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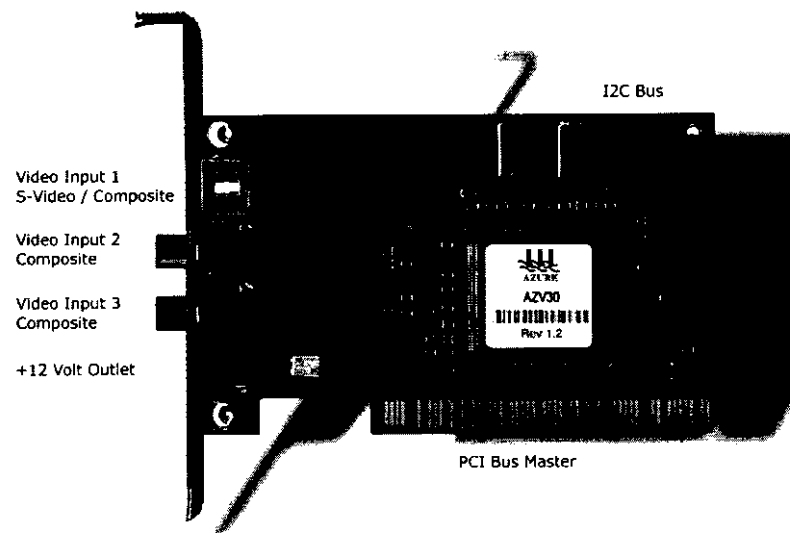
Welcome to the AZV30

What is the Azure AZV30?

The AZV30 is a high quality colour video and image capture board for PCI bus personal computers. The combination of low cost with high quality results in a board that is ideal for both traditional imaging environments and emerging desktop applications. It is excellent for use as video conferencing and Internet video. The low cost of the AZV30 is achieved by taking advantage of PCI bus mastering to enable full frame video transfer with minimal components.

What features does the hardware offer?

On the AZV30 card front are three Video Input Connectors, one supporting S-Video and Composite and two composite only. A 12Volt DC outlet is also provided to power video cameras requiring less than 400mA.



into a graphics card's memory, for live '*video in a window*' video overlay applications.

Multiplexer

The AZV30 features three video inputs that can be used as three composite inputs or two composite and one S-Video input. Any one of these can be used as the video source at one time.

Video decoder

The AZV30's video decoder uses a technique known as Ultralock™ to lock to the incoming analogue video signal. Ultralock™ generates the required number of pixels per line enabling the decoder to quickly and accurately lock on a wide variety of video sources. This is particularly useful when inputting videos from unstable sources like VCRs.

The AZV30's video decoder is compatible with the following video standards:

- NTSC-M,
- PAL-B, -D, -G, -H, -I, -M, -N
- SECAM.

Video Scaler and Cropper

The AZV30 Video Scaler can reduce the image size both horizontally and vertically to 1/16 of full size or 1/8 when using fields. The scaling is implemented using a 6-tap interpolation filter horizontally and 5-tap interpolation filter vertically. This offers great advantages over scalers that drop pixels (horizontally) and liners (vertically) because image features are not lost.

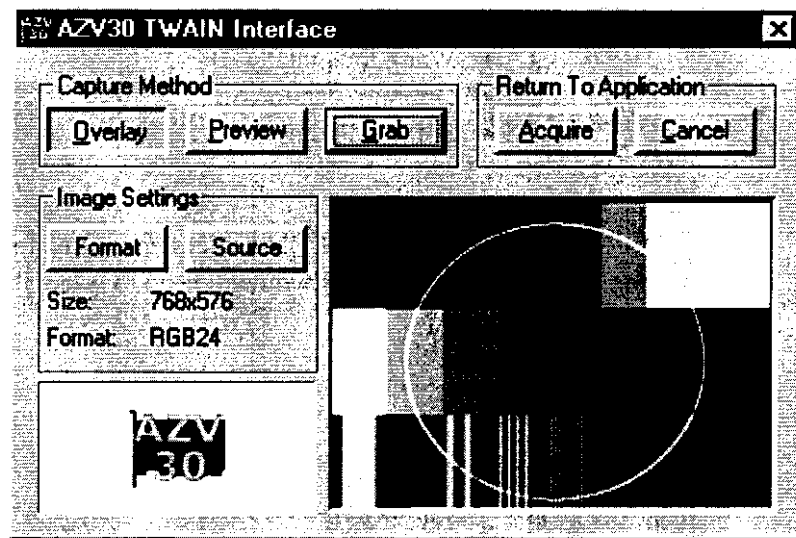
In addition to scaling the video, the image can also be cropped by the hardware. Cropping allows any sub-section of the image to be displayed.

What software is on the AZV30 CD-ROM?

The AZV30 CD-ROM contains the following software to enable you to install the AZV30 on your PC, start capturing and editing video clips and develop your own applications.

- **AZV30 Utilities:** These utilities provide you with the ability to capture, save and edit video clips from the AZV30. They include Microsoft's VidCap and VidEdit programs. AzCam is a camera view that offers facilities for viewing the incoming video always on top of other windows. It allows you to switch on and off the title bar and toolbar. A "copy to clipboard" provides a quick way of pasting still images directly into a word processor document or graphics application. A TWAIN driver and interface is also installed as part of the utilities and permits the AZV30 to operate with applications that already connect to document scanners.
- **Documentation:** The manual, together with a variety of other documentation, is available in Adobe *Acrobat* (.pdf), Microsoft *Word* (.doc), and Web (.html) formats on the CD-ROM. These can be viewed by installing the Adobe Acrobat Reader, Word Viewer and Internet Explorer which are supplied in the *Extras* folder.
- **Samples:** To give you an appreciation of the capabilities of AZV30, the benefits of different video codecs and some fun, a variety of video clips taken with AZV30 at different resolutions and processed with different video codecs is located on the CD-ROM in the "*samples\videos*" folder. An assortment of still images (in *samples\images*) and gif animations (in *samples/animations*) is included.
- **Extras:** A selection of useful software is included on the CD-ROM to assist you. For example, Adobe Acrobat Reader is included in the "Extras" folder to permit you

The AZV30 TWAIN interface provides the opportunity for adjusting your camera input in overlay or preview mode, then to 'grab' the image. Each time you press the 'grab' button, the image is displayed in the image window of the TWAIN interface. When you are satisfied with your image, you press the 'Acquire' button to pass your grabbed image to your imaging application.



The AZV30 TWAIN interface allows you to set up the AZV30 hardware through the 'Format' and 'Source' buttons.

Note: You can acquire RGB8 and Y8 format images correctly to your imaging application, but your graphics adapter may not display them in the TWAIN image window unless you have the correct video codec installed. These codecs are not supplied with the AZV30.

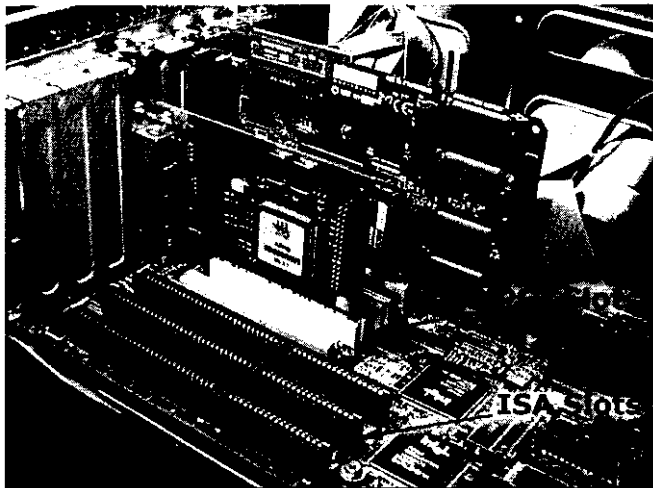
Many applications offer the option of acquiring images via a TWAIN interface. They usually include a menu item called "TWAIN", "Acquire" or "Import".

