

## MaxCore™ Micro

### Versatile Compute and Acceleration Platform

#### Preliminary Data Sheet

*The MaxCore™ Micro is a low cost, versatile platform ideal for a wide range of applications*

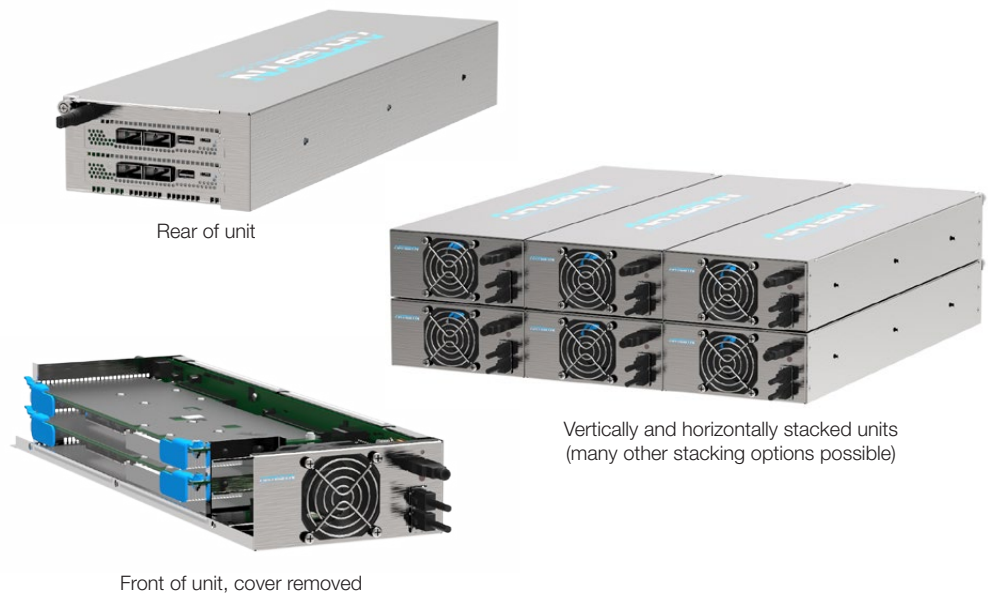
- **Supports two PCIe Gen 3 FHFL slots**
  - Slot 1 must be an Artesyn host server card
  - Slot 2 supports Artesyn or 3rd party PCIe cards
  - Switchless PCIe connectivity between the slots at up to 100Gbps
  - Up to 150W per slot
- **Slot 1 access to two optional 80mm SATA M.2 SSDs**
- **Mechanical dimensions: 1.5U (H) x 145mm (W) x 450mm (D)**
- **External PSU delivers up to 330W**
- **High-efficiency fan with tachometer control based on temperature sensor**
- **User panel**
  - Dual RJ45 10GbE Ethernet ports available when using 2 Artesyn MaxCore server cards
  - Single USB port
  - Power and reset buttons
  - SYS OK LED

The Artesyn Embedded Technologies MaxCore™ Micro is a low cost, compact form factor enterprise class platform. The versatile 2-slot PCIe platform is configurable for a wide range of applications including:

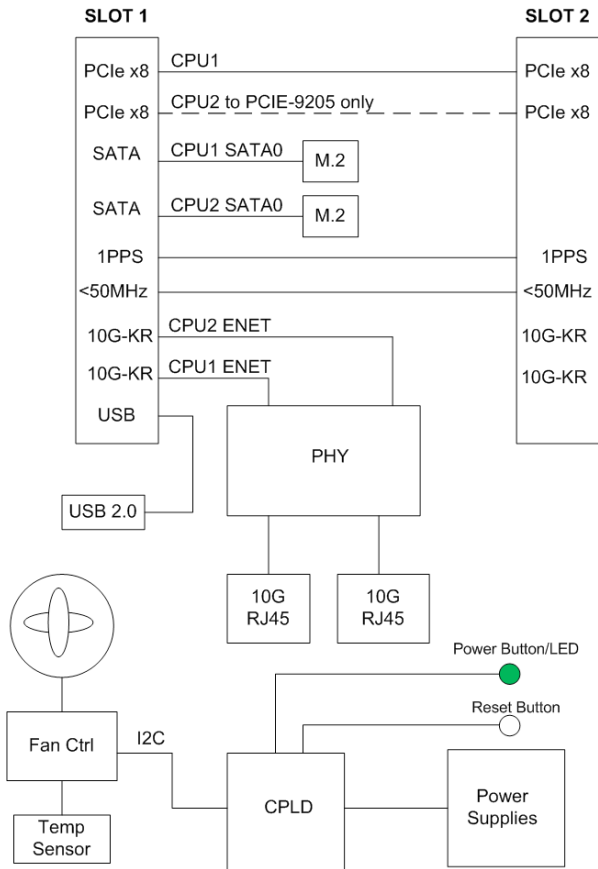
- Scalable base band hotel for small cells
- Scalable video streaming and encoding platform
- Video surveillance and monitoring platform
- Industrial PC
- High performance “Bump-in-the-Wire” appliance

