AXP1411

10G AdvancedTCA Shelf

Embedded Computing for Business-Critical Continuity™

PRELIMINARY DATA SHEET

This 14-slot, 10G ATCA shelf is ideal for both traditional telecom and enterprise environments

- 14-slot, 13U, 19" form factor
- All redundant field replaceable units (FRUs) included
- Integrated Telco Alarm functionality
- Front & rear cable management
- CP-TA B.4 compliant thermal performance
- Up to 350 Watts/blade power distribution
- RoHS (6 of 6) compliant
- Designed for NEBS/ETSI compliance

The Emerson Network Power AXP1411 AdvancedTCA® shelf is specifically designed to address carrier-grade requirements desired by the telecommunications industry as well as high availability enterprise environments. Application examples include wireless infrastructure, packetized voice, wireline data, video distribution and cable network head-end devices. Highly integrated and verified hardware and software components, reduced development costs and accelerating time-to-market allow customers to focus their development resources on critical, differentiating features that provide a competitive advantage.

The AXP1411 AdvancedTCA (ATCA®) shelf includes redundant shelf manager and alarm modules, redundant power entry modules (PEMs) and two fan tray modules. It also features a 10 Gigabit Ethernet (GbE) capable backplane. The thermal characteristics of the AXP1411 shelf are an important feature -- it is designed to meet the CP-TA B.4 thermal profile, the highest level possible. This superior thermal performance is achieved with a front-to-back cooling architecture and therefore is ideal both traditional telecommunications and enterprise environments. As processor technology advances, thermal (heat dissipation) is one of the industry's largest challenges -- and the AXP1411 meets the challenge. The power infrastructure of the AXP1411 is designed to support AC and DC power inputs and provides up to 350 Watts/slot.

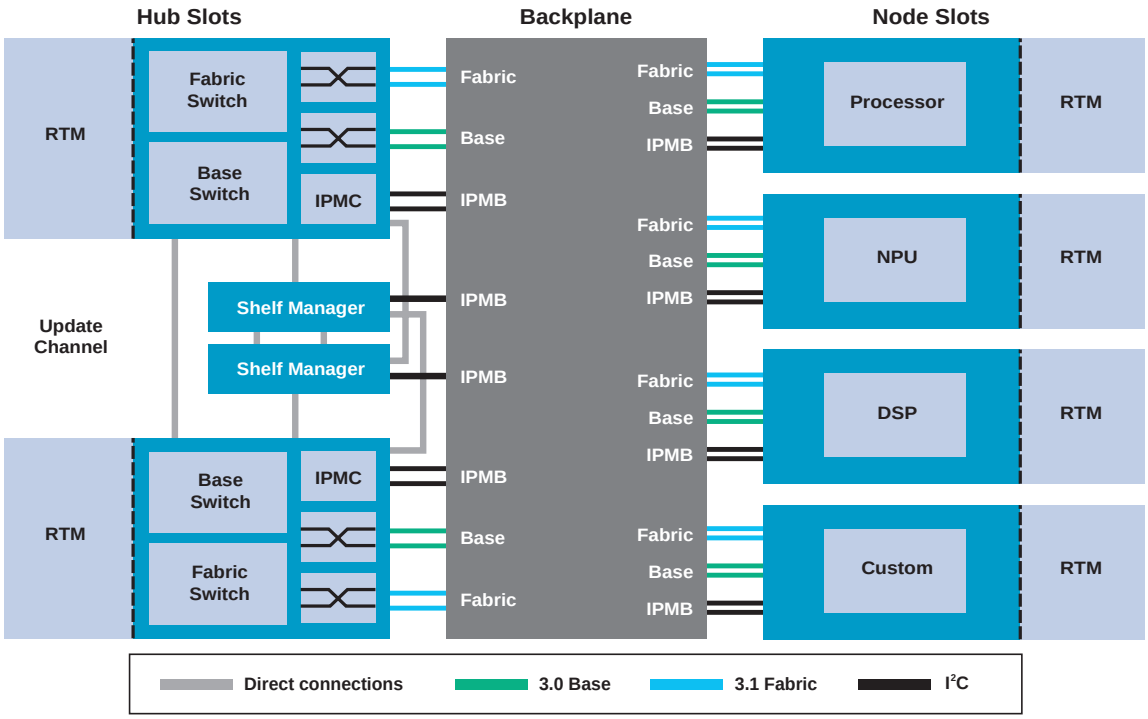
A variety of ATCA switch blades, payload blades, AMCs and accessory products are available for the AXP1411 shelf depending on application requirements.

