Avid. | DS 5.0

WORKSTATION SETUP GUIDE

Warranties and Liabilities

FCC Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.

2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canadian ICES-003

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union Notice

Declaration of Conformity (According to ISO/IEC Guide 22 and EN 45014)

Application of Council Directives:	73/23/EEC, 89/336/EEC.
Standards to which Conformity is Declared:	EN60950:1992 + A1 + A2 + A3 + A4 + A11 CISPR 22:1985 / EN55022:1988 Class A EN55024:1998 + A1
Manufacturer's Name:	Avid Technology, Inc. 1925 Andover Street Tewksbury, MA 01876, USA
European Contact:	Nearest Avid Sales and Service Office or Avid Technology Sales Ltd. Sandyford Business Center Unit 3, Dublin 18, Ireland
Type of Equipment:	Information Technology Equipment
Product Name:	Products for the Windows NT and Windows 2000 Operating Systems: Avid|DS
Base Model Numbers:	None
Product Options:	All
Year of Manufacture:	2001

Products for the Windows NT and Windows 2000 Operating Systems: products were tested in a typical Avid\|DS configuration.

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directives and Standards.

George R. Smith, Director of Hardware Design and Development

Australia and New Zealand EMC Regulations

John Kells, Australian Operations Manager
Avid Technology (Australia) Pty Ltd.
Unit B
5 Skyline Place
French Forest NSW 2086
Australia
Phone: 61-2-8977-4800

Taiwan EMC Regulations BSMI Class A EMC Warning

警告使用者：
這是甲類的資訊產品，在居住的環境中使
用時，可能會造成射頻干擾，在這種情況
下，使用者會被要求採取某些適當的對策。

Warnings

To reduce the risk of electrical shock, do not attempt to open the equipment unless instructed. Do not use a tool for purpose other than instructed.

Cast and Crew: Patrick Bayne, Sylvain Labrosse, Luc Langevin, Marianne Rodrigues and Liven Tam.

Document No. 0130-05116-01 1101

Printed in Canada.

Contents

Before You Start

Where to Find Information

The Avid®|DS package includes a comprehensive set of learning materials. With this Roadmap, you'll know where to find the information you need to get up and running quickly and effectively.
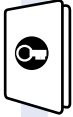
Start with the **Workstation Setup Guide** to prepare your site for Avid|DS and assemble your workstation. Use the **Installation & Administration Guide** should you need to reinstall and license any of the components, or for tips on the daily maintenance of your system.

Use the **Drivers CD** if you need to reinstall or update the drivers for any of the components, or troubleshoot problems with Avid|DS. This CD also contains PDF versions of all the documentation and a few utilites you may find useful.

Note: In order to view the documentation on the CD, you need to have Adobe Acrobat Reader 5.0 and QuickTime version 5.0 or later installed. Acrobat Reader is included on the Drivers CD. QuickTime can be downloaded from the Apple website.

Refer to the **Release Notes** for feature limitations and workarounds.

You can join the **Avid|DS Discussion Group**, a worldwide network of Avid|DS users exchanging ideas and techniques by e-mail. To subscribe, send an e-mail to **majordomo@softimage.com** with the following text in the body of your message: **subscribe ds**.

Comments?

We'd appreciate any comments or suggestions you may have about this guide or any other piece of our documentation. Just send them to: **dsdocs@avid.com**.

About This Guide

This guide provides information on:

- The components of the workstation
- Proper assembly of the workstation
- Necessary additional peripherals
- Troubleshooting

Following these guidelines can help ensure the successful installation of your workstation, and avoid delays in getting your workstation up and running.

This guide is intended for anyone who is installing an Avid|DS 5.0 HD (high definition) or standard definition workstation for the first time, moving a workstation, or attempting to solve problems that can arise with the hardware.

Document Conventions

This guide uses the following symbols and conventions:

Bold Bold is used for menu commands, dialog box and property editor options, and file/folder names.

Italics Italics place emphasis on certain words.

> The greater than (>) sign indicates menu commands (and subcommands) in the order that you choose them. For example, **File** > **Import** means to open the File menu and then choose the Import command. This applies to menus from the main menu bar and pop-up menus that appear when you right-click on the interface.

Notes are reminders or contain important information.

Tips are useful bits of information, workarounds, and shortcuts that you may find helpful in a particular situation.

Warnings are used when you can lose or damage information or equipment, such as deleting data or not being able to easily undo an action. Warnings always appear *before* you attempt a task!

Mouse, Pen and Keyboard

In Avid|DS, you can use a two-button mouse (with wheel) or a pen and tablet. The left and right mouse buttons perform different operations. Unless otherwise stated, use the left mouse button.

The mouse and pen operate slightly differently. All the procedures in this guide are documented for the mouse. You can, however, easily use a pen or the keyboard. The following table shows the terms relating to the mouse, pen, and keyboard.

This term	Means this with a mouse	Means this with a pen
Click	Quickly press and release the left mouse button. Always use the left mouse button unless otherwise stated.	Tap the tablet once with the tip of the pen, or touch the pen to the tablet with enough pressure to click.
Double-click	Click the left mouse button twice rapidly.	Quickly tap the tablet twice in the same screen pixel or press the F5 key to go from single to double-click.
Right-click	Quickly press and release the right mouse button.	Press the top portion of the switch on the side of the pen or press the F6 key to go from left to right-click.
Drag	Hold down the left mouse button or the wheel while you move the mouse.	Press the pen to the tablet while moving the pen.
Alt+*key*, Ctrl+*key*, Shift+*key*, *etc.*	Hold down the first key while you press the second key. For example, "Press Alt+F1" means to hold down the Alt key while you press the F1 key.	

Customizing the Pen or Mouse

By customizing the pen, you can adjust the click pressure, switch functions, and other features. For information on customizing the pen, refer to the WACOM ArtZII documentation provided with your Avid|DS system.

You can also customize the mouse. For example, you can select left-handed configuration or change the double-click speed.

For information on customizing the mouse, refer to the Windows NT or Windows 2000 online help.

Avid|DS Support

Technical support for Avid|DS is provided by your Avid reseller working together with Avid|DS Customer Service. Immediate assistance for any technical issue is available through our hotline, e-mail, and web support services.

Licensing Support

You must contact your reseller to request a license for your Avid|DS system. You can do this through your reseller or through the license request form under **Licensing** at **http://softimage.com/avidds**.

Training Support

If you're interested in Avid|DS training, you'll find a complete overview of courses, education centers, and training programs under **Education** at **http://softimage.com/avidds**.

Hotline Support

Avid resellers provide first line support for Avid|DS according to their specific geographical area and time zone. Working as an extension of Avid|DS Customer Service, these fully trained agents provide the most efficient and effective support possible to all our customers.

Contact information for your Avid reseller is available through the Avid Reseller Locator at **http://avid.com/cgi/locator/index.asp**.

You can reach Avid|DS Customer Service at the following:

Avid|DS Customer Service

North America
tel: 1 800 387-2559
fax: 1 514 845 8252

Worldwide
tel: 1 514 845-2199
fax: 1 514 845 8252

9:00 am to 9:00 pm (Eastern)
2:00 pm to 2:00 am (GMT)

Hotline assistance is also available 24 hours a day, 7 days a week for an additional fee.

Europe
tel: 44 175 365 0670
fax: 44 175 365 8503

9:00 am to 6:00 pm (GMT)
4:00 am to 1:00 pm (Eastern)

E-mail & Web
e-mail: dssupport@avid.com
web: avid.com

Corporate Addresses

You can reach Avid Technology, Inc. at the following addresses:

Corporate Headquarters

Avid Technology, Inc.
Avid Technology Park
One Park West
Tewksbury, MA 01876
tel: 800 949-AVID or 978 640-6789
fax: 978 640 1366
web: avid.com

European Headquarters

Avid Technology Europe Ltd.
Westside Complex
Pinewood Studios
Pinewood Road
Iver, Buckinghamshire SLO ONH
United Kingdom
tel: 44 175 365 5999
fax: 44 175 365 4999

Asian Headquarters

Avid Technology (S.E. Asia) Pte. Ltd.
315 Alexandra Road
#03-01 Performance Center
Singapore 159944
Republic of Singapore
tel: 65 476 7666
fax: 65 475 7666

Avid|DS Mailing List

If you have an e-mail account, you can join the worldwide network of Avid|DS users exchanging ideas. The mailing list has proven to be quite useful for users, with a constant stream of new subscribers.

To subscribe, send an e-mail to **majordomo@softimage.com** with the following text in the body of your message: **subscribe ds**. You can get further information on using the automated list server by e-mailing **majordomo@softimage.com** with "help" as your message.

