

SharpStreamer™ Platform 2U Video Transcode Acceleration Appliance

Preliminary Data Sheet

The SharpStreamer™ 2U Platform enables high density voice and video processing in a 2U rack server appliance

*Video Resource Modules
Powered by SharpStreamer
Off-the-Shelf High Density Video
Transcoding Accelerator Cards:*

- Offering the only server-based approach
- No dedicated appliances
- Higher H.264/AVC and H.265/HEVC transcoding density

Configurable for up to four Single slot, full length, full height PCI Express cards with x4 interface

Optional Video on Demand (VoD) and Live / Linear transcoding software



The Artesyn Embedded Technologies SharpStreamer™ 2U platform is a carrier grade 2U server powered by up to four SharpStreamer PCIE-7207 PCI Express video processing acceleration engines to accelerate broadcast and multiscreen OTT video applications in a standard server architecture.

The Artesyn SharpStreamer PCIE-7207 high-density video accelerator enables service provider networks to offer video transcoding services quickly and dynamically. As an add-on card, the SharpStreamer PCIE-7207 offers quick and scalable integration with existing and standard server architectures to meet the demands of ISPs and MSOs who want to use existing servers and cloud infrastructures to support new video transcoding services.

With a focus on the high-density and low power demands of video streaming applications such as OTT streaming servers, mobile network optimization, video conferencing and broadcast equipment, Artesyn employs multiple Intel® GPU accelerated processors in a small and scalable PCI Express card footprint that is easily deployable in off the shelf platforms. Each SharpStreamer PCIE-7207 card is capable of up to 44 streams of 1080p H.264 transcodes.

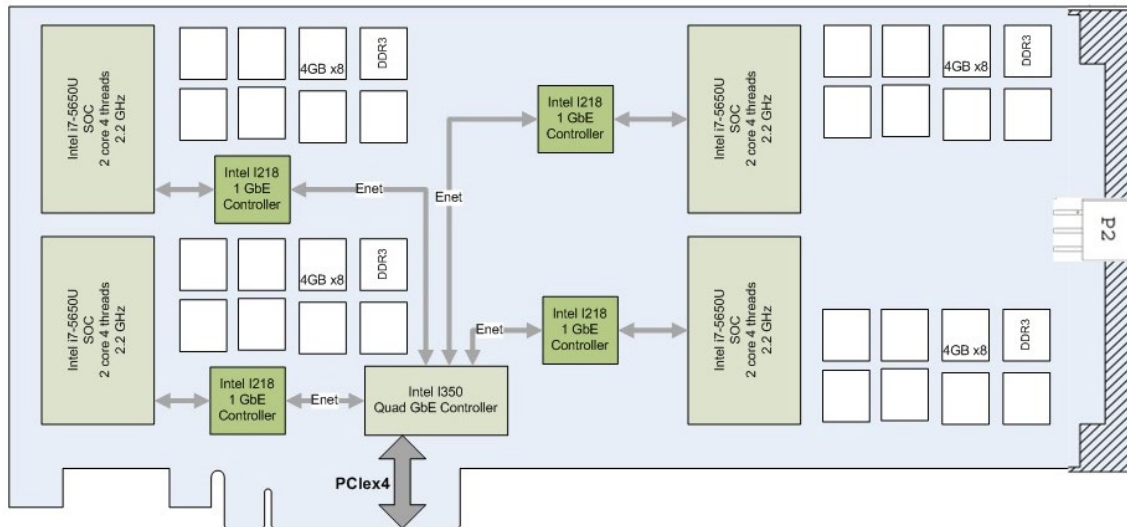
Compared to dedicated appliances, the SharpStreamer solution is more easily deployable, portable, and does not constrain operators to only one type of equipment to monetize OTT streaming content. It also offers network scalability for increased subscribers to pay as you go adding more cards and density from small to large servers as needed. Compared to software-only solutions, the SharpStreamer approach requires far fewer servers with much less operational cost to power video transcoding services.

The SharpStreamer 2U platform offers options for customers who either want to develop their own applications or take advantage of video transcoding application software preconfigured on the SharpStreamer platform. Developers can take advantage of the Software Development Kit comprised of the Intel® Media Server Studio runtime files with the Intel® HD Graphics 6000 fixed-function hardware acceleration, monitoring and processor subsystem O/S and management tools for easy integration with server host processing environments. For service providers and developers who are seeking more, there is a complete application-layer transcoding software package for Live / Linear transcoding and Video on Demand (VoD) which is offered preconfigured on the SharpStreamer 2U platform.



SharpStreamer™ Platform Block Diagram – SharpStreamer PCIe-7207 Enabling Technology

The SharpStreamer server delivers high-density media processing through a scalable platform of up to 2 host processors with media expansion for up to four single slot 3/4 length full height PCI Express SharpStreamer PCIe-7207 acceleration blades. The SharpStreamer Server is designed for carrier-grade applications that require NEBS, adequate power and cooling for high-performance media processing, and ease of integration.



