

AVOption & AVOption|XL Release Bulletin 5/19/00

For use with Pro Tools version 5.0.1

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INTRODUCTION

The purpose of this document is to help you to get the most out of AVOption or AVOption|XL by giving you specific tips for optimizing its performance. This information may change over time, so you are encouraged to visit www.digidesign.com for updates.

STORAGE

Initializing Drives

Workflow 1: Pro Tools with no Interchange – Applies to AVOption and AVOption|XL

In installations where Pro Tools will not be routinely sharing projects with Avid Media Composer systems, Express Pro Tools from ATTO (now provided with Pro Tools 5.01) should be used to initialize all drives – audio and video. Both HFS and HFS+ file systems are supported for audio drives. Only HFS is supported for video drives. HFS+ has not been fully tested with video drives. Use of striped audio drives is neither necessary nor supported by Digidesign at this time.

Special Configuration Requirements for AVOption|XL - Applies to AVOption|XL Only

When compression levels of 2:1 or 1:1 (uncompressed) are desired, an additional ATTO UL2D SCSI accelerator is required for video storage. In these configurations a 2-way stripe set across both UL2D SCSI channels is required for 2:1 compression, and a 4-way stripe set across both channels is required for 1:1 (uncompressed) capability. It is not necessary to use this configuration when 3:1 or higher compression is desired or when an EPCI-DC SCSI accelerator is used for video storage.

Installation Steps:

1. Connect either two or four drives across the two UL2D SCSI channels as instructed in the AVOption|XL Guide.
2. Use the ATTO ExpressRAID (optional from ATTO) software to select and create your stripe set.

NOTE: Do NOT use ExpressRAID to initialize your audio drives. ExpressRAID is NOT supported with audio drives.

3. Use ATTO ExpressPro-Tools to initialize all audio drives.

Workflow 2: Avid to Pro Tools

For projects originating on an Avid picture authoring system, such as Media Composer, a single HFS drive initialized with either ADU 2.1 or greater is supported. These drives may contain video and/or audio media files. Pro Tools with AVOption or AVOption|XL both support playback of both audio and video tracks from a single drive, as long as track count does not exceed the following:

AVOption:

- 1) One stream of AVR77 video
- 2) A maximum of eight audio tracks

AVOption|XL:

- 1) One stream of video at a compression level of 3:1 or higher
- 2) A maximum of eight audio tracks

When these drives are used in a Pro Tools session, additional audio tracks (beyond those imported from the Avid workstation) should not be added, for bandwidth reasons.

Drives initialized by Avid Drive Utility 2.1 or greater as two- or four-way stripes are supported in this workflow as well. It is recommended that drives be added to the SCSI channel dedicated for video (see below) to balance the demands on the SCSI system. Please note that Pro Tools can only recognize a maximum of seven drives per SCSI channel at this time.

Workflow 3: Pro Tools to Avid (to Pro Tools)

In workflows where a drive is being sent from a Pro Tools system to an Avid picture workstation, the drive should be initialized as HFS using Express Pro Tools (as in Workflow 1, above). In the case where the Avid system is inheriting files from Pro Tools, a “finder copy” of these files may be necessary to transfer them from the Pro Tools drive to an Avid/ADU2-initialized drive.

In the case where a drive is sent from a Pro Tools system to an Avid workstation so that files can be consolidated/copied to that drive for use on Pro Tools, the same procedure is required. The drive should be initialized as HFS in Express Pro Tools before being mounted on the Avid workstation.

As with Workflow 1, striping audio drives is unsupported at this time.

Avid Drive Utility

ADU2 is included with every Avid hard drive and is used on Avid systems to initialize drive systems. With the release of Pro Tools 5.01, Express Pro Tools has replaced FWB Hard Disk Toolkit and is compatible with ADU2 initialized volumes and stripe sets. There is currently no need to install ADU2 on Pro Tools systems.

