Avid Configuration Guidelines
HP Z2 G4 workstation Tower and SFF
4 or 6 Core CPU System
1.) **HP Z2 G4 AVID Qualified System Specification:**

**Z2 G4 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 *(Better)*
- 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 *(Best performance)*
- Intel core i7 8700 3.2 Ghz, turbo up to 4.6 Ghz 6-core *(Better)*
- Intel core i7 8700k 3.7 Ghz, turbo up to 4.7 Ghz 6-core *(Best performance)*

*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) *(recommended – performance/price)*
4.) AMD Radeon Pro WX7100 8GB PCI-e video board (tower only)

**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 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 HP Z2 G4:

**HP 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

<table>
<thead>
<tr>
<th>Media Composer Application</th>
<th>Minimum Rev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media Composer</td>
<td>2018.7</td>
</tr>
<tr>
<td>Media Composer 7.x, 8.x</td>
<td>Not supported</td>
</tr>
<tr>
<td>NewsCutter 11.x</td>
<td>Not Supported</td>
</tr>
</tbody>
</table>

* Nvidia P620, P1000, P2000, require Nvidia driver that ships with the version of MC 2018.7 and above
* AMD WX7100 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](http://avid.force.com/pkb/articles/en_US/download/AMD-Supported-GPU-Drivers)
## 3.) Qualified O.S., Hardware and shared storage supported:  

<table>
<thead>
<tr>
<th>Qualified / Supported</th>
<th>Nitris DX</th>
<th>Mojo DX</th>
<th>Artist DNxIO/ DNxIQ (PCIe or thunderbolt connection)</th>
<th>Artist DNxIV/DNxIPv/DNxID (thunderbolt only connection)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NOT SUPPORTED (requires PCIe gen 1 or 2 slot which is not available on this system) – causes system hang when MC upgraded</td>
<td>SUPPORTED</td>
<td>Yes – Supported</td>
<td>PCIe preferred as it requires less system over-head due to direct PCIe to PCIe connection between the host CPU and Artist DNxIQ</td>
</tr>
</tbody>
</table>

**Thunderbolt Guidance**  
Thunderbolt 2 & 3 - higher system over-head, not recommended to share Thunderbolt devices on the same Thunderbolt bus with DNxIO, 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)

<table>
<thead>
<tr>
<th>NEXIS / ISIS Single 1Gb Ethernet Client</th>
<th>NEXIS Dual 1Gb Ethernet Client</th>
<th>Intel i350, i219, i210</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISIS 5500 / 5000 , 7500 / 7000</td>
<td>Avid NEXIS Pro, E2, E4, E5 V7.9</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NEXIS / ISIS Hi-res (single 10Gbit) client</th>
<th>Myricom Single-Port 10Gb Ethernet</th>
<th>Atto FFRM-NS11, NT11, Intel X710</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISIS 5500 / 5000 , 7500 / 7000</td>
<td>Avid NEXIS Pro, E2, E4, E5 V7.9</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NEXIS / ISIS Ultra Hi-res (dual 10Gb)</th>
<th>Myricom Dual-Port 10Gb Ethernet</th>
<th>Atto FFRM-NS12, NT12, Intel X710</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISIS 5500 / 5000</td>
<td>Avid NEXIS Pro, E2, E4, E5 V7.9</td>
<td></td>
</tr>
</tbody>
</table>
4. **AVID qualified HBA info**

<table>
<thead>
<tr>
<th>AVID qualified HBA</th>
<th>AVID Part Number</th>
<th>Slot Location</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avid Artist DNxIO HBA</td>
<td>Avid part # 7030-30048-02</td>
<td>#4</td>
<td>Avid Artist DnxIO interface HBA</td>
</tr>
<tr>
<td>Avid Artist DNxIQ HBA</td>
<td>BMD PCIe cable kit</td>
<td></td>
<td>Avid Artist DNxIQ interface HBA</td>
</tr>
<tr>
<td>Mojo-DX Interface HBA</td>
<td>Active: 7030-30048-02</td>
<td>#4</td>
<td>Avid Mojo DX Hardware Interface HBA – Supported with any of the three listed Active HBA’s</td>
</tr>
<tr>
<td></td>
<td>Active: 7030-30048-01</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Active: 7030-20084-01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HP Thunderbolt 3 adapter card</td>
<td>Not stocked by AVID</td>
<td>#4</td>
<td>2 ports TB3</td>
</tr>
<tr>
<td>Atto R680, H680</td>
<td>Not stocked by AVID</td>
<td>#4</td>
<td>Local SAS Storage</td>
</tr>
<tr>
<td>LSI 9200-8e SAS controller</td>
<td>7030-30036-01</td>
<td>#4</td>
<td>Local SAS Storage:</td>
</tr>
<tr>
<td>Vendor qualified 3rd party hardware X4 PCI-E</td>
<td>Not stocked by AVID</td>
<td>#4</td>
<td>Vendor qualified 3rd party hardware interface. See release notes and Avid website for information regarding supported 3rd party hardware</td>
</tr>
<tr>
<td>Atto FFRM-NS11,NS12, NT11, NT12 10 Gb single or dual port</td>
<td>Not stocked by AVID</td>
<td>#4</td>
<td>Shared Storage: NEXIS Optical Gb-Ethernet</td>
</tr>
<tr>
<td>Intel i350-T2 – Dual Gb NIC</td>
<td>Not stocked by AVID</td>
<td>#4</td>
<td>Shared Storage: NEXIS Copper Gb-Ethernet Dual Gb NEXIS Connectivity</td>
</tr>
<tr>
<td>Intel X710 dual port 10Gb</td>
<td>Not stocked by AVID</td>
<td>#4</td>
<td>Shared Storage: NEXIS Optical Gb-Ethernet</td>
</tr>
</tbody>
</table>

