



**Avid Configuration Guidelines**  
**Lenovo ThinkStation E31 Workstation Tower/SFF**  
**Single Quad Core CPU**  
**Qualified for Software Only**  
**Symphony 6.x, Media Composer 6.x, & NewsCutter 10.x**



Tower Front



Tower Back



SFF Front



SFF Back

## 1.) LENOVO E31 AVID Qualified System Specification:

### E31 / AVID Qualified Operating System:

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

#### 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 32 or 64-bit (any version)**
- **Not Supported - Microsoft® Windows Vista 32 or 64-bit (any version)**

### Note regarding Service packs:

As of this writing Service Pack 1 is the current Service Pack release for Win7. SP1 is required for Symphony 6.0, Media Composer 6.0, and NewsCutter 10. As future Service Packs are released Avid will evaluate and announce formal support when testing is completed.

### E31 / AVID Qualified Hardware Configuration

#### Qualified CPU Choices

- 1.) Single Intel® Quad-Core Xeon® E3-1245 V2 GT2 Processor @ 3.4GHz 77Watt / 8MB cache / 1600MHz memory (GT2 refers to onboard Intel graphics - HD4000, GT0 means NO onboard Intel graphics)

#### Video Card

1. On Chip Intel HD Graphics P4000
2. Optional - NVIDIA Quadro 600 1GB PCI-Express video board (not required)

#### O.S. System Hard Drive

250GB SATA-II 3Gb/s 7200RPM Hard Disk Drive (Minimum Recommendation)

#### Supported Memory Configurations

- 1.) Memory: 8GB (2 x 4GB) DDR3 1600 ECC memory –  
Requires two 4GB DIMMs, (mixed DIMM sizes not recommended and may impact performance)  
4GB memory modules installed in the following memory slots: DIMM1, DIMM2
- 2.) Memory: 8GB (4 x 2GB) DDR3 1600 ECC memory –  
Requires four 2GB DIMMs, (mixed DIMM sizes not recommended and may impact performance)  
2GB memory modules installed in the following memory slots: DIMM1, DIMM2, DIMM3, DIMM4
- 3.) Memory: 16GB (4 x 4GB) DDR3 1600 ECC memory –  
Requires four 4GB DIMMs, (mixed DIMM sizes not recommended and may impact performance)  
4GB memory modules installed in the following memory slots: DIMM1, DIMM2, DIMM3, DIMM4

#### 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.

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

Qualified Operating System	Win 7 Pro 64-bit
Service Pack	SP1 – Required
ISIS 1Gb Ethernet Client (Minimum)	ISIS 7000/5000 V4.0
ISIS 10Gb Hi-res Ethernet Client	<b>Not Supported</b>
StarTech 1394a PCI Firewire adapter. P/N PCI1394MP 3 external ports , 1 internal Port	Only Supported 1394 connection for 1394 camera or deck. Can also be used for 1394 disk drives ( <b>recommended only for file transfers</b> ).

#### AVID qualified HBA info

AVID qualified HBA	AVID Part Number	Slot	Function
LSI 9200-8e SAS controller	7030-30036-01	#1	SAS Local Storage: Xtore StudioRAID 16Re (16-bay) chassis Xtore StudioRAID 5Te (5-bay) chassis
Atto H680	7030-30028-01	#1	SAS Local Storage – Avid VideoRAID SR (16-bay)
Atto R680	7030-30435-00	#1	SAS Local Storage –Avid VideoRAID ST (5-bay) and Xtore StudioRAID 5Ti (5-bay) chassis
StarTech PCI1394MP Firewire adapter. 1394a PCI HBA	Not stocked by AVID (Available direct from StarTech) More info below	#3	<a href="#">Mandatory primary 1394a connectivity for 1394 camera / deck / disk drive</a>

#### 4.) Slot Configuration:

Slot #	Electrical	Mechanical	Utilization
1	X16 PCI-E Gen 3 (75Watts)	X16 *2	Optional Graphics Card or Local Storage: Nvidia Quadro 600 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
2	x1 PCI-E Gen 2	x1 *2	Not defined for use. Cannot be used for SAS storage. Could be used for optional secondary Lenovo 1394a PCI-Express HBA*1
3	PCI 32bit /33MHz	PCI 32/33 *2	StarTech PCI1394MP Firewire adapter. 1394a PCI HBA (Tower ONLY – no half height cards for SFF) (Mandatory primary 1394a connectivity for 1394 camera / deck)
4	PCI 32bit /33MHz	PCI 32/33 *2	<b>Do Not Use.</b> Will cause BUS contention with 1394 controller installed in slot #3.
	Embedded Intel 82579LM_ GbE NIC	PCI-E x1 Gen 1	Use for connectivity to Avid ISIS 5000 / 7000

**\*1** Firewire 1394a camera / deck *should not be connected to optional Lenovo PCI-Express 1394 HBA. For Symphony, Media Composer and NewsCutter, a 1394 camera or deck must connect via the StarTech PCI1394MP PCI 1394a controller which resides in slot #3.*

