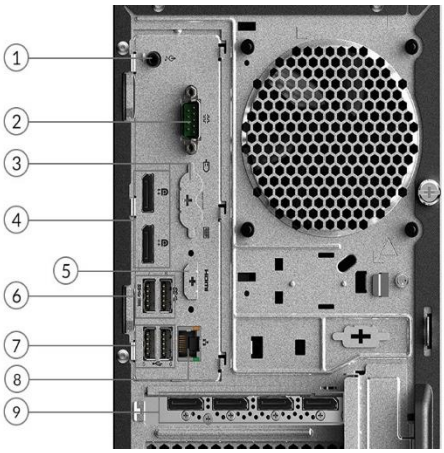
Avid Configuration Guidelines
LENOVO P330 workstation Tower and SFF
4, 6 or 8 Core CPU System
Gen 1 or 2



- 1. Power button
- 2. Optional slim DVD ROM
- 3. Microphone jack
- 4. Combo audio jack
- 5. Optional: 7-in-1 card reader
- 6. USB-C
- 7. 2 x USB 3.1 Gen 1
- 8. 2 x USB 3.1 Gen 2

- 1. Audio jack out
- 2. Serial
- 3. PS/2
- 4. 2 x DisplayPort
- 5. Optional HDMI
- 6. 2 x USB 3.1 Gen 1
- 7. 2 x USB 2.0
- 8. RJ45 (1 Gb Ethernet) or optional 5 Gb
- 9. 4 x Display

Dave Pimm – Avid Technology – Aug 19, 2019
Rev B

1.) LENOVO P330 AVID Qualified System Specification:

P330 Hardware Configuration

Supported Intel Xeon and 8th Generation Intel Core i7 CPU Choices

- Xeon E-2136 3.3 Ghz, turbo up to 4.5Ghz 6-core
- Xeon E-2144G 3.6 Ghz, turbo up to 4.5Ghz 4-core
- Xeon E-2174G 3.8 Ghz, turbo up to 4.7Ghz 4-core
- Xeon E-2176G 3.7 Ghz, turbo up to 4.7Ghz 6-core
- Xeon E-2186G 3.8 Ghz, turbo up to 4.7Ghz 6-core
- Intel core i7 8700 3.2 Ghz, turbo up to 4.6 Ghz 6-core
- Intel core i7 8700k 3.7 Ghz, turbo up to 4.7 Ghz 6-core

Supported Intel Xeon and 9th Generation Intel Core i7/i9 CPU Choices (P330 Gen 2)

- Intel core i7-9700K 3.6 Ghz, turbo up to 4.9 Ghz 8-core (no hyper-threading)
- Intel core i9-9900 3.1 Ghz, turbo up to 5.0 Ghz 8-core (Best Performance)
- Xeon E-2236 3.4 Ghz, turbo up to 4.8Ghz 6-core
- Xeon E-2246 3.6 Ghz, turbo up to 4.8Ghz 6-core
- Xeon E-2276G 3.8 Ghz, turbo up to 4.9Ghz 6-core
- Xeon E-2278G 3.4 Ghz, turbo up to 5.0Ghz 8-core (Best option for SFF)
- Xeon E-2286G 4.0 Ghz, turbo up to 4.9Ghz 6-core
- Xeon E-2288G 3.7 Ghz, turbo up to 4.9Ghz 8-core (Best Performance)

Note – Some CPUs not available in SFF system

Supported Video Cards

1.) NVIDIA P620 2GB PCIe video board
2.) NVIDIA P1000 4GB PCI-e video board
3.) NVIDIA P2000 5GB PCI-e video board (tower only)
4.) NVIDIA P2200 5GB PCI-e video board (tower only) (recommended – performance/price)

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

Standard AVID memory configuration:

- Systems using the Xeon CPU's will use DDR4-2666MHz ECC memory (up to 4 DIMMs per system)
- Systems using core i7 will use DDR4-2666Mhz Non-ECC memory (up to 4 DIMMs per system)
- 64 GB memory max for this system
- Each CPU has 2 memory lanes - optimal bandwidth when 2 or 4 memory lanes filled
    - 32GB (2 x 16GB) DDR4 2666MHz memory – (Requires two 16GB DIMMs)

Memory modules must be installed according to manufacturer's requirements

Optional AVID memory configuration:

- 16GB (2 x 8GB) DDR4 2666 memory – (Requires two 8GB DIMMs)
- 32GB (4 x 8GB) DDR4 2666 memory – (Requires four 8GB DIMMs)
- 64GB (4 x 16GB) DDR4 2666 memory – (Requires four 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 LENOVO P330:

LENOVO Supports:

- **Microsoft® Windows 10 Pro for workstations 64-bit Version 1803 – (MC 2018.7 or above)**

Not Supported –

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

Media Composer Application	Minimum Rev
Media Composer	2018.7
Media Composer 7.x, 8.x	Not supported
NewsCutter 11.x	Not Supported

* Nvidia P620, P1000, P2000, require Nvidia driver that ships with the version of MC 2018.7 and above

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 Tower Only
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 DNxIQ <u>Thunderbolt Guidance</u> Thunderbolt 2 & 3 - higher system over-head, not recommended to share Thunderbolt devices on the same Thunderbolt bus with DNxID, DNxIV DNxIO would require TB3 to TB2 converter Thunderbolt 3 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.
3rd Party Qualified Hardware	See release notes and Avid website for information regarding supported 3rd party hardware (vendor qualified)
NEXIS / ISIS Single 1Gb Ethernet Client NEXIS Dual 1Gb Ethernet Client Intel i350, i219, i210	ISIS 5500 / 5000 , 7500 / 7000 Avid 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 Avid 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 Avid NEXIS Pro, E2, E4, E5 V7.9

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	#3	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	#3	Avid Mojo DX Hardware Interface HBA – Supported with any of the three listed Active HBA's
LENOVO Thunderbolt 3 adapter card	Not stocked by AVID	#3	2 ports TB3
Atto R680, H680	Not stocked by AVID	#3	Local SAS Storage
LSI 9200-8e SAS controller	7030-30036-01	#3	Local SAS Storage:
Vendor qualified 3rd party hardware X4 PCI-E	Not stocked by AVID	#3	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	#3	Shared Storage: NEXIS Optical Gb-Ethernet
Intel i350-T2 – Dual Gb NIC	Not stocked by AVID	#3	Shared Storage: NEXIS Copper Gb-Ethernet Dual Gb NEXIS Connectivity
Intel X710 dual port 10Gb	Not stocked by AVID	#3	Shared Storage: NEXIS Optical Gb-Ethernet
Myricom 10G-PCIE-8B-S 10G-PCIE-8B2-2S, 10G-PCIE-8C2-2T	7030-30041-01	#3	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**
- SFF requires half height PCIe cards

5.) Slot Configuration:

Slot Configuration Information (Tower and SFF)			
Slot #	Electrical	Mechanical	
1	x16 PCI-E Gen 3	X16 Half length	Graphics Card: Nvidia P620, P1000, P2000
2	X1 PCI-E Gen 3	X4 open ended	Not Used (PCIe x1)
3	X4 PCI-E Gen 3	X16 Half length	Avid/BMD HIB card for DNxIO,DNxIQ, Mojo DX LENOVO Thunderbolt 3 adapter card for DNxIV/DNxIP/DNxID 3rd party PCIe Open IO card (PCIe x4 or less) Shared or local storage controller
M 1	M.2 slot 1 PCI-E Gen 3	M.2 x4	LENOVO NVMe SSD storage cards
	Embedded Intel I219-LM Gb	PCI-E x1 Gen 3	Qualified for Avid Nexis/ISIS

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

The P330 has one embedded NIC ports. This port 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 LENOVO for shipping P330 systems*

P330 Required system BIOS changes:

1. Verify CPU Processors are set to Hyper-Threading

Set P330 Required system BIOS changes:

- During boot up press F1 or F2 at the Lenovo splash screen to invoke Set Up.

