



**Avid Configuration Guidelines
Lenovo P310 Workstation Tower / SFF
Single Quad Core CPU
Qualified for Software Only**



1.) Lenovo P310 Tower and SFF [Small Form Factor] AVID Qualified System Specification:

P310 / AVID Qualified Operating System:

- Supported: Microsoft® Windows 7 Professional 64-bit Edition with SP1 (SP1 required)
- Supported: Microsoft® Windows 8.1 - Professional (64bit) and Windows 8.1 Enterprise (64bit)

Not Supported

- Not Supported - Microsoft® Windows 7 – any 32-bit version, or any version of Home, Ultimate or Enterprise editions.
- Not Supported - Microsoft® Windows XP or Vista 32 or 64-bit (any version)

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P310 / AVID Qualified Hardware Configuration

Qualified CPU

- 1.) Single Intel® Quad-Core Xeon® E3-1245 V5 Processor @ 3.5GHz / 8MB cache / 2133MHz DDR4 memory. The Xeon® E3-1245 V5 Processor includes Intel embedded graphics – HD P530

Video Card (GPU)

1. Embedded Intel HD Graphics P530 (*The embedded Intel HD P530 graphics are supported for use with Media Composer. Dedicated memory for the HD P530 graphics must be set to 512MB or 1GB via the system BIOS. Refer to BIOS settings section of this document.*)
2. Optional - NVIDIA Quadro K620, K1200 or K2200 PCI-Express video board (not required)

O.S. System Hard Drive

- SATA 7200RPM Hard disk (good) or
- SATA 6Gbs SSD (better) or
- M.2 NVMe SSD (best – extremely fast)

Supported Memory Configurations

- 1.) Memory: 8GB (2 x 4GB) DDR4 2133 ECC memory – Requires two 4GB DIMMs installed in memory slots DIMM1 and DIMM3
- 2.) Memory: 16GB (4 x 4GB) DDR4 2133 ECC memory – Requires four 4GB DIMMs installed in all 4 memory slots.
- 3.) Memory: 16GB (2 x 8GB) DDR4 2133 ECC memory – Requires two 8GB DIMMs installed in memory slots DIMM1 and DIMM3
- 4.) Memory: 32GB (4 x 8GB) DDR4 2133 ECC memory – Requires four 8GB DIMMs installed in all 4 memory slots.

Memory configuration constraints

Memory configurations which mix and match memory module sizes and locations should be avoided as they may potentially result in a poor performing, non-optimal Avid editing operating environment.

Memory Installation (same for SFF and Tower):

Lenovo P310 Memory DIMM Installation order

DIMMs are labelled on the motherboard 1, 2, 3, 4. Load DIMMs in the following order:

Config	DIMM 1	DIMM 2	DIMM 3	DIMM 4
8GB (2 x 4GB)	X		X	
16GB (4 x 4GB)	X	X	X	X
16GB (2 x 8GB)	X		X	
32GB (4 x 8GB)	X	X	X	X

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

Qualified Operating System	Win 7 Pro 64-bit SP1 Windows 8.1 - Professional (64bit) Windows 8.1 Enterprise (64bit)
Media Composer	M/C 8.2.5 (minimum)
ISIS 1Gb Ethernet Client (Minimum)	V4.7.x
ISIS 10Gb Hi-res Ethernet Client	Not Supported
StarTech 1394 PCIe Firewire adapter. 2 FW800 and 1 FW400 ports. Half height PCIe card (PEX1394B3)	The StarTech HBA is the only supported interface for 1394 camera or deck. Can also be used for 1394 disk drives (recommended only for file transfers).

3.) AVID qualified HBA info

AVID qualified HBA	AVID Part Number	Slot	Function
Optional - NVIDIA Quadro K620, K1200 or K2200 PCI-Express video	Not stocked by AVID	#1	Optional Graphics GPU
LSI 9200-8e SAS controller	7030-30036-01	#3	SAS Local Storage: Xtore StudioRAID 16Re (16-bay) chassis Xtore StudioRAID 5Te (5-bay) chassis
Atto H680	7030-30028-01	#3	SAS Local Storage – Avid VideoRAID SR (16-bay)
Atto R680	7030-30435-00	#3	SAS Local Storage –Avid VideoRAID ST (5-bay) and Xtore StudioRAID 5Ti (5-bay) chassis
StarTech PCIe 1394 Firewire adapter. (PEX1394B3)	Not stocked by AVID (Available direct from StarTech) More info below	#4	Mandatory primary 1394 connectivity for 1394 camera / deck

