Avid Configuration Guidelines
HP Z8 G4 workstation
Dual 8 to 28 Core CPU System

Dave Pimm – Avid Technology – April 23, 2018

Rev C

1.) HP Z8 G4 AVID Qualified System Specification:

Z8 G4 Hardware Configuration

Supported Intel Xeon Scalable family (Skylake) CPU Choices

- 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 5118 2.3 Ghz, turbo up to 3.2Ghz 12-core (Good - SD, HD editing)
- Dual Xeon Gold 5120 2.2 Ghz, turbo up to 3.7Ghz 14-core
- Dual Xeon Gold 6130 2.1 Ghz, turbo up to 3.7Ghz 16-core
- Dual Xeon Gold 6132 2.6 Ghz, turbo up to 3.7Ghz 14-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 6140 2.3 Ghz, turbo up to 3.7Ghz 18-core (MC 8.9.3 or higher)
- Dual Xeon Gold 6142 2.6 Ghz, turbo up to 3.7Ghz 16-core
- Dual Xeon Gold 6144 3.5 Ghz, turbo up to 4.2Ghz 8-core
- Dual Xeon Gold 6146 3.2 Ghz, turbo up to 4.2Ghz 12-core (Better - UHD editing)
- Dual Xeon Gold 6148 2.4 Ghz, turbo up to 3.7Ghz 20-core (MC 8.9.3 or higher)
- Dual Xeon Gold 6152 2.1 Ghz, turbo up to 3.7Ghz 22-core (MC 8.9.3 or higher)
- Dual Xeon Gold 6154 3.0 Ghz, turbo up to 3.7Ghz 18-core (MC 8.9.3 or higher) (Best – UHD 5994 4 stream XAVC)
- Dual Xeon Platinum 8160 2.1 Ghz, turbo up to 3.7Ghz 24-core (MC 8.9.3 or higher)
- Dual Xeon Platinum 8180 2.5 Ghz, turbo up to 3.8Ghz 28-core (MC 8.9.3 or higher)

Note – Higher CPU speeds are preferred over CPU core count for MC application

Note: Dual high power CPUs with high end graphics require the 1450W power supply option

Supported Video Cards

1.) NVIDIA P4000 8GB PCI-e video board (recommended)
2.) NVIDIA P5000 16GB PCI-e video board
3.) NVIDIA P6000 24GB PCI-e video board
4.) AMD Radeon Pro WX7100 8GB PCI-e video board
5.) AMD Radeon Pro WX9100 16GB PCIe video board

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

Standard AVID memory configuration:

- Systems using the new Xeon scalable Skylake CPU's will use DDR4-2666MHz memory (up to 24 DIMMs per system)
- Each CPU has 6 memory lanes - optimal bandwidth when all 12 memory lanes filled

- 64GB (8 x 8GB) DDR4 2666MHz ECC memory – (Requires eight 8GB DIMMs) - minimum
- 96GB (12 x 8GB) DDR4 2666 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 ECC memory – (Requires sixteen 8GB DIMMs)
- 128GB (8 x 16GB) DDR4 2666 ECC memory – (Requires eight 16GB DIMMs)
- 192GB (24 x 8GB) DDR4 2666 ECC memory – (Requires twenty four 8GB DIMMs)
- 192GB (12 x 16GB) DDR4 2666 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 HP Z8 G4:

HP Supports:

- **Microsoft® Windows 10 Pro / Enterprise 64-bit Edition Version 1703 or 1709 – (MC 8.5 or above)**
- **Microsoft® Windows 10 Pro for workstations 64-bit Version 1709 – (MC 8.5 or above)**

Not Supported –

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

Media Composer Application	Minimum Rev
Media Composer 8.x	8.8 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
* AMD WX7100, WX9100 require AMD driver released 18.Q1 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	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
Artist DNxIO/ DNxIQ (PCIe or thunderbolt connection) Artist DNxIV (thunderbolt only connection) – not shipping until 1H'18	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 Thunderbolt bus with DNxIO, DNxIQ, DNxIV Support for HP Thunderbolt card will be first half 2018 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 V7.09
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 V7.09
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 V7.09

