



**Avid Configuration Guidelines
HP Z240 Workstation Tower / SFF
Single Quad Core CPU**



1.) HP Z240 Tower and SFF [Small Form Factor] AVID Qualified System Specification:

Z240 / 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)**

Z240 / AVID Qualified Hardware Configuration

Qualified CPU

- 1.) Single Intel® Quad-Core Xeon® E3-1245 V5 Processor @ 3.4GHz (3.9GHz Turbo) / 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 1GB via the system BIOS. If the memory for the Intel HD P530 is not set properly, the Media Composer s/w will not initialize. Refer to the BIOS settings section of this document.*
2. Optional - NVIDIA Quadro K620 or K1200 PCI-Express video board (not required)

O.S. System Hard Drive choices

- HP M.2 SSD Drive (Best: Option A – extremely fast)
- HP Z Turbo Drive G2 (Best: Option B – extremely fast , but , requires utilization of a PCIe Gen3 x4 slot)
- SATA 6Gbs SSD (better)
- SATA 7200RPM Hard disk (good)

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):

HP Z240 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 or (2 x1Gb) Ethernet Client	v4.7x
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	SFF Slot	Tower Slot	Function
Optional - NVIDIA Quadro K620 or K1200 PCI-Express video board	#1	#2	Optional Nvidia Graphics GPU
HP Z Turbo Drive G2, PCIe Solid State Storage	#1 or 4	#2 , 3 or 4	HP PCIe solid state drive. Can be used as the boot drive or local storage: http://www8.hp.com/us/en/campaigns/workstations/z-turbo-drive-g2.html
SAS Storage Controller	#1 or 4	#2 , 3 or 4	Local SAS Storage: Suggest Atto Controllers. See section #6 below. Slot #4 or #2 are preferred
Intel i350-T2 Dual-Port 1Gb Ethernet Adapter	#4	# 4	Dual Gb connectivity for ISIS
StarTech 1394 PCIe Firewire adapter. 2 FW800 and 1 FW400 ports. Half height PCIe card (PEX1394B3)	#2	#1	1394 connectivity for 1394 camera / deck (HBA available direct from StarTech) http://www.startech.com/Cards-Adapters/FireWire/3-Port-2b-1a-1394-PCI-Express-FireWire-Card-Adapter~PEX1394B3

SLOT CONFIGURATION WARNING: The Z240 comes in Tower and SFF (Small Form Factor) configurations. These configurations each use a different system motherboard. As a result there are different slot configuration guidelines for each model. The SFF is covered in section 4 below. The Tower is covered in section 5 below.

4.) Slot Configuration For SFF [Small Form Factor] Z240:

All slots in SFF model are half length and half height

SFF Slot #	Electrical	Mechanical	Utilization
1	x16 PCI-E Gen 3	x16	Optional Graphics Card: Nvidia Quadro K620 or K1200 <u>or</u> Local Storage HBA Atto PCIe SAS controller <u>or</u> HP Z Turbo Drive G2 PCIe Solid State Storage HBA http://www8.hp.com/us/en/campaigns/workstations/z-turbo-drive-g2.html
2	x1 PCI-E Gen 3	x4	StarTech 1394 PCIe Firewire adapter. Half height PCIe card (PEX1394B3) (Ports - 2 FW800 and 1 FW400).
3	x1 PCI-E Gen 3	x4	Not defined for use.
4	x4 PCI-E Gen 3	x16	Optional Intel i350-T2 Dual-port 1Gb Ethernet Adapter: (ISIS Dual-port Connectivity) <u>or</u> Local Storage HBA Atto PCIe SAS controller <u>or</u> HP Z Turbo Drive G2 PCIe Solid State Storage HBA http://www8.hp.com/us/en/campaigns/workstations/z-turbo-drive-g2.html
	Embedded Intel i219-LM GbE NIC		Use for connectivity to Avid ISIS Requires Windows 20.4.1 Intel ProSet Driver (see below):
	Embedded Intel HD P530 graphics		Embedded Intel HD P530 graphics are supported with Media Composer <i>Dedicated memory for the HD P530 graphics must be set to 1GB via the system BIOS.</i>
	x4 PCI-E Gen 3	M.2	M.2 High Performance solid state storage option

5.) Slot Configuration For Tower Z240:

Tower Slot #	Electrical	Mechanical	Utilization
1	x1 PCI-E Gen 3	x4	StarTech 1394 PCIe Firewire adapter. Half height PCIe card (PEX1394B3) (Ports - 2 FW800 and 1 FW400).
2	x16 PCI-E Gen 3	x16	Optional Graphics Card: Nvidia Quadro K620 or K1200 or Local Storage HBA (Atto PCIe SAS controller) or HP Z Turbo Drive G2 PCIe Solid State Storage HBA http://www8.hp.com/us/en/campaigns/workstations/z-turbo-drive-g2.html
3	x4 PCI-E Gen 3	x4	Local Storage HBA (Atto PCIe SAS controller) or HP Z Turbo Drive G2 PCIe Solid State Storage HBA http://www8.hp.com/us/en/campaigns/workstations/z-turbo-drive-g2.html
4	x4 PCI-E Gen 3	x16	Optional Intel i350-T2 Dual-port 1Gb Ethernet Adapter: (ISIS Dual-port Connectivity) or Local Storage HBA (Atto PCIe SAS controller) or HP Z Turbo Drive G2 PCIe Solid State Storage HBA http://www8.hp.com/us/en/campaigns/workstations/z-turbo-drive-g2.html
	Embedded Intel i219-LM GbE NIC		Use for connectivity to Avid ISIS Requires Windows 20.4.1 Intel ProSet Driver (see below):
	Embedded Intel HD P530 graphics		Embedded Intel HD P530 graphics are supported with Media Composer <i>Dedicated memory for the HD P530 graphics must be set to 1GB via the system BIOS.</i>
	x4 PCI-E Gen 3	M.2	M.2 High Performance solid-state storage option

6.) Optional add-in SAS storage controller for local SAS storage connectivity.

Suggest Atto Technology. Atto offers a wide range of SAS controllers for local SAS storage connectivity:

Some suggestions are:

Atto ExpressSAS R680 (6Gb/s SAS / SATA RAID Controller

<https://www.attotech.com/products/adapters/sas-sata-raid/6gb/ESAS-R680-000%20ESAS-R680-C00>

Atto ExpressSAS H680 (6Gb/s SAS / SATA Controller

<https://www.attotech.com/products/adapters/sas-sata/6gb-pcie-30/ESAS-H680-000>

R680



H680



7.) Optional add-in 1394 controller for 1394 camera / deck / storage connectivity.

StarTech 1394 PCIe Firewire adapter
Half height PCIe card (PEX1394B3) (Ports - 2 FW800 and 1 FW400)

<http://www.startech.com/Cards-Adapters/FireWire/3-Port-2b-1a-1394-PCI-Express-FireWire-Card-Adapter~PEX1394B3>



8.) Various Configuration Issues:

A.) HP Z240 (Tower and SFF) System BIOS settings:

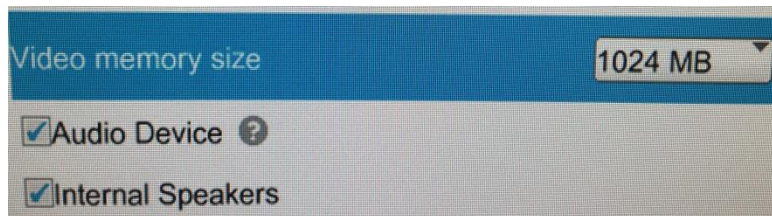
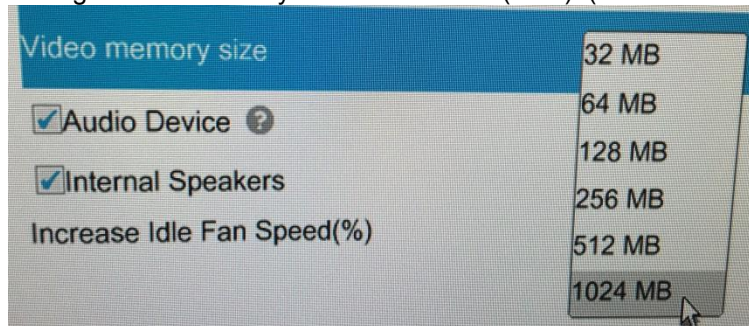
- 1.) Verify CPU Hyper-Threading – **Enable**
- 2.) If using the embedded Intel HD P530 graphics, set dedicated video memory to 1GB **
- 3.) Set Intel Turbo Mode*** – **Disable** (Optional, only if needed)

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

*** 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.

Set Z240 (Tower and SFF) required system BIOS settings:

- 1.) Verify CPU Hyper-Threading - **Enable**
 - During boot up press F10 to invoke BIOS Set Up.
 - Select the Advanced tab
 - Select System Options
 - Ensure the Hyperthreading box is enabled (Check-mark)(Should be enabled by default)
- 2.) If using the embedded Intel HD P530 graphics, set dedicated video memory to 1GB
 - Return to the Advanced Tab
 - Select “Built-In Device Options”
 - Change “Video memory Size” to 1024MB (1GB) (Default is 128MB)