4.) Slot Configuration For P310 Tower and SFF:

Slot #	Electrical	Mechanical	Utilization
1	X16 PCI-E Gen 3	X16	Optional Graphics Card or Local Storage HBA: Nvidia Quadro K620, K1200(SFF), K2200 (tower)
2	x1 PCI-E Gen 3	X1	Not defined for use.
3	x4 PCI-E Gen 3	X16	Local Storage HBA: Atto H680 – Avid SAS VideoRAID SR (16-bay) support Atto R680 – Avid SAS VideoRAID ST (5-bay) support Atto R680 – SAS Xtore StudioRAID 5Ti (5-bay) support LSI 9200-8e SAS Xtore 16Re (16-bay) support LSI 9200-8e SAS Xtore 5Te (5-bay) support
4	x1 PCI-E Gen 3	X1	Optional StarTech PCIe 1394 controller
	Embedded Intel i219-LM GbE NIC		Use for connectivity to Avid ISIS 5000 / 7000 Requires Windows 20.4.1 Intel ProSet Driver (see below):
	X4 PCI-E Gen 3	M.2	NVMe High Performance Local storage option

6.) Clarification / Utilization of optional add-in 1394 controllers for camera / deck control.

Add-in 1394 Controller	Utilization for 1394 Camera / Deck connectivity with Media Composer & NewsCutter
Optional StarTech PCIe 1394 3-port controller (PEX1394B3)	<u>Mandatory requirement.</u> Yes - Supports 1394 Deck / Camera
Optional Lenovo or 3 rd party FireWire IEEE 1394 PCI-Express x1 HBA	<u>Cannot be used for connectivity to a 1394 Deck / Camera which is being interfaced to Media Composer or NewsCutter</u> It is alright for this HBA to reside in the system. It will not cause any functional problem as long as it is not used for 1394 Camera / Deck connectivity for Media Composer or NewsCutter.

7.) Various Configuration Issues:

A.) Lenovo P310 (Tower and SFF) System BIOS settings:

- 1.) Verify CPU Hyper-Threading – [Enable](#)
- 2.) Set Intel Turbo Mode** – [Disable](#)
- 3.) If using the embedded Intel HD P530 graphics, set dedicated video memory to 1GB ***

** Only required if connecting USB audio I/O devices. This setting will eliminate any audio “motor-boating” or audio “popping” which may be experienced with USB audio I/O devices.

*** Only required if using the embedded Intel HD P530 graphics. If using the Nvidia Quadro K620/K1200/K2200 do not make this setting because it will allocate memory that will not be useable by the system O.S.

Set P310 (Tower and SFF) Required system BIOS settings:

- During boot up press F1 to invoke BIOS Set Up.
- Select the Advanced tab
- Select CPU Setup
- Select Intel © Hyper-Threading
- Default setting is Enable – verify that this is set
- Select Turbo Mode
- Default setting is Enable
 - Change this setting from Enable to Disable ([Only required if connecting USB audio I/O devices](#))

Allocate 1GB of system memory for the embedded Intel HD P530 graphics ([only if using embedded Intel HD 530 graphics, otherwise skip this setting](#))

- Select the Devices tab
- Select Video Setup
- The “Select Active Video” setting is set to [Auto]
- Change the setting from [Auto] to IGD (IGD = embedded Intel HD P530 graphics)
- Three new settings will appear:
 - Pre-Allocated Memory Size: Set to 1024MB
 - Total Graphics Memory: Set to [Maximum]
 - Multi-Monitor Support: Set to [Enabled] ([Convenient setting if a multiple monitor configuration were to ever be used](#))
- Press F10 to Save and Exit

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

The following link provides O.S. setting suggestions for ensuring optimum performance when working with your Avid editing application with either Windows 7 or Windows 8.1 O.S.

http://avid.force.com/pkb/articles/en_US/troubleshooting/en390339

C.) Qualified Video Drivers:

AVID Software	Min Version(s)	GPU	Driver Required
Media Composer	8.4.3	K620/K1200/K2200	Nvidia 353.82
Media Composer	8.2.5	K620/K2200	Nvidia 347.52*
Media Composer	8.2.5	Intel HD P530	Recommend using latest posted on Lenovo's website

NOTE: K1200 requires Nvidia 353.82 driver (347.52 does not support this card)