**\*2** All slots in Tower config are half length. All slots in SFF config are half length and half height

#### LENOVO E31 Memory DIMM Installation order

- DIMMs are Labeled on the motherboard 1, 2, 3, 4 with DIMM 1 closest to the CPU. Load DIMMs in the following order:

UDIMM	DIMM 1	DIMM 2	DIMM 3	DIMM 4
One UDIMM		X, 1		
Two UDIMMs		X, 1		X, 2
Three UDIMMs	X, 3	X, 1		X, 2
Four UDIMMs	X, 3	X, 1	X, 4	X, 2

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

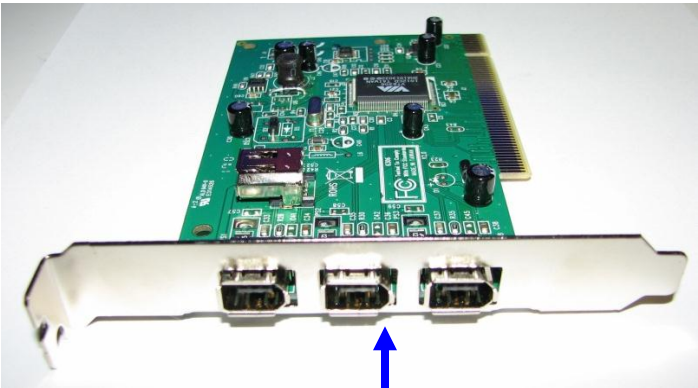
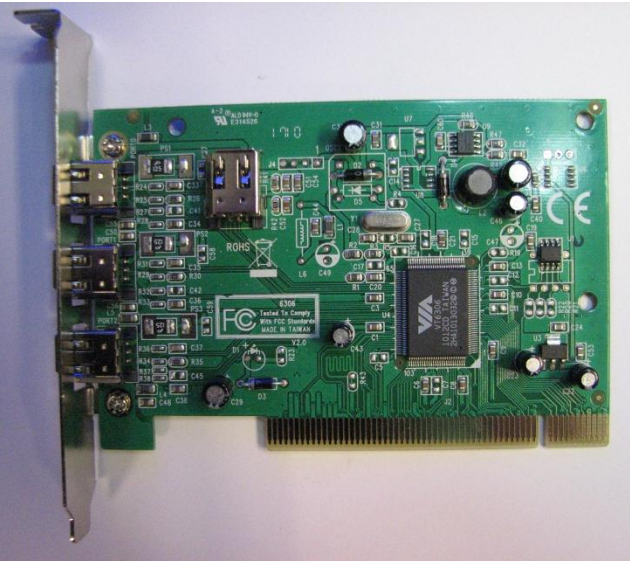
*For Symphony, Media Composer and NewsCutter, a 1394 camera or deck must connect via the optional StarTech PCI1394MP PCI 1394a 4-port controller (3 external ports , 1 internal port) which resides in slot #3.*

Add-in 1394 Controller	Utilization for 1394 Camera / Deck connectivity with Symphony, Media Composer & NewsCutter
Optional StarTech PCI1394MP PCI 1394a 4-port controller (Sot #3)	<b><u>Mandatory requirement.</u></b> Yes - Supports 1394 Deck / Camera Full height card – does not fit in SFF system
Optional Lenovo FireWire IEEE 1394a PCI-Express x1 HBA  Lenovo installed in slot #2	<b><u>Cannot be used for connectivity to a 1394 Deck / Camera which is being interfaced to Symphony, Media Composer or NewsCutter</u></b>  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 Symphony, Media Composer or NewsCutter.

Below are pictures and links to specifications and ordering information for the Avid qualified PCI 1394a Firewire HBA:

Optional StarTech PCI1394MP PCI 1394a 4-port (3 external / 1 internal) controller, (Slot #3)

<http://www.startech.com/Cards-Adapters/FireWire/4-Port-IEEE-1394-FireWire-PCI-Card~PCI1394MP>



Use only external 1394 ports for M/C and N/C 1394

#### **How to identify the unqualified (incorrect) Firewire HBA:**

The incorrect (unqualified) PCI-Express 1394a Firewire HBA is a PCI-e x1 card and may only have 2 1394 ports on the outside. It will probably reside in slot 2.

*It is alright for this HBA to reside in the system, it will not cause a problem as long as it not used for 1394 Camera / Deck connectivity for Symphony, Media Composer or NewsCutter.*

### **6.) Various Configuration Issues:**

#### **A.) Qualified Avid system BIOS (UEFI) version(s):** (As of this writing):

It is **highly recommended** that the BIOS be updated to an "AVID Qualified" BIOS. *Failure to use an "Avid qualified BIOS" may result in non-optimal operation of the AVID software and hardware.*

- Minimum BIOS ver 9SKT33AUS (5/12/2012)

Current Avid qualified BIOS information is maintained at the following Avid KB link:

<http://avid.custkb.com/avid/app/selfservice/search.jsp?DocId=267609&Hilite=hp+bios>

#### **E31 Required system BIOS settings:**

1. Set CPU Hyper-Threading – **Enable**
2. Set Intel Turbo Mode **\*\*** – **Disable**

**\*\*** 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 E31 Required system BIOS (UEFI) settings:**

- During boot up press F1 at the Lenovo splash screen to invoke BIOS Set Up.
- Select the Advanced tab
- Select CPU Setup
- Select 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**)
- 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 a Windows 7 operating system.

