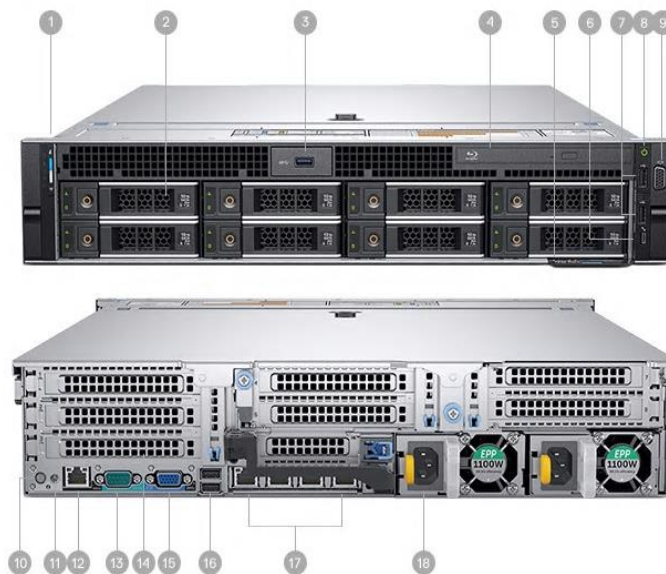




Avid Configuration Guidelines Dell R7920 Rack workstation Dual 8 to 28 Core CPU System



Ports & Slots

1. System Status Indicator | 2. Hard drive (x8) | 3. USB 3.0 connector | 4. Optical-drive (optional) | 5. Information tag | 6. USB management port/IDRAC Direct | 7. USB 2.0 connector (x2) | 8. Power button/Power light | 9. VGA connector | 10. System identification button | 11. System identification connector | 12. IDRAC9 Enterprise Network connector | 13. Serial connector | 14. PCIe expansion card slots (x8) | 15. VGA connector | 16. USB 3.0 connectors (x2) | 17. Network connectors (x4) | 18. Power supply (x2)

1.) Dell R7920 AVID Qualified System Specification:

R7920 Hardware Configuration

Supported Intel Xeon Scalable family (Skylake) CPU Choices

- Dual Xeon Silver 4110 2.1 Ghz, turbo up to 3.0Ghz 8-core
- Dual Xeon Silver 4114 2.2 Ghz, turbo up to 3.0Ghz 10-core
- Dual Xeon Silver 4116 2.1 Ghz, turbo up to 3.0Ghz 12-core
- Dual Xeon Gold 5120 2.2 Ghz, turbo up to 3.7Ghz 14-core (Good)
- Dual Xeon Gold 6130 2.1 Ghz, turbo up to 3.7Ghz 16-core
- Dual Xeon Gold 6134 3.2 Ghz, turbo up to 3.7Ghz 8-core
- Dual Xeon Gold 6136 3.0 Ghz, turbo up to 3.7Ghz 12-core
- Dual Xeon Gold 6138 2.0 Ghz, turbo up to 3.7Ghz 20-core (MC 8.9.3 or higher)
- Dual Xeon Gold 6140 2.3 Ghz, turbo up to 3.7Ghz 18-core (MC 8.9.3 or higher)
- Dual Xeon Gold 6144 3.5 Ghz, turbo up to 4.2 Ghz 8-core
- Dual Xeon Gold 6146 3.2 Ghz, turbo up to 4.2Ghz 12-core (Better Performance)
- Dual Xeon Gold 6152 2.1 Ghz, turbo up to 3.7Ghz 22-core (MC 8.9.3 or higher)
- Dual Xeon Platinum 8160 2.1 Ghz, turbo up to 3.7Ghz 24-core (MC 8.9.3 or higher)
- Dual Xeon Platinum 8168 2.7 Ghz, turbo up to 3.7Ghz 24-core (MC 8.9.3 or higher)
- Dual Xeon Platinum 8180 2.5 Ghz, turbo up to 3.8Ghz 28-core (MC 8.9.3 or higher)

Supported Video Cards

- 1.) NVIDIA P4000 8GB PCI-e video board
- 2.) NVIDIA P5000 16GB PCI-e video board
- 3.) NVIDIA P6000 24GB PCI-e video board
- 4.) AMD Radeon Pro WX7100 8GB PCI-e video board
- 5.) AMD Radeon Pro WX9100 16GB PCIe video board

System Disk Drive – 500+ GB (recommended) SATA SSD. Dell offers higher performing solid-state, NVMe, and SAS boot drive options which are acceptable. Recommend a Dell qualified drive be selected.