SharpStreamer Hardware

Each SharpStreamer PCIe-7207 card supports four Intel® processor subsystems. Each subsystem communicates with the host server over their own Gigabit Ethernet link and supports 8 GB of DDR3-1600 dual channel memory for a total of 32 GB for the entire card. The SharpStreamer PCIe-7207 card uses power from both the PCI Express slot and an on-board auxiliary power connector. The card has been designed to integrate into today's industry leading NEBS-ready platforms.

MAIN CHIPSET**

(4) Dual-core Intel® Core™ i7-5650U Processors 2.2 GHz

PROCESSOR GRAPHICS

- Intel® HD Graphics 6000
 - Graphics Base Frequency 300 MHz
 - Graphic Max Dynamic Frequency 1.0 GHz

MEMORY

- 32GB Dual Channel DDR3-1600
 - 8GB per Processor Subsystem

HOST INTERFACES

- PCI Express x4 Gen 2.0
 - Intel® i350 Quad Gigabit Ethernet Controller

RELEVANT STANDARDS

- PCI-SIG PCI Express Base Specification

Platform Technical Specifications

SYSTEM FRAMEWORK

- 2U NEBS Server with dual Intel® Xeon® E5-2640v2 2.6 GHz configurations:
 - Dual 600GB SSD Storage Memory in RAID 1 configuration
 - Dual 10 Gigabit and Quad Gigabit ports
 - Redundant hot swappable 1100W AC power supplies

Server Options

- Form Factor: 2U rack
 - Processors: 95W Intel Xeon E5-2600v2 series
 - Internal Interconnect: 2 x Intel® QuickPath Interconnect (QPI)
 - Chipset: Intel® C600
 - Memory: 64GB Dual Channel DDR3-1600 Memory
 - I/O Slots: 7 PCI Express slots:
 - One x16 full-length, full height*
 - Three x8 full-length, full height*
 - Three half-length, low profile

*Full Height Full Length Slot availability dependent on # of SharpStreamer™ cards in Kit

DEPLOYMENT ENVIRONMENT

Server: NEBS Level 3

HOST SOFTWARE ENVIRONMENT

- Host operating system
 - CentOS 7.x
- Programmers environment
 - Intel® Media Server Studio Media SDK runtime files
 - Artesyn SharpStreamer™ PCIE-7207 Board Support Package (BSP) and documentation
 - Host Server Software (Video Transcoder Platform only)

Server Variants	2U Evaluation Kit	2U Performance Kit	2U Video Transcoder Platform A/C
SharpStreamer	Single PCIE-7207-4	Quad PCIE-7207-4	Quad PCIE-7207-4
Processor	Dual-processor: Intel® Xeon® E5-2640v2 2.6 GHz	Dual-processor: Intel® Xeon® E5-2640v2 2.6 GHz	Dual-processor: Intel® Xeon® E5-2640v2 2.6 GHz
System Memory	64GB DDR3-1600 Memory	64GB DDR3-1600 Memory	64GB DDR3-1600 Memory
Storage Memory	Dual 600GB SSD in RAID 1 Configuration	Dual 600GB SSD in RAID 1 Configuration	Dual 600GB SSD in RAID 1 Configuration
Power Supplies	Dual Redundant 1100 W AC	Dual Redundant 1100 W AC	Dual Redundant 1100 W AC
Network Connectivity	Dual 10G & Quad 1G ports	Dual 10G & Quad 1G ports	Dual 10G & Quad 1G ports
Software Option	Artesyn SharpStreamer Host Server Software	Artesyn SharpStreamer Host Server Software	Video on Demand & Real-time Streaming Software

HARDWARE ACCELERATED CODECS

- H.264
- H.265 (Partial acceleration)
- MPEG-2
- MJPEG (Partial acceleration decode only)
- VC-1 (Decode only)
- VP8 (Partial acceleration)

VIDEO PROCESSING APIS

- Composition
- Scaling
- Color-Space Conversion
- De-noise
- Adaptive De-Interlace
- Interpolated Frame Rate Conversion

