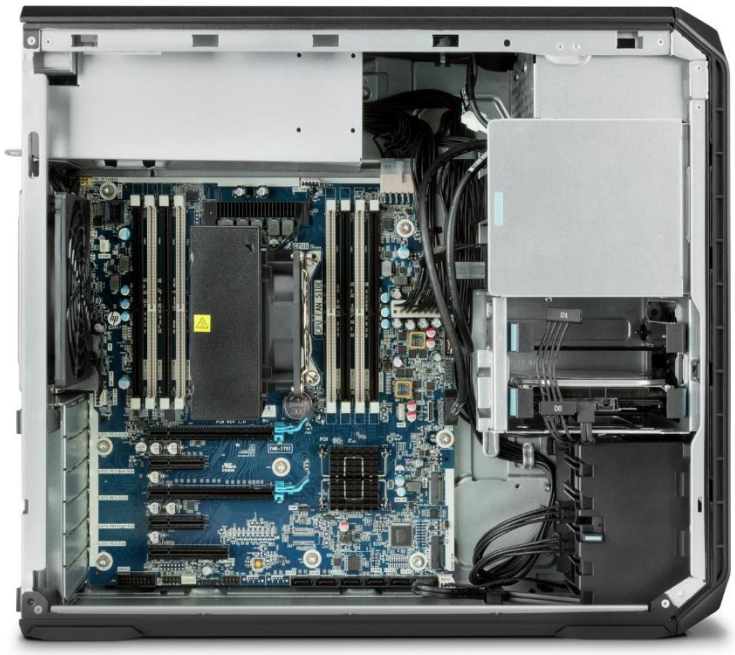
Avid Configuration Guidelines
HP Z4 G4 workstation
6 to 18 Core CPU System



Dave Pimm – Avid Technology – Oct 28, 2020

Rev K

1.) HP Z4 G4 AVID Qualified System Specification:

Z4 G4 Hardware Configuration

Intel Xeon W-series (Skylake - Q3 '17)

- Xeon W-2133 3.6 Ghz, turbo up to 3.9 Ghz 6-core
- Xeon W-2135 3.7 Ghz, turbo up to 4.5 Ghz 6-core
- Xeon W-2145 3.7 Ghz, turbo up to 4.5 Ghz 8-core
- Xeon W-2155 3.3 Ghz, turbo up to 4.5 Ghz 10-core
- Xeon W-2175 2.5 Ghz, turbo up to 4.3 Ghz 14-core
- Xeon W-2195 2.3 Ghz, turbo up to 4.3 Ghz 18-core

Intel Core i7/i9 chips (Skylake - Q3 '17) – similar performance, lower price than Xeon, no ECC

- I7- 7800X 3.5 Ghz, turbo up to 4.0 Ghz 6-core
- I7- 7820X 3.6 Ghz, turbo up to 4.3 Ghz 8-core (no longer available)
- I9- 7900X 3.3 Ghz, turbo up to 4.3 Ghz 10-core
- I9- 7920X 2.9 Ghz, turbo up to 4.3 Ghz 12-core (no longer available)
- I9- 7940X 3.1 Ghz, turbo up to 4.3 Ghz 14-core
- I9- 7960X 2.8 Ghz, turbo up to 4.2 Ghz 16-core
- I9- 7980XE 2.6 Ghz, turbo up to 4.2 Ghz 18-core (no longer available)

9th Gen Intel Core X-series CPU (Skylake - Q4 '18) - similar performance, lower price than Xeon, no ECC

- I7- 9800X 3.8 Ghz, turbo up to 4.4 Ghz 8-core (Good)
- I9- 9820X 3.3 Ghz, turbo up to 4.1 Ghz 10-core
- I9- 9920X 3.5 Ghz, turbo up to 4.4 Ghz 12-core
- I9- 9980XE 3.0 Ghz, turbo up to 4.4 Ghz 18-core

10th Gen Intel Core X-series CPU (Cascade lake - Q4 '19) - *min MC 2018.12.x – Lowest pricing – no ECC*

- I9- 10900X 3.7 Ghz, turbo up to 4.5 Ghz 10-core
- I9- 10920X 3.5 Ghz, turbo up to 4.6 Ghz 12-core (Better)
- I9- 10940X 3.3 Ghz, turbo up to 4.6 Ghz 14-core
- I9- 10980XE 3.0 Ghz, turbo up to 4.6 Ghz 18-core (Best performance)