Standard AVID memory configuration:

- Systems using the new Xeon scalable Skylake CPU's will use DDR4-2666MHz memory (up to 24 DIMMs per system)
- Each CPU has 6 memory lanes - optimal bandwidth when all 12 memory lanes filled

- 64GB (8 x 8GB) DDR4 2666MHz ECC memory – (Requires eight 8GB DIMMs) - minimum
- 96GB (12 x 8GB) DDR4 2666 ECC memory – (Requires twelve 8GB DIMMs) – **Best Performance**

Memory modules must be installed according to manufacturer's requirements

Optional AVID memory configuration:

- 128GB (16 x 8GB) DDR4 2666 ECC memory – (Requires sixteen 8GB DIMMs)
- 128GB (8 x 16GB) DDR4 2666 ECC memory – (Requires eight 16GB DIMMs)
- 192GB (24 x 8GB) DDR4 2666 ECC memory – (Requires twenty four 8GB DIMMs)
- 192GB (12 x 16GB) DDR4 2666 ECC memory – (Requires twelve 16GB DIMMs)

Memory configuration constraints

- No other memory configurations are formally supported in AVID environments.
- **Un-balanced memory configurations which mix and match memory module sizes and locations will result in a poor performing, non-optimal operating environment.**

- NUMA should be disabled in BIOS

2.) Qualified Operating Systems, Avid Client Editing Applications, Hardware and Shared-Storage support for the Dell R7920:

Dell Supports:

- Microsoft® Windows 7 Professional 64-bit Edition with SP1 (SP1 required)
- Microsoft® Windows 10 Pro for Workstation/Enterprise 64-bit Edition Version 1709 – (MC 8.5 or above)

Not Supported –

- Microsoft® Windows 7 – any 32-bit version, or Home or Ultimate
- Microsoft Windows 8 or 8.1 – any version

Media Composer Application	Minimum Rev
Media Composer 8.x	8.8 8.9.3 required for CPU virtual core count > 64
Media Composer 7.x	Not supported
NewsCutter 11.x	Not Supported

* Nvidia P4000, P5000, P6000 require Nvidia driver that ships with the version of MC 8.8 and above

* AMD WX7100 require AMD driver released 17.Q4

The required GPU files and installation instructions for AMD graphics can be found at the following Avid KB link:

http://avid.force.com/pkb/articles/en_US/download/AMD-Supported-GPU-Drivers

Note regarding Service packs:

As of this writing Service Pack 1 is the current Service Pack release for Win7.

3.) Qualified O.S., Hardware and shared storage supported:

	Qualified / Supported
Nitris DX	NOT SUPPORTED (requires PCIe gen 1 or 2 slot which is not available on this system) - causes system hang when MC upgraded
Mojo DX	SUPPORTED
Artist DNxIO/ DNxIQ (PCIe only)	Yes – Supported PCIe only thunderbolt card is NOT supported in this rack system
Artist DNxIV (thunderbolt only connection)	NOT SUPPORTED Thunderbolt card not supported
3 rd Party Qualified Hardware	See release notes and Avid website for information regarding supported 3 rd party hardware (vendor qualified)
NEXIS / ISIS Single 1Gb Ethernet Client NEXIS Dual 1Gb Ethernet Client Intel i350, i219, i210	ISIS 5500 / 5000 , 7500 / 7000 NEXIS Pro, E2, E4, E5 V7.9
NEXIS / ISIS Hi-res (single 10Gbit) client Myricom Single-Port 10Gbit Atto FFRM-NS11,NT11, Intel X710	ISIS 5500 / 5000 , 7500 / 7000 NEXIS Pro, E2, E4, E5 V7.9
NEXIS / ISIS Ultra Hi-res (dual 10Gbit) Myricom Dual-Port 10Gbit Atto FFRM-NS12,NT12 Intel X710	ISIS 5500 / 5000 NEXIS Pro, E2, E4, E5 V7.9

4.) AVID qualified HBA info

AVID qualified HBA	AVID Part	Slot Location	Function
Avid Artist DNxIO HBA Avid Artist DNxIQ HBA	Avid part # 7030-30048-02 BMD PCIe cable kit	Riser 3A Slot 7	Avid Artist DnxIO interface HBA Avid Artist DNxIQ interface HBA
Mojo-DX Interface HBA	Active: 7030-30048-02 Active: 7030-30048-01 Active: 7030-20084-01	Riser 3A Slot 7	Avid Mojo DX Hardware Interface HBA – Supported with any of the three listed Active HBA's
Dell Thunderbolt 3 adapter card X4 PCIe gen 3	Not stocked by AVID	N/A	Not supported by Dell in this system
Atto R680, H680	Not stocked by AVID	Riser 3A Slot 8	Local SAS Storage
LSI 9200-8e SAS controller	7030-30036-01	Riser 3A Slot 8	Local SAS Storage:
Vendor qualified 3 rd party hardware x8 PCI-E	Not stocked by AVID	Riser 3A Slot 7	Vendor qualified 3 rd party hardware interface. See release notes and Avid website for information regarding supported 3 rd party hardware
Atto FFRM-NS11/NS12 10 Gb single or dual port	Not stocked by AVID	Riser 1C Slot 1	Shared Storage: NEXIS Optical Gb-Ethernet
Intel i350-T – Quad Gb NIC	Not stocked by AVID	Embedded	Shared Storage: NEXIS Copper Gb-Ethernet Dual Gb NEXIS Connectivity
Intel X710 dual port 10Gb	Not stocked by AVID	Riser 1C Slot 1	Shared Storage: NEXIS Optical Gb-Ethernet
Myricom 10G-PCIE-8B-S Myricom 10G-PCIE-8B2-2S	7030-30041-01	Riser 1C Slot 1	Shared Storage: NEXIS 10Gb-Ethernet

