ARTESYN™
EMBEDDED TECHNOLOGIES

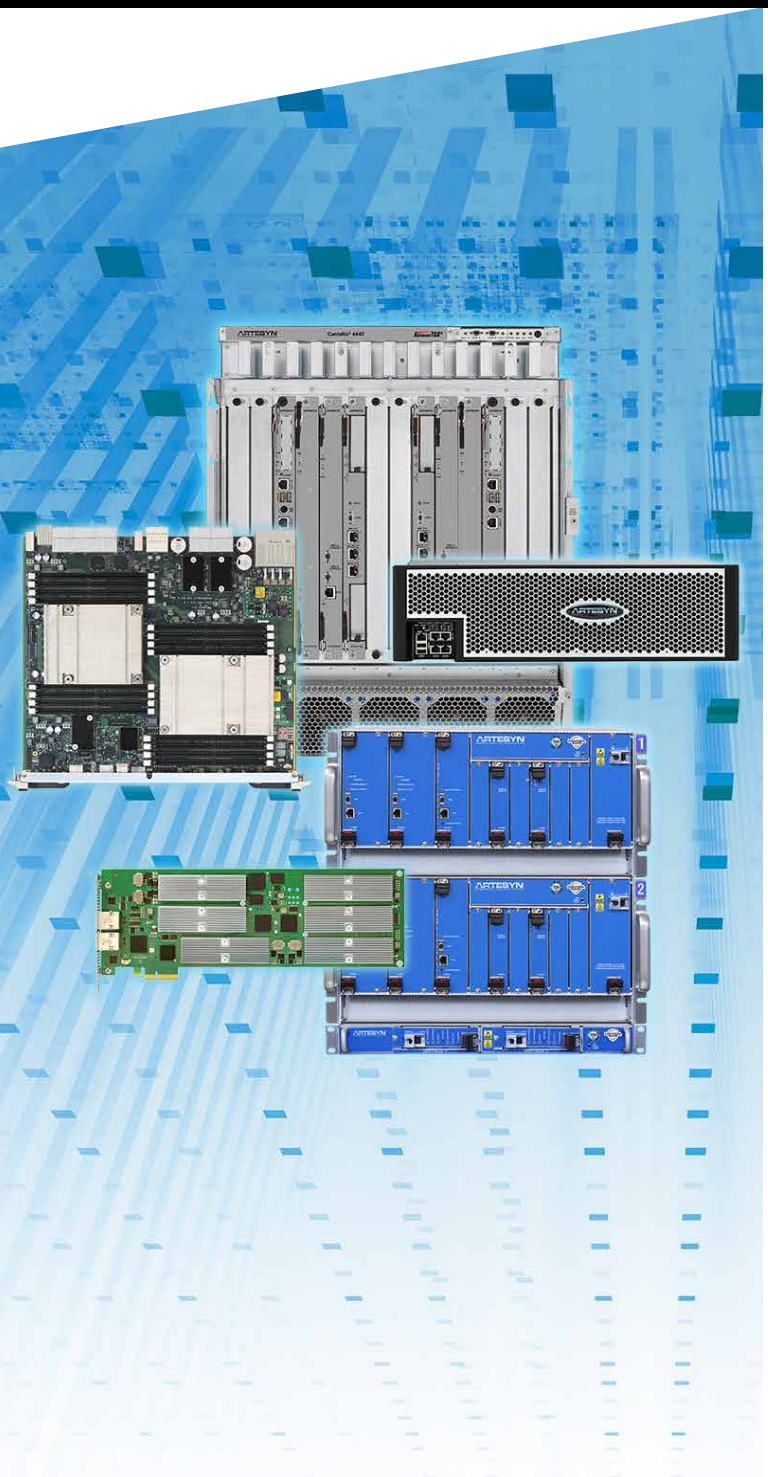


# Embedded COMPUTING

## *Product Guide*

ARTESYN™
EMBEDDED TECHNOLOGIES

*Artesyn Embedded Technologies is a leading global provider of open standards-based embedded computing solutions for communications, broadcast, rail transportation, military, aerospace and industrial applications. For more than 40 years, customers in a wide range of industries have trusted Artesyn to help them develop better products quickly, cost effectively and with less risk.*



Building on the acquired heritage of industry leaders such as Motorola Computer Group and Force Computers, Artesyn is a recognized leading provider of advanced network computing solutions ranging from application-ready platforms, single-board computers, enclosures, blades and modules to enabling software and professional services.

Artesyn's engineering and technical support is backed by world-class manufacturing that can significantly reduce time-to-market and help customers gain a clear competitive edge.

Let Artesyn help your business innovate faster and shift development efforts to the deployment of new, value-add features and services that build market share.

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# Ecosystem Leadership

Embedded computing platforms depend on a broad and powerful ecosystem, including standards bodies, industry associations, hardware and software vendors. Artesyn brings a wealth of innovation and many years' experience to accredited standards development organizations, specification consortia and industry associations through our executive memberships and key committee positions.

- Cavium Networks PACE
- Dell OEM Solutions
- ETSI
- Intel® IoT Solutions Alliance
- Intel® Network Builders
- Microsoft® Partner Network
- Network Intelligence Alliance
- Nokia Cloudband
- NXP® Partner
- OpenSAF
- OPNFV
- Open Daylight
- PICMG®
- Red Hat Linux OpenStack Platform
- RSSI
- Service Availability Forum
- VITA
- Wind River Titanium Cloud

# Technology Partners

Artesyn works closely with other industry-leading companies to enable you to leverage expanded technology and resource options, and be confident that the solutions offered are validated and supported.

For more information about our technology partners, please visit: **www.Artesyn.com/computing/about-us/partners**

- 6Wind
- Broadcom
- Cavium Networks
- Clavister
- Dell
- Elma Electronics
- ENEA
- GDCA
- HPE
- Intel®
- IP Infusion
- NXP
- Octasic Inc.
- Red Hat
- SANBlaze
- Seagate
- Vantrix
- VMware
- Wind River

"This business has the DNA that includes Motorola's embedded computing business, Artesyn, Force Computers, Heurikon, Blue Wave Systems, Mizar, Prolog, NetPlane and Spider Software! The combined strength and experience of these companies, fused with pedigrees of quality, innovation and a deep understanding of our customers' needs, position Artesyn Embedded Technologies for continued growth and leadership in the embedded computing markets."

