Designed for High Performance, Reliability and Long Life Cycles

AdvancedTCA® Products

Artesyn Embedded Technologies' products complying with AdvancedTCA® standards are designed to address applications requiring high performance, high reliability and long life cycles. The telecommunications industry was quick to recognize the fit with its carrier-grade requirements. Applications include control plane and packet and media processing infrastructure for wireless networks, IP Multimedia Subsystem (IMS), IPTV, other central office applications and network data center environments. ATCA® products have also been deployed in a range of military, aerospace and industrial automation applications such as C4ISR and batch processing control.

Artesyn offers a comprehensive portfolio of 10G and 40G ATCA products including shelf, switch blade and payload blade products. Payload blade options include high performance server, flexible I/O, packet processing and storage blades. Multiple business engagement models are designed to suit almost any customer – from purchasing ATCA products separately and integrating them yourself, to detailed integration and custom packaging services from our dedicated Solution Services group.

AdvancedTCA®

COMPUTER CONTROLS

AdvancedTCA® Platform Cores

Artesyn's Centellis® series consist of application-ready platform cores which include a chassis with shelf management, cooling and power distribution integrated with redundant switch blades and a range of payload blade and software options. Centellis platform cores are designed to be NEBS & ETSI ready and some configurations come "pre-certified" for NEBS, saving time-to-market and cost. For unique configurations, Artesyn is certified to do NEBS testing in-house and we offer a range of testing and certification services. Further enhancing the Centellis platform is our System Services Framework (SSF) software, designed to provide you with full monitoring and management access to the system, including diagnostics software options to debug issues quickly. Our FlowPilot™ load balancing software enhances the packet flow efficiency without the need to add a separate appliance.

Centellis® 8000 Series

14-Slot 40G ATCA System with Power and Cooling of up to 600W per slot

- Architected for high availability applications
- 14-slots with rear transition module capability for each slot
- Base platform includes two 40G ATCA switches and shelf management
- Wide range of server, packet processing and media processing payload available
- Advanced platform management software and load balancing software options
- Cooling and power for up to 600W per slot
- AC and DC power variants
- Popular configurations pre-certified for NEBS Level 3
- PICMG® 3.0 ATCA mechanical form factor with enhanced power & cooling
- PICMG® 3.1 ATCA high performance switch fabric capable of 1, 10 and 40Gbps operation

Centellis® 4440

14-Slot 40G ATCA System – Broadly Deployed and Proven Performance

- Architected for high availability applications
- 14-slots with rear transition module capability for each slot
- Base platform includes two 40G ATCA switches and shelf management
- Wide range of server, packet processing and media processing payload available
- Advanced platform management software and load balancing software options
- Cooling and power for up to 350W per slot and CP-TA B.4 compliance
- NEBS certification services available
- PICMG® 3.0 ATCA mechanical form factor with enhanced power and cooling
- PICMG® 3.1 ATCA high performance switch fabric capable of 1, 10 and 40Gbps operation

Centellis® 4410

14-Slot 10G ATCA System – Broadly Deployed and Proven Performance

- Architected for high availability applications
- 14-slots with rear transition module capability for each slot
- Base platform includes two 10G ATCA switches and shelf management
- Wide range of server, packet processing and media processing payload available
- Switch management and protocol software
- Cooling and power for up to 350W per slot and CP-TA B.4 compliance
- NEBS certification services available
- PICMG® 3.0 ATCA mechanical form factor with enhanced power and cooling
- PICMG® 3.1 ATCA high performance switch fabric capable of 1, 10Gbps operation
- Designed for NEBS/ETSI compliance

AdvancedTCA® Shelves

Artesyn offers a complete suite of ATCA shelf products including 2-slot, 6-slot, 14-slot and 16-slot shelf form factors with both 10G and 40G capable backplanes.

All ATCA compliant Artesyn shelf products have superior power and cooling characteristics; high power budget per slot, front-to-rear cooling architecture and CP-TA B.4 compliant or better cooling performance. Shelf Management functionality is integrated into each ATCA shelf and all, redundant field replaceable units (FRUs) are included.