Notes:

- Avid HIB part # 7030-30048-01 is no longer supported with DNxIO (use # 7030-30048-02 only)
- Avid artist DnxIQ requires BMD cable kit and PCIe card – Avid HIB card is NOT supported with DNxIQ

5.) Slot Configuration:

Slot Configuration Information			
Slot #	Electrical	Mechanical	
R1C 1	X16 PCI-E Gen 3	x16 75W	Shared Storage Controllers Nexis/ISIS Intel X710, i350-T2 Atto FFRM-NS11/NS12 Myricom 10G-PCIE-8B-S
R1C 2	X8 PCI-E Gen 3 (75Watts)	x16 75W	Optional Dell M.2 PCIe NVMe SSD card
R1C 3	X8 PCI-E Gen 3	x16 ½ length	Optional Dell M.2 PCIe NVMe SSD card
R2A 4	x16 PCI-E Gen 3 (75Watts)	x16 75W	Graphics Card: Nvidia P4000, P5000, P6000 AMD WX-7100
R2A 5	X8 PCI-E Gen 3	x16 75W	Not used – Double width graphics cover this slot.
R2A 6	X8 PCI-E Gen 3	x16 Low Profile ½ Length	Optional Audio PCIe half height card Required for MC
R3A 7	X8 PCI-E Gen 3	x16 75W	Avid/BMD HIB card for DNxIO/DNxIQ /Mojo DX OR Vendor Qualified 3 rd Party Hardware PCIe x8
R3A 8	X16 PCI-E Gen 3	X16 75W	Local SAS Storage Controllers: Atto R680 LSI 9200-8e
	Embedded Intel I350-t 4port 1Gb NIC	PCI-E x8 Gen 2	Qualified for Avid Nexis/ISIS
	Embedded Intel X550 4p 10Gb NIC X710 4p 10Gb SFP	PCI-E x8 Gen 2	Not supported for Nexis/Isis

6.) Use of embedded NIC ports for Nexis/ISIS connectivity **Important Information**

The R7920 comes standard with a quad port Intel i350-T- qualified for Nexis.

There is an optional X550 quad port (2x10Gb + 2x1Gb) or X710 quad port DA/SFP+. Neither is qualified with Nexis/Isis.

For proper operation and connectivity of the Intel network interface with NEXIS the following settings are required:

1. For the Intel NIC driver, under the performance settings, change the following parameters:

- Receive Buffers to 1024
- Transmit Buffers to 1024

2. Disable the windows firewall.

7.) Required system BIOS settings for AVID environments:

Use latest version from Vendor website

Please Note: CPU Hyper-threading should be enabled in all configurations. It is currently enabled by default by Dell for shipping R7920 systems

R7920 Required system BIOS changes:

1. Verify CPU Processors are set to Hyper-Threading
2. Memory option for NUMA – **Disable**

Set R7920 Required system BIOS changes:

- During boot up press F2 at the Dell splash screen to invoke Set Up.
- Select the Performance tab
- Select Hyper-Threading
- Verify setting is Enabled (or enable if currently set to disable)
- Select Non-Uniform Memory Access
- Uncheck the box (Avid MC runs best with NUMA disabled)

8.) Graphics Qualified

Drivers:

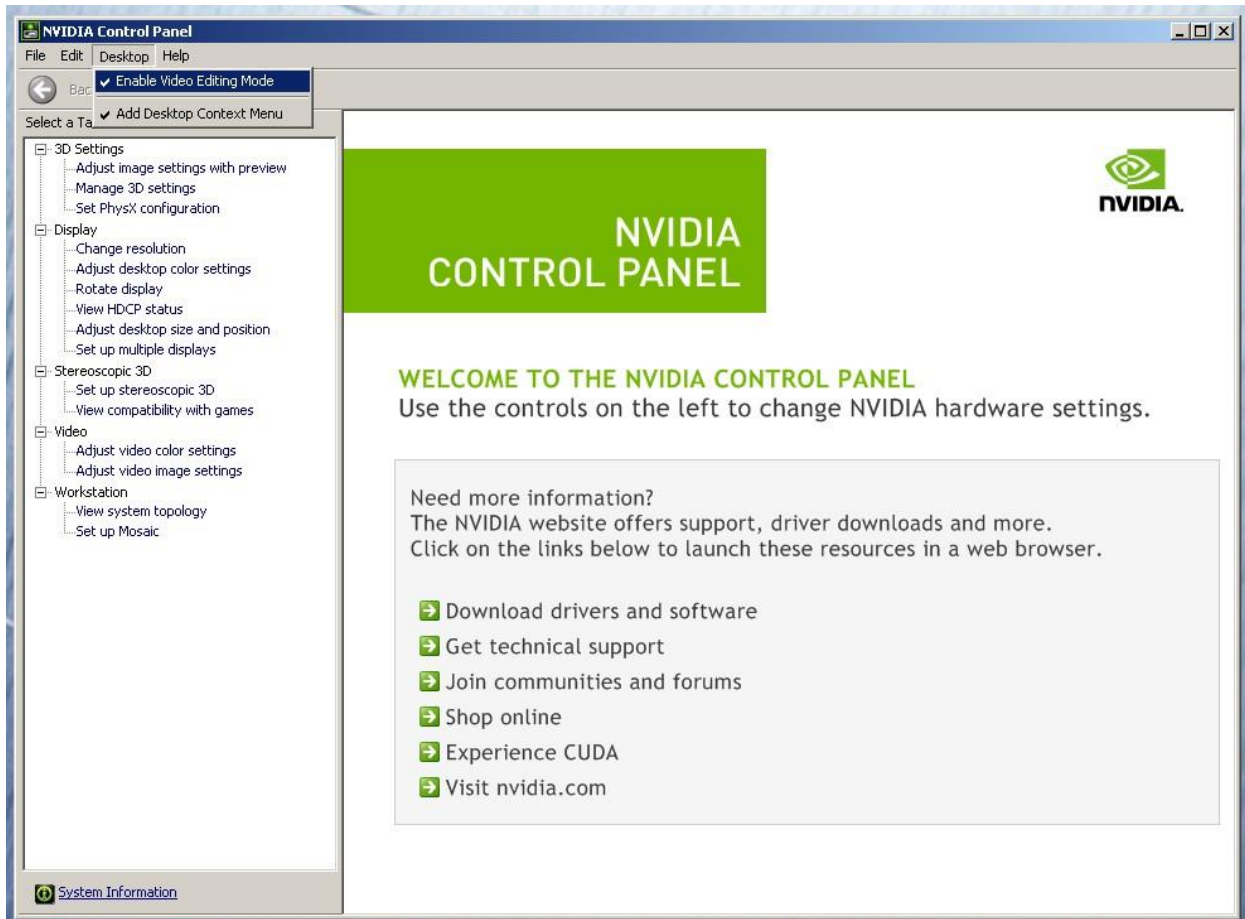
AVID Software	Version(s)	GPU	Driver Required
Media Composer	8.8.x	Nvidia P4000, P5000, P6000	Nvidia 385.08
Media Composer	8.8.x	AMD WX7100, WX9100	AMD 18Q1

After installation of the AVID software the supported Nvidia driver can be found in the following directory:
Program Files / Avid / Utilities / Nvidia.

****** The AMD graphics driver is NOT included with MC release builds. You can find this driver on the AMD web page
<http://support.amd.com/en-us/download>