**Stephen Dow**
*President*

*SIL4 Certified COTS Fail-Safe and Fault-Tolerant System for Train Control and Rail Signaling Applications*



# ControlSafe™ Platforms

Leveraging over 30 years of expertise in developing highly reliable and available embedded computer systems, Artesyn Embedded Technologies is a premier supplier of commercial off-the-shelf (COTS) fail-safe and fault-tolerant computer systems to rail system integrators and rail application providers.

- Highly integrated COTS platforms certified to SIL4 by TÜV SÜD
- Compliant with stringent safety standard suite EN 5012x
- Designed to deliver platform hardware availability of six nines (99.9999%)
- Modular, scalable and suitable for both new deployments and update projects
- Innovative data lock-step architecture allows seamless technology upgrades
- Hardware-based voting mechanism maximizes application software transparency
- 15 years planned product life and 25 years of extended support and service available
- Backed by a global service organization
- Rugged design compliant with IEC 61373 and EN 50155
- Common platform to enable various wayside and carborne applications

CONTROL SAFE™

Safety tested · Production monitored · TÜV SÜD · Functional Safety

# Delivering fail-safe and fault-tolerant systems for critical rail safety applications

Artesyn's ControlSafe products are a family of commercial off-the-shelf (COTS), fail-safe platforms primarily designed for train control and rail signaling. Based on open standards, the ControlSafe platforms provide a cost-effective solution that enables application developers and system integrators to substantially accelerate time-to-market without being deterred by the potentially high costs and risks associated with the stringent SIL4 system development and certification process.

All ControlSafe platforms leverage the same safety architecture and technologies so you can adopt a common platform across applications and maximize your return on investment.

As a highly available platform, each ControlSafe platform consists of two redundant ControlSafe computers, each of which delivers fail-safe operations enabled by data lock-step mode and two-out-of-two (2oo2) voting mechanism.

The ControlSafe computers are linked by a Safety Relay Box (SRB) or Direct Connect Algorithm (DCA) that monitors the health of the two computers, designates one of them as 'active' and the other as 'standby', and controls fail-over operation between the two computers to deliver a fail-safe computing system. The health-and-safety architecture is designed so that there is no possibility of an incorrect output being driven to external equipment.



## ControlSafe™ Platform

- Up to six (6) I/O modules in a single chassis
- Generic platform for both wayside and carborne applications



## ControlSafe™ Carborne Platform

- Up to twelve (12) I/O modules in a single chassis
- Compact 4U chassis with front access I/O and DC power supply to suit carborne applications



## ControlSafe™ Expansion Box Platform

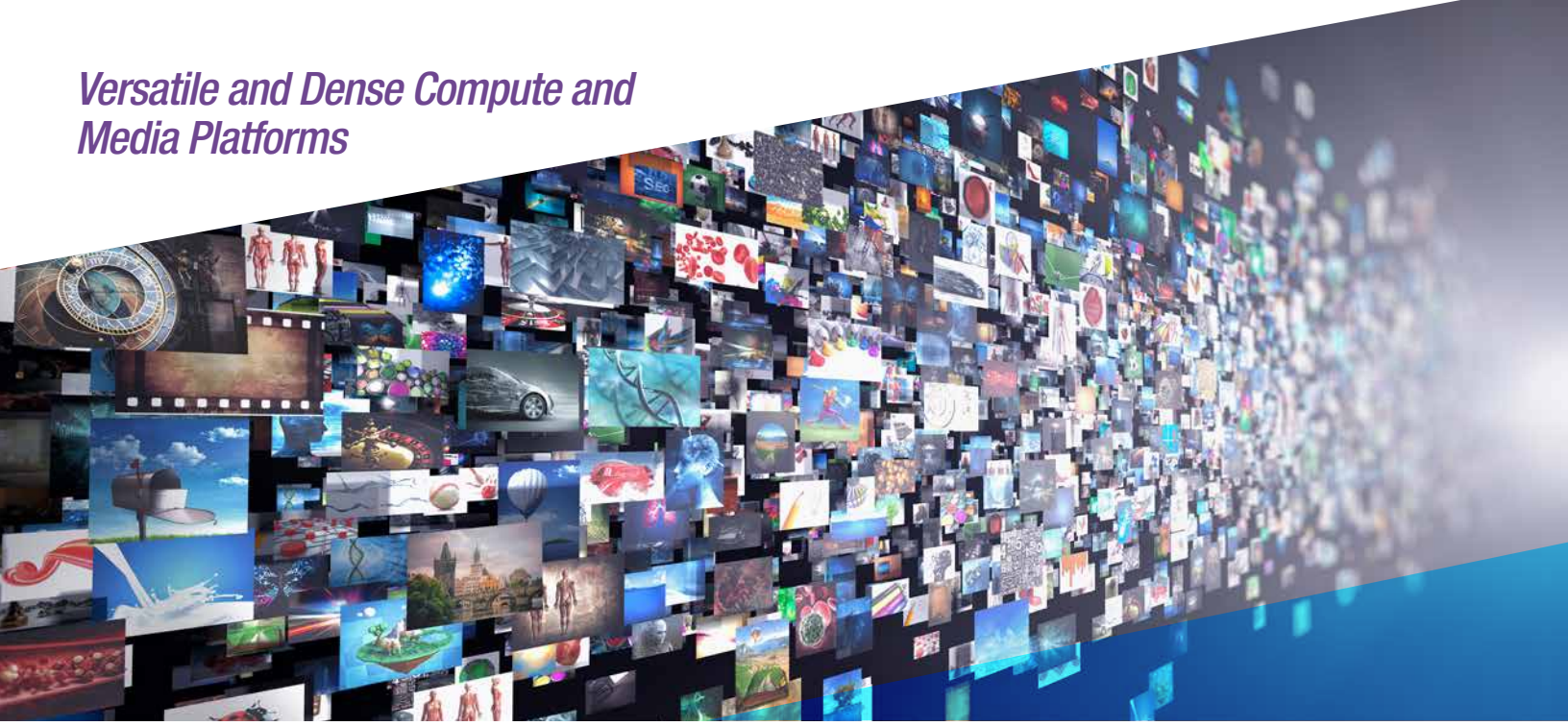
- Up to ten (10) 9U expansion I/O modules and one (1) 4U I/O module in a single chassis
- Improved I/O processing capability can reduce the number of chassis required to construct large scale wayside applications



