



**Avid Configuration Guidelines
Dell 7820 Tower workstation
Dual 8 to 28 Core CPU System**



Ports & Slots

1. Power button/Power light | 2. Drive activity light | 3. SD card slot | 4. USB 3.0 ports | 5. USB 3.0 Type-C port with PowerShare | 6. USB 3.0 Type-C port | 7. Headset port | 8. 5.25 inch bay (optional) | 9. Optical drive | 10. Drive access release latch | 11. Drive carriers | 12. Microphone/Line-in port | 13. PS/2 Mouse port | 14. USB 3.0 ports | 15. Discrete graphics card slot (optional) | 16. Padlock ring | 17. Security cable slot | 18. Power cable connector | 19. Line-out port | 20. Serial port | 21. PS/2 Keyboard port | 22. Network port | 23. USB 3.0 port (supports smart Power-On) | 24. Expansion card slots

1.) Dell 7820 AVID Qualified System Specification:

7820 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 5118 2.3 Ghz, turbo up to 3.2Ghz 12-core (Good)
- Dual Xeon Gold 5120 2.2 Ghz, turbo up to 3.7Ghz 14-core
- 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 *
- Dual Xeon Gold 6140 2.3 Ghz, turbo up to 3.7Ghz 18-core *
- 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 6148 2.4 Ghz, turbo up to 3.7Ghz 20-core *
- Dual Xeon Gold 6152 2.1 Ghz, turbo up to 3.7Ghz 22-core *
- Dual Xeon Gold 6154 3.0 Ghz, turbo up to 3.7Ghz 18-core * (Best Performance)
- Dual Xeon Platinum 8160 2.1 Ghz, turbo up to 3.7Ghz 24-core *
- Dual Xeon Platinum 8168 2.7 Ghz, turbo up to 3.7Ghz 24-core *
- Dual Xeon Platinum 8180 2.5 Ghz, turbo up to 3.8Ghz 28-core *

Supported Intel Xeon Scalable family Gen 2 (Cascade lake) CPU Choices

- Dual Xeon Silver 4216 2.1 Ghz, turbo up to 3.2 Ghz 16-core *
- Dual Xeon Gold 5215 2.5 Ghz, turbo up to 3.4 Ghz 10-core
- Dual Xeon Gold 5218 2.3 Ghz, turbo up to 3.9 Ghz 16-core * (Good - SD, HD editing)
- Dual Xeon Gold 5220 2.2 Ghz, turbo up to 3.9 Ghz 18-core *
- Dual Xeon Gold 6230 2.1 Ghz, turbo up to 3.9 Ghz 20-core *
- Dual Xeon Gold 6240 2.6 Ghz, turbo up to 3.9 Ghz 18-core *
- Dual Xeon Gold 6242 2.8 Ghz, turbo up to 3.9 Ghz 16-core * (Better - UHD editing)
- Dual Xeon Gold 6244 3.6 Ghz, turbo up to 4.4 Ghz 8-core
- Dual Xeon Gold 6248 2.5 Ghz, turbo up to 3.9 Ghz 20-core *
- Dual Xeon Gold 6252 2.1 Ghz, turbo up to 3.7 Ghz 24-core *
- Dual Xeon Gold 6254 3.1 Ghz, turbo up to 4.0 Ghz 18-core * (Best – UHD 5994 4 stream XAVC)
- Dual Xeon Platinum 8260 2.4 Ghz, turbo up to 3.9 Ghz 24-core *
- Dual Xeon Platinum 8268 2.9 Ghz, turbo up to 3.9 Ghz 24-core *
- Dual Xeon Platinum 8280 2.7 Ghz, turbo up to 4.0 Ghz 28-core * (super high perf with extreme cost)

2nd Gen REFRESH early 2020 (faster and cheaper)