- Select “Save”
 - Confirm “Yes” to save
- 3.) Set Intel Turbo Mode - **Disable** (Optional, only needed if there are audio “popping” problems with attached USB audio devices)
 - Select Advanced tab
 - Select System Options
 - Uncheck the “Turbo-boost” box
 - Select Save
 - Confirm “Yes” to save
- Press F10 to Save changes and Exit BIOS

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 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	Quadro K620 / K1200	Nvidia 353.82
Media Composer	8.2.5	Quadro K620 / K1200	Nvidia 347.52*
Media Composer	8.2.5	Intel HD P530	Recommend using latest posted on HP's website

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

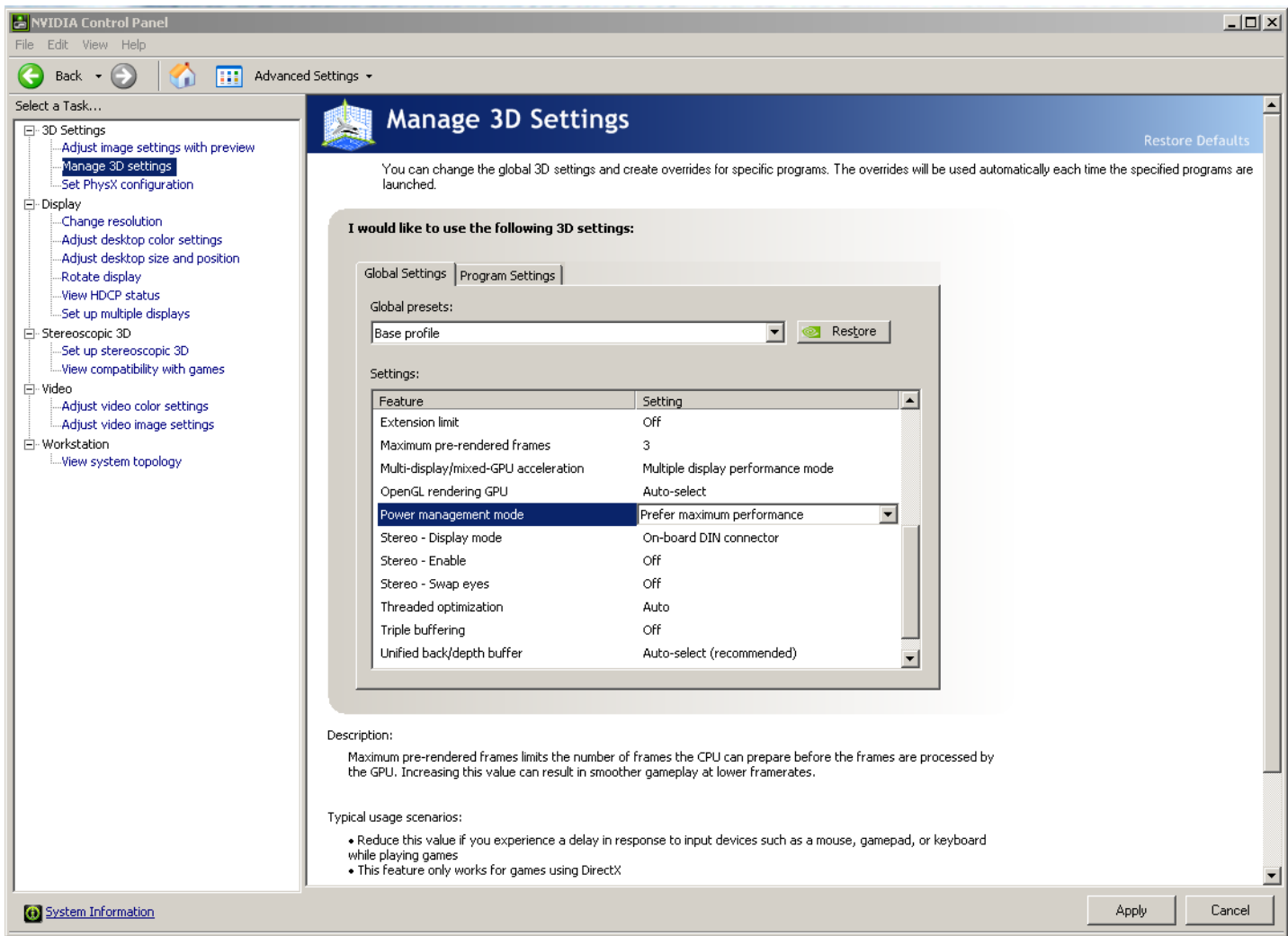
If a specified Nvidia driver is NOT included with the patch Avid installer, the required Nvidia driver can typically be found on the Avid Knowledge Base.