RoHS 6/6 COMPLIANT

AdvancedTCA®

EMERSON™ Network Power

Shelf Architecture



Shelf Overview

ENCLOSURE

- 14 slots for 8U blades
- 14 slots for 8U rear transition modules (RTMs)
- 10G backplane
- Front to rear cooling architecture
- ESD and earth grounding points

ENCLOSURE DIMENSIONS

- Height – 573 mm
- Width – 449 mm
- Depth – 527 mm
- Depth – 544mm (with cable tray)

Note – Dimension figures do not include mounting ears and cable trays unless specifically noted

PRODUCT WEIGHT

- AXP1411 – 39.6 lbs.

OPERATING ENVIRONMENT

- Operating temperature range (DC): -5 °C to 55 °C @ 90% non-condensing humidity
- Storage temperature range: -40 °C to 70 °C @ 95% relative humidity

POWER REQUIREMENTS

- AXP1411 idle/maximum: 170/870 Watts

BACKPLANE

- Zone 1
  - Redundant, bussed IPMI to all blade slots
  - Redundant, bussed -48 VDC to all blade slots
- Zone 2
  - Dual star configuration for the base interface
  - Dual star configuration for the fabric interface
  - Update channel routing for all hub/node slots
  - Three redundant, bussed telecom clock signals to all hub/node slots
  - Update channel routing
- Zone 3
  - PICMG 3.0 defined open area, application specific

SHELF MANAGEMENT

- N+1 redundancy architecture
- Two (2) shelf management & alarm module slots
- Embedded Telco Alarm functionality

POWER DISTRIBUTION

- 2N redundancy architecture
- AXP1411 – Two (2) power entry module (PEM) slots

COOLING

- N+1 redundancy architecture
- Front-to-back cooling architecture
- One (1) front/bottom fan tray module
- One (1) rear/top fan tray module

RELEVANT STANDARDS

- PICMG 3.0 (form factor, IPMI, base interface, hot swap, RTM)
- PICMG 3.1, Options 1 and 9 (1G, 10G operation)
- CP-TA B.4

Shelf Layout

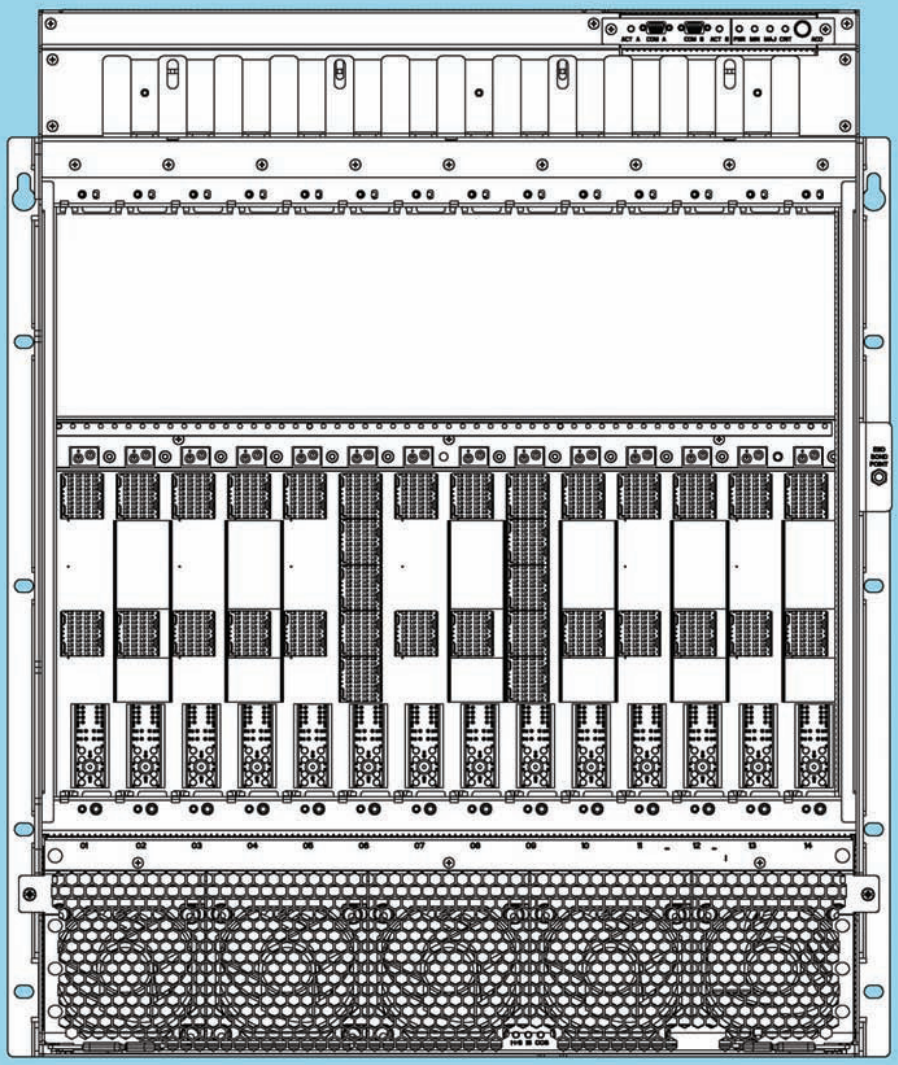
FRONT (TOP TO BOTTOM)

