



Iomega Buz

Objective: This document will provide technical information regarding the Iomega Buz. It will provide the necessary information to fully support and troubleshoot the Iomega BUZ product.

Section 1: Introduction and Specifications

What is Buz?

BUZ is a combination Ultra SCSI Controller/Video Capture card that will allow users to capture, edit and share videos, digital photos and sound using a computer. Some of the primary uses include:

- ❖ Capture Multimedia from a variety of sources (DVD, CD-ROM, VCR) into the PC. This includes full-motion video, sounds, digital pictures and music.
- ❖ Edit captured multimedia files using MGI® VideoWave™, PictureWorks™ HotShots™ and Iomega RecordIT™.
- ❖ Buz also provides all of the benefits of a fully functional, Ultra SCSI card that can be used to connect Iomega Jaz and Zip drives, along with other SCSI devices.

Box Contents

Iomega Buz can be divided into two main categories: hardware and software. This section contains brief descriptions regarding the content of the Buz product.



In the box, the user will find the following hardware:

The Buz Card

The BUZ card is an Ultra SCSI, 32bit PCI interface card combined with video capture capabilities. (See the BUZ Anatomy section for more BUZ card specifications.)

The “Buz Box” or “BOB” (Break-Out-Box)

The BUZ Box houses all of the Audio and Video connections, both in and out, and brings them to the desktop for easy access. This eliminates the need to reach behind the PC every time the Buz is used. The BUZ Box includes In and Out connections for Left and Right stereo, Composite Video, and S-Video.

Misc. Items

Audio/Video RCA cable
Buz Quick Start Guide
Installation Guide
User's Guide
Install CD and Tutorial CD



BUZ ships with a variety of bundled software packages. These include:

MGI® VideoWave™ SE Plus

This application is the heart and soul of Buz. It is the easy way to capture and edit video by adding transitions, titles and mixing audio to create home video productions that can be exported to Zip, Jaz, VCR tape or the Internet.

PictureWorks™ HotShots™

HotShots™ allows the user to view digital photos with a PC, create multimedia catalogs, edit images, create photo pages, print images or send them over the Internet.

Iomega RecordIt™

Iomega's RecordIt allows PC users to record music and voice to the PC very easily. When used in conjunction with MGI VideoWave, the user can mix in voice-overs or CD audio tracks and include them in production videos.

PictureWorks NetCard™

NetCard™ gives the user the ability to share multimedia files created with Buz with others via the Internet. Use NetCard to send digital postcards of captured images (either video or still images) to friends, family, or co-workers.

Buz Anatomy and specifications

SCSI Specifications	
SCSI Chipset Manufacture	AdvanSys
Technology	Ultra SCSI
Interface	32bit PCI bus mastering, PCI 2.0 compliant, Plug and Play Onboard BIOS for bootable operation.
Transfer Rates	Up to 20MB/sec sustained
Connectors	HD50 external and 50pin internal ribbon
Video Specifications	
Video Chipset Manufacture	Zoran
Compression	Hardware Motion JPEG (MJPEG)
Resolution	Up to 720x480 at 30 frames per second (60 fields) NTSC Up to 768x576 at 25 frames per second 950 fields) PAL/SECAM Up to 24bit (16 million) colors
Video Data Rate	Up to 6MB/sec sustained
Capture Format	AVI
Production Format	AVI,MOV,MPEG output format
Video Playback	Playback of MJPEG AVIs via onboard hardware Playback of MJPEG AVIs via software on non-BUZ equipped
Still Images	Capture up to 720x480 at 24bit color from video
Video In/Out	Composite and S-Video (Mini DIN)
Audio In/Out	Stereo RCA pass thru to existing industry standard sound card Audio synchronization and capture at up to 16 bit stereo, 44.1 KHz

Section 2: Software Installation

The Buz card installation can also be divided into the same two sections: software and hardware. It is important to note that for proper Buz installation, install the software first, and then install the necessary hardware.

Installation of Buz Software

To install the Buz software, place the CD marked *Start Here* (Disk 1) into the CD-ROM drive. If the auto-insert notification is turned off, from the root directory of the CD-ROM, run **Start.exe** to install all of the Buz software.

By default, VideoWave™, HotShots™, NetCard™, and RecordIt™ will automatically install. Once the software is installed, the Install Tutorial will play. It will walk the user through the hardware installation process.

Note: Buz is only supported under Windows '95. It will not be necessary to work with other operating systems when supporting the Iomega Buz card. Users may want to use Buz in other operating systems. However, Iomega does not provide hardware drivers for Buz video in any other operating system.

Where does the Buz software install?

Buz software will install to the default directory C:\Program Files. Each software application will be installed to its respective directory:

- VideoWave – C:\Program Files\MGI
- HotShots – C:\Program Files\HotShots
- NetCard – C:\Program Files\NetCard
- RecordIt – C:\Program Files\RecordIt

Driver installation

The following drivers are installed to the following locations:

➤ Buz Motion JPEG specific files.

- Simovl16.dll C:\Windows\system
- Buz.inf C:\Windows\Inf
- I2xirq.vxd C:\Windows\System
- BuzDiag.exe C:\Windows\Start Menu\Programs\Startup
- BuzVid.exe C:\Program Files\Iomega Buz
- H22.ini C:\Program Files\Iomega Buz
- Ctdmamem.dll C:\Windows\system
- H22capt.dll C:\Windows\system

- H33drv.dll C:\Windows\system
- Vdmamemd.vxd C:\Windows\system
(This file is added to the [386Enh] section of the System.ini.)

➤ MGI Software drivers installed

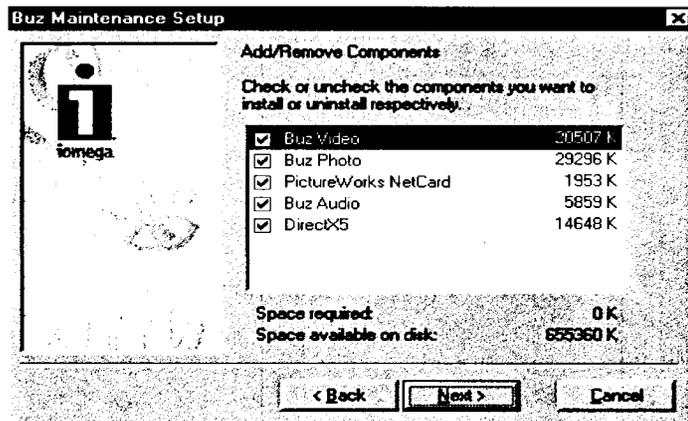
- Mgi16.dll C:\Windows\system
- Mgi32.dll C:\Windows\system
- H22.ini C:\Windows

➤ Buz SCSI drivers

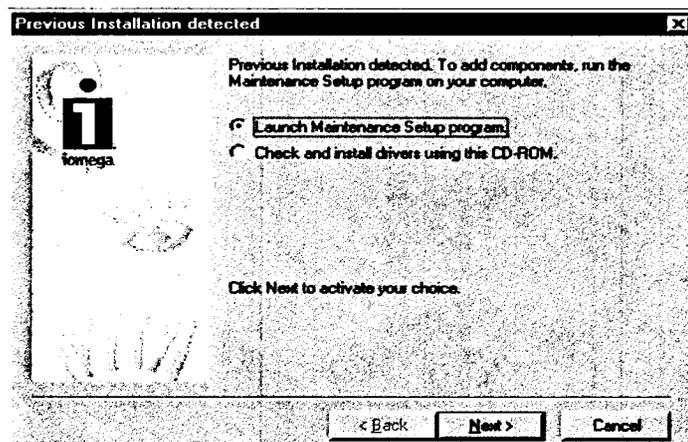
- Asc.mpd C:\Windows\system\iosubsys
- Buzscsi.inf C:\Windows\Inf

Custom Installation

Custom installation gives users a choice on which components or applications to install. This option is also available from the Buz Setup icon in the Iomega Buz program group.