- Optimizations for Video Editors - Windows 7

<http://avid.custkb.com/avid/app/selfservice/search.jsp?DocId=390339>

### C.) **Nvidia Qualified Drivers:**

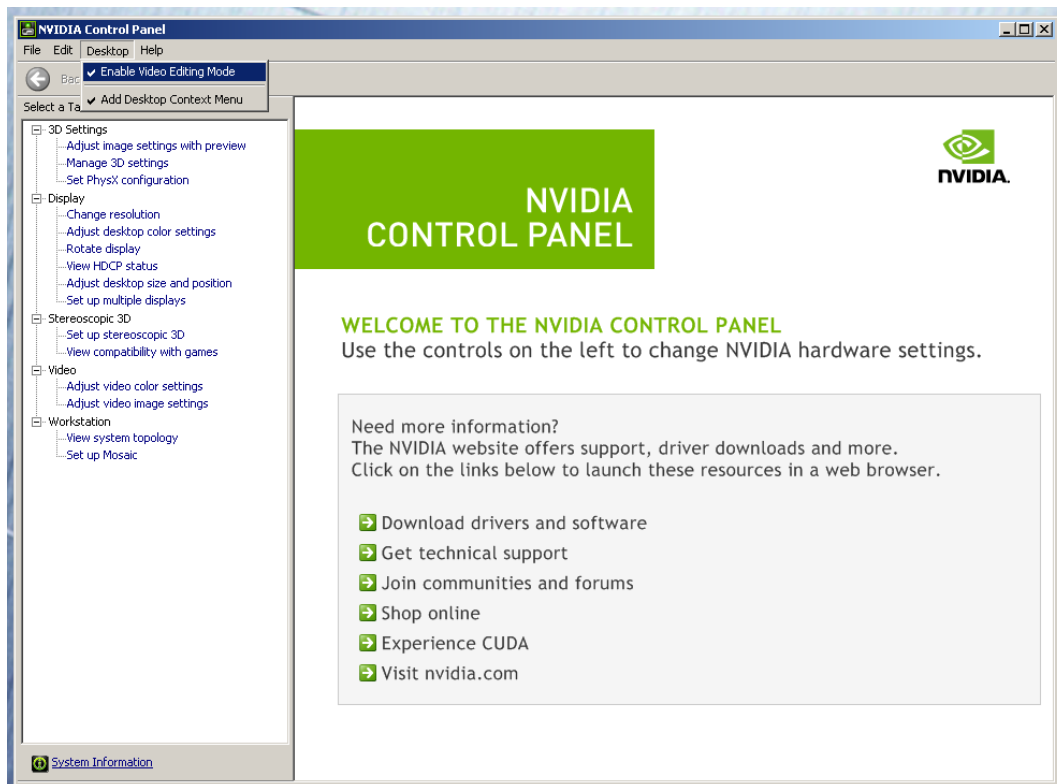
AVID Software	Version(s)	Nvidia GPU	Nvidia Driver Required
Symphony, Media Composer NewsCutter	6.0 and later 10.0 and later	Quadro 600	275.89
Symphony, Media Composer NewsCutter	6.0 and later 10.0 and later	Intel HD P4000	8.15.10.2712

After installation of the AVID software the supported Nvidia driver can be found in the following directory:  
C:\Program Files\Avid\Utilities\Nvidia. The supported Intel HD P4000 driver can be found on the Lenovo website.