## ControlSafe™ Compact Carborne Platform

- Same core system as ControlSafe Carborne Platform but in a half-width chassis for applications with limited installation space
- Two (2) chassis can be placed side-by-side in standard 19-inch rack
- Functions as processing and voting engine to connect and power external equipment
- SIL4 certification planned

*Versatile and Dense Compute and Media Platforms*

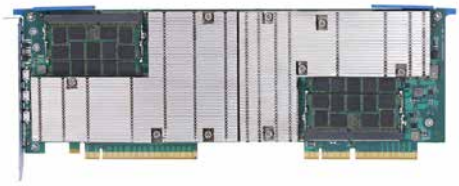


# PCI Express COTS Server Acceleration Products

Artesyn PCI Express accelerator cards enable highly scalable voice and video processing for network applications, while using less space, less power and at a lower cost than the alternative of adding more servers or constraining application performance.

The "Sharp" portfolio of accelerators and cards serves the needs of media processing applications in communications infrastructure as well as video processing applications in the communication service provider networks – including OTT video and streaming – all in standard PCI Express form factors.

All of the solutions in the Sharp portfolio achieve maximum density/rack unit (RU) while operating with the widest range of standard servers so applications can scale easily with less CapEx and OpEx spending as application densities rise.



### SharpStreamer™ Pro PCIE-7210

***High Density Video Processing Accelerator***

- 1x or 2x Intel® Xeon® E3-1578L v5 GT4e-enabled Scalable Video Processing Engines
- Ideal for applications including H.264/AVC & H.265/ HEVC transcoding and encoding, VDI applications and image processing equipment
- Full-height, half- (1x E3) or full-length (2x E3) PCI Express form factor
- Up to 4 HD HEVC transcode streams per card
- Up to two (2) 4KP30 HEVC encode streams per card
- PCI Express Gen3 x4 or dual x4 per CPU



### SharpStreamer™ Pro PCIE-7211

***High Density Video Processing Accelerator***

- Dual Intel Xeon E3-1585L v5 3GHz CPU
- PCIe Gen 3 x4 or dual x4 per CPU
- On-board SSD 32-128GB
- I210 interface
- H.264 and HEVC 10-bit supported
- Ideal for HEVC hybrid encoder



### PCIE-6001 & 6002

***NVMe M.2 Payload Cards***

- PCIE-6002 card provides up to four independent SSD modules (sold separately)
- Can be directly attached to any server CPU or up to four CPUs on MaxCore™ server cards
- PCI Express Gen3 x8 (6002) or x16 (6001)

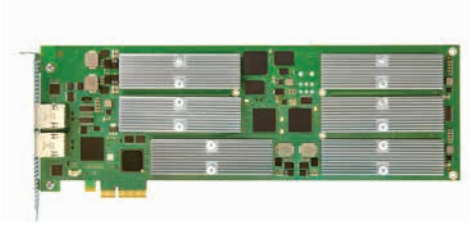
*Artesyn's PCI Express server accelerators maximize the density of your network through voice and video media acceleration designed for standard servers and appliances.*



## SharpServer™ PCIE-7410

***MaxCore™ Server Card***

- Dual Intel® Xeon® D processor card for dense microserver applications
- Full-height, full-length PCI Express form factor, single slot
- One or two 8-core Intel Xeon D-1541 or 12-core Intel Xeon D-1567 processors
  - Up to 64GB DDR4 per processor
  - Up to 4x PCI Express Gen3 x4
  - Local Flash mass storage per processor
  - 2x 1Gbps Ethernet to optional internal Ethernet infrastructure
- USB, Reset, & COM port per processor
- Software support includes:
  - Linux KVM
  - Intel® DPDK
  - Multi-host PCI Express I/O virtualization



## SharpMedia™ PCIE-8120

***Media Processing Accelerator***

- High performance media processing core on power-efficient DSPs
- Full-height, full-length PCI Express card with x4 interface, single slot
- Optional 2 x GbE ports (RJ-45) with NAT function for direct network attachment providing server offload
- Comprehensive voice and video processing firmware and programmers interface included
- Support for 720p and 1080p video conferencing
- Designed for NEBS Level 3 and ETSI telecom standards compliance when used in a suitable carrier grade enclosure
- Supports Opus (used by WebRTC) and SILK (used by Skype) and EVS audio codecs



## SharpNIC™ PCIE-9205

***MaxCore™ Intelligent Network Interface Card***

- High performance I/O card for high bandwidth applications
- Full-height, full-length PCI Express form factor, single slot
- Intel® Ethernet Multi-host Controller FM10840
  - 2x QSFP28 for up to 200Gbps I/O bandwidth
  - PCIe 3x16 ~100GbE aggregated system bandwidth
- Software support includes:
  - L2/3 switching
  - Load balancing
  - Virtual switch
  - OpenFlow via Open vSwitch and OVSDB
  - OpenStack software on LBaaS agent and
  - DPDK
- Intel® Xeon® D-1541 processor
  - Up to 64GB DDR4
  - PCI Express Gen3 x8 connection to FM10840 switch



*For complete product specifications, go to* ***www.Artesyn.com/computing***

# High Density Acceleration Platforms

## MaxCore™ Platform Product Family

The MaxCore™ family of platforms offers a unique and flexible platform utilizing either Artesyn or third-party off-the-shelf PCI Express cards to create systems with incredible flexibility and scalability. The MaxCore product family offers a range of flexible platforms that can be configured with the precise compute, network, acceleration, and storage resources to meet a range of applications.



