

COMPUTING

SharpStreamer™ 2U Platform

Installation and Use

P/N: 6806800T83B

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ARTESYN™
EMBEDDED TECHNOLOGIES

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About this Manual

Overview of Contents

This manual is divided into the following chapters and appendices.

- [Safety Notes on page 11](#) describes the safety information which has to be regarded.
- [Sicherheitshinweise on page 15](#) provides a German translation of the chapter “Safety Notes”.
- [Introduction on page 19](#) gives a brief overview of the product features, standard safety compliances and ordering information.
- [Hardware Preparation and Installation on page 23](#) includes a procedure for unpacking the product, environmental and power requirements, additional required equipment, installation, and removal instructions.
- [Software Initialization on page 27](#) describes how to access the server.
- [Advanced Settings on page 29](#) provides references to required information on how to perform any custom-specific settings.
- [Related Documentation on page 31](#) provides a list of related product documentation, manufacturer’s documents and industry standard specifications.

Abbreviations

This document uses the following abbreviations.

Abbreviation	Definition
MSO	Multiple System Operator
NEBS	Network Equipment Building Standards
OTT	Over-the-top
PCI	Peripheral Component Interconnect
PCI-E	Peripheral Component Interconnect Express
VoD	Video on Demand

Conventions

The following table describes the conventions used throughout this manual.

Notation	Description
0x00000000	Typical notation for hexadecimal numbers (digits are 0 through F), for example used for addresses and offsets
0b0000	Same for binary numbers (digits are 0 and 1)
bold	Used to emphasize a word
Screen	Used for on-screen output and code related elements or commands in body text
Courier + Bold	Used to characterize user input and to separate it from system output
<i>Reference</i>	Used for references and for table and figure descriptions
File > Exit	Notation for selecting a submenu
<text>	Notation for variables and keys
[text]	Notation for software buttons to click on the screen and parameter description
...	Repeated item for example node 1, node 2,..., node 12
.	Omission of information from example/command that is not necessary at the time being
..	Ranges, for example: 0..4 means one of the integers 0,1,2,3, and 4 (used in registers)
	Logical OR

This section provides warnings that precede potentially dangerous procedures throughout this manual. Instructions contained in the warnings must be followed during all phases of operation, service, and repair of this equipment. You should also employ all other safety precautions necessary for the operation of the equipment in your operating environment. Failure to comply with these precautions or with specific warnings elsewhere in this manual could result in personal injury or damage to the equipment.

Artesyn Embedded Technologies intends to provide all necessary information to install and handle the product in this manual. Because of the complexity of this product and its various uses, we do not guarantee that the given information is complete. If you need additional information, ask your Artesyn Embedded Technologies representative.

The product has been designed to meet the standard industrial safety requirements. It must not be used except in its specific area of office telecommunication industry and industrial control.

Only personnel trained by Artesyn Embedded Technologies or persons qualified in electronics or electrical engineering are authorized to install, remove or maintain the product.

The information given in this manual is meant to complete the knowledge of a specialist and must not be used as replacement for qualified personnel.

Keep away from live circuits inside the equipment. Operating personnel must not remove equipment covers. Only factory authorized service personnel or other qualified service personnel may remove equipment covers for internal subassembly or component replacement or any internal adjustment.

Do not install substitute parts or perform any unauthorized modification of the equipment or the warranty may be voided. Contact your local Artesyn Embedded Technologies representative for service and repair to make sure that all safety features are maintained.

For more safety related information, refer to [Dell PowerEdge R730 Documentation](#).

EMC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by Artesyn Embedded Technologies Embedded Communications Computing could void the user's authority to operate the equipment. Board products are tested in a representative system to show compliance with the above mentioned requirements. A proper installation in a compliant system will maintain the required performance. Use only shielded cables when connecting peripherals to assure that appropriate radio frequency emissions compliance is maintained.

