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Introduction

Thank you for using USB PC camera. This high performance PC camera imbedded with video compression engine inside and push the video transmission through USB interface to the limit. A choice of high resolution sensor provides sharpest image quality, you will never too late to enjoy the pleasure of video applications in your PC with this PC camera. Following is a brief installation guide for user who run USB PC camera in Win98 environment for the first time.

System requirement

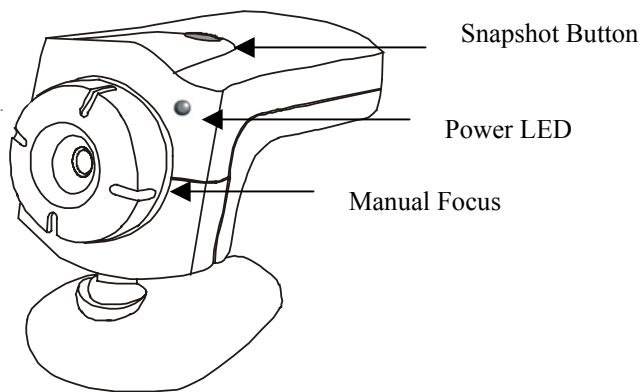Pentium 133 or above CPU, Pentium II 350 recommended
32 MB of system RAM
One USB port
Microsoft Windows 98
20MB hard disk space

Camera Diagram

Snapshot Button

Power LED

Manual Focus

Hardware installation

Plug in the USB cable of PC camera into the USB port in your PC. The power LED indicator of camera will turn on after the USB host controller having initiated the USB device properly.

Driver and software installation

Please follow the steps to install the driver for USB PC Camera.

A. Driver Installation

A 3.5" floppy diskette is included in the package.

After installation of USB PC camera, the Windows 98 will automatically detect USB PC camera and prompt you a "Add Hardware Wizard" dialog box at first time. Click on **Next** button to continue.

Click on the "**Search for the best driver for your device.**" And click on the **NEXT** button to continue.

Select the "**Floppy disk driver**", insert the driver diskette of USB PC camera into 3.5" floppy driver first. After pressing the **NEXT** button, the Windows 98 will search the driver in floppy disk automatically.
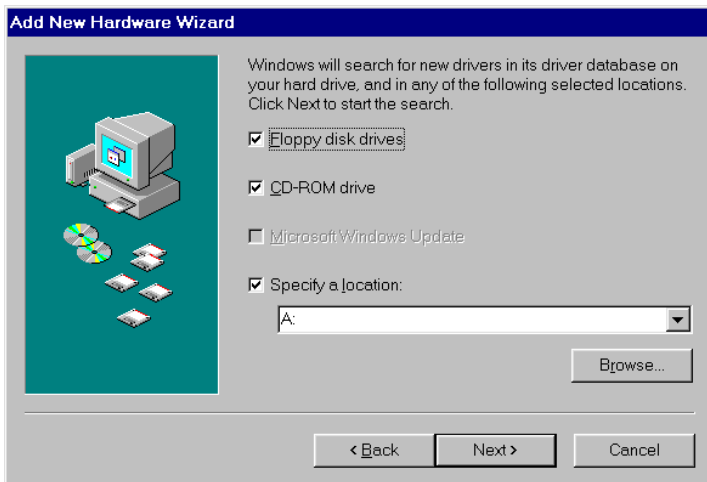
Click on the **NEXT** button, then the Windows 98 will copy all required files from the driver diskette to system.

Add New Hardware Wizard

Windows driver file search for the device:

Dual Mode USB Camera Plus

Windows is now ready to install the best driver for this device. Click Back to select a different driver, or click Next to continue.

Location of driver:

A:\OVTCAMP.INF

< Back   Next >   Cancel

Click on the **Finish** button to complete the installation of driver.

Add New Hardware Wizard

Dual Mode USB Camera Plus

Windows has finished installing the software that your new hardware device requires.

