AUTODESK®
LUSTRE® 2008

A Discreet® Systems product

HP xw8400 WORKSTATION

Hardware Setup Guide

Autodesk®

Trademarks

Disclaimer

Published by:

Autodesk Canada Co./Autodesk, Inc.

111 Mclnnis Parkway

San Rafael, CA 94903, USA

Title:	Autodesk Lustre 2008 HP xw8400 Workstation Hardware Setup Guide
Document Version:	1
Date:	October 24, 2007

contents

Contents

1 Introduction

Summary

About This Guide

This guide describes how to set up the HP xw8400 workstation and the other hardware components of your Autodesk® Lustre® 2008 workgroup. The HP xw8400 workstation is available for Lustre systems on Windows®, as well as for Autodesk Incinerator™ Lustre systems on Linux®. To install and configure hardware and software components, use this guide in conjunction with the following documents: the *Autodesk Lustre Software Installation Guide for Windows Workstations*, the *Autodesk Incinerator 2008 Installation and User's Guide* for Lustre with Incinerator, and the *Stone Direct Configuration Guide* for this release.

NOTE: In most cases, both hardware setup and application installation are done on delivery by an authorized technician, so you may not need to perform some of the procedures in these guides.

The latest versions of all guides are available in PDF format from the Web at *www.autodesk.com/discreet-documentation*. For best results viewing and printing these PDF files, use Adobe® Acrobat® Reader™ 6 or later, or Xpdf viewer.

NOTE: If you do not have Acrobat Reader, you can download a free copy from the Adobe Web site (*www.adobe.com*). If you do not have Xpdf viewer, you can download a free copy from the Xpdf Web site (*www.foolabs.com/xpdf/*).

The Lustre Workgroup

Lustre is a modular system that you can configure and expand to suit your needs. The features you purchase determine the hardware included with your system.

Central to any system is the Master Station or HD Station. The Master Station is a high-end Windows- or Linux-based PC designed to accommodate real-time interactivity in a client-attended or supervised session. You can add a Lustre Station to improve the efficiency of your pipeline.

Master Station — Includes the full Lustre toolset and is designed for GPU-accelerated sessions where the colorist works together with the cinematographer. Contains an extensive creative toolset for more elaborate visual design and grading using up to 4K resolution and 16-bit files and for completing tasks like dust busting, conforming, rotoscoping and capture/playout.

HD Station — Cost-effective GPU workstation for conforming, preparing, grading and mastering short-form and long-form HDTV projects, as well as HD film projects. Input up to 10-bit 2K and output HD and SD.

Lustre Station — Tasks that do not require the direct intervention or supervision of the colorist can be efficiently handled by a Lustre Station. Multiple Lustre Stations can work in parallel to increase throughput and can be used for tasks such as dust-busting, preparatory work, fine-tuning creative sessions, conforming data from EDLs, updating editorial changes using change lists, and mastering to different formats using the real-time deliverables function.

Lustre Workstation Features

The following table describes the features available to each Lustre workstation.

NOTE: The features of Lustre 2008 may vary based on your hardware platform. Consult the *Release Notes* for your release for specific system information.

Station	Configuration
Master Station	**Default —** All features are available including SD and HD I/O, dual link and HSDL video formats and the DI Pack, which consists of infrared channel dust removal and support for all standard input and output resolutions and bit-depths. Certain features require add-on licensing. **Add-Ons —** The following features can be added to the Default configuration: the Slave Renderer and up to three panels for the Autodesk control surface. The Slave Renderer requires a separate license.
Lustre HD Station	**Default —** Includes all features except for the DI Pack (see the Master Station description). File input is limited to 2K resolution. File output is limited to HD resolution, 10-bit. Certain features require add-on licensing. **Add-Ons —** The following features can be added to the Default configuration: SD and HD I/O, dual link and HSDL video formats, the Slave Renderer, and up to three panels for the Autodesk control surface. The Slave Renderer requires a separate license.
Lustre Station	**Default —** All features are available except for primary and secondary colour grading. The DI Pack (see the Master Station description) is also included, along with full dust removal functionality, and the ability to create geometries and masks. **With Primary Colour Correction —** Includes all features of the default option as well as primary colour grading. **Add-Ons —** The following features are available for either the Default configuration or the With Primary Colour Correction configuration, and require an additional license: SD and HD I/O, dual link and HSDL video formats, and up to three panels for the Autodesk control surface. The Slave Renderer requires a separate license.

Optional Lustre Components

You can expand the features of your Lustre system and improve the efficiency of your workflow by adding any of the following components.

Control Surface — The Autodesk control surface provides improved interactivity when colour grading film and video footage. You can perform many of the same tasks you do in the Lustre user interface using the control surface.

Video I/O — Video I/O is provided by the DVS Centaurus® board, which consists of an HD/SD board and a breakout box. This configuration provides real-time SDI input and output of uncompressed 8- or 10-bit HD or SD video in both YUV (4:2:2) and RGB formats (4:4:4 or 4:2:2).

For a list of supported video formats, see the *Autodesk Lustre 2008 User's Guide*.

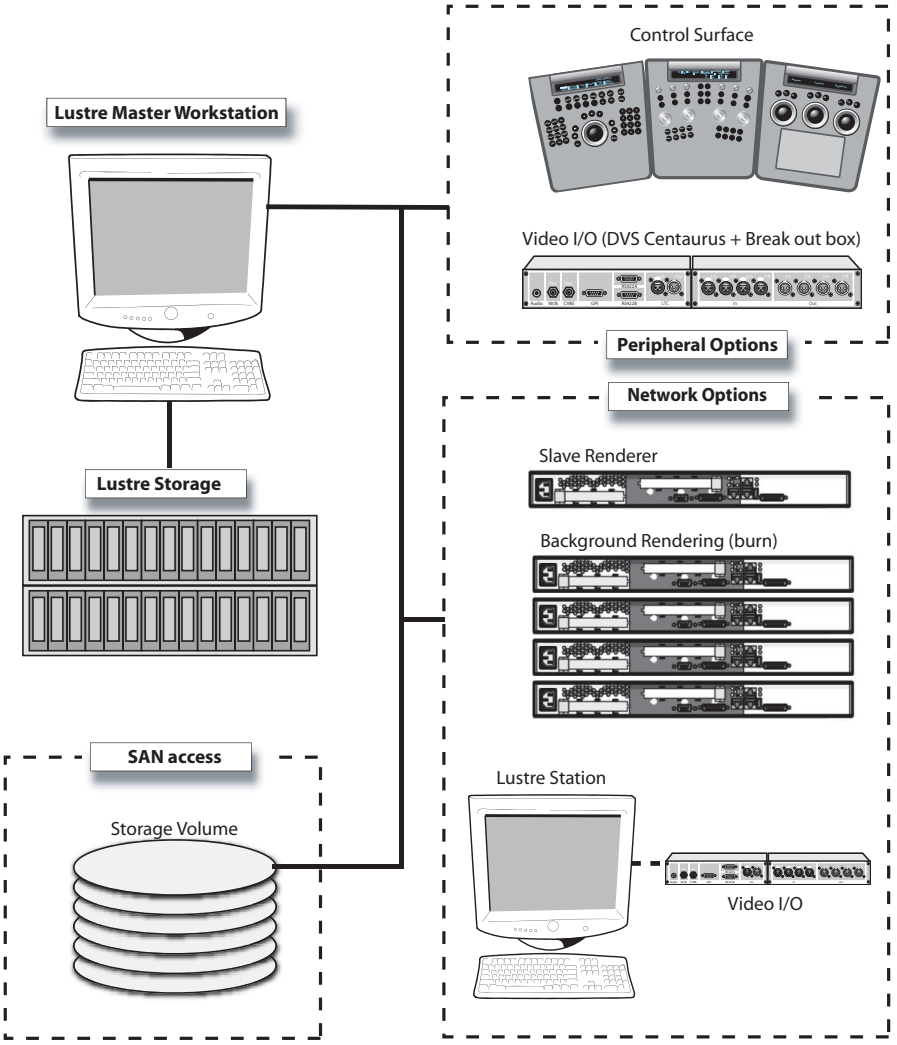
Slave Renderer — The Slave Renderer is a rack-mounted server that is connected directly to the Lustre workstation. It frees system resources by off-loading render tasks on an 'as-needed' basis, thus ensuring real-time interaction on the Lustre system.