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

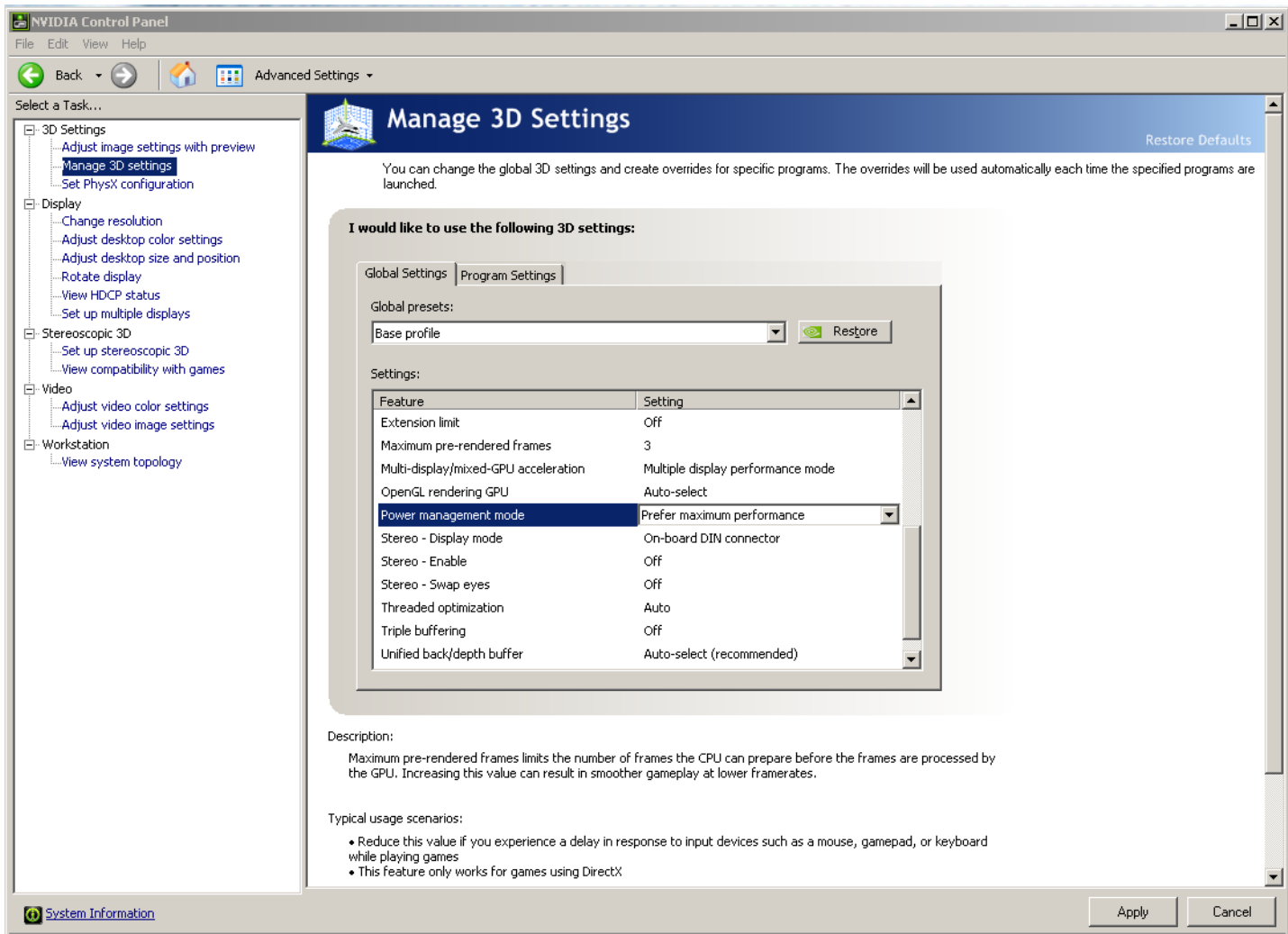
If a specified Nvidia driver is NOT included with the patch Avid installer, the required Nvidia driver can typically be found on the Avid Knowledge Base.

The supported Intel HD P530 driver can be found on the Lenovo support website for the P310.