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

### **Set optimized Nvidia driver settings for Avid editing environments:**

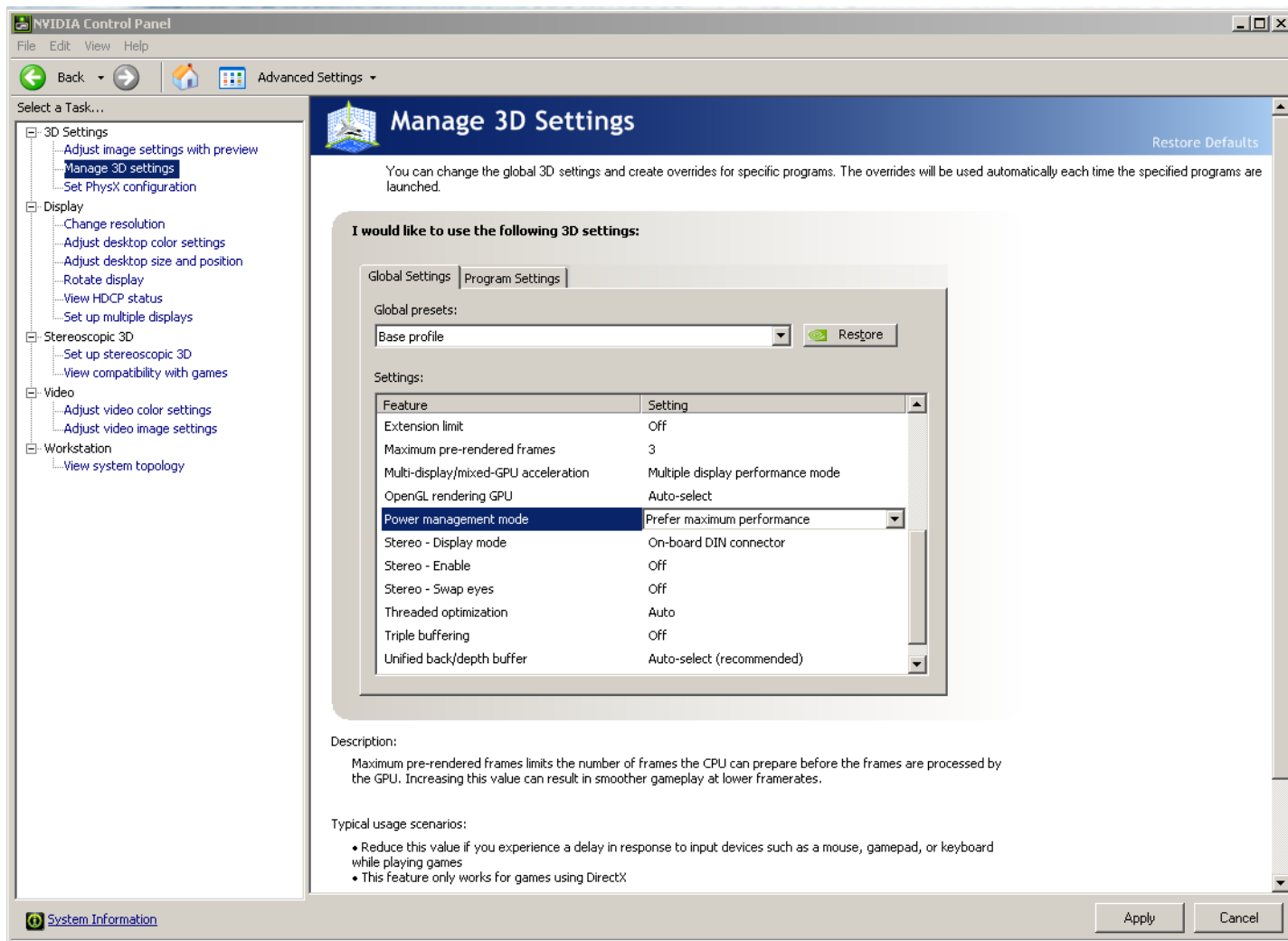
1. See picture below
2. Right-Click on the desktop and select Nvidia Control Panel
3. Select the "Desktop" menu selection in the control panel menu bar.
4. Enable "Desktop -> Video Editing Mode"



5.



6. Select Manage 3D Settings
7. Select “Global Settings” Tab
8. Under the “Global Settings” tab select “Base Profile”.
9. 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.