Mounting ADU2 Volumes

There are no longer any special procedures to mount ADU2-initialized drives. These drives should mount automatically..

SCSI Cards with AVOption

ATTO ExpressPCI-DC or Digidesign SCSI64

Both of these cards are a dual-channel, single-ended SCSI accelerators and are the only accelerators qualified at this time for AVOption. Your performance will vary from our qualified baseline if you choose to run AVOption with another SCSI card installed. Some unsupported SCSI cards will not work at all with AVOption. Check the Digidesign website for up-to-date information about qualified AVoption configurations.

ATTO ExpressPCI-UL2D

This card is a dual-channel, LVD-capable SCSI accelerator. This card has not been fully tested with AVOption, but we are working on getting it qualified. Check the Digidesign website for up-to-date information about qualified AVoption configurations.

SCSI Cards with AVOption|XL

ATTO ExpressPCI-DC or Digidesign SCSI64

Both of these cards are a dual-channel, single-ended SCSI accelerators and are the only accelerators qualified for a single SCSI card configuration at this time for AVoption|XL. Your performance will vary from our qualified baseline if you choose to run with another SCSI card installed. Some unsupported SCSI cards will not work at all with AVOption|XL. Check the Digidesign website for up-to-date information about qualified AVOption|XL configurations.

ATTO ExpressPCI-UL2D

This card is a dual-channel, LVD-capable SCSI accelerator. This card is required, in addition to the ExpressPCI-DC, in AVOption|XL configurations that expect to use video compression levels of 2:1 or 1:1 (uncompressed). This card is currently not qualified for use with audio storage. Check the AVOption & AVOption|XL Guide for instructions in setting up configurations using multiple SCSI cards.

Flashing SCSI ROM with ATTO Express Pro Tools

There is a utility, which is supplied with every ATTO SCSI card and now included with version 5.01 of Pro Tools software, named (coincidentally) Express Pro Tools. This utility is also available at the ATTO website, www.attotech.com, in the “Downloads” area.

This utility allows you to flash the ROM on the SCSI card. Digidesign highly recommends that the firmware be set in the following manner on SCSI channels where audio storage are connected:

1. Once your system is booted and all your drives are mounted, launch Express Pro Tools.
2. Double click on a media drive

3. Look for a pop-up menu called "Synch Rate"
4. Select "20 (10)" (20 MB/sec at 10 MHz)
5. Click on "Apply to All" (sets the card for all drive ID's on that bus)
6. Repeat (if necessary) for the other bus
7. Quit Express Pro Tools
8. Restart

These settings are optimized for the size and frequency of SCSI transactions demanded by Pro Tools.

NOTE: You do not need to apply these settings to the 2nd SCSI card if one is installed for video media with AVOption|XL.

Disk Drives

Audio Drives

Any hard drive qualified for use as an audio drive with Pro Tools is also supported for use on an AVOption or AVOption|XL equipped Pro Tools system. Visit the Digidesign website for up-to-date details about qualified drives.

Video Drives - AVOption

At this time, only certain Avid-family product lines have been qualified: Avid RS drives, DigiDrives, IS Pro drives, and IS Plus drives. Visit the Digidesign website for up-to-date details about qualified drives.

NOTE: At this time, the Avid MediaDock drives are not supported for use with AVOption.

Video Drives – AVOption|XL

At this time, only certain Avid-family product lines have been qualified: Avid RS drives, DigiDrives, IS Pro drives, and IS Plus drives. LVD (Low Voltage Differential) drives are a newer type of drive available in some of the models listed above. LVD type drives are the only drives qualified for use with AVOption|XL when compression levels of 2:1 or 1:1 (uncompressed) are desired. Visit the Digidesign website for up-to-date details about qualified drives.

NOTE: At this time, the Avid MediaDock drives are not supported for use with AVOption|XL.