Intel Xeon W-series (Cascade lake – Q4 '19) - min MC 2018.12.x – Lower pricing than Skylake W-series

- Xeon W-2255 3.7 Ghz, turbo up to 4.5 Ghz 10-core
- Xeon W-2265 3.5 Ghz, turbo up to 4.6 Ghz 12-core (Better)
- Xeon W-2275 3.3 Ghz, turbo up to 4.6 Ghz 14-core
- Xeon W-2295 3.0 Ghz, turbo up to 4.6 Ghz 18-core (Best performance)

- Note – Higher CPU speeds are preferred over CPU core count for MC application (as turbo speeds are similar, higher core count will give better performance.

Note: high power CPUs with high end graphics require the 750W or 1000W power supply option

Supported Video Cards

1.) NVIDIA P1000 4GB PCI-e video board
2.) NVIDIA P2000 5GB PCI-e video board (no longer available – replaced by P2200)
3.) NVIDIA P4000 8GB PCI-e video board
4.) AMD Radeon Pro WX7100 8GB PCI-e video board
5.) NVIDIA P2200 5GB PCI-e video board (*min MC 2018.12.x*) (recommended)
6.) NVIDIA RTX4000 8GB PCI-e video board (*min MC 2018.12.x*) - (Best performance)

System Disk Drive – 500 GB NVMe or SATA SSD (recommended). 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 with Xeon W Skylake CPUs use DDR4-2666MHz ECC memory (up to 8 DIMMs per system)
- Systems with Xeon W Cascade lake CPUs use DDR4-2933MHz ECC memory (up to 8 DIMMs per system)
- Systems using i7/i9 X-series Skylake CPUs will use DDR4-2666Mhz Non-ECC memory
- Systems using i9 X-series Cascade Lake CPUs will use DDR4-2933Mhz Non-ECC memory
- Each CPU has 4 memory lanes - optimal bandwidth when all 4 memory lanes filled
    - 32GB (4 x 8GB) DDR4 2666/2933 MHz memory – (Requires four 8GB DIMMs)

Memory modules must be installed according to manufacturer's requirements

Optional AVID memory configuration:

- 64GB (8 x 8GB) DDR4 2666/2933 memory – (Requires eight 8GB DIMMs)
- 64GB (4 x 16GB) DDR4 2666 /2933 memory – (Requires four 16GB DIMMs)
- 128GB (8 x 16GB) DDR4 2666/2933 memory – (Requires eight 16GB DIMMs)
- 128GB (4 x 32GB) DDR4 2666 /2933 memory – (Requires four 32GB 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 Z4 G4:

HP Supports:

- **Microsoft® Windows 10 Pro / Enterprise 64-bit Edition Version 1809 or later**

  See microsoft win 10 lifecycle fact sheet for supported Win 10 versions:
  https://support.microsoft.com/en-us/help/13853/windows-lifecycle-fact-sheet

Not Supported –

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

Media Composer Application	Minimum Rev
Media Composer 18.12.x	Min 18.12.2 required for Cascade Lake CPUs and Nvidia RTX graphics
Media Composer 8.x	8.8 for Skylake CPUs, Nvidia Pascal graphics 8.9.3 required for CPU virtual core count > 64
Media Composer 7.x	Not supported
NewsCutter 11.x	Not Supported

* Nvidia P1000, P2000, P4000 require Nvidia driver that ships with the version of MC 8.8 and above
* Nvidia P2200, RTX4000 require Nvidia driver that ships with the version of MC 2018.12.2 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

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

	Qualified / Supported
Nitris DX/Mojo DX	NOT SUPPORTED End of support 3/31/2020
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 DNxIO. <u>Thunderbolt Guidance</u> Thunderbolt 2 & 3 - higher system over-head, not recommended to share Thunderbolt devices on the same TB bus with DNxIO/IQ, DNxIV/IP, DNxID DNxIO would require TB3 to TB2 converter Thunderbolt 2 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 T2V2, i219, X722	ISIS 5500 / 5000 , 7500 / 7000 Avid NEXIS Pro, E2, E2|SSD, E4, E5, E5|NL V18.x
NEXIS / ISIS Ultra Hi-res (10Gbit) client Myricom Single or dual Port 10Gbit Atto FFRM-NS11,NS12 NT11, NT12 Intel X520-T2, X540-T2, X710-DA2, X722	ISIS 5500 / 5000 , 7500 / 7000 Avid NEXIS Pro, E2, E2|SSD, E4, E5, E5|NL V18.x
NEXIS 40Gigabit Atto FFRM-NQ 41/42	Avid NEXIS Pro, E2, E2|SSD, E4, E5, E5|NL V18.x

