SunVideo Plus™

Just the Facts

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Introduction

The SunVideo Plus™ subsystem provides audio and video processing engines for a broad range of multimedia applications for workstations based on Sun peripheral component interconnect (PCI). The SunVideo Plus subsystem provides simultaneous video and audio compression and decompression for Sun application products such as ShowMe™ and ShowMe TV™. SunVideo Plus enables you to run SunVideo demonstration programs. The SunVideo Plus architecture enables you to easily integrate

- Video cameras
- Microphones
- Headsets
- Software decoders
- Standard multimedia tools

The onboard video processor and audio digital signal processor (DSP) equip standard desktop computers, particularly those in networked environments, with the capability to run to audio- and video-enabled applications for corporate training, security, authoring, telemedicine, and video conferencing.

SunVideo Plus Features

The video input to the SunVideo Plus card can be either National Television System Committee (NTSC) or phase alternation line (PAL) format, and supports composite or S-Video video sources. Decompressed and local video can transfer across the PCI bus to be displayed on your workstation. Audio compression is performed by the onboard DSP.

A high-speed interface to the host bus provides multiple DMA/IO channels. These channels provide flow-through for

- Output from a compressed video/audio bitstream
- Output from decompressed video
- Output from local uncompressed video

New Features for SunVideo Plus Release 1.2

- Solaris™ 7 operating environment support
- Better audio recording and playback
- Less noise with PCM and 11- to 22-MHz recording
- Better PAL support for full-resolution, 24-bit capture
- Power management support
- Better security with minimal changes to file structure
- Updates in coordination with OPI (Osprey Programming Interface)
- New UL statement for USA

SunVideo Plus is positioned to be Sun's premier low- to mid-end real-time audio/video capture and compression card for PCI workstations. This fully compliant, single-wide PCI card is ideal for customers who want to video conference, broadcast video over the Internet/intranet, record video mail, or capture audio/video, at a price point around US$1000.

SunVideo Plus is to the PCI platform what SunVideo™ is to the SBus platform. Although SunVideo Plus offers many features and performance advantages over SunVideo, it is meant only to complement and extend Sun's low- to mid-end video capture/compression card portfolio. Sun does not offer a lower or higher end version of either of these cards even though there are higher and lower end boards offered by Sun's IHVs (such as Osprey and Parallax).

Sun has the following advantages over other video card vendors:

- Worldwide distribution
- Worldwide support
- Solaris technology expertise
- An integrated solution for the customer, not just a board
- Large service/support organization
- ISV partnerships
- The card has slightly different features and integration capabilities

This product consists of a single-wide SunVideo Plus card and driver CD (SunVideo Plus standalone) with an insert that contains the installation instructions.

SunVideo Plus Card Features

H/W Video Codecs	Motion JPEG, MPEG-1, H.263, H.261, CellB
Audio Codecs	G.711, G.722, G.723, G.728
Bus	PCI
US List Price	US$1195
Comments	General purpose card. Complements frame buffers shipped with Sun Ultra™ workstations and servers
Strengths/Weaknesses	Strengths: Codec support, audio capture, performance. Weaknesses: Available applications, no high-end product in video portfolio
Supported Operating Environments	Solaris 2.5.1 operating environment 4/97 software Solaris 2.6 operating environment software Solaris 7 operating environment software

Product Family Placement

External Positioning

- Sun's target markets require the ability to capture, broadcast, and transmit audio/video for
  - Video conferencing
  - Digital content authoring and creation
  - LAN-based video and audio broadcasts
- SunVideo Plus is targeted at the following horizontal markets:
  - Network (LAN) broadcasting market (streaming, Internet/intranet video communications)
  - IP Conferencing (H.323)
  - Authoring/content creation
  - Security/surveillance

Positioning Versus Software Encoding or Uncompressed Video Capture Boards

SunVideo Plus must be positioned as a value proposition against uncompressed video capture cards and software encoding alternatives. Such alternatives are viable; however, even with today's CPUs, including SPARC™ systems, the burden on the CPU can approach 100 percent in many cases. For example, a single P233 is required to encode RealVideo H.263 at 4 to 8 frames per second (fps) using 100 percent of the CPU. A board like the Osprey 1000 (the PC equivalent of SunVideo Plus) can encode between 12 and 15 fps with less than 10 percent of the CPU being utilized. This is significant when a user wants to stream video over an intranet, since there is no CPU left for the streaming server. In such configurations without the Osprey 1000, a dual-P233 is needed to perform the same task.