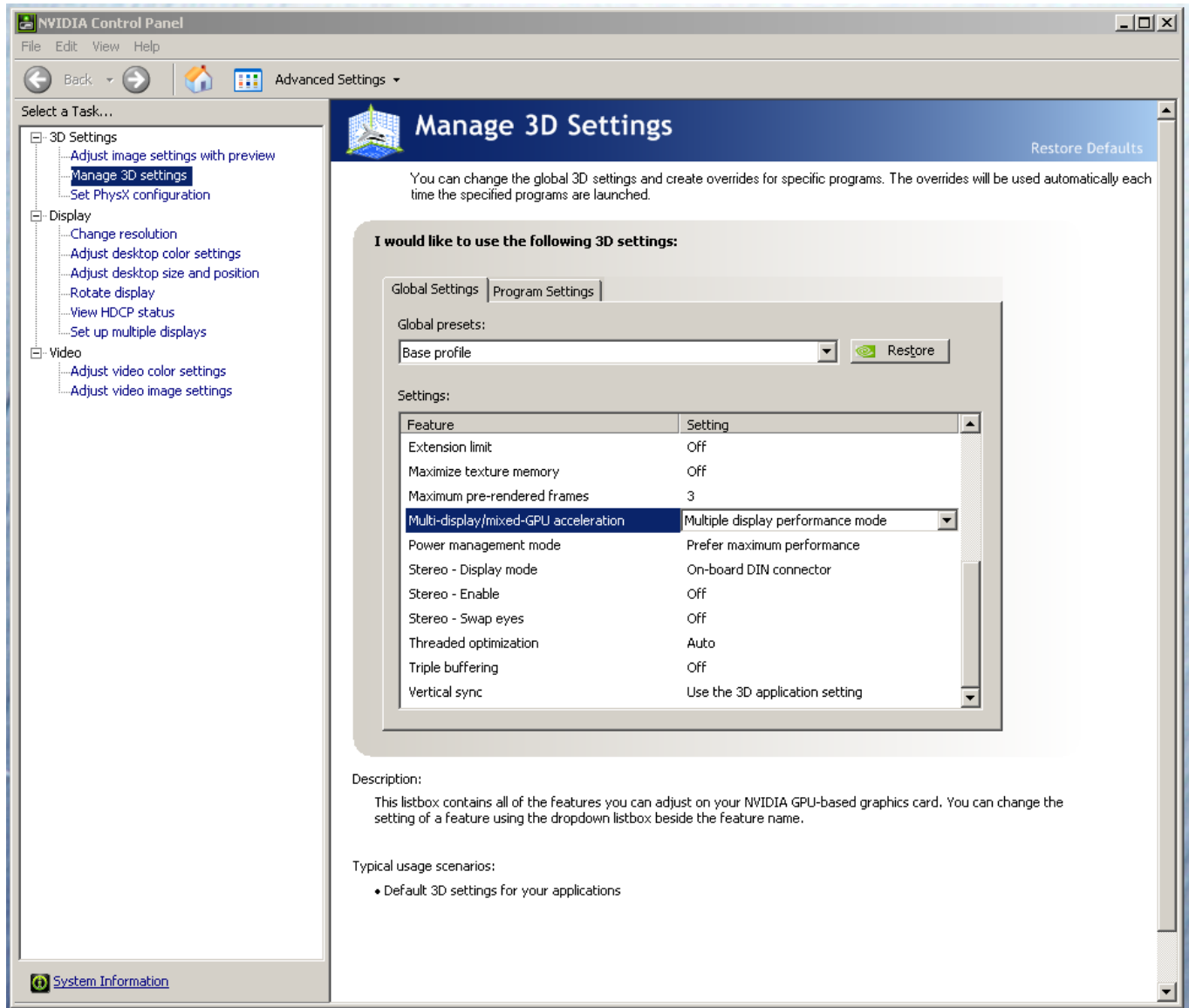


10. Depress the “Apply” button.

**Make the following setting for “Multi-display/mixed-GPU acceleration”**

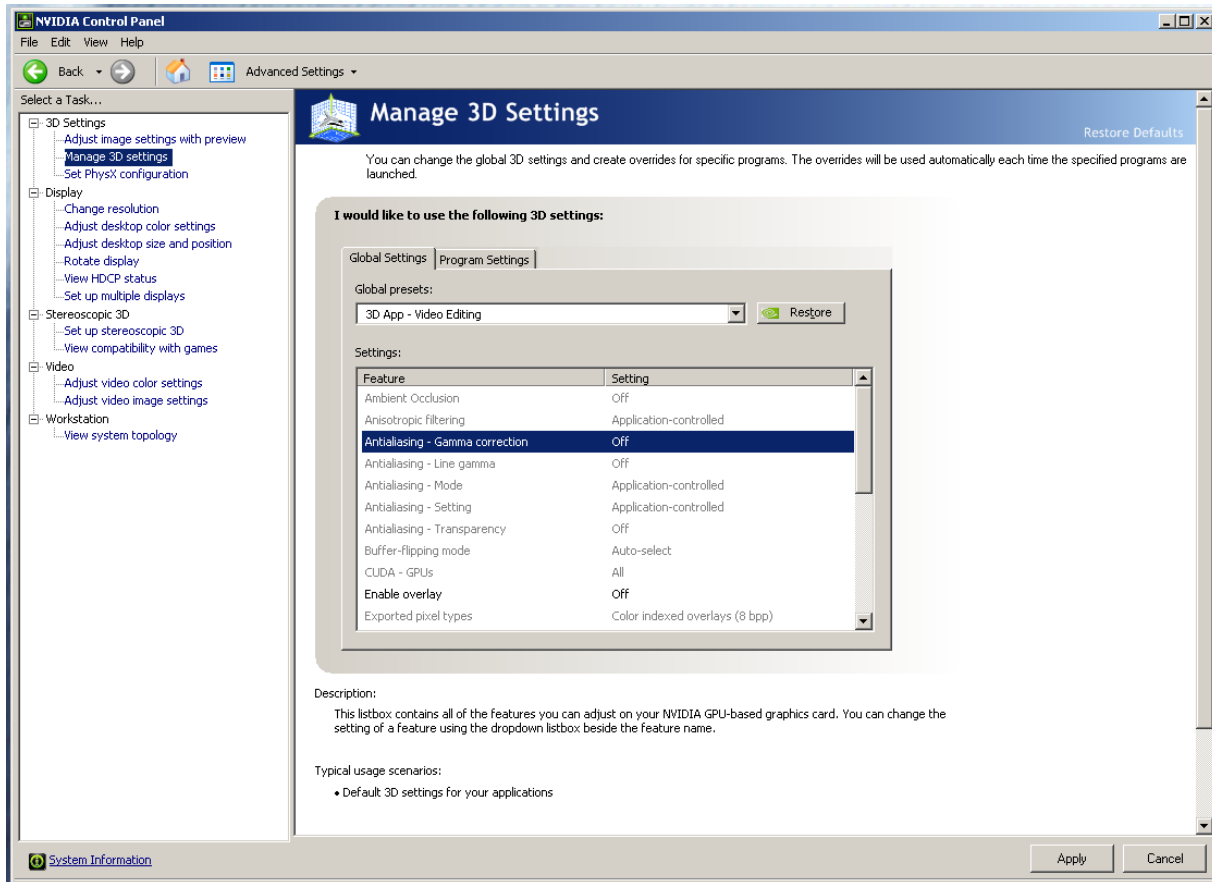


1. Stay in the “Manage 3D Settings” and “Base Profile” area
2. Select “Global Settings” Tab
3. Scroll down and locate the “Multi-display/mixed-GPU acceleration” feature. See picture below. The setting should be set to “Multiple display performance mode”. If not set properly, select Multiple display performance mode and depress the “Apply” button. (The other settings are “Single display performance mode” and “Compatibility performance mode”. These settings are not recommended for Avid editing environments).