Centellis® 2000

2-Slot 40G ATCA System – Low-Profile with Front-to-Rear Cooling

- Architected for high availability applications
- 2-slots with rear transition module capability for each slot
- Integrated shelf management
- Direct cross-connect circuitry for the 1, 10, and 40G backplane fabric
- Wide range of server, packet processing and media processing payload available
- Advanced platform management software options
- Front to rear cooling
- Cooling & power for up to 350W per slot and CP-TA B.4 compliance
- AC and DC power configurations available
- 2 user slots for OEM customization
- NEBS certification services available
- PICMG® 3.0 ATCA mechanical formfactor with enhanced power & cooling
- PICMG® 3.1 ATCA high performance switch fabric capable of 1, 10 and 40Gbps operation

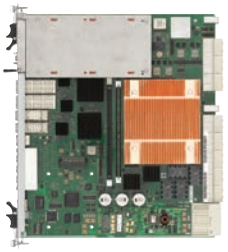
AXP640

40G ATCA Shelf

- 6-slot, 7U, 19" form factor
- AC and DC power input options
- All redundant field replaceable units (FRUs)
- Integrated Telco Alarm functionality
- Front and 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 (DC variants only)

AdvancedTCA® Switch Blades

A variety of switch blades are available with flexible options for processor AMCs, local storage and Telco clocking. Switch blade products include 10G and 40G variants to satisfy different performance and price points depending on application requirements.



ATCA-F140

40G Switch Blade

- PICMG® 3.0 compliant base interface switch
- PICMG 3.1, Option 1, 9 fabric interface switch (1G/10G)
- PICMG 3.1 R2 for 40G fabric support
- Single AMC site
- Optional SATA HDD
- Optional Telecom clocking support
- Integrated software package
- Designed for NEBS/ETSI compliance

ATCA-F125

10G Switch Blade

- PICMG® 3.0 compliant base interface switch
- PICMG 3.1, Option 1, 9 fabric interface switch (1G/10G)
- Single AMC site
- Optional SATA HDD or SSD
- Optional Telecom clocking support
- Integrated software package
- Designed for NEBS/ETSI compliance

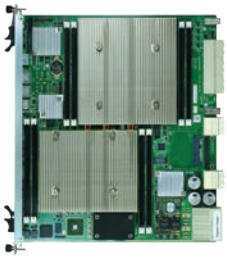
PrAMC-7311

Advanced Mezzanine Cards

- Single Intel® Core™ i7 processor running at 2.2 GHz
- 4GB and 16GB memory options, ECC protected, DDR3
- Complete Basic Blade Software package including Wind River Linux operating system
- AMC front panel support for USB, 10/100/1000 Ethernet and serial console port
- 8MB of BIOS flash, dual-bank architecture
- AMC mid-size form factor
- AMC.0, 1, 2, 3 compliant
- Designed for NEBS/ETSI compliance

AdvancedTCA® IA Server Blades

Artesyn is committed to closely following the Intel® Embedded Platform Roadmap for ATCA® server blades. Look for Artesyn to deliver best-in-class performance featuring high-end dual Intel® Xeon® processors, and extreme memory capacity for demanding applications like subscriber databases and video-on-demand servers. Additional features such as hot-swappable hard drives and telecom clock synchronization are also provided. All of the server blades work with a range of available rear transition modules (RTM) supporting hot- swappable hard disks with flexible choice of storage options and RAID 0/1 functionality. Unless otherwise stated, the ATCA fabric interface on each blade is PICMG® 3.1 Option 1, 9 compliant.



ATCA-7370

10G ATCA Server Blade

- Two 8-core Intel® Xeon® processors, E5-2648L, 1.8 GHz
- Up to 128GB main memory
- Redundant PICMG® 3.1, Option 9, Option 1 ATCA fabric interface
- Powerful hardware off-loading functions for en/decryption, compression, based on an Intel Communications Chipset 8920 (optional)
- Multiple 1 and 10Gbps network and storage I/O connectivity options
- Hot-swappable hard disk with flexible choice of storage options
- RAID 0/1 support
- Multiple software packages including operating systems
- Designed for NEBS and ETSI compliance