A similar analogy applies for SPARC and Ultra systems. The CPU and bus architecture can perform video encoding, but there are additional requirements:

- Encode audio
- Decode audio
- Decode video
- Protocol stacks (remainder of H.323), or streaming video server and/or web server
- Other collaboration software, presentations, and so on

Without hardware assist, these tasks along with real-time video encoding can substantially overwhelm or unbalance a system.

In addition, SunVideo Plus does not preclude the use of software-based solutions if a unique format or software enhancement is developed. The SunVideo Plus product's uncompressed formats can provide what software based solutions need for both audio and video. In addition, a developer can pick and choose video encoding, audio encoding or both, depending on the application.

In summary, SunVideo Plus' flexibility provides for substantially broader applications and higher performance levels than software-only solutions.

Key Messages

There are three primary messages for SunVideo Plus:

- Sun's PCI workstations can now capture and compress audio and video in real-time.
- Sun continues to invest in digital media solutions for the power desktop.
- Sun's PCI workstations are ideal to develop and run applications that involve network broadcasting, video conferencing, digital authoring, and content creation.

The top three secondary messages for SunVideo Plus follow:

- SunVideo Plus can compress and decompress all the most popular audio and video codecs in hardware.
- This board frees the CPU from performing the very CPU intensive task of audio/video encoding or decoding, allowing CPU cycles to be spent elsewhere.
- The board is very price competitive at US$1,195.

SunVideo Plus extends Sun's reach in its technical markets. This supports the message that Sun is very much committed to its technical customers and markets.

Availability

The SunVideo Plus 1.2 software will initially be available on the Web until the official announce date. Then it will be available through the direct sales channel, SunStore℠, OEMs, and integrators in markets that integrate Sun platforms with other application software and technology, and who possess technical expertise selling to target markets.

Available on the Web:	March 3, 1999
Official Announce Date:	May 4, 1999
First Customer Ship (in SunVideo plus packages):	May 4, 1999

Target Customers

Main Customers for SunVideo Plus

SunVideo Plus addresses the low- to mid-end video and audio needs in all the core vertical markets Sun sells in today. The major markets are discussed below. Customers having any of these requirements will benefit by using SunVideo Plus:

- Network broadcasting
- IP conferencing
- Authoring/content creation
- Security/surveillance

Network (LAN) Broadcasting (Streaming, Internet/Intranet Video Communications)

Network broadcasting is probably the most significant growth area of the "videocom" market. The classic ShowMe TV model, however, expanded through use of Internet through Progressive Networks and Microsoft. Standards don't matter here, just the easy availability of high quality, free, software decoders. Although there is no viable market for client software that cost money, the "broadcast" station is where the hardware and value is.

This market is beginning to be segmented in half: high bandwidth/quality for intranet-only broadcasts, and low bandwidth/quality for intranet/Internet broadcasts. The key is that intranets and the Internet have been identified and recognized as a "NEW" broadcast medium.

Why should customers care? Because SunVideo Plus fits in nicely here. High-bandwidth intranets (greater than 256 KB/sec.) require high-quality video support and utilizes the following codecs, all of which are supported by SunVideo Plus:

- H.261
- Motion JPEG
- MPEG-1

Low-bandwidth intranet/Internet broadcasts require low quality video support and utilizes the following codecs, also supported by SunVideo Plus:

- H.261
- H.263

In both of these cases, Sun PCI-based Ultra workstations will work great because of their ability to painlessly decode video/media bitstreams in software. Sun networks excel here for obvious reasons; Sun systems are all inherently networked.

