

So You Want to...

Install Artesyn SharpStreamer™ Mini PCIE-7205 Card into a Dell PowerEdge R430 Server?



Dell R430 Server



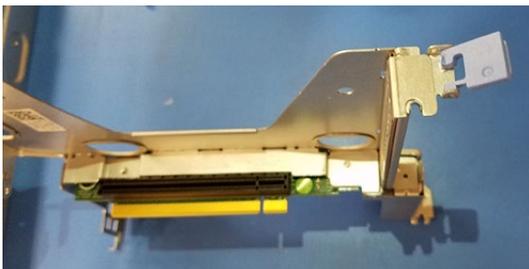
Artesyn SharpStreamer Mini PCIE-7205 Card



Uncovered front view



Chassis fan baffle



Riser card blue latch

This document covers aspects of fitting the SharpStreamer™ Mini PCIE-7205 media processing accelerator card into a Dell PowerEdge R430 server.

THE DELL POWEREDGE R430 SERVER

The Dell PowerEdge R430 server is an entry level 1U rack mount server with dual Intel® Xeon® E5-26xx v3 processor (codename Haswell) sockets. The server is available in several configurations; however, this application note only covers the integration of a specific R430 configuration with dual Intel Xeon E5-2660 v3 processors.

For more details, visit the [Dell website](#).

THE SHARPSTREAMER MINI PCIE-7205 HARDWARE INSTALLATION

The Dell PowerEdge R430 server supports a single SharpStreamer Mini PCIE-7205 card installation with the use of a riser card (PN: 330-BBEE). This riser card electrically supports two PCI Express Gen 3 x8 slots but utilizes PCI Express x16 connectors. The SharpStreamer Mini card must be installed in the Full Height Half Length card slot (Slot 1). For Slot 2, users have the option to populate with any third-party low profile PCIe I/O cards.

When installing the SharpStreamer Mini card, the riser card must be uninstalled by pinching and pulling vertically the blue outline areas marked on the top of the riser card. Once the riser is detached, the blue latch must be lifted to remove the filler panel. With the I/O panel removed, align the card with the card guides and insert the card into the target slot (Slot 1). Afterwards, lower the blue latch to lock in the card and re-install the riser card onto the server. There is an alignment pin found on the server board available for proper re-installation of the riser card. Please see reference photos.

INSTALLING THE SOFTWARE PACKAGE

Software Installation Dependencies:

- Server running CentOS 7.x
- Tftp-server, syslinux and dhcp
- Firewall (i.e., firewalld, iptables, etc) configured to allow system to run above services
- Unzip and install SharpStreamer Host-side utilities
- Unzip and install SharpStreamer Centos 7 reference image

Proceed with software installation as documented in each software package "readme" file. Artesyn SharpStreamer Mini PCIE-7205 documentation, and software packages can be obtained via the SWORDS portal or through your Artesyn Field Application Engineer.



COMPUTING

APPLICATION NOTE



Card guide



Riser removed for installation



Card installed - rear view

SYSTEM OPERATION AND THERMAL OPTIMIZATION

The Dell R430 system fans produce air within the system to cool the PCI Express cards. This air has been preheated as it must go through system memory before our SharpStreamer Mini card. Out of the 6 single hot swappable fans used, only half of these are responsible for cooling the PCIe I/O card space.

For this reason, we highly recommend monitoring both the SharpStreamer Mini PCIE-7205 microprocessor subsystem temperatures. This can be done using the temperature tool provided in the PCIE-7205 host side server utilities package (ex: `pcie7205_xxx -s1 -n1 -ct`)*. If any of the temperature sensors report a temperature of higher than 80 °C, you may want to check whether anything mechanically is disrupting the system air flow or your system environment conditions have changed. If neither situation has occurred, then you should consider adjusting the server's iDRAC thermal settings.

The Dell R430 has three thermal profiles (default, maximum performance, and minimum power) and four fan speed offsets (low +35%, medium +50%, high +55%, and maximum +100%) which control the system fans' behavior. These profiles can be found under iDRAC Settings under the "thermal" section.

At room temperature (25 °C ambient) with the thermal profile set to default and fan speed offset set to low (+35%), Artesyn testing indicates the PCIE-7205 should operate properly under these conditions. During normal operation, you can expect the microprocessor subsystem temperature readings to be anywhere between 45 and 75 °C. If any temperature reading should go above 80 °C, you should set the fan speed offset to medium (+55%) or higher.

Please ensure air flow is such that microprocessor subsystem temperature sensor readings do not go above 95 °C as these high temperatures may cause damage to the board and will result in lower lifespan. In extreme cases, the board will shut itself off to prevent damage.

If you should have any questions or issues using the SharpStreamer Mini PCIE-7205 card with the Dell R430 server, please contact your local Artesyn Field Application Engineer (FAE).



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