Shared Storage

At this time, no shared storage systems have been officially qualified by Digidesign for use with Pro Tools with or without AVOption or AVOption|XL. Pro Tools and AVOption may, however, perform acceptably in a variety of shared storage configurations. Storage systems which appear to Pro Tools as local "block level" devices are in use by some Pro Tools and AVOption users, but they have not been tested by Digidesign's internal test team and are, therefore, unqualified.

Digidesign and Avid are working together toward qualification of Pro Tools and AVOption/AVOption|XL on Avid's Unity MediaNet storage environment. As of this writing, Pro Tools and AVOption/AVOption|XL can copy to/from Unity workspaces at the finder level but cannot record or playback from these workspaces directly.

Visit the Digidesign website for up-to-date details about qualified shared storage systems.

Media Management - AVOption

Separate Audio and Video Busses Recommended

While it is not strictly required, we do recommend that users dedicate one SCSI channel for audio drives and one SCSI channel for video drives. Following this recommendation will help to keep the data bandwidth balanced on your system (and will keep you from having to constantly move files around to consolidate bandwidth).

Attach Media Composer Interchange Drive to the Video Bus

In workflows where the Pro Tools system is mounting an interchange drive originated by an Avid picture workstation, it is recommended that this interchange drive be installed on the SCSI bus dedicated to video data.

Don't Add Audio to an ADU2 Interchange Drive

In workflows where the Pro Tools system receives an ADU2 drive with data from an Avid picture workstation, it is best not to record additional audio files/tracks onto this drive. See the section of this document dedicated to drives and interchange for more details.

Media Management – AVOption|XL

Separate Audio and Video Busses Recommended

As with AVOption, it is recommended that users dedicate one SCSI channel for audio drives and one SCSI channel for video drives. This configuration is adequate for AVOption|XL users that desire only compression levels of 3:1 or higher.

In the case of customers who desire compression levels of 2:1 or 1:1 (uncompressed) an additional separate dual-channel SCSI card is required for video drives. These configurations require that striped drives are split across the SCSI busses. Instructions for multiple SCSI card configurations can be found in the AVOption & AVOption XL Guide.

Attach Media Composer Interchange Drive to the Video Bus

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Don't Add Audio to an ADU2 Interchange Drive

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CONFIGURATION

Mac CPU's

9500 / 9600

AVOption has been tested with Apple Macintosh 9500 CPU's with processor speeds as low as 150 MHz. The overall performance of your Pro Tools system will be greatly improved with higher-speed CPU's. For optimal responsiveness, we strongly recommend you use a CPU with at least a 300 MHz clock speed with AVOption.

With the 9500 and 9600 CPU's, it is required that the ABVB and Janus boards be mounted inside the CPU, not in a chassis. Refer to the AVOption & AVOption XL Guide for precise installation instructions.

The Macintosh 9500 is not supported with AVOption|XL

Blue & White G3

Both AVOption and AVOption|XL have been tested with Apple's "Blue & White" G3's of various speeds. These CPU's require a Magma or Digidesign expansion chassis. Specific chassis types are covered later in this document. Refer to the AVOption & AVOption XL Guide for precise installation instructions. A small number of Blue & White G3's were shipped with SCSI boot drive mechanisms. We do not recommend the use of these CPU's with Pro Tools (with or without AVOption or AVOption|XL).

G4 / 350

The Apple G4/350 is qualified for use with both AVOption and AVOption|XL. As with the "Blue & White" G3, a Magma chassis is required. Refer to the AVOption & AVOption|XL Guide for precise installation instructions.

G4 / 400, 450 & 500

The Apple G4 systems up to 500 MHz are qualified for use with both AVOption and AVOption|XL. As with the "Blue & White" G3, a Magma chassis is required. Refer to the AVOption & AVOption|XL Guide for precise installation instructions.