### MaxCore™ 3000 Platform

***Designed for data center environments, providing15 PCIe slots and featuring multi-host & multi-domain capability, and the ability to share PCIe cards***

***Key use cases include:***

- Video transcoding – providing up to 16 times more H.264 OTT channels per RU than traditional rackmount servers
- VoLTE transcoding – providing up to 30,240 G.711 => AMR WB voice transcodes in 3U of rack space
- Industrial – software-defined industrial control platform
- vRAN & C-RAN – C-RAN—virtualizing the RAN with built-in mobile edge computing (MEC) capability

***Product features:***

- Flexible and configurable PCIe fabric for up to 15 PCIe cards
- 3U x 508mm for 19" racks
- Up to 150 Watts per slot
- Redundant hot swappable power and cooling
- 4x 2.5" drive bays and 4x 10GBaseT
- SharpServer™ Intel® Xeon® D microserver cards
- SharpNIC™ dual 100G intelligent NIC with vSwitch offload
- Media transcode accelerator options



### MaxCore™ IPC Platform

***Designed to address a wide range of industrial applications; hosts up to 15 PCIe cards around a single x86 server class CPU motherboard***

***Key use cases include:***

- Industrial data acquisition
- Edge server aggregating a range of network protocols and functions
- Machine vision and data storage
- Low cost video transcoding platform
- Video surveillance and analytics

***Product features:***

- 15 PCI Express slots to provide flexibility to address a wide range of applications
- Single 4-core Intel® Xeon® Processor D CPU
- Four (4) DDR4 DIMM slots
- Integrated PCI Express Gen 3.0 switch to provide flexible connectivity between the PCIe slots and processor
- 3U x 508mm for 19" racks
- Up to 150 watts can be provided for each slot
- Integrated 1100W AC power supply with capacity to include up to three (3) 1100W supplies for redundancy



### MaxCore™ Micro Platform

***Low cost, compact form factor enterprise class platform in a versatile 2-slot PCIe platform, configurable for a wide range of applications***

***Product features:***

- Supports two PCIe Gen 3 full-height full-length slots
  - Slot 1: Artesyn host server card
  - Slot 2: Supports Artesyn or 3rd party PCIe cards
- ConnectX-4 multi-host network interface card (NIC)
  - Up to four Intel® Xeon® processor D or E3 CPUs
  - Switched 1/10/25 GbE connectivity between I/O ports and all CPUs
- Slot 1 access to two optional 80mm SATA M.2 SSDs
- Onboard BMC for system management
- Mechanical dimensions: 1.5U (H) x 145mm (W) x 450mm (D)




### MaxCore™ MC1600 Platform

***Extreme Edge server designed to provide high performance compute capability in remote cabinet environments***

***Product features:***

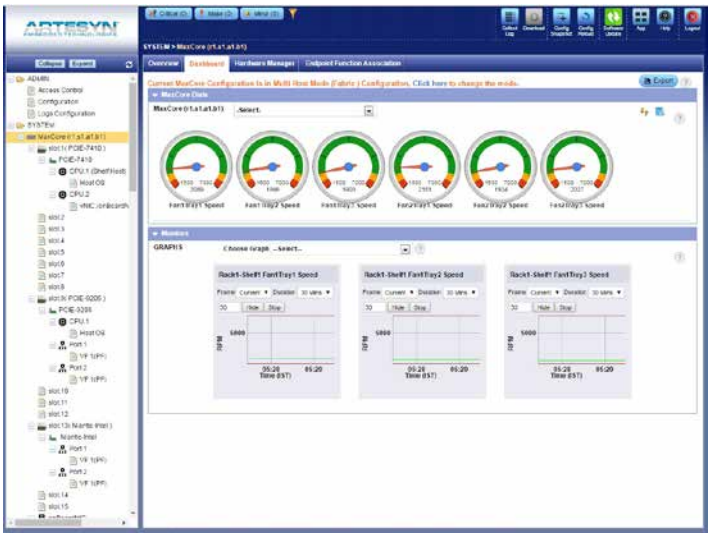
- 1RU x 300mm x 19" chassis
- Single or dual Intel® Xeon® processor D 4-, 8- or 12-core 2.1GHz CPUs
- PCIE Gen3 PCIE card slot , full-height, 3/4 length
- Broadcom 8 X 10 GbE L2 switch w/ SyncE support
  - 5x 10GbE ports
  - 2x 1GbE ports
- Up to 3x M.2 SSD storage devices
- Onboard BMC for system management
- Air inlet operating temperature -40°C to + 65°C
- Side-to-side cooling for remote deployments



*For complete product specifications, go to* ***www.Artesyn.com/computing***

### System Services Framework (SSF)

System Services Framework (SSF) is a centralized management system to configure and monitor software and hardware components in a single system or an array of multiple systems. A graphical user interface provides a quick and easy view of system configuration, events and alarms as well as providing a means of configuring switches, configuring boards and managing system access. XML and command line interfaces are also provided so user applications have access to the rich assortment of system parameters and controls. SSF provides easy access to Artesyn's ViewCheck™ software, an in-service and out-of-service diagnostic suite.



### Baseboard Management Controller (BMC)

For operational needs a BMC is provided with all Maxcore platforms in accordance with IPMI standards. The BMC monitors power consumption and hardware status for CPUs and board components as well as the state of the network and system. The BMC communicates with the system administrator through an independent 1GbE connection.

## SharpMedia™ Platform

The SharpMedia platform is a carrier grade 2U server powered by up to four SharpMedia PCIE-8120 PCIe processing acceleration engines to accelerate voice and video applications in a standard server. Fully configured, the SharpMedia server can deliver >30,000 channels of G.711 (20ms) <=> G.729AB (20ms) or >20,000 channels of G.711(20ms) <=> AMR NB (20ms). All audio processing software and CODECs are included. Let Artesyn take the worry out of voice processing with a ready to go system!