**Make the following additional setting for “3D App-Video Editing”**

4. Stay in the “Manage 3D Settings” area
5. Select “Global Settings” Tab
6. Under “Global Settings” tab select “3D App-Video Editing” setting as shown in picture below:



7. Depress the “Apply” button
8. Nvidia driver optimization settings for Avid environments are complete

#### D.) Nvidia Quadro GPU monitor connectivity:

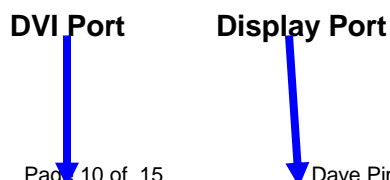
The Nvidia Quadro 600 graphics card has a single DVI port and one Display-Port  
*(Important: Display-ports **are not** HDMI ports; at first glance they do look very similar to HDMI ports)*

The LENOVO E31 includes one Display-Port-to-DVI adapter. This is digital only and will NOT connect to a VGA port with a converter.

#### For dual monitor connectivity:

Use the DVI port and Display-Port (Display-Port connection can be native display-port to monitor via display-port connection, or use the display-port-to-DVI-adapter supplied with the system to connect to a native DVI monitor).

Reference picture Quadro 600 connectors





#### **E.) Serial Port Deck Control:**

The LENOVO E31 workstation does 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)

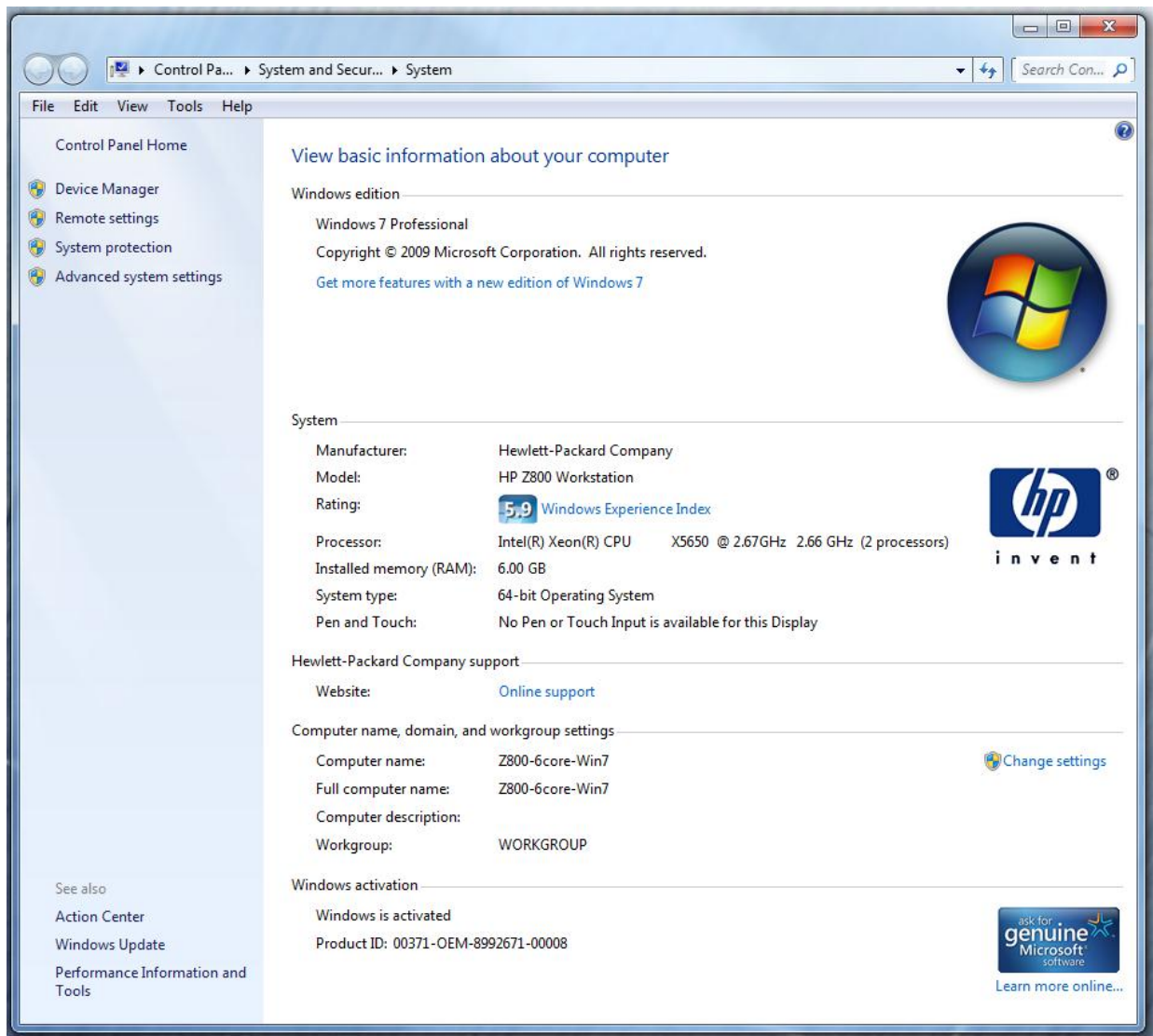
1. Addenda model **RS-USB / 4** direct USB-to-RS422 serial adapter. This is a simple device which connects directly from a USB port of the E31 directly to the RS422 port of a deck.  
<http://www.addenda.com/addenda-elect/products/rsUSB4.php>
2. Combination of a Keyspan (Tripp-Lite) Model USA-19HS USB-to-serial-port 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 E31 USB port.
- Once the Keyspan 19HS driver is installed then plug the Keyspan 19HS into a E31 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 2<sup>nd</sup> serial port cable connect the port of the Addenda marked “RS422 to VTR” to the deck control serial port of the deck.