The form factor will allow three (3) MaxCore Micro chassis to be fitted side by side in a 19” rack. Alternately each chassis can stand alone as a complete microserver with one application specific add-in card. This compact form factor brings many benefits:

- Minimal infrastructure cost keeps it very economical
- Two standard PCIe slots allows it to be configured for a nearly infinite range of use cases using off-the-shelf cards from Artesyn or 3rd parties
- A power budget of 150W / slot enables the use of cards that provide as many as 48 Intel® Xeon® D cores per compact box
- Stackable horizontally and vertically allowing it to be mounted in wide range of environments from 19” rack to wall-mount



## Internal Chassis Architecture



## Chassis Features

### PCIe

- Slot 1: Artesyn server card with one or two CPUs
- Slot 2: Any single-wide PCIe card; Eight (8) lanes of a 16-lane connector are connected
  - Alternatively for Artesyn PCIE-9205 with x8 PCIe connection to both CPUs in Slot 1
  - Please contact Artesyn for use of second CPU card

### Ethernet Connectivity

- Dual 10G RJ45 connections to CPU1 of Artesyn server cards
- Single 10G backplane connection between the slots when using Artesyn MaxCore server cards (requires software)

### Storage

- Optional dual 80mm M.2 SSDs for each CPU in Slot 1

### Electromechanical

- External power supply up to 330W, supporting up to 150W per slot
- High-efficiency 60mm fan with temperature sensor-based tachometer control
- Mechanical dimensions: 1.5U (H) x 145mm (W) x 450mm (D)
- Mounting mechanism that allows chassis to be stacked horizontally or vertically for a variety of environments from 19" rackmount to wall-mount

## MaxCore Micro Card Combinations

		Slot 2							
		PCIE-7205	PCIE-7207	PCIE-7210-1	PCIE-8120	PCIE-9202	PCIE-9204	PCIE-9205	3rd Party Card
Slot 1	PCIE-7410-1	x4	x4	x4	x4	x8	x8	x8	x8
	PCIE-7410-2	x4	x4	x4	x4	x8	x8	Dual x8	x8
	PCIE-7410-22	x4	x4	x4	x4	x8	x8	Dual x8	x8
	PCIE-7210-2			x4	x4	x8	x8	Dual x8	x8

Notes:

Above table details the connectivity between cards. All configurations are single channel PCIe except where noted. Use of a Slot 1 server card in Slot 2 requires validation based on using non-transparent bridge mode.

