Video Blaster WebCam II USB/Parallel Port

User Guide

On-line Version

CREATIVE®

Getting Started

Video Blaster WebCam II

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Introduction

Video Blaster WebCam II is a 24-bit, 16.7-million-color digital video camera kit that delivers everything you need to capture, create, and communicate with live, full-color video on the Internet. Video Blaster Web Cam II is available in two versions, one with a parallel port adapter (model CTWCII) and one with a USB port adapter (model CTWCII-USB).

Enclosed software titles include:

- **Polaroid PhotoMAX**, a suite of easy-to-use imaging tools accessible from a single interface. Use PhotoMAX to capture images, edit and retouch them, and add special effects. Then print your images or transform them into multimedia postcards which you can give to friends or send via e-mail.
- **Creative Video WebPhone**, a professional, feature rich communication system. Video Web-Phone offers Internet telephony and videoconferencing with integrated voice-mail.
- **I*Spy*** lets you set up your own "spy camera" to automatically snap images of your environment and broadcast them via your Web site. Just point the camera, pick a time interval, and I*Spy* does the rest, including automatic uploading to your web site.
- **Video Blaster WebCam Control** is a utility application for capturing full-motion video and still images and adjusting the camera's settings.
- **Microsoft Internet Explorer**, an easy-to-use, full-service Internet browser.

Video Blaster WebCam II also includes a selection of sample HTML templates and web graphics that you may use to add live video or still images to your web pages quickly and easily.

Also included in your kit is a microphone that allows you to utilize the videoconferencing and audio functions of your Video Blaster WebCam II kit.

System Requirements

Minimum system requirements to use the parallel port version of Video Blaster WebCam II:

- Microsoft Windows 95 or Windows 98
- An available bidirectional parallel port
- 100 MHz Pentium® or higher IBM® compatible PC
- A CD-ROM drive required for software installation
- A modem or LAN access to the Internet (Creative® Video WebPhone™ conferencing software requires 14.4Kb access for voice communication and 28.8Kb for voice and video)
- A display adapter capable of 16-bit color at 800x600
- 16 MB RAM
- 70 MB available disk space when installing all software titles concurrently
- A Sound Blaster® or other Windows-compatible sound card with microphone connector is required for Creative Video WebPhone.

For Optimal Performance:

- 133 MHz Pentium or higher IBM-compatible PC
- ECP parallel port
- Simultaneous two-way conversation requires a Sound Blaster® 16 or higher, or other Windows-compatible sound card with full-duplex support

Minimum system requirements to use the USB port version of Video Blaster WebCam II:

- Microsoft Windows 98 (Windows 95 is not supported)
- An available USB port or USB hub (Video Blaster WebCam II is a high-power USB device)
- 100 MHz Pentium® or higher IBM® compatible PC
- A CD-ROM drive is required for software installation
- A modem or LAN access to the Internet (Creative® Video WebPhone™ conferencing software requires 14.4Kb access for voice communication and 28.8Kb for voice and video)
- A display adapter capable of 16-bit color at 800x600
- 16 MB RAM
- 70 MB available disk space when installing all software titles concurrently
- A Sound Blaster® or other Windows-compatible sound card with microphone connector required for Creative Video WebPhone

For optimal performance of either version:

- 133 MHz Pentium or higher IBM-compatible PC
- A Sound Blaster 16 or higher, or other Windows-compatible sound card with full-duplex support for simultaneous two-way conversation

Document Conventions

The following typographical conventions are used throughout this document:

Bold — Bold face type identifies words and phrases that are to be entered exactly as shown. For example:

```
SET SOUND=C:\SB16
```

Italic — Italic type identifies words and phrases that are to be replaced by you. For example:

```
DEVICE=C:\SBCD\DRV\SBIDE.SYS /D:MSCD001 /P:xxx,yy
```

In the example, you must supply a value for *xxx* and *yy*.
Italic in the text emphasizes or identifies a word or phrase that is being defined. In this document, it is also used to identify a button or menu item that you are to select; for example, “Select the *Play* button on the main menu.”

ALL CAPS — A word in all capital letters identifies a key you are to press. For example, “Select *Yes* and press ENTER.”

The notepad icon indicates information that is of particular importance and should be considered before continuing.

Designates a caution or warning that can help you avoid situations involving risk.