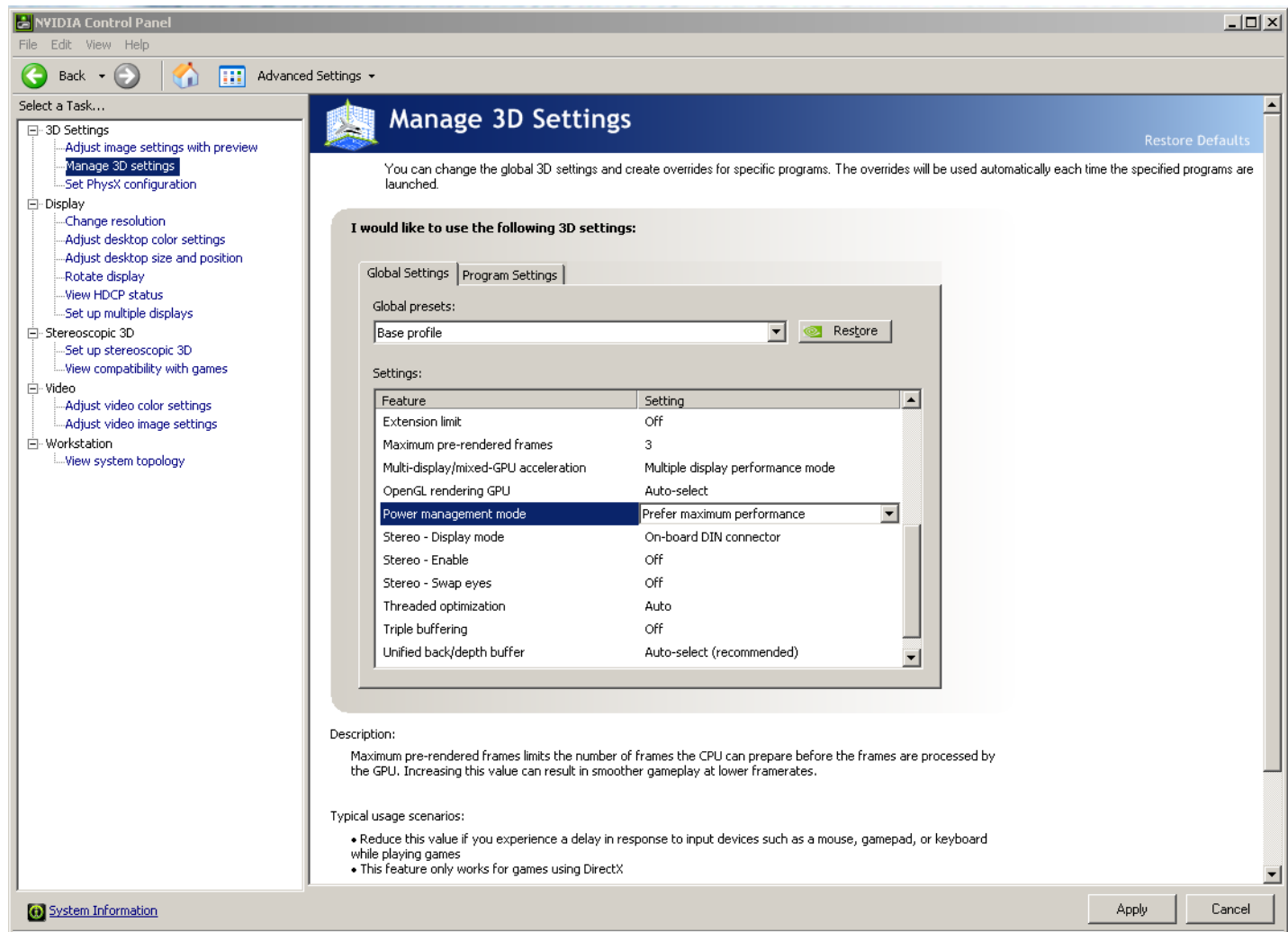
Set optimized Nvidia driver settings for Avid editing environments:

1. See picture below
2. Right-Click on the desktop and select Nvidia Control Panel
3. Select the “Desktop” menu selection in the control panel menu bar.
4. Enable “Desktop -> Video Editing Mode



5. Select Manage 3D Settings
6. Select “Global Settings” Tab
7. Under the “Global Settings” tab select “3D App – Default Global Settings” (same as Base Profile)
8. Scroll down and locate the “Power Management Mode” feature. The default setting is “Adaptive”

9. For the “Power management mode” feature, select “Prefer maximum performance” as shown in the picture below.



10. Depress the “Apply” button.

11. Nvidia driver optimization settings for Avid environments are complete.

E.) GPU monitor connectivity:

The Nvidia Quadro P4000 graphics card has four Display-Port ports. All 4 ports can be used simultaneously.

The Nvidia Quadro P5000 & P6000 graphics cards have one DVI port and four Display-Port ports. 4 of the 5 ports can be used simultaneously.

The AMD WX7100 graphics card has four full size display ports.

The AMD WX9100 graphics card has 6 mini display ports.

(Important: Display-ports are not HDMI ports; at first glance they do look very similar to HDMI ports)

F.) Serial Port Deck Control

The Dell R7920 workstation does have an embedded serial port. The embedded serial-port has been qualified by Avid and will maintain frame accuracy in Avid environments. Primary or secondary / additional serial port deck control can be established via two methods (both of which have been qualified by Avid and will maintain frame accuracy in Avid environments)

1. Addenda model **RS-USB / 4** direct USB-to-RS422 serial adapter. This is a simple device which connects directly from a USB port to the RS422 port of a deck.
<http://www.addenda.com/addenda-elect/products/rsUSB4.php>
2. Combination of a Keyspan (Tripp-Lite) Model USA-19HS USB-to-serial-port adapter with Addenda Rosetta Stone model RS – 2/8 RS232-to-RS422 converter
 - Keyspan (Tripp-Lite) Model USA-19HS (AVID P/N 7080-20013-01)
<http://www.tripplite.com/en/products/model.cfm?txtSeriesID=518&EID=13384&txtModelID=3914>
 - Addenda Rosetta Stone (or equivalent) model RS – 2/8 RS232-to-RS422 converter (AVID P/N 7070-00507-01)
<http://www.addenda.com/addenda-elect/products/rs28.php>

To connect the Keyspan 19HS / Addenda RS -2/8 combination:

- Install the Keyspan 19HS driver before plugging the device into USB port.
- Once the Keyspan 19HS driver is installed then plug the Keyspan 19HS into a USB port.
- The Keyspan 19HS will now show up in device driver.
- Using a serial cable, connect the 9-pin serial port of the Keyspan 19HS USB adapter to the port of the Addenda marked RS232 from PC
- Using a 2nd serial port cable connect the port of the Addenda marked “RS422 to VTR” to the deck control serial port of the deck.