- Dual Xeon Gold 5218R 2.1 Ghz, turbo up to 4.0 Ghz 20-core *
- Dual Xeon Gold 5220R 2.2 Ghz, turbo up to 4.0 Ghz 24-core *
- Dual Xeon Gold 6226R 2.9 Ghz, turbo up to 3.9 Ghz 16-core * (Good - SD, HD editing)
- Dual Xeon Gold 6230R 2.1 Ghz, turbo up to 4.0 Ghz 26-core *
- Dual Xeon Gold 6238R 2.2 Ghz, turbo up to 4.0 Ghz 28-core *
- Dual Xeon Gold 6240R 2.4 Ghz, turbo up to 4.0 Ghz 24-core *
- Dual Xeon Gold 6242R 3.1 Ghz, turbo up to 4.1 Ghz 20-core *
- Dual Xeon Gold 6246R 3.4 Ghz, turbo up to 4.1 Ghz 16-core * (Better - UHD editing)
- Dual Xeon Gold 6248R 3.0 Ghz, turbo up to 4.0 Ghz 24-core *
- Dual Xeon Gold 6258R 2.7 Ghz, turbo up to 4.0 Ghz 28-core * (Best – UHD 5994 4 stream XAVC)

Notes –

- Higher CPU speeds are preferred over CPU core count for MC application
- Dual 16+ Core CPUs require MC 8.9.3 or higher (64+ virtual CPUs)

Supported Video Cards

- 1.) NVIDIA P2000 8GB PCI-e video board
- 2.) NVIDIA P4000 8GB PCI-e video board (recommended)
- 3.) NVIDIA P5000 16GB PCI-e video board
- 4.) NVIDIA RTX4000 8GB PCI-e video board (MC 2018.12.2 or later required) (recommended)
- 5.) NVIDIA RTX5000 16GB PCI-e video board (MC 2018.12.2 or later required)
- 6.) AMD Radeon Pro WX7100 8GB PCI-e video board
- 7.) 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 with Xeon scalable Skylake CPU's will use DDR4-2666 MHz memory (up to 12 DIMMs per system)
- Systems with Xeon scalable Gen2 Cascade Lake CPU's use DDR4-2933 MHz memory (up to 12 DIMMs)
- Each CPU has 6 memory lanes - optimal bandwidth when all 12 memory lanes filled

- 64GB (8 x 8GB) DDR4 2666/2933MHz ECC memory – (Requires eight 8GB DIMMs) - minimum
- 96GB (12 x 8GB) DDR4 2666/2933 ECC memory – (Requires twelve 8GB DIMMs) – **Best Performance**

Memory modules must be installed according to manufacturer's requirements

Optional AVID memory configuration:

- 128GB (8 x 16GB) DDR4 2666/2933 ECC memory – (Requires eight 16GB DIMMs)
- 192GB (12 x 16GB) DDR4 2666/2933 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 7820:

Dell Supports:

- **Microsoft® Windows 10 Pro / Enterprise 64-bit Edition Version 1809 or later – (MC 8.8 or above)**

See microsoft win 10 lifecycle fact sheet for supported Win 10 versions:

<https://support.microsoft.com/en-us/help/13853/windows-lifecycle-fact-sheet>

Not Supported –

- **Microsoft® Windows 7 – any version**
- **Microsoft Windows 8 or 8.1 – any version**

Media Composer Application	Minimum Rev
Media Composer 18.12.x	18.12.2 required for Gen 2 Scalar CPUs and Nvidia RTX graphics
Media Composer 8.x	8.8 for Gen 1 Scalar CPUs, Nvidia Pascal graphics 8.9.3 required for CPU virtual core count > 64
Media Composer 7.x	Not supported
NewsCutter 11.x	Not Supported

- * Nvidia P2000, P4000, P5000 require Nvidia driver that ships with the version of MC 8.8 and above
- * Nvidia RTX4000, RTX5000 require Nvidia driver that ships with the version of MC 2018.12.2 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