1

Installing Video Blaster WebCam II

This chapter guides you through the following procedures:

- Installing the Hardware
- Installing the Software

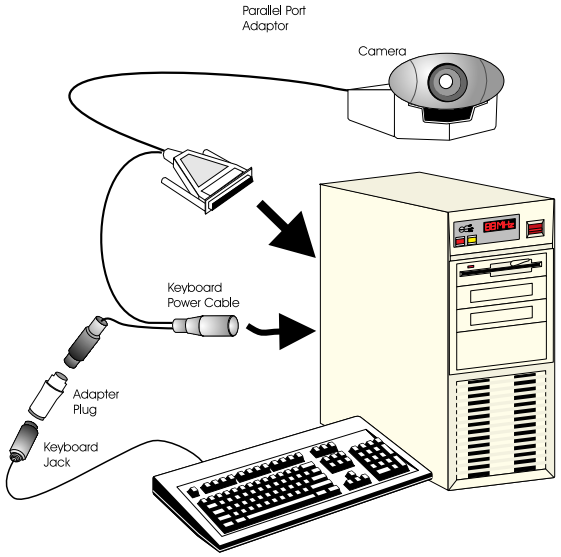
Installing the Hardware

Video Blaster WebCam II parallel port model (model CTWCII)

If you have a Video Blaster WebCam II with a parallel port connection, the Video Blaster WebCam II connects to an available parallel port without opening your computer cover.

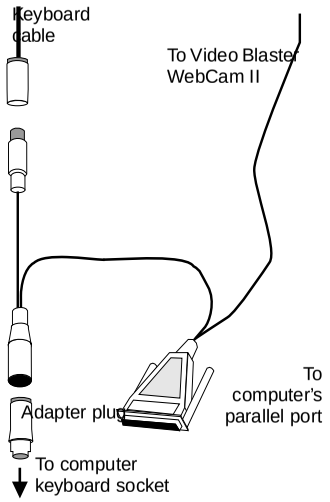
To install the Video Blaster WebCam:

1. Turn off your computer and position it where the back of the computer can be easily accessed.
2. Unplug your keyboard cable from the computer's keyboard port.
3. Compare the computer keyboard's cable plug with the WebCam keyboard power cable and adapter plug. Connect the keyboard's cable to the WebCam adapter cable.

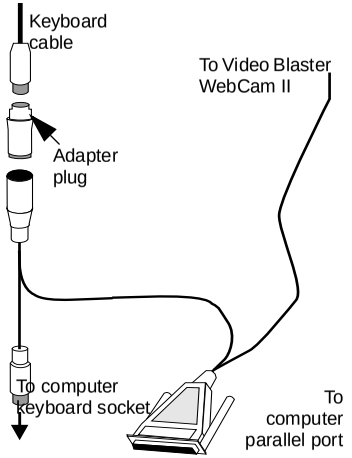


If your Video Blaster WebCam sends data to your computer via the parallel port, the parallel port must be configured to operate in bi-directional or ECP (Extended Capabilities Port) mode in order for the camera to operate. The first time you start your computer after installing the camera, open CMOS (or BIOS) setup and check your parallel port's configuration. If you are not familiar with CMOS/ BIOS settings, consult the documentation for your computer before proceeding.

❑ If your computer's keyboard plug matches the large end, connect as shown in the figure to the right.

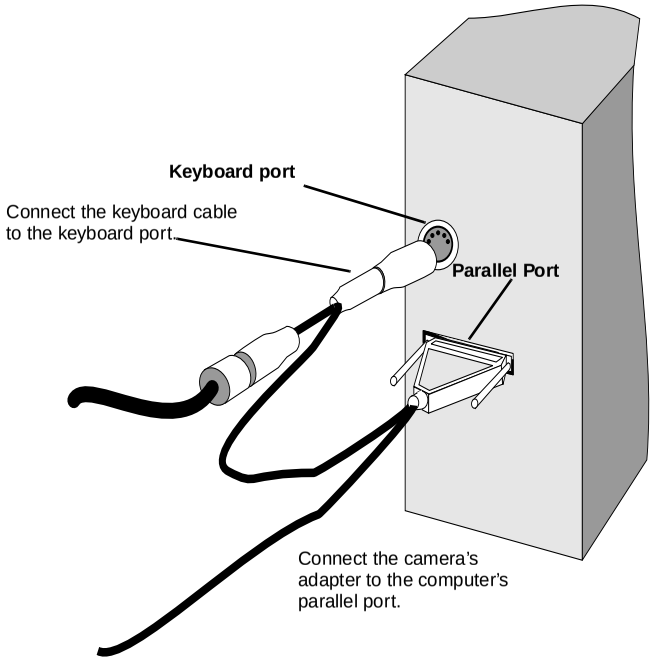


❑ If your computer's keyboard plug matches the small end, use the connection shown to the right.



4. Connect the power adapter to your computer's keyboard port.
5. Connect the power adapter to the camera's parallel port adapter.