Installing the AZV30 card

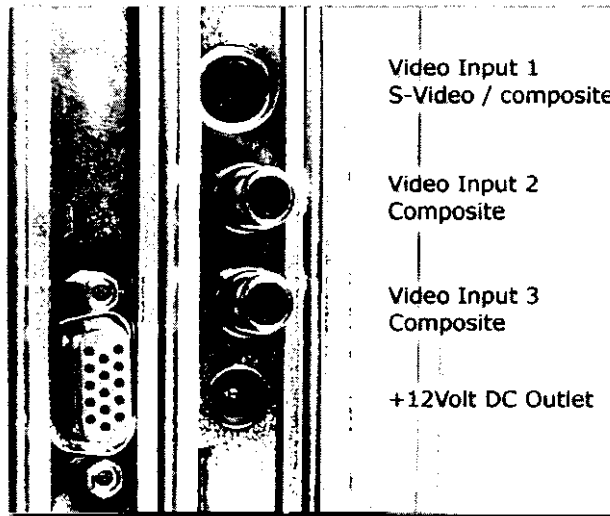
The Azure AZV30 is Plug & Play compatible, which makes installation as simple as possible. There are no jumpers on the board to configure, and your PC's Plug & Play BIOS will automatically allocate the interrupts and memory segments required by the AZV30. To install the AZV30 in your PC and start capturing video & images follow these directions:

Insert the Azure AZV30 into your computer, as follows:

1. Switch off your computer and all peripheral devices.
2. Loosen the screws of your computer's cover and then remove it.
3. Select a free (bus-master) PCI slot.



4. Remove the slot shield at the back of the computer.
5. With the power cable plugged in to the wall socket and your PC, **but not switched on**, discharge yourself of



10. Reconnect any other cables and switch on your PC.
11. Windows 95 will automatically detect the AZV30 as a new Plug & Play device and will guide you through the next stage of installing the AZV30 device drivers. You will require the AZV30 CD-ROM to complete this next stage.

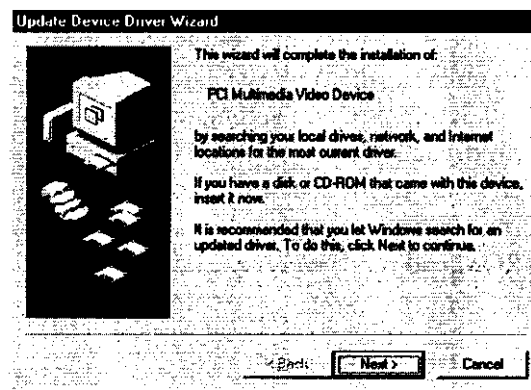
The Azure AZV30 hardware installation is now completed. Install and configure the Azure AZV30 software as described in the following section.

Installing the software

Switching on your PC for the first time after inserting the AZV30

The first time Windows 95 runs after inserting the AZV30 card in your PC, Windows 95 will automatically find the AZV30 as a new plug and play device. It will advise you that it has found a *PCI Multimedia Video Device* and then run the *Update Device Driver Wizard* to guide you through the installation.

Insert the AZV30 CD-ROM into your CD-ROM drive now.



Windows 95 will search for the AZV30 drivers and should find them on the CD-ROM.

Note: Some versions of Windows 95 experience a problem in finding the correct folder, in this case you may need to browse the CD-ROM to locate the correct folder. Depending on your Windows 95 version, you may need to select either the “drv” folder or the root folder “\” of your CD-ROM drive.

You are now at the starting point to install the components you require:

Click on the *Welcome* button to run the Welcome Video (captured using the AZV30); this will introduce you to the AZV30 and advise you how to use the Setup program.

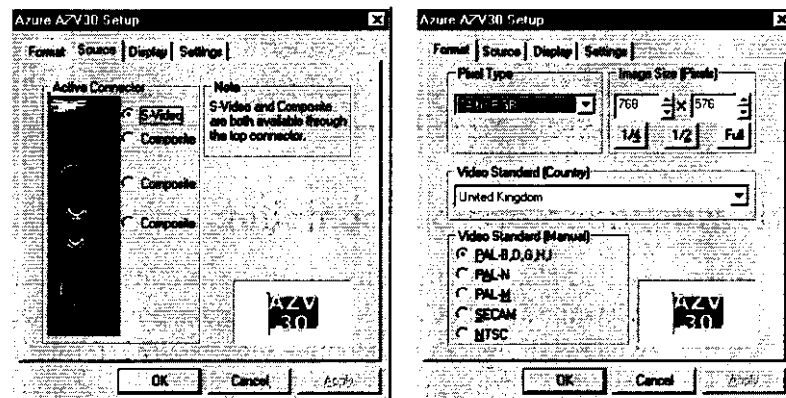
Click on the AZV30 Utilities to install Video Viewing, Capture and Editing software, as well as the TWAIN driver and interface, on your PC.

Note: The AZV30 requires DirectX Version 5, so before you can get the best from the AZV30 we recommend you click on DirectX to install it.

If you have a web browser installed, such as Microsoft Internet Explorer, you can browse a snap shot of the Azure AZV30 Website. From here there are links to the live site to get the latest drivers, tools and information. If you don't have a Web Browser installed, click the Browse CD option to navigate to the Extras folder, where you will find Microsoft Internet Explorer.

Using the AZV30

Configuring the AZV30 for your use is easy, with the AZV30 dialog. This can be viewed from video applications by selecting "View Source" or View Format" menu items. With the AZV30 dialog showing, you can select the connector and video standard you are using.



If you are unsure of your particular video standard select your country from the drop-down list.

You can then choose the type of video clip or image you wish to capture in the "Pixel Type" option. To start with we recommend BTYUV for video clips and 24bit RGB for still images.

The "Display" Tab provides you with information about the driver version and DirectDraw. You can also check "Force Primary" to overcome problems encountered on certain graphics adapters.

Capturing sound with video

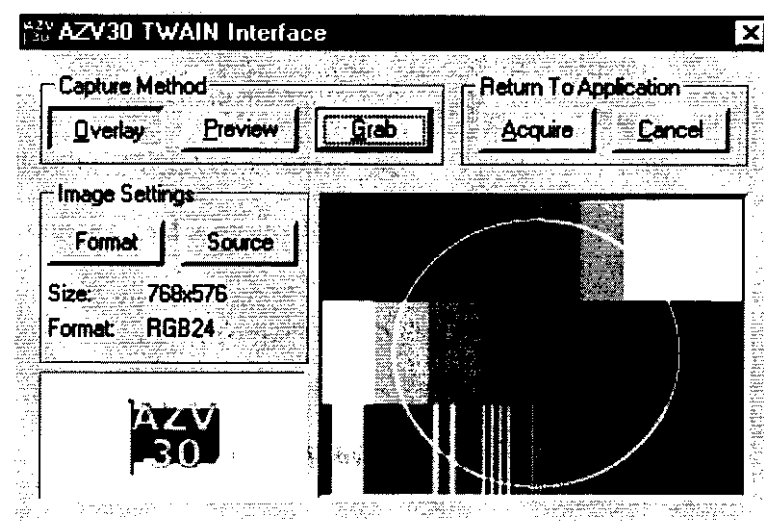
You can capture sound simultaneously with video and save it as part of an AVI file. You need to have a sound card (capable of recording) also installed in your computer. The sound recording format is set up using VidCap from the Capture-Video menu. When video conferencing using sound, it is recommended to use a sound card with "Full-Duplex" capability.