RAM Requirements

AVOption and AVOption|XL require no more RAM than does Pro Tools 5.0, which currently requires 192 MB. As with Pro Tools, 60 MB should be allocated to Pro Tools and 50 MB to DAE. Pro Tools' and DAE's default memory allocation settings after initial installation are too

low for AVOption and AVOption|XL and must manually be increased. Consult your Pro Tools documentation or the Digidesign website for details.

USB Floppy Drive

As with Pro Tools, a USB Floppy Drive is required for use with Blue & White G3 and G4 systems.

ABVB's VGA Output – *Applies to AVOption Only*

AVOption includes two PCI cards, Janus and ABVB. The ABVB card handles all the video I/O (see AVOption & AVOption|XL Guide for details). The ABVB card also includes a VGA monitor output, which can be used to drive a computer monitor. This monitor output is always “autodetected” by the Macintosh OS and may become monitor #1 by default in your system.

The VGA output on ABVB cannot be disabled at this time. Since this VGA output cannot be disabled, you will always see two monitors represented in the Monitors & Sound Control Panel.

Deciding Whether to Connect ABVB's VGA Output

There are benefits and drawbacks to using the VGA output available on the ABVB card. The main benefit of connecting ABVB's VGA output to a computer monitor is that ABVB can then draw a floating window which displays the video frames directly onto a VGA monitor without passing this information over the Macintosh PCI bus. This window is called the Pro Tools Movie Window (see the AVOption & AVOption|XL Guide for details).

The main drawback of connecting a VGA monitor to ABVB is that adding or dragging any other elements besides the Pro Tools Movie Window onto this monitor (other Pro Tools windows, for example) may cause PCI bus overruns. This is especially problematic when a window is partially drawn on one monitor and partially drawn on the other monitor.

The Monitors & Sound Control Panel

ABVB's VGA output may default to the #1 monitor position. Regardless of how you arrange the monitors in the Monitors & Sound Control Panel, ABVB may become the startup monitor (and the system monitor). It is recommended that the monitor connected to your Macintosh's monitor output be designated as the system and startup monitor (not the monitor attached to ABVB). See the instructions below for more details.

ABVB's VGA Output and Millions of Colors

The monitor connected to ABVB's VGA output should always be set to “millions of colors.” Other settings will cause distortion of the video frames displayed on this monitor.

Configurations with Two Monitors (Macintosh Monitor and ABVB Monitor)

If you plan to configure your system with one VGA monitor connected to ABVB's output and one monitor connected to the Macintosh's primary monitor output, you may use the Monitors & Sound Control Panel to specify which monitor is the system monitor and/or startup monitor. Your goal is to make sure the monitor connected to your Macintosh's monitor output is designated as the system and startup monitor.

If the monitor connected to ABVB has defaulted to being designated as the system and startup monitor, you will need to:

1. Open the Monitors & Sound Control Panel and click on the Identify Monitors button. You may see that the monitor connected to ABVB has defaulted to the monitor #1 position and is also the system and startup monitor (look for the menu bar across the top of the first monitor icon and the Macintosh icon in the middle of the monitor icon).
2. If this is the case, you can drag either the menu bar icon or the startup icon between the two monitor icons. Next time you restart your computer, the new assignments will go into effect.

If you plan to run with a two-monitor configuration including ABVB's VGA monitor output, you should be careful to follow the performance suggestions in the Usage Tips section of this document.

Configurations with One VGA Output

If you plan to run your Pro Tools AVOption system with only one VGA monitor, you will want to designate the monitor connected to your Macintosh's video card as the system and startup monitor. If the monitor connected to ABVB has defaulted to being designated as the system and startup monitor, you will need to:

1. Connect your monitor temporarily to ABVB's VGA output
2. Open the Monitors & Sound Control Panel and click on the Identify Monitors button. You may find that the monitor connected to ABVB has defaulted to the monitor #1 position and is also the system and startup monitor (look for the scroll bar across the top of the first monitor icon and the Macintosh icon in the middle of the monitor icon).
3. Drag the menu bar icon and the startup icon from the ABVB monitor over to the Macintosh monitor.
4. You may then restart your computer with your VGA monitor connected to your Macintosh's VGA output. This monitor will now come up as the system monitor and startup monitor.