6. Connect the camera's 25-pin parallel port adapter to the computer's parallel port or printer port.
   If your computer does not have a free parallel port, do one of the following:
   - ❑ Unplug a currently connected device
   - ❑ Add an interface card with a parallel port
   - ❑ Use an A/B parallel port switch-box.
7. Position the camera on top of your computer monitor, or another flat surface.
8. If your PC already has a microphone connected, you may use it in place of the microphone included. Connect the microphone to your audio card. Most audio cards have an external microphone connector.



9. Consult the documentation for your audio card for more information concerning the use of a microphone, in particular, how to adjust the volume.
10. Turn on your computer and install the Video Blaster WebCam drivers (refer to "Installing the Software" on page 4).

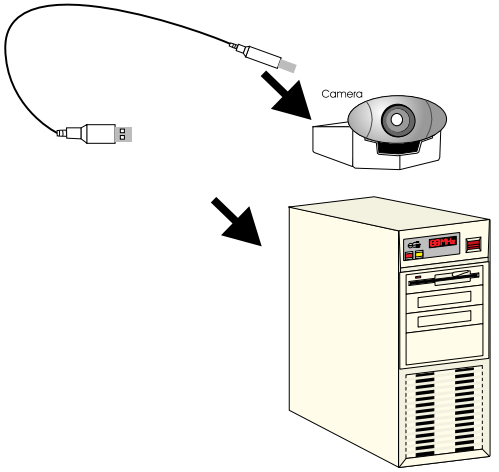
Video Blaster WebCam II USB model (model CTWCII-USB)

If you have a Video Blaster WebCam II with a USB connection, the Video Blaster WebCam II connects to an available USB port without opening your computer cover.

To install the Video Blaster WebCam:

1. Turn off your computer and position it where the back of the computer can be easily accessed.

2. Connect the smaller end of the USB cable to the back of the camera.
3. Connect the other end of the USB cable to any USB port. It may also be daisy-chained through another USB device, or attached to a USB hub. Position the camera on top of your computer monitor, or another flat surface.
4. If your PC has a microphone connected, you may use it in place of the microphone included. Connect the microphone to your audio card. Most audio cards have an external microphone connector.
5. Consult the documentation for your audio card for more information concerning the use of a microphone, in particular, how to adjust the volume.



The Video Blaster WebCam II uses high-power mode when capturing images. Most USB hubs which draw power from the PC itself can only support one high-power device at a time. Most USB hubs which draw power from an AC outlet have no restrictions on the number of high-power devices which can be connected. Check your USB hub's documentation if you have any concerns.

6. Turn on your computer and install the Video Blaster WebCam drivers. (When you start your PC, Windows 98 will automatically detect the new hardware and ask you to provide a driver. While it is possible to install the camera drivers in this manner, we recommend that you instead install the camera software using the following procedure. The README file on the CD-ROM contains additional instructions, as well as other late-breaking news about your new camera.)

Installing the Software

To install the Video Blaster WebCam video drivers:

1. Insert the Video Blaster WebCam CD into your CD-ROM drive.
2. A dialog appears indicating that Windows has evaluated the disc and lists applications available for installation. Select *Video Blaster WebCam Video Capture Drivers* and the applications you wish to install, then click OK.
   Depending upon the applications you choose to install, you may be asked if you want to restart your computer at the end of the installation routine. Select No whenever you are asked until all the drivers and applications have been installed. Then, restart your computer.
3. Follow the on-screen instructions to complete the installation.

2 Using Video Blaster WebCam II

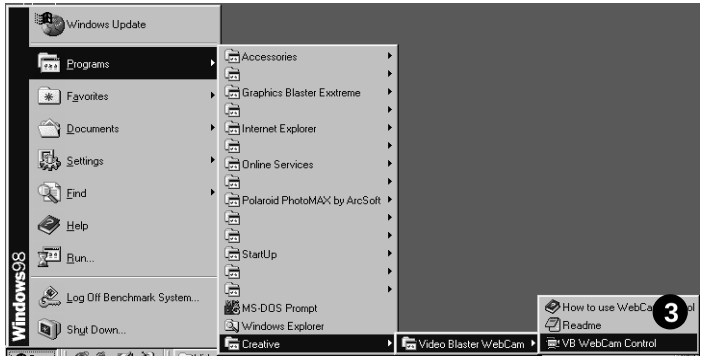
The Video Blaster WebCam II application CD includes the following:

- Video Blaster WebCam Control
- Polaroid PhotoMAX
- Creative Video WebPhone
- I*Spy*
- Microsoft Internet Explorer 4.0
- Sample HTML files and web graphics

Using Video Blaster WebCam II

To set up Video Blaster WebCam II:

1. You must have the Video Blaster WebCam II drivers installed. See “To install the Video Blaster WebCam” on page 3 for installation instructions.
2. Open the camera’s lens by gently rolling the cylinder upwards. Roll the lens back into the housing whenever the camera is not in use to avoid damage and to keep the lens clean.
3. Select Start on the taskbar, open Programs, select Creative, select Video Blaster WebCam, and select VB WebCam Control. (Your screen appearance may vary slightly from that shown due to differences in operating systems.)