Web Support

The Avid|DS Support and Download sections at **http://softimage.com/avidds** provide quick access to a wide range of resources from the Avid|DS teams and user community. Downloads, including presets, drivers, and Quick Fix Engineering (QFE), provide the latest solutions for your Avid|DS system. Online documentation, tutorials, and Knowledge Base articles ensure you get the most out of your work with Avid|DS. It's like having a dedicated Avid|DS Customer Service engineer sitting at your desk!

Chapter 1   **Package Contents**

In This Chapter...

This chapter provides an overview of the hardware, software, and documentation included with your Avid|DS workstation.

Package Contents

Your Avid|DS workstation contains hardware, software, and documentation.

Hardware

After carefully unpacking the hardware, verify all of the items on the packing slip before setting up your workstation. And, make sure that you write down the serial number of all the devices.

Your workstation contains the following hardware:

Device	Device, cables, and accessories
IBM IntelliStation Z Pro	• Base unit • Keyboard • IBM mouse • 2 optical cables (for Mykerinos audio card) • Power cable • Rackmount kit (optional)
21-inch IBM P260 monitors	• 2 21-inch monitors • 2 monitor cables with inputs • 2 power cables
Avid MediaDock™ LVD storage system	• MediaDock LVD enclosure • 8 MediaDock LVD shuttles (for HD systems) • 4 MediaDock LVD shuttles (for SD systems) • Power cable • LVD cables
Avid MEDIArray™ Fibre Channel storage system (only available with the standard definition version of Avid|DS)	• Fibre Channel Drive Enclosure (FCDE) • 8 Fibre Channel drives • 2 power cords • Copper Fibre Channel cable • Rack mount rails, clip nuts, mounting clips, and screws (for the rackmount FCDE)
Avid Equinox™ Break-Out-Box	• Breakout box • Digital tether cable • USB and BNC cables • Power cable
WACOM tablet	• Tablet • Pen and stand • RS-232 cable • Power transformer cable with AC adapter • 4D mouse
DUA II audio convertor (standard with HD systems)	• Convertor • 2 optical cables • Power cable
DataMate/Rosetta Stone (RS-232 to RS-422 convertor for deck control)	• Convertor • RS-232 cable • RS-422 cable

If you purchased the standard definition version of Avid|DS, you can choose between an Avid MediaDock LVD storage or an Avid MEDIArray Fibre Channel storage.

Software

Most of the software that you receive on CD is also installed on your workstation's hard drive. You should keep the Software, Drivers, and Recovery CDs in a safe place in case you need to reinstall the software or any of the drivers.

The Avid|DS version 5 software package contains:

- Avid|DS Software CD
- Avid|DS Drivers CD
- Avid|DS Recovery CD
- Software protection key (dongle)

Your workstation comes with the following software components pre-installed on your workstation:

- Windows 2000 Professional and Windows 2000 Service Pack 2 software and documentation
- Merging Technologies Mykerinos documentation
- WACOM software and documentation
- 3Dlabs Wildcat 4210 software and documentation

Documentation

The complete Avid|DS documentation set includes:

Document	Format	Version	Description
Release Notes	Print	5	Describes known problems and provides workarounds.
Workstation Setup Guide	Print	5	Shows you how to prepare for and set up your workstation hardware.
Installation & Administration Guide	Print	5	Provides instructions on how to reinstall the current version of Avid|DS, and perform workstation administration tasks.
Remote Processing Guide	Print	5	Provides instructions on how to install and configure remote processing stations.
New Features Tour and Guide	Online/ Print	5	Provides an interactive multimedia overview of the new features in Avid|DS.
Online Help	Online	5	Contains reference information on: •Layouts and views •Parameters in property editors and dialog boxes •Commands in toolbars and pop-up menus.
Quick Reference Card	Online	5	Contains a list of editing tips.
Shortcut Card	Online	5	Contains all the Avid|DS keyboard shortcuts. You can slide it under the cover sheet of your graphic tablet.
Tutorial	Print	5	Contains basic step-by-step lessons with specific examples, so you can start working with Avid|DS.
User's Guide	Print	5	Describes the work processes of Avid|DS and shows you how to perform basic and advanced tasks in every phase of post production, from capturing material to outputting a finished sequence.
Compositing & Effects Guide	Print	5	Describes the basic types of effects in Avid|DS and shows you how to apply them to your media. There's also information on when and how to process effects.
Vendor documentation	Print	--	Guides from the vendors of the various hardware components that comprise your Avid|DS workstation. **Note**: For details on setting up, handling and maintaining these components, refer to the documentation included with each of them.

Chapter 2   **Site Preparation**

In This Chapter...

This chapter describes how to prepare your site for an Avid|DS workstation.

Site Planning

When preparing your site, you must consider the environmental, electrical, and space requirements for your Avid|DS workstation, as well as any additional equipment that you may need to purchase and its requirements.

Environmental Requirements

The site you choose for your Avid|DS workstation should meet the following environmental requirements:

- Clean and dust free

- Free from significant temperature or humidity changes

- Sturdy, level, and not subject to vibration

- Away from high-traffic or high-noise areas

- Provides adequate space in front of and behind the workstation components, so that you can connect cables and service your workstation. This also provides adequate air flow for cooling.

- A minimum clearance of 3 inches (7.6 cm) for the side and back panels of the desk side base unit

- A table (or other surface) that is at least 60 inches wide by 48 inches deep (150 cm $\times$ 120 cm) for the editing workstation

Electrical Requirements

Your site should meet the following electrical requirements:

- Adequate power for each workstation component, so that extension cords are not needed.

- At least two 15-amp circuits available; one for the workstation and one for the Avid MediaDock LVD storage(s).

- Site is away from major electrical equipment, such as motors, air conditioners, or elevators.

- Site is not subject to static electrical buildup.

- Uses an uninterruptible power supply (UPS) to protect your workstation from sudden power surges or losses, and save you from the resulting loss of work.

Plug only your Avid|DS equipment into the power strip. Do not plug in coffee makers, radios, lights, or other such devices.
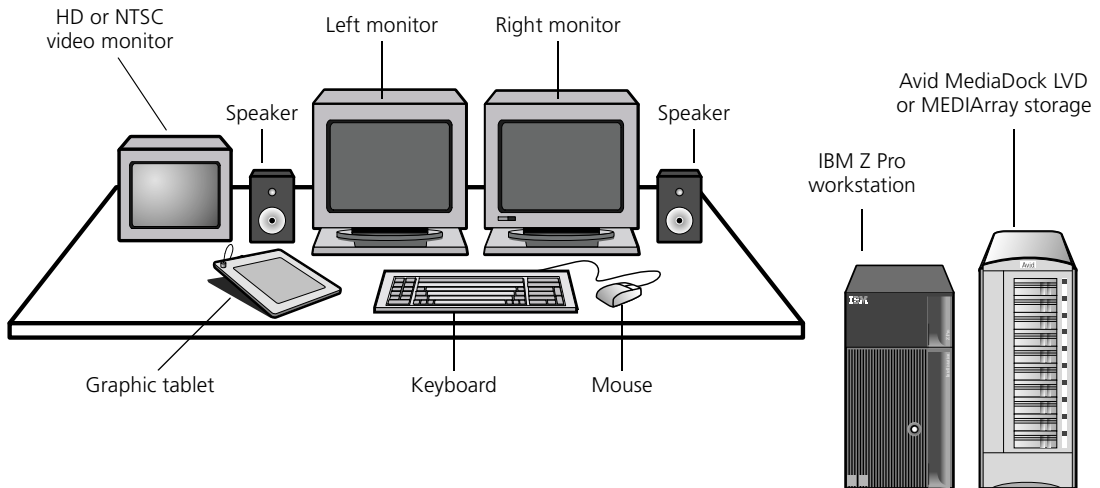
In addition, make sure your site meets the following electrical specifications:

Component	Voltage	Frequency
IBM IntelliStation Z Pro workstation	100 to 127 V AC (NA) 200 to 240 V AC (Intl)	47 to 63 Hz
21-inch IBM P260 monitors	100 to 240 V AC	50 to 60 Hz
Avid Equinox Break-Out-Box	100 to 240 V AC	50 to 60 Hz
Avid MediaDock LVD storage system	90 to 264 V AC (fully configured)	50 to 60 Hz
Avid MEDIArray Fibre Channel storage (standard definition version of Avid|DS only)	400 VA maximum (fully configured)	50 to 70 Hz
Merging DUA II audio convertor (included with HD systems only)	100 to 240 V AC	50 to 60 Hz
WACOM tablet	120 V AC (NA) 220 V AC (Intl)	60 Hz

Space Requirements

Your workstation includes either a tower or rack mount base unit, the video storage array, and two 21-inch monitors. You can place the workstation base unit and the video storage chassis next to your work area. The following illustration shows a typical tower configuration:

HD or NTSC video monitor

Left monitor

Right monitor

Avid MediaDock LVD or MEDIArray storage

Speaker

Speaker

IBM Z Pro workstation

Graphic tablet

Keyboard

Mouse

The speakers and video monitor are purchased separately. The video monitor and the computer monitor(s) should be placed at least 12 inches (30 cm) apart. Placing them closer together may cause synchronization interference on the computer monitor(s).