Refer to the ReadMe for driver information for the specific version of Media Composer or NewsCutter being installed

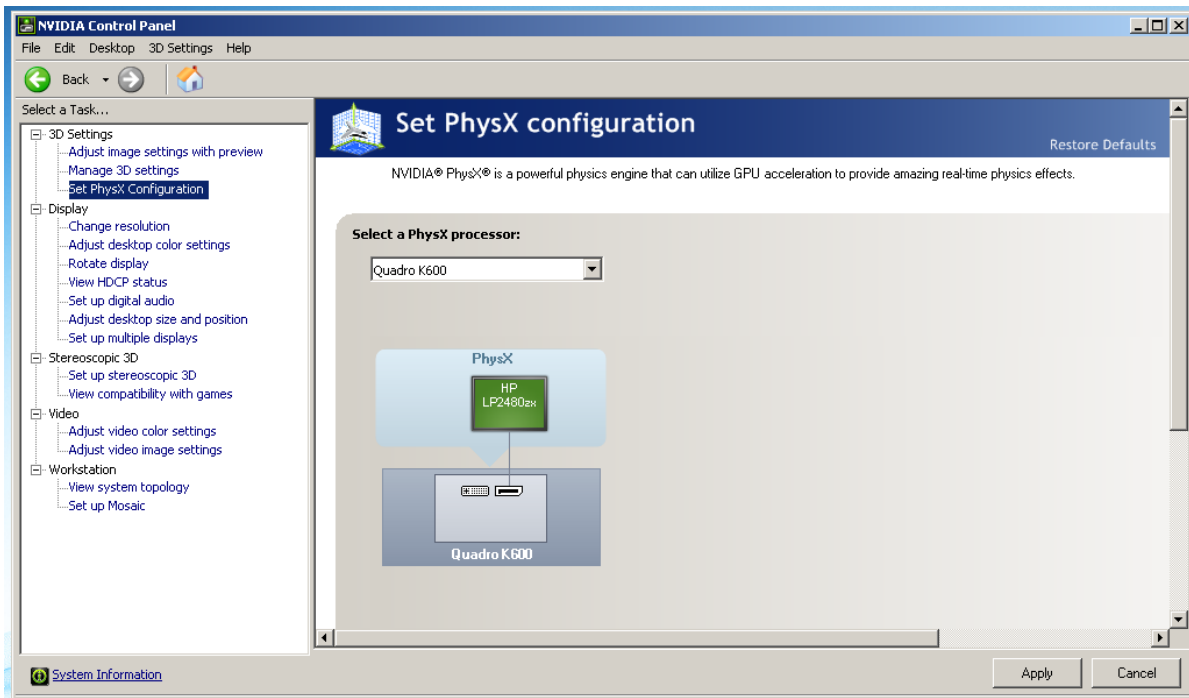
Set optimized Nvidia driver settings for Avid editing environments:

1. See picture below
2. Right-Click on the desktop and select Nvidia Control Panel
3. Select Manage 3D Settings
4. Select “Global Settings” Tab
5. Under the “Global Settings” tab select “Base Profile”.
6. Scroll down and locate the “Power Management Mode” feature. The default setting is “Adaptive”. For the “Power management mode” feature, select “Prefer maximum performance” as shown in the picture below.



7. Depress the “Apply” button.

8. Set the PhysX device configuration
9. Under 3D Settings select “Set PhysX Configuration” (See picture below)
10. Under “Select a PhysX processor:”, Change the setting to Quadro K620, K1200 or K2200
11. Depress the “Apply” button.



12. Nvidia driver optimization settings for Avid environments are complete

D.) Serial Port Deck Control:

The Lenovo P310 Tower and SFF workstation(s) do have an embedded serial port. This serial port can be used for deck I/O control.

Or, serial port deck control can also be established via two methods below (both of which have been qualified by Avid and will maintain frame accuracy in Avid environments)

