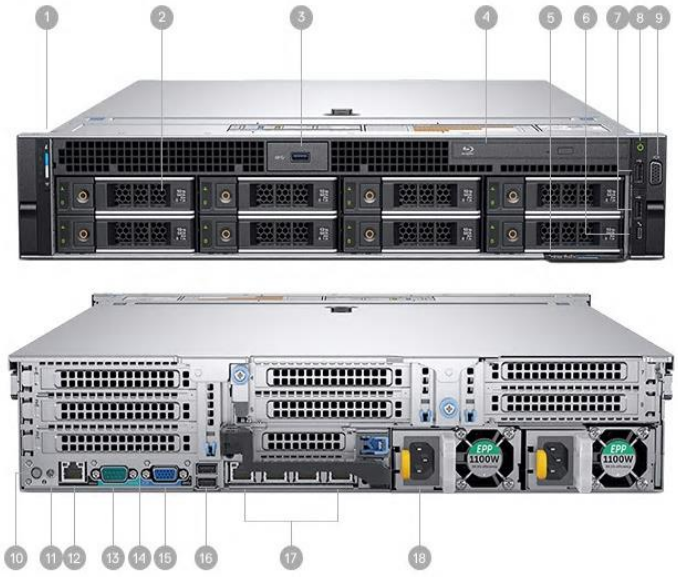
Avid Configuration Guidelines
Dell R7920 Rack workstation
Dual 8 to 28 Core CPU System



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)

Dave Pimm – Avid Technology – Feb 4, 2022
Rev H

1.) Dell R7920 AVID Qualified System Specification:

R7920 Hardware Configuration

Supported Intel Xeon Scalable family (Skylake) CPU Choices (no longer available)

- 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 *
- 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 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 * (Best – UHD 5994 4 stream XAVC)
- 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 *(Best – UHD 5994 4 stream XAVC)
- Dual Xeon Gold 6258R 2.7 Ghz, turbo up to 4.0 Ghz 28-core *

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 P4000 8GB PCI-e video board (no longer available)
2.) NVIDIA P5000 16GB PCI-e video board (no longer available)
3.) NVIDIA P6000 24GB PCI-e video board (no longer available)
4.) AMD Radeon Pro WX7100 8GB PCI-e video board (no longer available)
5.) AMD Radeon Pro WX9100 16GB PCIe video board (no longer available)
6.) NVIDIA RTX4000 8GB PCI-e video board (MC 2018.12.2 or later required)
7.) NVIDIA RTX5000 16GB PCI-e video board (MC 2018.12.2 or later required)
8.) NVIDIA RTX6000 24GB PCI-e video board (MC 2018.12.2 or later required)
9.) NVIDIA RTX A4000 16GB PCI-e video board (Min 2019.12) (best price performance)
10.) NVIDIA RTX A4500 20GB PCI-e video board (Min 2019.12
11.) NVIDIA RTX A5000 24GB PCI-e video board (Min 2019.12) (better performance)
12.) NVIDIA RTX A6000 48GB PCI-e video board (Min 2019.12) (best performance – higher $$)
13.) AMD Radeon Pro WX5700 8GB PCI-e video board
14.) AMD Radeon Pro W6800 32GB PCI-e video board (best performance - AMD

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 DDR4-2666MHz memory (up to 24 DIMMs per system)
- Systems with Xeon scalable Gen2 Cascade Lake CPU's use DDR4-2933MHz memory (up to 24 DIMMs)
- Each CPU has 6 memory lanes - optimal bandwidth when all 12 memory lanes filled

- 64GB (8 x 8GB) DDR4 2666/2933 MHz 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 (16 x 8GB) DDR4 2666/2933 ECC memory – (Requires sixteen 8GB DIMMs)
- 128GB (8 x 16GB) DDR4 2666/2933 ECC memory – (Requires eight 16GB DIMMs)
- 192GB (24 x 8GB) DDR4 2666/2933 ECC memory – (Requires twenty four 8GB DIMMs)
- 192GB (12 x 16GB) DDR4 2666/2933 ECC memory – (Requires twelve16GB 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 11 Pro / Enterprise 64-bit Edition Version 21H2 or later – (MC 21.12 or above)**
- **Microsoft® Windows 10 Pro / Enterprise 64-bit Edition Version 20H2 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**
- **Microsoft Windows 10 1909 or before**