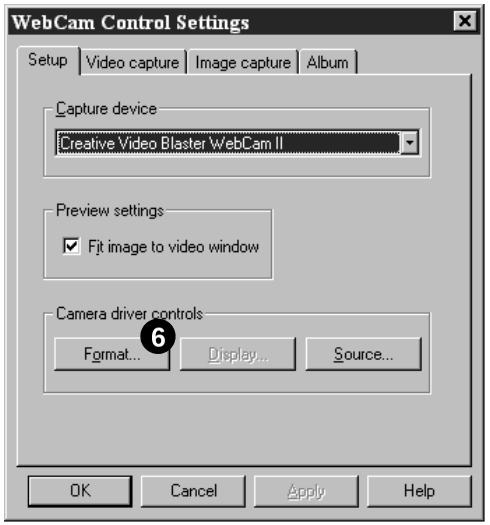


4. The Video Blaster WebCam Control screen appears, displaying the image from the WebCam.
   If Video Blaster WebCam Control does not recognize the camera correctly, see Chapter A, “Troubleshooting”.

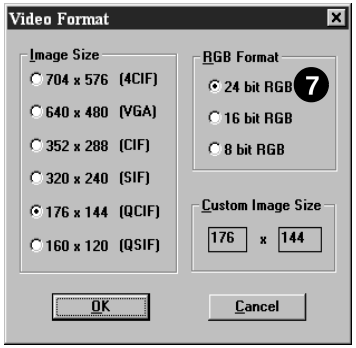
5. On Video Blaster WebCam Control , click the “Settings” button at the bottom of the panel.

Selecting 24-bit RGB tells the camera to capture images of up to 16.7 million colors and provides the best-looking images, but the slowest frame rates. If you are capturing live video, selecting 16-bit color (65,000 colors) generally provides the best combination of fast frame rates and detailed colors.

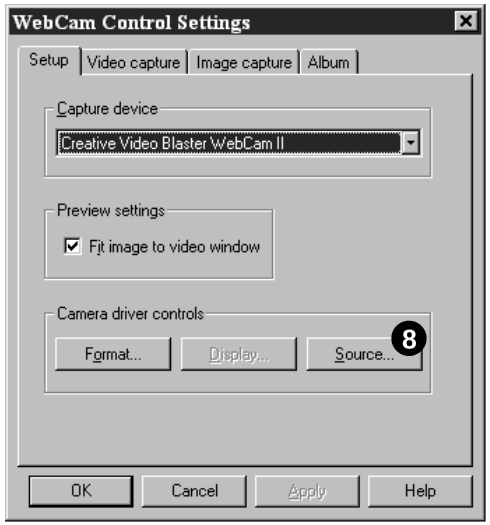
6. On the WebCam Control Settings dialog, select Format (the name of the driver may vary from the one shown, depending on which WebCam II model is used).



7. On the Video Format dialog, select 24-bit RGB, and click OK. Later, you can select various resolutions to see which works best for your needs. You may also adjust the Image Size in this dialog (larger image sizes result in lower image quality and framerates).

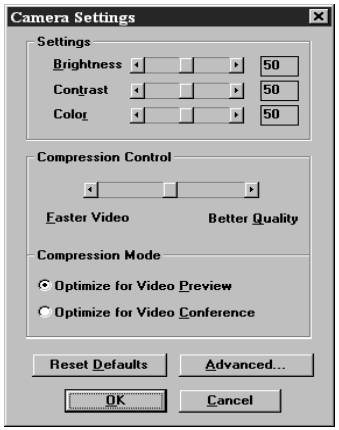


8. Select Source on the WebCam Control Settings dialog.



9. On this dialog, you can adjust the display quality, toggle capture compression and adjust quality. By clicking on Advanced, you may also adjust the Lighting settings.

10. Adjust the WebCam focus by pointing the lens toward your subject (for example, you seated in front of your computer monitor) and rotating the ring around the lens. Rotate the ring clockwise/counterclockwise until the image is in focus.



Chapter 3, “Image Quality and Frame Rate”, describes the dialogs in more detail and shows how to get the best image possible.

Creative Video WebCam Control

The Creative Video WebCam Control allows you to grab still images and create AVI movies with your camera. It offers a simple, intuitive interface with mouse and keyboard controls.

PhotoMAX

Polaroid's PhotoMAX combines several digital imaging applications in a single graphical user interface giving you all the tools needed to manipulate images in one easy-to-use package. PhotoMAX utilizes Polaroid's unique active image technology to move acquired and edited images throughout applications eliminating the need to open and close multiple applications or hunt for edited images.