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 EOL March 2020
Artist DNxIO/ DNxIQ (PCIe or thunderbolt connection) Artist DNxIV/DNxIP/DNxID (thunderbolt only connection)	Yes – Supported <u>PCIe Guidance</u> PCIe preferred as it requires less system over-head due to direct PCIe to PCIe connection between the host CPU and Artist DNxIO/IQ. <u>Thunderbolt Guidance</u> Thunderbolt 2 & 3 - higher system over-head, not recommended to share Thunderbolt devices on the same TB bus with DNxIO/IQ, DNxIV/IP, DNxID DELL 7820 supports only one Thunderbolt 3 HBA with dual Thunderbolt 3 ports. DNxIO would require TB3 to TB2 converter Thunderbolt 2 offers support of cable lengths up to 60-meters (via qualified Corning Thunderbolt cables) for users needing to physically place the Artist DNxIO at longer distances from the host CPU Workstation.
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 T2V2, i219	ISIS 5500 / 5000 , 7500 / 7000 Avid NEXIS Pro, E2, E2 SSD, E4, E5, E5 NL V18.x
NEXIS / ISIS Ultra Hi-res (10Gbit) client Myricom Single or dual Port 10Gbit Atto FFRM-NS11,NS12 NT11, NT12 Intel X520-T2, X540-T2, X710	ISIS 5500 / 5000 , 7500 / 7000 Avid NEXIS Pro, E2, E2 SSD, E4, E5, E5 NL V18.x
NEXIS 40Gigabit Atto FFRM-NQ 41/42	Avid NEXIS Pro, E2, E2 SSD, E4, E5, E5 NL V18.x

4.) AVID qualified HBA info

AVID qualified HBA	AVID Part Number	Slot Location	Function
Avid Artist DNxIO HBA Avid Artist DNxIQ HBA	Avid part # 7030-30048-02 BMD PCIe cable kit	#5	Avid Artist DnxIO interface HBA Avid Artist DNxIQ interface HBA
Mojo-DX Interface HBA EOL March 2020	Active: 7030-30048-02 Active: 7030-30048-01 Active: 7030-20084-01	#5	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	#5 preferred #4 or 1 optional	TB3 for DNxIV/IP, DNxID or TB storage
Atto R680, H680	Not stocked by AVID	#4	Local SAS Storage
LSI 9200-8e SAS controller	7030-30036-01	#4	Local SAS Storage
Vendor qualified 3 rd party hardware X4 PCI-E	Not stocked by AVID	#5	Vendor qualified 3 rd party hardware interface. See release notes and Avid website for information regarding supported 3 rd party hardware
Atto FFRM-NQ 41/42 Single or dual port 40Gb	Not stocked by AVID	#1	Shared Storage: NEXIS 40 Gb-Ethernet
Atto FFRM-NS11, NT11, NS12, NT12 10 Gb single or dual port	Not stocked by AVID	#1	Shared Storage: NEXIS Optical Gb-Ethernet
Intel i350-T2 – Dual Gb NIC	Not stocked by AVID	#1	Shared Storage: NEXIS Copper Gb-Ethernet Dual Gb NEXIS Connectivity
Intel X520, X540 single or dual port 10Gb	Not stocked by AVID	#1	Shared Storage: NEXIS Optical Gb-Ethernet
Myricom 10G-PCIE-8B-S 10G-PCIE-8B2-2S 10G-PCIE-8C2-2T	7030-30041-01	#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
- Dell thunderbolt 3 PCIe card is only supported in T7920, T7820 and T5820. For older Dell workstations, use Thunderbolt 2 PCIe card from Dell.

5.) Slot Configuration:

Slot Configuration Information			
Slot #	Electrical	Mechanical	
1	X8 PCI-E Gen 3	x16	Shared Storage Controllers Nexis/ISIS Intel X710, i350-T2 Atto FFRM-NS11/NS12 Myricom 10G-PCIE-8B-S
2	x16 PCI-E Gen 3 (75Watts)	x16	Graphics Card: Nvidia P2000, P4000,P5000*, RTX4000, RTX 5000* AMD WX-7100 <i>Please Note: Dual slot graphics cards will block access to slot #3</i>
3	X1 PCI-E Gen 3	x16	Not recommended (x1 slot)
4	x16 PCI-E Gen 3 (75Watts)	x16	Local SAS Storage Controllers: or Pro Tools HD h/w
5	X4 PCI-E Gen 3	x16	Avid/BMD HIB card for DNxIO/DNxIQ/Mojo DX Or Dell Thunderbolt 3 adapter card
6	PCI 32/33	PCI	Not recommended for use (PCI slot)
	Embedded Intel I219-LM Gb NIC	PCI-E x1 Gen 3	Qualified for Avid Nexis/ISIS

