Avid Configuration Guidelines
Dell 5820 Tower workstation
6 to 18 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

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1.) Dell 5820 AVID Qualified System Specification:

5820 Hardware Configuration

Intel Xeon W-series (Skylake - Q3 '17) - No longer available

- Xeon W-2133 3.6 Ghz, turbo up to 3.9Ghz 6-core
- Xeon W-2135 3.7 Ghz, turbo up to 4.5Ghz 6-core (Good)
- Xeon W-2145 3.7 Ghz, turbo up to 4.5Ghz 8-core (Better)
- Xeon W-2155 3.3 Ghz, turbo up to 4.5Ghz 10-core
- Xeon W-2175 2.5 Ghz, turbo up to 4.3Ghz 14-core
- Xeon W-2195 2.3 Ghz, turbo up to 4.3Ghz 18-core (Best performance)

9th Gen Intel Core X-series CPU (Skylake - Q4 '18) – No longer available

- I7- 9800X 3.8 Ghz, turbo up to 4.4 Ghz 8-core (Good)
- I9- 9820X 3.3 Ghz, turbo up to 4.1 Ghz 10-core
- I9- 9900X 3.5 Ghz, turbo up to 4.4 Ghz 10-core
- I9- 9920X 3.5 Ghz, turbo up to 4.4 Ghz 12-core (Better)
- I9- 9940X 3.3 Ghz, turbo up to 4.4 Ghz 14-core
- I9- 9960X 3.1 Ghz, turbo up to 4.4 Ghz 16-core
- I9- 9980XE 3.0 Ghz, turbo up to 4.4 Ghz 18-core (Best performance)

10th Gen Intel Core X-series CPU (Cascade lake - Q4 '19) - *min MC 2018.12.x – Lowest pricing – no ECC*

- I9- 10900X 3.7 Ghz, turbo up to 4.5 Ghz 10-core
- I9- 10920X 3.5 Ghz, turbo up to 4.6 Ghz 12-core (Better)
- I9- 10940X 3.3 Ghz, turbo up to 4.6 Ghz 14-core
- I9- 10980XE 3.0 Ghz, turbo up to 4.6 Ghz 18-core (Best performance)

Intel Xeon W-series (Cascade lake – Q4 '19) - min MC 2018.12.x – Lower pricing than Skylake W-series

- Xeon W-2235 3.8 Ghz, turbo up to 4.6 Ghz 6-core
- Xeon W-2245 3.9 Ghz, turbo up to 4.5 Ghz 8-core (Good)
- Xeon W-2255 3.7 Ghz, turbo up to 4.5 Ghz 10-core
- Xeon W-2265 3.5 Ghz, turbo up to 4.6 Ghz 12-core (Better)
- Xeon W-2275 3.3 Ghz, turbo up to 4.6 Ghz 14-core
- Xeon W-2295 3.0 Ghz, turbo up to 4.6 Ghz 18-core (Best performance)

- Note – Higher CPU speeds are preferred over CPU core count for MC application (as turbo speeds are similar, higher core count will give better performance.

Supported Video Cards

1.) NVIDIA P1000 4GB PCI-e video board
2.) NVIDIA P2000 5GB PCI-e video board
3.) NVIDIA P4000 8GB PCI-e video board
4.) NVIDIA RTX4000 8GB PCI-e video board (MC 2018.12.2 or later required)
5.) AMD Radeon Pro WX5100 8GB PCI-e video board
6.) AMD Radeon Pro WX7100 8GB PCI-e video board
7.) Nvidia T1000 4GB PCI-e video board (recommended)
8.) Nvidia RTX A4000 16GB PCI-e video board (Best performance)
9.) AMD Radeon Pro W5700 8GB PCI-e 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 Xeon W series Skylake CPU's will use DDR4-2666MHz ECC memory (up to 8 DIMMs per system)
- Systems with Xeon W Cascade lake CPUs use DDR4-2933MHz ECC memory (up to 8 DIMMs per system)
- Systems using i7/i9 X-series Skylake CPUs will use DDR4-2666Mhz Non-ECC memory

- Systems using i9 X-series Cascade Lake CPUs will use DDR4-2933Mhz Non-ECC memory
- Each CPU has 4 memory lanes - optimal bandwidth when all 4 memory lanes filled

    - 32GB (4 x 8GB) DDR4 2666MHz ECC memory – (Requires four 8GB DIMMs)

Memory modules must be installed according to manufacturer's requirements

Optional AVID memory configuration:

- 64GB (8 x 8GB) DDR4 2666 ECC memory – (Requires eight 8GB DIMMs)
- 64GB (4 x 16GB) DDR4 2666 ECC memory – (Requires four 16GB DIMMs)
- 128GB (8 x 16GB) DDR4 2666 ECC memory – (Requires eight 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

2.) Qualified Operating Systems, Avid Client Editing Applications, Hardware and Shared-Storage support for the Dell 5820:

Dell Supports:

- **Microsoft® Windows 10 Pro / Enterprise 64-bit Edition Version 2004 or later**

  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
Media Composer 18.12.x	18.12.2 required for Cascade Lake CPUs and Nvidia RTX graphics
Media Composer 8.x	8.8 for Skylake 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 P1000, P2000, P4000 require Nvidia driver that ships with the version of MC 8.8 and above
* Nvidia RTX4000 require Nvidia driver that ships with the version of MC 2018.12.2 and above
* AMD WX7100, WX5100 require AMD driver released 17.Q4
Nvidia T1000, RTX A4000, RTX A5000 require Nvidia driver 462.96 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 End of support 3/31/2020
Artist DNxIO/ DNxIQ (PCIe or thunderbolt connection) Artist DNxIV/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. <u>Thunderbolt Guidance</u> Thunderbolt 2 & 3 - higher system over-head, not recommended to share Thunderbolt devices on the same TB bus with DNxIO, DNxIQ, DNxIV, DNxID DELL 5820 supports only one Thunderbolt 3 HBA with dual Thunderbolt 3 ports. DNxIO would require TB3 to TB2 converter
3rd Party Qualified Hardware	See release notes and Avid website for information regarding supported 3rd party hardware
NEXIS Single 1Gb Ethernet Client NEXIS Dual 1Gb Ethernet Client Intel i350 T2V2, i219, X722	Avid NEXIS Pro, E2, E2|SSD, E4, E5, E5|NL V18.x
NEXIS Ultra Hi-res (10Gbit) client Atto FFRM-NS11,NS12 NT11, NT12 Intel X550, X520-T2, X540-T2, X710-DA2, X722 Atto FFRM-N322 (10 Gb only) Intel X520-T2, X540-T2, X710-DA2, X722	Avid NEXIS Pro, E2, E2|SSD, E4, E5, E5|NL V18.x
NEXIS 40Gigabit Atto FFRM-NQ 41/42 Atto FFRM-N351/N352 (40 Gb only)	Avid NEXIS Pro, E2, E2|SSD, E4, E5, E5|NL V18.x

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	#5	Avid Artist DnxIO interface HBA Avid Artist DNxIQ interface HBA
Dell Thunderbolt 3 adapter card X4 PCIe gen 3	Not stocked by AVID	#5 preferred #4 or 1 optional	TB3 for DNxIV, 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 3rd party hardware X4 PCI-E	Not stocked by AVID	#5	Vendor qualified 3rd party hardware interface. See release notes and Avid website for information regarding supported 3rd party hardware
Atto FFRM-NS11,NS12, NT11, 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 1 Gb-Ethernet Dual Gb NEXIS Connectivity
Intel X520, X540, X710 single or dual port 10Gb	Not stocked by AVID	#1	Shared Storage: NEXIS Optical 10 Gb-Ethernet
Atto FFRM-NQ 41/42 Atto FFRM-N351/N352 (40 Gb only) Atto FFRM-N311/N312 (40 Gb only)	Not stocked by AVID	#1	Shared Storage: NEXIS Optical 40Gb-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 T5820, T5820 and T3820. 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 Intel X710, i350-T2 Atto FFRM-NS11/NS12 Myricom 10G-PCIE-8B-S
2	x16 PCI-E Gen 3 (75Watts)	x16	Graphics Card: Nvidia or AMD GPUs
3	X1 PCI-E Gen 3	x16	Not recommended (x1 slot)
4	x16 PCI-E Gen 3 (75Watts)	x16	Local SAS Storage Controllers:
5	X4 PCI-E Gen 3	x16	Avid/BMD HIB card for DNxIO/DNxIQ 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

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

The 5820 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 5820 systems*

5820 Required system BIOS changes:

1. Verify CPU Processors are set to Hyper-Threading

Set 5820 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)