### Artesyn MaxCore Micro Small Cell Use Case

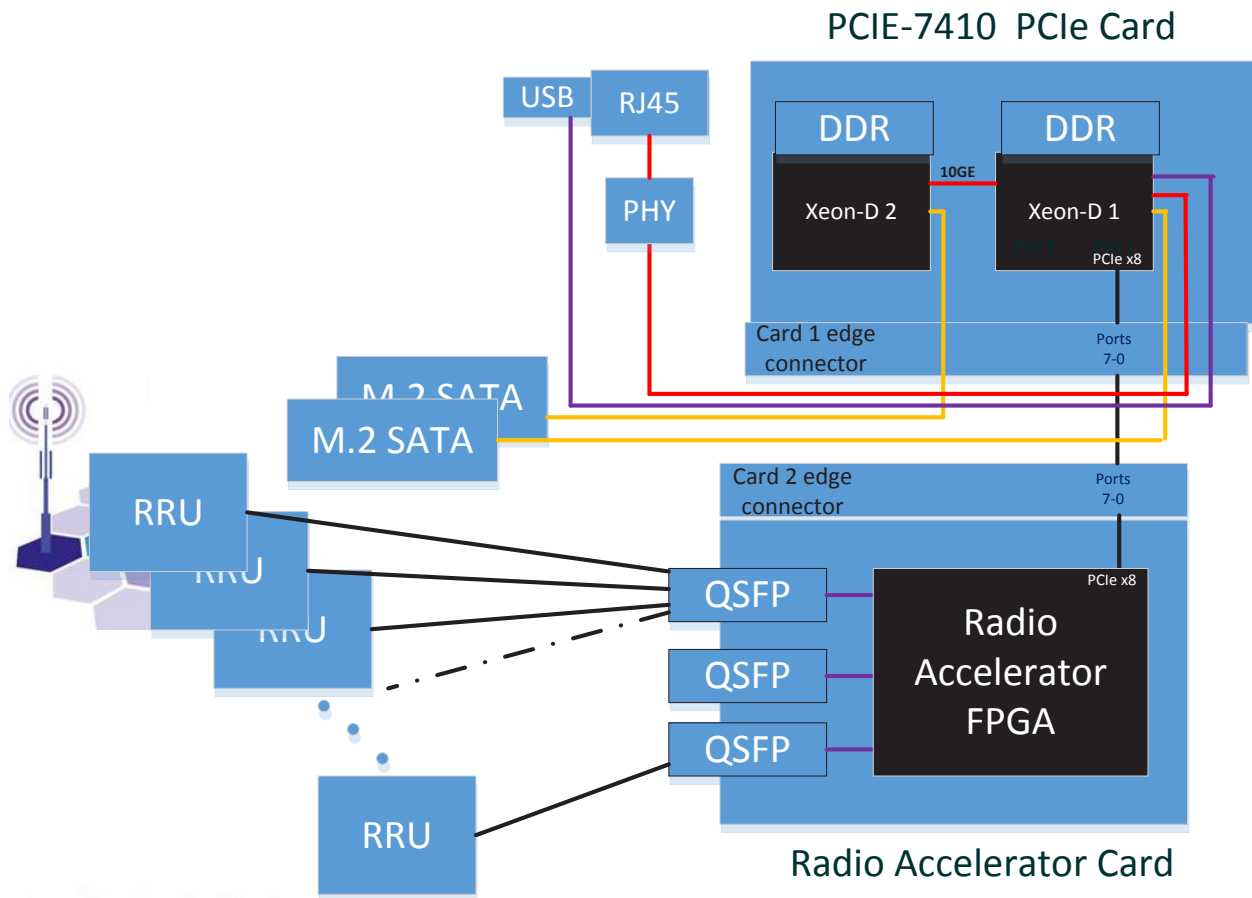
The MaxCore™ Micro platform can be used to construct a small cell VRAN digital Baseband Unit (BBU). Populating the Artesyn MaxCore single or dual Intel® Xeon® D processor card into Slot 1 provides the compute resources to run the LTE L1 thru L3 including transport stack. Connectivity to the Remote Radio Units (RRUs) and Backhaul can be achieved through a 10GbE connection on the front of the chassis or by populating a second PCIe card into Slot 2. This same card can also optionally support radio acceleration offload.

The PCIe-7410 host card supports up to two Intel Xeon D MicroServer CPUs each with 12 cores running at 2.1GHz. To create a centralized BBU, the host card can be combined with an FPGA radio accelerator card in Slot 2. The FPGA card provides I/O connectivity to RRUs as well as optionally offloading lower level LTE PHY functions.

Optionally, a pair of PCIe-7410 cards in single or dual 8-core or 12-core configuration can be populated, providing from 4 to 48 x86 cores in the chassis while holding power dissipation under 300W. Note: Use of a pair of server cards requires operation of Intel Xeon D processor pairs in Non-Transparent Bridge Mode and appropriate software.