Check and install drivers using this CD-ROM checks for previous driver versions and gives the user the opportunity to update them.



Section 3: Hardware Installation

This section covers the hardware installation of the Buz card and Buz Box. It is important too keep in mind, however, that the software must be installed first.

After the installation of the Buz software, the installation video will automatically run from the Buz CD-ROM. This video will help the users properly install the Buz card.

Buz Card

After installing the software, turn off the computer and remove the computer cover. Most computers have three or four rear panel screws holding the cover. If removing the cover is unclear, check the computer manual.

Before handling the Buz card or any internal computer components, touch a grounded metal object to discharge any build up of static electricity. If the computer is still plugged in, the metal case works nicely.

Because Iomega Buz is a SCSI card as well as a video capture card, it is suggested that users remove any SCSI adapter cards that may already be installed in the computer. Any existing SCSI devices may be connected to the Buz card

Note: If the user is booting from a SCSI hard drive, DO NOT remove the SCSI card without fully researching the implications.

If installing the Buz card into a tower computer, it may be easier to lay the computer on its side, so as not to push the computer over while pressing the Buz card into place.

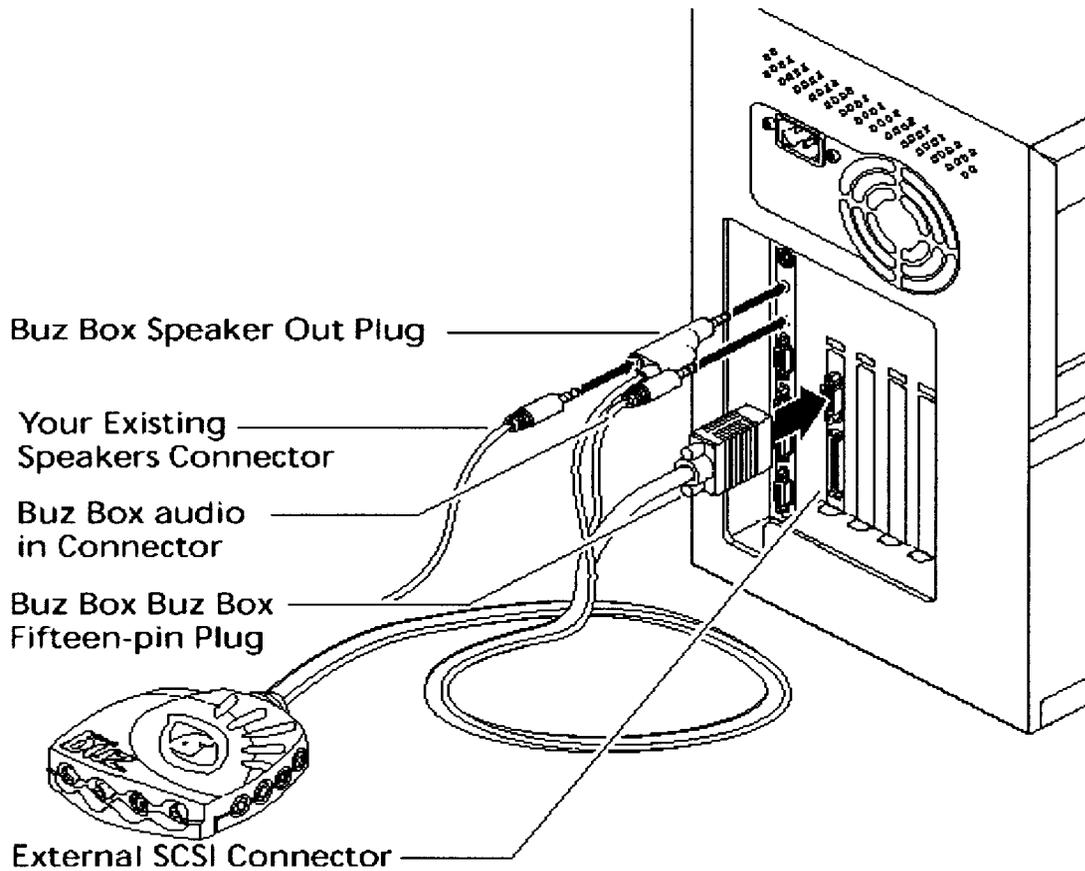
Remove the Buz card from its packaging. Be sure to handle the card by its edges. When laying the card down, place it on the static-proof bag it was packaged in.

Gently and firmly push the connector of the Buz card into the PCI expansion slot. Ensure that the bracket is flush against the chassis and secure the card in place with the slot cover screw.

If the user will be connecting any internal SCSI devices to the Buz card, suggest they connect them at this time. Replace the computer cover and proceed to install the Buz box.

BUZ Box

Before connecting the Buz box, touch a grounded metal object to discharge any build up of static electricity. If the computer is still plugged in, the metal case will work nicely.



The fifteen-pin connector coming from the Buz box goes to the back of the Buz card. It is called a 'D' connector, because it is slightly D shaped. Look at this plug carefully and ensure it is connected in the right orientation. Take care not to bend any pins.

The second, longer connector on the back of the Buz card is the adapter for external SCSI devices (such as Jaz and Zip drives). The Buz card allows the connection of a large variety of SCSI devices. See the SCSI device documentation for proper connection information. As with the Jaz Jet PCI cards, if the external SCSI device does not match the connector on the back of the Buz card, it may be necessary to purchase a quality cable converter.

The larger of the two audio connectors is the Audio out 'Passthrough' connector and goes on the back of the computer. The connection on the back of the computer may have an 'Audio Out' or 'Speaker Out' symbol on it or it may say 'Speaker Out' depending upon the system. If the user has external speakers, disconnect and reconnect it into the back of

the audio out 'Passthrough' connector so the speakers will work. Refer to the above diagram for proper connectivity.

The smaller of the two audio connectors is the 'Audio In' and goes into the back of the computer. This connection may have an 'Audio In' symbol, it may say 'Audio In' or 'Input', depending upon the system. The microphone connection is also 'Audio in'. Look at the system carefully to determine the best-input connection.

Note: If the sound card has both 'Audio In' and 'Microphone', use the 'Audio In' connection for best audio results.

Once the Buz box has been connected to the back of the computer, you start the system. As the computer boots, have the user listen for the Windows '95 startup sound to make sure the speakers are properly connected.

Software Installation

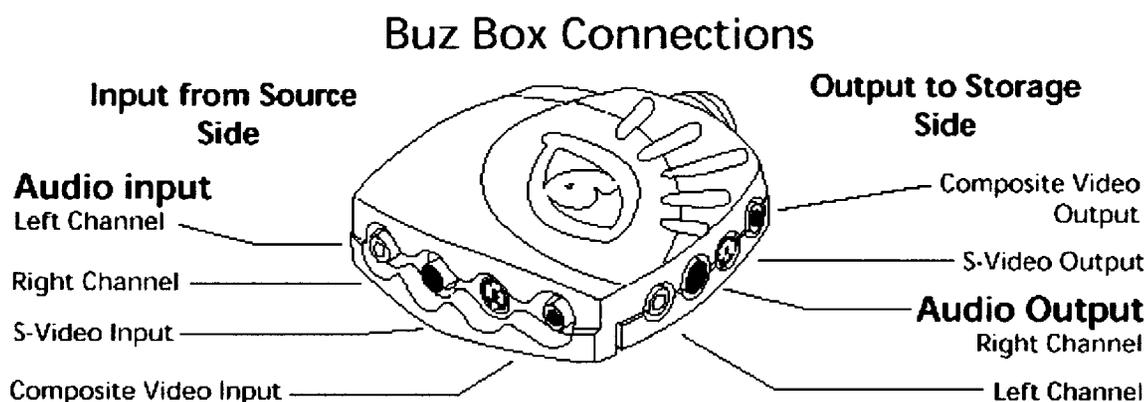
When the computer is restarted, Windows '95 will display the message: 'Found New Hardware: *PCI SCSI adapter*', and then will identify it as *Iomega Buz PCI SCSI Host Adapter* and will automatically load the drivers.