If you purchase the optional rack mount kit for the base unit, it mounts in a standard 19-inch equipment rack. The Avid Equinox Break-Out-Box, MEDIArray, MediaDock LVD storage system, and DUA II audio convertor can also be mounted in the same or another equipment rack.

The following table lists the dimensions of the major hardware components:

Hardware component	Dimensions (inches)	Dimensions (centimeters)
Base unit (tower)	Height: 17.3 Depth: 8.5 Width: 23.9	Height: 44.0 Depth: 21.6 Width: 60.6
Base unit (rack mount)	--	--
21-inch monitor(s)	Height: 19.8 Width: 19.6 Depth: 20.0	Height: 50.3 Width: 49.8 Depth: 50.8
Avid Equinox Break-Out-Box (rack mountable)	Height: 5.3 Width: 17.6 Depth: 7.5	Height: 13.3 Width: 44.6 Depth: 19.5
Avid MediaDock LVD (tower)	Height: 18.8 Width: 10.5 Depth: 17.6	Height: 47.7 Width: 26.7 Depth: 44.8
Avid MediaDock LVD (rack mount)	Height: 5.3 Width: 17.6 Depth: 17.4	Height: 13.3 Width: 44.6 Depth: 44.2
Avid MEDIArray (tower) (standard definition version of Avid|DS only)	Height: 26.8 Width: 9.8 Depth: 29.4	Height: 68.0 Width: 24.8 Depth: 74.7
Avid MEDIArray (rackmount) (standard definition version of Avid|DS only)	Height: 6.1 Width: 17.5 Depth: 24.0	Height: 15.4 Width: 44.5 Depth: 60.9
DUA II (rack mountable) (included with HD systems only)	Height: 1.7 Width: 17.6 Depth: 6.9	Height: 4.3 Width: 44.6 Depth: 17.5
WACOM tablet	Width: 9 Depth: 12	Width: 22.9 Depth: 30.0

Additional Equipment

A typical Avid|DS workstation requires the following additional peripherals and cables:

Device	Description
House sync generator	The house sync must have the same video format as your video equipment, as well as the project that you create in Avid|DS. You will need a tri-level sync generator for HD projects.
Video monitor	HD or NTSC/PAL
Video tape recorder (VTR)	VTRs connect to the base unit through an RS-422 cable. (Contact your Avid|DS reseller for a list of approved HD VTRs)
Digital waveform monitor	Measures the luminance and chrominance video signals
Speakers and amplifier	Analog and/or digital audio equipment and converters for converting audio signals
Cables	Video: Use high quality 75-ohm coaxial cables with 75-ohm BNC coaxial connectors. Audio: Balanced cables
Standards convertors	Lets you convert between HD and other (NTSC and PAL for example) standards in order to accommodate archival footage coming from other formats or standards

Chapter 3 **System Overview**

In This Chapter...

This chapter gives you an overview of the hardware included with your Avid|DS workstation.

System Inputs and Outputs

The following table describes the system inputs and outputs:

Input/output	Description
Video In	HD via BNC connector
Video Out	HD via BNC connector Composite via BNC connector S-video via S-video connectors
Optical Digital Input	ADAT and S/PDIF multichannel optical digital interface (ODI)
Optical Digital Output	ADAT and S/PDIF multichannel optical digital interface (ODI)
USB	Provides a communications link between the workstation and the Avid Equinox Break-Out-Box
Genlock Input	BNC connector for sync input
RS-232 Remote	DB-9 connector that connects the RS-232 to RS-422 convertor. Use the supplied cable only.
Adaptec 39160	VHDCI connectors for the Avid MediaDock LVD storage system
MIDI out	15-pin game port that enables MIDI control for the JLCooper MCS-3800 external controller

The MIDI/game port on the lower-right corner of the workstation gives you MIDI control of external controllers, such as the JLCooper MCS-3800. MIDI control requires a separately purchased breakout cable and the proper MIDI driver.

A recommended breakout cable is the Creative Labs MIDI adapter (part number 1013251001), which provides MIDI in, MIDI out, and a joystick port.

For instructions on connecting peripherals and various video equipment to your workstation, see *Assembling the System* on page 35.

Avoid using adapters as they may cause signal degradation. If you must use them, use only high-quality, tight-fitting adapters.

Signal Flow

The following provides an overview of the signal flow during capture and playback. The Avid|DS software controls the process.

Capture

Capture mode lets you use Avid|DS to capture or play back video and audio from the VTR.

- The video output of the VTR goes through the Avid Equinox Break-Out-Box to the Avid Equinox PCI card, and from there to the video storage array.

- The audio output of the VTR goes through the DUA II convertor to the Mykerinos audio card, and is stored on the audio storage area.

- The video output of the Avid Equinox PCI card goes to the Wildcat card and then to the workstation monitors, where it is displayed as video-in-a-window.

- The control signal from the COM 1 port goes to the VTR to control device operation (the supplied RS-232/RS-422 convertor and cable must be connected to the workstation).

- The sync signal from the house sync goes through the Avid Equinox Break-Out-Box to the Avid Equinox PCI card, and then internally to the Mykerinos audio card.

Playback

Playback mode allows you to use Avid|DS to record video on the VTR.

- The video stored on the video storage array goes through the Avid Equinox PCI card to the Avid Equinox Break-Out-Box, and then goes to the VTR and video monitor.

- The audio stored on the audio disk goes to the Mykerinos audio card, through the DUA II convertor, and then to the VTR.

- The video output of the Avid Equinox PCI card goes to the Wildcat card and then to the workstation monitors, where it displays as video-in-a-window.

- The control signal from the COM 1 port goes to the VTR to control device operation.

- The sync signal from the house sync goes through the Avid Equinox Break-Out-Box to the Avid Equinox PCI card and then internally to the Mykerinos audio card.

House Sync

Whenever you use more than one video device, you need to have video synchronization. If the devices are not in sync, a monitor will show rolling, tearing, or incorrect colors in the picture whenever you transfer the video between devices.

A sync generator or house sync provides the synchronizing composite signal to all other devices (video and audio) that must lock to the main video program. This analog composite reference video signal, called "color black" or "black-burst" video, is a timing pulse that is added to a composite video signal and contains horizontal, vertical, and color synchronizing information.

Tri-level Sync

In the case of HD video devices, you need a tri-level sync. Tri-level sync could be considered synonymous to black-burst in that it is simply the reference synchronizing information from the facility's master generator.

Each HD format needs a specific tri-level sync. You must use the proper tri-level sync to synchronize your VTR and the Equinox video subsystem for all the HD formats supported by Avid|DS.

The following table lists the HD formats currently supported by Avid|DS and their relevant frame rates.

HD format	Supported frame rates (fps)
1080i Interlaced	30.00 fps, 29.97 fps, 25.00 fps
1080Psf Progressive	30.00 fps, 29.97 fps, 25.00 fps, 24.00 fps, 23.976 fps

Sync Topology

When syncing analog and digital video/audio devices, it is always preferable to feed every component with a separate black-burst or tri-level sync signal in a star pattern. Some drifting or jittering problems can be caused by the video reference being looped from one machine to another.
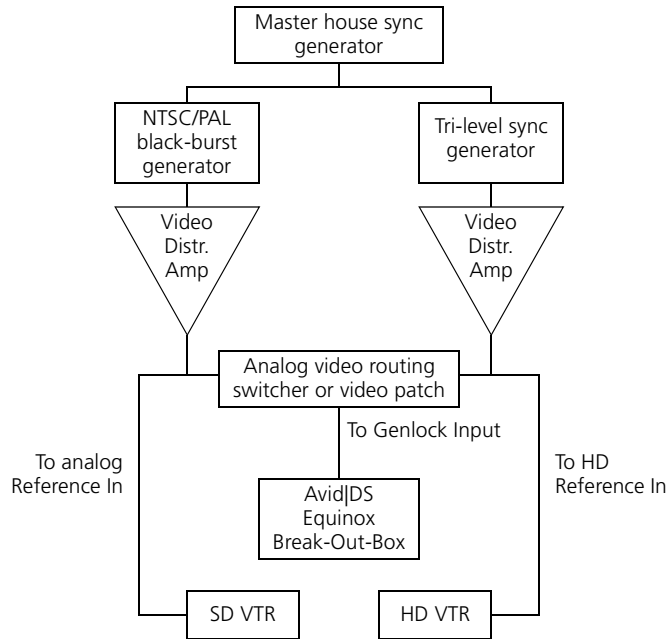
A typical star pattern sync topology

You also need to verify the following to make sure your topology is correct:

- **Quality of the Distribution Amp (DA)**—If your DA feeds multiple machines that are far apart, the stability and strength of the signal it sends will be crucial.