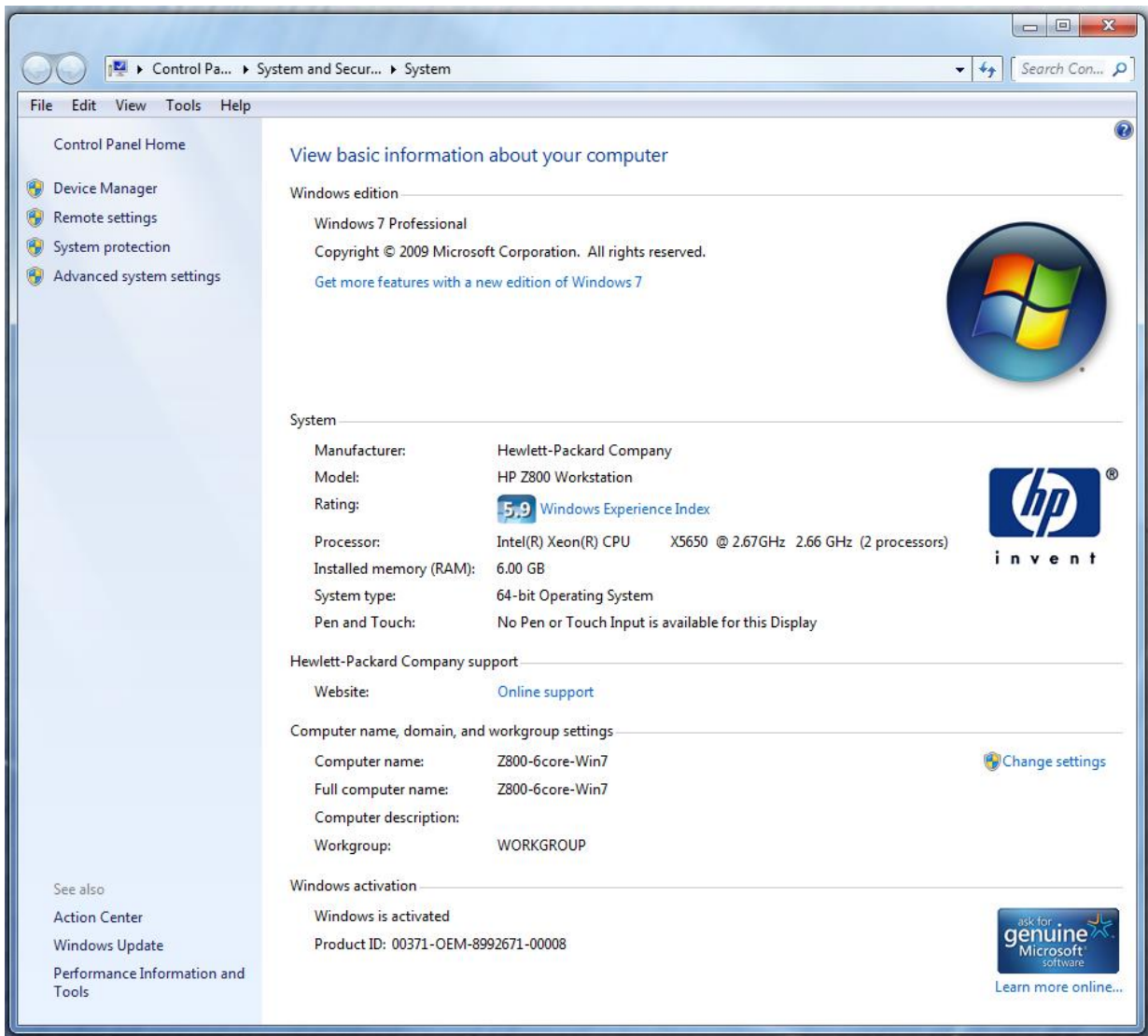
1. Addenda model **RS-USB / 4** direct USB-to-RS422 serial adapter. This is a simple device which connects directly from a USB 2.0 port of the P310 directly to the RS422 port of a deck.
<http://www.addenda.com/addenda-elect/products/rsUSB4.php>
2. Combination of a Keyspan (Tripp-Lite) Model USA-19HS 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 a P310 USB port.
- Once the Keyspan 19HS driver is installed then plug the Keyspan 19HS into a P310 USB 2.0 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.

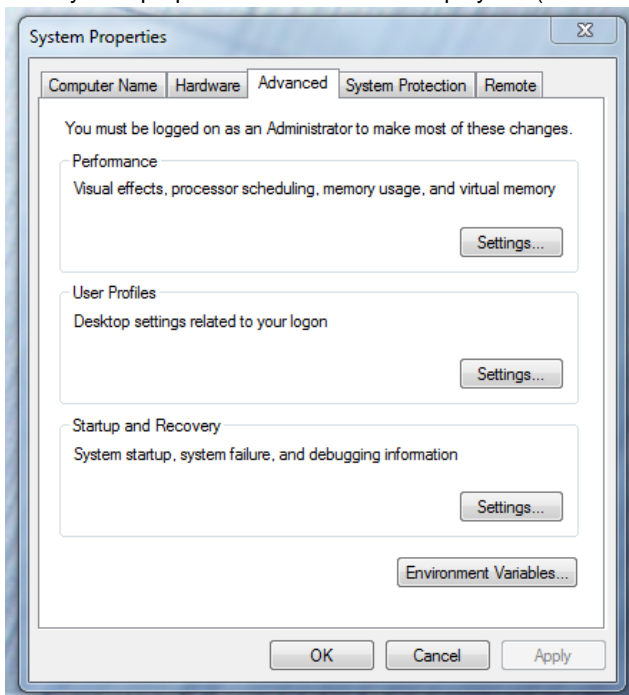
E.) Set Windows “Visual Effects” for “best performance”:

1. Right-Click on Computer icon
2. Select Properties
3. The screen below will be displayed:

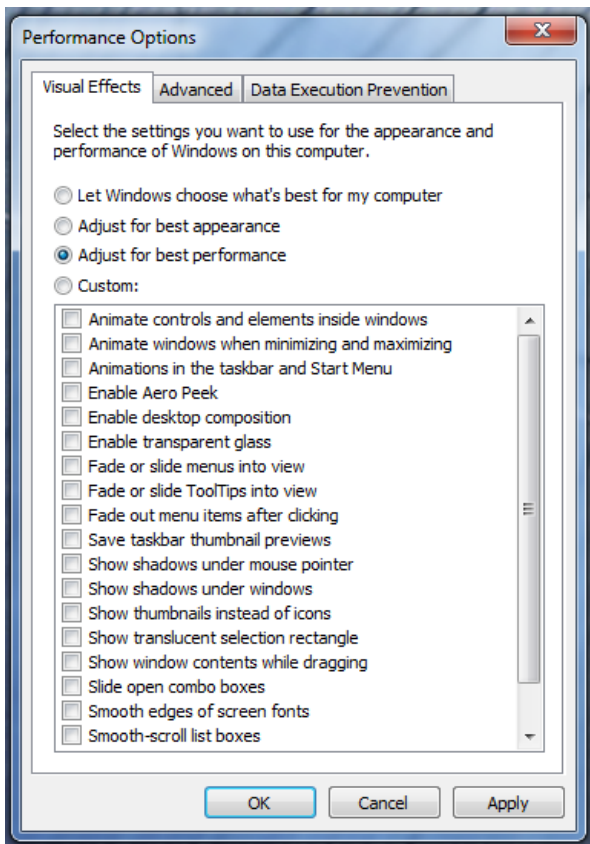


4. On the left side of the screen above, locate and select “Advanced system settings”

5. The System properties window will be displayed. (Picture below).



6. Under the “Advanced” tab depress the “Settings...” button for performance.
7. The “performance Options” window will be displayed.
8. Under the “Visual Effects” tab select the “Adjust for best performance” selection. (Picture below).



9. Depress the “Apply” button
10. Required Windows visual performance settings for Avid environments are now complete

F.) Embedded Intel i219-LM 1G/b network interface for ISIS connectivity:

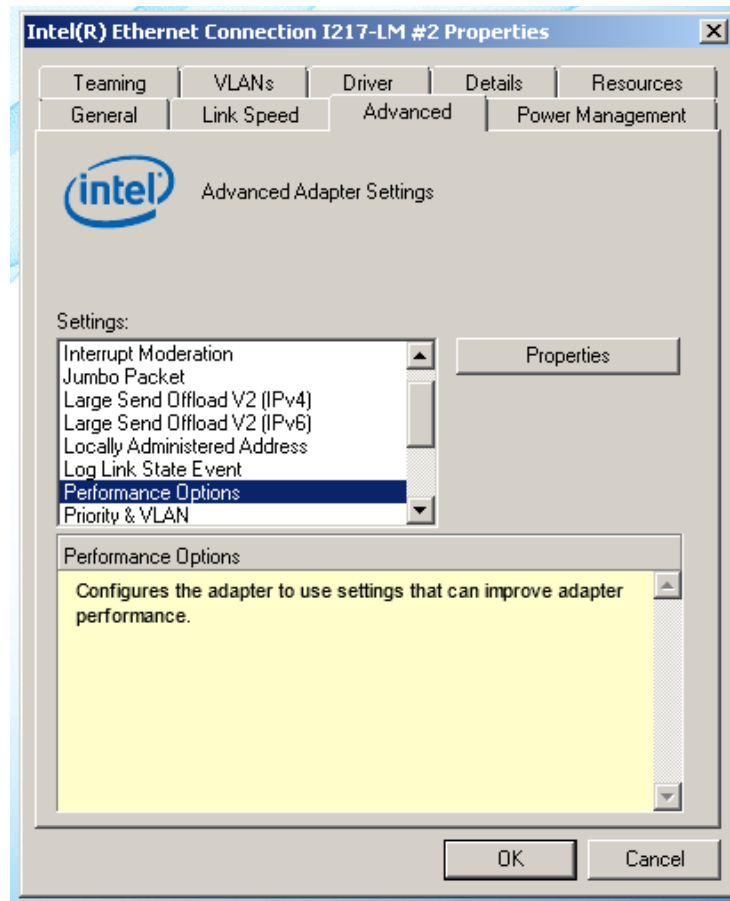
For proper operation and connectivity of the Intel i219-LM network interface with ISIS the following are required (these settings will be made automatically by the ISIS 4.7 client installer if the 18.3 driver is installed prior to the ISIS client)