It will then identify a *PCI Multimedia Video Device* and identify it as *Iomega Buz Multimedia Producer* and will automatically load drivers for this also. It will then be necessary to restart the computer.

Once the computer is rebooted, the Buz card is ready to use. As a last verification, make sure the user is getting sound from the computer (play a sound or listen for the startup sound) and that all SCSI devices are working properly.

Section 4: Audio/Video Cabling

Note: Do not connect the audio equipment to the composite video input or output jack. The system will not work properly.



Input Devices

Connect the Camcorder, VCR, TV, etc., into the 'IN' side of the Buz box.

Output Devices

Connect the 'OUT' connectors from the Buz box to the 'IN' connectors on the back of the VCR. (Add a TV if you want to monitor output.)

Audio input/output

The Buz box uses universal color code for video and audio connectors. The left-channel is WHITE and the right-channel is RED. Simply match the colors for proper connection. If the electronic device has a single audio connector for sound, connect it to the Left or WHITE channel. The RED connector, or right channel, will not be used. Do not cross-connect the channels, (right to left, left to right). It won't damage the system but it could be confusing, or the user may not get the best recording possible.

S-Video input/output

The four-pin S-Video input is used with some video equipment such as VCRs, video cameras or televisions and is video only input or output. This plug has a small 'key' on the connector that directs the user to plug it in correctly. Look closely at the S-Video connector and plug for correct orientation. Ensure that the S-video cable is a four-pin S-Video cable connecting to the four-pin S-Video jack. Audio connections are still needed.

Note: This cable is not included in the Buz package but may be purchased anywhere video equipment is sold.

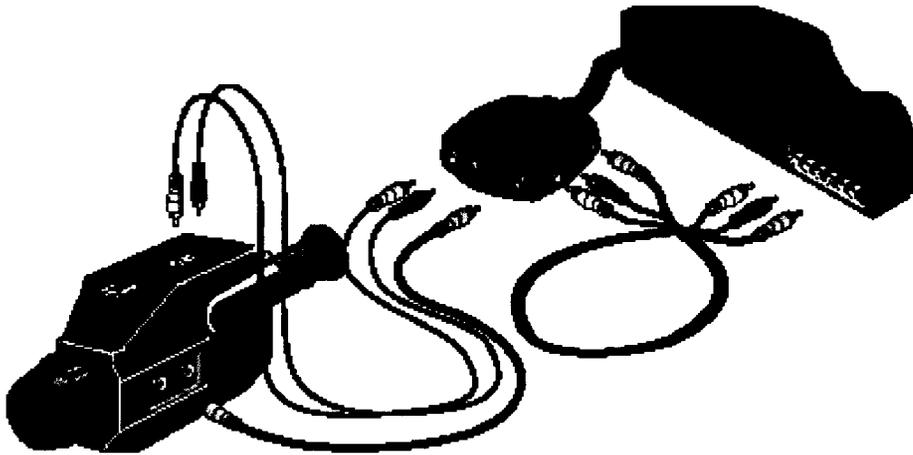
If the VCR or Camcorder has an S-Video connector, use it. Generally, S-video provides higher quality pictures than the composite connection.

Composite Video input/output

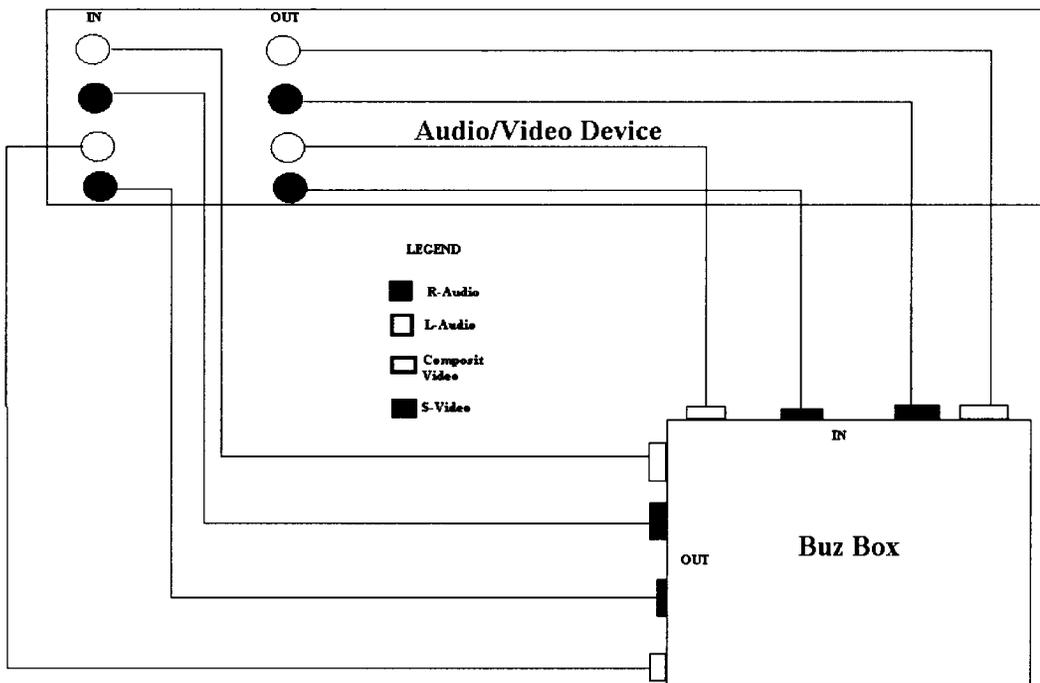
The RCA connector for composite uses the universal yellow color code. Composite video connectors are the same size as the RCA audio connectors; do not connect audio to this jack.

Note: Do not use both S-video and composite connections together. Shadows will appear in the video because of the double signal.

This is a “typical” Video Camera-to-VCR hookup. Many user’s systems may be different than the ones shown.



This is a “typical” VCR or TV hookup.



Section 5: Installation Lab

1. Install the Buz software
2. Watch the installation video found on the install CD
3. Install the Buz hardware
4. Connect the VCR to the Buz card
5. Verify that all devices are working properly

Section 6: Usage



HotShots

What is Hotshots?

According to PictureWorks' web page,

“HotShots is everything you need to get, organize, enhance, and publish pictures from your digital camera, scanner, hard drive, or the Internet. Work faster and add impact to your printed documents and web site. Both business professionals photo enthusiasts will love these easy-to-use, powerful, and intelligent tools.”

Hotshots, when used in conjunction with Iomega Buz, allows users to organize their video clips and pictures into collections, edit pictures, use pictures with Photopages, send pictures to friends using NetCard, and acquire new pictures via a Twain source, digital camera, or Buz (using MGI VideoWave to capture).

Who will support Hotshots?

Any questions regarding the use or functionality of Hotshots must be referred to PictureWorks. Iomega does not support Hotshots. Answers to Hotshots questions must be limited to *simple* explanations of how it is best used with Buz.

Do not spend time explaining how Hotshots works or any technical issues.

PictureWorks contact information

Technical Support

Phone: (888) 218-4956

Mon. – Thurs.: 8-5 PST

Fri.: 8-4 PST

Fax: (510) 855-2019

email: techsupport@pictureworks.com

Sales

Phone: (800) 303-5400

Fax: (510) 855-4356

email: sales@pictureworks.com

Although Iomega is not required to support NetCard, an understanding of how it works is necessary for quality customer service.