Background Renderer — Background rendering frees up Lustre workstations for colour grading. You can use up to eight background rendering machines to process your final frames.

NOTE: For a list of Incinerator system components, refer to the *Autodesk Incinerator 2008 Installation and User's Guide*

Typical Configuration Overview

The following illustration shows a typical configuration, including the Master Station, Lustre Station, and other optional components.



NOTE: For an Incinerator system configuration overview, refer to the *Autodesk Incinerator 2008 Installation and User's Guide*

Workflow for Hardware Setup and Application Installation

The following procedure provides the general workflow for installing Lustre on an HP xw8400 workstation running Windows.

For workflow information related to the HP xw8400 running on Linux for Incinerator, refer to the *Autodesk Incinerator Installation and User's Guide*.

To install Lustre on an HP xw8400 workstation:

1. Review the guidelines for working with hardware components. See "Hardware Configuration Guidelines" on page 7.
2. Connect all peripherals (mouse, keyboard, graphics monitor, storage, etc.) to each workstation in your workgroup, and connect each workstation to the network. See Chapter 2, "Connecting Peripherals," on page 15.
3. Connect your workstation to Autodesk Stone® Direct storage. See the *Stone Direct Configuration Guide*.
4. Connect your Master or HD Station to a Slave Renderer, a control surface, tablet, and video I/O components. See Chapter 3, "Connecting System Components," on page 27.

   NOTE: The Slave Renderer is not used in Incinerator configurations.

5. Perform the procedures in the *Autodesk Lustre 2008 Software Installation Guide* or the *Autodesk Incinerator 2008 Installation and User's Guide* to install and license Lustre and Incinerator.

Related Documentation

The following table describes the documentation associated with your application. For a detailed list of the latest documentation, see your release notes.

User Guides	Provides
Autodesk Lustre 2008 User's Guide	Detailed instructions on using the software.
Autodesk Control Surface User's Guide	Detailed instructions on using the Autodesk control surface and the Tangent CP100.
Autodesk Lustre 2008 What's New	A list of the new features for this release.
Autodesk Lustre 2008 Hot Keys Card	A list of the most frequently used hot keys.
Autodesk Lustre (and Incinerator) Release Notes (for this release)	A complete list of documentation and information on late-breaking features.
Autodesk Lustre (and Incinerator) Fixed and Known Bug List (for this release)	A complete list of fixed and known bugs for this release.

Installation and Configuration Guides	Provides
Hardware Setup Guide (for your workstation)	Information on how to set up your workstation and video I/O peripherals.
Stone Direct Configuration Guide (for this release)	Provides detailed connectivity diagrams and configuration procedures for your Stone storage arrays.
Autodesk Lustre 2008 Software Installation Guide (for your operating system)	Information about installing and licensing your Autodesk Lustre software. Note: For Lustre and Incinerator, see the Autodesk Incinerator Installation and User's Guide.
Stone and Wire Filesystem and Networking Guide (for this release)	Procedures for configuring your Wiretap™ services.

Other Guides	Provides
Autodesk Lustre Sparks API Reference Guide	Instructions for developing Sparks® plugins for Lustre.
Autodesk Backburner 2008 Installation and User's Guide	Information on how to install, set up, and use Backburner™.

Consult the Autodesk Web site at *www.autodesk.com/discreet-documentation* for the latest version of guides, release notes, and fixed and known bugs documents.

Hardware Configuration Guidelines

In most cases, hardware integration and application installation is done on delivery by an authorized technician, and some of the procedures in this guide may not be necessary. Still, it is a good idea to read through all chapters to familiarize yourself with the configuration procedures for the following reasons:

- Many suspected problems with your Lustre system may be due to loosened connections or improperly configured devices. This guide helps you troubleshoot problems by providing information about properly configured systems.
- If you need to call Customer Support, familiarity with this guide puts you in a better position to provide diagnostic information.
- If you want to move your Lustre system at any time, or upgrade certain hardware components, information in this guide is crucial.

Although this guide, in conjunction with the *Autodesk Stone Direct Configuration Guide*, provides complete information regarding hardware component configuration, it should only be undertaken by an experienced hardware integrator. This individual should be familiar with the

Windows or Linux operating systems, HP xw8400 workstations, and peripherals associated with professional high-performance video and post production of film.

Your Lustre system consists of high-performance hardware that must be configured in an environment suited to its operational needs. Other considerations include minimizing the risk of damage due to static discharge and ensuring all components are properly grounded.

Verifying and Updating The System BIOS Version

System configuration is performed by an authorized technician prior to delivery. As such, some of the procedures here may not be necessary. Workstation BIOS settings are provided for informational purposes.

The system BIOS on your workstation must correspond to the certified version required by your software version. If the BIOS version on your system does not correspond to the table below, you must update to the certified version.

Product Version	Certified BIOS Version
2007	1.15

The BIOS version installed on your system appears onscreen while booting the workstation. The following procedures describe how to update the BIOS on your workstation.

WARNING: You should only update the BIOS if you find that it is not at the version listed in this guide, or if your are advised to do so by Customer Support. Do not update the BIOS with a more recent version published by the hardware vendor, if it has not been certified by Autodesk Customer Support.

To update the BIOS on a Windows workstation:

1. Get the BIOS upgrade utility and burn it to a CD.
2. Insert the CD into the CD-ROM drive
3. Reboot the workstation and press **F10** to enter BIOS.
4. Select a language.
5. From the File menu, select **`Flash System ROM`**.
   The Select a Drive menu appears.
6. Click **`Optical Drive`**.
   The Select a Drive confirmation menu appears.
7. Press **F10** to confirm.
8. Select the *7D5_0115.bin* file.

The Flash System ROM confirmation menu appears.

9. Press **F10** to confirm.
10. Press any key.

    System ROM Flash was successful appears.
11. Verify system BIOS settings. See "Verifying BIOS Settings" on page 10.
12. From the File menu, select **`Save Changes and Exit`**.

To update the BIOS on a Linux workstation:

1. Load the DKU CD in the DVD-ROM drive on the workstation.
2. Open a terminal.
3. Type:

   ```
   cd /mnt/cdrom/Utils/BIOS/
   ```

   Each supported platform has its own directory that contains an *.iso* file.

   NOTE: For more information about updating the BIOS on your workstation, refer to the README file located in your platform's directory.
4. Type:

   ```
   cd ./<platform>
   ```
5. Burn the *.iso* file for your platform onto a CD-ROM and place it in the DVD-ROM drive on the workstation.
6. Reboot the workstation and press **F10** to enter BIOS.
7. Select a language.
8. From the File menu, select **`Flash System ROM`**.

   The Select a Drive menu appears.
9. Click **`Optical Drive`**.

   The Select a Drive confirmation menu appears.
10. Press **F10** to confirm.
11. Select the *7D5_0115.bin* file.

    The Flash System ROM confirmation menu appears.
12. Press **F10** to confirm.
13. Press any key.

System ROM Flash was successful appears.

14. Verify system BIOS settings. See "Verifying BIOS Settings" on page 10.

15. From the File menu, select **Save Changes and Exit**.

Verifying BIOS Settings

You do not normally need to adjust BIOS settings on your workstation. BIOS settings for the workstation are provided here for informational purposes only.

To enter the system BIOS, press **F10** while booting the workstation.

WARNING: Before installing Red Hat Linux, it is recommended that you verify the workstation's BIOS settings. If the storage SATA emulation option is not set correctly (to Separate IDE Controller), you must redo Red Hat Linux installation.

The following table lists the proper Autodesk certified BIOS settings. Items not listed are set to their default factory settings.

BIOS Menu	Item	Value
Storage, Storage options	SATA Emulation	Separate IDE Controller
Storage	Boot Order	Optical Drive USB Device Hard Drive, Integrated SATA Hard Drive, Integrated IDE
Storage, Power, OS Power Management	Runtime Power Management	Disabled
Storage, Power, OS Power Management	Idle Power Savings	Normal
Storage, Power, OS Power Management	ACPI S3 Support	Disabled
Storage, Advanced, Device Options	S5 Wake on LAN	Disabled
Advanced	Slot5 - PCI 133	Slot5 speed 100Mhz PCI-x m1

Restoring BIOS to Default Factory Settings

The following procedure restores the default factory BIOS settings.