### SharpMedia™ Platform

***Enables high density voice processing in a 2U rack server appliance.***

***Product features:***

- Single Intel® Xeon® E5-2609 2.50 GHz or dual Intel Xeon E5-2640 2.00 GHz configurations
- Up to 64GB RAM memory, 500GB storage
- Dual 10 Gigabit and dual Gigabit ports
- 1100W AC or DC power supply options
- Configurable for up to four single slot full length full height PCI express cards with x4 interface
- High performance media processing core based on power-efficient DSPs
- Comprehensive voice and video processing firmware and programmers interface included
- Designed for NEBS Level 3 and ETSI telecom standards compliance





# AdvancedTCA® for Defense

AdvancedTCA® is a COTS open standard bladed architecture that meets the requirements for Modular Open Systems Approach (MOSA) in a rugged, compact and power-efficient package. ATCA® technology has a strong history of deployment in military and aerospace applications including shipboard communications and data center consolidation, naval tactical combat systems refresh, airborne reconnaissance, theater command centers, mobile TOCs, ground and airborne battle management systems, net-centric converged solutions for voice, video, and data, and C4ISR. All these programs require dense computing processor blades communicating over a 10G/40G integrated network. Working with the industry, Artesyn has developed a line of COTS ATCA products targeted at Defense applications with rugged requirements.

## COTS ATCA® Platform

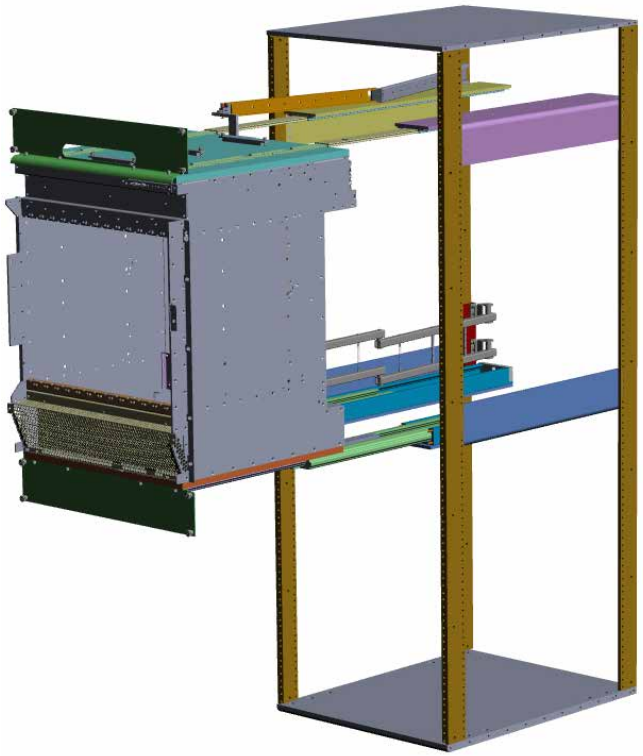
The AXP1440-D is a COTS ATCA® bladed server chassis with ruggedized features appropriate for shipborne or other defense applications. There is a rich, multi-vendor ecosystem of COTS ATCA blades ranging from servers to storage to FPGA.



### AXP1440-D

***14-slot 40G ATCA Ruggedized Chassis***

- Architected for high availability applications
- Ruggedized for harsh environments
  - ½" top and bottom plates added for mounting with heavy duty Jonathan brand rails
  - Hole pattern for cable lockdown
  - Captive mounting screws
  - Screws for blade lockdown to the backplane
- 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



Mounting to support complete extraction from a rack for rear access and maintenance



*For complete product specifications, go to* ***www.Artesyn.com/computing***

## COTS ATCA® Server Blades

The Artesyn ATCA-7540-D server blade brings the Intel® Xeon® Scalable processors (codename Skylake) to ATCA, extending both performance and longevity over existing server blades.



### ATCA-7540-D

***Ruggedized Dual-Star 40G Server Blade***

- Two Intel® Xeon® Scalable processors
- Scalable performance range/ core count
- Up to 384GB main memory DDR4 via 12 VLP DIMM sockets with speeds of 2400 MT/s
- Dual-star 40G Ethernet fabric
- Choice of compatible rear transition modules for I/O and storage options
- Dual on-board M.2 SSD sites
- Optional configuration with crypto offload
- Linux support
- DPDK-ready

The ATCA-7480-D is a COTS dual-processor server blade with an alignment block that enables the blade to be secured in a chassis with captive screws for rugged environments. Careful component choices have been made for an extended product life cycles.



### ATCA-7480-D

***Ruggedized Quad-Star 40G Server Blade***

- Two Intel® Xeon® processors, E5-2600 v3 family
- Scalable performance range with up to 14 cores per processor
- Up to 512GB main memory, DDR4, configurable for highest capacity or cost effective memory configurations
- Large scale on-board solid state storage
- 40G fabric interfaces enabling multiple bandwidth and redundancy options
- Choice of network I/O options supporting 1, 10 and 40G interfaces
- Hardware off-loading functions for en/decryption and compression (optional)
- Hot-swappable mass storage options and RAID 0/1 support
- Suitable for open source and commercial Linux derivatives
- Intel DPDK ready
- Designed for NEBS and ETSI compliance (configuration dependent)

***Artesyn has developed a line of COTS ATCA products targeted at Defense applications with rugged requirements.***

## COTS ATCA® Switch Blade

The ATCA-F140-D is a COTS 40G Ethernet switch blade providing the networking infrastructure for AdvancedTCA® (ATCA®) platforms. The ATCA-F140-D is fitted with an alignment block that enables it to be firmly secured in a chassis with captive screws allowing it to perform in rugged environments.

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.



### ATCA-F140-D

***Ruggedized 40G Switch***

- PICMG® 3.0 compliant base interface switch
- PICMG 3.1 compliant fabric interface supporting 1G, 10G, and 40G
- Supports 12 payload blades
- Single AMC site
- Optional SATA HDD or SSD
- Integrated software package
- Designed for NEBS/ETSI compliance



*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 Solution Services group.

AdvancedTCA®

## 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. For unique configurations, Artesyn is certified to do NEBS testing in-house and we offer a range of testing and certification services.



