



ATCA-F140-D

40G AdvancedTCA® Switch Blade

DATA SHEET

High bandwidth, 40G switch blade design for AdvancedTCA platforms

- PICMG® 3.0 compliant base interface switch
- PICMG 3.1 compliant fabric interface supporting 1G, 10G, and 40G
- Single AMC site
- Optional SATA HDD or SSD
- Integrated software package



The ATCA-F140-D from SMART Embedded Computing is a COTS 40G Ethernet switch blade providing the networking infrastructure for AdvancedTCA® (ATCA®) platforms.

It has been adapted from the ATCA-F140 non-rugged variant with an alignment block that enables the blade to be secured in a chassis with captive screws, such as SMART EC's AXP1440-D chassis, which is specially hardened against shock and vibration for shipboard electronics applications.

The shipboard electronics environment is particularly demanding in terms of 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 and SMART EC's AXP1440-D chassis, the ATCA-F140-D has been successfully deployed in navy shipboard data centers at the heart of very dense computing and signal processing applications.

The switch blade provides total aggregated 480G internal fabric interface switching and routing throughput paired with 160G of external connectivity. Optional functions include SATA based disk drives and an AdvancedMC™ (AMC) site for general processing and/or packet processing functions.

A powerful on-board service processor executes all L2 and L3 switch functions, blade setup and hardware platform management functions independent of any processor AMC and/or SATA drive installed. This allows full, 100% utilization of the AMC based processor for end-user applications.





Hardware

SERVICE PROCESSOR

- NXP® QorIQ® P2020, dual-core processor, 1.0GHz

MEMORY

- Up to 4GB ECC-protected SDRAM, via (2) DDR3 memory DIMMs
 - Factory default – 2GB
- 64MB boot flash (NOR), dual-bank architecture
- 2GB (more possible) application flash
- 16MB CPU reset-persistent memory

BASE AND FABRIC INTERFACES

- PICMG 3.0 base interface switching – Gigabit Ethernet (1G)
- PICMG 3.1 fabric interface switching – 1G, 10G, 4 x 10G (KR), and 40G

AMC SITE

- Single AMC slot
- Mid-size AMC (AMC.0, AMC.1, AMC.2 and AMC.3 compliant)

STORAGE BAY

- Single HDD or solid state drive (SSD) bay
- Direct mount installation
- Standard SATA interface
 - Default configuration – NXP P2020 service processor via SATA bridge
 - Optional configuration – connection to AMC, port 2

FRONT PANEL INTERFACES

- Service processor
 - 1G Ethernet, RJ-45
 - RS-232 serial, RJ-45
- Base interface
 - 2x 10G Ethernet, SFP+
- Fabric interface
 - 2x 40G Ethernet, QSFP+

REAR TRANSITION MODULE (RTM-ATCA-F140-D)

- Base interface
 - 2x 10G Ethernet, SFP+
 - 4x 1G Ethernet, SFP
- Fabric interface
 - 4x 10G Ethernet, SFP+
 - 1x 40G Ethernet, QSFP+

BLADE DIMENSIONS

- 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
- Telcordia GR-1244-CORE [5] (if equipped with Telecom Clock function)
- ANSI T1.101 [9] (if equipped with Telecom Clock function)

OPERATING ENVIRONMENT

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





SRstackware® Software

- L2 switch management software based on Linux providing a rich selection of features and protocols, e.g.
 - STP/RSTP/MSTP
 - VLAN, VLAN stacking (Q-in-Q)
 - LACP
 - Flow Control
 - Class of Service
 - GARP/GMRP/GVRP
 - SNMPv2, SNMPv3
 - ACL
- L3 switch management (optional ATCA-F140 add-on product)
 - IGMP v1/v2/v3, IGMP snooping/proxy
 - RIPv2, RIPng
 - OSPFv2
 - VRRP

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	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	ETSI Storage, ETS 300 019-2-1, Class 1.2 equipment, Weather Protected, 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) ETSI-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 IEC/EN 61000-4-2, 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	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)
CE Conformity	Directive 2004/108/EC, Directive 2006/95/EC



Ordering Information

Part Number	Description
Switch Blade Products	
ATCA-F140-D	40G ATCA switch blade with one AMC site (filler included) and optional SATA storage, fastener
Optional Switch Blade Products	
RTM-ATCA-F140	RTM for the ATCA-F140 with SFP+ & SFP sockets
SFP-MM-SX-LC	1G single form factor (SFP) module - 850 NM, SX, LC connector
SFP-CO-RJ-45	1G copper single form factor (SFP) module - RJ-45 connector
SFPP-MM-SR-LC	10G single form factor plus (SFP+) module - 850 NM, SR, LC connector
SFPP-SM-LR-LC	10G single form factor plus (SFP+) module - 1310 NM, LR, LC connector
SFPP-CO-RJ-45-3M	10G copper single form factor plus (SFP+) modules with molded cable (3M)
QSFP-40G-SR4-MOD	40G QSFP+ module for the ATCA-F140 - 40 GBASE-SR4
CABLE-OPT-QSFPP-5M	40G QSFP+ optical cable for ATCA-F140 (5M)
CBL-B-OPT-QSFPP-5M	4G QSFP+ optical cable break-out for ATCA-F140 (5M)
PRAMC-7311-16 GB	AMC with Intel® Core™ i7-2655LE Processor, 2.2GHZ, 16GB DDR3 - mid size
SSD-480G-SATA-1	480GB MLC 2.5 inch SSD with mounting kit for ATCA-F125 and ATCA-F140
SSD-960G-SATA-1	960GB MLC 2.5 inch SSD with mounting kit for ATCA-F125 and ATCA-F140
RJ45-DSUB-ATCA	Cable RJ45 to DSUB-9 female for ATCA-F140 and PrAMC-7311
SL-L3F140-01-001-STD	L3 protocol support

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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