To restore default factory BIOS settings:

1. Press **F10** while booting the workstation to enter the system BIOS.

2. From the File menu select **Default setup**|**Restore Factory Settings as Default**.

3. Press **F10** to accept the changes.
4. Select **`Apply Defaults and Exit`**.

   This restores the original factory system defaults.

Ensuring Proper Environmental Conditions

You should consider the following environmental guidelines for all hardware configuration:

- Make sure the rack in which hardware components are installed is open or ventilated. Follow the ventilation specifications that apply to your system.
- Place all components in an air-conditioned environment. All hardware components generate heat and must be kept cool. See "Power and Air Conditioning Requirements" on page 11.
- Keep all hardware components in a clean, dust-free location.
- Minimize vibration and humidity.
- Do not block the vents on the component housing.
- Do not drape anything, such as a jacket or a blanket, over hardware components.
- Minimize electromagnetic noise by separating digital data and power cables from analog audio cables and running them in different cable ducts.

Power and Air Conditioning Requirements

The values for power consumption and heat output were recorded on an Autodesk certified system with all of the required peripheral and certified components.

NOTE: These values can fluctuate if uncertified hardware components or third-party applications are added to your system. The use of uncertified hardware components or third-party applications is not supported. Please consult the manufacturer's documentation for standardized minimum and maximum values.

The following table summarizes the power consumed by the HP xw8400 system and the heat it generates under the maximum processing load produced by your Lustre application. For detailed specifications, including noise output, see the documentation provided by the manufacturer.

Component	Quantity	Startup Amps (120V / 240V)	Max. Amps (120V / 240V)	Watts	Heat (BTUs)
HP xw8400	1	3.5 / 1.8	2.8 / 1.4	336	1146.4

You must be able to meet the startup power requirement and have a climate control system with the capacity to maintain the temperature of this component under the maximum processing

load. Refer to the following table for standard conversion benchmarks and an example of how they are used to establish climate control requirements.

Unit Conversion	Example
1 Watt = 3.413 BTU	480 Watts = 1638 BTU
12000 BTU = 1 Ton of air conditioning	1638 BTU = 0.137 Ton of air conditioning

Avoiding Damage from Static Electricity

When installing any hardware equipment, take the following precautions to prevent damage to sensitive components from static discharge:

- Make sure power is turned off on the component you are working on. It is a good idea to unplug components until all other connections are configured.
- Always wear a grounded static wrist strap. Attach the strap's alligator clip to any grounded metal surface on the component's chassis that you are working on. Place the wristband around your wrist.
- Do not handle any components unnecessarily, particularly boards and cards that slide in and out of slots on their parent hardware components.

Grounding Hardware Components

It is important to properly ground any audio components used with Lustre to avoid ground loops and humming. To ensure audio components are properly grounded, use the XLR-3 cables. Using any other cables may cause humming in the system.

Receiving Your Lustre System

When you receive the shipment containing your Lustre, check all the boxes for dents or other markings that may indicate damage during transport. If you suspect a component is damaged, carefully inspect it before setting up the system. If you receive a damaged component, call Customer Support.

Use the enclosed packing checklist to ensure you received all parts.

Notation Conventions

A number of style conventions are used throughout this guide. These conventions and examples of their use are shown as follows.

Convention	Example
Text that you enter in a command line or shell appears in Courier bold. You must press the Enter key after each command.	**rpm -qa**
Variable names appear in Courier, enclosed in angle brackets. No spaces are allowed in variable names.	<variable_name>
Variables that appear enclosed in square brackets are optional.	[<filename>]
Feedback from the command line or shell appears in Courier.	limit coredumpsize
Directory names, filenames, URLs, and command line utilities appear in italics.	*/usr/discreet*

Contacting Customer Support

You can contact Autodesk Media and Entertainment Customer Support at *www.autodesk.com/support* or through one of the following ways:

Location:	Contact Information:
Within the Americas:	Hotline (North America): 1-800-925-6442 Direct dial: 415-507-5256 (Country code = 1) 8 AM to 8 PM EST Monday to Friday, excluding holidays *me.support@autodesk.com*
Within Europe, Middle-East and Africa:	Hotline (from London, UK): +44-207-851-8080 9 AM to 5:30 PM (local time) Monday to Friday, excluding holidays *me.emea.support@autodesk.com*
Within Asia Pacific: (Excluding India, China, Australia, New Zealand and Japan)	Hotline (from Singapore): +65-6555-0399 9 AM to 6 PM (local time) Monday to Friday, excluding holidays *me.support.singapore@autodesk.com*
Within India:	Hotline (from Mumbai): +91-22-6695-2244 9:30 AM to 6:30 PM (local time) Monday to Friday, excluding holidays *me.support.india@autodesk.com*
Within Japan:	Hotline (from Tokyo): 0120-107-290 Direct dial: +81-3-6221-1810 10 AM to 6 PM (local time) Monday to Friday, excluding holidays *med-sys-support-jp@autodesk.com*

Location:	Contact Information:
Within China:	Direct dial: +86-10-6505-6848 9 AM to 6 PM (local time) Monday to Friday, excluding holidays *me.support.china@autodesk.com*
Within Australia and New Zealand:	Hotline (from Melbourne): +1-300-36-8355 Direct dial: +61-3-9876-8355 8 AM to 6 PM AEST Monday to Friday, excluding holidays *me.support.anz@autodesk.com*

Customer support is also available through your Autodesk reseller. To find a reseller near you, consult the reseller look-up database on the Autodesk web site at *www.autodesk.com/resellers*.

2 Connecting Peripherals

Summary

Workflow for Connecting Peripherals

You must connect peripherals (monitor, keyboard, mouse, storage, and network) to each Lustre workstation before you connect the workstations to video I/O, a control surface, or to other components in the workgroup.

Connect all hardware peripherals before you boot your workstation.

See the following table for a summary of the steps necessary to connect peripherals to your Lustre workstation.

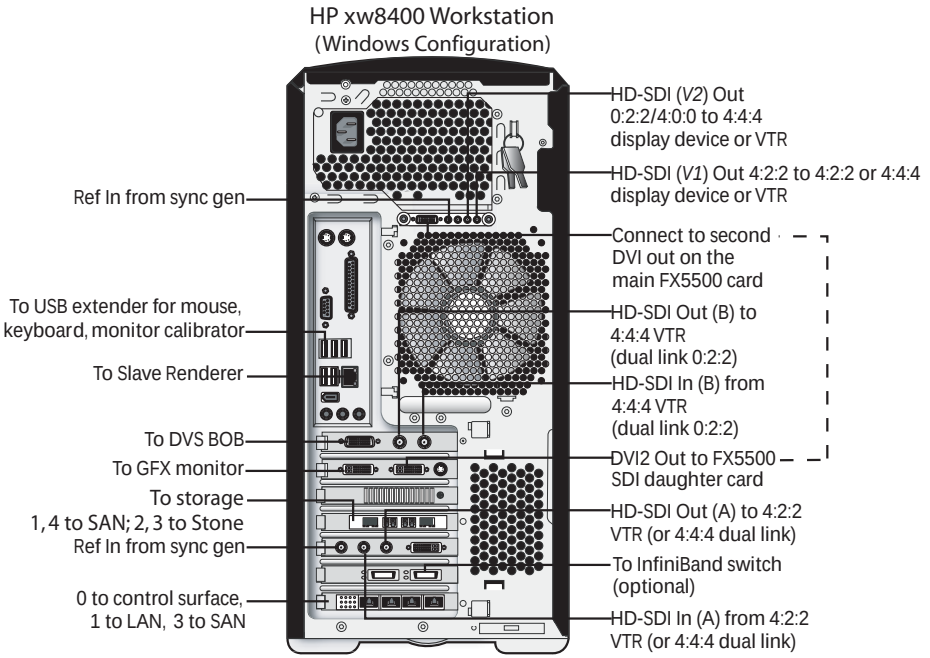
Step:	Refer to:
1. Review the connection diagram for your workstation.	"Connection Diagram for the HP xw8400" on page 16.
2. Connect a monitor to the workstation.	"Connecting the Monitor" on page 17.
3. Connect a keyboard, mouse, and calibration device to your workstation.	"Connecting the Keyboard, Mouse, and Monitor Calibration Device" on page 18.
4. Connect the workstation to storage.	"Connecting Storage" on page 18.

Step:	Refer to:
5. Connect the workstation to your network.	"Network Connections" on page 19.
6. After you connect all the peripherals to your Lustre workstations, you can connect the workgroup components together.	Chapter 3, "Connecting System Components," on page 27.