- **Distance between devices**—A good DA in a star pattern topology will be necessary to ensure that every device is properly referenced.

- **Video converters**—Some converters won't need to be fed a sync signal, as they will reference themselves on the incoming digital video signal from a device that will itself sync on a central color black sync signal. This is possible because digital video is much steadier than its analog counterpart, and the converter will always see the right frame size when converting the signal.

- **Routing switchers**—Since the Equinox Break-Out-Box only has one REF In you may want to consider using an analog routing switcher to select between tri-level and black-burst sync signals.

Back Panel Overview

On the back panel of your base unit, four expansion cards are installed for use with Avid|DS. The back panel also contains ports for connecting the mouse, keyboard, monitors, and software protection key (dongle).

Workstation Cards

The following table describes the function of each expansion card installed in the workstation. Expansion cards are installed in the workstation's PCI and AGP slots. For details on card specifications and configuration, refer to the vendor documentation.
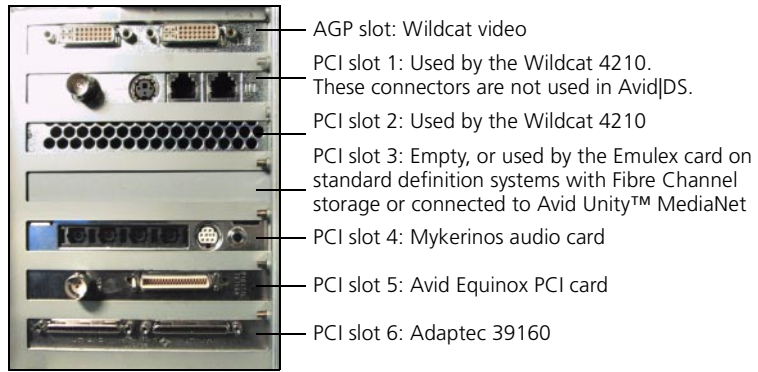
Slot	Card	Function
AGP	Wildcat 4210	Processes input from the Avid Equinox PCI card, handles OGL processing, and outputs video signal to workstation monitor(s)
PCI 1	Empty	None (space used by Wildcat 4210)
PCI 2	Empty	None (space used by Wildcat 4210)
PCI 3	• Empty on Avid|DS HD, or on standard definition versions of Avid|DS with Avid MediaDock LVD storage system • Emulex card on standard definition systems with fibre channel storage	Processes input and output to the Fibre Channel storage on standard definition versions of Avid|DS.
PCI 4	Mykerinos audio card	Processes and routes audio to optional devices
PCI 5	Avid Equinox PCI card	Processes video capture and playback I/O for the VTR and routes video to the Wildcat 4210 graphics card
PCI 6	• Adaptec 39160 on Avid|DS HD, or on standard definition versions of Avid|DS with Avid MediaDock LVD storage • Empty on standard definition systems with Fibre Channel storage system	Processes input and output to the Avid MediaDock LVD storage system

For more information on a specific expansion card, refer to the vendor documentation.

Card Placement

The following illustration shows the placement of cards in the expansion slots of a deskside workstation.

AGP slot: Wildcat video

PCI slot 1: Used by the Wildcat 4210. These connectors are not used in Avid|DS.

PCI slot 2: Used by the Wildcat 4210

PCI slot 3: Empty, or used by the Emulex card on standard definition systems with Fibre Channel storage or connected to Avid Unity™ MediaNet

PCI slot 4: Mykerinos audio card

PCI slot 5: Avid Equinox PCI card

PCI slot 6: Adaptec 39160

On a rack mount workstation, the AGP slot is to the left, and the PCI slot 6 is to the right when viewing the back of the workstation base unit.

Mykerinos Audio Card Connections

The following illustration shows the connections on the Mykerinos audio card. For more information on the Mykerinos audio card, refer to the vendor documentation.

Output B (optical)

Line out

Output A (optical)

Input B (ADAT)

Input A (S/PDIF)
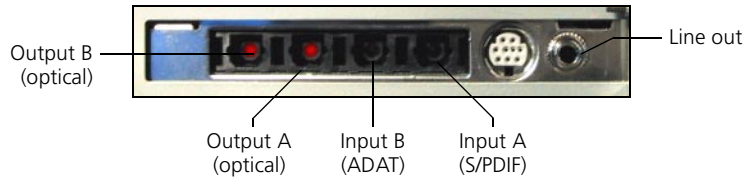
The optical outputs on the card are red.

Avid Equinox PCI Card Connections

The following illustration shows the connections on the Avid Equinox PCI card. For information on connecting your video and audio equipment to the Avid Equinox PCI card, see *Peripheral Devices* on page 51.

Reference signal in from Avid Equinox Break-Out-Box

Digital Tether (Video I/O)

Adaptec Card Connections

The following illustration shows the connections on the Adaptec 39160 card. This is the storage adapter included with HD systems and with standard definition versions of Avid|DS that use the Avid MediaDock LVD storage. For more information on the Adaptec card, refer to the vendor documentation.

Very high density connectors

Channel 2/B   Channel 1/A
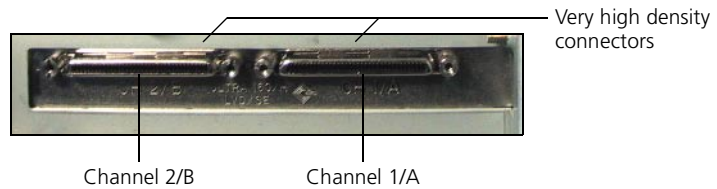
Emulex Card Connections

The following illustration shows the connections on the Emulex Fibre Channel controller. This is the storage adapter included with standard definition versions of Avid|DS that use the Avid MEDIArray Fibre Channel storage. For more information on the Emulex card, refer to the vendor documentation.

DB-9 connector
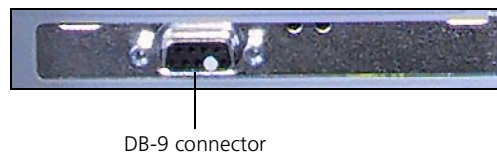
Disk Subsystem

In a standard configuration, one Low-Voltage Differential Signaling (LVDS) SCSI disk drive is installed in the base unit, and eight LVDS disk drives are installed in the Avid MediaDock LVD. The system disk drive is formatted with three partitions for storing operating system files, project files, and audio files. The Avid MediaDock LVD drives are formatted as a striped volume for video file storage.

Disk striping is a hardware capability that speeds up data I/O from disk storage. The workstation divides the data into pieces, and spreads the pieces across the disks in the striped volume. Because the workstation transfers data to multiple drives in smaller chunks than would be transferred to a single drive, the data transfer rate is accelerated. The Adaptec 39160 adapter handles data I/O for the video storage drives.

The following table summarizes disk drive information for a standard configuration:

Drive	Label	Description	Contents	Format
C:	System	A partition of the primary system disk	Operating system software	NT File System (NTFS)
D:	Video storage	• 8 disk drives striped (HD systems) • 4 disk drives striped (standard definition versions of Avid|DS with Avid MediaDock LVD storage) • 8 disk drives striped (standard definition versions of Avid|DS with Fibre Channel storage)	Video files	NTFS
F:	Projects	A partition of the primary system disk	Audio and project-related files	NTFS
Z:	DVD-ROM	-	-	-

Chapter 4   **Assembling the System**

In This Chapter...

This chapter gives you detailed instructions for connecting an Avid|DS workstation base unit to the peripheral devices.

Before Assembling the System

Before setting up your system, consult the Read Me First document or Release Notes to make sure that there are no changes, additions, or deletions to the procedures in this chapter.

The required expansion cards are installed and configured for Avid|DS. You should not remove or modify these cards.

For detailed instructions on setting up the base unit hardware, refer to the IBM documentation. For a rack mount workstation, you must install the base unit into a standard rack before connecting the hardware.

To prevent equipment damage that may be caused by static electricity, do all of the following before making any connections:

- Turn the power switch off on all the devices.
- Wear an antistatic wrist strap.
- Connect all the devices to a grounded power source.
- Touch the metal casing of the device.