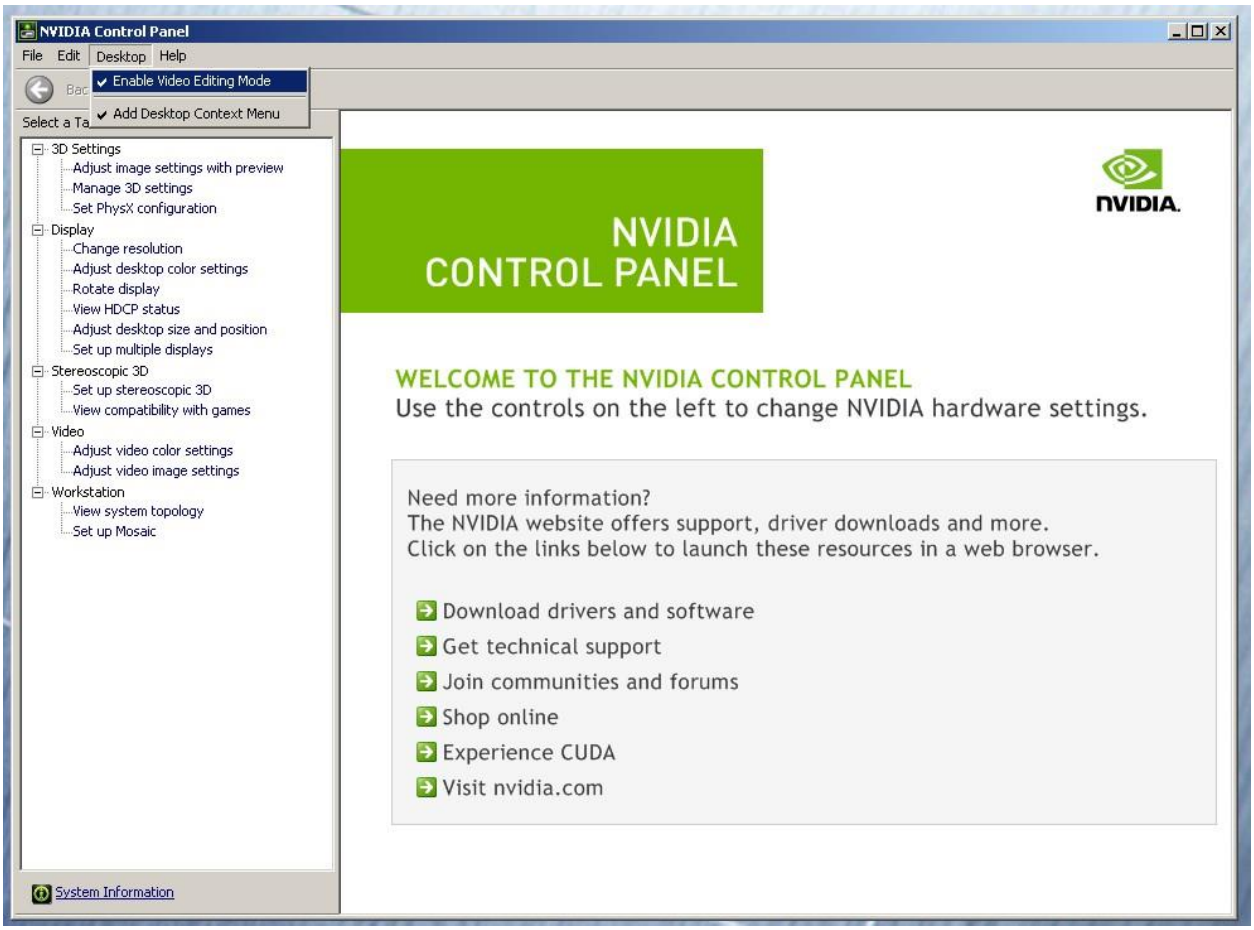
8.) Graphics Qualified Drivers:

AVID Software	Version(s)	GPU	Driver Required
Media Composer	2019.12.x	RTX A4000, T1000	462.96
Media Composer	2018.12.2	RTX 4000	411.95
Media Composer	8.8.x	Nvidia P1000, P2000, P4000	Nvidia 385.08
Media Composer	8.8.x	AMD WX7100, WX5100	AMD 17Q4