Operation

Product Damage

Surface of the Product

High humidity and condensation on the product surface causes short circuits.

Do not operate the product outside the specified environmental limits. Make sure the product is completely dry and there is no moisture on any surface before applying power.

Overheating and Product Damage

Operating the product without forced air cooling may lead to overheating and thus damage of the product.

When operating the product, make sure that forced air cooling is available in the enclosure.

Data Corruption

If power to the unit is removed while a firmware update is in progress to the flash memory, the changes will not be saved, and worse, the flash memory may be corrupted. In such case the is likely to remain in non-operable state and will require reconditioning by qualified repair services.

Installation

Damage of Circuits

Electrostatic discharge and incorrect installation and removal of the product can damage circuits or shorten their life.

Before touching the product or electronic components, make sure that you are working in an ESD-safe environment.

Product Damage

Incorrect installation of the product can cause damage of the product.

Only use appropriate tools when installing/removing the product to avoid damage/deformation to the and/or PCB.

Cabling and Connectors

Product Damage

The RJ-45 connector(s) located on the product are twisted-pair Ethernet (TPE) or interfaces.

Connecting an E1/T1/J1 line to an Ethernet connector may damage the product.

- Make sure that TPE connectors near your working area are clearly marked as network connectors.
- Verify that the length of an electric cable connected to a TPE bushing does not exceed 100 m.
- Make sure the TPE bushing of the product is connected only to safety extra low voltage circuits (SELV circuits).

If in doubt, ask your system administrator.

Environment

Always dispose equipment that is finally taken out of operation according to your country's legislation and manufacturer's instructions.

Dieses Kapitel enthält Hinweise, die potentiell gefährlichen Prozeduren innerhalb dieses Handbuchs vorrangestellt sind. Beachten Sie unbedingt in allen Phasen des Betriebs, der Wartung und der Reparatur des Systems die Anweisungen, die diesen Hinweisen enthalten sind. Sie sollten außerdem alle anderen Vorsichtsmaßnahmen treffen, die für den Betrieb des Produktes innerhalb Ihrer Betriebsumgebung notwendig sind. Wenn Sie diese Vorsichtsmaßnahmen oder Sicherheitshinweise, die an anderer Stelle dieses Handbuchs enthalten sind, nicht beachten, kann das Verletzungen oder Schäden am Produkt zur Folge haben.

Artesyn Embedded Technologies ist darauf bedacht, alle notwendigen Informationen zum Einbau und zum Umgang mit dem Produkt in diesem Handbuch bereit zu stellen. Da es sich jedoch um ein komplexes Produkt mit vielfältigen Einsatzmöglichkeiten handelt, können wir die Vollständigkeit der im Handbuch enthaltenen Informationen nicht garantieren. Falls Sie weitere Informationen benötigen sollten, wenden Sie sich bitte an die für Sie zuständige Geschäftsstelle von Artesyn Embedded Technologies.

Das System erfüllt die für die Industrie geforderten Sicherheitsvorschriften und darf ausschließlich für Anwendungen in der Telekommunikationsindustrie und im Zusammenhang mit Industriesteuerungen verwendet werden.

Einbau, Wartung und Betrieb dürfen nur von durch Artesyn Embedded Technologies ausgebildetem oder im Bereich Elektronik oder Elektrotechnik qualifiziertem Personal durchgeführt werden. Die in diesem Handbuch enthaltenen Informationen dienen ausschließlich dazu, das Wissen von Fachpersonal zu ergänzen, können dieses jedoch nicht ersetzen.

Halten Sie sich von stromführenden Leitungen innerhalb des Produktes fern. Entfernen Sie auf keinen Fall Abdeckungen am Produkt. Nur werksseitig zugelassenes Wartungspersonal oder anderweitig qualifiziertes Wartungspersonal darf Abdeckungen entfernen, um Komponenten zu ersetzen oder andere Anpassungen vorzunehmen.