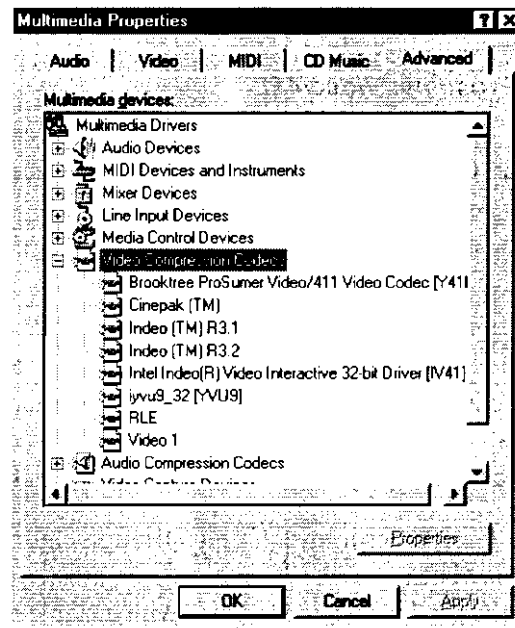
Capturing still images

Still images can be captured with the AZV30 using AzCam, by copying a frame to the clipboard on a key-press and pasting it to your desired graphics tool, word processor or DTP application. You can use VidCap to save still frames to disk in a choice of image formats.

Acquiring still images with TWAIN

The AZV30 installs a TWAIN compatible driver and interface to enable you to acquire images directly into many graphics and imaging applications.





The installed CODECs are listed.

The AZV30 includes the *Brooktree Prosumer Video/411* (to operate with the AZV30 YUV411 capture format) and YUV9 CODECs. Additionally, the latest Intel Indeo video CODECs are included in the *Extras* folder on the AZV30 CD-ROM and include a YUV9 in the Intel Video R3.2 Folder.

You can verify which video CODECs are installed on your PC as follows:

1. In Control Panel, double-click Multimedia.
2. Click the Advanced tab.
12. Double-click the Video Compression CODECs branch to expand it.

Indeo 3.1 & 3.2

These offer good quality, and fast compression at high ratios, for running video at 15fps at resolutions up to 320 x 240.

YUV9 & YUV9C

The YVU9C format is the same as YUV9 (or Indeo Video Raw), but files in this format are compressed to roughly half the size as files in the raw format. When capturing YUV9, the input signal is only sub-sampled. Some signal loss occurs, however, if video captured in YVU9C format is later compressed using Indeo video interactive.

Microsoft

Microsoft Video 1

Fast compression but low ratios. Good for full-motion, moderate-quality video at resolutions up to about 240 x 180. This CODEC is also described as MS-CRAM.

Microsoft RLE

Low compression ratios, but is better for clean pictures such as animations than recorded video as it has problems with frequent scene changes.

Trouble shooting

Graphics Card Issues and Direct Draw

Most issues that arise when installing the AZV30 are related to graphics card compatibility and drivers. If you are experiencing problems with the AZV30 make sure you have suitable drivers available for your graphics card and that you have installed Direct Draw from the \extras\directx folder on the AZV30 CD-ROM.

You should check that your graphics card is on the Azure AZV30 current compatibility list. Graphics cards that are compatible with the AZV30 include Matrox Millenium and Mystique, ATI Rage and Mach64, S3 ViRGE, Trio 64V+ and Tseng Labs ET6000.

Some graphics cards support Direct Draw Overlay through an Overlay Surface; the most common cards with this feature are the ATI RageII, S3 Trio 64V+ and ViRGE based cards. Some designs of these cards experience compatibility issues or reduced image quality in this mode. In this case check the "Force Primary" option in the Display Tab of the AZV30 dialog and re-start your application. The program "setprimary.exe", located in the AZV30 Utilities folder, can force these cards to use the "Primary Surface" Overlay mechanism used on other cards.

Pixel faults experienced when using overlay mode do not arise if your application is using Preview mode as images are drawn to the screen memory in the traditional way. Neither Overlay Surface or Primary Surface modes cause image issues when capturing images to memory, streaming to disk, or capturing still images; they are only related to displaying images on the graphics card.

select "video connector" and select the S-Video connector with composite input.

Warning Message:

"Old version of COMCTRL32.DLL detected"

The message is displayed because an old version of the COMCTRL32.DLL has been detected. It is possible to correct this problem by installing Internet Explorer which is supplied on your AZV30 CD-ROM. This DLL file is not freely distributable so it cannot be installed as part of the AZV30 setup by Azure Limited.

Initialisation error: Capture Device was not detected

The error can occur in two situations:

1. You have correctly fitted the AZV30 card and installed the AZV30 driver, but when you run VidCap (or any other video application) you get a dialog displaying the above message.

Solution:

You have not installed DirectX on your PC. DirectX version 5 (required for overlay mode) and can be installed from the AZV30 CD.

2. You have successfully been running applications with video, but suffered an application error. In this situation the AZV30 driver does not always close down.

Solution:

Close all your applications and restart your computer.

2. Capture performance is greatly increased by specifying the file & size before capturing starts:
 - From 'File' menu set capture file and allocate file space by setting a file size before you start capturing
3. Stop all other tasks that are running, especially network services, and other intensive applications.

I still have a problem, what should I do?

1. If you have access to the Internet, check out Azure's Knowledge Base at <http://www.azure.com/kb/>
2. Check with your local dealer
3. Report the issue back to Azure with as much information regarding your problem as possible. You can report the information to Azure in a number of ways.

The preferred mechanism is by the form on the Internet at <http://www.azure.com/support/feedback.htm> or by email to support@azure.com

Alternatively you may fax the report to +44 (0) 1305 251779 marking it for the attention of "AZV30 SUPPORT"

Appendices

After-sales services from Azure

Your AZV30 card is covered by a 12 month warrantee. In the unlikely event that there is a fault with your card, returns for repair or replacement should be made through your dealer.

In addition to the hardware warrantee, Azure provides support and free software upgrades via the internet. Your starting place for the AZV30 on the Internet is

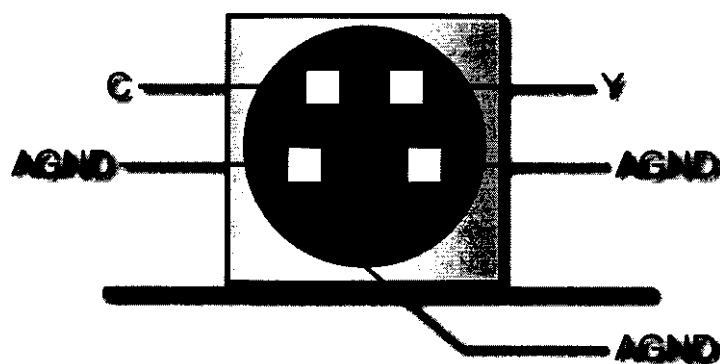
<http://www.azure.com/AZV30/>

Here you will find:

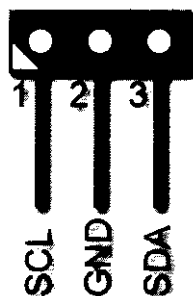
- the latest information on the AZV30,
- links to the download area where all latest AZV30 software and drivers will be available free of charge,
- the AZV30 support area where you will find tips and tricks for getting the best out of the AZV30 and information including frequently asked questions (FAQs).
- For information relating to problem solving try the Azure Knowledge base at <http://www.azure.com/kb/>

Connector Pin-Outs

Video Input 1 (S-Video Connector)