Microsoft and Progressive Networks participants have recently validated, and effectively created, the market. They continue to drive awareness, and deployment is widespread among corporate accounts. Users who are trying this for a justified business reason are characterized as “pragmatists.” This includes improved information distribution, special events, and pay-per-view entertainment. Most are currently experiments, and within six months the commercial market will have figured out where to best apply “streaming video” for generalized broadcast and communication.

SunVideo Plus is well positioned here due to the following:

- Solaris software-based machines are leaders in the server segment, web site serving, and intranets
- Hardware encoding is essential for balanced server performance
- Support for a variety of compression formats for both high and low bandwidth allows SunVideo Plus to be the ideal video card
- SunVideo Plus is a video encoder card

IP Conferencing—H.323

This is the major growth segment of video conferencing. Driven primarily by two items:

- Increased networking in businesses
- Relatively free H.323 software solutions (e.g., Microsoft’s NetMeeting) make low barrier/risk of entry

SunVideo Plus is ideally suited here with hardware compression of audio (G.7XX) and video (H.261) to feed H.323 applications. Remember, G.7XX and H.261 are the ITU audio and video standards defined in H.323, H.320 and H.324 based video conferencing.

NetMeeting and other software-only based solutions are slow, even with decent bandwidth applied (greater than 128 KB/sec.), and the video conferencing “viewing” windows are small. The value SunVideo Plus will add to these applications is the value provided with hardware encoding to create:

- Higher quality
- Larger images (larger video conferencing “viewing” windows)
- Faster performance

This also allows for other shared application functions, such as presentations and spreadsheets, to occur without an overload of the CPU (as in the case with a software only solutions).

Authoring/Content Creation

For this market, JPEG and MPEG are the preferred formats. There is a mix of demand for real-time encoding versus uncompressed capture, non-real-time editing and non-real-time software encoding.

SunVideo Plus is ideal because it supports uncompressed capture formats, motion JPEG, and MPEG-1 I-frame encoding. The major alternative to the card is SunVideo (SBus) and Parallax, where Parallax (SBus) has hardware JPEG and is expensive. Unlike SunVideo, SunVideo Plus' motion JPEG streams should be compatible with legacy Parallax generated video; however, SunVideo doesn't have the dedicated hardware paths specific for motion JPEG as does Parallax boards.

Security

Increasingly, security organizations are moving away from traditional analog based systems to digital-based systems. This is enabled by higher quality/performance digital compressed video, and benefits of digital networks. Digital solutions allow for much faster and economical storage, archival, retrieving, and distribution via digital networks has no physical boundaries as do analog solutions.

In addition, intelligence can be added to a digital solution and increase the quality and efficiency of a security system. For example, multiple SunVideo Plus cards can be encoding and providing relatively low bandwidth video for storage in a "circular buffer" on a disk to monitor events, but also save on disk space. If an event occurs (motion detection software, audio sensors, physical sensors), the bandwidth can be immediately increased for higher quality and resolution of the videocamera in question.

The dynamic capabilities of SunVideo Plus using H.261 over IP networks are perfect for these applications. The key features of SunVideo Plus that address this segment are:

- Variety of compression formats supported
- Multiple cards can be used
- I-frame H.261 allows for fast camera input multiplexing found in traditional security applications

In summary, SunVideo Plus is well positioned to meet the requirements of your customers' low- to mid-range video and audio capture and compression capabilities.

Current Customer Needs

- Customers can now consider Sun's PCI workstation line for their digital media needs.
- Those who could not migrate from Sun's SBus workstation to the new PCI workstations because of a lack of audio/video capture capability are now able to.
- Reassures Sun customers of continued commitment to workstations and digital media markets.
- Customers can now broadcast audio/video and video conference on the PCI platform using software applications like ShowMe and ShowMe TV.

Other Market Participants

- Competitive workstation and PC vendors can no longer use "lack of audio/video capture/compression capabilities" on the Sun PCI platform as a competitive knock-off.
- Sun can now compete in the digital media markets that were not available to the Sun Ultra workstations and other PCI platforms prior to the SunVideo announcement.
- SunVideo Plus now provides a powerful alternative to ISVs and encourages new video and audio application development because of the broad range of hardware codec support.