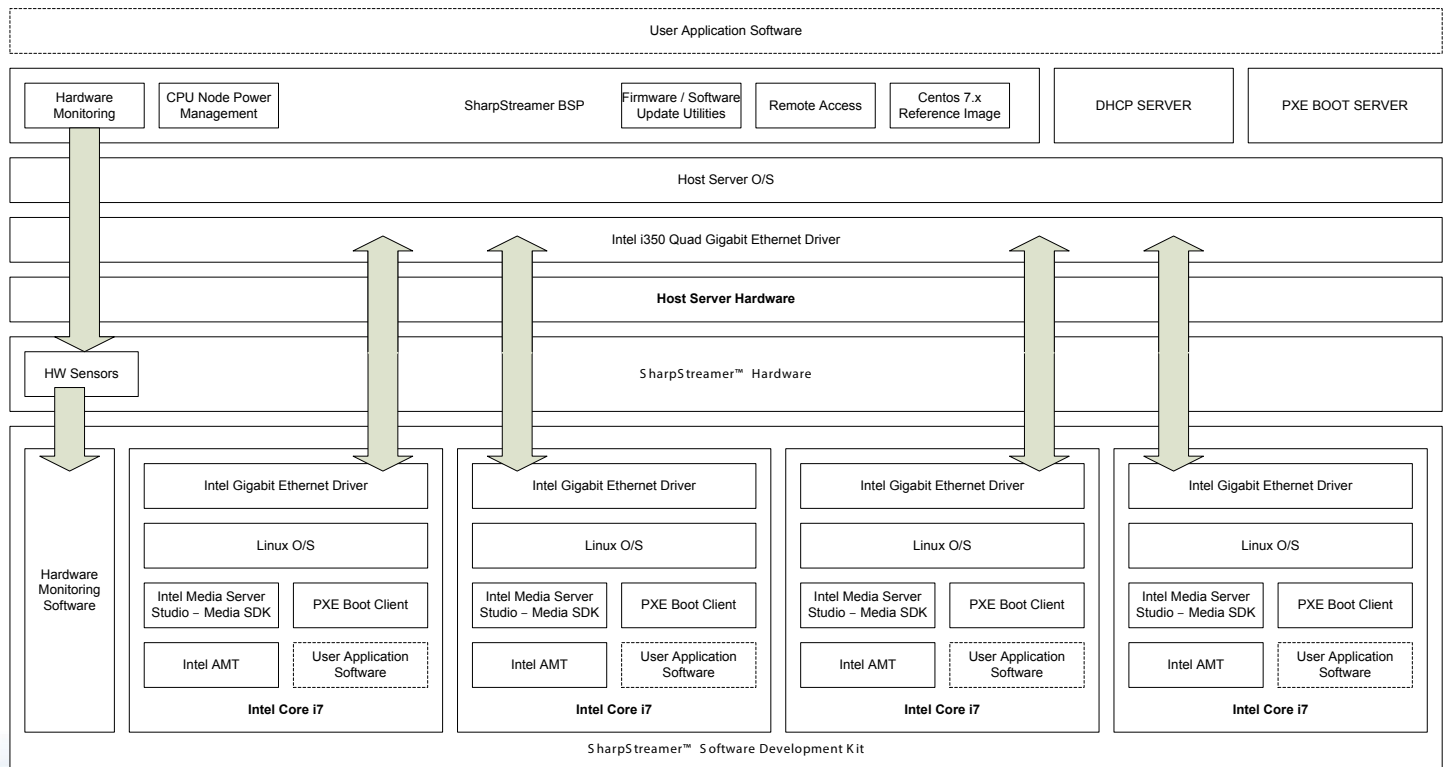
Representative Performance

of 1080P30 Transcode Channels

# of SharpStreamer cards	1	2	4
H.264 (AVC)	44	88	176
HEVC*	4	8	16

*Preliminary performance based on 3rd party software benchmark testing. HEVC performance may increase with ongoing benchmark testing in progress. For actual performance results for specific applications please contact your Artesyn FAE.

Software Block Diagram



Software Development Kit

Includes:

- Network bootable Linux Operating System for each processor subsystem with Intel® Media Server Studio - Essentials Edition SDK runtime files
- Remote console access to BIOS and OS
- Hardware Monitoring Software
- Host Side Artesyn Firmware and Software Update tools
- The card's processor subsystems can be communicated with over Ethernet from the host. Each processor's Linux OS includes the Ethernet drive.
- Host system must have Intel® i350 Quad Gigabit Ethernet driver installed for proper communication with card

Intel Media Server Studio Media SDK:

SharpStreamer™ SDK comes packaged with Intel® Media Server Studio - Essentials Edition runtime files. For development purposes, Intel Media Server Studio - Essentials Edition must be downloaded and installed on the each Intel® CPU node. The Intel Media Server Studio SDK contains an application programming interface (API) library for developing media applications. The kit makes it easier for developers to optimize their applications with the use of the Intel® HD Graphics 6000 fixed-function hardware acceleration. Some application use cases which can benefit from this acceleration include video processing, transcoding and video conferencing.