The supported Intel HD P530 driver can be found on the H.P. support website for the Z240.

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

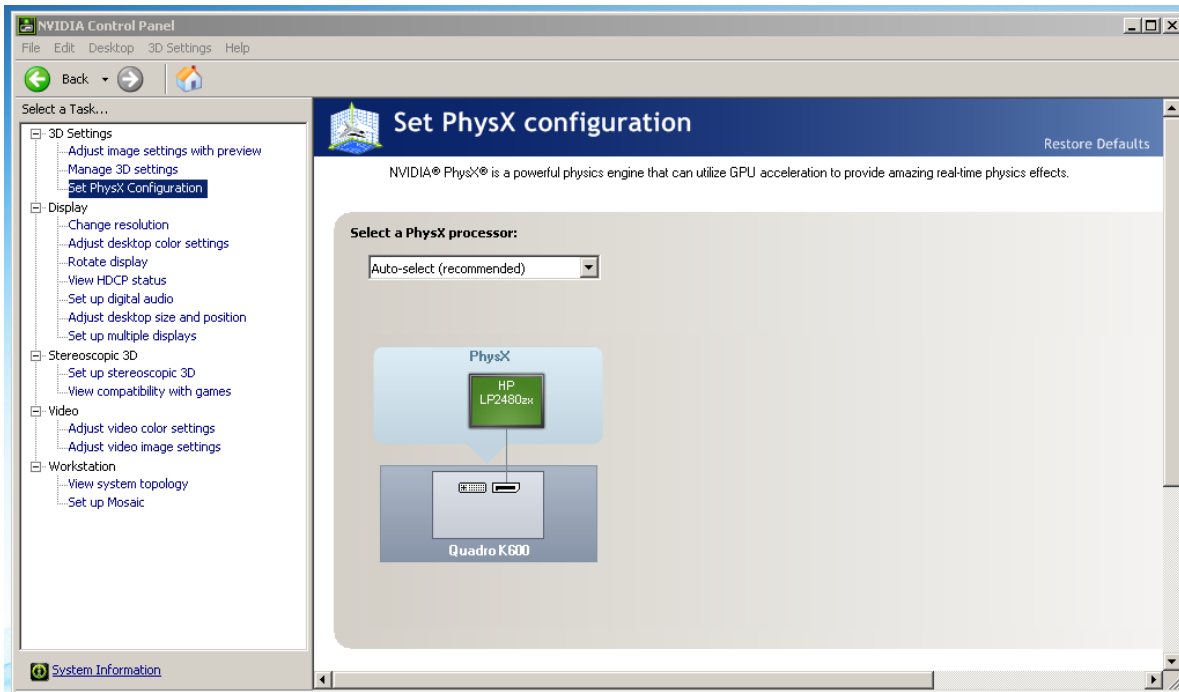
Set optimized Nvidia driver settings for Avid editing environments:

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.