The Creative Gallery features quality artwork and the capability to add images to electronic and printed greeting cards, insert images onto backgrounds, and much more.

For more information and help, please see the on-line help by clicking on the question mark (?) on the PhotoMAX screen. For technical support or other questions related to PhotoMAX visit Polaroid's web site at

http://www.polaroid.com.

Creative Video WebPhone

Creative Video WebPhone offers Internet telephony and videoconferencing with integrated voice-mail. The Creative Video WebPhone interface is similar to a cellular telephone.

To open Creative Video WebPhone, click on the Start button, select Programs, select WebPhone, and click on Creative Video WebPhone 3.0. The WebPhone displays.

The first time you open Creative Video WebPhone, you are prompted to enter your registration key to unlock all the features. Your registration key is printed on the Creative Video WebPhone leaflet included in the package.

Instructions for using Creative Video WebPhone are found in on-line help. To use on-line help, click the question mark (?) on the Video WebPhone; or click Start on the taskbar, select Programs, Creative Video WebPhone, and Creative Video WebPhone 3.1 User's Guide.

For technical support or other questions related to Video WebPhone, visit Creative's web site at **http://www.soundblaster.com**.

I*Spy*

Use I*Spy* to set up the Video Blaster WebCam to automatically take a still picture and upload it to your web site at specified intervals. All you need is FTP access to your web site. If you have direct network access to an Intranet web site, I*Spy* can copy the image directly to a specified directory without uploading the file via FTP. The application CD-ROM contains examples of web pages that use live, updated I*Spy* images.

After you configure I*Spy* with your server's URL and password, you can use the *Source* and *Format* options in the Video menu to select the capture resolution and adjust image quality. See Chapter 3, "Image Quality and Frame Rate", for more information.

I*Spy* includes a complete on-line manual. For technical support or other questions, visit the I*Spy* web site at **http://www.ispy.nl**.

If you use a modem to connect to the Internet, I*Spy* automatically opens Internet dialer when it is ready to upload a photo. You may need to install a dialer that can automatically log to your ISP unattended. Two web sites that include Internet dialers are:

WinFiles.com	**http://www.winfiles.com** Dialup Networking Drivers page is at **http://www.winfiles.com/apps/98/dialup-dialers.html**.
Stroud's Consummate Internet Apps List	**http://cws.internet.com** Select *Browse 32-bit* and then *Winsock Packages*.

Microsoft Internet Explorer 4.0

Microsoft Internet Explorer is an Internet browser that features ActiveX technology, so web pages can combine interactive ActiveX Controls, Java applets, and more to create interactive content. ActiveMovie technology allows you to view multimedia content on the web, including MPEG audio and video.

Use Microsoft Netmeeting to collaborate on a document, scribble on a whiteboard, or share any Windows application with one or more other users on the Internet.

If you are using Windows 98, you will find that Internet Explorer is probably already installed. Internet Explorer 4.0 is included with this kit for the benefit of users of the parallel port version of the Video Blaster WebCam under Windows 95 who may not already have Internet Explorer 4.0.

3 Image Quality and Frame Rate

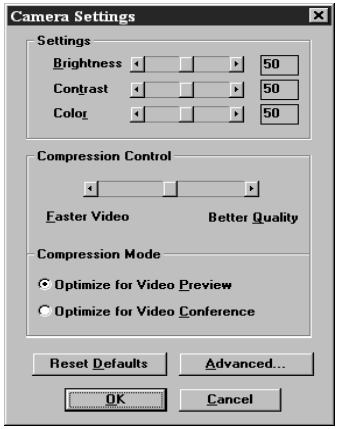
This chapter helps you achieve optimum performance with your Video Blaster WebCam.

Improving Image Quality

Two aspects are key to improving image quality when taking snapshots, capturing live video, or videoconferencing:

- Lighting
- Image Settings

To adjust the image settings, use the Camera Settings dialog. In PhotoMAX, you can view the dialog by choosing Source from the Video for Windows Driver Options dialog. In Video Blaster WebCam Control, click the Settings button, and then click Source.



Lighting

The best image quality obtained from your Video Blaster WebCam depends on adequate lighting. All other image adjustments depend on the presence of an adequate amount of light.

Video Blaster WebCam's sensitivity is similar to that of a home video camera. Although it can operate in low light, the resulting image is not clear. Incandescent lighting is preferable to fluorescent lighting. If you are attaching Video Blaster WebCam to a laptop computer, you will find that outdoor lighting also works well.

The Camera Settings dialog lets you choose low light or normal lighting mode. Selecting the low light mode boosts the camera's sensitivity and provides a more detailed image, but may lower the frame rate.