Target Markets

The following summarizes how SunVideo Plus address the needs of these markets:

Market	Customer Needs	SunVideo Plus Value Add
Network (LAN) Broadcasting Market	Two segments in the market: • Those who need high bandwidth/quality for intranet only broadcasts • Those who need low bandwidth/quality for intranet/Internet broadcasts	High-bandwidth intranets (greater than 256 KB/sec.) require high-quality video support and utilize the codecs supported by SunVideo Plus (H.261, motion JPEG, MPEG-1). Low bandwidth intranet/Internet broadcasts require low-quality video support and utilize H.261 and H.263 (also supported by the SunVideo Plus product).
IP Conferencing	• Ability to video conference in a heterogeneous environment • Support of the ITU audio/video standards • High-quality video images	The SunVideo Plus product supports the ITU audio (G.7XX) and video (H.261/H.263) standards. SunVideo Plus also adds value by adding a higher level of picture quality, larger "viewing" windows and faster performance.
Authoring/ Content Creation	• Customer works with MPEG and JPEG formats • Demands some real-time encoding and uncompressed video capture	The SunVideo Plus product supports uncompressed capture formats, motion JPEG, and MPEG-1 I-frame encoding.
Security/ Surveillance	• Digital capture capabilities for faster and economical storage, archival, retrieving, and distribution • Low-bandwidth video for storage. Multiple camera support	The SunVideo Plus product supports a variety of low-bandwidth video formats. Multiple cards can be used for multiple camera support. I-frame H.261 allows for fast camera input multiplexing found in traditional camera security applications.

System Architecture

Overview

The SunVideo Plus™ product's key features are:

- Hardware acceleration for all the popular audio/video codecs (all the other boards on the market support only one or two audio/video codecs in hardware) is available.
- SunVideo binary compatibility. All applications written for the popular SBus card will run on Sun's PCI platforms using SunVideo Plus.
- Price/performance. For US$1195 the customer gets hardware acceleration support for nine different codecs and realizes the following targeted performance figures as shown in the following table.

Uncompressed Video	1/4-screen NTSC (320x240)	30 fps
	Full-screen NTSC (640x480)	30 fps
	1/4-screen PAL (384x288)	25 fps
	Full-screen PAL (786x576)	12.5 fps
Compressed Video	CellB 1/4 screen	30 fps
	CellB full screen	12 fps
	JPEG 1/4 screen	30 fps
	MPEG-1 SIF – (352x240) NTSC – (352x288) PAL	30 fps
	H.261 CIF (352x288)	15 fps
	H.261 QCIF (176x144)	30 fps
	H.263 QCIF	15 fps
	YUV 1/4 screen	30 fps
Acoustic Echo Cancellation	G.728 delay >= 128 msec.	ERLE* >= 40 db
	G.723 delay >= 328 msec.	ERLE >= 40 db
	G.722 delay >= 198 msec.	ERLE >= 40 db
	G.711 delay >= 384 msec.	ERLE >= 40 db
* Echo Return Loss Enhancement		

SunVideo Plus Features and Benefits

The table below lists the key features and benefits of the SunVideo Plus card.

Features	Benefits
Fully compliant 33-MHz PCI card	Will fit into and run in the high-end Sun Ultra™ workstations and other future PCI platforms from Sun
Single-slot card	Only uses one PCI slot
NTSC and PAL video input	Supports the two most popular video standards used worldwide