< Back   Finish   Cancel

B. Display Utility

When the driver installed completely, then the display utility
" OmniVision PC Camera VFW Capture" and "OmniVision
PC Camera WDM Capture" will also be installed to \Program
Files directory automatically. The display utility allows you to
view the video image from USB PC camera, and adjust the
parameters for best color quality.

To run " OmniVision PC Camera VFW Capture" display utility, click
on windows **Start Menu/ Programs/ OmniVision/ OmniVision
PC Camera VFW Capture**

Once the display utility started, then click **Options** menu and select
"**Preview**" to initiate driver function.
Click **Video Format** in **Options** menu, click on **Select image format**
to set the video display size. Three format: 160 x 120, 320 x 240, 640 x
480 is allowed to choose.
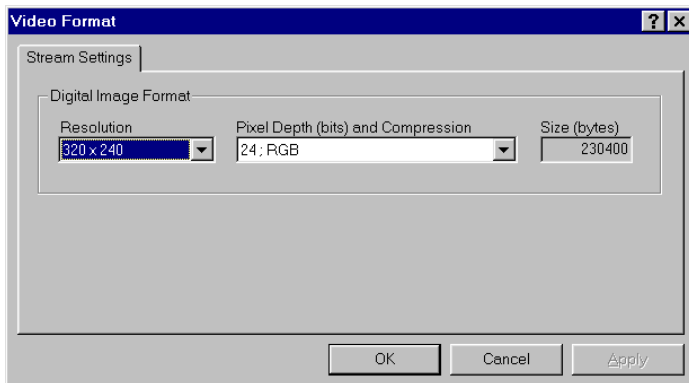
Note:
The 24 bit RGB is recommended for best color display.

Color Adjustment

When you pop up the application software, select **Option -> Video Source -> Device Control**. Adjust the value of following parameters,

Brightness, Exposure time, Contrast, Saturation, Sharpness, Hue, Automatic White Balance(AWB), and Gamma to get the best color for your specific applications or environment.
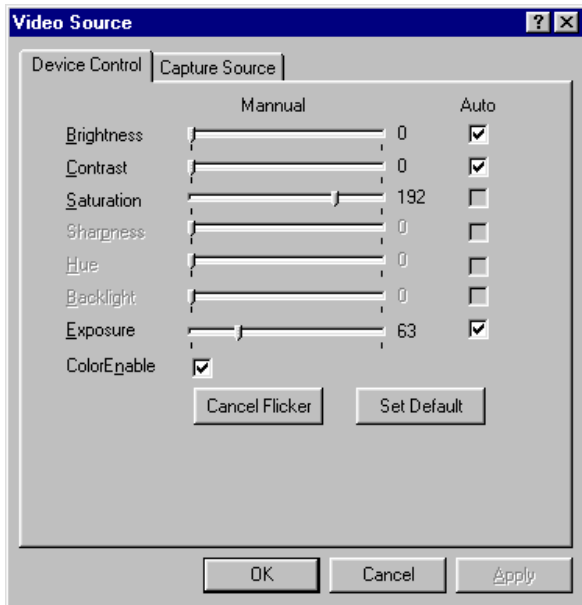
IF you have video application program other than" OmniVision PC Camera VFW Capture" and "OmniVision PC Camera WDM Capture", Video Source and Video Format can also be adjusted from the Options menu.

Now you are ready to run video conferencing, video mail and other video applications software. Please check with your software suppliers to see what they have and enjoy the pleasure of PC camera world.