- Select the Setup tab, then select Advanced tab
- Select CPU Configuration
- Verify Hyper Threading is Enabled (or enable if currently set to disable)
- Save Changes and Exit

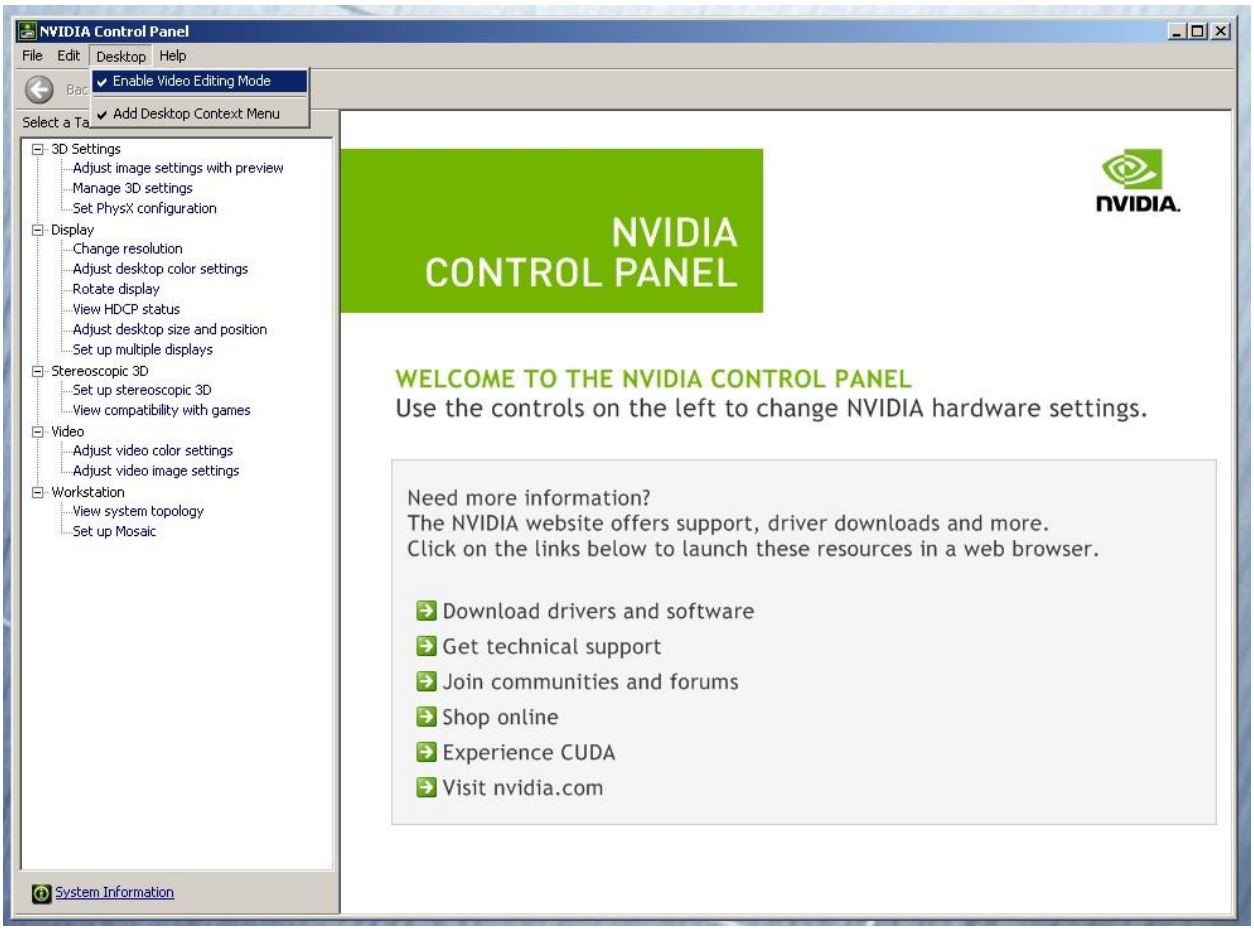
8.) Graphics Qualified Drivers:

AVID Software	Version(s)	GPU	Driver Required
Media Composer	2018.7 or later	Nvidia P620, P1000, P2000	Nvidia 390.77

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

Set optimized Nvidia driver settings for Avid editing environments:

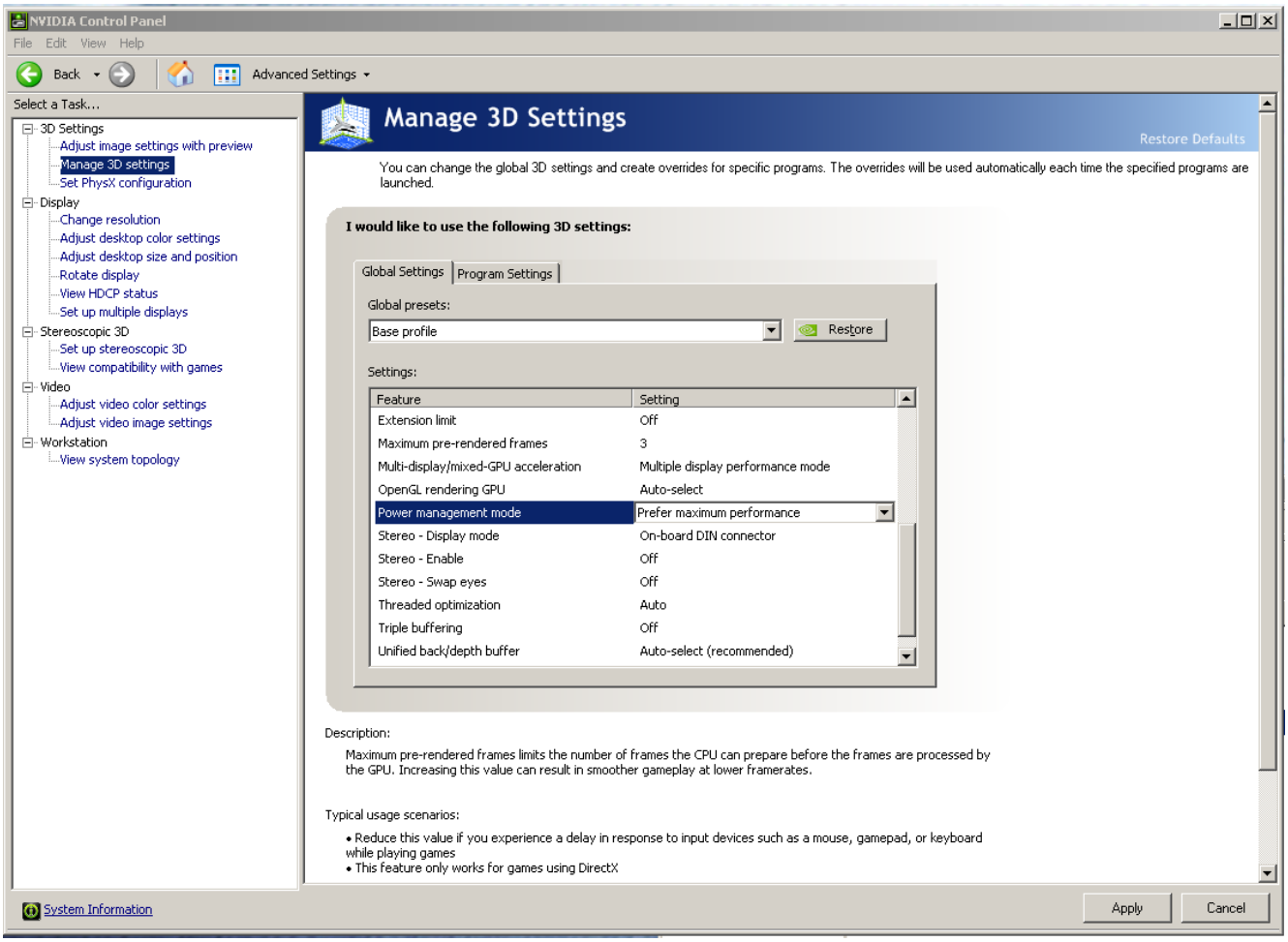
1. See picture below
2. Right-Click on the desktop and select Nvidia Control Panel
3. Select the “Desktop” menu selection in the control panel menu bar.
4. Enable “Desktop -> Video Editing Mode



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 graphics card has four Display-Port ports. The P620 and P1000 has 4 mini-display ports. All 4 ports can be used simultaneously.

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

F.) Serial Port Deck Control

The LENOVO P330 workstation does NOT have an embedded serial port. 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.pLenovo

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.pLenovo

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 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:

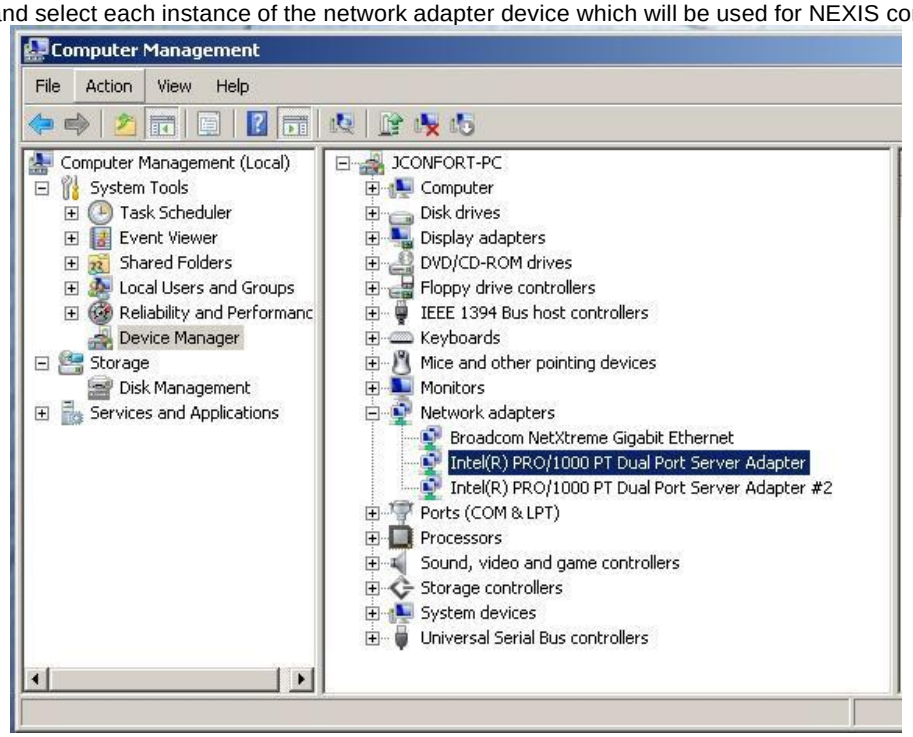
For proper operation and connectivity of any Intel NIC port used with NEXIS the settings below are required. Example below is for the Intel PRO 1000 PT.

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

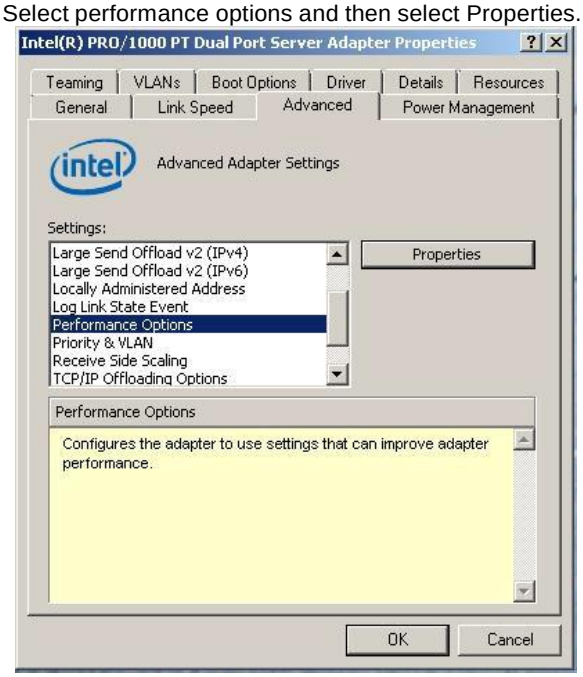
2. Disable the windows firewall.