The Keyboard, Mouse, and Graphic Tablet

The keyboard and mouse come with attached cables for connecting them to the back panel. The WACOM graphic tablet comes with a power transformer and a DB-9 cable. The following illustration shows the keyboard, mouse, and WACOM tablet connections on a deskside workstation. For more information, refer to the WACOM documentation.
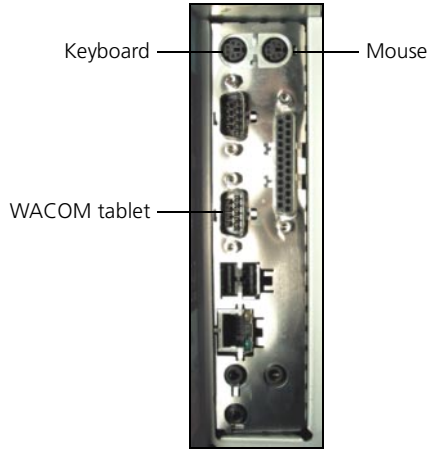
To connect the keyboard and mouse

1. In the base unit, connect the keyboard to the top-left or bottom mini-DIN port.

2. Connect the mouse to the top-right or top mini-DIN port in the base unit.

To connect the WACOM tablet

1. Connect the AC power transformer to the tablet's DB-9 cable.

2. Connect the DB-9 cable from the WACOM tablet to the COM 2 port on the back panel of the base unit.

3. Verify that the input voltage on the power adapter matches the voltage of your power outlet.

4. Connect the power adapter to the AC outlet.

The Computer Monitors

Your workstation comes with two 21-inch monitors for Avid|DS. Place the monitors side-by-side in your work area. Each monitor comes with a DVI cable and a power cable. For more information on the card and cables, refer to the Wildcat 4210 and monitor documentation.

On a rack mount workstation, the video ports are to the left when viewing the back of the workstation base unit.

DVI connector for left monitor

DVI connector for right monitor
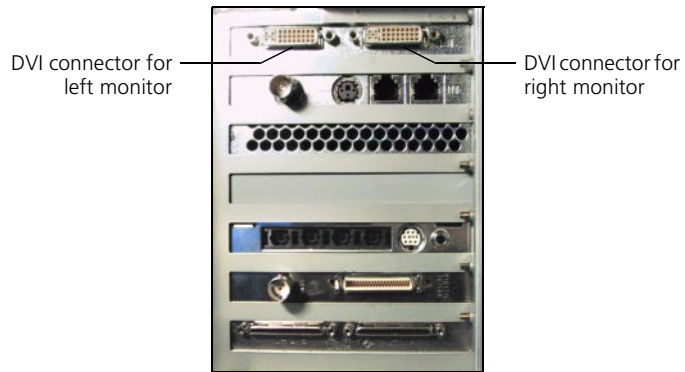
To connect the monitors

1. Verify that the power switches on the monitor(s) and the base unit are in the Off position, and then connect these devices to a power source.

2. Attach each monitor's video cable to the appropriate DVI connector as per the illustration above.

Only the DVI connectors of the Wildcat 4210 are used in Avid|DS.

The Avid Equinox Break-Out-Box

The Avid|DS workstation also includes the Avid Equinox Break-Out-Box, which provides the high definition and standard definition input and output from your workstation. The front panel of the break-out-box has several status LEDs and a power switch. The status LEDs are as follows:

LED	Status
HD	The break-out-box is in HD mode (as opposed to SD).
SD	The break-out-box is in standard definition mode.
Input Lock	The break-out-box has a valid input signal and is locked to it (for capture).
Genlock	The break-out-box is locked to the house sync. This LED blinks if it detects a sync signal that is not valid.
Host Link	When Avid|DS is running, this LED blinks to indicate that there is communication between the workstation and the break-out-box. Otherwise, it glows steadily. If this LED is off, it indicates that your USB cable may be disconnected or the USB driver is disabled on your Avid|DS workstation.
Power	Indicates whether the break-out-box is on or off.

Status LEDs   Power switch
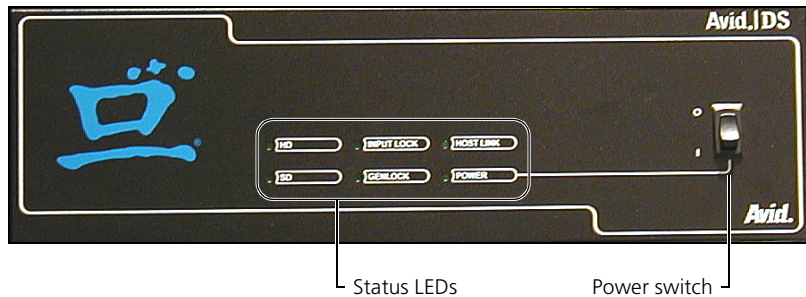
Front panel of the Avid Equinox Break-Out-Box

The back panel of the break-out-box has several connectors that provide
the following:

- USB connection

- Digital tether that transfers video signal data between the workstation's
  Avid Equinox PCI card and the break-out-box

- Sync output to the Avid Equinox PCI card

- HD video input from a VTR or other device

- HD video outputs to VTRs or monitors

> If either of the HD video outputs is not being used, terminate it with
> a 75-ohm terminating resistor.

- Standard definition video input from a VTR or other device

- Standard definition video outputs to VTRs or monitors

> If either of the standard definition video outputs is not being used,
> terminate it with a 75-ohm terminating resistor.

- Genlock input for the incoming house sync signal

- Monitoring outputs for composite and S-video monitors

> You can only monitor the composite and S-video signals during
> standard definition sessions.
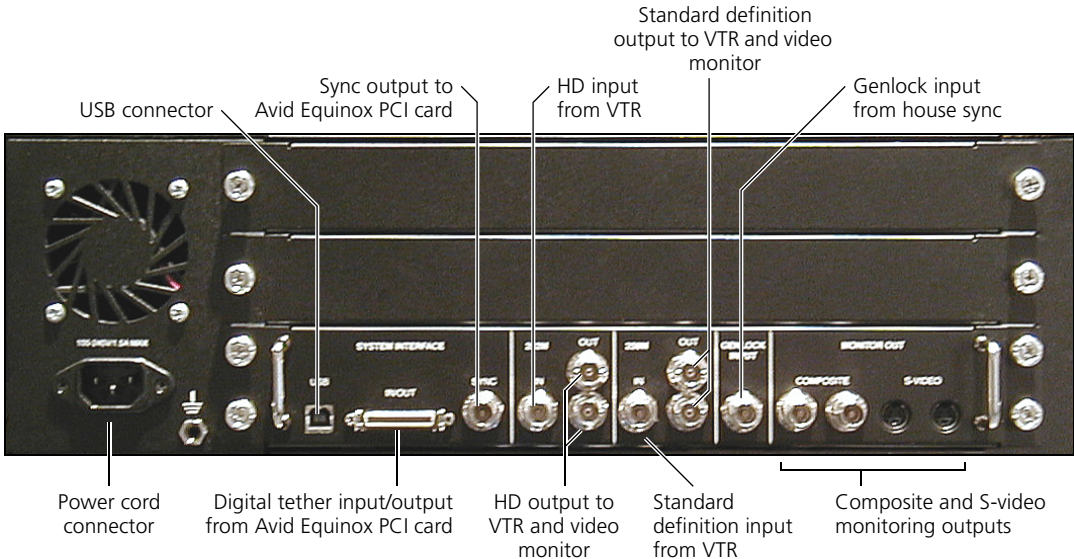
Back panel of the Avid Equinox Break-Out-Box

To connect the Avid Equinox Break-Out-Box to the workstation

1. Make sure that the power switch on the break-out-box is in the Off position.

2. Attach the power cord to the power connector at the back of the break-out-box and plug it into a power outlet.

3. Locate the USB cable in the break-out-box kit.

4. Plug one end of the cable into the USB connector on the back of the break-out-box.

5. Plug the other end of the cable into the USB connector on the back of the workstation.

6. Plug one end of the digital tether cable into the In/Out connector at the back of the break-out-box.

7. Plug the other end of the digital tether cable into the Digital tether connector on the Avid Equinox PCI card.

8. Secure both ends of the cable with the thumbscrews on the cable connectors.

9. Attach one end of the BNC cable to the Sync output connector on the break-out-box and the other end to the Reference signal in connector on the Avid Equinox PCI card.

Avid Equinox Break-Out-Box   Avid|DS workstation

USB cable

Digital tether cable   BNC cable
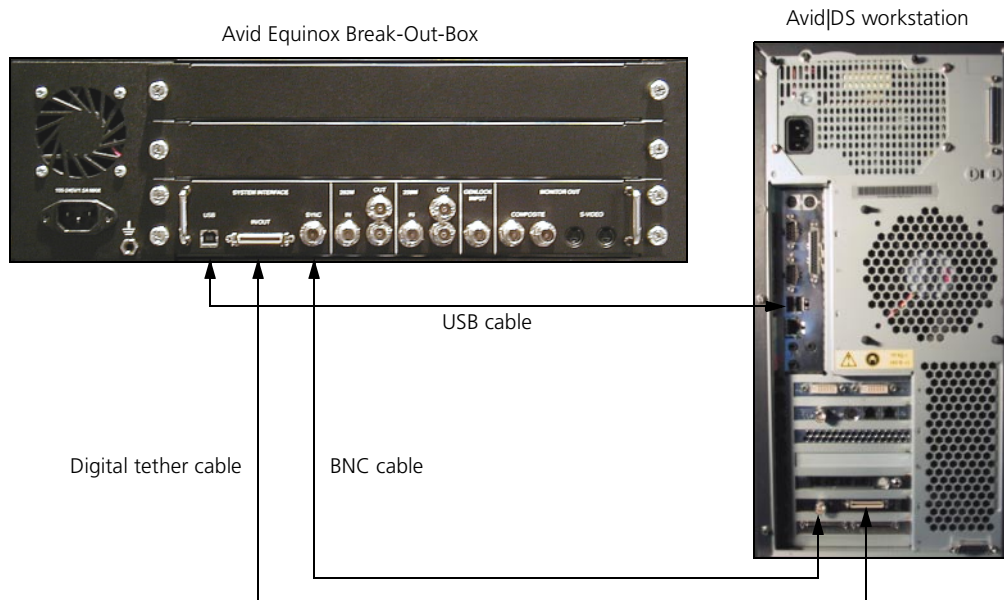
The Avid MediaDock LVD

The Avid MediaDock LVD is the default storage system that ships with Avid|DS. You can connect the Avid MediaDock LVD storage system directly to the Adaptec controller in the Avid|DS workstation with the included SCSI cables. The controller is installed before your Avid|DS workstation is shipped.

