

The XVD Technology

We are now introducing for the first time in Nepal the latest products of the cutting-edge XVD technology - a super-fast, DVD-quality A/V encoding and transmission technology.

XVD is the latest video encoding format beyond the performance level of any conventional MPEG formats available. Its algorithm was developed by a global R&D team comprising researchers from the USA, Japan over a period of 10 years.

XVD is the most advanced real-time DVD-quality encoding/decoding format and supports from SD to HDTV motion video contents. High quality video source can be streamed at low bit-rate, without any freezing and traffic-error-like block noise. It has the following features:

- SD VidXeo and Audio signals can be transmitted at a lower bit rate than conventional MPEG formats.

Video: 32 Kbps to 2.2 Mbps

Audio: 16 Kbps to 64 Kbps

Note: For a conventional MPEG 1 to 4 formats the bit rate is as high as 2.5 Mbps to 5 Mbps. The video quality drops sharply if the bit rate is decreased to near 1000 Kbps (1 Mbps). This doesn't happen with XVD.

- Wide scalability of resolution:
Step selection for HxV resolution on menu control from 720x576 (D1) to 192x144 (1/4D1) in PAL, and from 720x480 (D1) to 192x128 (1/4D1) in NTSC.
- Faster encoding:
Ability to encode A/V content at 30 frames per second in NTSC and 25 frames per second in PAL.
- No delay between video and audio signals after transmission with decoding.

THE XVD CODEC

Over 10 years of development and field testing (by a multinational team of American, Japanese and Russian researchers) supports XVD codec design of the SD-TX100 and SD-RX100, providing much higher performance and efficiency than other block-based real-time video compression systems.

XVD's patented video codec is optimized for the human visual system and adds several unique features such as: Automatic Scene Change Detection, Object Motion Detection/Estimation; plus CBR/VBR bit-rate control with a configurable window size to improve perceived video quality at a dramatically lower data rates.

The XVD audio codec also provides high performance at significantly lower data rates, allowing many more data channels to be carried in any chosen bandwidth.

SPECIAL FEATURES OF XVD

The XVD technology has some special features that makes it very useful for real-time, super-fast, DVD-quality A/V encoding and transmission.

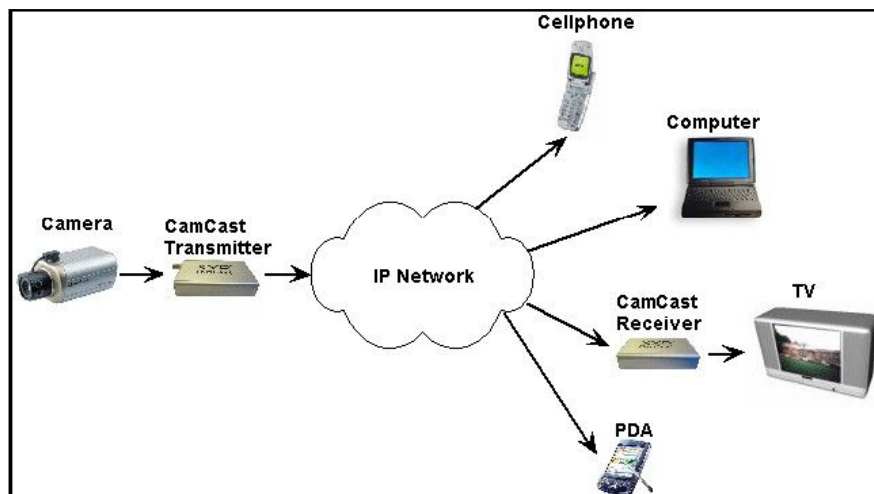
- Real-time SD encoding
- Analog (NTSC and PAL) input
- TCP/IP and RTF/FEC
- Compact Mini-server (*the device itself*)
- Ultra-small size
- Light weight (less than 1 lbs)
- Low power consumption

HOW DOES THE XVD TECHNOLOGY WORK?

An XVD encoder may be employed either as a standalone “Mini-Server” or as part of an Enterprise configuration.