ATCA-7368

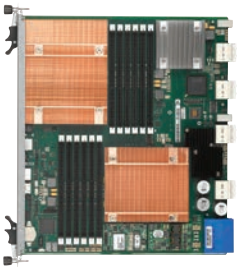
10G ATCA Server Blade

- Designed to meet cost-sensitive applications
- One 6-core Intel® Xeon® processor L5638 (2.0 GHz)
- Up to 48GB main memory
- One mid-size AMC site supporting offload, storage and I/O
- Cost-effective on-board SATA drive option
- Hot-swappable hard disk with flexible choice of storage options via RTM
- RAID 0/1 support
- Multiple storage and I/O connectivity
- PICMG® 3.1 Option 1, 9 (1/10GbE) ATCA fabric interface
- Designed for NEBS and ETSI compliance
- Multiple software packages including operating systems

ATCA-7367

10G ATCA Server Blade

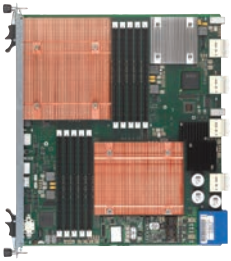
- One 6-core Intel® Xeon® processor L5638 (2.0 GHz)
- Up to 48GB main memory
- One mid-size AMC site with telecom clock support
- Cost-effective on-board SATA drive option
- Fully supported by the ATCA-736x RTM family
- Hot-swappable hard disk with flexible choice of storage options via RTM
- RAID 0/1 support
- Multiple network and storage I/O connectivity
- PICMG® 3.1 Option 1, 9 (1/10GbE) ATCA fabric interface
- Designed for NEBS and ETSI compliance
- Multiple software packages including operating systems



ATCA-7365

10G ATCA Server Blade

- High performance Intel® Architecture processor blade
- Two 6-core Intel® Xeon® processors L5638 (2.0 GHz)
- Up to 192GB main memory
- Hot-swappable hard disk with flexible choice of storage options
- RAID 0/1 support
- Multiple network and storage I/O connectivity
- Option 9 (1/10GbE) ATCA fabric interface
- Designed for NEBS and ETSI compliance
- Multiple software packages including operating systems
- Wind River Network Acceleration Platform



ATCA-7360

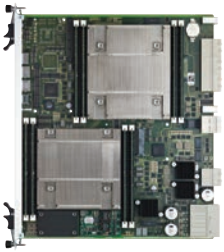
10G ATCA Server Blade

- Two quad-core Intel® Xeon® processors L5518 (2.13 GHz)
- Up to 80GB main memory
- Hot-swappable hard disk with flexible choice of storage options
- RAID 0/1 support
- Multiple network and storage I/O connectivity
- Option 9 (1/10GbE) ATCA fabric interface
- Designed for NEBS and ETSI compliance
- Multiple software packages including operating system

AdvancedTCA® Packet and Media Processing Blades

Artesyn packet processing blades are optimized for data plane or signal plane processing in telecommunications or data communications applications. Our family of Cavium OCTEON and Intel® Xeon® processing blades is designed for IP packet processing in applications such as packet gateways, 4G wireless gateways, deep packet inspection applications, and network security.

Artesyn packet processing blades support a wide variety of performance and bandwidth options. On-board Ethernet switches support flexible data paths. Integrated into Artesyn 10GbE and 40GbE board and system core products, the Artesyn packet processor products offer application-ready platforms for signaling and call control, network gateway and edge functions, deep packet inspection and security processing.



ATCA-7470

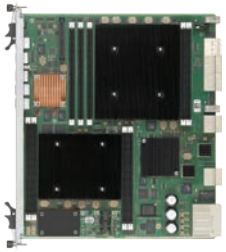
40G Packet Processing/Server Blade

- Two 8-core Intel® Xeon® processors, E5-2658, 2.1 or E5-2648L, 1.8 GHz
- Up to 128GB main memory
- Redundant 40G (KR4), 10G (KR) and PICMG® 3.1, Option 9, Option 1 ATCA fabric interface
- Powerful hardware off-loading functions for en/decryption and compression based on two Intel® Communications Chipset 8920 (optional)
- Multiple 1 and 10Gbps network and storage I/O connectivity options
- Hot-swappable hard disk with flexible choice of storage options
- RAID 0/1 support
- Multiple software packages including operating systems
- Designed for NEBS and ETSI compliance