Image Settings

For best results, it is strongly recommended that you set your monitor and display card to display 16-bit color or higher. If your monitor cannot display thousands of colors, the image will be dithered. See Windows 95 on-line help for information on changing monitor settings.

Adjusting the brightness of the image

The Camera Settings dialog lets you adjust the brightness, contrast, and color of the video display. These settings can be used to compensate for less-than ideal lighting.

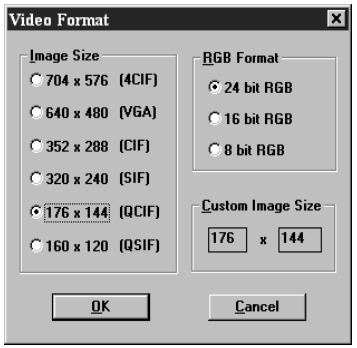
Adjusting the hue of the image

Video Blaster WebCam offers a compression option that can improve the frame rate, but has an effect on the image quality. The Compression Control slider may be adjusted from Faster Video (higher compression rate, lower image quality) to Better Quality (lower compression rate, higher image quality).

Leaving the slider to about 3/4 of the way towards Better Quality provides ideal image quality for most capture applications, and setting the quality to the middle is recommended when using Creative Video WebPhone or other videoconferencing software.

Changing Image Size and Color Depth

To adjust the image size and color depth, open the Video Format dialog. In PhotoMAX, you view this dialog by choosing Format on the Video for Windows Driver Options dialog. In Video Blaster WebCam Control, click on the Settings button, select the Setup tab, then click Format under Camera driver controls.



Choosing the size of the image

WebCam can capture images up to 704 x 576 pixels in size. Larger image sizes require more disk space when you save snapshots and movies. Larger image sizes also slow down the rate at which WebCam captures frames when recording a movie, and increases transfer times when used on web pages.

The 160x120, 176x144, 320x240 and 352x288 resolutions are ideal for live video. This smaller size results in a higher frame rate. The larger resolutions are better suited for capturing still images.

When the 704x576 image size is selected, the driver captures an image at 352x288 and uses a sophisticated software program to expand the image to 704x576.

Choosing the color depth

You can use the Video Format dialog to select the color depth of captured images. Your choices are 24-bit RGB (16.7 million colors), 16-bit RGB (65K colors), 8-bit palette (256 colors), and a special Intel Raw (YVU9) mode. The following resolutions/color depth modes are available:

	24-bit RGB	16-bit RGB	8-bit RGB	Intel Raw (YVU9)
704 x 576	Yes			
640 x 480	Yes			
352 x 288	Yes			
320 x 240	Yes	Yes		
288 x 216	Yes	Yes		
200 x 152	Yes	Yes		
176 x 144	Yes	Yes	Yes	Yes
160 x 120	Yes	Yes	Yes	Yes
128 x 96	Yes	Yes	Yes	Yes

The best frame rate for most applications is the 16-bit RGB mode.

You may select you own display modes by entering the resolution directly into the Image Size box of the dialog. The following restrictions apply:

- Horizontal and vertical resolutions must each be a factor of four (for example, 160x80)
- Minimum image size is 80 x 60
- Image sizes greater than 176 x 144 are supported only in the 24-bit and 16-bit RGB modes
- Images sizes greater than 320 x 240 are supported only in 24-bit RGB mode.

Achieving the Best Frame Rate

Here are a few tips for increasing the frame rate:

- Choose a smaller image size.
- Configure the camera to operate in 16-bit RGB mode and configure your video display to operate in 16-bit or 24-bit mode.
- Enable compression and use the lowest image quality that gives you satisfactory results.
- Close all unnecessary applications.
- Before capturing video to an AVI file with Creative Video Capture Application, use the Windows Disk Defragmenter application to defragment your hard disk drive.
- If your WebCam II uses a parallel port connection, set your computer's parallel port to ECP mode, rather than EPP mode or bi-directional mode. Parallel port operation is typically configured via CMOS (or BIOS) setup, so the first time you turn on your computer after installing the camera, open CMOS (or BIOS) setup and check your parallel port's configuration. If you are unsure of changing CMOS (or BIOS) settings on your computer, refer to your computer's documentation, or contact the manufacturer or local dealer before proceeding.
- If your WebCam II uses the USB port and is daisy-chained with another USB device or shares a USB hub with other devices, make sure that none of the other devices is active when you are capturing video. The total bandwidth of the USB port on your PC is shared by all the active USB devices, and operating the USB version of the Video Blaster WebCam along with another USB device on the same port can lower the maximum possible frame rate.
- In the Advanced Camera Settings Dialog, set lighting to Normal.

A

Troubleshooting

Software Installation

PROBLEM: The Video Blaster WebCam II CD-ROM disc does not automatically run when you insert it in the drive.