- Alarm display panel
- Cable management system
- 14 vertical, 8U blade slots
- One (1) bottom fan tray module slot

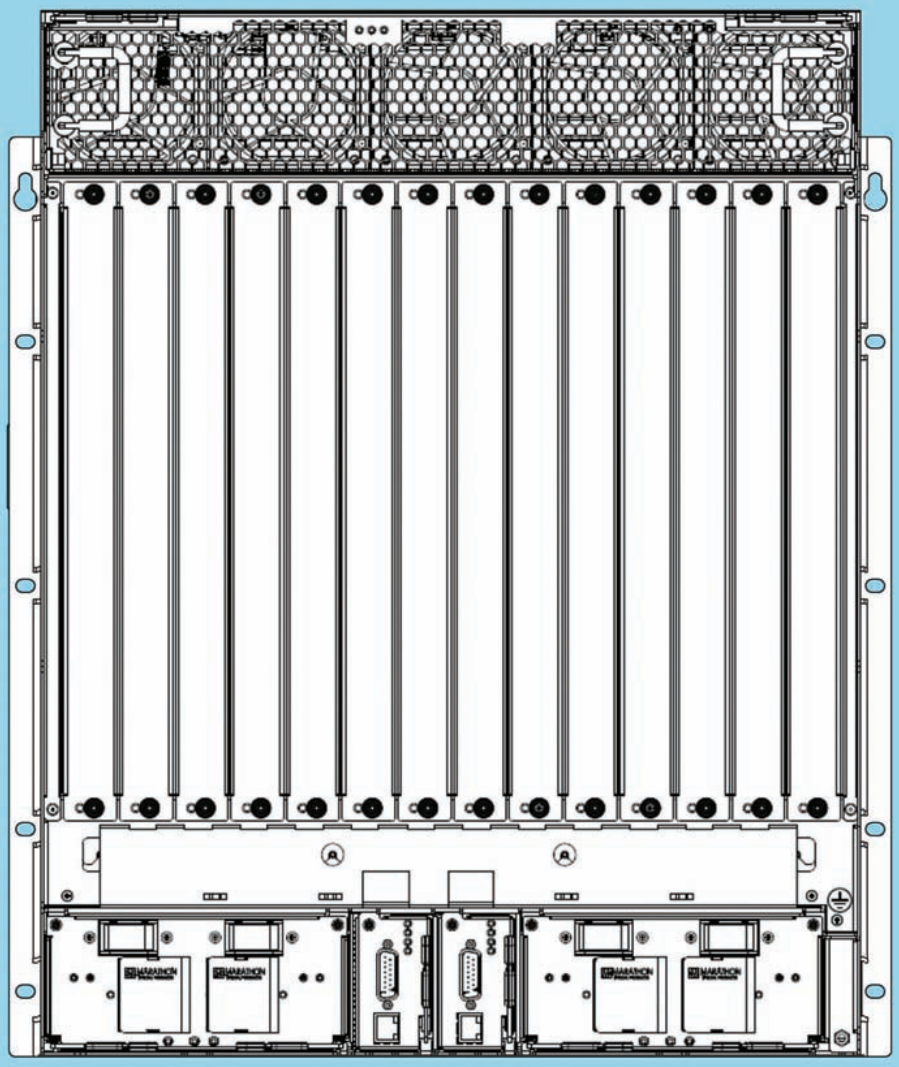
REAR (TOP TO BOTTOM)

- One (1) top fan tray module slot
- 14 vertical, 8U RTM slots
- Cable management system
- Two (2) shelf management modules
- Two (2) PEM slots

FRONT VIEW



REAR VIEW



Shelf Management

The purpose of shelf management, as defined by the PICMG 3.0 standard, is to assure proper operation of AdvancedTCA blades and other components within the shelf. The shelf management module continually monitors all low-level, hardware functionality (inventory, sensor, status data, etc.) and reports status to the system manager. It also provides control access to these attributes. Management access to this information is provided via local console and Ethernet interfaces as well as the Service Availability™ Forum (SA Forum) defined HPI interface. Each blade and major shelf component has an Intelligent Platform Management Controller (IPMC) that is responsible for providing this information to the shelf management module. The AXP1411 shelf provides redundant shelf management functionality utilizing an active/standby architecture. In addition, the Telco Alarm functionality is integrated into the same module to maximize critical real estate within the shelf and is also redundant. Visual indicators, as well as physical interfaces, are provided for direct front panel access.