Drive shuttles

ESM module

I/O module

Front   Back
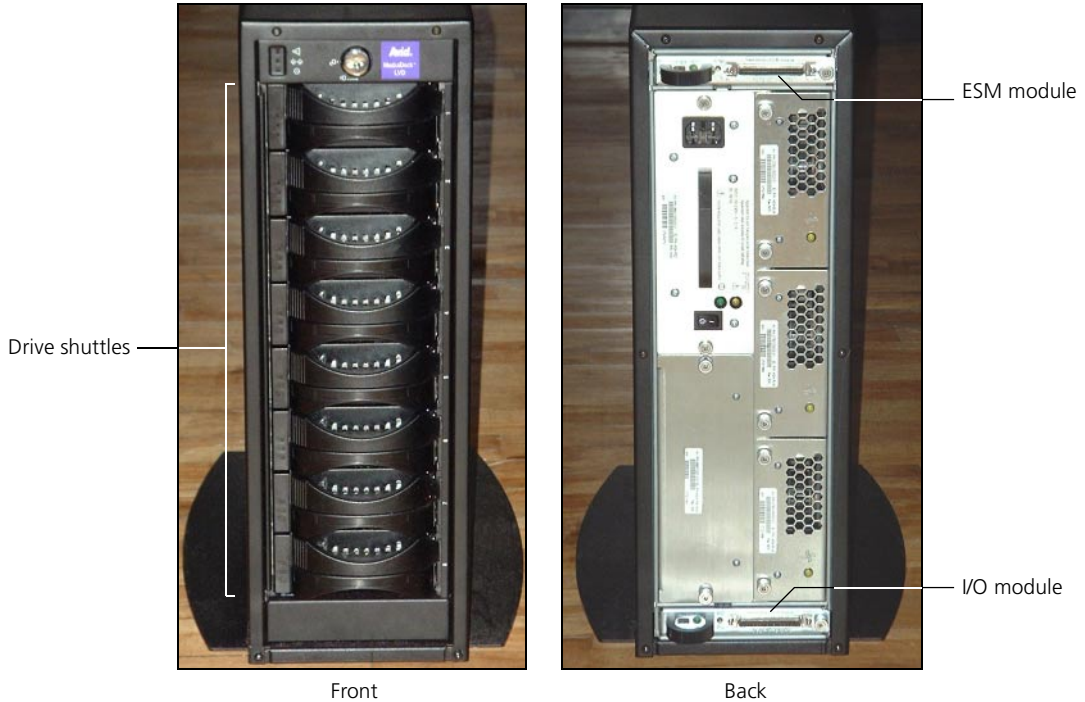
The Avid MediaDock LVD storage system

The Avid MediaDock LVD has eight slots for LVD shuttle drives. You can use them in either single or dual-bus configurations. With Avid|DS, however, the Avid MediaDock LVD is used in a dual-bus configuration. In this configuration, the slots are shared between bus A and bus B. For example, the four top slots on bus A and the four bottom slots on bus B.

If you need extra storage, you can connect up to three Avid MediaDock LVD enclosures to your Avid|DS workstation.

Do *not* use the Avid MediaDock LVD Manager software that comes with the MediaDock. This utility is not supported on the Windows 2000 operating system at the present time and may cause problems with other applications.

Single-Enclosure Configuration

The single-enclosure configuration is the simplest of the three supported storage configurations. The single Avid MediaDock LVD is attached to the Avid|DS workstation in a dual bus configuration as shown below.

Avid|DS workstation   Avid MediaDock LVD

SCSI cable from channel 1/A of the Adaptec controller to the ESM (Enclosure Service Module) of the Avid MediaDock LVD

SCSI cable from channel 2/B of the Adaptec controller to the I/O module of the Avid MediaDock LVD
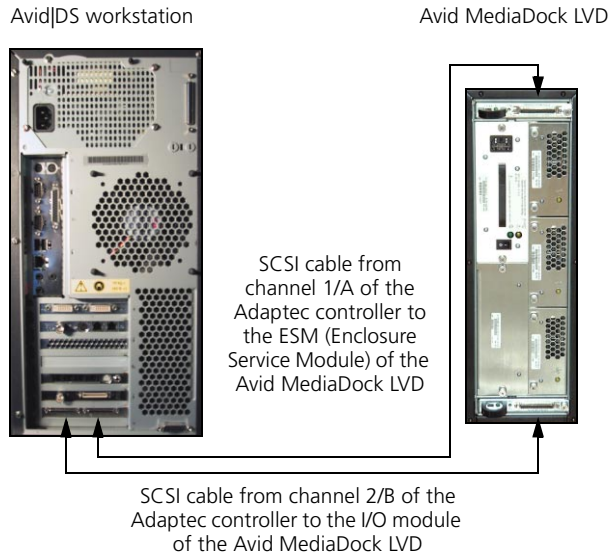
To connect the Avid MediaDock LVD in a single-enclosure configuration

1. Locate one of the SCSI cables in the Avid MediaDock LVD kit. It has a very-high-density SCSI connector at one end and a high-density 68-pin connector at the other end.

2. Attach the very-high-density connector of the cable to the channel 1/A connector of the Adaptec controller.

3. Attach the cable's other high-density 68-pin connector to the corresponding connector in the ESM module at the top rear of the Avid MediaDock LVD.
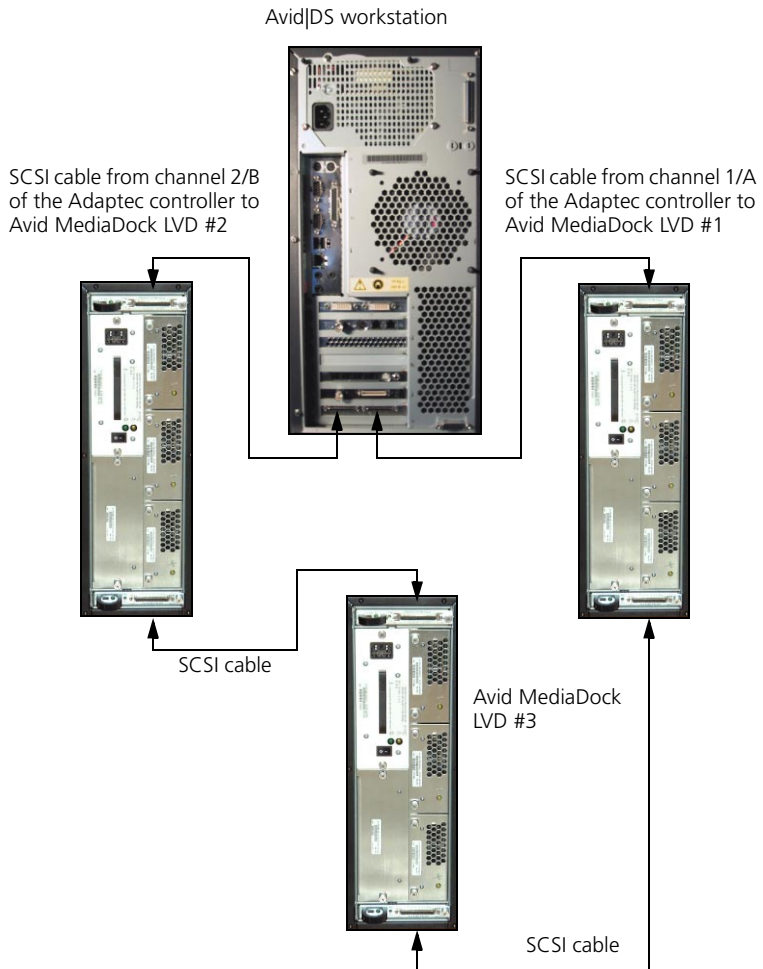
4. Locate the second SCSI cable; it is identical to the first.

