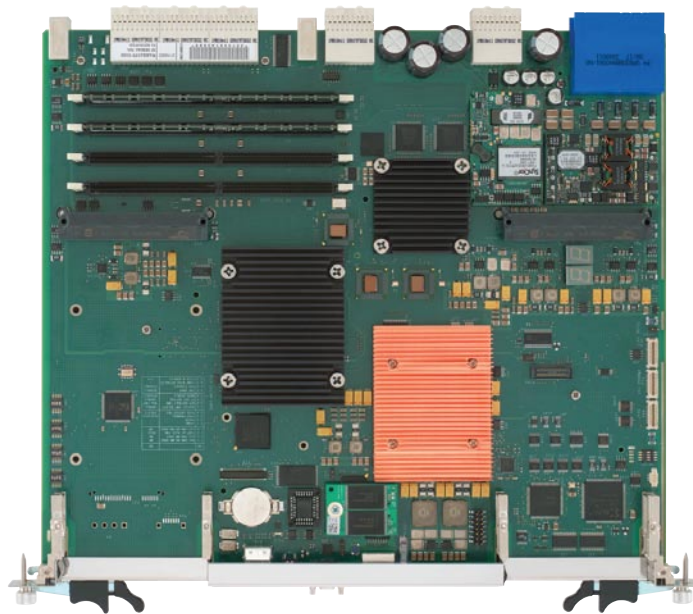
The ATCA-7301 is a high performance ATCA processor blade for data and control plane applications, designed according to PICMG 3.0 Revision 2.0 ATCA base specification

- 2.16 GHz Intel Core2 Duo 64-bit processor

- On-board Gigabit Ethernet switch

- Two mid-size AdvancedMC™ sites

- AMC.0, AMC.1, AMC.2 and AMC.3 compliant

- PICMG® 3.0 Gigabit Ethernet base interface

- PICMG 3.1, Option 1, 2 and 9 fabric interface support

- SAS disk AMC module option

- Mixed data plane and control application on the same blade

- Support for Red Hat Enterprise Linux and Wind River PNE-LE

- Designed for NEBS and ETSI compliance

The Emerson Network Power ATCA-7301 is an AdvancedTCA® processor blade with a powerful processing complex featuring the Intel® Core™2 Duo processor running at 2.16 GHz, local storage, standard I/O and redundant Gigabit Ethernet connections to the back plane's base interface. Furthermore, the ATCA-7301 provides two AdvancedMC (AMC) sites, which can be used to provide additional processing power or I/O capabilities.
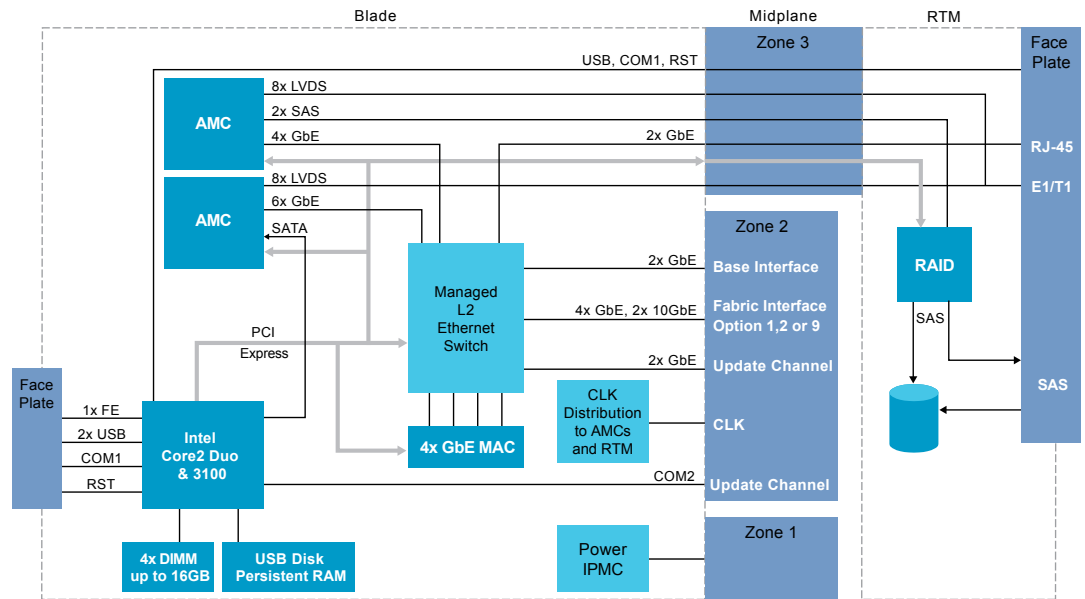
A Gigabit Ethernet (+ 2-port 10 Gigabit Ethernet) switch provides flexibility for routing Gigabit Ethernet ports between the baseboard's control processor, AMC-based processing or I/O nodes, and the base and fabric interfaces. The ATCA-7301 blade provides system management capabilities and is hot swap compatible per the ATCA specification. The power and flexibility of the design makes it ideally suited for the telecom and datacom markets.

