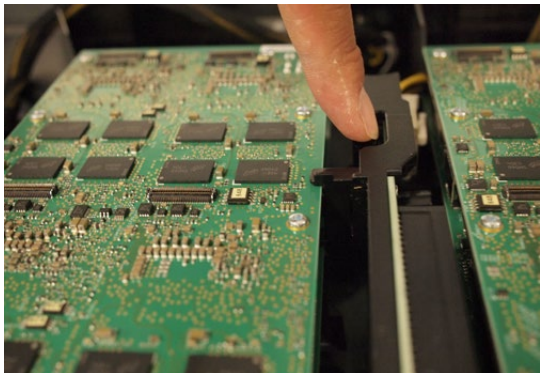
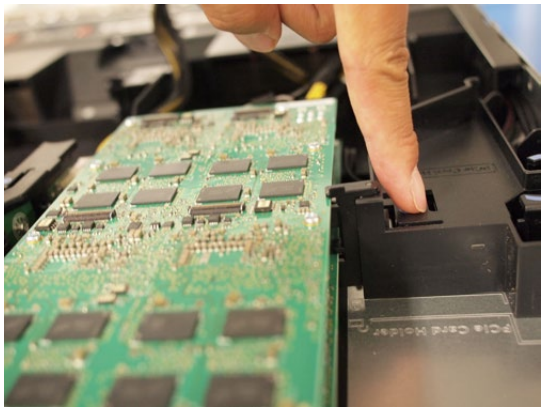
So You Want to...

Install Artesyn SharpStreamer™ PCIE-7207 cards into a Dell PowerEdge R730 Server?

This document covers aspects of fitting the SharpStreamer™ PCIE-7207 media processing accelerator card into a Dell PowerEdge R730 server.

Dell R730 Server





PCI Express Card Guides

THE DELL POWEREDGE R730 SERVER

The Dell PowerEdge R730 server is a new generation 2U rack mount server based on the E5-26xx v3 Intel® Xeon® technology (Codename Haswell). The server is available in several configurations. However, this application note only covers integration within R730 configuration.

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

THE SHARPSTREAMER PCIE-7207 HARDWARE INSTALLATION

In a dual Intel Xeon configuration, the Dell R730 server can support up to four SharpStreamer PCIE-7207 cards. Cards should be installed in PCI Express slots #4, 5, 6 and 7 found on PCIe riser #2 (PN: 330-BBCO) and PCIe riser #3 (PN: 330-BBCQ). Dual CPU configuration can also accommodate for an additional three low profile slots located on PCIe riser #1.

In a single CPU configuration, the server can support up to three full length full height PCI Express cards. The SharpStreamer PCIE-7207 card could potentially be installed in PCIe slots #5, 6 and 7.

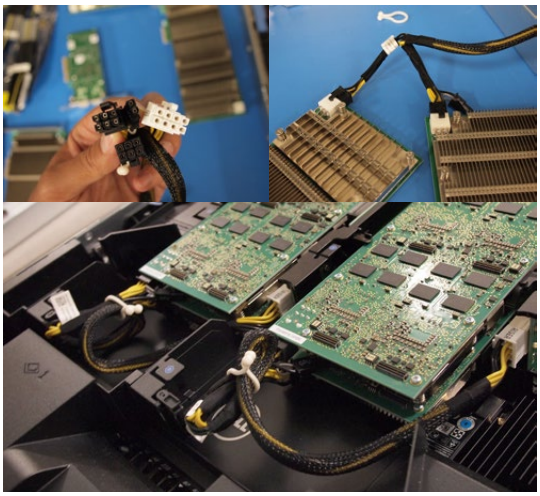
When installing SharpStreamer cards, mid-card guides and auxiliary power cabling must be used. Auxiliary power cabling and low profile CPU heatsinks can be purchased as part of the R730 GPU Installation Kit (PN: 331-8803). See photos for reference. Low profile CPU heatsink installation is not required but can be used for improve internal chassis thermal environment

INSTALLING THE SOFTWARE PACKAGE

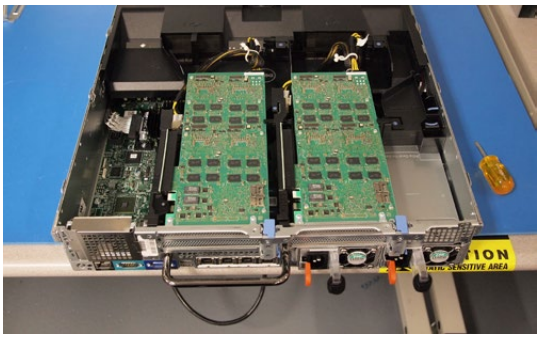
Software Installation Dependencies:

- Server running CentOS 7.x
- Tftp-server, syslinux and dhcp
- Firewall (ie. 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 as “readme” file. Artesyn SharpStreamer PCIE-7207 documentation, and software packages can be obtained SWORDS portal or through your Artesyn Field Application Engineer.



Auxiliary Power Cables



Four SharpStreamer Card Installation

SYSTEM OPERATION AND THERMAL OPTIMIZATION

The Dell R730 system fans produce direct air within the system to cool the PCI Express cards. There is a black plastic baffle that channels the air from six hot swappable fans. This also ensures air flows across the rest of the motherboard components and through the PCIe section once it has gone through the CPU heatsinks. We highly recommend monitoring both the SharpStreamer PCIE-7207 microprocessor subsystem temperatures. This can be done using the temperature tool provided in the PCIE-7207 host side server utilities package (ex: pci7207 –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 system fan profile.

The Dell R730 has three thermal profiles (default, maximum performance and minimum power) and four fan speed offsets (low, medium, high and maximum) which control the system fans' behavior. These profiles can be found under iDRAC Settings under the "thermal" section.

In room temperature (22°C ambient) with the thermal profile set to default and fan speed offset set to off, Artesyn testing indicates the PCIE-7207 should operate properly under these conditions. During normal operation, you can expect the microprocessor subsystem temperature readings to be anywhere between 30°C and 65°C. If any temperature reading should go above 80°C, you should set the fan speed offset to High (+71%) and/or install low profile CPU heatsinks. 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 run into any questions or issues using the SharpStreamer PCIE-7207 card with the Dell R730 system, please contact your local Artesyn Field Application Engineer (FAE).

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