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	#5	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	#5	Avid Mojo DX Hardware Interface HBA – Supported with any of the three listed Active HBA's
HP Thunderbolt 3 adapter card	Not stocked by AVID	#1	TB3 not available until 1H'18
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 x8 PCI-E	Not stocked by AVID	#5 or #1	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	#6	Shared Storage: NEXIS Optical Gb-Ethernet
Intel i350-T2 – Dual Gb NIC	Not stocked by AVID	#6	Shared Storage: NEXIS Copper Gb-Ethernet Dual Gb NEXIS Connectivity
Intel X710 dual port 10Gb	Not stocked by AVID	#6	Shared Storage: NEXIS Optical Gb-Ethernet
Myricom 10G-PCIE-8B-S, 10G-PCIE-8B2-2S, 10G-PCIE-8C2-2T	7030-30041-01	#6	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**
- **HP thunderbolt 3 PCIe card will be supported in Z8 G4, Z6 G4 and G4 G4. For older HP workstations, use Thunderbolt 2 PCIe card from HP.**
- **HP dual port 10GBase-T NIC module is currently NOT supported**

5.) Slot Configuration:

Slot Configuration Information			
Slot #	Electrical	Mechanical	
1	X8 PCI-E Gen 3 CPU2	x8 Open-ended Connector	HP Thunderbolt 3 adapter card Or 3rd party PCIe OpenIO card
2	x16 PCI-E Gen 3 (75Watts)	x16	Graphics Card: Nvidia P4000, P5000*,P6000* AMD WX-7100 ***Please Note: Dual slot graphics cards will block access to slot #3***
3	X16 PCI-E Gen 3 CPU2	x16	Optional HP Zturbo SSD storage cards Or Pro Tools HD h/w
4	x16 PCI-E Gen 3 (75Watts)	x16	Local SAS Storage Controllers: **or** Pro Tools HD h/w
5	X4 PCI-E Gen 3	X4 open ended	Avid/BMD HIB card for DNxIO/DNxIQ/Mojo DX Or 3rd party PCIe Open IO card
6	x16 PCI-E Gen 3 CPU2	x16	Shared Storage Controllers Nexis/ISIS Intel X710, i350-T2 Atto FFRM-NS11, NS12, NT11, NT12 Myricom 10Gb
7	X4 PCI-E Gen 3	X4 open ended	HP Zturbo SSD storage cards
	Embedded Intel I219-LM Gb NIC	PCI-E x1 Gen 3	Qualified for Avid Nexis/ISIS
	Embedded Intel I210 Gb NIC	PCI-E x1 Gen 3	Qualified for Avid Nexis/ISIS

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

The Z8 G4 has two embedded NIC ports. Both ports are 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 HP for shipping Z8 G4 systems*

Z8 G4 Required system BIOS changes:

1. Verify CPU Processors are set to Hyper-Threading
2. Memory option for NUMA – Disable

Set Z8 G4 Required system BIOS changes:

- During boot up press F10 at the HP 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)