G.) O.S. setting recommendations for optimum performance with Avid Editing applications:

The following links provide O.S. setting suggestions for ensuring optimum performance when working with your Avid editing application with a Windows operating system.

- Optimizations for Video Editors - Windows 7, windows 10

http://avid.force.com/pkb/articles/en_US/Troubleshooting/Media-Composer-Windows-10-Optimizations-and-Troubleshooting

I.) **Intel NIC Port(s) for NEXIS connectivity:**

Embedded I219/I210 ports / Intel i350-T2 Dual Gb NIC HBA

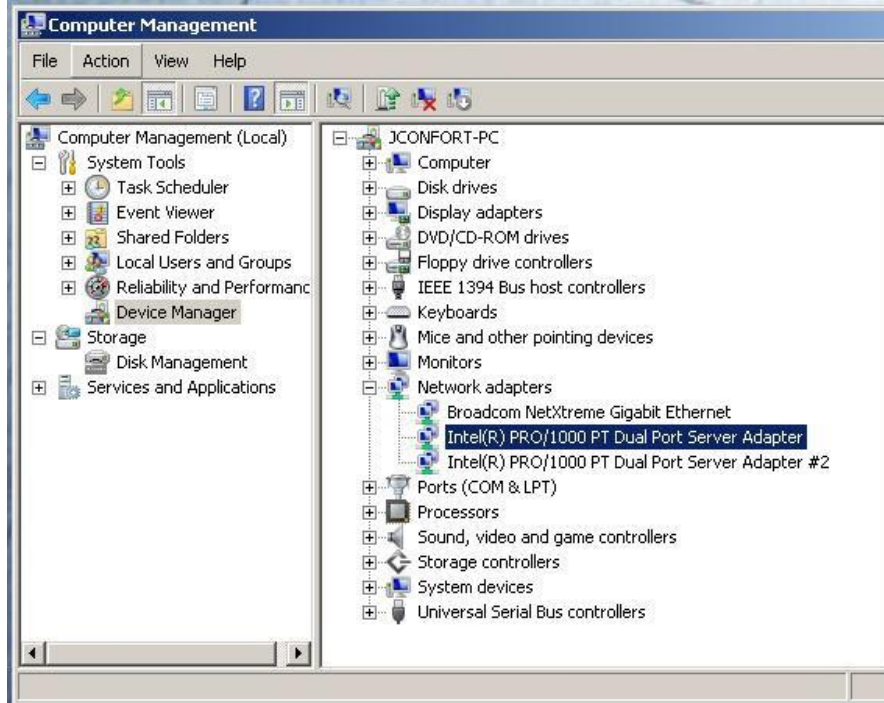
For proper operation and connectivity of any Intel NIC port used with NEXIS the settings below are required.

Example below is for the Intel PRO 1000 PT.

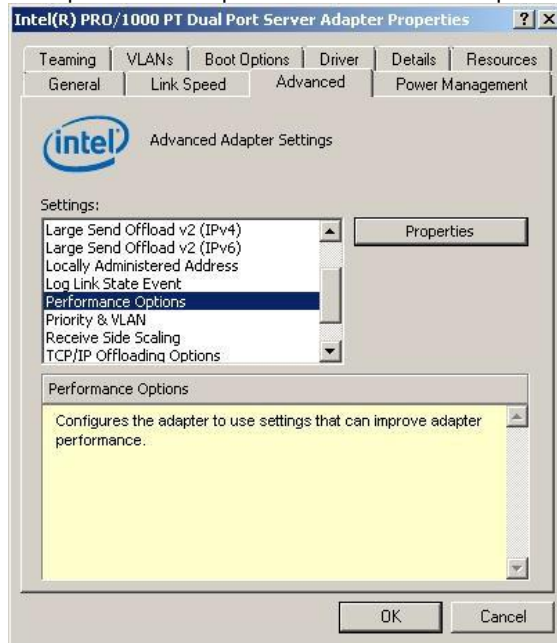
1. For the performance settings, change the following parameters:
 - Receive Buffers to 1024
 - Transmit Buffers to 1024
2. Disable the windows firewall.

To set the Intel NIC Receive / Transmit buffers:

Go to device manager and select each instance of the network adapter device which will be used for NEXIS connectivity.