This monitor configuration recipe may be necessary when you first install AVOption and after every time you zap the "P RAM" of your computer.

Dual Monitor Display Cards

Appian Jeronimo 2000 Dual Monitor AGP Graphics Card

Appian Graphics manufactures a dual monitor AGP graphics card that is compatible with Macintosh G4 machines that feature an AGP graphics system. This card effectively removes all display data from the PCI bus allowing for much better PCI bandwidth performance and track count. This board is qualified for use with all AVOption and AVOption|XL configurations where an AGP based Macintosh G4 is used. Refer to Appian's website (www.appian.com) for more information.

The Appian Jeronimo 2000 for Macintosh board is the only dual monitor display card currently qualified for use with Pro Tools.

Expansion Chassis

Digidesign 13-slot Expansion Chassis

The Digidesign 13-slot Expansion Chassis is qualified for use with both AVOption and AVOption|XL. Refer to the AVOption & AVOption|XL Guide for precise configuration instructions.

Bit 3 – Applies to AVOption ONLY

Bit 3 chassis may be used only with AVOption and in configurations with 9500 or 9600 CPU's. AVOption's two PCI boards (ABVB and Janus) must never be installed in a Bit 3 chassis. They must be installed in a 9500 or 9600 CPU's internal PCI slots when run in a configuration with Bit 3 chassis **ONLY**. Refer to the AVOption Guide for precise installation instructions. AVOption|XL is not supported with a Bit 3 chassis in any configuration.

WARNING: If you run the ABVB and Janus boards in a Bit 3 chassis, you run the serious risk of damaging them.

Magma 7-slot and 13-slot chassis with AVOption

The Magma 7-slot may be used with AVOption and any of the qualified CPU's. The AVOption PCI cards (ABVB and Janus) may be installed in this chassis only when the CPU is a "Blue & White" G3 or G4. With 9500 and 9600 CPU's, the AVOption boards must be installed in the CPU's internal PCI slots. Refer to the AVOption & AVOption|XL Guide for precise installation instructions.

If you install the AVOption PCI boards (ABVB and Janus) in either Magma chassis, you must install the additional cooling fan, Digidesign part number MC201, in the chassis.

Magma 7-slot and 13-slot chassis with AVOption|XL

The Magma 7-slot chassis is not supported with AVOption|XL. Only the Magma 13-slot chassis may be used with any of the qualified CPU's. The AVOption|XL PCI card may be

installed in this chassis only when the CPU is a "Blue & White" G3 or G4. With 9600 CPU's, the AVOption|XL's board must be installed in the CPU's internal PCI slots. Refer to the AVOption & AVOption|XL Guide for precise installation instructions.

If you install the AVOption|XL PCI board in a Magma chassis, you must install the additional cooling fan, Digidesign part number MC201, in the chassis.

Slot Order

There are several supported slot order configurations for AVOption and AVOption|XL. Refer to the AVOption & AVOption|XL Guide for details.

QuickTime

Pro Tools 5.01 supports QuickTime 4.0 for playback of movie files in a floating window on the Macintosh. Two QuickTime PCI cards are also qualified for use with Pro Tools at this time: the Miro DC30plus and the Aurora Fuse. Of these two cards, only the DC30plus appears to work with the ABVB/Janus cards in an AVOption-equipped Pro Tools system.

When you install the Aurora Fuse card, some inits are installed in your Extensions folder (in the System Folder). These Fuse inits should be removed (followed by a reboot) when using AVOption.

It is generally recommended that QuickTime cards not be installed in your Pro Tools system at the same time as AVOption or AVOption|XL, although you may find adequate performance. As more testing with these cards is performed, more information on their ability to co-exist with AVOption or AVOption|XL may be posted on our website.