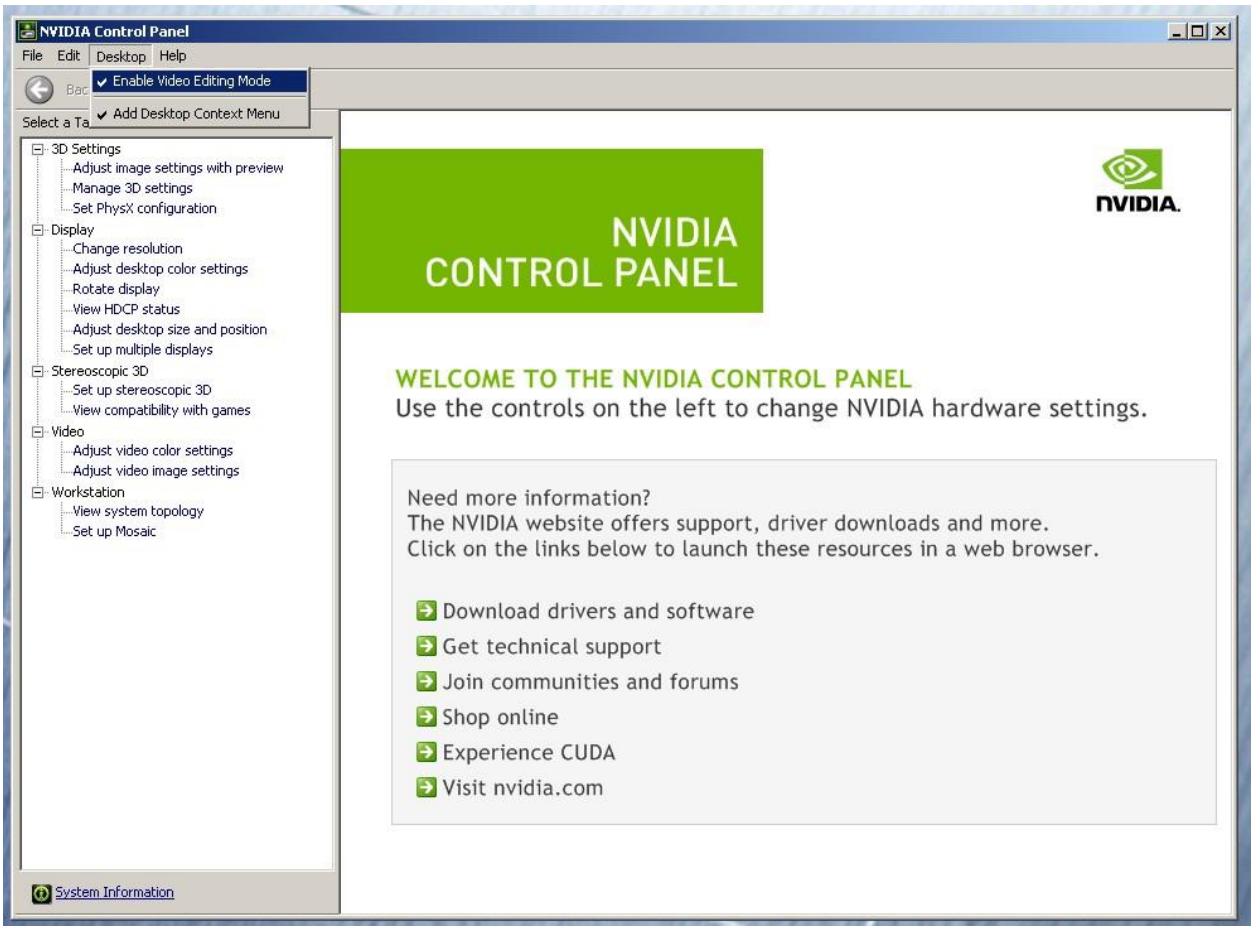
8.) Graphics Qualified Drivers:

AVID Software	Version(s)	GPU	Driver Required
Media Composer	8.8.x	Nvidia P4000, P5000, P6000	Nvidia 385.08
Media Composer	8.8.x	AMD WX7100, WX9100	AMD 18Q1

After installation of the AVID software the supported Nvidia driver can be found in the following directory:
Program Files / Avid / Utilities / Nvidia.
** The AMD graphics driver is NOT included with MC release builds. You can find this driver on the AMD web page http://support.amd.com/en-us/download

Set optimized Nvidia driver settings for Avid editing environments:

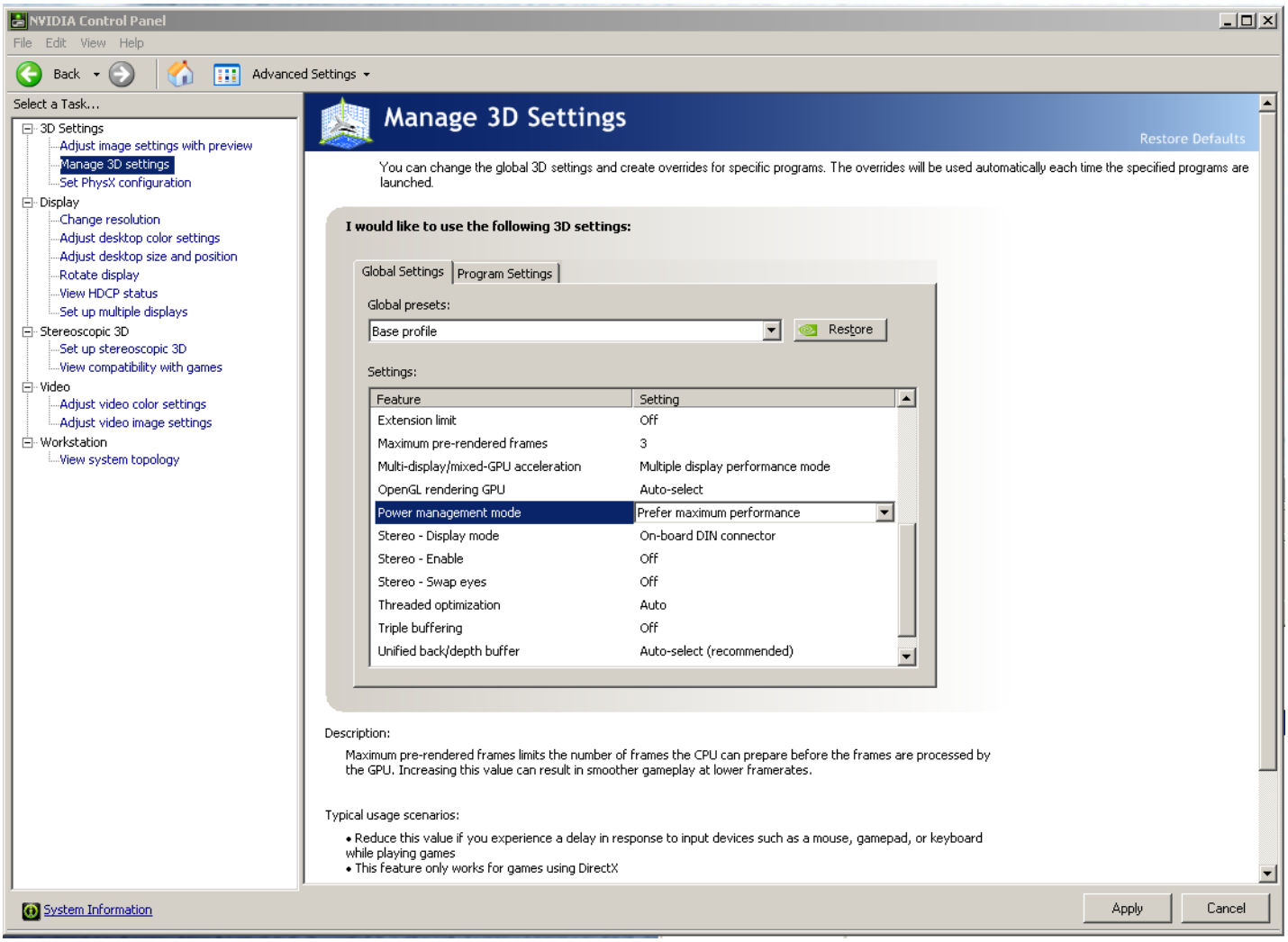
1. See picture below
2. Right-Click on the desktop and select Nvidia Control Panel
3. Select the “Desktop” menu selection in the control panel menu bar.
4. Enable “Desktop -> Video Editing Mode



5. Select Manage 3D Settings
6. Select “Global Settings” Tab
7. Under the “Global Settings” tab select “3D App – Default Global Settings” or “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 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 HP Z8 G4 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 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.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 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