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

The Dell 7820 has one embedded NIC port which is qualified for Nexis

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 7820 systems

7820 Required system BIOS changes:

1. Verify CPU Processors are set to Hyper-Threading
2. Memory option for NUMA – [Disable](#)

Set 7820 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:

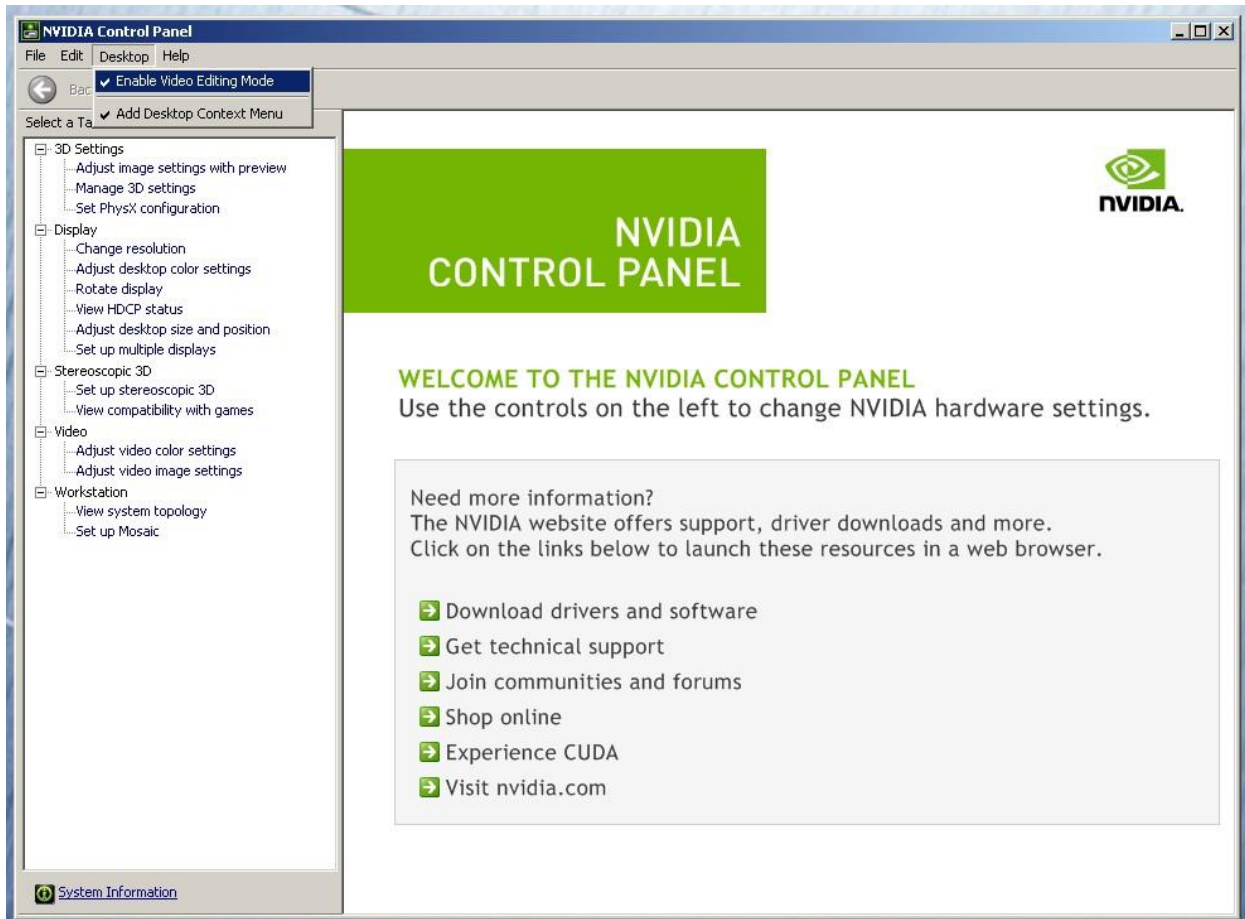
AVID Software	Version(s)	GPU	Driver Required
Media Composer	2018.12.2	RTX4000, RTX5000	411.95
Media Composer	8.8.x	Nvidia P2000, P4000, P5000	Nvidia 385.08
Media Composer	8.8.x	AMD WX7100, WX9100	AMD 18Q1