### Centellis® 4440

***14-slot 40G ATCA System with Integrated Redundant Switches***

- 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 payloads available
- Advanced platform management software and load a sebalancing software options
- Designed for NEBS/ETSI compliance
- Popular configurations pre-certified for NEBS Level 3
- NEBS certification services available
- PICMG® 3.1 ATCA high performance switch fabric capable of 1, 10 and 40Gbps operation
- Cooling and power for up to 350W per slot and CP-TA B.4 compliance




## AdvancedTCA® Shelves

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® 2100

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

- Power & cooling for up to 400W per slot, or 500W single slot and enhanced forced-air cooling
- Supports highest performance server, packet processing and media processing blades
- Architected for high availability applications
- Two slots with rear transition module capability for each slot
- Direct cross-connect circuitry for the 1, 10, and 40G backplane fabric
- Advanced platform management software options
- Front-to-rear cooling
- AC and DC power configurations available
- Two user slots for OEM customization
- NEBS certification services available
- PICMG® 3.1 ATCA high performance switch fabric capable of 1, 10 and 40Gbps operation



### Centellis® 2640

***6-Slot 40G ATCA System with Front-to-Rear Cooling***

- 6-slot, 7U, 19" form factor
- AC and DC power input options
- Front-to-rear cooling
- Integrated Telco Alarm functionality
- Front and rear cable management
- CP-TA B.4 compliant thermal performance
- Up to 350 Watts/blade power distribution
- Designed for NEBS/ETSI compliance (DC variants only)

## 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-7540

***Dual-star 40G Server Blade***

- Two Intel® Xeon® Scalable processors
- Up to 384GB main memory DDR4 via 12 VLP DIMM sockets with speeds of 2400 MT/s
- Dual-star 40G Ethernet fabric
- Choice of compatible rear transition modules for I/O and storage options
- Dual on-board M.2 SSD sites
- Optional configuration with crypto offload
- Linux support
- DPDK-ready



### ATCA-7490

***100/40G Packet Processing/Server Blade***

- High bandwidth Ethernet switching between CPU complex, I/O and backplane
- Two Intel® Xeon® processors, E5-2600 v4 family, up to 20 cores per CPU
- Local load balancing and filtering
- Hardware off-loading functions for en-/decryption and compression
- Choice of network I/O options supporting multiple 10, 40 and 100G interfaces
- Four independent 40G network interfaces for uncompromised throughput into backplane
- Maximum 512GB DDR4 memory
- On-board solid state disk with large capacity
- Supports Intel® DPDK and industry-leading Linux operating systems
- Designed for NEBS and ETSI compliance (configuration dependent)



### ATCA-7480

***40G Packet Processing/Server Blade***

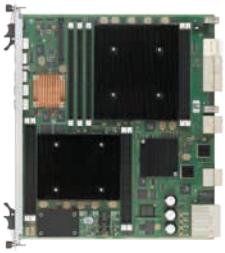
- High performance processor and memory configurations
- Two Intel® Xeon® processors E5-2600 v3 family with up to 14 cores per CPU
- Up to 512GB main memory
- Optional on-board high capacity SSDs
- Dual/dual star fabric interface with 80Gbs usable bandwidth
- Wide range of rear transition modules supporting hot-swappable hard disks and high-gig network options
- Powerful crypto acceleration option
- Designed for NEBS and ETSI compliance
- Selected configurations suitable for commercial ambient temperature ratings
- Supports Intel® DPDK and industry-leading Linux operating systems



### 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

***40G Packet Processing Blade***

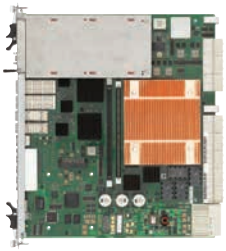
- Two Cavium OCTEON II CN6880 multi-core MIPS64 processors with up to 128GB DRAM
- Ethernet switch connecting all rear I/O, backplane I/O and OCTEON processors with L2 and L3 switch management software
- Local NXP QorIQ dual-core blade management processor
- Rear transition module with 8x 10GbE plus 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

***Artesyn packet processor products offer application-ready platforms for signaling and call control, network gateway and edge functions, deep packet inspection and security processing.***



## 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 2.5 inch SATA SSD or HDD
- Optional Telecom clocking support
- Integrated SRstackware™ switching and routing software
- Optional FlowPilot™ packet balancing software
- 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 2.5 inch SATA SSD or HDD
- Optional Telecom clocking support
- Integrated SRstackware™ switching and routing software
- Designed for NEBS/ETSI compliance



### PrAMC-7311

***Advanced Mezzanine Card***

- Intel® Core™ i7 processor running at 2.2 GHz
- 4GB and 16GB memory options, ECC protected, DDR3
- Basic blade services for hardware platform management
- 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

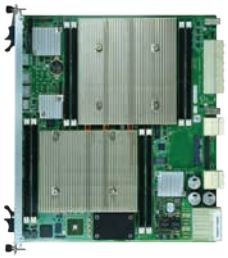
Artesyn is committed to closely following the Intel® Embedded Platform Roadmap for ATCA® server blades. Look for Artesyn to deliver best-in-class performance featuring high-end dual Intel® Xeon® processors, and extreme memory capacity for demanding applications like subscriber databases and video-on-demand 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 a 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-7480-L

***10/40G Server Blade***

- Cost-efficient processor and memory configurations
- Two 8-core Intel® Xeon® processors E5-2618L v3 (2.3 GHz)
- 64GB, 128GB, 256GB memory options
- Redundant 10/40GbE capable ATCA fabric interface
- Optional on-board high capacity SSDs
- Interoperable with wide range of RTMs supporting hot-swappable hard disks, network options and crypto acceleration
- Designed for NEBS and ETSI compliance
- Supports Intel® DPDK and industry-leading Linux operating systems



### ATCA-7370

***10G 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

AdvancedTCA®

# VMEbus COTS Products

As part of the group of innovative companies that invented the VMEbus technology over 35 years ago, Artesyn has consistently worked to enhance and extend VMEbus technology. This process continues with VXS and 2eSST technologies which boosts the performance and capability of VMEbus technology while maintaining compatibility with existing systems over long product life cycles. Multi-core processors in our latest VME boards and ruggedized, extended temperature boards are just two of the other ways in which we are continuing to push the boundaries of performance and flexibility.