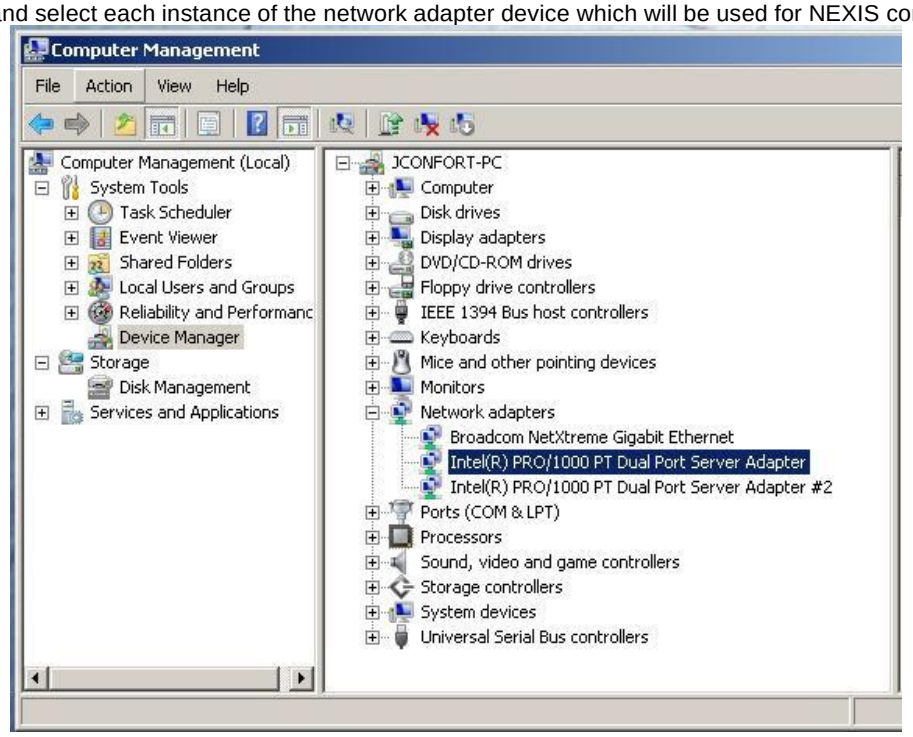
I.) Intel NIC Port(s) for Isis/NEXIS connectivity:

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.

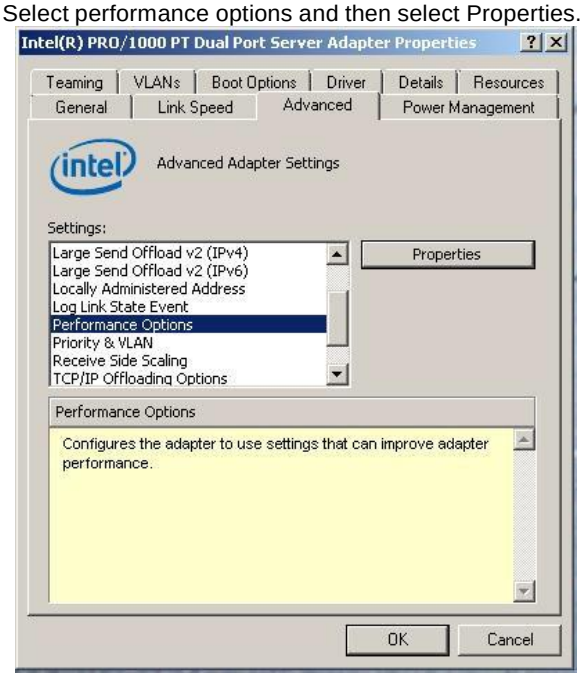
1. For the performance settings, change the following parameters:
   - Receive Buffers to 1024
   - Transmit Buffers to 1024

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.