ATCA-7475

Packet Processing /Server Blade

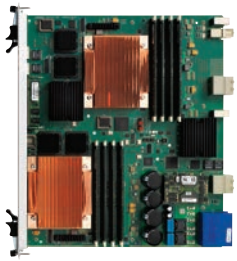
- Two 10-core Intel® Xeon® processors, E5-2658 v2, 2.4 or E5-2648L v2, 1.9 GHz
- Up to 128GB main memory
- Redundant 40G (KR4), 10G (KR) and PICMG® 3.1, Option 9, Option 1 ATCA fabric interface
- Powerful hardware off-loading functions for en/decryption and compression, based on two Intel® Communications Chipset 8920 (optional)
- Multiple 1 and 10Gbps network and storage I/O connectivity options
- Hot-swappable hard disk on optional RTM with flexible choice of storage options and RAID 0/1 support
- Multiple software packages including operating systems
- Designed for NEBS and ETSI compliance



ATCA-9405

10G ATCA Packet Processing Blade

- Two Cavium OCTEON II CN6880 multi-core MIPS64 processors with up to 128GB DRAM
- Support for Wind River PNE 4.x OS, Cavium SDK and 6WIND 6WINDGate
- Ethernet switch connecting all rear I/O, backplane I/O and OCTEON processors with L2 and L3 switch management software
- Local Freescale QorIQ™ dual-core blade management processor
- Rear transition module with 8x 10GbE plus 2x 40GbE I/O connectivity
- Zone 3 PCI Express ports enable the design of custom RTMs withmass storage
- Designed for NEBS and ETSI compliance in a CP-TA B.4 class enclosure



ATCA-9305

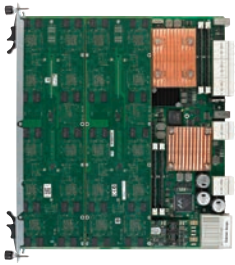
10G ATCA Packet Processing Blade

- Two Cavium OCTEON 16-core CN5860 processors operating at 800 MHz
- ATCA-9305-NSP version with 256MB RLDRAM for optimized deep packet inspection performance
- Cost-optimized ATCA-9305-SCP configuration without RLDRAM support
- Freescale MPC8548 PowerQuicc III integrated communications processor
- Hardware acceleration with thread pinning, security, de-/compression, regular expression processing, packet queuing and scheduling functions
- Broadcom BCM56802 10 Gigabit Ethernet (GbE) multilayer switch
- Easy access front panel Ethernet and serial management ports
- Designed to deliver telco-grade reliability
- Full hot swap support

ATCA-8320

AdvancedTCA DSP Blade

- Up to 24 Octasic OCT2224M DSPs on two mezzanine sites
- Comprehensive voice and video processing firmware and programmers interface
- Dual core Intel® Core™ i7 processor for local control and management application
- 8 core Freescale QorIQ™ P4080 for blade management plus packet processing and load balancing of IP streams
- Local Ethernet switching network with full switch management utilities
- Rear transition module supports 10G + 4 x 1G Ethernet cable terminations
- Designed for NEBS Level 3 and ETSI telecom standards compliance in a CP-TA B.4 class ATCA enclosure



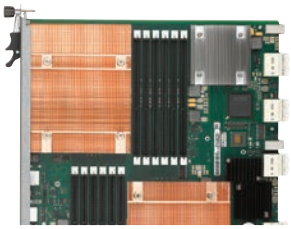
ATCA-8310

AdvancedTCA DSP Blade

- Up to 30 Texas Instruments TMS320TCI6486 6-core DSPs
- 8-core Freescale QorIQ™ P4080 for packet processing and load balancing in the IP I/O path
- Pre-installed Linux on P4080 with utilities for blade configuration, switch management and DSP setup
- Local Ethernet switch connecting all DSPs, CPUs, ATCA networks and I/O IP RTM supporting 10Gigabit Ethernet
- Designed for NEBS and ETSI compliance in a CP-TA B.4 class enclosure
- Red Hat RHEL certified

Commercial ATCA™ Bladed Servers and Blades

Designed for deployment outside of the telecommunications central office, the commercial ATCA systems are optimized for applications which value the enhanced reliability, serviceability and longevity of AdvancedTCA® technology, without the need to meet the NEBS requirement of operating at elevated ambient temperatures (up to 55 °C). In these cases, the enhanced cooling of Artesyn systems conforming to ATCA specifications can be used to deliver higher levels of performance than traditional AdvancedTCA systems.