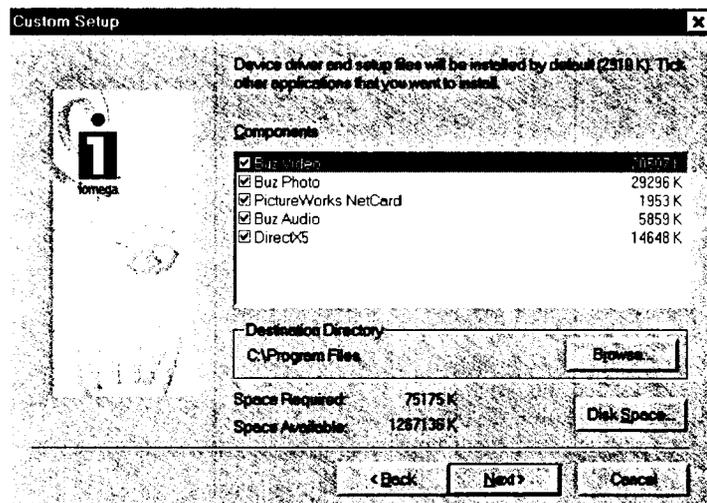
Automatic Installation

As with NetCard, Hotshots is automatically installed when the Buz software is installed. It is possible to select or deselect it from the list of components to be installed. This can only be done if Custom installation is selected. It is listed as Buz Photo.

If necessary, use the Custom installation option to install it from the Buz CD.

By default, NetCard is installed to the C:\Program Files\Hotshots directory.

When installed with the rest of the Buz software, it will be given an icon group under Iomega Buz labeled Buz Photo.



Manual Installation

It is also possible to install Hotshots directly from the Buz CD-ROM. Simply run Setup.exe from the Buz\PixWorks\Hotshots directory. It will install to the same directory as previously mentioned.

However, Hotshots will create its own program group under Program Files labeled PictureWorks. It will not be placed in the Iomega Buz icon group.

Usage

Because Hotshots is a full featured image manipulation software, only those options that are to be used directly with Buz will be detailed. For additional information on how to use options in Hotshots, please refer to the Help file.

Get

The “Get” feature of Hotshots allows the user to get images from disk, from cameras, from scanners, or from the Internet. Pictures and AVI files can be imported into Hotshots, and stored as a collection of thumbnails or as individual images.

Most Iomega users will be getting pictures and images from disk after they have been captured using MGI Videowave or other video editing software.

Note: It is not possible to use Hotshots to capture images directly from Buz. Users must first capture images using MGI Videowave or other video editing software.

Use the Open or Create a Collection options to organize photos into pages of thumbnail photos.



Using NetCard with Hotshots

It is possible to send NetCard images directly from Hotshots. Open the image to be sent, enhance it in whatever method is preferred, and use “Share” from the remote control to send the NetCard.



NetCard

What is PictureWorks Netcard?

As stated on PictureWorks' web page (www.pictureworks.com),

“PictureWorks NetCard is the revolutionary software application that turns boring old e-mail into exciting new iMail (image mail). Suddenly, your on-line communications take on a rich new dimension as NetCards bring your messages to life with the persuasive power and emotional appeal of pictures, movies and sound. And best of all, it all works with your existing e-mail system. It just simply couldn't be easier to catch the iMail wave!”

Used in conjunction with the Iomega Buz card, Netcard allows users to capture pictures or video clips and then send them to friends, relatives, or co-workers in an easy to use e-mail format.

Who will support NetCard?

Any questions regarding the use or functionality of NetCard must be referred to PictureWorks. Iomega does not support NetCard. Answers to NetCard questions must be limited to *simple* explanations of how NetCard can be used with the Iomega Buz card.

Do not spend time explaining how NetCard works or other technical issues.

PictureWorks contact information

Technical Support

Phone: (888) 218-4956

Mon. – Thurs.: 8-5 PST

Fri.: 8-4 PST

Fax: (510) 855-2019

email: techsupport@pictureworks.com

Sales

Phone: (800) 303-5400

Fax: (510) 855-4356

email: sales@pictureworks.com

Although Iomega is not required to support NetCard, an understanding of how it works is necessary for quality customer service.

Is this the full release of NetCard?

The version of NetCard that ships with Iomega Buz is a limited version. It is only possible to send five NetCards with the Buz version.

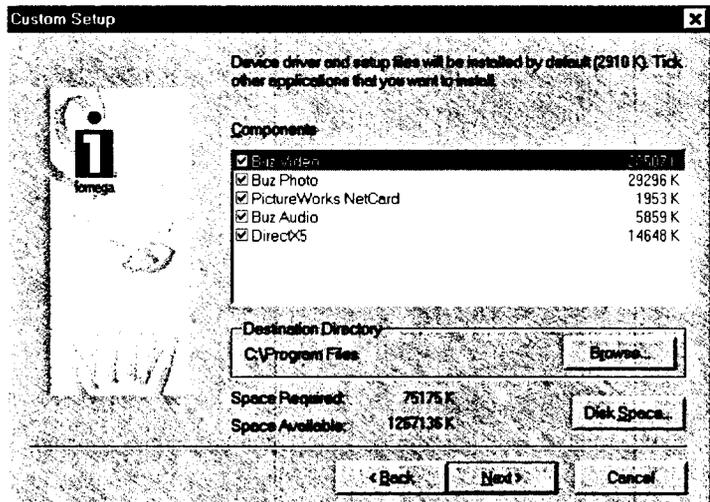
Automatic Installation

NetCard will automatically install when the Buz software is installed. It is possible to select or deselect it from the list of components to be installed. This can only be done if Custom installation is selected.

If NetCard was not installed when the Buz software was initially installed, use the Custom installation option to install it from the Buz CD.

By default, NetCard is installed to the C:\Program Files\NetCard directory.

When installed with the rest of the Buz software, it will be given an icon group under Iomega Buz labeled PictureWorks.



Manual Installation

It is also possible to install NetCard directly from the Buz CD-ROM. Simply run Setup.exe from the Buz\\PixWorks\NetCard directory. It will install to the same directory as previously mentioned.

However, NetCard will create its own program group under Program Files labeled PictureWorks. It will not be placed in the Iomega Buz icon group.

Creating a NetCard

There are two “sides” to every netcard: an image side and a message side. On the image side, it is possible to import bitmap, jpeg, or video (AVI) files. On the message side, a short message can be typed, and the “From:” and “To:” fields can be completed.

Sending a NetCard

NetCard has three different options to send NetCards through e-mail: use Microsoft Exchange, use America Online, or save to file and send as an attachment.

- To send a card through Microsoft Exchange, the user must have Microsoft Exchange properly configured to send and receive e-mail. Once the user has sent a NetCard, the message will be placed in the Exchange outbox for delivery.
- To send a card through America Online, the user must have a registered America Online account. When the NetCard is sent, NetCard will automatically start AOL,

ask for user name and password if necessary, and automatically send the NetCard through AOL.

Note: This option will be grayed out in the Preferences screen if AOL is not installed.

- To send a card through any other e-mail service, attach the NetCard to the e-mail message being sent. NetCards sent using this function will be saved to the ..\NetCard\outbox folder.

File Sizes

NetCard uses a compression algorithm to minimize file sizes. However, even the smallest Buz AVI files are more than 1MB in size. It may be necessary to educate users of file sizes and e-mail through a standard modem.

If users complain of large file sizes, suggest they use the JPG attachment method. File sizes are considerably smaller. For example, a 339KB NetCard Exe file was compressed to a 67KB JPEG file.

Importing AVI files

AVI files captured with the Iomega Buz card use the Buz JPEG codec to decompress and play the AVI file. These files may not play properly in NetCard until the files have been produced using MGI Videowave or some other video production software package.

Help Files

The NetCard online help is found in the NetCard installation directory. There is not a link to it from the NetCard program or a shortcut created in the icon group.



MGI VideoWave

Introduction and Usage

For the best introduction and information regarding MGI VideoWave, watch the MGI VideoWave tutorial found on the second Iomega Buz CD.

Who will support VideoWave?

Any questions regarding the use or functionality of VideoWave must be referred to MGI. Iomega does not offer technical support on usage of VideoWave. Answers to VideoWave questions must be limited to technical issues regarding the interface of the Iomega Buz card and VideoWave.

Although the Iomega Buz will work with a variety of other video editing software packages, Technical Support will not offer ANY support on 3rd party video editing software. Any troubleshooting done with Buz will be done with MGI VideoWave only.