Note: Neither AVOption nor AVOption|XL can capture or play QuickTime movies. A qualified QuickTime PCI card is required for this.

Universal Slave Driver

Both AVOption and AVOption|XL require Digidesign's Universal Slave Driver sync peripheral. For proper, near-sample accurate synchronization, all aspects of your Pro Tools system must be locked to the same NTSC or PAL black burst source. This source must feed:

1. The Ref Video input of USD (which must be set to Ref Video for clock reference)
2. The Gen Lock input of ABVB
3. The Reference Inputs of any external video source or destination, such as a VTR

Selecting NTSC vs. PAL

Note: When switching between NTSC and PAL formats, you must change settings in three places:

1. In the Pro Tools Session Setup Window, the correct frame rate (25, 29.97 DF or NDF) must be selected
2. The movie track itself must be set to the appropriate format (PAL or NTSC) if you are going to capture video with AVOption. This setting can only be modified when the movie track is armed for record. The PAL/NTSC format popup is available in the I/O panel on the movie track (select Display>Edit Window Shows>I/O View to see this panel).
3. The USD must be set to (and locked to) the appropriate format (PAL or NTSC).

MachineControl

Both AVOption and AVOption|XL can be run concurrently with Digidesign's MachineControl option. MachineControl can be used to control an external deck during video capture or playback. See the section of this document dedicated to capturing non-timebase-corrected sources for more information.

USAGE TIPS

PCI Bus (6042 errors)

When the demands of a session file cause Pro Tools to exceed the PCI bus bandwidth of the Macintosh CPU, playback of the session is halted and a "-6042" error is posted on the

screen. The AVOption or AVOption|XL hardware put more demand on the PCI bus in your Pro Tools system, making it essential to manage this bandwidth carefully.

In most configurations, Pro Tools and AVOption or AVOption|XL will record or playback one stream of video picture and 32 tracks of 48k/24-bit audio without PCI bus bandwidth problems. There are specific configurations depending on the desired video quality. Refer to the AVOption & AVOption|XL Guide for specific configuration instructions.

For sessions with higher track counts, you should take advantage of the following tips designed to reduce PCI bus overhead, regardless of what CPU you are using:

Arranging Monitors – Applies to AVOption Only

The ABVB board includes a VGA output, which can drive a computer monitor. See the section of this document in the Configuration section devoted to information about this output. Since this VGA output cannot be disabled, you will always see two monitors represented in the Monitors & Sound Control Panel.

Regardless of how many monitors you plan to run in your Pro Tools system, it is recommended that you arrange the two monitor icons in the Monitors & Sound Control panel so that the ABVB monitor's lower left corner is touching the main (Macintosh) monitor's upper right corner.

This configuration will help keep you from accidentally causing a window to be partially drawn on the ABVB monitor (a source of unnecessary PCI bus overhead).

ATI Graphics Accelerator Init

For AVOption or AVOption|XL configurations with G3 or G4 computers, it is recommended that you remove the ATI Graphics Accelerator Init from your Extensions Folder. Removing or disabling this init will improve the performance of AVOption with no detriment to the overall performance of your G3 or G4.

Desktop Pictures

PCI bus traffic is increased unnecessarily when desktop pictures are drawn in the background (on the Finder desktop). For this reason, it is recommended that no desktop pictures be used on your AVOption-equipped Pro Tools system.

Boot ROM Update for OS 8.6

Shortly after the Blue & White G3 began shipping, Apple released an updated Boot ROM for use with these machines and OS 8.6. If you are running Pro Tools with AVOption or AVOption|XL in a Blue & White G3 configuration, make sure you have the latest Boot ROM (available as a download from the Apple website).

No Visible Desktop Pixels

One way to restrict PCI traffic is to arrange your Pro Tools windows such that no single pixel from the desktop (Finder) is visible while Pro Tools is running. PCI bus traffic is reduced when the CPU doesn't have to update the desktop's graphics data.

