AXP1440-D

Bladed Server Chassis for Rugged Environments

DATA SHEET

The AXP1440-D ATCA chassis is specifically designed to address the unique requirements of rugged environments that require very dense, high-performance, ruggedized computing

- Architected for high availability applications
- Ruggedized for harsh environments
- PICMG 3.7 Release 1.0 compliant thermal performance
- Up to 350W per blade power distribution
- Redundant shelf management and alarms
- 12 payload & 2 switching slots with rear transition module capability for each slot
- PICMG 3.0 ATCA mechanical formfactor and power/cooling design
- PICMG 3.1 ATCA high performance switch fabric capable of 1, 10, and 40Gbps operation

AdvancedTCA®

DESIGNED & ASSEMBLED IN USA

The SMART Embedded Computing AXP1440-D chassis is specially hardened against shock and vibration for shipboard electronics or other rugged environments. This enhanced ruggedization makes the enclosure, which is built to the AdvancedTCA® (ATCA) open, industry-managed COTS standard, suitable for military applications requiring an enhanced tolerance for shock and vibration.

The shipboard electronics environment is particularly demanding for its shock and vibration. Ship electronics must be able to withstand the effects of vibration from engines and other onboard systems, and must be able to withstand the intense shock of missile and torpedo hits. In conjunction with shock-hardened racks designed by the customer, the SMART EC AXP1440-D chassis has been successfully deployed in navy shipboard data centers at the heart of very dense computing and signal processing applications.

With an architecture that was designed for high availability from its inception, ATCA systems provide the reliability and performance-assurance needed in applications such as radar control systems, unmanned system ground control stations, and control systems on ships and aircraft.

Compared to conventional enterprise-grade rack-mount systems – the architecture found in the data centers of large corporations and Internet service providers – a bladed system such as ATCA offers substantial benefits for military, aerospace or security equipment. These benefits are often branded with the SWaP-C moniker – for size, weight, power and cost.

Combined with processor blades featuring dual, multicore processors, SMART EC's ATCA systems can be used in digital signal processing applications such as audio/speech signal processing, sonar and radar signal processing, sensor array processing, spectral estimation, statistical signal processing, digital image processing, signal processing for communications, control of systems, biomedical signal processing, and seismic data processing.

Ethernet fabric switching is provided by the ATCA-F140-D, a ruggedized version of SMART EC's industry-leading 40GbE switch blade, which has been proven in thousands of installed systems worldwide. This switch blade combines base and fabric interface switching functionality with AMC slots for additional processing and/or other functionality.

The AXP1440-D includes redundant shelf manager and alarm modules, redundant power entry modules (PEMs) and two fan tray modules. A variety of payload blades, AMCs and accessory products are available for the AXP1440-D system depending on application requirements.

SMART™ Embedded Computing

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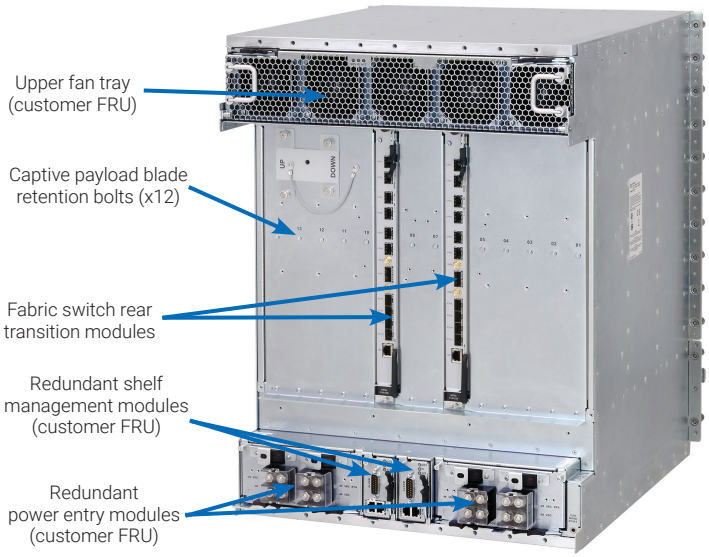
Enclosure

- 14 blade slots each with rear transition module (RTM) slots for the switch blades
  - Two switch/system manager slots
  - 12 8U payload slots for application blades
- 40/10/1G-capable backplane delivering up to 80G fabric bandwidth to each slot
- Dual shelf managers and alarm modules
- Front alarm display panel (ADP)
  - Two COM ports (one for each shelf manager)
  - Alarm indicators (PWR, Minor, Major, Critical)
  - Alarm reset
  - Alarm interface (dry relay contact, DB-15)
- Front-to-rear cooling
  - Redundant fan trays – one bottom fan tray, one top fan tray
- 0.5 inch top and bottom plates to accommodate hardened extended slide rail mounting for access to rear of chassis
- Reinforced side panels and stiffeners for superior performance under vibration
- Captive spring-loaded screws extend through the backplane to further secure blades in the system and reduce connector wear
- Captive front 19" rack mounting screws
- Enclosure dimensions and weight
  - 599 mm high x 483 mm wide x 547 mm deep
  - Weight: 53.3 kg / 117.5 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% non-condensing humidity