Features	Benefits
• Up to four SVPs supported	• Allows multiple audio/video streams through the system simultaneously
• Video scaling and color space conversion	• Scales the original resolution, in hardware, by factors of 2 (640 x 480, 320 x 240, 160 x 120, 80 x 60, 40 x 30 for NTSC); color space conversion delivers the video in the size and format that is native for the application
• Automatic recognition and configuration of video input signals	• No need to configure the board to accept the video input signal being processed; SunVideo Plus automatically recognizes and configures itself to accept the incoming NTSC or PAL video signal
• High-performance video encoding and decoding at 30 frames per second (fps)	• Provides optimum support for full motion video compression and playback
• Hardware H.261 codec support	• Encodes/decodes robust high quality video from 64 KB/sec. to 1.5 MB/sec,; H.261 is also the video component of the International Telecommunications Union (ITU) H.32X audio/video conferencing standards
• Hardware H.263 codec support	• Ideal for low bit rate applications ranging from 14.4 KB/sec. to 128 KB/sec.; very good image quality at low bit rates
• Direct (uncompressed) capture	• Save uncompressed video directly to disk or display it on the monitor
• JPEG support	• Ideal video codec choice when video data integrity is paramount
• Hardware MPEG-1 codec support	• I-Frame encoding of this high-quality video format
• CD quality audio I/O	• Provides high-quality audio I/O support (up to 44.1-KHz sampling)
• Hardware support for acoustic echo cancellation (AEC)	• When utilized by a video conferencing application, this feature minimizes or eliminates the echoes often experienced in a video conferencing call; no more “I feel like I’m talking in a tunnel” effect
• Hardware G.728, G.723, G.722, G.711 codec support	• Fast encoding/decoding of the popular ITU audio standards; support for all the audio codecs defined in the ITU video conferencing standards
• SunVideo™ binary compatibility	• Applications developed to the popular SunVideo SBus card will run on SunVideo Plus
• XIL™ Interface	• SunVideo Plus supports the standard video application interface running today under Solaris™ operating environment software

SunVideo Plus™ Specifications

Feature	Description
Video Inputs/Outputs	Two (2) composite IN, one (1) S-Video IN
Input Formats	NTSC or PAL
Video Sampling	YUV (4:2:2)
Audio Inputs	Line in or microphone in (shared jack)
Audio Outputs	Headphone out, line out
Video Compression	CellB, H.261, JPEG, MPEG-1(CIF I-Frame)—NTSC only
Uncompressed Video Formats	YUV, 8-bit RGB, 24-bit RGB, 8-bit Y
Audio Codecs	G.711 (Alaw, mlaw), G.722, G.728, PCM (8- or 16-bit), acoustic echo suppression (AES)
Audio Sampling Rates	Up to 44 Khz (CD quality)
Audio Output Levels	4Vpp for headphone
Hardware Platforms	PCI-bus Sun system
Software Platforms	Solaris™ 2.5.1 operating environment 4/97 software Solaris 2.6 operating environment software Solaris 7 operating environment software
Bus Slot Type	Single slot, half length
Sunvideo™ Compatibility	Binary compatibility with all SunVideo card XIL™-based applications
APIs	XIL Imaging library `libaudio` compatibility API
Demonstration Applications	Video recording and playback TCP/IP video conferencing Audio recording and playback Sound monitor

Frame Rates

Depending on your computer system's application load and display window size, the SunVideo Plus subsystem can display video rates of up to 30 frames per second (fps). Video frame rates are application dependent. SunVideo Plus subsystem supports the following compressors and frame rates.

Compressor	Frame Rate
H.261	CIF - 20 to 28 fps, QCIF - 30 fps
CellB	12 fps
Direct capture and display	30 fps
JPEG	30 fps
MPEG-1 I-frame	I-frame 30 fps

SunVideo Plus Software Packages

The SunVideo Plus card comes with the following software packages:

- SUNWo1kpd (device driver)
- SUNWo1kpu (runtime scripts)
- SUNWo1kx (XIL 1.2 runtime libraries—Solaris 2.5.1 software only)
- SUNWo1kx (XIL 1.3 runtime libraries—Solaris 2.6 or Solaris 7 software only)

SunVideo Plus Hardware

The SunVideo Plus card is installed in a PCI-bus slot. The card contains two composite IN ports, and one S-Video IN port. For audio signals, SunVideo Plus also contains one port for line level OUT, one port for headphone level OUT, and one input port that can be configured through the software as either line or microphone level IN.