I²C Bus Connector



Video Standards by Country

No Country	PAL_BDGH	Gabon	SECAM	New Caledonia	SECAM
Abu Dhabi	PAL_BDGH	Galapagos Islands	NTSC	New Zealand	PAL_BDGH
Afghanistan	PAL_BDGH	Gambia	PAL_BDGH	Nicaragua	NTSC
Ajman	PAL_BDGH	Georgia	SECAM	Niger	SECAM
Alaska	NTSC	Germany	PAL_BDGH	Nigeria	PAL_BDGH
Albania	PAL_BDGH	Ghana	PAL_BDGH	Norway	PAL_BDGH
Algeria	PAL_BDGH	Gibraltar	PAL_BDGH	Oman	PAL_BDGH
Andorra	PAL_BDGH	Greece	PAL_BDGH	Pakistan	PAL_BDGH
Angola	PAL_BDGH	Greenland	NTSC	Panama	NTSC
Antigua and Barbuda	NTSC	Grenadines	NTSC	Papua New Guinea	PAL_BDGH
Antilles	NTSC	Guadeloupe	SECAM	Paraguay	PAL_N
Argentina	PAL_N	Guam	NTSC	Peru	NTSC
Armenia	SECAM	Guatemala	NTSC	Philippines	NTSC
Aruba	NTSC	Guinea	SECAM	Poland	SECAM
Aryenuna	PAL_N	Guinea-Bissau	PAL_BDGH	Polynesia	SECAM
Australia	PAL_BDGH	Guyana	SECAM	Ponape	NTSC
Austria	PAL_BDGH	Haiti	NTSC	Portugal	PAL_BDGH
Azerbaijan	SECAM	Hawaii	NTSC	Puerto Rico	NTSC
Azores (US Forces)	PAL_BDGH	Honduras	NTSC	Qatar	PAL_BDGH
Bahamas	NTSC	Hong Kong	PAL_BDGH	Ras Al-Khaimah	PAL_BDGH
Bahrain	PAL_BDGH	Hrvatska	PAL_BDGH	Reunion	SECAM
Bangladesh	PAL_BDGH	Hungary	SECAM	Romania	PAL_BDGH
Barbados	NTSC	Iceland	PAL_BDGH	Russian Federation	SECAM
Belarus	SECAM	India	PAL_BDGH	Rwanda	SECAM
Belau	NTSC	Indonesia	PAL_BDGH	Saba Island	NTSC
Belgium	PAL_BDGH	Iran	SECAM	Saba / Sarawak	PAL_BDGH
Belize	NTSC	Iraq	SECAM	Saipan	NTSC
Benin	SECAM	Ireland	PAL_BDGH	Samoa	NTSC
Bermuda	NTSC	Israel	PAL_BDGH	San Marino	PAL_BDGH
Bhutan	PAL_BDGH	Italy	PAL_BDGH	Saudi Arabia	PAL_BDGH
Bioko	PAL_BDGH	Ivory Coast	SECAM	Senegal	SECAM
Bolivia	NTSC	Jamaica	NTSC	Serbia	PAL_BDGH
Bophuthatswana	PAL_BDGH	Japan	NTSC	Seychelles	PAL_BDGH
Bosnia Herzegovina	PAL_BDGH	Jordan	PAL_BDGH	Sharjah	PAL_BDGH
Botswana	PAL_BDGH	Kampuchea	NTSC	Sierra Leone	PAL_BDGH
Brazil	PAL_M	Kazakhstan	SECAM	Singapore	PAL_BDGH
Brunei	PAL_BDGH	Kenya	PAL_BDGH	Slovakia	PAL_BDGH
Bulgaria	SECAM	Korea (North)	SECAM	Slovenia	PAL_BDGH
Burkina Faso	SECAM	Korea (South)	NTSC	Society Islands	SECAM
Burma	NTSC	Kuwait	PAL_BDGH	Somalia	PAL_BDGH
Burundi	SECAM	Kyrgyzstan	SECAM	South Africa	PAL_BDGH
Cambodia	NTSC	Latvia	SECAM	Spain	PAL_BDGH
Cameroon	PAL_BDGH	Lebanon	SECAM	Sri Lanka	PAL_BDGH
Canada	NTSC	Leeward Islands	NTSC	St Kitts and Nevis	NTSC
Canary Islands	PAL_BDGH	Lesotho	PAL_BDGH	St Lucia	NTSC
Cayman Islands	NTSC	Liberia	PAL_BDGH	St Pierre and Miquelon	SECAM
Central African Republic	SECAM	Libya	SECAM	St Vincent and the Grenadines	NTSC
Chad	SECAM	Liechtenstein	PAL_BDGH		
Chile	NTSC	Lithuania	SECAM	Sudan	PAL_BDGH
China	PAL_BDGH	Luxembourg (PAL)	PAL_BDGH	Sunnam	NTSC
Colombia	NTSC	Luxembourg (SECAM)	SECAM	Swaziland	PAL_BDGH
Congo	SECAM	Macao	PAL_BDGH	Sweden	PAL_BDGH
Costa Rica	NTSC	Macedonia	PAL_BDGH	Switzerland	PAL_BDGH
Cote d'Ivoire	SECAM	Madagascar	SECAM	Syria	SECAM
Croatia	PAL_BDGH	Madeira	PAL_BDGH	Tahiti	SECAM
Cuba	NTSC	Malagasy	SECAM	Taiwan	NTSC
Curacao	NTSC	Malawi	PAL_BDGH	Tajikistan	SECAM
Cyprus (Greek)	SECAM	Malaysia	PAL_BDGH	Tanzania	PAL_BDGH
Cyprus (Turkish)	PAL_BDGH	Maldives	PAL_BDGH	Thailand	PAL_BDGH
Czech Republic	SECAM	Mali	SECAM	Tibet	PAL_BDGH
Dahomey	SECAM	Malta	PAL_BDGH	Togo	SECAM
Denmark	PAL_BDGH	Malvinas	PAL_BDGH	Trinidad and Tobago	NTSC
Diego Garcia	NTSC	Marina Islands	NTSC	Tunisia	SECAM
Djibouti	SECAM	Martinique	SECAM	Turkey	PAL_BDGH
Dominica	NTSC	Mauritania	SECAM	Turkmenistan	SECAM
Dominican Republic	NTSC	Mauritius	SECAM	Uganda	PAL_BDGH
Dubai	PAL_BDGH	Mexico	NTSC	Ukraine	SECAM
Ecuador	NTSC	Micronesia	NTSC	United Arab Emirates	PAL_BDGH
Egypt	SECAM	Midway Islands	NTSC	United Kingdom	PAL_BDGH
El Salvador	NTSC	Moldova	SECAM	United States Of America	NTSC
Equatorial Guinea	PAL_BDGH	Monaco (PAL)	PAL_BDGH	Upper Volta	SECAM
Estonia	SECAM	Monaco (SECAM)	SECAM	Uruguay	PAL_N
Ethiopia	PAL_BDGH	Mongolia	SECAM	Uzbekistan	SECAM
Falkland Islands	PAL_BDGH	Montenegro	PAL_BDGH	Venezuela	NTSC
Faroe Islands	PAL_BDGH	Montserrat	NTSC	Vietnam	PAL_BDGH
Fernando Po	PAL_BDGH	Morocco	SECAM	Virgin Islands	NTSC
Fiji	PAL_BDGH	Mozambique	PAL_BDGH	Yemen	PAL_BDGH
Finland	PAL_BDGH	Myanmar	NTSC	Yugoslavia	PAL_BDGH
France	SECAM	Namibia	PAL_BDGH	Zaire	SECAM
French Guiana	SECAM	Nepal	PAL_BDGH	Zambia	PAL_BDGH
French Polynesia	SECAM	Netherlands	PAL_BDGH	Zanzibar	PAL_BDGH
Fujairah	PAL_BDGH	Netherlands Antilles	NTSC	Zimbabwe	PAL_BDGH