Installieren Sie keine Ersatzteile oder führen Sie keine unerlaubten Veränderungen am Produkt durch, sonst verfällt die Garantie. Wenden Sie sich für Wartung oder Reparatur bitte an die für Sie zuständige Geschäftsstelle von Artesyn Embedded Technologies. So stellen Sie sicher, dass alle sicherheitsrelevanten Aspekte beachtet werden.

EMV

Das Produkt wurde in einem Artesyn Embedded Technologies Standardsystem getestet. Es erfüllt die für digitale Geräte der Klasse A gültigen Grenzwerte in einem solchen System gemäß den FCC-Richtlinien Abschnitt 15 bzw. EN 55022 Klasse A. Diese Grenzwerte sollen einen angemessenen Schutz vor Störstrahlung beim Betrieb des Produktes in Gewerbe- sowie Industriegebieten gewährleisten.

Das Produkt arbeitet im Hochfrequenzbereich und erzeugt Störstrahlung. Bei unsachgemäßem Einbau und anderem als in diesem Handbuch beschriebenen Betrieb können Störungen im Hochfrequenzbereich auftreten.

Wird das Produkt in einem Wohngebiet betrieben, so kann dies mit grosser Wahrscheinlichkeit zu starken Störungen führen, welche dann auf Kosten des Produktanwenders beseitigt werden müssen. Änderungen oder Modifikationen am Produkt, welche ohne ausdrückliche Genehmigung von Artesyn Embedded Technologies durchgeführt werden, können dazu führen, dass der Anwender die Genehmigung zum Betrieb des Produktes verliert.

Boardprodukte werden in einem repräsentativen System getestet, um zu zeigen, dass das Board den oben aufgeführten EMV-Richtlinien entspricht. Eine ordnungsgemässe Installation in einem System, welches die EMV-Richtlinien erfüllt, stellt sicher, dass das Produkt gemäss den EMV-Richtlinien betrieben wird. Verwenden Sie nur abgeschirmte Kabel zum Anschluss von Zusatzmodulen. So ist sichergestellt, dass sich die Aussendung von Hochfrequenzstrahlung im Rahmen der erlaubten Grenzwerte bewegt.

Warnung! Dies ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen. In diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen durchzuführen.

Betrieb

Beschädigung des Produktes

Hohe Luftfeuchtigkeit und Kondensat auf der Oberfläche des Produktes können zu Kurzschlüssen führen.

Betreiben Sie das Produkt nur innerhalb der angegebenen Grenzwerte für die relative Luftfeuchtigkeit und Temperatur. Stellen Sie vor dem Einschalten des Stroms sicher, dass sich auf dem Produkt kein Kondensat befindet.

Überhitzung und Beschädigung des Produktes

Betreiben Sie das Produkt ohne Zwangsbelüftung, kann das Produkt überhitzt und schließlich beschädigt werden.

Bevor Sie das Produkt betreiben, müssen Sie sicher stellen, dass das Gerät über eine Zwangskühlung verfügt.

Fehlerhafter Datenbestand

Wenn sie die Spannungsversorgung des Produkts abschalten, während Programmdateien im Flashspeicher aktualisiert, werden, können diese Daten nicht korrekt gespeichert werden. In diesem Fall ist das Produkt mit hoher Wahrscheinlichkeit nicht mehr betriebsbereit und die Funktionsfähigkeit muß durch einen qualifizierten Reparaturdienst wieder hergestellt werden.

Installation

Beschädigung von Schaltkreisen
Elektrostatische Entladung und unsachgemäßer Ein- und Ausbau des Produktes kann Schaltkreise beschädigen oder ihre Lebensdauer verkürzen. Bevor Sie das Produkt oder elektronische Komponenten berühren, vergewissern Sie sich, daß Sie in einem ESD-geschützten Bereich arbeiten.