MGI VideoWave Support Information

Technical Support

Phone: (905) 707-3573

Fax: (905) 707-3694

Mon. – Fri.: 9-6 EST

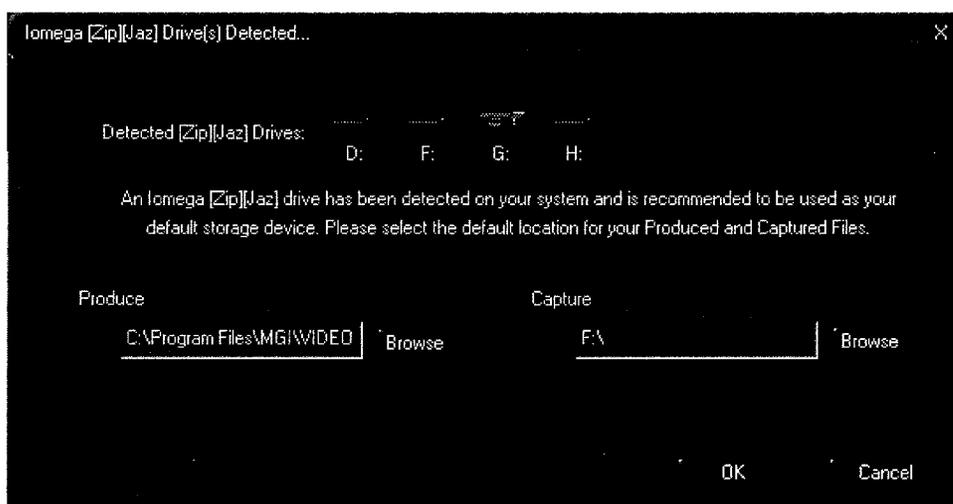
Fri.: 8-4 PST

E-mail: videowave@mgisoft.com

Important Notes

➤ Iomega Ready

The MGI Videowave software that is shipping with Iomega Buz is Iomega ready. When the software is started for the first time it will search for Iomega Zip and Jaz drives. This gives a convenient way to choose an Iomega drive as the destination for the capture files created with MGI. If you wish to capture to a different destination then you may choose the browse button to select a different drive or directory.



➤ **What is overlay and how can users tell when they're using overlay**

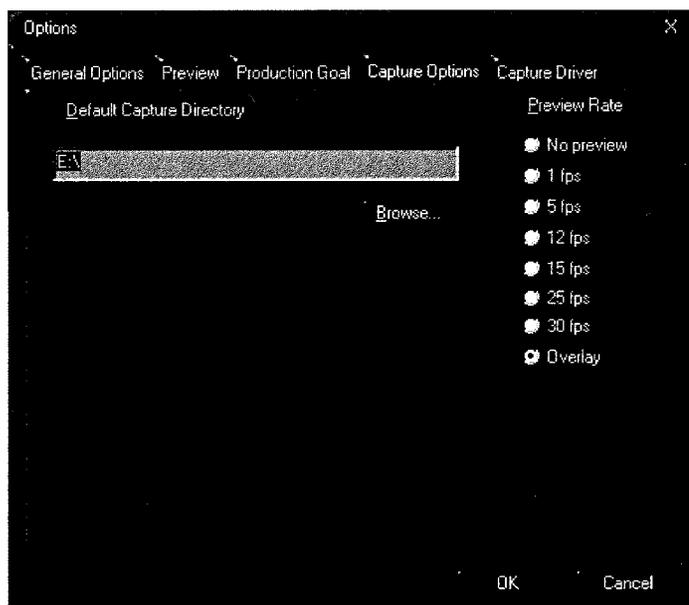
Iomega Buz supports video overlay, which is the placement of a full-motion video window on the display screen. This feature can be very demanding of the host system, and on low end systems video quality may be noticeably degraded from what is viewed on a television set. It should be noted that even though image quality is degraded within the overlay window, the image quality of the captured video should be unaffected.

This would indicate that the CPU is unable to transfer data across the PCI bus fast enough to display smooth video on the display screen. This may also indicate that an IRQ is trying to share with a device that doesn't fully support the PCI Steering standard, or that there is not enough system and/or video ram installed into the system.

If image quality is good, but video seems to jump, overlay may not be enabled. There are two places where this may be checked or changed. The first would be within MGI Video Wave following these steps.

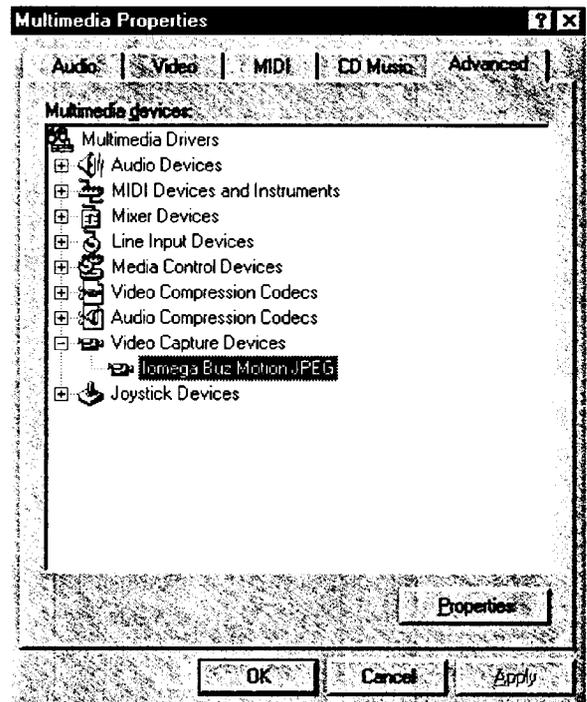
With VideoWave running –

1. Press the Start button located in the upper left-hand corner of VideoWave and select Options from the resulting menu.
2. Select the Capture options tab in the Options dialog.
3. Verify that the Overlay radio button is selected. Note that if any of the other radio buttons are selected, onscreen playback of video will not be smooth. If no preview is selected the preview area of VideoWave will only display the first still image that is received through the video input when the record button is pushed. This is limited to what is viewed on the computer monitor and is not related to the frame rate that is captured to disk.

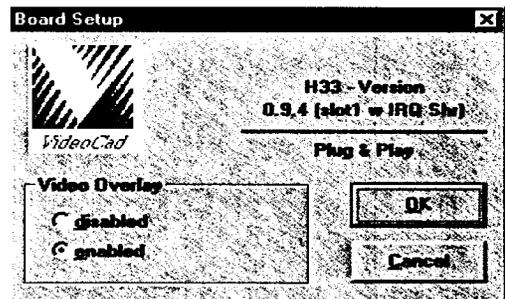


If overlay is grayed and not selectable, verify that overlay is enabled through the multimedia control panel following these steps:

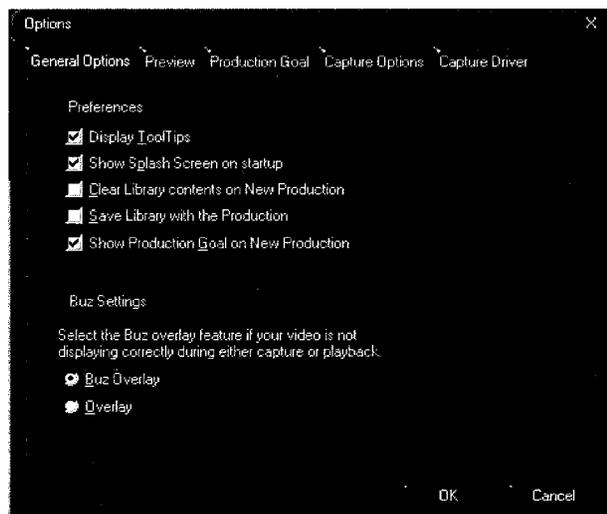
1. Open the Control Panel and choose the Multimedia icon to bring up the Multimedia Properties.
2. Select the Advanced tab and open Video Capture Devices to reveal the Iomega Buz Motion JPEG driver.
3. Highlight the driver and then select Properties.
4. In the Iomega Buz Motion JPEG Properties window select the setting's button.