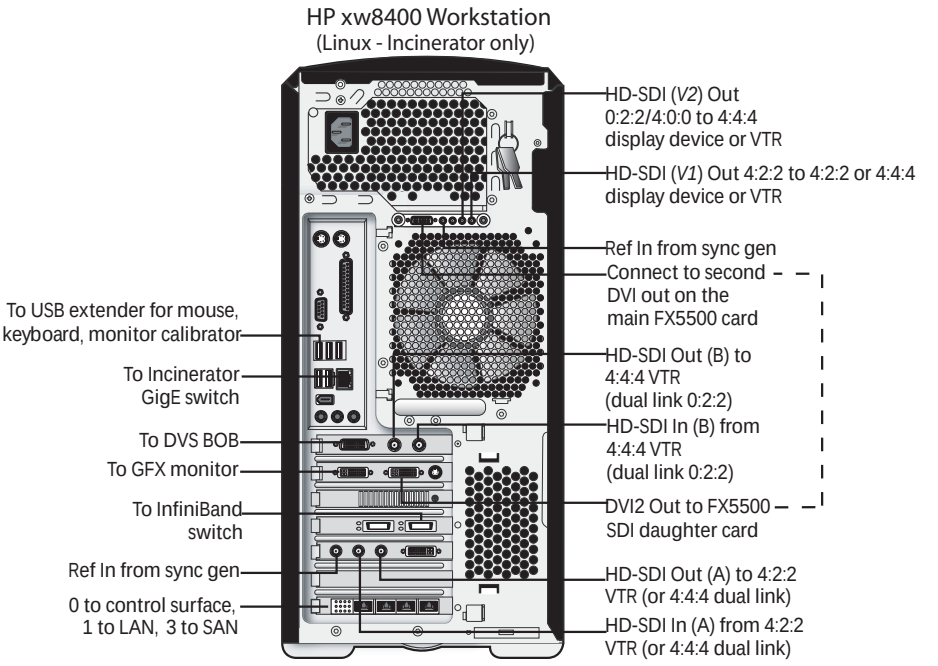
Connection Diagram for the HP xw8400

The following diagrams show the connections for the HP xw8400 workstation.

NOTE: These diagrams provide an overview of video I/O connections. For more details, see "Connecting Video I/O to a Master or HD Station" on page 36.



NOTE: Systems connected to the high-speed InfiniBand network may experience performance degradation if high bandwidth is requested on the Broadcom GigE card (slot 7).



NOTE: The Slave Renderer option is not available for Lustre with Incinerator.

Connecting the Monitor

Connect the monitor to the DVI connection on the Lustre workstation's graphics card. You can use the DVI extender cable (DL.CAB-HDTV-FO-82-MM) to extend the cable to a machine room.

To connect the monitor:

➤ Use the DVI cable to connect the DVI OUT1 port of the NVIDIA® Quadro® FX5500 graphics card to the DVI-D IN port of the monitor.

NOTE: Although the DVI fiber cable connectors are identical, their functions are different. Ensure that the connector labeled Send is connected to the Lustre workstation, and that the connector labeled Receive is connected to the monitor.

Connecting the Keyboard, Mouse, and Monitor Calibration Device

Connect the mouse, keyboard, and monitor calibration device to the workstation via the 4-port USB extender (TP.USB-EXT-400).

To connect the keyboard and mouse:

1. Connect the USB keyboard to port 2 on the remote unit of the USB extender.
2. Connect the USB mouse to port 3 on the remote unit of the USB extender.
3. Connect the monitor calibration device (TP.MON-CAL-LCDCRT) to port 4 on the remote unit of the USB extender.
4. Use an RJ-45 cable to connect the remote unit of the USB extender to the local unit of the USB extender.
5. Connect the local unit of the USB extender to USB1 port on the workstation.

To enable the Eye-One calibration utility driver:

➤ Do one of the following:

- For Windows-based workstations, if the driver is not already installed, you will be prompted to install the monitor calibration device driver when you restart the workstation. The driver is available from the *C:\Program Files\discreet\lustre3.0\Utils\Calibration\Eye-One USB Driver* directory.
- For Linux workstations, once the software installation has been completed, start the *eyeone27* daemon on the workstation. Type: **`/etc/init.d/eyeone27 start`**

Connecting Storage

The storage connections for your system depend on whether you are running Lustre on the Windows or Linux operating system.

Storage for Windows-Based Workstations

Your workstation is configured with a 4-port ATTO Celerity FC-44ES fibre channel adapter. See "Connection Diagram for the HP xw8400" on page 16 for the fibre channel adapter location and connections.

You can connect your workstation to two types of storage:

- One or more Stone Direct disk arrays that provide storage to individual workstations. Refer to the *Stone Direct 2008 Configuration Guide* for information on connecting disk arrays to your workstation.
- A Storage Area Network (SAN) that provides shared storage for multiple workstations. Refer to the *Autodesk Stone Shared Installation and Configuration Guide* for information on connecting your workstation to a SAN.

Storage for Linux-Based Workstations

Lustre systems on Linux are used in conjunction with Incinerator 2008 and do not require local storage. Instead, your workstation is configured with an Infiniband 9000 DDR dual port HCA, which allows it to connect to the Incinerator high-speed Infiniband network.

Refer to the *Autodesk Incinerator 2008 Installation and User's Guide* for information on how to connect your workstation to the Incinerator high-speed Infiniband network.

Network Connections

Your workstation is configured with a 4-port Broadcom network card, and an integrated network port.

Infiniband Network Support for Lustre on Windows-based Workstations

Lustre supports the use of an Infiniband network for HP xw8400 workstations running Windows XP SP2. The workstation must have the required Infiniband driver installed.

NOTE: Real-time playback using the Infiniband support in Windows is limited to 24 frames per second HD at 1920x1080 resolution with an 8-bit bit depth from Wiretap clips loaded from Autodesk Smoke® or Autodesk Flame®.

When the Infiniband topology (including driver) is fully installed, Autodesk recommends adjusting specific configuration parameters in the Windows operating system to optimise performance. See "To optimise the Infiniband driver on Windows:" on page 24.

To install the Infiniband driver for use with a Windows-based Lustre workstation:

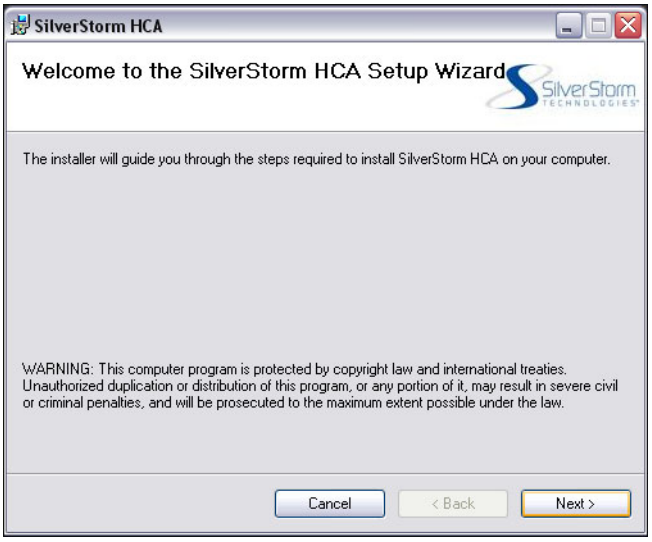
1. Download the driver package to a temporary location on your system. You can find the appropriate driver package here:

   ftp://ftp.discreet.com/pub1/release/lustre/lustre2008/drivers/SilverStormHCA.msi

   NOTE: Contact Customer Support if you have any problems downloading the driver package. See "Contacting Customer Support" on page 13.

2. Double-click the driver package and click Run.

   The SilverStorm HCA Setup Wizard opens.