Specifications

Sensor	352 x 288 Color CMOS sensor
Frame Rate	[30 fps @ CIF](#) format
Minimum illumination	6 lux
System Interface	USB port
LED Indication	Yes
Video Compression	Proprietary video compression
Snap-shot Button	Yes
Color Adjustment	Brightness, Hue, Saturation
White Balance	Automatic
Shutter Speed	Automatic
OS Support	Windows 98, Windows 2000
Lens	f=6.0mm / F=1.8
Aspect Ratio	4:3
Power Consumption	5V, 200mA max.
Operating Temperature	10℃ ~ 50℃
Storage Temperature	0℃ ~ 65℃
Humidity	10% ~ 90% non-condensing

<u>**Appendix:**</u>

Microphone Installation

In the package, it includes a microphone. With Microphone, the user can record image with voice.

To install the microphone, just plug the microphone to the "Mic in" connector on the sound card of the PC.

The user can check the microphone by running Windows Start Menu/ Programs/ Accessories/ Entertainment/ Sound Recorder. This program allows the user to do voice record and play back.

Appendix:

VIDEO CONFERENCE GLOSSARY

CMOS image sensor - CMOS (abbreviated for *Complementary Metal Oxide Semiconductor*) is similar to CCD with different silicon process in production. The advantage of CMOS is low power consumption, low production cost and small in chipset dice. The cons are lacking of noise immunity, which leads to less sensitivity in image quality. The modern silicon technology, however, can improve the signal-to-noise ratio significantly. Major suppliers of CMOS sensor are: OmniVision, VLSI Vision, Rockwell, Sharp, HP, Sony, and EleVision with resolution start from 80,000, 250,000 to 1,000,000 pixels.

Digital PC Camera - Digital PC camera, on the other hand, sends the digitized video signal, so-called YUV format, directly to your PC through parallel port, COM port, USB port, Fast Ethernet or IEEE 1394 interface. CCIR 601, a digital TV encoding standard, defines video digitized signal in YUV 4:4:4, or YUV 4:2:2 format. A corresponding driver in PC will decode and translate the data into correct color for splay. Digital camera is dedicated, but not limited, for PC applications today. The most popular interface today are parallel port and USB port.

Image DSP - Image DSP is used to deal with the image and color captured and ensure sharpness of color displayed on monitor. Image DSP can control white balance, hue and saturation of RGB color, gamma value for color adjustment. Different algorithms are implemented in DSP to provide such functions. Some silicon suppliers has already integrate DSP together with image sensor as one-chip solution for cost-down reason, while others implement compression engine in image DSP to speed up the data transmission rate.

Image quality - PC camera has to faithfully reflect and reproduce true color of observed object, any distortion of image or twisted of color will consider being poor image quality. Since the responses of human eyes to color are slightly different, some testing equipment and environment is necessary to accurately judge the image quality. Nevertheless, image sensor, lens and design method is the key factors of image quality. Another criteria of image quality is the sensitivity to environmental luminance, some PC camera can sense the image in dim condition for light source as low as 5 luxs, while others can respond in 10 luxs only.

Lens - Lens is another critical component in PC camera that can affect the quality of image sensed. The focal length and viewing-angle of lens, associated with IR-cut and low-pass filter, will determine the picture quality sensed. The most popular lens used in PC camera market is 1/3",1/4" and 1/5" lens, with 3.6 ~ 6.0 mm focal length each has their own advantages in different applications. To avoid distortion on edge of image, focal length above 4.0 mm is recommended.

Performance and resolution - The performance of PC camera is determined by frame size (resolution) and frame-per-second PC camera can handle. Frame size has certain standard for comparison, so-called SQCIF (160 x 120), QCIF (176 x 144), CIF (352 x 288) and VGA (640 x 480). Analog PC camera can transmit up to 30 frames/second at any resolution, which is almost the highest quality similar to the motion picture as you see in the cinema.

Still 18 frames/second claims to be acceptable in digital PC camera, although some jerking image may occur and cause inconvenience for visual effect. The new USB or parallel port PC camera with compression technologies should be able to support up to 30 frame-per-second in CIF formats.

Personal videoconferencing system- A system designed to connect a single person into a teleconference. Most desktop video conferencing systems are personal systems.