	be modified and can be accessed with a CD-ROM drive.
Chroma key	A technique of substituting video or still image in place of a specified colour, or range of colours, on a source video.
Chrominance	The colour component of a video signal. Used in S-Video where two wires are used, one transmitting chrominance part and one the luminance part.
CODEC	Abbreviation for Compressor/Decompressor, compresses (packs) and decompresses (unpacks) image data. There are different compression methods, software CODECs and hardware CODECs.
Colour Depth	Number of bits delivering the colour information for each pixel. See bits per pixel
Colour model	Method of representing video and image pixel data. Example methods include RGB, YUV4:1:1, YUV9
Colour palette	A method of representing pixel colour information of an image by a value that represents the actual RGB values.
Component video	A video signal format that separates the video data into its three component parts with a Red, Green and Blue signal for transmission.
Composite video	Composite video encodes all image information in one signal.
Compress	The process of converting video and audio data into a more compact form for storage or transmission.
Contrast	The range between the darkest tone and the lightest tone in an image.
Cropping	Selecting a smaller area of the image area to be used or viewed.

Full motion video	Video that plays at 25 frames per second in PAL or 30 frames per second in NTSC.
Hi 8 Video	Improved standard for video 8 recording using S-Video signals.
Hue	Name used to describe the colour of an object (or pixel) without any reference to intensity or saturation.
Hz	An abbreviation for Hertz: cycles per second.
Image compression	Method to reduce the amount of data of digital image and video files.
Indeo Video Interactive	Intel video CODEC incorporating transparency, scalability, and local decode.
Indeo video	Intel's series of compressor and decompressor technologies for digital video, capable of producing software-only video playback.
Interframe compression	A form of compression in which the CODEC compresses the data within one frame relative to others. These relative frames are called delta (or difference) frames.
Interlaced	Interlaced describes the refresh method which the PAL and other TV systems use: The TV image consists of two image halves of 312 ½ lines each.
Intraframe compression	A form of compression in which the CODEC compresses the data within one frame relative only to itself. Key frames are compressed with intraframe compression because they must reconstruct an entire image without reference to other frames.
JPEG	Abbreviation for Joint Photographic Experts Group. Standard for the image compression where image data is changed by the compression process. A popular image format for the Internet.

Multimedia	Combination of (some or all of) text, still images, sound, animation, and video.
Native resolution	The resolution at which the video file was originally captured.
Non-interlaced	Image display method, where the lines of an image are transmitted one after the next as opposed to interlaced images.
NTSC	Abbreviation for National Television Systems Committee. Colour TV standard used in the USA and around the world using 525 lines and 60 image fields per second.
PAL	Abbreviation for Phase Alternation Line A colour TV standard developed in Germany using 625 lines and 50 image fields per second. Widely used in Europe, Australia and parts of Central and South America.
Palette	A look-up table - see colour palette.
PCI	Peripheral Connector Interface (PCI) is used in Pentium PCs to plug in additional hardware. The PCI bus is usually used where high data rates are required as it can support up to 132 Mbytes per second in 32 bit wide format.
Pixel depth	The number of bits of colour information per pixel. See bits per pixel.
Pixel	Abbreviation for picture element. Pixels are the smallest elements of a monitor image.
QuickTime	Apple's multimedia environment for Macintosh and Windows operating systems.
Raw	An image or video format in which the data is formatted in the order it has been captured.

	hardware. The quality of these sequences depends on the performance of the complete system. VHS quality is not achieved.
Still-Video	Method where cameras digitally store photographs on disk or in memory to download to PC either by a serial connection or by a video capture card.
S-VHS	Abbreviation for Super-Video Home System providing an improved standard over VHS for VCRs to record with better resolution and colour quality.
S-Video	An enhancement to composite video where two wires are used to transmit the video signal. S-Video transmits the brightness (luminance) on one wire and the colour (chrominance) information separately on another wire.
Transparency frame	A video frame that contains no image data, but provides a colour or range of colours to be made transparent in subsequent frames using colour keying techniques.
Transparency	A feature of the Indeo Video Interactive CODEC in which software emulates chroma keying, allowing foreground video objects to be composited dynamically over a different background. The background could be a bitmap or possibly even another video.
VHS	Abbreviation for Video Home System, which is commonly used for home VCRs to record and play back images and sound using a ½" tape. VH systems use composite signals consisting of brightness and colour information.
Video for Windows	Video for Windows (VFW) is a Microsoft Windows system extension that records, stores, and plays back video sequences to and from hard disk.

Compliance Statements

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, and can radiate radio frequency energy, and if not installed in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in any particular installation. If this equipment does cause interference to radio or television receptions which can be determined by turning the device off and on, try and reduce the interference:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment on a circuit different from that to which the receiver is connected.

Properly shielded and grounded cables and connectors must be used in order to meet the FCC emissions limits. Proper cables and connectors are available from authorised dealers. Azure Limited is not responsible for any radio or television interference caused by using other than recognised cables and connectors, or by any unauthorised modifications to this equipment. Unauthorised modifications could void the users authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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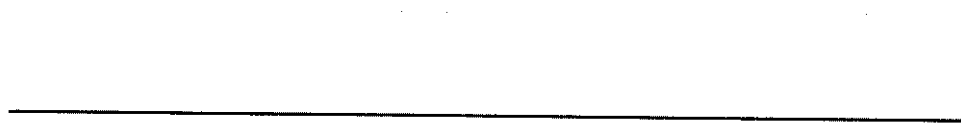
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Compliance statement

The AZV30 equipment has been tested and complies with
EN55022 Part B emissions and EN50082-1 immunity standards.

Video scan rate	Frequency with which the video signal is scanned. The higher the video scan rate, the higher the image quality and the less is the flicker.
Video-8	Video system using a 8mm tape. Video 8 recorders generate composite signals.
Viewport	A rectangular sub-region of a video image.
Wavelet	A compression algorithm that samples the video image based on frequency to encode the information. This creates a series of bands representing the data at various levels of visual detail. The image is restored by combining bands sampled at low, medium, and high frequencies.
Y/C	Y/C is a signal consisting of two components: Y = brightness information, C = Colour information. System used in S-Video transmission.
YUV	Colour model where Y delivers the brightness information and U and V the colour information.
YVU9	A digital image/video format where pixels colours are averaged and converted to nine bits per pixel.
YVU9C	A compressed version of YUV9 pixel format.