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.
5.) Slot Configuration:

<table>
<thead>
<tr>
<th>Slot #</th>
<th>Electrical</th>
<th>Mechanical</th>
<th>Mechanical Type and Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>x16 PCI-E Gen 3</td>
<td>X16</td>
<td>Graphics Card: Nvidia P620, P1000, P2000 AMD WX-7100</td>
</tr>
<tr>
<td>2</td>
<td>X1 PCI-E Gen 3</td>
<td>X4 open ended</td>
<td>Not Used (PCIe x1)</td>
</tr>
<tr>
<td>3</td>
<td>X1 PCI-E Gen 3</td>
<td>X4 open ended</td>
<td>Not Used (PCIe x1)</td>
</tr>
<tr>
<td>4</td>
<td>X4 PCI-E Gen 3</td>
<td>X16</td>
<td>Avid/BMD HIB card for DNxIO, DNxIQ, Mojo DX HP Thunderbolt 3 adapter card for DNxIV/DNxIP/DNxID 3rd party PCIe Open IO card (PCIe x4 or less) Shared or local storage controller</td>
</tr>
<tr>
<td>M 1</td>
<td>M.2 slot 1 PCI-E Gen 3</td>
<td>M.2 x4</td>
<td>HP NVMe SSD storage cards</td>
</tr>
<tr>
<td>M 2</td>
<td>M.2 slot 2 PCI-E Gen 3</td>
<td>M.2 x4</td>
<td>HP NVMe SSD storage cards</td>
</tr>
<tr>
<td></td>
<td>Embedded Intel I219-LM Gb</td>
<td>PCI-E x1 Gen 3</td>
<td>Qualified for Avid Nexis/ISIS</td>
</tr>
</tbody>
</table>

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

The Z2 G4 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 HP for shipping Z2 G4 systems

Z2 G4 Required system BIOS changes:

1. Verify CPU Processors are set to Hyper-Threading

Set Z2 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)

8.) Graphics Qualified Drivers:

<table>
<thead>
<tr>
<th>AVID Software</th>
<th>Version(s)</th>
<th>GPU</th>
<th>Driver Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media Composer</td>
<td>2018.7 or later</td>
<td>Nvidia P620, P1000, P2000</td>
<td>Nvidia 390.77</td>
</tr>
<tr>
<td>Media Composer</td>
<td>2018.7 or later</td>
<td>AMD WX7100</td>
<td>AMD 18Q1</td>
</tr>
</tbody>
</table>

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](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” (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.

![Manage 3D Settings](image)

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 have 4 mini-display ports. All 4 ports can be used simultaneously.

The AMD WX7100 graphics card 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 HP Z2 G4 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.
   

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)
     
   - Addenda Rosetta Stone (or equivalent) model RS – 2/8 RS232-to-RS422 converter (AVID P/N 7070-00507-01)
     

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

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.

![Computer Management Screen](image)

Select performance options and then select Properties.

![Advanced Adapter Settings](image)

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*

![Windows Firewall](image)

- **Help protect your computer with Windows Firewall**
  - Windows Firewall can help prevent hackers or malicious software from gaining access to your computer through the Internet or a network.
  - How does a Firewall help protect my computer?
  - What are network locations?

- **Update your Firewall settings**
  - Windows Firewall is not using the recommended settings to protect your computer.
  - What are the recommended settings?

- **Home or work (private) networks**
  - Networks at home or work where you know and trust the people and devices on the network.
  - Windows Firewall state: Off
  - Incoming connections: Block all connections to programs that are not on the list of allowed programs
  - Active home or work (private) networks: avidwww.com
  - Notification state: Notify me when Windows Firewall blocks a new program

- **Public networks**
  - Not Connected
Select Turn off windows firewall in both network locations, OK to save

**Customize settings for each type of network**
You can modify the firewall settings for each type of network location that you use.

**What are network locations?**

- **Home or work (private) network location settings**
  - Turn on Windows Firewall
    - Block all incoming connections, including those in the list of allowed programs
    - Notify me when Windows Firewall blocks a new program
  - Turn off Windows Firewall (not recommended)

- **Public network location settings**
  - Turn on Windows Firewall
    - Block all incoming connections, including those in the list of allowed programs
    - Notify me when Windows Firewall blocks a new program
  - Turn off Windows Firewall (not recommended)

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**Revision Update**

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>Name</th>
<th>Update</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rev A</td>
<td>Aug 22, 2018</td>
<td>Dave Pimm</td>
<td>Initial release of the HP Z2 G4 configuration guide</td>
</tr>
</tbody>
</table>

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