RoHS 6/6 COMPLIANT

AdvancedTCA®

EMERSON™
Network Power

ATCA-7301 Block Diagram

Blade — **Midplane** — **RTM**

- Zone 3: USB, COM1, RST
- AMC: 8x LVDS, 2x SAS, 4x GbE
- AMC: 8x LVDS, 6x GbE, SATA
- 2x GbE → Face Plate: RJ-45, E1/T1
- Managed L2 Ethernet Switch
- Zone 2
  - 2x GbE — Base Interface
  - 4x GbE, 2x 10GbE — Fabric Interface Option 1,2 or 9
  - 2x GbE — Update Channel
  - CLK Distribution to AMCs and RTM — CLK
  - COM2 — Update Channel
- RAID — SAS
- SAS
- Face Plate: 1x FE, 2x USB, COM1, RST
- Intel Core2 Duo & 3100
- PCI Express
- 4x GbE MAC
- 4x DIMM up to 16GB
- USB Disk Persistent RAM
- Zone 1: Power IPMC

Standard Networking Support

The ATCA-7301 blade provides PICMG 3.0 base interface connectivity in a dual star configuration using standard Gigabit Ethernet technology. The PICMG 3.1 fabric interface is also supported at 10 Gigabit Ethernet speed.

- PICMG 3.1, Option 1 – Single, redundant Gigabit Ethernet pair (1.0Gbps)
- PICMG 3.1, Option 2 - Dual, redundant Gigabit Ethernet pair (2.0Gbps)
- PICMG 3.1, Option 9 – Single, redundant 10 Gigabit Ethernet pairs (10.0Gbps)

The ATCA-7301 blade also provides Telecom Clock Synchronization support (for AMCs via backplane and RTM interfaces) with hit-less protection switching switching of master/slave and stand-by clocks.

Processor Complex

Surrounding the Intel Core2 Duo processor T7400 is an array of high performance components that combine to form a flexible and powerful processor complex. Features include:

- Intel 3100 Host bridge (including memory and I/O controller)
- Intel 82571 Gigabit Ethernet controller
- Broadcom BCM56312 1&10 Gigabit Ethernet switch

Software Support

Emerson ATCA blades can be configured with optional software that includes Basic Blade Services. When integrated in the Emerson ATCA Centellis 4000 platforms, the ATCA-7301 comes complete with, and is verified with, Wind River PNE 2.0. This distribution comes with all Linux Support Packages (LSPs) to support Emerson ATCA blades as well as user applications.

Basic Blades Services (BBS) software is provided to enable a set of ATCA hardware and software components into a fully integrated and verified telecom platform – the Centellis 4000 platform. This platform is ready for customers HA middleware and application environment. Basic Blade Services include:

- Hardware Platform Management including local IPMC, LED, EKeying and blade extraction software
- Firmware upgrade utility
- Local management access (SNMP, CLI)

RELEVANT STANDARDS

- Linux Foundation
- Service Availability Forum™ (SA Forum)
  - ▲ Hardware Platform Interface (HPI) – Rev. B
  - ▲ Application Interface Specification (AIS) – Rev. B

For more information on the Centellis 4000 platforms please refer to the individual Centellis 4000 data sheets.