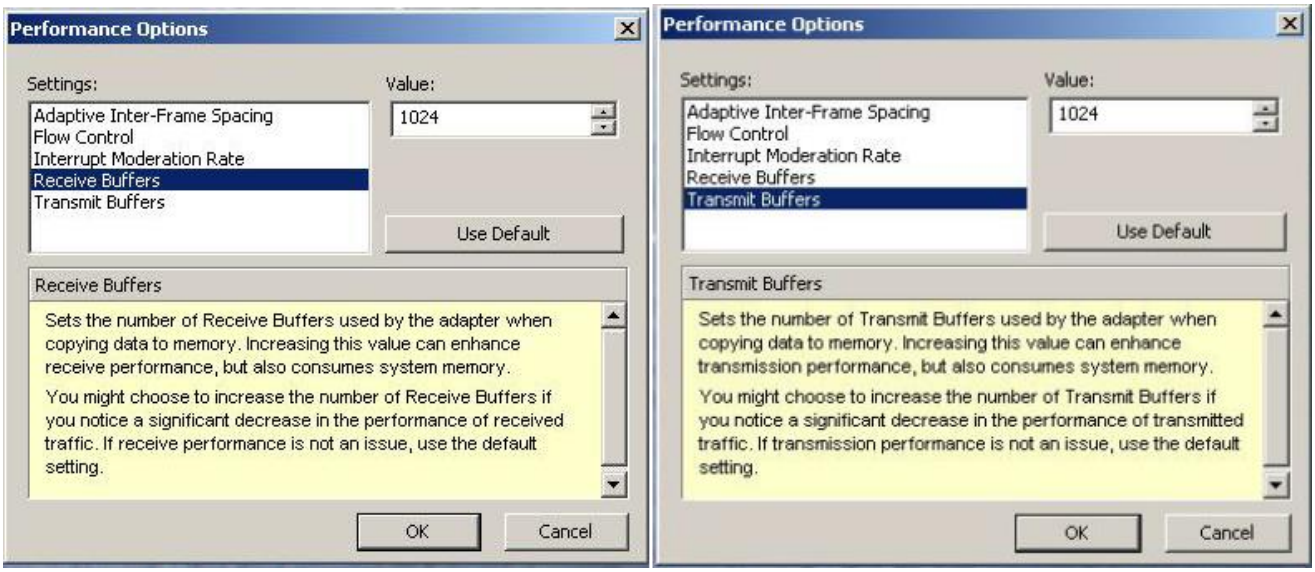


Select performance options and then select Properties.