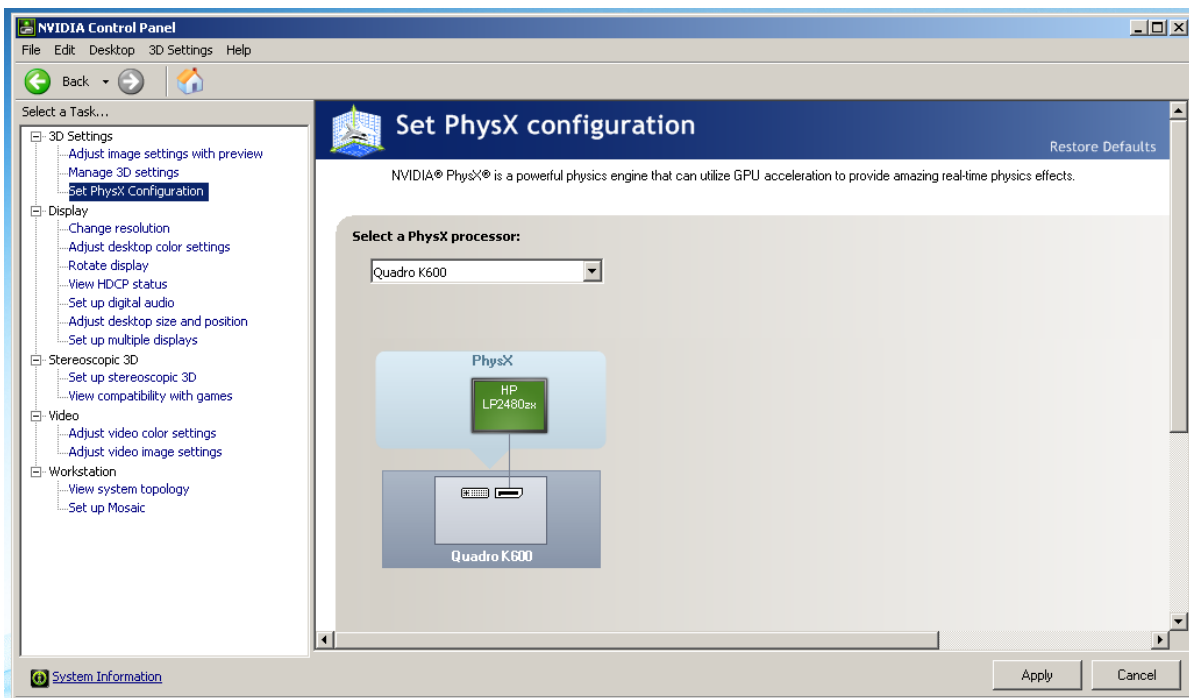


7. Depress the “Apply” button.

8. Set the PhysX device configuration
9. Under 3D Settings select “Set PhysX Configuration” (See picture below)
10. Under “Select a PhysX processor:”, Auto-select is currently selected.



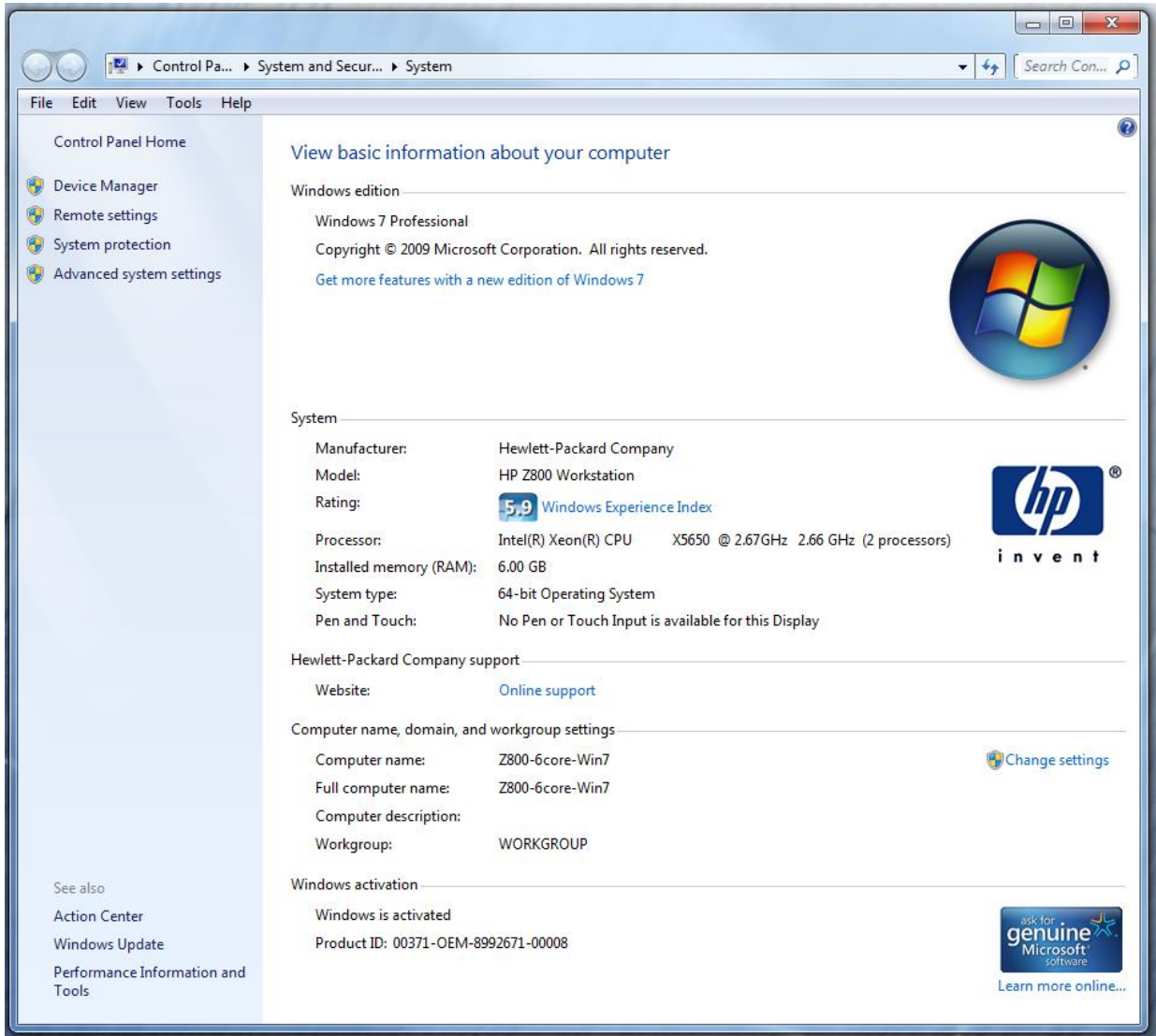
11. See picture below
12. Under “Select a PhysX processor:”, Change the setting to Quadro K600
13. Depress the “Apply” button.