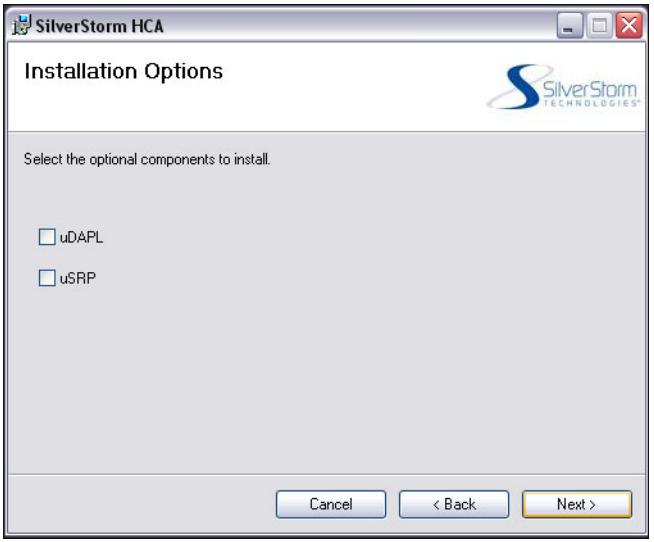


   Click Next.

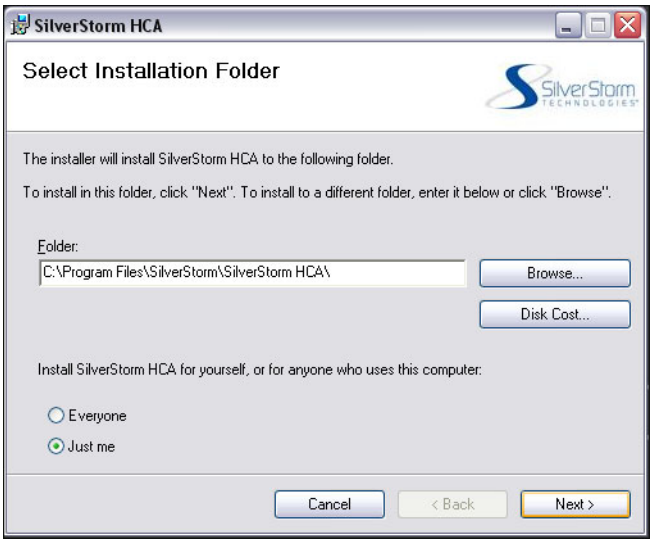
3. On the License Agreement page, read the agreement before selecting the I Agree radio button. Click Next.

4. On the SilverStorm HCA Information page, read through the driver manufacturer Release Notes, then click Next.

5. On the Installation Options page, make sure no optional components are checked, then click Next.



6. On the Select Installation Folder page, browse for the correct path in which to install the driver.



7. Choose the system user permissions by selecting either the Everyone radio button or the Just me radio button. Click Next.

8. On the Confirm Installation page, click Next to begin the installation.

   The wizard displays an installation progress bar.

9. On the Installation Complete page, click Close.

10. On the Windows Desktop, right-click My Computer and select Properties in the drop-down menu.

    The System Properties dialog box appears.

11. Click the Hardware tab.

12. Click Device Manager.

    The Device Manager dialog box appears.

13. Right-click the PCI Device under Infiniband Host Channel Adapters.

    The Hardware Update Wizard appears.

14. Select No and click Next.

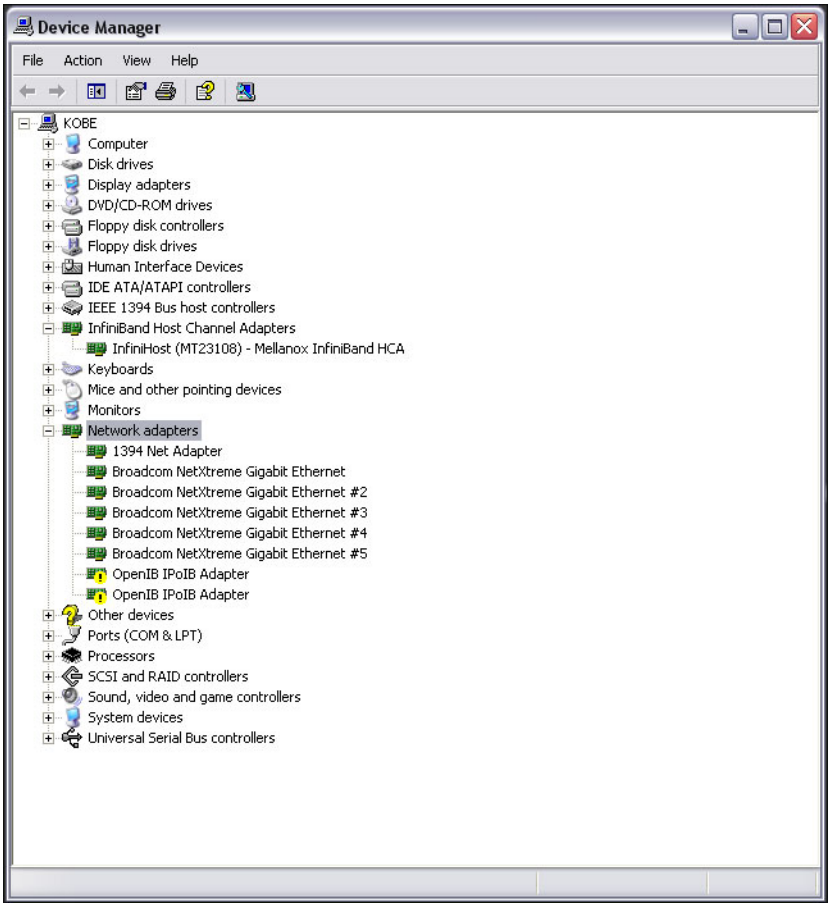
15. Select Install from a list or specific location and click Next.

16. Browse for the driver and click Next.

17. Click Finish.

    The driver and interface install.

18. In the Device Manager dialog box, right-click the first Infiniband port adapter.



NOTE: There are two Infiniband port adapters. In the Device Manager, at this point, the adapters should each be indicated by the adapter icon with an exclamation mark through it. This shows that the adapter drivers are not yet installed.

The Hardware Update Wizard appears.

19. Select No and click Next.

20. Select Install from a list or specific location and then click Next.

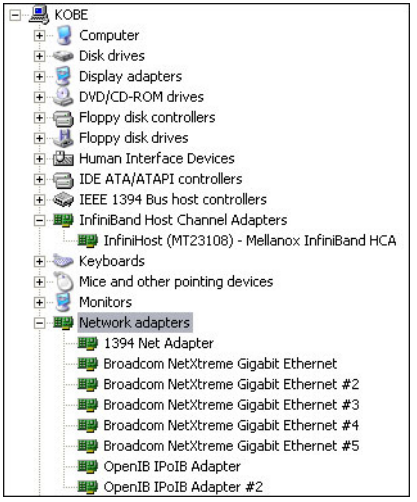
21. Browse for the driver and click Next.

22. Click Finish.

The driver and interface install.

Repeat step 19 to step 22 for the second Infiniband port adapter.

The Infiniband Host Channel Adapter and the two IP over IB port adapters should appear in the Device Manager dialog box, without exclamation marks on their icons.



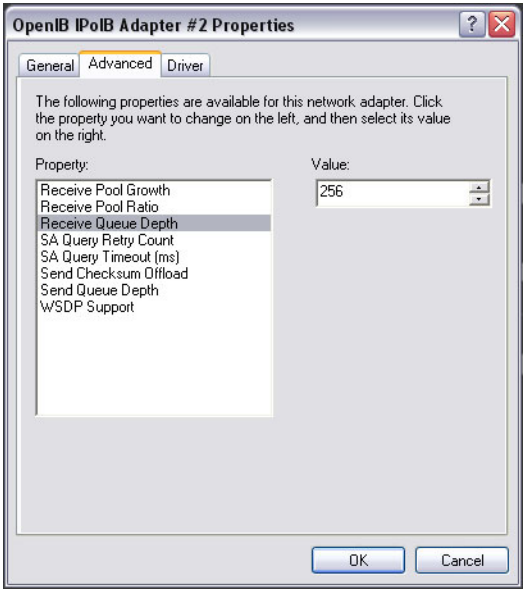
To optimise the Infiniband driver on Windows:

NOTE: The Infiniband driver optimisation steps are optional.