Artesyn products compliant with VME standards are supported by our industry alliance members – specialist companies that can tailor VME-based solutions to fit your application. This ecosystem, together with a worldwide sales and support network, helps to rapidly integrate the optimum solutions into customer end applications.

Artesyn will continue to be committed to its industry-leading track record of cost performance, quality, and longevity of supply. As a testament to its commitment, Artesyn has been investing heavily in its VME offerings and has secured a number of critical EOL components, including the Tsi148 VME to PCI-X chip, to ensure that it can continue to offer an extensive portfolio of VME boards up to 2025.



## MVME8105

- NXP® QorIQ® P5020 processor (2.0 GHz)
- 4GB DDR3-1333 MHz ECC memory soldered down
- 512KB MRAM
- Two (2) PMC/XMC sites
- Embedded NAND Flash (8GB eMMC)
- Up to two (2) USB 2.0 ports
- Up to three (3) Ethernet ports (two ports on front panel)
- Up to five (5) Serial ports
- Two (2) GPIO pins



## MVME8110

- NXP QorIQ P5010 processor (1.2 GHz)
- Up to 4GB DDR3-1200 MHz ECC memory
- 512KB MRAM
- Two (2) PMC/XMC sites
- Embedded NAND Flash (8GB eMMC)
- Up to three (3) USB 2.0 ports
- Up to three (3) Ethernet ports
- Up to five (5) Serial ports
- Two (2) GPIO pins



## MVME8100

- NXP QorIQ P5020 processor (1.8/2.0 GHz)
- Up to 8GB DDR3-1333 MHz ECC memory
- 512KB FRAM
- Two (2) PMC/XMC sites
- Embedded NAND Flash (8GB eMMC)
- 2 x 4 PCIe or 2 x 4 SRIO connectivity to VXS backplane P0
- Up to three (3) USB 2.0 ports
- Up to five (5) Ethernet ports
- Up to five (5) Serial ports
- Four (4) GPIO pins
- Extended temperature and conduction cooled variants



## MVME2500/2502

- NXP QorIQ P2010 or P2020 processors (800 MHz or 1.2 GHz)
- 1GB or 2GB DDR3-800 ECC memory soldered down
- Three (3) on-board Gigabit Ethernet interfaces (one front, one rear, one configurable by customer to front or rear)
- Five (5) Serial ports
- One (1) USB 2.0 port
- One (1) PCM/XMC site
- Optional rear transition module
- Hard drive mounting kit available
- Extended temperature (-40 °C to +71 °C) and rugged variants
- MVME2502 - 2 PMC variant



## MVME7100

- NXP MPC864xD system-on-chip processsor with dual PowerPC® e600 processor cores
- Up to 2GB of DDR2 ECC memory, 128MB NOR Flash and 2, 4 or 8GB NAND Flash
- USB 2.0 controller for integrating cost-effective peripherals
- 2eSST VMEbus protocol with 320MB/s transfer rate across the VMEbus technology
- Dual 33/66/100 MHz PMC-X sites for expansion via industry standard modules
- x8 PCI Express expansion connector for PMC-X and XMC expansion using XMCspan
- Extended temperature variant (-40 °C to +71 °C)

***A combination of high performance, rugged, modular construction and broad industry support makes Artesyn VMEbus compliant products ideal to address the needs of OEMs serving embedded computing markets.***





## MVME6100

- MPC7457 PowerPC processor (up to 1.267 GHz)
- 128-bit AltiVec® coprocessor for parallel processing
- Up to 2GB of on-board DDR ECC memory
- 128MB of Flash memory
- 2eSST VMEbus protocol with 320MB/s transfer rate across the VMEbus technology
- Two 33/66/100 MHz PMC-X sites
- Dual GbE interfaces for high performance networking



## MVME5500

- MPC7457 PowerPC processor (1GHz)
- 512KB of on-chip L2 cache and 2MB of L3 cache
- AltiVec coprocessor for high-performance computational applications
- Two banks of soldered Flash memory (32MB and 8MB)
- Dual independent 64-bit PCI buses and PMC sites with a bus speed of up to 66 MHz
- Gigabit Ethernet interface plus an additional 10/100BaseTX Ethernet interface
- 64-bit PCI expansion mezzanine connector allowing up to four more PMCs
- I/O compatibility with MVME51xx family
- Support for processor PMCs (PrPMCs)



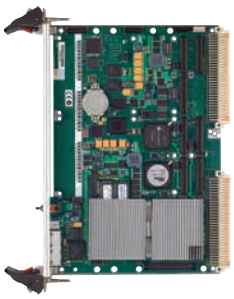
## MVME4100

- NXP MPC8548E system-on-chip processsor (1.3 GHz)
- 2GB of DDR2 ECC memory, 128MB NOR Flash and 4GB NAND Flash
- 512KB of MRAM
- 2eSST VMEbus protocol with 320MB/s transfer rate across the VMEbus technology
- Four (4) Gigabit Ethernet ports
- Five (5) Serial ports
- One (1) USB 2.0 port on front panel
- Dual 33/66/100 MHz PMC sites
- 8x PCI/PCI-X expansion connection to support Artesyn XMCspan carrier



## XMCspan

- Single-slot 6U VMEbus format
- PLX PEX8533 PCI Express 6-port switch
- Tundra Tsi384 PCI Express to PCI-X interface bridges
- Support for two single-wide, or one double-wide XMC or PMC per XMCspan
- Stacking capability
- Front-panel I/O
- Single 4-lane interface with P15 connector for XMCs
- Injector/ejector handles per VME64 extensions
- Compatible with Artesyn's MVME7100 and MVME4100 VMEbus SBCs



## MVME3100

- NXP MPC8540 system-on-chip processsor (667/833 MHz)
- Up to 512MB of DDR333 ECC memory
- 2eSST VMEbus protocol with 320MB/s transfer rate across the VMEbus technology
- Two (2) Gigabit Ethernet ports plus an additional 10/100BaseTX port
- One (1) USB 2.0 port on front panel
- Two (2) SATA ports
- Dual 33/66/100 MHz PMC-X sites

VMEbus Technology™

# COM COTS Products

Computer-on-Modules (COMs) are highly integrated single-board computers that provide the core functionality of a system, allowing application-specific features to be designed onto a carrier board creating a semi-custom embedded PC solution. Artesyn COM products feature NXP QorIQ communications processors and are ideal for a broad range of industries including medical, retail, automation, test and measurement, transportation and renewable energy. Based on long-life embedded silicon, Artesyn's high quality, stable COM products are delivered from outstanding manufacturing facilities and are backed by our global service presence.