Media Composer Application	Minimum Rev
Media Composer 19.12.x	19.12.x required for Nvidia RTX A series graphics
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 P4000, P5000, P6000 require Nvidia driver that ships with the version of MC 8.8 and above
* Nvidia RTX4000, RTX5000, RTX 6000 require Nvidia driver that ships with the version of MC 2018.12.2 and above
* Nvidia RTX A4000, RTX A5000 require Nvidia driver 462.96 and above
* AMD WX7100, WX9100 require AMD driver released 18.Q1 or later
* AMD W5700 requires AMD driver 2020.Q2 or later
* AMD W6800 requires AMD driver 2021.Q4 or later

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/Mojo DX	Not SUPPORTED EOL March 2020
Artist DNxIO/ DNxIQ (PCIe only)	Yes – Supported PCIe only thunderbolt card is NOT supported in this rack system
Artist DNxIV/IP/DNxID (thunderbolt only connection)	NOT SUPPORTED Thunderbolt card not supported in Rack 7920
3rd Party Qualified Hardware	See release notes and Avid website for information regarding supported 3rd party hardware (vendor qualified)
NEXIS Single 1Gb Ethernet Client NEXIS Dual 1Gb Ethernet Client Intel i350 T2V2, i219	Avid NEXIS Pro, E2, E2|SSD, E4, E5, E5|NL V20.8
NEXIS Ultra Hi-res (10Gbit) client Myricom Single or dual Port 10Gbit Atto FFRM-NS11,NS12 NT11, NT12 Intel X520-T2, X540-T2, X710	Avid NEXIS Pro, E2, E2|SSD, E4, E5, E5|NL V20.8
NEXIS 40Gigabit Atto FFRM-NQ 41/42 Atto FFRM-N351/N352 (40 Gb only)	Avid NEXIS Pro, E2, E2|SSD, E4, E5, E5|NL V20.8

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
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 3rd party hardware x8 PCI-E	Not stocked by AVID	Riser 3A Slot 7	Vendor qualified 3rd party hardware interface. See release notes and Avid website for information regarding supported 3rd party hardware
Atto FFRM-NQ 41/42 Atto FFRM-N351/N352 (40 Gb only) Atto FFRM-N311/N312 (40 Gb only	Not stocked by AVID	Riser 1C Slot 1	Shared Storage: NEXIS 40 Gb-Ethernet
Atto FFRM-NS11,NS12 NT11, NT12 Intel X550, X520-T2, X540-T2, X710-DA2, X722 Atto FFRM-N322 (10 Gb only)	Not stocked by AVID	Riser 1C Slot 1	Shared Storage: NEXIS 10 Gb-Ethernet
Intel i350-T2 – Quad Gb NIC	Not stocked by AVID	Riser 1C Slot 1	Shared Storage: NEXIS 1 Gb-Ethernet Dual Gb NEXIS Connectivity

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 CPU1	x16 75W	Shared Storage Controllers for Nexis
R1C 2	X8 PCI-E Gen 3 (75Watts) CPU1	x16 75W	Optional Dell M.2 PCIe NVMe SSD card
R1C 3	X8 PCI-E Gen 3 CPU1	x16 ½ length	Optional Dell M.2 PCIe NVMe SSD card
R2A 4	x16 PCI-E Gen 3 (75Watts) CPU2	x16 75W	Graphics Card: Nvidia or AMD GPUs
R2A 5	X8 PCI-E Gen 3 CPU2	x16 75W	Not used – Double width graphics cover this slot.
R2A 6	X8 PCI-E Gen 3 CPU1	x16 Low Profile ½ Length	Optional Audio PCIe half height card Required for MC
R3A 7	X8 PCI-E Gen 3 CPU2	x16 75W	Avid/BMD HIB card for DNxIO/DNxIQ OR Vendor Qualified 3rd Party Hardware PCIe x8
R3A 8	X16 PCI-E Gen 3 CPU2	X16 75W	Local SAS Storage Controllers:
	Embedded Intel I350-t 4port 1Gb NIC	PCI-E x8 Gen 2	Qualified for Avid Nexis
	Embedded Intel X550 4p 10Gb NIC X710 4p 10Gb SFP	PCI-E x8 Gen 2	Qualified for Avid Nexis

6.) Use of embedded NIC ports for Nexis 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+. Both are qualified with 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 10 24
   - 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)