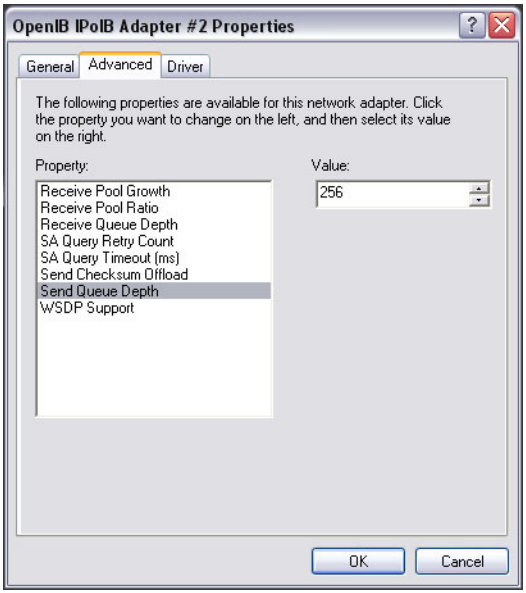
1. Go to the Network Connections panel.
2. Right-click on the connected IPoIB port and select Properties.
3. Click the Advanced tab.
4. Click Configure.

5. Configure the card so you have these values:

   • Receive Queue Depth of 256



   • Send Queue Depth of 256



4-Port Broadcom Adapter

Connect the workstation to your facility's network to access background rendering nodes, other Lustre Stations, and the facility's NAS or SAN centralized storage (if applicable). You connect the ports on the Broadcom card as follows:

- Connect Port 0 to the Autodesk control surface hub or the control surface itself.
- Connect Port 1 to your house network.
- Connect Port 2 to a SAN private network (optional).

For more details about configuring the Autodesk control surface, see "Connecting the Autodesk Control Surface" on page 28.

Integrated Network Adapter

For Windows-based workstations, connect the integrated network port to the Slave Renderer. For more details about configuring the Autodesk control surface, see "Connecting the Slave Renderer to a Lustre Workstation" on page 34.

For Linux-based workstations, connect the integrated network port to the Incinerator private port. Refer to the *Incinerator Installation and User's Guide* for information on how to connect your workstation to the Incinerator private network.

3 Connecting System Components

Summary

Workflow for Connecting System Components in the Lustre Workgroup

After you have connected peripherals to your workstation, you are ready to connect it to the Autodesk control surface, to video I/O hardware, and to a Slave Renderer.

See the following table for a summary of the steps necessary to connect components in your workgroup.

Step:	Refer to:
1. Connect the control surface to your workstation.	For the Autodesk control surface: "Connecting the Autodesk Control Surface" on page 28, "Assigning an IP Address to the Autodesk Control Surface" on page 31, and "Configuring Lustre to Connect to the Autodesk Control Surface" on page 33.
2. If necessary, connect a tablet to your workstation.	"Connecting a Stand-Alone Tablet" on page 33.
3. Connect a Slave Renderer to the Lustre workstation (Windows only).	"Connecting the Slave Renderer to a Lustre Workstation" on page 34.

Step:	Refer to:
4. Connect the workstation to video I/O components.	"Connecting Video I/O to a Master or HD Station" on page 36.
5. Connect the workstation to a high-speed data link device.	"Connecting to a High-Speed Data Link Device (HSDL)" on page 38.

Connecting the Autodesk Control Surface

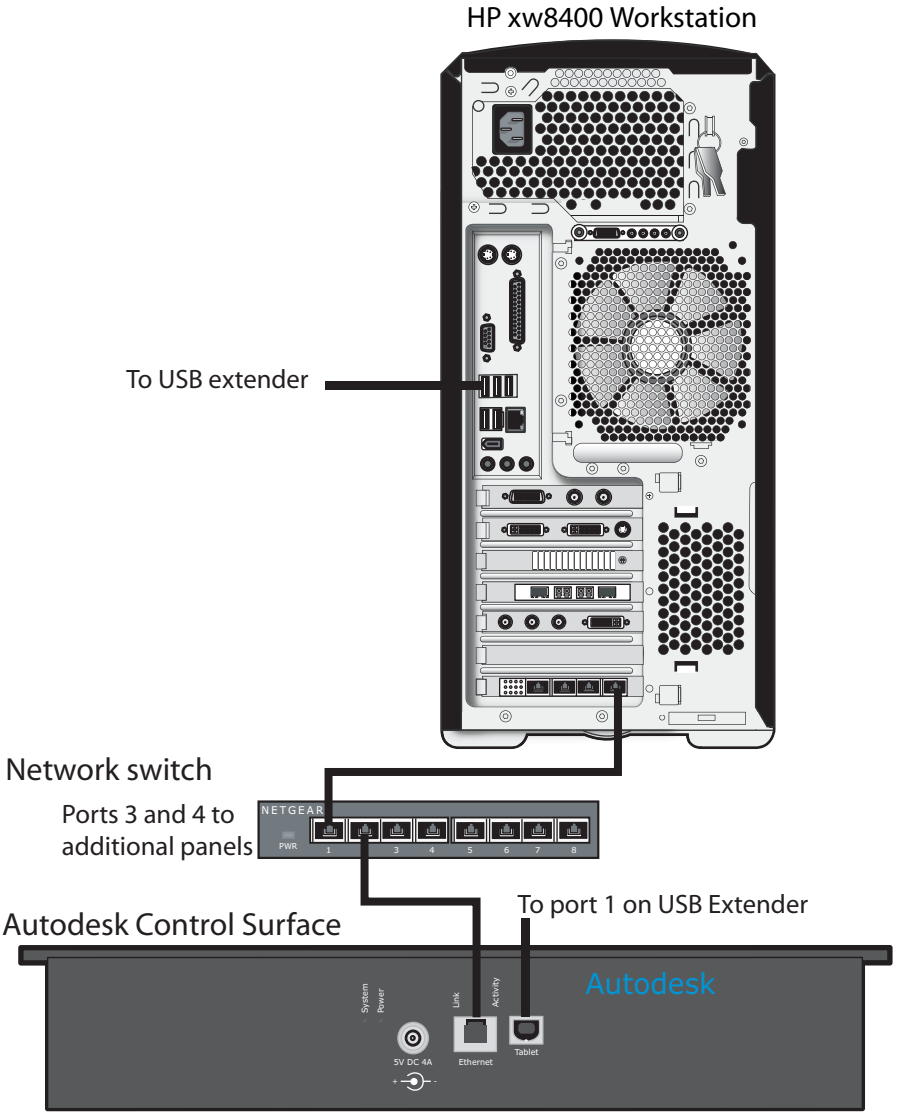
The Autodesk control surface consists of three panels. You can use any combination of them. If you are using more than one panel, you must use the network switch included with your shipment to cross-connect them.

Refer to the *Autodesk Control Surface User's Guide* for information on how to use the control surface with Lustre.

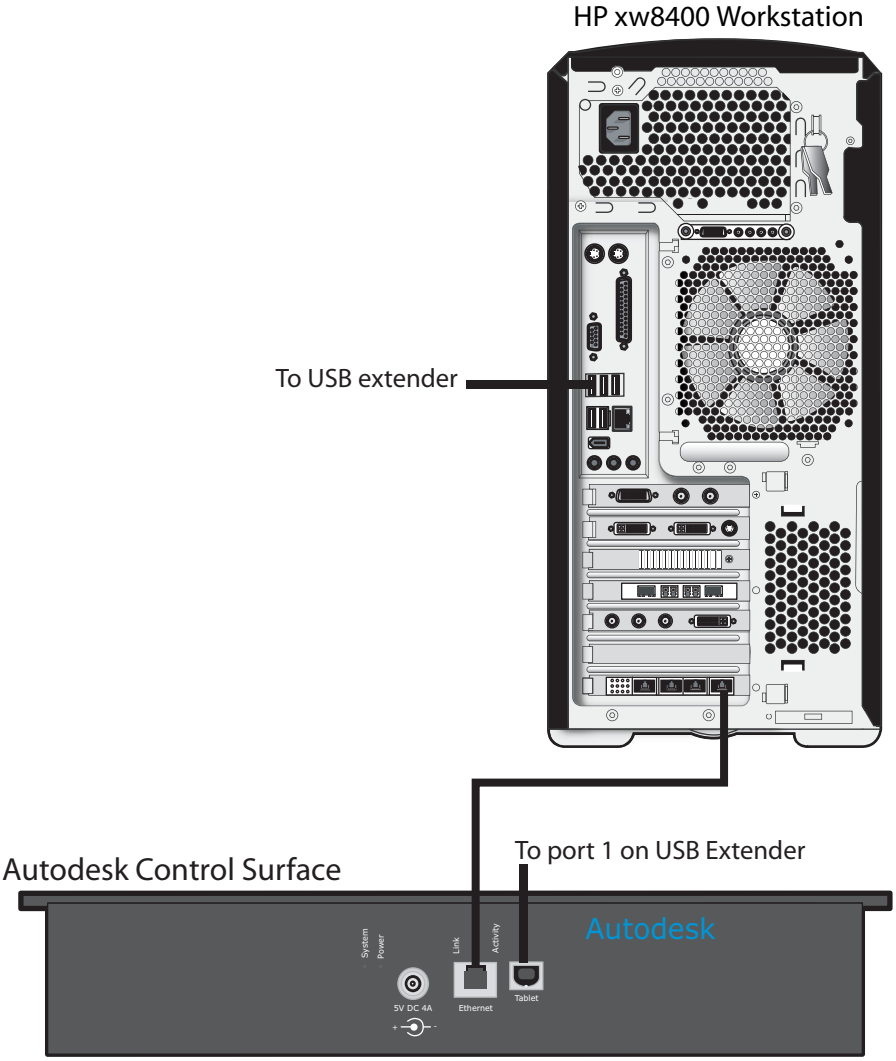
NOTE: The illustrations in the following procedure only show the central module, i.e. the colour grading panel. This is the only panel that has a USB connection for the integrated tablet, and a network port. The other two panels only have a network port, which you connect to the network switch.