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	#2	Avid Artist DnxIO interface HBA Avid Artist DNxIQ interface HBA
HP Thunderbolt 3 adapter card	Not stocked by AVID	#4	HP TB3 card restricted to slot 4
Atto R680, H680	Not stocked by AVID	#5	Local SAS Storage
LSI 9200-8e SAS controller	7030-30036-01	#5	Local SAS Storage:
Vendor qualified 3rd party hardware x8 PCI-E	Not stocked by AVID	#4 or #2	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 1 Gb-Ethernet Dual Gb NEXIS Connectivity
Intel X520, X540, X710 single or dual port 10Gb	Not stocked by AVID	#3	Shared Storage: NEXIS Optical 10 Gb-Ethernet
Myricom 10G-PCIE-8B-S 10G-PCIE-8B2-2S, 10G-PCIE-8C2-2T	7030-30041-01	#3	Shared Storage: NEXIS 10Gb-Ethernet
Atto FFRM-NQ 41/42 40 Gb single or dual port	Not stocked by AVID	#3	Shared Storage: NEXIS Optical 40Gb-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 is supported in Z8 G4, Z6 G4 and Z4 G4. For older HP workstations, use Thunderbolt 2 PCIe card from HP.**
- **Intel X710-DA2 only supported by HP on Win 10 – driver on HP web site**

5.) Slot Configuration:

Slot Configuration Information			
Slot #	Electrical	Mechanical	
1	x16 PCI-E Gen 3	X16	Graphics Card: Nvidia P1000, P2000, P2200, P4000, RTX4000 AMD WX-7100
2	X4 PCI-E Gen 3	X4 open ended	Avid/BMD HIB card for DNxIO,DNxIQ Or 3rd party PCIe OpenIO card
3	X16 PCI-E Gen 3	x16	Shared Storage Controllers Nexis/ISIS Single or dual NIC 1Gb, 10Gb, 40Gb
4	X4 PCI-E Gen 3	X4 open ended	HP Thunderbolt 3 adapter card Or 3rd party PCIe Open IO card
5	X8 PCI-E Gen 3	X8 open ended	Local SAS Storage Controllers:
M 1	M.2 slot 1 PCI-E Gen 3	M.2 x4	HP nVMe storage cards
M 2	M.2 slot 2 PCI-E Gen 3	M.2 x4	HP nVMe 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 Z4 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 10 24
   - 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 Z4 G4 systems*

Z4 G4 Required system BIOS changes:

1. Verify CPU Processors are set to Hyper-Threading

Set Z4 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)