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

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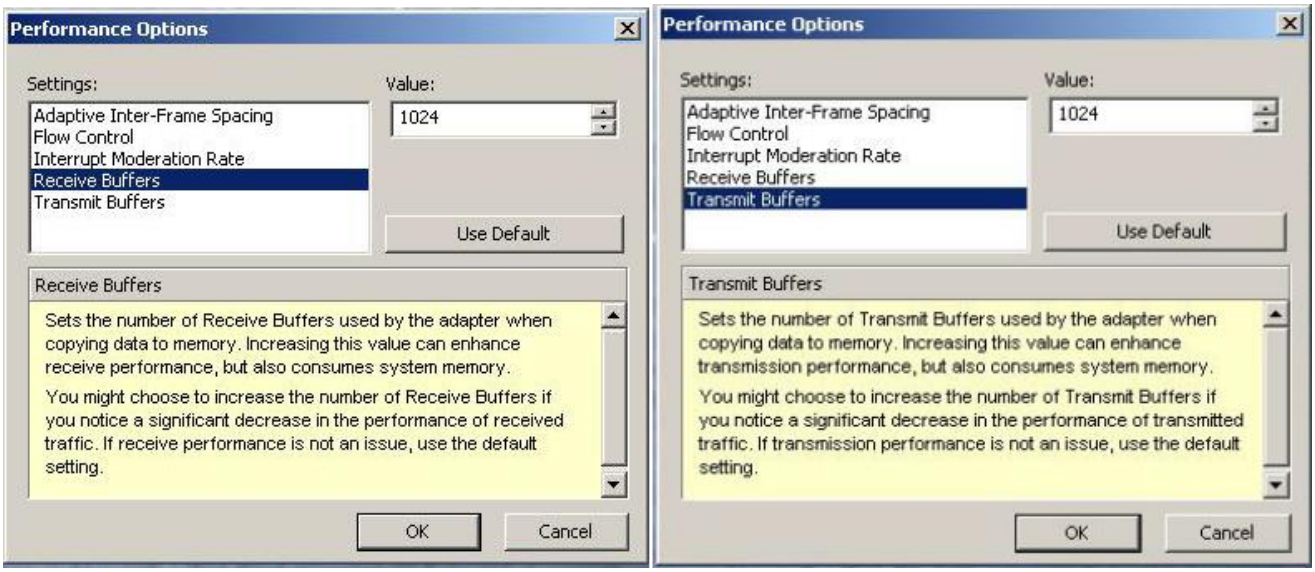
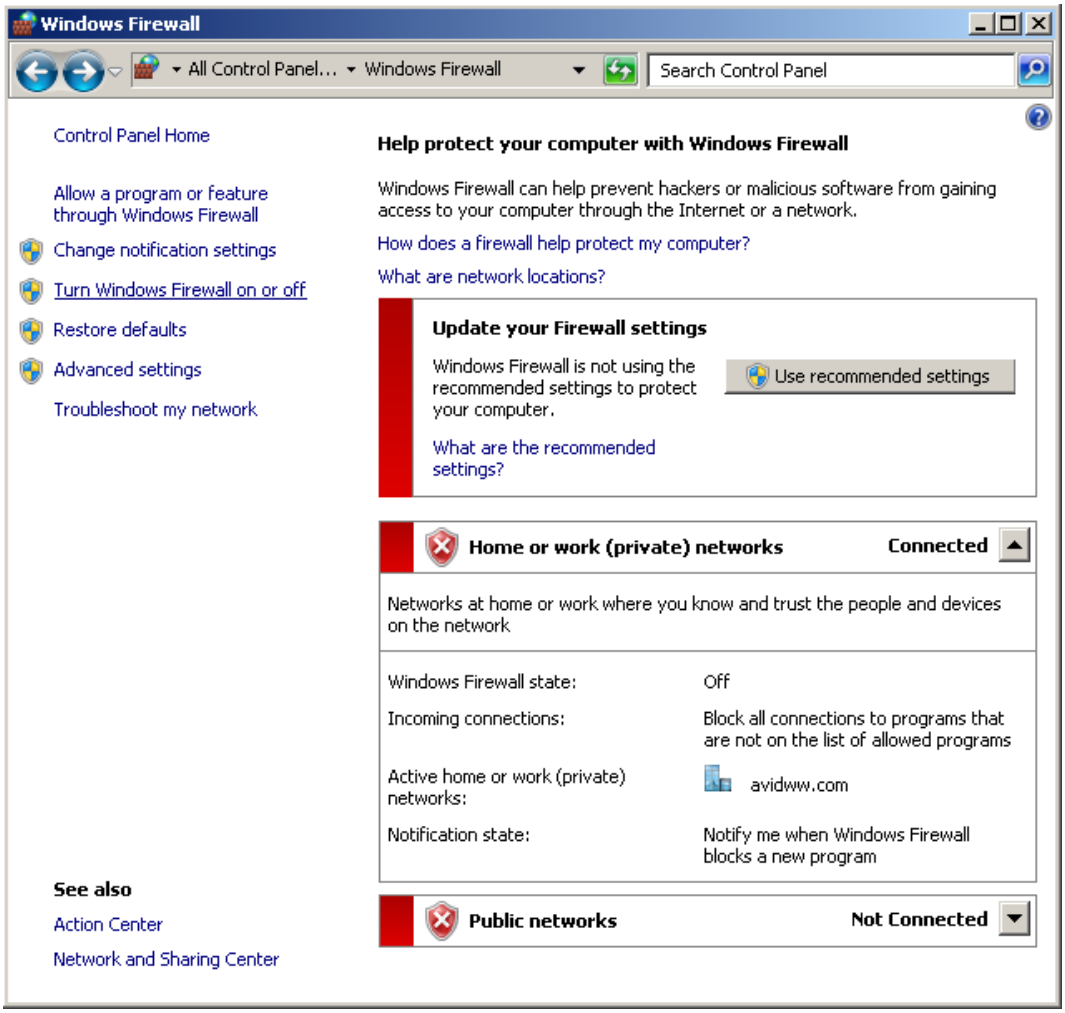