The figure below shows 50Gbps connectivity between the PCIe-7410 card and the Radio Accelerator card. The two Intel Xeon D CPUs are connected via a private 10GbE connection. A direct 1/10GbE Ethernet connection is available on the chassis front panel for direct connection to Intel Xeon D CPU1. Also a USB connection is available to the PCIe-7410 card.

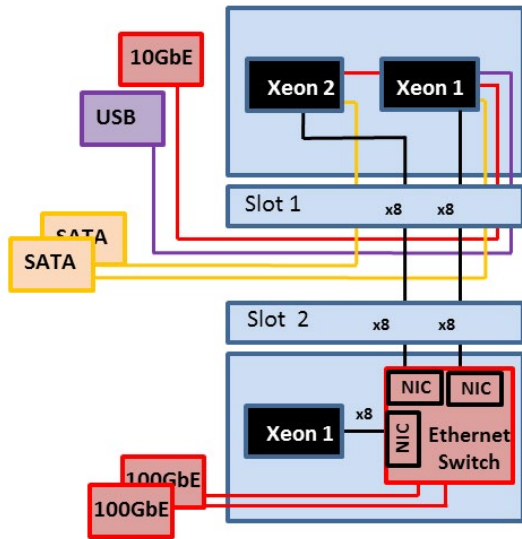
Each PCIe-7410 CPU in Slot 1 has a SATA connection to an optionally populated 80mm M.2 SSD.