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>

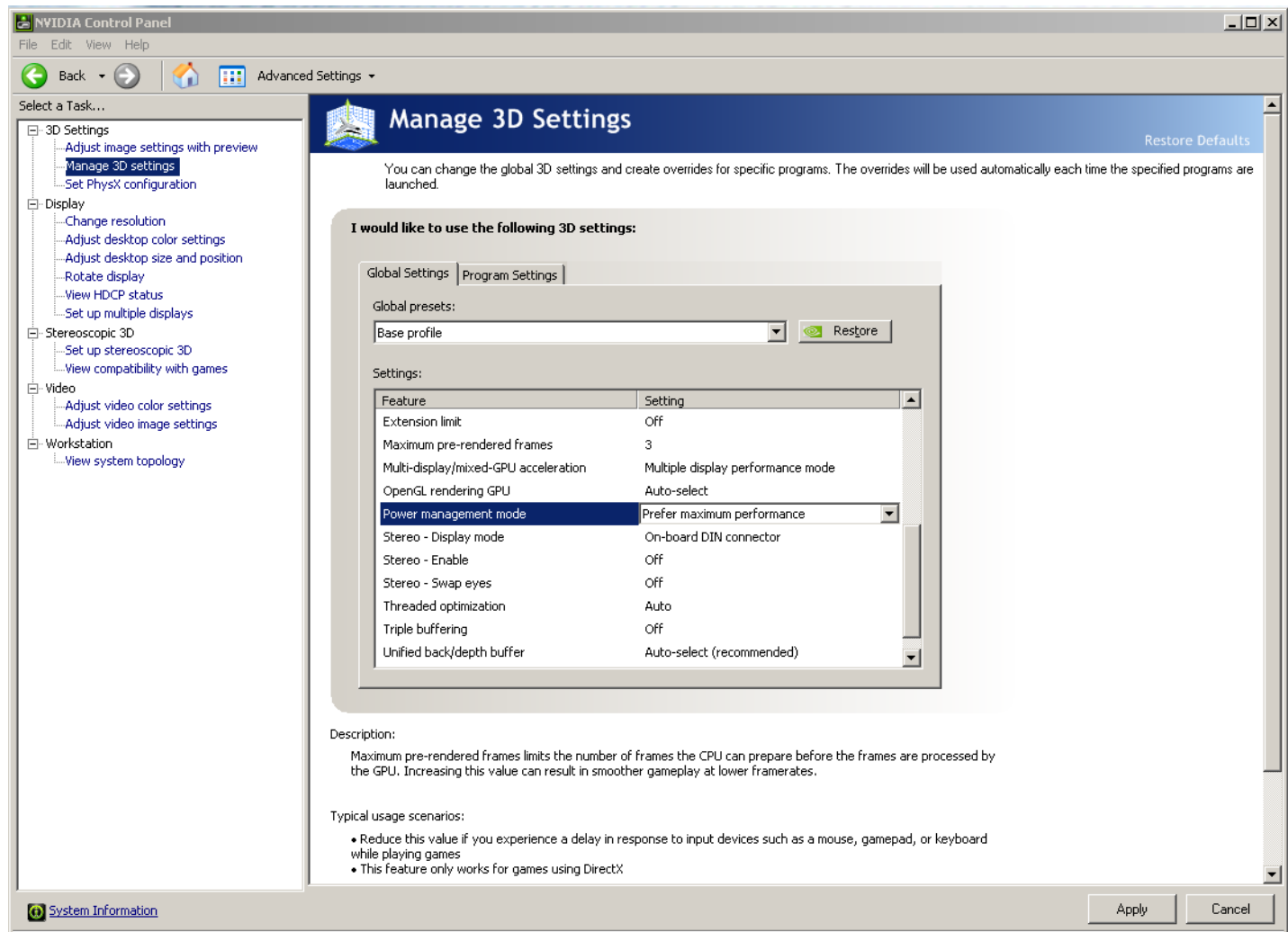
Set optimized Nvidia driver settings for Avid editing environments:

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 P2000 & P4000 graphics card has four Display-Port ports. All 4 ports can be used simultaneously.