ATCA-7365-CE

10G ATCA Network Datacenter Server Blade

- Two 6-core Intel® Xeon® processors, E5645 (2.4 GHz)
- Up to 96GB main memory
- Fully supported by the ATCA-736X RTM family
- Hot-swappable hard disk with flexible choice of storage options
- RAID 0/1 support
- Multiple network and storage I/O connectivity
- 10GbE ATCA fabric interface, PICMG® 3.1 Option 1, 9
- Designed for temperature controlled environment
- Multiple software packages including operating systems

ATCA-7368-CE

10G ATCA Network Datacenter Server Blade

- One 4- or 6-core Intel® Xeon® processor, E5620 or E5645 (2.4 GHz)
- Up to 48GB main memory
- Cost-effective on-board SATA drive option
- One mid-size AMC site supporting offload, storage and I/O
- Hot-swappable hard disk with flexible choice of storage options via RTM
- RAID 0/1 support
- Multiple storage and I/O connectivity
- PICMG® 3.1 Option 1, 9 (1/10GbE) ATCA fabric interface
- Designed for Commercial ATCA in a temperature controlled environment
- Multiple software packages including operating systems

AdvancedTCA® Software

System Services Framework (SSF)

ATCA System Management Software and Framework

System Services Framework (SSF) is a centralized management system to configure and monitor software and hardware components in a single shelf or complex system of multiple AdvancedTCA® (ATCA®) shelves. SSF is optimized to work with Artesyn Embedded Technologies' range of application-ready Centellis® ATCA systems, which cover 2-slot, 6-slot and 14-slot variants that are designed to meet the needs of both telecom central office and network data center environments. SSF introduces an out-the-box paradigm to ATCA systems and further improves time-to-market for network element design, and ease of operation for in-field systems.

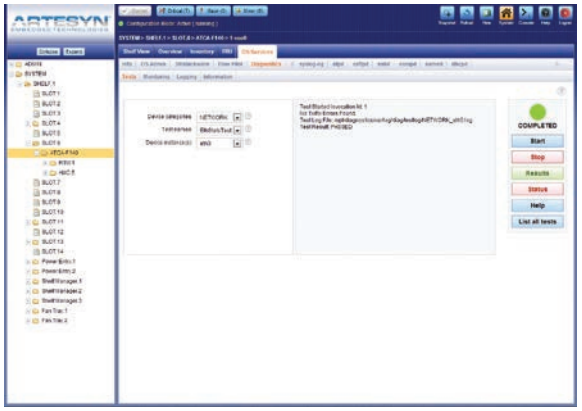
SSF provides easy access to Artesyn's ViewCheck™ software, an in-service and out-of-service diagnostic suite specifically developed for the Artesyn range of ATCA payload and switch cards.

ViewCheck™

Diagnostics Software for ATCA Platforms

ViewCheck™ is an optional in-service and out-of-service diagnostic suite specifically developed for the Artesyn range of ATCA® payload and switch blades. ViewCheck can be used to diagnose and monitor ATCA blades, as part of a wider system management policy enabled by Artesyn's SSF ATCA system management software framework. The diagnostic utilities of ViewCheck help in identifying, detecting, and locating failures on a blade. ViewCheck also provides a mechanism to monitor the status of devices such as CPU, storage, Ethernet counters and errors.

The ViewCheck software can be used locally as standalone diagnostics software using CLI and XML interfaces or it can be accessed remotely as part of the software framework.