Additional Artesyn MaxCore Micro Use Cases

### Bump-in-the-Wire Device

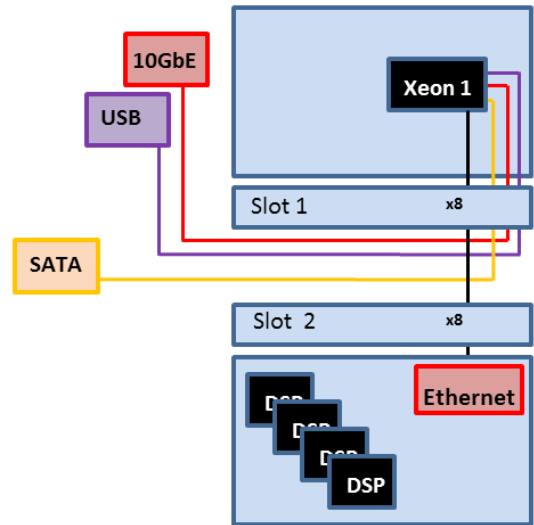
PCIE-7410-2 Server Card



PCIE-9205 Switch Card

### Voice Transcoder

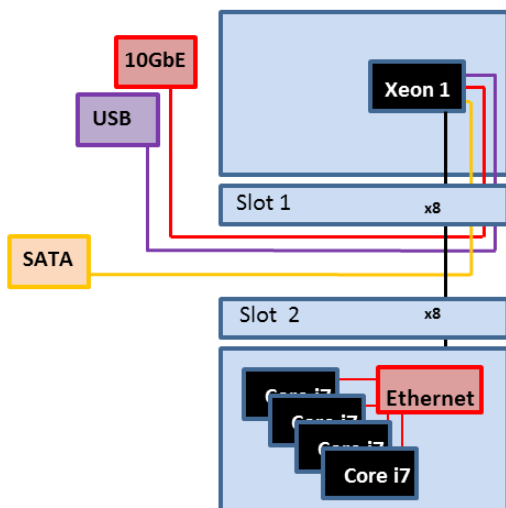
PCIE-7410-1 Server Card



PCIE-8120 Voice Card

### Video Surveillance and Monitoring

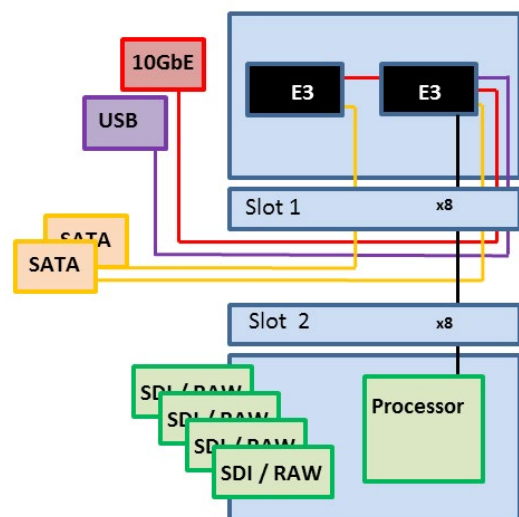
PCIE-7410-1 Server Card



PCIE-7207 Video Card

### HEVC Video Encoder Optical Inspection

PCIE-7210-2 Server Card



Frame Grabber / Capture Card

## Artesyn MaxCore Host PCI Express Cards

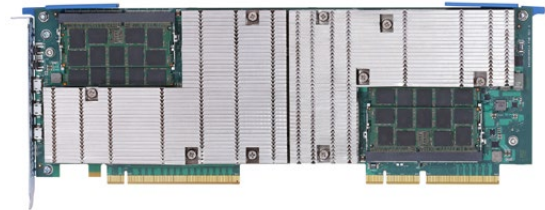
### SharpServer™ PCIe-7410 Features

- One Intel® Xeon® D-1521 (4-core) or two Intel Xeon D-1541 (8-core) or two D-1567 (12-core) processors
  - Up to 64GB DDR4 per processor (128GB per card)
  - Up to 4x PCI Express Gen3 x4
  - 2x 1Gbps Ethernet to optional internal Ethernet infrastructure
  - Local Flash mass storage per processor
- 1x USB per processor
- COM port access (serial console) per processor
  - USB connection to simplify debugging
- Software includes Linux KVM, Intel® DPDK support, multi-host PCI Express I/O virtualization support



### SharpStreamer™ Pro PCIe-7210 Features

- Up to eight (8) HEVC 1080p30 transcodes
- Dual Intel® Xeon® E3-1578Lv5 GT4e-enabled scalable video processing engines
  - 2x DIMMs per CPU, up to 32GB per CPU
- Up to 32 AVC 1080p30 transcodes
- Up to two (2) 4KP30 HEVC encode streams per card
- Network bootable reference OS: Centos 7.x
- Intel® MSS, optional transcoding software
- Common hardware for different applications:
  - H.264/AVC & H.265/HEVC transcoding and encoding
  - VDI applications
  - Image processing equipment



## Possible Chassis Configurations



Side-by-side configuration in a 19" shelf



Stacked/side-by-side configuration in a 3U, 19" shelf



Stacked configuration

**Ordering Information**

<i>Product Family</i>	<i>Part Number</i>	<i>Description</i>
<b>MaxCore™ Micro Platform</b>	MC1500	MaxCore Micro chassis
<b>SharpStreamer™ Card</b>	PCIE-7205-2	SharpStreamer video processing card with 2x dual-core Intel® Core™ i5-5350U CPU
<b>SharpStreamer Card</b>	PCIE-7207-4	SharpStreamer video processing card with 4x dual-core Intel® Core™ i7-5650U CPU
<b>SharpStreamer Pro Card</b>	PCIE-7210-2	MicroServer card with 2x Intel® Xeon® processor E3-1585
<b>SharpServer™ Card</b>	PCIE-7410-1	MicroServer card with 1x 8-core Intel® Xeon® processor D-1521
<b>SharpServer Card</b>	PCIE-7410-2	MicroServer card with 2x 8-core Intel® Xeon® processor D-1541
<b>SharpServer Card</b>	PCIE-7410-22	MicroServer card with 2x 12-core Intel® Xeon® processor D-1567
<b>SharpMedia™ Card</b>	PCIE-8120	SharpMedia media processing card with 12x Octasic 2224 DSP
<b>SharpSwitch™ Card</b>	PCIE-9202	SharpSwitch Intelligent NIC with Intel® FM10840 3x 100GE
<b>SharpSwitch Card</b>	PCIE-9204	SharpSwitch Intelligent NIC with Intel® Xeon® processor D-1521
<b>SharpSwitch Card</b>	PCIE-9205	SharpSwitch Intelligent NIC with Intel® Xeon® processor D-1541

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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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