To connect the Autodesk control surface:

1. Use the AC power adapter cables to connect each panel to a power supply.
2. Use a network cable to connect port 0 (the far right port) of the Broadcom network card on your workstation to port 1 on the Netgear ProSafe FS108 network switch.



If you are using only one panel, you can connect that panel directly to the workstation, instead of using the switch.



3. If you are using more than one panel, use network cables to connect each of the panels to the network switch.

4. If you are using the panel that includes the tablet, use a USB cable to connect the panel to a USB port on the back of your workstation.

NOTE: The above diagrams represent a Windows-based configuration. Components may differ slightly for the Linux configuration but the control surface connections are identical.

Assigning an IP Address to the Autodesk Control Surface

After you have connected the Autodesk control surface, you must assign it an IP address.

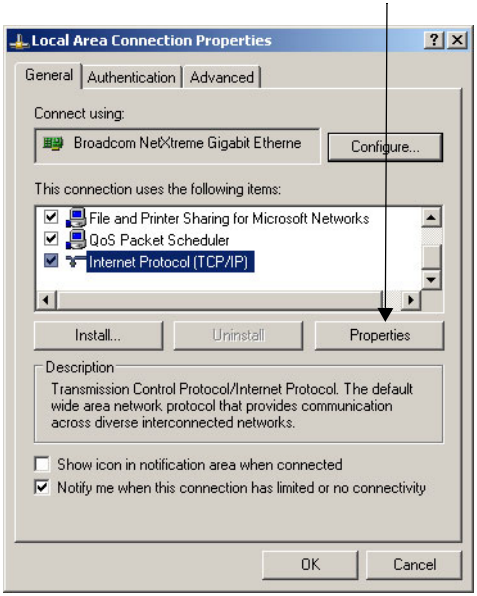
To configure the Autodesk control surface on Windows-based workstations:

1. Click Start | Settings | Network Connections.

   NOTE: You can also access Network Connections from the Control Panel.

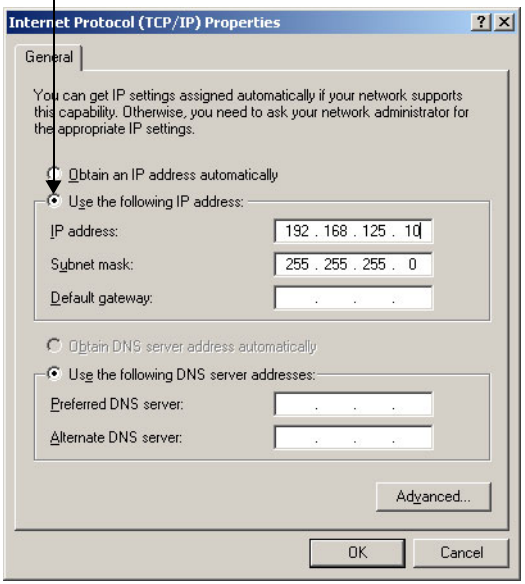
2. Right-click the port that the control surface switch or panel is connected to and choose Properties.

3. In the Local Area Connections Properties dialog box, select Internet Protocol (TCP/IP) and click Properties.



The Internet Protocol (TCP/IP) Properties dialog box opens.

4. Select the Use the following IP address option.



5. Set a static IP and Subnet mask address for the port. Select values that do not conflict with any other machine on your network. Consider using the following values:

   • IP address: 192.168.125.10

   • Subnet mask: 255.255.255.0

⚠ **WARNING:** The last digits of the IP address must not conflict with the panel IDs included in the *lustre.config* file.

6. Click OK twice.

To configure the Autodesk control surface on Linux-based workstations:

➤ On the Lustre workstation, use a text editor such as *nedit* to configure the network port connected to the control surface with an unrelated static IP address that does not interfere with any of the IP addresses on the network. Also assign an appropriate subnet mask. Type:

```
nedit /etc/sysconfig/network-scripts/ifcfg-eth<port#>
```

Modify the IPADDR and NETMASK values. For example:

```
IPADDR=192.168.125.10
```

```
NETMASK=255.255.255.0
```

⚠ **WARNING:** The last digits of the IP address must not conflict with the panel IDs included in the *lustre.config* file.

Configuring Lustre to Connect to the Autodesk Control Surface

After you have configured the IP address of the control surface, you must configure Lustre to use the control surface.

To configure Lustre to use the Autodesk control surface on Windows- or Linux-based workstations:

1. Turn the power on for each of the modules and look at the top display panel on the module. It should display the panel name and ID.
2. After you install Lustre 2008, you must manually edit the *lustre.config* file for each project and the *init.config* file in the application home directory. See the *Autodesk Lustre 2008 User's Guide*.
3. In the *lustre.config* file of your project, enter the panel ID after each panel keyword.

   The keyword section should look similar to the following example.

   ```
   AutodeskPanels
   Panel-BT 1
   Panel-K 2
   Panel-T 3
   ```

4. Start Lustre. The following message should appear in the Console:

   ```
   Panel #<panel_ID> is detected
   ```

   This confirms that the Autodesk control surface is enabled.

Connecting a Stand-Alone Tablet

If you do not have the modular Autodesk control surface panel that includes the tablet, you can connect a stand-alone tablet.

To connect a stand-alone tablet, connect the tablet to USB Out 1 on the USB extender.

NOTE: On Windows-based workstations, you may need to restart Windows for the tablet to be recognized. On Linux-based workstations, re-starting the Xserver prompts tablet recognition. Press **CTRL+ALT+BACKSPACE** to start the Xserver.