Requirements and Configuration

Hardware and Software Considerations

SunVideo Plus™ will run on any SPARC™ system running Solaris™ 2.5.1 operating environment Hardware: 4/97 or later, Solaris 2.6, or Solaris 7 operating environment software.

Up to four Sun Video Plus boards are supported in any PCI-based Sun™ workstation or server.

Configuration

SunVideo Plus offers SunVideo binary compatibility so applications developed for the popular SunVideo SBus card will work. Sun applications (ShowMe™, ShowMe TV™, ShowMe TV transmitter) will run unmodified. Custom applications may require a one line change and recompilation.

Multiple SunVideo Plus cards will run in a PCI based system. SunVideo Plus supports 8-bit RGB, 24-bit RGB, 16-bit YCrCb, and 8-bit Y.

SunVideo Plus™ 1.2 Order Numbers and Localizations

Order Number	Title and Description
X1088A	SunVideo Plus™ realtime audio/video capture and compression board and driver CD
X498A-EU	Continental European version of the PCI Multimedia Kit, SunVideo Plus, a PAL SunCamera™ II, SunMicrophone™ II, and documentation
X498A-O	Japanese version of the PCI Multimedia Kit, SunVideo Plus, an NTSC SunCamera II, SunMicrophone II, and documentation
X498A-UK	UK version of the PCI Multimedia Kit, SunVideo Plus, a PAL SunCamera II, SunMicrophone II, and documentation
X498A	US version of the PCI Multimedia Kit, SunVideo Plus, an NTSC SunCamera II, SunMicrophone II, and documentation

Service and Support

The SunSpectrum℠ program is an innovative and flexible service offering that allows customers to choose the level of service best suited to their needs, ranging from mission-critical support for maximum solution availability to backup assistance for self-support customers. The SunSpectrum program provides a simple pricing structure in which a single fee covers support for an entire system, including related hardware and peripherals, the Solaris™ operating environment software, and telephone support for Sun™ software packages. The majority of Sun's customers today take advantage of the SunSpectrum program, underscoring the value that it represents. Customers should check with their local Sun Enterprise™ Services representatives for program and feature availability in their areas.

FEATURE	SUNSPECTRUM PLATINUM℠ Mission-critical Support	SUNSPECTRUM GOLD℠ Business-critical Support	SUNSPECTRUM SILVER℠ Systems Support	SUNSPECTRUM BRONZE℠ Self Support
Systems Features				
Systems approach coverage	Yes	Yes	Yes	Yes
System availability guarantee	Customized	No	No	No
Account Support Features				
Service account management team	Yes	No	No	No
Personal technical account support	Yes	Yes	No	No
Account support plan	Yes	Yes	No	No
Software release planning	Yes	No	No	No
On-site account reviews	Monthly	Semiannual	No	No
Site activity log	Yes	Yes	No	No
Coverage / Response Time				
Standard telephone coverage hours	7 day/24 hour	7 day/24 hour	8 a.m.–8 p.m., Monday–Friday	8 a.m.–5 p.m., Monday–Friday
Standard on-site coverage hours	7 day/24 hour	8 a.m.–8 p.m., Monday–Friday	8 a.m.–5 p.m., Monday–Friday	N/A
7-day/24-hour telephone coverage	Yes	Yes	Option	No
7-day/24-hour on-site coverage	Yes	Option	Option	N/A
Customer-defined priority setting	Yes	Yes	Yes	No
• Urgent (phone/on-site)	Live transfer/ 2 hour	Live transfer/ 4 hour	Live transfer/ 4 hour	4 hour / N/A
• Serious (phone/on-site)	Live transfer/ 4 hour	2 hour/next day	2 hour/next day	4 hour / N/A
• Not critical (phone/on-site)	Live transfer/ customer convenience	4 hour/ customer convenience	4 hour/ customer convenience	4 hour / N/A
Additional contacts	Option	Option	Option	Option