ABVB Monitor Output for Movie Window Only – Applies to AVOption Only

As mentioned earlier in this document, the ABVB card's VGA output can be used for any Mac or Pro Tools window, but this may cause significant PCI bus traffic on your system and, therefore, 6042 error messages. If you find this to be the case with your configuration, you should use the ABVB monitor only to view the Movie Window, which is drawn directly by the ABVB hardware, without adding any PCI bus traffic.

Using the Appian Jeronimo 2000 Dual Monitor AGP Graphics Card

Appian Graphics manufactures a dual monitor AGP graphics card that is compatible with Macintosh G4 machines that feature an AGP graphics system. This card effectively removes all display data from the PCI bus allowing for much better PCI bandwidth performance and track count. This board is qualified for use with all AVOption and AVOption|XL configurations where an AGP based Macintosh G4 is used. Refer to Appian's website (www.appian.com) for more information.

The Appian Jeronimo 2000 for Macintosh board is the only dual monitor display card currently qualified for use with Pro Tools.

Performance Guidelines

Virtually all the testing for AVOption and AVOption|XL was done with a baseline of 32 tracks of 24-bit/48k audio and one stream of the highest resolution video data (record or playback) of which each product is capable (AVR 77 for AVOption and 1:1 or uncompressed for AVOption|XL). These test configurations generally included one drive for every 16 tracks of audio in addition to separate storage devices for video. One way to achieve higher track counts is to dedicate more drives to the audio tracks.

On a supported configuration, you should be able to easily achieve this performance baseline, even with a high degree of edit density on each track. The higher the edit density, the more heavily taxed will be the storage subsystem.

You may find much better results than this baseline, since Digidesign's performance tests are designed to stress the storage subsystem more heavily than the average "real world" usage. In several cases, our test group was able to continuously record or playback 64 audio tracks and picture simultaneously.

Capturing and Time Base Correction

Most professional videotape machines have built-in timebase correctors, which stabilize their video output. Some older machines do not have timebase correction. Consult the manual for your videotape machines for details.

While AVOption should allow you to capture video from non-time base corrected sources, we highly recommend you use timebase-corrected sources whenever possible.

If you are capturing video manually (i.e. not into a selection) and the source is not time base corrected, you should start playback of the video deck first to stabilize the signal before beginning recording. If your configuration does not feature timebase correction, make sure that your sync generator is connected to the external sync or reference video input on your video deck and that the deck's sync selector switch is set to "external sync" or "reference video".

AVOption|XL **REQUIRES** that a time base corrected source be used at all times.

Capturing and Stationary Playhead

When capturing video with Scrolling Options set to "Continuous Scrolling with Playhead," AVOption should always be set to Block Mode. If you set Pro Tools to Frames view when this scrolling option is enabled, you will get an error message while capturing video.

Capturing and Approximate Time Left

The approximate record time in the I/O View of the Movie Track is only an estimate. Because both AVOption and AVOption|XL use variable compression technologies, the actual record time depends on the nature of the specific material you are recording. This approximate record time may not be an accurate reflection of your available record time but is intended to give you a rough idea.

The calculation of estimated record time is based on the highest data rate possible for that resolution and is, therefore, pessimistic. If the estimated time says ten minutes, you may actually have room for fifteen minutes of recording.

Still, Pro Tools uses this estimated record time value to allocate drive space before a recording. Because of the inaccuracies inherent in this estimation process, the following scenario is possible:

1. The estimated record time displays 15:00
2. You record 15:00 of video onto the selected drives (with the assumption that they will become full)
3. After this recording the drives are not full and the estimated record time now says there are 5:00 of available record time.

There is one exception to this and that is when using AVOption|XL at a compression level of 1:1 or uncompressed. This video is just as it describes, uncompressed, and therefore uses the same data rate regardless of the incoming image.