5. In the board setup window select the enabled button.

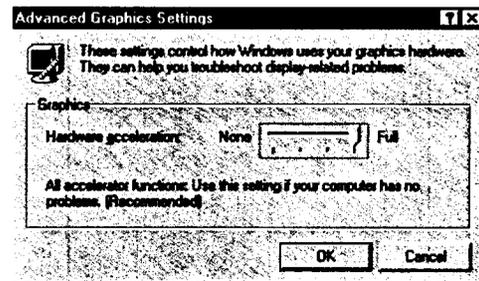


If the preview window is still choppy, try Buz Overlay within the general options tab of the VideoWave software.



Other factors that may affect overlay and/or capture are –

- Disk fragmentation can adversely affect video capture.
 1. Defragment the drive intended for video capture prior to starting VideoWave.
- Open applications can adversely affect video capture and/or overlay.
 1. Close all open applications prior to starting VideoWave.
- PCI Bus location can adversely affect video capture and/or overlay.
 1. Try moving the Buz card to another PCI slot.
- Hardware acceleration on some video adapters can affect video capture and/or overlay.
 1. Open the System Properties window.
 2. Select the Performance tab and click the Graphics button.
 3. Move the slider in the Advanced Graphics Settings window to a lower position. Try various settings until you achieve optimum performance.



- Computer systems that do not fully meet the system requirements may experience poor quality video if they work at all.

If none of these steps seem to help smooth the video in the overlay window, capture a 30 second or larger clip and play it back. Check for a good smooth clip. On some systems overlay can affect capture performance. If the user experiences a large percentage of dropped frames while capturing, try selecting a lower preview rate in the options screen of VideoWave.

➤ **What is a CODEC and how does it affect me?**

Before VideoWave can be used to manipulate video, the video itself has to be digitized using Buz. The information from the camcorder or VCR is analog and must be captured and converted to digital information on the computer's hard drive. This process is called video capture. The process of video capture places great demands on the computer. The video has to be captured in real time, so the system needs to be able to digitize, compress and write the information to a hard disk 30 times a second.

Before compression, one second of video would require about 30 megabytes of disk space to store. By compressing the video, it is possible to store a longer clip in the same amount of hard drive space. And since it is also impossible for a PC to move 30 megs of data around in a second, even if there were unlimited storage resources, personal

computers could not record or play back that kind of data rate, so the video stream must be reduced to a manageable size. Therefore, some form of compression must be applied through the use of a CODEC (**C**OMPRESSION/**D**ECompression) driver. This allows software applications to work with various file formats without having to worry about specific compression routines. CODECs can be implemented via software, hardware or both.

Buz uses the MJPEG (Motion JPEG) compression CODEC that is implemented both through software and hardware. This allows for application programs to easily communicate with Buz. Buz uses a Zoran video processor, which handles all compression routines for the MJPEG CODEC. This allows full motion video to be viewed on systems that otherwise may not be able to display the same clip smoothly.

As with all CODECs, MJPEG compression loses some image quality when the image is compressed. However, due to the method of compression, it is one of the least lossy compression schemes in use for non-commercial video capture equipment. In general with all compression schemes the more the image is compressed, the more the image quality is degraded.

➤ **BuzPlay**

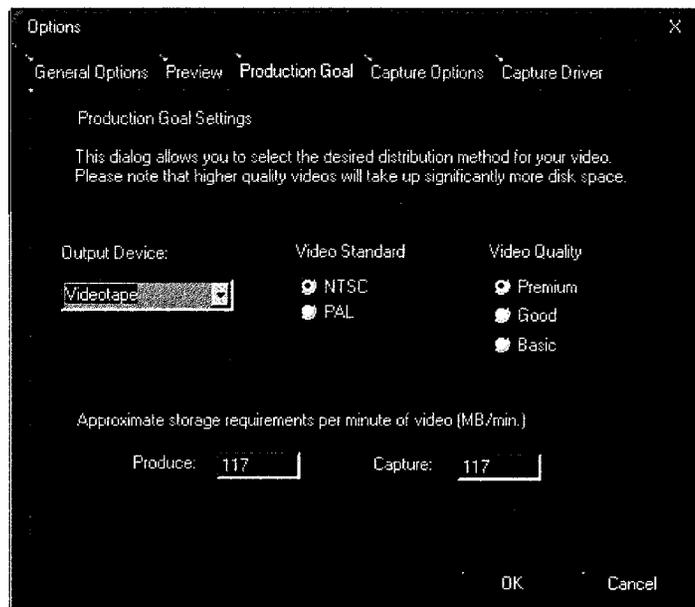
Due to the fact that until recently MJPEG required special hardware to both capture and play back video clips, this CODEC does not have wide installation base at this time. In order for a video clip to be viewed on another machine it had to be recompressed using one of the other CODECs that were software based only in the past. With Buzplay, which is located in the directory in which Buz is installed to, clips recorded with MJPEG can be viewed on machines that do not have a video capture board installed. Without Buz or Buzplay the computer will not recognize a video clip captured with Buz, it will simply display a black window instead of your clip. It should be noted that this is very demanding of the computer playing back the video, as the computer's CPU must handle all of the decompression routines. On the average computer playback may be choppy.

➤ Recording to Video

Since the Buz card is specific to MJPEG, any clips that will be output to videotape must be compressed and produced with the MJPEG CODEC. If it is not, Buz will not know how to read the stream and will be inactive. Buz will not output the video stream.

When producing a video clip to output to videotape, select videotape as the output device. This will ensure the best possible quality for the final production. This does not output the clip to videotape at the time of production, it simply uses the least possible amount of compression and therefore has the highest image quality.

To output the produced product to videotape, using MGI VideoWave, play the video clip and press Record on the VCR.



Note: If a video clip is produced using anything but MJPEG for Buz, only audio will be output to video and recorded.

Note: Check video out connections to make sure Buz and the VCR are properly connected.

➤ Sound Capturing

Sound is not captured or output through the Buz card. Instead the computer's audio card captures the audio stream. VideoWave automatically merges the audio stream with the video stream in the capture file. Audio is generally recorded in a CODEC that is not as lossy as visual information. When recorded at 44kHz 16-bit stereo, a single track from an audio CD will use around 30 megabytes of storage space when compressed in the wav format. VideoWave will use audio tracks recorded in both wav formats as well as mpeg layer2 audio files created with RecordIt.

➤ Video production and production quality



When producing a video after editing, there are some key decisions to make concerning the production, such as how this clip will be distributed and/or viewed after the production process. These decisions need to be made before production, as it will affect the settings that will be used during the production phase.

Due to the nature of compression schemes, each time a clip is compressed, a little quality is lost. This is synonymous to making copies of videotapes: with each generation, a little quality is lost. For this reason, if the clip will be distributed via more than one method, the clip should be produced with settings for each method. For instance, if the clip will be output back to videotape, and also be viewable on the Internet, the clip should be produced twice; once with premium settings and once with lower settings for the Internet. This ensures that each clip has its very best appearance, as both clips will be 2nd generation copies with the original captured clip being the 1st generation.

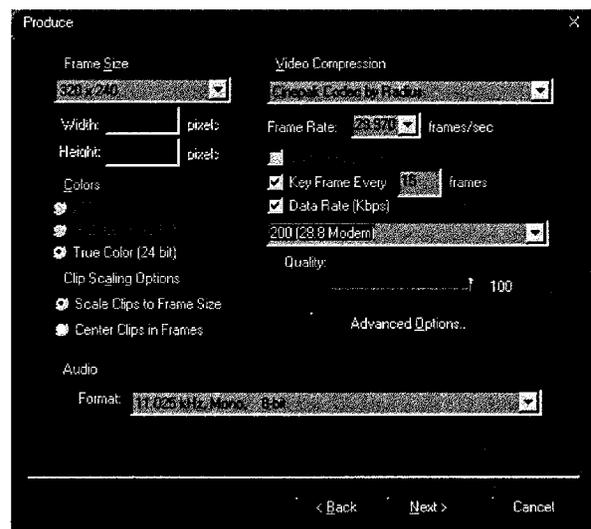
For this example, to fully illustrate the settings, custom settings will be discussed. We will create an AVI that will be displayed on a web page. If we wanted to produce our clip to go back to videotape, set Production Goals to Videotape and Premium quality in the main options window. Also, select Use Production Goal Settings would be the desired approach.