14. Nvidia driver optimization settings for Avid environments are complete

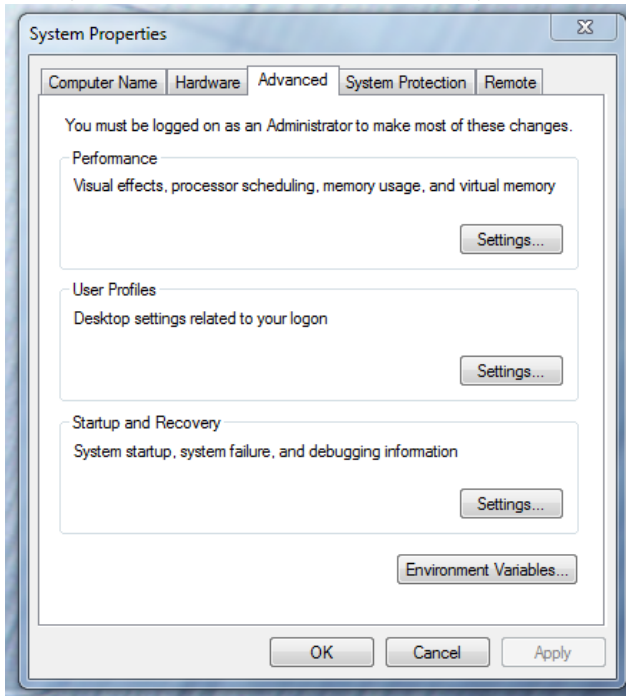
D.) Set Windows “Visual Effects” for “best performance”:

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

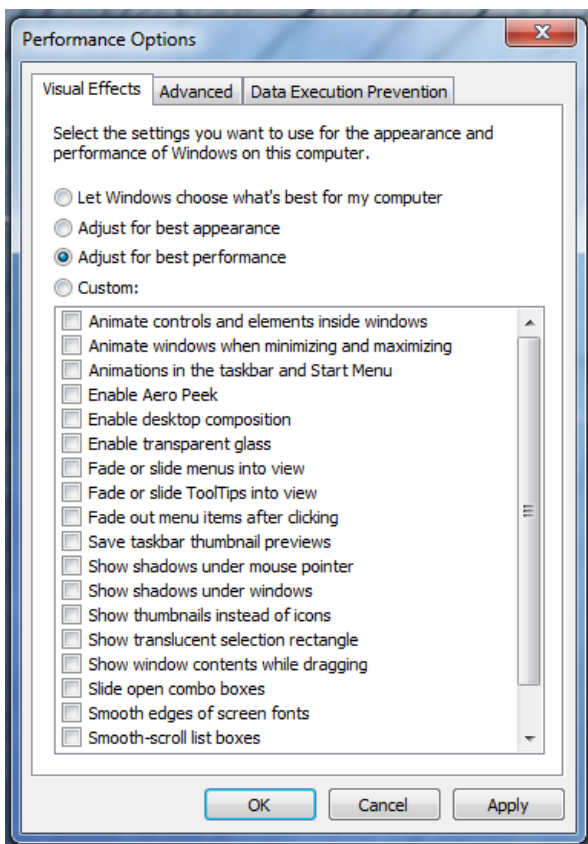


4. On the left side of the screen above, locate and select “Advanced system settings”

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. Reboot Windows
11. Required Windows visual performance settings for Avid environments are now complete