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

The RTX 4000 has 3 Display Ports. The RTX5000 has 4 Display Ports.

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 7820 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:

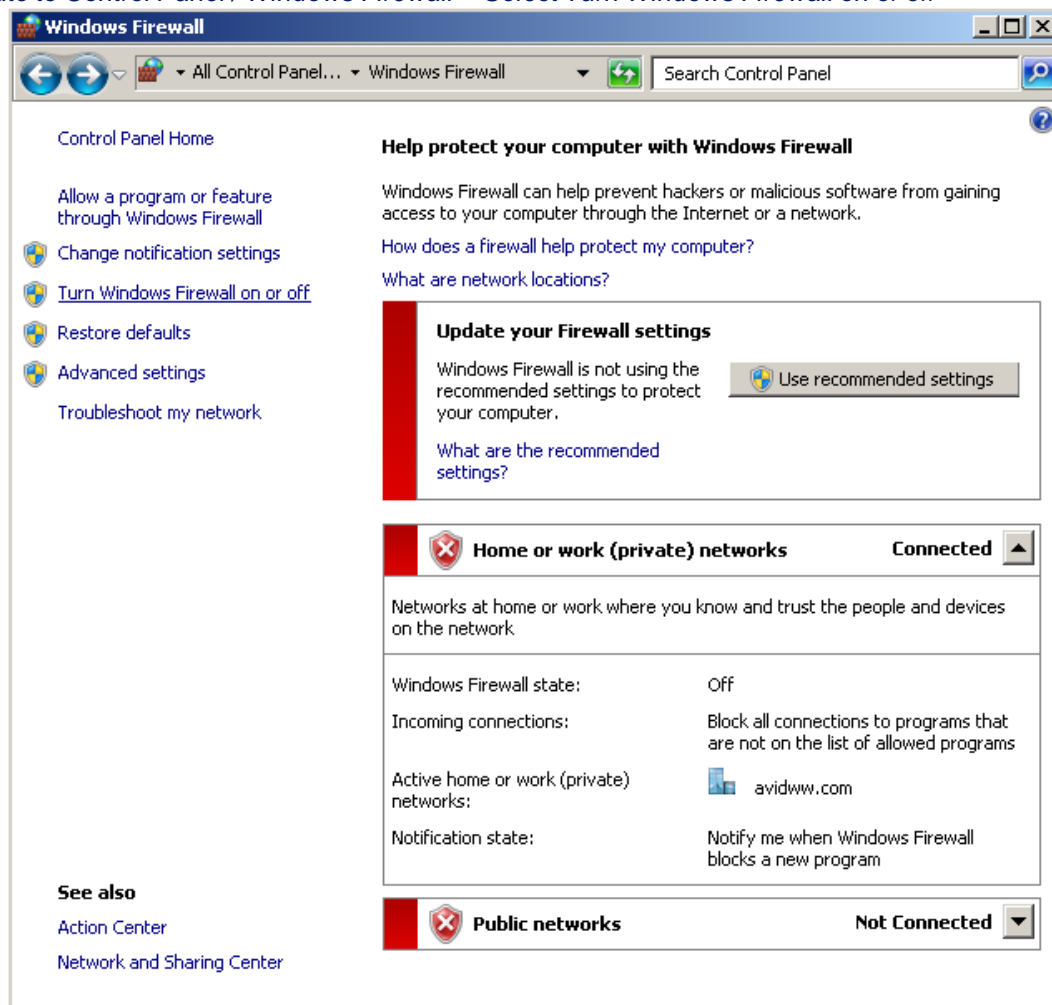
The following links provide O.S. setting suggestions for ensuring optimum performance when working with your Avid editing application with a Windows operating system.

