So You Want to...

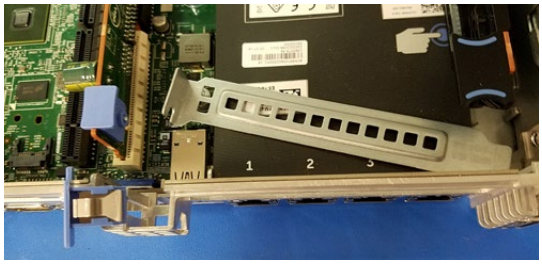
Install Artesyn SharpStreamer™ Mini PCIE-7205 Card into a Dell PowerEdge R630 Server?

Dell R630 Server

Artesyn SharpStreamer Mini PCIE-7205 Card

Rear server view

Auxiliary power connector



Filler I/O panel

This document covers aspects of fitting the SharpStreamer™ Mini PCIE-7205 media processing accelerator card into a Dell PowerEdge R630 server.

THE DELL POWEREDGE R630 SERVER

The Dell PowerEdge R630 server is an versatile and highly configurable 1U rack mount server with dual Intel® Xeon® E5-26xx v4 processor (codename Broadwell) sockets. The server is available in variety of configurations, however, this application note only covers integration of a specific R630 configuration with dual Intel E5-2698 v4 processors and 32GB system memory.

For more details, visit the **Dell website**.

THE SHARPSTREAMER MINI PCIE-7205 HARDWARE INSTALLATION

The Dell PowerEdge R630 server supports a single SharpStreamer Mini PCIE-7205 card installation in the slot found on riser card 3. This riser card electrically supports a single PCI Express Gen 3 x 16 slot. The SharpStreamer Mini card must be installed in the Full Height 3/4-Length card slot (Slot 2). For Slot 1, users have the option to populate with any third party low profile PCIe I/O cards.

When installing the SharpStreamer Mini card, the blue latch for Slot 2 must be lifted to remove the filler I/O panel. With the I/O panel removed, align the card with the card guides and insert the card into the target slot. Afterwards, lower the blue latch to lock in the card and reinstall 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., firewall, 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.

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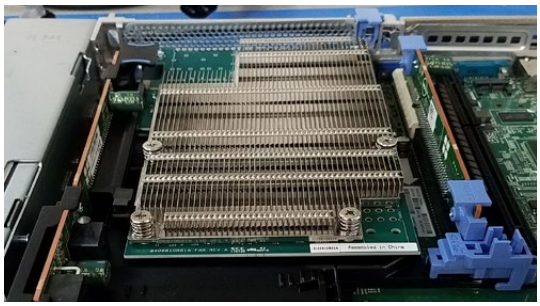
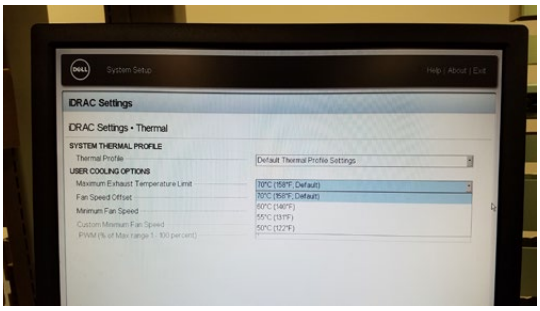
ARTESYN™ EMBEDDED TECHNOLOGIES



Slot 2 card installation

Top server view



Four fan speed offset

SYSTEM OPERATION AND THERMAL OPTIMIZATION

The Dell R630 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 seven (7) hot swappable fans used, only two 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 PCI7205 host side server utilities package (ex: pcie7205_xxx –s1 –n1 –ct)*. If any of temperature sensors reports 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 R630 has three thermal profiles (default, maximum performance, and minimum power) and four fan speed offsets (low +23%, medium +45%, high 68%, 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 40 and 65 °C. If any temperature reading should go above 80 °C, you should set the fan speed offset to Medium (+45%) or higher.

Please ensure air flow is such that microprocessor subsystem temperature sensors reading 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 R630 server, please contact your local Artesyn Field Application Engineer (FAE).

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