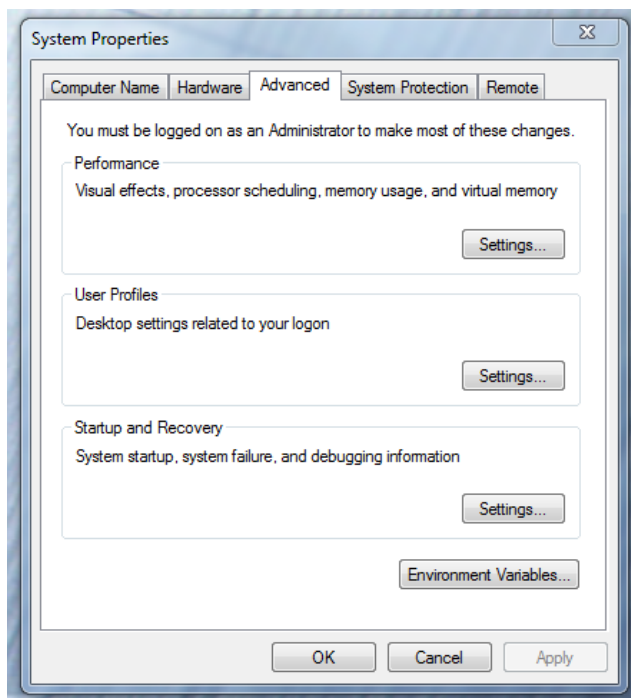
#### **F.) Set Windows “Visual Effects” for “best performance”:**

