

# AccessVideo™ Telemedicine Video / IP Remote Diagnostic System

The AccessVideo™ system is a complete mobile turnkey telemedicine Video/IP remote diagnostic system. It employs state-of-the-art MPEG-4 and Windows Media 9 video compression alongside BF Technologies' proprietary ClearAccessQoS™ advanced Quality of Service (QoS) technology to facilitate remote medical diagnoses by capturing and delivering live, high-quality video and audio signals across Internet connections.

The AccessVideo system implements HIPAA compliance through the use of industry standards for strong conditional access and encryption to maintain the privacy and security and integrity of the video connection. It incorporates a powerful remote Pan/Tilt/Zoom interface to give a remote user full control over the transmitted image. A client-side recording capability precisely captures and archives audio and video streams for future reference and study. ClearAccessQoS™ helps insure jitter-free, clear video even through network congestion.

The AccessVideo system is built around a flexible yet compact platform, enabling it to capture, transport, and render a wide variety of telemedical real-time images and sensory data in addition to its audio and video capabilities. Its design allows operation over a wide variety of standard Internet connections, including wireless links as low as 96

Kbps, to provide the best quality video that current video compression technologies allow.

The AccessVideo encoder is built around the modular Microsoft DirectX™ system, allowing future software upgrades as new compression technologies become available. Aiding security and network protection, the AccessVideo system works in conjunction with current firewall systems with minimal server-side configuration and no special client-side setup.

The AccessVideo system provides asymmetric bi-directional video and audio transmission and can be configured for a wide variety of compression rates and technologies independently for each data direction.

The AccessVideo system has been field tested and proven in live emergency room deployments that include including IRB (institutional review board) certifications. The AccessVideo system has been developed to comply with NIH protocols for remote telemedical stroke diagnosis.

The AccessVideo client-side software will run on most standard PCs with an Intel Celeron® or Pentium® 4 CPU operating at 700 MHz with 256 Mbytes of RAM, and running Microsoft Windows 2000 or Windows XP operating systems. It comes complete with remote configuration, reporting, and user management capabilities.

## Summary of features:

- **Independently configurable asymmetric bi-directional audio and video capture, compression, encryption, and IP encapsulation over standard IP networks.**
- **State-of-the-art, selectable MPEG-4 and Windows Media™ 9 Video compression and selectable MP3 56 Kbps, 44Kbps ADPCM, and TrueSpeech™ 8Kbps audio compression for operation over network links with throughputs as low as 96 Kbps. (Options for other compression algorithms.)**
- **ClearAccessQoS™ technology, the industry's most robust QoS technology for jitter-free, error-free, high-quality video over Wide-Area Networks and the Internet. Automatically configurable to a wide range of network characteristics and impairments.**
- **HIPAA compliance including SSL conditional access, RSA RC4 encryption, intruder alerts, and access logging and reporting.**
- **Resource authorization. Limit access to camera control and audio.**
- **Automatic negotiation of video and audio settings based on network bandwidth.**
- **Remote Pan/Tilt/Zoom with point and click user interface.**
- **Full audio/video session recording.**
- **Supports IETF standard DiffServ and IP streaming protocols, and Microsoft QoS protocols.**
- **Works with firewalls and VPNs**
- **Remote system and user access management.**
- **Includes AlwaysReady™, automated 24/7 system monitoring with e-mail & pager\* alerts**
- **Uninterruptible Power Supply (UPS) protection.**
- **Advanced DSP-based audio echo cancellation. (optional)**
- **DICOM PACS server for direct access to MRI & CT images. (optional)**

**External interfaces**

**Network interface:** 100 Base-TX FastEthernet interface (RJ-45)  
**Video resolution:** from 160x120 (square pixels) to 720x480 (rectangular pixels)  
**Video interfaces:** S-video, Composite (RCA), DV (SerialBus IEEE1394), USB  
**Video formats:** NTSC and PAL  
**Audio interfaces:** Stereo speaker, Stereo line-in, and microphone micro-phono jacks  
**Camera control interface:** RS-232 (male DB-9) serial VISCA interface

**Examples of Video and Audio compression stream rates and configurations**

**96 Kbps network stream:** 160 x 120 resolution 68 Kbps video, TrueSpeech 8 Kbps mono audio  
**192 Kbps network stream:** 240 x 180 resolution 152 Kbps video, TrueSpeech 8 Kbps mono audio  
**350 Kbps network stream:** 320 x 240 resolution 268 Kbps video, MP3 56 Kbps stereo audio  
**664 Kbps network stream:** 480 x 360 resolution 600 Kbps video, ADPCM 44 Kbps mono audio  
**920 Kbps network stream:** 640 x 480 resolution 750 Kbps video, MP3 56 Kbps stereo audio

**MP3 audio encoding:** 2 channel (stereo), 22 KHz sample rate  
**ADPCM audio encoding:** 1 channel (mono), 11 KHz sample rate.  
**TrueSpeech™ audio encoding:** 1 channel (mono), 8 KHz sample rate.

Options for other audio and video compression interfaces & resolutions (contact factory)

**ClearAccessQoS™ Wide-area network adaptive real-time IP stream conditioning:**

**Optimized for 30 fps, full CIF and higher resolution video over Internet connections**  
**Jitter compensation with precision synchronization**  
**Robust, automatically configurable adaptive error correction & packet recovery**  
**Full IETF DiffServ and IEEE TOS compliance**

**Supported video streaming protocols – RTP/UDP/IP**

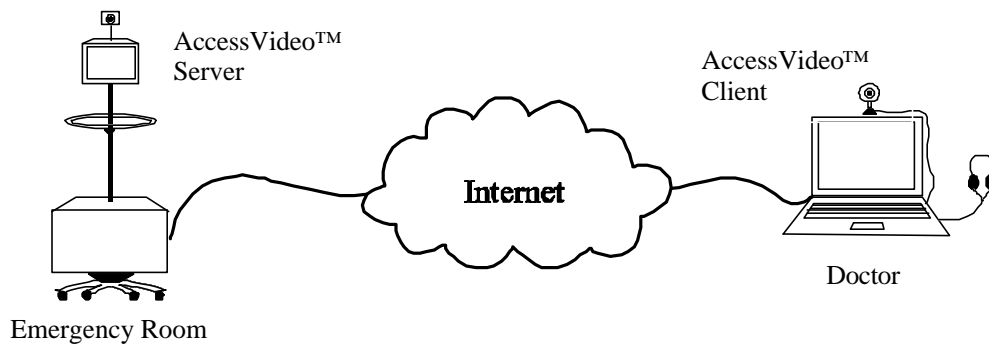
**Supported client-side links –** Ethernet wireline, WiFi 802.11a/b/g wireless, 1xEV-DO wireless (eg., Verizon), DSL, Cable modem

**Conditional access and encryption –** SSL & RSA RC4 (contact factory for other standards)

**Electrical (Server) -** Input voltage: 120 VAC / 1.0 Amps

**Mechanical (Server) –** Height: 60 in., Width: 20 in., Depth: 20 in., Weight: 50 lbs (alternate configurations available)

**AccessVideo™ System Deployment Example:**



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\* AlwaysReady™ pager alerts only on supported cellular carriers.