Frame rate- The number of images per second displayed in a video stream. Approximately 24 frames per second (fps) is considered full-motion video.

POTS (Plain Old Telephone Service)- Conventional analog telephone service.

ISDN (Integrated Services Digital Network) - A type of digital telephone service available in two speeds: 128-Kbps basic-rate interface (BRI) and 1.54-Mbps primary-rate interface (PRI).

H.261- Leads the pack. H.261 is the standard for video codecs, with the compressed video signal operating over one or more 64-kbps ISDN B-channels. H.261 defines two picture or resolution structures that are compatible with all three worldwide television display formats. The picture structures are the Common Intermediate Format (CIF) and the Quarter Common Intermediate Format (QCIF). CIF is also referred to as "full CIF" (FCIF).

H.323- Standard that provides a gateway for LAN/WAN videoconferencing. Desktop video conferencing on the LAN must adjust to the constantly-changing available bandwidth. This means LAN-based videoconferencing requires special compression technology. H.323 also covers Internet video-conferencing. Early in 1996, Intel and Microsoft, along with more than 70 other companies, announced support for the standard. Inter and Microsoft also collaborated on the H.323 stack that would become part of Microsoft's operating system.

H.324 for POTS - Another family of standards covers desktop videoconferencing over POTS. This family is called H.324, which the ITU-T ratified in early 1996. H.324 covers low-bit-rate videoconferencing between multimedia telephones. These telephones include stand-alone video phones, PC-based video phones, and TV-based video phones that resemble cable boxes with built-in cameras that sit atop televisions. This standard improves on H.320 in its flexibility. H.324 calls for transmission of real-time video, audio, and data over V.34 modems to be video phone ready, they must support a protocol called V.80. Part of H.324 is a newer video codec standard called H.263. H.263 defines and requires a new low-end SQCIF picture format of 128x96 pixels. QCIF is also required in H.263, and FCIF is optional. H.263 is a major breakthrough in video compression, and is substantially better than H.261 at low data rates. However, at 384 kbps and above, the difference is less apparent. Work is underway in the ITU-T to migrate H.263 into the H.320 family. However it is mandatory that the H.324 terminal support H.261 as well as H.263. The H.324/M series covers videoconferencing over mobile or wireless radio networks. H.324 is critical in delivering desktop videoconferencing products to the home and small office/home office (SOHO) market.

QCIF (Quarter Common Intermediate Format)- A

176-by-144 video format defined by the ITU's H.261 specification.

CIF- Display paints 352 pixels per line and 288 lines per picture, normally displayed full-screen.

VGA - Video Graphics Array, resolution is 640 x 480 pixels.

SVGA - Super Video Graphics Array, resolution is 800 x 600 pixels.

Twain - A standardized interfacing system that allows many different software applications to access many different image input devices. TWAIN compliance is needed for both software applications and imaging hardware devices (scanners, cameras) to be compatible.

USB port - USB is the abbreviation for *Universal Serial Interface*, and is a new interface with throughput goes up to 12Mbps. It allows daisy-chained of 127 PC peripherals connection with 5 meters per device. USB provides the power for each device, means no more external power adapter for PC peripheral.

USB also supports hot swap of device, or dynamic insertion-removal, and auto configuration as device changes. The throughput of USB, however, is not sufficient for real-time video transmission. The recently released USB PC camera, imbeds video compress/decompress technology to increase the data transmission and supports 30 fps in QCIF or CIF format.

Video Communication Software - Users can do little with PC camera and other hardware without application software. Microsoft bundles NetMeeting in Windows98 providing basic solution for video conferencing over Internet or Intranet. While other software vendors provide video-mail, video editing, pattern recognition, personal security and remote monitoring utilities to touch down specific arena. Some software is quite sophisticated with comprehensive user interface, check you're nearby software dealers to get latest information. VGA: Video Graphics Array, resolution is 640 x 480 pixels.