1. Requires Windows 20.4.1 Intel ProSet Driver available at:
<https://downloadcenter.intel.com/download/18713/Network-Adapter-Driver-for-Windows-7-https://downloadcenter.intel.com/download/21642/Network-Adapter-Driver-for-Windows-8->
2. For the Intel i219-LM driver, under the performance settings, change the following parameters:
 - Receive Buffers to 1024
 - Transmit Buffers to 1024
3. Disable the windows firewall.
4. The i219-LM has an ultra-low power mode that may exhibit connection issues with older switches:
 - a. If you boot with the cable disconnected then connect a “live” cable the link does not come active. You have to disable/enable the adapter at the OS level to wake it.
 - b. If you disconnect an active link then reconnect it, it does not become active again unless you disable/re-enable the adapter at the OS level.

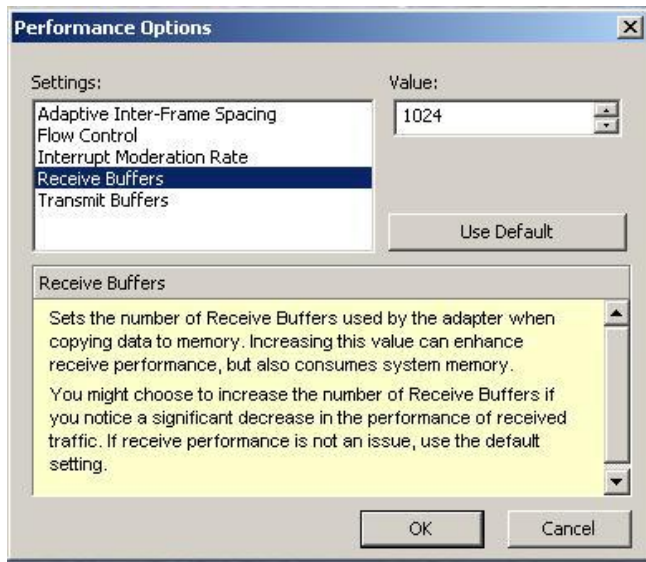
To set the Intel i219-LM Receive / Transmit buffers:

Go to device manager. Under “Network adapters” select the device named “Intel Ethernet Connection i219-LM”, which will be used for ISIS connectivity.

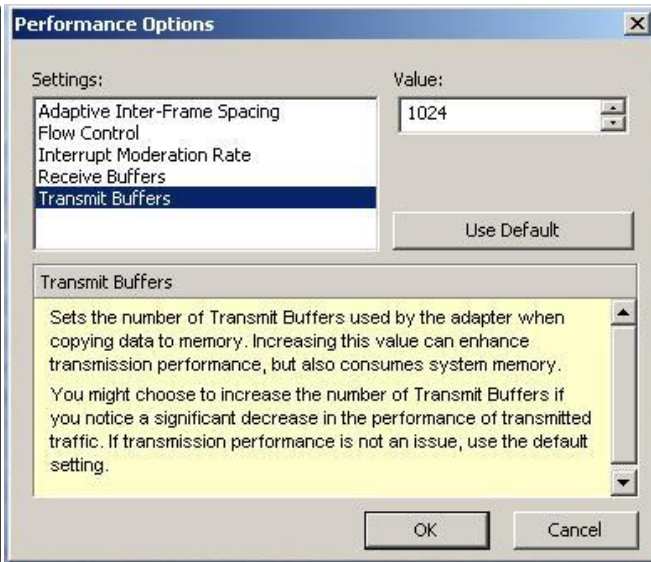
- 1) Right-click, Select properties, select “Advanced” tab.