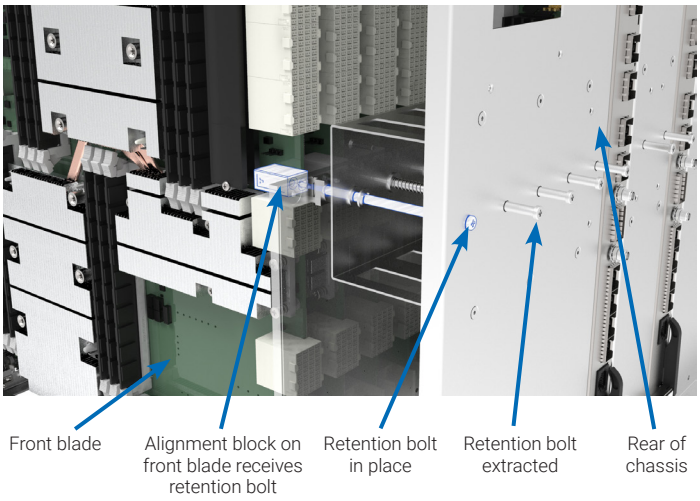
Rich Content Ecosystem

- Intel® Xeon® based server blades with storage options
- High availability, high performance storage blades
- High throughput packet processing blades based on Intel Architecture processors
- 40G & 10G switching blades with system control functionality



Rear of Chassis

Modified alignment blocks have been designed to adapt standard ATCA payload blades to the ruggedized ATCA chassis. This allows special integrated bolts in the system to tightly secure the payload blade to the backplane, which increases the system's operational shock and vibration performance and helps prevent wear on connector contacts during operational vibration while retaining the hot swap functionality of ATCA. These modified alignment blocks can work with any ATCA payload blade available in the ecosystem.



Cutaway of Side of the Chassis

The SMART Embedded Computing Experience

SMART EC has over 30 years of experience serving the defense and telecommunications industries and has hundreds of thousands of products deployed in the world's communications networks and defense systems. With that long experience comes a deep understanding of our customers' requirements for on-time, consistent and high quality product coupled with excellent customer support. We deliver on all counts from our own world-class factory and seasoned support experts.

We're very flexible and agile. We recognize that you may need your system to have your own unique branding. No problem. We're used to that. We have services that allow you to define the look and feel that's consistent with your company's branding and aesthetic standards. Our flexibility isn't just limited to look and feel. Integration services, unique support requirements, longevity of supply, drop shipments and many more services are designed to make it easy to do business with us and quick for you to get to market and deploy smoothly.

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
	ETS 300-132-2 Environmental Engineering (EE); Power supply interface at the input to telecommunications equipment; Part 2: Operated by direct current (dc)
	ETSI Operation, ETS 300 019-2-3, Class 3.1 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
	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	Directives 2011/65/EU / 2015/863 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)

Ordering Information	
Part Number	**Description**
AXP1440-D	ATCA shelf - 14 slot, 19, 13U, 40G, PP SHMM - All redundant FRUs included – Silver. Reinforced top, bottom, sides, bolted FRUs
Optional Platform Products and FRUs	
ATCA-F140-D	40G ATCA switch blade with one AMC site (filler included) and optional SATA storage, fastener
RTM-ATCA-F140-D	RTM for the ATCA-F140 with SFP/SFP+/QSFP sockets
PRAMC-7311-16GB	Mid-size AMC with Intel Core i7-2655LE processor, 2.2GHZ, 16GB DDR3
ADP1440-D	Alarm display for AXP1440
SERIAL-MINI-D2	SERIAL CABLE - MICRO D SUB CONNECTOR TO STANDARD DB9 for use with ADP1440 Alarm Display
LFT1440-C06	Lower fan tray module for AXP1440, Silver
UFT1440-D	Upper fan tray module for AXP1440, Silver, fastener
PEM1620-C06	Power entry module for AXP1440, Silver
SAM1620-D	Shelf manager module for AXP1440 - Silver, fastener
CABLE/RJ45/DSUB/6E	ADAPTER CABLE - RJ45 TO DSUB9 FEMALE (SERIAL CABLE FOR CONNECTION TO SAM1620/SAM640 SHELF MANAGER)
AXP-F-FILL-PANEL	Blank filler panel, AXP1440, AXP1410 – Front
AXP-R-FILL-PANEL	Blank filler panel, AXP1440, AXP1410 – Rear
KIT-R-FASTEN-SCREW	Long rear fastener screw replacement for rugged AXP1440-XX
Guide Blocks to Adapt Ecosystem Boards for Use with AXP1440-D	
ATCA-GDBL-BL2BP-2P	Rugged guide block, ATCA blade to backplane, 2 pin
ATCA-GDBL-BL2BP-3P	Rugged guide block, ATCA blade to backplane, 3 pin

SOLUTION SERVICES

SMART Embedded Computing 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 worldwide technical support. Renewal services enable product longevity and technology refresh.

CONTACT DETAILS

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SMART™ Embedded Computing