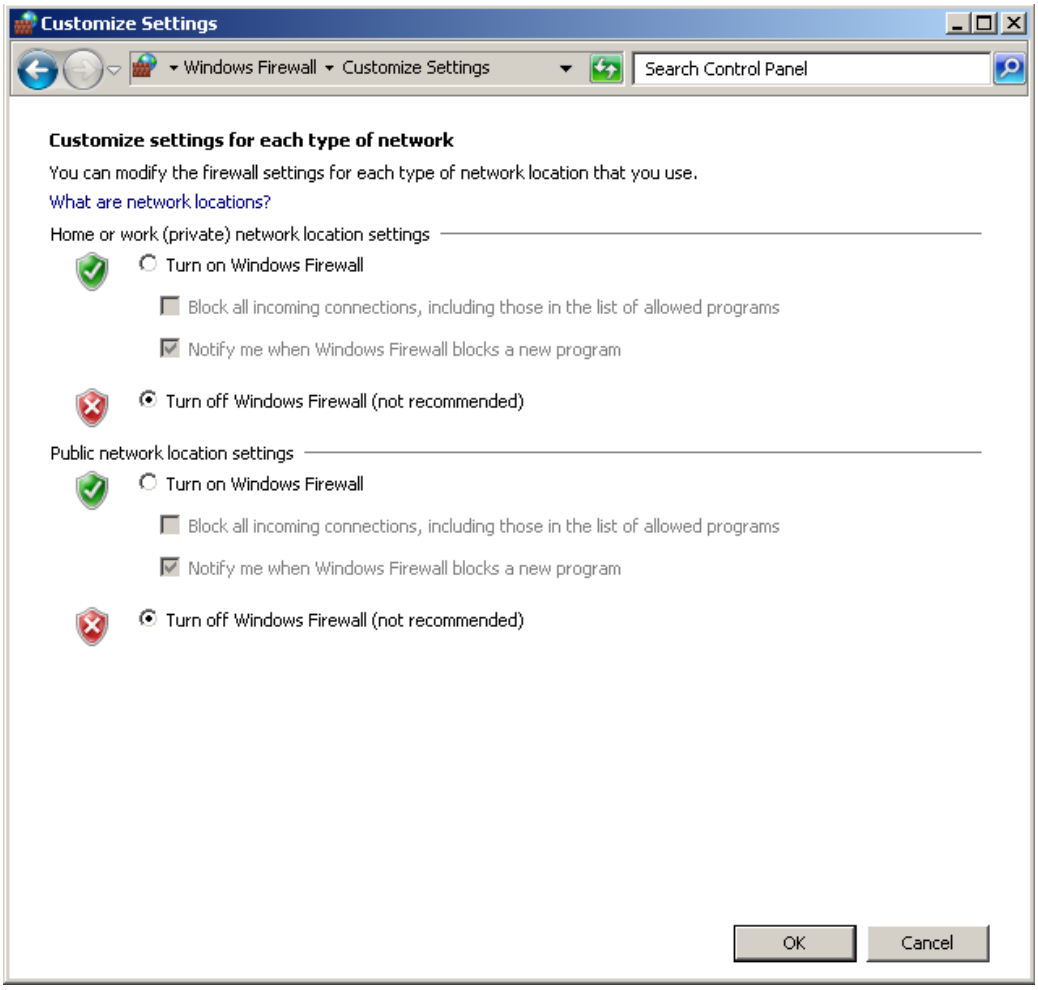
Perform this for each instance of and Intel NIC port which will be used for NEXIS connectivity.

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	Aug 22, 2018	Dave Pimm	Initial release of the LENOVO P330 configuration guide
Rev B	Aug 19, 2019	Dave Pimm	Add 9th Gen Intel CPUs