Beschädigung des Produktes
Fehlerhafte Installation des Produktes kann zu einer Beschädigung des Produktes führen. Verwenden Sie geeignetes Werkzeug, um das Produkt zu installieren/deinstallieren. Auf diese Weise vermeiden Sie, dass das oder die Platine deformiert oder zerstört wird

Kabel und Stecker

Beschädigung des Produktes
Bei den RJ-45 Steckern, die sich an dem Produkt befinden, handelt es sich um Twisted-Pair-Ethernet (TPE). Beachten Sie, dass ein versehentliches Anschließen einer E1/T1/J1-Leitung an einen TPE-Stecker das Produkt zerstören kann.

- Kennzeichnen Sie deshalb TPE-Anschlüsse in der Nähe Ihres Arbeitsplatzes deutlich als Netzwerkanschluss.
- Stellen Sie sicher, dass die Länge eines mit Ihrem Produkt verbundenen TPE-Kabels 100 m nicht überschreitet.
- Das Produkt darf über die TPE-Stecker nur mit einem Sicherheits-Kleinspannungs-Stromkreis (SELV) verbunden werden.

Umweltschutz

Entsorgen Sie alte elektronische Baugruppen stets gemäß der in Ihrem Land gültigen Gesetzgebung und den Empfehlungen des Herstellers.

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 multi-screen 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 2U Platform. Developers can take advantage of the Software Development Kit comprised of the Intel® Media Server Studio runtime files with Intel® HD Graphics' 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.

1.1 Features

The following are the main features of SharpStreamer 2U Platform:

- Enables high density voice and video processing in a 2U rack server appliance.
- Configurable for up to four Single slot, full length, full height PCI Express cards with x4 interface
- Delivers high-density media processing through a scalable platform.
- Designed to comply with NEBS Level 3 standards.
- Video on Demand (VoD) and Live / Linear transcoding software (Optional)

1.2 Hardware Components

The SharpStreamer 2U Platform comprises the following key hardware:

- Dell™ PowerEdge™ R730 Carrier Grade server
- SharpStreamer™ PCIE-7207 card (s)

For more information about Carrier Grade Server, refer to *Dell PowerEdge R730 Owner's Manual*.

1.3 Software Components

The following software components are installed on the SharpStreamer 2U Platform:

- CentOS 7.x 64-bit Operating System
- SharpStreamer drivers and utilities

1.4 Standard Compliances

The SharpStreamer 2U Platform meets the following standards, when installed in an appropriate system environment.

Table 1-1 Standard and Regulatory Compliances

Standard	Description
EN 55024	European standard for Immunity EN55024 (EU) Information Technology Equipment - Immunity Characteristics - Limits and Methods of Measurements
FCC47 Part 15 Class A (ANSI C63.4)	American standard for Radiated and conducted emission
EN 55022 Class A (EU)	European standard for Radiated and conductive emission Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurements
UL/CSA No. 60950-1	Safety of Information Technology Equipment
EN 60950-1	Safety of Information Technology Equipment
ETSI EN 300 386 Class A	Electromagnetic compatibility and Radio spectrum Matters (ERM); Telecommunication network equipment; Electro-Magnetic Compatibility (EMC) requirements, Class A.

1.5 Ordering/Support Information

The following table lists the product variants and accessories that were available as of the time of writing this manual. Consult your local Artesyn sales representative for the availability of further variants.

Table 1-2 Ordering Information

Order Number	Description
SSVR01-72AC-2074i	SharpStreamer 2U Server with 2x PCIE-7207-4 and Intel MSDK Software
SSVR02-72AC-4074i	SharpStreamer 2U Server with 4x PCIE-7207-4 and Intel MSDK Software
SSVR03-72AC-2074v	SharpStreamer 2U Server with 2x PCIE-7207-4 and Vantrix Transcoder Software
SSVR04-72AC-4074v	SharpStreamer 2U Server with 4x PCIE-7207-4 and Vantrix Transcoder Software

Hardware Preparation and Installation

This chapter provides a brief description about how to unpack and inspect SharpStreamer 2U Platform.