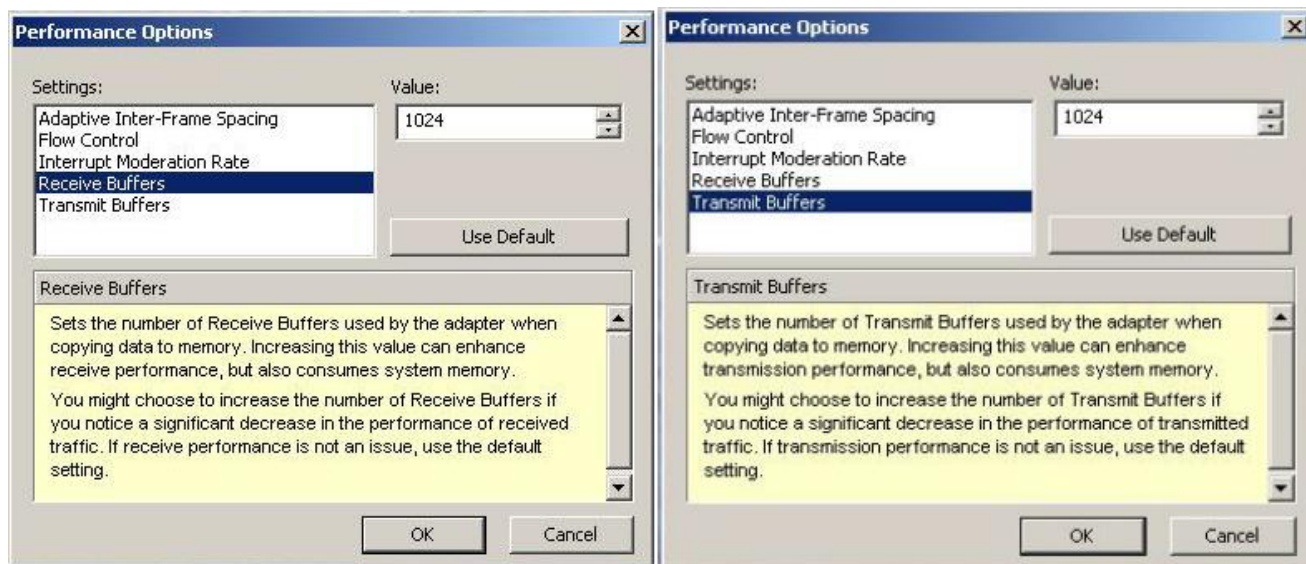


Select performance options and then select Properties.