- Optimizations for Video Editors - Windows 7, windows 10

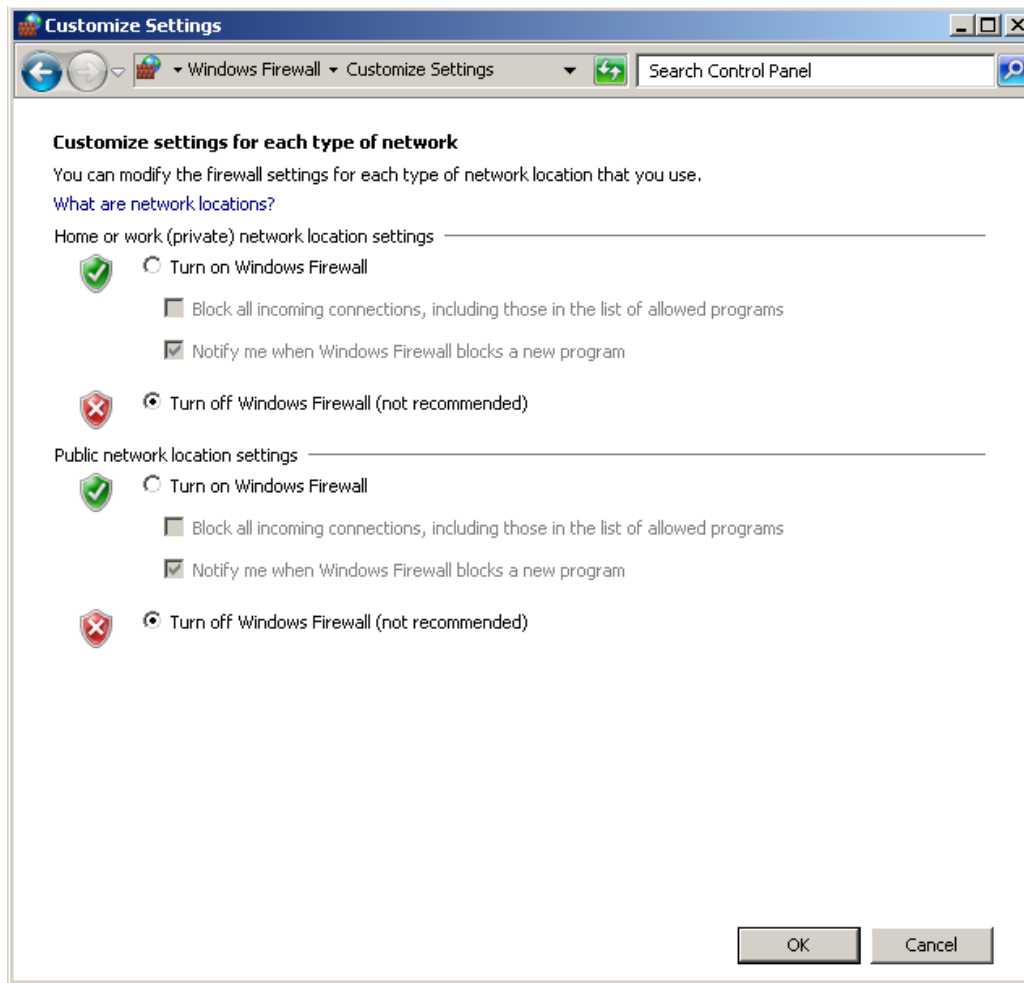
http://avid.force.com/pkb/articles/en_US/Troubleshooting/Media-Composer-Windows-10-Optimizations-and-Troubleshooting

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 7820 configuration guide
Rev B	Jan 25, 2018	Dave Pimm	Replace P6000 with P2000
Rev C	Feb 21, 2018	Dave Pimm	Fix issues
Rev D	April 25, 2018	Dave Pimm	Updates
Rev E	March 25, 2019	Dave Pimm	Add Nvidia RTX cards
Rev F	June 24, 2019	Dave Pimm	Add 2 nd Gen Scalar CPUs, 40 Gb NICs
Rev G	July 28, 2020	Dave Pimm	Add 2 nd Gen Scalar REFRESH Intel Processors