Connecting the Slave Renderer to a Lustre Workstation

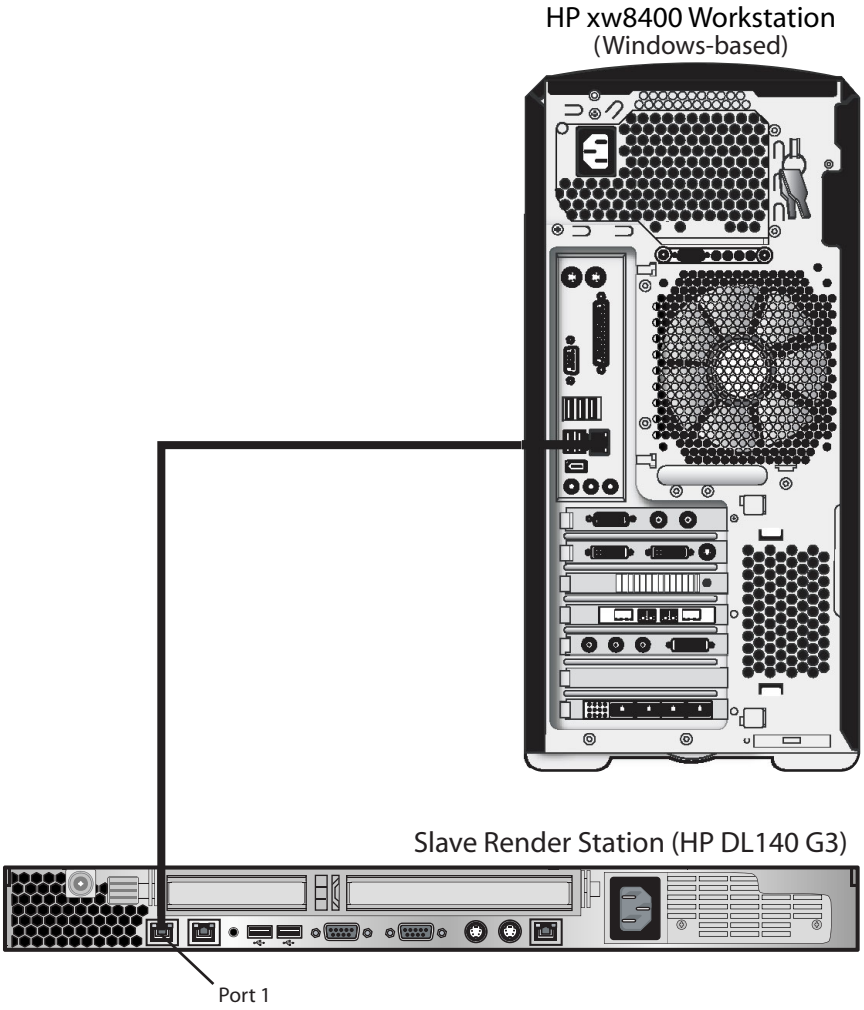
The Slave Renderer is available for the Master Station, the Lustre Station, and the Lustre HD Station, all of which must be running on a Windows-based workstation. The Slave Renderer is not available for the Linux-based version of Lustre, since it uses Incinerator to obtain real-time rendering and playback.

Although the Slave Renderer uses a network connection, a higher Category 6 grade cable is needed to accommodate the data that is transmitted. For information on configuring the IP addresses of the network ports that connect the two workstations, see the *Autodesk Lustre 2008 Software Installation Guide for Windows Workstations*.

To connect the Slave Renderer to a Windows-based workstation:

1. Connect the Category 6 crossover cable to the on-board network port at the back of the Lustre workstation.
2. Connect the other end of the cable to the network port 1 of the Slave Renderer machine.

   The Slave Renderer should be connected as shown in the following diagram.


HP xw8400 Workstation
(Windows-based)
Slave Render Station (HP DL140 G3)
Port 1

Connecting Video I/O to a Master or HD Station

You use the video components to set up video I/O and a broadcast monitor. The only video hardware you must provide are: a sync generator, a VTR, and an SD or HD SDI broadcast monitor. The following components are included in your hardware shipment.

DVS Centaurus board and DVS Breakout Box II — The DVS Centaurus board provides video I/O. Use the DVS Breakout Box II for serial control of a VTR or other slave device and LTC output to an audio device.

NVIDIA Quadro FX5500 graphics board — The NVIDIA Quadro FX graphics board provides output to your computer monitor.

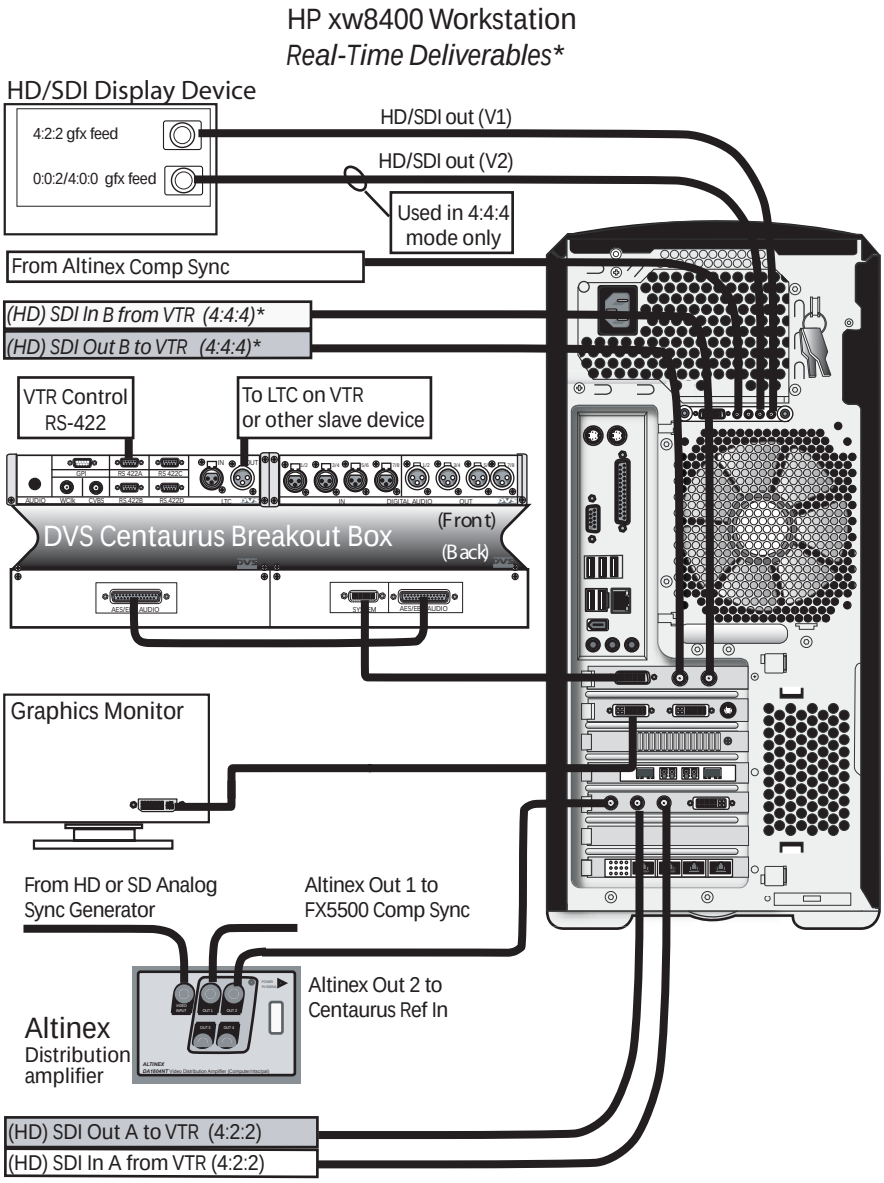
EIZO® 24-inch or Sony™ 21-inch wide screen LCD graphics monitor — The EIZO and Sony LCD graphics monitors provide a 16:9 widescreen aspect ratio for film or HD projects. With these monitors, the application runs at a maximum resolution of 1920x1200. For instructions on connecting the graphics monitor, see "Connecting the Monitor" on page 17.

Altinex® DA1804NT video distribution amplifier — The Altinex video distribution amplifier can serve a bi-level (SD) or tri-level (HD) sync signal to up four video hardware devices from a single sync source/generator. It serves the sync signal to the NVIDIA graphics board and the DVS Centaurus board.

Video I/O for Real-Time Deliverables and Without Real-Time Deliverables

The following diagram describes the video I/O wiring for both the Real-time deliverables configuration and without Real-time deliverables. Real-time deliverables allows Lustre to play out to a VTR directly through the DVS SDI OUT.

NOTE: The backplanes depicted in the following diagram represent a Windows-based configuration, but, it is also accurate for a Linux-based configuration, where the ATTO fibre-channel adapter is replaced by the Infiniband HCA.


HP xw8400 Workstation
*Real-Time Deliverables**
HD/SDI Display Device
4:2:2 gfx feed
0:0:2/4:0:0 gfx feed
HD/SDI out (V1)
HD/SDI out (V2)
Used in 4:4:4 mode only
From Altinex Comp Sync
(HD) SDI In B from VTR (4:4:4)*
(HD) SDI Out B to VTR (4:4:4)*
VTR Control RS-422
To LTC on VTR or other slave device
DVS Centaurus Breakout Box
(Front)
(Back)
Graphics Monitor
From HD or SD Analog Sync Generator
Altinex Out 1 to FX5500 Comp Sync
Altinex Out 2 to Centaurus Ref In
Altinex
Distribution amplifier
(HD) SDI Out A to VTR (4:2:2)
(HD) SDI In A from VTR (4:2:2)

Connecting to a High-Speed Data Link Device (HSDL)

If you have purchased an HSDL license, you can connect to an HSDL device through the DVS Centaurus.

Connect both the A and B in/out ports on the DVS main board and daughter card to your HSDL device.

Index