Solution: The AutoPlay notification in Windows 95 may not be enabled. Enable the "Auto Insert Notification" check box on the CD-ROM drive's Properties page:

1. Click the Start button.
2. Select Settings and the Control Panel.
3. Double-click the System icon.
4. Click Device Manager and select your CD-ROM drive.
5. Choose Properties. The properties for your drive are shown.

Video Blaster WebCam II

USB Compatibility

In our testing of a wide variety of PC motherboards with integrated Universal Serial Bus (USB) ports, we have encountered a small number of motherboards with USB ports that do not meet the USB specification exactly. Unfortunately, the Video Blaster WebCam II *may* not operate correctly with these systems.

When you select the USB driver installation option from the Video Blaster WebCam II CD-ROM main menu, the installation software automatically checks your motherboard model and revision and displays a warning message if your motherboard is among those failing our test procedure. However, there may be other motherboards which do not entirely meet the USB specification but which are not detectable by the installation program.

In all the cases of out-of-spec motherboard USB ports we have seen so far, the motherboard manufacturer has already released a motherboard revision to address the problem.

If the installation program warns you that your motherboard's USB port is incompatible, or if the camera does not work on your system and you suspect that it may be related to your PC's USB port, you have three options:

1. Contact your PC vendor. They may be able to upgrade your motherboard to a newer version which addresses USB incompatibilities.
2. Use a PCI host adapter which provides USB connectors. If you are not able to upgrade your motherboard, this is our recommended approach.
3. Attach the Video Blaster WebCam II to a powered USB hub. Some USB devices (such as monitors) also operate as powered USB hubs; you can also buy dedicated powered USB hubs which attach to your PC's USB port. However, in some cases, attaching a powered USB hub to an out-of-spec USB motherboard connector will not solve the problem.

One vendor of USB PCI adapters and standalone powered USB hubs is ADS Technologies. You can probably find their products at your favorite PC retailer. You can also visit their web site at **http://www.adstech.com.**

Video Blaster WebCam II with parallel port connection

Video Blaster WebCam II sends data to your computer via the parallel port. The parallel port must be configured to operate in bi-directional or ECP (Extended Capabilities Port) mode in order for the camera to operate—ECP allows for a faster frame rate than bi-directional.

Parallel port operation is typically configured in CMOS (or BIOS) setup. The first time you start your computer after installing the camera, open CMOS (or BIOS) setup and check your parallel port's configuration. If you are not familiar with CMOS (or BIOS) settings, consult the documentation for your computer, or contact your computer's manufacturer or local dealer before proceeding.

PROBLEM: There is no parallel printer port available to connect the parallel port adapter.

Solution: Do one of the following:

- Unplug the device currently connected.
- Add an interface card that has a parallel port.
- Use an A/B parallel port switchbox to toggle between both devices.

PROBLEM: The parallel port adapter does not fit the computer.

Solution: Purchase a parallel cable extension available from most computer retailers. This cable is usually sold in 6-inch lengths and is a 25-pin, *straight-through* configuration.

PROBLEM: An application reports that the video driver is already in use, or that the camera cannot be found.

Solution:
- The camera module is not properly connected. To resolve this problem, ensure the camera's parallel port connector is inserted and both ends of the power cable are connected.
- Reinstall the video capture drivers and reboot.

Video Blaster WebCam II with USB connection

PROBLEM: There is no USB port available to connect the USB cable.

Solution: Do one of the following:
- Unplug the device currently connected.
- Add a USB hub.
- Add a PCI USB card.

PROBLEM: An application reports that the video driver is already in use, or that the camera cannot be found.

Solution:
- The camera module is not properly connected. To resolve this problem, ensure the camera's USB connectors are inserted, and that the USB connector is enabled in the BIOS. Refer to your PC's documentation for information on the BIOS.
- Reinstall the video capture drivers and reboot.

Video Blaster WebCam II (parallel port and USB models)

PROBLEM: Picture is too bright.

Solution: The camera's exposure control has reached its limit. There may be a very bright object in the camera's view. Avoid pointing the camera at very bright objects (for example, sunlight, lights, or highly reflective surfaces).

Creative Video WebPhone

PROBLEM: "Sound Card Already In Use" error message appears. During an active conversation, the remote party is placed on hold and no sound is heard.

Solution: Another application is using the sound card. Exit the application using the sound card, take the remote party off hold, and resume your conversation.

PROBLEM: You cannot adjust the microphone volume with the Microphone Volume Control (MIC) on the WebPhone interface.

Solution: Click the CFG button on the WebPhone, select Sound Card Device, and select the correct microphone volume device.

PROBLEM: You cannot hear the remote user.