Resolution	The resolving capability of the camera / monitor. A CCD camera may have 768 x 576 pixels, but a resolution of 400 lines stating that objects smaller than 1/400th of the vertical height of the image can be seen. The number of pixels which can be displayed on the monitor horizontally and vertically. The higher the resolution, the more details can be displayed.
RGB	Abbreviation for Red, Green and Blue, the basic colours of additive colour mixing. RGB describes the method used in computer technology where image information is transferred by dividing it into three basic colours.
Run Length Encoding	The RLE (Run Length Encoding) method reduces the size of an image or video clip by saving the image data by recording the number of pixels with the same value in a row.
Saturation	The amount of grey, as opposed to hue, in a colour. Ie. the intensity of the hue. See hue.
Scalability	A feature of the Indeo video CODEC with which quality can be optimised during playback depending on the system resources being used to play the video.
Scaling	Changing the desired image 'x-y' size.
SCSI	Abbreviation for Small Computers System Interface. SCSI is used as a hard disk interface for high-performance PCs because of its high data rate.
SECAM	Abbreviation for Sequential Couleur à Mémoire. Colour television system developed on the basis of the NTSC system operating with 625 lines and 50 image fields per second.
Software CODEC	Compression method to compress digital video sequences which can be played back without special

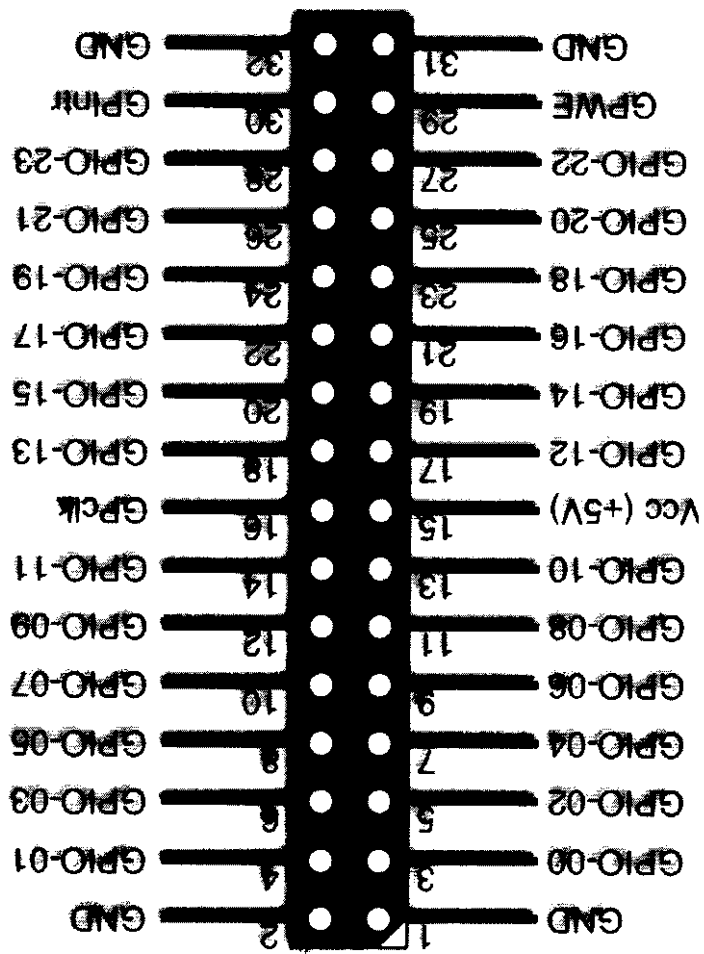
Key frame	A frame in a compressed video stream containing all the data representing an image, rather than just the difference that has changed since the last frame.
Local decode	A feature of Indeo Video Interactive allowing the playback application to tell the CODEC to decode only a rectangular sub-region (or viewport) of the source video image.
Lossless compression	Compression method that results in identical image data after the compression / decompression process.
Lossy compression	Compression method that changes the image data during the compression process such that the identical image data is not reproduced during decompression. (i.e. image data is lost).
Luminance	The brightness information about an image in chrominance/luminance video.
MCI	Media Control Interface: Microsoft's interface for controlling multimedia devices such as a CD-ROM player or a video playback application.
MMX	Abbreviation for Multi-Media Extensions used in some Intel Pentium processors to improve performance of multimedia operations.
Motion-JPEG	A version of the JPEG-compression format designed for video sequences where every frame is compressed separately to the previous.
MOV	The file format of Moov video files on Windows.
MPEG	Abbreviation for Motion Picture Experts Group. Standard for the compression of moving pictures (including sound) where a frame is compressed and then for the next n frames only the differences between the frames are stored. Each fully compressed frame is called a key frame.

Data rate	The speed of a transfer process, usually expressed in kilobytes (1 kilobyte = 1024 bytes) per second.
Decode	The process of converting a video clips colour space for display.
Decompress	The process of converting video and audio data from a compact format back into its original format.
Delta frame	A frame containing only the data that has changed since the last frame. Delta frames are an efficient means of compressing image data. Also known as difference frame.
Device driver	Software to enable application software to access hardware devices.
Digitise	The process of converting an analogue electrical signal into digital data.
Dither	The process of representing one colour by mixing pixels of a limited number of other colours.
Dropped frames	Frames not captured (or displayed) in a video clip.
Encode	Conversion from a video clip's raw colour space to another one usually when compressing it.
Field	In interlaced video each frame is transmitted with all the even lines together followed by the odd lines. The even and odd blocks of each frame are called fields. (Each frame consists of an even field and an odd field.
Frame rate	The number of frames per second at which a video is recorded or displayed.
Frame	Video is made up of a sequence of images called frames.

Glossary

ActiveMovie	Microsoft's architecture for the control and processing of streams of multimedia data and software that uses this architecture to play digital video and sound. It is intended to supersede Video for Windows
Alpha channel	Pixel data to superimpose on the image. This can be used to annotate an image without modifying the original data or to act as a mask on the data.
AVI	Abbreviation for Audio Video Interleaved, standard format for digital video.
Bandwidth	The amount of data per time interval. This can be applied to data transfer as well as processing, for example, pixels per second.
Bit	Part of a byte - a byte consists of 8 bits.
Bitmap	A digital image stored in a two dimensional array of X by Y pixels with the value at any point representing the colour and intensity information for any pixel.
Bits per pixel (bpp)	The number of bits used to represent the colour information of a pixel. 1 bpp = 2 colours, 4 bpp = 16 colours, 8bpp=256 colours, 15 bpp = 32768 colours, 16 bpp = 65536 colours, 24 bpp = 16,777,216 colours, 32 bpp = 16,777,216 colours + 256 colour alpha channel.
Capture	The process of digitising the analogue video signal into computer memory.
CD-ROM	Compact Disc Read-Only Memory: a compact disc used for computer data and applications that cannot

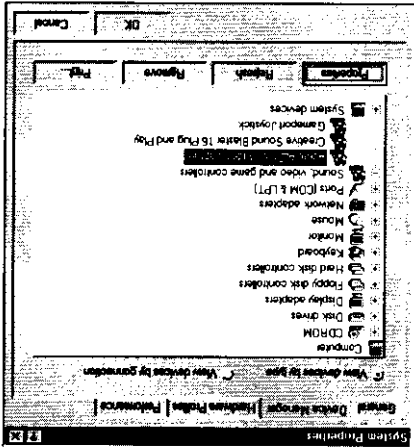
Digital Video Port / General Purpose I/O Port



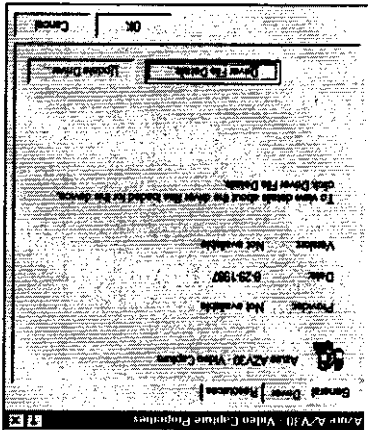
Installing AZV30 updated drivers

To install updated drivers for the AZV30 follow the direction below:

1. From Control Panel double-click System icon to display the System Properties window.
2. Select the Device Manager tab and expand the Sound, video and game controllers' entry.



3. Double-click the Azure AZV30 - Video Capture entry and select the Driver Tab
4. Press the Update Driver button and follow the instructions in the Update driver wizard.



Warning Message:**"No Direct Draw Overlay Provider"**

You need to have DirectX version 5 installed to enable overlay mode and have a graphics card with drivers capable of supporting overlay. DirectX version 5 can be installed from the AZV30 CDROM. It is always advisable to install the latest drivers for your graphics card.