5. Attach the very-high-density connector of the cable to the channel 2/B connector of the Adaptec controller.

6. Attach the cable's other high-density 68-pin connector to the corresponding connector in the I/O module at the bottom rear of the Avid MediaDock LVD.

   In this configuration the drives in the Avid MediaDock LVD are shared between the two SCSI buses.

Two-Enclosure Configuration

The two-enclosure configuration uses two MediaDock LVDs, each in a single bus configuration (each enclosure connected to a single SCSI bus) as shown below. In this configuration you can use a maximum of sixteen drives, eight in each MediaDock or on each SCSI bus.

Avid|DS workstation

SCSI cable from channel 2/B of the Adaptec controller to Avid MediaDock LVD #2

SCSI cable from channel 1/A of the Adaptec controller to Avid MediaDock LVD #1

Avid MediaDock LVDs
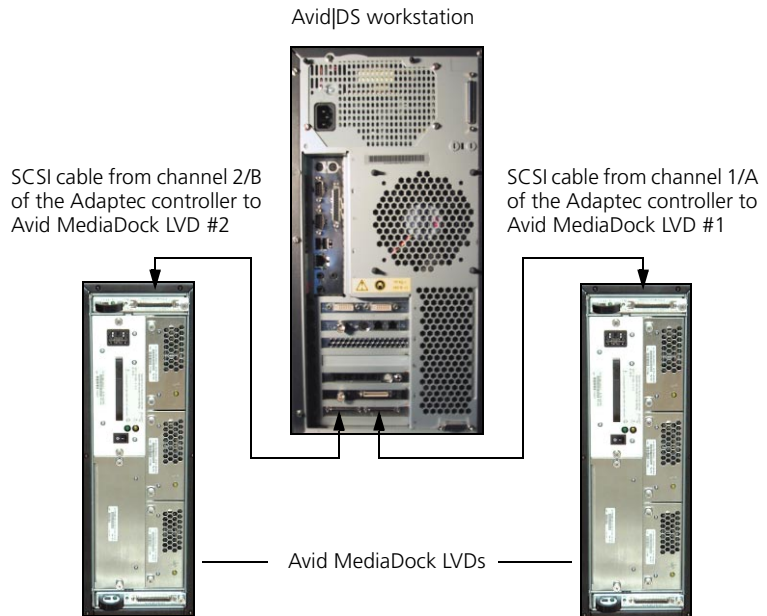
To connect the Avid MediaDock LVD in a two-enclosure configuration

1. Locate one of the SCSI cables in the Avid MediaDock LVD kit.

2. Attach the very-high-density connector of the cable to the channel 1/A connector of the Adaptec controller.

3. Attach the cable's other high-density 68-pin connector to the corresponding connector in the ESM module at the top rear of Avid MediaDock LVD #1.

4. Locate the second SCSI cable; it is identical to the first.

5. Attach the very-high-density connector of the cable to the channel 2/B connector of the Adaptec controller.

6. Attach the cable's other high-density 68-pin connector to the corresponding connector in the ESM module at the top rear of Avid MediaDock LVD #2.

7. On both Avid MediaDock LVD #1 and #2, place the configuration switches on the ESM and I/O modules into position 1.

Make sure you do *not* terminate the I/O modules with SCSI terminators. The I/O and ESM modules have internal termination.

Three-Enclosure Configuration

The three-enclosure configuration uses two Avid MediaDock LVDs in single bus configurations and one Avid MediaDock LVD in a dual bus configuration. This configuration lets you use a maximum of twenty-four drives; twelve on each SCSI bus.

Avid|DS workstation

SCSI cable from channel 2/B of the Adaptec controller to Avid MediaDock LVD #2

SCSI cable from channel 1/A of the Adaptec controller to Avid MediaDock LVD #1

SCSI cable

Avid MediaDock LVD #3

SCSI cable

Before assembling this storage configuration, you must replace the ESM on Avid MediaDock LVD #1 and #2 with an SRM (SCSI Repeater module). Contact your Avid|DS reseller to obtain the necessary replacement module.

To connect the Avid MediaDock LVD in a three-enclosure configuration

1. Locate one of the SCSI cables in the Avid MediaDock LVD kit.

2. Attach the very-high-density connector of the cable to the channel 1/A connector of the Adaptec controller.

3. Attach the cable's other high-density 68-pin connector to the corresponding connector in the SRM module at the top rear of Avid MediaDock LVD #1.

4. Locate the second SCSI cable; it is identical to the first.

5. Attach the very-high-density connector of the cable to the channel 2/B connector of the Adaptec controller.

6. Attach the cable's other high-density 68-pin connector to the corresponding connector in the SRM module at the top rear of Avid MediaDock LVD #2.

7. Locate another SCSI cable that has high density 68-pin connectors at both ends.

8. Attach one end of the cable to the connector on the I/O module at the bottom rear of Avid MediaDock LVD #1.

9. Attach the other end of the cable to the I/O module at the bottom rear of Avid MediaDock LVD #3.

10. Locate another SCSI cable that has high density 68-pin connectors at both ends.

11. Attach one end of the cable to the connector on the I/O module at the bottom rear of Avid MediaDock LVD #2.

12. Attach the other end of the cable to the ESM module at the top rear of Avid MediaDock LVD #3.

13. On Avid MediaDock LVD #1 and #2, place the configuration switches on the SRM and I/O modules into position 2.

14. On Avid MediaDock LVD #3:

  • Place the configuration switch on the ESM module in position 1.

  • Place the configuration switch on the I/O module in position 2.

Avid Unity MediaNet

Avid Unity MediaNet is the facility-class media network for content creators that lets you share a single storage between multiple workstations. You need to have an Emulex fibre channel controller installed in your Avid|DS workstation to connect to MediaNet. The Emulex fibre channel controller is available as an option when you purchase Avid|DS. Contact your Avid|DS reseller for more information on using Avid|DS with MediaNet.

Installing the Emulex Fibre Channel Controller

Before you use Avid|DS with MediaNet you must install the Emulex card and relevant drivers in your Avid|DS workstation.

To install the Emulex card and drivers

1. Shut down your workstation and open the cover—see the IBM IntelliStation Z Pro User Guide for more information.

2. Install the Emulex card in PCI slot 3 of your workstation.

The Emulex card must be installed in PCI slot 3
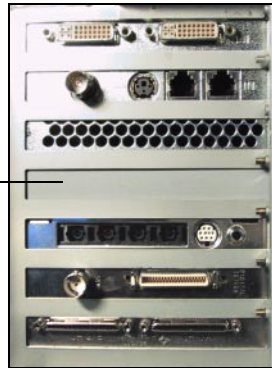
3. Restart your workstation.

    Windows 2000 will detect the presence of the Emulex card.

4. Follow the onscreen instructions to complete the driver installation.

Once this is complete you are ready to install and use MediaNet. Refer to the Avid Unity MediaNet Windows Client Setup Guide for more information.

The Avid MEDIArray

The Avid MEDIArray is an optional storage solution available with the standard definition version of Avid|DS. You need to install an Emulex fibre channel controller board to connect the Avid MEDIArray storage to your Avid|DS workstation.

The Emulex fibre channel controller is available as an option when you purchase Avid|DS. Contact your Avid|DS reseller for information on obtaining the Emulex fibre channel controller. For information on installing the Emulex fibre channel controller, see *Installing the Emulex Fibre Channel Controller* on page 48.

Connecting the Copper Cables to the Fibre Channel Controller Board

You can connect the Fibre Channel Drive Enclosure (FCDE) directly to the fibre channel controller board with the included copper duplex cable.

To connect the copper duplex cable to the FCDE

1. Locate the copper duplex cable in the fibre channel kit. It has a 9-pin connector on both ends.

2. Attach one end of the cable to the controller board.

Fibre channel cable to the Avid MEDIArray

3. Attach the cable's other 9-pin connector to the primary (PRI) 9-pin connector on the link control card (LCC) in slot A on the back of the FCDE.

4. Secure both ends of the cable with the thumbscrews on the cable connectors.

For more information, refer to the Avid MEDIArray documentation.

The Machine Control Cable

The machine control cable included with Avid|DS consists of the DataMate DM 7015 or Rosetta Stone adapter, a 3-foot RS-232 cable, and a 10-foot RS-422 cable. The adapters perform an RS-232 to RS-422 signal conversion that lets you control a VTR from your Avid|DS workstation. The two cables are both standard 9-pin male-to-male data cables.

The adapters includes two diagnostic LEDs (power and data). The power LED shows a steady light when the adapter is receiving adequate power through the serial port. The data LED flashes whenever data is being transmitted or received. This helps you confirm that the serial port is active.

To assemble the machine control cable

1. Attach the RS-232 cable to the **RS-232 from PC** end of the adapter.

2. Attach the RS-422 cable to the **RS-422 to VTR** end of the adapter.

    The adapter label shows the correct orientation.