Solution:

- If the Creative Video WebPhone always displays TALK and never displays IN USE or LISTEN, you must raise the Voice Activation Level (the VOX slider on the WebPhone interface). Creative Video WebPhone then can detect silence and allow the remote party to talk.
- Creative Video WebPhone displays LISTEN when you expect to hear the remote party. Check the Speaker volume on the WebPhone interface, in your sound card's mixer application, or the Windows 95 Volume Control dialog.
- If you still cannot hear the remote party and Creative Video WebPhone does not periodically display LISTEN, the remote party's voice activation level or microphone volume is not set correctly. Contact the user via e-mail or conventional telephone and ask them to adjust their microphone and/or voice activation level.

PROBLEM: Received audio is delayed and choppy.

Solution: This may happen if you have a bad connection to the Internet or you are talking during a heavy traffic period on the Internet. This is not a problem with Creative Video WebPhone but a natural phenomenon associated with the Internet. Try reconnecting to the Internet or call at another time.

B

Technical Specifications

Video Blaster WebCam II

Construction:	Parallel Port version (Model CTWCII): Parallel port interface with remote camera head connected by 2m cable, with separate keyboard power cable. USB Port version (CWWCII-USB): USB interface with remote camera head connected by 2m cable	
Camera housing:	Monitor top fixture with manual pan and tilt ± 90 degrees vertical by 360 degrees rotational.	
Power:	Parallel Port version (Model CTWCII): From PC keyboard socket USB Port version (CWWCII-USB): From USB port	
Sensor:	Vision VM6426 ColorMOS™ image sensor	
Resolution:	Video Mode:	176 x 144 160 x 120 352 x 288 320 x 240
	Still Mode:	704 x 576 640 x 480 352 x 288 320 x 240 176 x 144 160 x 120
Sensitivity:	15 lux @ 7.5 fps	
Speed (maximum):	20 fps in 352 x 288 video mode 30 fps in 176 x 144 video mode	

Video formats:	24- and 16-bit RGB 8-bit palletized RGB 4:2:0 YUV Planar YUV2 UYVY YUV9
Exposure control:	Automatic (optional manual control with software)
Color balance:	Automatic (optional manual control with software)
Color matrix:	Preset and integral to camera
Field-of-view:	52 degrees (horizontal)
Depth-of-field:	50 millimeters to infinity.
Port compatibility:	Parallel Port version (Model CTWCII): Standard (uni-directional) printer port, 8-bit bi-directional, ECP enhanced mode USB Port version (CWWCII-USB): Universal Serial Bus port
Software compatibility:	Parallel Port version (Model CTWCII): TWAIN and 16-bit Video for Windows driver that runs under Windows 95. USB Port version (CWWCII-USB): TWAIN and 16-bit Video for Windows driver that runs under Windows 98.

C

Technical Support

At Creative Labs, we are committed to giving our customers the best product possible with excellent technical support. The information below is correct as this manual goes to press; check the software disk for a README file that will give any changes.

Technical Support

When you contact us, be prepared with the following information:

- Computer's type and speed (for example, Pentium/100 MHz), and memory available
- Memory management utility (for example, QEMM, HIMEM, or EMM386)
- Type of graphics card and any add-in cards (for example, SCSI controller)

Ideally, when you speak to a Technical Support Representative:

- Be seated at your computer
- Have written the exact text of any error message you received

North, Central, and South America

For technical assistance, call **405-742-6622**. Technical support is available 7 days a week from 8:00 a.m. to 12 midnight, Central time.

To reach Creative through Internet, connect to:
http://www.soundblaster.com

You can also send us a FAX at **405-742-6633** or write us at:

Technical Support
Creative Labs, Inc
1523 Cimarron Plaza
Stillwater, OK 74075

Europe

In Europe, please contact us through the Internet at **http://www.soundblaster.com**

Product Return

To return a Creative Labs product for factory service, you must have a Return Merchandise Authorization (RMA) number. Obtain an RMA number by calling the Technical Support office nearest you (see above for locations and telephone numbers). *Creative Labs will not accept a return without an RMA number.*

When returning a product for factory service:

- Shipment to Creative Labs is at your expense—you assume all risk. Ship the package through a carrier that provides proof of delivery; insure the shipment at full product value.
- Place the RMA number on the outside of the package.
- Use proper materials for packing the product for shipment.
- You must include a copy of a dated proof of purchase (store receipt), proving that the product is within the warranty period.

Creative Labs may replace or repair the product with new or reconditioned parts, and the replaced parts or product become the property of Creative Labs. The repaired or replaced product is warranted to be free from defect in material and workmanship for the greater of: (1) ninety (90) days from the return shipping date, or (2) the period of time remaining on the original one-year warranty.

Outside the United States

When shipping a product to Creative Labs from outside the U.S., you must complete an official customs form before shipping the product to avoid tariffs. *Creative Labs may include charges for return shipment to ensure delivery.*