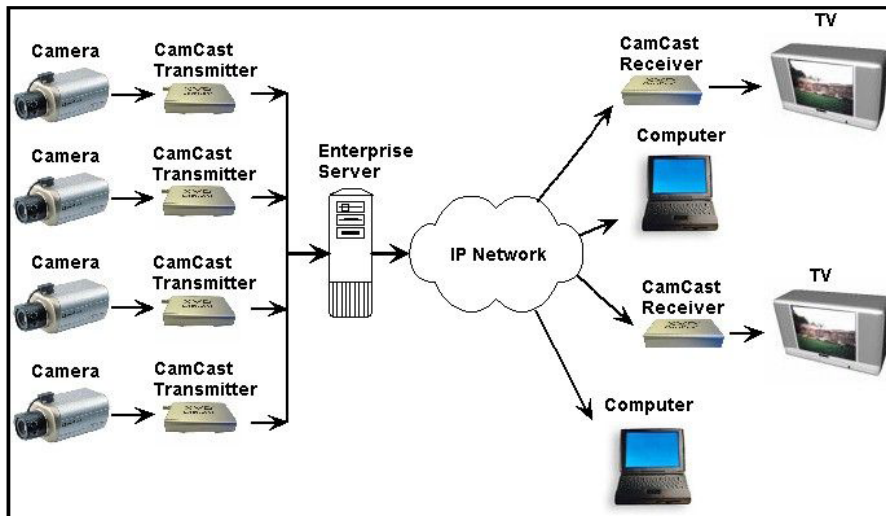
Stream-Server Operation

When operating as a Stream-Server (*the device itself*), the encoder can transmit an XVD-encoded A/V stream *via an IP network* to up to four suitable receivers simultaneously. Each receiver acquires the A/V stream from the Stream-Server as shown below.



Enterprise Operation

When operating as part of an Enterprise Solution, one or more Enterprise encoders sends XVD-encoded A/V streams to an Enterprise Server, which re-broadcasts the streams to suitable receivers.



Note: In both Stream-Server and Enterprise operation modes, the SD-RX100 receiver/decoder is not required except for television.

XVD ENCODERS AND DECODERS

The XVD technology makes use of a patented *XVD encoder/transmitter* at one end and a receiver/decoder at another end for delivering high-resolution (DVD quality), full-speed video across IP networks.

These compact devices are powered by the patented XVD video compression technology and provide the highest quality (full-D1) resolution video possible at any given bandwidth. Because of the compression efficiency of the video codec, they can send and receive lifelike video at a full 30 frames per second (fps) over an IP-based connection, whereas a comparable M-JPEG system can send only 2 to 5 fps.

The XVD encoder/transmitter can use a number of devices for its A/V content source. Suitable sources include:

1. Cameras
2. Set-top boxes (cable, satellite, personal video recorder)
3. VCRs
4. DVD Players

The encoder software includes an embedded Web server, which allows it to send up to 4 embedded streams *simultaneously*. Instead of 4 separate A/V streams, the encoder can transmit a single A/V stream to a CamCast Enterprise Server for re-broadcast to multiple receivers.

The XVD receiver/decoder can use a number of devices for its A/V content destination. Suitable receivers of A/V content include:

1. CamCast Enterprise Receivers

2. CamCast Streaming Server
3. CamCast Enterprise PC-based player applications
4. CamCast Internet Explorer ActiveX Plug-in Player
5. CamCast MultiView Player
6. PDA with CamCast Player Software
7. Cell phone with CamCast Player Software

PRODUCT DESCRIPTIONS – ENCODER AND DECODER

XVD™ CamCast SD-TX100 – The Encoder/Transmitter

The XVD™ CamCast SD-TX100 captures and compresses analog video data (NTSC & PAL) from a camera to a high-resolution XVD data stream (at 32 Kbps to 2.2 Mbps) in real time. At the heart of this solution is the powerful SD-TX100 transmitter, a compact DSP-powered mini-server that connects directly to any video camera and IP-based network.

An XVD™ CamCast SD-TX100's mini-server mode allows the encoder to transmit the compressed A/V stream to multiple destination receivers using a variety of transmission options. Using TCP/IP the stream can be directly transmitted to an SD-RX100 Receiver, and/or to an SD-SS1000 streaming server for transmission in an Enterprise environment.

XVD™ CamCast SD-RX100 – The Receiver/Decoder

XVD™ CamCast SD-RX100 receives XVD-SD data packets that are retransmitted from a centrally located XVD SD-SS1000 Streaming Server, or directly transmitted from an SD-TX100 that is operating in mini-server mode through the Ethernet port at the back end of the unit.

APPLICATIONS OF THE XVD TECHNOLOGY

The areas of applications of XVD technology are manifold. Some of their uses are:

- Wireless transmission (for television stations and others)
- Live broadcast (for television stations)
- Live talk (between Head and Branch stations)
- Interactive conference (by businesses, universities, etc.)
- Military action
- Surveillance for police, detective and espionage work
- Security and monitoring (by the police, army, security agencies, etc.)
- Medical network solution

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