

## ATCA-F140

### 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
- Optional Telecom clocking support
- Integrated software package
- Designed for NEBS/ETSI compliance

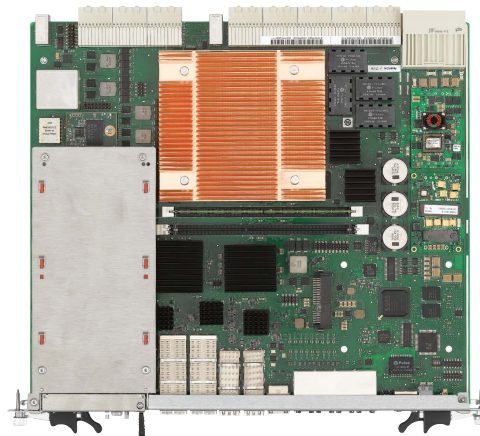


**AdvancedTCA®**

The ATCA-F140 from Artesyn Embedded Technologies is a high performance, high bandwidth 40G switch blade providing the networking infrastructure for Artesyn Centellis 4440 platforms. This product is perfect for the most bandwidth intensive telecom applications such as LTE and 4G network build-out in general. Along with the maximum fabric bandwidth available, the ATCA-F140 includes several features to maximize platform cost effectiveness.

The total aggregated 480G internal fabric interface switching and routing throughput paired with 160G of external connectivity is the basis for forming platform solutions in packet oriented bandwidth hungry environments like 4G wireless and video transport. Combining several functions within a single blade design allows end users to maximize billable Centellis platform slots with revenue-generating application blades. This is accomplished with a combination of factory build options as well as several field options. Optional functions include telecom clock generation and distribution, 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

- Freescale 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 – 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+
- Telecom Clock interfaces
  - 5x Inter-shelf interfaces, RJ-45
  - 1x Master/Slave interface, RJ-45
  - 2x BITS/SSU interfaces, RJ-45

### REAR TRANSITION MODULE (RTM)

RTM-ATCA-F140

- 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

## Telecom Clock Characteristics (if equipped)

### TELECOM CLOCK CHIP

- Semtech Topsynt ACS9510

### MODES OF OPERATION

- T0 normal operation: During normal (locked) operation, the T0 clocks shall be locked to the selected T1, T2 or T3 reference source.
- T0 free-run operation: During free-running mode, the T0 clocks shall be derived from the local oscillator.
- T0 hold-over operation: During holdover mode, the T0 clocks shall be based on the most recent valid reference available.
- T4 normal operation: During normal (locked) operation, the T4 clocks shall be locked to the selected T1 or T2 reference source.
- T4 hold-over and free-run operation: During free-running and holdover mode, the T4 clock shall be suppressed.

### TIMING REFERENCE

- Traditional signal-based reference as defined by ITU-T G812 & G813 [3 & 4]
- Telcordia GR-1244-CORE [5]
- IEEE 1588v2

### PERFORMANCE

- Stratum 3

## Software

- L2 switch management software based on Carrier Grade Linux (Wind River PNE 3.0) 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
- Multi-shelf capable Service Availability Forum™ Hardware Platform Interface (HPI) support
- L3 switch management (optional ATCA-F140 add-on product)
  - IGMP v1/v2/v3, IGMP snooping/proxy
  - RIPv2, RIPng
  - OSPFv2
  - VRRP
- FlowPilot load balancing software (optional ATCA-F140 add-on product)
  - Artesyn's available application and packet load-balancing module, which directs traffic flow to individual payload blades for further processing
  - Separate product datasheet available
- System Services Framework (SSF) (optional platform add-on product)
  - Artesyn's available System Services Framework is a centralized management platform to configure and monitor systems, including the ATCA-F140. SSF provides easy access to ViewCheck, Artesyn's suite of in-service and out-of-service diagnostic tools

## Regulatory Compliance

Item	Description
<b>Designed to comply with NEBS</b>	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
<b>Designed to comply with ETSI</b>	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
<b>EMC</b>	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
<b>Safety</b>	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.
<b>RoHS/WEEE compliance</b>	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)
<b>CE Conformity</b>	Directive 2004/108/EC, Directive 2006/95/EC

**Ordering Information**

<i>Marketing Number</i>	<i>Description</i>
<b>Switch Blade Products</b>	
<b>ATCA-F140</b>	ATCA system controller & switch blade with 40G fabric
<b>ATCA-F140-TCLK3</b>	ATCA system controller & switch blade with 40G fabric & telecom clock Stratum 3
<b>Optional Switch Blade Products</b>	
<b>RTM-ATCA-F140</b>	RTM for the ATCA-F140 with SFPP & SFP sockets
<b>SFP-MM-SX-LC</b>	1G single form factor (SFP) module - 850 NM, SX, LC connector
<b>SFP-CO-RJ-45</b>	1G copper single form factor (SFP) module - RJ-45 connector
<b>SFPP-MM-SR-LC</b>	10G single form factor plus (SFPP) module - 850 NM, SR, LC connector
<b>SFPP-SM-LR-LC</b>	10G single form factor plus (SFPP) module - 1310 NM, LR, LC connector
<b>SFPP-CO-RJ-45-2M</b>	10G copper single form factor plus (SFPP) modules with molded cable (2M)
<b>CABLE-OPT-F102-5M</b>	Optical cable for multi-mode, SFP and SFPP connections (5M)
<b>CABLE-COP-QSFPP-3M</b>	40G QSFP+direct attach, molded cable for ATCA-F140 (3M)
<b>QSFPP-40G-SR4-MODULE</b>	40G QSFP+ module for the ATCA-F140 - 40 GBASE-SR4
<b>CABLE-OPT-QSFPP-5M</b>	40G QSFP+ optical cable for ATCA-F140 (5M)
<b>CABLE-B-OPT-QSFPP-5M</b>	4G QSFP+ optical cable break-out for ATCA-F140 (5M)
<b>PRAMC-7311</b>	AMC with Intel® Core™ i7 processor, 4GB DDR3, mid-size
<b>PRAMC-7311-16 GB</b>	AMC with Intel® Core™ i7-2655LE Processor, 2.2GHZ, 16GB DDR3 - mid size
<b>SW-WR-PRAMC-7311</b>	CD with Wind River PNE 3.0 and Basic Blade Services for the PrAMC-7311, single blade license
<b>HDD-500G-SATA</b>	Direct mount 500GB HDD for ATCA-F125 & ATCA-F140, high durability - SATA
<b>SSD-480G-SATA-F140-1</b>	480GB MLC 2.5 inch SSD with mounting kit for ATCA-F125 and ATCA-F140
<b>RJ45-DSUB-ATCA</b>	Cable RJ45 to DSUB-9 female for ATCA-F140 and PrAMC-7311
<b>SL-L3F140-01-001-STD</b>	L3 protocol support
<b>SL-FPF140-04-001-STD</b>	FlowPilot load balancing software for ATCA-F140

**SOLUTION SERVICES**

Artesyn Embedded Technologies 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.

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