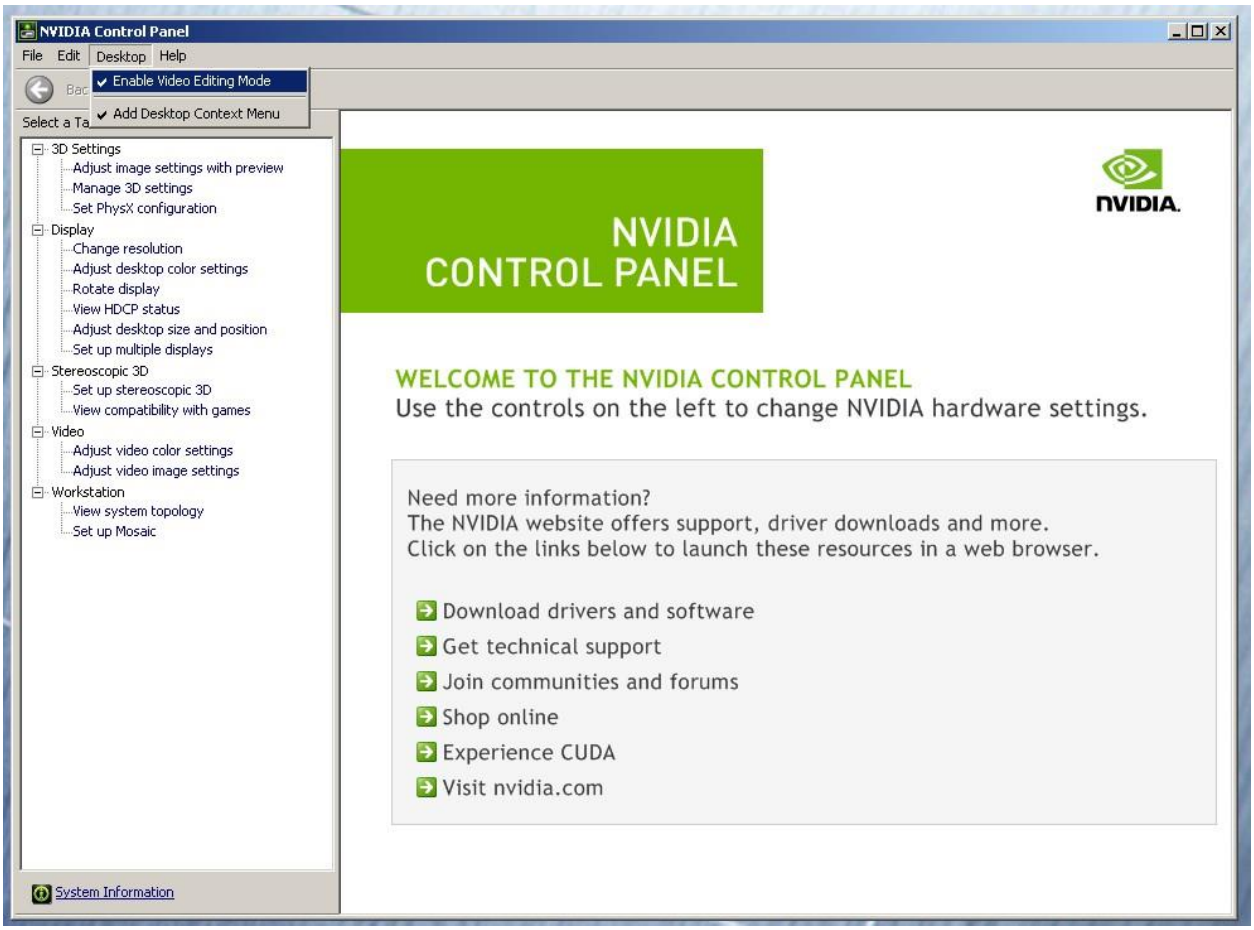
8.) Graphics Qualified Drivers:

AVID Software	Version(s)	GPU	Driver Required
Media Composer	2021.12	Nvidia AMD	472.47 2021.Q4
Media Composer	2019.12	RTX A4000, A5000, A6000	462.96
Media Composer	2018.12.2	RTX4000, RTX5000, RTX6000	411.95
Media Composer	8.8.x	Nvidia P4000, P5000, P6000	Nvidia 385.08
Media Composer	8.8.x	AMD WX7100, WX9100	AMD 18Q1

** Neither graphics driver is included with MC release builds. You can find links to this driver on the Avid Media Composer Documentation and Version Matrix web page
http://avid.force.com/pkb/articles/en_US/compatibility/en267087

Set optimized Nvidia driver settings for Avid editing environments:

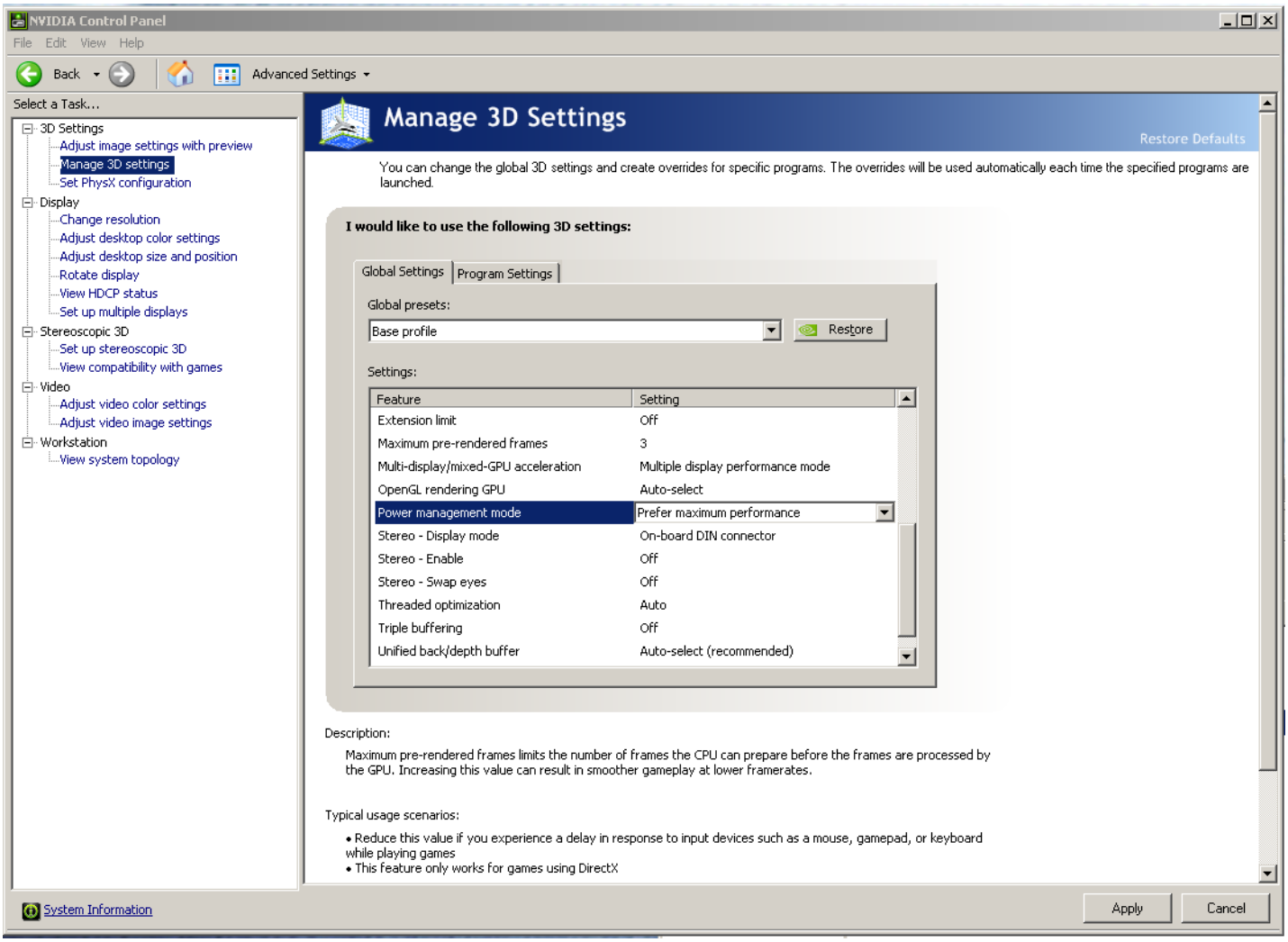
1. See picture below
2. Right-Click on the desktop and select Nvidia Control Panel
3. Select the “Desktop” menu selection in the control panel menu bar.
4. Enable “Desktop -> Video Editing Mode



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 RTX 4000 has 3 Display Ports. The RTX5000 & RTX6000 have 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 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 using USB to serial port adapters. See the Avid KB for more info.

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 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

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
Rev D	March 25, 2019	Dave Pimm	Add Nvidia RTX cards
Rev E	June 28, 2019	Dave Pimm	Add 2nd Gen Scalar CPUs, 40 Gb NICs
Rev F	July 28, 2020	Dave Pimm	Add 2nd gen scalar REFRESH Intel processors
Rev G	Aug 23, 2021	Dave Pimm	Add new Nvidia GPUs
Rev H	Feb 4, 2022	Dave Pimm	Add new GPUs, Win 11