Network Bootable Operating System:

- First Release: Centos 7.x

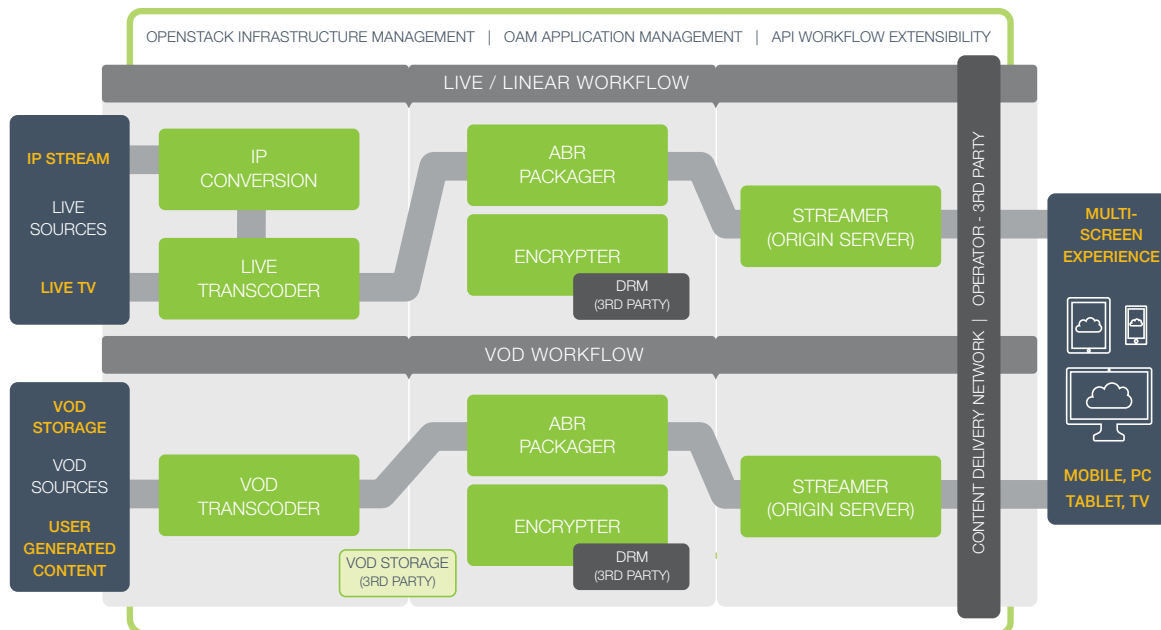
Optional Application Software

SharpStreamer platforms are also optionally equipped with complete application layer transcoding software for Live / Linear transcoding and Video on Demand (VoD).

Multipurpose platform for both Live / Linear and VoD applications:

- Live Transcoder
 - High Density (GPU Accelerated) AVC/H.264 Transcoding
 - RTP, MPEG-TS, HTTP input streams
 - Multiscreen output containers, codecs and resolutions incl. (4 K/UHD)
 - Encryption, ABR Packaging (HLS, DASH, MSS)
 - DRM API*, Workflow controller*
- VoD Transcoder
 - High Density (GPU Accelerated) AVC/H.264 Transcoding
 - Relevant media containers (3GPP, MP4, FLV, AV, 3GPP2 etc.)
 - Encryption, ABR Packaging (HLS, DASH, MSS)
 - Multiscreen output containers, codecs and resolutions incl. (4 K/UHD)
 - DRM API*, Workflow controller*

*Feature is hosted on server



Ordering Information

PCIE Boards	Description
PCIE-7207-4	PCIE card with 4x dual-core Intel® Core™ i7-5650U Processors 2.2 GHz

Ordering Information

Marketing Number	Description
SSVR01-72AC-2074i	SharpStreamer 2U Platform, 2X PCIE-7207-4, Dual Processor, 64GB, AC
SSVR02-72AC-4074i	SharpStreamer 2U Platform, 4X PCIE-7207-4, Dual Processor, 64GB, AC
SSVR03-72AC-2074v	SharpStreamer 2U Platform, 2X PCIE-7207-4, Dual Processor, 64GB, AC with Vantrix Live Video Transcoding software
SSVR04-72AC-4074v	SharpStreamer 2U Platform, 4X PCIE-7207-4, Dual Processor, 64GB, AC with Vantrix Live Video Transcoding software

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The standard End User License Agreement under which the SharpStreamer PCIE-7207 software is provided does not represent or warrant that the codec software is free of infringement of any third party patents, copyrights, or trade secrets. Many codecs and other recognized standards may require licensing arrangements involving the payment of fees to an intellectual property rights (IPR) holder or an IPR agent acting on behalf of the IPR holder. It is the user's responsibility to determine, for any codecs or other standards they intend to use, whether any additional IPR licenses are required, including the payment of royalties or license fees. The availability of implementations including codecs packaged in products acquired from Artesyn does not imply the right to practice these standards nor does Artesyn grant a license or the right to use or practice some or all of these standards. Depending on the country involved, the end user may be legally obliged to contact an IPR holder or agent and conform to their patents licensing requirements.

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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