Set Receive Buffers to 1024

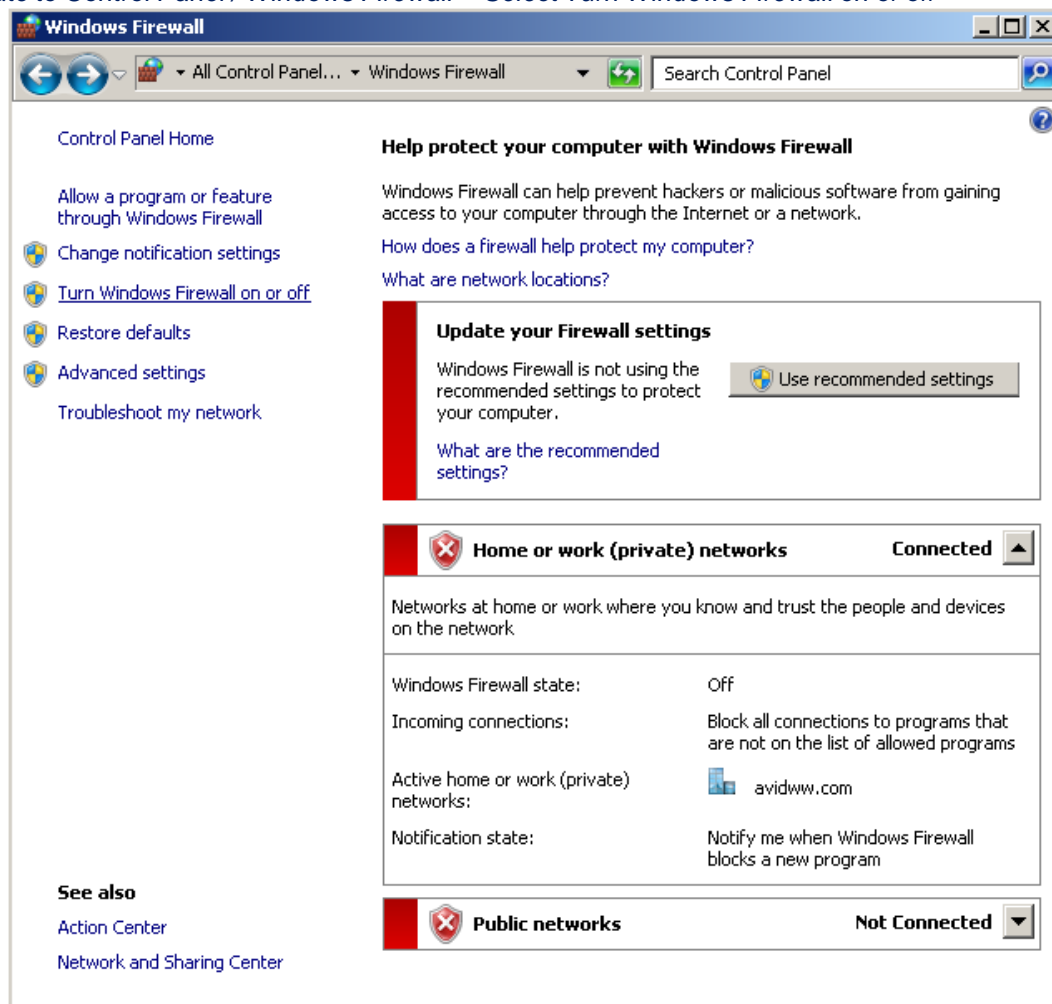
Set Transmit Buffers to 1024



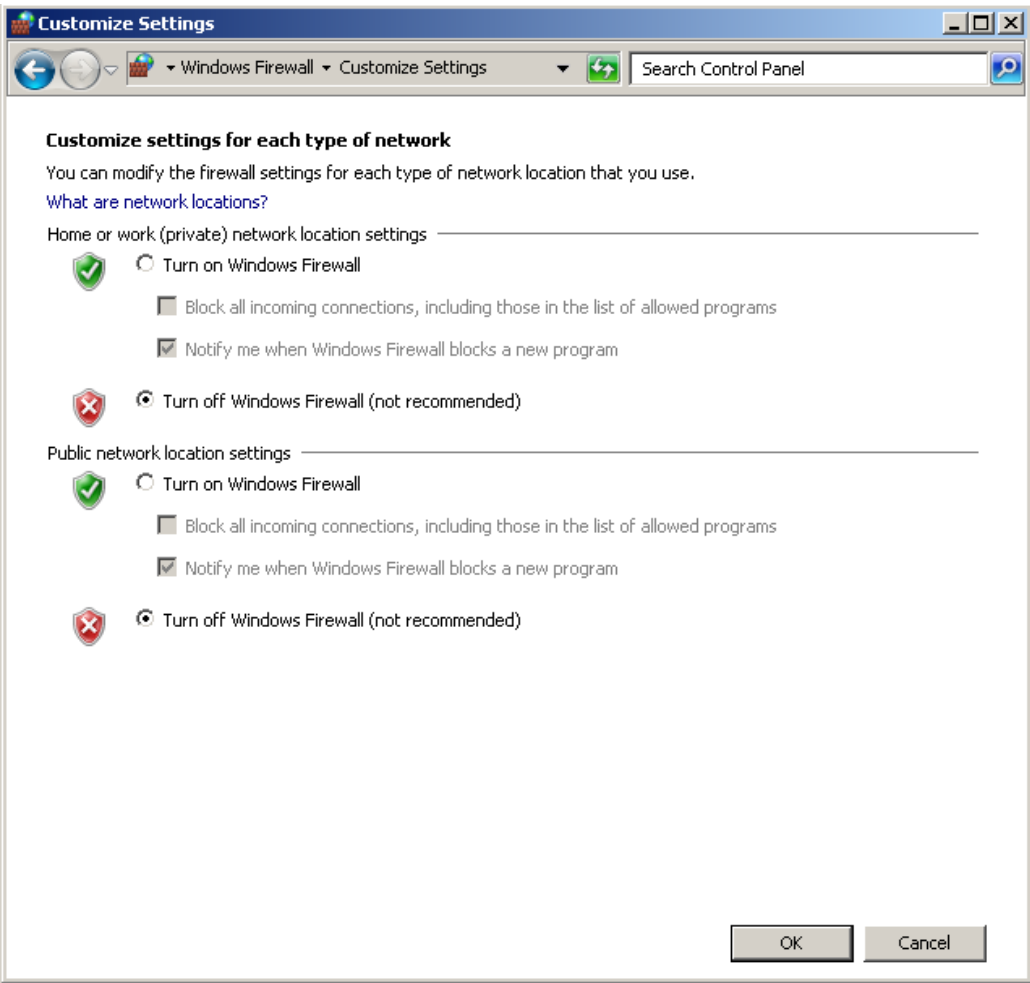
Perform this for each instance of and Intel NIC port which will be used for NEXIS connectivity.

J.) Disable the windows firewall:

Navigate to Control Panel / Windows Firewall -- Select Turn Windows Firewall on or off



Select Turn off windows firewall in both network locations, OK to save



Revision Update

Revision	Date	Name	Update
Rev A	Nov 10, 2017	Dave Pimm	Initial release of the Dell R7920 configuration guide
Rev B	Feb 21, 2018	Dave Pimm	Add CPUs and fix issues
Rev C	April 25, 2018	Dave Pimm	updates