FEATURE	SUNSPECTRUM PLATINUM℠ Mission-critical Support	SUNSPECTRUM GOLD℠ Business-critical Support	SUNSPECTRUM SILVER℠ Systems Support	SUNSPECTRUM BRONZE℠ Self Support
Enhanced Support Features				
Mission-critical support team	Yes	Yes	No	No
Sun Vendor Integration Program (SunVIP℠)	Yes	Yes	No	No
Software patch management assistance	Yes	No	No	No
Field change order (FCO) management assistance	Yes	No	No	No
Remote Systems Diagnostics				
Remote dial-in analysis	Yes	Yes	Yes	Yes
Remote systems monitoring	Yes	Yes	No	No
Remote predictive failure reporting	Yes	Yes	No	No
Software Enhancements and Maintenance Releases				
Solaris enhancement releases	Yes	Yes	Yes	Yes
Patches and maintenance releases	Yes	Yes	Yes	Yes
Sun unbundled software enhancements	Option	Option	Option	Option
Internet and CD-ROM Support Tools				
SunSolve™ license	Yes	Yes	Yes	Yes
SunSolve EarlyNotifier℠ Service	Yes	Yes	Yes	Yes

Glossary

Acoustic echo cancellation	A technique used to minimize the impact of echoes during audio transmission. For conferencing to be effective, systems must be able to mitigate the impact of echo caused by the loudspeaker audio feeding back into the microphone. The AES algorithm used in SunVideo Plus™ disables variations caused by double-talk creating consistent echo attenuation.
CellB	A non-proprietary video codec (compression-decompression) format that provides high quality, low bit-rate image compression that can be easily and efficiently decoded in software. CellB is based on block truncation coding (BTC) encoding.
G.711	The G.711 standard, also called pulse code modulation (PCM). A standard method of converting analog signals to digital signals. Typically used in public and private telephone networks, G.711 samples analog data and prepares it for transmission.
G.722	A wide-band (high-quality) algorithm with a bandwidth of 50 Hz to 7 KHz. G.722 provides the audio compression standardization needed at 48 Kbps, 58 Kbps, or 64 Kbps. Used when high-quality speech is necessary.
G.723	A sub-toll quality algorithm that only handles speech. With the ability to provide frames at two bit rates (5.3 Kbps or 6.3 Kbps), G.723 is able to deliver nearly toll quality performance at a low bit rate.
G.728	Using a standard analysis-by-synthesis CELP algorithm, G.728 provides toll-quality speech at 16 Kbps.
H.261	The video component of the H.320 video conferencing standard intended for use on communication lines that have multiples of 56- or 64-Kbit capacity.
H.263	The second-generation H.261 standard targeted at low bit rate applications in the 14.4 Kbps to 128 Kbps range.
JPEG	Joint Photographic Experts Group. The graphics standard consisting of a host of algorithms for still image compression.
MPEG	Moving Picture Experts Group. The standard for CD-ROM and T1 bit-rate transmissions.
MPEG-1	The first MPEG standard, geared for CD-ROM and T1 bit-rate transmission. At 1.5 Mbits per second, the algorithm uses both interframe and intraframe coding to achieve quality video at a lower bandwidth.
Pulse code modulation	Also known as PCM. See G.711.

Materials Abstract

Collateral	Description	Purpose	Distribution	Token # or COMAC Order #
Powerpack				
– *SunVideo Plus™ Customer Presentation*	Presentation and Speaker's Notes on SunVideo Plus	Sales Tool	SunWIN, Reseller Web	74744, 74745
– *SunVideo Plus Just the Facts*	This Document	Training Sales Tool	SunWIN, Reseller Web	75247
– *SunVideo Plus/PCI Multimedia Kit*	Sun Intro	Sales Tool	SunWIN, Reseller Web, E-mail	75505
Product Literature				
– *SunVideo™ Data Sheet*	Product Information	Sales Tool	SunWIN	74415, DE796-0
White Papers				
– *SunVideo Plus White Paper*	Technical Brief	Training	SunWIN	74743
Web Sites				
– *Product Information*	`http://sun.com/desktop/products/Graphics/sunvideoplus.html`			
– *SunVideo Plus Software Download*	`http://www.sun.com/desktop/products/Graphics/SunVideoPlus_Download.html`			