Intelligent Platform Management Control

The PICMG 3.0 AdvancedTCA standard specifies a low-level, environmental management architecture referred to as intelligent platform management interface (IPMI). The ATCA-7301 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.

Hardware

PROCESSOR

- Intel Core2 Duo T7400 processor running at 2.16 GHz
- 4MB L2 cache, 667 MHz frontside bus

MEMORY

- Up to 16GB via four DDR2-400 DIMM modules
- Up to 1MB on-board boot and 1MB recovery boot flash
- 4GB on-board USB disk module for user flash

CHIPSET

- Intel® 3100 chipset
- Memory controller hub (MCH) with 3.2GB/s memory bandwidth

COUNTERS/TIMERS

- Real-time clock
- Programmable watchdog timer

AMC SITES

- Two (2) mid-size AMC slots (AMC.0, AMC.1, AMC.2 and AMC.3 compliant)
- Connectivity
  - Four (4) Gigabit Ethernet interfaces (upper AMC)
  - Six (6) Gigabit Ethernet interfaces (lower AMC)
  - PCI Express (x1) interface (both AMC)
  - Or PCI Express (x4) interface (upper AMC)
  - Two (2) SAS interfaces (upper AMC)
  - One SATA interface (lower AMC)
- SAS disk AMC module option

UPDATE CHANNELS

- One (1) to each AMC bay (Port 12)
- Two (2) 1000Base-BX
- One (1) RS-232

BASE AND FABRIC INTERFACES

- Dual star configuration
- PICMG 3.0 base interface compliant, Gigabit Ethernet (1.0Gbps)
- PICMG 3.1 fabric interface compliant, Gigabit Ethernet
  - Option 1 – Single, redundant Gigabit Ethernet pair (1.0Gbps)
  - Option 2 - Dual, redundant Gigabit Ethernet pair (2.0Gbps)
  - Option 9 – Single, redundant 10 Gigabit Ethernet pair (10.0Gbps)

EXTERNAL INTERFACES

- Front panel
  - One (1) 100Base-T
  - Two (2) USB
  - One (1) Serial RS-232
  - Two (2) mid-size AMC slots

REAR TRANSITION MODULE

- Eight (8) E1/T1 connectors (from AMC slots)
- One (1) RS-232 and one (1) USB
- Two (2) Gigabit Ethernet (1000BaseT/RJ-45) connectors
- One (1) SAS Connectors
- Option for HDD SAS 147GB

POWER REQUIREMENTS

- Dual-redundant –48V rail
- Input range: 39.5 – 72 VDC
- Typical power: TBD

THERMAL CHARACTERISTICS

- Operating range: –5° C to 55° C

BLADE SIZE

- 8U form factor, 280 mm x 322 mm, single slot

RELEVANT STANDARDS

- PICMG 3.0 (form factor, IPMI, base interface, hot swap, RTM)
- PICMG 3.1, Options 1, 2 and 9
- AMC.0, AMC.1, AMC.2 and AMC.3

Ordering Information

Part Number	Description
ATCA-7301	Intel Core2 Duo T7400 processor running at 2.16 GHz, 4MB L2 cache, 34 Watt TDP
ARTM-7301	ATCA rear transition module for Zone 3 support of USB, RS-232, dual Gigabit Ethernet, E1,T1, SAS Interfaces, option for on-board HDD SAS 147GB
ATCA-7301-HD-SAS	Hard disk drive SAS with 147GB for use on ARTM-7301

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
Designed to comply with Acoustic	ETS-300-753, Equipment Engineering (EE); Acoustic noise emitted by telecommunications equipment
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)
	DIRECTIVE 2002/96/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on waste electrical and electronic equipment (WEEE)

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.
The global leader in enabling
Business-Critical Continuity™.

- AC Power
- Connectivity
- DC Power
- **Embedded Computing**
- Embedded Power
- Infrastructure Management & Monitoring
- Outside Plant
- Power Switching & Controls
- Precision Cooling
- Racks & Integrated Cabinets
- Services
- Surge Protection

Emerson Network Power

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