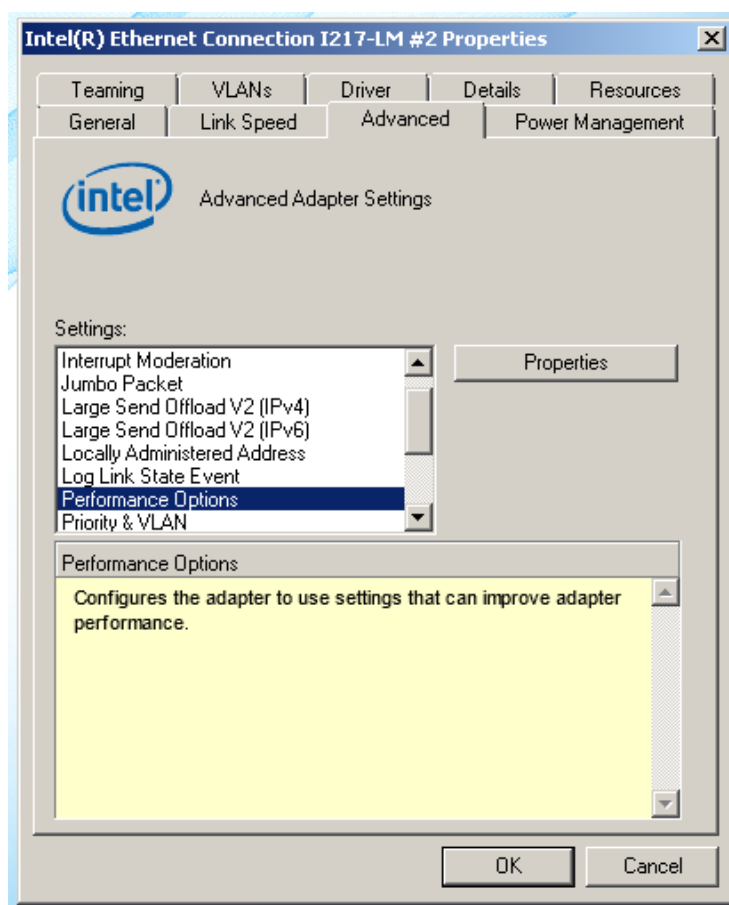
E.) Embedded Intel i219-LM 1G/b network interface for ISIS connectivity:

For proper operation and connectivity of the Intel i219-LM network interface with ISIS the following are required (These settings may be made automatically by the ISIS client installer, however, verify and manually set if needed):

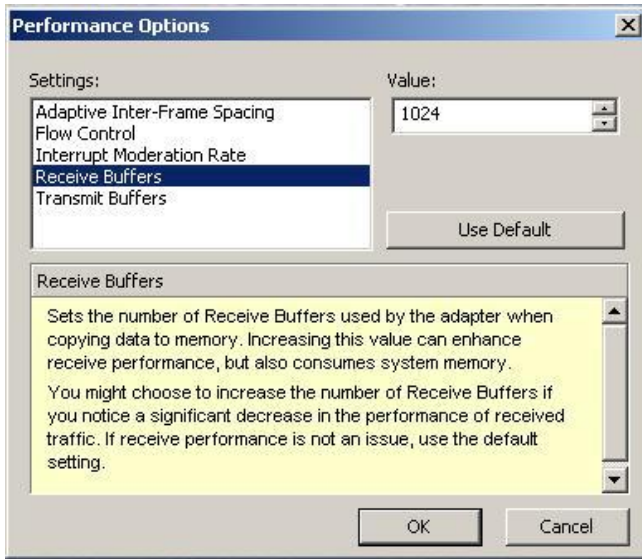
1. **Requires Windows 20.4.1 Intel ProSet Driver available at:**
<https://downloadcenter.intel.com/download/18713/Network-Adapter-Driver-for-Windows-7-https://downloadcenter.intel.com/download/21642/Network-Adapter-Driver-for-Windows-8->
2. For the Intel i219-LM driver, under the performance settings, change the following parameters:
 - Receive Buffers to 1024
 - Transmit Buffers to 1024
3. **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.
4. Disable the windows firewall.

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

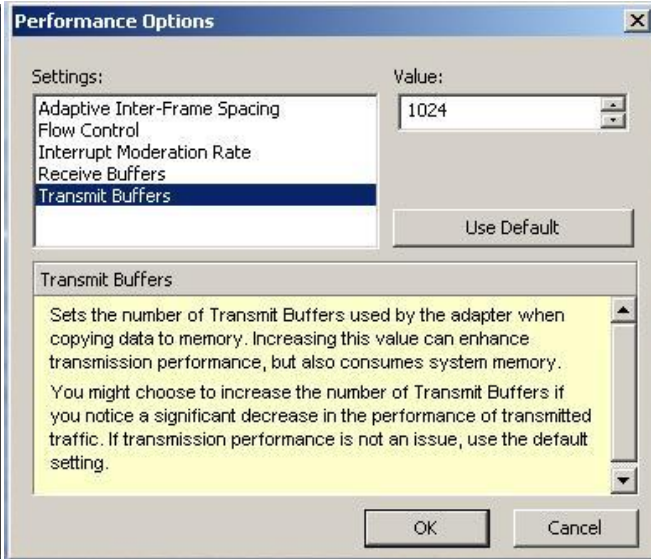
- 1.) Go to device manager. Under “Network adapters” select the device named “Intel Ethernet Connection i219-LM”, which will be used for ISIS connectivity.
- 2.) Right-click, Select properties, select “Advanced” tab.
- 3.) Select Performance Options