The AXP1411 shelf provides redundant shelf management functionality utilizing an active/standby architecture and is based on an internally developed, hardened and proven shelf management design.

PROCESSOR

- Freescale MPC852T @ 100 MHz

MEMORY

- 64MB, DDR2 SDRAM
- 64MB boot flash, single-bank architecture

As the shelf management modules are located in the rear of the shelf, the interfaces and LEDs are split between the shelf management module front panel and the Alarm Display Panel on the front of the shelf.

ALARM DISPLAY - INTERFACES

- Serial communications port (A/B), DB-9
- Alarm Cut Off (ACO) button

ALARM DISPLAY - STATUS INDICATORS

- Active shelf manger (A/B)
- Power (on/off)
- Telco Alarm (Minor/Major/Critical)

SHELF MANAGEMENT MODULE - INTERFACES

- One (1) 10/100BaseT Ethernet, RJ-45
- Telco Alarm connector, dry alarm

SHELF MANAGEMENT MODULE - STATUS INDICATORS

- In service (IS)
- Out of service (OOS)
- Hot swap (H/S)
- Active Shelf Manager A/B (ACT)

Fan Tray Module

The AXP1411 shelf provides fault-tolerant cooling to all Front/RTM slots as well as the shelf management and power entry module slots. The AXP1411 utilizes an N+1 cooling architecture and is implemented using two fan tray modules.

GENERAL CHARACTERISTICS

- CP-TA B.4 compliant cooling architecture
- Front-to-back cooling architecture
- Front blade cooling capacity: 40 cubic feet per minute (CFM) at 55 °C
- RTM cooling capacity: 5 CFM at 55 °C
- Automatic fan speed control

LED STATUS INDICATORS

- In service (IS)
- Out of service (OOS)
- Hot swap (H/S)

Power Entry Module (PEM)

Power conditioning for the AXP1411 shelf is provided by a pair of redundant PEMs. They provide power to the backplane on the redundant -48 VDC power rails for blades, RTMs and other shelf components.

GENERAL CHARACTERISTICS

- Input voltage range (-40 VDC to -72 VDC)
- 160 amp, dual feed PEM (80A + 80A)
- Power distribution capable of delivering up to 350 Watts/slot
- EMI conductive filtering
- Breaker trip detection
- Transient voltage suppression

LED STATUS INDICATORS

- In service (IS)
- Out of service (OOS)
- Hot swap (H/S)

Ordering Information

Marketing Number	Description
Shelf Products	
AXP1411	ATCA shelf - 14 slot, 19", 13U, 10G, SAM1411 SHMM - All redundant FRUs included - Silver
Accessory & FRU Products	
SAM1411	Shelf manager module for the AXP1411 - Silver
PEM1620	Power entry module for AXP-1620, AXP1440, AXP1411 - Silver
UFT-1440	Upper fan tray module for AXP1440, AXP1411 - Silver
LFT-1440	Lower fan tray module for AXP1440, AXP1411 - Silver
RAF14XX	Replaceable air filter for AXP1440, AXP1411
AXP-F-FILL-PANEL	Blank filler panel, AXP1620, AXP1440, AXP1411, AXP640, C2000 - Front - Silver
AXP-R-FILL-PANEL	Blank filler panel, AXP1620, AXP1440, AXP1411, AXP640, C2000 - Rear - Silver

Regulatory Compliance

Item	Description
Designed to comply with NEBS (DC variants only)	Telcordia GR-63-CORE, NEBS Physical Protection, Level 3
	Telcordia GR-1089-CORE, Electromagnetic Compatibility and Electrical Safety — Generic Criteria for Network Telecommunications Equipment. Level 3, Equipment Type 2
Designed to comply with ETSI (DC variants only)	ETSI Storage, ETS 300 019-2-1, Class 1.2 equipment, Weatherprotected, not Temperature Controlled Storage Locations
	ETSI Transportation, ETS 300 019-1-2, Class 2.3 equipment, Public Transportation
	ETSI Operation, ETS 300 019-1-3, Class 3.1(E) equipment, Partly Temperature Controlled Locations
	ETSI EN 300-132-2 Environmental Engineering (EE); Power supply interface at the input to telecommunications equipment; Part 2: Operated by direct current (dc)
	ETS-300-753, Equipment Engineering (EE); Acoustic noise emitted by telecommunications equipment
EMC	ETSI 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
	ECISPR 22, Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment
	AS/NZS CISPR 22 (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
	Industry Canada ICES-003 Class A
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.
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)
CE Conformity	Directive 2004/108/EC, Directive 2006/95/EC

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
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 +44 1509 236490 • 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

AXP1411-D1 10/11