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

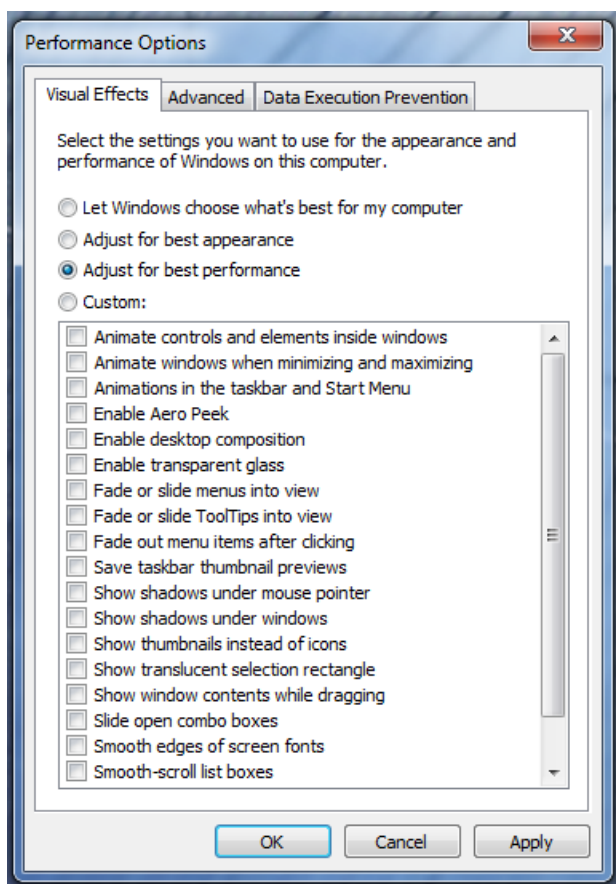


4. On the left side of the screen above, locate and select “Advanced system settings”

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

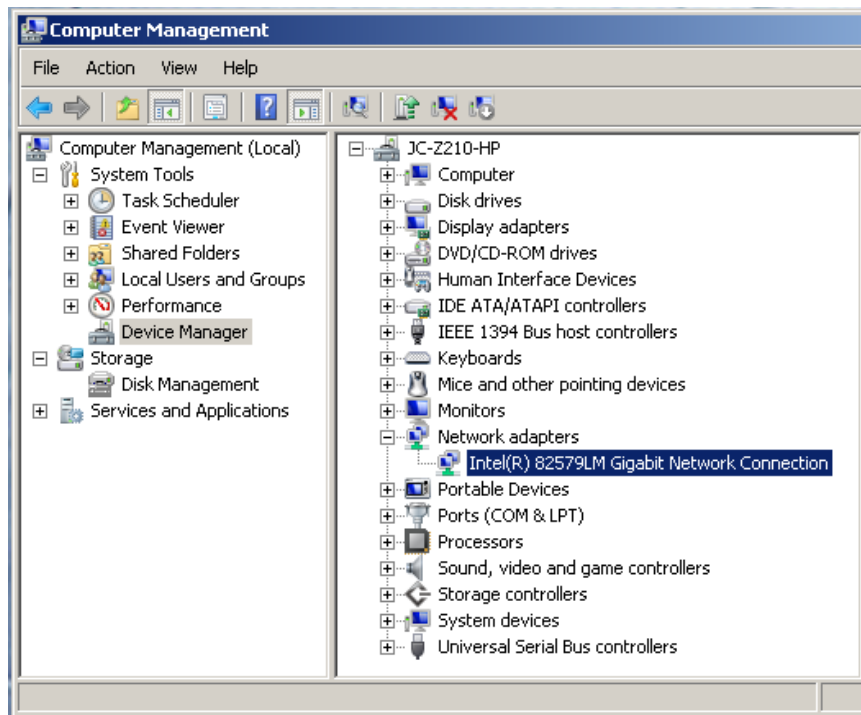
### G.) Embedded Intel 82579LM network interface for ISIS connectivity:

For proper operation and connectivity of the Intel 82579LM network interface with ISIS the following are required:

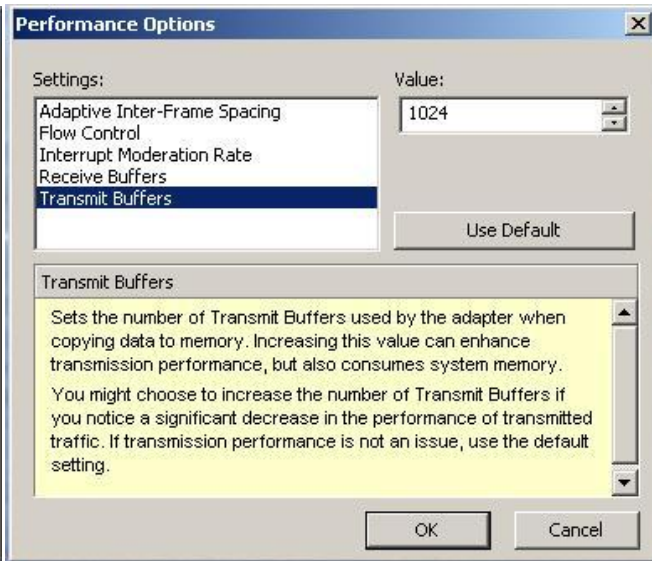
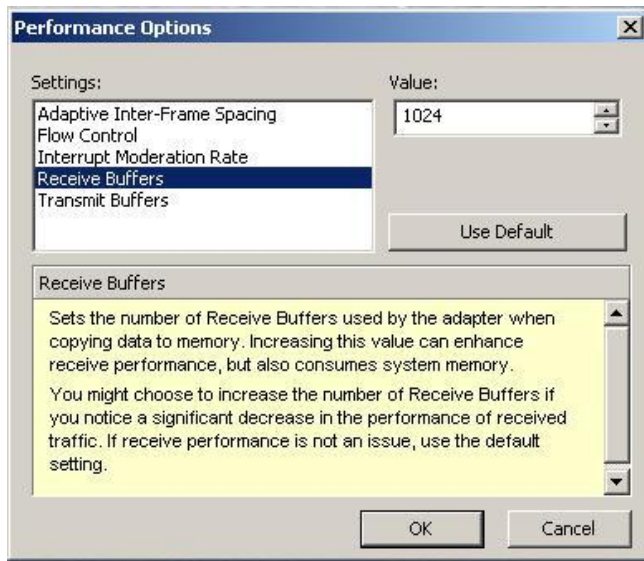
1. For the Intel 82579LM driver, under the performance settings, change the following parameters:
  - Receive Buffers to 1024
  - Transmit Buffers to 1024
2. Disable the windows firewall.

To set the Intel 82579LM Receive / Transmit buffers:

Go to device manager. Under “Network adapters” select the device named “Intel 82579LM Gigabit Network Connection”, which will be used for ISIS connectivity.



Select properties, select “Advanced” tab”.



### Revision Update

Revision	Date	Name	Update
A	July 20 <sup>th</sup> , 2012	Dave Pimm	Initial Public Release of the E31 Workstation tower configuration guide for Symphony 6.0, Media Composer 6.0 and NewsCutter 10 (Software only)