Dropping Frames When Capturing To Disk

Several factors effect the proportion of frames dropped, when saving video to disk:

1. The rate and size of frames that can be captured to disk is dependent on the disk's data rate and the overall performance of your PC.
 2. Capturing performance is greatly reduced if disk allocation is performed while capturing is in progress.
 3. Other tasks are running while capturing is in progress.
- You can resolve these issues in the following ways:

1. Typically, for a mode 4 EIDE drive, the data rate is between 4 and 8 Mbytes/sec. For the latest SCSI drives with 10,000 RPM spin speeds, the data rate can be as much as 16 Mbytes/sec. Since full frame rate, for PAL at 24 bit/pixel, requires 32 Mbytes/sec, even with the latest technology it is not possible to capture images at full rate directly to disk.

- Reducing the frame rate from 25 frames per second to 12.5 frames per second will half the video data rate.
- Reducing the image size from full frame (768x576) to half size (384x284) will reduce the data rate by 4!

Corrupted Images

Corrupted images when in capture or preview mode can occur for a number of reasons. The most common cause is that you have not set the correct video source type; i.e. you have set NTSC when using a PAL source, or visa versa. Other likely causes of corrupted image data are:

You may have chosen a pixel data rate which is too high for your graphics card. The solution for this is choosing a display mode that has less colours, lower resolution or lower screen refresh frequency.

Your PC's bus is being heavily used by other devices. In this case, if you have another PCI card in your PC that is heavily using the PCI bus, stop the application that is running with this card while using the AZV30.

Mono Video from a Colour Camera

Mono video from a colour camera can occur in two situations:

1. If you are using an S-Video camera and you select the upper composite connector of the video source dialogue by mistake,
2. If you are using a composite camera and are using the S-Video (4 pin mini DIN) connector with the input set to S-Video.

To correct this check the following:

1. If you are using an S-Video camera, connect it to the S-Video (4 pin mini DIN) connector and in the "settings" menu select "video connector" and select the S-Video connector with S-Video input.
2. If you are using a composite colour camera and wish to use the S-Video connector, in the "settings" menu

About the CODECS

Brooktree Prosumer Video/411

The CODEC is included to play video captured in BTYUV format. Capturing in this format permits reduced data (YUV 4:1:1) over comparable RGB formats.

Cinepak

Cinepak video CODEC by Radius offers quality and compression times that lie between Intel's Indeo 3.2 and Interactive CODECS. Good detail is retained and is ideal for videos typically 320 x 240 resolution at 15fps or better. It is a good choice if playback is required on MAC as well as PC.

Cinepak uses a vector quantisation algorithm, which allows it to play back at higher frame rates on most systems. The Cinepak CODEC produces video streams with a stable and predictable data rate. This facilitates distribution of compressed video on CD-ROM and on the Internet. On playback, the Cinepak CODEC uses very little processor bandwidth, leaving plenty of processor power available for other tasks.

Intel Indeo

Intel Indeo come in a variety of forms as the Indeo CODEC has developed.

Indeo 4.1 (or Interactive)

Indeo Video Interactive uses wavelet compression, capable of ratios even higher than MPEG and fractal transforms. It produces excellent quality, and full screen (scalable) playback on a fast Pentium while taking very small amounts of file space. Encoding, though, is very slow. Videos compressed with the Indeo Video Interactive CODEC can play on systems that support Video for Windows only. (Windows 95 and Windows 3.x)

In your TWAIN compliant program click the "Select Source" menu to select the AZV30 TWAIN driver and then "Acquire" to run the TWAIN interface, shown above. Here you can view your video in overlay or preview modes, grab an image to check that it is all right before acquiring the image back to the calling program. You can adjust the video settings by pressing the Source and Format buttons to display the AZV30 driver dialog.

Editing video clips with VidEdit

The VidEdit program from Microsoft operates in conjunction with VidCap, alone or with multiple instances of VidEdit allowing copying (via the clipboard) between them.

Video CODECS

A video CODEC is a piece of software that compresses and decompresses data. A video CODEC enables Windows 95 to display video in a selected format. The following 32 bit video CODECS are now included as standard with Windows 95:

➤ Intel Indeo Interactive (IV 4.1)

➤ Intel Indeo R3.2

➤ Cinepak by Radius

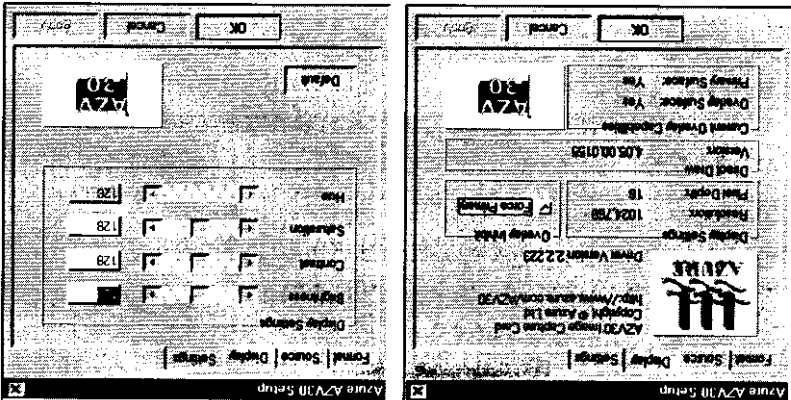
➤ Microsoft Video 1 (MS-CRAM)

The following 16 bit video CODECS are also included with Windows 95:

➤ Intel Indeo R3.1

➤ Microsoft RLE (MS-RLE)

To achieve the best possible picture, adjust the brightness, contrast, saturation and hue from the Settings Tab.



Viewing video on your computer

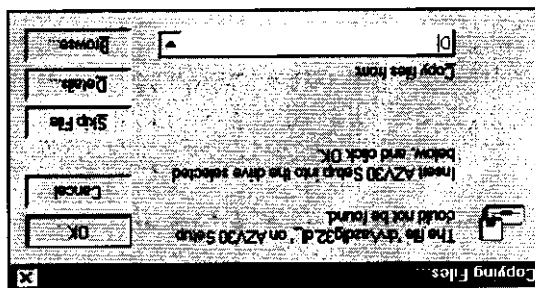
The AzCam utility supplied with the AZV30 enables you to view the scene at which your camera is pointing. AzCam allows you to configure the incoming video source, format and scale it down or up to a maximum of 768x576. Further, you can toggle the title-bar and toolbar on and off and set AzCam always to appear on top of your other windows.

Capturing video clips

VidCap from Microsoft provides a simple, but effective means of capturing AVI files, AVI still sequences and still images.

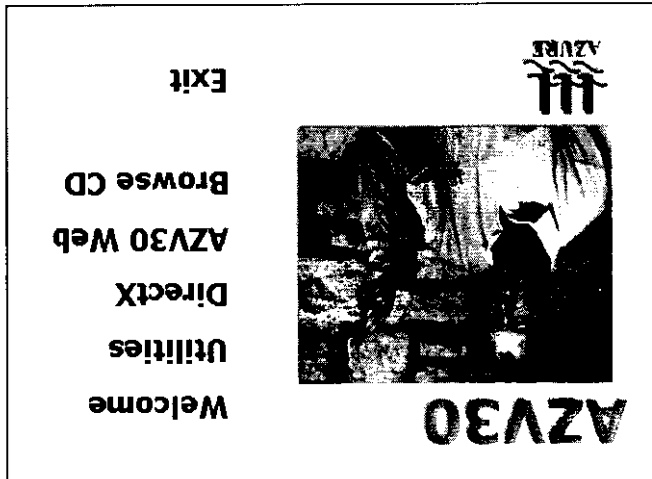
Full details of VidCap's features and how to use it are included in the online help available by pressing F1 when running VidCap. For optimum performance the BTYUV format is recommended as it offers about half the data rate of 24-bit RGB video.