Set Receive Buffers to 1024

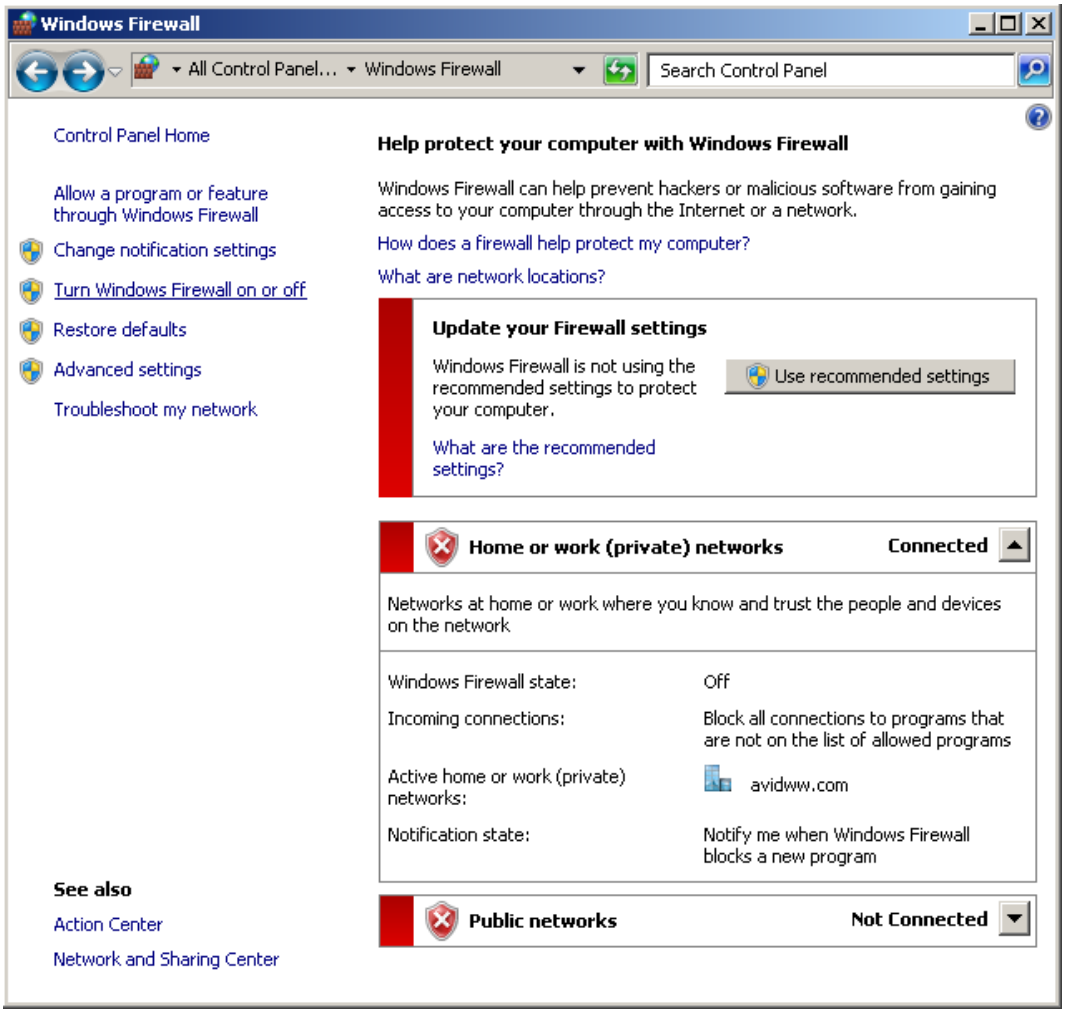
Set Transmit Buffers to 1024



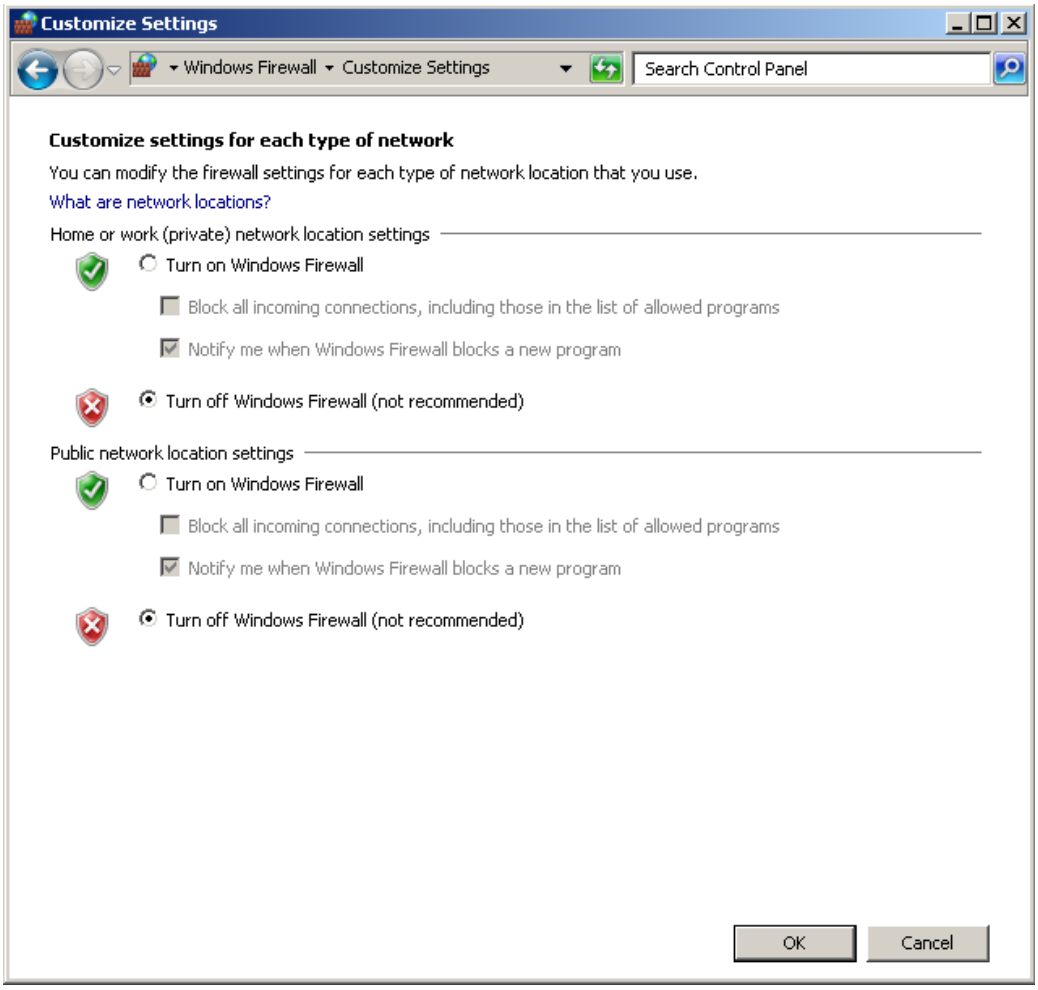
Perform this for each instance of and Intel NIC port which will be used for NEXIS connectivity.

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	Dec 22, 2017	Dave Pimm	Initial release of the HP Z8 G4 configuration guide
Rev B	Feb 20, 2018	Dave Pimm	Updates from HP site
Rev C	April 23, 2018	Dave Pimm	Corrections