Let's bypass any settings that have been selected in the main options window. To do this we will select the Use Advanced Settings within the Produce output to window. We will also select where the file will be created in this screen.



With this completed now hit the next button that takes us to the Produce dialog. This is where we will choose most of our settings. We have some very strict limitations for this application due to the low bandwidth of the Internet. For instance, a double speed CD-ROM drive is capable of data rates around 300 kilobytes per second, where a 28.8 modem is only able to transfer data at around 28 kilobytes per second. With that in mind, we want to use settings that will give us the best possible quality while still having an acceptable data rate.

For Internet usage, we would want a maximum frame size of 320x240. We also want to use one of the standard CODECs for our compression, as not everyone on the Internet will be able to view the clip if it is produced with MJPEG. Cinepak Codec by Radius is a good choice for this. Also we will want to use the preset data rate for 28.8 modems. If there were an audio track, we would want to use the lowest audio setting as well. Other options that are selectable here are Key Framing, which

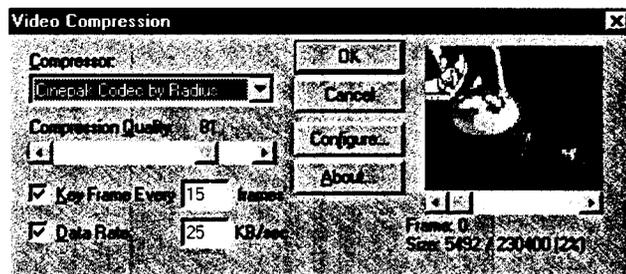


helps to keep the audio track in sync with the video track. We can experiment with various quality settings to give us the smallest file size possible while maintaining acceptable video quality.

Color levels can be adjusted, however this is dependent on the capabilities of the CODEC. Not all CODECs will allow the same settings for color level.

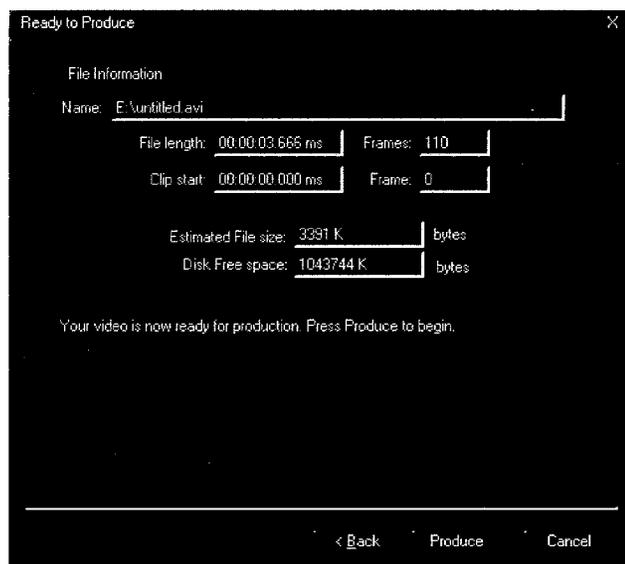
Another option that we can change is image scaling. With scaling enabled, an image or clip that has a resolution of 120x80 would be scaled up to 320x240, where with it disabled the same clip would be centered in the window.

Use the Advanced Options button under quality to preview what the final output should look like with our compression settings. If necessary, we can make adjustments accordingly.



Now that we have the settings just the way we want them, we are ready to produce.

This brings up the Ready to Produce window, which summarizes the clip and gives some estimates. In this example the clip is 3.666 seconds long and has 110 frames, and it will be approximately 3.3 megabytes. Now all we have to do is hit produce, and when finished, we will have an AVI that should be suitable for the Internet.



Production Time

Producing videos are very processor intensive. It can take hours to complete the production process once the “Produce” option has been started.

There are many different factors that can have an impact on production speeds. First, CPU speeds have the greatest impact. The faster the processor, the shorter the time it will take to produce.

This is not a problem specific to Iomega Buz. All video editing software are CPU intensive when producing video files. It may be necessary to explain the difficulties of production.

Supported Video Formats

The Iomega Buz is capable of capturing and outputting video in both PAL and NTSC TV formats. SECAM is not supported. The NTSC standard is primarily used in the United States, while the PAL standard is used primarily in Europe and other foreign markets.

When capturing video the Buz supports the following TV resolutions:

➤ NTSC

- 720x480 @ 30 frames per second @ 24 bit color, with 44.1kHz stereo audio
- 352x240 @ 30 frames per second @ 24 bit color, with 44.1kHz stereo audio
- 160x120 @ 30 frames per second @ 24 bit color, with 44.1kHz stereo audio

➤ PAL

- 768x576 @ 25 frames per second @ 24 bit color, with 44.1kHz stereo audio
- 384x288 @ 25 frames per second @ 24 bit color, with 44.1kHz stereo audio
- 192x144 @ 25 frames per second @ 24 bit color, with 44.1kHz stereo audio

Section 7: Usability Lab

1. If the Buz card is not installed, fully install it.
2. Using the Buz card and MGI VideoWave, capture three different clips from videotape.
3. Using MGI, create a three frame production include transitions between the clips.
4. Add a fourth frame and add animated text.
5. Produce the clip and output the produced clip to videotape.

Section 8: Troubleshooting

As is the case will all new Iomega products, the Buz has been thoroughly tested by Iomega's product assurance department. However, because Iomega Buz is new and due to the variety of the Iomega Buz install base, not all problems have been documented.

This section will detail known problems and issues regarding the Iomega Buz product and related software.

What is the Buz Blacklist?

The BUZ blacklist is comprised of PCs that product developed has determined, for one reason or another, are not compatible with BUZ. Technicians supporting Buz must be very familiar with this list. The first troubleshooting step for any BUZ call will be to verify that the PC the customer is using is NOT on this list. If it is on this list, the BUZ product WILL NOT work properly and it is officially unsupported by Iomega. In an attempt to avoid these types of problems, a sticker containing this list will be placed on the BUZ Point of Sale Box.

Note: This could be a touchy subject with the customer, so please be as tactful as possible when presented with this issue. Also, please refrain from commenting on quality issues regarding the PC manufacturers found on this list.

!Attention!

The following computer hardware has been tested and found to not support the technology used on BUZ.

Computer Systems

- All IBM Aptiva's built before August 1997
- Compaq Presario 4508
- Compaq Deskpro XL 6150
- NEC V100
- Packard Bell Platinum
- Packard Bell 869CD
- H.P Pavillion 7110Z/HP Pavillion 7350/HP Pavillion 7170
- H.P. Vectra XA
- Gateway 2000 P5-100

Video cards that do not support Buz or have performance limiting features.

- Cirrus Logic: CL-GD5430, CL-GD5434, CL-GD5440
- Trident: 9440
- Weitek: P9001
- Alliance: Promotion
- ATI: Mach64 (MACH64-215CT22200)

Extensive testing was done on Buz to determine its compatibility with existing computer hardware. Although the preceding list may not be complete, it is intended to make the customer aware that there exists computer hardware that is not capable of supporting sophisticated video products such as Buz. For more information and a complete and up-to-date list, visit the Iomega website at www.iomega.com.

System Drivers

Iomega recommends that the customer always use the latest system drivers available. These would include video, sound and when possible BIOS.

If the user has a video related problem and has not updated the video drivers in the last six months, have them update the video driver. Refer them to the proper web page or technical support center for help in obtaining these drivers.