COM Express®



## COMX-T2081

***QorIQ T2081Module***

- NXP T2081 high performance e6500 CPU core
- Soldered down 8G DDR3L ECC memory
- 10/100/1000 BASE-T, SGMII and PCIe interfaces to carrier board
- Rugged design to support extended operating temperature and vibration
- Basic size form factor (95 mm × 125 mm)
- Linux 4.1 kernel and NXP® QorIQ® SDK 2.0
- Longevity of supply



## COMX-P2020

***QorIQ P2020 Module***

- NXP QorIQ P2020 processor
- Two e500 Power Architecture cores running at 1.2 GHz
- On-board XGI Z11M Graphics Processor Unit (GPU)
- Supports up to 2GB DDR3 ECC SO-UDIMM
- 95 mm x 95 mm compact footprint
- MicroSD card slot for on-board storage



## COMX-P40x0-ENP2

***Ruggedized QorIQ P4040 or P4080 Module***

- NXP QorIQ P4040 or P4080 processor (1.2 GHz)
- 2 or 4 GB of soldered-down DDR3-1333 ECC memory
- 95 mm x 125 mm COM Express Basic footprint
- -40 °C to +71 °C operating temperature range
- Shock and vibration hardened
- 16 configurable SERDES lanes available for maximum flexibility



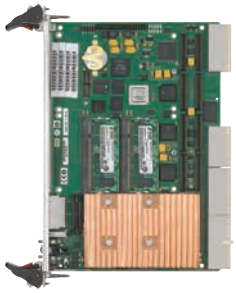
## COMX-P4080

***QorIQ P4040 or P4080 Module***

- NXP QorIQ P4040 or P4080 processors
- Four or eight Power Architecture cores running at 1.5 GHz
- Supports two channels of 2GB DDR3-1333 ECC SO-UDIMM (4GB max.)
- 95 mm x 125 mm COM Express Basic footprint
- 12 configurable SERDES lanes available for maximum flexibility

# CompactPCI® Products

CompactPCI® technology offers the performance and processor independence of the PCI bus in a rugged, modular Eurocard form factor, creating a robust embedded computing technology that is ideal for telecommunications, industrial control and imaging applications.



## CPCI6200

***PICMG 2.1/2.16 Processor Board***

- NXP MPC8572 (1.3 or 1.5 GHz) dual-core integrated processor
- Integrated north bridge in the processor
- 2GB or 4GB ECC-protected DDR3-800 memory
- Four on-board Gigabit Ethernet interfaces
- Two Serial ports; one USB 2.0 port
- Two PCI-X/PCI mezzanine card (PMC) site
- PLX6466 PCI-to-PCI bridge technology



# Solution Services

As an industry leader in computing platforms for various markets – including communications, broadcast, audio and video optimization, rail transportation, military and aerospace – we have a deep knowledge of our customers, their diverse markets, product applications and environments. Artesyn's suite of services for our embedded computing products are designed around our customer's product life cycle and allows us to deliver critical services and support when and where they are needed. We can also create specialized service offerings for your specific product or industry requirements.



## Global Possibilities

Thanks to our extensive worldwide network of logistics facilities and design centers, we can deliver services where you need them. Service programs can be customized and tailored to specific geographic needs depending on the technology deployed, support requirements and product life cycle. As global product support becomes more complex, we help simplify your service chain to insure success wherever your customers are located.

## Seamless Life Cycle Support

The Solution Services portfolio focuses on four service offerings based on typical product development and life cycles; Design, Testing, Deployment and Renewal. Design Services can help you minimize design time and speed your new products to market. Testing Services ensure your products meet all the requirements for your target markets. Deployment Services can help you identify and resolve technical issues, address product availability challenges to ensure high availability and reliability, as well as integrate your products efficiently and cost effectively. Renewal Services provide long-term product and support options and can help you to achieve a smooth transition between generations of products.

## Design Services

During product design and development, your team is faced with integrating an increasingly complex array of technologies into a comprehensive solution. Our Design Services can help to reduce this complexity, while compressing development cycles and provide rapid commercialization of new technologies.

- Development Consulting
- Development Support
- Engineering Support

## Test & Certification Services

We offer comprehensive testing and certification capabilities to ensure your products meet all the necessary standards and identify specific areas for optimization. Our test and certification capabilities also extend into other third-party products and even unrelated products in outside industries that can leverage our capabilities on a project basis.

- Radiated & Conducted Emissions
- Immunity
- Full NEBS Qualification
- Accelerated Life Testing (ALT)
- International Standards
- Product Safety

## Deployment Services

Deployment Services are designed to protect your product investment after release to your customers or markets. We offer an extensive array of services applicable to your product deployment phase. We provide complete offerings in every phase of the support chain that include product repair, technical support, supply chain services, revision management, and logistics services, that may be necessary to maintain your product in the field.

- Technical Support
- Expedited Spares
- Factory Integration
- Logistics Programs
- Product Warranties
- Repair Services
- Revision Management
- Root Cause Analysis

## Optimization - Renewal Services

As your product moves into the mature stage of its life cycle, you may be faced with challenges that include long-term support for customers not ready to move to newer products, finding ways to increase the current product's performance and/or functionality, as well as migrating legacy applications and functionality to new platforms. With our Renewal Services, we have solutions for each of these challenges.

- Platform Technology Insertion
- Product Migration Consultation

***Our Solution Services portfolio extends your reach by enabling you to seamlessly deliver global services to your customers in all phases of their product life cycle.***



## Local Support

Our regional sales offices are ready to provide expert local applications and sales support. In addition, an extensive network of manufacturers' representatives and distributors bring our products to you.

Please call for locations of sales offices near you or visit our website at **Artesyn.com/computing**.

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