Set Receive Buffers to 1024

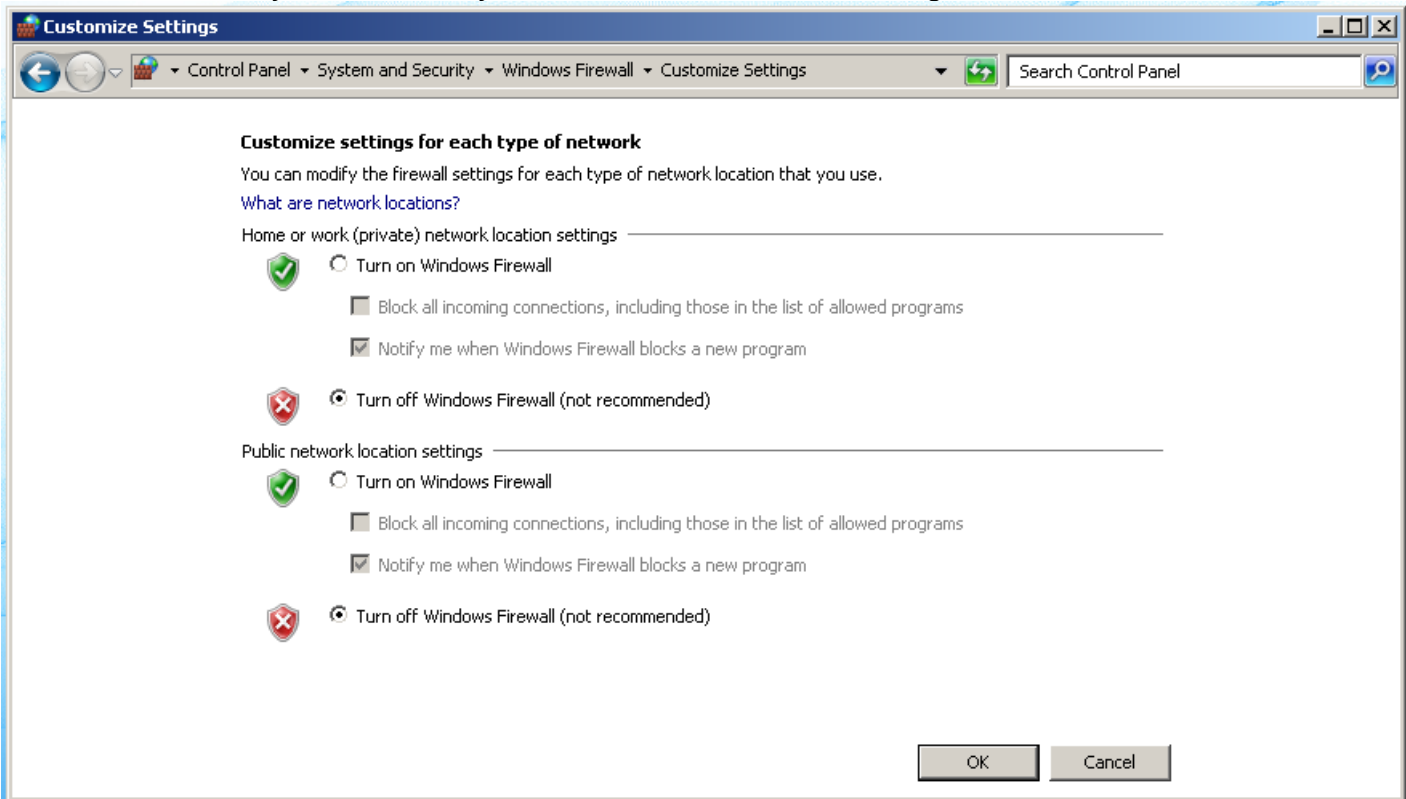


Set Transmit Buffers to 1024



Disable Windows Firewall

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



F.) Serial Port Deck Control:

The HP Z240 Tower and SFF workstation(s) do not have an embedded serial port. 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 2.0 port of the Z240 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 Z240 USB port.
- Once the Keyspan 19HS driver is installed then plug the Keyspan 19HS into a Z240 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.

Revision Update

Revision	Date	Name	Update
A	January 15 th , 2016	Joe Conforti	Initial Release of the Z240 Workstation Tower / SFF configuration guide for Media Composer [Software only]