FlowPilot™

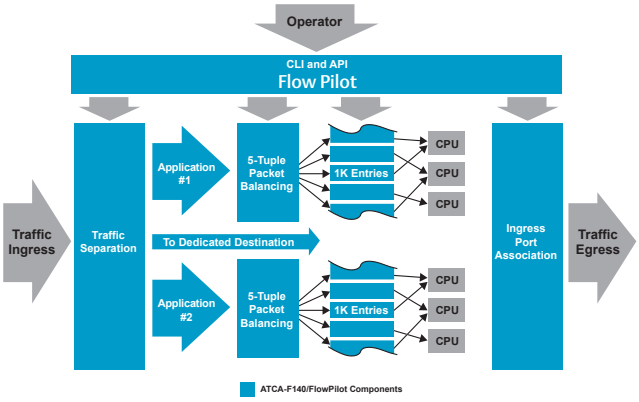
Packet Balancing Software for ATCA Platforms

FlowPilot™ software enables line rate traffic flow separation and load balancing to ATCA platforms. Rapidly increasing network bandwidths typically require system architectures with multiple packet processing engines to process the packet stream in parallel - while still maintaining the context of a subscriber/provider communication flow. Standard networking protocols only partially address such packet distribution in a scalable and highly available environment with fail-over scenarios.

FlowPilot installed on the ATCA hub blade adds in as the platform's central packet dispatcher managing the switching hardware to achieve lowest latency, full wire speed, and flow-context aware packet distribution to and from all processing blades in the system.

In combination with the ATCA-F140 hub blade, FlowPilot enables the following functions:

- Balance traffic to multiple ATCA blades for packet monitoring and processing
- Maintain flow context and packet sequence
- Fully transparent for external network elements
- Separate traffic into application groups
- Redundant 160G external Ethernet connectivity
- 480Gbit/s internal bandwidth for packet processing



SRstackware™ Switching and Routing Software

The Artesyn SRstackware™ switching and routing software suite was developed to fulfill the ever-increasing Layer 2 and Layer 3 networking requirements of telecom and non-telecom network elements. SRstackware software suites support a wide range of defined standards and protocols and enable easy integration with customer applications. SRstackware softare suites are available on all ATCA switch blades and select ATCA payload blade products.

Basic SRstackware software includes all required network functions, switch management and commonly used Layer 2 protocols combined into a single product. Enhanced SRstackware is a series of specific protocol modules that can be purchased separately depending on application requirements.

Basic SRstackware software suites features:

Switch Management

- Command Line Interface (CLI)
- Simple Network Management Protocol (SNMPv2) - RFC 1901, 2271
- Simple Network Management Protocol (SNMPv3) - RFC 3414, 3411
- Broadcast storm recovery
- Flow control - IEEE 802.3x
- Application Programming Interface (API) access

Layer 2 Switching

- Spanning Tree Protocol (STP) - IEEE 802.1d
- Rapid Spanning Tree Protocol (RSTP) - IEEE 802.1w
- Multiple Spanning Tree Protocol (MSTP) - IEEE 802.1
- Virtual LAN (VLAN) Tagging - IEEE 802.1q
- Link Aggregation Control Protocol (LACP) - IEEE 802.3ad
- VLAN Classification by Protocol and Port - IEEE 802.1v
- Class of Service (CoS) - IEEE 802.1p
- Link Aggregation Control Protocol (LACP) - IEEE 802.3ad
- Generic Attribute Registration Protocol (GARP) - IEEE 802.1q
- GARP Multicast Registration Protocol (GMRP) - IEEE 802.1q
- GARP VLAN Registration Protocol (GVRP) - IEEE 802.1q
- VLAN Stacking (Q-in-Q) - IEEE 802.1ad
- Static Filtering (ACL)
- Enhanced Load Balancing (by TCP/UDP port)
- Enhanced SRstackware features:

Layer 3 Routing

- IPv4 Routing
  - Internet Group Management Protocol (IGMP v1) - RFC 1112
  - Internet Group Management Protocol (IGMP v2) - RFC 2236
  - Internet Group Management Protocol (IGMP v3) - RFC 3376
  - IGMP Snooping/Proxy - RFC 4541
  - Routing Information Protocol (RIPv2) - RFC 2453
  - Open Shortest Path First (OSPFv2) - RFC 2328
  - Virtual Router Redundant Protocol (VRRP) - RFC 3768

- IPv6 Routing
  - RIP Next generation (RIPng) - RFC 2080

Artesyn AdvancedTCA® software improves time-to-market for network element design, and ease of operation for in-field systems.