If you are prompted for the location of the drivers, enter the drive letter of your CDROM containing the AZV30 CDROM. For example D:



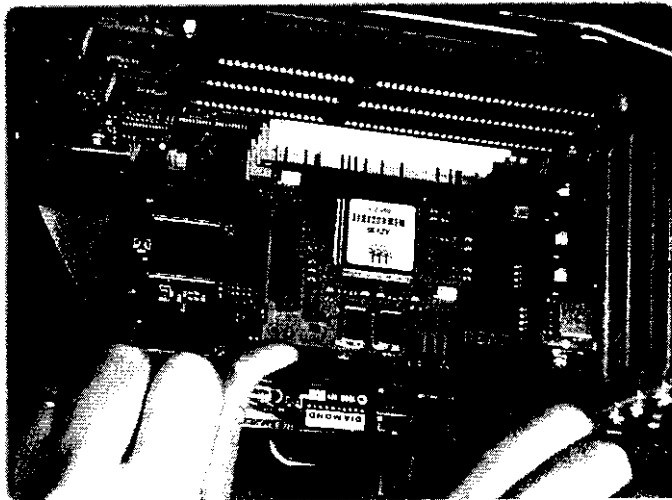
Installing the Azure AZV30 software

Having successfully installed the AZV30 drivers, the Welcome/Setup program should automatically run. Alternatively, when you insert the AZV30 CD-ROM in your computer the AZV30 Set-up program automatically runs and appears on your screen. If you have just installed the drivers you may need to open and close the CD-ROM drawer to start the auto-run process. If the auto-run process does not occur after a short while, browse the CD-ROM and run *Welcome.exe* from the root folder.



electrostatic charge by touching the metal case of your computer.

6. Now remove the AZV30 card from its protective bag and insert the board carefully in the selected PCI slot. Hold the board at the top edge and push both ends simultaneously into the slot. Press the board's top edge to make sure that the board is firmly located in place.



7. If you cannot insert the AZV30 into place without excessive force, carefully pull it out and try again. Excessive force may cause damage to the AZV30 or your PC motherboard. Check that the PCI slot is clear and no cables are obstructing the insertion of the AZV30.
8. Replace the locating screw to hold the AZV30 bracket in place and reassemble your computer's casing.
9. Connect your video source(s) to any of the AZV30 video inputs. If you are to power your camera from the 12-Volt supply on the AZV30, check the polarity and that the camera does not require more than 400mA at 12 Volts.

Software tested to successfully acquire images with the
TWIN interface includes:

- Corel PhotoPaint Versions 6 and 7
- Jasc PaintShopPro Version 4.12
- Adobe PhotoShop Version 4.01
- Adobe Streamline Version 4.0
- Microsoft Image Composer
- Wang Imaging
- Optimas Version 6.1
- Softkey Photography

If you have other TWIN devices connected to your
computer, such as a scanner, you will need to select the correct
TWIN source.

to view the documentation supplied in PDF format and to view future new documentation you may obtain from the Azure Website (<http://www.azure.com/AZV30/>). The latest version of DirectX is included to give you the best performance from the AZV30.

➤ **Web:** Links to Azure's Internet Website and to useful AZV30 related sites can be found by opening index.htm in the "\web" folder.

What other software can be used with the AZV30?

The AZV30 is compatible with Microsoft Video for Windows and, therefore, will operate with any software that uses Video for Windows compatible capture hardware.

Video editing software that has been tested with the AZV30 includes:

- Adobe Premiere Versions 4.0 and 4.2,
- Ulead Media Studio
- Asymetrix Digital Video Producer Versions 3.5 & 4.0.

Video conferencing software tested for compatibility with the AZV30 includes:

- Intel's Video Phone
- Iris Phone
- Cu-See Me
- VDO live
- Microsoft NetMeeting.

Compatibility with many scientific imaging programs and graphics applications is provided through the AZV30 TWIN interface. TWIN is the most common interface for acquiring still images, making the AZV30 compatible with applications that already connect to document scanners.

Time scaling

Time scaling provides a solution for applications where full frame rate cannot be supported due to bandwidth and system restrictions. The most commonly is experienced when capturing live video to disk for storage. In this situation it is unlikely to be possible to store video at 25 frames/sec (PAL).

The disk system may only be able to achieve 12½ frames per second. In this case the AZV30's time scaling operation will capture every other frame providing 12½ frames per second to the system. Without the time scaling, frames would be dropped in blocks when the disk cannot keep up. This would otherwise result in bursts of frames followed by blocks of missing frames resulting in a very jerky effect.

The time scaling is set automatically from the chosen frame rate and can be set from 1 to 60 frames per second for NTSC or 1 to 50 for PAL.

Video adjustment

The video decoder's output offers programmable control over brightness, contrast, saturation and hue.

The brightness of the output image can be adjusted from 0 to 255 with 128 being normal. The contrast control (or gain) provides the ability to change the contrast from 0% to 200% of the original value. The colour saturation is a multiplication gain of U and V signals. The saturation range is from 0% to 200%. Hue adjustment is only applicable to NTSC input and is defined as the phase of the sub-carrier with reference to the burst. This can be adjusted by up to +/-90°.

Automatic gain control compensates for reduced chrominance and colour-burst amplitudes and offers automatic adjustment of 0-2 times the original signal. This facility can be switched off.

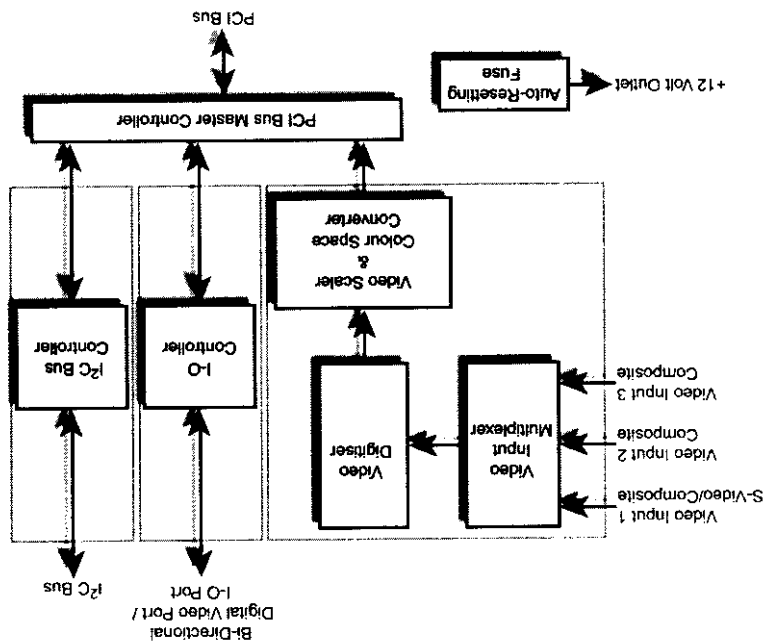
On the card itself are two further connectors, an I²C bus offers interfacing to external devices, and a Digital Video Port / I-O Port (DVP).

The DVP allows direct input of digital video to the PC or output of the digitised video from the connectors on the AZV30 card front. The DVP can alternatively be used as a digital I/O port.

For information on how to use these connectors refer to the AZV30 SDK documentation.

Inside the AZV30 Hardware

The AZV30 comprises a three input multiplexer, an NTSC/PAL/SECAM composite and S-Video decoder / digitiser, scaler, colour space converter, DMA controller and PCI bus master.



These functions enable the AZV30 to place digital video data directly into host memory, for video capture applications, or

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