** 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”

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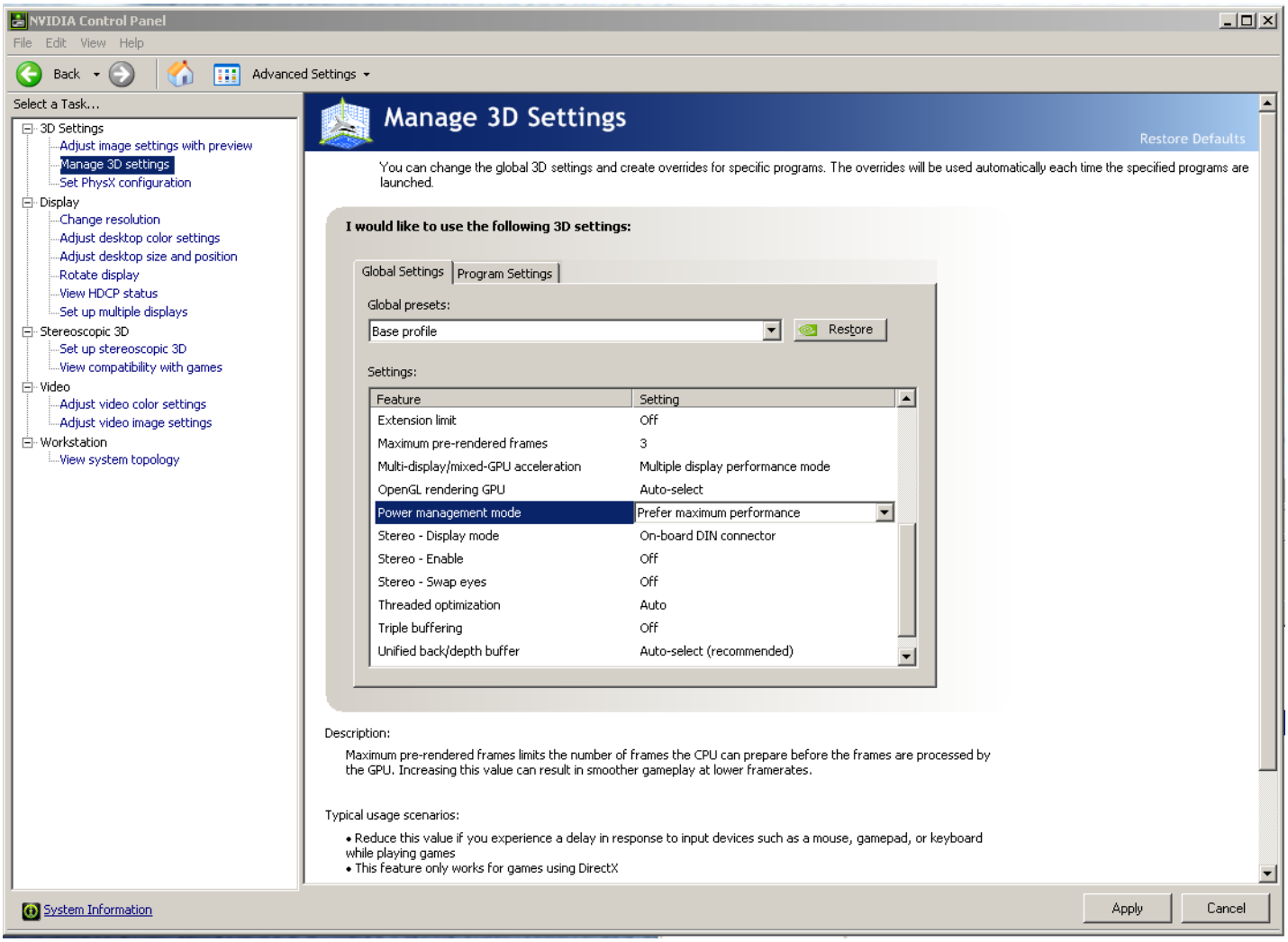
9. For the “Power management mode” feature, select “Prefer maximum performance” as shown in the picture below.



10. Depress the “Apply” button.

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

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E.) GPU monitor connectivity:

The Nvidia Quadro P4000, P2000 graphics cards have four Display-Port ports. The P1000 has 4 mini-display ports. The RTX4000 has 3 Display-Ports. All 4 ports can be used simultaneously.

The AMD WX7100 and WX5100 graphics cards have four full size 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 5820 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

Revision Update

Revision	Date	Name	Update
Rev A	Nov 10, 2017	Dave Pimm	Initial release of the Dell 5820 configuration guide
Rev A.1	Dec 22, 2017	Dave Pimm	Clean up
Rev B	Feb 21, 2018	Dave Pimm	Add Processors
Rev C	April 25, 2018	Dave Pimm	Updates
Rev D	March 25, 2019	Dave Pimm	Add Nvidia RTX cards
Rev E	May 29, 2019	Dave Pimm	Add Intel Core i7/i9 CPUs
Rev F	Aug 23, 2021	Dave Pimm	Add new Nvidia and CPUs