Set Receive Buffers to 1024

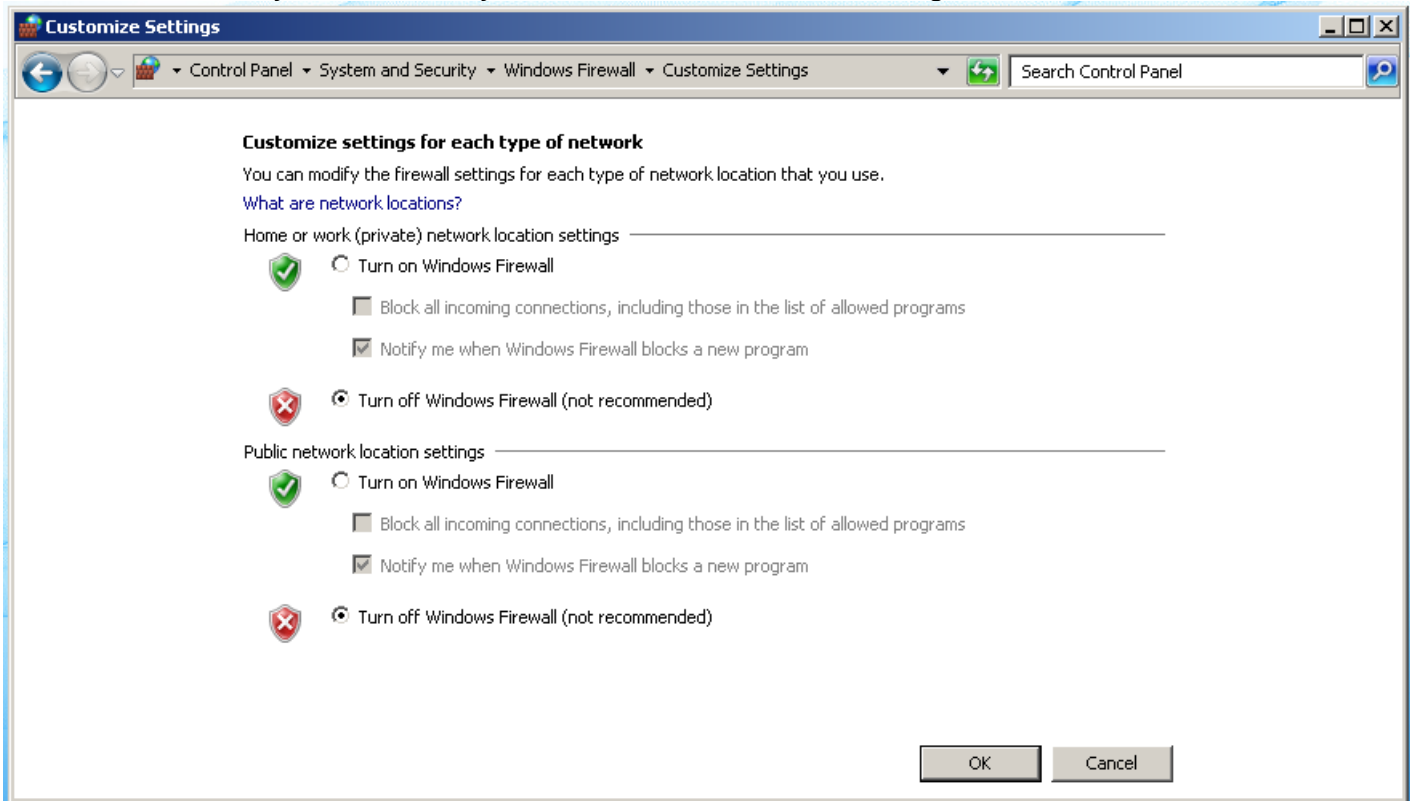


Set Transmit Buffers to 1024



Disable Windows Firewall

Select Control Panel / System and Security / Windows Firewall / Customize Settings



Revision Update

Revision	Date	Name	Update
A	Jan 5th , 2016	Dave Pimm	Initial Release of the Lenovo P310 Workstation Tower and SFF configuration guide for Media Composer [Software only]