No Post

Checking for BIOS post should be the second troubleshooting step used (second behind checking the Black List) when troubleshooting the BUZ card. The Buz card should display the BIOS of the SCSI side of the card when booting. If the BUZ card displays no post, the cause is one of the following:

- The Buz card is not inserted properly
- The PC does not support PCI bridge chips (Unsupported)
- Defective BUZ card.

IRQ STACKING

IRQ stacking occurs when certain PCs try to stack multiple PCI devices on the same IRQ. The primary ways to resolve this is:

- Disable the conflicting IRQ in the PC's BIOS.
- Try the BUZ card in a different PCI slot.
- Suggest that the customer free up IRQ's by disabling devices that are not in use (i.e. COM ports).

Slot Dependency

There are known issues surrounding slot dependency. This issue concerns certain PCI slots not being PCI 2.0 compliant, thus not being able to support BUZ. Please keep in mind that it is possible to have PCI slots that are compliant mixed with ones that are not compliant on THE SAME MOTHERBOARD. To check for and resolve this issue, simply try installing the BUZ card in different PCI slots.

MGI VideoWave and System Resources

There is a known issue with MGI's VideoWave regarding system resources. Because of this we recommend that the user save before producing a video. MGI has a tendency to crash if there are too many clips open at one time. This issue will be fixed soon, but the initial release will ship with this condition.

Basic Video and Audio troubleshooting

➤ Video Problems

Problem: Video is choppy while it is playing from the Video source.

Solution: Go into options and go into the capture options and set the preview rate to overlay. The other rates may give some choppy video when playing from the video source.

Problem: No video when playing from the source, screen may be black.

Solution: Check the video cables to be sure that they are plugged in on both the video source and the Buz box.

Solution: This problem is caused by feedback if you are using the same VCR for the video in and video out of the Buz. To solve this you can either disconnect the video out at the Buz box while you are viewing and capturing from the VCR or you can make sure that the VCR has the audio/video in disabled. Most VCR's have the option of changing the input from Tuner to A/V so please see your VCR manual on how to do this.

Problem: Can't export the produced video back to the VCR.

Solution: Make sure that the VCR is set to record the produced video. Hit the record button on the VCR and then play the produced video from within the video software.

Solution: Make sure that the VCR is set to AV in before you record the produced video. See your VCR manual on how to set this.

Problem: Cannot play my produced video on any other machine other than the one the buz is installed to

Solution: In order to play an Avi that was produced with the Buz card on a system that does not have one you will need to run the program Buzplay.exe. This program can be found on the install CD.

➤ Audio Problems:

Problem: When playing video from the source cannot hear the audio.

Solution: Check the connections to make sure that everything was hooked up correctly. Make sure that the audio in and audio out or both plugged in snugly. be sure to check to make sure that the speakers to your computer are plugged into either the separate speaker out or into the audio out passthrough plug. Also

verify that the audio RCA cables are plugged into both the audio source and the Buz box.

Solution: Check the Audio Out settings in Windows 95. Double click on the speaker icon to access the audio properties. From the volume control section ensure that none of the volume tabs are turned all the way down and that the 'Mute All' and 'Mute' are not checked or you will get no sound. 'Line In' will be muted by default. It is the input typically used by Buz.

Problem: When playing the audio it only comes through one speaker.

Solution: If your VCR is only capable of Monaural sound(only one audio jack) then you need to plug that jack into the white audio jack on the Buz box.

Solution: Be sure to find out if the audio source itself was only recorded in mono. If this is so it will also play through the buz the same way. To test this run it through another audio output device and see if it only plays through one speaker there also.

Problem: The Audio does not seem to be coming through as clearly as the video.

Solution: Check to make sure that audio jacks are in their correct channels.(left in left and Right in right). If they are flipped around it will degrade the sound.

Appendix A: Glossary

Many of these definitions were taken from www.pcwebopedia.com. Refer to it as necessary for additional information.

AVI: Audio Video Interleaved. A video format developed by Microsoft for Video for Windows

Cinepak: A popular codec (compression/decompression technology) for computer video developed by SuperMac Inc.

Codec: Short for *compressor/decompressor*, a codec is any technology for compressing and decompressing data. Codecs can be implemented in software, hardware, or a combination of both. Some popular codecs for computer video include MPEG, Indeo, Cinepak, QuickTime, and Video for Windows.

Component Video: A video signal in which the different parts of the video signal are kept separate. S-Video and Super 8 formats use this type of video signal.

Composite Video: A type of video signal in which all information -- the red, blue, and green signals (and sometimes audio signals as well) -- are mixed together. This is the type of signal used by televisions in the United States

Compression: The process of electronically processing images and video so that it consumes less storage space. It can be done with either hardware or software.

DSP: Digital Signal Processor. A microprocessor that is designed to do floating point math at high speeds. DSP's are used in a variety of devices such as sound cards, modems and video compression/decompression hardware.

DVD-Video: Digital Versital Disk. A format for displaying full length digital movies using a disk similar to a CD. Comes in 2 types, one a player that attaches to a TV similar to a VCR and another that goes into a copmuter similar to a Cd-Rom.

FPS: Frames Per Second. The number of images contained in a single second of video. 30 FPS is considered full motion video. The human eye can detect flicker if the frame rate falls below 30 fps.

Frame: A single still image of a moving picture.

Hardware Encoders: These encoders use a specialized processor to compress video. Performance is generally faster than software based encoders.

HDTV: High Definition Television. A television standard that will afford greater resolution for sharper pictures and wide screen viewing.

Hi-8: An improved version of the 8mm format capable of better picture resolution.

Indeo: A codec (compression/decompression technology) for computer video developed by Intel Corporation. Although it is a software -only codec, Indeo is based on the DVI, which is a hardware -only codec.

Competing video standards include

JPEG: Short for *Joint Photographic Experts Group*, and pronounced *jay-peg*. JPEG is a lossy compression technique for color images. Although it can reduce files sizes to about 5% of their normal size, some detail is lost in the compression.

Motion JPEG: Motion-JPEG extends the JPEG standard by supporting videos. In motion-JPEG, each frame in the video is stored with the JPEG format. The hardware codec on Buz uses this compression algorithm.

Monaural: (mono) When there is no specific left channel and right channel audio(Stereo). Usually it will either play to just the left or right speaker or play the same sound on both speakers. Many older VCR's only came with one audio out so they are considered monaural.

MPEG: Motion Pictures Expert Group. A multimedia standard that allows digital video to be compressed using JPEG compression and differencing which encodes using only the differences between the frames.

NTSC: Abbreviation of *National Television Standards Committee*. The NTSC is responsible for setting television and video standards in the United States (in Europe and the rest of the world, the dominant television standards are PAL and SECAM). The NTSC standard for television defines a composite video signal with a refresh rate of 60 half-frames (interlaced) per second. Each frame contains 525 lines and can contain 16 million different colors.

Overlay: The placement of a full-motion video window on the display screen. There are various techniques used to display video on a computer's screen, depending on whether the video source has been digitized or is still in analog NTSC format.

PAL: Short for Phase Alternating Line, the dominant television standard in Europe and Asia. Pal delivers 625 lines at 50 half-frames per second, whereas NTSC delivers 525 lines of resolution at 60 half-frames per second. Many video adapters support both the PAL and NTSC standard.

Produce: This is the process of taking all clips, transitions, sounds, and other parts of the video production and combining them to make the finished movie.

RCA Connector: A type of connector used on many consumer video and audio devices to carry a composite video and/or audio signals.

.SBD: This files basically keeps tracks of the production. It has the pointers to what clips to use and what parts of them to use. It also stores the storyboards of the production. It can't be played but it is crucial in producing the finished AVI.

S-VHS: Super VHS. An improved version of the VHS format capable of better picture resolution.

S-Video: Describes a system of plugs and jacks that interconnect with different video devices. This type of connection keeps the parts of the video signal separate for better picture quality by cutting down on signal degradation

VHS: Video Home System. A consumer record/playback format using 1/2" magnetic tape. The most common VCR format in the US.

.VML: This is the library files which contains the list of all the files seen in the MGI video library. It's basically a pointer to where these files are located.