2.1 Unpacking and Inspecting the Platform

NOTICE

Damage of Circuits

Electrostatic discharge and incorrect installation and removal of the platform can damage SharpStreamer PCIe-7207 cards installed in it.

Before touching card or electronic components, make sure that you are working in an ESD-safe environment.

Shipment Inspection

To inspect the shipment, perform the following steps:

1. Verify that you have received all items of your shipment:
 - One SharpStreamer™ 2U Platform
 - One printed copy of *Quick Start Guide*
 - Any optional items ordered
2. Check your shipment and report any damage or differences to the contact center at RMAsupport.ec@artesyn.com.

3. Remove the desiccant bag shipped with the platform and dispose of it according to your country's legislation.



The platform is thoroughly inspected before shipment. If any damage has occurred during transportation, contact our Contact Center immediately.

2.2 Environmental, Thermal, and Power Requirements



Operating temperatures refer to the temperature of the air circulating around the server platform and not to the component temperature.

Server fans are set to run at 100% by default to meet maximum environmental conditions.

While the SharpStream 2U platform continues to operate at temperatures below 0°C, it may not be possible to consistently power on the system at temperatures below 0°C.

	CAUTION
	<p>Card Damage High humidity and condensation on the card surface causes short circuits. Do not operate the card outside the specified environmental limits. Make sure that the card is completely dry and there is no moisture on its surface before applying power.</p>

For more information about environmental, thermal, and power requirements of SharpStream 2U Platform, refer to *Dell PowerEdge R730 Owner's Manual*.

For more information about environmental, thermal, and power requirements of SharpStream PCIe-7207 card, refer to Artesyn's *SharpStream PCIe-7207 Installation and Use* guide.

2.3 Installation of SharpStreamer 2U Platform

For more information on how to install or setup a SharpStreamer 2U Platform, refer to [Dell PowerEdge R730 Documentation](#).

For more information on how to install or remove a PCIe card into or from a SharpStreamer 2U Platform, refer to *Dell PowerEdge R730 Owner's Manual*.

Software Initialization

This chapter explains the various modes of accessing a SharpStreamer 2U server. The SharpStreamer 2U server comes with pre-configured settings. You can access the SharpStreamer 2U either through Ethernet mode or through Serial Console mode.

Ethernet - 1G on-board server management port (*eno1*) labeled as *1* on the server, which is pre-configured with Static IP address, *192.168.0.100*.

Serial Console - Serial Console with the following port settings:

- Set Serial Port Address: *COM1, Serial*
- Baud Rate: *115200*
- Terminal Type: *VT100/VT220*
- Data bits: *8*
- Stop bits: *1*
- Parity: *None*
- Flow control: *None*

If you want to access the server, the default login is **root** with **Artesyn** as password.

Advanced Settings

To know more information about SharpStreamer 2U Platform server configuration, refer to [Dell PowerEdge R730 Documentation](#).

For more information about SharpStreamer PCIE-7207 card, refer to Artesyn's *SharpStreamer PCIE-7207 Installation and Use* guide.

Related Documentation

A.1 Artesyn Embedded Technologies - Embedded Computing Documentation

The publications listed below are referenced in this manual. You can obtain electronic copies of Artesyn Embedded Technologies - Embedded Computing publications by contacting your local Artesyn sales office. For released products, you can also visit our Web site for the latest copies of our product documentation.

1. Go to www.artesyn.com/computing/support/product/technical-documentation.php.
2. Under FILTER OPTIONS, click the Document types drop-down list box to select the type of document you are looking for.
3. In the Search text box, type the product name and click GO.

Table A-1 Artesyn Embedded Technologies - Embedded Computing Publications

Document Title	Publication Number
SharpStreamer 2U Platform Quick Start Guide	6806800T84
SharpStreamer PCIE-7207 Installation and Use Guide	6806800T60



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