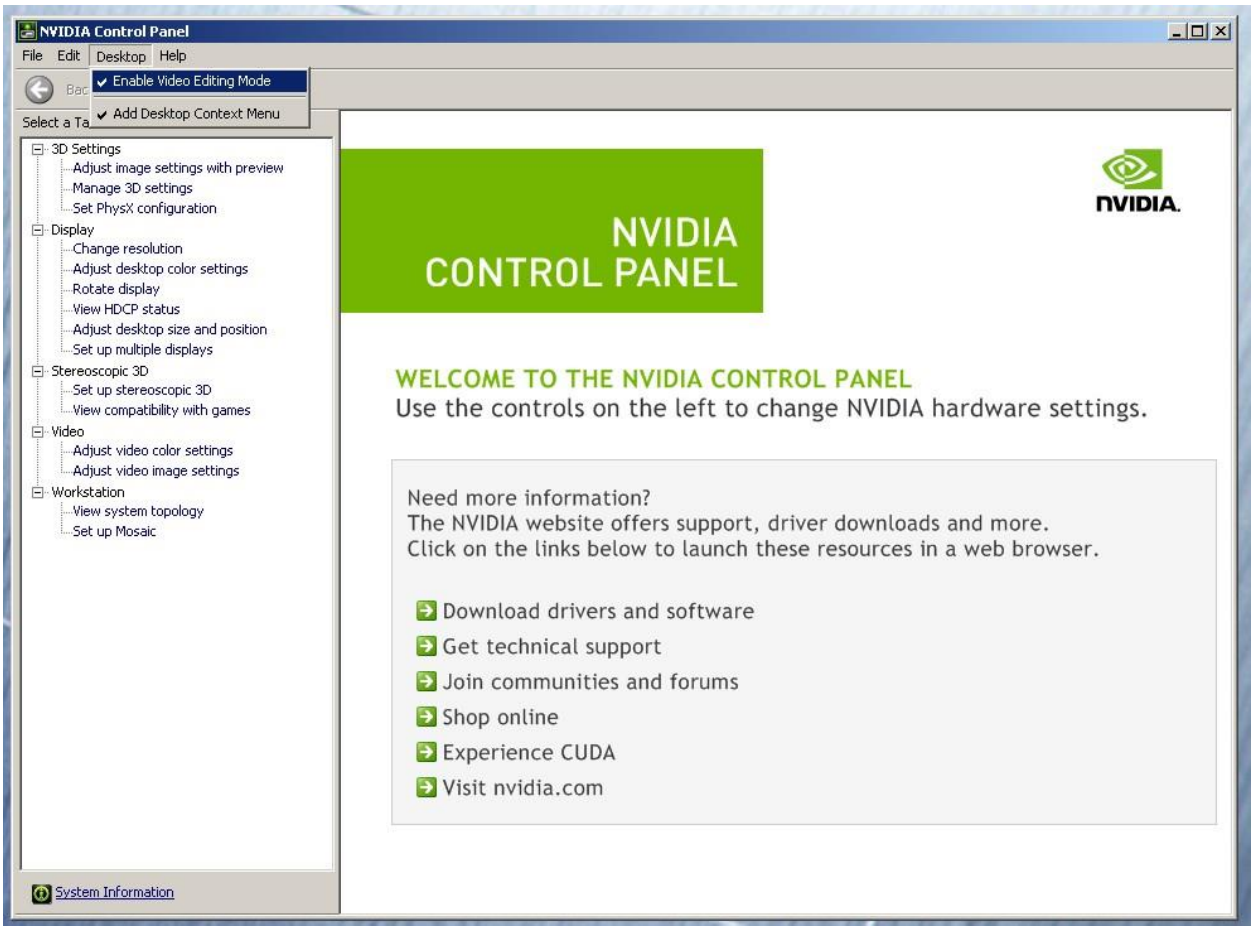
8.) Graphics Qualified Drivers:

AVID Software	Version(s)	GPU	Driver Required
Media Composer	2018.12.2	P2200, RTX4000	Nvidia 411.95
Media Composer	8.8.x	Nvidia P1000, P2000, P4000	Nvidia 385.08
Media Composer	8.8.x	AMD WX7100	AMD 17Q4

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:

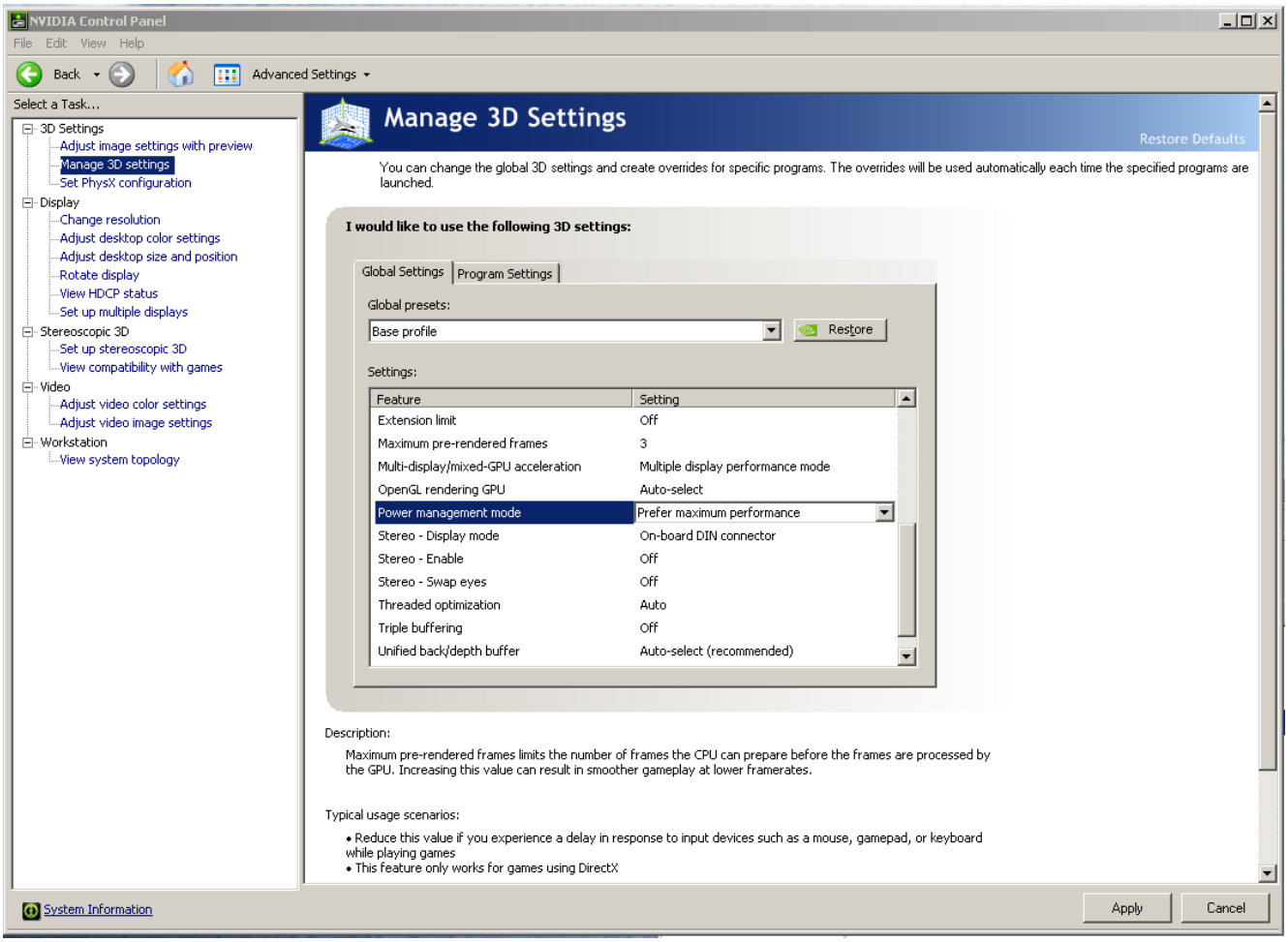
1. See picture below
2. Right-Click on the desktop and select Nvidia Control Panel
3. Select the “Desktop” menu selection in the control panel menu bar.
4. Enable “Desktop -> Video Editing Mode



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

9.) GPU monitor connectivity:

The Nvidia Quadro P4000, P2000, P2200 graphics cards have four Display-Port ports. The P1000 has 4 mini-display ports. The RTX4000 has 3 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)*

10.) Serial Port Deck Control

The HP Z4 G4 workstation does NOT have an embedded serial port. Primary or secondary / additional serial port deck control can be established using USB to serial port adapters. See the Avid KB for more info.

11.) 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

Revision Update

Revision	Date	Name	Update
Rev A	Dec 22, 2017	Dave Pimm	Initial release of the HP Z4 G4 configuration guide
Rev B	Jan 30, 2018	Dave Pimm	Swapped PCIe slots for GPU
Rev C	Feb 20, 2018	Dave Pimm	Fixed small issues
Rev D	April 24, 2018	Dave Pimm	Corrections
Rev E	June 6, 2018	Dave Pimm	Added i7/i9 X series processors and non-ECC memory
Rev F	Oct 15, 2018	Dave Pimm	Changed slots for TB card to match HP restrictions
Rev G	March 8, 2019	Dave Pimm	Add Nvidia RTX cards
Rev H	May 29, 2019	Dave Pimm	Add 9th gen Intel Core i7/i9 chips
Rev J	Dec 30, 2019	Dave Pimm	Add new Intel Cascade Lake CPUs (Core i9 X & Xeon W-series)
Rev K	Oct 28, 2020	Dave Pimm	Clean up