Peripheral Devices

Peripheral devices, such as VTRs and DATs, connected to your workstation allow you to capture and output video/audio material. You can control this equipment remotely with Avid|DS.

Video Connections

You can connect HD VTRs and video monitors to your workstation. Although you should use a house sync, Avid|DS can capture and output using an internal sync signal generated by the Avid Equinox Break-Out-Box.

The following procedures and illustrations explain each of these variations. For more information, refer to the documentation that comes with your peripheral devices.

> On a rack mount workstation, the input/output panel (which contains the COM 1 serial ports) is to the left of the expansion card slots when viewing the back of the workstation base unit.

To connect video devices

1. Connect the HD In, on the Avid Equinox Break-Out-Box, to the HD Out on the VTR.

2. Connect one of the HD Outs, on the Avid Equinox Break-Out-Box, to the HD In on the VTR.

3. Connect the other HD Out, on the Avid Equinox Break-Out-Box, to the HD In on the video monitor.

4. Set the VTR transport switch to Remote.

5. Plug the RS-232 end of your machine control cable into the COM 1 port on your workstation.

6. Plug the other end of the cable to the REMOTE IN port on the VTR.

> You should not substitute the machine control cable with any other cable. The supplied machine control cable is an RS-232 to RS-422 converter.

7. Plug one end of a BNC sync cable into the Avid Equinox Break-Out-Box's Genlock Input and the other into the house sync.

RS-232 cable to COM 1

RS-232 to RS-422 convertor

USB cable

RS-422 cable to VTR

Digital tether

Digital VTR

House sync

Avid Equinox Break-Out-Box

Video monitor
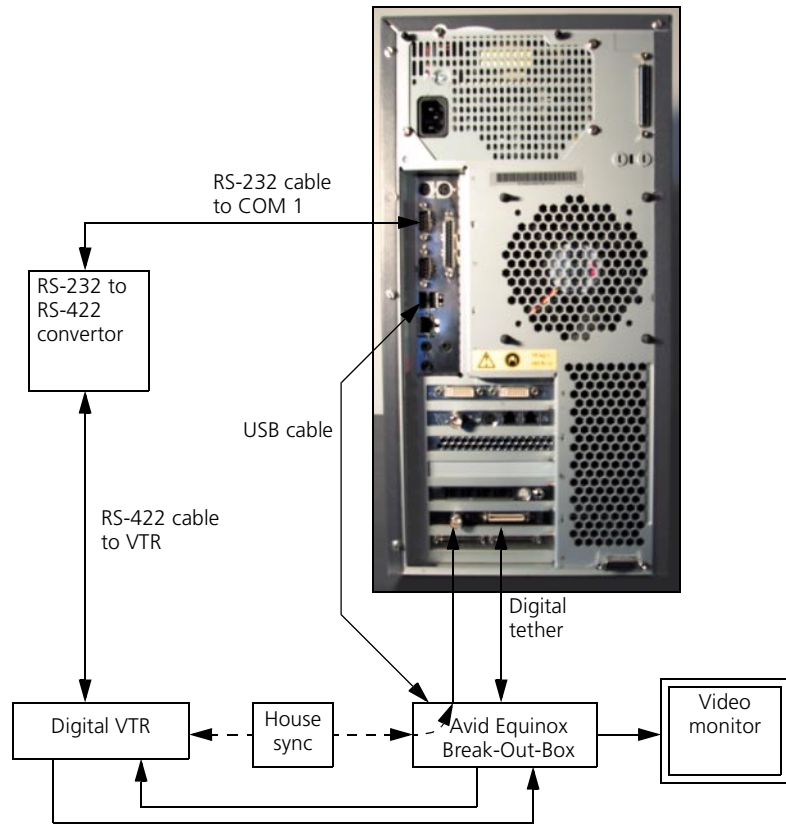
Using Internal Sync

Using internal sync lets you capture and play back video without the benefit of having a house sync signal. During capture, the Avid Equinox Break-Out-Box takes its sync signal from the SDI video signal. During output to tape, the VTR also accepts the sync signal from the SDI video signal.

To use internal sync for capture and playback

1. Remove the connection between the house sync and your VTR, as well as the connection between the house sync and Avid Equinox Break-Out-Box.

Do *not* loop the Sync Output from the Equinox Break-Out-Box to the VTR.

2. If your VTR has a Servo Reference option, set it to **Automatic.**

Audio Connections

The connections between the Mykerinos audio card, DUA II audio convertor, and VTR may vary depending on the type of audio equipment and VTR you have. Use the following illustration and steps as a guideline for connecting the Mykerinos audio card and audio equipment.
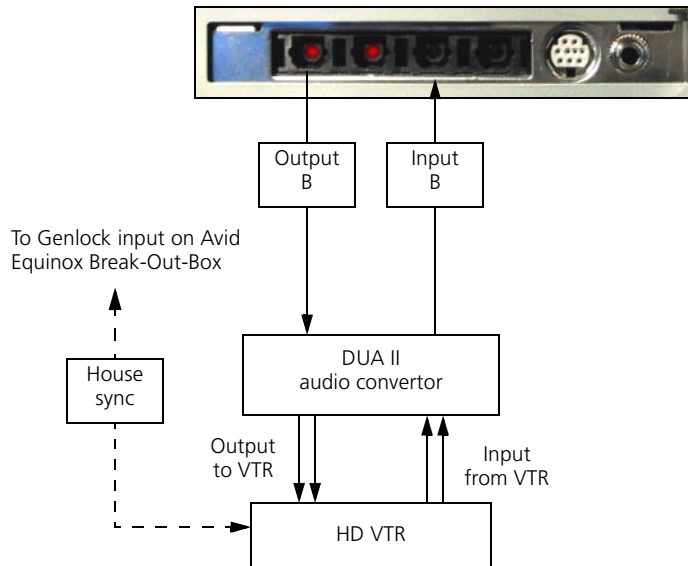
For information on specific port configurations, refer to the documentation that comes with your DUA II audio convertor, VTR, and Mykerinos audio card. For a description of the Mykerinos audio card connections, see *Card Placement* on page 32.

To connect your audio equipment

1. Make sure that the power switch on the DUA II is in the Off position.

2. Attach the power cord to the power connector at the back of the DUA II, and plug it into a power outlet.

3. Connect the Optical Output B to ODI In on the DUA II audio convertor.

4. Connect the Optical Input B to ODI Out on the DUA II audio convertor.

5. Connect the audio output ports on the audio convertor to the input ports on the VTR or audio device.

6. Connect the audio input ports on the audio convertor to the output ports on the VTR or audio device.

There is no external sync connection to the Mykerinos card as the sync signal is provided by the Avid Equinox PCI card via an internal connection.

DUA II Configuration

Connecting the optical cables from the DUA II to Input B and Output B allows the DUA II to get a sync signal directly from the Mykerinos card. Input A and Output A on the Mykerinos card are S/PDIF only and do not support a sync signal.

The DUA II has eight DIP switches which are located along the right side of the DUA II unit. For the DUA II to work properly with Avid|DS, these DIP switches must be configured as follows:

- Switches 1 to 4 must be ON (down)
- Switches 5 to 8 must be OFF (up)

On the front panel of the DUA II, you must also have the following settings:

- **Synchronization** (**ODI**): Allows the DUA II to detect a sync signal from the Mykerinos card via the optical cables.
- **Sample rate** (**Auto Detect**): Press and hold the red sample rate button for approximately one second to enable automatic sample rate detection of the audio format. Once the DUA II has detected and locked to the sample rate of the sync signal, the LED indicating the sample rate turns green.

For more information on configuring your DUA II, refer to the vendor documentation.

The Software Protection Key

The software protection key (dongle) provides copy protection for the software that is installed on your workstation. Avid|DS will not start unless the dongle identification number matches the information in the license file on your workstation's hard drive.

The dongle does not require batteries as it receives electrical power from the parallel port. So, before attaching the dongle, you should verify that the parallel port is active.

Your workstation is delivered with a license file already on the hard drive. This license file was used for testing prior to shipment. Your Avid|DS reseller will provide a valid license file for your dongle. For more information, refer to *Installing the License File* on page 45 of the Avid|DS Installation & Administration Guide.

On a rack mount workstation, the input/output panel (which contains the parallel LPT1 port) is to the left when viewing the back of the workstation base unit.

To install the software protection key

1. Attach the dongle to the parallel (LPT1) port on the back of the workstation.

2. Start the workstation and log on as an **Administrator**.

3. Right-click on My Computer and choose **Device Manager**.

4. Select **Ports** (**COM & LPT**) and select **ECP Printer Port** (**LPT1**).

5. Right-click on ECP Printer Port (LPT1) and choose **Properties**.

6. Click the General tab and verify that the Device Status says "**This device is working properly**".

7. If not, close the dialog box, right-click on ECP Printer Port (LPT1) and choose **Enable**.

Parallel port LPT1

Index